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Event Safety Guide

Adapted for screen reader.

Event Safety Guide

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Section: Protection of Public Spaces and Preparedness Section

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Preface

The *Event Safety Guide* offers the reader guidance on how to proceed when organising safe and secure events. The guide is intended for organisers, authorities, and other stakeholders within the event field. Its aim is to create a common understanding of safety concepts, and to increase the capacity for clear communication and constructive cooperation among the stakeholders involved.

The *Event Safety Guide* addresses different aspects of event safety, and this third edition includes sections on crime prevention and protection against antagonistic threats. It also contains segments on various aspects regarding sports events and arenas. The guide was originally published in 2008 following a government commission to the former Swedish Rescue Services Agency and the Swedish National Police Board. It has been prepared in close collaboration with experts from public authorities as well as the event industry.

It is our hope that this guide will provide valuable support for organisers as well as public authorities to plan and implement events that can offer both visitors and staff a safe and enjoyable experience.

April 2021

Morgan Olofsson
Director of Communications
Swedish Civil Contingencies Agency

Reading guide

The aim of the *Event Safety Guide* is to increase understanding, competence, and capacity for providing safety at events. The guide does not introduce any new regulations, but it does collect and explain the existing regulations and laws. It also offers advice and tips regarding how good safety can be achieved at an event. The guide covers many aspects and types of events, and you can use it as a tool, a reference work, a basis for discussion, or as training material.

Not everything stated in the guide is applicable to all events. Models, examples, and tips are intended to act as a point of departure and an inspiration. Naturally, local adaptations must then be made on the basis of the specific prerequisites and needs of the event in question.

One of the stated goals of the guide is to function as a basis for discussion in the dialogue between organisers and public authorities – to promote and enhance communication between stakeholders.

Good event safety involves ensuring not only a high level of safety, but also proportionality in the measures taken. Other important values must also be safeguarded, such as accessibility, efficiency, and the experience of the event.

The guide is divided into twenty chapters:

- Chapters 1–6 are portal chapters containing useful information for anyone working with safety at an event.
- Chapters 7–18 are reference chapters, which are in-depth studies of specific areas.
- Chapters 19–20 address practical aspects of safety at an event.

At the end of the guide there are a number of appendices, and a list with suggestions for further reading.

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Content

1. Planning 14

1.1. Undesirable occurrences at events. 14
1.1.1. Accidents at events ... 14
1.1.2. Crime at events ... 17
1.1.3. Terrorism and other antagonistic threats at events ... 18

1.2. The aim of safety planning ... 19
1.2.1. Anticipation ... 19
1.2.2. Preparedness to act ... 20
1.2.3. Fail-safe mechanisms ... 20
1.2.4. The precautionary principle ... 21

1.3. The phases of an event ... 22
1.3.1. Vision ... 22
1.3.2. Pre-planning ... 23
1.3.3. Planning ... 23
1.3.4. Implementation ... 25
1.3.5. Post-event activities ... 28

1.4. The contingency process ... 29

1.5. Safety plan ... 29
1.5.1. Event description ... 30
1.5.2. Safety policy ... 31
1.5.3. Rules and general guidelines ... 31
1.5.4. Organisational outline ... 31
1.5.5. Risk register ... 32
1.5.6. Site plan or map ... 32
1.5.7. Specific plans ... 32
1.5.8. Operational plans and procedures ... 35

2. Safety and security strategy 40

2.1. Ten central strategies ... 41
2.1.1. Defence in depth ... 42

2.2. Prevention of crime at events ... 42
2.2.1. Perpetrators ... 43
2.2.2. Victims of crimes ... 43
2.2.3. Preventative work against crime at events ... 43
2.2.4. The routine activity theory ... 44
2.2.5. Social crime prevention ... 44
2.2.6. Situational crime prevention ... 44

2.3. Working to combat terrorism and antagonistic threats ... 48
2.3.1. Criteria that influence the choice of targets of attacks ... 49
2.3.2. The phases of an attack ... 49
2.3.3. Opportunities for risk minimisation prior to and during attacks ... 50
2.3.4. Preparedness for antagonistic threats ... 50
2.3.5. Basic principles for security measures against terrorism and antagonistic threats ... 51
2.3.6. Practical measures against terrorism and antagonistic threats ... 53

3. Risk management 60

3.1. Preparations ... 60
3.1.1. Defining goals ... 60
3.1.2. Analysis group ... 61
3.1.3. A foundation for risk assessment ... 61

3.2. Risk assessment ... 62
3.2.1. Risk identification ... 62
3.2.2. Risk analysis ... 63
3.2.3. Risk evaluation ... 64
3.2.4. Risk treatment ... 65

3.3. Risk assessment of antagonistic threats ... 66
3.3.1. Vulnerability and reduction of vulnerability ... 66
3.3.2. Scenario-based risk analysis ... 66

4. Legal liability, permits, and public authorities 73

4.1. Legal liability ... 73
4.1.1. Responsibility for public order ... 73
4.1.2. Responsibility for fire safety ... 77
4.1.3. Responsibility for health and safety in the workplace ... 78
4.1.4. Insurance ... 79

4.2. Permits ... 79
4.2.1. Permit procedure ... 80
4.2.2. The planning and permit process prior to a match ... 81
4.2.3. The contents of an application for a permit ... 84

4.2.4. Other permits ... 86
4.2.5. Collaboration during the permit procedure ... 87

4.3. Authorities and public services ... 87
4.3.1. The Swedish Police Authority ... 88
4.3.2. Health and medical care ... 89
4.3.3. The fire and rescue services ... 91
4.3.4. Other municipal activities ... 92

5. Organisation and staff 96

5.1. Requirements for an organisation ... 96
5.1.1. Specialisation and delegation in an organisation ... 96
5.1.2. Chain of command ... 96
5.1.3. Organisation according to task ... 97
5.1.4. Transparency, stability, and adequacy ... 97

5.2. Collaboration ... 98
5.2.1. Cooperation within the organisation ... 100
5.2.2. Command and control centre ... 101

5.3. Organisational levels at an event ... 101
5.3.1. The macro-organisation ... 102
5.3.2. The event organisation ... 103
5.3.3. The safety organisation ... 103
5.3.4. The arena organisation ... 104

5.4. Roles in the safety organisation ... 105
5.4.1. The safety coordinator – strategic planning and management ... 107
5.4.2. The head of safety – tactical planning and management ... 107
5.4.3. Team leaders – operative planning and management ... 109

5.5. Safety staff ... 110
5.5.1. Competence to carry out the work ... 110
5.5.2. Knowledge about how things work ... 110
5.5.3. Information about the event ... 111
5.5.4. Clothes of a uniform and appropriate design ... 111
5.5.5. Recruitment of safety staff ... 112

5.6. Public security guards ... 112
5.6.1. Requirements for public security guards ... 113

5.7. Medical care services ... 114
5.7.1. Planning and dimensioning of medical care preparedness ... 115
5.7.2. Ambulances ... 117

5.8. Non-safety-related staff ... 117

5.9. Good safety culture ... 118
5.9.1. Insider threats ... 118

5.10. Internal communication ... 119
5.10.1. Basic rules for communication ... 120
5.10.2. Communication systems for internal communication ... 121

5.11. Voluntary agencies ... 122

5.12. Organisation for crises and special incidents ... 122

6. Choosing and designing a venue 125

6.1. Define the requirements for the venue ... 125
6.1.1. Criteria for assessment ... 125
6.1.2. Terrain and load properties ... 126
6.1.3. Strength ... 127
6.1.4. Risks in the surroundings ... 128

6.2. Inspecting and evaluating a venue ... 128

6.3. Calculating crowd capacity ... 129
6.3.1. Terminology ... 129
6.3.2. Calculating crowd capacity ... 130

6.4. Designing a venue ... 136
6.4.1. Siting focal points ... 137
6.4.2. Dimensioning ... 139
6.4.3. Managing conceivable risks ... 142
6.4.4. Crime Prevention through Environmental Design – CPTED ... 143

6.5. Zones ... 145
6.5.1. Zone 1 (internal zone) ... 146
6.5.2. Zone 2 (spectator zone) ... 146
6.5.3. Zone 3 (inner circulation zone) ... 147
6.5.4. Zone 4 (outer circulation zone) ... 147
6.5.5. Zone 5 (buffer zone) ... 147
6.5.6. Zone ex (external zone) ... 148
6.5.7. Hotspots ... 148

6.6. Perimeter protection and interactive protective measures 149
6.6.1. Shell protection 150
6.6.2. Interacting and reinforcing measures. 153

6.7. Sections of an arena 154
6.7.1. Conditions in the buffer zone (Zone 5) 155
6.7.2. Conditions in the outer circulation zone (Zone 4) 155
6.7.3. Conditions in the inner circulation zone (Zone 3) 158
6.7.4. Conditions in the spectator zone (Zone 2) 159
6.7.5. Conditions in the inner zone (Zone 1) .. 161
6.7.6. Side events 162

7. Infrastructure 164

7.1. Radio communication 164
7.1.1. Channel systems for two-way radios .. 165
7.1.2. Radio discipline 165
7.1.3. Communications centre 166

7.2. Signs 167
7.2.1. Designing signs 167
7.2.2. Siting of signs 168
7.2.3. Safety signs 168

7.3. Traffic and transport management .. 169
7.3.1. Road safety 169
7.3.2. Vehicle barriers 171
7.3.3. Pedestrian and cycle paths 173
7.3.4. Public transport 174
7.3.5. Car parks 175
7.3.6. An event's transport and emergency access roads 175
7.3.7. Snow clearance 177

7.4. Drones 178

7.5. Electrical installations 180
7.5.1. Temporary electrical installations 180
7.5.2. The total need for electricity for an event 183
7.5.3. Electricity for stages 184

7.6. General and emergency lighting .. 184
7.6.1. General lighting 185
7.6.2. Emergency lighting 185
7.6.3. A walk through the site after dark 186

7.7. Water 186
7.7.1. Drinking water 187
7.7.2. Water for hygiene 188

7.8. Technical aids 188
7.8.1. Camera surveillance (CCTV) 189
7.8.2. Detectors 192
7.8.3. Fire alarms 193
7.8.4. Fences and other barriers 196
7.8.5. LED screens 197

8. The stage 200

8.1. The stage and the stage area 200
8.1.1. Stage pit 201
8.1.2. Backstage 202
8.1.3. Photo pit 202
8.1.4. Front of house mix position 202
8.1.5. First-aid area adjacent to the stage .. 203
8.1.6. LED screens 204
8.1.7. Grandstand for guests 204
8.1.8. Platforms for people with disabilities .. 204

8.2. The siting of the stage 204
8.2.1. The capacity of the audience area .. 205
8.2.2. The nature of the surfaces of the audience area 205
8.2.3. Geographical factors 205
8.2.4. Audience routes to and from the stage area 205
8.2.5. Transport roads and emergency access roads at stages 206
8.2.6. Sightlines 206

8.3. Stage barriers 207
8.3.1. The construction of a stage barrier ... 208
8.3.2. The surface of a stage barrier 208
8.3.3. Erecting a stage barrier 209

9. Entrances and exits 214

9.1. Placement of entrances and exits .. 214
9.1.1. Safety distances and buffer zones 215
9.1.2. Surface conditions at entrances and exits 215
9.1.3. Siting of entrances and exits versus crowd flow 216

9.2. Dimensioning of entrances and exits 217
9.2.1. Dimensioning of the entrance 217
9.2.2. Dimensioning of an exit 218

9.2.3. Queueing system 219

9.3. Information at entrances 221

9.4. Signage and lighting 222

9.5. Evacuation routes 222

9.5.1. Evacuation routes at indoor events ..222

9.5.2. Evacuation routes at outdoor events ..223

10. Camping sites 226

10.1. Location of a camping site 226

10.2. The surface area of the camping site 226

10.3. The design of a camping site 227

10.3.1. Crime prevention through environmental design (CPTED) 228

10.3.2. Entrances 228

10.3.3. Emergency rescue roads and transport roads 228

10.3.4. Access to food and drink 228

10.3.5. Sanitation facilities at a camping site 228

10.3.6. Areas for camping site staff and authorities 229

10.4. Safety at a camping site 229

10.4.1. Lighting in a camping site 230

10.4.2. Fire safety 231

11. Peripheral activities 235

11.1. Liability, agreements, and insurance 235

11.2. The staff of the peripheral activity ..236

11.3. The siting of a peripheral activity ..236

11.4. Activity-specific rules 236

11.4.1. Handling of LPG 236

11.4.2. Food sales 239

11.4.3. Alcohol sales 240

11.4.4. Funfair attractions 241

12. Sanitation, hygiene, and waste management 244

12.1. Good order – good housekeeping ..244

12.1.1. Each item in its proper place 245

12.1.2. Free areas and clear procedures 245

12.2. Waste management 246

12.2.1. Staff working with waste management 246

12.2.2. Waste management transport 246

12.2.3. Waste recycling 247

12.2.4. Containers for waste management ..247

12.3. Sanitation or toilet area 248

12.3.1. Siting of sanitation areas 249

12.3.2. Maintenance of sanitation areas 250

12.3.3. Different types of sanitation facilities ..250

12.3.4. Surveillance of sanitation areas 251

12.4. Sustainability 251

12.5. Contagion-resistant events 252

12.5.1. Risk assessment 253

12.5.2. Factors to take into account prior to an event 253

12.5.3. Preventative work 253

12.5.4. Practical aspects of the reduction of infection 254

13. Temporary structures 257

13.1. Planning temporary structures 257

13.1.1. Static and dynamic loads 257

13.2. Agreement with a supplier 258

13.3. Siting of temporary structures 258

13.4. Choice of supplier 259

13.5. Documentation of temporary structures 260

13.5.1. Structural drawings for a structure 260

13.5.2. Assembly instructions for the structure 260

13.5.3. Standards and test results for a structure 260

13.5.4. Inspection certificate for a structure ..260

13.6. Assembly and disassembly of temporary structures 260

13.6.1. Rigging 261

13.6.2. Working at height 262

13.7. Special rules 262

13.7.1. Temporary stands 262

13.7.2. Stages 263

13.7.3. Marquees 263

14. Sound and special effects 266

14.1. Sound ... 266
14.1.1. Ear protectors ... 268
14.1.2. Co-workers' exposure to sound ... 268
14.1.3. Visitors' exposure to sound ... 269

14.2. Special effects ... 269
14.2.1. Pyrotechnics ... 269
14.2.2. Stroboscopic effects ... 271
14.2.3. Smoke effects ... 271
14.2.4. Fire effects using LPG ... 272
14.2.5. Lasers ... 273

15. Accessibility 275

15.1. Good accessibility ... 275

15.2. Information about accessibility ... 276

15.3. Evacuation procedures ... 276

15.4. The venue ... 277

15.5. Parking ... 277

15.6. Entrances and exits ... 278

15.7. Evacuation routes and emergency exits ... 278

15.8. Stands for disabled people ... 278

15.9. Ramps ... 279

15.10. Toilets and showers ... 280

15.11. Serving food ... 280

16. The audience 282

16.1. The individual ... 282
16.1.1. Stress ... 283
16.1.2. Extreme stress ... 283

16.2. Crowds ... 283
16.2.1. Emotional charges in crowds ... 285
16.2.2. The audience at a competition ... 286
16.2.3. The audience as a resource ... 287

16.3. Get to know the audience ... 287
16.3.1. Audience profile ... 287
16.3.2. Supporter culture ... 288
16.3.3. Risk supporters ... 288

16.4. Crowd management ... 289
16.4.1. Crowd management tools ... 289
16.4.2. The event phases linked to crowd behaviour ... 291
16.4.3. The crowd management process ... 292
16.4.4. Communication as a tool for crowd management ... 295

16.5. Crowd management plan ... 296
16.5.1. Overall aims and goals of crowd management ... 297
16.5.2. Description of the characteristics of flows ... 297
16.5.3. Limitations and previously identified risks ... 298
16.5.4. Measures and preparedness ... 299
16.5.5. Methods and tools ... 299
16.5.6. Assessment scales for audiences ... 300

16.6. Crowd management procedures ... 301

16.7. Ticketing strategy ... 303
16.7.1. The ticket as an information carrier ... 304
16.7.2. Children and minors ... 305

17. Performers, athletes, and other focal persons 307

17.1. Security for focal persons ... 307
17.1.1. Transport to and from an event ... 307
17.1.2. A focal person's private area ... 308
17.1.3. The movement of a focal person at a venue ... 308
17.1.4. Staff working around the focal person ... 308

17.2. The performer ... 308
17.2.1. Performer profile ... 308
17.2.2. Performer contracts ... 309
17.2.3. A performer's effect on the audience ... 310
17.2.4. Run-through before the performance ... 310
17.2.5. Guarding equipment on stage ... 311
17.2.6. The performer's safety during a performance ... 311
17.2.7. The actions of a performer in a potential emergency situation ... 311

17.3. Athletes 312
17.3.1. Preparations prior to an event 312
17.3.2. Athletes.....312
17.3.3. An athlete's effect on the audience..312
17.3.4. Run-through prior to an event.....313
17.3.5. The safety of an athlete during an event 313
17.3.6. An athlete's actions in an emergency situation.....313

17.4. Referees, umpires, and other sports officials..... 314

18. Mass media 316

18.1. Media organisation 316
18.1.1. Press officer 316

18.2. Rules and policies 317
18.2.1. Media policy.....317
18.2.2. Obligations and rights of the media ..317

18.3. Accreditation..... 317

18.4. The media's work on site 318
18.4.1. Special access for the media 318
18.4.2. Photography.....318
18.4.3. TV productions 318
18.4.4. Staff competence.....319
18.4.5. Press centre.....319
18.4.6. Photography next to a stage or an arena 319
18.4.7. The work of the media in a crisis situation 321

18.5. Social media..... 321
18.5.1. False rumours (so-called ***fake news***) ..321

19. Safety work during an ongoing event 323

19.1. Safety, security, experience 323
19.1.1. The role of the safety staff..... 323
19.1.2. Preparedness and forward planning 328
19.1.3. Searching..... 329
19.1.4. Working in a command and control centre..... 334

19.2. Safety work at entrances 336
19.2.1. Preparations at the entrance..... 337
19.2.2. Work at the entrance 338

19.3. Safety at an event site 345
19.3.1. Safety roles at the venue 345

19.4. Safety at a camping site 346
19.4.1. Various safety roles at a camping site 347

19.5. Safety by the stage 348
19.5.1. Safety roles at a stage..... 348
19.5.2. Safety prior to a performance 349
19.5.3. Safety during a performance 351
19.5.4. Preparedness during performances...352
19.5.5. The show stop procedure – how to pause a gig..... 356
19.5.6. Safety following a gig..... 358

19.6. Safety during a match.....358
19.6.1. Risk matches 358
19.6.2. Safety work in the standing room sections of the arena..... 361
19.6.3. Organisation and staffing during a match..... 362
19.6.4. Safety in the standing room sections before a match 363
19.6.5. Following a match 368

19.7. Weather factors..... 368

20. Preparedness for special incidents 371

20.1. The preparedness process..... 371

20.2. Planning for a crisis situation 372
20.2.1. Collaboration with the authorities..... 372
20.2.2. Crisis organisation 373

20.3. Contingency plan..... 375
20.3.1. Operative contingency plan 376
20.3.2. Contingency map 379

20.4. Evacuation, sheltering in place, or lockdown 379
20.4.1. Evacuation..... 380
20.4.2. Sheltering in place..... 380
20.4.3. Lockdown..... 381
20.4.4. Planning for evacuation, sheltering in place, and lockdown..... 381

20.5. During a crisis situation 383
20.5.1. Crisis communication..... 383
20.5.2. Handing over to the authorities..... 385

20.6. Following a crisis situation 386
20.6.1. Restore the organisation..... 387
20.6.2. Take care of the staff..... 387
20.6.3. Information to the mass media at a special incident 387

Appendices 388

Appendix A: Analysis for the dimensioning of medical care.....389

Appendix B: Check list for handling LPG ..392

Appendix C: Checklist for temporary structures 393

Appendix D: Audience profile 394

Appendix E: Performer profile 397

Appendix F: Template for the safety plan.. 398

Appendix G: Checklists regarding sexual offences.....402

References and reading tips 403

1. Planning

Photo: Markus Spiske / Unsplash

1. Planning

Events are complex activities. For this reason, careful and meticulous planning is required. The planning for safety, health, and security should begin at the same time as the planning for all other aspects of an event. It is also important to prioritise safety planning to the same extent as, for instance, budget planning.

For larger events, planning should begin nine to twelve months before the event is to take place. For yearly events, the evaluation of the previous year often marks the beginning of the planning for the coming year's event.

When events are held at a permanent arena, the arena owner and the event organiser must have knowledge of each other's safety work. It is vital that they cooperate the whole time – from the planning to the winding down of the event.

1.1. Undesirable occurrences at events

When many people gather in the same location, there is an increased risk for undesirable occurrences. These are either intentional (e.g., crime, terrorism, or other antagonistic threats) or unintentional (e.g., accidents, medical cases, or structural overloads). This guide addresses safety and security at events from a broad perspective, i.e. protection against both intentional and unintentional incidents.

Below, you will find a discussion of three different categories of risk: accidents, crime, and terrorism.

1.1.1. Accidents at events

Unintentional negative occurrences can be subdivided into accidents (i.e., unintentional occurrences that happen suddenly and lead to some form of injury or damage) and near-accidents (i.e., unintentional occurrences that *could have* led to some form of injury or damage).

Accidents are relatively common at events. Usually they are minor, with slight consequences, but sometimes major accidents do occur. Less serious accidents and near-accidents can sometimes serve as indicators of where the risks for major accidents may be found at the event in question. The ambition must be to prevent accidents from occurring to as great an extent as possible, and to reduce the effects of those that nevertheless do occur.

Less serious accidents and near-accidents can sometimes serve as indicators of where the risks for major accidents may be found at the event in question.

1.1.1.1. Why do accidents occur?

Usually the reasons why accidents occur are complex and include many different factors. Often, the effects of the accident also depend on various circumstances. Working to prevent accidents from happening means working both with *accident prevention* (reducing the risks of the accident occurring in the first place), and with *damage limitation* (minimising undesirable effects should the accident nevertheless occur).

The following are some of the underlying causes of accidents:

- **Rushed or careless planning.** If the planning takes place during stressful meetings where no minutes are kept, there will be no documentation of the decisions that have been made. People in the organisation then risk making decisions or acting on their own without sufficient coordination, authorisation, or information. Planning, roles, and responsibilities should be clearly documented and disseminated to the interested parties before the event.
- **Inadequate management.** Common causes of accidents include a lack of guidelines and procedures, weak leadership, insufficient information and training, poor communication, unclear chains of command, misused resources, or unauthorised actions.
- **Economic savings.** Safety measures are expensive. When a budget is to be cut, safety measures are sometimes removed or reduced in scope or quality. Safety may be an abstract concept for people unfamiliar with the field, and thus easier to cut back on. A lack of safety measures is often not apparent until it is too late. Carefully consider the risk of any cost-cutting, and remember that dealing with accidents and their aftermath may involve significant costs.
- **Individual mistakes and unsafe acts.** Implementing an event involves the work of many people. A small mistake in one place may create a large problem somewhere else. The event staff sometimes take on more work than they can manage. The personal characteristics of a co-worker (nervousness, impulsiveness, impatience, arrogance, inattention, fatigue, etc.) may result in an action (playing, discarding or dropping an object, starting a machine without warning, driving a vehicle without paying full attention, etc.), which in its turn may lead to injuries or damage.
- **Unsafe physical conditions.** While the human factor is the cause of many unsafe conditions, physical factors, such as ventilation, crowding, and exposure to dangerous materials or chemicals, may also cause accidents and affect the behaviour of individuals without a particular individual being directly responsible.
- **Out-of-control energy.** Energy that has built up slowly may be released suddenly. A sudden release of energy may have significant effects on people and property. Energy can be built up in many ways, for instance because of water pressure, high speed in traffic, weather, or stress on load-bearing components causing structural collapse. In a crowd, the energy may be physical (e.g. high pressure against a closed entrance or an increase in crowd density in front of a stage) or emotional (e.g. irritation, anger, or rivalry between groups). If these are allowed to build up over a longer period of time, a triggering factor may suddenly release the built-up energy with considerable consequences as a result. Some of these energies are predictable and can be reduced, while others are more difficult to predict and prepare for. Nevertheless, an organiser should be attentive to and prepared for their occurring.
- **Domino effects.** One error may cause a series of new errors. Because temporal aspects are so critical at events, the loss of control over one situation may, relatively easily and quickly, affect many other aspects of the event.

Small measures at an early stage are often better than large measures at a late stage. Strive to keep energy at a controllable level.

- **Poor communication.** Planning and conducting an event means that many people with a number of different priorities, viewpoints, and concerns must work together. Many of these people have probably not worked together before, and do not know each other well. This means that clear communication is very important, especially when an accident has occurred or is occurring.

1.1.1.2. Types of accidents

Negative occurrences at an event may be categorised in different ways – they can either have a common cause (cause of accident) or common consequences (cause of injury). However, this kind of typology is not comprehensive and certain events may sometimes be placed in several different categories. But there is nevertheless a point to using some form of typology, because similar events may have common underlying factors and may be dealt with in similar ways.

The following are examples of types of accidents:

- **Crowds.** High density, crowd surges, and pressure in crowds can injure people. Here crowd density is often the key risk factor.
- **Traffic.** The audience for the event often come into contact with regular road traffic, which may increase the risk for accidents. In addition, traffic tends to increase in connection with events, and more factors than normal will demand the attention of road users.
- **Extreme weather.** Very hot or very cold weather, storms, or thunderstorms may lead to an increased risk of different types of injury or other complications, mainly during outdoor events.
- **Collapsing structures.** Temporary or permanent structures, such as platforms, stands, stages, etc. may be exposed to exceptionally high stress during events, which may contribute to their collapsing and injuring people. The risk increases if there are strong weather impacts or if a crowd moves to the beat of music, as this can generate high dynamic loads.
- **Fire.** There is a greater risk of fire at events held indoors or in marquees, or where pyrotechnics or open fire are used. The risk of fire also increases if substandard, greatly exposed, or temporary electrical devices are used, not least outdoors.
- **Trauma.** Traumatic injuries can occur at events for many different reasons, among others falls and crowd-related occurrences. The most common of these are head injuries, lacerations and abrasions, puncture wounds from foreign objects, eye injuries, and muscular and skeletal injuries.
- **Injuries from falls.** When many people are in circulation in unusual circumstances, sometimes in a temporarily set-up site, the risk of falling or stumbling increases. Risks can also increase at events during the hours of darkness or when alcohol is served.
- **Medical complications.** Medical complications – for example collapse caused by exhaustion, heart problems, dehydration, or allergies – may arise for many different reasons. These risks increase during physically challenging events, and when there is a greater proportion of older people among the visitors.

Read more about:

Crowd management in *Section 16.4.*

Traffic and transport management in *Section 7.3.*

Temporary devices in *Chapter 13.*

Events that minimise the spread of infections in *Section 12.5.*

Strategies for minimising risk in *Section 2.1.*

Risk analyses in *Chapter 3.*

- **Poisoning.** Not only alcohol and drugs, but also bad food may lead to people being poisoned.
- **The spread of infections.** Good hygiene and good water quality are key in order to prevent the spread of infections in crowds. It is vital to control the level of hygiene in temporary facilities. During epidemics, the Public Health Agency of Sweden may issue special recommendations.

A risk analysis reduces the risk of undesirable occurrences. In the risk analysis the risks of the event or the arena are identified and assessed, so that the most serious risks can be prioritised. The ultimate aim of the risk analysis is to reduce the likelihood of a risk occurring, and reduce the resulting consequences should it nevertheless occur.

Read more about:

Permits and authorities in *Chapter 4.*

The audience in *Chapter 16.*

Working to prevent and deal with sexual crimes in *Annex G.*

Crime prevention at the event in *Section 2.2.*

1.1.2. Crime at events

1.1.2.1. Society and the organiser

It is not uncommon for crimes to be committed in connection with events, since a large number of people congregate in a small space. Depending on the type of event, visitors may also become intoxicated, which has an effect on both their propensity to commit crimes and the risk of their becoming victims of crime.

In the anonymity of a crowd, it is easy for people to be drawn into negative behaviour, if the mood at the event encourages it. It is therefore in an organiser's interest to prevent crime and other disturbances of public order by taking crime prevention into account in the planning. In this way, the organiser can create an event where visitors feel safe and are provided with positive experiences.

According to the Swedish Public Order Act, a permit from, or proof of notification to, the Police Authority is usually required for arranging public events and gatherings. In addition, the permit or proof is often conditional on the organiser maintaining good order. In Section 16 in the Public Order Act, it is made clear that a person who organises a public gathering or public event shall be responsible for maintaining good order at the gathering or the event.

The number of police officers present around and inside the event site may vary. However, it is mainly the organiser's responsibility to make an inventory of the risks, and take the measures required for maintaining good order and safety at the event.

1.1.2.2. Commonly occurring crimes

It is a good deal easier at recurring events than at first-time events to form an idea of the problems that can be expected to occur. However, by studying the performer's profile or the audience profile, it is nevertheless possible to obtain a reasonably good idea of the kind of visitors that may be expected and any problems that this may involve. Certain performers and sports teams attract supporters who have shown a greater tendency to engage in negative behaviour.

In certain sports, members of the audience, who are normally well-behaved, may suddenly act in a violent and uninhibited manner. The reasons for this may be a combination of someone being carried away by the mood, their seeing an opportunity to conceal themselves in a group, or antagonism flaring up between different groups or individuals.

In later years, increasing attention has also been given to sexual crimes committed during festivals. Sexual crimes have always been a category of crimes where the propensity for reporting has been low, and the number of unreported occurrences of sexual harassment is probably large.

In a crowd there will also be people who take the opportunity to steal. The risk of becoming a victim of pickpockets increases in crowded locations because the crowd makes it easier for a pickpocket to escape.

Nor are different forms of public order offences uncommon, such as visitors who are so intoxicated that they must be taken into custody. These people may pose a security risk, because they are far more likely to be the victims of crimes as well as the perpetrators of them. Many fights that break out among intoxicated people would never have taken place had they been sober.

The risk of violence is always present when intoxicated people socialise. Research shows that the offender is intoxicated in roughly fifty per cent of the cases of threat, robbery, and sexual crimes, and in roughly sixty per cent of the cases of assault and battery. The victims of these crimes are not equally often intoxicated, especially not when it comes to threats, but intoxication is a significant factor also with respect to the victims.

Other crimes that may occur that depend on the character of the activity in question are drug-related crimes and gatecrashing.

Read more about:
How to work to prevent antagonistic threats and terrorism in *Section 2.3.*

1.1.3. Terrorism and other antagonistic threats at events

1.1.3.1. Antagonistic threats

Antagonistic threats refers to intentionally malicious and illegal threats. Antagonistic threats are actor-driven, i.e. they are dependent on someone actively trying to avoid security measures in order to achieve their objectives. This distinguishes these threats from the risks of accidents, which are unintentional.

Both terrorist acts and other criminal acts committed by, for instance, criminal networks or similar groups are included in the concept of antagonistic threats. Antagonistic threats thus include not only terrorism but also sabotage and theft.

1.1.3.2. Terrorism

Terrorism refers to what is classified as terrorist crimes according to the Act (2003:148) on Criminal Responsibility for Terrorist Offences, i.e. acts committed with the intention of

- striking fear into a population or a group within a population;
- forcing public authorities to take or avoid taking previously decided measures;
- destabilising or destroying basic political, constitutional, economic, or social structures in a state or between states.

What defines a terrorist crime is not the act itself. The determining factor is the intention of the person who commits or intends to commit an act: If the act is committed with the above-mentioned intentions, the crime is classified as a terrorist crime.

In recent years terrorist attacks have, to an increasing degree, been directed towards so-called soft targets, i.e. crowded places without any particular defence against attacks. At an event many people gather in the same place at a predetermined time, which makes them potential targets for terrorist attacks.

Every major gathering of people that is known in advance may be a possible target for a terrorist attack. However, a potential perpetrator usually needs some form of knowledge about, or relationship to, the chosen target in order to assess the likelihood of success. For this reason, threat actors collect information in various ways, for instance by being on site beforehand, by eliciting the aid of a person within the organisation (a so-called *insider*), or by collecting information via the internet or other accessible open media.

An attack is perpetrated quickly and is often over within a few minutes. However, it may be the result of preparations that have been underway for a very long time.

The most common methods of attack are to

- fire handguns in or towards a crowd;
- detonate improvised explosives in, or in the vicinity of, a crowd;
- attack people in a crowd with slashing or piercing weapons;
- use vehicles as weapons by running over people.

The most basic risk management should focus on these methods of attack. However, depending on the character of the activity in question, other types of attacks, for example involving arson, the use of drones, or the use of radiological or nuclear agents (CBRN), may be considered part of the prevailing threat and risk profile.

Read more about:
Anticipation and risk management in *Chapter 3.*

1.2. The aim of safety planning

The aim of safety planning for an event is to create predictability, and thus increase the chances of a safe event. It is important to acquire knowledge about the risks and vulnerabilities that exist, what may happen, and what is required in order to give the audience and the staff a safe and secure experience.

For this reason, it is important for the organiser to identify any possible risks and determine how these should be managed. On the basis of this risk analysis, systems are then created in the form of a safety organisation, rules, policies, plans, and methods of working. Finally, resources are added in the form of staff and equipment.

The following keywords should permeate the safety planning and the safety work:

- anticipation;
- readiness to act;
- fail-safe mechanisms.

The aim of safety planning for an event is to create predictability and thus increase the chances of having a safe event.

1.2.1. Anticipation

The aim of safety planning is to think ahead, i.e. analyse all conceivable developments and occurrences at the event and consider questions such as the following:

- Could this happen?
- What would the consequences be?
- How do we best avoid this?

This is what is meant by anticipation.

Anticipation should permeate the safety plan and safety work as a whole at an event:

- Go through and analyse the event in advance.
- Identify, prevent, and eliminate the risks found.
- Design the area, the organisation, and the plans so that the best possible conditions are provided for a safe event.
- Plan for and prepare potential actions, partly to reduce any remaining risks, partly to deal with any undesirable occurrences.

1.2.2. Preparedness to act

Preparedness to act involves preparing the event safety organisation so that it can deal with any incidents or occurrences that may happen.

Preparedness to act can be created in the following manner:

- Key personnel are informed of and trained in what to do in a given situation. Key personnel are persons who hold key functions in the organisation or in the plan, for example a person who makes important decisions, or a person who is responsible for opening an emergency exit.
- Key personnel have the ability and the capacity to do what is expected of them, such as a sufficient mandate to make decisions, sufficient knowledge, and sufficient resources in the form of time, money, staff, equipment, etc.
- The information gathering is sufficient in order to be able to discover situations that require measures to be taken.
- There are several well-functioning channels of communication for informing key personnel of what is happening.

Key personnel should be informed of, and trained in, what to do in a given situation.

1.2.3. Fail-safe mechanisms

Anything created during safety planning should have fail-safe mechanisms incorporated into it. This means that the organisation, working methods, plans, and structures should be constructed so that they will function even when things do not work out as planned.

The point of fail-safe mechanisms is that important elements must be fault tolerant – i.e. the activity can handle stress, or even the complete failure of some aspect. It may be difficult to discover weak links before they break. This may include stands where the entire construction rests on a single beam, an organisation with an unclear work description, a single generator providing power to the emergency lighting, or a central decision-making role that lacks a deputy.

Beams can be worn down, generators can break down, and people have limitations that on many occasions make them the weakest link in a chain of actions. They can, for instance, become stressed and unpredictable, and then find it difficult to think clearly. All that is necessary for an accident to occur is that the person ultimately responsible for something becomes distracted or in other ways incapable of carrying out his or her task.

Important roles, activities, and tasks need an additional safety net to deal with something going wrong. For this reason, fail-safe mechanisms must

It may be difficult to discover weak links before they break. Important functions should have additional protection against things going wrong.

Fail-safe mechanisms can be created through redundancy, clarity, and simplification.

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be added to everything created during the safety planning, i.e. a safety net for dealing with unforeseen occurrences.

Fail-safe mechanisms can be created through redundancy, clarity, and simplification.

- **Redundancy.** Redundancy means an abundance or a surplus. What is meant in this context is auxiliary capacity, i.e. extra capacity that makes the plan, organisation, or communications grid more robust and capable of better handling disturbances without adding extra functions. An example of redundancy is appointing two (or more) persons with the responsibility for carrying out an important task, or seeing to it that there is always a deputy for a key person who can take over if the key person cannot carry out his or her task. Another example of redundancy is having an auxiliary mast for radio communications which also functions during normal operations. If the main mast fails the auxiliary mast takes over, and radio communications remain uninterrupted.
- **Clarity.** A plan, an organisation, or a method of working must be understood by multiple people in the same way. In order for several people to be able to work together effectively, each of them must know his or her own role and tasks, but they must also know the roles and tasks of the other people involved. Any information material created during the safety planning should be clear and easy to understand for those who are going to use it. Avoid specialist terminology, slang, or unclear formulations. Always endeavour to use simple and clear language. Give all instructions, rules, and other information texts a pedagogic and logical structure.
- **Simplification.** It is not uncommon for plans and organisations to be unnecessarily complicated. However, the more elements that are involved, the more things that can go wrong. When bad comes to worse in a stressful situation, most things that can go wrong tend to go wrong. When drawing up a plan or designing an organisation, it is important to pose the following question: How can we simplify this? This obviously does not mean removing important functions, but endeavouring to remove as many potential sources of error as possible.

1.2.4. The precautionary principle

All safety planning and all safety work should be permeated by the precautionary principle: If it is not clear that an action or occurrence is safe, it should be considered unsafe and should thus

- be further investigated and subsequently
- be made safe, or
- not be carried out at all.

Determining whether something is safe or unsafe is difficult, especially if the person making the decision lacks experience. But for a person who is responsible for the safety of an event, there is no room for taking chances. A lack of knowledge cannot be used as an excuse for implementing a measure for which the risk has not been determined. The person implementing the measure needs to find out enough in order to implement it in a safe manner. A good rule of thumb is the following: The greater the uncertainty, the greater the safety margin.

The precautionary principle: If it is not clear that an action or occurrence is safe, it should be considered unsafe and thus be further investigated and subsequently be made safe, or not be carried out at all.

1.3. The phases of an event

In the same way that the person primarily responsible for an event has a vision of how the event is to be experienced, the safety coordinator should also have a vision of how the safety of the event should be managed. The two organisations, the event organisation and the safety organisation, should work in parallel throughout the planning process – from vision to post-event measures. These organisations are, in addition, interdependent, and must be able to explain their knowledge straightforwardly and clearly to each other, while at the same time being attentive to each other's knowledge, wishes, and demands. This dialogue is vital.

The event organisation plans the experience and the budget, while the safety organisation plans the safety and security. Together they create a successful and safe event.

An event, including its safety work, may be said to go through five phases:

- **Vision:** How do we want the event to be experienced?
- **Pre-planning:** What resources do we need in order to realise the vision?
- **Planning:** How do we use our resources in order to realise the vision?
- **Implementation:** How do we realise the vision throughout the event?
- **Post-event measures:** How do we report, evaluate, and revise in preparation for the coming year?

1.3.1. Vision

Simply put, a vision is the organiser's idea of what he or she wants to do – what the event should look like, how it should be experienced, and how it should be implemented. The aim of this vision is to create a comprehensive picture of what the organiser wants to achieve. The safety work also needs a vision, i.e. a clear picture of what the organisation is striving for, and an overall goal for the safety work.

However, it is important that the vision does not become an idealised fiction – it must not merely contain empty words. Nor should the vision be complicated, but simply express an overall goal for safety at the event.

Example of a vision for safety work:

A high level of safety is a prioritised activity at the event. All the safety equipment and all the safety personnel are the best available. The 'Health and safety' division of the event strives for a safe, secure, and enjoyable event for everyone involved, a satisfied audience, and minimal negative impact on the people living in the local neighbourhood. The event is and will be experienced as a professional event from a safety perspective by everyone involved – the audience, the performers or athletes, the staff, the people in the neighbourhood, the authorities, and the media.

This vision should be written down on paper. It should be clearly supported by the management of the event and enshrined in the documents that regulate the work. The support of the management is key to successful safety work.

Read more about:

Focal points in *Section 6.3.1.3.*

The greater the uncertainty, the greater the safety margin.

1.3.2. Pre-planning

The aim of the pre-planning phase is to plan in broad terms and to identify what must be done in order to realise the vision.

The end result of the pre-planning phase should be a confirmation that the implementation of the event is possible from a safety perspective, as well as a comprehensive list of what is needed in order to do this successfully. A dialogue with public authorities is initiated during the pre-planning phase.

During the pre-planning phase the following should be determined:

- **Choice of venue or arena.** Investigate the suitability of the venue or arena.
- **Layout of the venue or adaptation of the arena.** Draw up a rough plan of the major focal points.
- **Resources (comprehensive).** Calculate what resources (staff, equipment, economic requirements, time, etc.) will be needed in order to realise the vision.
- **Planning.** Work out which type of planning and what plans are needed in order to realise the vision and decide when the different phases should be initiated. Collect and compile the information needed for the work plan, cost estimate, blueprints, and documentation for tenders and purchases.
- **Authorities and cooperation partners.** Identify the organisations, authorities, and other bodies external to the event organisation that must be informed or contacted.

1.3.3. Planning

When the pre-planning phase is over, the planning commences. The aim of this phase is to organise and coordinate resources, activities, and occurrences.

Three important aspects of the planning are resources, time, and results. These aspects are interdependent. If, for instance, cutbacks are made in resources (money, equipment, staff, etc.), this will have an effect on time or results or both. In order to save time it will perhaps be necessary to add more resources or lower initial expectations regarding the results.

During the planning phase it is important to work with the following:

- management, organisation, and staff;
- collaboration;
- permits;
- risk management;
- prerequisites for access;
- rules regarding public order;
- the venue;
- perimeter protection and vulnerability;
- equipment;
- safety plans and safety procedures.

Leadership, organisation, and staff

Review the need for safety staff at the event. Create an organisation with a management structure that meets the requirements of the event. Appoint key people and recruit safety staff.

Read more about:

Organisation and staff in *Chapter 5.*

Cooperation in *Section 5.2.*

Permits and authorities in *Chapter 4.*

Risk management in *Chapter 3.*

Access control in *Section 19.2.2.1.*

Ticketing strategy in *Section 16.7.*

Prohibited items in *Section 4.1.1.1.*

Frisking in *Section 19.2.2.2.*

Access prohibitions and prohibitions concerning masks in *Section 4.1.1.*

Choice and design of the venue in *Chapter 6.*

Three important aspects of the planning are resources, time, and results. These aspects are interdependent.

Collaboration
All events have an impact beyond the event's own organisation. An event may, for instance, affect the organiser's and the arena's organisations, but also public authorities (e.g. the police and the fire and rescue services) or other organisations and activities that have an impact on or will be impacted by the event. Good collaboration among these parties is key to a successful event.

Permits
It is important to initiate a dialogue at an early stage with the licensing authorities and to apply for the necessary permits for the event.

Risk management
During the planning phase, the safety organisation should conduct risk analyses together with the concerned parties. These analyses will then form the basis for large parts of the continued safety work. It is often appropriate to conduct separate risk analyses for intentional and unintentional occurrences, respectively.

Prerequisites for access
How is access to the event controlled? Who is allowed to be where and under what circumstances? What may or may not be brought into the event site? Deciding the prerequisites for access is an important part of controlling crowd flow and what is brought into the venue. In order to provide a framework for access, policy documents should be drawn up, for example in the form of the following:

- **Access model**, i.e. a plan or model for who has clearance to be in the different areas of the event site and how this will be managed in practice.
- **Ticketing strategy**, in which it is made clear what types of tickets exist, how they are designed, and where and when they are to be sold.
- **Entrance policy and frisk searches**, i.e. what items are allowed in the venue and under what circumstances frisk searches are to be carried out.

Public order rules
Public order rules must be laid down for each event. This includes what people are allowed to do during the event, any prohibitions against bringing certain items into the site, access prohibitions, and bans against wearing masks.

The venue
Everything that happens or is placed inside the venue should undergo a safety review. During safety planning, the safety coordinator should participate throughout the entire process – from the choice of venue to the location of focal points, peripheral activities, etc. The safety coordinator should also make sure that the area is suitable for the anticipated crowd capacity.

Perimeter protection and vulnerability
Perimeter protection refers to protection of the perimeter of the event, so that unauthorised persons cannot gain admittance to places where they should not be. Among other things, perimeter protection can protect against theft, vandalism, or other antagonistic threats. Good perimeter protection enables the organiser to control who is where in the event site, and may contribute to well-functioning crowd flow.

Read more about:

Perimeter protection in *Section 6.6.*

Plans and procedures in *Section 1.5.*

Perimeter protection includes physical barriers, such as perimeter fences and vehicle barriers, but also strategies and work methods, such as security and access controls, entrance policy, frisking, and searching the venue.

Equipment

The event safety staff need equipment in order to carry out their tasks. How much equipment and what equipment is needed varies depending on the size and type of event.

During the planning phase, you should determine which equipment is needed for the event, and acquire this equipment, for instance the following:

- construction materials (stage barriers, scaffolding, platforms, lighting);
- tools;
- consumables (ear protectors, gaffer tape, water cups);
- vehicles (cars, minibuses, quad bikes, cycles);
- personal equipment (protective glasses, work gloves, high-visibility vests);
- firefighting equipment (fire extinguishers, fire blankets);
- medical supplies (stretchers, blankets, plasters, bandages);
- communications equipment (two-way radios and accessories);
- information equipment (information and emergency signs, megaphones).

Safety plans and safety procedures

The safety plans of events are developed during the planning phase. These can be both specific plans that deal with large parts of the safety work, as well as operative plans and procedures detailing the actions of the safety organisation in particular situations.

1.3.4. Implementation

During the safety planning, the implementation should be carefully planned:

- What will happen from a safety perspective at the beginning of the event set-up and afterwards?
- What must be built?
- What posts must be manned, by how many staff, and by staff with what competence?
- How should visitors be managed and how should the safety staff work and act in their respective positions?

The implementation concludes when the event is wound down.

1.3.4.1. Set-up

The purpose of the set-up phase is to set up a venue so that it is ready to receive an audience with respect to both visitor experience and safety. In an arena, a review of the site may be sufficient to determine what adaptations need to be made, while an event at a temporary location may require a thorough set-up phase. At events whose event sites cover larger areas, this work usually focuses on the locations that will be under the greatest stress, such as the start and finish areas, and other places where the audience members are known to congregate.

During the set-up phase it is important to work with the following:

- **Siting.** The safety coordinator should participate in siting stands, stages, entrances, and other constructions, so that the actual sitings correspond to those that were planned.
- **Delivery control.** Has the equipment that was ordered been delivered? Check the quantity and quality of key equipment.
- **Inspection.** A detailed inspection of the area should be made once the siting is completed. The whole area should be inspected by the event's safety coordinator, but it is particularly important that this inspection be done on the basis of certain factors:
  - **Crowd flow.** Will constructions, fences, and signs enable a well-functioning crowd flow?
  - **Emergency exits and access routes.** Are emergency exits and access routes free of obstacles and easily accessible?
  - **Underlying surfaces.** Has weather or wear from the construction affected a site's underlying surfaces to such an extent that they must be reinforced?
  - **Temporary infrastructure.** Request delivery documents in which the builder verifies that the construction has been assembled and constructed as specified in the work order and in accordance with the regulations in force.
  - **Perimeter protection and security measures.** Have the perimeter protection and the necessary security measures been implemented in the correct manner, and are they ready to be applied?
- **Corrections.** Often a carefully drawn-up plan turns out to be inadequate when it comes into contact with reality. Correct any planning deficiencies discovered during the inspection. Remember to make corrections and changes in dialogue with the people responsible for other aspects of the event.
- **Dissemination of information.** The staff should be updated and informed about any changes or new occurrences.
- **Drills.** It may be appropriate to rehearse plans and routines once the area has been constructed. This is probably the last opportunity to train or drill the staff before implementation.
- **Authority Inspections.** Authority inspections are excellent opportunities
- **Initial inspections.** Directly after the first members of the audience have been admitted, it is a good idea to do a round of inspections in order to check that the various parts of the event function in practice.

1.3.4.2. Practical implementation

There are three vital cornerstones for all safety work during the implementation of the event – focus, foresight, and a change of pace.

- **Focus.** The main task of the safety staff is to make sure that the audience 1) do not injure themselves, 2) feel safe, and 3) have an enjoyable experience. It is important that the staff know their roles and their tasks, and that they focus on the correct things. Information, service, and a pleasant demeanour is half of the work. The other half is being observant and ready to act.

Read more about:

Siting in *Section 6.4.1.*

Crowd flow in *Section 6.4.1.1.*

Emergency access routes in *Section 7.3.6.3.*

Underlying surfaces in *Section 6.1.2.*

Infrastructure in *Chapter 7.*

Contracts with suppliers in *Section 13.2.*

Perimeter protection and security routines in *Section 6.6.*

Authorities in *Chapter 4.*

Remember to make corrections and changes in dialogue with the people responsible for other aspects of the event.

- **Anticipation.** The safety organisation must always be one step ahead. Anticipation can be achieved through the continuous collection of information, for instance through the use of camera surveillance (CCTV), vantage points, or continuous reports from the safety staff.
- **Changes of pace.** The safety organisation should be prepared to either raise or lower the level of efforts and preparedness depending on what happens. Both planned elements and unexpected occurrences can lead to a higher level of preparedness. Previous knowledge in the form of performer profiles, audience profiles, risk analyses, and information collected about the immediate situation can form the basis of an appropriate level of interventions and preparedness.

Read more about:
Safety work during practical implementation in *Chapter 19.*

1.3.4.3. Incident reporting and the reporting of near-accidents

Keeping a log of incidents and near-accidents is an excellent evaluation tool following an event. Anything from minor occurrences to major incidents may be of interest in the evaluation. One way of evaluating an event is to hand out notepads with pre-printed headings to key personnel and ask them to continuously document all incidents or near-accidents that occur during the event.

What needs to be reported varies, but it may be wise to note the occurrence, the location, the time, any measures taken, the results of the measures, and who was the responsible person on site. On stages it can be a good idea to let the pit managers document all gigs, whether or not an incident has occurred.

When all persons involved in an event report on incidents that have occurred in the same way, the safety coordinator can, following the event, draw up appropriate evaluation material prior to upcoming events.

1.3.4.4. Winding down

The winding down phase is often left out of the planning, but it is important from a safety perspective. For the organiser and the staff the event is not over until everything has been wound down.

Remember that an event requires safety work and safety thinking also during the winding down phase. For instance, equipment may need guarding, and access control may have to be maintained also while the event is being wound up. Heavy vehicles may involve an increased risk for pedestrians. In addition, temporary structures and equipment have to be dismantled in a safe manner.

The following happens during the winding down phase:

- **The winding down itself.** Anything constructed during the set-up should be taken down. Make a checklist; the checklists from the construction phase may function well as a point of departure. Note anything relevant from a safety perspective.
- **Making an inventory.** Equipment will become damaged and be lost. The inventory provides information about what can be used again, what (if anything) the event managers will have to pay compensation for to suppliers, and what must be purchased anew before the next event. Note what has functioned well or badly as part of the preparation for upcoming events.

- **Restoring the event site.** It is likely that an event will cause damage to the event site or premises. The organiser should, unless otherwise stated in the rental contract, strive to restore the site or premises to its original condition.

Read more about:
Contingency in *Chapter 20.*
Risk management in *Chapter 3.*

1.3.5. Post-event activities

The post-event activities consist of three parts:

1. Compiling incident reports produced over the course of the event.
2. Conducting evaluation interviews with internal and external parties, for instance staff, public authorities, and residents of the local neighbourhood. It is a good idea to use an interview form for support, but do not forget to make a note of spontaneous views.
3. Taking measures on the basis of incidents and evaluations, which either have to be done immediately (e.g. corrections) or be completed before upcoming events.

1.3.5.1. Quality assurance through review – audit

A good way to improve the functionality, capacity, and preparedness of the organisation is to regularly review or audit how the safety work is led, managed, and conducted.

If an audit is done internally, it should be done by someone who does not work in the area that is being audited. The result of the audit should be documented clearly, and disseminated to the interested parties for follow-up measures.

The audit can, for instance, include the following points:

1. **Division of responsibilities:** Are the structure, chain of command, and division of responsibilities of the safety organisation clearly defined? Do they function well? Does everyone understand their roles and responsibilities?
2. **Integration:** Do all the staff and officials, including those outside of the safety organisation itself, have an awareness of and knowledge about safety?
3. **Inclusion of staff:** Do the staff have an opportunity to contribute to the planning, and influence the implementation of, the safety efforts?
4. **Risk assessment:** Are the results of all risk analyses and associated measures documented? Are the risk assessments updated regularly?
5. **Communication and documentation:** Has the safety-related information obtained by the organisation been documented? Is it disseminated in an appropriate manner to the proper authorities?
6. **Inspections and tests:** Have all the safety-related inspections and tests been included in the audit?
7. **Competence and rehearsals:** Do the staff have the appropriate competence and have they had suitable training?

It is desirable if both the arena owner and the organiser continuously revise their safety organisations. This is particularly important for events where the organiser and the arena owner often collaborate (e.g. different sports teams and their home arenas). Here it is especially important for both parties to have knowledge of each other's safety work.

1.4. The contingency process

Creating good preparedness is a process that begins long before the event itself and continues through the post-event activities. The diagram below provides an overview of the process.

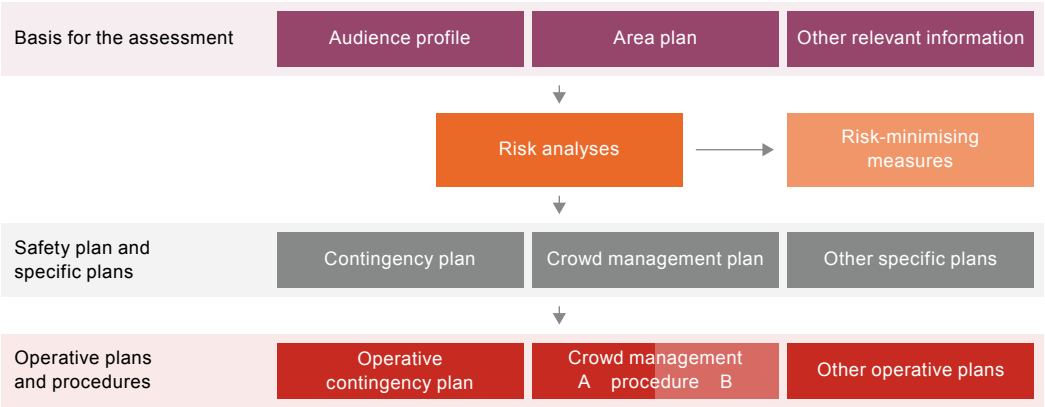
An organisation's risk analyses form the hub of the process. In order for a risk analysis to be relevant, a certain basis for assessment is needed. Based on these risk analyses, action plans are drawn up for risk-minimising measures.

The results of these analyses are also taken into account in the safety plan – in the contingency plan, the crowd management plan, and other specific plans. On the basis of the specific plans, operative plans are drawn up. Their purpose is to prevent, manage, or eliminate undesirable occurrences if and when they do occur.

The contingency process should evolve continuously. When conditions change, the basis for assessment has to change along with them – and thus also the contingency and safety planning of the event.

Read more about:
Operative plans and procedures in *Section 1.5.8.*

Figure 1. The contingency process



1.5. Safety plan

A safety plan is a comprehensive document containing everything that has been drawn up during the safety planning process. The safety plan is a continuously evolving event document that gives an account of the safety work while it is being developed: 'This is how we work with safety'.

At an event, all the safety documentation can be collected and called a safety plan, but in order for it to be useful, the safety plan should be examined and made more pedagogical, well-structured, and complete.

The safety plan will probably be the first document created during safety planning. Initially it is probably not particularly comprehensive, and may contain only the safety policy for the event. However, as time passes, it will become filled with event descriptions, organisational sketches, diagrams, maps, risk analyses, etc.

The safety plan has a number of uses. It can and should have the following functions:

- **Working tool.** The safety plan should be a reference book with facts about priorities, work methods, procedures, etc. It cannot give an answer to everything, but it should be able to provide support in all situations.

The safety plan is a document containing everything that has been drawn up during the safety planning process.

- **Analysis tool.** If it is properly designed, the safety plan will contain all the information the safety organisation needs in order to analyse an event before it takes place.
- **Policy document.** The safety plan is a policy document, and working with it provides the foundation for the safety work. When the event begins, the goal is for the safety work to be carried out according to the established safety plan.
- **Means of communication.** When the safety organisation wishes to communicate with public authorities or collaboration partners during the permit procedure or on other occasions, the safety plan is an excellent means of communication. The organiser can outline the safety plan in a document that is three to four A4 pages in length and that summarises the contents of the plan. Such a summary makes it easier for authorities and collaboration partners to quickly get a clear picture of the safety of the event.
- **Basis for evaluation.** Once the event is over, the safety plan can be used as a basis for the evaluation of the event. The safety plan reflects the vision, i.e. how the safety at the event was intended to work. After the event, with the facts readily available, one can see what went well, what went badly, and what can be improved prior to the next time.

A safety plan may contain the following elements:

- event description
- safety policy
- rules and general guidelines
- organisational outline
- list of risks
- site plan
- specific plans for selected safety aspects
- operative plans and procedures.

1.5.1. Event description

The event description describes the event to those who have not been in contact with it previously. Here one can find information about the following:

- organiser
- location
- event starting time, closing time, and opening hours
- time needed for set-up
- schedule, i.e. description of relevant occurrences with their scheduled times
- any serving permits for alcohol
- crowd size according to the permit
- number of tickets issued, number of people who have applied to participate, and projected number of visitors
- crowd capacity for audience areas (e.g. stands or stages)
- other general information about the event.

1.5.2. Safety policy

The safety policy must not be confused with the safety vision. In the safety policy, the event's or the organiser's overall approach to and priorities regarding safety are expressed.

The safety policy can, for instance, address the following:

- **The overall approach of the event to safety:** Is safety work a prioritised activity? What does it mean that it is a prioritised activity?
- **Goals for the safety work:** What are the aims of the safety work for the event?
- **Priorities in the safety work:** What type of safety work is prioritised – preventing damage or injuries, creating a sense of security, counteracting sexual assault, reducing gatecrashing, reducing the consumption of alcohol by minors, etc.?

Read more about:

Prohibited items in *Section 4.1.1.1.*

Zones in *Section 6.5.*

Organisation and staff in *Chapter 5.*

1.5.3. Rules and general guidelines

Rules and general guidelines refer to the codes of conduct and prohibitions that an organiser has laid down him- or herself or in consultation with the authorities. The organiser is relatively free to decide which rules apply to the intended event. However, there must not be any rules that violate laws or the regulations of public authorities.

Rules and general guidelines can, for instance, describe the following:

- What can and what cannot be brought into the areas of the event site?
- What are the age limits for the event?
- What behaviour is permitted or not permitted in the event site or in the different zones?
- What are the rules for using fire at any camping sites?
- What is the minimum age of the staff working with safety?
- What alcohol policy applies to visitors and staff?

It can also be a good idea to write down what the consequences of breaking the rules will be.

The organiser is relatively free to decide what rules apply to the intended event. However, there must not be any rules that violate laws or the regulations of public authorities.

1.5.4. Organisational outline

The organisational outline describes which professional roles exist at the event (e.g. public security guards, stewards, and medical care staff), how many there are, and how they are managed. The organisational outline should also state exactly how many people work in each role and during what times.

The description should include an organisational diagram showing the event organisation as a managerial hierarchy from which can be determined

- who is responsible for the implementation of safety as a whole;
- areas of responsibility (both with respect to tasks and geography);
- who is responsible for each area of responsibility;
- the number of people in each role working in each area of responsibility.

It is also desirable that the organisational outline describes the level of competence of the event staff, for example whether any of the staff has

special training in some area. At certain high-risk matches of arena sports, the Police Authority may make the permit conditional on the public security guards having arena training. Also special functions, such as a fire-fighting organisation, should be described in detail.

In the organisational outline should be stated the name and contact information for the person responsible for each area of responsibility.

Read more about:

Risk management in *Chapter 3.*

Contingency maps in *Section 20.3.2.*

1.5.5. Risk register

A risk register describes the risks identified by the organiser, as well as any measures for minimising them. The risk register is primarily based on the risk analysis, but it should also contain a summary of the existing risks, the risks the event leadership has chosen to address, and what measures will be taken. The purpose of the summary is to provide an outline of the risk management for the event.

With respect to antagonistic risks one can present the risk profile and the scenarios the risk analysis has been drawn up to address, as well as the measures taken. In this section, it is a good idea to be cautious regarding the information that is included, and carefully consider the risk of the list being passed on to a third party.

1.5.6. Site plan or map

The site plan is a detailed plan or map drawn to scale, including street names, showing all sections of an event and the surrounding areas. If the event has a camping site, this should also be indicated on the map. The map should be provided with measurements where this is necessary. In addition, it may be a good idea to provide the site plan with a grid and coordinates for easy reference.

The site plan should contain the following:

- focal points, e.g. stages, entrances, and exits;
- peripheral activities, e.g. vendors, places for serving alcohol, or funfairs;
- all structures (such as marquees or stands);
- roads, transport roads, and car parks;
- gates, areas, and other parts of the event where access is prohibited;
- emergency access roads (access roads for emergency vehicles);
- evacuation routes and emergency exits;
- rescue equipment, e.g. fire hydrants, defibrillators or kits for controlling bleeding/public access medical equipment;
- areas for the operations of public authorities, e.g. first-aid areas, command and control centres, and assembly points for emergency vehicles;
- locations in need of extra attention for reasons of crime prevention.

The area plan should also be complemented with a contingency map.

It may be a good idea to provide the site plan with a grid and coordinates in order to make it easier to find one's way around.

1.5.7. Specific plans

The safety plan addresses the safety measures initiated by an event with respect to previously identified risks. However, in some cases it may be wise to isolate and focus in greater detail on a particularly important safety aspect, or an issue in the context of an event.

Specific plans address various major functions for the purpose of providing a general overview of a certain situation. At minor events it is rarely necessary to have specific plans in addition to a contingency plan, but at major or complex events it can be appropriate to have

- *a contingency plan* addressing preparedness for major incidents;
- *a crowd management plan* addressing crowd flow;
- *a communication plan* addressing the event's communications;
- *an implementation plan* describing the implementation of the event, including its set-up and winding down.

In addition to these, other specific plans may be needed on the basis of the conditions and risks of an event. For example, an event involving great risk of injury may have a medical plan describing how the event will manage medical care. Similarly, if there is an increased risk of fire, a fire protection plan may be needed which describes in greater detail the prerequisites and measures for fire protection. And in the same way, at an event with an elevated threat of terrorism, a plan for protection from terrorism with information about strategies, vulnerability reduction, and protective measures may be appropriate.

A specific plan should address at least the following:

- purpose, goals, policy, and priorities within the area in question;
- identified risks and threats that specifically concern the area;
- measures taken to prevent the risks;
- preparedness for handling incidents that may take place within the area;
- what is allowed or acceptable, and what is prohibited;
- methods and tools to prevent risks;
- management and governance within the field.

In the risk analysis, or during the development process for a specific plan, an organiser may discover that there are problems relevant to a specific situation that must be solved. It may then be a good idea to draw up an operative plan. Problems that emerged when the crowd management plan was developed can, for instance, lead to the establishment of crowd management procedures.

Read more about:

Contingency plan in *Section 20.3.*

Crowd management plan in *Section 16.5.*

Good communication in *Section 5.10.1.*

1.5.7.1. Contingency plan

A contingency plan is a comprehensive document that describes the preparedness of the event with respect to accidents, special incidents, and crisis situations. The contingency plan describes the safety preparations of the event, for example in the form of medical efforts, personnel resources, and firefighting equipment, In addition, the contingency plan specifies how the event will function if a serious accident should occur, for example with respect to cooperation with public authorities and the plans that have been developed, such as plans for evacuation, sheltering in place, or lockdown.

A contingency plan is a comprehensive document that describes the preparedness of the event with respect to accidents, emergency events, and crisis situations.

1.5.7.2. Crowd management plan

A crowd management plan is a tool intended to ensure that crowd flow during an event does not pose a risk to visitors or staff. It allows an organiser to review the entire event in advance, so that he or she can see what might happen and what can be done about it.

The crowd management plan consists of an analysis part and a management part. In the analysis part, a picture is created of the crowd's movement patterns and what preconditions exist at the venue to ensure that crowd movements will not pose any problems. The areas or situations where the crowd flow is not sufficiently safe are then addressed in the management part – either by adapting the event area to the expected crowd flow, or by taking measures that change the movement patterns of the crowd.

Read more about:
Information to the audience and crisis information in *Section 20.5.1.*

1.5.7.3. Communication plan

A communication plan is a good way to create an overview of 1) what information needs to be disseminated and how it should reach visitors, the media, safety staff, event staff, cooperation partners, and public authorities, and 2) the available means of communication. The communication plan should emphasise the importance of consistency in the information disseminated via different methods. It should also state where signs, billboards, LED screens, etc. should be placed.

From a communication plan it should be possible to learn

- what information should be disseminated to the audience, and through which channels, prior to and following the event;
- what information should be communicated in an emergency situation, who should disseminate it, and through what means of communication;
- what information should be disseminated to the safety staff;
- what information should be disseminated to public authorities;
- how information to the media should be managed;
- whether there is an information centre for visitors and how it is to be set up.

It can be a good idea to prioritise the information that is to be disseminated. One way to prioritise is to answer the following questions:

'What is …

- vital to know?' (e.g. how to escape in the event of a fire);
- necessary to know?' (e.g. whether lighting a fire at a camping site is permitted during the event);
- good to know?' (e.g. that T-shirts can be purchased during the event).

The information effort should be dimensioned on the basis of the answers to these questions.

1.5.7.4. Implementation plan

An implementation plan is drawn up in order to facilitate the safety work during the actual implementation of the event, with everything that surveillance, setting up, and winding down entails. When it is time to begin the practical part of an event, many things will happen in a short period of time. The implementation plan is a schedule, whose purpose it is to make sure that the work is done in the right order and at the right time without the organiser overlooking or missing something.

The implementation plan should be easy to understand, and structured so that it is possible to see what has been initiated, what has been completed, and what has not yet been initiated.

For this reason, an implementation plan should contain the following:

- a detailed plan of what is to be done, who is responsible for doing it, who is actually doing it, and how long it will take;
- a detailed plan of what should be guarded, when it needs guarding, and who is responsible for making sure this is done;
- necessary information about the leadership structure that will ensure that the above tasks have been completed.

There should always be reasonable margins in an implementation plan. Things rarely work out as planned, so in order to achieve successful results, there should be extra time and resources available when conditions change. A good rule of thumb is the following: The greater the uncertainty, the greater the safety margin.

Read more about:

Show-stop procedures for concerts or matches in *Section 19.5.5.*

Crowd management procedures in *Section 16.6.*

Operational contingency plans in *Section 20.3.1.*

1.5.8. Operational plans and procedures

An operational plan is often a tool in a specific plan. An operational plan is sometimes also called a procedure. The difference between a plan and a procedure is that plans are drawn up in order to handle events that *may* occur, such as an evacuation, while procedures are created in order to deal with things that *will* occur (sometimes several times), for example an over-crowded entrance or the movements of large crowds.

The purpose of operational plans and procedures is to make a potentially dramatic occurrence as undramatic as possible. Often, dramatic occurrences mean that people will become stressed, and their ability to think and act will be reduced or, at worst, completely lost. Operational plans and procedures aim to make sure that the organisation and other interested persons know in advance how to act in a given situation, and that they work on the basis of a predetermined method in such situations.

Some examples of operational plans and procedures are:

- show stop procedures for concerts or matches;
- crowd management procedures;
- operational contingency plans.

All operational plans and procedures should be fail-safe, in addition to the fact that they must always function operationally.

The need for operative plans may vary with the nature of the event. A rule of thumb is that when the situation becomes so serious and complex that it is difficult to control, it is a good idea to create a method of working that everybody can agree on – i.e. a plan.

1.5.8.1. Making a plan operational

When a plan is made operational, it can be realised in practice. If the plan consists of a thick pile of papers with a lot of text on them, it will most likely become a doorstop that no one has read, understood, or implemented in practice. When the incident occurs that the plan was created for, there is usually no time to read or explain the plan.

In order to make a plan operational it is necessary to:

1. make the plan fail-safe (see below);
2. disseminate the plan to all interested parties in the organisation;
3. clarify the plan through personal work descriptions;
4. practise the plan;
5. address any deficiencies in the plan discovered during practice.

Each person who has a key function in the plan should be given their own short but clear document indicating their personal tasks. A good idea is for key personnel to have their tasks written down on a laminated card or sheet of paper to be worn around the neck. Then the plan is always on hand should it be activated.

Read more about:

Code words in operative plans in *Section 1.5.8.4.*

Fail-safe mechanisms in *Section 1.2.3.*

1.5.8.2. Making a plan fail-safe

An operational plan should be made fail-safe, i.e. it must not fail because of any mistakes single individuals might make, or because things do not always turn out as anticipated. A plan can be made fail-safe in several ways, e.g. through redundancy, clarity, and simplification.

- **Making a plan fail-safe through redundancy.** There should be a surplus of resources and means of communication that can be used should the need arise. These resources should not be booked up in advance, or be used regularly. In practice, redundancy means that important tasks – such as activating the plan, alerting the Swedish emergency number operator SOS Alarm, opening evacuation routes, or manning key positions – never depend on a single individual but on several people.
- **Making a plan fail-safe through clarity.** The goal is that everyone who reads the plan should interpret it in the same manner. It is important to try to make the plan as clear as possible, since the person who reads the plan will be under stress. Avoid specialist terminology, slang, or unclear abbreviations. Always clarify things that can lead to misunderstandings. Another way to make the plan clear is through the use of code words.
- **Making a plan fail-safe through simplification.** A plan should never be made more complicated than necessary. The more complicated the plan is, the more sources of error and misunderstanding there will be. When the plan has been drawn up, one must think about how to simplify it and then remove as many potential sources of error as possible. Keep the implementation in mind during the whole planning process. Always ask: How can we simplify this? Making a plan fail-safe through simplification does not mean removing important functions, only endeavouring to remove as many potential sources of error as possible.

The goal is that anyone who reads the plan should interpret it in the same way.

Making a plan fail-safe through simplification does not mean removing important functions, only to endeavour to remove as many potential sources of error as possible.

1.5.8.3. Escalation of an operational plan

The purpose of an operational plan is that the whole or parts of the organisation should work according to a predetermined and well-rehearsed method. This means that a more or less complex task can be carried out efficiently, while at the same time dramatic events are made less dramatic. It is of course impossible to escape the fact that dramatic occurrences always involve drama and stress for everyone involved.

One way to make the activation of an operational plan less dramatic, both for a decision-maker and for other staff, is through an escalation of the plan, i.e. successively preparing the organisation for activation. In this way, the organisation is prepared gradually. Should the situation be resolved, it is always possible to revert to an earlier stage in the plan. It is better to act early and then de-escalate the degree of preparedness, than to wait and see and act too late. For this purpose, a contingency model can be used. A contingency model can look like this:

Table 1. Contingency model

Normal mode	Normal operation
Information mode	Key personnel are contacted and informed about the situation. Key personnel control the supply of resources. Key personnel make sure that they can be readily contacted.
Preparation mode	Key personnel assemble resources. Key personnel prepare for action mode. Assembly points and access roads are controlled.
Action mode	The action plan is activated and implemented. Public authorities are alerted if this has not already been done.

The escalation of an evacuation plan to preparation mode can, for instance, involve the following: all persons whose task it is to open an evacuation route make their way to this route; the persons whose task it is to meet the emergency vehicles make their way to the emergency access road, and the person who will speak from the stage gets ready in the wings with a microphone and the emergency manuscript, etc.

All co-workers should have a clear idea of the currently active level in the contingency model, and be fully prepared for the next stage. They should be prepared for this by having people in place already before being given orders to implement that stage. Being a step ahead minimises the added stress, and the activation of the plan thus becomes simpler, safer, and quicker.

The goal of a contingency model is to have the capacity to communicate, within and outside of one's own organisation, that there is increased risk, and to provide the conditions for a coordinated reaction. However, the contingency model, and the tasks included in it, should not be the only thing an organisation does in a situation of heightened preparedness. When the contingency level has been raised and the information about this has been disseminated, the organisation should continue to collect more information and actively prevent the occurrence of the potential incident. The goal is either to succeed in preventing the incident and subsequently going to a lower contingency level, or to make a decision to raise the contingency level further.

However, operative plans initiated as a result of a sudden incident can rarely be escalated to a higher level, because there is often not enough time or an opportunity for such foresight. But by identifying what occurrences can lead to dangerous incidents, it is still possible to have good preparedness.

1.5.8.4. Code words in operative plans

When an operative plan is to be initiated, there is no room for misunderstanding. In addition, there is rarely any time for calling the interested persons or organisations to explain what has happened and what has to be done. Such messages can, in addition, easily be misinterpreted, especially in a stressful situation. Using code words can be a good way of increasing the clarity and efficiency of the plan. The advantages of code words are that they have a fixed meaning that minimises the risk of misunderstandings. The various code words for an event and their meanings are chosen and defined in advance, and communicated to the people who need to know them.

Using code words can be a good way of increasing the clarity and efficiency of a plan.

When selecting code words, it can be advisable to choose words that are clear, easy to hear, and will not be used in normal communication. But at the same time it is important to be able to disseminate the information about an escalation to the relevant persons within the organisation without unnecessarily worrying the audience or outsiders. There are different methods for doing this. One can, for instance, combine an unusual word with numbers, for example zero, ten, one hundred, and one thousand as markers for the current stage in the contingency model, with zero representing normal mode (green) and one thousand representing action mode (red). For example, if the word 'lemon' has been chosen as a keyword, a radio call saying 'Information: a hundred lemons have been found at the entrance' means that a situation has occurred at the entrance that results in the plan escalating to preparation mode.

It is also important that the people who know of a code word understand who may use it in order to escalate a plan. An incorrect use of code words, for instance in radio communication, might mean that the plan is activated by mistake.

When using code words is important to clarify when and by whom they may be used – otherwise the plan risks being activated by mistake.

2. Safety and security strategy

Photo: Possessed Photography / Unsplash

2. Safety and security strategy

Good planning will make clear what safety problems can be expected, how to solve them, and by whom they should be solved. But if this is to work, there must be an awareness of safety in place throughout your own organisation, as well as in the external partners with whom an event collaborates.

Safety awareness is part of the job for everyone working at an event. For this reason it is important that safety measures are not seen as extra tasks in addition to regular duties or as a burden. Safety work needs to be both appropriate *and* adapted to the activities of an event.

Nor should safety work take the pleasure out of the experience of the event for a visitor more than necessary. Visible safety measures can create a sense of security for the visitor, but they can also bring with them a sense of insecurity or even be provocative. Here it is important that an organiser thinks through not only the effectiveness of the safety measures but also how they are perceived by visitors.

Read more about:
Collaboration in *Section 5.2.*

During safety planning it is not only the effectiveness of the safety measures that is important but also how they are perceived by visitors.

Seen in a more organised form, the following four key factors can be stressed:

- collaboration;
- integration;
- a holistic approach;
- analysis and planning.

Collaboration early on creates a better foundation for an event

Events are a part of Swedish society that both affect and are affected by surrounding activities and occurrences. Early and extensive collaboration with external stakeholders (e.g. the police, the municipality, local authorities, businesses) provides an informational basis for good planning; a more precise understanding of challenges, responsibilities, and solutions; and good opportunities for disseminating information about the prerequisites for an event.

Integrate the safety function

In the same way that an event affects and is affected by society, the safety work at the event is affected by the other aspects of the event. All the work done by the safety organisation is dependent on what other people are doing. The safety function, the purpose of which is to make the event safe, here acts as a kind of support function for the rest of the event. Considerations of safety must be included early on in the planning and should play a central role there.

See safety as a part of the whole

Safety is important, but other values are also important, such as efficiency, accessibility, and the experience of the event. Without cooperation and an overview of the situation, conflicts concerning goals can easily arise. When this happens, a particular measure that increases safety or protection may involve an unnecessary reduction of functionality or of the experience of the event as a whole.

Analyse and plan efforts carefully
The sooner safety matters are incorporated into the planning, the greater the likelihood that the measures will have the desired effects when it comes to costs, protection, integration, and the experience of an event. It is important to analyse and plan various safety measures carefully before they are implemented, so that the measures end up in the appropriate place, are cost-effective, and do not create new safety problems. Otherwise there is a risk of draining the safety budget without attaining the desired effects.

Read more about:
Emergency kits in *Section 19.1.1.2.*

2.1. Ten central strategies

Strategies can be either passive or active. From a safety point of view, passive strategies are usually preferable because they do not require any activation. They are also more effective than active strategies, where someone must initiate a measure.

The ten strategies for injury prevention developed by the American researcher William Haddon Jr can be a good starting point for how to think about safety work. The higher up in the list a strategy appears, the more effective it tends to be. However, all the levels are important and effective. Robust safety work makes use of all the strategies in one way or another.

The ten strategies:

1. **Eliminate the risk.** Remove the source of the risk completely, e.g. by not allowing fires to be lit at a camping site, not booking a certain performer who may attract a violent audience, or allowing a football or hockey match to be played in front of empty stands.
2. **Separate the risk.** Separate the risk in time and space from the critical asset, e.g. ban vehicles from the event site while it is open to the public.
3. **Isolate the risk.** Separate the source of the risk from the critical asset with physical barriers, e.g. fences, access control systems, or vehicle security barriers in order to prevent vehicles from driving into crowds.
4. **Modify the risk.** Adjust the impact of the source of the risk so that the potential negative consequences are reduced or removed. This can be done by, for instance reducing the maximum number of visitors allowed into a public area, opening more entrance points in order to lowering the risk of queues forming, or implementing traffic measures that reduce the speed of vehicles.
5. **Equip to respond to the risk.** Give critical assets an opportunity to resist the impact of the source of the risk, e.g. by handing out water bottles in order to minimise the risk of dehydration or heatstroke.
6. **Train and instruct about the risk before it occurs.** Give people who may be exposed to the risk the ability to resist its effects, e.g. by informing an audience about risks and how to counteract them.
7. **Warn about the risk.** Give incident-based information as a risk situation changes, e.g. via speed alarms when vehicles increase their speed or fire alarms if a fire breaks out.
8. **Monitor the risk.** Monitor the development of the risk situation, e.g. with surveillance cameras or observant staff.
9. **Initiate a rescue if an undesirable occurrence has happened.** Help those afflicted after an incident, e.g. by using emergency preparedness kits, first aid kits, or firefighting equipment.

10. **Relieve and restore.** Reduce the effects of an accident that has occurred, e.g. by quickly alerting and guiding an ambulance or the fire and rescue services to the relevant location.

Read more about:
Fail-safe mechanisms in *Section 1.2.3.*

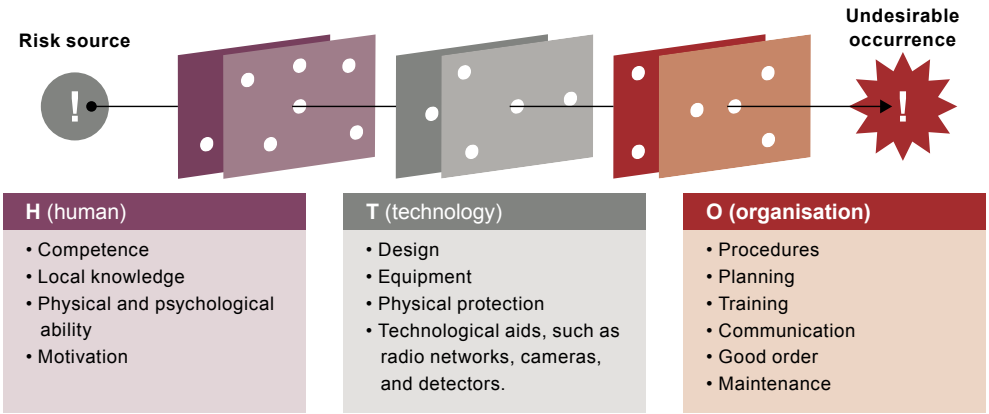
2.1.1. Defence in depth

The causes of accidents are often complex and difficult to investigate. The threat profile for antagonistic and other actor-driven threats is difficult to assess and is continuously changing. For this reason, defence in depth is an effective way to defend against risks and threats (another term for this practice is layered security).

Risk minimising measures can be seen as barriers that are meant to capture sources of risk and reduce the risk of harm to people and property. However, because a barrier can have shortcomings and is rarely effective against all types of risk, one should work with several interacting barriers: when one layer is penetrated, there is a new one behind it.

Defence in depth can be used with respect to physical protection, i.e. by geographically placing different protective layers around critical assets, but defence in depth is not simply about physical barriers. Barriers can be subdivided into three types: human, technological, and organisational.

Figure 2. Defence in depth, the HTO perspective.



The interactions among the categories human, technology, and organisation forms the foundation of good safety and functionality. Different types of protective measures in each respective layer contribute to creating variation in the protection and, if properly handled, also provide a certain measure of redundancy. Defence in depth involves creating the highest possible fail-safe level.

Defence in depth involves creating the highest possible fail-safe level.

2.2. Prevention of crime at events

There are various strategies for reducing the risk of crime and disturbances of public order at events. An organiser should first make an inventory of the risks that exist at a particular event, and then decide which solution is most appropriate for each respective problem.

2.2.1. Perpetrators

In connection with events there are two main categories of perpetrator with whom you may have to deal:

- habitual offenders who seek out the event;
- people who do not normally commit crimes but who may do so because they, e.g. are intoxicated, feel anonymous in a crowd, or perceive that a situation creates an opportunity for high reward coupled with a low risk of discovery.

Read more about:
Collaboration in *Chapter 5.*

2.2.2. Victims of crimes

Certain persons or objects run a greater risk of being exposed to crime than others. This does not mean that a person who is the victim of a crime has any responsibility for the commission of the crime. But after charting the reasons why certain people or objects are exposed to crimes, measures can then be taken that reduce this risk. The reason why certain people or objects run a greater risk of being vulnerable to crime can be, for instance that perpetrators assess that these persons are more vulnerable or that certain objects are easier to steal.

2.2.3. Preventative work against crime at events

In order to prevent crime at an event an organiser is required to collaborate with various other actors, for instance the police, the municipality (social services and other departments), and various voluntary associations. In this way the chances increase that 1) the proper actor takes the correct measures at the appropriate time, and 2) that the measures of various actors do not negate one another.

Collaboration is the basis for effective crime prevention. By creating, together with other actors, a common profile of a situation you make it easier to chart, prevent, and fight crime at an event, because you can then make sure that the correct measures are taken by the proper actors at the appropriate times. At the same time, the solution to one problem may solve several other, sometimes unknown, problems.

One can collaborate in many ways. Here is an example of a structured process of collaboration:

1. **Initiate.** Identify the actors you need to collaborate with. Contact the actors in question and create a working group. Ensure that people with the relevant competences participate in the work.
2. **Make an inventory.** Make in inventory on the basis of the nature of an event, noting risks and problems (for instance by means of a risk analysis) – but also opportunities. Compile a profile of the situation.
3. **Prepare.** Create a common profile of the situation with the collaborators. Analyse the problems and their causes. Decide on a mutual direction and focus areas for continued work.
4. **Implement.** Create a structure for the operative work. Formulate concrete goals. Develop action plans that describe the measures you have agreed on – when, how, and by whom they should be implemented. Document your work.
5. **Follow up.** Continuously evaluate the quality and the effects of the work in order to identify areas that need to be developed or improved.

2.2.4. The routine activity theory

According to the so-called routine activity theory, the commission of a crime is based on three necessary conditions:

- **A motivated offender, i.e.** a perpetrator who intends to commit a crime.
- **A suitable target, i.e.** a person against whom or an object concerning which the perpetrator believes a crime can be successfully committed.
- **Absence of a 'capable guardian', i.e.** some sort of deterrent. This can be observant fellow citizens, public security guards, or police officers. Another example of a deterrent is camera surveillance.

If one of these three conditions is altered, the risk of a crime being committed is also altered.

Read more about:
Crime prevention through environmental design in *Section 6.4.4.*

Figure 3.
The routine activity theory

2.2.5. Social crime prevention

Social crime prevention involves reducing a potential perpetrator's intention to commit a crime. This is done by enhancing people's self-control, increasing their ability to resist temptation and provocation, and increasing their sense of participation in conventional society. 'Sense of participation in conventional society' refers to a person's ties to the norms, values, and generally accepted activities that prevail in society.

Subcultures and social movements are continuously changing and can be difficult to understand for an outsider. Several attempts at projects that aimed to change people's attitudes have failed, or even had the opposite effect, because their initiators have not fully understood the subculture they were trying to influence. Understanding and adapting your strategy to fit the subculture in question and attempting to create something that is mutually desirable is a good point of departure for social crime prevention.

Social crime prevention often involves long-term work, but there are examples that are applicable also in the short term. For example, information provided by staff and signs can make clear which social norms prevail at an event or in an arena.

2.2.6. Situational crime prevention

According to the routine activity theory, a crime presupposes a perpetrator, a potential object of the crime, and a lack of capable guardians. It can be difficult to eliminate the possibility of potential perpetrators and victims attending an event. But the expression 'opportunity makes the thief' suggests that the risk of crime is reduced if you minimise the possible opportunities.

This is called situational crime prevention. One of the advantages of this method is that positive measures can immediately have a measurable effect.

One way of working with situational crime prevention is to design a place in order to reduce or completely eliminate a visitor's inclination or ability to commit criminal acts. The concept of *Crime Prevention by Environmental Design* (CPTED) is often used in this context.

There are five comprehensive viable strategies for situational crime prevention:

- Increase the effort required to commit a crime.
- Increase the risk of being discovered for potential perpetrators.
- Reduce the rewards for perpetrators.
- Reduce any provocations that can lead to crime.
- Remove excuses for perpetrators.

2.2.6.1. Increase the effort required to commit a crime

It should be difficult to commit crimes, and as an organiser you should increase the effort required to commit a crime. This can mean reinforcing locks, installing security doors, or locking up equipment worth stealing.

- **Make potential objects of crime difficult to access.** Improve the protection of critical assets by, for instance improving locks and protective devices for equipment worth stealing or creating physical protection, for example for people who work at ticket counters. This can also be done through information campaigns, which among other goals try to influence visitors to choose transport routes along which other visitors move and to walk with others to and from an event.
- **Control access to the venue.** This control can be done in several steps and at several different levels. An example of this is proper perimeter protection with fences, sensors, and camera surveillance that prevent unauthorised people from getting into an event, complemented with the appropriate inspection of tickets.
- **Conduct controls at the exits.** In this way you can ensure that visitors have not stolen anything. You can also check that those who leave the event have valid tickets. This can deter potential gatecrashers. However, this measure has to be undertaken with caution, because it may result in a slower outflow of people, the formation of queues, and crowding.
- **Divert criminals.** Minimise the risk of confrontation by, for instance having rival supporters of a sports team gain access to an arena through different entrances, and busing and transporting different teams to and from the arena at different times.
- **Conduct conditional frisk searches at the entrances.** If a requirement for entering an event is that the visitor submits to being frisked, you reduce the risk of having weapons, objects that can be used as weapons, and alcohol or other drugs brought into the event site.
- **Reduce accessibility to dangerous objects.** In the event site itself potentially dangerous objects should not be easily accessible. For instance, beverages can be served in plastic rather than glass bottles, and regular searches of a venue can be conducted.

Photo: Henrik Isaksson/TT

2.2.6.2. Increase the risk of being discovered for potential perpetrators

- **You can increase the risk of discovery for persons who intend to commit crimes by illuminating, manning, or providing camera surveillance of a given location.** A particular location can also be designed so that a naturally unimpaired overview of the relevant area is available, thereby making it an easier place from which to monitor, for example, passers-by.
- **Increase the surveillance.** Surveillance does not have to consist only of licensed private security firms or the police but can also be aided by observant visitors and the organiser's staff. However, remember to inform
- **the staff about what should be done if criminal activity is discovered.** Even if it may be legal to make a so-called citizen's arrest, it may be better to observe instead and call for backup if something happens.
- **Facilitate naturally available surveillance.** Vegetation that obscures visibility can, for instance be trimmed in order to create a better overview. Make sure there is good lighting. Control the need for lighting by making an after dark inspection walk before an event takes place. Surveillance is also facilitated by posters with telephone numbers that visitors can call if they want to report a problem or provide information about a crime.
- **Reduce anonymity.** Large crowds of people often create a sense of anonymity, not least when a person is away from his or her own home town. Therefore stewards, security personnel, and public security guards should at an early stage try to make contact with people who show signs of wanting to disturb public order. It can be enough to make eye contact in order to show that you see them, or give someone a friendly greeting and make a bit of small talk in order to remove their feeling of being invisible in the crowd.
- **Use location managers.** Place staff who, in addition to their primary functions, also have a monitoring role at, for example entrances and stages. In this way people within the organisation can easily communicate their observations upwards in the organisation, or to a public security guard.
- **Enhance the formal surveillance.** This can be done with the aid of the police, public security guards, and, potentially, security companies. Camera surveillance can also be an effective way of enhancing formal surveillance. For best results, cameras should be operated by competent operators who can report to the security staff on the ground. The security staff can then take the measures necessary.

2.2.6.3. Reduce the rewards for perpetrators

A perceived great reward combined with a low risk of discovery can increase a person's inclination to commit crime. You can reduce the rewards by, for instance marking items that may potentially be stolen or removing items that are worth stealing from cars.

- **Hide objects which invite crime.** You can, for instance prevent visual access to places where materials worth stealing are kept.
- **Remove potential objects of crime.** This can for instance mean that the event has adopted a cash-free system and that sales locations use

card readers and other cash-free solutions, e.g. Swish. Another example is to substitute materials that are often vandalised with materials that are not easy to vandalise, e.g. glass surfaces with plexiglass.

- **Mark your property.** Expensive equipment can be labelled with, for example, anti-theft labels or DNA property marking. Objects worth stealing will then be less attractive, and if a perpetrator is caught it will be easier to trace the stolen goods back to their proper owners.
- **Destroy the market for stolen goods.** This can be done, for instance by requiring street pedlars to have a licence or establishing authorised second-hand sales of tickets.
- **Remove advantages.** Examples of this include removing graffiti immediately, deactivating stolen mobile phones, or not displaying pitch invasions to the public on jumbotrons.

2.2.6.4. Reduce provocations that can lead to crime

Reducing provocations is, above all, about reducing the risk of conflicts or emotional reactions that can lead to crime. This can be done in several ways.

- **Reduce frustration and stress.** Prevent queues and crowding at entrances and attractions, or in audience areas through efficient queue management and a friendly attitude toward visitors. In addition, having friendly and professional staff reduces the risk of conflict and confrontation. One can also play calming music at the entrances and provide sufficient seating adjacent to queues or inside an event site.
- **Avoid conflicts.** Keep rival sports supporters apart in arenas. Reduce crowding at locations where alcohol is served.
- **Reduce emotional excitement.** One should avoid, for instance repeated reruns of controversial match sequences on jumbotrons, provocative music, or displays of large sums of money. Here the safety staff play an important role. A friendly and confident attitude reduces the risk of aggressive behaviour or a sense of insecurity.
- **Neutralise peer pressure.** This can be done by means of campaigns such as 'Only a fool drinks and drives'. Another example is trying to mix performers at music events in order to achieve a diverse audience profile and thus have more adults in the audience.
- **Counteract imitation.** Quickly repair or remove objects that have been vandalised, for instance by graffiti. Avoid disseminating details about criminal methods in order to avoid so-called *copycat* crimes.

2.2.6.5. Remove excuses for perpetrators

You can remove excuses for people who commit crimes, for instance by performing inspections in order to avoid serving alcohol to inebriated people, which can lead to violent crime, or by clearly informing visitors about relevant laws and regulations. You can also direct attention to the risk of various types of crimes being committed, for example sexual crimes, thus clearly signalling which norms apply at the event. One can also increase the presence of informal guards in the audience.

- **Draw up rules for an event.** These rules should apply to both staff and visitors and should elucidate which rules apply during the event. Such rules can include zero tolerance for racism, drugs, or sexual harassment.

- **Inform people about which rules apply.** Inform people about the rules, for instance during ticket sales, or by displaying clear signs that inform visitors about what is and what is not permitted at the event.
- **Speak to people's consciences.** Inform people, for instance that smoking is prohibited within a certain area, and at the same time also advise them that smoking harms other people. In addition, one can have signs that warn people of criminal behaviour.
- **Simplify compliance with the rules.** Make it easy for visitors to follow the rules. You can, for instance, have a sufficient number of waste bins to prevent littering or have enough toilets to prevent people urinating in public.
- **Control drugs and alcohol.** Make admission conditional on submitting to being frisked. This reduces the risk of visitors bringing alcohol or drugs into an event site. At the event itself one can have regulated sales of alcohol in order to reduce the risk of visitors becoming too drunk. People who are severely inebriated run a greater risk of both committing crimes and becoming victims of crime.

2.3. Working to combat terrorism and antagonistic threats

Society's ability to prevent terror attacks and other antagonistic occurrences, and to deal with and minimise the consequences of such attacks, depends on the efforts of many actors. This is especially true of those who work at or are responsible for locations where many people assemble.

The national threat profile against Sweden is assessed by the National Centre for Terrorist Threat Assessment (NCT), a permanent working group staffed by personnel from the Swedish Security Service (Säpo), the National Defence Radio Establishment (FRA), and the Military Intelligence and Security Directorate (MUST). A scale containing five levels is used:

1. No identified threat
2. Limited threat
3. Elevated threat
4. High threat
5. Very high threat

This scale describes the threat of terror against the entire country and thus does not say very much about the threat against a specific event or an arena.

Because each major gathering of people is a conceivable target for terrorist attacks or other antagonistic threats, it is difficult for an organiser or an arena owner to correctly assess the likelihood of an attack being carried out against a particular event.

The focus of the work to counter terrorism and antagonistic threats at an event should instead be to minimise vulnerability, by either decreasing the probability of an attack or minimising the undesirable consequences of one. The process is similar to other risk management processes, but an important difference is that the threat is agent-driven and thus more difficult to analyse.

In order to do this one must have knowledge about the prerequisites for an attack.

2.3.1. Criteria that influence the choice of targets of attacks

The purpose of terrorism is often to kill or seriously injure civilians, and thus intimidate a population or in some way coerce a government or an organisation.

A perpetrator often chooses the target of an attack on the basis of four criteria:

- **The perceived chance of success.** Even if some perpetrators are prepared to die to carry out an attack, they rarely want to die in vain. The chance of the attack leading to an anticipated result is part of the basis for a perpetrator's decision.
- **Consequences.** The objective is often to injure or kill as many people as possible, and for this reason crowded places are the most likely targets of terrorist attacks, i.e. places that hold a large number of people at a predetermined point in time.
- **Symbolism.** Often the target of the attack holds some symbolic meaning for the perpetrator: religious or political sites and events, activities crucial to society, or other places that symbolise whatever the terrorist opposes.
- **Attention.** One key purpose of terrorism is to spread an ideology through publicity. The opportunity to gain attention and to exploit this is important for the choice of targets.

While symbolism and attention are often difficult to influence for an organiser or an arena owner, it is possible to drastically reduce the consequences and the perceived chance of success for an attack by designing an event so that the attack becomes as difficult as possible to carry out.

2.3.2. The phases of an attack

Knowing something about the phases of an attack makes it possible for an organiser to know how to disrupt a perpetrator's process by taking measures to deter, discover, obstruct, or manage an attack.

An attack can be subdivided into five phases:

1. **Choice of target.** A perpetrator often has knowledge of, or a relationship to, a target. The target can be associated with a certain symbolism, or the perpetrator may often be close to or travel past a target location.
2. **Planning.** A perpetrator assesses the security level of a target and the vulnerabilities that can be exploited by gathering information or reconnoitring, which can be done on site, on the internet, or through contacts with event staff. This is also when the choice of method, tactics, and the materials to be used is made.
3. **Dry runs.** Often a dry run is done prior to an attack. Its purpose is to assess things such as the amount of time the attack will take, any problems that may arise, the response that can be expected, or the need for alternative modes of action.
4. **Attack.** The attack is carried out quickly and is often over within a few minutes, even though the execution of the attack may be the result of lengthy preparations.
5. **Exploitation.** It is common that a perpetrator attempts in various ways to reinforce the effects of an attack that has been carried out, for

instance by sending out communiqués, or by using social media or images and filmed materials. The aim is for the attack to get as much attention as possible, and the goal is to disseminate information about it as widely as possible.

Read more about:
Risk analysis of antagonistic threats in *Section 3.3.*

2.3.3. Opportunities for risk minimisation prior to and during attacks

Working to counter antagonistic threats means reducing the likelihood of an attack being carried out by making an event a less attractive target for an attack, and by in addition minimising the consequences as much as possible if an attack nevertheless takes place. For an organiser or an arena owner this work mainly deals with

1. **analysing** the threat on the basis of the information that can be accessed;
2. **identifying** vulnerabilities, i.e. places and times that are attractive to an attacker but have a low level of protection;
3. **prioritising** protective measures on the basis of vulnerabilities and the consequences of a possible attack;
4. **reducing** vulnerabilities or consequences using protective measures on the basis of the above prioritisation.

Interfaces and the allocation of responsibilities between an organiser and an arena owner should be clearly analysed in advance. All measures must be adapted to the context in question so that other values, e.g. availability, accessibility, functionality, and the experience of the event are not affected any more than is necessary.

It is important that the work to counter terrorism and antagonistic threats is preceded by analysis and prioritisation. If not, the measures risk being ineffective. It is also important to integrate this work into other activities of the event so that it does not become an extra task in addition to ordinary activities.

2.3.4. Preparedness for antagonistic threats

The threat profile for an event or an arena can change over time. Using a system with preparedness levels is one way for an activity to operationally reflect its security work and its security planning with respect to a threat profile that is deemed to have changed. The preparedness levels can be influenced by the national threat level, and can also be adapted to the specific risks and vulnerabilities of each event. All activities that attract a lot of people to the same location should have some form of basic preparedness for antagonistic threats. However, raising the preparedness level requires security measures in addition to the basic protection. These measures are intended to be applied for a limited time and during an extraordinary situation.

Each organisation must determine and decide whether to make changes in the preparedness levels being used. It is equally important to be able to raise the preparedness level as it is to lower it. It is also important to test and rehearse the measures for each respective preparedness level so that they actually work in practice.

The security measures used at different preparedness levels should not be made public.

Table 2. Examples of preparedness levels

Preparedness level	Description
Basic preparedness	Routine security. Reasonable security measures appropriate to your own operation are taken. Ordinary activities are not affected.
Elevated preparedness	A reinforcement of security measures adapted to your own operation that may partly affect how ordinary activities are carried out.
High preparedness	Extensive extra security measures are taken and maintained for a period of time. A considerable reinforcement of security measures that thoroughly affect the operation.
Special preparedness	Maximum security. Numerous security measures are taken in order to counter specific threats, vulnerability, and risks. Ordinary operations cease, are reduced or severely affected.

Examples of security measures that may be affected by the level of preparedness:

- **Make it difficult to bring items into the site** by, for instance increasing security checks of visitors and vehicles, extending prohibitions on bringing items into the site, enhancing the procedures for searching the venue, introducing special procedures for mail and package handling, erecting temporary vehicle security barriers, and removing trash bins and other objects that may function as hiding places in the proximity of crowded locations. One should instead have numerous cleaning patrols who, with the right training, may have an increased ability to discover suspicious phenomena.
- **Enhance the ability to discover and deal with** an attempted attack, for instance by increasing the number of security personnel, training personnel in procedures for dealing with attempted attacks and identifying suspicious behaviour, adding metal detectors to the equipment of the entrance staff, or conducting drills for evacuation, sheltering in place, and lockdown.
- **Reinforce the perimeter protection** through, for instance increased technological support, such as burglar alarms and surveillance cameras, increased access control, enhanced authorisation checks, increased sectioning, reinforced physical barriers, or greater security distances.

Because all of these measures are not always necessary everywhere at an event site, it may be advisable to structure the security measures on the basis of a division of the area into zones. The zones are determined based on vulnerability and which potential threats exist in each respective zone.

Read more about:
Zones in *Section 6.5.*
Defence in depth in *Section 2.1.1.*

2.3.5. Basic principles for security measures against terrorism and antagonistic threats

Defence in depth and layered security is a good starting point for all security work against antagonistic threats. The layers can complement one another and create more robust protection. This approach can be broken down into four basic principles when designing security measures.

1. Deter. Deterring a potential perpetrator is of course the best alternative. This then leads the perpetrator to avoid carrying out an attack because the

risk of failure is too great, for example because the protective measures are perceived of as being impenetrable or because the perpetrator cannot get enough information to assess the possibility of success.

2. Detect. If the deterrence measures have not worked you must have the prerequisites and ability to discover that an attack is planned or has been initiated, and to create a basis for decisions about countermeasures.

A person planning an attack wishes to

- identify a target for the attack;
- discover weak points and vulnerabilities;
- assess the security level and the response to an attack;
- determine the best method of attack;
- assess the probability of success;
- decide the best time to carry out the attack.

This means that good information security is important, but also that a perpetrator must expose him- or herself in order to observe, recon, or complete dry runs. There are thus opportunities for discovering the perpetrator already early on in the process. Attacks with significant outcomes are often more complex, both when it comes to their planning and to carrying them out. This means in turn that there is a greater chance of discovering the perpetrator in advance.

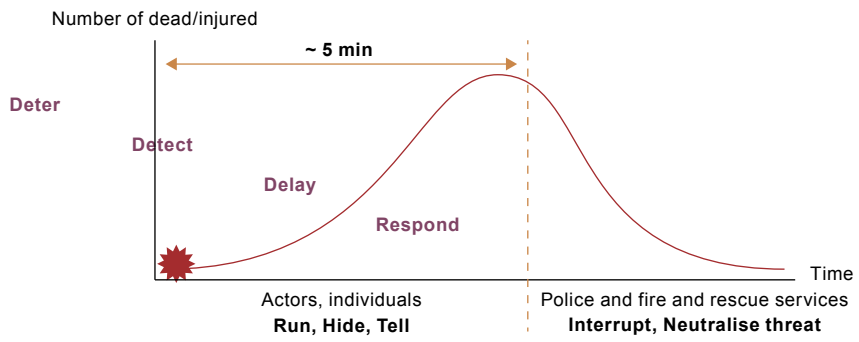
3. Delay. Anything that delays or obstructs an attack lowers the risk of a significant outcome. Every minute counts, and often the first five minutes of an attack are the most critical. If you can delay the attack or the perpetrators' rampage until the police arrive at the scene, many lives can be saved. Examples of such measures are physical obstacles, sectioning, vehicle security barriers, and procedures for evacuation, sheltering in place, and lockdown.

4. Respond. This refers to measures aimed at interrupting an attack and managing the consequences of that attack. These actions are carried out primarily by the police, fire and rescue services, and ambulance services.

The four principles are not equally effective during the different phases of an attack.

The organisers of an event should consider all four principles when planning the protection for an event.

Figure 4. The temporal aspects of an attack



Read more about:

The phases of an attack in *Section 2.3.2.*

Risk analysis in *Section 3.2.2.*

Defence in depth in *Section 2.1.1.*

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2.3.6. Practical measures against terrorism and antagonistic threats

Various measures are more or less effective depending on an event's geographical location, the specific conditions at the event, and the nature of the threat in question. The organisers of the event should use a risk analysis to review which measures provide the most appropriate protection for each particular occasion. Regardless of which measures are taken, one should focus on defence in depth and work using collaborative measures.

Below are some examples of possible measures that can produce positive results. These measures are linked to the four principles of protection and the phases of an attack. It is worth noting that all clearly visible measures relating to discovery and obstruction can also have a deterrent effect. However, keep in mind that any deterrent effect resulting from physical protective security measures should be seen as above all a side-effect rather than an explicit goal, because the deterrent effect is difficult to assess. Also keep in mind that measures that are visible and have a deterrent effect can potentially create a sense of apprehension or insecurity among visitors. Consider this carefully when designing and communicating about protection.

Read more about:
Information security at *www.msb.se/informationssakerhet*

2.3.6.1. Deterrent measures

- **Risk-aware design**, i.e. an analysis of where and when flows, crowds, and various assets may be located allows an organiser to geographically separate assets from threats by, e.g. placing the entrance away from the car park. This can act as a deterrent and can also mean that a perpetrator will need to behave in a way that will make them stand out from the other members of a crowd.
- **Protective stance** refers to the image of an event's security that you want people outside the organisation to have. An elevated protective stance can have the effect of creating a feeling of security in visitors and have a deterrent effect on any potential perpetrators. An elevated protective stance means that security measures are made clearly visible in order to create a more powerful picture of the security surrounding the activities of the event. This can mean, for instance informing the audience about certain security measures, outfitting the security staff with high-visibility vests, or making apparent in other ways which security measures have been taken.

  When planning a protective stance you should keep asymmetric security and information security in mind.
- **Visible security measures** can cause a perpetrator to refrain from carrying out an attack. In principle, all visible measures with the aim of discovering or obstructing a perpetrator contribute to deterring them. However, it would be wise to keep some measures concealed (see *asymmetric security* and *information security* below).
- **Information about the existence of security measures**, for instance at entrances, enclosed with tickets that have been sent out, or on web pages, can contribute to deterring a perpetrator.
- **Information security** involves, among other things, analysing the information available to visitors and determining which information should not be accessible to the general public. A lack of information makes planning an attack more difficult and may act as a deterrent.

- **Asymmetric security** means that the organisers make it more difficult for an outsider to analyse the security measures of an event. Among other things, this can mean varying the times for changing staff, modifying the size of security staff, alternating the choice of routes for important transports, or changing the way in which security checks are carried out. By obstructing the charting of the capacities and procedures of the security organisation, its vulnerability can be reduced. This is linked to both a *protective approach* and *information security*, above.
- **The presence of security staff** functions both as a deterrent, because a perpetrator may feel that the possibility of success is reduced, and as a means of discovery, because security staff often have a better chance of discovering suspicious phenomena.
- **Proximity to reinforcement resources** refers to a reinforced response to an attack, such as guards, public security guards, or police who are prepared to intervene in order to disrupt hostile activities in progress.

Read more about:

Lighting in *Section 7.6.*

Security culture in *Section 5.9.*

The role of the safety staff in *Section 19.1.1.*

Insider threats in *Section 5.9.1.*

Access in *Section 19.2.2.1.*

Photo: Mikael Fritzon/TT

2.3.6.2. Discovery measures

- **Visibility** means that you endeavour to increase visibility at entrances and of approaches and the surroundings. This may involve, among other things, specific measures to directly increase visibility, such as trimming bushes, moving objects that obstruct a view, or using transparent walls that facilitate surveillance of a location. Reducing the number of obscured areas around a venue makes it easier to identify potential threats and risks, while at the same time informal control of the area is facilitated.
- **Lighting** improves opportunities for monitoring what is happening and is vital for being able to discover a potential perpetrator's reconnaissance or dry runs, or an attack that has already been initiated.

- **Informal control** means that people who do not work specifically with security or safety (e.g. service staff, the audience, or the general public) also have a natural overview of a site and can provide informal guard or alarm functions. This informal control can be enhanced by, for instance increasing visibility, raising an audience's awareness, and providing information to the event staff concerning risks, suspicious phenomena, and how they should act if they discover something unusual.
- **Raising an audience's awareness** to support greater vigilance concerning, for instance improvised explosives or suspicious phenomena, also contributes to increasing the informal control.
- **Elimination of** hiding-places refers to limiting the opportunities for hiding explosives in locations over which there is restricted visibility, for instance by removing waste bins or using see-through waste bins close to areas worth protecting.
- **Security culture** means that everyone working at an event or in an arena has knowledge about, understanding of, and a positive attitude towards security (and safety) measures. Security measures are only effective if they are implemented. A good security culture can be achieved through good leadership and well-adapted security measures, and is an important measure for reducing the risk of insider threats.
- **Observant and active personnel** means staff who are not only vigilant with respect to suspicious phenomena (people, occurrences, or objects) but who also have a commitment to security: actively but casually interacting with people and investigating ambiguous circumstances or phenomena further. The staff should have knowledge of what to look for, and how to act if they discover something unusual.
- **Trained staff** is of key importance and reinforces the security organisation against all types of threats and risks. The staff should, in addition to having knowledge about their roles in the provision of security and safety work, know what to look for and how to behave if they should encounter something suspicious or if an attack has been initiated. This also includes training in, for instance, administering first aid.
- **Systematic work against insider threats** prior to, during, and after the time of a person's employment.
- **Access control** helps organisers ensure that access restrictions are followed, which is of key importance for protecting against antagonistic threats. This pertains to ticket inspections, access control, and the control of vehicles.
- **Security control** or searching are terms used to denote the control of objects brought into a protected site. They can refer, for instance to the conditional frisking of visitors or the searching of vehicles.
- **Pre-event search** of the venue aims to discover dangerous objects hidden in a venue before the perimeter protection and security controls have been established.
- **Security procedures** during visits for visitors external to the site, such as suppliers and contractors, are important in order to maintain good perimeter protection.

Read more about:

Frisking in *Section 19.2.2.2.*

Searching in *Section 19.1.3.*

CCTV in *Section 7.8.*

Detectors in *Section 7.8.2.*

Perimeter protection in *Section 6.6.*

Vehicle barriers in *Section 7.3.2.*

Sectioning in *Section 6.6.1.3.*

- **Procedures for handling goods, letters, and packages** can involve, among other things, separate handling of these items, with transparent procedures for control and assessment, and can also refer to the availability of protective gear.
- **CCTV** (closed-circuit television, i.e. surveillance cameras) is a useful tool that allows organisers both to gain an overview of an immediate situation, and to discover that something is about to happen. Cameras can also be a deterrent for potential perpetrators.
- **Detectors** that indicate the presence of, among other things, metals, chemical substances, and explosives are available as handheld or stationary devices of various kinds. They can help the organisers make security checks more efficient, and they may also serve as a deterrent for potential perpetrators.

2.3.6.3. Obstruction measures

- **Perimeter protection** involves (above all) physical measures that prevent access or incursions, e.g. robust fences, walls, or doors.
- **Protection against vehicles.** Using barriers, terrain, or natural obstacles can make it more difficult for potential perpetrators to carry out vehicular attacks, but can also contribute to increasing the safety with respect to unintentional traffic incidents. Try to find options where the physical protection can also fill additional functions, for instance by also functioning as a bench or a planter.
- **Robust surface layers.** Avoiding underlying surface layers that break into fragments, and using security glass, security film, or security doors, make it more difficult for a perpetrator to successfully carry out an attack.
- **Reinforced construction elements**, e.g. pillars, beams, or braces, increase the capacity to resist a progressive collapse, for instance due to an explosion or being rammed by a vehicle.
- **A reduction in the amount of flammable materials**, e.g. objects made from wood, fabric, paper, or plastic, or flammable liquids, reduce the risk of arson and accidental fires.
- **Protection or filters for air treatment systems** protect against the discharge of CBR agents (chemical, biological, or radiological agents).
- **Sectioning** involves limiting the opportunities for a perpetrator to move freely around an event or a venue. This can be done passively by using transparent barriers between public and private areas, or actively, for example when it is possible to lock multiple doors from a central location.
- **Stand-off distance** means that you control, among other things, how close to a crowd of people it is possible to drive a vehicle, or where the control of bags takes place. Well-planned stand-off distances reduce the effect of an attack and can act as a deterrent.
- **Reduced traffic speeds** involves both reducing the general tempo of vehicular traffic, and keeping in mind that other traffic may pose an obstacle to a potential vehicle attack. In addition, deviant behaviour in traffic becomes easier to identify. By lowering the speed of traffic, the risk of accidents can also be reduced, and the consequences of a potential accident are reduced. This can be applied to all types of traffic: cars, trains, cycles, electric cycles, etc.

- **Time management** is a protective principle that reduces the vulnerability of an event by temporally separating assets from risks and threats. This policy is broadly applicable and can refer, for instance to extending the arrival period at an event in various ways and reducing the formation of queues, prohibiting vehicles during periods when there are a lot of people in circulation at the event, or planning so that the transport of valuables takes place at the safest time.
- **A prohibited items list** determines what may or may not be brought into an event site. This can involve prohibitions against objects that can be dangerous or used as weapons, but also, e.g. limitations on the size of bags that may be brought into a site.
- **Access limitations for persons** means that there are limitations concerning what category individuals are given access to, for instance a place with critical assets or areas adjacent to such places. The use of some form of access marker (e.g. a bracelet or an access card) makes it easier to discover unauthorised people.
- **Access limitations for vehicles** function both as deterrents because they entail problems for a perpetrator, and as a means of detection because vehicles that violate the restrictions are easier to discover. Access can be limited, for instance by allowing only commercial vehicles, previously approved vehicles, vehicles with a particular kind of authorisation, or other vehicles that have been granted access. During events in an urban environment it is important to take into account potential goods deliveries and residents who have garages within a sealed-off area. Endeavour to have as few garages as possible within an event site.
- **Alarms** include both automatic alarms, e.g. burglar alarms or motion detectors, and hand-held personal alarms, as well as the possibility of alerting the authorities via the emergency telephone number 112.
- **Other warning systems**, e.g. loudspeakers, electronic information signs, and push notices offer an opportunity to attract the attention of staff and visitors and provide important information during an incident.

2.3.6.4. Management measures

- **The capacity for leadership and control when an incident occurs** is of key importance in order to make swift and well-informed decisions in stressful situations.
- **Decision and leadership drills** contribute to increasing the capacity of an organisation to develop appropriate procedures and plans, absorb information, and make decisions about measures that need to be taken.
- **Communication procedures** during an incident are important both for acquiring correct and rapid information for decision-making, and for communicating the decisions that have been made to the correct personnel.
- **A crisis communication plan** aims at ensuring that the organisation and its partners in collaboration can quickly disseminate accurate information and thus reduce the risk of false information or the spreading of rumours.

Read more about:

Prohibited items list in *Section 4.1.1.1.*

Preparedness in *Chapter 20.*

Crisis communication in *Section 20.5.1.*

Evacuation, sheltering in place, and lockdown in *Section 20.4.*

Training for staff in *Chapter 5.*

- **Procedures for evacuation, sheltering in place, and lockdown** that have been developed, communicated, and practised increase the chances of obstructing or dealing with an attack or major accident.
- **Trained personnel** in, above all, first aid, can contribute to mitigating the consequences of an attack.

3. Risk management

Photo: Andreas Kindler / Johnér RF

3. Risk management

Risk management concerns identifying, evaluating, and managing risks, and the objective is to remove, reduce, or accept the risks. Identifying and evaluating possible risks is also a good way of increasing risk awareness and the acceptance of mitigation measures in the organisation as a whole. Risk management should be considered a must for a serious organiser.

The core of the risk management process is a risk assessment that aims to reduce the risk of an undesirable occurrence. Examples of such occurrences are unintentional incidents, crimes, or antagonistic threats such as terrorist attacks.

In certain cases a risk assessment must be enclosed with an application for a police permit to hold an event. In addition, as an employer the organiser is obliged to undertake a risk assessment and to prevent, address, and follow up safety-related risks to staff at an event. This must be done according to the Swedish Work Environment Authority regulations on systematic work on health and safety in the workplace.

The risk assessment forms the foundation for a large part of the safety work of the event. Many times the focus of the safety work at various events changes based on what has emerged in their respective risk assessments. The information acquired from a risk analysis forms the foundation of the comprehensive plans for the event, primarily the event-specific plans that must be developed. The risk assessment can also show which preventative measures are appropriate or necessary to undertake.

Certain risks are so difficult to manage that the options available become too expensive or are in other ways infeasible to implement. In such cases an organiser may have to choose between cancelling an activity or accepting the risk and carrying out that activity in spite of the risks. Carrying out an activity that has a known but unaddressed risk should only be done after very careful consideration.

Read more about:

The safety vision in *Section 1.3.1*.

Carrying out an activity that has a known but unaddressed risk should only be done after very careful consideration.

3.1. Preparations

Before a risk assessment is made, the goals of the work must be defined, a person must be appointed who is to be responsible for the analysis, and any additional persons who are needed to contribute to the assessment must be chosen. It may also be desirable to form an analysis group.

3.1.1. Defining goals

It is important to formulate clear goals or objectives so that the analysis can be carried out efficiently and so that it is possible to evaluate the work. A statement of objectives should include the following:

- Purpose – what should the work lead to?
- For what decisions should the work provide a foundation?
- Limitations, for instance:
  - What values and risks should be considered (e.g. personal injuries, environmental damage, economic damage, harm to one's image or relationships)?

- Time limits – what is the time horizon being dealt with?
- What phases in the lifetime of an event should be considered – set-up, implementation, winding down?

The statement of objectives should also be linked to the event's safety vision.

3.1.2. Analysis group

The results of a risk assessment often depend on the knowledge and experience of the people who participate in the work. A carefully composed analysis group should have a wide range of competences and should have knowledge about the following:

- the relevant laws, regulations, and rules;
- the type of event in question;
- the specific event;
- how to carry out a risk analysis.

Strive to also invite people from outside the safety organisation and people who have knowledge of strategic, tactical, and operational aspects of the activities in question.

3.1.3. A foundation for risk assessment

The following information can form the foundation of a risk assessment:

- **Venue:** What does the venue look like?
- **Audience profile:** What type of audience is expected to visit the event? What can be anticipated from that kind of audience?
- **Performer or athlete profiles:** Which performers or athletes will participate in the event? Is there something that the organisation needs to know in advance about these individuals? Is there some historical behaviour that can imply an increased risk in the present case? Is there a threat profile involving one or more of the performers or athletes?
- **Crowd management:** How do you plan to manage crowd flows when the members of the audience arrive at the event? While they are at the event? When they leave?
- **Additional information about the situation**, e.g.:
  - At what time of day and in what season of the year is the event being held?
  - What do the areas surrounding the event look like?
  - Are there other activities going on in the surrounding areas at same time as the event?
  - What resources are available for the event?
  - What preparedness is there for the event?
  - What does collaboration with public authorities and other actors look like?

In addition, it is always a good idea to make use of any documentation from previous events.

Read more about:

An area plan or map in *Section 1.5.6.*

Audience profiles in *Section 16.3.1.*

Performers, athletes, and other focal persons in *Chapter 17.*

Crowd management plans in *Section 16.5.*

3.2. Risk assessment

A risk can be described in terms of a balancing of the probability of an incident occurring and the (negative) consequences that the incident may lead to. Compared to a threat, a risk is a more concrete effect of various phenomena. You can say that threats generate risks – for example, a poorly constructed entrance (a threat) may lead to an increased probability, and greater consequences, of heavy crowd pressure at an entrance (a risk).

The purpose of a risk assessment is not to identify all risks at an event. That is impossible. But one should try to identify those risks that must be managed or eliminated.

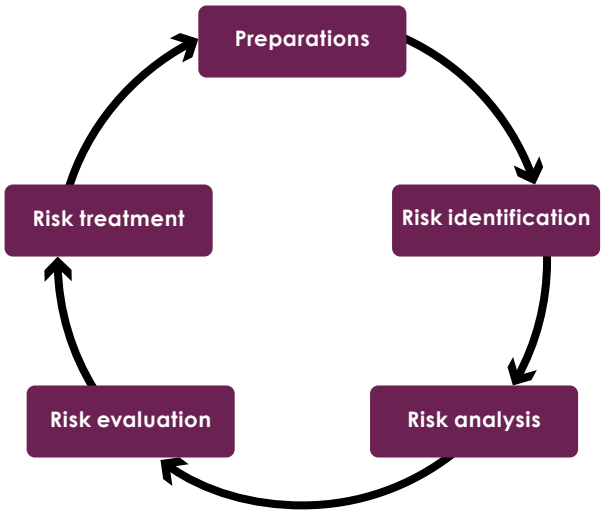
There are several methods of conducting a risk assessment, but as a rule it proceeds through four phases:

- risk identification
- risk analysis
- risk evaluation
- risk treatment.

It may be wise to differentiate between a risk assessment of unintentional occurrences and a risk assessment of antagonistic threats, because the latter are actor-driven, which means that it is much more difficult to assess their probability.

Read more about:
Risk analysis of antagonistic threats in *Section 3.3.*

Figure 5. The risk management cycle



3.2.1. Risk identification

The first phase of risk assessment is *risk identification*. Its purpose is to discover, understand, and describe any risks that can contribute to preventing an event or keeping the goals of its organisers from being attained. There are several different methods for identifying risks. One way is to conduct creative brainstorming sessions. This can be done by gathering a group of key personnel for the event and allowing them to speak freely. In this way it is easier to identify all the conceivable risks, no matter how serious or probable they actually are. Avoid evaluating or dismissing any risks at this

stage. During risk identification no risk is too small or insignificant to be put forward.

Even risks where an organisation does not have any control over the sources of the risk should be identified. Keep in mind that there can be several possible outcomes that may lead to different consequences.

Read more about:
The audience in *Chapter 16.*

3.2.2. Risk analysis

Risk analysis is the second phase of risk assessment. Here the group of key personnel should examine and filter the risks that have been identified. Risks or factors that are obviously irrelevant should be disregarded. Sometimes risks that affect a third party, but that do not directly affect an event, can be identified. These should be transmitted (i.e. communicated) to the parties they may affect.

A risk analysis can be carried out in varying degrees of detail and complexity, depending on its purpose and the resources on hand, as well as on the information that is available and how reliable it may be.

In order to evaluate risks one must estimate the probability of undesirable occurrences and assess the consequences that they may possibly have. This can often be done through assessment based on experience. However, keep in mind that a risk analysis can be affected by many different things: differences of opinion, preconceived ideas, or varying perceptions of risk. The results can also be influenced by the quality of the information basis, by assumptions or demarcations, and by limitations in the methodology used or in its implementation. Any factors of influence that are identified should also be documented in the risk analysis. Statistics from previous incidents can also be used to assess how often an incident may occur.

During the risk analysis one should consider the following:

- What might cause an incident to occur?
- Where might the incident occur?
- When might the incident occur (e.g. at ingress, during the circulation of visitors, or at egress?
- What consequences might the incident have?
- How likely is it that the incident will occur?

Keep in mind that an incident may have multiple causes, may produce different consequences, and may affect several aspects of the values of an event.

It is important not to confuse the likelihood of something happening with the likelihood of that incident having the worst imaginable consequences. For instance, the likelihood of someone stumbling may be high, while the likelihood of someone stumbling and dying is usually very low.

Do not confuse the likelihood of something happening with the likelihood that the incident will have the worst imaginable consequences.

There are several different models of evaluation that can be used. Below is an example of a model containing four levels. When assessing the consequences of an incident, the level of seriousness can be categorised according to the following:

1. **Minor consequences:** temporary, mild discomfort;
2. **Moderate consequences:** a small number of individuals injured, lasting discomfort;
3. **Major consequences:** a small number of casualties or deaths;
4. **Critical consequences:** numerous dead and injured individuals.

When assessing the likelihood of an incident occurring, the following scale can be used:

1. **Improbable:** has never happened but could happen;
2. **Unlikely:** not likely but has happened;
3. **Probable:** can happen, has happened;
4. **Very probable:** happens periodically, occasionally.

Read more about:
Central strategies in *Section 2.1.*

3.2.3. Risk evaluation

The purpose of a risk evaluation is to facilitate decision-making about how to manage the risk. This can be done in several different ways. Below is an example of a risk matrix that can be used.

Table 3. Example of a risk matrix

	Minor	Moderate	Major	Critical
Very probable	Manage	Eliminate	Eliminate	Eliminate
Probable	Manage	Manage	Manage	Eliminate
Unlikely	Monitor	Manage	Manage	Manage
Improbable	Monitor	Monitor	Monitor	Manage

- **Eliminate** means that a risk should be eliminated completely, or prevented so effectively that it can be said to have been eliminated.
- **Manage** can involve using various means to reduce the likelihood of a risk occurring, or minimising in advance the undesirable consequences or damages that could result from the risk.
- **Monitor** means that a risk is monitored. No direct measures are taken to minimise the risk.

One principle to follow is the so-called ALARP principle, where ALARP stands for '*as low as reasonably practicable*'. This means that you should reduce the risk as far as is practically possible within reasonable economic limits.

For a risk to be considered ALARP, it must be possible to show that the costs or the effects on other values of an event of additional measures to reduce the risk would be gravely out of proportion to the benefits achieved. For instance, the costs may too high or there can be negative effects on, e.g. accessibility, efficiency, or a visitor's experience of the event. When ALARP has been reached it is important to make an assessment: Has the likelihood of an incident occurring, or the severity of the consequences of the incident, been lowered to such a level that the risk is now acceptable?

There are many variations on risk matrices and on how the likelihood of an incident and potential severity of its consequences are coupled to the level of measures taken. For instance, should you monitor or manage a probable risk with 'low danger' consequences? The organisers of an event should choose the design of their risk matrix before they actually begin working with the risks.

Do not forget that a risk matrix is a tool and a guide, so do not let the risk matrix hamper how you work with risks. In general it is important that one can always upgrade a risk, i.e. choose to *eliminate* a risk that is labelled as *manage* in the matrix. However, you should be more careful before doing

A risk matrix is a tool and a guide, so do not let the risk matrix hamper the risk management work.

the opposite: a risk that has been evaluated as *eliminate* should not be downgraded to *manage* or *monitor* without first taking risk minimising measures.

3.2.4. Risk treatment

The final step in a risk analysis is to decide on and develop measures for the treatment of risks. The goal is to take measures that reduce either the likelihood or the potential consequences of the risk, and to move all risks that have been identified from the red and yellow fields to the green field (*Monitor*).

Certain risks may require multiple separate or interacting measures be taken in order to be manage them in a satisfactory manner. The risk management measures can include one or several of the following options:

- Avoid the risk, e.g. by calling off or changing activities that generate the risk.
- Eliminate the source of the risk.
- Change the likelihood of the risk occurring.
- Change the anticipated consequences should the risk nevertheless occur.
- Share the risk-taking, e.g. by taking out insurance.
- Accept the risk.

A risk should be accepted only after careful consideration of both its likelihood and the potential consequences of the risk. Do not forget that the organiser is still legally responsible for an event.

After having made a decision on risk minimising measures, a new assessment is made: Has the risk been managed in a satisfactory manner? If the answer is no, additional measures must be developed.

Read more about:

The MSB publication *Guide to risk and vulnerability analyses* can provide additional guidance for risk management work.

Minimising the risk of attacks in *Section 2.3.3.*

Table 4. Example of a list of risks (C means 'Consequences', P means 'Probability')

Risk	Causes	Before measures		Measures	After measures		Responsible person	Date when completed
		C	P		C	P		
Members of the audience fall at the entrances and injure themselves	High kerb Cable protector Poor lighting High crowd flow	1	3	Ramp to even out level differences Lighting masts Medical care facilities at the entrances	1	1		

It is important to decide

- Who owns the risk, i.e. within whose remit is the risk expected to fall?
- Who is responsible for carrying out the respective risk minimising measures?
- When must the needed measures be completed?

It also important that all risks that are identified are communicated to the people at an event who may be affected by them.

A risk analysis can often be updated and reused from one year to another, unless the conditions for an event have changed too radically. In most cases it is enough to make minor adjustments or complementary

additions on the basis of known changes in order to be able to reuse large parts of an earlier risk analysis. Conducting a proper risk analysis is thus time well spent.

3.3. Risk assessment of antagonistic threats

A risk assessment of antagonistic threats should be conducted separately from the overall risk assessment. Traditional risks are unintentional while antagonistic threats are actor-driven. In actor-driven threats there is an actor who actively attempts to avoid security measures to attain his or her goal.

The probability of a terror attack being carried out during a specific event is low. This fact, in combination with the unpredictability that comes from antagonistic threats being actor-driven, makes it difficult to rely completely on the traditional assessment that risk is derived from combining probability and consequences.

When assessing the risk of antagonistic threats, the issue of probability should be toned down. The focus in the risk management should instead be placed on identifying locations and phenomena with a high degree of vulnerability, where the consequences of an attack would be serious and unacceptable.

3.3.1. Vulnerability and reduction of vulnerability

Vulnerabilities are sometimes defined as 'the consequences that the organisation in question cannot anticipate, resist, respond to, and recover from'. Vulnerability thus means deficiencies in the protection of an asset which is exposed to some form of threat. When assessing vulnerability one must also take into account how important or critical an asset is. If the protection of an important asset is weak or deficient, the resulting vulnerability of this asset is high.

When assessing the vulnerability from antagonistic threats, the capacity of an event or an arena to deter, detect, and delay an attack is analysed. The vulnerability of an asset can be reduced either by increasing the protection of the asset, or by reducing the attractiveness of carrying out an attack.

- **Increased protection.** The protection can consist of both hard and soft measures. These can be physical protective measures, such as security glass and reinforced structures and buildings, but they can also be softer measures. An example of such a soft measure is having staff present and active, a measure which can increase the possibility of discovering and warning about a terror attack in progress.
- **Reduced attractiveness.** Reducing attractiveness refers to making an asset less interesting to an attacker, e.g. by geographically dispersing the assets that are being protected.

3.3.2. Scenario-based risk analysis

Working with scenarios has multiple advantages. For instance, a scenario is generally easy to absorb and understand also for those who do not normally work with risk analyses. In addition, scenarios often involve assembling people with several specialist competences for joint analyses and assessments. This increases reliability. Because the information base is often incomplete, it is of course difficult to achieve absolute certainty when generating possible scenarios. Under these circumstances you will

Read more about:

Central strategies in *Section 2.1.*

Basic principles for security measures against terrorism and antagonistic threats in *Section 2.3.5.*

Practical measures against terrorism and antagonistic threats in *Section 2.3.6.*

Terrorism and other antagonistic threats at eventsin *Section 1.1.3.*

have to make use of the information that is available and utilise the competences found in the analysis group.

All risk analyses involve some degree of subjective assessment. But because antagonistic threats are agent-driven, it follows from the nature of this situation that one can establish neither a true threat profile nor a correct probability assessment. For this reason, this type of analysis is associated with more subjective choices regarding what an organisation should focus on. These choices can be improved through an understanding of the process constituting a violent attack, knowledge about past attacks, and other related information.

The generation of scenarios is also a kind of initial probability assessment based on the available information base, because a scenario can reflect both outcomes with the greatest possible consequences and outcomes with fewer consequences.

During a scenario-based risk analysis *scenarios are created* in two steps:

1. Choosing which risks should be analysed
2. Identifying locations where or phenomena with which these risks could occur

Then the *risks are assessed* in two steps:

3. Vulnerability assessment
4. Consequences assessment

Finally the *risks are treated* in two steps:

5. Prioritisation
6. Choice of treatment options.

Before the analysis begins decisions must be made concerning geographical and temporal delimitations: which geographical areas the analysis should focus on and what period of time should be analysed. Also relevant responsibilities and roles must be clarified.

The analysis group that is assembled should consist of participants who have enough information and competence with respect to a) an event's surrounding area and geography, b) the event in question and its organisation, and c) safety and protective measures.

Read more about:

Methods of attack in *Section 1.1.3.2.*

Risk profile in the MSB brochure *Riskbild för säkerhet i offentlig miljö* [Risk profile for safety in the public sphere] at www.msb.se

3.3.2.1. Choosing the risks to be analysed

Begin by deciding which type of attack should be analysed. This is a kind of initial probability assessment in which note is made of the possible types of attack that can be envisioned.

Determining a risk profile is difficult work. This is because it is difficult to acquire reliable information, but also because antagonistic threats can change over time. In this context the Swedish-language brochure *Riskbild för säkerhet i offentlig miljö* [Risk profile for safety in the public sphere], which has been drawn up by MSB and the Swedish Police Authority, can prove useful.

Historically, the most common methods of attack have been with firearms, edged weapons, explosives, or the use of vehicles as weapons. However, there are also other methods that have hitherto not been used to the same extent, but which can still be considered a part of the prevailing threat profile. These include, among other things, attacks with chemical, biological, radiological, or nuclear (CBRN) agents, the use of drones, and arson.

Photo: User_83066/Shutterstock

3.3.2.2. Identifying locations where or phenomena with which risks could occur

Identifying the assets at an event or arena: Which locations and occurrences may be attractive for a perpetrator to attack? There are several factors that come into play here.

- **Crowd density** – the opportunity to cause as much harm to as many people as possible;
- **Publicity** – locations or occurrences where an attack will attract a great deal of media attention;
- **Vital societal functions** – an opportunity to cause harm to society;
- **Perceived security conditions** – the likelihood of a successful attack.

For each asset that has been identified, three things should be indicated:

- **Where** is the location of a prospective attack?
- **When** might an attack happen – what day, between what times?
- **What** may be harmed? People, physical objects?

On the basis of the assets, a number of scenarios can then be developed.

Examples:

Scenario 1: Vehicle as a weapon: People in a queue outside the entrance prior to admission.

Scenario 2: Explosive device: People in a queue outside the entrance prior to admission.

Scenario 3: Explosive device: People leaving a venue after the event

3.3.2.3. Vulnerability assessment

The next step is to assess the vulnerability of the location or phenomenon to the risk. In order to be able to rank and prioritise among different vulnerable assets, one can use a quantitative scale as a way of ranking the assets. However, it is important that qualitative aspects, i.e. what the vulnerability itself consists of, is not lost in this process.

In connection with vulnerability assessments it is useful to write down a description of the vulnerability, i.e. deficiencies in the protection.

Evaluating vulnerability can be done in several different ways, for instance with the aid of the following scale:

- **Low vulnerability:** This indicates that several layers of functioning protective measures have been implemented. An antagonist would have great difficulty in succeeding in an attack.
- **Medium vulnerability:** This indicates that functioning protective measures have been implemented. There is however at least one weakness that an antagonist may exploit in order to carry out an attack.
- **High vulnerability:** This indicates that some protective measures have been implemented. However, there are still multiple weaknesses that an antagonist can exploit.
- **Critical vulnerability:** This indicates that there is no functioning protection and that it is easy for an antagonist to exploit weaknesses.

On the basis of a vulnerability assessment you can then rank the vulnerability of each scenario.

Examples:

Scenario 1: The event has a vehicle-free zone and bollards along the queue. However, the automatic bollard sometimes malfunctions and gets stuck in a retracted position. The vulnerability is assessed as 2.

Scenario 2: You can walk all the way up to the queue with a large backpack without being addressed or stopped. The waste bins close to the entrance are covered and opaque. The vulnerability is assessed as 4.

Scenario 3: Just outside the entrance there is a large crowd flow at closing time. The same preconditions as in Scenario 2. The vulnerability is assessed as 4.

Table 5. Example of a vulnerability assessment

Threat	Asset	Vulnerability	x	Consequence	=	Risk value
Vehicular attack	Entrance queue	2	x		=	
Explosive device	Entrance queue	4	x		=	
Explosive device	Crowd flow out of the event	4	x		=	

3.3.2.4. Consequences assessment

Assess the consequences for each risk on the basis of the amount of harm that can be caused to an asset. Here one must assess how great the consequences of an attack would be, *in spite of* the protective measures that are already in place. This will be affected by the following:

- How many assets (e.g. audience members) are there at the location?
- Is there existing protection? If so: How effective is it?

Award each scenario a rank between 1 and 4 on the basis of how severe the consequences from an attack would be for the assets:

1. Very limited consequences
2. Limited consequences
3. Serious consequences
4. Very serious consequences.

The consequences of each scenario are ranked on the basis of a consequence assessment.

Examples:

Scenario 1: A heavy vehicle driving into the queue would have catastrophic effects. There is however relatively good protection, provided that the malfunctioning automatic bollard is repaired. The consequences are assessed as 4.

Scenario 2: An explosive device carried close to or thrown towards a stationary queue would have major consequences. The consequences are assessed as 3.

Scenario 3: An explosive device carried close to or thrown towards the outflow of visitors at an exit would have major consequences, but the crowd density is considerably lower than in the queue at the entrance. The consequences are assessed as 2.

Table 6. An example of a consequence assessment

Threat	Asset	Vulnerability	x	Consequence	=	Risk value
Vehicular attack	Entrance queue	2	x	4	=	
Explosive device	Entrance queue	4	x	3	=	
Explosive device	Crowd flow out of the event	4	x	2	=	

3.3.2.5. Prioritisation

Choose which scenarios should be managed on the basis of an appraisal of the balance of vulnerability and consequences. Even if it may be wise to focus on scenarios with serious consequences, scenarios with lower consequences but high vulnerability should also be considered.

Table 7. An example of a risk value assessment

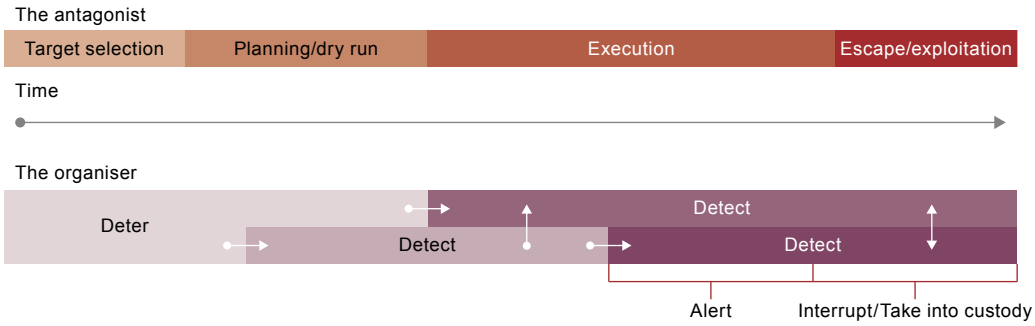
Threat	Asset	Vulnerability	x	Consequence	=	Risk value
Vehicular attack	Entrance queue	2	x	4	=	8
Explosive device	Entrance queue	4	x	3	=	12
Explosive device	Crowd flow out of the event	4	x	2	=	8

3.3.2.6. Treatment options

Based on the chosen scenarios there is now a foundation for the discussion of possible mitigation measures. The aim of the measures is to reduce vulnerability and increase protection. In this process it is important to have a wide-angle perspective and keep in mind what side effects various measures can have on other important event values, e.g. accessibility, availability, the experience of the event, or a sense of security. The goal is to reduce vulnerability while at the same time protecting the values of the event.

Read more about:
Practical measures against terrorism and antagonistic threats in *Section 2.3.6.*

Figure 6. The perspectives of the antagonist and the organiser



Here the four basic principles mentioned in Section 2.3.5 can be useful as a foundation for discussion:

- **Deter** means that a perpetrator refrains from carrying out an attack at the intended location. Because of the design of the security measures, the perpetrator assesses that the risk of failure is too great, or decides that they lack sufficient information to be able to assess whether or not an attack would be possible.
- **Detect** refers to security measures the goals of which are to discover reconnoitring, dry runs, or an attack initiated by a perpetrator and that can also provide a sufficient basis for deciding which countermeasures are to be taken.
- **Delay** refers to obstructing a perpetrator's opportunities to conduct an attack and mitigating the consequences of any attack that does occur.
- **Respond** involves measures which are intended to interrupt and manage the consequences of an attack. These measures are carried out mainly by the police, fire and rescue services, and ambulance services.

4. Legal liability, permits, and public authorities

Photo: MSB

4. Legal liability, permits, and public authorities

This chapter discusses the responsibility organisers have towards their visitors and co-workers, and the role of public authorities during an event. Which demands can these authorities impose, and how can they help an organiser create a safe and secure event?

Read more about:
The sale of alcohol in *Section 11.4.4.*

4.1. Legal liability

When an organiser is given permission by the police to arrange a public gathering or a public event, the organiser takes on a responsibility and thereby certain obligations regulated by law.

According to the Swedish Public Order Act (1993:1617), an organiser is responsible for maintaining good order at an event.

4.1.1. Responsibility for public order

According to the Swedish Public Order Act (1993:1617), an organiser is responsible for maintaining public order at an event. The Police Authority may communicate the conditions necessary for maintaining public order and safety at the gathering or event. The conditions must not lead to an organiser being encumbered with unnecessary expenses, or to the holding of the gathering or event being unnecessarily hampered in some other way.

An organiser can also be forced to reimburse the Police Authority for any expenses the police may have had for maintaining order at an event, if these expenses were caused by the organiser's dereliction. If you are an organiser and have subcontractors or vendors who are tenants, you must therefore make sure that they, too, follow the regulations and certification requirements. As an organiser, you should never be reluctant to place reasonable demands on the people you contract.

Remember that an incident that takes place outside an organiser's site is not normally the organiser's responsibility from a legal point of view. At the same time, such an incident will very likely be taken into account in the Police Authority's assessment the next time this organiser applies for a permit for a similar event.

4.1.1.1. Prohibited items list

An organiser can, when necessary, decide to ban certain items from being brought into an event. Such a ban is conditional, which means that a visitor is requested to voluntarily hand over the items in question when entering the site or in connection with being frisked. These conditions for entry should be seen as an agreement according to civil law between an organiser and a visitor, which means that the visitor must accept the conditions in order to gain entry.

Bringing into a site items that are prohibited by law, e.g. firearms, knives, pyrotechnics, or alcohol, is always forbidden. The use of alcohol is regulated in the Public Order Act, which states that liquor, wine, and alcohol may not be consumed or stored at a public event without a permit.

Any bans against bringing items into the site should be communicated to visitors clearly, for instance at the entrance, in connection with the distri-

bution of tickets, or on webpages prior to an event. A lack of transparency in communications about banned items can create irritation and increase crowd pressure at an entrance.

The rules of public order that apply to an event can also specify conditions for the size, material, or form of an item, e.g. flagpoles or bags, so that these items cannot be used as weapons or to facilitate bringing dangerous items, for instance an improvised explosive device, into the site.

A transparent and well-communicated policy for bags can both increase the speed of the crowd flow during admission (because fewer bags will have to be searched) and contribute to making it more difficult to bring dangerous items into the site. A bag policy can ban bags altogether, or limit the size allowed. There is no standard for what is a safe size for bags; each organiser must make that call on his or her own.

At certain events no bags are allowed, while at other events the size of bags is limited ('only small handbags' or 'a maximum size of 30×30×15 cm'). At some events only transparent bags or plastic bags are allowed.

All forms of prohibition against bringing certain items into a site should be adapted to the context and the circumstances that apply to the event in question. For instance, an outdoor event may mean that the visitors need to bring with them personal belongings, such as rain clothes and insulated garments.

Photo: Dziurek/Shutterstock

Textiles brought into an event site may pose a fire hazard. At many sports events the organisers therefore require that so-called *overhead* flags have been treated with flame retardants. One should keep in mind that textiles treated with flame retardants can lose much of their protection over time. To maintain an acceptable level of fire protection on the premises, one should reason according to the principle of parallelity. This means that loose objects, e.g. flags, should have the same fire protection class as other items on the premises, because the overall fire protection may otherwise be reduced. Limiting the size of flags can contribute to reducing the risk of fire as well as facilitating the control of messages displayed on the flags. Flags may also be used to conceal prohibited activities in an audience, something that can be prevented by limiting the size of the flags.

An organiser may provide a place for storing personal effects outside an event site, where visitors can hand in large bags or other prohibited items.

Read more about:

Handling prohibited items in *Section 19.2.2.2.*

Examples of what an organiser can choose to ban:

- pets
- masks used to disguise a person's identity
- alcohol
- glass or PET bottles
- scissors, pocket knives, and tools such as screwdrivers or the like
- felt pens or spray cans
- upholstered mattresses or furniture (at camping sites – fire hazard)
- recording equipment
- a large number of posters (without a permit)
- items for sale (without a permit)
- potentially dangerous items, e.g. air horns
- umbrellas
- flags, wooden or metal shafts, flagpoles, and other items that can be used as weapons
- stereos powered by electric generators or car batteries
- bags and backpacks

This can be a good idea especially at events at which you expect an audience with little experience of attending events. The storage of personal effects should be located far enough from the entrances that any potential threat profile can be responded to without affecting the event.

An organiser's staff cannot confiscate the items found on people, whether or not they violate the rules of the event. Only the police or public security guards are allowed to confiscate items, and then only items that are forbidden according to law.

Read more about:
What events require a permit or a notification in *Section 4.2.*

4.1.1.2. Access restrictions

An organiser may deny access to an event if the person demanding access does not comply with the event's public order rules. The person may, for instance, lack a valid ticket, violate the ban against prohibited items, or refuse to have their personal belongings searched. Access can also be denied if a visitor breaks the law by trying to bring in illegal items, such as knives, alcohol, or pyrotechnics.

A person can also be denied entry to enclosed places intended for sports events, which is regulated by the Act (2005:321) on access restrictions at sports events. Such an access prohibition is determined by a public prosecutor, and can be issued if there is a risk that the person in question will commit crimes during the event that risk disrupting public order or compromising safety. Access restrictions can involve, for instance prohibitions against visiting certain types of league games for a certain period of time, regardless of the arena being used.

4.1.1.3. Mask ban

At sports events arranged at a sports ground, people are forbidden to completely or partially cover their faces in a way that makes it difficult to identify them. This prohibition is regulated in the Public Order Act, but does not apply to a person who, for instance, covers their face for religious reasons. Other reasons, such as weather conditions, health issues, or other circumstances, may also justify covering one's face. At all events where an organiser is obligated to apply for a permit or notify the police, there is, in connection with the application or notification, a possibility of requesting permission from the police that participants be allowed to cover their faces.

According to the Act (2005:900) on prohibitions against wearing a mask in certain cases, there is also a prohibition against covering one's face during a demonstration or other expression of public opinion. This prohibition is applicable if, during or in connection with the gathering, there is a risk that a public disturbance in the form of violence, vandalism, or other criminal activity may occur, or if such a disturbance should in fact occur. It may be advisable for the police to announce that there is a prohibition against masks, but this is optional, because there is nevertheless a prohibition against the wearing of masks in certain situations. This type of prohibition against masks can be appropriate at events where there are demonstrations or public expressions of opinion.

At sports events or festivals it is often possible to regulate a prohibition against masks using public order rules linked to the event, which then correspond to an agreement under civil law. This means that people can be denied entry to an event or be turned away if they do not comply with the prohibition against masks.

4.1.1.4. Public order rules at arenas

At an arena event, the arena owner in most cases rents out the arena to an organiser. The organiser has the primary liability for the event, including liability for, among other things, safety and public order. Any public order rules are then in many cases linked to the event in question, and may vary depending on the type of event, for instance whether it is a concert or a sports event.

Sometimes there are also public order rules that are linked to the arena, for example specific prohibitions against bringing items into the arena, rules regarding re-entry and ticket handling, or regulations regarding food and drink. There may also be requirements regarding the design and capacity of an arena that must be followed before a permit is granted for arranging sports events at a certain level at that arena. These requirements often contain rules about public order and safety, such as the use of safety staff and their numbers, camera surveillance, searches, and monitoring.

This means that the same arena may have different public order rules when it is being used for different types of events, and that the same type of event can have different public order rules in different arenas.

4.1.1.5. Rules and regulations for different sports

When it comes to sports events, there are often rules for the competition or special public order rules that have been laid down by a specialist sports association for the sport in question. There may also be international rules that have an impact on the rules of public order. The public order rules of an event complement the public order rules that apply to an arena and can, for instance, deal with

- access restrictions (for, e.g., spectators, staff, athletes, judges, and the media) for different parts of the arena;
- an assigned transport route to and from the arena;
- a section of the arena dedicated to away team supporters;
- an obligation to submit to frisk searches or identity checks;
- prohibitions or limitations regarding bringing items into the arena with respect to, e.g., bags, or regarding the design of flagpoles;
- prohibitions against taking photographs, recording videos, or making other types of recordings for the reproduction of images or sound without permission;
- prohibitions against marketing or selling products and services without permission;
- prohibitions against loitering on stairways, in stairwells, or in emergency areas;
- information about the fact that people may be turned away if they violate the rules of public order.

Photo: Matushchak Anton/Shutterstock

Various specialist sports associations determine which rules apply to their own sports. The Swedish national associations have their own rules, but they are also bound to follow international regulatory frameworks. Different leagues and levels also have their own regulatory frameworks adapted to the level at which they are playing.

When the sport within an association is being conducted at an elite level, additional requirements are usually imposed on organisers, for instance with respect to the design of a team's arena and its safety, and with respect to an association's economy having to be balanced.

4.1.1.6. National and international rules

The international sports associations determine the respective international regulatory framework for each sport. In certain cases, there is also a European sports association that has an additional regulatory framework applicable specifically to the European associations. The national associations then add their own regulatory frameworks to this. The basic rule is to not change the international or European regulatory frameworks but simply add the national rules to them.

There are cases where international regulatory frameworks collide with Swedish regulatory frameworks. An example is that the international football association has a rule that tickets may not be sold in an arena, while the manual of the Swedish elite football association requires that tickets should be sold at games at the elite level. In order to solve this conundrum, ticket sales have been moved to a location one hundred metres outside the arena.

4.1.2. Responsibility for fire safety

According to the Act (2003:778) on protection against accidents (LSO), owners or usufructuaries of buildings or other facilities are responsible for their fire protection. This means that they are obligated to make sure, to a reasonable extent, that there is equipment available for putting out fires. They must also take the necessary measures to forestall fire, and to prevent or reduce harm that may be a consequence of fire.

Read more about:

Evacuation routes in *Section 9.5.*

Emergency lighting in *Section 7.6.2.*

Emergency access roads in *Section 7.3.6.*

LPG in *Section 11.4.1.*

Pyrotechnics in *Section 14.2.1.*

Fire alarms and pyrotechnics in *Section 7.8.3.*

Systematic work on health and safety in the workplace in the Swedish Work Environment Authority regulation AFS 2001:1.

Risk management in *Chapter 3.*

ISO 20121:2012 in *Section 12.4.*

MSB has in its general advice (SRVFS 2004:3) indicated that reasonable protection against fire means that one should also work with systematic fire protection. This means working preventively, so that a fire can be prevented from breaking out in the first place, but it also refers to what has to function well if a fire nevertheless should break out. Fire protection efforts include dealing with civil engineering as well as organisational issues.

The following are examples of the civil engineering aspects of systematic fire protection efforts:

- evacuation routes
- emergency lighting
- emergency access roads.

The following are examples of the organisational aspects of systematic fire protection efforts:

- division of responsibilities
- information
- training and walkthroughs
- instructions and procedures.

Read more about systematic fire protection efforts in MSB's general advice and comments (SRVFS 2004:3) concerning systematic fire protection efforts.

It is also important that an organiser ensures that anything that may involve a risk of fire or explosion, such as LPG or pyrotechnics, is handled in the proper manner.

Read more about:

The Working Hours Act on the website of the Swedish Work Environment Authority *www.av.se/en/*

According to the Act (2003:778) on protection from accidents (LSO), owners or usufructuaries of buildings or other facilities are responsible for their own fire protection.

4.1.3. Responsibility for health and safety in the workplace

An organiser is usually also an employer. In the Work Environment Act (1977:1160) there are rules about an employer's responsibility for preventing ill-health and accidents at work.

The point of departure for an organiser's work with occupational health and safety at an event are the systematic occupational health and safety efforts. These include investigating, implementing, and following up any measures taken so that ill health and accidents at work are prevented and a satisfactory work environment is achieved. When doing this, the conditions of the working environment can be clarified, for instance through a risk analysis.

There are additional conditions that are regulated in the various regulations of the Swedish Work Environment Authority. These may need to be updated depending on the results of the systematic efforts concerning health and safety at work.

A few examples of such conditions are the following:

- the design of a workplace
- threats and violence against staff
- first aid and crisis support for staff
- working at height or on scaffolding
- working in noisy environments
- work clothes and work equipment
- heavy lifting
- personal hygiene, food, and rest for staff.

Photo: Johanna Lundberg/Bildbyrån

The Work Environment Act also regulates the responsibility for coordinating work activities when one or more traders operate in a shared location, which is often the case at various events. The Work Environment Act (Chapter 3, Section 7, 1977:1160) describes how the parties should collaborate and consult with each other in order to promote a good work environment.

In Sweden there is also a Working Hours Act (1982:673) that regulates working hours, breaks, and the daily rest of employees.

Unpaid staff should sometimes be considered as employees, sometimes not. This is a labour law issue that has to be dealt with on a case-by-case basis. An organiser who is unsure of what applies should contact the Swedish Work Environment Authority. A serious organiser should in any case make sure that all co-workers have a good work environment.

There is an international standard for event sustainability management systems (ISO 20121:2012) that deals with, among other things, employer responsibility, waste management, and accessibility adaptation.

Read more about:

The planning and permit process prior to a game in *Section 4.2.2.*

Unpaid staff should sometimes be considered as employees, sometimes not. In the event of uncertainty one should contact the Swedish Work Environment Authority.

4.1.4. Insurance

Taking out insurance can be part of the risk management work. Certain risks that have been identified but that have been impossible to deal with in any other way can be transferred to an insurance company. Such risks can, for instance, include injured staff, damaged equipment, incidents that lead to an event not being held as planned, performers or athletes who cancel, or interruptions in TV broadcasts.

An organiser should negotiate with the insurance company about the appropriate insurance protection for staff, visitors, and equipment. Make sure you provide the insurance company with a good description of the event in question, and then have a dialogue with the company, so that the appropriate insurance protection is obtained. The dialogue should be documented in an insurance policy.

An application for a permit to hold a public event or a public gathering should be submitted to the police.

4.2. Permits

In most cases an organiser is obligated to apply to the police for a permit to hold a public event or public gathering, or to notify the police that such an event or gathering will be held. This is regulated in the Public Order

Act (1993:1617). The character of the event decides whether a permit is required or if it is enough to simply notify the police.

One may also need permits from other authorities, depending on where the event is to be held. For instance, a permit is needed from the road maintenance authority if the event is to be held on a public road. At sports events, a permit is required if the event is to be held in a public place, but if the event is held at an arena it is usually sufficient to notify the police.

Dance events are considered public events, while music performances are considered public gatherings. This means that it can sometimes be difficult to determine just what kind of event is actually being organised. Such problems can however be solved by establishing good preliminary contacts with the police, and by applying for any permits required in good time.

Read more about:
Various permit fees at the website of the Police Authority polisen. *www.polisen.se/en/*.

Table 8. Application model for public events and public gatherings

		Public place	Other area			
			Local zoning area		Locations not included in a local zoning area	
			Indoors	Outdoors	Indoors	Outdoors
Public event	Dance event, funfair, market, motor race	Permit	Permit	Permit	Permit	Permit
	Other public events, for instance sports competitions	Permit	Notification	Notification	Notification	Notification
Public gathering	Concerts, theatre performances, performances of art works, film screenings	Permit	Notification	Notification	No permit, No notification	No permit, No notification

According to the model here, most music events that do not have dancing as their primary purpose end up in the public gathering category, unless other activities classified as public events are included in the event, such as motor races or funfairs. This means that an organiser is not always obligated to apply for a permit or notify the police about an event that will take place.

An example of this is a concert held outside a local zoning area in a place which is not a public place. For such a concert neither a permit nor a notification is required.

In reality this makes no difference to a serious organiser, because safety should always have the highest priority. Even if a planned event ends up in a category that does not require a notification or a permit, an organiser should nevertheless notify the police, the fire and rescue services, and the medical services about an event, so that they can maintain a state of readiness in their respective spheres of activity.

It can be difficult to know which permits are required. Contact the police in good time in order to clarify any questions still unanswered.

4.2.1. Permit procedure

In a permit procedure different things are taken into account, e.g. public order and safety conditions, the event type, and the appropriateness of the location or venue. Other factors that may come into play are traffic conditions, an elevated risk of fire, whether an event may pose a risk to the public, or if it clashes with another, simultaneous event or occurrence. The history of the location or the event in question is also taken into account.

There may, for instance, have been widespread disturbances of public order or traffic problems during earlier events.

A number of authorities and organisations are involved with the permit procedure, but an application for the permit itself is made to the police. The police will then refer the application to the authorities concerned for consultation. Below, the most commonly consulted authorities are presented, even if additional organisations may also be affected, such as the Swedish Coast Guard, Swedish Customs, harbour authorities, or large corporations.

- **The police** is the authority that issues a permit for an event after having consulted other relevant authorities. Other concerned authorities provide authorisations or directions on the basis of their respective areas of responsibility. Exactly which authorities are involved varies depending on the nature of an event.
- **The municipality** can grant permission for, express an opinion on, or exert supervision over a number of conditions. Municipalities have a fairly large degree of independence when it comes to organising their activities. For this reason, similar matters must be referred to different municipal authorities in different municipalities. The most common municipal authorities in this context are the fire and rescue services, the environment and health protection service, and the social services.
- **The region** (health and medical care) usually has an application sent to them for consultation, so that they can assess whether the event may occasion an increased burden on the regular health and medical services.
- **The county administrative board** in certain cases make decisions, after consulting with the police, about permits regarding motorsport events, competitions, or shows involving vehicles on public roads.

Send the permit application in good time.

Send the permit application in good time. The decision-making authority must have reasonable time to process the matter, and this means that applications for larger events must often be sent in at least a couple of months before the event is to be held. A timely application also gives an organiser sufficient time to address any remarks, which increases the chances of obtaining a permit.

For an application to be processed, an application fee must be paid to the Police Authority in advance. This fee covers the cost of the police processing of the application. It will not be reimbursed if a permit is denied.

4.2.2. The planning and permit process prior to a match

A number of organisations are involved in the planning of a sports event. The parties involved and their efforts should be adapted to the prerequisites of the event. However, the process and organisation assume different forms for different sports. Below is an example of what the organisation and the process for elite football can look like, but this process is also applicable in part to other sports.

4.2.2.1. The organisations and roles involved

The organisations involved in the process are the clubs for the two competing teams, the police, the municipality, and the central association of the sport.

The following people often participate from the clubs:

- **The club manager** represents the club as a whole.

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- **The head of safety** plans and implements the safety operation for the game.
- **The supporter contact person** (in elite football the *Supporter Liaison Officer*, SLO) acts as a liaison to the supporters and also works with dialogue and coordination.

From the police several different police personnel may be involved:

- **The strategic commander** leads and is responsible for all police activities within the framework of an emergency event.
- **The police operational commander** is the tactical leader of the police operation.
- **The senior arena officer** acts as a site manager who is subordinate to the police operational commander and can, for instance, tactically lead a police operation inside an arena, as well as be responsible for the collaboration with the organiser, the arena owner, the safety organisation, and other actors at an event.
- **Dialogue police officers** with a focus on public events work close to the supporters, primarily with dialogue and communication.
- **Supporter police officers** work with preventing violence and disturbances of public order, primarily by using information gathering, observation, and documentation.

The actions of a municipality and a region depend on the risks that have been identified prior to a match. The following representatives may take part in the planning:

- **The head of municipal safety**, who provides local knowledge of, and influences, such things as the transport route of the supporters to and from an arena. This person also determines whether additional measures will be required, for example if roads need to be closed.
- **Public transport**, e.g. whether there is a need to adapt the frequency and routes of buses and trains;
- **The fire and rescue services**;
- **Health and medical care**.

From the central association the following people may be represented:

- **The match delegate**, who represents the central association and whose task it is to monitor the match arrangement. This person can impose demands and requirements on the clubs in order to ensure that a match can be played in a safe manner.
- **The safety delegate**, who is appointed for matches that are deemed to require elevated preparedness, and whose task it is to monitor safety issues in connection with the match arrangements.

4.2.2.2. The planning and decision process

The organisations involved collaborate and interact with each other on several occasions, both during the planning process and during an event itself.

The process in general is as follows:

1. An agreement to play a match is entered into between the clubs. This document states the preconditions for the match and is referred to the central association for consideration. The agreement then functions as a basis, both for an application for a permit and for continued dialogue.
2. An application for a permit is sent to the police, who assesses the application and imposes requirements before a match takes place.
3. A planning meeting is organised prior to high-risk matches, and in certain cases prior to normal-risk matches, by the match delegate seven to fourteen days before a match is played.
4. A preliminary meeting is organised by the match delegate on the day when the match is to be played.
5. The match is played.

In addition to this, it may be a good idea to hold a meeting before each season with any local organisations concerned. You can then go through current conditions that apply, any recent changes, what is important for each respective stakeholder, and what should be done during each match.

Read more about:
The planning meeting before a game in *Section 19.6.1.*

4.2.2.3. Assessing and managing high-risk matches

The matches in the highest echelons of the football and ice hockey leagues are classified into three levels of risk, where account is taken of the supporter traditions of active clubs when it comes to risk behaviour. The importance of an individual match in terms of its impact on the sport in question is also an important factor, not least when it comes to assessing how many away-team supporters are expected to attend a match. The time in the week and the time of day also make a difference.

Often the concepts of low-risk matches, normal-risk matches, and high-risk matches are used. In football the concept of Planning Programmes 1–3 (PP1–3) is used, where Planning Programme 1 is low-risk and Planning Programme 3 is high-risk.

The below points of departure for classification should be seen as a framework; organisers can freely choose their own classification scheme regardless of whether the criteria specified here have been fulfilled or not. In certain cases an organiser's classification may be different from the one the Police Authority makes on the basis of its own analysis of external circumstances. If an organiser and the police have initially made different assessments of the risk level of a match, they should try to reach an agreement on a mutual classification for the match, because a shared planning platform is always preferable.

The organiser and the police should try to agree on a mutual classification for a game.

Within risk assessment there are no major differences between the prerequisites for football on the one hand and ice hockey on the other, so the arrangement can be said to be general, even if in many cases it is the football regulatory framework that is referred to.

Low-risk match

A match is considered low-risk if no disturbances of public order are expected or if only a small number of away-team supporters are expected to show up.

The preliminary meeting led by the match delegate is held no later than two hours before the match. At this meeting, the agreement between the

home and the away team to play the match is gone over. Representatives for both clubs, as well as their heads of safety, the arena owner, the police, and possibly the fire and rescue services, should participate in this meeting.

Read more about:

Safety and security during a match in *Section 19.6.*

The contents of a safety plan in *Section 1.5.*

Normal-risk match

A match can be classified as normal-risk if one or more of the conditions listed below are met:

- The arena is expected to be full or have more than 10,000 visitors.
- A large number of away-team supporters are expected to be present.
- Disturbances of the public order are expected in connection with the match.

In football a normal-risk match means that a preliminary meeting is held no later than three hours before kick-off. The same representatives as for low-risk matches should participate in this meeting. If the guest team and the match delegate agree, the meeting may be held no later than two hours before kick-off.

In addition to this, a match delegate can convene a planning meeting that should be held no later than seven days before the game, if this is considered necessary.

High-risk match

A match can be classified as a high-risk match if one or more of the below conditions are met:

- The arena is expected to be full or have more than 10,000 visitors.
- The expected number of away-team supporters make up 10% or more of the total number of spectators (on neutral ground both teams are considered to be away teams).
- Disturbances of the public order may be expected in connection with the match.
- The match will attract especially great interest from supporter groups.

Within football a high-risk match means that a preliminary meeting is held no later than three hours before kick-off. The same representatives as for low-risk matches and normal-risk matches should participate. In addition to this, a planning meeting is always held no later than seven days before the match.

The risk class of a match affects the need for safety measures for the event. A high-risk match requires more comprehensive safety measures than a low-risk match. However, exactly what these measures consist of varies to a certain extent from one match to another.

The planning of measures before a high-risk match should be done conscientiously, and they should be adapted and proportional to the risks that have been identified. The measures planned should also take into consideration the complete picture as well as other aspects of an event, such as crowd flow, accessibility, and evacuation, in order to avoid new risks or problems developing.

4.2.3. The contents of an application for a permit

In order to receive permission to hold an event, an organiser must show in an application how they intend to live up their responsibilities as organisers. The application should be directed to the Swedish Police Authority who

In order to receive a permit to hold an event, an organiser must show in an application how they intend to live up to their responsibilities as organisers. An application form for a permit can be downloaded from the website of the Swedish Police, polisen.se/en/.

then forward it to other concerned authorities for consideration. It should contain a completed application form ('Application for a permit in accordance with the Public Order Act and local regulations') for a permit to hold a public event or a public gathering.

For minor events, it can be sufficient to have a correctly completed application form and a map of the structures of the site, a schedule of activities, and an appendix describing the safety work at the event. For major events a considerably more comprehensive application is required, and then the following documents and information may also have to be enclosed with the application form:

- **The event safety plan**, which describes the event and how the organiser works with safety. In this plan it may be particularly important to include the following:
  - an event description
  - a plan of the site
  - rules and general guidelines
  - an organisational outline
  - a list of risks
  - specific plans, e.g. a contingency plan or a crowd management plan.
- **Pyrotechnics** or stage effects must be described in detail in a permit application if the organiser intends to use such things during an event. Also the date and time of their usage must be stated in detail. The following should be made clear:
  - information about the person responsible for the pyrotechnic items and their usage;
  - a more detailed description of the types of pyrotechnic items that will be used and their authorisation numbers;
  - how and where the pyrotechnic items will be located on the site;
  - where the pyrotechnic items will be stored before, during, and after an event;
  - a plan of where the pyrotechnic items will be placed and where they will be stored.
- **Any collaboration partners** with whom you work should be identified, and the nature of the collaboration with them should be described. Such collaboration partners can be, e.g. the region, the fire and rescue services, or the social services.
- **Other permits** that have been applied for with other authorities and public bodies should be described, e.g. permits for serving food or alcohol, a permit for camera surveillance, or a permit to fly a drone.
- **Inspection protocols**, certifications, and standards. If, for instance, a marquee or a merry-go-round will be used, an organiser may demand to see an approval certificate or an inspection protocol and then enclose this with an application for a permit.

When there is a comprehensive information basis for an application, the police and an organiser can at an early stage obtain an idea of the safety measures required, not least with respect to public security guards.

Read more about:

Permits for pyrotechnics in *Section 14.2.1.1.*

Lasers in *Section 14.2.5.*

The more information an organiser provides in an application for a permit, the greater the chances of the application being approved.

4.2.4. Other permits

Depending on the nature and contents of the event, a number of other permits may have to be applied for in addition to the permit for the event itself. Some of the most common ones are listed below.

- **A permit to use pyrotechnics.** At an event a permit to use pyrotechnics is in principle always required. You should apply to the Police Authority for this permit.
- **A permit to use lasers at an event.** In order to produce laser effects in the vicinity of an audience one must have permission from the Swedish Radiation Safety Authority. When free laser beams (laser beams that lack a beam trap) are used, special rules apply for reasons relating to flight safety.
- **Permission to serve alcohol.** Serving alcohol at an event requires a special permit. If alcohol is to be served for a limited period of time, for instance at a festival or to a private group of people, a temporary serving permit can be applied for. You should apply to the municipality for a permit to serve alcohol.
- **Permission to sell food.** Food vendors at an event must be registered with the municipality as food establishments. An organiser should make sure that any food vendors at an event can prove that they are registered in their home municipality. In some cases a new application may be required in order to sell food at a specific event.
- **A permit for handling LPG.** In many cases, LPG handling requires a permit or a notification to the fire and rescue services.
- **A permit for camera surveillance.** All camera surveillance where identifiable people are filmed requires a permit from the Swedish Authority for Privacy Protection (IMY). This application must contain, among other things, information about the purpose of
- **the surveillance, and you must have a so-called justified interest in order to be allowed to conduct camera surveillance, such as the prevention or investigation of crime.** Authorities and other bodies performing tasks in the public interest may conduct surveillance without a permit in locations to which the general public does not have access, but even then they must follow the rules in the General Data Protection Regulation (GDPR).
- **A permit to fly a drone.** The rules surrounding drones are relatively complex, but in principle you always has to have a permit in order to fly a drone over or near crowds of people. In most cases you must also have certification training. You can apply for a permit and for certification training at the Swedish Transport Agency. Additional permits may also be necessary in order to fly a drone, and it is appropriate to check with the municipality as to whether there are any local limitations.
- **Building permit.** In certain cases you need a building permit from the municipality to be allowed to erect temporary structures such as, for example, a stage, a marquee, or a stand. These rules vary from one municipality to another.

Read more about:

The sale of food in *Section 11.4.3.*

The handling of LPG in *Section 11.4.1.*

Camera surveillance and the General Data Protection Regulation in *Section 7.8.1.*

Drones in *Section 7.4.*

4.2.5. Collaboration during the permit procedure

In some cases there is no significant collaboration between the authorities and an organiser. This is mainly true of smaller events, but also of larger events where neither an organiser nor the authorities have understood the advantages of jointly planning the event safety. It is important to realise that the permit procedure is a collaborative process, not a struggle between the authorities and an organiser. For both parties, the goal is to have a safe and enjoyable event.

Experienced organisers and authorities begin collaborating early on in the process. The authorities and the organiser should meet in good time before an event to go through what might happen, what risks exist, and what contributions each party can make in order to ensure that the event is safe and realisable. Good collaboration during the permit procedure often forms the basis of good collaboration during the event itself.

One recommended way of working in order to clarify how the requirements of various authorities coincide, or sometimes conflict, with each other is to convene a meeting during the permit procedure. At this meeting, all the authorities involved should participate in order to discuss and agree on the common requirements that will be imposed on an event. This creates balance, consensus, and a basis for enhanced collaboration.

The permit procedure is a collaboration, not a battle, between the authorities and an organiser. For both parties, the goal is to have a safe and pleasant event.

4.3. Authorities and public services

During most major events there will be personnel from the police, the health and medical care services, and sometimes also the fire and rescue services on site. Other public services may also be present. An organiser should, to the greatest extent possible, help meet the authorities' needs for restricted areas, parking places for their vehicles, etc. It is desirable if the organiser already during the permit process conducts a dialogue with the authorities regarding these issues.

You should endeavour to begin a collaboration with the proper authorities and public services already early on in the process. By creating a joint picture of the situation together with the proper authorities and public services, many aspects of the work can be simplified. In the collaboration process it is important that the legal liability among the different parties is clarified, so that the proper actor takes the correct measures at the appropriate time.

It is a good idea to hold regular meetings between representatives of the authorities and an organiser during the course of an event. Problems taken up at these meetings can then often be solved in collaboration. It is desirable to set up a joint command site where these meetings can be held. It is also desirable if this command site can be equipped so that it can also be used as a command and control centre in the event of a crisis.

Photo: Mickes Fotosida/Mostphotos

4.3.1. The Swedish Police Authority

The task of the Swedish Police Authority is, among other things, to anticipate, detect, and prevent criminal activity, and to investigate and take measures against crimes subject to public prosecution. The police decide whether to issue a permit for an event, and determine how many appointed public security guards should be on site during the event. In the higher divisions of the football and ice hockey leagues, the police also participate in the collaboration and planning for the maintenance of public order during matches. In many cases, the police can act as advisers on diverse issues regarding public order. The police will know what causes for concern exist at the location where the event is to be held: Are there unruly gangs, much drunkenness, socially disadvantaged areas, etc.?

During certain types of events the police may be on site to provide support, but it is the organiser who is responsible for public order and safety at an event. At major events there are often police patrols on site. These patrols can be contacted via SOS Alarm and the public security guards via the police command and control centre.

At the elite levels in football and ice hockey, special supporter police officers work together with sports clubs and the sport's association to reduce violence in an arena. This work is organised somewhat differently in various parts of the country, depending on local demands. Supporter police officers act as a link between the Police Authority, sports clubs, and supporter clubs. They often participate in the joint planning prior to various events and can offer valuable support to an organiser.

Disturbances of public order, vandalism, and brawling at sports events are often initiated by the same recurring individuals, and the local supporter police officers often have good knowledge of local troublemakers. At certain events so-called dialogue police officers are also used. They convey information between the police and various participating groups at an event, such as supporter groups.

If regular meetings among the authorities and an organiser are held during the course of an event, any problems taken up can usually be solved effectively through collaboration.

The police can, in many cases, act as advisors on issues concerning public order. The police will know what causes for concern exist at the location where the event is to be held.

The police may be on site to provide support, but it is the organiser who is responsible for safety at an event.

In certain circumstances the police can choose to cancel, dissolve, or forbid an event when other measures have proved insufficient to maintain order and safety. These circumstances are regulated in the Public Order Act.

The licensed public security guards are under the command of the Police Authority, but are employed by an organiser and carry out their duties in accordance with their appointment. The organiser can therefore direct the public security guards him- or herself, as long as the police do not see a need for their reallocation. The reason for such a reallocation should always be communicated to the organiser.

Read more about:

The collaboration process and current collaboration partners in *Section 5.2.*

The command and control centre in *Section 5.2.2.* and working in a command and control centre in *Section 19.1.4.*

Public security guards in *Section 5.6.*

4.3.2. Health and medical care

The medical care service at an event has two main tasks:

- taking care of acute cases of illness and injury among the audience, participants, staff, or performers, i.e. the needs for care or first aid that are directly related to the number of people gathered and the type of event in question (so-called everyday incidents);
- taking care of more serious injuries following a special incident during an event.

In several sports (e.g. motorsport and equestrianism) there is a greater risk of participant injuries. The central associations of these sports have developed guidelines for the organisation of medical care at events. Consult the central association in question in order to find out what applies at such an event.

The public health and medical care services have no obligation to be present at larger events, but according to the Health and Medical Services Act (2017:30), HSL, each respective region should offer emergency health and medical care to everyone who is within its borders. According to law, a region is obligated to plan their health and medical care so that a disaster medical preparedness is maintained within the borders of the region. This means that a region can choose to allocate a prehospital management unit consisting of a medical care manager and a medically responsible person to an event, as well as ambulance resources in order to increase preparedness in the area in question. However, these units are at the region's disposal, which means that they can sometimes only be present during certain times or can be prioritised for other assignments.

During an incident, for instance when there are multiple casualties, a prehospital medical care management unit (often in the form of an ambulance or a command vehicle) may be sent to an event if this unit is not already there. The medical care management unit's task is to lead and allocate the work with any additional units, collaborate with the event safety organisation and other emergency service actors, and stay in direct contact with the region's official on stand-by (TiB).

An organiser cannot be legally obligated to provide medical care resources for an event (with the exception of motor races on a track). However, if the event is disproportionately large in relation to the resources of the local medical care services, it is possible to agree during the permit process that an organiser must provide medical care resources before the event is given a go-ahead. Having one's own medical care resources thus in practice becomes a condition for the event to be given a permit. In addition, providing medical care resources is an excellent service to offer to visitors, while at the same time they contribute to an increased sense of security.

It is important that the event medical care organisation contacts and maintains a good dialogue with the region's crisis and disaster medical preparedness organisation, both during the planning and the evaluation processes. It is also advisable to keep statistics of any actions performed, because these form a good foundation for the joint planning of any future events.

The event medical care organisation can consist of anything from patrolling so-called first-aiders and medical care workers to a large organisation with first-aiders, nurses, doctors, and large hospital tents. In addition to the medical care organisation itself, it is advisable to also give other event staff basic training in administering first aid.

Read more about:

The work of the medical care services on site in *Section 20.5.2.3.*

The event medical care organisation in *Section 5.7.*

The audience in *Chapter 16.*

4.3.2.1. Everyday health care

The more people who are gathered in one area, the greater the risk that someone will fall acutely ill or suffer an injury or some other ailment that requires some form of first aid or medical care.

The number of people in need of some form of medical intervention at an event varies according to the composition of the crowd, the type of event, weather conditions, access to water, and a number of other factors. It is important to plan an event on the basis of prevailing conditions. For instance, during a football tournament for young people the most common injuries can be sports-related, while an event that attracts an older audience can bring with it other types of ailments. Here an audience profile developed during planning may help determine the need for medical care at an event.

Photo: Henrik Nilsson

During an event that lasts for several days, the demand for medical care will be largely the same as that normally experienced by regular health and medical care services, so-called everyday healthcare. This is because people with various chronic illnesses (such as asthma, diabetes, heart disease, or psychological problems) may participate in the event.

The number of visitors who require some form of medical help during an event day varies from one event to another. Statistics show that as many

Statistics show that as many as 4% of the people in an audience will require some form of medical care during an event day.

as 4% of the people in an audience will require some form of medical care during an event day. Of these, about 10% will require further treatment, and about 1% of those who originally sought medical help will have to be transported to a hospital. In an audience of 10,000 people this would translate into 100–400 medical care interventions every day, of which ten to forty will need further treatment and one to four will need hospital care. However, most of the problems for which people seek help will be easy to treat on site.

With respect to participants in long-distance races, this number is often higher. During long-distance ski races (longer than fifty-five kilometres) and half-marathons (twenty-one kilometres), the share of participants who seek some form of medical help tends to be around 1–5%, while the proportion during marathons (forty-two kilometres) may be as high as 20%. The majority of these people have collapsed from exhaustion, which is often easily treated in a hospital tent, but a small proportion of them may require ambulance transport.

4.3.2.2. Pharmaceuticals

If a sales outlet or association wants to sell non-prescription medicines at an event, this must be reported to the Swedish Medical Products Agency. Regulations require that a business set up its own self-monitoring program before sales begin, and that it follows the existing regulations, for instance with respect to storage and supervision of non-prescription medicines. The Medical Products Agency and the municipality can be consulted during the planning stage.

Prescription medicines can only be provided by a pharmacy, and the establishment of a pharmacy on an event site follows the same permit process as does the establishment of a regular pharmacy. Therefore, this can reasonably only be considered in the case of large and long-lasting events.

If the event has its own medical care organisation with doctors and nurses, a doctor must issue a special delegation to nurses so that they can handle both prescription and non-prescription medicines. In other words, a delegation from their ordinary place of work is not valid.

4.3.3. The fire and rescue services

An organiser has an obligation to make sure that the risk of fire and other accidents is minimised in connection with an event. According to the Act on protection from accidents (LSO), the municipal fire and rescue services are not obligated to take action until an accident has occurred or when there is an imminent risk of an accident occurring, in order to prevent and limit injuries to people and damage to property or the environment.

However, the municipal fire and rescue services only provide rescue services when this is justified with respect to the need for a quick intervention, the importance of the threatened object, the costs of the intervention, and other circumstances. In addition, the municipality shall make sure that measures are taken to prevent fire as well as damage or injury as a result of fire, and endeavour to provide protection from accidents other than fires, without limiting the responsibility of other actors.

In connection with the police processing of an application for a permit to hold an event, the fire and rescue services are often given an opportunity to comment on fire safety at the event itself. They may also conduct inspections at the event site in order to make sure that inflammable goods, such as LPG, are handled in a safe manner.

The rescue services can train the event staff, for instance in how to handle a fire extinguisher or how to extinguish fires on people.

The size and nature of an event, in combination with the distance to the local fire and rescue services, determines how many rescue service resources are needed at the site. In most cases, an organiser should handle the fire preparedness required at the event using his or her own staff. With a well-planned fire safety organisation, a sufficient supply of portable fire extinguishers and other equipment, and personnel trained in how to put out a fire, an organiser can usually reduce or completely eliminate a need to have resources from the municipal fire and rescue services on site. The fire and rescue services may sometimes also be able to train event staff in how to handle a portable fire extinguisher or how to extinguish fires on people.

An organiser should, as far as possible, reduce the risk of fire and other accidents at an event. An agreement should be reached with the fire and rescue services in good time prior to an event about what should be done. Make sure that the following are in good order:

- LPG and other flammable goods must be handled and stored in a safe manner. LPG might be used at eateries, in connection with special effects on stages, or at an adjacent campsite. In some cases, LPG handling requires a permit from, and in other cases a notification to, the fire and rescue services.
- There should be sufficient quantities of functioning and appropriately located fire extinguishing equipment on site.
- Emergency exits and evacuation routes shall be prepared and clearly marked.
- There should be emergency access roads where rescue vehicles can get through.
- Marquees that can hold more than 150 persons must be inspected by an accredited inspection body. The fire and rescue services can require valid test results for the fire resistance of the canvas.
- Any flammable materials, such as textiles on stages, must be inspected.
- The event staff should know how to handle a portable fire extinguisher and how to extinguish a fire. Fire protection competence should also exist at several levels in an event organisation.

The organiser is personally responsible for the existence of systematic fire protection. However, the fire and rescue services can offer valuable advice on how this is to be done, and may possibly visit an event for an inspection.

Read more about:

The handling of LPG in *Section 11.4.1.*

Evacuation routes in *Section 9.5.*

Emergency access roads in *Section 7.3.6.*

Tents in *Section 13.7.3.*

Firefighting in *Section 5.5.2.*

The organiser is personally responsible for the existence of systematic fire protection. The fire and rescue services can offer valuable advice on how this is to be done, and may possibly visit an event for an inspection.

4.3.4. Other municipal activities

The safety work at an event involves a number of other municipal services in addition to the fire and rescue services. Municipalities have a fairly large degree of independence when it comes to organising their activities. For this reason, the same task may be referred to different departments in different municipalities. Make sure that you turn to the correct department for consultation.

The following are the most important functions of the municipal services in connection with an event (in addition to the fire and rescue services):

- the social services;
- the environmental health department;
- permit processing for serving permits for alcohol;
- road safety and building permits.

Book a meeting in good time with representatives for municipal services in order to deal with any points that may come up during the permit process.

Large events are often held on municipal land. An organiser should in such cases book a meeting with the municipal departments concerned before handing in an application for a permit to the police. During a joint meeting, an organiser may be given information about laws, rules, local regulations, practical details, etc. and may be provided with contact information for persons or departments that will participate in the collaboration at a later date. At this or future meetings, an organiser and the municipality can jointly discuss any points that would likely come up later during the permit procedure. In this way they can in good time respond to and solve any problems that may arise.

In addition, the municipality often also knows of any plans concerning other activities that may come into conflict with the event in question. Such a conflict can for instance mean that there are limited resources available for additional actions by the municipality at a particular time, or that the intended location for an event is already being used for another purpose.

Read more about:

Sound levels in *Section 14.1.*

The sale of food in *Section 11.4.3.*

Sanitation and hygiene in *Section 12.3.*

Drinking water in *Section 7.7.*

Waste management in *Section 12.2.*

Serving alcohol in *Section 11.4.4.*

Road safety in *Section 7.3.*

4.3.4.1. The social services

The social services generally carry out several tasks at an event. In addition to being involved in the permit process, the social services can provide psychological and social support to people who have experienced problems in connection with alcohol or drug abuse, assault, etc. The social services are also a part of a municipality's emergency preparedness that is activated during emergency events.

The municipality often wants to have a number of field assistants or other co-workers on site during larger events that attract many young people, for example either staffed over the course of an entire event or in emergency groups that are ready to be deployed in acute cases involving minors.

The social services are an excellent collaborative resource in all cases involving young people, or when visitors have experienced problems and need support or assistance in any form.

According to the Social Services Act (2001:453) (SoL), the municipality where a person happens to be during an emergency situation can assist the person in question, for instance if they have lost their money or are unable to get home. This is, however, subject to assessment in each individual case. It is primarily the next-of-kin who are responsible for providing assistance to the person in question.

The police may not question a young person under the age of eighteen who is suspected of a crime without first notifying that person's legal guardian and giving the guardian an opportunity to be present during the questioning. If the guardian cannot be present, someone from the social services can instead be present during the questioning.

A young person under the age of eighteen may not be questioned by the police if their legal guardian is not present. In cases where the guardian cannot be present, someone from the social services can instead be present during the questioning.

4.3.4.2. The environmental health department

The task of the municipality's environmental health department is to make sure that an event does not pose a danger to people's health. It is above all two areas that should be monitored – the sound level during performances and the sanitary conditions.

With respect to sanitary conditions the following applies:

- **Hygiene in eateries.** Food vendors should have a valid authorisation, documentary evidence of being registered, or a statement from an authorised environmental department or environmental agency that neither an authorisation nor a certificate is required.
- **Hygiene in sanitation areas such as toilets and showers.** The environmental health department checks to make sure that there is a sufficient number of toilets and that they are kept clean. Adjacent to the toilets there should be facilities for washing one's hands.
- **Drinking water.** Drinking water should meet the requirements in the Swedish Food Agency regulations on drinking water (2001:30) (SLVFS).
- **Waste management.** Good waste management is important from several perspectives.

4.3.4.3. Permits for serving alcohol

Permits for serving alcohol are processed by the municipality. It is the person or company that runs the business in question that applies for a permit. It is also this person who is responsible for making sure that the serving is carried out in the proper manner.

4.3.4.4. Road safety

Begin by contacting the municipality's traffic coordinator if there is a need for closing off, lowering the speed on, or putting up signs on the roads surrounding an event site. It is likely that the traffic coordinator also knows who is in charge of road maintenance and who to contact concerning related issues.

5. Organisation and staff

Photo: Andreas Hillergren / TT

5. Organisation and staff

This chapter primarily describes the safety organisation and staff required at larger events and arenas and the basic rules and tips for effective communication within the organisation.

An organisation is a tool for transparency, simplification, and efficiency. A well-designed organisation with a well-developed communication culture clarifies areas of responsibility, simplifies decision-making, and makes the implementation of the event more efficient.

Read more about:
Revising an organisation in *Section 1.3.5.1.*

5.1. Requirements for an organisation

Events are demanding environments, where those in charge of the safety work are responsible for an event's total safety and security. Nothing must fall through the cracks. Decisions must be made and then quickly communicated to those who are to carry out the tasks in question. However, if an organisation is to function optimally it has to fulfil a few basic requirements.

5.1.1. Specialisation and delegation in an organisation

The senior manager of an organisation cannot make every miniscule decision. Instead, responsibility should be shared among a number of management levels, where the senior managers can delegate decision-making to subordinates. This requires competence at all levels – from the safety coordinator to the safety staff who are meant to carry out the assignments.

It is advisable to have a safety organisation with a hierarchical structure, i.e. a strictly pyramidical organisational structure where the authority for making decisions is concentrated at the top and decreases toward the base.

When dimensioning the organisation, one should also consider creating a balance between a *broad organisation* with few management levels and a *deep organisation* with many management levels.

An organisation that is too broad, where each manager has many subordinates, can be difficult to manage because it is difficult to acquire an overview of the entire organisation. With such a structure, it will also be troublesome to disseminate information quickly.

In an organisation that is too deep, with many management levels, the senior management risk losing contact with the people who actually carry out the work. Also, a deep organisation may lead to long chains of command for important decisions.

Regardless of the structure of the organisation, the goal should be to delegate urgent decisions downwards in the organisation. For instance, it should be the team leader for the stage in question who decides whether to pause a concert on that stage.

The senior manager of the organisation cannot make every single small decision. Instead, responsibility should be shared among a number of management levels.

Urgent decisions should be delegated downwards in the organisation.

5.1.2. Chain of command

In organisations that work under difficult or stressful conditions, – e.g. catastrophe medical services, the fire and rescue services, the police, or the armed forces – one speaks of a chain of command that must not be broken. This is also true of safety work at an event or in an arena. If the senior manager gives an order, this order must be followed downwards in the organisation, all the way down to the individual co-worker.

Each manager should act at his or her respective level, but in order to be efficient, a manager (regardless of level) needs to know which resources are available. A manager should never skip one level and directly manage co-workers further down in the organisation, because then there is a risk that the manager at the lower level ends up outside the chain of command and thus loses control over his or her own resources.

A manager should never skip a level and manage staffers directly at a level further down in the organisation. This is because the intermediate managers then risk losing control of their own resources.

5.1.3. Organisation according to task

The organisation needs to change when the situation, the goals, the tasks, or the resources change. For instance, if a recurring event grows with respect to the number of spectators, participants, performers, or days, the organisation must also change accordingly. In simply expanding the size of the organisation, there is a risk of creating a patchwork that reduces the organisation's transparency and efficiency. Instead, the transparency and efficiency of the organisation should be reviewed early on in the planning, before each large event.

The end of the planning phase, just before entering the implementation phase – i.e. when all permits have been received and you can start setting up the event site – is a good opportunity both for fine-tuning the tasks and responsibilities within the organisation and for making any necessary adjustments. However, major changes with respect to the organisation and responsibility are more appropriately made after the evaluation phase.

Create an organisation that is transparent, stable, and adequate.

5.1.4. Transparency, stability, and adequacy

A safety organisation is a tool that must never fail. For this reason, it is extra important to plan and create it with transparency, stability, and adequacy in mind.

Transparency. An organisation must be transparent to everyone working within it. A manager or person responsible should be able to outline and explain the organisation in a simple manner.

A few points of reference:

- Everyone working in the organisation must know who their immediate superior is.
- A subordinate should be given tasks or orders from only one superior. No one should need to have two managers.
- Everyone working in the organisation, i.e. not only key personnel, must know their role and what it involves. Written work descriptions should be available where the tasks, rights, and authority of each position are made clear.
- The number of subordinates managed by a superior must never be so great that it creates problems with communication or coordination.

Stability. A safety organisation must not be created with only normal operations in mind, because it must also function in situations of stress and crisis. In other words, it must be *resilient*, i.e. stable enough to function even if things do not go exactly as planned.

There should always be someone in charge who can make decisions. Each key position should have a deputy. The efficiency of an organisation must never depend on a single individual.

A few points of reference:

- There should always be someone in charge who can make decisions during ongoing operations. For this reason, every key position (preferably all managerial positions) should have a deputy. This is because the manager is then able to discuss ideas and decisions with the deputy, and because
- a substitute may be needed if the manager can no longer do his or
- her job, for instance due to illness or an accident. The efficiency of an organisation must never depend on a single individual.
- Urgent decisions, e.g. pausing a concert, discontinuing a race, or calling an ambulance, should be made as far down in the organisational structure as possible.
- There should be enough people with good competence in event security also at the intermediate and lower levels in the security organisation. It is not enough for the senior managers to have the appropriate competence. The organisation should be structured according to the principles of similarity, proximity, and responsibility, which means that the different parts of the organisation should work under roughly the same conditions both during normal operations and in crisis situations.

Adequacy. A safety organisation must be dimensioned for the task it is meant to carry out.

A few points of reference:

- It is important that responsibility and authority match. When someone is responsible for a particular area, the person should also have the authority to influence that area.
- One person cannot make all the decisions. Senior managers should endeavour to delegate responsibilities and decision-making to their subordinate managers.
- It is important that the safety organisation is given the resources (time, money, staff, materials, etc.) required to complete the tasks it has been assigned.

Read more about:
Training in *Section 5.5.2.*
The principles of equivalence, proximity, and responsibility in *Section 20.2.2.*

5.2. Collaboration

No event is an island, but affects and is affected by the surrounding society. The event may attract a large audience, but prior to and after the event the audience is just many people at the same location. The surrounding society should have an opportunity to prepare for the increased stress an event may involve. In addition, a well-functioning social environment can contribute to a safer and more secure event, and to a better experience of that event for visitors.

This is true not least with respect to small and medium-sized localities where an event can temporarily multiply the number of inhabitants and have an effect on an entire community. The good mood that is essential for carrying out a safe event should also permeate neighbourhoods, businesses, and whatever else is affected.

Collaboration is a process that has to do with involving organisations that affect and are affected by an event, so that they can jointly create a better final product. Successful collaboration makes coordination possible,

i.e. adapting of activities and goals so that the available resources can be used for greatest possible benefits. Collaboration thus has to do with actors helping each other whenever possible, and to the greatest extent possible avoiding being in each other's way.

Through successful collaboration one can

- establish contacts with other actors;
- share information;
- discover a common direction with other actors;
- create shared profiles of a situation;
- coordinate resources and operations;
- walk through, practise, and learn.

Photo: MSB

Many problems can be solved quickly and efficiently through effective collaboration among the relevant actors. This is desirable during normal operations – but extra important in emergency situations.

In an arena there are often two organisations: that of the arena and that of the organiser. In addition to these, there are local organisations, both public authorities and other kinds of organisations. Below are examples of appropriate collaboration partners for collaboration at events:

- the arena
- the event
- the municipality
- the police
- the social services
- the health and medical care services
- local youth recreation centres and schools
- local public transport
- local housing corporations and entrepreneurs
- representatives of local voluntary associations.

All of the individual actors in a collaborative process have their own focuses and goals that they strive to achieve. When several actors function well together, there is also a *common* focus. In order to find a common focus one can begin with something simple: 'The event should provide an enjoyable experience that does not involve any danger or insecurity for those involved'. The collaborative work can then be done on the basis of this.

During collaboration it is important now and then to look up from your own tasks, in order to remain alert to other people's perspectives and strive to find solutions that will benefit all parties as much as possible. Good collaboration often leads to solutions that greatly benefit both parties. The rewards are many times greater than the investment made with respect to the time spent working together.

The responsibilities and roles of each party in a collaboration in different situations should be made clear, for instance when it comes to handling crowd flow, emergency situations, and other serious incidents, such as crimes and antagonistic threats. Also contacts and interfaces between organisations should be carefully spelled out, so that everyone knows at what time, in which situations, or at what place responsibilities or tasks are transferred from one actor to another.

Successful collaboration is a very powerful tool, but it can also be a fragile one if all actors in the collaboration group do not contribute. Successful collaboration is characterised by confidence and transparency: organisations share information for the benefit of the project rather than for their own gain. It is important that the interaction among the actors should be constructive. They should understand each other's perspectives while they at the same time endeavour to find options that are mutually advantageous for all.

The following can facilitate collaboration and coordination:

- Make sure the collaboration group knows the roles, mandates, and desired goals of the various actors.
- Take a common direction as the point of departure.
- Create a language common to the actors and devise mutual frames of reference (e.g. maps) in order to avoid misunderstandings.
- Gain an understanding of other people's perspectives in order to understand the course of events and identify needs.
- Take all time scales into account. You should be able to see both short-term and long-term needs, as well as acting proactively and taking early initiatives for collaboration.
- Recognise that occurrences can have consequences on several levels and in multiple sectors at the same time.
- Make decisions as part of a conscious process and together with other actors.

Read more about:
Macro-organisations in *Section 5.3.1.*

5.2.1. Cooperation within the organisation

At events and arenas, people with various functions work within their own organisation side by side, in the same location. For this reason it is important to make sure that the various parts of the organisation are able to cooperate with and support one another. However, it is equally important to keep the areas of responsibility clear. Clearly defined areas of responsibility, interfaces, and contact routes within an organisation forms a good foundation for the organisation's working efficiently and for ensuring that no tasks fall between the cracks.

The cooperation among the different parts of the organisation can be facilitated through efficient coordination. In order to achieve this the actors involved must understand one another's tasks and see to it that they have established common working methods (for instance for providing location information), as well as making sure that they continually communicate with each other.

One needs to create procedures concerning how the organisation should cooperate internally, but also for how it should communicate with external actors, such as public authorities, municipalities, the press, and various other activities found in the vicinity.

Read more about:

Working in a command and control centre in *Section 19.1.4.*

Collaboration in *Section 5.2.*

Photo: Bengt Kjellin/GP

5.2.2. Command and control centre

A command and control centre is a place adapted to command and control work, where all the participants have clear areas of responsibility and the authority to make decisions. By assembling the organisation's members with the authority to make decisions at a single location, many problems can be solved quickly, and lead times can be reduced.

The command and control centre can be anything from a large, constantly staffed room that is filled with screens that are continuously updated with new information, to a small, whiteboard-equipped room that is only used when necessary. The most important thing is that there is a place where the management can assemble when necessary in order to make their work more efficient.

In larger arenas there is often a so-called command and control cabin, which works in the same way as a command and control centre. The command and control cabin is often placed high up in an arena with a good overview of the arena space. Several of the major sports associations have ready-made specifications concerning how a command and control cabin should be designed, but in general the same principles apply as for a command and control centre.

By assembling the organisation's members with the authority to make decisions in a single location, many problems can be solved quickly and lead times reduced.

5.3. Organisational levels at an event

There are three organisational levels that affect the safety at an event:

- the macro-organisation
- the event organisation
- the safety organisation.

The macro-organisation includes anyone who is involved in an event, i.e. the entire event organisation as well as external collaboration partners, such as the police, the fire and rescue services, the medical care services, and voluntary agencies.

The organisational principle for safety activities at an event can be likened to a cross with the following structure:

Read more about:
Collaboration in *Section 5.2.*

Figure 7. The macro-organisation

Established organisations often have different names for different positions. In this text, the head of the safety organisation is called a safety coordinator, because the person heading this function coordinates the work of the safety organisation with other parts of the organisation. At the level beneath the safety coordinator is the head of safety, who makes sure that the practical safety work proceeds without interruption during an event. At the level below the head of safety are team leaders who direct individual safety staff.

The event organisation includes anyone who works with the event. This includes the safety organisation but also the organisations for administration, finance, information, production, etc. Although it is the safety organisation that implements the safety measures, the whole organisation participates in this work, because all parts of the organisation generate risks in one way or another. For this reason, all parts of the organisation must contribute to safety, and all the event staff must possess a clear safety awareness.

The safety organisation includes only the people who work in the event safety organisation and whose task it is to make sure that the event is set up, implemented, and wound down in a safe and secure manner.

5.3.1. The macro-organisation

By macro-organisation is meant all internal and external organisations involved in the event, for example:

- the organiser
- the arena
- the police

- the fire and rescue services
- the medical care services
- other authorities that may be involved, e.g. the Swedish Transport Administration
- other concerned municipal departments, e.g. social services and environmental health inspection
- voluntary agencies and other external parties.

From a safety perspective, a particularly close cooperation should be established between the organiser and the so-called emergency service authorities, i.e. the police, the fire and rescue services, and the medical care services.

The planning and implementation should preferably be transparent, so that information and decisions are communicated between the event organisation and concerned outsiders, i.e. within the macro-organisation. This means, for instance, that cooperation should cover three levels –strategic, tactical, and operative. If possible, an event organisation should be created that matches the organisation of the emergency service authorities.

Good, transparent cooperation has many practical advantages:

- It simplifies the permit process.
- It facilitates communication during both the planning and the implementation phases.
- It facilitates work in acute situations during the implementation of the event.

It is important that the cooperation is tested during briefings and walk-throughs before an event begins. Both the work and the safety will improve if the organiser and the authorities can agree on, and work towards, a common goal: a successful and safe event.

5.3.2. The event organisation

The function of the safety organisation is closely linked to other parts of the organisation. If the overall organisation is not working – due, for example, to insufficient information, inadequate management, or insufficient resources – there is a considerable risk that the safety organisation will not work either.

However, safety is not only the responsibility of the safety organisation. All areas of responsibility have an impact on safety, and for this reason a high awareness of safety is required throughout the entire event organisation. The head of safety should be at the centre of the organisation, for example in the management group, in order for there to be a high level of safety throughout.

The idea of a high level of safety must permeate the entire event. Safety should therefore be included in the work descriptions of all areas of responsibility.

5.3.3. The safety organisation

The safety organisation is a safety function that is integrated into an organiser's duties. Having a safety organisation of one's own is an excellent first step, which in most cases can prevent and solve safety problems without burdening the police, the fire and rescue services, or the medical care services. However, it is important to emphasise that one's own safety organ-

Read more about:

Safety culture in *Section 5.9.*

Safety staff in *Section 5.5.*

Public security guards in *Section 5.6.*

Medical care staff in *Section 5.7.*

Internal safety organisation in *Section 5.4.*

isation is a *complement* to the police, the fire and rescue services, and the medical care services – never a substitute for them.

The following components should be included in the internal safety organisation of an event:

- safety staff
- public security guards
- medical care staff.

Depending on the preconditions and risks, other types of specialist knowledge may also be needed. This can include the use of, for instance, life guards, ski patrols, or personal security measures.

The safety organisation should be represented in the event management. It can then receive information at an early stage, as well as be adapted to new circumstances or influence the design of the event. This brings with it an increased likelihood of the safety measures having the desired effect, of their being integrated into the event's other activities, and of expenses being kept at a reasonable level.

Event safety involves, among other things, creating safe and secure events – not only in connection with performances or during a match, but for the event as a whole. A successful event consists of good attractions and an enjoyable atmosphere. The safety organisation has a share in the common responsibility for creating an enjoyable atmosphere at an event.

Read more about:

Configuring a fire alarm in *Section 7.8.2.*

Safety is not only the responsibility of the safety organisation. All areas of responsibility have an impact on safety. For this reason, a high safety awareness is required throughout the event organisation.

5.3.4. The arena organisation

The scope of the organisation of an arena varies among different arenas. In certain arenas, there is only an operations manager who is in charge of supplementary tasks such as safety, operations, and service, while in other arenas there are many functions and roles that can be useful for an event.

During periods when an arena does not have an ongoing event, the arena organisation usually works with maintenance, development, and preparations in advance of upcoming events in order to continuously improve the operations and safety of the arena.

Prior to an event, the organisation adjusts itself in order to be able to implement the event in question. This is done in cooperation with the production in question. The measures that must be taken depends on the event. Examples of such measures are altering the physical conditions, such as the surface of the floor or relocating movable stands, new scheduling for the staff, or reconfiguring an arena's fire alarm.

An arena may either have its own staff or use subcontractors in order to man the organisation, or both. The arena's need for safety functions and shell protection differs depending on whether there is an ongoing event or not. Usually size of staff is increased during events.

The following roles may be found in an arena organisation:

- **operations manager**, who has the main responsibility for the arena;
- **head of safety** (sometimes the same person as the operations manager), who is responsible for safety and safety development;
- **operations technician**, who has extensive knowledge about the operating systems of the facility, such as ventilation and fire alarms;
- **electrician**, who has knowledge about the electrical system of the facility;

- **operations and service staff**, who look after the facility when needed, for instance by driving an ice resurfacer or mowing lawns;
- **public security guards**, who have experience of working in the arena;
- **safety staff**, who have experience of working in the arena;
- **security guards** for guard duty when the arena is not in use.

5.3.4.1. Collaboration between an organiser and an arena

Before an event, collaboration between the organisation of an arena and the organisation of an event needs to be clearly specified, in order to make sure that no areas of responsibility fall between the cracks. The structure of the collaboration depends on the specific conditions under consideration, and can thus vary substantially from one occasion to another. Certain arenas have permanent safety organisations, while other arenas have none at all. A performer may have certain requirements with respect to the safety organisation without having his or her own safety staff; a show on tour may have its own safety staff but no public security guards or medical care staff, etc.

In order to design an effective safety organisation, the people in charge of the arena and those in charge of the event should meet in good time prior to the event to decide who is responsible for what in the safety work.

The following questions may need to be answered:

- Who provides the safety staff, public security guards, and medical care staff?
- Who conducts a dialogue with the public authorities and applies for any permits from them?
- Who is in charge of the safety and security work on site?
- Who is responsible for what, and how is a dialogue to be conducted, if both the organiser and the arena have active organisations?
- Who has the authority and the responsibility for handling specific occurrences, such as evacuation, sheltering in place, lockdown, and opening and closing the arena?

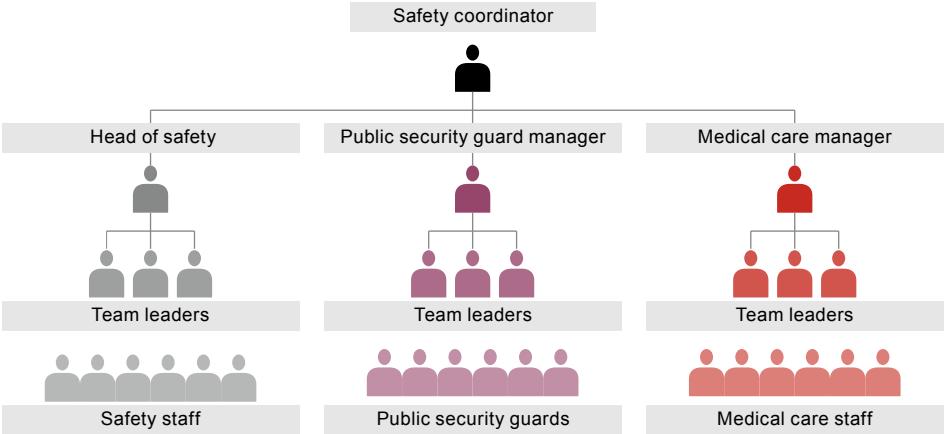
When the areas of responsibility and communication channels for the organisation have been established, the communication channels to other concerned parties (the event organisation, the arena organisation, and the macro-organisation) should also be established.

An important basic principle is for both the event organisation and the arena organisation to have adequate knowledge about the event as well as the arena. The arena staff often need a review of the specific conditions of the event, and the event staff need a review of the specific conditions of the arena.

5.4. Roles in the safety organisation

The management roles that may be found in a safety organisation are listed below.

Figure 8. Roles, responsibilities, and focus in a safety organisation



Role	Management	Work focus	Responsibility, focus, decisions
The safety coordinator coordinates the work between their own organisation, the event management, and external actors, e.g. the police, the fire and rescue services, and the medical care services.	Strategic management of the safety work.	90% planning, 10% practical implementation.	Person responsible for the planning of safety and security at the event. Overview of event safety, including the macro-organisation.
The head of safety leads the work of the safety organisation on site during the event.	Tactical direction based on the strategy decided by the safety coordinator.	50% planning, 50% practical implementation.	Person responsible for implementing safety efforts at the event. Overview of the practical implementation of the safety measures.
The team leader is the supervisor of the work teams that work in stage pits, on stands, in entrances, etc.	Operative management based on the tactics decided by the head of safety.	10% planning, 90% practical implementation.	Person responsible for safety within his or her own area. Detailed knowledge about his or her own area.
The safety staff work with pit work, access control, frisk searches, patrolling, etc.		1% planning, 99% practical implementation.	Person responsible for safety within his or her own area. Competence needed to carry out the duties of his or her own working group.

- **Strategic leadership** refers to long-term, comprehensive planning and the strategic implementation of safety work. Strategic planning comprises, among other things, a comprehensive focus and requirements on safety-related work, priorities, and policies.
- **Tactical management** uses the strategy chosen as its point of departure. This role involves planning and implementation of the necessary conditions for an event, for instance making a rough allocation of staff and other resources, and positioning these in an appropriate manner.
- **Operative management** involves managing the implementation of what has been planned tactically, for instance a rearrangement of staff or opening up multiple entrance lanes.

All important managerial positions should have deputies if it is vital that the operations within their remit are maintained continuously. A deputy can under normal circumstances act as a sounding board for the manager, but responsibility can also be delegated to them for tasks when the

manager is busy. When the manager cannot complete their task for some reason, such as due to injury, meetings, the need for sleep, or other reasons, the deputy will take over the managerial role.

5.4.1. The safety coordinator – strategic planning and management

The safety coordinator plays a central role in the organisation. It is the safety coordinator's task to maintain contact upwards and downwards in the internal organisation, and conduct a dialogue with the external safety partners, for example the police, the fire and rescue services, and the medical services. In short, from the perspective of the event, the safety coordinator's task is to coordinate the safety work of all parties involved.

From a legal point of view, the person who is listed as being responsible in the police permit is ultimately responsible for safety at the event. This generally means the person who is chiefly responsible for the event as a whole. The safety coordinator is the person to whom the event management has delegated the responsibility for safety at the event. This should be made clear in the written job description, where it should also be stated which responsibilities and what authority are involved.

In practice, it is thus the safety coordinator who is ultimately responsible for the internal safety of the organisation. The safety coordinator should therefore be placed high up in the event organisation, for instance one step below the event manager and alongside the people responsible for the economy, bookings, and the like.

The connection between strategy and tactics is important, and close cooperation between the safety coordinator and the head of safety, i.e. the next managerial level in the safety organisation, facilitates and improves safety work.

The safety coordinator makes decisions concerning the safety strategy for an event and provides the head of safety with clear objectives to strive for. The safety coordinator is also responsible for the head of safety being given the resources and the authority required to carry out tasks successfully. For this reason, it is important that there is a balance between responsibility and tasks on the one hand, and authority and resources on the other. A person who is assigned a task must at the same time be given the opportunity to complete that task successfully.

The safety coordinator is the person who is ultimately in charge of the safety organisation, but should as often as possible consult with and rely on the head of safety in order to make sure that decisions can be carried out in practice. In some organisations the safety coordinator and the head of safety can be the same person, provided that their skill and work load permit it.

5.4.2. The head of safety – tactical planning and management

The tactical, and in part also the operative, safety work during an event is managed by the head of safety, who is the closest subordinate of the safety coordinator. It is also the head of safety who decides what it is possible to do from a purely practical point of view.

The safety coordinator acts as the first filter between the event management group and the safety organisation. The head of safety helps the safety coordinator answer questions about what is required, for instance in the

From a legal point of view, the person listed as responsible in the police permit is ultimately responsible for safety at the event. The safety coordinator is the person to whom the event management has delegated the responsibility for safety at the event.

A person who is assigned a task must at the same time be given the opportunity to complete that task successfully. The task of a manager is both to set targets – and to create the conditions for attaining them.

In some organisations the safety coordinator and the head of safety can be the same person, on the condition that their skills and work load permit it.

form of measures and resources, in order to be able to carry out various points in the programme in a safe and secure manner. If the safety coordinator or the event management cannot provide these resources, you should not attempt to implement the programme items. In this case the head of safety should have the final say, and should not be encouraged to attempt to implement something without sufficient resources.

Also included in the work of the head of safety should be tactical and operative contacts with public authorities, voluntary agencies, and other parties participating in the practical work.

5.4.2.1. Management staff functions

The remit of the head of safety encompasses the entire event. This is a demanding role, and at larger events this role may need to be supported by one or several supplementary positions. These supplementary positions should be tailor-made on the basis of the needs of an event and of the head of safety. They are often placed under the head of safety and act in consulting or reporting roles, i.e., they have no decision-making authority and they often lack subordinates.

The safety organisation of an event is often subdivided geographically, but sometimes it can be useful to create functions that work to enhance a specific safety aspect of the event, such as crowd flow, crime prevention, protection against terrorism, or fire protection. These functions often take the form of so-called management staff functions. The holder of a management staff function may be an expert on some aspect of safety and be responsible for analysing and improving the event from this perspective, through planning, cooperation, and coordination. Holders of management staff functions of this kind do not manage staff, but act primarily as advisers and others who draw up requirements.

The following are examples of management staff functions that a head of safety might use for support:

- **The crowd manager** focuses on conditions for crowd flow and on crowd management. The aim of this is the creation a foundation for decision-making for the head of safety or team leaders on the basis of knowledge and prognoses regarding crowd behaviour.
- **The fire safety coordinator** focuses on fire safety at an event. This can, for instance, involve developing fire protection, leading efforts concerning systematic fire protection activities, and ensuring that vendors and other actors abide by the fire safety rules.
- **The protection coordinator** deals with event protection from and vulnerability to antagonistic threats. This can for instance involve analysing, evaluating, and developing protective measures, or making sure that vulnerability does not increase when changes occur at an arena or an event.
- **The security coordinator** deals with improving an event from a security and crime preventative point of view. This can for instance involve cooperating with external parties, developing the venue on the basis of crime prevention by means of environmental design (CPTED), or developing procedures and working methods to support practical security work.

Figure 9. The roles of management staff functions in a safety organisation

5.4.3. Team leaders – operative planning and management

Subordinate to the head of safety are a number of team leaders who are responsible for various areas. Using team leaders simplifies the work of an event, because you can then divide up the event into parts that are easy to survey and manage. The team leaders can be organised on the basis of their tasks or geographically – for instance pit managers for a stage, patrol team leaders for various geographical areas, team leaders for the entrances, or team leaders for the stands. The team leaders are in charge of the workforce of the safety organisation.

As with the head of safety, the team leaders should be given the information, authority, and resources necessary for carrying out their tasks. A team leader must have an overview of the situation, and always be on hand for communication or decision-making. This means that a team leader must not be tied up doing non-managerial tasks, such as lifting audience members out of stage pits, or frisking visitors at the entrance.

Read more about:
The roles and tasks of the safety staff in *Chapter 19.*

Photo: Magnus Nylén

5.5. Safety staff

Safety staff refers to the staff working with crowd safety, i.e. all members of the safety organisation with the exception of public security guards and medical care staff. In the context of sports, the terms 'crowd stewards' or 'match stewards' are often used to denote the approximate counterparts to safety staff at other events.

Certain events refer to their safety staff as guards, but it might be a good idea to differentiate between an event's own safety staff and the licensed public security guards who must be present according to a police permit. In order to make the organisation more transparent, it may therefore be better to use the term 'guard' only to refer to the licensed public security guards.

Read more about:
Emotional first aid in *Section 19.1.1.2.*

In order to carry out their work in a successful manner, the safety staff need to have:

- competence to carry out their work;
- knowledge about how things work;
- information about the event;
- clothes of a uniform and appropriate design.

5.5.1. Competence to carry out the work

The competence of the safety staff is key at an event. For other roles at an event – e.g. public security guards, physicians, or first-aid staff – some form of certification is required, such as a licence, an authorisation, or some other proof of having completed the required training. For safety personnel there is, however, no formal authorisation or certification. This means that the organiser him- or herself must make sure that the safety staff have the competence their assignments require. For example, the Swedish Sports Confederation (Riksidrottsförbundet) has developed a web-based training course for people who intend to work as crowd stewards in certain sports.

The competence required for safety staff varies from one event to another and among the roles they are meant to play. For instance, considerably higher requirements regarding competence are placed on a safety coordinator than on a co-worker whose job it is to control access at a gate.

Safety staff should have:

- the ability to perform their tasks correctly and safely;
- the ability to identify potential risks and respond to them;
- the ability to answer visitors' questions;
- an understanding of the organisation and their own areas of responsibility;
- an understanding of their role in any contingency plans;
- an understanding of their tasks during special incidents.

5.5.2. Knowledge about how things work

It is important to train your safety staff. Inexperienced staff need training in order to attain basic competence, and experienced staff regularly need to brush up their knowledge.

The safety staff should have role-specific knowledge of the task they are to carry out, and they should feel secure in this. In addition, the safety

staff can, for instance, be trained in the following fields:

- **Basic event safety.** The staff should know of any potential risks at events, the legal framework for their work, how security organisations function, and how procedures and contingency plans are designed.
- **Basic firefighting.** The staff should know how fire extinguishers and fire blankets are used, how to prevent fires, and how to act should a fire break out.
- **First aid and cardiopulmonary resuscitation (CPR).** The staff should know how to assess an unconscious person, be able to provide first aid (free airways and stop bleeding), be able to perform CPR, and know how to act during events with multiple casualties.
- **Conflict management and interactions with people.** The staff should know how to respond to conflicts and to people who, for instance, have injured themselves or been the victims of assault.
- **Handling a two-way radio and other necessary equipment.** The staff should feel secure in handling the equipment necessary for their tasks.
- **Antagonistic threats.** The staff should be able to identify potential threats, recognise suspicious items or behaviours, and know how to deal with these. The staff should also know how to act in situations with ongoing lethal violence, and understand the importance of the event security measures.
- **Crime prevention.** The staff should know what crimes are most common at various events, and strategies for preventing and detecting crimes. The staff should also know how to act during a crime in progress, and how to respond to a situation after a crime has been committed.

Read more about:
Suspicious items in *Section 19.1.1.2.*
Check list for sexual crimes in *Appendix G.*

5.5.3. Information about the event

In addition to training, the staff needs knowledge about the event in question. For this reason, all safety staff should be given a briefing on the following points before each new event:

- **Organisation:** What is my task? Who is my superior?
- **Event site:** Where are the stages, entrances, emergency exits, fire extinguishers, etc.?
- **The schedule for the event:** What happens where and when?
- **Procedures and plans:** What is the purpose of the procedures and plans? Do I have a specific task according to these?

Also in locations with recurring and similar types of events (e.g. ice hockey games in an arena) it is important to meet before work begins and go through the specific circumstances surrounding the event in question.

5.5.4. Clothes of a uniform and appropriate design

The safety staff should always be equipped with clothing appropriate to the task they are expected to carry out. It is also important that all safety staff are dressed uniformly. This makes them easy to recognise and ensures that there is no confusion among visitors concerning who to turn to if help is needed. It can also be a good idea to choose a colour or pattern for the clothes that make the safety staff clearly visible.

Everyone working close to vehicular traffic should be equipped with

The safety staff should always be equipped with clothing appropriate to the task they are expected to carry out.

high-visibility vests, preferably high-visibility vests that are different in colour from those of the police and the public security guards, so that they will not be confused with one another. High-visibility vests can also be used in other areas of the event where the safety staff need to be readily visible, for instance in a stage pit or when patrolling the venue.

According to the Work Environment Act (SFS 1977:1160), the employer must provide his or her staff with gloves, protective shoes, aprons, and other types of protective equipment necessary for the staff to be able to perform their assigned tasks. Safety staff is usually equipped with a T-shirt and a jacket or a high-visibility vest, which means that they often wear something of a mixture between a uniform and civilian clothes.

It is important that the civilian clothes of the safety staff send the right signals. The organiser should preferably urge his or her staff not to wear clothes that in some contexts can be perceived as threatening or offensive by visitors, such as camouflage trousers, clothes bearing political messages, dark sunglasses, or tactical flashlights. The safety staff should be there to provide help and service to the visitors, and should not be perceived of as threatening.

Read more about:
The roles and tasks of the safety staff in *Chapter 19.*

5.5.5. Recruitment of safety staff

You should always bear in mind the risk of insider threats when recruiting safety staff. Check the identity of each member of staff, and when necessary also their residence and work permits. You should also check the information provided by the applicant and obtain independent references. It is especially important to check all staff applying for work after the public announcement of an event with some form of threat profile.

Endeavour to employ experienced and trained staff. With respect to team leaders and key personnel, this is more or less necessary. Obtain references from other events, and at the same time find out what perspective on safety issues these earlier events have had. Inexperienced staff should, as far as is possible, be mixed in with experienced staff.

Staff applying for work after an event with a threat profile has been made public should be checked extra carefully.

It is also important to recruit people with the appropriate personal characteristics. Safety work is a service function, where some of the descriptive keywords are calm, adaptable, observant, and communicative team worker. Safety work has more to do with helping people than being noticed yourself.

An obvious minimum age for safety staff is eighteen years old, even if a few additional years are recommended. At youth-related events, it will not hurt if the crowd safety staff are a few years older than the visitors. Note, however, that too great an age difference might have the opposite effect. The goal is for the audience to perceive the safety staff as a welcome feature which is safe, trustworthy, and a positive part of the event.

Keywords for safety staff are calm, adaptable, observant, and communicative team worker. Safety work has more to do with helping others than being noticed yourself.

It is a good idea for safety staff to act as role models, for example during an evacuation. It is also good if the audience can relate to the safety staff. This is made easier if the staff are perceived as equals and also seem to be having a good time, even while they are working at the event. However, this must not be carried too far. The staff should not act as clowns, and the audience must obviously have confidence in the safety staff.

5.6. Public security guards

Licensed public security guards, the requisite number of which will be specified in the police permit, are employed by the organiser, either directly or through a security company. However, they are under the command of

the police and they carry out their duties in accordance with their licence. This means that the organiser can control the public security guards as a resource within the area for which they are licensed, as long as the police do not need to redeploy those public security guards.

Public security guards may also carry out other tasks, such as examining visitors' IDs for the purpose of checking their ages, as long as this task does not mean that they neglect maintaining public order. However, public security guards may not ask people to show their IDs for identification purposes, nor may they serve alcohol. If the police need to redeploy the public security guards, the organiser should be informed of this as soon as possible.

A public security guard is trained and licensed by the police to help maintain public order. The training of public security guards includes, among other things, law, conflict management, firefighting, first aid, and CPR. Their licence involves certain police powers and obligations, which means, in brief, that within the specified area for which they are licensed security guards are allowed to turn away, remove, or take into custody anyone who attempts to commit a crime, disturbs public order, or is noticeably intoxicated.

Just like anyone else, public security guards may make a so-called citizen's arrest, which means that they may arrest a person during the commission of a crime punishable by prison if that person is caught in the act or while fleeing the scene of a crime. A public security guard who, while carrying out his or her duties, learns about the commission of a crime subject to public prosecution is, in addition, obligated to inform the police. In other words, the public security guard is a supplement to, but never a substitute for, the police.

It is important for organisers to see public security guards as an important and valuable resource, not as something they are 'forced' to have in order to get a permit. Public security guards can, as long as their primary assignment is not neglected, also work with other things. This gives the public security guards an opportunity to be integrated into an event and to interact with the audience before a public disturbance arises.

At the same time, it is important not to build a security organisation solely on the work of public security guards, but to see them as a supplement to the safety work as a whole. Because the police can redeploy public security guards without warning, the public security guards can, in addition, be moved around without an organiser's knowledge if the situation should so require. For this reason, both public security guards and crowd security staff are important components for the safety and security of the audience.

Public security guards also represent a security feature for anyone working with safety at an event. Unlike the crowd safety staff, public security guards have the authority and the training to be able to intervene in violent situations. The crowd safety staff do not have this kind of training or these powers, and should for this reason not intervene in such situations. Instead, they should first and foremost alert the police or the public security guards. However, keep in mind that too many visible public security guards at one and the same location can sometimes have a provocative effect. Unless they are busy carrying out a particular task, the public security guards should instead be encouraged to circulate among the visitors.

5.6.1. Requirements for public security guards

Once the police and the organiser have agreed on the nature and design characteristics of an event and on the number of public security guards

The organiser can control the public security guards as a resource within the area for which they are licensed, as long as the police do not need to redeploy the public security guards.

A public security guard is a supplement to, but never a substitute for, the police.

Public security guards represent a security feature for anyone working with safety at an event. Public security guards have the authority and training to intervene in dangerous situations.

You should employ public security guards who are suitable for the event with respect to their experience and social attitudes.

needed, their working hours and their general tasks can be decided. An organiser can then procure this service. The organiser can either themself employ the public security guards, or commission an authorised security company to do so. As an employer, the organiser can employ the security guards best suited to the nature of the event. As the employer of a security company, an organiser can by contract agree on the possibility of imposing similar demands on the security guards provided by that company.

Two qualities that should be assessed when employing a security guard are social attitude and experience:

- **Social attitude** refers to the treatment the organiser wants visitors to receive. The satisfaction of the visitors is a safety factor at any event, so the selection of security guards is an important task.
- **Experience** means that security guards with previous experience of similar events are preferable to security guards who have mostly worked with other types of assignments. The working arrangements and the standards of acceptable crowd behaviour at a concert are different from those at a pub.

If a security guard should turn out to be less suitable in the context of the event because of personal behaviour, the organiser will have to replace that person, so that the number of security guards remains at the predetermined level. Naturally, the organiser must not replace security guards on the basis of something they have done in connection with their duties. Complaints about a security guard's exercise of official duties should be made by submitting a report to the Police Authority.

Remember that a security guard must have completed specific arena training in order to be allowed to work at a match classified as a high-risk match by the Police Authority.

5.7. Medical care services

Every type of event must have a certain level of medical care preparedness. The event's own medical care staff must function as first responders during a special incident in preparation for the arrival of additional medical care resources. The medical care staff must be able to provide first aid, treat minor injuries, assess whether an injured person needs additional care, and in the best way possible limit the effects of injuries and illnesses while waiting for colleagues with greater medical competence to arrive.

A very small event may get by with a few selected co-workers who have been trained in first aid, but most events need dedicated first-aid or medical care services. Larger events usually need a developed medical care organisation with doctors, nurses, and perhaps an ambulance on site.

The medical care preparedness at an event can consist of several competence levels:

- **Health and medical care staff.** The health and medical care staff consists of nurses and doctors with the equipment, clothing, and training required for working in the environment in which they will be active. They may have first aid or health and medical care as their main task.
- **First-aiders.** First-aiders have advanced first-aid training, and the equipment, clothes, and experience necessary for their tasks. They have administering first aid as their main task.

- **Event staff with first-aid training.** These people have a different main assignment but can administer basic first aid. They can also sound the alarm and, if possible, support a medical care organisation during special incidents.

At a larger event, the healthcare preparedness can be structured as a pyramid with a broad base consisting of first-aiders providing good preparedness for a rapid first response, a smaller number of nurses who provide reinforcement to certain functions or locations, and an even smaller number of doctors needed for special assignments and a preparedness to assess and treat more serious injuries and illnesses.

The staff of the medical care organisation may come from several organisations, but should have a well-defined management and established communication procedures, and should be included in the safety organisation. What governs the level and size of the medical care organisation are the risk analysis and any special requirements imposed on an event.

Read more about:
Analysis for the dimensioning of medical care preparedness in *Appendix A.*
Requirements for an organisation in *Section 5.1.*

5.7.1. Planning and dimensioning of medical care preparedness

The event medical care organisation should be dimensioned on the basis of how many people are expected to visit the event, but also on the basis of the characteristics of the regular local medical care resources. A large event in a place located far from the nearest medical care facility may need a more extensive medical care organisation on site. Sometimes a region may decide to set up a temporary healthcare centre or prehospital medical care management at an event site.

Keep the following things in mind when dimensioning the medical care efforts at an event:

- the number of people expected to visit the event (audience, staff, and performers or athletes);
- the conditions surrounding the event – music festival with a young audience, alcohol, a campsite, etc.;
- the history of the event or similar events;
- the distance to public resources, e.g. a hospital or healthcare centre;
- the preventive measures taken;
- other support and service functions at the event;
- identified risks that may cause injury or illness;
- likelihood of acute injuries or serious disease occurring during the event;
- how quickly the health and medical care services can reach different areas at the event;
- the period during which the medical care efforts must be on call – before, during, and/or after the event
- the perseverance required – e.g. if the event goes on for several days and nights.

A person in charge of medical care (preferably a doctor or a nurse) should be involved at an early stage in the planning of the event. This person should be familiar with the prehospital and emergency medical organisation in the geographical area in question, act as a contact person with the emergency and disaster medical preparedness organisation of the region

concerned, and provide guidance regarding the organisation of the medical preparedness of the event.

For larger events, the crisis and disaster medical preparedness organisation of the region may have to be linked up to the event in order to better determine whether the event will affect the region and whether it needs to be organised in a particular way.

In order to dimension the medical care services at an event, the organiser should undertake a risk and vulnerability analysis together with the person who is in charge of the medical care services. Such an analysis can be facilitated using the template in Appendix A and experience gained from similar events. On the basis of this analysis, and in consultation with the concerned authorities and organisations (e.g. the preparedness organisation of the region), the organiser should make a decision regarding the extent to which the event needs to have its own medical care preparedness.

The calculated level of resources may require adjustment. Remember that the result obtained from the template is a recommendation – not a rule. Nor is the template intended to represent the entire risk and vulnerability analysis of an event, but should be considered as a supplement to this analysis.

The internal medical care organisation should be organised in order to function successfully at the event in question. Below is a list of examples of things you may want to consider when structuring the organisation:

- **Fixed locations for first aid and medical care:** Where should these be located? What function should they have? What competence/equipment is required? At what times should they be available?
- **Mobile medical care teams:** How many? What roles do they have? What competence/equipment is required? At what times? What areas should be patrolled?
- **Medical transport within the site:** Is there a need for this? What means of transport are required? At what times?
- **Communications and control centre:** Is there a need for this? What competence is required? At what times?
- **Publicly accessible medical equipment:** Where should defibrillators, dressings, and bandages for reducing blood flow (so-called tourniquets) be located? Are they indicated on maps?
- **Roles and contact routes:** How are collaborating organisations contacted during a special incident and by whom?

5.7.1.1. Health and medical care

Health and medical care is defined, according to the Health and Medical Services Act and the statutes of the National Board of Health and Welfare, as measures intended to medically prevent, investigate, and treat illnesses and injuries. At events, this is usually done by registered nurses and licensed physicians. Anyone who performs health and medical care activities must be a registered healthcare provider and abide by the laws and regulations governing these activities. Healthcare providers and health and medical care staff are supervised by the Health and Social Care Inspectorate (IVO).

Health and medical care staff can, under certain circumstances, work in non-profit organisations and provide first aid or medical care preparedness without the organisation necessarily being a healthcare provider. The National Board of Health and Welfare have published information mate-

rial in Swedish about health and medical care staff working in non-profit organisations (entitled *Hälso- och sjukvårdspersonal som arbetar i ideella föreningar*) which can provide guidance regarding this issue.

5.7.1.2. First aid

First aid is defined as measures that through simple means can be taken in the event of accidents and acute illness in order to restore or maintain vital bodily functions or prevent further harm. First aid also includes certain psychological help and measures that enable minor injuries to be treated directly on-site.

First-aid preparedness can be provided by people who have special first-aid training for that type of assignment, or by health and medical care staff with training in and experience of the relevant context. Providers of first aid can work singly or as a part of a voluntary agency or a company. However, it is important that these individuals, organisations, or companies are insured for the assignment.

You can contact voluntary agencies, such as the Red Cross, and ask them to staff the event with dedicated first-aid providers whose training has been adapted to public events.

5.7.1.3. Event staff with first-aid training

Having event staff on site with first-aid training is always an advantage for cutting the time elapsed from an alert to the initiation of a first response. A good rule of thumb is that a person in need of first aid should be given first aid within five minutes, and if the safety staff have first-aid training, this often provides a good basic coverage for the event area.

Basic first-aid training for safety staff should include CPR, clearing airways, and basic control of bleeding.

Event staff with first-aid training can help cutting the time between an alert and the initiation of a first response. A good rule of thumb is that a person in need of first aid should be given first aid within five minutes.

5.7.2. Ambulances

At larger events, it is not unusual that an event's own ambulances for transportation within the event site are included in the event medical care organisation. Ambulances can be rented either from the region (sometimes via a procured contractor) or from a private operator. The equipment in an ambulance from a private actor may vary, so make sure that the equipment needed for the type of event you are organising is available.

Consult with the region about coordination regarding transhipment, junctures, and other issues, so that the integration between the event medical care organisation and the regular health and medical care services functions as smoothly as possible.

Also plan for parking spaces for the region's ambulances in case the region decides to allocate ambulances to be on stand-by at the event during certain hours in order to increase preparedness in the region.

5.8. Non-safety-related staff

At events and arenas there are usually a large number of staff who are not part of the safety organisation, such as cleaners, janitors, subcontractors, vendors, stage builders, bar staff, or sports officials. All these roles are affected by the safety work and can, with relatively minor training efforts, be very useful for increasing safety at the event.

All staff moving around and working at an event should

- be given an introduction at which the event and the identified risks and threats are described;
- understand that their role is important also from a safety perspective;
- know what safety measures affect them and the purpose of these measures (note, however, that certain safety measures may need to be kept secret);
- have among their explicit tasks being observant of suspicious behaviour or unusual items;
- know how to act if they notice someone behaving suspiciously or detect a suspicious item;
- have a simple and easily available contact route to the safety organisation for reporting deviations in behaviour or suspicious occurrences;
- know what their role is in a special situation, even if this role only involves following instructions from the safety organisation.

Safety measures should be transparent and easy to follow without needlessly complicating the daily work.

5.9. Good safety culture

The actions of the staff in their daily work is of great importance to safety. Good safety culture means that anybody who is active at the event or within the arena is aware of risks and threats, and feels a responsibility for safeguarding and improving safety.

Good safety culture ultimately means that the staff understand, accept, and participate in the safety measures and safety work of the event or the arena. This can, for instance, mean that the staff make it more difficult for unauthorised people to move about the facility, that doors that should be locked are kept locked, that there are well-defined places and routes into the site for deliveries, and that there are set procedures for how external service personnel is let into and allowed to move about the venue.

The organisation's safety measures should be transparent and easy to follow without needlessly complicating the daily work. If the safety measures are too extensive, or if the co-workers do not feel sufficient loyalty to the organisation, the staff may pretend to follow safety procedures but in reality overlook, or neglect, following them.

This can in its turn lead to increased risks, economic and trust-related harm, and a climate that gives rise to insider threats.

Leadership and management are also important factors for creating a good working environment and a good safety culture. Good leadership brings with it loyal co-workers who are motivated and committed to their work. Endeavour to create an environment where the will to do right is greater than the fear of doing wrong!

You should endeavour to create an environment where the will to do right is greater than the fear of doing wrong.

5.9.1. Insider threats

By insider threats are meant current or earlier staff, contractors, or suppliers who have access to the premises, systems, and information of an organisation, and who consciously or unconsciously use this access to harm the organisation. This can involve, among other things, bringing dangerous items into the site, taking advantage of defects in the shell protection, sabotage, or theft.

There are three different types of insiders:

- **The unintentional insider:** This person does not understand that the act committed is harmful. Lacks evil intent and does not conceal their actions. May, for instance, lack knowledge of safety measures or have been deceived by outsiders.
- **The negligent insider:** This person knows that the act in question is a security breach but takes a chance that it will not be detected or that it will not matter. Such a person, properly speaking, lacks evil intent, but may nevertheless try to conceal their actions.
- **The intentional insider:** This person commits the act in order to harm the organisation. Often tries to conceal his or her actions. Such a person may be self-motivated (with no connection to a third party), recruited (cooperates with a third party), or coerced (works under duress or threat from a third party).

Examples of security measures that may be effective against insider threats:

- **Include** insider threats in risk and vulnerability analyses.
- **Note** in particular staff hired after the public announcement of an event with an elevated threat profile was made.
- **Create** good shell protection, e.g. access controls and frisk searches that also include staff.
- **Establish** good information security, e.g. information and security procedures, rules for using social media, classification of information, access classification, and logging procedures.
- **Raise** the awareness of the staff about what insider threats are and their existence.
- **Make sure** that the recruitment process takes into account security and insider threats, e.g. that the information a person provides is checked. Such checks should however be balanced against the needs of the organisation and how exposed or vulnerable the person's role is. A person's privacy (including social media) should, in general, be respected.
- **Follow up** existing staff. Provide a present, active, and motivational leadership, including follow-ups concerning the real-life circumstances of the staff and, if possible, structured discussions about development, assignments, and results with staff members.

Read more about insider threats in the MSB guidelines about security in a public setting, *Säkerhet i offentlig miljö – Skydd mot antagonistiska hot och terrorism* (in Swedish).

5.10. Internal communication

With respect to internal communication, three types of information may be identified:

- **Strategic** information – plans, organisational outlines, analyses;
- **Tactical** information – schedules, work descriptions, rules, policies, working methods, etc.;
- **Operative** information – real-time information concerning the situation or changes made to the plans or of the situation.

How much information the staff needs naturally varies depending on their tasks at an event, but as a general rule it can be said that the more information a co-worker has, the more involved and independent he or she will be.

5.10.1. Basic rules for communication

Good communication is important not only with respect to the audience and the collaboration partners. It is also a powerful and indispensable internal management tool for making an organisation flexible and efficient.

It is usually not sufficient merely to send out the information in order for something to happen. The information must pass through a number of steps in order for it to reach its goal. If not, there will be a breakdown in communication.

The following are examples of breakdowns in communication:

- **The information has not been transmitted.** Examples of this are a sign that someone has forgotten to switch on, or a broken radio that has not transmitted a message.
- **The information has been transmitted – but not received.** Examples of this are a sign that is obscured by a crowd, or a broken radio that has not received a message.
- **The information has been transmitted and received – but not understood.** Examples of this are an unclear sign, a misunderstood explanation via radio, or information lost amidst background noise.
- **The information has been transmitted, received, and understood – but not remembered.** The significance of the information must be expressed well enough to penetrate the background noise of a recipient under stress.
- **The information has been transmitted, received, understood, and remembered – but no action has been taken.** Examples of this are information that was sent out too late, or a recipient who lacks the physical or knowledge-based resources to carry out the requested task.

In order to prevent breakdowns in communication, you should always endeavour to produce current and fail-safe communication adapted for the recipient.

5.10.1.1. Current information

Information does not age well. For this reason, it is important that relevant information is communicated quickly to the affected parties. Rapid communication is facilitated by a good communication system, i.e. an efficient method of communicating.

5.10.1.2. Communication adapted for the receiver

It is important that information reaches the persons it is intended for. For this reason, information should be adapted to the recipients in terms of its scope, design, and choice of words. For instance, information about the tasks of individual co-workers should be comprehensive, while it can be less specific concerning other aspects of the security work and its overall goals in order to maintain a focus on a co-worker's own individual role.

Moreover, the information should be adapted to a recipient's level of knowledge. Specialist terms such as '*front of house*' should not be used when communicating to the audience. Instead you should use the expression '*FOH mix position – i.e. the black marquee in front of the stage*'.

Read more about:

Internal communication in *Section 5.10.2.*

Radio communication in *Section 7.1.*

Those who do not receive information cannot take responsibility. Those who receive information cannot avoid taking responsibility.

Endeavour to produce current, fail-safe communication adapted for the recipient.

Remember that information has not only a sender, but also a receiver.

5.10.1.3. Fail-safe information

Making sure that the information is fail-safe is vital to achieving good communication. Unclear, insufficient, or complicated information increases the risk of the message neither being received nor leading to action being taken. Fail-safe communication involves endeavouring to achieve transparency, redundancy, and simplicity in communication.

Read more about:

Fail-safe mechanisms in *Section 1.2.3.*

Two-way radios and radio networks in *Section 7.1.*

5.10.2. Communication systems for internal communication

Good communication during an event requires one or several robust technical systems, because co-workers are often out of both hearing and sight of each other.

5.10.2.1. Two-way radio

A two-way radio is, when handled correctly, an excellent communication tool for different types of events. A two-way radio system enables simple, rapid, and stable communication. Radio communication also facilitates mass information: through a single broadcast, a sender can reach everyone who listens to a channel. It is also possible to join an ongoing conversation instead of encountering a busy signal.

5.10.2.2. Telephone

Mobile phones rarely provide enough stability when many people call at the same time within a small area. This might work at rather large events when everything is working smoothly, but if something should happen and everyone tries to call home at the same time, the system often breaks down. In other words, mobile phones can be used as a complement, but should not be regarded as a reliable means of communication.

5.10.2.3. Signals and public address systems

If the technical prerequisites exist, various audio signals or public address announcements at a venue may function as a supportive means of communication. However, because this kind of communication can also be heard by outsiders, it should be used with caution.

5.10.2.4. Couriers

Any technical system can fail. For this reason it can be a good idea to hedge your bets with respect to couriers, which means using a co-worker to transport a note or a verbal message to a given recipient. Couriers can also be used as observers making rounds to keep an eye on things. The advantage of using a courier as an observer, compared to asking various team leaders over the radio how things are going, is that a single pair of eyes sees everything. This can be valuable if you, for instance, wish to compare the crowd density found at various entrances.

5.10.2.5. Meetings

Physical meetings are invaluable for disseminating information – prior to the event in order to ensure that everyone has the information and knowledge about the event they need to carry out their tasks, during the event to check that work is progressing as planned, to add new information, and possibly to activate necessary measures. It is not least important that various parts of the organisation can account for their activities, so that information about the current situation is widely disseminated.

It is important that information is disseminated – not just between the manager and the staff, but also more broadly.

Endeavour to hold brief and effective meetings during the implementation of the event. Work out a fixed agenda in advance before every meeting, inform the participants about the agenda, and let them briefly account for positive and negative experiences drawn from their own efforts. There will be an a opportunity following the event to talk openly and make sure that the lessons they learned from their various experiences are put to good use.

Read more about:
Crisis organisation in *Section 20.2.2.*

5.11. Voluntary agencies

Voluntary agencies are organisations and associations that can help organisers increase the safety and security for visitors by carrying out their regular activities at the event. Examples of such voluntary agencies are religious organisations, volunteer night patrols, women's shelters, Alcoholics Anonymous, or other non-profit organisations. When involved with an event, these organisations can assist an organiser by discovering people who feel unwell and need support. Young visitors will also have more adults around to talk to, which tends to have a calming effect.

Nevertheless, you should be careful when recruiting voluntary agencies. The fact that someone is a member of an association or an organisation does not necessarily mean that this person is qualified for safety work. For this reason, staff from voluntary agencies should only be seen as a complement to the safety organisation. Also keep in mind that collaboration with voluntary agencies can turn out to be a resource-intensive activity for the organiser, and that the resources are often difficult to control.

Voluntarily agencies should also be informed about the rules that apply during an event – what is permitted and not permitted – and how an organiser feels that people should behave when they are carrying out a task at the event. If an external association is in charge of some part of the work, the staff should be trained in the appropriate way of working. Staff from an external association can preferably be managed by the event staff.

An organiser should make sure that the voluntary agencies have access to areas that are separated from the audience, where their members can rest and get together. It is also considered a good gesture to give them free access to the event.

5.12. Organisation for crises and special incidents

If a crisis or a special incident should occur that affects an entire event, a special crisis organisation will have to be set up. Such an organisation should coincide with and have the same chain of command as the regular organisation. The crisis organisation should be based on the following principles:

- **The equivalence principle.** If possible, the organisation should work on the basis of its regular methods and chain of command also in a crisis situation.
- **The proximity principle.** The groups of the organisation should, if possible, work in the areas in which they are accustomed to working also in a crisis situation.
- **The responsibility principle.** As far as possible, the groups of the organisation should retain their accustomed areas of responsibility also in a crisis situation.

The event also needs a crisis organisation in order to link up with the organisations of the police, the fire and rescue services, and the medical care services. By having a transparent crisis organisation, all actors know with whom they should communicate, and staff members with similar remits will be able to work side by side.

6. Choosing and designing a venue

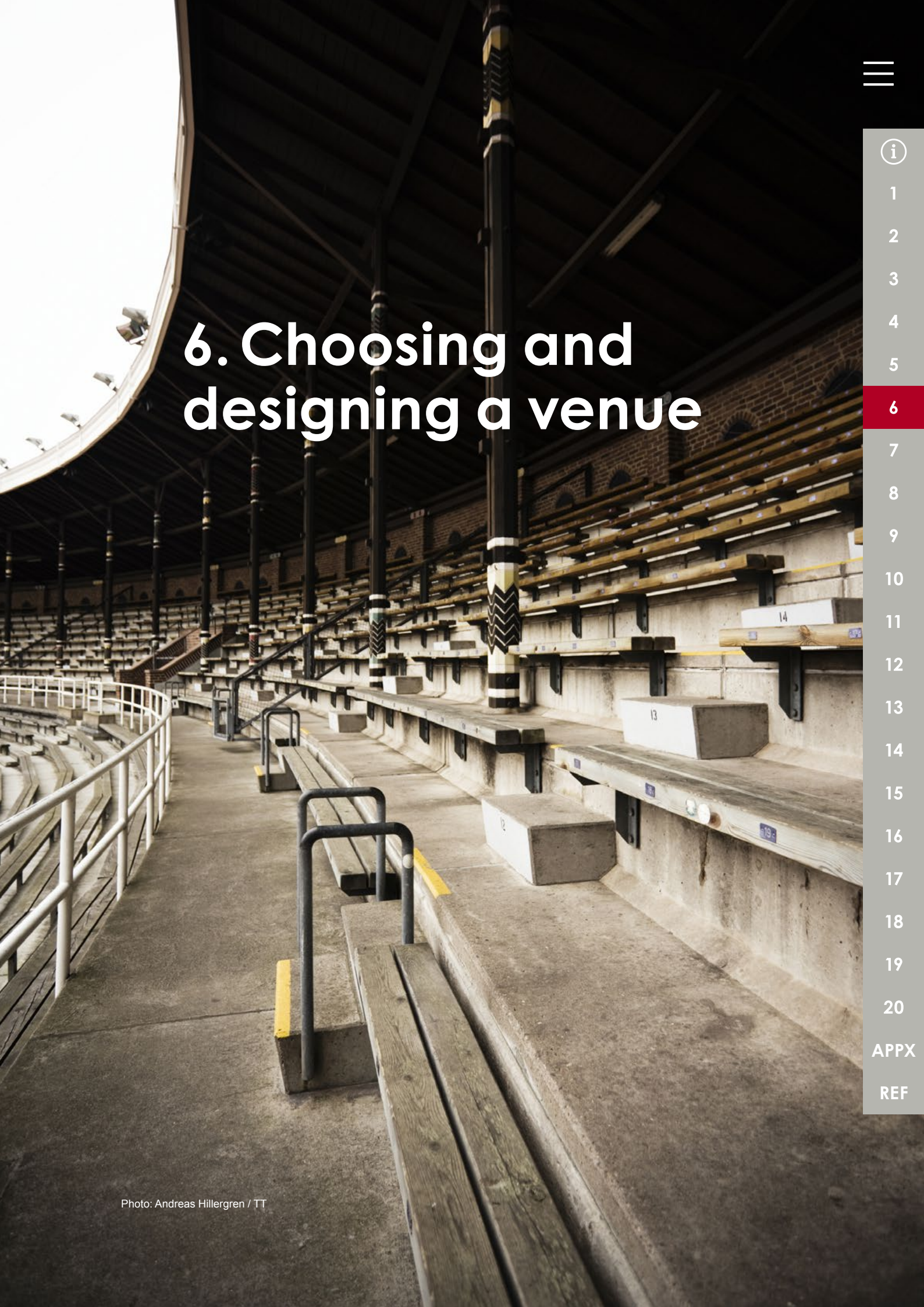


Photo: Andreas Hillergren / TT

6. Choosing and designing a venue

A venue is any type of site where events are held – permanent arenas and sports grounds as well as sites that are set up for temporary use.

Choosing and designing a venue is an important part of the safety work, because it is difficult to make changes once the venue has been set up and the audience has been invited. For this reason, one should be extra careful when choosing and designing a site.

It is also important that the event safety organisation takes an active role in choosing and designing the venue. A well-chosen and well-designed venue can eliminate a large number of problems and risks and can thus facilitate the safety work. Conversely, an unsuitable venue can result in problems that impair safety and make safety work more difficult.

Read more about:

Permits and the permit process in *Section 4.2.*

Crowd capacity in *Section 6.3.*

Car parks in *Section 7.3.5.*

Traffic planning in *Section 7.3.*

Emergency access roads in *Section 7.3.6.3.*

6.1. Define the requirements for the venue

When choosing a venue it is a good idea to first write down what the event will require in terms of resources and what opportunities it will provide. Collaborate with the police, the fire and rescue services, the health and medical care services, and the municipality when doing this. This will save time and facilitate the permit process.

6.1.1. Criteria for assessment

Compare the list of requirements to the features of the intended venue with respect to, among other things, the following:

- **Sufficient space.** Is there sufficient space for the planned number of stages, entrances, vendor areas, and peripheral activities? How much space will be taken up by backstage areas, production areas, vendors, eateries, etc.?
- **Audience area.** Can the site accommodate an audience of the size anticipated? Are there sufficient opportunities for creating optimal crowd flow, i.e. areas for entrances and exits as well as ancillary areas for queues, evacuations, and assembly points outside the venue?
- **Car parks, overnight accommodations, public transport.** Is there sufficient area for parking and camping adjacent to the event? Are there options for overnight accommodation (e.g. hotels and hostels) in the vicinity? Will the local public transport system support the anticipated audience numbers?
- **Traffic capacity.** Are the roads in the area sufficient deal with the anticipated traffic loads? Can the roads handle the influx of visitors and the transportation needed by the event and retain enough capacity for emergency vehicles?
- **Emergency access roads.** How well is the need for access roads for rescue vehicles met? Here the distance to the nearest hospital, medical care facility, or fire and rescue services plays a major role. If the response

time for ambulances or the fire and rescue services are too long, it may be necessary to increase the presence of fire and rescue services or health and medical care services on site. Have a dialogue with the medical care services and the fire and rescue services about this issue.

- **Infrastructure.** Is the infrastructure required for the event available, for instance access to electricity, water and drainage, mobile phone coverage, means to communicate with the audience, toilets and showers, shops/kiosks where the audience can purchase food and drinks? Do not forget that the duration of the event strongly affects the needed infrastructure.
- **Existing buildings and activities.** Are there any businesses nearby whose activities may pose a fire hazard, or premises with automatic fire alarms? If so, there will be greater demands with respect to accessibility for the fire and rescue services. Are there any activities in the vicinity with a heavy flow of suppliers? Consider the effect this might have on the event. Also keep in mind that sound levels, disruptions of traffic, and other types of stress can have an impact on the residents of the neighbourhood where the event is being held. It is a good idea to discuss this with local residents and the municipality.
- **Site impact.** How do the normal activities at the site affect the event? A heavily trafficked road, an airport, or the like could, for instance, ruin the audio experience for visitors to the event. Check with the municipality, landowner, and interested parties in the vicinity to see that no activities that negatively disturb or affect the event will be conducted simultaneously with the event itself (e.g. renovations, road work, or other events nearby).
- **Accessibility.** Is the site accessible to people with disabilities? Try to find general rather than special options in order to make the event accessible to as many people as possible.

Read more about:
Accessibility in *Chapter 15.*

6.1.2. Terrain and load properties

At outdoor events it is important to know the properties of the ground and how the ground is affected by, for instance, several days of rain. Make sure that the underlying surface in different areas of the site is well drained in order to avoid the ground becoming waterlogged during rain. Also make sure that the ground can handle the anticipated loads. Municipalities often have maps showing the load carrying capacity of different areas.

Keep in mind that heavier structures – stages, marquees, etc. – can subside if the ground on which they are constructed has a poor load bearing capacity. In many cases, road surfaces must be able to withstand the use of heavy vehicles even under poor conditions.

You should also consider what the area will look like after the event has been wound down. A poor ground surface that cannot withstand the stress of an event may make the choice of that venue financially impractical.

The quality of the surface is particularly important at focal points (e.g. stages, entrances, and exits).

You should keep the following in mind:

- In most cases it is easier and less expensive to protect a sensitive surface, such as that of parks or football pitches, than to repair damage afterwards.

- A meadow or lawn risks quickly turning into a sea of mud in rainy or wet conditions.
- Wet cobblestones increase the risk of people slipping.
- Cobblestones also increase the risk of stage barriers sliding.
- Gravel can be an appropriate alternative, for instance at stages. However, keep in mind that gravel might make an area inaccessible for wheelchairs.
- Asphalt and reinforced grass (grass growing between specially designed paving stones) are suitable alternatives for use in audience areas.
- Walking paths should be even, firm, and non-slip.
- Wood chips or bark make good covering materials for reducing wear on walking paths and preventing them from becoming slippery.
- Ground protection mats can protect sensitive areas, allow for heavier transports, and reduce the risk of vehicles getting stuck.

Read more about:
Static and dynamic loads in *Section 13.1.1.*

6.1.3. Strength

For indoor events it is important that an organiser knows that a locale can withstand the stress that it will be exposed to, for instance in areas where things will be placed or hung up. The organiser is responsible for informing a property owner about what type of event they intend to hold on the premises. Always provide the property owner with a working drawing showing the weight and the location of anything that will be suspended from the ceiling and indicating any extreme loads that will be placed on the floor.

The property owner is responsible for making sure that the premises are suitable for the event. The property owner should also be able to specify the load limits for the premises. An organiser should know these limits and be aware of the upcoming stresses in advance.

Find out the limit values of the premises. Are you, for instance, allowed to suspend items from the ceiling? You should also ascertain the maximum allowed load for

- various parts of the floor as well as for the floor as a whole;
- various parts of the ceiling and ceiling beams as well as the ceiling as a whole.

Find out as much as possible about the stresses the premises will be exposed to:

- **Crowd size:** How large an audience will the event have?
- **Crowd behaviour:** Will the audience be sitting down? Will they stand calmly? Will they be jumping?
- **Ceiling loads:** How much weight (e.g. for sound and lighting equipment) will be suspended from the ceiling?
- **Floor loads:** How much weight (e.g. for loudspeakers, stages) will be placed on the floor?

It can sometimes be difficult to calculate the maximum load on ceilings and floors, because the stress is not always evenly distributed. You should also note that there is a significant difference between static and dynamic loads.

Each individual room where you plan to suspend loads from the ceiling should have specific attachment points where the maximum load is clearly

stated. Have a discussion with the property owner if you as an organiser are unsure as to whether the premises are suitable for the event. If there is uncertainty regarding the maximum loads and attachment points, the property owner should bring in a technical expert.

Read more about:
Criteria for assessment in *Section 6.1.1.*

6.1.4. Risks in the surroundings

When thousands of people gather at the same location, certain factors in the surroundings that would not normally be considered imminent risks may become risk factors that need to be eliminated or responded to.

Examples of this are

- watercourses, precipices, swamps;
- heavily trafficked roads and railways;
- high-voltage power lines;
- sewage systems and gas pipelines.

The above factors are examples, not a check list. You should make an inventory and possibly run simulations regarding the expected movement patterns of the crowd in order to identify what risks there are in the vicinity of an event. You should then contact the person or authority responsible for the source of the risk. For example, the owner of the electrical grid should be contacted regarding underground or overhead power lines, the Swedish Transport Administration regarding nearby railways, and the road maintenance provider for questions concerning roads near the event.

In some cases, careful planning can eliminate a risk altogether, or else it can be responded to by using surveillance, fences, or closures. In other cases, the area in question might quite simply be unsuitable as an event site because of its proximity to one or more geographical hazards.

6.2. Inspecting and evaluating a venue

In good time before an event those in charge of the event should visit and inspect the site carefully. If the venue has its own staff, this should preferably be done in consultation with them. The aim of this inspection is to assess the suitability of the site for the anticipated event. Use the same grounds for assessment as criteria for the inspection as you did when defining the requirements for the venue. Keep in mind that the experience of other people may be of great help during the planning process. You should contact and consult the fire and rescue services and any previous organisers. In some cases, analyses may already have been completed and plans drawn up.

Below are some examples of areas that should be inspected in advance:

- audience areas
- stage areas
- stands
- backstage areas
- car parks
- adjacent camping sites
- areas outside the venue that are suitable for queues and crowds
- walking paths to and from the event

- transport roads
- parking areas for emergency vehicles
- emergency access roads
- evacuation routes
- entrances and exits
- loading and unloading areas.

Read more about:
Stages in *Chapter 8.*
Entrances in *Chapter 9.*
Peripheral activities in *Chapter 11.*
Crowd movements in *Chapter 16.*

6.3. Calculating crowd capacity

It is difficult to reflect in calculations the reality of what happens when a large number of people gather in one place and interact with each other. However, calculations can guide and govern decisions about the crowd capacity of an event.

6.3.1. Terminology

Below are a number of terms dealing with different aspects of crowd capacity. These terms will be used throughout the guide.

6.3.1.1. Crowd density

Crowd density refers to the number of visitors relative to the area in question, i.e. how closely together people stand in a particular area. How closely together people in an audience will want to stand, or will accept standing, depends on the type of audience, the place, the event, and the specific situation.

6.3.1.2. Gross area, net area, and actual audience area

When dimensioning an event site, the following three metrics are used:

- **Gross area:** the total area of the venue, in square metres.
- **Net area:** the area remaining after excluding the space taken up by, among other things, event buildings, stages, peripheral activities, back-stage areas, competition areas, etc. This is the area the audience can use.
- **Actual audience area:** the area that remains after excluding the space of areas with blind spots or unattractive areas where no one can or wants to stand. What remains is the area that the audience will actually use. You can use this value to calculate, among other things, the total capacity of a stage.

6.3.1.3. Focal points

Focal points are areas that attract the audience and where they will want to go, such as stages, locations of competitions, entrances, exits, vendor courts, toilets, and kiosks. A focal point can be strong or weak, depending on its ability to attract visitors. Strong focal points are places that all or most of the visitors will pass through or visit (e.g. a stage, the entrance, the finish area, or an adjacent camping site). Weak focal points are places that also attract visitors but not to the same degree (e.g. toilets, food vendors, or peripheral activities).

6.3.1.4. Focal routes

A focal route is the route that the majority of visitors will choose in order to move between two focal points. Identifying and analysing focal routes can be of great help when planning the design and location of different

focal points. If you know the focal routes of the event, it is easier to analyse and respond to crowd flow, take action in the event of problems, and predict occurrences that might disturb crowd flow along the focal routes.

Like focal points, a focal route can be strong or weak depending on how busy it is. Strong focal routes are footpaths that all or most of the visitors will use (e.g. between the entrance and the stage). Weaker focal routes are footpaths not all participants will use (e.g. between the stage and the toilets). The strength of a focal route may vary, not least depending on the time of day and what is happening at the event.

Read more about:

Means of evacuation in *Section 6.3.2.6.*

Focal points in *Section 6.3.1.3.*

Focal routes in *Section 6.3.1.4.*

Permits in *Section 4.2.*

6.3.2. Calculating crowd capacity

Calculating the crowd capacity of an event may be difficult. Many factors can affect capacity – more than most people can take into account. In addition, all calculations are, at best, qualified guesses. For this reason, calculations should not be regarded as absolute truths, but should instead be verified or checked in other ways, such as by several mutually independent assessments or based on previous experience. If the result of your calculation is close to the limit of the venue's capacity, then the capacity should be reduced and fewer visitors should be accepted.

If there are uncertainties, a person with appropriate experience and competence should be contacted for support – such as an experienced organiser or a safety expert.

It is also important not to draw hasty or far-reaching conclusions on the basis of calculations alone. For instance, a calculation that suggests that the site has good prerequisites for managing an evacuation does *not* automatically mean that the site has good prerequisites for managing strong normal crowd flow, such as when the audience arrive at or leave an event.

Consider the following when calculating the capacity of the site or premises:

- **Restrictions and obstacles.** Are there any known restrictions or obstacles? Contact public authorities or a previous organiser.
- **Capacity.** Can the premises or site accommodate the intended crowd size?
- **Means of evacuation.** Are there sufficient means of evacuation for the anticipated crowd size?
- **Layout.** Is the layout of the site or the premises suitable?
- **Focal points.** Where should these be located and how should they be dimensioned?
- **Focal routes.** Where will these develop and how should they be dimensioned?

At an arena or other type of permanent venue there is often a stated maximum crowd capacity to take into account, but keep in mind that this may have to be adapted on the basis of the character of and the conditions surrounding the event.

It is often comparatively easy to calculate the maximum crowd capacity for a building or an arena used for public events, because the maximum capacity is usually the same as the evacuation capacity of the premises or the arena. However, this presupposes that the event layout does not in any way affect the evacuation capacity.

Do not draw hasty or far-reaching conclusions on the basis of your calculations.

At outdoor events in temporary locations it is sometimes possible to do the opposite – i.e. first attempt to calculate the number of people who may attend, and then make sure that the site can accommodate the anticipated number of visitors. The site should then be constructed so that the visitors can get out within an acceptable amount of time should the site have to be evacuated.

Most older and larger events base their admission capacity – and also any possible gradual increase of the crowd size – on experience gained from earlier events. In order to reach optimal capacity, you should always start by being on the safe side and then gradually increasing capacity.

It is worth noting that other aspects than those mentioned here can also affect the appropriate crowd size. During longer events, the capacity for serving food can become a bottleneck; too few toilets can be a capacity problem if women make up a greater percentage of the visitors; and cloakroom capacity may constitute a limitation during winter events.

Read more about:
Gross area, net area, and actual audience area in *Section 6.3.1.2.*

6.3.2.1. The maximum crowd size is determined by the event permit

The site capacity is determined by the maximum crowd size stated in the event permit. In a permit application, an organiser can make their own suggestion for the crowd size. In order to arrive at this number, organisers may either consult an expert or make their own calculations.

The job of the police and the fire and rescue services is to then critically review the proposed crowd size in relation to, among other things, physical conditions, organisational fire prevention, and risks. Any efforts by the police and the fire and rescue services at an event can affect the crowd size stated in the permit. If, for instance, the police and fire and rescue services have staff and vehicles on site, a larger crowd size may be allowed.

6.3.2.2. Capacity estimates in practice

An audience will not be evenly distributed across an event site. Certain parts of the site (e.g. in front of a stage or at the finish area) will have a higher crowd density than, for example, vendor courts or toilet areas. A good way to get an overview of an area's capacity is to divide it into sub-areas. This makes it easier to estimate the crowd size for larger areas.

In order for an area of the event site to count as a sub-area, all parts of the sub-area should have similar properties in terms of

- **attractiveness** – how interesting the area is to the audience;
- **physical conditions** – characteristics of the underlying surface, its levelness, etc.;
- **safety** – staff, plans, safety preparations, etc.

Your own calculations can provide a general idea of how many visitors a sub-area can handle, but it is difficult to put numbers on the movements of crowds. Therefore, all calculations of capacity and crowd flow rates should be regarded as indications – not as exact numbers. It is important to make other assessments as well.

The number of visitors that can be accommodated in a given area can be calculated as the lowest number of the following:

- **Crowd size A** – holding capacity, i.e. the number of people who can be accommodated in the area;

- **Crowd size B** – admission capacity;
- **Crowd size C** – exit capacity;
- **Crowd size D** – emergency evacuation capacity (indoors).

Note that there are no relevant Swedish rules or guidelines for making these kinds of calculations of audience capacity. The calculation models presented here are thus not prescribed by law, nor can they be found in regulations or general advice from Swedish authorities. Nor do they produce exact values. They should instead be seen as mental models for arriving at guideline values.

6.3.2.3. Crowd size A – holding capacity, i.e. the number of people who can be accommodated in an area

When calculating the capacity of an event with only one strong focal point (e.g. only one stage or centrally located pitch) you should calculate crowd size A on the basis of the total capacity of the audience area. The capacity is then calculated as the combined capacity of the audience areas of the focal point (stands, standing-room section, seats, etc.).

When calculating the capacity of a place or sub-area it is important to take into account not only where the members of the audience *can* be but also where they *want* to be. What motivates them to come to a particular place at a specific time? Where will they want to stand or sit? It is important to take the actual audience area as your point of departure.

If you are familiar with the behaviour of the audience members and can say with certainty that only a portion of the audience will want to be at a certain focal point at the same time, you can increase the event capacity somewhat. However, in this case you should be able to control and redirect the crowd flow if there is a risk that the event will become sold out. In other words, you should not let in more people than the audience area can accommodate. Keep in mind that the area outside the primary focal point also must be able to handle all the visitors when the focal point is not active, for instance during period intermissions or between performances.

It is more difficult to calculate capacity for events with multiple strong focal points, such as festivals with several stages, or long-distance races with many scattered audience areas. In such cases you cannot simply calculate by adding up the maximum crowd capacity for the different focal points of the event, because it is difficult to determine exactly how the audience will be distributed among the various focal points at any given time. The total capacity of the event is rather a balance between the capacity of the various focal points and the expected crowd behaviour.

The important thing is that an organiser can ensure that no sub-area will become overcrowded during the event. The consequences of misjudging how large a percentage of the visitors are attracted to a certain focal point can be serious. One should therefore always be sure to have good margins and develop crowd management procedures for areas that risk attracting more visitors than have been anticipated.

Do the following in order to get an indication of how many visitors can be accommodated in a specific sub-area:

1. Calculate the sub-area's *actual* crowd area in square metres.
2. Determine the crowd density for the sub-area on the basis of its range of applications.
3. Calculate the maximum crowd size for each sub-area.

Read more about:

Crowd management routines in *Section 16.6.*

Focal points in *Section 6.3.1.3.*

Gross area, net area, and actual audience area in *Section 6.3.1.2.*

Dimensioning of audience areas in *Section 6.4.2.3.*

Weather factors in *Section 19.7.*

Performer profiles in *Section 17.2.1.*

Audience profiles in *Section 16.3.1.*

Do not simply take into account where the members of the audience *can* be – but also where and when they *want* to be somewhere. What motivates them to come to a particular place at a specific time?

The following can be regarded as guidelines for calculating maximum crowd density:

- seated audience in a marquee (e.g. on stands with benches): two persons per square metre;
- standing audience in a marquee: 3.5 persons per square metre;
- standing audience, other: see below.

The above numbers are guidelines for normal cases, but the actual crowd capacity can be affected by many factors, such as

- weather (heavy rain, waterlogged areas, strong sunshine, wind, etc.);
- the season and attire;
- the type of event – interpersonal distance between people, etc.;
- circumstances at an event – admission, concert, food serving, etc.;
- the type of performer;
- the type of audience.

No general guidelines have been drawn up in Sweden for a standing audience outdoors. Below are found applications of British rules, which should however be used with caution.

When calculating an area for a standing audience in a particular zone, two factors should be considered in the calculations:

- the physical conditions of the area (P);
- the quality of the safety management of the area (S).

The assessment of (P) and (S) should be made by a person with appropriate knowledge and understanding of safety principles, the area, and the event.

The value for (S) and the value for (P) is a number between 0.0 and 1.0, where the highest standard for the physical conditions of the area (P) yields a factor of 0.9 or 1.0, while a poor quality yields 0.0 or 0.1. The same values apply to the safety management (S). The factor that has the lowest value, (P) or (S), is the one that should be used, and it should be multiplied by the maximum crowd density, i.e. 4.7 people per square metre. Doing this provides a guideline value for the crowd capacity in an area with a standing audience.

Example: If a zone has the values (S) = 0.8 and (P) = 0.6, then the crowd capacity of the zone is calculated as follows: 0.6 x 4.7 = 2.82 persons per square metre.

Remember that this is only a mental model. There are no established rules in Sweden for calculating standing crowd capacity at outdoor events.

6.3.2.4. Crowd size B – admission capacity

The admission capacity must be adapted to the size of the event. However, it can be difficult to check whether the event has sufficient admission capacity because members of the audience rarely arrive in a steady flow: During certain periods the entrances can be extremely busy, while at other times they are under no pressure at all.

Read more about:

Dimensioning in *Section 6.4.2.*

An audience will not be distributed evenly across a venue, and the consequences of misjudging how large a percentage of the visitors are attracted to a specific focal point can be serious. Always make sure you allow for sufficient margins.

The admission capacity of an event can be defined as the number of people who can pass through the entrances into the venue during one hour. Even so, you should always use the actual conditions at an event as the point of departure for your calculations. At events where audience members normally arrive over a longer period of time, it is reasonable to base the calculations on a longer time period than one hour, while at events where the majority of the audience arrive late, it can be appropriate to make calculations based on shorter intervals of time.

The admission capacity of an event is affected by the procedures that must be carried out at an entrance, such as ticket controls, frisk searches, and bag inspections. In order to calculate the capacity for a particular entrance, the capacity of a lane can be tested by staffing it as though it were the actual event, using the event staff as test visitors, and measuring how many people the lane can admit in one minute. Make sure that the entrance stewards do not attempt to allow visitors in as fast as possible. The purpose of the test run is to identify a normal situation.

It is a good idea to do several dry runs in order to arrive at a mean value. The number of people who can be allowed in through the entrance in one minute should thereafter be multiplied by sixty. This will then provide the hourly capacity of that particular entrance.

In order to make sure that the influx speed allows the audience to disperse inside the entrance, a calculated value for a maximum capacity corresponding to 660 people per hour and entrance has been suggested. However, this is a high number and should be regarded as a maximum. It is likely that the actual value is lower. Make sure to allow for good margins.

Read more about:

Entrances and dealing with visitors at the entrance in *Chapter 9.* and *Section 19.2.*

Example: An example event has the following admission capacity under normal conditions:

24 entrances that can each handle 5 persons per minute, and 10 entrances that can each handle 7 persons per minute.

24 entrances x 5 persons x 60 minutes = 7,200 persons

10 entrances x 7 persons x 60 minutes = 4,200 persons

In total: 7,200 + 4,200 = 11,400 persons

Note that the results of the above calculations should serve as guidelines, not as absolute values. In practice, the visitors will not arrive in a steady flow, and the work at the entrances will not always proceed at the same pace. For this reason, there should always be redundancy in the admission capacity and the procedures for managing any peaks in the influx.

There should always be redundancy in the admission capacity and the procedures for managing any peaks in the influx.

6.3.2.5. Crowd size C – exit capacity

The exit capacity can be calculated on the basis of the number of people who can leave a venue under normal circumstances, i.e. not during evacuations. A guideline value for the appropriate amount of time needed to empty a venue during normal circumstances can be eight to ten minutes. Sometimes it can however be appropriate to extend the time period for emptying a venue in order to avoid congestion in areas further away from the venue.

Remember that several different factors affect the exit capacity, such as

- signage and information about exits;
- the design and location of the exits;
- areas directly inside or outside the exits;
- the type of audience – mixed, young people, families, older people, people with disabilities, etc.;
- the season and weather;
- lighting conditions and lighting.

At an event that ends at a distinct point in time (e.g. an individual concert) the majority of the audience will leave the venue at the same time. In these cases, the goal is to have a steady outflow of people from the venue. If the flow comes to a standstill for some reason, one should be prepared to provide information to visitors about why this has happened and how long the audience may have to wait before they can leave.

The width of an exit is of great importance. The calculated maximum outflow rate is eighty-two persons per metre of width per minute on level ground and sixty-six persons per metre of width per minute on stairs.

One should however note that outflow conditions based on calculations involving *fewer* than eighty-two persons per meter of width per minute will yield a more comfortable flow. For example, if the outflow time is ten minutes, you can calculate the exit capacity in the following way:

Example: An event with 8 exits, each of which is 2 metres wide, on level high-quality ground: 8 exits x 2 metres x 82 persons x 10 minutes = 13,120 persons.

6.3.2.6. Crowd size D – emergency exits (indoors)

Crowd size D applies only to indoor events or indoor sub-areas. Crowd size D is often governed by the predetermined crowd capacity of the premises. Conversely, there are no Swedish rules for the required number of emergency exits at outdoor events. For certain types of outdoor events, where large crowds of people assemble in a limited area, it can be wise to consider the need for evacuation routes in the same way as is the case for indoor events.

Crowd size D is based on the available number of emergency exits that are clearly visible and accessible to an audience.

When calculating the emergency evacuation capacity, every person on site must be included – not just the audience members. One should therefore include all staff, performers, vendors, and anyone else attending the event. You should also consider the way in which people are distributed on the premises, for instance taking into account if there are multiple floors or stands with separate evacuation routes.

The total width of all evacuation routes must be at least one metre per 150 persons. If one of the evacuation routes is blocked, the width of the others should be such that one metre can accommodate three hundred persons. Assembly halls for more than six hundred persons should have at least three evacuation routes, and assembly halls for more than one thousand

persons should have at least four evacuation routes. Footpaths leading up to an emergency exit should have a free width of at least 0.9 metres.

Example: The emergency exit capacity for an event with 3 emergency exits, each of which is 1.5 metres wide: 1.5 metres x 3 exits x 150 persons = 675 persons.

If one of these exits is blocked, all other exits together must be able to accommodate three hundred persons per metre of emergency exit. In other words, this means that the total exit width in this example, minus the blocked exit, multiplied by three hundred, should be able to accommodate at least 675 persons. (1.5 metres x 1 exit x 300 persons).

Example: 1.5 metres x 2 exits x 300 persons = 900 persons.

The emergency evacuation capacity for events is the lowest of these two numbers, i.e. 675 persons.

For larger premises and arenas, additional parameters must often be taken into consideration, such as the distance to an evacuation route or the design of fire cells. These factors are often described in the fire protection documentation for the premises in question.

6.3.2.7. Calculating the actual crowd size

The lowest crowd size of A, B, C, and D is the maximum number of people the event should admit. The rationale for this is simple:

- Do not admit more people than the area (A) can accommodate.
- Do not admit more people than can gain admittance during the calculated arrival period (B).
- Do not admit more people than you can get out in eight to ten minutes (C).
- Do not admit more people than the emergency exits can handle (D).

If the police and the fire and rescue services have set a maximum number for the audience, then this must never be exceeded, even if your own calculations yield a higher maximum capacity. The maximum limit set by the fire and rescue services is in most cases based on the width of the emergency exits, i.e. crowd size D.

6.4. Designing a venue

The purpose of the design of a venue is to give the audience an enjoyable experience in a safe manner. The design is also very important for the safety work, and should therefore be done in consultation with the event safety organisation. It must be easy to find one's way around, to get where one wants to go, and to leave. Before the venue receives its final design, a risk analysis should be made.

Read more about:

Crowd management in *Chapter 16.*

Focal points in *Section 6.3.1.3.*

Dimensioning in *Section 6.4.2.*

Flow analysis in *Section 16.4.3.2.*

One should keep the following in mind:

- Endeavour to have as open, simple, and logical a design as possible.
- Make walking paths wide and distinct. They can also be marked out with tape or be covered, for instance with gravel or bark chips.
- From the very beginning, select the routes for paths that the audience members are most likely to use.
- Close off any shortcuts.
- Indicate the preferred path, for instance by lighting it, and by making its choice as attractive to visitors as possible.

Support the design with clear information by providing, for example the following:

- signs along the paths indicating directions to various focal points;
- information signs at the various focal points;
- general maps of the event indicating important locations;
- a high level of knowledge among the staff so that they can answer visitors' questions.

A successful process for planning the design of the venue can include these steps:

1. site focal points;
2. dimension the conditions for crowd flows;
3. make a crowd flow analysis;
4. respond to potential problems.

In this process it can sometimes be necessary to start over at the first step and relocate the focal points, if it turns out that potential problems in the other steps are difficult to respond to.

6.4.1. Siting focal points

The siting of an event's focal points is often done on the basis of the following question: How do we create an enjoyable experience for visitors?

It is always important to consider the safety aspects of a location, an activity, or a siting. The safety organisation should therefore always be involved in designing a venue.

Consider the following factors when siting focal points and various activities:

- crowd flow;
- available space and infrastructure;
- suitability of the venue in terms of the characteristics of the ground, its stability, and its levelness;
- influence from external factors;
- health and safety risks;
- surveillance opportunities

Read more about:

Crowd flow and designing focal routes in *Section 6.3.1.4.* and in *Chapter 16.*

6.4.1.1. Crowd flow

The siting of the focal points of the event determines how members of the audience will move around the venue. Use the opportunity to control crowd flow by siting the focal points strategically. Aim for a clear and simple design. A complex venue with illogically sited focal points risks creating confusion not only among members of the audience but also among staff.

When designing the venue you should endeavour to have a simple, open, and logical design. Make sure that all focal routes are generously dimensioned so that they can accommodate the necessary number of visitors. Keep in mind that visitors often intuitively choose what they perceive to be the shortest route between two focal points. It is possible to influence visitors' choices to some extent, for instance by way of design, lighting, or information.

Keep in mind that certain activities depend on crowd flow while others function best if located outside busy focal routes.

Read more about:

Handling LPG in *Section 11.4.1.*

Dealing with bottlenecks and crowd congestion in *Section 6.4.3.1.*

Crowd management in *Section 16.4.*

The siting of focal points determines how the members of the audience move about the venue. You should site the focal points strategically in order to control the crowd flow.

6.4.1.2. Available space and infrastructure

An activity requires a certain amount of space in order to be run efficiently and safely – be it a vendor booth, a stage, or an entrance. There can be, for instance, requirements regarding the audience area, transport routes, safety distances, storage spaces, or queueing areas. Also keep in mind the space above an activity, which may contain, for example vegetation or suspended cables.

Certain activities are self-sufficient in terms of electricity and water, and only need a good location, while others need access to water, electricity, and access roads in order to operate. These needs sometimes govern the siting of an activity.

Contact the person in charge of each activity before deciding on its siting, and inquire about the need for

- the space for the activity;
- space for ancillary areas (e.g. for queues);
- electricity;
- drinking water and/or hot water;
- hygiene and sanitation;
- transport routes;
- car parks.

6.4.1.3. Impact on the surroundings

When deciding on the siting of various activities one should consider how they will affect their surroundings. Indeed, it might be genuinely inappropriate to place toilets adjacent to food vendors. High sound levels for residents in the neighbourhood or disturbances between stages can in many cases be reduced or eliminated by taking advantage of the natural shape and topography of an area.

6.4.1.4. Health and safety risks

Certain activities or equipment involve health and safety risks, and thus require careful siting. This can be activities that use LPG or that in other respects constitute a fire hazard, such as food vendors or activities in marquees. A dialogue should be conducted with local fire and rescue services about suitable siting and safe distances, and with the local environmental health department about the sale of food.

It is genuinely inappropriate to place certain activities next to each other.

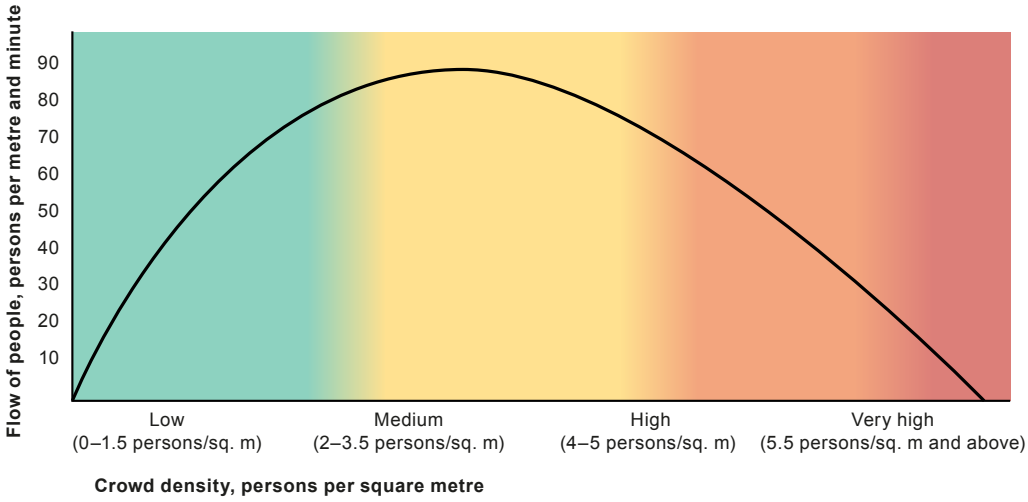
For example, certain goods might be perceived of as provocative, and certain activities can be seen as offensive and may produce discord among supporters or followers, for instance political or religious activities or activities directed at team supporters.

6.4.2. Dimensioning

When the event focal points have been sited on a map of the area or a plan of the arena, one should control and dimension the capacity of the various event entrances, exits, focal routes, and audience areas.

It is important to be meticulous when working with dimensioning, because seemingly minor problems with flow can quickly escalate, especially if there is congestion in the crowd flow. Congestion in the crowd flow can arise when crowd flow slows down for some reason, for instance in connection with a so-called bottleneck or ticket inspection. This leads to more visitors catching up with the ones already there and then the crowd density at that location increases, which in its turn slows down the flow even more. This risks creating a vicious circle with an increasing crowd density and a reduced rate of crowd flow as a result.

Figure 10. When the crowd density is high the flow rate is reduced



Crowd congestion brings with it many risks and often requires multiple resources to respond to it successfully. The event site should therefore be designed so that the risk of congestion is minimised.

6.4.2.1. Dimensioning of entrances and exits

With respect to the dimensioning of entrances and exits, you should ask yourself the following questions:

- Can the entrances accommodate the expected number of visitors in the allotted amount of time?
- Will the influx of people vary during the opening hours?
- If so, how will that be responded to?

Queueing areas and outflows, i.e. areas where an audience exits an event, should be adequately dimensioned. They should also be sited so that the audience members do not risk ending up on a busy street or an access road for emergency vehicles when queueing for or leaving the event. Try to keep queueing areas and the surrounding areas free of traffic.

6.4.2.2. Dimensioning of focal routes

Focal routes should be generously dimensioned so that they can handle the expected crowd flow. It is also important that the audience moves along in an even flow along the focal routes. Changes in the width, surface, or direction of the focal routes will have an impact on the walking speed of visitors, and a change in the walking speed will affect the crowd density, which in its turn risks causing congestion in the crowd flow.

In order to avoid crowd congestion you should try to design a focal route that

- has as few turns and corners as possible;
- avoids sharp turns;
- is of a uniform width from point A to point B;
- has a level, high-quality surface;
- does not intersect with other main focal routes;
- does not pass through queues or stationary crowds, e.g. at a stage or a kiosk.

Also remember that if a short segment of the route is of poor quality, this can affect the crowd flow along the entire focal route.

All planned routes and roads should be at least as wide as an emergency access road, i.e. three metres – but preferably more. In certain cases it may be necessary to take control of the influx to a focal route, for instance by using entrance stewards or fences, in order to avoid crowd congestion and ensure that the audience can enter and exit the area at an acceptable pace.

Several factors affect the speed of crowd flow, for instance

- crowd density;
- signage and information;
- the underlying surface;
- design – turns, corners, width;
- the type of audience – mixed, young people, families, older people, people with disabilities;

Calculating crowd flow

A rough calculation for working out how many people remain outside a bottleneck can look like this:

(T – G) x P = S

T: The number of persons who arrive at the entrance per minute. Usually varies greatly, also for shorter periods.

G: The number of persons who pass through the entrance per minute. Depends on, e.g. width of the entrance and the procedures a visitor must be subjected to. A default number can be arrived at, for instance by taking measurements on site.

P: Time period (in minutes). Mean values for longer periods can provide a skewed picture of peaks in the crowd flow. This can be compensated for by making additional calculations for shorter intervals of time with varying flows.

S: The number of people who will remain outside the entrance.

Example:

T = 10 persons/minute arrive at the entrance.

G = 8 persons/minute get through the entrance.

P = 15 minutes.

S = (10 – 8) x 15 = 30 persons remain outside the entrance. This method can be used in order to test various scenarios, e.g. 'What happens if the audience arrives earlier than anticipated?'

Note: Calculations should only be used as indications. It is very difficult to foresee actual conditions. Small errors in the assessments may have a great impact on calculations.

- obstacles along the way;
- the weather and season.

The maximum value for calculating walking speed is eighty-two persons per metre of width and minute. You should note that this number is generous and only relevant as a basis for calculation with respect to excellent conditions with a low crowd density. In other words, this number should only be used when each spectator has plenty of space to move around and when there are no disturbances in the crowd flow, such as oncoming pedestrians, obstacles, bottlenecks, or adjacent focal points.

Example under ideal conditions: In 5 minutes, a 10-metre-wide focal route on a level, high-quality surface can allow the passage of: 5 minutes x 10 metres in width x 82 persons = 4,100 persons.

Note, however, that the example above presupposes that the crowd flow in the focal route runs in only one direction. If there are intersecting or oncoming flows, the total flow capacity is reduced somewhat when crowd density is low. When there are intersecting flows with a higher crowd density, the capacity is severely affected, and this should always be avoided.

6.4.2.3. Dimensioning of focal points and audience areas

At many events an audience enters and exits an audience area at approximately the same time. For this reason it is important to ensure that the audience area can not only accommodate the visitors, but also that the area can be filled and emptied in a safe and efficient manner.

The dimensioning of audience areas is thus not only a matter of the number of people who can be physically packed into an area. One must also consider why, how, and when they arrive, and what effects this will have on how the area is filled and used. If the influx is poor the area risks being filled unevenly, which can lead to several undesirable effects, such as underutilised areas or high pressure on a stage barrier.

Ask yourself the following questions when dimensioning a crowd area:

- **Why does the audience show up?** A common purpose is to see an attraction, such as a concert or a competition. The audience will then place themselves in (what they perceive to be) a good location
- **for this purpose, i.e.** a place from where the attraction is not obscured.
- **How does the audience behave?** For some people it is important to stand at the front, while other people will accept a place further back. The goals of the audience members have an impact on how they distribute themselves over the area.
- **When does the audience arrive?** The audience profile, the scheduling of attractions, and other conditions affect how and when audience members arrive in the audience area: Under a single long or short period of time or spread out across several periods of time? Evenly over time or early or late?

Read more about:

Managing crowd flow in *Chapter 16.*

Crowd size in *Section 6.3.2.3.*

Design, information, and management in *Section 16.4.1.*

The dimensioning of crowd areas is not only a matter of the number of people who can be accommodated in an area, but also of how that area is filled, used, and emptied.

- **What do the people who first enter the area see?** The audience may very well stop as soon as they feel that they have found a good place. This often means that the line of sight to the attraction is continuously changing during the process through which the area fills up with people.
- **What do the people who enter the area later see?** Is the view from the second-best places blocked by members of the audience who have already taken the best places? The audience does not automatically have an overview of this situation.

6.4.3. Managing conceivable risks

Designing the venue provides an excellent opportunity for managing any conceivable risks already at an early stage. It is preferable to design away the risks already at the planning stage through risk-aware design.

6.4.3.1. Handling bottlenecks

Bottlenecks can be either structural bottlenecks (e.g. increasingly narrow focal routes, corners, or poor surfaces that slow down crowd flow) or procedural bottlenecks (e.g. ticket purchases, wrist bands, toilet queues, food lines, self-service, etc.).

When designing the venue one has to identify and account for bottlenecks. Some bottlenecks must be responded to. It might, for instance be necessary to control the influx to a focal route by using entrance stewards or fences. This way you avoid crowd congestion and ensure that the audience can exit the area at an acceptable pace.

It is difficult to avoid having any at all bottlenecks in a flow. However, it is important to ensure that the consequences of a bottleneck do not become dangerous. When the flow *to* a bottleneck is higher than the flow *through* the bottleneck, a crowd of people can develop at, for instance a bottleneck such as a queue.

You should make sure that the place where such a crowd may develop is a safe place in which to queue. The following are desirable characteristics for a queueing area:

- the audience can easily leave the place if they no longer wish to remain in the queue – confined queues involve significant risks;
- the queue that develops is narrow – in broad queues the risk of disorder, overcrowding, and irritation increases;
- the queueing area is large enough for the anticipated number of visitors.

If there is a bottleneck in a place where the queueing area is not naturally safe, one can intentionally create a new bottleneck earlier in the crowd flow where a queue can form safely, and then regulate the flow through the original bottleneck with the aid of staff or fences.

6.4.3.2. Managing sightlines

The audience will find certain parts of the site less attractive to be in, for instance where the sightline makes it difficult to see focal points, such as stages or competition areas. By influencing the sightlines, for example through the siting of a focal point or with different types of sight kills, you can keep certain areas free. This is especially important at places such as entrances and emergency access roads.

Read more about:

Risk management in *Chapter 3.*

Crowd management in *Chapter 16.*

Risk-aware design in *Section 2.3.6.1.*

Congestion in crowd flows in *Section 6.4.2.*

Dimensioning of focal routes in *Section 6.4.2.2.*

Sightlines in *Section 6.4.3.2.*

Handling crowd flows in *Chapter 16.*

Focal routes in *Section 6.3.1.4.*

It is difficult to avoid having any bottlenecks at all in a crowd flow. However, it is important to ensure that the consequences of the bottleneck do not become dangerous.

6.4.3.3. Managing shortcuts

Shortcuts can easily turn into focal routes that nobody has planned for. In order to gain control of the crowd flow, you can either remove visible shortcuts or control their capacity and use them as regular footpaths.

6.4.3.4. Managing geographical risks

Geographical risks are permanent phenomena in the terrain – for instance lakes, precipices, marshes, busy roads, railways, high voltage transmission lines, drainage systems, or gas pipelines.

It is often possible to reduce or eliminate geographical risk factors through good planning, informative signage, barrier fences, and surveillance.

Read more about:
Perimeter protection in *Section 6.6.*

6.4.4. Crime Prevention through Environmental Design – CPTED

Crime prevention through environmental design (CPTED) is an approach to situational crime-preventative work that refers to designing physical environments so that they reduce crime and increase security. It can be used both on a large scale, in architecture and urban design, and on a small scale involving making minor changes, for instance by clearing bushes and installing better lighting.

A crime-preventative perspective should be kept in mind when designing new venues, but this method is also an effective tool for working with potential hotspots in an existing event site.

Crime prevention through environmental design is based on six principles:

- Territoriality
- Access control
- Surveillance
- Target hardening
- Image
- Activation.

6.4.4.1. Territoriality

Territoriality means that those who visit a site feel a responsibility for and a connection with a particular place. This reduces a visitor's personal motivation to commit crimes or vandalism at the site, while at same time increasing their motivation to act as an informal security guard if they detect crime or vandalism.

A perception of territoriality can be enhanced, for instance by physical or symbolic barriers separating public from private areas, or by decorating a location with symbols to which the visitors feel a connection, such as the logotype of the home team in a bar for team supporters. Territoriality can also be enhanced through social activities on site.

6.4.4.2. Access control

Access control means that access to a place is limited to a particular group of visitors. This can prevent potential perpetrators from reaching vulnerable areas. It can also facilitate the detection of potential perpetrators who have managed to get into an area by creating a more homogenous picture of those people who rightly should be in that area.

Access control can be achieved through control of credentials, for instance by entrance stewards, or by means of locked doors and gates. One precondition for functioning access control is some type of perimeter protection around the area that prevents unauthorised persons from getting into the area without encountering a credentials check point.

6.4.4.3. Surveillance

Surveillance means that places exposed to risk are designed so that people who are on site can easily gain an overview of these locations. This means that a potential perpetrator runs a greater risk of detection if he or she tries to commit a crime, and it creates more informal security guards because more visitors can see what is happening at the place in question.

Surveillance can be achieved in many ways, for instance by improving the lighting, or by reducing bushes and nooks and crannies in order to create open sightlines and thus improve the natural visibility of a location. Endeavour to cut all bushes so that they are no higher than thigh-high and all trees so that they are no lower than that a person can easily pass under them.

6.4.4.4. Target hardening

Target hardening means that a site is designed so that any attempts to commit a crime are made more difficult or prevented. This has a deterrent effect on a potential perpetrator, because it increases the risk of their failure or detection.

Target hardening can be achieved in several ways, for instance by choosing doors with robust surface layers to prevent burglary or by providing visitors with an opportunity to lock up their bicycles in proper bicycle racks to counteract bicycle theft. Physical barriers can also be used and improved, for instance by building double rows of fences in order to more easily detect gatecrashers, or by anchoring and joining sections of fences in order to counteract breaching them.

6.4.4.5. Image

Image means designing sites and maintaining them so that they give the impression of being well-cared-for. A well-cared-for site signals that there are people who feel a responsibility for it, which can have a deterrent effect on a potential perpetrator because he or she can perceive that there is a greater risk of detection or prevention. A well-cared-for site also contributes to visitors themselves being tidier, in the same way that a poorly maintained site can make visitors feel less responsibility.

A good image can be created by maintaining a site regularly, and by managing potential vandalism in the form of, for instance, graffiti, broken lighting, or littering. It is also important that visitors to the site have good access to waste bins in order to prevent littering.

6.4.4.6. Activation

Activation means siting focal points in locations that otherwise risk becoming depopulated, thereby increasing the number of visitors moving about at that location. This should have a deterrent effect on a potential perpetrator, because it both increases the risk of detection and places more informal security guards on-site.

One can, for instance, locate vendor areas, playgrounds, eateries, or other types of meeting places in less frequently visited areas. You should

however remember that various focal points will attract visitors at different times of the day, and that they may have to be adapted in order to be able to activate the area over a longer period of time.

Here should also be mentioned the concept of placemaking. Placemaking means that a specific location is designed so that it becomes more useful and a source of enjoyment for visitors. People will then want to be at and use that particular location.

6.5. Zones

Different locations in a venue will present different conditions with respect to the risk of accidents, crime, or antagonistic threats. Their risk profiles will also differ, and for this reason it may be wise to vary the safety measures among them.

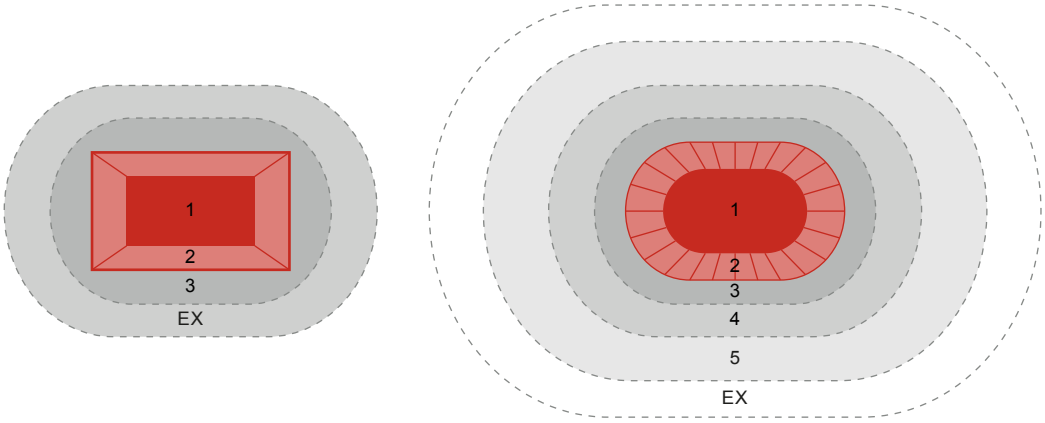
One method for structuring safety work at an event can be to divide up the event site into zones, determined on the basis of what the different areas are used for and what safety measures are required in each of them. By making such a division, the work can more easily be structured, and the safety organisation and external actors can more easily reach consensus concerning the event site.

Working with zones aims to clarify and ensure the quality of the safety work, but there should not be too many kinds of zone at an event site. That which is controlled with the aid of zones should, furthermore, avoid the introduction of customised options, because such options can end up complicating rather than simplifying the work.

Safety conditions that can be controlled with the aid of zones include, for instance,

- how many staff will work in a zone and their tasks, instructions, and training;
- who has access to the site and how carefully access authorisation is controlled;
- rules concerning what is permitted in a zone;
- how the introduction of items is controlled (e.g. metal detectors, frisk searches, bag searches, or only observation of suspicious items or behaviours);
- how strong the perimeter protection of the site is;
- how often and how carefully searches of the site will be conducted;
- prerequisites for access for vehicles (e.g. only emergency vehicles, pre-approved vehicles, escorted vehicles, or speed-limited vehicles).

Figure 11. Example of zoning of arenas



The appropriate number of zones and their properties vary from one event to another. Below is an example that has five internal zones and one external zone. The zones mentioned below can be modified and applied to both small and large arenas, as well as to permanent and temporary venues.

6.5.1. Zone 1 (internal zone)

Zone 1 (the internal zone) consists of the areas to which the audience does not have access, for instance the pitch, the stage, backstage areas, or dressing rooms. These areas will, among other things, house staff and valuable equipment, but may also contain focal persons (performers, athletes, or sports officials) who are popular with an audience and who may have a threat profile relating to them.

An internal zone can often require extra access limitations, control of credentials, perimeter protection, special staff with a focus on observation and protection, and more careful searches prior to the event.

Depending on how an event site is designed, visitors may need to be evacuated through Zone 1 in the event of an evacuation. It is then important that the area and the evacuation plan are adapted for this purpose. In the event of a lockdown, Zone 1 can under certain circumstances be considered a protected place.

6.5.2. Zone 2 (spectator zone)

Zone 2 (the spectator zone) includes the areas inside the venue where the audience assembles for some reason, such as a stand or the area in front of a stage. Here a lot of people will gather, and they will often stand more closely together than in other locations. At certain types of events, density in itself can become a problem in the form of high crowd pressure or other capacity-related phenomena, but high density also involves an increased vulnerability to accidents, crime, and antagonistic threats. These areas are usually those most attractive for a terrorist attack, precisely because of the crowd density and the crowd size.

Usually these areas have the same conditions regarding control of credentials, frisk searches, and perimeter protection as those found in Zone 3 (see below). However, this zone usually requires a greater staff presence than in the other zones, with a work focus that is interactive as well as observant and monitoring. Here, too, a more careful search of the site prior to an event may be in order.

Read more about:

Areas in Zone 1 in *Section 6.7.5.*

Evacuation and sheltering in place in *Section 20.4.*

Areas in Zone 2 in *Section 6.7.4.*

Areas in Zone 3 in *Section 6.7.3.*

6.5.3. Zone 3 (inner circulation zone)

Zone 3 (the inner circulation zone) includes areas inside the venue used by the audience in order to move about the venue. In these areas larger crowds rarely assemble, but at certain times they may nonetheless have heavy visitor traffic. Within Zone 3 visitors interact with each other, which can lead to emotional friction and disturbances of public order. In addition, strong crowd flow can sometimes develop, for instance during movement between different spectator zones (Zone 2).

In most areas in Zone 3 there are also places with limited visibility (e.g. at toilets or at the fringes of larger crowd flows), which can lead to an increased risk of gatecrashing, crime, or attempts to smuggle in or hide dangerous items. Because Zone 3 is often directly adjacent to Zone 2, and is in addition inside the perimeter protection, Zone 3 should also have relatively high security.

The areas in Zone 3 often contain the majority of the event perimeter protection with respect to Zone 4. Access to Zone 3 is often subject to credentials checks (e.g. a ticket or a bracelet) and frisk searches. The zone itself should also be subject to a search before the event begins. This often requires the presence of staff who display a strategy that is both interactive and monitoring.

6.5.4. Zone 4 (outer circulation zone)

Zone 4 (the outer circulation zone) includes areas used by the audience outside the perimeter of the venue. Depending on how the permit that was issued has been phrased, some of these areas can be legally included in the event site. People in these areas are usually not frisked, and even people who do not have access to the event itself have access to these areas. These areas are also frequented by many people at the same time both before and after an event. Strong crowd flows can develop here both prior to and following the event, presenting a risk of crowding and high crowd pressure.

In areas included in the event permit an organiser can choose to conduct a preliminary ticket inspection ('Do you have a ticket?') or a cursory search, for instance of bags. But it is possible to observe and provide information to people also in areas not covered by the event permit, for instance about a ban on large bags. This functions both as a service to visitors and as a way to detect or deter persons with malicious intent.

Because of strong crowd flow and its proximity to Zone 5 (the external zone), it can be a good idea to make Zone 4 a vehicle-free zone, for instance by using road closures and vehicle barriers.

Usually, Zone 4 does not have to be searched as carefully as the inner zones, with certain exceptions (see hotspots below).

During an emergency event it is probably in Zone 4 that the event safety organisation engages with the emergency services. For this reason, it is important to make sure that emergency access roads are kept free even if the entire audience has been evacuated from the inner zones.

6.5.5. Zone 5 (buffer zone)

Zone 5 (the buffer zone) is an area where an event has no direct activities, but which can nevertheless affect the event and thus requires some supervision. For instance, safety staff working in Zone 4 may be aware of a specific problem area outside the event site which they can check on from time to time.

Read more about:

Areas in Zone 4 in *Section 6.7.2.*

Areas in Zone 5 in *Section 6.7.1.*

In Zone 5, events that have an elevated threat profile may choose to have staff in civilian clothes working with identifying suspicious phenomena and informing the staff in Zone 4. This zone, too, can be made vehicle-free if necessary.

In some cases, it may also be necessary to include Zone 5 in a search at the green or yellow levels.

Read more about:
Searching in
Section 19.1.3.

6.5.6. Zone ex (external zone)

Zone ex (the external zone) includes areas that fall outside of an event's area of responsibility. The event neither has activities in, nor an overview of, these areas, but they can still to some extent affect, or be affected by, the event. For most visitors going to or from an event, their travel involves moving about in places outside the buffer zone of the event. But the closer they get to the venue, the more concentrated the crowd flows will become. The external zone can be loosely defined as 'the final piece'. Usually this zone includes portions of the local community, and the municipality and local authorities play an important role here.

Before an event, the following can be done in order to ensure suitable safety in the external zone:

- **Define** the extent of the external zone.
- **Identify** relevant actors from any macro-organisation that should be involved.
- **Identify** activities that may affect or be affected by the event, such as public and other transportation providers, local businesses, local residents, road maintenance authorities, or other authorities.
- **Inform** about and discuss the prerequisites for crowd and traffic flows, temporal aspects of arrivals and departures, starting and end points for visitors' travel, etc.
- **Draw** up plans for managing the crowd and traffic flows during the event.
- **Define** responsibilities, roles, and mandates.

6.5.7. Hotspots

In certain zones there may be certain locations with special conditions that demand other safety measures than the rest of that zone. Such places are, for instance, the queueing area outside a venue, which is in Zone 4, but which at times may contain considerably more people than the rest of the zones and thus may need to be searched more thoroughly. It can also be a secluded segment of a corridor located in Zone 3, but which is nevertheless searched at the red level.

These areas are called *hotspots*, and special conditions prevail in them. In most cases, hotspots should have well-established instructions and procedures for how the safety organisation should work inside of them.

Table 9. Examples of how zones can be used for a fictitious event, for example an arena with a concert

Zone	Access	Staffing (–) = some presence, (+) = strong presence	Focus of the staff	Frisk searches	Search level (hotspots within brackets)
Zone 1 (Inner zone)	VIP	Public security guards (–), Medical care services (–)	Access control and observation of anything 'suspicious'.	No, see Zone 3.	Yellow level. (Red level: dressing room).
Zone 2 (Spectators)	Ticket	Safety staff (+),Public security guards (+), Medical care services (+)	Crowd safety and public order.	No, see Zone 3.	Red level.
Zone 3 (Inner circulation)	Ticket	Safety staff (+), Public security guards (–), Medical care services (–)	Crowd flow, access control, crowd safety, public order, observation of anything 'suspicious'.	Frisk searches.	Yellow level. (Red level: toilets, A, B, C, and location X (obscured visibility))
Zone 4 (Outer circulation)	The general public	Safety staff (–)	Information, crowd flow, observation of anything 'suspicious'.	Information: no large bags.	Yellow level. (Red level: queueing area entrance 1, 2)
Zone 5 (Buffer)	The general public	Safety staff (–)	Observation of anything 'suspicious'.	No	Green level. (Yellow level: Bus stop)
External zone	The general public	No	No	No	Will not be searched.

The advantage of the zone model is that it creates a structure for how the safety organisation should work in all areas at an event site – both in a zone as a whole and at the hotspots.

Remember that this is only an example of how safety work can be structured using zones – every type of event and venue presents different conditions.

Read more about:

Defence in depth in *Section 2.1.1.*

Barriers in *Section 6.6.1.1.*

6.6. Perimeter protection and interactive protective measures

A venue should be free from risks for accidents, but it also needs protection from intentional occurrences. When designing the venue, the protective measures should be designed on the basis of four principles of protection:

- **Deter**, which aims to make potential perpetrators refrain from carrying out an attack or a crime on the basis on their fear of failure.
- **Detect**, which aims to identify a potential risk, verify an attack or crime, and provide a basis for determining countermeasures.
- **Delay**, which aims to delay an attack or a crime and mitigate the consequences should one occur.
- **Respond**, which aims to take measures that interrupt ongoing attacks or crimes in progress and respond to their consequences.

The interaction among various security measures increases the effectiveness of each individual measure. In the face of the threat of an attempted burglary, a camera can, for instance, have a deterrent effect on a perpetrator. If the perpetrator nevertheless chooses to continue with the burglary, the camera can contribute to the perpetrator being detected by a camera

operator. A burglar-proof door has a delaying effect, because it prolongs the time a perpetrator needs in order to breach it. In combination with a camera, it also further increases the chances of detecting the perpetrator. If there is, in addition, a procedure for taking rapid measures in the event of a burglary, public security guards can be summoned to the location, with better a better chance of interrupting the burglary attempt, because the camera operator can give them a description and the security door gives them more time to intervene.

This is usually called defence in depth or the onion principle, because the basic idea is that security does not necessarily have to be severely reduced if one layer is lost.

6.6.1. Shell protection

Shell protection is often used as a term for the security measures that protect a building or an area from trespassers. The shell protection is often focused on entrances, but should also encompass all possible routes into a venue, as well as the security ratings of walls and external surface layers. An effective shell protection is a prerequisite for the organiser being able to ensure that many of the public order rules of the event are complied with, for instance that each visitor has a ticket and that no one has brought prohibited items into the event site.

Often, several layers of shell protection are required at larger events. For instance, it may be necessary to prevent visitors at a festival from getting into a backstage area, or require age checks at places where alcohol is served at an arena. In both these examples, the areas are inside the outer shell protection, but they nevertheless require additional safety measures in order to maintain successful security.

Shell protection also plays a major role in the prevention of crime and as protection against antagonistic threats. By combining several types of security measures, a robust protection against various types of antagonistic threats and crimes can be created.

6.6.1.1. Physical obstacles and barriers

In order to be able to protect an event site from trespassers, it usually must be physically demarcated. This demarcation can consist of a number of different things, depending on what they are meant to be protection against. Examples of physical obstacles are walls, doors, fences, marquees, and vehicles.

Keep in mind that physical obstacles can in some cases also be used in order to conceal assets and as part of other safety measures, which can have a deterrent effect on a potential perpetrator without especially delaying them. Physical obstacles also make it easier to identify individuals with malicious intent, because if they breach a physical barrier, they reveal their intentions.

6.6.1.2. Robust external surface layers and reinforced structural elements

When designing shell protection, one should as far as possible choose structures with robust external surface layers. Robust surface layers refers to materials that do notrisk aggravating an accident or an attack by, for instance being flammable or breaking into dangerous fragments in the event of an explosion. They also include doors and fences that, in order to hinder trespassing, are difficult to breach.

Many existing installations can be made more robust, for instance by reinforcing glass panes with safety film or by strongly anchoring sections of fences. Review your shell protection, and if necessary reinforce weak points against attempted trespassing and attacks.

In the event of an explosion or other severe damage, for instance an unintentional or deliberate vehicle collision, load-bearing elements in the form of pillars, subfloors, or load-bearing walls in buildings or other structures may give way. This can in turn result in a building or structure collapsing. In order to counteract this risk, one should, whenever possible, reinforce or implement extra protection around load-bearing structural elements. One way of doing this is by having multiple load-bearing structural elements that can continue to carry the weight even if one of them should fail (redundancy). It can also be accomplished by covering or reinforcing the relevant element or placing it out of sight or beyond the scope of potential damage (risk-aware design).

There are many European standards where one can read more about requirements for perimeter protection, for instance the following:

- blast proofing: SS-EN 13123-1, SS-EN 13123-2;
- bullet proofing: SS-EN 1522, SS-EN 1523;
- bullet proofing (glass): SS-EN 1063;
- trespass and burglary protection (glass): SS-EN 356;
- trespass and burglary protection (window/door): SS-EN 1627;
- progressive collapse: EN 1991.1-7;
- vehicle barriers: BSI PAS 68, CEN CWA 16221, ISO/IWA 14-1:2013.

6.6.1.3. Sectioning

The purpose of sectioning is to limit a perpetrator's opportunities for moving freely about a venue by placing physical obstacles between the perpetrator and his or her targets. The physical obstacles can both deter a perpetrator and delay their actions, and the basic principle of sectioning is to prevent a perpetrator from simply walking straight in. In this way, the development of a crime or an attack can be delayed so that it can be detected and interrupted. During an attack every minute is critical for enabling the police to get to the site and cut short the attack.

Sectioning can be done by relatively simple means: the possibility of locking doors, robust walls or physical obstacles, safety films on panes of glass.

Figure 12. Sectioning

Operation	Barrier	Delay
1. Shatter glass with a rifle butt	Pane of glass	8 s
2. Pass through the lobby	Distance	15 s
3. Pass through an unlocked door	Unlocked door	1 s
4. Pass through the hall	Distance	15 s
5. Open door to the conference room	Unlocked door	1 s
		40 s

Operation	Barrier	Delay
1. Entrance staff with lockable door	Pane of glass with a safety film	90 s (alarm)
2. Pass through the lobby	Distance	15 s
3. Breach locked door	Locked door	60 s
4. Pass through the hall	Distance	15 s
5. Breach door to the conference room	Locked door	60 s
		240 s

These measures can be permanent (e.g. a key is always required to get through a door) or they can be initiated when the threat profile is elevated (e.g. procedures for moving potential targets behind locked doors or the possibility of locking doors from a central location).

Appropriately trained staff can also contribute to reinforcing sectioning, for example by locking a door or triggering an alarm in the event of an attack.

When planning the sectioning, it is also important to ensure that the measures do not counteract other functions, such as evacuation, accessibility, or the efficiency of regular activities.

Read more about:

Access controls in *Section 19.2.2.1.*

Prohibitions against bringing items into a site in *Section 4.1.1.1.*

Security checks in *Section 19.2.2.2.*

Detectors in *Section 7.8.2.*

6.6.1.4. Access control

In restricted areas not open to the public, access authorisations need to be checked for those who enter the area. The access control can be a ticket inspection at an entrance to an arena, or a card reader at the door to a staff room. The important thing is that an access control must function correctly in order for the perimeter protection to fulfil its function.

6.6.1.5. Prohibitions against bringing items into a site

At many events a ban against certain items should be introduced in order to prevent visitors from bringing certain items into the event site. Such bans can, for instance, take the form of prohibitions against items that can be dangerous or used as weapons, but may also include a limitation on the size of bags that may be brought into the site. At certain events no bags are allowed at all, or only bags that are transparent. This prohibition forms a basis for the work at a security checkpoint.

6.6.1.6. Security check or frisk search

Security check is a generic term for checking items brought inside a certain layer of the perimeter protection. Examples of this are the conditional frisking of visitors or the searching of vehicles. The aim of a security check is both to maintain public order rules that exist in an area, and to detect potential threats.

6.6.1.7. Detectors

The work at a security checkpoint can be made more effective by using detectors that can warn of such things as metal objects or explosives. Detectors are available in several versions, but the most common types are handheld models operated by the staff themselves, arches under which visitors must pass, or various types of x-ray equipment.

Detectors can also have a deterrent effect on potential perpetrators, because they increase the chances of their being detected.

6.6.1.8. Alarms

Various types of alarms can be used in order to provide warnings before or during undesirable occurrences that need to be dealt with. Examples of alarms are burglar alarms on doors or personal assault alarms carried by the staff. A common characteristic of all alarms is that they need to be followed up by appropriate measures in order for them to be able to fulfil their basic function. These measures can be a siren automatically emitting warning signals, a warning light beginning to flash, or staff being summoned. An alarm can be an effective way of reinforcing a weak point in perimeter protection or protecting a particularly vulnerable area from breaches.

6.6.1.9. Camera surveillance (CCTV)

CCTV (*closed-circuit television*), also called camera surveillance, is an effective tool that can be used in order to detect potential threats, verify alarms, gain an overview of a course of events, or coordinate work efforts. CCTV is a versatile tool that can reinforce all parts of perimeter protection, but its use must, as is the case with alarms, be linked to a specific kind of follow-up measure. Cameras also have a deterrent effect on potential perpetrators and can gather evidence that can be used in potential legal proceedings.

6.6.1.10. Lighting

Lighting is a simple, cost-effective measure that is rarely perceived as threatening, disturbing, or intrusive to a visitor's experience. Lighting creates a sense of security for visitors, increases the risk of a perpetrator being detected, and facilitates both surveillance and the informal control of an area.

6.6.2. Interacting and reinforcing measures

Well-planned physical protection should be complemented with several other interacting and reinforcing measures in order to attain robust perimeter protection. The perimeter protection should be based on the principle of defence in depth (the onion principle), and should incorporate measures concerning planning and organisation, in addition to purely physical measures.

As an organiser, you may have to lift your eyes and see the bigger picture – not simply focus on threats and protection, but also see how risk can be affected by affecting the assets:

- Can the assets be moved or spread out so that the risk is reduced?
- Can the assets be gathered together so that measures taken can protect them more effectively?
- Can the assets be placed, or can the surroundings around them be affected, so that perpetrators will be deterred or attempts to trespass will be easier to detect?

Read more about:

CCTV in *Section 7.8.*

Lighting in *Section 7.6.*

Principles and measures for increased protection in *Section 2.3.6.*

The onion principle in *Section 2.1.1.*

The following are examples of important principles and measures that can reinforce perimeter protection:

- risk-aware design
- temporal control
- a protective attitude
- asymmetric security
- access restrictions
- informal control
- visibility
- awareness-raising of the audience
- information about safety measures.

Read more about:

Collaboration among organisations in *Section 5.3.4.1.*

The various sections of the arena can be described on the basis of the same structure and zone division as in *Section 6.5.*

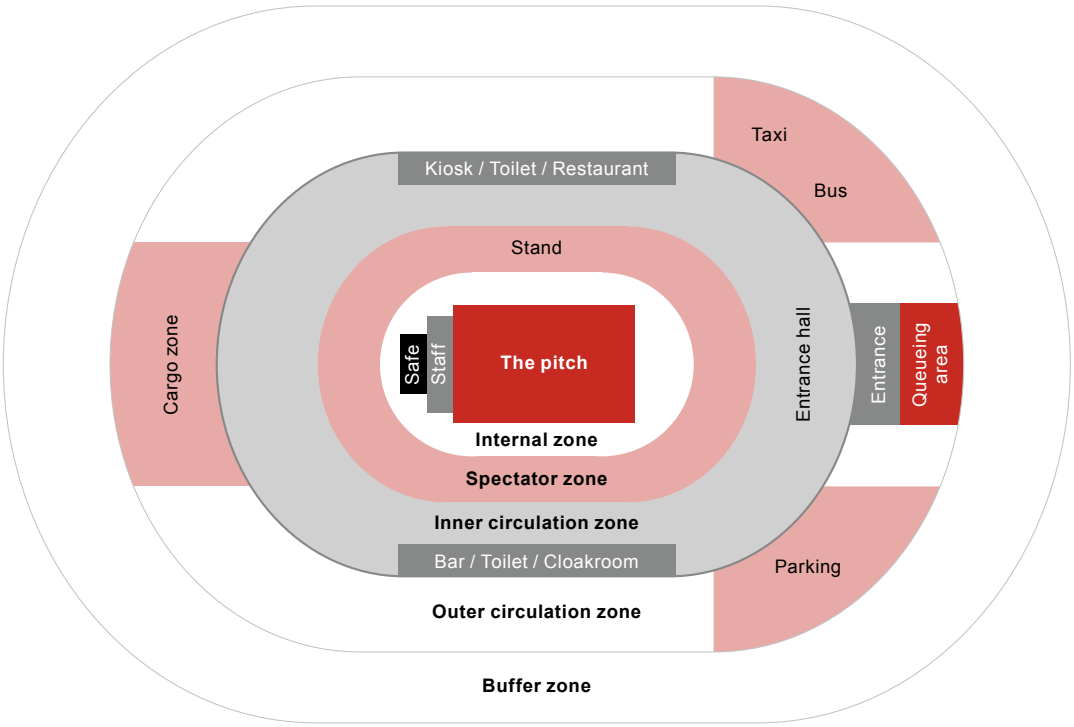
6.7. Sections of an arena

An arena often has a ready-made infrastructure where most things are already in place. Some arenas are custom-built for a particular purpose, while others are so-called multi-arenas that can be adapted for use with both sports and cultural events.

However, all arenas have to be adapted to a greater or lesser extent prior to the event in question, and sometimes one event can come hard on the heels of another. This can lead to short lead times for the necessary adaptation. An arena can also be faced with several different challenges with respect to safety work depending on the type of event that is to be held there, and it will have to be appropriately adapted in order to confront these challenges.

At an arena there are also often challenges when the arena organisation must collaborate with an organiser's organisation in a number of areas, not least with respect to safety work.

Figure 13. Arena sections and event zones



6.7.1. Conditions in the buffer zone (Zone 5)

The buffer zone is adjacent to the arena area without belonging to the area itself. Usually the safety organisation does not work in this area, but, depending on the situation and the current threat profile, various safety measures may be appropriate, such as vehicle barriers, searches, and surveillance.

It is a good idea to identify any problem areas in the buffer zone that can affect work closer to the arena, and to let the staff working in the outer circulation zone keep these areas under surveillance.

Read more about:
Collaboration in *Section 5.2.*

6.7.2. Conditions in the outer circulation zone (Zone 4)

The outer circulation zone of an arena is the area from the outer boundaries of the arena area all the way to the walls of the arena. This zone can include such things as car parks, public transport stops, exhibitors, and queueing areas.

Visitors can arrive at an arena in several different ways. Often there is an existing infrastructure in place, for instance roads with signposts as well as existing car parks and public transport stops. But an arena is constructed and then remains in place for a long time, while its surroundings change. New conditions are added and new kinds of events arise during the life-cycle of an arena.

In addition, different events have different prerequisites: how visitors travel to the arena, the time period over which they arrive, and their attitude to the situation vary. For this reason, safety work must be adapted to each event in order to ensure that the arena infrastructure can handle all the visitors.

All predictable larger crowds of people risk becoming a target of terrorist attacks. Once the audience is inside an arena there is usually a higher security level in place – spectators are usually frisked and have gone through some form of access control – but outside the arena they are gathered in an area where the security level can be considerably lower. For this reason it is important to adapt the outer circulation zone so that attempted attacks are made more difficult, and crime and accidents are prevented. A risk analysis should form the basis of the measures taken.

6.7.2.1. Collaboration concerning the outer circulation zone

Areas outside the arena can be very calm during periods when no events are happening, but during an event the same areas can be very busy. This can lead to several risks and threats. It is therefore important that both the arena owner and the event organiser have a clear picture of what will happen in the area outside the arena.

But also other organisations and activities affect and are affected by the event. The arena safety organisation, public transport, taxi companies, the police, fire and rescue services, social services, property owners, businesses located in nearby buildings, and many others may be involved in one way or another. Here it is important to work out the responsibilities among the different actors: Who is responsible for what area/audience?

Collaboration between the various actors is key to a safe implementation of an event. Without successful collaboration, there is a risk of a kind of responsibility relay race, where the responsibility for people's security and safety is handed over from one actor to another, without a common information mode or a joint plan of action.

Collaboration among actors is paramount. Otherwise a kind of responsibility relay race may ensue, where the responsibility for people's security is handed over from one actor to another.

It is important to make sure that any temporary actors in the outer circulation zone do not affect safety negatively, for instance by blocking evacuation routes. The placement of any potential actors in the outer circulation zone should be done in consultation with the fire and rescue services and the arena owner. Keep in mind that an arena is part of society; surrounding businesses, shops, etc. are also affected by the order around the arena.

Read more about:

Car parks and traffic management in *Section 7.3.*

Public transport and taxi zones in *Section 7.3.4.*

Entrances and queueing systems in *Chapter 9.*

Vulnerabilities in *Section 3.3.1.*

Working at entrances in *Section 19.2.* and *Section 19.6.1.*

6.7.2.2. Legal conditions

The area directly outside the arena is usually included in the areas of responsibility for the public security guards, but it is not always certain that these public security guards can work in the entire outer circulation zone. Places such as, for instance, car parks and public transport stops can sometimes be located so far away from the arena itself that they are not included in the duty area of the public security guards. You should therefore collaborate with the Police Authority concerning exactly where to draw lines of responsibility.

However, organisers can apply for the introduction of so-called 'Section 3 areas'. In these areas, public security guards may work for a limited period of time if there is a special need for this, and if it is of substantial importance from the point of view of the public. This is made clear in the Act on public security guards (1980:578).

Stewards working in the outer circulation zone work under different conditions depending on whether or not the area has been closed off to the general public, but in either case, the stewards should primarily work with persuasion and information. In the event of a disturbance of public order, the stewards should always call for public security guards or the police.

6.7.2.3. Car parks

Depending on the type of event that is being arranged in an arena, the arena car parks may have to be appropriately adapted and certain traffic flows may have to be responded to. However, it is often difficult to predict how many cars will arrive at an event or when they will arrive. Here an audience profile may help in making certain assumptions.

At certain types of events, all visitors may want to arrive at and leave an arena at approximately the same time. This can lead to high pressure on roads and car parks surrounding the arena. When flows of pedestrians and motor vehicles are mixed, there is always a risk of accidents. If possible, try to keep the pedestrians and the motor vehicles apart. Measures such as parking valets and good lighting can reduce the risk of accidents.

6.7.2.4. Stops for public transport and taxi zones

In many arenas there are stops for public transport and special taxi zones, but, depending on the type of event, the pressure on these can vary considerably. Good collaboration with the concerned actors within public transport and the taxi companies will facilitate the work of all parties.

6.7.2.5. The entrances to an arena

At the entrances to an arena queues will often form. Such queues are a source of challenges as well as risks. When planning an event at the arena, one must therefore consider a number of factors that may give rise to the formation of queues, for instance the following:

- How many entrances does the arena have?
- How many entrances will be used?
- Will the visitors be evenly distributed among the entrances?
- How careful a security check will be made?
- When are the visitors expected to arrive at the arena?

If there is a risk of long queues forming, an external queueing system may have to be established. This will prevent the visitors from blocking sidewalks and streets, and also ensure that the admission process functions smoothly.

Queues outside an arena can also be an attractive target for terrorist attacks, and for this reason this vulnerability should be carefully analysed. Queues also risk generating large amounts of trash, so it is a good idea to place trash and recycling bins nearby. Waste bins and similar receptacles close to a large crowd of people or crowd flow should be transparent in order to facilitate searches.

It is a good idea to have staff at the entrances over the course of the entire event, because they can then also keep watch over the outer circulation zone.

Read more about:
Perimeter protection in *Section 6.6.*

6.7.2.6. Smoking bans

Smoking tobacco or similar products is prohibited in several outdoor areas to which the general public has access. This is made clear in the Act (2018:2088) on tobacco and similar products. The ban applies

- to entrances to premises and other areas to which the general public has access;
- in connection with public transport (e.g. bus stops and taxi zones);
- in enclosed outdoor areas used for sports, even if the area is also used for other activities, for example concerts and trade fairs.

The responsibility for enforcing the smoking ban falls on whoever has a practical opportunity to ensure that the ban is complied with. This means that an event organiser or a property owner is responsible for enforcing the smoking ban, and for putting up signs that clearly inform people about the ban. There are no special requirements regarding the designs of or messages on these signs, other than that they must be clear.

In other words, visitors to the arena may smoke *outside* the arena, on condition that it is not done in the vicinity of an entrance, an area serving food, or a public transport stop. For this reason, it is a good idea to in advance define an area specifically intended for smoking, clearly demarcate that area, and communicate where it is to visitors. Select a location for this area with caution. Tobacco smoke can both be perceived as disturbing and cause allergic reactions.

6.7.2.7. Loading and unloading areas

With respect to loading zones for the reception of goods, there is no avoiding the fact that loading and unloading is often done where people are moving about. This leads to a risk of unauthorised persons gaining unnoticed admission to this area. Consider therefore having some form of surveillance in such places.

The goods reception area can also be a vulnerable point if flammable material is left there overnight. Keep the outside of the goods reception area free of pallets, carts, and any loose flammable material. Only authorised vehicles should have access to the area around the goods reception.

6.7.3. Conditions in the inner circulation zone (Zone 3)

The inner circulation zone is made up of the visitor areas between the entrance and the spectator zone or the arena space itself. This zone may include, among other things, cloak rooms, restaurants, bars, and toilets.

In the inner circulation zone the security level is usually higher than in the outer circulation zone, because the visitors there have usually passed through an access control as well as a security check. The safety work in the inner circulation zone therefore has to consider different conditions.

A well-designed inner circulation zone, with clear signage and a well-planned layout, will help visitors find their way around and provide them with a better experience of the event. This also makes the safety organisation's work easier.

The inner circulation zone often has to be adapted to different types of events, and for this reason the areas of responsibility between different actors must be defined. Seemingly small changes in the inner circulation zone, such as the location of a temporary vendor or fewer open bars, can have a considerable effect on crowd flow. It is therefore important to carefully consider the design of an event.

Read more about:
Prohibitions against bringing things into a site in *Section 4.1.1.1.*
Toilet areas in *Section 12.3.*

6.7.3.1. Entrance halls

Many visitors arriving at an event pause and try to orient themselves immediately after entering the arena. In order to avoid congestion it is important to make sure that there is good signage, as well as staff members who can guide visitors to the appropriate location and make sure that they continue moving into the area. Avoid having exhibitors, activities, or other things that can stop the flow of people directly adjacent to an entrance.

6.7.3.2. Cloakrooms

The pressure on cloakrooms varies among different events and seasons, but there is often a risk of long queues at cloakrooms – both when visitors arrive and when they are about to leave the event. Regardless of whether it is possible to control where the cloakrooms are located, it is important to have considered in advance how to handle these queues, so that no important crowd flows are blocked. It may also be a good idea to use lanes to keep good order in the queues and to make work in the cloakroom more efficient.

Consider carefully the procedures in place for when visitors hand in and pick up their clothes. Review every moment and try to make each interaction take as little time as possible. Cloakrooms are similar to entrances in this respect: An improvement measure with only a small time gain per visitor can significantly affect efficiency in the crowd flow as a whole.

Make sure to have experienced staff who structure and lead the work in the cloakrooms. Signs and staff informing visitors about the rules and procedures can also contribute to a good flow of people. Remember that long queues will often form at the cloakroom at closing time, because all visitors often want to pick up their belongings at the same time. It can therefore be advisable to have a special procedure for closing. Keep in mind that visitors may have to be encouraged to move on if the space immediately outside of a cloakroom is limited.

The organiser controls what may be brought into an event, and this also applies to what may be left in a cloakroom. Large suitcases or other large items can be referred to a special so-called left-luggage facility, not only because they take up space, but because they also can hide dangerous items that may explode or that are particularly flammable.

If a left-luggage facility is provided, it should be sited a bit away from the focal routes and crowds. Conversely, if an event does not offer a left-luggage facility, this should be communicated clearly to visitors in order to avoid misunderstandings. It is a good idea for the stewards working in the outer circulation zone to know where to refer visitors with large bags before these visitors reach the entrances.

Read more about:

Safety work in the stands in *Section 19.6.*

Stands and other temporary facilities in *Chapter 13.*

6.7.3.3. Bars, restaurants, and kiosks

The pressure on the bars, restaurants, and kiosks of an arena can vary significantly depending on the event. During intermissions or between performances the number of visitors can increase considerably. For this reason, it is important to have predetermined procedures in order to handle a larger influx of visitors. It can also become necessary to set up queueing lanes in these areas in order to facilitate entrances and exits, to provide for age checks, and to prevent alcohol from being taken outside of the food serving areas.

6.7.3.4. Toilet areas

The arena toilet areas can be exposed to different degrees of stress depending on the type of event being held at the arena. The variation can, for instance depend on temporal factors (increased pressure during intermissions), the composition of the audience (predominately men or women), or the intake of food and drink (e.g. at Christmas buffets).

6.7.4. Conditions in the spectator zone (Zone 2)

The spectator zone is the area where the audience members spend the greater part of their time when they visit an event, because this is where they view the main attraction of the event. The spectator zone often consists of the arena's stands, but, depending on the type of event, a part of, or the entire, audience can also be on the arena floor (the stalls). How the audience area is designed is crucial for the safety work and the experience of the visitors.

6.7.4.1. Stands

The stands involve several unique challenges for a safety organisation. Accessibility is limited, and all interventions are quite visible in the arena space. In certain sports there are also well-established terrace cultures that bring with them a number of challenges.

Stands may be constructed for a seated or standing audience, but certain types of stands can be adapted to the needs of an event. The number of visitors in the stands should be adapted to the type of event and the preparedness of the safety organisation. There are also different requirements regarding safety devices, such as guardrails, depending on the type of event that is to be held. Check with the appropriate sports association to determine which rules apply.

At certain types of events many of the visitors may want to leave the stands at same time, for example during an intermission or after a performance. It is then important to have staff in place who can make sure that the outflow is calm and controlled.

At sports events it sometimes happens that certain parts of an arena are reserved, such as a standing-room section for away-team supporters, in order to avoid confrontations inside the arena. In such cases it is important to

make sure that there is sufficient access to toilets, kiosks, and other services that may be needed, and that the evacuation opportunities are adequate.

Photo: Roine Magnusson/Johnér RF

6.7.4.2. The arena floor

The arena floor can be used in a number of different ways. For instance, during an ice hockey game it holds the ice rink itself, but during a concert the arena floor can have a standing audience, during a trade fair it is the actual main area for the event, and during a Christmas buffet show it can be filled with laid tables.

Because the arena floor is often a more attractive place for the audience than the stands, there should be some form of access control so that its capacity is not exceeded. It is also important to ensure that the audience members on the pitch can be safely evacuated through the available emergency exits.

When the arena floor is used as a spectator zone, one has to make sure that there are a sufficient number of emergency exits for this area for the audience members that are found there. The adjacent toilet and food serving areas should also be reviewed, because they will probably have an increased load due to the extra visitors on the floor.

Not all arenas have been built or had their capacity calculated for having an audience on the arena floor. Using the arena floor may therefore mean that the arena exceeds its maximum capacity. Make sure that you ensure that all parts of the arena are adapted to handle the change in crowd size. It may also be a good idea to divide the arena space into sections using a floor plan in order to make it easier for the police, the public security guards, and the safety staff to find their way around the area in the event of an incident.

Depending on the type of floor in an arena and the type of event that is to be held, the arena floor may have to be covered in some kind of protective covering in order to avoid wear and tear. Covering and uncovering an arena floor with wear protection may involve long conversion times

Read more about:

Safety during a game in *Section 19.6.*

Access control in *Section 19.2.2.1.*

depending on the type of protection that is to be used and the size of the area that is to be covered.

6.7.4.3. Boxes

Many arenas rent out boxes, often to businesses for representation purposes. Depending on the rental agreement and how alcohol sales are managed, public security guards and safety staff are provided with different instructions about how they may and should act and concerning for the rules of public order that should apply in the boxes. Make sure to find out what applies regarding the boxes in question in good time before an event begins.

Decide also how the security and access controls for boxes should be handled, because these, too, can be affected by different agreements. However, it is important that the safety level in the boxes corresponds to that for the rest of the event. The visitors in the boxes should go through the same level of access and security controls as the other visitors.

Read more about:
Protected spaces and protected areas in *Section 20.4.4.1.*

6.7.5. Conditions in the inner zone (Zone 1)

The inner zone consists of the areas in the arena to which the visitors do not have access. These can include anything from a football pitch or a stage to backstage areas, dressing rooms, or storage rooms. Different types of internal zones need different types of safety measures depending on their use, but what they often have in common is that some form of access control is required.

6.7.5.1. The pitch

At sports events the pitch is often an audience-free zone. However, it sometimes happens that members of the audience violate this restriction. For this reason, staff may need to be deployed in order to detect, prevent, or warn that something of this nature is happening.

6.7.5.2. Staff and player areas

At an event, the people who perform need separate areas to which only a limited number of functionaries, assistants, and managers have access. Performers or athletes need to be left alone, partly in order to concentrate on their tasks, partly in order to relax after their activities are completed. In these areas there can also be property worth stealing. Effective and comprehensive access control is therefore important.

6.7.5.3. Protected spaces

At events where there is a threat profile concerning the performers or participants, there may be special protected spaces to which these people can be evacuated. The organiser should identify and prepare a special protected space in advance, where people can lock themselves in until help arrives.

6.7.5.4. Fan zones

In connection with certain events a so-called fan zone can be set up. A fan zone is a separate venue at a certain distance from the arena where different activities may be held, such as live music, sales, autograph signing, food serving, and competitions.

A fan zone can be set up by the organiser of the main event, for instance the sports association in question, but sometimes an external company may carry out the actual realisation of the fan zone. An external

company may also itself be the organiser of a fan zone, and may then use the sports association's trademark under a licensing agreement. In such cases, the event company takes full responsibility for safety and must apply for a permit. Regardless of who is the organiser, collaboration is important regarding the responsibility for the safety work.

Obviously, the risk analysis must take into account whether any participating teams are known for having a violent audience.

6.7.6. Side events

At certain events there are exhibitors and partners on site in or outside the arena – normally to advertise their goods and services. These are often temporary constructions that are put up in areas with a high crowd density.

You should keep the following in mind:

- **Siting and design in relation to other activities and flows:** Consider what the flow of visitors around the area will be like. If queues form in one area – where do they end up and how are other parts of the arena affected? What facilities must be near to each other?
- **Accessibility:** Side events should have the same accessibility as the rest of the arena.
- **Fire safety:** Everything that is brought into the arena, such as furniture or advertising banners, must fulfil the same fire safety requirements as are applicable to the rest of the arena. The same goes for stored advertising products and samples.
- **Evacuation:** Changes in the arena design may affect the preconditions for evacuation, and may mean that the maximum number of visitors will have to be changed. Pay attention to the location of storage spaces for advertising materials and samples, so that they do not restrict the possibilities of evacuation. Have a dialogue with the arena owner and the fire and rescue services concerning how the design of the arena is affected by a side event.
- **Staffing:** In certain temporary areas an access control may be necessary in order to avoid exceeding the maximum capacity of the area. In certain cases, fire watchers may be necessary.
- **Responsibility:** Find out who is responsible for safety in and around the area, and who is responsible for any rules concerning how the activities will be complied with.

7. Infrastructure

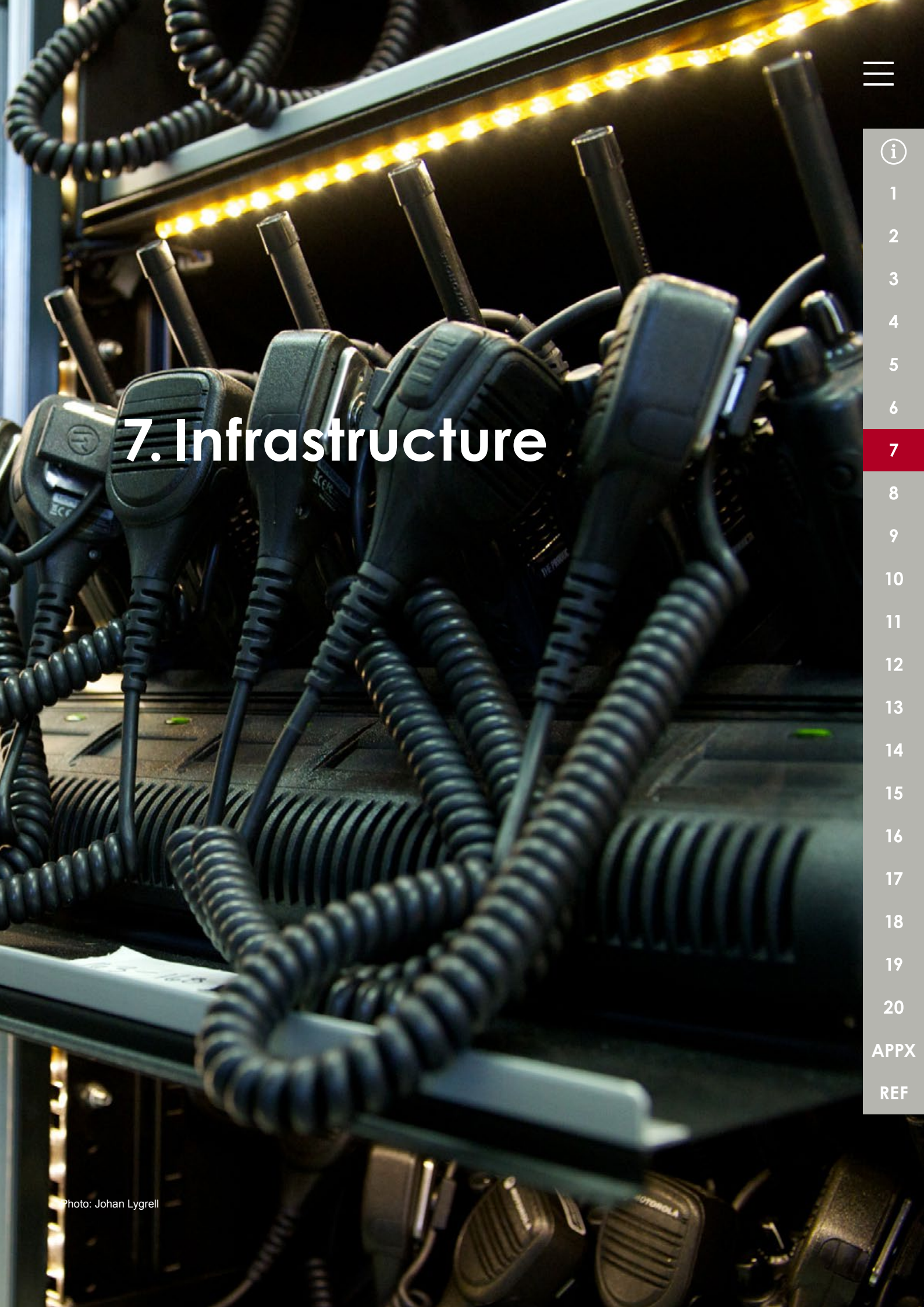


Photo: Johan Lygrell

7. Infrastructure

Events need systems for communication, transport of goods and people, electrical installations, and access to water, i.e. infrastructure, but the scope and the needs vary with the size and duration of an event.

Inadequate handling of or a lack of elements of infrastructure can lead to an event being poorly implemented and experienced, and to a dissatisfied audience. It can also lead to an increased risk of incidents or to security work being more difficult.

7.1. Radio communication

When correctly used, a two-way radio system is hard to beat as a means of communicating during an event. However, as is the case with any other system, the effectiveness of its use depends to a great extent on the quality of the system. In addition, radio systems are susceptible to interference if there are multiple wireless systems or a production at the venue. For this reason it is advisable to get help from a radio supplier or an amateur radio association, for instance when determining radio frequencies, setting up potential relay stations (repeaters), and creating a system of channels. It is also difficult to fully test functionality in advance, and for this reason there should be staff on site during the event who are well-versed in radio communication.

Depending on the conditions at an event other communication tools may also be useful, such as personal alarms, pagers, mass mailings of text messages, or digital communication using various mobile phone applications (apps). However, it is important to check and determine the suitability of the means of communication being used. The functionality of certain means of communication, for instance mass mailings of text messages or digital communication via various apps, depends on mobile phone coverage or the possibility of connecting to a wireless network (Wi-Fi). At an event with a large audience it is not uncommon that the mobile phone network and the Wi-Fi networks will be under heavy pressure, with reduced efficiency as a result.

When planning a communications network the robustness of the system is very important. The system must not fail in a crisis situation. This applies to the technology, but also to how the system is used. In order to create successful prerequisites for its use, one should use a channel system and the appropriate discipline concerning how to communicate via the radio network.

For a communications network the robustness of the system is very important. The system must not fail in a crisis situation.

Radio communication can be done in several different ways.

- **Commercial networks** (e.g. 4G and 5G) make it possible to establish radio networks with national coverage in base stations that have already been established. There is nevertheless a great risk that the net can be overloaded in a geographically limited area, for example during an event. The risk of an overloaded network is even greater if an irregularity or a crisis should occur.
- **Licence-free radio frequencies** (analogue and digital) can quickly be established and taken into use. However, these frequencies can be used and listened to by other actors, and their range is limited.

- **Licensed radio frequencies** (analogue and digital) provide good control and functionality, and can be extended by the use of base stations to achieve a greater range. However, for the use of these frequencies one needs to obtain licences from a licensing authority.

The digital alternatives often provide better sound quality than do analogue ones, and it is also possible to encrypt digital communication. A potential drawback with digital systems is that there is a delay in the communication (up to 500 milliseconds), which is not the case for analogue systems.

There are also two-way radios that combine various technologies, for instance 4G and Wi-Fi. The radio then uses the 4G network when it is available, and switches to Wi-Fi if the network is overloaded. For events with a well-developed and robust Wi-Fi structure, this can be an option.

The Swedish Post and Telecom Authority, PTS, is the licensing authority that allocates frequencies. Because a dialogue with this authority is often technologically advanced, it may be advisable to consult a supplier.

7.1.1. Channel systems for two-way radios

A conversation over a radio channel blocks this channel for other communication. For this reason, it may be a good idea to divide the network into multiple channels for contact calls and a number of channels for conversations. Each major section of the organisation is then allocated its own contact channel, which is normally dedicated to listening, while the other communication channels are used for longer conversations. Someone who wishes to have a longer conversation with someone else would thus hail the person in question via the contact channel and state which conversation channel should be used. Both parties would then switch to the new channel and use that for their conversation.

It is also possible to use so-called talk groups, i.e. tailor-made channels where control can be exerted over which users are allowed to speak. However, for this a digital radio system is needed.

You should also establish an emergency channel which can be allocated to the event's medical care organisation. This channel should be kept free from all other traffic and should only be used in the event of an emergency, for instance when contact needs to be established with the medical care services or the command and control centre.

It is advisable to establish an emergency channel which can be allocated to the event's the medical care organisation.

7.1.2. Radio discipline

Radio discipline is important in all radio communication, and it is a must on the emergency channel. A lack of radio discipline may mean that important information does not reach an intended receiver because the radio network is overloaded with other, less important, traffic.

Radio discipline is important in all radio communication, and it is a must on the emergency channel.

The effectiveness of a radio network is, in large part, determined by its users. A good rule of thumb is 'think, press, speak':

- **Think** beforehand of what to say and to whom it should be said.
- **Press** the send button and wait for one second.
- **Speak** clearly, correctly, and concisely.

Radiotelephony procedures (PROWORDs) are used to keep messages brief and consistent. Below are examples of traditional radiotelephony expressions:

- **Over:** The person speaking has finished speaking and wishes to receiver to answer.
- **Out:** The conversation is over.
- **Copy that:** I have heard and understood what you have said.
- **Say again:** Repeat what you have just said.

Other radiotelephony terminology and radiotelephony expressions can vary from one event to another. However, it is important that everyone involved knows this terminology and what it means.

A radio network should only be used for information relevant for the event as a whole. Information that is not relevant for the event or to safety should instead be communicated via mobile phones or at meetings. Remember that sensitive information should not be communicated in plain language over a radio network, because there is a risk that unauthorised people listen in or overhear. Here, too, mobile phones, personal meetings, or code words are recommended.

It is also advisable to draw up a plan for how to indicate your position and to determine what different locations should be called, in order to avoid misunderstandings in the communication.

Read more about:

Code words in *Section 1.5.8.4.*

Working in command and control centres in *Section 1.5.8.4.*

Evacuation routes in *Section 9.5.*

Road signs in the Road Sign Ordinance (2007:90).

Fail-safe mechanisms in *Section 1.2.3.*

7.1.3. Communications centre

If there are many two-way radios and many users, there should be someone who manages the radio traffic. Many larger events therefore establish a communications centre.

A communications centre can have several tasks, for instance maintaining radio discipline on the radio network, ensuring that the radio network is functional, and maintaining the needed equipment. The communications centre can also be used as a hub in the radio network and for the communication of the event as a whole. The communications centre can then be used to disseminate information within the event.

At large events, under certain circumstances and if the centre and its procedures have been designed on the basis of this task, the communications centre can function as the main means via which to alert SOS Alarm for the entire event. The advantage of this is that SOS Alarm will not be overwhelmed by alarm calls from functionaries or staff, and that the communications centre can function as an information hub. But it is then important to make sure that no calls from the event to SOS Alarm are delayed, because minutes can make a big difference in a critical situation. This should be done after consultation with public authorities and SOS Alarm. However, visitors should always contact SOS Alarm on their own.

A communications centre can also be a point of contact for SOS Alarm, where the functionaries who call SOS Alarm can use the communications centre as their contact number. The communications centre can also handle and disseminate information during various occurrences, such as when a child is missing, when searching for someone, or when various contingency plans are about to be triggered. The communications centre is also an obvious part of the command and control centre and its work.

7.2. Signs

A well thought-out and well executed signage strategy prevents both problems and risks. The importance of good signage is easily underestimated. A single well-placed sign can mean the difference between an unwieldy event and one that is smooth and safe. It can, for instance, be desirable to put up signs near entrances, exits, ticket sales, some stands, car parks, stages, toilets, and various types of vendors. Certain features, such as emergency exits or firefighting equipment, must always be signposted.

It is also important to differentiate between signs and traffic signs. Traffic signs are intended for directing traffic on a public road. Most signs can be put up privately, but traffic signs are put up by the road operator following an application to this authority.

When designing and siting signs, there are a number of factors that should be taken into account. For instance, one should always endeavour to achieve redundancy, clarity, and simplification.

The importance of good signage is easily underestimated. A single well-placed sign can mean the difference between an unwieldy event and one that is smooth and safe.

7.2.1. Designing signs

In many cases an organiser can produce his or her own, fully adequate, signs. In other cases a sign supplier must be contacted.

In both cases the following should be kept in mind when producing signs:

- Make sure that the signs can withstand the environment to which they will be exposed.
- The message on a sign should be concise and clear, without slang or technical jargon.
- Make sure that the sign does not dazzle its readers and is free from reflection.
- The text should be presented in a clean and straight typeface. Do not use serif fonts or italics.
- The size of the text on the sign should be determined by the distance at which it is to be read. Here the proportion 1:250 may function as a guideline – if the sign is intended to be read at a distance of 20 metres (2,000 centimetres), the text should not be smaller than 8 centimetres (2,000 cm divided by 250).
- Make sure that a suitable background colour is used on the sign and that the contrast between the text and the background colour, as well as between the background of the sign itself and the environmental background where the sign is to be placed, is appropriate.
- Endeavour to have uniformity in the choice of colours for signs – all informative signs should have the same colour, all directional signs should have the same colour, and so on.
- Strive for consistency of design. People see what they expect to see – if they have seen one or more directional signs designed in a certain way, they will look for the same design when looking for other directional information.

Photo: Tobias Nilsson

7.2.2. Siting of signs

A sign should be appropriately sited. Keep the following in mind when putting up signs:

- **Arrival routes for visitors.** Where do the people the sign is intended for come from? Do you need several signs with the same message to be placed at different locations in order to achieve the desired effect?
- **Continuity.** When a choice must be made among different roads along an arrival route, new signposting is required.
- **Siting.** Where along the arrival route is a sign best placed in order for its message to be clear? Place the sign where the visitor can expect it to be found.
- **Angle.** How should a sign be angled in relation to the arrival route?
- **Height.** A common mistake is placing all signs at eye level. Signs in flows or in audience areas need to be placed at a height where they are not obscured by members of the public who are passing by. The lowest recommended height is 210–240 cm.
- **Accessibility.** It is important that a sign does not limit or prevent crowd flow. Remember that information boards and the like easily attract a stationary crowd.

Once signs have been put up, it is advisable to let someone who is unfamiliar with the area walk around and assess how easily they can find their way around or absorb information with the aid of the signs.

Read more about:

Workplace design (AFS 2020:1) regulations of the Swedish Work Environment Authority

Vehicle barriers
Section 7.3.2.

7.2.3. Safety signs

Some signs have a prescribed standard design and must therefore be structured and presented in a certain way. These signs are called safety signs. The following are safety signs:

- **prohibition signs**, e.g. concerning prohibitions against smoking or open fires;
- **warning signs**, e.g. regarding explosives, LPG, and other flammable substances;
- **mandatory signs**, e.g. that ear protectors must be used;
- **emergency signs**, e.g. pointing the way to an emergency exit, evacuation route, or first aid station;
- **firefighting equipment signs**, e.g. pointing the way to the location of a fire hose or fire extinguisher.

7.3. Traffic and transport management

Transport and traffic planning is important at larger events – both because an event has to be easily accessible and safe to visit, and because of the desire to minimise disturbances and pressures on the roads in the vicinity of the event.

It is important that an organiser informs the general public in advance of the event about traffic disturbances that may arise. The local mass media, information posters in the neighbourhood, and social media can be appropriate channels of information about this issue.

Read more about:

Which category is applicable to which vehicle at the Swedish Transport Agency website *www.transportstyrelsen.se/en/road/Driving-licences/*.

7.3.1. Road safety

There is always a risk of injury if an event is located close to busy roads or railways. If this is the case, there are several measures an organiser can take together with the authorities. You should conduct a dialogue with the police, the traffic coordinator of the municipality, and the Swedish Transport Administration about the risks that exist and the best ways for dealing with them. When planning for traffic safety, it is important to include the set-up and winding down phases of the event as well – not just its actual implementation.

How vehicles can move about in and around the area is also relevant for protection against antagonistic threats, particularly malicious vehicle attacks.

Traffic planning must also take into account locations outside the venue where situations may arise that require temporary changes in traffic and crowd flows. When a famous performer or athlete leaves a venue, one should make sure that they do not get stuck in slow-moving traffic directly outside the event, because this involves an increased risk of audience members moving out into traffic.

In the same way, it may be necessary to redirect flows for a short period of time in order to avoid clashes or disturbances, for instance during large crowd flows away from the event, or when rival supporter groups are about to leave the arena. In these cases it may be necessary to temporarily close roads or limit crowd flows in the vicinity of the venue. However, these measures should be planned in advance, and must always be taken in consultation with the police.

With respect to driving licences, it is important that members of staff who drive vehicles are qualified for the appropriate vehicle category. This is true within as well as outside of an event site. The police in the respective region can issue special permits for operating a vehicle within an enclosed area.

There is always a risk of injury if an event is located close to busy roads or railways.

Plan traffic safety also for the set-up and winding down phases of the event, not just its actual implementation.

7.3.1.1. Temporary speed limits

Temporary speed limits are a good way to reduce the risk of traffic-related injuries on sections of road affected by an event. But a speed limit will not reduce the number of vehicles on a road, so therefore it should sometimes be combined with other measures, such as speed bumps, or the narrowing of a road. An organiser can contact the road maintenance agency in order to obtain permission to do this.

You should contact the police and the traffic coordinator of the municipality to discuss whether these measures are possible to implement, and if so, how to implement them in the most appropriate manner. It is also a good idea to contact the residents of an affected neighbourhood and inform them about any planned changes.

7.3.1.2. Directing and conducting traffic

Only the police, a road traffic inspector, a road transport escort, or a person who has been authorised to monitor traffic may *direct* traffic, which is made clear in the Road Sign Ordinance (2007:90). Directing traffic without authorisation is a punishable offence. *Conducting* traffic, for example at a car park or the entrance to an event, is, however, permitted because this means that informal directions are given without requiring that a road user must follow them.

A person who conducts traffic should be well equipped for this by wearing a high visibility vest or similar equipment, and have skills suitable for the assignment.

7.3.1.3. Blocking a road

One can also consider blocking off a road, if a speed limit or other measures are insufficient. Decisions about roadblocks are made by the road maintenance provider. Contact the traffic coordinator of the municipality to find out who is the road maintenance provider.

Blocking off a section of a road during an event is a good safety measure for eliminating the risk of someone being hit by a vehicle. However, it can have major consequences for surrounding activities and communities. For this reason, a dialogue with the police, the traffic coordinator of the municipality, and any affected activities should be initiated in good time prior to the opening of the event.

7.3.1.4. Railway traffic

An event close to a railway is associated with great risks with respect to electricity and traffic. The Swedish Transport Administration should be contacted already at the planning stage of an event in order to detect what risks exist at the location in question and how to best reduce them.

According to the Railway Act (2004:519), no one may enter an area containing railway tracks without permission, except in places where it is made clear that the general public has access. An organiser is not legally responsible if members of an event audience enter an area containing tracks, but should of course try to counter the risk of this happening.

A risk analysis for an event located close to a railway should include risks connected to this. Examples of such risks can be unauthorised persons on the tracks, accidents, disruptions of railway traffic, persons blinded by train headlights or injured by falling objects, such as scaffolding, cranes, or masts.

If there is a risk of accidents or of a railway being negatively affected, the Swedish Transport Administration should be contacted for consultation. The risk analysis should preferably be appended to the application to the police for an event permit. At distances shorter than seventy-five metres between the event site and the railway, the Swedish Transport Administration should always be contacted for information and possibly consultation.

An organiser can take one or more of the following measures, in consultation with the Swedish Transport Administration:

- **Reduce** train speeds. An organiser can send a request to the Swedish Transport Administration for a reduction of the speed on the railway line at the time of the event. However, the Swedish Transport Admin-

istration does not grant many such requests, because other railway traffic can be affected. In addition, the effect is small because the stopping distance for trains is long.

- **Fence** in the relevant section of track. An organiser can put up a fence in order to separate the event from the railway tracks. The fence should not be easy to climb over.
- **Monitor** the relevant section of track. The organiser can choose to monitor the relevant section of track. However, this is an imperfect solution that should be combined with other measures, such as a fence or a reduction of train speeds.
- **Influence** crowd flow. If possible, you should avoid locating a car park on the one side of a railway and an event on the opposite side, because this involves a risk that the visitors will take shortcuts across the tracks.

7.3.1.5. Electric scooters

In some cities electric scooters are available for short-time rental. Events involve increased flows of people and vehicular traffic, and in many cases an event also means that less attention is given to nearby surroundings. In some cases an increased consumption of alcohol occurs. Electric scooters in the immediate vicinity of an event can involve increased risks for both collisions and driving off the road.

In addition, the batteries of electric scooters are, under certain circumstances, a fire hazard: in a worst-case scenario, a deformation of the battery in an electric scooter can lead to fire or an explosion. The batteries are relatively unprotected in some electric scooters. In such cases a collision or violent impact may lead to a deformed battery if a scooter is handled carelessly.

If many people travel to an event by electric scooter, there is, in addition, a risk that irresponsible drivers may leave their electric scooters in locations that restrict access to, or even block entirely, emergency access roads or evacuation routes.

Electric scooters for short-time rental have a GPS function that senses where the vehicle is. This means that the companies that rent out electric scooters can block their usage in specific restricted zones so that it is impossible to drive an electric scooter in these areas. It is also possible to limit where the electric scooters may be parked. For this reason it may be advisable to contact local rental companies and conduct a dialogue with them about setting up a generous buffer zone around the event.

7.3.2. Vehicle barriers

On several occasions, vehicles have been used both to transport explosives and to break through barriers, ram into and damage infrastructure, or to injure and kill people. This practice is called a 'malicious vehicle attack'.

The practice has a relatively low threshold concerning the ability to use it, because no special equipment or expert knowledge is required for a perpetrator to be able to carry out an attack.

Nor does a motivated attacker care about traffic rules or signs, which means that traditional traffic safety is usually not sufficient to provide satisfactory protection.

Vulnerability to such attacks can be reduced through risk-aware design, physical obstacles, and traffic-regulating measures. Measures that are effective against vehicles as weapons also have a positive effect on other traffic-related risks, such as drivers who lose control of their vehicles.

A motivated attacker does not care about traffic rules or signs, which means that traditional traffic safety is usually not sufficient to provide satisfactory protection.

7.3.2.1. Risk-aware design

Risk-aware design is, in principle, a matter of moving or spreading out an asset (the audience) in such a way that its vulnerability is reduced. One can, for instance,

- separate threats geographically from crowded places or large crowd flows, e.g. by locating sites where people will queue in places where vehicles cannot reach them;
- separate threats temporally from crowded places or large crowd flows, e.g. by not allowing vehicle traffic during times when there are many people present within the site;
- spread out assets, e.g. by having many small queues at different locations;
- only allow vehicles that have been searched to be parked close to or within the venue.

Photo: Sebastian Ihre

7.3.2.2. Physical vehicle barriers

Physical barriers are a good complement to risk-aware design. They can also be used when a threat cannot be separated or steered away. In principle, physical barriers involve placing or using something resilient between the threat and the audience. The following are examples of physical barriers:

- **Natural** barriers, e.g. bodies of water, ditches, earthworks, planted trees, or significant height differences in the terrain.
- **Passive** barriers, i.e. barriers that cannot be manipulated or lowered.
- **These** can often be designed so that they blend into the existing environment, for instance robust bicycle racks, benches, or street art, but make sure that they do not reduce accessibility for emergency vehicles. Passive barriers must generally be well-anchored in order to be effective.
- **Active** barriers, i.e. barriers that can be manoeuvred or lowered in order to let vehicles through. Active barriers require continuous maintenance.
- **Temporary** barriers, i.e. movable obstacles that can be deployed temporarily. Temporary barriers can be prefabricated but it is also possible to use such things as heavy vehicles or skips.

Read more about:

Vehicle barriers in the MSB brochure Guideline on protection of public spaces: Protection against terrorism in crowded places, guidance, and the Swedish Association of Local Authorities and Regions (SALAR) brochure on protection from vehicle attacks, Skydd mot fordonsattacker [Protection against malicious vehicular attacks].

Crowd management in *Section 16.4.*

Prefabricated temporary barriers are, as a general rule, not as resistant as passive and active barriers. Active temporary barriers are, in addition, possible to manipulate or move, which involves a risk that perpetrators will themselves move the barriers, either on their own or by forcing members of the staff to assist. Active temporary obstacles in most cases require certain measures for preventing if, or discovering when, they have been moved. For instance, staff who are stationed at the barrier can be equipped with personal alarms, or an alarm can be installed on a barrier that is triggered if the barrier is moved.

When choosing a barrier one should consider the following:

- environmental conditions, e.g. weather conditions;
- physical conditions, e.g. underground structures, the space required for the barrier;
- user conditions, e.g. minimum service and staffing requirements;
- efficacy for, e.g. crowd flow, goods transports, and accessibility.

All obstacles, and in particular temporary and active ones, must be marked out clearly, for instance with reflectors, so that road users can avoid them.

7.3.2.3. Traffic-regulating measures

In the event of a head-on collision with a long run-up approach, a vehicle has time to reach high speeds, which translate into a high so-called impact energy. Traffic-regulating measures aim to reduce the impact energy of a speeding vehicle.

This energy can be diverted by lowering the speed of the vehicle or diverting the force of the impact, that is, by forcing the vehicles to slow down or turn, for instance by way of chicanes, curves, or uphill slopes. Even a small reduction in the speed leads to a significant reduction of the impact energy.

Traffic-regulating measures can be used as a complement to physical obstacles. If the speed of a vehicle can be reduced, for instance via a chicane, there are lower demands concerning what a physical obstacle must be able to withstand. This measure can also contribute to lowering the tempo in traffic generally, thus reducing the risk of accidents. The drawbacks of chicanes are that they take up a certain amount of space and this can lead to traffic congestion during high crowd flows. Also, long vehicles may find them difficult to negotiate if the chicane has not been designed with such vehicles in mind.

Traffic-calming devices, speed bumps, or speed humps usually work as deterrent measures for normal traffic, but have a limited effect on a motivated perpetrator.

Even a small reduction in speed leads to a significant reduction of the impact energy.

7.3.3. Pedestrian and cycle paths

The event's visitors must be able to travel safely to and from an event. It is advisable to combine the event area analysis with a plan for traffic and transport management in order to find and lay out suitable pedestrian and cycle paths for the audience. These paths should be used only to a limited extent by other people and preferably be perceived as the natural routes between various places. Signs, lighting, or various decorations can enhance the sense of a path being an appropriate route.

Planning pedestrian and cycle paths for the event can involve making certain streets available only to pedestrians, or increasing the surveillance by police or event staff at dangerous crossings and roads.

7.3.4. Public transport

In order for the members of the audience to be able to reach an event, there often has to be public transport to and from the event. At larger events, public transport may be underdimensioned and its station buildings, stops, and platforms may not be designed to receive the number of visitors attracted by a large event.

The formal responsibility for managing this lies with the respective public transport actor. However, organisers also play an important role, first and foremost when it comes to informing the relevant actors about an event, providing them with the appropriate information, and acting as a dialogue partner with them. In some cases it may be desirable for an organiser to assume responsibility for coordinating the relevant efforts.

If an incident should occur at the arrival or departure of visitors outside an organiser's site this is, from a legal perspective, not normally the organiser's responsibility. However, such an occurrence would be taken into consideration the next time the Police Authority assesses an application for a permit from that organiser.

Keep the following in mind:

- **Calculate** how large a portion of visitors will use public transport and which means of transport may risk becoming overloaded.
- **Contact** those responsible for the relevant means of transport in good time prior to the event. Inform these actors about the planned times for the event and how many visitors will require a means of transport. Examples of suitable means of transport are trains, buses, underground railways, trams, taxicabs, and aeroplanes.
- **Ensure** that means of transport for disabled people can stop no more than twenty-five metres from an entrance.
- **Make** sure that the underlying ground surface at locations where people must wait and at parking places is firm, even, and non-slip.
- **Investigate** alternative means of transport, for example extra buses, if there is a risk of capacity limitations.
- **Draw** up a list of contacts of the persons responsible for each relevant means of transport. Such a list may prove useful if changes are made, for instance to the schedule, or to the stops or drop-off locations for visitors.
- **Make** sure that those responsible for the relevant means of transport have a contact person for the event.
- **Communicate** appropriate transport options to visitors, for instance via websites, tickets, social media, and advertising.

Inform visitors about the appropriate way to travel to and from the event. Inform via social media, websites, on tickets, or through advertisements.

7.3.4.1. Taxi zones

At many events, taxis are a frequently used mode of transport that allows visitors to arrive close to the venue. However, at larger events taxicabs operating in areas too close to the event can lead to disruptions of traffic and crowd flows, and increase the risk of collisions.

A good solution is to set up a taxi zone, i.e. a place where taxicabs can pick up or drop off passengers. In order for a taxi zone to be effective it has to be attractive, to both taxi companies and their passengers but also to the event's organisers. It should be located in a place relatively close to the entrances of the event, but at the same time should not affect crowd and traffic flows negatively. A taxi zone should be clearly signposted, and information should be disseminated in advance to local taxi companies and visitors to the event.

Read more about:

Accessibility in *Chapter 15.*

Signs in *Section 7.2.*

In order for a taxi zone to be effective it must be attractive, to both taxi companies and their passengers, but also to the event's organisers.

7.3.5. Car parks

There should be parking opportunities for visitors arriving by car. Staff, vendors, mass media, and performers also have to be able to park cars or set up trailers or trucks with goods and equipment.

Keep the following in mind with respect to temporary parking spaces:

- Use various information channels to in good time encourage event visitors to use other means of transport if the number of parking spaces is likely to be insufficient.
- Endeavour to locate car parks so that contact between vehicles and pedestrians is minimised in order to reduce the risk of someone being hit by a vehicle.
- Consider locating car parks at a safe distance from larger crowds.
- Make a rough estimate on the basis of the audience profile of how many parking spaces will be needed. In these calculations you should also include parking for performers, vendors, mass media, your own and temporary staff, and any specially deployed fire and rescue services, medical care services, or police.
- Make sure that there are parking spaces and locations to park up for different needs. Lorries with food, trailers, and caravans may need electricity. Parking spaces that are accessible for
- disabled people require a larger area and also must be located in close proximity to the event.
- Find suitable areas for car parks. A car park should be located on stable ground, such as asphalt, gravel, or grass. A poorly drained field or meadow can lead to problems with accessibility in the event of precipitation. A car park should preferably be located in close proximity to the venue. If not, there should be appropriate transportation from the car park to the event.
- Make sure that the car park is well signposted. Contact the road maintenance provider to obtain permission to put up signs.
- Make sure that there are staff guarding the car park and providing directions to the drivers of the cars.

If the number of parking spaces is likely to be insufficient, you should in good time use various information channels to encourage event visitors to use other means of transport.

The parking capacity depends on the composition of the audience and its particular characteristics, and can vary considerably among different events.

Parking capacity varies considerably among various events. The values given below, from the HSE Event Safety Guide, can be used as guidelines.

Visitors per car
2.2–3.5 visitors/car

Parking capacity
320–440 cars/hectare

Typical in-/outflow
12–20 cars/minute

7.3.6. An event's transport and emergency access roads

7.3.6.1. The event's transport roads

Many events generate transports in the form of heavy vehicles (for example lorries, wheeled loaders, and buses), or lighter vehicles (for example cars and

minibuses). In order to minimise the risk of traffic disruptions, poor accessibility, or collisions with visitors and co-workers it is advisable to establish transport routes outside, and sometimes also inside, the event site. Identify which areas it must be possible for vehicles to reach. Then investigate what transport routes already exist.

The following are examples of transport routes for an event:

- main transport corridors;
- routes to stages and backstage areas used for the transport of performers and long-distance lorries;
- routes for wheel loaders from storage sites or the like;
- routes for the transport of members of the audience;
- for goods deliveries for vendors;
- for waste transport away from vendors and the event site;
- for on- and off-loading at an arena.

These routes should be free of visitors, other traffic, and parked vehicles.This increases accessibility and reduces the risks coupled to heavy vehicles. For a transport route to function well, it should be laid out in the shape of a loop, or have a turn zone, so that longer vehicles can access the site without problems.

Discuss with the police and the traffic coordinator of the municipality whether it is possible to create transport routes exclusively for the event when there are no existing adequate transport routes.

If there are no appropriate existing transport routes, discuss with the police and the traffic coordinator of the municipality whether it is possible to create transport routes exclusively for the event.

7.3.6.2. Transport inside the event site

Try to avoid having traffic inside an event site during the hours when the event is open. This reduces the risk of equipment being damaged or people being injured. If possible, limit the traffic inside an event site so that only rescue vehicles and absolutely essential transport are allowed.

When vehicles are granted access to places where there are many people, it is especially important to conduct access and security controls. Consider providing escorts for essential transport inside an event site, for example refuse trucks and the like. An alternative is to establish special transport routes inside the event site.

Remember that many subcontractors may (feel that they) need to bring vehicles into an event site. Be clear about the times and procedures concerning this issue that apply at the event.

If possible, limit the traffic on the event site so that only rescue vehicles and absolutely essential transport are allowed.

7.3.6.3. Emergency access roads.

All events should have fully adequate access roads for emergency vehicles. Rescue vehicles should have special access roads where accessibility is always good, so that in the event of an emergency they are not hindered by other traffic, visitors, or parked vehicles. Such roads are called emergency access roads. You should establish an event's emergency access roads in consultation with the fire and rescue services.

The need for emergency access roads varies depending on the event. The fire and rescue services can provide a useful overview of the emergency rescue roads that may be needed. A general rule is that there should be enough emergency access roads to ensure that emergency vehicles can reach all parts of an event, including any adjacent camping sites. An emergency access road for emergency vehicles should always be signposted.

An emergency access road should be designed so that rescue vehicles are certain to arrive at their destinations. There should be a free height of at least 4.0 metres, and the bearing capacity of these roads should correspond to an axle load of 100 kN. The road should also have a hardened surface layer made from gravel, asphalt, or the equivalent. Straight stretches of road should have a width of three metres and curves should have an inner radius of at least seven metres.

An emergency access road should be laid out in the shape of a loop so that rescue vehicles can leave the site of an accident without having to turn around. An emergency access road should also be free of obstacles, such as vehicles, visitors, or snowdrifts. Emergency access roads should also be located near potential assembly points for medical care.

Read more about:
Emergency access roads and contingency maps in *Section 20.3.*

7.3.6.4. Blocked roads at outer focal points

At events that are spread out across an extended area, such as races for runners or skiers, there are often certain focal points that at certain times attract large crowds. Examples of such focal points are the starting area, the finish line, or some particularly good vantage point along the race course. Members of the audience often want to come as close as possible to such a focal point, and the parking situation at these locations therefore often becomes uncontrolled. This risks leading to traffic disruptions, or even to the blocking of emergency access roads.

During the planning phase of an event, an organiser should conduct a dialogue with the police and fire and rescue services about how and where emergency vehicles should drive during the various stages of the event.

An emergency access road should be checked regularly so that it always satisfies the necessary requirements regarding accessibility and availability.

7.3.7. Snow clearance

If an event takes place during winter, an organiser must plan for risks involving snowfall and the formation of ice. Clearing snow in an appropriate way makes it easier for participants to arrive at and leave the event, prevents cars from becoming snowbound, and allows emergency vehicles to gain access to the event site.

The Swedish Transport Administration is responsible for clearing snow from public roads, while an organiser is responsible for clearing private roads. Check which roads are public and which are private, because it may be an organiser's responsibility to clear snow from car parks and on smaller roads. Visibility may also have to be improved in order to create a safe exit from a car park. If not, piles of snow can grow so high that they obstruct the view for cars coming out of the car park.

Remember to begin clearing snow in good time in places that are to be used, and to keep doing this up until the start of an event. In this way, snow clearance will be facilitated when it is time for an event to begin.

Start to clear away snow in good time, and keep clearing snow until the beginning of an event. In this way, snow clearance will be facilitated when it is time for the event to start.

7.3.7.1. Snow clearance and de-icing in car parks

Make sure to clear snow before cars arrive. Snow clearance is difficult to do when there are cars on site, and during an ongoing event car parks can usually only be de-iced. Depending on the underlying surface of the car park, there are various de-icing methods to choose among. On hard surfaces salt and gravel are good choices, but on agricultural land one should consider other options, because gravel and grit are harmful to the soil. In that case calcium pellets can be used, which improve soil quality once the snow has melted.

The piles of snow that remain after clearing often cover large areas. If they remain in the car park, one should keep in mind that this involves a loss of parking space. A rough estimate is that at least ten percent of the parking area will be taken up by piles of snow.

During winter there may also be problems with cars not starting. Take this into account and maintain a preparedness, for instance by having an early dialogue with actors within car recovery services or by having jump leads ready to use in order to avoid having cars stuck in the car park.

7.4. Drones

Unmanned aerial vehicles (UAVs) are often called drones. The rapid development of drone technology has made air space accessible to the general public. Today there is a large market with many different kinds of drones with different functions, such as a GPS function, transponders, advanced sensors, collision avoidance systems, and other safety functions.

The drones on the market are often technically advanced and relatively small, but they can still carry a load. Most of them are easy to manoeuvre and can be started, landed, and manoeuvred in relatively limited environments. In addition, many drones have sensors that are well-equipped for careful documentation and that make it possible for a drone to be far outside the field of vision of the person operating it.

Drones can be used for, among other things image and film production, documentation, or surveillance, and they can be an excellent tools, but they also involve several risks. These risks can be based on multiple factors, for instance the following:

- **ignorance** – the operator is not familiar with current regulations, which can lead to the drone being flown into restricted areas;
- **carelessness** – the operator deviates from rules and regulations, for example by flying over a public place or crowd;
- **intent** – the operator intends to cause damage, for example to disturb public order.

There are several examples of incidents involving drones. Among other things, public meetings have been intentionally disrupted, drones have fallen into crowds, and drones have contributed to the disturbance of public order.

One should consider the risk of incidents involving drones in the event risk and vulnerability analysis. If there is a need, an organiser should develop procedures for managing authorised drones or drones identified in the vicinity of the event.

Photo: Everdrone

The following is an example of a process that may be used for such a procedure:

1. **Detect.** In order to detect a drone, there must be someone who has been given the task of remaining observant with respect to drones. There are a number of technical aids that can be used for the detection and tracking of drones. Most of these are, however, expensive and require training to be used correctly.
2. **Track and follow.** Following a drone can be difficult without access to advanced technology, and it often requires several people who can communicate with one another. At this stage in the process it is also possible to try to identify the drone's point of origin, and perhaps also the person controlling it.
3. **Make a risk assessment.** An organiser assesses the risk posed by the drone, for instance in consultation with the police.
4. **Take action.** These measures should be passive: moving assets, aborting activities, or evacuating a venue if the audience is at risk.
5. **Evaluate.** Evaluate a potential intervention on the basis of its potential consequences, effectiveness, and temporal aspects.

The rules surrounding drones are relatively complex, but in principle one must always have a permit in order to fly a drone over or near crowds of people. Each flight involving a drone requires that there is an operator who is responsible for the flight being done in a safe manner, and that the remote pilot, i.e. the person who controls the drone, has the appropriate competence. A drone operator must register with the Swedish Transport Agency and can either be a person or a company.

Drones are placed in one of three different categories depending on the risk level of a flight: *open, specific, or certified.* In order to fly within these categories, certification training is required.

You can apply for a permit and for certification training via the Swedish Transport Agency. You should also check with the municipality concerned as to whether there are any local restrictions. There are exceptions to the

Read more about:

Registration and authorisation regarding the installation of electricity at the website of The National Electrical Safety Board – *www.elsakerhetsverket.se/en/*.

requirement concerning certification training, for example when a drone weighs less than a specified weight, or when it is classified as a toy.

The Police Authority can, with the support of the Swedish Transport Agency, set up a temporary restricted area at an event. This means that it is up to the police to grant permission for flying in the area in question. Drones to be flown within the control zone of an airport also need permission from the air traffic control or its equivalent at the airport in question. Information about this can be obtained from the Air Navigation Services of Sweden (LFV).

Certain types of radio transmitters for controlling a drone may require permission from the Swedish Post and Telecom Authority. When publishing or in other ways disseminating aerial photos and similar compilations of geographical information obtained by a drone, permission is required also from the Swedish Mapping, Cadastral and Land Registration Authority (*Lantmäteriet*).

Read more about:

Monitoring of electrical installations and electrical devices in the National Electrical Safety Board's regulations and general advice (ELSÄK-FS 2008:3).

Types of cables and cable protectors in *Section 7.5.1.4.*

Crime-preventative design (CPTED) in *Section 6.4.4.*

7.5. Electrical installations

Defective or faulty electrical installations are a common cause of fire, electrical accidents, and near-accidents. Electrical installations can be a cause of high temperatures, short circuits, or sparks that ignite trash or dust. Electricity can also cause deaths and serious harm to people or property if an installation is defective or improperly set up. This section provides guidance regarding electrical installations at an event.

Only registered electrical installation companies and persons with the relevant authorisation are allowed to work on electrical installations. The electrical installation company must be registered with and approved by the National Electrical Safety Board for engaging in what are known as activities in public spaces.

7.5.1. Temporary electrical installations

Practically all installations prior to an event can be considered temporary electrical installations. These installations are assembled prior to the event and then disassembled after the event has ended.

An organiser is usually the coordinating party and is responsible for the temporary installation. As a proprietor, the organiser is responsible for the installation, and must make sure that it is set up in such a way and kept in such a condition that it provides the required safety for people and property. The proprietor must also make sure that any work done on or in connection with the installation is done in such a way, and by or under the direction of people with the appropriate knowledge and skills, that adequate safety is provided against injury to persons or damage to property. One way a proprietor can perform a check on the persons doing this work, is to use the National Electrical Safety Board e-service 'Check an electrical installation company' (*Kolla elföretaget*).

Electrical installations may only be performed by a registered electrical installation company, by professionals who are included in the self-audit scheme of an electrical installation company, or by an electrician with his or her own authorisation for the work in question. For temporary installations this rule applies to all operations that require tools. This means that you may connect cables to connectors (plugs) yourself if you have the competence required for the work, but as soon as tools are needed, an

Make sure that the company employed for electrical installations is registered at 'Check an electrical installation company' (*Kolla elföretaget*).

authorisation is required for any electrical installation work. For this reason, you should employ a registered electrical installation company for all operations on an installation.

Electrical current is conducted more easily in damp environments than in dry ones. When laying electrical cables outdoors, it is particularly important to make sure that all the sockets, cables, and electrical devices are constructed for use outdoors. The degree of moisture protection of a product is a made clear from its IP code, which is usually stated in the product's instruction manual. It is also important to ensure that all electrical products have a CE label.

A temporary electrical installation is often located in a demanding environment, and an installation must stand treatment that results in increased wear and tear. The proprietor must make sure that supervision in the form of special and continuous control is performed on an electrical installation. Supervision means that an installation must be systematically monitored and controlled, and that remedial measures must be taken when required. This supervision should be continuous throughout the course of an event.

In general, both electrical equipment and connecting cables should be kept away from places where visitors are present. If this is not possible, a risk analysis should be made. If there is a risk of cables being exposed to exceptional wear and tear, one should consider using cable protectors or placing the equipment out of the reach of visitors. Particular care should be taken with respect to extension cords and connecting cables. Connecting cables in outdoor environments are among the most common sources of electrical accidents.

At many events the existing electrical grid is not a sufficient power source, because stages, vendor courts, and attractions use large amounts of electricity. For this reason it is in many cases necessary to set up external energy sources, such as generating sets. Below is a description of common temporary electrical installations that can be found at events, and information on what to think about when installing and operating them.

Many types of electrical installations are also valuable and bring with them a risk of theft. You should therefore secure your generators, substations, and cables against theft as far as is possible.

Read more about:

Technical specifications for connection and operation of generating sets in the Svensk Elstandard [Swedish electricity standard] Handbook SEK Handbok 447.

7.5.1.1. Generating sets

If generators are used at an event, one should consider where to place them. The following requirements should be fulfilled when siting a generator:

- A generating set should always be placed out of reach of pyrotechnics and open fire, because it is powered by flammable fuel.
- There should be space to store fuel (during longer events).
- There should be space for the refilling process to take place (during longer events).
- Neither a generating set nor its fuel must be within reach of the audience. If a generating set is placed in an area which is a public area, it should be separated from the audience by the use of a fence or the like.

Generators can be designed in various ways and may be intended for different purposes. Faulty operation of a generator can cause danger. All types of generator should therefore be connected by professional personnel, regardless of whether an authorised electrician is required or not, and in consultation with the fire and rescue services.

Connecting cables in outdoor environments are among of the most common sources of electrical accidents.

There are special requirements when a generator is meant to power a temporary installation together with the regular grid. If so, the grid owner for the area should be contacted.

Read more about:
Buried cables in the Swedish standard SS 4241437, Underground Installation of Cables.

7.5.1.2. Electrical distribution boxes

Electrical distribution boxes should be clearly labelled, and separated from and out of reach of the event's audience. If a distribution box is placed outdoors, it is important that it is protected from rain and moisture. Distribution boxes should preferably be locked in order to prevent unauthorised people from affecting their functions.

All temporary distribution boxes, both indoors and outdoors, must be equipped with residual current devices (RCD) and marked with warning signs. Note that some older distribution boxes may lack a residual current device. Check with the supplier to make sure that any distribution boxes that have been ordered are equipped with residual current devices. It is the supplier's responsibility to ensure that a distribution box is tested and fault-free.

All temporary distribution boxes, both indoors and outdoors, must be equipped with residual current devices (RCD).

7.5.1.3. Sectioning and circuit breakers

By sectioning is meant a division of the event electrical grid that permits shutting down electricity to selected parts of the grid. It is important that there are a number of circuit breakers.

If something should happen that requires certain parts of the event's electrical grid to be switched off because of repairs or an accident, this should be possible to do without affecting the rest of the event. You should therefore make sure that there are separate main circuit breakers for

- stages;
- special effects;
- lighting or electricity supplies for all focal points;
- markets and vendor courts;
- emergency lighting;
- general lighting.

Consult the supplier of the electrical installation to obtain help with integrating these into the system.

7.5.1.4. Types of cables

There are several different types of electrical cables. In this context insulated power cables and connecting cables (rubber cables) are usually relevant. Insulated power cables do not have coupler plugs but have instead a coating of hard plastic and form a permanent connection, for instance between a distribution box and a switchgear. Insulated power cables are not meant to be laid without cable protectors and they must be protected from mechanical damage.

However, at an event most cables are common so-called connection cables. These cables are comparatively vulnerable to external damage and must therefore be protected against potential damage from crowds, transport, the surrounding environment, etc. Temporary cables should either be buried, suspended, or covered by cable protectors. In this way one can avoid having unauthorised people coming into contact with the cables, or the cables being damaged.

If parts of an event's electrical grid must be switched off because of repairs or an accident, this should be possible to do without affecting the rest of the event.

There are various types of connection cables with different degrees of protection against mechanical damage. A rule of thumb is to choose a more robust kind of cable, because a cable may be moved from its initial location during the course of an event. Examples of cables with a high resistance to mechanical stress are the cable types REVE or H07RN-F (also known as RDOE).

Read more about:
Electrical installations in *Section 7.5.*

Suspended cables

When cables are suspended, they should be supported by a grounded cable carrying line in order to prevent them from sagging or falling down. When a carrying line is not used, the points of attachment may not be further apart than fifteen metres for cables of the type REVE. A cable should be suspended at an appropriate height for protection from direct touch.

The recommended height of a cable suspended over a busy road is six metres (where 4.5 metres is the maximum allowed vehicle height).

Suppliers of generating sets often know what kinds of cables are suitable for an event.

Buried cables

An insulated power cable should preferably be buried, while connecting cables should be placed in a pipe in the ground through into which they can easily be laid and also removed, for instance for supervision. More information about how cables can be used is provided in directions from the manufacturer. Buried cables should be buried at a sufficient depth so that there is no

- risk of damage of their being crushed by heavy vehicles, structures, and so on;
- possibility for unauthorised people coming into contact with the cables.

The depth at which a cable should be laid varies from between 0.25 to 0.55 metres depending on the location. This depth must always be adapted on the basis of how the ground is to be used, for instance if stakes will be placed in the ground when putting up marquees.

A cable laid on theground through an area accessible to the public should not contain any splicing. Cables laid on the ground should also be covered with cable protectors in order to avoid damage to the cable from crushing, pressure, or cutting.

Cables laid on the ground

A cable laid above ground through an area accessible to the public should not contain any splicing, and cables laid above ground should be covered with appropriate cable protectors in order to avoid damage to the cable from crushing, pressure, or cutting. In order to avoid injuries from tripping, cable protectors must be highly visible. Cable protectors for power cables should be marked in yellow.

Avoid laying a cable on the ground across focal routes or in front of a stage, because this increases the risk of someone tripping over it.

Form a clear picture of how much electricity will be needed to successfully operate an event.

7.5.2. The total need for electricity for an event

It is important to form a clear picture of how much electricity will be needed to successfully operate an event. Allow an authorised professional or an electrical installation company to assess the total need for electricity for an event. An erroneous assessment can lead to parts of the event suffering from power failures, which in turn can lead to an increased risk of other incidents, installations not working, and irritation and confusion among visitors and other participants.

All parts of the event should be included in the calculation of the total need for electricity and the requirements attached to fault clearance, unless

these parts are operated using separate generators. In other words, the calculation should include the following:

- stages and mix positions;
- general and emergency lighting;
- other electricity needs, e.g. for vendors, fun fairs, and peripheral activities.

Collect specifications for all parts of an event that will use the electricity supplied by the event, and thereafter calculate the total demand for electricity during the event.

Suppliers of electricity or generating sets need complete information about the total need for electricity for the event, and a clear specification of where the electricity will be needed.

7.5.3. Electricity for stages

There should be enough fixed electrical sockets around stages and FOH mix positions. In that way it is possible to avoid extension cords, multi-plug extension leads, and the like. In addition, too many cords and splices increase the risk of accidents, and can lead to tangles and unnecessary power failures. The general rule is that there should be as few splices as possible, because a splice is the weakest point of a cable.

A cable should have as few splices as possible. Splices are the weakest points of a cable.

When supplying electricity and laying cables from a stage to an FOH mix position, it is important to remember to protect the multi-cable, i.e. the cable that runs between the stage and the FOH mix position. This can be done either by suspending the cable, by covering a cable laid above ground, or by burying it.

In order to calculate the demand for electricity for a stage, an organiser should request electrical specifications from the suppliers of sound, lighting, and special effects.

7.6. General and emergency lighting

In addition to special effects and stage lighting, there should be two types of basic lighting at an event: general lighting and emergency lighting. General and emergency lighting should be installed so that mistakes or deficiencies can be repaired without affecting the rest of the electrical system. However, appropriate procedures should be developed for repairing both of these systems. The systems for both general and emergency lighting should be protected against vandalism and be kept out of reach of unauthorised people.

Successful lighting has many good effects. For instance, lighting is an important tool for signalling the intended use of a place. In addition, good lighting has a powerful crime-preventative effect and increases a perceived sense of security. However, it is important to use lighting in an appropriate manner. Lights that create strong contrasts or dazzle you make it more difficult to see your surroundings, which could have an effect opposite of the desired one, and a place that is spotlit can contribute to a sense of being exposed or vulnerable. Good lighting provides both sufficient visibility so that people can orient themselves, and it also lights up and displays the surrounding environment in an appropriate manner. Often a better effect can be achieved by lighting parts of the surroundings, such as trees or bushes, than by simply increasing the light level in general.

In addition to creating a sense of security, good lighting contributes to both deterring perpetrators and increasing the possibility of detecting planning of or reconnaissance for crimes, as well as actual crimes in progress, or other undesirable occurrences.

Carefully planned lighting is invaluable for formal surveillance, i.e. by safety staff or through camera surveillance. In addition, it also contributes to better conditions for informal surveillance, i.e. that the audience or the general public can see what is happening.

Emergency lighting is intended to take over if the regular lighting fails, which means that it should have a separate power source. The aim of emergency lighting is above all to ensure that an evacuation can be carried out in a safe manner, but it is also meant to prevent the risk of accidents (e.g. injuries from falls) in darkened places, as well as make the audience feel safe if all the lights should go out.

The lighting of evacuation routes in assembly halls is prescribed by the Swedish National Board of Housing, Building and Planning.

Experience tells us that a large number of violent crimes are committed outside the venue. For this reason it is desirable to set up general lighting also outside the event in collaboration with the municipality.

7.6.1. General lighting

All parts of an event site should be equipped with artificial lighting unless the intention is to hold the event exclusively during daylight hours.

The lighting in every place where the audience moves about or spends time should be reviewed. Experience tells us that a large proportion of violent crimes are committed outside the venue. For this reason it is desirable to set up general lighting also outside the event in collaboration with the municipality.

When carrying out this work, it can be helpful to walk through the site after dark (see below). A lighting review should be complemented with a general review intended to identify and deal with places with obscured visibility or places where someone might hide.

Lighting should also be analysed from the perspective of shell protection. Go through the entire shell protection, with a special focus on gaps or weaknesses in the shell and on places where trespassing or an attack would have a significant effect.

7.6.2. Emergency lighting

The purpose of emergency lighting is above all to ensure that an evacuation can be carried out in a safe manner, but also to reduce the risk of accidents (e.g. injuries from falls) in a darkened location. An additional reason for having emergency lighting is that the audience will feel safe even if the regular lighting fails.

Emergency lighting can be defined as lighting that is lit or remains lit when power fails. Emergency lighting must function even when the main electrical grid of an event fails, and it should be powered by an independent power source, such as a generator.

The power source should be prepared, ready for use, and dimensioned to withstand maximum stress if all parts of the emergency system must be used.

Emergency lighting should be powered by an independent electrical power source and be dimensioned to withstand maximum stress.

7.6.2.1. Outdoor emergency lighting

The placement of emergency lighting and its extent is most easily determined on the basis of a risk assessment. For instance, emergency lighting should exist in high-risk areas and in areas where the lack of lighting can involve a risk of accidents. Design the emergency lighting of the event in consultation with the fire and rescue services.

Consider the need for emergency lighting at the event. The following areas should be provided with sufficient light even during a power failure:

- entrances and exits;
- evacuation routes;
- crowd routes;
- audience areas in front of stages;
- other major audience areas;
- first aid areas;
- important work areas for staff;
- possible high-risk areas, e.g. roads, precipices, or holes.

There is no law regulating the light intensity that should be used for emergency lighting outdoors, but it should be sufficiently strong so that people can orient themselves at an event site.

Read more about:
Crime-preventative design in *Section 6.4.4.*

7.6.2.2. Emergency lighting in assembly halls

A room intended for more than 150 people is classed as an assembly hall. The following rules apply to emergency lighting in an assembly hall according to the regulations and general recommendations issued by the National Board of Housing, Building and Planning:

- There should be emergency lighting in the entire assembly hall and at every location with first aid and firefighting equipment, as well as at every alarm call point.
- The illuminance should be at least one lux in the most poorly lit floor area of a hall.
- Stronger illuminance (five lux) is recommended for stairs and at other locations where there are differences in the levels of floors.
- There must be photoluminescent signs with pictograms for signposting evacuation routes.

7.6.3. A walk through the site after dark

In order to discover which locations at the venue need lighting, an organiser, preferably together with representatives from the concerned authorities, can walk through the site after dark. This means that the venue and its surroundings can be inspected after dark and that areas not lit by the existing lighting can be identified. In this way, an organiser will get a feeling for the places where extra lighting is required. Lighting in areas that would otherwise be exposed to crime contributes to a safer environment that is less attractive for the commission of a crime. A walk through the site after dark contributes to discovering these places prior to the event, before any crime has been committed.

A walk through a site after dark can help discover and address, prior to the event, any locations that may be exposed to crime.

7.7. Water

At all events lasting longer than a few hours it is important to have sufficient access to water. Depending on the size and length of an event the need, however, varies. For example, the need for water increases at day-long events and multiple-day events with camping.

A lack of water can have consequences that affect the health of visitors – and thus indirectly also event safety. There must be both drinking water and water for hygiene.

There must be both drinking water and water for hygiene. A lack of water can have consequences that affect the health of visitors, and thus indirectly also event safety.

7.7.1. Drinking water

The human body consumes water, especially when moving around, in hot conditions, and when drinking alcohol. Drinking too little water can lead to dehydration, which in its turn will result in the body weakening. This involves increased risks. A weakened visitor runs a much greater risk of meeting with accidents, for example during crowd surges in front of a stage.

Dehydration also affects the judgement of both visitors and co-workers, which can lead to misjudgements and bad decisions being made. Good access to free drinking water is very important at events where one can expect that visitors and co-workers will need liquids. This is true of both indoor and outdoor events. The need for drinking water varies with the weather, duration, size, and crowd size of an event, and the consumption of alcohol:

- Heat, sunshine, poor ventilation, and a high crowd density increase the need for liquids.
- The longer the event, the greater the need for drinking water.
- There should be water within reasonable reach of all visitors and staff members.
- There should be one water station per three thousand visitors.

Set up numerous water stations. Count one water station per three thousand visitors and one water station per ten food vendors

The consumption of alcohol increases the need for drinking water. An organiser should ensure that there is access to drinking water in the following locations:

- the parts of an event site to which the crowd has access;
- the areas intended for those who work at an event;
- the stage pit;
- areas for vendors;
- any camping site.

It is important to prevent the presence of bacteria and other impurities in the water. Minimise the risk of undrinkable water! Ensure that the source of the water is not sensitive to weather and that it cannot be exposed to vandalism.

It is important to prevent the presence of bacteria and other impurities in the drinking water. Minimise the risk of undrinkable water. Ensure that the source of the water is not sensitive to weather and that it cannot be exposed to vandalism. There should also be procedures for connecting hoses and pipes. Drinking water must fulfil the requirements of the Swedish Food Agency regulation SLVFS 2001:30.

When an event uses municipal drinking water, the water quality should be checked if temporary pipes have been laid. When an event uses another water source, the water quality should be checked before it is used.

Keep the following in mind:

- There should be an operations manager for the water. If a more permanent water distribution network is used, a responsible person is needed also outside the event's opening hours.
- Pipes and the hoses should be handled according to appropriate hygiene practices for food. A hose that is used will have to be cleaned before being put into service, for instance by disinfecting it and rinsing it out.

- Water should always be kept running in order to ensure good circulation and avoid stagnant water in a hose. This is especially important during warm weather or in direct sunlight.
- During longer events the water should be inspected also over the course of the event, in order to make sure that the quality of the drinking water remains high.

In general it is desirable that all water comes from a single main source. If this is not possible, one option is to set up water depots in the form of cisterns. If cisterns are used, these must be intended for food and not previously have been used for anything other than water.

Cisterns for water storage place high demands on maintenance and tests of hygiene, and all water depots should provide unhindered access for users;

- be clearly marked;
- be well-lit at night if they are to be used during the night;
- possess a self-closing device, i.e. no water should run out when no one is using the cistern;
- be placed on a well-drained surface;
- be designed and located so that they are accessible for disabled people.

7.7.1.1. Distributing water to visitors

When an event's staff distribute water to visitors, for instance at a stage pit, one should keep the following in mind:

- staff distributing the water must have an opportunity to wash their hands;
- staff should have access to disposable gloves;
- staff should distribute water in disposable cups;
- staff do not have to fill each cup completely, because it will most likely be thrown away after the visitor has quenched his or her thirst;
- avoid having several people drinking from the same bottle if water is distributed in water bottles;
- make sure that the source of the water is clean and cannot be accidentally contaminated during the course of the event.

7.7.2. Water for hygiene

Running water is needed so that all people at an event can maintain good personal hygiene. For this reason, running water should be installed adjacent to an event's sanitation areas, and possibly adjacent to food vendors as well, depending on the distance to the closest sanitation area.

Make sure that there is enough water. Keep in mind that showers, washbasins, and other water depots used for sanitary purposes need a lot of water.

Read more about:

Drinking water at events on the homepage of the Swedish Food Agency.

Food vendors in *Section 11.4.3.*

Hygiene and sanitation in *Chapter 12.*

7.8. Technical aids

The development of new technology progresses at a relatively rapid pace. Today there are many technical safety options that can be implemented at events and arenas, but sometimes there is a certain overreliance on technology. However, technical options are only as effective as their implementation and practical use allow for.

Technical options are only as effective as their implementation and practical use will allow.

Keep the following in mind when planning for the use of technical safety options:

- **Integration of technology.** Technical options need to be adapted to and integrated into existing activities so that they function well, or can even support everyday work. If a technical option makes everyday work more difficult, this may lead to a system not being used to the extent that was intended or to the work of an organisation becoming inefficient.
- **Interacting interventions.** Technical options have to be integrated into the rest of the safety planning. Safety measures where technology, the human, and the organisation interact are more robust than isolated measures. Stronger and more effective protection may be achieved by, for instance integrating cameras with lighting and the design and placement of alarm devices and physical obstacles, along with appropriate rules of access and the deployment and instruction of staff.
- **Fail-safe mechanisms.** How is safety managed if for some reason a system does not work? Everything should not depend on one single system or an isolated option. Alternative measures should always be available.
- **Competence.** The staff should have sufficient competence to decide what measures are required in order to reap the greatest benefits from the technical aids being used.
- **Maintenance and service.** Technology needs to be continually monitored and maintained so that it will be effective over time.

Below is a discussion of some of the most common technical aids:

- camera surveillance (CCTV);
- detectors and sensors;
- smoke detectors and automatic alarms;
- fences and other barriers;
- LED screens.

7.8.1. Camera surveillance (CCTV)

The three main methods used for camera surveillance:

- **Operator-monitored camera surveillance**, which means that an operator detects, verifies, and triggers an alarm in the event of an incident. Here the working environment and training of the operator as well as the quality of the cameras play a large part.
- **Alarm-activated camera surveillance**, which means that the camera surveillance is activated when an alarm has been triggered. This can also be used in combination with operator-monitored surveillance.
- **Camera surveillance with video analysis**, which is used to determine whether there are changes occurring in locations that are under surveillance. The camera will trigger an alarm when predefined changes are detected. At the same time, the camera will eliminate normal movement, and in this way reduce the number of alarms. This can also be used in combination with operator-monitored surveillance.

It is important that there is a well-defined purpose for camera surveillance. Camera surveillance can, for instance, be effective in order to

- provide a clear picture of an audience situation – as a part of *crowd management* work;
- detecting trespassing, reconnoitring prior to an attack, or preparations for crime;
- deter perpetrators from committing crimes;
- verify alarms or observations;
- provide a basis for decision-making during an ongoing incident, either one that can be coupled to crowd flow or an attack;
- support criminal investigations and evaluations after incidents have occurred.

There are a number of prerequisites that must be fulfilled in order for CCTV to be used in an effective manner:

- The benefits of camera surveillance must be balanced against demands for privacy, because the interest in surveillance must outweigh the interest in privacy in order for the surveillance to be allowed.
- Laws, directives, and rules must be followed. Camera surveillance is many times treated as personal information, which means that the General Data Protection Regulation (GDPR) must normally be followed.
- The cameras should be placed at various heights depending on what purpose they serve. When the purpose is crowd management, cameras are usually placed at a height of four to six metres in order to provide an overview of a situation, while police cameras are placed at a lower height (1.8–2 metres) in order to facilitate the identification of persons in connection with criminal investigations.

The knowledge that there are cameras on a site can be a deterrent to a perpetrator, because the cameras increase the risk of the perpetrator being detected. However, all types of camera surveillance depend on the knowledge and the abilities of the surveillance staff. Through practical and theoretical training, above all in knowledge about possible modes of action in the event of a terrorist attack, the ability to perceive threats and make relevant decisions increases.

In some cases the police may put up their own cameras at an event, and then it is advisable to collaborate with them in order to obtain the best results. However, you should remember that technology does not carry as much weight as do the human or the organisation, because the two latter categories are the basic pillars for handling the information acquired through camera surveillance.

Keep the following in mind:

- Identify the need for camera surveillance.
- Make sure you have well-trained and competent surveillance staff.
- Be careful to follow current laws and regulations.
- Cooperate with the police for the best results.

Read more about:

How to handle film material and who is allowed to see this material at the Swedish Authority for Privacy Protection.

Visible cameras can have a deterrent effect on a perpetrator, because the risk of detection is perceived to be greater.

7.8.1.1. The Camera Surveillance Act and GDPR

Camera surveillance is regulated in the Camera Surveillance Act (2018:1200). In order to use camera surveillance at a public assembly or a public event where people can be identified, you also must have permission from the Swedish Authority for Privacy Protection, which is also the supervisory authority in this case. Places to which the general public does not have access may be put under surveillance by authorities and other bodies performing duties of public interest without a permit. However, the rules of the General Data Protection Regulation (GDPR) must always be followed.

All camera surveillance where identifiable people are filmed falls within the scope of the GDPR, which requires that whoever is doing the camera surveillance must explain *why* the surveillance is being done. The most common justification is to prevent or combat crime. If sound is to be recorded, this must be explicitly stated. At the website of the Swedish Authority for Privacy Protection you can find more information about the application of the Camera Surveillance Act and about the requirements for providing information to people who are under surveillance.

Certain deviations from the GDPR can be made by using a so-called hardware filter which makes it possible to determine how crowds move and act without identifying individuals. This can be useful, for instance for the purpose of crowd management.

In certain cities there are camera systems installed that are not used regularly but that can be activated by the police on special occasions in order to obtain a better overview of a situation.

7.8.1.2. Camera surveillance as a crime preventative tool

Camera surveillance can have a directly deterrent effect on any potential perpetrators because they perceive that there is an increased risk of detection. The risk of being caught – either red-handed or after the fact on a recording – deters people from committing crimes. When you concentrate on making a place secure from crime it also signals that the place is well-looked-after and protected, and that the people in charge of it care. For this reason, a mixture of real cameras and dummies can be a cost-effective solution that has a good effect.

Camera surveillance can have a useful crime-preventative effect

- in car parks;
- at entrances;
- in stands;
- where goods are received;
- at transport hubs for buses, taxis, commuter trains, etc.

Above all, camera surveillance has a deterrent effect on pre-planned crimes, as opposed to impulsive crimes that are committed in the heat of, or at the spur of, the moment. In contradistinction, camera surveillance has not been proven to have an effect on violent crimes, which are primarily committed by people who are under the influence of alcohol or drugs, or who are strongly emotionally affected and do not make calculations of the risks.

Camera surveillance for a crime-preventative purpose works best together with other crime-preventative measures, such as fences, locks, or security staff.

7.8.2. Detectors

There are both mobile and fixed detectors, and these vary with respect to their effectiveness and technology. Mobile units can be used anywhere at an event, while fixed units are often placed close to or at the entrances of the event. In addition, the various kinds of detectors are not equally good at detecting different kinds of objects, and they vary in price. The important thing to consider is that the human factor is always key for being able to detect prohibited items, and that the effectiveness of the technology depends on the competence of the staff. Remember that the staff also need to be randomly screened.

Certain detectors (e.g. x-ray machines) can reduce a visitor's sense of having their privacy breached, while at the same time they may have a deterrent effect on potential perpetrators. However, all detectors that entail a slowing of crowd flow also involve a risk of queues forming. Large queues increase the risk of overcrowding, and an unprotected queue can also be an attractive target for a terrorist attack.

Read more about:
Body searches and security checks in *Section 19.2.*

When using detectors that risk slowing down crowd flow, an organiser can take one or several of the measures below:

- make sure that there are enough detectors so that no large queues will form;
- analyse the queueing situation and respond to risks of crowding and vulnerability to an antagonistic attack;
- adapt the frequency of searching (i.e. using samples) in order to reduce the number of people in queues.

Below are a few examples of the detectors that can be used:

- **Metal detectors.** Are used to detect metals. Many people today carry or wear items that contain metal, for example keys and mobile phones, which cause a metal detector to produce an alarm. If the metal detector produces an alarm for a visitor, the person should be taken aside for a frisk search as a follow-up control. One way to reduce the need for follow-up-controls is for each visitor to place items they are carrying on their person in a plastic box before passing through the metal detector. Walk-through metal detectors scan the whole body simultaneously and show where metal objects are on
- **a person, which translates into safer and quicker control.** Handheld metal detectors are often used for follow-up-controls in order to find the object that triggered the alarm, and can with good precision detect metal objects in clothes or on the body. Handheld metal detectors are usually easy to use, and the level at which a detector gives a reading can be adjusted.
- **Security scanner.** A kind of detector used for detecting also non-metals. A security scanner uses microwave technology and is usually shaped as an arch where a person is scanned when they pass under it.
- **X-ray machine.** Is used to see what visitors bring with them into a site, for instance in their bags. An x-ray machine also indicates what type of materials the detected objects are made from by assigning different colours to the x-rayed objects. If suspicious items are detected, a manual control is necessary, which takes time and has an effect on crowd flow. In order to avoid bottlenecks one can prioritise objects that are

to be x-rayed, for example bags that exceed a certain size. In order to achieve high efficiency and reliability, an x-ray operator must be trained and experienced. There are also variants on x-ray machines that can detect and check fluids, for instance those placed in bags.

- **Fluid detectors.** Are used in order to detect fluids that people bring with them. There are different variants of detectors that can detect explosives found in individual fluid containers. There are also variants that can detect fluid containers placed inside such items as bags.
- **Trace element detectors.** Are used in order to detect traces of explosives and narcotics. This technology is not usually used on all visitors, but is done on a random selection of people by taking a smear sample of a person or of objects brought in by the person.
- **Detection dogs.** These dogs can be trained to detect such things as explosives, chemicals, or narcotics. Detection dogs are usually used after the initial screening of visitors to the event. Dogs can also act as deterrents, because visitors cannot determine by sight alone if the dog is a patrol dog or a detection dog.

7.8.3. Fire alarms

The purpose of a fire alarm is to detect an incipient fire and emit an alarm signal. This is done in order to indicate a need for measures to be taken against the fire, and send a signal to the staff who can take the appropriate measures or in other ways create good conditions for an evacuation.

Fire alarms have basically two central functions: to activate an alarm and to take measures.

Figure 14. Fire alarm functions

How a fire alarm can be activated, and what measures will be taken once the alarm has been activated, vary from one venue to another. An organiser should therefore have a good understanding of the functioning of the fire alarm in good time prior to an event.

7.8.3.1. Activation of a fire alarm

A fire alarm can be activated in three ways: manually, via detectors, or via extinguishing systems.

Manual activation. A fire alarm can be manually activated via an alarm button. In some cases, these alarm buttons are accessible to anyone on the premises. However, when there is a risk of malicious activation, alarm buttons can be located according to special instructions, so that only designated persons can activate the alarm. If alarm buttons are only accessible to designated people, it is important that these persons know where the buttons are located and have competence for and understanding of the seriousness of their task.

Detectors. There are three main groups of detectors: smoke detectors, heat detectors, and flame detectors, of which smoke detectors are the most common type. Within each main group there are, in addition, different types of technologies. Different types of detectors are not equally well-suited for use at a given event depending on the design of and the intended activity at the premises. When planning for or changing the detectors on the premises, it is important to consider 1) their appropriateness for the intended activities, and 2) how well the type of detector covers the premises.

Fire extinguishing systems (e.g. sprinklers) can be found on some premises. When such a system is activated by high temperatures, a signal is in certain cases sent to the fire alarm.

7.8.3.2. Measures activated by fire alarms

When a fire alarm is activated, it can trigger various functions: an evacuation alarm, a signal to the alarm function, or control of functions.

An evacuation alarm is a local signal that alerts people in and around the premises to the fact that the fire alarm has been activated. The purpose of the signal is to warn people of danger and to alert them to begin evacuation.

There are different types of alarm signals:

- **Acoustic signals.** This is the most common type of alarm signal. The alarm consists of bells or sirens that warn people by means of sound.
- **Optical signals.** When people who are hard of hearing are present at premises where they do not have any direct contact with persons who have normal hearing, optical alarm devices must be set up as a complement to the acoustic alarms. Optical alarms use flashing lights and must be placed so that they can be seen from all directions. It can be desirable to have optical signalling also in places where there is a risk for high sound levels.
- **Spoken evacuation alarm.** In locations where many people are present who do not recognise the signal for evacuation or know the current evacuation procedures, a spoken message should be used. In many cases, this can facilitate an evacuation and reduce the time needed for evacuation in the event of fire. Spoken evacuation alarms can be activated automatically, but there must also always be an opportunity for manual activation. It is important that a spoken message is brief, simple, and clear. An evacuation alarm with a spoken message can also be used on other occasions than just in the event of fire. For this reason, several different evacuation messages can be stored on the device.

On certain premises, acoustic signalling on the one hand and optical signalling and a spoken evacuation alarm on the other can be discrete systems that are activated separately. In such situations it is important that both systems are correctly configured so that they do not interfere with each other but instead interact to provide good fire protection.

Signal to an emergency call centre. On many public premises a fire alarm has a function that sends an alarm directly to an emergency call centre. This means that a signal is sent to an emergency call centre when the fire alarm is activated, after which the emergency call centre in many cases can in turn alert the fire and rescue services.

Read more about:

Evacuation alarms with acoustic and optical alarms in SBF 110:8 *Regler för brandlarm* [Rules for fire alarms].

Evacuation alarms with a spoken message in SBF 502:1, *Regler för utrymningslarm med talat meddelande* [Rules for evacuation alarms with spoken messages].

Measures for avoiding unnecessary alarms at The Swedish Fire Protection Association and in SBF 110:8 *Regler för brandlarm* [Rules for fire alarms].

Control of functions. Some fire alarms can control functions on the premises. These can, for instance, open doors to emergency exits, activate door-closing mechanisms, or control lifts, escalators, and sound systems. Note that there should be no locked doors that are unlocked only by way of a signal from a fire alarm, because an evacuation can become necessary for reasons other than fire.

Read more about:
Crime-preventative design in *Section 6.4.4.*

7.8.3.3. Changes before certain events

In some cases a fire alarm can be triggered without there being an incipient fire. These are called *unnecessary alarms*. In connection with some events, smoke or pyrotechnics can be a planned as a part of the event's activities. In other cases, a fire alarm can be triggered by the actions of the audience, for instance by the illicit use of pyrotechnics in the stands. Also other phenomena can trigger a fire alarm, such as the work of craftsmen or by maintenance.

Unnecessary alarms can lead to an evacuation being initiated or an event being suspended for no good reason.

Various measures can be taken in order to avoid unnecessary alarms. The important thing is that all measures are taken after an analysis is made of the consequences and risks of these measures. This is because all modifications of fire protection on a premises involve a risk of reduced fire safety, and in some cases they also have an impact on whether or not a building fulfils official building regulations. In the event of uncertainty you should contact a fire consultant or the fire and rescue services in order to make sure that the measures taken are appropriate.

Modifying the fire protection brings with it the risk of reduced fire safety. All measures must be taken on the basis of an understanding of the consequences and risks connected to the measures taken. In the case of uncertainty you should contact a fire consultant or the rescue services.

There are several technical measures that can reduce the risk of unnecessary alarms, for instance by

- protecting alarm buttons from unauthorised activation by, for example radio frequency interference;
- adapting detectors by changing their locations or by changing the detector type;
- using delayed smoke detectors;
- using dual-detector-dependent or dual-section-dependent detectors;
- reducing detection sensitivity;
- disconnecting smoke detectors at certain time periods;
- storing alarms using so-called alarm storage, which means that a signal from a fire alarm to the emergency call centre is delayed for a certain period of time. The designated persons are then given a chance to investigate the cause of the alarm. These times are determined depending on the organisation and the activity, but should be kept as brief as possible.

All measures affecting the circumstances of fire protection should be taken in consultation with other interested parties (e.g. property owners, usufructuaries, the fire and rescue services, and insurance companies).

When taking potential measures that affect the conditions for fire protection, it is important to make sure that fire protection requirements are fulfilled. Some form of compensatory measures may have to be taken with respect to events that involve activities that temporarily override fire protection, or require that the level of fire protection is temporarily raised.

This is often done through organisational measures or some form of technical intervention:

- An example of an organisational measure is posting fire watchers in the area in question. Make sure that there are procedures for how the fire watchers should act in the event of fire.
- A technical intervention can include having extra equipment available, and ensuring that that doors along the evacuation routes are kept open.

Measures of this kind should be taken in consultation with other concerned parties (e.g. property owners, usufructuaries, the fire and rescue services, fire consultants, and insurance companies).

7.8.3.4. Resumption of an event after an evacuation

How to deal with the aftermath of an unnecessary alarm should be included in the planning of an event. If the premises have been evacuated, you must decide whether or not to resume an event.

The possibilities and appropriateness of this vary. If an event is to be resumed after an evacuation, this needs to be done in a controlled manner, and security should be as high as during the normal admissions process with respect to, for instance frisk searches. Safety should not be compromised, because the risk is that unauthorised people will be allowed into an event, or that illegal items are brought into the arena.

It is therefore important to already prior to an event discuss what to do in such a situation. Is it, for instance, possible to resume an event with respect to

- access certificates, and the possibility of scanning tickets again?
- deadlines for performances by guests or performances afterwards?
- available staff and other prerequisites for carrying out safe admission procedures and equivalent security controls?

7.8.4. Fences and other barriers

Fences and other barriers are an important protective measure at events. The use of different kinds of barriers is often a balancing act between protection against unwanted elements, such as trespass or attacks, and accessibility, for example for transports or during an evacuation. It is important to take into account both of these factors when planning the barriers for an event.

Fences and other barriers can, among other things, be used for the following purposes:

- **Marking** out an area. Barriers that mark out an area can be used to, among other things, control crowd flow, form a framework for queueing systems, or signal territoriality. The main purpose of these barriers is not the prevention of trespass, but to function as markers of expected or accepted behaviours. Because barriers that mark out an area usually lead to the majority of an audience moving around in a particular way, it also becomes easier to detect people who break the pattern.

  In certain locations where barriers that mark out an area are used, the audience need to be able to smoothly leave a situation under certain circumstances, such as during an evacuation, when denied entrance, or when they have changed their minds and no longer wish to remain in a queue. If no crowd pressure is expected, low construc-

tion fences or ropes and stanchions can be used. If crowd pressure or a high crowd density is anticipated, more robust barriers should be used instead, in combination with sections that can be opened along with procedures for quickly opening these.

- **Obstruction** of visibility. Barriers to visibility can be used, for instance in order to reduce the ability of potential perpetrators to see into a site, or to control the position of an audience. Barriers to visibility also function to prevent trespass, but sometimes their only purpose may be the reduction of the possibility of looking into a site. In these cases, so-called sightline kills can be used.
- **Prevention.** Using fences and barriers in order to prevent or impede access is their most common field of application. Depending on their specific purposes, these barriers may need to have different properties. Barriers meant to prevent trespass may need to be several metres high and be combined with other security measures, such as lighting, alarms, CCTV, or patrolling personnel. They may also need to be anchored or weighted down.
- **Stage** fences are a kind of hybrid barrier that works as a marker, an obstacle, and, to a certain extent, also as a kind of protection.
- **Protection.** Some types of barriers can be used in order to protect people from harm, for example vehicle barriers against deliberate or unintentional collisions, or robust walls against explosions or small-calibre weapons fire. When selecting protective barriers it is important to make an informed and conscious choice. Jersey barriers or barrier elements made from concrete have a lower resistance than a vehicle barrier intended for this purpose, but they are better than no protection at all.
- **Deter.** Many types of barriers can have a deterrent effect on presumptive perpetrators.

All types of barriers that must allow passage of, among others, the audience, transports, or emergency vehicles must be prepared for these actions. Barriers and fences should also be controlled regularly, so that they are in good condition and fulfil their purpose.

Read more about:

Lines of sight in *Section 8.2.6.*

Stage fences in *Section 8.3.*

Standards for setting up shell protection in *Section 6.6.1.2.*

All barriers that must allow passage of, among others, the audience, transports, or emergency vehicles must be prepared for these actions.

7.8.5. LED screens

LED screens have advantages related to both a visitor's experience and to successful safety, because they can contribute equally well to an audience being able to see better and its therefore not pressing forward.

When the screens are not used for showing a performance or contest, they can, in addition, be used to display information of value to the audience, for instance

- location orientation – how to find one's way, where there are more seats or more standing room, and where the best experience can be found at an event;
- behaviour – how to behave in the stands or in front of the stage;
- other safety aspects – advice on ear protectors, warnings about pickpockets;
- tips concerning departure and a smooth exit;
- the location of medical care services and emergency exits.

At sports events with a risk profile regarding supporters, care should be taken about what to display on an LED screen. Controversial decisions by referees or infringements of rules can be a spark that can trigger unwanted developments among the audience members.

8. The stage

Photo: Maxime Lebrun / Unsplash

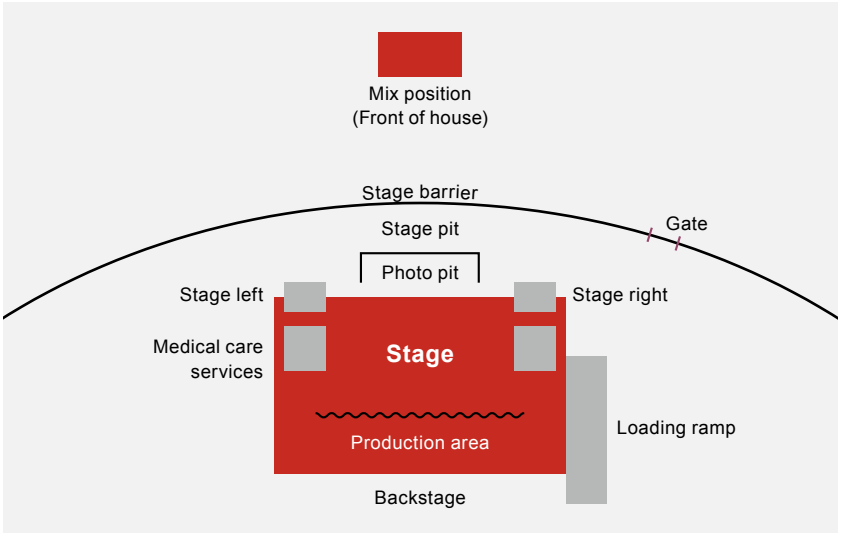
8. The stage

The stage is the heart of a musical event – this is where the audience assembles in order to experience the event's main attraction. Usually, the stage is also the strongest focal point of the event. For this reason, the stage and the area surrounding it require well-developed safety planning and a safe realisation of the event's activities.

8.1. The stage and the stage area

The stage and stage area include not only the stage itself but also the areas surrounding it, including the backstage area, the stage pit, the mix position, and the audience area.

Figure 15. Areas around a stage



Example of the positioning of areas and objects around the stage

When the organisers place an order for a stage, they should ask the supplier for the technical specifications concerning the stage and a so-called structural report.

The structural report should contain

- a technical drawing of the stage;
- information on the wind resistance of the stage;
- specification of the need for ballast;
- a sketch of the permitted loads and their placement;
- the total weight of the stage and the ground bearing capacity required.

Ask the supplier of the stage to explain how various limit values should be interpreted and which safety regulations apply when handling the stage.

People not working in the stage pit should not have access to it while a gig is in progress.

8.1.1. Stage pit

The area between the stage and the stage barrier is called the stage pit. This is primarily a working area for the pit staff, but is often also used by the stage staff and by photographers. People not working in the stage pit should not have access to it while an event is in progress.

Photo: David Fryxelius

The dimensions of a stage pit should allow people to work there. The depth of a stage pit, i.e. the distance between the stage barrier and the edge of the stage, should be established on the basis of several factors:

- **Sufficient space for working.** There should always be sufficient workspace for the pit staff.
- **The height of the stage.** The higher the stage, the deeper the stage pit.
- **The depth of the stage.** If a performer stands far upstage, the pit must be deeper so that the people at the front of the audience can see the performer.
- **The need for a photo pit.** When there is a special photo pit, the stage pit should be deep enough to provide satisfactory workspace for the safety staff.
- **The height of the visitors.** An audience with shorter people (e.g. children) may need a deeper stage pit or a lower stage so that the visitors at the front can see the performers.

A rule of thumb is that the measurement of a stage pit from the stage barrier to the edge of the stage should be about a metre deeper than the stage is high.

Example: At larger concerts the height of the stage is usually about 2.5 metres. The stage pit should then be at least 3.5 metres deep. A stage that is 1.5 metres high should have a stage pit that is about 2.5 metres deep.

Technical drawings and calculations are useful tools, but it is also a good idea to in advance test the placement of the stage barrier on site, in order to determine whether visitors will have an unobstructed view of the activities on stage.

It can be advisable to test the placement of the stage barrier by placing a person on the stage at roughly the same position as the performers will be, and placing another person at the stage barrier's intended position. Will visitors be able to see the performer properly if they are standing at the very front of the audience? Where will the sightlines be? It is a good idea to test standing on the stage and in the audience area in order to check the view.

The stage pit should under no circumstances be less than one metre deep, but neither must a stage pit be too deep. If the distance between the audience and the performer is too great, the audience members may lose contact with the performer, which can spoil their experience and create irritation. If the angle of sight towards the stage is too shallow, there is a risk that the members of the audience at the very front will obstruct the view of those behind them, which can lead to increased forward pressure in the crowd.

It is a good idea to have a gate between the stage pit and the audience area, which should be placed where there is no direct line of sight to the stage. In this way there is less risk of the gate being blocked by the audience. The gate is used to allow journalists in and out and to let out audience members who have ended up in the pit, for instance after crowd surfing or having been lifted from the audience area into the pit. Also make sure that there are passageways along the edges of the stage into the backstage area, so that it is possible to transport members of the audience to emergency vehicles or medical care staff close to the stage. All passageways should be kept under surveillance if there is a risk that they will be used by unauthorised persons.

Read more about:

Photography in front of the stage in *Section 18.4.6.*

Sightlines in *Section 8.2.6.*

All passageways into the stage pit should be monitored by safety staff.

8.1.2. Backstage

The area behind the stage is called the backstage area. This area often holds various facilities for performers, stage personnel, and production staff. A larger outdoor stage often needs proper transport roads to and from the area, and enough space to park lorries and tour buses.

The area behind the stage should be designed so that lorries can be parked up against the loading ramp. It is also important that this area has appropriate dimensions to be able to include facilities for medical care, and in certain cases also sufficient room for emergency vehicles.

8.1.3. Photo pit

If there is enough space, a special photo pit can be set up. The purpose is to separate the pit staff from the photographers so that these two groups are not in each other's way. The photo pit can be enclosed or marked out so that photographers will not move around outside the photo pit.

The photo pit should be dimensioned on the basis of the expected number of photographers. One alternative here is to restrict the number of photographers or to limit the size of the stage pit. At smaller concerts, where there is less attention from the media, the presence of the media in the stage pit can be managed through monitoring and being clear about where photographers are allowed to be.

8.1.4. Front of house mix position

The front of house mix position (FOH) is the place from which the sound and lighting technicians control the sound and lighting of the stage. In other words, it is a place of work for sound and lighting staff. The mix position should therefore not be used for spectator placement of guests or event staff.

The FOH mix position usually obstructs the sightlines for the audience. At the same time, the placing of this position is partly governed by technical demands. Always locate an FOH mix position in consultation with the sound and lighting supplier.

The FOH mix position is normally sited directly in front of the stage, a bit out into the audience area, where crowd density is expected to be lower. However, if an FOH mix position is to fill its function as a control centre for sound and lighting, there are technical limitations concerning where and how far from the stage it can be located. For this reason, an FOH mix position should always be sited in consultation with the sound and lighting supplier.

The FOH mix position often has to be monitored in order to avoid vandalism or trespassing. A large audience can also contribute to a high crowd density and thus to a risk for the crushing of people near the mix position. It is therefore a good idea to enclose the FOH mix position with stage barriers and have it guarded by pit staff.

In most cases an FOH mix position obstructs audience sightlines. This means that often there are no audience members in the area directly behind it. One can therefore place, among other things, medical care facilities, observation posts for safety staff, or vendor booths in this area. One can also endeavour to construct a long and narrow FOH mix position in order to reduce the loss of lines of sight. In order to avoid losing audience space behind an FOH mix position, one or several LED screens can be used in order to compensate for the obstruction of sightlines.

Read more about:

The event health and medical care organisation in *Section 5.7.*

8.1.5. First-aid area adjacent to the stage

Medical care staff should be present either close to the stage or on site next to the stage area. At larger gigs, and at gigs where a high crowd pressure is expected, medical care staff should always be available near the stage. It is desirable to establish a first-aid area directly adjacent to the stage pit and, if possible, also behind the mix position. In the first-aid area, the event's medical care staff can look after members of the audience who feel ill or have injured themselves.

A first-aid area near the stage should

- be adequately staffed;
- be placed out of the way of regular walking routes;
- be protected from view by members of the audience;
- be protected from view by members of the press out of respect for people who have injured themselves and in order to give the staff working there peace and quiet to accomplish their work;
- be located close to emergency access roads, i.e. access roads for emergency vehicles;
- be equipped with sleeping mats, blankets, and water;
- be appropriately dimensioned and be possible to scale up in the event of major incidents;
- be well lit;
- be protected from wind and weather;
- have a generously proportioned waiting area and turnaround space for any ambulance transports.

First-aid areas next to stages should be sited in locations with low crowd density, but where they at the same time are easily accessible to the audience.

At larger events an ambulance can be stationed in the vicinity of the of first-aid area adjacent to the stage in order to reduce response times. It can also be a good idea to deploy medical care groups around the entire audience area near the stage at larger gigs, so that injured visitors can make their way to the back and out of the crowd.

There should also be a plan for how injured people can be evacuated from places that are surrounded by a crowd (e.g. the FOH mix position). There may, for instance, need to be staff who prepare the way for stretchers or gurneys.

8.1.6. LED screens

A large distance between the stage and the audience members at the rear of the audience area can create a strong forward pressure in the crowd. LED screens adjacent to the stage offer the members of the audience at the back a better experience, which can reduce this forward pressure. LED screens are usually placed to the sides of the stage or behind the FOH mix position.

The following should be kept in mind when using an LED screen:

- The performer must be informed that an LED screen will be used.
- Do not place the LED screens so that they obstruct audience members' sightlines to the stage.
- Select an LED screen that is appropriate to the field of application. For instance, not all LED screens are optimised for daylight or text display.
- Make sure that the scaffolding, the stage, or the underlying surface where an LED screen is placed can withstand its weight. It may be necessary to consult the stage supplier or examine the bearing capacity of the ground before determining the placement of an LED screen.

8.1.7. Grandstand for guests

At many events a grandstand for guests is used in order to offer specially invited persons, often the guests and sponsors of a performer or the organiser, a more comfortable place to experience a performance. Place the guest grandstand in a location that offers a satisfactory experience of the performance without taking up an excessive amount of the audience area or obstructing the view for audience members.

8.1.8. Platforms for people with disabilities

At indoor events and arena events, people with disabilities can often use the existing spectator seating. However, remember to ensure that the route to these seats is accessible for people in wheelchairs. At outdoor events, an organiser should construct or partition special stands reserved for people with disabilities. These are often called wheelchair-accessible stands, but other people should also be able to use them if they need to be able to sit down because of a functional impairment.

8.2. The siting of the stage

The stage and the siting of it and its peripheral areas are particularly important decisions to be made from a safety perspective, because many people will assemble at the stage. The security coordinator of the event should therefore participate in discussions concerning how stages and their audience areas should be sited and dimensioned.

When siting a stage, the following should be taken into account:

- the capacity of the audience area;
- the characteristics of the underlying surface in the audience area;
- geographical factors;

Read more about:

Temporary stands in *Section 13.7.1.*

Stands for people with disabilities in *Chapter 15.* Crowd capacity in *Section 6.3.*

Different types of surfaces in *Section 6.1.2.*

Focal routes in *Section 6.3.1.4.*

Evacuation routes in *Section 9.5.*

LED screens adjacent to the stage offer the audience at the back a better experience, which can reduce the pressure forward.

- entrances and exits to the audience area;
- evacuation routes;
- emergency access roads;
- sightlines.

Remember that audience safety is always the top priority in the siting of a stage. All compromises that reduce the suitability of the area increase the risk of an accident happening.

Read more about:
Transport roads and emergency access roads in *Section 7.3.6.*

8.2.1. The capacity of the audience area

The audience area has to be sufficiently large to hold everyone who wants see the concert. Make a point of calculating the capacity of the audience area on the basis of the *actual* audience area.

Audience safety is the top priority in the siting of a stage.

8.2.2. The nature of the surfaces of the audience area

It is important that the underlying surface of the audience area is durable and can withstand the wear to which visitors will subject it. Keep in mind that the stress is greater when there is precipitation. The surface of the audience area at the stage should be level and free of objects and irregularities that people can trip over.

Less suitable underlying surfaces, such as meadows or lawns, can be reinforced by spreading out wood chips or bark. The bark will absorb moisture and reduce both the risk of slipping and the wear on the surface. These measures can however be expensive, not least because of the costs involved in restoring the surface to its original condition following the event. There are also other types of ground protection, such as plastic mats or steel plates. Contact a knowledgeable supplier to discuss possible options.

At indoor events a floor may need to be protected from damage. Fire-resistant tarpaulins or mats can be used, but make sure they do not pose a tripping hazard.

The underlying surface of the audience area at the stage should be level and free of objects and irregularities that people can trip over.

8.2.3. Geographical factors

At outdoor events the stage should be placed so that people living in the neighbourhood are taken into consideration. If possible, place the stage so that it is directed away from residential areas in order to reduce the sound level for local residents. Try also to use natural sound barriers, such as forests and differences in the levels of the local topography. Consider also whether the immediate surroundings can disturb a performance, for example noise from a busy road or an airport. Furthermore, site the stage so that it is situated appropriately in relation to sunrise and sunset, and use this siting to enhance the experience of visitors.

8.2.4. Audience routes to and from the stage area

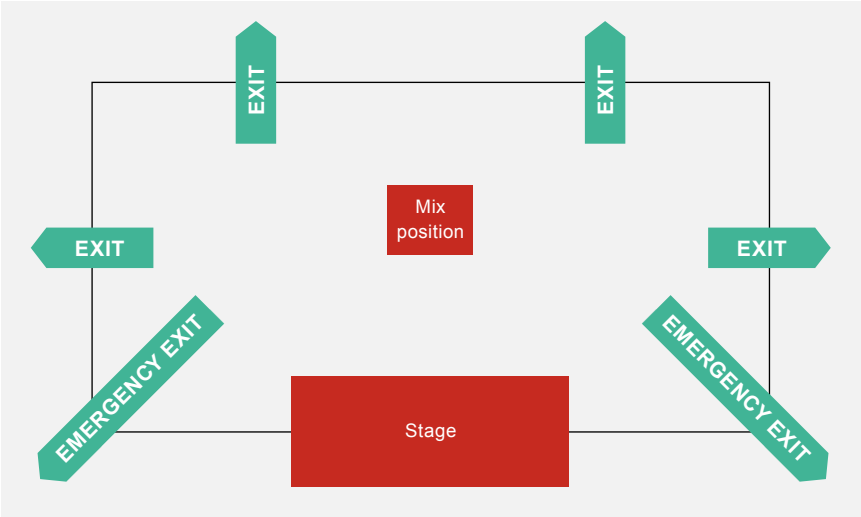
The stage and the stage area should be placed so that there are good opportunities for members of the audience to get to and from the audience area. The routes audience members use in order to reach the audience area should be well-dimensioned in order to avoid congestion when the audience members pass in and out. These focal routes are especially vulnerable before and after a performance.

The evacuation routes should be sited so that everyone in the audience can easily reach an exit from the audience area. If possible, locate emergency exits on both sides of the stage. The evacuation routes must always

Evacuation routes should be placed so that everyone in the audience can easily reach an exit from the audience area. If possible, place emergency exits on both sides of the stage.

be clearly signposted and the audience should be informed of exactly where they are.

Figure 16. Placement of emergency exits



An example of well-placed emergency exits

8.2.5. Transport roads and emergency access roads at stages

Performers and production staff need transport roads to the area behind the stage. In addition, these transport roads must be generously dimensioned because the vehicles in question are often large trailers. Make sure that the transport roads are separated from the audience areas in order to reduce the risk of someone being hit by a car or of a rush towards a performer's vehicle. A rule of thumb is that transports should never be driven through an audience area.

In an emergency situation, emergency vehicles must be able to reach both the backstage area and the audience area without being impeded. The siting of emergency access roads for emergency vehicles near the stage should therefore be discussed with the local fire and rescue services.

8.2.6. Sightlines

A sightline is a line of free sight between the audience and an object being viewed. Sightlines affect how an audience moves and where audience members prefer to stand or, respectively, avoid standing.

Review the sightlines for the stages. This can provide information about where the audience members will want to stand. In connection with this review, determine also whether some areas can be made more or less attractive for an audience by changing the sightlines. Siting the stage at a slightly different angle can, for instance, change the sightlines radically.

It is important that an audience has a broad sightline to the stage. This will reduce the risk of the audience moving forward and inwards towards the centre of the stage in order to obtain a better view. Sufficiently broad sightlines counteract a crowd density that is too high in front of the stage and will therefore reduce the risk of injury.

Review the sightlines for the stages. This can provide information about where audience members will want to stand.

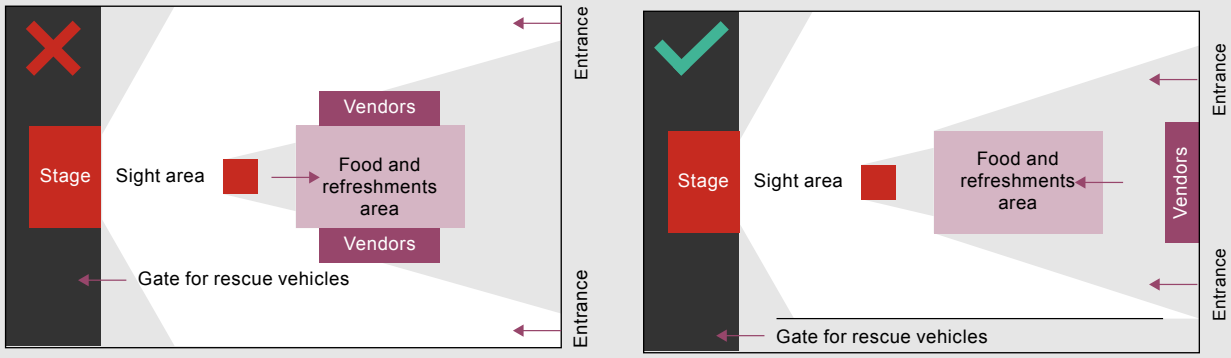
Try to make sure there is a broad sightline to the stage in order to avoid having the audience move forward and inwards towards the centre of the stage in order to get a better view.

Sometimes it can be necessary to limit the audience's view of the stage. This can be done by blocking the view from certain areas in front of the stage by using planks, curtains, or the like. In some cases, these so-called *sightline kills* can be used strategically in order to reduce the crowd volume in specific areas, for instance adjacent to a gate in the stage barrier, next to an ambulance access road, or in medical care areas. Sightline kills can also be used to create blind areas on the edges of a crowd, where audience members can go in order to relax.

Avoid offering good sightlines to the stage directly in front of the entrance to the audience area. If this happens, the result may be that audience members prefer to remain just there, and it can then become difficult to fill the entire audience area efficiently.

Read more about:
Safety work around the stage in *Section 19.5.*

Figure 17. Examples of the effects of sightlines



In the picture on the left there is a risk of congestion inside the entrance, and it may be difficult to reach the entry to the food and refreshments area or shop from vendors. In addition, the emergency access road is blocked. By having a good understanding of sightlines and making a few changes this can easily be avoided.

8.3. Stage barriers

In most cases some type of stage barrier is needed to separate the audience area from the stage.

A stage barrier fulfils several purposes:

- It offers the audience support in the form of a smooth, solid surface at a reasonable distance from the stage.
- It offers the stage staff a clearly-defined work area in front of the stage.
- It prevents the audience from reaching the stage and a performer.

Depending on the gig and the number of people in the audience, different types of barriers can be chosen. At a gig where low or no crowd pressure is expected, the purpose of the stage barrier is mostly to separate the stage from the audience area, provide a work area, and present what is an almost symbolic barrier. In such cases, the stage barrier does not have to be of the same quality and design as one used at a gig with high crowd pressure.

At gigs where high crowd pressure is expected, a stage barrier should be chosen that is intended specially for the purpose of dealing with that pressure. A stage barrier should be made to withstand crowd pressure and must under no circumstances collapse. Also make sure that it is possible to run a multicable through the stage barrier from the stage to the mix position.

At gigs where high crowd pressure is expected, a stage barrier should be chosen that is intended specially for the purpose of dealing with that pressure.

Under some circumstances, a stage barrier may be unnecessary, for instance at smaller events with few visitors, awards ceremonies, or panel discussions. At such events there is no need for a workspace in front of the stage, and visitors naturally choose to stay at a distance from the stage, for instance when there is a seated audience.

8.3.1. The construction of a stage barrier

Modern stage barriers have an A-frame construction and are equipped with a footplate for increased stability. Stage barriers should preferably be assembled to be free-standing in front of the stage. They can also be connected to the stage for extra support, but only if the stage is designed to withstand lateral forces.

There are no regulations for how much pressure a stage barrier must withstand. However, it is recommended that stage barriers be used that can withstand a horizontal crowd pressure of at least 10.0 kN (kilonewton), i.e. a little over 1,000 kilogrammes of pressure per metre.

Check the following with respect to the construction and arrangement of a stage barrier:

- Is the front of the stage barrier smooth without jagged edges or gaps where hands, feet, or other body parts could be crushed by crowd pressure?
- Is there a risk that the stage barrier moves or subsides under pressure so that hands, feet, or other body parts could be injured?
- Does the stage barrier have a rounded top rail in order to facilitate lifting members of the audience across the barrier?
- Are there protruding bolts or screws on which members of the audience or people working in the pit could injure themselves?
- Is there a footplate that the audience members can stand on, thereby fixing the barrier in place? The larger the footplate, the better a stage barrier will withstand crowd pressure.
- Does the footplate on the audience side of the barrier pose a tripping hazard for audience members?
- Is there a step on the stage side of the stage barrier? This step makes it easier for pit staff to lift members of the audience across the barrier, and functions as an observation point from which the pit staff can get an overview of the audience.

A slick surface can lead to the barrier sliding in the event of high crowd pressure. This can be counteracted by increasing the friction between the barrier and the underlying surface or by anchoring the barrier.

8.3.2. The surface of a stage barrier

The surface on which a stage barrier stands plays an important part in determining how much stress the barrier can withstand and how it will act under crowd pressure.

- **A hard surface** (e.g. asphalt, cobble stones, concrete, or certain kinds of ground protection) can lead to a stage barrier sliding towards the stage if there is high crowd pressure. This can be remedied by increasing the friction between the stage barrier and the underlying surface, for instance by using rubber mats or the like. Another option is to place pallets between the barrier and the stage, but the stage must then be designed to withstand a certain amount of lateral pressure. The stage supplier should therefore always be consulted before pallets are used.

- **A soft surface** (e.g. a lawn or a meadow) may lead to a stage barrier sinking into the ground. This can lead to tension on its construction and to the stage barrier subsiding after a period of time. In such cases gaps can develop or be closed, which involves a risk of body parts being crushed.

Remember that a stage barrier with a large footplate reduces the risk of that stage barrier being moved by crowd pressure, and that a muddy underlying surface can lead to the barrier sliding, so that members of the audience risk slipping and falling.

Photo: Fredrik Ericsson

8.3.3. Erecting a stage barrier

The type of barrier arrangement chosen is determined by the size and type of concert, the audience profile, and the expected crowd size. However, a stage barrier should be set up in such a way that it is comparatively easy for members of the audience to move away from areas with high crowd pressure.

Regardless of how the stage barrier is set up, all parts of the stage barrier that come into contact with the audience should be manned. There is always a certain risk that members of the audience may become trapped or be injured by being pressed up against the barrier. For this reason, unmonitored stage barriers (so-called breakwaters) should not be used in the crowd.

All parts of the stage barrier that come into contact with the audience should be staffed.

Keep the following in mind:

- **Angles:** Sharp angles in a barrier arrangement should be avoided. Angles should be made wide enough that there is no risk that members of the audience may become trapped or find it difficult to get away from the location because of high crowd pressure. If a member of the audience becomes trapped in an angle it can be difficult for them to escape. For this reason, the pit staff should keep angles in the stage barrier under careful observation.

- **Podium, catwalk, thrust, and risers.** At certain gigs a long podium (a so-called *catwalk*) is used to allow a performer to get closer to the audience. A podium should be lower than the stage itself, otherwise the sightlines will be blocked for the audience members standing along its sides. Podiums should also be equipped with stage barriers. The stage barrier should surround the entire podium and allow sufficient workspace for the pit staff between the podium and the stage barrier. Keep in mind that such constructions can affect the evacuation routes of the venue. In the event of uncertainty, you should collaborate with the fire and rescue services and provide them with technical drawings of the stage when applying for a permit.

8.3.3.1. Straight barrier arrangement

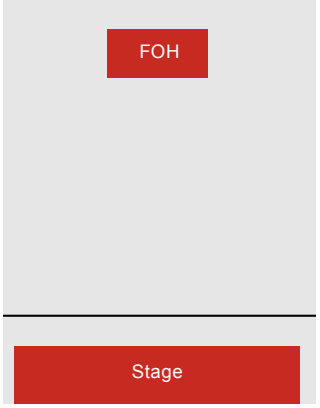
At smaller gigs, gigs with limited space, or gigs where low crowd pressure is expected, a straight barrier arrangement can be used. However, when there is enough room and it is possible to do so, a convex or angled barrier is always recommended.

Straight barrier arrangement

Advantages: Easy to build.

Drawbacks: Will not prevent the development of crowd surges. No increased work space in the area with high crowd pressure.

Figure 18. Straight barrier arrangement



8.3.3.2. Convex barrier arrangement

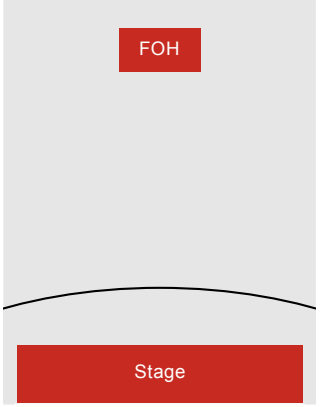
At medium-sized gigs where a certain crowd pressure is expected but where there is little risk for crowd surges, a convex stage barrier can be used. This arrangement is rounded or angled and curves out towards the audience at its centre. This outward curvature can be modified as needed. Make sure that there is always enough space at the sides of a convex barrier arrangement, so that those audience members who drift out towards the sides have enough free space. A curved or angled barrier must never be concave, i.e. it must never curve inwards towards the stage at the centre.

Convex barrier arrangement

Advantages: A larger work area where crowd pressure is at its highest. It is easier for members of the audience to move away from the centre of the stage. It increases somewhat the number of places for spectators in the front row.

Drawbacks: The stage pit takes space from the audience area. An increased distance between a performer and the audience can reduce somewhat the quality of the experience for audience members. That there should be enough space at the sides of the stage barrier.

Figure 19. Convex barrier arrangement



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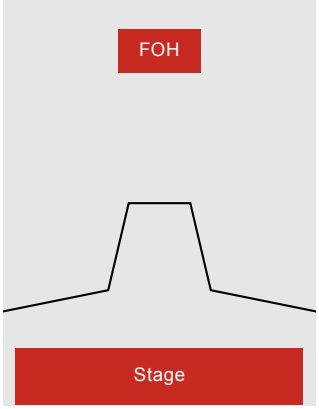
8.3.3.3. Pier barrier

At large concerts where there is a high risk of crowd movement and crowd surges, a barrier arrangement known as a pier barrier can be used. This arrangement involves a convex barrier arrangement with a pier projecting out into the audience area. The length of the pier varies, but the width should be sufficient for the pit staff to be able to work inside the pier. A barrier arrangement with a pier should be constructed so that sharp angles are avoided. Always endeavour to make the angles as wide as possible.

Figure 20. Finger barrier



Pier barrier

Advantages: Provides good protection against lateral crowd surges and crowd movement. Offers a large work area where the crowd pressure and crowd concentration are at their greatest.

Drawbacks: The pier takes space from the audience area. An increased risk of turbulent crowd movement or members of the audience becoming trapped at the base of the pier.

8.3.3.4. Barrier arrangement with enclosures

At large gigs with a large crowd, or where high crowd pressure and the risk of major crowd movement can be expected, a barrier arrangement with double barriers or with separate enclosures should be considered. This means that a barrier system is constructed with two or more stage pits that are equipped with barriers even at the back of each. The back barriers do not have to be of the same quality as the stage barrier on the audience side. The extra stage pits divide the audience area into enclosures. By way of an entry check, an organiser can then control the crowd density in each enclosure. When an enclosure is full, the organiser can close it for entry and in this way avoid allowing it to become overfull. All pits and parts of the barrier system should be guarded by pit staff. In order for the pens to be filled safely and efficiently, the entrances should be placed outside the sightlines to the stage. If the entrances are placed inside the sightlines, constant crowd pressure will be directed towards the entrance. This will impede controlled entry and can lead to great difficulty in closing the entrances once the enclosure has been filled. The exit of an enclosure should also be placed outside the sightlines to the stage in order to avoid being exposed to crowd pressure or being blocked by spectators. If a barrier arrangement with enclosures is chosen, it is important to review the evacuation possibilities of the various enclosures. There must be appropriate evacuation opportunities and procedures for evacuating the audience from the pens.

Using a barrier arrangement with enclosures places high demands on crowd management. It is important that an organiser ensures that each enclosure is filled to an appropriate level and that the audience is informed about how to find their way to and from different enclosures. At many concerts with an enclosure (which is often called a *golden circle*) this is dealt with by using special tickets or access certificates allowing access to special entrances.

Barrier arrangement with enclosures.

Advantages: Offers good opportunities to control both crowd density and crowd pressure. Provides protection against lateral crowd surges and crowd movement. Provides a large work area where crowd pressure and crowd concentration are at their greatest. No overcrowding far back in the section, which produces calm areas to which members of the audience can go if they feel unwell.

Drawbacks: A somewhat reduced experience for those in the audience who wish, but do not have an opportunity, to reach the first section. More difficult to provide good evacuation possibilities for the audience members closest to the stage. This option requires a large number of staff. Careful planning is required in order to avoid risks when filling, emptying, or evacuating the enclosures.

Figure 21. Enclosure arrangement (golden circle)

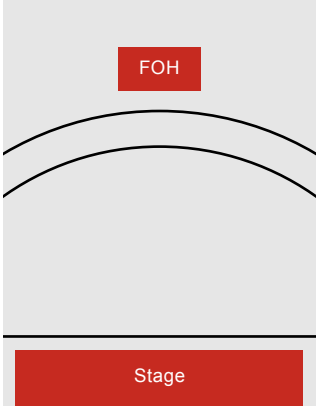


Figure 22. Double enclosure arrangement

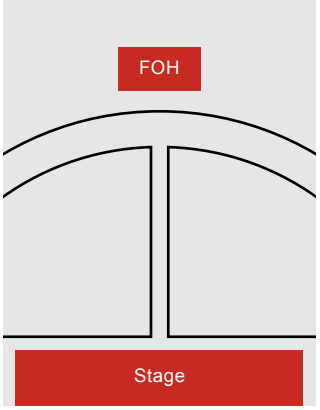
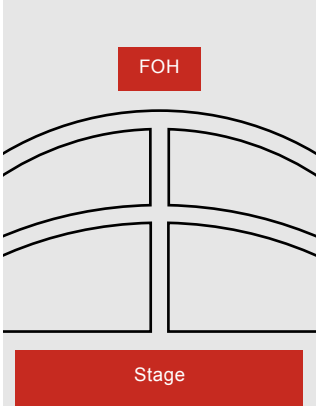


Figure 23. Four enclosures



9. Entrances and exits

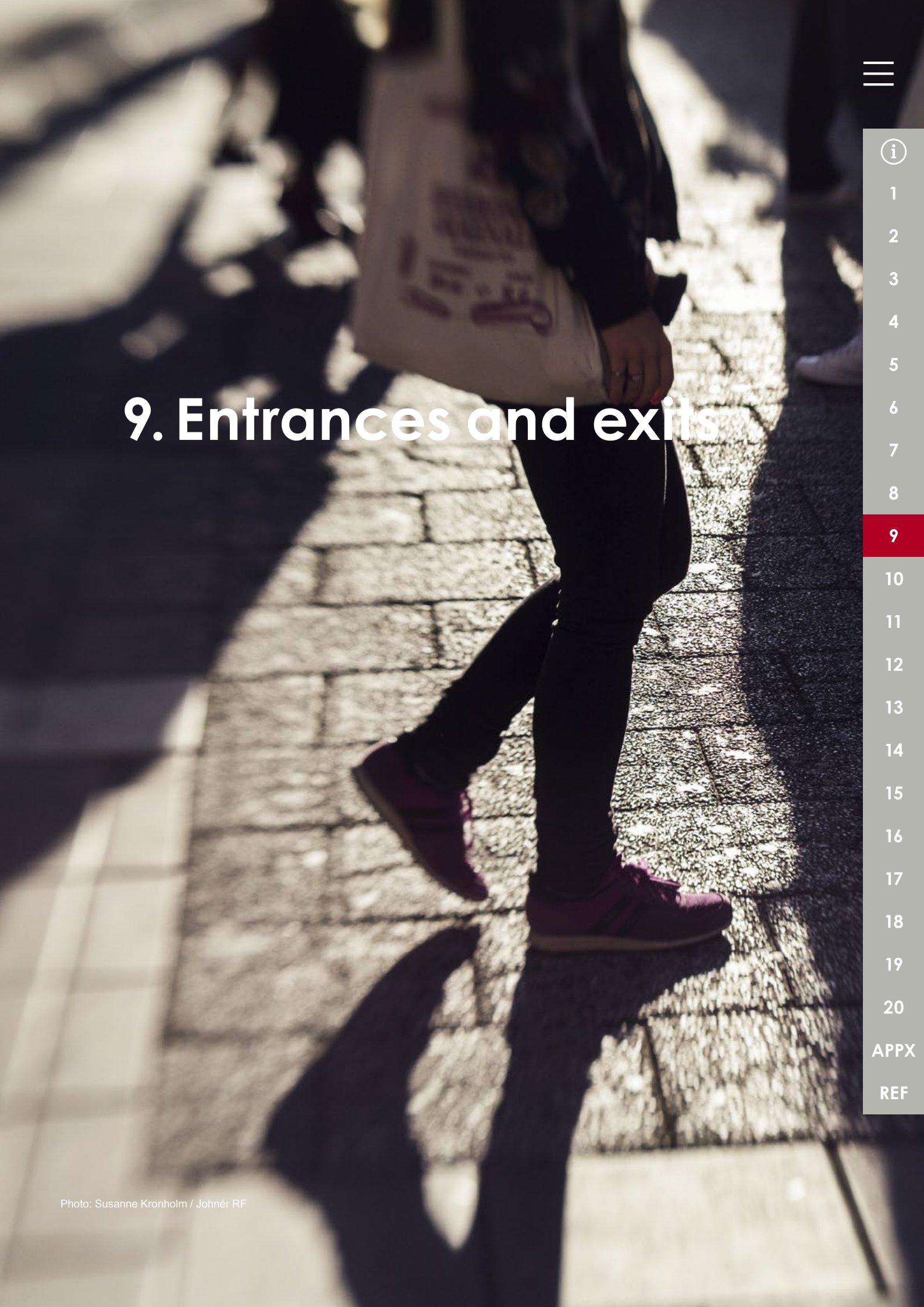


Photo: Susanne Kronholm / Johnér RF

9. Entrances and exits

Entrances and exits are major focal points of an event or an arena. Statistically speaking, they are also some of the major risk areas of an event, because they easily become bottlenecks in a large crowd flow. In addition, at certain events all visitors pass through entrances or exits several times, which often gives rise to queues or crowds. This increases the risk of high crowd pressure and irritation among visitors as well as a vulnerability to antagonistic attacks. A well thought-out siting, dimensioning, and handling of event entrances and exits can therefore reduce many risks.

Read more about:
Working at entrances in *Section 19.2.*
Access restrictions in *Section 4.1.1.2.*

9.1. Placement of entrances and exits

The siting of entrances and exits should be well-thought-out when designing a venue, because it affects crowd flow both inside and outside the venue.

Separating different audience categories from each other by using separate entrances has a number of advantages. For instance, it will split up the audience into several flows, facilitate the work of the staff, and streamline the individual flows. The regular audience should be separated from VIPs and the media, and areas designated for standing should be separated from the seating area. Bearers of special tickets (which for instance require an extra bracelet) should also have their own separate entrance to streamline the flow. At an event with rival supporters, these persons should also be provided with separate entrances.

It is also a good idea to place procedures that take a long time to complete per person, such as ticket sales or the exchange of tickets for access certificates, at another location than an entrance.

At an event there is only one thing that is more boring than queueing, and that is standing in the wrong queue. Make sure that it is made clear, above all at the beginning of the queue, which queue starts where. Standing in a queue for a long time only to discover that you have queued for nothing and must therefore move to a different queue, is a source of great irritation which, not unreasonably, can be directed towards an organiser. There should be plenty of space on both sides of an entrance: on the outside for queueing and for any possible queueing system, and on the inside for maintaining a good flow of visitors who have just passed the entrance. There should also be enough room to turn away visitors who will not be admitted. For this reason it may be advisable to station a public security guard at the entrance.

Ensure that the area immediately inside an entrance or outside an exit is not too attractive, i.e. make sure that visitors will not stop there but are encouraged to move along.

At certain sports events, visitors sometimes try to bring in items that risk disturbing public order or safety during an event (e.g. knives or pyrotechnics). People who are found to possess such items in the arena site can have access restrictions placed on them. In other words, an item found during a frisk search cannot form the basis of an access restriction unless the search itself took place inside the arena site. It is therefore important to both clarify and communicate in advance where the arena site begins and ends.

Audience members will often try to leave by the same route as the one through which they entered. Entrances and exits should therefore be located close to, but be separate from, each other in order to avoid conges-

tion or overcrowding. The area around entrances and exits should be kept free of traffic and focal points such as vendors or performances. Ensure that the area immediately inside an entrance or outside an exit is not too attractive, i.e. make sure that visitors do not stop there but are encouraged to move along. It is a good idea to arrange organised meeting places for the audience a short distance into the event site.

Queues can also be an attractive target for terrorist attacks. It is therefore important that entrances and queueing areas are not easily accessible to vehicles – regardless of whether the vehicle is driven by a person who simply loses control of it or by someone engaged in a malicious vehicle attack.

Read more about:

Zones in *Section 6.5.*

Safety work at entrances in *Section 19.2.*

Dealing with bottlenecks in *Section 6.4.3.1.*

9.1.1. Safety distances and buffer zones

The largest assembly of people, and thus the most attractive target for a terrorist attack, is inside the venue itself, for instance in the form of a stand or an audience area in front of a stage. This means that the closer to the centre of the venue the audience is, the more monitored it should be.

An organiser should preferably have a buffer zone between the queueing area at the event and the surrounding neighbourhood. In this way, the buffer zone can provide a safety distance between the local neighbourhood and the crowd queueing outside an arena. This buffer zone should be free of vehicles and should be delimited by vehicle barriers.

A buffer zone can be demarcated by an outer control line manned by stewards. This line can be a so-called soft line, where stewards show people the correct route, answer questions, point out forbidden items (e.g. bags that are too large), and check and observe suspicious behaviour. It can also be a so-called hard line, where bags are searched while at the same time the stewards control suspicious behaviour before the audience reaches the ticket inspection.

If there is a risk for long queues, consider having a buffer zone as a safety distance between the queueing area and the surrounding neighbourhood.

An organiser can also choose to have several zones with steadily increasing security and control as the audience approaches the venue, for instance according to the following:

1. First a vehicle-free area with patrolling staff who observe suspicious behaviour or suspicious items.
2. Then a bag-free area where staff interact with visitors and take note of suspicious behaviour.
3. Following this, an area with frisk searches.
4. Finally ticket inspection and admission to the venue.

In these cases it is important to ensure that crowd flow between the zones does not lead to any section becoming overfull or crowd pressure developing. This requires a well-thought-out method of working, as well as vigilance and clear communication among the safety staff.

9.1.2. Surface conditions at entrances and exits

An entrance or exit should be located on a level surface. Slopes or level differences may lead to undesirable pressure developing in the direction of the slope, and thus to increased risks.

Wear and tear from visitors should not lead to the underlying surface becoming unusable. Try therefore to place entrances and exits on asphalt, gravel, or reinforced grass. In addition, lawns, meadows, and the like will easily become muddy and slippery following precipitation. In the winter,

snow and ice can lead to an increased risk of falls outside the venue as well as inside it, because snow dragged in through an entrance poses a hazard of slipping. In order to avoid accidents, you should therefore make sure to clear and sand the area in good time prior to and during the event.

9.1.3. Siting of entrances and exits versus crowd flow

Entrances and exits constitute bottlenecks in crowd flows, and bottlenecks entail many different types of risk.

It is important to chart how the audience moves on their way to and from the venue, as well as inside it. Often there are more or less favoured crowd routes, and the siting and design of entrances and exits affect the crowd routes both inside and outside the event.

When there are several entrances and exits to an event, it is a good idea to site them so that crowd pressure is evenly distributed. If possible, try to site the entrances and exits so that they meet the crowd flow at ninety-degree angles. Visitors tend to move towards that part of an entrance that is closest to them, which means that the number of visitors will not be evenly distributed if an entrance or exit is obliquely angled.

Remember to place entrances so that audience areas without booked seats will fill up smoothly. Visitors often stop as soon as they end up in a location where the sightlines offer a good view, which can mean that they do not distribute themselves evenly across the entire audience area. It can therefore be a good idea to place the entrances to the audience area at the back of the area, or to have multiple entrances that fill the audience area from several directions.

Visitors who remain standing just inside an entrance can form an obstacle for other people entering the area. It is therefore important that visitors continue further on into the area. This means that focal points should not be placed beside the entrance, and that focal routes should not pass directly by an entrance.

The following measures can reduce the risk of audience members stopping just inside an entrance:

- Deploy safety staff or stewards to show people the correct routes, distribute leaflets, maps, etc., and encourage visitors to continue moving forward.
- Any cloakrooms should be sited a short distance inside the area or the premises.
- Make sure that stages, food outlets, toilets, etc. are well signposted.
- It is a good idea to organise meeting places for audience members a short distance inside the venue, within sight of the entrance but in a location where they do not pose a risk of congestion.
- Avoid having a good view of stages or other attractions from directly inside an entrance.
- Make sure that crowd flows to and from entrances and exits do not intersect. This is especially important when an entrance and exit are placed beside each other.
- Avoid having activities or performances that cause visitors to stop in close proximity to an entrance.
- Avoid playing loud music at the entrances, because this makes communication among the staff and between visitors and staff more difficult.

Read more about:

Sightlines in *Section 8.2.6.*

Focal points and focal routes in *Section 6.3.1.*

- Avoid having intersecting queues to different entrances.
- Improve the working environment for the staff, and thereby the flow, at events with high crowd flow by building a narrow passage located just after the entrance. This passage prevents people from returning, for instance in order to ask questions.

Read more about:

Crowd management routines in *Section 16.6.*

Safety work around entrances and exits in *Section 19.2.*

Entrance capacity in *Section 6.3.2.*

9.2. Dimensioning of entrances and exits

Entrances and exits are bottlenecks that disrupt the crowd flow because visitors tend to stop, and then crowds form. A crowd is not in itself dangerous, and it is in any case next to impossible to prevent a crowd from forming at an entrance or exit. In contradistinction, there are certain negative consequences from undersized entrances and exits:

- **High pressure and overcrowding.** A crowd next to an entrance or exit can mean that crowd pressure towards an entrance or exit increases.
- **Annoyed visitors.** Standing in a queue that is not moving is frustrating to many people.
- **Attractive target of an attack.** Many people in the same place pose an attractive target.

Even if it is difficult to prevent queues from forming in front of an entrance or exit, an organiser can facilitate the queueing by making sure that passage through the entrance is smooth. The following rules of thumb can apply when dimensioning an entrance or an exit:

- Select dimensions that will avoid bottlenecks.
- Decide dimensions on the basis of the assumption that more visitors than planned might arrive at the same time.
- Decide in advance how a growing queue should be managed: Should more lanes be opened? Should more staff be summoned?

Always decide on dimensions for an exit on the basis of the assumption that more visitors than planned will be using it.

9.2.1. Dimensioning of the entrance

The number of entrances and their sizes depend on how many visitors are anticipated, under what time span they are expected to arrive, and what the admissions procedures look like. Try to estimate how many visitors are expected to arrive at various times. Keep in mind that this can vary significantly depending on the type of event that is being arranged:

- If it is a single concert, or a relatively short event, the entrance has to be able to handle all visitors during an acceptable, but comparatively short, period of time.
- At whole-day and multiple-day events, the pressure of visitors at the entrances is not as great. On the other hand, such events require a more careful investigation into *when* the audience can be expected to arrive, and of how many people will arrive at various times.

Always determine the dimensions of an entrance on the basis of the assumption that more people than expected will arrive at the same time and that people with functional impairments must to be able to use the entrance.

All entrances should be capacity-calculated and built to handle the most intensive of the event's crowd flows. Together the entrances should have a capacity that can easily respond to the crowd peaks of the event, so that

the admission of people is always accomplished smoothly and under control without excessively long queues forming. Here one can also rely in part on crowd management procedures in order to increase the inflow speed.

An entrance should be dimensioned so that capacity can be increased when necessary. It is therefore a good idea to construct a few extra lanes, if possible. These lanes should be prepared in the same way as the regular lanes. If an event has several entrances, you should try to estimate where the visitors are expected to arrive at the event. The busier entrances can then be dimensioned so that they can handle the expected crowd numbers.

The following applies to an entrance lane:

- It should be at least eighty centimetres wide.
- If it is to be used as an evacuation route, it must be at least 1.2 metres wide.
- If the lane is to be accessible to people with functional impairments, it should be at least 1.3 metres wide, level, and free of obstacles.

9.2.2. Dimensioning of an exit

At most events, practically the entire audience will leave the venue at the same time. This translates into high crowd pressure on the exits. The exits must therefore also be properly dimensioned.

Which exit visitors choose varies depending on the event. Many visitors choose to leave by a route they know, and exit where they entered. Sometimes a visitor will choose the exit that is closest to the location where he or she is at the conclusion of the event, or the exit that is located best with respect to the direction in which he or she wishes to go after leaving the event. A prerequisite for this behaviour is, however, that the exits are known or clearly communicated. If not, visitors will choose routes they are familiar with.

Analyse which exits visitors will be using and dimension the exit capacity of the event on the basis of the planned number of visitors.

Ensure that there is always sufficient capacity to open up an exit or enlarge one if necessary. Always decide on the dimensions of an individual exit on the basis of the assumption that more visitors than planned will be using it. If it is possible to do so, the event can install special exits that are opened once the event is over. These extra exits are only used when the entire event site is emptied – not during the event itself.

At certain events the audience is allowed to leave the venue and then to return. If tickets are only inspected at ingress and egress, a ticket has to be scanned both coming in and going out, which means an increased workload and increased hassle. At events where this is common audience behaviour, it is therefore recommended that the visitors be allowed to trade in their tickets for bracelets, hand stamps, or some other kind of proof of access that cannot be turned over to someone else. This both counteracts cheating and simplifies the procedure for the staff.

An organiser can dimension the staffing and entrances to handle ingress and egress during the event, but it is also possible to apply a 'no readmittance' policy. However, if such a policy is in effect this must be spelled out clearly, both during the sale of tickets and at event entrances and exits.

Read more about:

Evacuation routes in *Section 9.5.*

Accessibility in *Chapter 15.*

Exit capacity in *Section 6.3.2.5.*

9.2.3. Queueing system

If you expect a large audience to arrive during a short period of time, it can be advisable to have a queueing system with lanes. This reduces the risks of disorder and overcrowding at the entrance. The purpose of a queueing system is to create a narrow queue of visitors designed so that each visitor can easily be served when reaching the entrance. The lanes must not be too wide. Several people should not be able to stand side by side.

Entrances always involve a balance between precision and speed. When designing an entrance it is important that a safety measure does not indirectly create a new safety problem. In the event of an increased risk of harm or an elevated threat profile, event security measures should be increased. But the more careful the frisk searches and the controls are, the slower the flow. And the slower the flow, the higher the vulnerability to antagonistic threats towards a larger queue formation, and the greater the risk of overcrowding and irritation.

In certain audience types (e.g. risk supporters at sports events), controls at an entrance that are perceived of as being excessive can create greater incentives to disturb public order. This type of audience often looks for justifications to cause trouble.

Entrances for risk supporters should, if possible, be kept separate from other entrances in order to create a smooth inflow and reduce irritation among visitors from other audience categories.

Frisk searches and admission should be arranged in such a fashion that

- a smooth and satisfactory crowd flow can be maintained for the entire time the entrance is open;
- queues do not swell past planned boundaries;
- shell protection can be maintained and sufficiently careful frisk searches can be conducted.

In the event of an increased threat profile and enhanced frisk searching, it may be necessary to use other tools in order to achieve the desired results. Examples of such tools are

- tickets with specific admission times;
- several entrances;
- more staff;
- a greater queueing area;
- a longer admission period;
- technical aids.

Once visitors have entered the queueing system, their place in a queue must be ensured. Overcrowding and disorder then become less attractive and increased pressure at the entrance itself is avoided. The queueing system can also be constructed so that pressure from behind cannot be transmitted forward.

It is important to always construct a queueing system so that people who are in a queue can easily move away from it. It is therefore normally not appropriate to construct a queueing system from building site fencing, because this makes it more difficult to leave the queueing system and to rescue queuers if necessary. Instead, waist-high fences should be used.

Read more about:

Dealing with bottle-necks and crowd congestion in *Section 6.4.3.1.*

Avoid having lanes that are too wide in a queueing system

A queueing system can either consist of straight or zigzag-shaped lanes or a system with enclosures:

- **A straight design** often allows for a quicker flow for the visitor and is perceived to be less troublesome, but it does not always lead to reduced crowd pressure at the entrance itself. This arrangement is best suited for events with readmission and rapid crowd flow, such as festivals, where the majority of audience members wear, for instance bracelets, etc. and are familiar with the admissions procedures.
- **A zigzag-shaped** queueing system (a so-called chicane) reduces the pressure at the very front of the queue but also means that the queue moves more slowly. This system can be perceived of as being unnecessarily troublesome if the purpose of the design is not completely transparent. This arrangement is above all suitable for smaller queues or slow queues that persist for a long time.
- **A queueing system with enclosures** can be used at events with many visitors or where more careful control of the visitors is required. A system with enclosures results in a queue moving forward slower than is the case with a straight or zigzag-shaped system, but the enclosures make it possible to divide up a large audience into smaller groups that are easier to respond to and communicate with. In this way it is possible to systematically work one's way through the admissions process, lane by lane. The staff control the flow of people and decide when the enclosures will be opened and visitors can move forward in the system. The enclosures also make it possible to carry out various admissions procedures already in the queue. The number of enclosures needed depends on the circumstances of the event and the audience.

A system with enclosures can also be combined with buffer zones. It is, for instance possible to have an enclosure leading to an arrival area (buffer zone), where the audience is observed by the staff. The audience is then searched in a subsequent enclosure, and the tickets are inspected in a final enclosure.

It happens that people with access restrictions attempt to gain entry into an event site by trying to hide behind their friends or by storming an entrance. With smaller groups and a slower tempo, this becomes more difficult. If there is a risk of crowd pressure building up against the entrances, the actual enclosures can be constructed using so-called *line-up gates*, which are a combination of a stage barrier and stable entrance lanes. If a system with enclosures is used, it is important to make sure that the number of visitors in each lane does not exceed a safe number, and that crowd pressure does not become excessive when the enclosure is open.

Read more about:

Safety distances and buffer zones in *Section 9.1.1.*

Working with queues in *Section 19.2.*

Figure 24. Straight queueing system

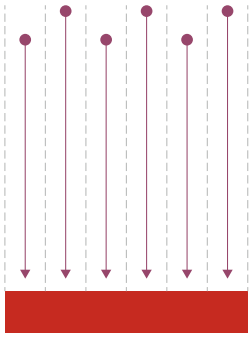


Figure 25. Zigzag-shaped queueing system

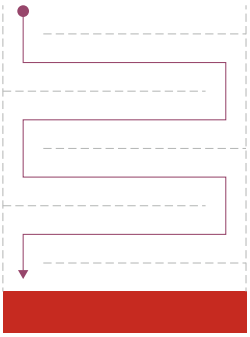
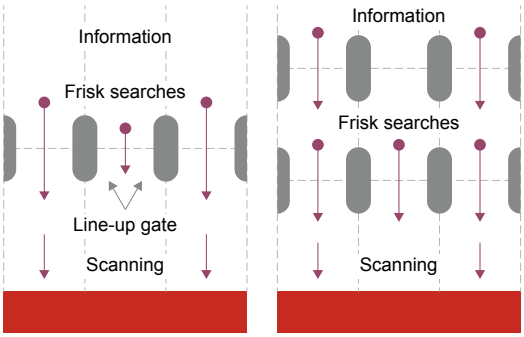


Figure 26. Queueing system with enclosures constructed from line-up



NB!
If an entry point is also used as an evacuation route, the queueing system can act as an obstacle for visitors evacuating the venue. One should therefore ensure that entry points with queueing systems are not used as components of evacuation routes, or else be prepared to quickly dismantle the queueing system in the event of an emergency evacuation.

Read more about:

Information to the audience in *Section 16.4.4.*

Design and placement of signs in *Section 7.2.*

Lighting in *Section 7.6.*

Accessibility in *Chapter 15.*

9.3. Information at entrances

Entrances are excellent places for an organiser to inform visitors about norms and rules at an event. The visitors will definitely pass through the entrance, and in many cases may also be stationary in a queue. This means that they have plenty of time to absorb information. Clear information educates event visitors, and procedures such as frisk searches and reprimands become easier if the visitors are aware of which rules apply. Visitors can be informed at the entrance through signage, dynamic options (e.g., LED screens), and public address systems, or by information stewards.

It is advisable to inform people of the following on signs or jumbotrons outside an entrance:

- things that people are not permitted to *bring into* the site, e.g. alcohol and recording equipment;
- what people are not allowed to *do* at the event, e.g. drink alcohol, crowd surf, or wear a mask;
- things that are good to keep in mind, e.g. bring drinking water, look after each other, and be careful of your valuables;
- the opening times for the event;
- whether changes have been made to the schedule;
- other rules that apply at the event;
- whether the visitors can leave the event through the entrance, or whether the exits can be found some distance away from the entrance.

Make sure that all event visitors can understand the information. Lucid information with a clear layout and good readability benefits everyone. Certain information may have to be conveyed using alternative formats, such as spoken information, in order to be understood by people with visual impairments.

If an entry point is also used as an evacuation route, the queueing system can act as an obstacle for visitors evacuating the venue.

It is also important to mark out entrances, exits, and, above all, evacuation routes in primary colours with high contrast. This makes it easier for people with visual impairments to orient themselves. Place the information outside an entrance or quite a long distance inside the entrance, so that visitors do not stop in locations where they will obstruct crowd flow and produce bottlenecks.

Urgent information should be communicated to the whole audience at the same time (for example through a public address system) in order to avoid the of spread rumours or a distortion of the message. Such information can include appeals for calm in the event of disorder in a queue, information that there are plenty of tickets available, or that tickets are sold out.

Read more about:

The capacity for evacuation routes in *Section 6.3.2.6.*

Accessibility-adapted evacuation routes in *Chapter 15.*

Marquees in *Section 13.7.3.*

How evacuation routes affect crowd capacity in *Section 6.3.2.6.*

9.4. Signage and lighting

Clear signage and good lighting are important prerequisites for safe and smooth queueing and passage through the entrance.

Crowd management at the entrance is made a good deal easier if the signage is clear. All the signs should be of a similar design so that the visitors will find them familiar. The signs should also be simple, large, and placed so that as many people as possible can see them. This is especially important for emergency exit signs.

Ensure that there is good lighting for queuers and for people working at the entrances and exits. Bad lighting makes work more difficult for the entrance and safety staff, and can be a cause of disorderly conduct among visitors.

9.5. Evacuation routes

It must always be possible for event visitors to evacuate the event site and the premises when necessary, and the regular exits are usually not sufficient for this. All evacuation routes – both indoors and outdoors – must be clearly signposted and well-lit. In addition, the audience should be informed about where to find the evacuation routes.

The area in front of and behind an evacuation route must always be highly accessible, i.e. be kept free of obstacles and focal points that can generate crowds of people. Ensure that each evacuation route leads to a location that is free of danger. For instance, evacuation routes should not lead out onto a busy road or into a larger crowd. All evacuation routes must be accessible to people with functional impairments.

9.5.1. Evacuation routes at indoor events

Evacuation routes at an indoor event do not simply involve an exit from the premises in question, but also hallways, stairways, external gangways, and other routes to a protected location.

Have an enquiring attitude. You should, for instance, ask to be given access to any fire protection documents or the minutes from the most recent inspection visit by the municipality. Do not assume that the event's premises have satisfactory fire protection according to the Act (2003:778) on protection against accidents, or that the premises are appropriately adapted for the event activities and crowd size.

It is also important to consider how the event will handle emergency evacuations during ongoing admissions procedures or at the start of the

All evacuation routes – both indoors and outdoors – must be clearly signposted and well-lit. In addition, the audience should be informed about where to find the evacuation routes.

event, especially if a queueing system has been constructed. There should be sufficient staff and clear instructions so that any temporary constructions can be quickly removed.

9.5.1.1. Evacuation routes for assembly halls and assembly marquees

An assembly hall is a room intended for more than 150 people, which means that virtually all event premises are classified as assembly halls. The same rules apply to assembly marquees, i.e. marquees intended for more than 150 people.

The number of evacuation routes required for an assembly hall or an assembly marquee is based on the number of people allowed on the premises. According to the Swedish National Board of Housing, Building and Planning, the following rules apply in assembly halls intended for more than 150 people:

- The free width of every evacuation route must be at least 1.20 metres.
- The total free width of all evacuation routes must be at least 1.00 metre per 150 people.
- If the widest evacuation route is blocked, the other evacuation routes must together be able to evacuate a maximum of three hundred people per metre of free door width.
- Assembly halls for more than six hundred people should have at least three evacuation routes.
- Assembly halls for more than one thousand people should have at least four evacuation routes.
- Walking paths leading up to an emergency exit should have a free width of at least 0.9 metres.

Depending on the nature of the event, the requirements for evacuation routes may vary. The fire and rescue services can, after an inspection, impose additional conditions with respect to the number, dimensioning, and management of the evacuation routes.

You should ensure that

- evacuation routes are signposted;
- evacuation routes are free of obstacles;
- the door of an evacuation route opens outwards in the direction of the evacuation movement;
- it is easy to open a door to or in an evacuation route;
- there is always a high degree of preparedness for opening evacuation routes in the event of an emergency.

9.5.2. Evacuation routes at outdoor events

An evacuation route at an outdoor event can, for instance, consist of a number of barrier sections that are opened in the event of an emergency.

There are no Swedish rules or regulations for the size, siting, or number of evacuation routes at outdoor events. However, the following rules of thumb can be applied:

- **Ensure** that there are evacuation routes from all parts of the venue.
- **Ensure** that there is always a high degree of preparedness for opening the evacuation routes in the event of an emergency.
- **Site** evacuation routes around audience areas. The audience should be able to evacuate from the audience area in all directions. If possible, evacuation routes should therefore be placed on all sides of the audience area.
- **Site** evacuation routes around exits and entrances. In an emergency, a large number of audience members will attempt to exit the same way they entered.

10. Camping sites

Photo: Krists Luhaers / Unsplash

10. Camping sites

This chapter deals with safety surrounding camping sites at an event, regardless of whether the camping site is temporary or permanent. A camping site at an event should be included in the same safety review as the rest of the event, because service and safety must be just as good at the camping site as at the event site.

Read more about:
Safety work at camping sites in *Section 19.4.*

10.1. Location of a camping site

A temporary camping site is a challenge because there is often no permanent infrastructure for handling many visitors at the same time. In addition, the camping site often has to be prepared quickly before the event and restored to its former condition directly after the end of the event. Constructing a temporary camping site on public land within an area of detailed planning requires a permit from the police.

Constructing a temporary camping site on public land within an area of detailed planning requires a permit if the site is not originally intended for camping.

In permanent camping sites there are often showers and public amenities. In addition, asphalted roads, flowerbeds, and fences act as neighbourhood dividers and firebreaks. There are often also a permanent electricity supply, well-constructed barbecue pits, and cooking facilities.

A camping site should preferably be placed on level, open ground. The surface should be well-drained and adapted to the stress caused by several days of camping. High grass, trees stumps, and stony ground should therefore be avoided.

The camping site should be located adjacent to the venue. It should be possible for visitors to make their way between the camping site and the event site without crossing heavily trafficked roads.

During the planning process, an organiser must submit a proposal specifying how many people the planned camping site can hold.
The role of the police and fire and rescue services is to review the proposed number of people in relation to, among other things, physical conditions, organisational fire protection, and risks.

10.2. The surface area of the camping site

The size of the camping site should be determined on the basis of the anticipated number of visitors. The area required varies depending on the type of event and audience.

The following can act as benchmarks:

- Party-like event: approximately 430 tents/hectare.
- Family event: approximately 215 tents/hectare.

One hectare corresponds to 10,000 square metres, i.e. 100 metres x 100 metres.

It is a good idea to be generous when calculating the area required. Capacity calculations often break down if the camping area becomes unusable, for example in the event of severe precipitation, or because the space is not used optimally because of the careless pitching of tents or poor quality of the ground. It is also good to have an extra camping site in reserve if the regular camping site is expected to become full. You should also develop procedures for informing new visitors at an early stage if the camping site is beginning to fill up and to redirect them to the reserve camping site.

Awnings and tarpaulins between tents take up large areas, and it is up to an organiser to decide if this is to be allowed or if there should be a ban on these items. It is important to decide on and inform visitors about this in advance, so that the they know what rules apply.

During the permit process an organiser must submit a proposal to the police and fire and rescue services specifying how many people the planned camping site can hold. The role of the authorities is to review the proposal on the basis of, among other things, physical conditions, organisational fire protection, and risks.

It is advisable to let the camping site safety staff escort newly arrived visitors to a suitable location for pitching tents. They can then make sure that firebreaks are not blocked, and that the capacity calculation for the camping site does not break down. It is also desirable to have clear information, for instance on signs, to instruct visitors on their way around the camping site.

It is a good idea to show the camping site guests to an appropriate location for pitching tents in order to make sure that

- the capacity calculations remain valid;
- the fire protection regulations are observed;
- tents do not take up a larger area than the calculations allow for;
- there are not unused areas that take up capacity space unnecessarily.

One should mow the lawn several times prior to the opening of the event so that no grass cuttings remain on the ground, which can lead to a risk of fire or allergic reactions. Make sure to clear away any bushes in order to increase security at the camping site.

Read more about:

Prohibited items in *Section 4.1.1.1.*

Signposting in *Section 7.2.*

Designing a camping site in *Section 19.4.*

Vehicle barriers in *Section 7.3.2.*

10.3. The design of a camping site

A camping site should be easy to survey and have an obvious and simple structure. Dividing a camping site up into several smaller, identifiable areas means that visitors can find their tents more easily. A good structure makes things easier for the staff as well, and leads to more efficient communication if the fire and rescue services or an ambulance must be summoned to the site. If the roads in the site are straight and there is unobstructed visibility this can also prevent crime, because a potential perpetrator will be visible to the staff and other participants.

How many service and other facilities are needed depends on the size of the camping site, the type of event, and how long the camping site will be in operation. The following areas and facilities may be found at a camping site:

- **Infrastructure.** Camping pitches, entrances, areas for waste management, transport roads for service vehicles.
- **Visitor services.** Access to food and drink, toilets, washbasins, and showers.
- **Staff and authorities.** Areas for camping site staff and public security guards, areas for medical care, police and fire and rescue services, emergency access roads for emergency vehicles.
- **Safety.** Fire breaks, safe barbecuing pits, observation points, lighting.

Consider dividing up the camping site into different sections, such as separate areas for caravan camping, motorcycle camping, and family camping. When possible, a camping site should be separated from any car parks, but if cars are allowed into the camping site, both unintentional and intentional collisions must be taken into account in the risk profile.

10.3.1. Crime prevention through environmental design (CPTED)

Crime prevention through environmental design, (CPTED) means that the risk of being the victim of a crime is reduced through the design of the physical environment. Minor changes in the environment can increase security for visitors. CPTED can also be applied to a camping site, where the environment can be perceived to be unsafe for a visitor if it is designed without proper thought and planning.

10.3.2. Entrances

The entrances to a camping site should be given the same attention as the entrances to an event site, i.e. they should be capacity controlled and designed according to the same principles as those used for a regular entrance. By controlling who gains access to a camping site, and making sure that all visitors in the camping site are authorised to be there, it becomes more difficult for people who intend to commit crimes to do so.

The entrance to a camping site is a good place for posting information – not only regarding the rules that apply at the camping site, but regarding the event as a whole. A detailed map or clear signposting works extremely well to show people where the most important facilities can be found.

10.3.3. Emergency rescue roads and transport roads

Plan emergency rescue roads in consultation with the fire and rescue services. It must be possible to reach all parts of a camping site and any medical care areas from the emergency rescue roads.

Transport roads should also be established inside the camping site. Heavy vehicles are often required for the maintenance of public amenities and for waste management. Establish permanent transport roads where heavy vehicles can drive without the risk of injuring visitors. Make sure that only authorised vehicles can gain access to the area.

10.3.4. Access to food and drink

A camping site acts as a temporary domicile for those who stay there. It should therefore be possible to purchase food at the camping site. Concentrating the sale of food to a central location makes waste disposal and waste management easier. An opportunity for visitors to purchase food in the site can also limit the use of disposable barbecues, open fires, spirit stoves, and other items that may pose a fire hazard. In addition, the camping site becomes more comfortable if visitors have an opportunity to eat there, and this also avoids having unnecessary crowd flows consisting of visitors leaving the area to eat.

There should always be access to clean drinking water in a camping site. At larger camping sites there should be several water depots to provide increased availability. The supply of drinking water should be dimensioned to cover increased demand on, for example hot days.

10.3.5. Sanitation facilities at a camping site

Visitors will not enjoy themselves at a camping site if toilets are unhygienic or too few. It is therefore important to dimension the availability of toilets and washing facilities on the basis of the peaks in demand, for instance in the mornings and following the closing time of the event. Make sure that lighting around the sanitary facilities is sufficient at night so that security is increased for visitors and the area is made less attractive to criminals.

Read more about:

CPTED and its six principles in *Section 6.4.4.*

Entrances in *Chapter 9.*

Transport and emergency access roads in *Section 7.3.6.*

Cooking in camping sites in *Section 10.4.2.2.*

The sale of food in *Section 11.4.3.*

Drinking water in *Section 7.7.1.*

Sanitation areas in *Chapter 12.*

Crime prevention in *Section 2.2.* and *Section 6.4.4.*

The entrances to the camping site is a good place to communicate useful information to visitors.

Keep in mind that the availability of drinking water is vital. A dehydrated visitor is weakened and runs a greater risk of injuringhim- or herself.

10.3.6. Areas for camping site staff and authorities

It can be a good idea to set up special areas for the camping site staff and for the police, medical care services, and the fire and rescue services. In smaller camping sites it can be enough to have a common area for all the emergency services, while on larger camping sites you may need several separate areas. The siting of these areas depends on the need for emergency rescue roads, seclusion, and proximity to the camping site. Their design and siting should therefore be done in consultation with the leaders of the respective activity.

Read more about:

Authorities' need of separate areas in *Section 4.3.*

Crowd management procedures in *Section 16.6.*

Lighting at the camping site in *Section 10.4.1.*

Safety functions at venues in *Section 19.3.1.*

Crime-preventative design (CPTED) and image in *Section 6.4.4.*

10.4. Safety at a camping site

Safety work at a camping site should be given as much attention as the safety work for the venue itself. The risk profile for a camping site is however different from that of a venue. Safety work at a camping site has a good deal to do with managing crowd flow, fire safety, and surveillance in order to maintain public order, safety, and security to combat crimes such as theft, assault and battery, and sexual offences.

It is important to have an idea of the times when the audience move to and from a camping site. For this reason, there should be procedures for how an event's leadership takes note of crowd flows, so that the safety efforts, for instance at the entrances to a camping site or to the event itself, are dimensioned in proportion to the number of visitors.

The following methods may be useful for increasing safety at a camping site:

- **Observers at the camping site.** A camping site needs to be observed in order to detect both fires and disturbances of public order, and to work in a crime-preventative fashion. Both formal and informal surveillance can be used. Formal surveillance can consist of patrolling or of observation points, while informal surveillance involves making it possible for other people, for instance visitors or the general public, to observe what is happening by providing them with free lines of sight and good lighting when something undesirable is happening. However, one should ensure that the surveillance does not lead to the visitors feeling uncomfortable. The idea is to instead make them feel safe.
- **Lighting and surveyability.** A well carried-out planning of lighting and surveyability makes both observation and formal as well as informal control more effective.
- **Procedures.** There should be procedures for managing various kinds of occurrences that may take place at a camping site. These procedures can concern how to act when seeing suspicious items or suspicious people, or how to handle suspected sexual crimes or sales of narcotics that have been witnessed.
- **Fire extinguishers and fire hydrants.** A firefighting cabinet contains firefighting equipment, for example fire extinguishers and fire blankets. The firefighting cabinet must be manned by staff who can handle the equipment. A fire extinguisher is worthless if there is no one there who knows how to use it. Staff at firefighting cabinets must respond in the event of a fire and alert SOS Alarm if necessary. At a camping site the nearest firefighting cabinet must never be more than fifty metres away.

The safety work at a camping site should be given as much attention as the safety work at the venue itself.

Safety work is indirectly affected by the camping site's ability to fulfil the needs of its visitors. A structured and well-managed camping site invites decent behaviour, while a camping site that is characterised by disorder and trash may mean that it is more difficult to remain safe. One should therefore make sure that a camping site is kept in good order.

At a camping site there are many risks that can lead to accidents that are difficult to respond to with the existing staff. For this reason there should be preparedness for how such occurrences are to be responded to and possibly action plans in order to respond to

- fires;
- major disturbances of public order;
- serious injuries.

There also has to be a contingency plan for occurrences where the efforts needed exceed the resources available.

Read more about:

Preparedness for emergency events in *Chapter 20.*

Surveillance and situationally crime-preventative work in *Section 6.4.4.*

Lighting in *Section 7.6.*

Fire safety in *Section 4.1.2.* and *Section 4.3.3.*

10.4.1. Lighting in a camping site

At night there must be enough light at the camping site for people to be able to orient themselves among the tents. There should also be sufficient light to give patrolling staff and staff at security posts and any observation towers a good overview of the camping site. Appropriate lighting also means that the area is easier to keep under surveillance, both formally by staff and informally by other visitors. This can function as a crime preventative measure.

Good lighting is especially important at

- entrances;
- toilets and showers;
- information sites;
- observation towers;
- firefighting cabinets;
- dark areas and narrow spaces.

Avoid disturbing the sleep of visitors with too much light because the camping site is also a sleeping place for the visitors to the event. Equip the staff with proper torches if fixed light installations cannot be arranged.

Photo: Petter Säterhed

10.4.2. Fire safety

The risk of fire at a camping site is often high and the consequences of a fire at a fully occupied camping site can be devastating. The MSB general advice and comments (SRVFS 2004:12) about fire protection at camping facilities contains recommendations regarding fire safety for camping facilities. While its advice does not apply to temporary camping sites, this document nevertheless contains information about, among other things, fire protection efforts, the distance between individual tents, training, and many other issues that can also be useful at a temporary camping site.

The organiser should at an early stage conduct a dialogue with the fire and rescue services regarding what safety measures should be taken in order to maximise fire safety at a temporary camping site. At large events it is a good idea to have a fire engine stationed inside the camping site.

10.4.2.1. Safety distance

In temporary camping sites it may be difficult to maintain the same safety distance between tents as that recommended for regular camping facilities in SRVFS 2004:12. At a larger event an organiser, in consultation with the local fire and rescue services, can instead take the following measures in order to ensure high fire safety:

- Divide up the camping site into neighbourhoods surrounded by high-quality fire breaks. It is desirable if as many fire breaks as possible are of the same quality as the emergency access roads for emergency vehicles.
- Issue and maintain a total ban on open fires except those lit in barbecue pits.
- Ban upholstered furniture.
- Increase surveillance.

Firebreaks in a camping site fulfil several functions. Their primary function is to prevent a possible fire from spreading over a larger area. They also function as transport routes for those who stay in and work at the camping site, as well as for the fire and rescue services and the medical care services. In addition, they divide up the camping site, which makes it easier for people to orient themselves.

A firebreak should never end in a cul-de-sac, because emergency and maintenance vehicles may be difficult to turn around. Instead, a firebreak should be laid out as a loop, so that there is always an opportunity for vehicles to circle back around to reach the beginning of the loop. A common way of doing this is to lay out a grid of fire breaks, where every square in the grid can be approximately fifty by fifty metres.

The sections of the camping site that are used for caravans can also be divided up into neighbourhoods surrounded by firebreaks. A good safety distance is four metres between each of the caravans. In a mixed camping site with both tents and camper vans or caravans, the goal should be to have four metres between a caravan and a tent, or three metres between two tents (for example an awning and a tent). Cars should be parked next to the tent, the caravan, or the camper van in order to prevent a potential fire from spreading among the various living accommodations.

Permanent firebreaks that are ploughed or paved with asphalt, gravel, sand, or wood chips are better than temporary firebreaks marked out only by barrier tape or chalk marks. Permanent firebreaks are easier to keep free

A firebreak should never end in a cul-de-sac. Instead a firebreak should form a loop, so that there is always an opportunity for vehicles to circle back around to reach the beginning of the loop.

One way to reduce the risk of fire and at the same time facilitate cooking is to establish barbecue pits or fire pits to which the visitors can bring their spirit stoves.

of tents and other obstacles, and they are functional even after heavy precipitation or any potential damage caused by event participants. However, it may be economically difficult to defend an investment in permanent firebreaks at a one-off event.

10.4.2.2. Barbecue pits and fire pits

Fires at camping sites are a major problem. These fires often begin because of faulty handling of LPG camping stoves, disposable barbecues, spirit stoves, or tent stoves.

In most temporary camping sites connected to events, there is a ban on open fires in order to avoid uncontrolled fires and burn injuries. An event should therefore offer visitors alternative ways of cooking. One way to reduce the risk of fire and at the same time facilitate cooking is to establish barbecue pits and fire pits where visitors can cook over an open fire. Dimension the size and the number of fire pits on the basis of the estimated number of visitors. A fire pit should consist of an area with a fireproof surface, for example gravel, dirt, or asphalt. It should be well marked out and completely separate from the tent area. It should also be monitored or kept under surveillance by safety staff with access to firefighting equipment.

10.4.2.3. Flammable items and waste

Trash is the primary cause of fire in a camping site. It is therefore important that a camping site's waste management functions well. Waste containers and trash lying around often risk being used for arson. It is therefore important that there is continuous cleaning and waste management, and that the collected waste is disposed of. Flammable items, such as upholstered furniture, marquees, and tarpaulins, increase the risk of fire and can be prohibited by an organiser.

10.4.2.4. LPG in the camping site

LPG involves a risk of both fire and explosion, and an organiser should, if possible, try to limit the use of LPG in a camping site. An organiser has the right to prohibit visitors from bringing LPG with them into the camping site. Remember that many food vendors are dependent on LPG for their businesses, and that food sales for this reason should be located at an appropriate location in a camping site.

10.4.2.5. Firefighting equipment

Information about firefighting equipment can be found in the MSB general advice (SRVFS 2004:12). The advice in this document does not apply to temporary camping sites, but its recommendations are equally valid for temporary camping sites.

Below can be found a few tips and ideas about firefighting equipment at camping sites. Some of them have been taken from SRVFS 2004:12, while others are particularly adapted to temporary camping sites in connection with events.

- **Ensure** that no more than fifty metres separate any tent from the nearest location where firefighting equipment is to be found.
- **Set up** lucid signs so that visitors and staff know where to find the firefighting equipment.

Read more about:

Surveillance at a camping site in *Section 10.4.*

Waste management in *Section 12.2.*

Prohibited items in *Section 4.1.1.1.*

Handling LPG in *Section 11.4.1.*

The sale of food in *Section 11.4.3.*

The training of safety staff in *Section 5.5.1.*

An organiser has the right to prohibit flammable items in a camping site. Make sure the visitors are informed about these prohibitions.

- **Monitor** the camping site using trained safety staff who know where to find the firefighting equipment and how to use it. The monitoring can be done from observation points or by patrols for the purpose of detecting any fires as early as possible.
- **Establish** special firefighting cabinets. These may contain more advanced firefighting equipment, such as fire extinguishers, hoses, and fire blankets, as well as first-aid kits.
- **Make** sure that all firefighting equipment in the camping site is guarded. In the event of an emergency situation, the firefighting equipment must be functional and within reach. Unattended firefighting equipment can be stolen or vandalised.
- **Ensure** that used firefighting equipment is replaced when necessary.
- **Use** hand-held fire extinguishers (six kilograms) in a harness that can be carried on one's back for fire patrols. This weight is appropriate for someone carrying a fire extinguisher for a longer period of time. Powder extinguishers are a suitable type of hand-held fire extinguishers.
- **Consider** installing water hoses linked to fire hydrants. In larger camping sites an organiser, together with the fire and rescue services, can install water hoses linked to fire hydrants as preventative measures. When the risk of fire is greater than usual, for instance at certain times of the day or during droughts, these hoses can be pressurised and made ready to use.

Make sure that all fire-fighting equipment in a camping site is guarded. In the event of an emergency situation, the fire-fighting equipment must be functional and within reach. Unguarded fire-fighting equipment can be stolen or vandalised.

11. Peripheral activities

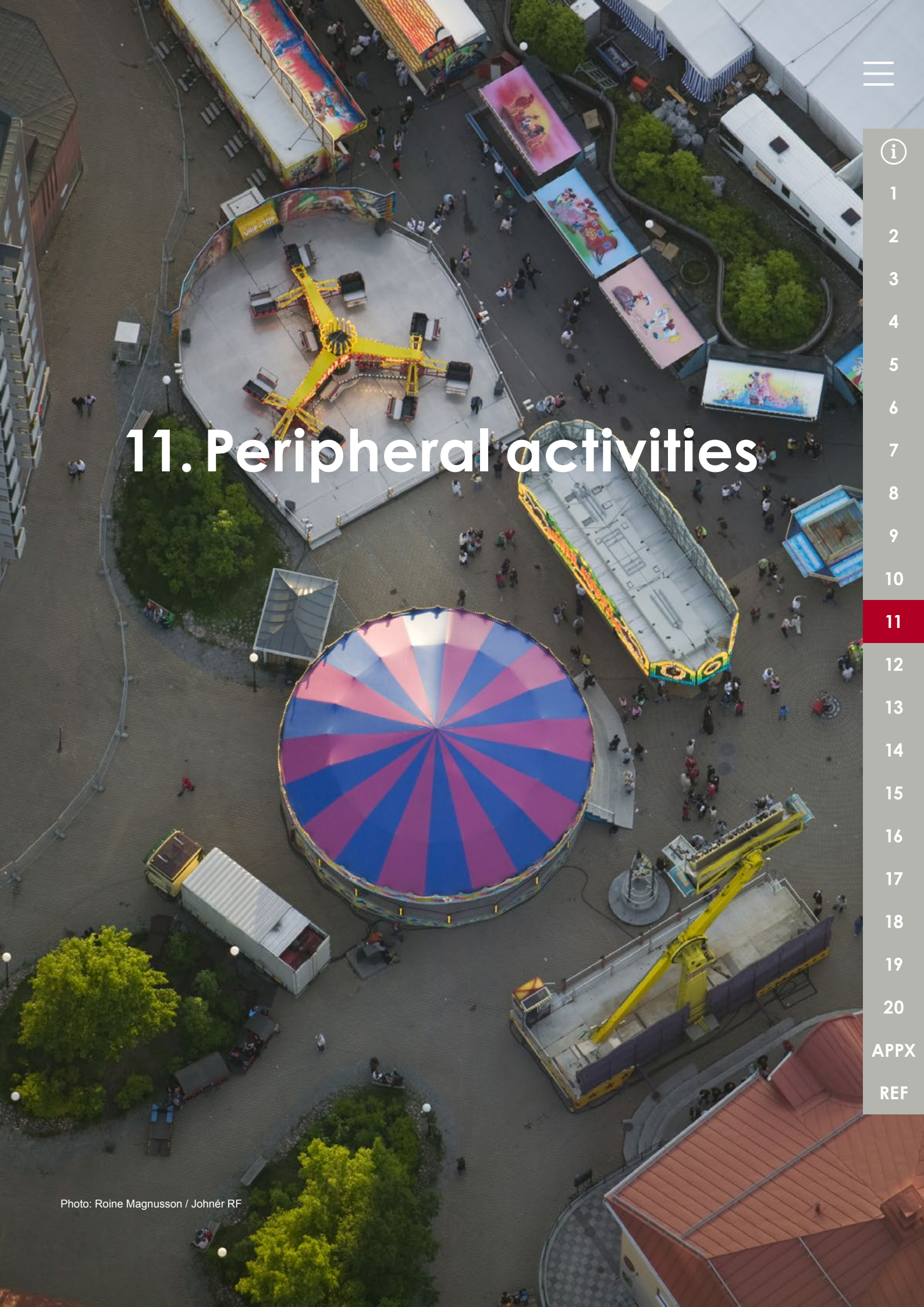


Photo: Roine Magnusson / Johnér RF

11. Peripheral activities

Many events consist of additional activities other than the main event itself. Such activities are called peripheral activities. Peripheral activities can, for instance, include the sale of food, marketing stands, funfair attractions, or side events of various kinds, such as fan zones and VIP areas.

11.1. Liability, agreements, and insurance

Peripheral activities are, in general, classified as weak focal points, but there are several important safety factors to consider with respect to the siting and operation of peripheral activities.

Certain types of peripheral activities require that their suppliers are certified, while others require special permits or demand special safety regulations. Nor is it permitted to sell or market goods that are illegal or in breach of a licence, copy protection, or marketing laws. A common feature of all peripheral activities is that they can involve risks that an organiser must take into account and respond to, for example the formation of queues or changes in crowd flow. All peripheral activities should therefore be included in the risk analysis of the event.

An organiser is responsible for the event and must make sure that peripheral activities on site do not involve illegal activities or present health and safety risks. An organiser must ensure that an economic operator who runs a peripheral activity complies with activity-specific regulations, laws, and rules so that the activity is safe. The organiser must also provide the operator with sufficient information about the safety rules and regulations that apply to the event.

An organiser should draw up an agreement with the economic operator in order to make sure that rules and laws are complied with, and should also be transparent concerning the conditions that apply to the activity. The organiser and the economic operator can, for instance agree that the economic operator must

- have a responsible person on site for as long as the peripheral activity is ongoing;
- have the certificates, licenses, and permits required;
- comply with event-specific rules and policies, e.g. with respect to any goods that are prohibited;
- comply with the regulations, laws, and rules that apply to the activity;
- handle LPG according to the regulations in force;
- have valid liability insurance.

It may also be a good idea to clarify the allocation of responsibilities between the organiser and the economic operator, for example who is responsible for the monitoring of, or liable for damage to, the operator's equipment.

Read more about:

Focal points in *Section 6.3.1.3.*

Handling LPG in *Section 11.4.1.*

Do not forget to include risks that are related to peripheral activities in the risk analysis of the event.

The organiser is responsible for providing an economic operator who operates a peripheral activity with sufficient information about the safety regulations and rules of the event.

11.2. The staff of the peripheral activity

A peripheral activity is often operated by an economic operator's own staff. By way of a formal agreement, or in some other manner, an organiser should therefore ensure that the staff of the peripheral activity

- have been informed about the policies and rules that apply at the event;
- know where to find the closest fire extinguishers and emergency exits;
- know who is the contact person at the event;
- know their roles, if any, in the operative contingency plan of the event;
- know what they are expected to do in the event of an emergency.

The organiser should require that the economic operator always has a responsible person on site while the peripheral activity is open. This person should be available and easy to communicate with, i.e. speak a language that is also spoken by the organiser. The organiser should have come to an agreement as well with the economic operator about how to make contact at times when the activity is not open. This makes it easier to tackle any problems.

Read more about:
General tips concerning siting in *Section 6.4.1.*

11.3. The siting of a peripheral activity

The following factors play a role in the siting of a peripheral activity:

- the space required for the activity itself;
- the space needed for the formation of queues at the activity;
- the need for infrastructure, e.g. water, a car park, or an access road;
- the effect of the activity on crowd flow.

Health and safety risks associated with a peripheral activity must also be taken into account when deciding where it is to be sited.

11.4. Activity-specific rules

Different peripheral activities are governed by different rules and legal provisions. Below is a discussion of rules and advice for some of the most common activities.

11.4.1. Handling of LPG

LPG is often used at eateries or when selling food, both indoors and outdoors. It is also common to have LPG in heaters for tents and caravans. Because of the risk of fire or explosion, LPG handling requires special care and attention. The handling of LPG is regulated in the Flammables and Explosives Act (2010:1011), and by the additional provisions that have been announced with reference to this Act. The MSB information leaflet about LPG in restaurants, *Gasol i restauranger*, is also a useful source of information.

It may be a good idea to appoint in advance a person who is responsible for LPG cylinders being taken to a protected location in the event of a risk of fire. The fire and rescue services also need to know about the location of the LPG cylinders, so they can be moved to a protected location in the event of a fire. Each consumption and storage site for LPG should therefore be clearly marked out with hazard signs for LPG cylinders and flammable goods. The premises should be marked with prohibition and hazard notices in clearly visible places. It is appropriate to complement a hazard sign with a sign bearing the text 'LPG'.

A permit from the municipality is required for the handling of LPG and other flammable goods in a quantity of more than sixty litres outdoors or more than two litres indoors.

When larger quantities than thirty litres of LPG are on site, a sign prohibiting smoking and open flames is required, as well as the hazard signs listed below for flammable goods and pressurised gas complemented with the text 'Gas cylinders – to be moved to safety in the event of a fire hazard'.

Figure 27. Prohibition and hazard signs

Ban on smoking and open flames	Warning for flammable good	Warning for pressurised gas
The sign must be designed in accordance with the regulations of the Swedish Work Environment Authority (AFS 2020:1).	The sign must be designed in accordance with Regulation (EC) No 1272/2008.	The sign must be designed in accordance with Regulation (EC) No 1272/2008. Where gas cylinders are stored, the sign must be complemented with the text 'Gas cylinders – to be moved to safety in the event of a fire hazard'.

An LPG cylinder must be kept in an upright position. A gas cylinder that contains more than five litres must be prevented from tipping over, either through its placement or with the aid of fastening devices. At the same time it must be possible should a fire break out to quickly move the cylinder to a protected location. Hose lines that risk being exposed to wear and tear must be protected from this. Hose lines must be reinforced or made of steel. Reinforced hose lines used to connect loose containers to equipment intended for LPG with unreduced pressure must have steel reinforcement.

Fire extinguishers (carbon dioxide or powder) are required at every site where LPG is used. The fire extinguishing equipment is intended to make it possible for a single person to put out a fire. The fire is thereby prevented from spreading to a gas container or from causing a gas container to be heated, which may otherwise exacerbate the fire or cause an explosion.

It is usually sufficient to have handheld powder extinguishers of six kilos (effectiveness class 43A 233B C or higher) in sufficient numbers appropriate to the location in question. Such a fire extinguisher can also be used to put out gas fires. However, it is important to keep in mind that after a gas fire has been extinguished, unburnt gas may continue to leak out, which can lead to worse consequences if the gas is then ignited and, for instance explodes indoors. The best way to stop a gas fire is to shut off the flow of gas. If the fire is put out with extinguishers, the next step is to shut off the valves on any gas cylinders.

An extinguisher must be easily accessible and marked with a sign that is easily visible and is designed according to Swedish standards: a white symbol on a red background.

Read more about:

LPG in the MSB handbooks *Tillstånd till hantering av brandfarliga gaser och vätskor* [Permit for handling flammable gases and liquids] and *Hantering av brandfarlig gas för yrkesmässig verksamhet* [Handling flammable gas for professional activities], as well as in the regulations MSBFS 2020:1, MSBFS 2013:3, and SRVFS 2004:7.

Figure 28. Signs that mark the location of fire extinguishers

The signs must be designed in accordance with the Swedish Work Environment Authority regulations for the design of a work place (AFS 2020:1)

A permit is required from the municipality (often the fire and rescue services) if a someone wishes to handle LPG or other flammable goods in quantities above certain limits. If the amount of LPG is greater than sixty litres outdoors, or greater than two litres indoors, a permit is required in accordance with the MSB regulations on permits for handling flammable gases and liquids (MSBFS 2013:3). The MSB handbook about this permit, *Tillstånd till hantering av brandfarliga gaser och vätskor*, also provides valuable guidance on how to apply for a permit.

A person who has a permit to handle LPG shall in their turn appoint a specific person (a so-called manager) whose task it is to ensure that the LPG is handled according to the prescribed rules. The manager must be identified to the supervisory authority in question, usually the fire and rescue services.

At an event where several operators handle flammable gases or liquids and where there is a risk of an explosive atmosphere forming (an explosive mixture in air, consisting of gas, steam, or mist, which can form when flammable gas or liquid is handled), a person must be appointed who is responsible for coordinating the safeguarding of the management of this issue on site. This is regulated in the MSB regulations on explosive environments when handling flammable gases and liquids (SRVFS 2004:7).

The fire and rescue services usually check LPG installations that require a permit before an event opens to the public. The LPG manager must, during inspection by the fire and rescue services, be able to

- present a valid permit from the fire and rescue services for handling LPG;
- demonstrate good knowledge about LPG, the risks its use may involve, and how these risks should be avoided.

In Appendix B you can find an example of a checklist that can be used for the inspection of the handling of LPG.

For more information, see the regulation MSBFS 2020:1 and the associated handbook about handling flammable gas for professional activities, *Hantering av brandfarlig gas för yrkesmässig verksamhet*.

A manager for handling flammable gas should have knowledge concerning

- how roles, responsibilities, and competences are allocated for the peripheral activity;
- the properties and risks of the flammable goods;
- the relevant legislation with respect to the risk of fire and explosion;
- conditions in the permit;
- the construction, function, and operation of the facility using LPG;
- documentation relevant to the safety of the handling of LPG.
- The scope and complexity of the handling of LPG should determine the extent of the knowledge required within the different areas.

11.4.1.1. Siting of peripheral activities that use LPG

A peripheral activity that uses LPG in its operation must be sited so that the risk of a fire spreading is minimised:

- Outdoor activities using LPG should not be sited directly against a façade. Contact the local fire and rescue services in order to acquire information about suitable siting.
- An LPG cylinder must not be placed so that the risk of, or the damage from, fire and explosion increases significantly because of its proximity to other LPG cylinders, other flammable goods, or easily combustible materials.

11.4.1.2. Storage of LPG

When LPG cylinders are stored, they must be placed so that unauthorised people cannot gain access to them, and so that they are protected from fire. The area where the cylinders are placed must be well ventilated. If LPG is to be kept indoors, the area should not contain items that can increase the risk of fire, for example highly flammable materials. Only the daily requirement of LPG should be kept at the consumption site. If more is needed, the fire and rescue services should be contacted.

LPG cylinders should be stored where they are protected against fire and damage, but at the same time they must be easily accessible so that they can quickly be moved to safety if a fire should break out. The cylinders must always be kept in a stable, upright position relative to the surface on which they stand and be protected from collisions.

11.4.1.3. Vendors

Vendors are defined as businesses that have entered into an agreement with an organiser concerning operating some form of sales activity.

Make sure that the following applies:

- The vendor complies with requirements concerning an obligation to provide information about their identity and address in accordance with Section 24 of the Marketing Act (2008:486) and Section 16 in the Act (2009:1079) on services in the internal market.
- There are opportunities for a vendor to dispose of waste.
- The vendor has valid permits, certificates, and insurance.
- The vendor has reported any possession and use of LPG, the equipment has been labelled and is stored in the correct manner, and the staff has the appropriate training for handling LPG.
- The vendor's communication equipment does not interfere with the internal communications of the event.
- The handling and transport of goods to and from
- the vendor's storage facilities is accomplished according to the safety regulations and transport handling plan of the event.
- The items sold are not dangerous, illegal, or inappropriate (e.g. weapons, fireworks, or air horns).
- The vendor's sales do not involve the vendor violating valid licences, copy protection, marketing laws, or trademark laws.

11.4.2. Food sales

Food sales require special treatment of hygiene and safety. Each food vendor is responsible for the safety of the food being sold, i.e. that it is not dangerous to a person's health or unfit for human consumption. The requirements for safe food must be fulfilled, regardless of whether the outlet in question is a restaurant in an arena or food sales at a temporary venue. A valid sales permit is required from the municipality where the food sales will take place.

Contact the municipality before food sales begin in order to find out what requirements apply for registration and food handling. Keep in mind that the requirements, as well as the required permits, may vary among different municipalities.

Sellers of food at the event must be registered with the municipality.

Make sure that the following applies:

- The food vendor has access to a separate toilet that is not shared with the audience. The toilet has facilities for handwashing and running water. The food vendor should, if possible, also have access to a shower.
- There must be at least one flush toilet per ten food vendors.
- The water for food operations is of potable quality.
- Food vendors have access to waste management.
- Food vendors have valid authorisation, written evidence of being registered, or a statement from the environmental health department or the environmental administration of the relevant municipality that none of these items is needed.
- Any LPG handling is done in accordance with the laws and regulations currently in force.

Read more about:
Crime prevention in *Section 6.4.4.*

11.4.3. Alcohol sales

Alcohol may only be consumed at an event if the serving of alcohol is permitted according to the Alcohol Act (2010:1622). In addition, a serving permit is required from the municipality where the event is to take place. This serving permit may be temporary if the alcohol sales take place during a limited time period or on a single occasion.

The economic operator who wishes to sell alcohol must apply for the permit. This means that the event itself does not need to apply for a serving permit if the alcohol is sold by an external economic operator. However, alcohol sales are taken into account in the police assessment during the event permit procedures. A permit is issued by the licensing authority in the respective municipality. The application for a permit is then normally sent out to additional authorities for consultation.

The serving and consumption of alcohol may only take place in the limited area or space regulated and specified by the permit. If the consumption takes place within a limited area in the event site, control of order, sobriety, and age limits is required at the entrance to this area. Also, there may need to be surveillance in order to prevent alcoholic beverages from being taken out of or into the area.

The permit holder shall delimit the serving area in an appropriate manner. The type of enclosure required varies depending on the event audience profile, and what times the premises are open for the sale of alcohol. At a family event, it can sometimes be sufficient with less obtrusive marking, while a youth event may require a more distinct barrier, such as construction fencing.

The person listed as the permit holder on a serving permit is responsible for preserving order within the sales premises in accordance with the Public Order Act, the Alcohol Act, and the municipality's own provisions.

Responsible staff on site should, according to the Alcohol Act, make sure that the consumption of alcohol is moderate, and that disturbances because of intoxication are avoided. Also, from the perspective of crime prevention, a moderate consumption of alcohol is preferable, because intoxication increases both the tendency to commit crimes and the risk of falling victim to crime. With respect to violent crime, about half of all perpetrators are intoxicated.

The person listed as the permit holder on a serving permit is responsible for keeping order within the sales premises.

The following basic regulations apply according to the Alcohol Act:

- Alcohol may not be served before 11:00 a.m. or after 1:00 a.m., unless the municipality has decided otherwise.
- A locale where serving takes place must serve food in order to be allowed to serve alcohol. However, this requirement does not apply when serving alcohol in lobbies during intermissions, for example during a concert.
- Alcohol may not be served to people under the age of eighteen.

Make sure that the following applies:

- All serving of alcohol has a valid permit.
- The locale where sales takes place has the requisite number of public security guards or stewards stated in the serving permit.
- The stock of alcohol is placed on a stable, flat surface out of reach of unauthorised persons.
- Alcoholic beverages are not taken out of the serving area.

Alcohol is a major contributory factor in many cases of criminality. The organiser should work actively with preventative measures. The sales locale can, for instance, have good lighting so that the serving staff have an opportunity to determine the customers' levels of inebriation, alcohol-free alternatives can be made available, or information campaigns can be carried out (e.g. 'every second drink should be water'). It can also be advisable to use plastic or paper cups instead of glasses when serving alcohol, in order to reduce the risk of broken glasses or of glasses being used as weapons.

The rules that apply for serving permits vary from one municipality to another. Contact the local municipal office in good time before the event about this issue.

11.4.4. Funfair attractions

Funfair attractions of different kinds are often rented from a supplier who also operates this peripheral activity. Examples of such attractions are merry-go-rounds, inflatable bouncy castles, and bungee jumping.

The attractions may only be used if they are absolutely accident-proof, and they must have been inspected by an accredited inspection body before being put into service. This is regulated in the Ordinance (1993:1634) on the Inspection of Amusement Park Appliances and in the Public Order Act (1993:1617). An approval following an inspection is valid for one year. In addition, funfair attractions must be subjected every five years to a more careful inspection by an inspection company accredited by the Swedish national accreditation body, Swedac.

An organiser should endeavour to choose a recognised and competent supplier of funfair attractions. It is also a good idea to request and verify references from other events where a supplier has been contracted to supply attractions.

Those who supply funfair attractions must comply with the requirements in the Public Order Act on adequate safety.

Make sure that the following applies:

- There is documentation, e.g. certificates, inspection certificates, and risk analyses with respect to the attractions.
- There is a journal for each funfair attraction with information about its installation control and continuous supervision.
- A supplier has knowledge of the activity and about working with that activity.
- A supplier has trained staff for the operation, assembly, and disassembly of the activity.
- A supplier can deal with and eliminate risks in relation to the operation, assembly, and disassembly of the activity.

Common accidents involving funfair attractions include, among others, staff falling from a height during assembly or disassembly of the attraction, or accidents resulting from substandard maintenance. You should therefore make sure that there is enough space for emergency vehicles to reach the site of the attraction. Keep in mind that inflatables are vulnerable to wind because of their height and weight, and that they therefore should be set up on suitable land with marked out anchor points.

Make sure that the following applies:

- The time for assembly, disassembly, and operation of an attraction has been calculated and confirmed – assembly and disassembly as well as test runs of the operation should be performed before there are visitors at the event site.
- An appropriate space has been allocated for the attraction. Ensure that there is also enough space vertically and that there are no obstacles in the air, e.g. electrical power lines or tree branches. The space around the attraction should be dimensioned for those times when the attraction will have the greatest number of visitors.
- No one can gain entrance to the rear of the attraction or into areas where they can injure themselves or affect the operation of the attraction. Seal off these areas with fencing if necessary.
- The event risk management has been complemented with risk management from the supplier of the attraction.

12. Sanitation, hygiene, and waste management

Photo: Jan Töve / Johnér RF

12. Sanitation, hygiene, and waste management

The comfort and well-being of the audience is quite a significant safety factor at an event, and good order and harmony are crucial for achieving such comfort and well-being. Good order means that there is successful management of trash and waste, and not least sufficiently many well-functioning and clean toilets.

From a safety perspective, sanitation, hygiene, and waste management are important for multiple reasons:

- Trash and disorder promote additional littering and vandalism.
- Trash and dirt increase the risks of injury, illness, and infection.
- Accumulations of trash lead to an increased risk of fire and can also risk blocking emergency evacuation routes.
- A general sense of disorder makes it more difficult for a safety organisation to detect anomalous items and other potential risks.
- Certain kinds of trash can be used weapons in violent situations.
- Long queues to toilets can lead to increased irritation among visitors.

12.1. Good order – good housekeeping

It is important to ensure that the safety staff understand the value of a well-ordered event venue and take responsibility for maintaining this good order, until the very end of the event. A focus on good order from a safety perspective is called *good housekeeping*, which, if well done, can reduce the risk of accidents and increase an organisation's vigilance concerning crime, antagonistic threats, and other risks.

A stack of empty boxes can lead to an increased fire hazard, a misplaced pallet truck can block an evacuation route, and a table with information leaflets can obscure a fire extinguisher. Separately, these seemingly minor hazards may seem unimportant, but together they can result in a disaster should a fire start. When each thing is in its proper place, then these minor hazards can quickly be noticed and remedied. But if disorder is the norm, it can be easy to miss them.

In order to be as effective as possible, work dealing with keeping things in order is systematised. Here is an example:

1. **A risk is noticed:** The restaurant staff have left a pallet truck in front of an emergency exit.
2. **The cause is identified:** The restaurant staff needs to have access to a pallet truck in their work, but the pallet truck does not have a place of its own. The restaurant staff do not realise that the pallet truck is blocking an emergency exit.
3. **The problem is rectified:** The pallet truck is moved and the restaurant staff are asked to keep emergency exits clear.
4. **A repetition is prevented:** The restaurant staff is informed of the importance of keeping the emergency exits clear and of maintaining good order. A decision is made concerning where the pallet truck shall be stored. The area in front of the emergency exit is clearly marked, so that no other obstacles will be placed there in future.

By systematically working in this way, the safety level at a venue can be continually raised.

12.1.1. Each item in its proper place

Quick access to different types of safety equipment may be of great importance for how well the safety staff can deal with various situations. You should therefore ensure that places for storage are established, and systematically check that all the relevant equipment is being kept there. You should also make sure that all staff know where the equipment is stored and that they all feel responsible for maintaining good order there.

Treat all waste carefully. If someone, for instance throws broken glass in a regular waste bin, the staff who handle the bin bags risk cutting themselves. If there are well marked-out collection bins for broken glass, this risk is reduced. Here, too, it is important that all co-workers understand the importance of good order, and also that they know where different types of waste belong.

Good order does not just concern the audience. It is at least as important within the event organisation and among those who work at the event site.

12.1.2. Free areas and clear procedures

A clean and tidy venue, where there are clear procedures, provides a great many advantages for effective safety work. A well-organised venue also makes it easier for the safety staff to provide surveillance. Clear procedures for how things are to be done makes it much easier to detect deviations from these procedures:

- If a door that must always be kept locked is open, this can indicate that someone may have forced it open.
- If there is a rolled-up piece of fabric under a chair in a grandstand, it may contain something that someone has smuggled into the arena before the game day in order to avoid being detected during a security check.
- If a visitor is in an area to which this person should not have access, it is easier to establish this visitor's potentially malicious intent if you know that all doors into this area have been locked.

It is also advisable to inform any temporary actors about the procedures of an event before the event has begun, and to make sure that these procedures are followed. This reduces the risk of, among other things, a vendor bringing in dangerous items or a tour bus parking in front of an emergency exit.

Read more about:
Responsibility for health and safety at work in *Section 4.1.3.*
Transport and emergency access roads in *Section 7.3.6.*

12.2. Waste management

All events – regardless of their size – generate a good deal of waste. It is an organiser's responsibility to dispose of this waste in an appropriate manner. If waste management works as it should, no one will notice it. If, on the other hand, it does *not* work, everyone will complain about it – visitors as well as the municipality, authorities, and residents in the local neighbourhood. A lack of maintenance can also lead to several other areas being negatively affected.

Cleaning and waste management fulfil four important functions:

- **Comfort and safety.** A clean and tidy event has a positive effect on the comfort and attitude of the event's visitors. It also becomes easier to maintain order and uphold rules of good conduct.
- **Easier detection of hazardous items.** A tidy event site makes it easier for safety staff to detect hazardous items that do not belong on the grounds.
- **Reduced risk of fire.** Evaluations by the fire and rescue services show that burning trash is the most common cause of emergency interventions in connection with events, above all at camping sites that are adjacent to an event. You should therefore make sure that larger accumulations of trash do not develop on site.
- **Reduced risk of injury.** Some objects found lying around can be used as weapons and involve a risk of injury. Increased clean up reduces this risk.

An organiser should contact a municipality's sanitation officials for help and advice about how the waste from an event can be managed. The municipality is usually responsible for managing all household waste, i.e. regular waste. An event must, on the other hand, employ a contractor to dispose of production waste, i.e. glass, paper, and metal. A dialogue with a municipality's sanitation officials can be a good way of finding a suitable contractor for waste management.

12.2.1. Staff working with waste management

Many events hire local associations to clean up a venue. Hygiene is extra important for staff working with waste management. Make sure that there are washing and shower facilities available, as well as access to hot water and antiseptic creams. Staff handling waste must be equipped with work gloves and other appropriate protective equipment, such as safety boots, safety glasses, gripping claws, and the like. Work gloves must be of durable quality and should be changed often.

Hygiene is extra important for staff working with waste management.

12.2.2. Waste management transport

Waste is often transported in heavy vehicles. Make sure that these are guided or monitored, so that the risk of visitors being injured or equipment being damaged is minimised. Find out if it is possible to establish transport routes in the event site.

Plan to carry out waste transport in audience areas at times when there are fewer visitors present there in order to facilitate the transport and reduce the risk of accidents.

12.2.3. Waste recycling

The event should endeavour to recycle all waste, and this should be done in collaboration with the municipality. It is important to separate waste in the form of packaging materials from other types of waste. Glass, paper, plastic, and metal packaging as well as printed paper are sorted separately.

At some more cohesive events, the municipality may set up temporary recycling stations for packaging material, printed paper, and batteries, supplemented with waste bins for other types of waste. These can be used by both visitors and staff. It is also a good idea to place waste bins for unsorted waste along walking routes, both in the event site and along roads and streets leading to and from the site. You can also place special bins for glass inside the event site.

Following the event, its staff, or a contracted association, can sort the waste collected and leave it at recycling stations or the municipality's recycling facilities, sorted to the extent that has been previously agreed upon.

Photo: Zoranm/iStock

12.2.4. Containers for waste management

Conduct a dialogue with the municipality's sanitation officials and the contractor hired for waste management about which containers should be used for waste management.

Containers for the collection of waste can be placed inside the event site and any adjacent camping sites. These containers should be emptied regularly, both to avoid their becoming overfull, and to reduce the risk of arson. Larger containers should also be available for storing the waste collected until it can be transported to a recycling station. Such containers should be placed out of reach of unauthorised persons. They should preferably be kept under lock and key in order to prevent arson. Remember that you may also need special bins for medical waste.

Make sure that all containers for waste management are emptied regularly, alternatively monitored or locked, in order to avoid arson.

It is advisable to establish a sorting central, where the waste can be sorted before being transported to a recycling centre.

Read more about:

Toilets and showers in *Section 15.10.*

Signposting in *Section 7.2.*

12.3. Sanitation or toilet area

Temporary toilets and washing facilities for event visitors should preferably be placed in a sanitation area that is dimensioned on the basis of the relevant conditions at a particular event. Find out approximately how many visitors are expected at the event, and create a sanitation area on the basis of this with the appropriate numbers and types of toilets. It is advisable to contact an established supplier of temporary sanitation areas and discuss the siting of this sanitation area, as well as the types of toilets and their number, because experience within this field can be valuable for planning a successful sanitation area.

Dimension the sanitation area on the basis of the conditions at the event.

Keep the following in mind before dimensioning a sanitation area:

- the anticipated consumption of food and beverages;
- the capacity for managing peak usage, e.g. in the morning and in the evening at a temporary camping site, or in period intermissions at a sports arena;
- the availability of toilets for people with functional impairments.

If it is not certain how many men or how many women will attend the event, you can assume that the audience will consist of fifty per cent men and fifty per cent women. If you know that there will probably be either a greater number of men or of women, the number of toilets can be calculated on the basis of this.

The table below suggests an approximate number of toilets in relation to the number of visitors. Keep in mind that the need for toilets increases by twenty-five per cent compared to the values in the table when there is a wash basin in the toilet unit, because each visit will then take a little longer. The numbers in the table below may also have to be adjusted on the basis of the event type, visitors' profile, and the venue.

Table 10. Number of toilets without wash basins in relation to event duration and number of visitors

	Events shorter than six hours	Events longer than six hours		Events with round-the-clock requirements for toilets (e.g. a festival camping site)
		No food served	Food served	
Toilets for women	1 toilet per 100 visitors	1 toilet per 85 visitors	1 toilet per 75 visitors	1 toilet per 75 visitors
Toilets for men	1 toilet per 500 visitors with 1 urinal per 150 visitors	1 toilet per 425 visitors with 1 urinal per 125 visitors	1 toilet per 400 visitors with 1 urinal per 100 visitors	1 toilet per 150 visitors with 1 urinal per 250 visitors

Design the sanitation area so that visitors are protected from bad weather and from accidents due to tripping or slipping. Floors, ramps, and stairs should be covered with anti-slip stair treads.

Calculate the number of accessible toilets on the basis of the number of visitors estimated to require them. The main rule is that there should be at least one accessible toilet when there are public toilets, and, in addition, one accessible toilet per fifty visitors for those visitors who require one. At an event expected to have one hundred visitors with functional impairments, there should thus be two accessible toilets for these visitors. When toilets are needed around the clock, a somewhat greater number of accessible toilets per visitor may be required.

12.3.1. Siting of sanitation areas

At larger events it can be desirable to have several sanitation areas. In this way the accessibility and service for visitors are increased, while at the same time the risk of long queues is reduced.

At events covering a large area and including long distances (e.g. city festivals) it is extra important to consider the siting of toilets, so that the entire area is well served. Place these toilets adjacent to roads and in parks. However, remember that distributing sanitation areas over too large an area both makes maintenance more difficult (because some toilets need to be emptied regularly) and risks making toilets difficult to find (which can lead to uneven loading).

Sanitation areas with chemical toilets (or portaloos) should be placed so that a vacuum truck can easily drive all the way up to each of them. There should never be more than twenty metres between a sanitation area and an accessible road.

Sanitation areas bring with them odours. For this reason, you should avoid placing them in the vicinity of food sales or in areas with a high crowd density. The distance between a sanitation area and food vendors should, if possible, be at least fifty metres. Good signposting makes it easier for visitors to find the sanitation areas.

At certain events, sanitation areas are hotspots for various types of crime. Good lighting, separate sanitation areas for women and men, and the presence of staff contribute to reducing these risks.

Remember that the event staff also need access to sanitation facilities. A well-dimensioned and well-sited sanitation area for the staff can, in addition, make their work more efficient.

Also make sure that there are staff available who can maintain the toilets. The toilets should be well cleaned, and paper and soap should be refilled regularly.

Photo: Trygve Finkelsen/MOSTPHOTOS

12.3.2. Maintenance of sanitation areas

At one-day events there is usually no need to empty the toilets. At multi-day events it is, on the other hand, desirable to empty the toilets in the morning and make sure that there is a vacuum truck on duty at the site. Try to calculate the expected use of the toilets, and schedule their emptying on the basis of when the site is closed to visitors or when the number of visitors is at its lowest.

Also make sure that there are staff available who can maintain the toilets. The toilets should be well cleaned, and paper and soap should be refilled regularly.

12.3.3. Different types of sanitation facilities

Choose sanitation facilities that are appropriate for the event in question. What is appropriate depends on the place, access to water, roads, and the budget. Conduct a dialogue with the municipality, other organisers who have previously organised similar events, and suppliers of sanitation facilities in order to get tips and advice.

12.3.3.1. Existing toilets

Many events manage by using existing toilets, i.e. public toilets in the vicinity or toilets already present on the premises. However, at larger events where there are existing toilets (e.g. arena events and city festivals), demand can sometimes exceed capacity. In such cases, resources should be increased through the use of temporary sanitation areas.

At certain events an organiser may choose to use only temporary toilets. The risk of vandalism and the high cost of maintenance for existing toilets are then avoided.

12.3.3.2. Temporary toilets

Mains-connected temporary toilets can be used when there is access to a sewage system, septic tank, or the like, and access to a water supply with the appropriate pressure. You should contact the people responsible for water and sewage in the relevant municipality to check whether it is possible to use already installed sewage systems when temporary flush toilets that require connection to a sewage system are chosen. The installation of a sewage system must be done by an authorised plumber.

The most commonly used temporary toilets are chemical toilets (so-called portaloos). These have separate tanks and need to be emptied by a vacuum truck. Vacuum trucks must be able to empty their loads at a sewage treatment plant. The toilet units should be placed on a level surface and anchored so that they cannot be easily overturned.

Another variant of temporary toilets are urinals that are designed like gutters. These can be used in order to reduce the number of visits to other temporary toilets.

Some temporary accessible toilets may have a lower tank capacity than other temporary toilets, so you should try to make sure that these toilets are only used by visitors with some type of functional impairment. However, it is important to remember that some functional impairments are not readily visible. For this reason, the staff must be well-instructed concerning various types of special needs.

Urinals can be used in order to relieve the stress on temporary toilets.

12.3.3.3. Washbasins

There should be washbasins located adjacent to sanitation areas. If it is not possible to provide washbasins, an organiser can provide antiseptic creams. If washbasins are used, there should be a sewage system or some other possibility for draining the wastewater. If not, the area around a washbasin can become waterlogged and muddy. Count on one washbasin per five toilets, and make sure that there are washbasins next to the toilets used by food vendors.

12.3.3.4. Showers

Shower facilities may be needed at multi-day events that have an accompanying camping site. An option can be bathing sites or public baths near the event. Consider the following if showers are installed:

- Showers use a lot of water. Make sure that there is enough water and a means for disposing of the wastewater.
- There should be shower facilities for the staff.
- Think of the level of service an event wishes to offer its visitors, and dimension the number of showers on the basis of this.
- Make sure that there are showers that are accessible to persons with functional impairments.

It is a good idea for an event to charge visitors a fee for using the showers. This means that an event can afford to offer more showers. It also becomes easier to monitor and maintain the showers.

12.3.4. Surveillance of sanitation areas

Sanitation areas should be monitored by safety staff, both to avoid vandalism and other crimes, and to increase the visitors' sense of security. Sanitation areas can, for instance, be used for drug dealing, and sexual crimes can also be committed there. It is also common for visitors who feel unwell to make their way to a sanitation area. Sanitation areas should therefore be included among the locations being patrolled when there are no safety staff posted there. It may also be advisable to remind all staff to be especially observant in sanitation areas.

It extra important to have good lighting in sanitation areas in order to improve the ability to monitor them.

A final inspection of sanitation areas in connection with the closing time of an event site is also necessary.

12.4. Sustainability

Sustainable development means that today's needs are met without undermining the ability of future generations to meet their own needs. Work with sustainable development touches on many different aspects of an event, not least its environmental work.

There are different kinds of environmental certification systems (primarily ISO 14000) that one can consider using in order to ensure the quality of the waste management and environmental work of the event. This can often be a powerful tool for enhancing the quality of an event. In addition, there is a Swedish and international standard (ISO 20121:2012) which specifies requirements for event sustainability management systems.

Read more about:

How to make an event accessible with respect to toilets and showers in *Section 15.10.*

Crime prevention in *Section 2.2.*

There should be washbasins located adjacent to the toilets. Count one washbasin per five toilets.

This standard makes it possible for organisations that have not previously worked formally with sustainable development to use an event sustainability management system. This standard specifies mainly how events organise work that has environmental, social, and economic impacts, and it also touches on safety work when it comes to, among other things employer responsibility, waste management, and accessibility.

This standard includes the following:

- **environmental issues** – e.g. use of resources, choice of materials, preservation of natural resources, reduction of emissions, biodiversity, nature conservation, and emissions into the soil, water, and air;
- **social issues** – e.g. working conditions, occupational health and safety, a citizen's freedoms and rights, social justice, the local community, the rights of indigenous peoples, cultural issues, accessibility, justice, cultural heritage, and religious beliefs;
- **economic issues** – e.g. return on investments, the local economy, market capacity, shareholder values, innovation, direct and indirect economic impacts, economic performance, risk, fair trade, and profit-sharing.

Photo: Ethan Hu/*Unsplash.com*

12.5. Contagion-resistant events

Events where many people gather can, under certain circumstances, occasion the significant spread of infection. When a contagious and serious disease is spreading in society, special measures will need to be taken in order to prevent the spread of infection. The responsible authorities can also decide on regulations that must be followed and provide recommendations for helping citizens abide by these rules. The chain of events in these circumstances can change rapidly, and events may need to be cancelled at

short notice, regardless of how well the organisers have tried to prepare to prevent the spread of disease.

If there is a significant spread of infection in society, the organisers should first of all determine whether or not it is at all appropriate to hold the event, even when there are no legal obstacles to doing so.

However, it may be difficult for an organiser to assess the risk of many people being infected by a disease, or to have an overview of the possible consequences of such a development for society. For this reason, it is important for organisers to have appropriate knowledge of the special laws, regulations, and recommendations currently in force regarding the spread of infection. These can be found at the websites of the responsible authorities: the Public Health Agency of Sweden, *Krisinformation.se* (emergency information from Swedish authorities), the county administrative board in question, the respective municipality, and relevant others.

It is also important for organisers to make it easy for visitors to follow recommendations in order to reduce the risk of spreading infection. Depending on the type of infection involved, this can include measures such as physical distancing, good access to hand-washing facilities, regular cleaning and disinfection, and special waste management.

The foundation for successful events is that all participants – staff, performers, visitors, etc. – shall be healthy and not have any symptoms of disease. It is therefore important that personal cancellations are easy to make, and that information about cancellations and any insurance is readily available, should a visitor fall ill before an event.

12.5.1. Risk assessment

If an organiser wants to know more before assessing the risk of the spread of infection, and what measures can be taken to reduce that risk, there is more information available at the websites of the relevant authorities.

12.5.2. Factors to take into account prior to an event

Depending on how an infection is spread, different factors are central to making a risk assessment and taking measures that will reduce this potential spread. If there is an outbreak of a disease, the following factors should be taken into account, regardless of the type of infection:

- How does the infection spread among people?
- How does the infection risk being spread at the event?
- What measures for protection from infection do the authorities recommend?
- Who are the visitors to the event?
- Who runs a risk of serious disease?
- How does the location (indoors/outdoors) or the season affect the risk of the spread of infection?
- From where do the visitors come?

12.5.3. Preventative work

Some things are important to keep in mind in order to reduce the risk of the spread of infection for visitors, performers, staff, and others:

- **Physical distance.** Make sure that there is an opportunity for people to maintain a safety distance from others, and adapt the surroundings at the event on the basis of this.
- **Good hygiene.** Make sure that surfaces often touched by people are cleaned regularly and that the visitors have an opportunity to maintain good hygiene. Make sure that visitors can wash their hands, above all following toilet visits and when eating and drinking.
- **Anyone displaying any kind of symptoms should remain at home.** If a person falls ill during an event, ensure that there is an opportunity for that person to be taken care of or, alternatively, to return home in a way that does not expose other people to infection.
- **Communication.** Convey current and relevant information to visitors before, during, and after an event in order to ensure that recommendations are followed.

Read more about:

Audience behaviour during the different phases of an event in *Section 16.4.2.*

Gross area, net area, and actual audience area in *Section 6.3.1.2.*

Crowd management in *Chapter 16.*

12.5.4. Practical aspects of the reduction of infection

In order to achieve desirable prerequisites for reducing the spread of infection at an event, the organisers can in many cases think in terms of crowd management. In this context, it is important for an organiser to take into account all the phases of the event.

Each phase has its own challenges.

- **During the ingress phase** many people make their way to the same place: an entrance to the venue. Even if this occurs over a longer period of time, there is a risk of an increase in crowd density. This is because the ingress phase often involves various procedures (e.g. ticket inspections and frisk searches) that lead to the crowd flow slowing down or stopping, and to crowd density potentially increasing. In addition to this, excitement or a strong desire to get into an event may lead to the audience members paying less attention to safety measures.
- **During the circulation phase** the challenge is mainly that the enthusiasm of the audience about what is happening at the event may lead to visitors paying less attention to what is required regarding safety.
- **During the egress phase** the challenge is often simultaneity. At most events, audience members often arrive over a somewhat extended period of time, but they all leave the event at approximately the same time. This may lead to congestion in the crowd flow and increased crowd density.

When planning for crowd flow, it is particularly important to understand the driving forces and dynamics of the crowd in question. It is not certain that the audience will behave in a particular way just because an organiser wants them to. For this reason, an organiser needs to create not only good conditions, but also incitements, in order to induce the audience members to behave in an appropriate manner.

If there is a need for it, an organiser may conduct a flow analysis of the various phases of the event (ingress, circulation, egress) with the potential spread of infection as a point of departure. The organiser can then take measures on the basis of this, e.g.:

- identify places and times with an increased risk and adapt these places;
- create flows where pedestrians are not exposed to oncoming or intersecting streams of people;
- reduce the risk of queues, e.g. through virtual queues, tickets valid at different entrance times, section-organised egress, or by not ending all activities at the same time;
- inform the audience in advance about times of peak congestion;
- collaborate with external actors in order to distribute the travel of visitors over time and on various means of transport;
- steer or limit the audience, for instance by using fences to guide crowds in the desired directions;
- limit the number of visitors to parts of or the entire event.

Limitations on the number of participants should not simply be based on an arbitrary total number. An organiser should base calculations partly on physical conditions (e.g. the actual size of the crowd at the event), and partly on temporal conditions: What does the audience want to do? When, or over what period of time, will the audience be at a specific location or walk along a specific focal route?

An event with a hundred participants who arrive at the same time may involve a high crowd density, while an event with ten thousand participants who arrive at different times may involve a considerably lower crowd density at any given time.

13. Temporary structures

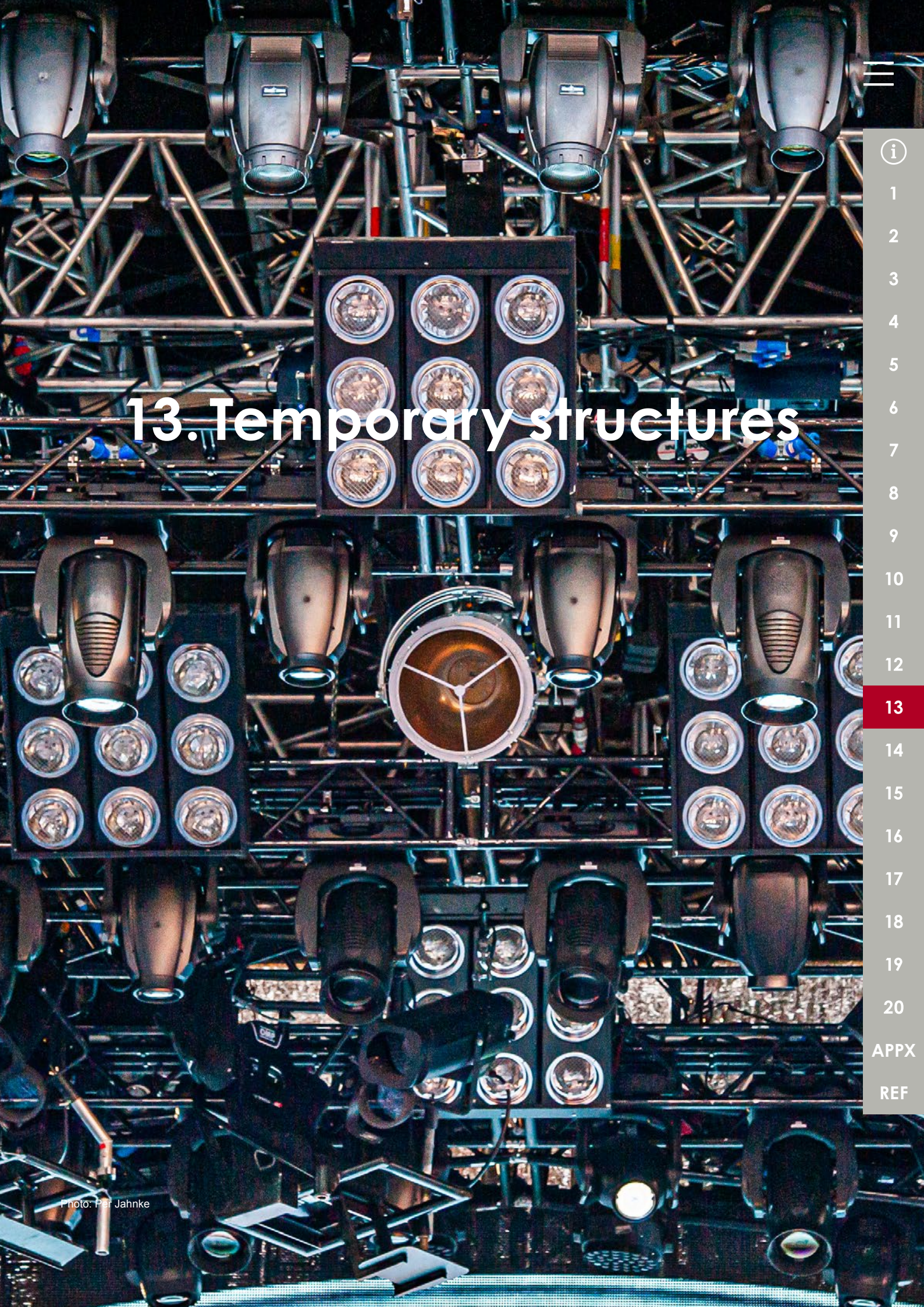


Photo: Pär Jahnke

13. Temporary structures

Temporary structures can be found at most events – e.g. stages, stage barriers, scaffolding, marquees, or stands – needed in order to set up the venue on the basis of the requirements of an event. This chapter provides guidelines concerning what an organiser should keep in mind with respect to temporary structures.

Read more about:
Temporary structures in *Appendix C.* and Temporary Demountable Structures: Guidance on Procurement, Design and Use (4th edition), published by The Institution of Structural Engineers.

13.1. Planning temporary structures

Temporary structures should never have less stringent requirements for safety than permanent structures. However, temporary structures may often be needed at short notice, which can mean that the time scales for planning, installation, and assembly prior to an event, and disassembly after an event, can involve processes being implemented and decisions being made under the pressure of time.

Temporary structures must often be able to withstand such things as the forces of wind and audience pressure from multiple directions. Moreover, their structural components must often be made of lightweight materials, so that they can be quickly assembled, disassembled, and reused.

In addition, temporary structures rarely have firm anchorage to a building, and thus no force can be transferred to, for instance, a facade. A separate structure therefore needs greater support for its sub- and superstructure.

If an organiser does not have sufficient competence concerning temporary structures, they should contact representatives from an independent party who do have the appropriate experience and expertise, in order to get a green light for constructing the structure.

When analysing the risks of a structure, regardless of whether it is a stand, a stage, or a marquee, you should always take its *possible*, rather than its *intended*, use as the point of departure. It is not self-evident that those who use the structure will act exactly as anticipated. Measures may even be needed that prevent inappropriate behaviour in order to make sure that the structure is used in the proper manner.

When analysing the risks of a structure, take its *possible,* rather than its *intended,* use as the point of departure.

There is a checklist that can be used for support in planning, assembling, disassembling, and using temporary structures.

13.1.1. Static and dynamic loads

With respect to the durability of structures, loads are divided into static and dynamic loads. Static load means that a load is constant, i.e. it does not move, while dynamic load means that a load varies over time. Dynamic loads are relatively common at certain events, for instance when the people in an audience in a stand stomp to the beat of music, jump up and down, or in other ways all move at the same time, or when a structure is exposed to strong winds.

With respect to dynamic loads, there is always a risk that a structure will oscillate at its natural frequency. When this happens, the forces acting on the structure become very great, which can lead to the structure's collapse.

Dynamic loads can, in a worst-case scenario, lead to the collapse of a structure. If there is a risk for dynamic loads, this must be taken into account, particularly during the construction and use of a structure.

If there is a risk that a structure will be exposed to dynamic loads, this must be taken into account, particularly during its construction and use. You may, for instance, have to calculate the natural frequency of a structure in order to ensure that it does not coincide with any of the frequencies to which that structure may be exposed.

Read more about:

Siting of temporary structures in *Section 6.4.1.*

Siting of stages in *Section 8.2.*

Siting of entrances in *Section 9.1.*

13.2. Agreement with a supplier

In order to avoid problems with respect to the allocation of responsibility for the safety of a structure, an organiser, a supplier, and the party who assembles the structure should enter into an agreement in which the allocation of responsibility is regulated. It should be clear from the agreement who is responsible for what according, for example to the following:

The supplier is responsible for

- the structure being appropriate for its intended area of application;
- safety being maintained around the structure, up until its delivery to the event;
- the structure being free from defects at delivery;
- assembly instructions being provided to the person responsible for its assembly;
- safety instructions being provided to the organiser.

The assembler is responsible for

- safety being maintained for the assembly staff;
- the structure being assembled and disassembled correctly according to the assembly instructions and the regulations in force concerning health and safety at work.

The organiser is responsible for

- making sure that the supplier and the assembler understand the area of application and the conditions under which the structure will be used;
- maintaining the safety of the audience and the staff in the vicinity of the structure for as long as it is in place at the event;
- there being necessary information and competence for the structure to be handled correctly and safely.

13.3. Siting of temporary structures

Temporary structures can have many areas of application, and where to site them depends on the nature of a structure and its intended use. When siting a temporary structure, safety should be kept in mind, not only while it is in use but also during its assembly, maintenance, and disassembly. In certain cases, a temporary structure is a focal point, which means that it will attract and hold an audience. In such cases, is especially important to consider its siting and its location in relation to other focal points and activities.

When deciding on the siting one should also keep in mind the risks of the structure being exposed to something for which it has not been designed, for example strong winds, lateral pressure, or a collision. For more specific advice about the siting of, among other things, an entrance or a stage, please see the relevant chapter.

Ask for references concerning previous assignments from prospective suppliers.

13.4. Choice of supplier

Temporary structures are usually rented from a supplier. It is therefore important to choose a competent supplier. An event organisation must be able to trust that the products that have been rented are free from defects, tested, and appropriate for the activity in question. You should therefore ask for references concerning previous assignments from prospective suppliers.

According to the Product Safety Act (2004:451), an economic operator shall provide safe services and products, but the Act does not describe in detail how to ensure that the services provided are safe, since this must be assessed on a case-by-case basis. When assessing whether a service is safe or not, 'good practice for product safety in the concerned sector' shall be taken into account, according to the Product Safety Act. 'Good practice for product safety in the concerned sector' means that a supplier follows the general advice, guidelines, etc. issued by the authorities and professional organisations concerned. Complying with these guidelines is voluntary, but when choosing a supplier, the organiser should require the supplier to do so.

You can also contact the Swedish Consumer Agency for advice if you are unsure.

A supplier should have knowledge of the product and of working with a structure;

- be able to deal with and eliminate risks when a structure is assembled and disassembled;
- have staff who are trained in assembly and disassembly;
- be able to provide the necessary documentation, e.g. assembly instructions, certificates, and standards;
- show a timetable for delivery;
- have liability insurance;
- be able to show that a structure has been type-approved or production-controlled. If there is no requirement for type control, a so-called structural report must be provided showing that the structure meets the relevant requirements;
- be able to show a log or other documentation indicating that a structure has undergone continuous maintenance.

Companies or contractors who assemble and disassemble temporary structures should have carried out a risk analysis for the assembly and disassembly of a structure. The risk analysis should take into account the safety of people who move around in the vicinity of structures whose assembly or disassembly has not been completed.

If there is the least degree of uncertainty about how a temporary structure shall be sited, assembled, used, and managed, or whether it fulfils all requirements and has all necessary certifications, an organiser should ask the supplier for a safety briefing. At this briefing the person who is to be responsible for assembling the structure should be present. If the user of the structure is not the same person as the organiser, the user should also be present. It can also be a good idea to invite the concerned authorities to the safety briefing.

Read more about:

Product safety at *www.konsumentverket.se*.

Structural reporting in *Section 8.1.*

Independent accredited regulatory bodies at *www.swedac.se*.

Demand to be provided with the necessary documentation from a supplier before choosing a temporary structure.

13.5. Documentation of temporary structures

Demand to be provided with the necessary documentation from a supplier before choosing a temporary structure. The documentation facilitates the safety briefings that both an event organisation and the authorities need to carry out. The fact that a supplier can provide the documentation to the representatives of an event about the structure can also be seen as a guarantee of quality with respect to the supplier.

13.5.1. Structural drawings for a structure

Structural drawings contain information about how a structure is constructed. There is no requirement for the structural drawings to be disclosed, but they should be available if an independent regulatory body is consulted to ensure that the structure is correctly assembled and safe.

A supplier must always be able to provide assembly instructions.

13.5.2. Assembly instructions for the structure

A temporary structure is often designed so as to have certain properties. These properties can, for instance, include how stable a structure is when exposed to lateral winds, or the structure's ability to withstand a certain level of load. There is a risk that these properties are lost if a structure is assembled incorrectly. Assembly and disassembly must therefore always be done according to the assembly instructions. A supplier must always be able to provide assembly instructions. A supplier is also obligated by law to supply delivery instructions if the structure is delivered unassembled.

Always find out exactly what a particular standard actually means in order to assess whether it is relevant for the intended area of application.

13.5.3. Standards and test results for a structure

Many temporary structures have undergone tests of various kinds. For certain structures, for instance temporary stands, there is a current standard that shall be used and must be fulfilled. However, you should always carefully investigate what the standard involves: Is it relevant for the safety of the structure? Keep in mind that a standard or a test is not necessarily a guarantee of quality in and of itself. The tests undergone and standards issued must also be relevant in the context of the event. Finally, it is important to make sure that any tests that have been carried out, or any standards that apply, have been documented.

13.5.4. Inspection certificate for a structure

Larger temporary structures should be inspected by an accredited and independent regulatory body. This is especially important for structures designed to accommodate or carry people. A supplier should be able to provide documentation supporting the claim that a structure has been inspected and is free of serious criticism.

13.6. Assembly and disassembly of temporary structures

The following points should be guaranteed in order to prevent incorrect assembly or incorrect use of a temporary structure:

- The assembly shall be done according to the assembly instructions. Avoid using spare parts or complementary parts not designed for the structure in question, unless they have been tested and approved for that purpose.

The disassembly of temporary structures must be done with the same care as was their assembly.

- Temporary facilities may require staff to climb on them during assembly. This should be done with care and in compliance with the occupational health and safety legislation currently in force.
- Prior to both assembly and disassembly, all components should be examined for signs of damage or deformation. Damaged components should be replaced.
- If any part of the structure, for instance marquee stakes or ropes, will be in direct contact with the audience area, this situation should be rectified. Alternatively, an audience can be made aware of the situation through the use of a sign or by covering the objects in question, so that no members of the audience are injured because of the structure.
- Staff working with the assembly and disassembly shall, in certain cases, be certified assemblers. This is the case with respect to, for instance, working at heights or constructing scaffolding.
- An assembled structure must be inspected by someone who has the proper competence required for the structure.
- Ensure that a structure whose assembly has been completed is safety checked before it is put into service, so that it corresponds to the drawings and calculations that apply. This safety check must be documented.
- If there are suspicions concerning the possibility that a structure may have been exposed to stress it should be safety checked, because a temporary structure is vulnerable to, for example, weather, wind, incorrect use, or pressure from the audience. The safety check should be carried out before an audience is allowed to come near the structure.

Read more about:

The load and strength of a venue in *Section 6.1.2.* and *Section 6.1.3.*

Rules for working at heights in the Swedish Work Environment Authority Statute Book (AFS).

13.6.1. Rigging

Installing equipment for sound, lighting, video, scenery, and other special effects is called rigging. Rigging usually includes several tonnes of equipment being rigged from roof trussing, scaffolding, and floor surfaces. Rigging is not risk-free and therefore its use requires both knowledge and experience. A lack of safety routines with respect to rigging can involve great risks for the audience, staff, and performers. It is therefore important that the people doing the rigging have the competence required for a safe result.

When renting or purchasing rigging services, you should make sure that a supplier appoints someone who is ultimately responsible (the so-called head rigger) for the rigging process. This person should have some form of certificate – for instance the British NRC (National Rigging Certificate) at Level 2 or 3, or the equivalent – so that the rigging is done safely and according to current norms and regulations.

The person ultimately responsible for the event should be able to provide a risk assessment and a description of the methods being used for the job that can be approved by the person responsible for the building, the scaffolding, or the stage. If uncertainties remain about the rigging, the purchaser should contact an independent inspection body for an opinion.

It is of vital importance that neither floor constructions, ceiling constructions, nor anchor points are overloaded during rigging. Those who rent out the premises or stage and the property owners have a responsibility to provide information about the strength and maximum carrying capacity of these premises or this stage. Contact a supplier of stages or those who rent out the premises to get information about strength.

Property owners and those who rent out equipment have a responsibility to provide information about its strength and its maximum carrying capacity.

13.6.2. Working at height

Assembly, disassembly, and rigging of temporary structures often involves assembly staff working at height – concert marquees, stages, sound and lighting installations are often impossible to erect or take down without working at height. It is important that working at height is done on the basis of all the current precautionary measures, and that there are procedures for aiding staff working at height who need assistance. People doing structural or construction work who do not comply with the rules regarding working at height (i.e. two metres or more above ground level) risk having to pay fines.

13.7. Special rules

The concept of a 'temporary structure' is very general, because it covers everything from circus tents seating thousands of visitors to a radio mast placed outside the audience area. Different temporary structures impose different demands on safety and precautionary measures.

This section discusses specific rules and what it can be good to think about in connection when using the most common temporary structures at an event. You should also read the general advice and guidelines provided earlier in this chapter concerning legal responsibility, the choice of supplier, and the assembly of temporary structures.

13.7.1. Temporary stands

When using temporary stands it is important to maintain safety, both during construction and when in use. Examples of how to make stands safe can be found in the standards series SS-EN 13200.

If there is a risk of dynamic loads, this also has to be taken into account during the construction and use of a structure. A stand often risks being exposed to complex dynamic loads. An audience who, for instance, stomp to the beat of music or jump up and down risk causing a stand to oscillate, which involves a risk of the stand collapsing. This is not only the case at musical events. Also in the context of sports events, a heightened mood and music blaring from loudspeakers may have the same effect. For this reason, you should not simply take an evenly distributed static load as a point of departure when dimensioning a stand.

Usually the risk of oscillation at the natural frequency of a structure is greater for temporary stands than permanent ones. The safety of temporary stands that risk being exposed to dynamic loads should be checked by an independent and accredited regulatory body.

The assembly of a stand must also have been done correctly, because its carrying capacity can otherwise be affected. When an organiser arranges for the delivery of a stand, the supplier should be asked to provide technical specifications for the stand along with a so-called structural report.

Ask the supplier to explain how various limit values should be interpreted and what safety regulations apply to handling the stand.

A temporary stand must under all circumstances withstand the same levels of stress as a permanent one. This is also likely to be a requirement for the event in the permit from the Police Authority. Hiring established suppliers and assemblers is therefore almost necessary, even when it comes to structures of moderate hight.

Read more about:

Static and dynamic load in *Section 13.1.1.*

Structural report in *Section 8.1.*

Conditions for temporary structures in *Section 13.1.*

Stages in *Chapter 8.*

Different temporary structures impose different demands on safety and precautionary measures.

Furthermore, a temporary stand may contribute to there being a larger audience at an event, which leads to the need to examine evacuation routes and fire safety. It is important to ensure both that there is sufficient capacity, and that the stand is placed correctly with respect to evacuation and fire safety.

Temporary stands are generally designed to be entered from below, which often contributes to visitors making their way to the closest seats with a good view over the pitch or stage. More stewards and multiple admission times may therefore be necessary, because there is a greater risk of crowd congestion in temporary stands than in permanent ones. This is important to keep in mind also during egress.

Read more about:

Guidelines for fire safety in large tents in European guideline Fire prevention in large tents (CFPA-E No. 36:2017 F) from the Confederation of Fire Protection Associations Europe (CFPA-E).

13.7.2. Stages

Stages are some of the most complex temporary structures at an event. There are a number of different kinds of stages and, depending on their construction, the regulatory framework for them varies. A so-called ground support stage is, for instance, not regulated by the same rules as a stage constructed with scaffolding.

It is important to keep the following in mind:

- A stage must be strength tested according to current requirements, and it must be quality certified.
- All tarpaulins and fabrics being used on or around the stage must be fire-retardant.
- Current praxis is that stages being used for larger gigs are around 2.5 metres high. A low stage may mean that some members of the audience cannot see the performance, something that can generate higher crowd pressure. If there are questions concerning this, consult the supplier of the stage.
- Stages should be lightning protected in order to reduce the risk of lightning strikes. Contact a supplier of electrical installations for help.
- Some stages are not designed to withstand lateral forces. For this reason, stage barriers should never be supported against the stage, for instance by pallets, without having made sure that the stage can withstand the anticipated stress.
- If an organiser rents items to be placed on a stage, or hung from the stage ceiling, etc., then weights, loads, suspension points, and the like should be approved by the stage supplier and this should be documented.

13.7.3. Marquees

That which differentiates marquees from other temporary structures is that they must be able to accommodate people. Higher requirements for fire safety and dimensioning are therefore imposed on these than on other types of structures.

Marquees intended to hold more than 150 people are classed as assembly marquees, and must under Chapter 2, Section 12 of the Public Order Act (1993:1617) be inspected and approved by an accredited regulatory body. A marquee must only be used if it meets the appropriate requirements regarding fire resistance and stability. It must also meet requirements regarding evacuation routes and safety with respect to fire and other accidents.

It is important to keep the following in mind:

- A marquee must be dimensioned for the intended audience size.
- A marquee must meet the requirements of the fire and rescue services for evacuation routes and evacuation capacity. The same rules apply with respect to evacuation for assembly marquees as for assembly halls.
- A marquee must be approved according to Swedish standards.
- A marquee must be constructed from fire-retardant and approved tarpaulins and fabrics.
- A marquee should be lightning protected in order to reduce the risks of lightning strikes. Contact a supplier of electrical installations for help.
- Make a risk analysis and a plan for actions to be taken in the event of potential accidents or fires.
- All electrical installations, installations for heating and cooking, and gas cylinders should be checked extra carefully if they are to be placed in a marquee.
- An organiser should find out in advance the structural bearing capacity of the marquee's framework and any stands that are present, as well as the marquee's resistance to weather phenomena, such as wind, snow loads, or rain.
- The risk of a vehicle running into a marquee frame should be reduced by through the siting of the marquee and of vehicle routes, or by protecting the load-bearing parts of the marquee.
- Siting a marquee close to a building, on the roof of a building, or in an enclosed space should only be done after consulting the authorities.

14. Sound and special effects

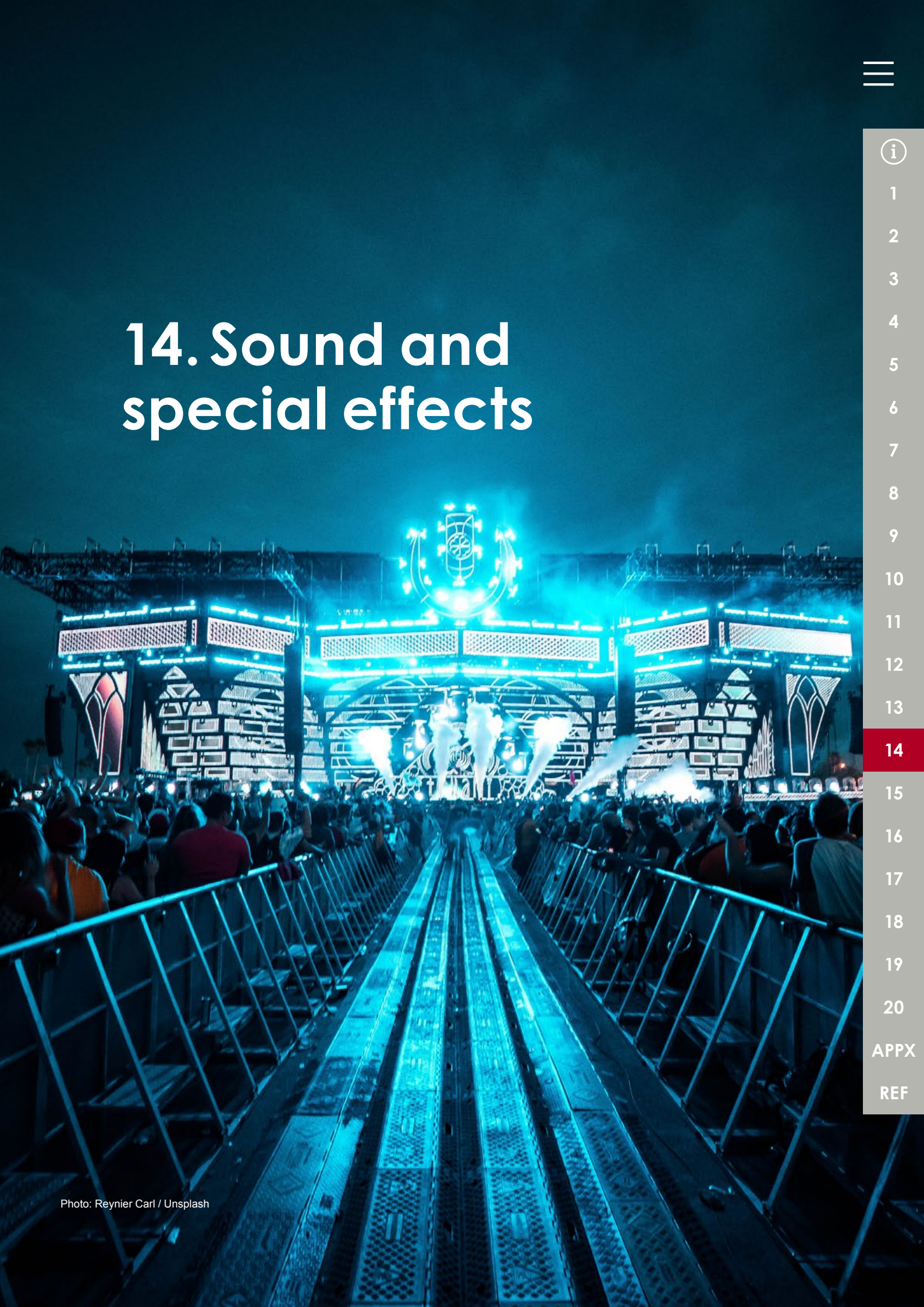


Photo: Reynier Carl / Unsplash

14. Sound and special effects

Sound and special effects are a part of each visitor's experience during an event. The sound, and in many cases also the special effects, are natural and expected elements, for instance at concerts and sports events. For this reason, it is not possible to eliminate the accompanying risks by removing the source of the risks.

Safety work with respect to sound and special effects involves, to a great extent, preventing risks through knowledge as well as through appropriate handling and implementation. Sound is, in addition, an important tool both for disseminating information and for dealing with crisis situations. However, high sound levels can make internal communication at an event more difficult.

Concepts:

dB(A)

Decibel values are measured with a so-called A-filter, which means that only the harmful treble tones are measured.

Leq

The equivalent continuous sound level (the so-called Leq) corresponds to the average value of sound during a test period. The test period for concerts and similar activities is one hour. If a concert is shorter than an hour, the Leq is measured for the entire duration of the concert.

14.1. Sound

Sound level and the level of acoustic pressure are measured in decibels (dB). Zero (0) dB is the lowest sound a healthy ear can hear. The decibel scale is logarithmic, which means that the acoustic pressure is doubled at every third decibel. This means that an increase from eighty to eighty-three decibels doubles the acoustic pressure. An increase of thirty decibels means that the acoustic pressure increases by almost one thousand times.

Loud sounds can damage your hearing, resulting in, for instance, tinnitus or permanently impaired hearing. However, it is not simply the sound intensity that decides how harmful sound is. Potential damage also depends on the length of exposure to the sound in question. Even a person's physical condition affects their sensitivity to noise. The sounds that are most harmful to human hearing are high-frequency sounds, i.e. explosions, bangs, or blows.

Table 11. Sound volume

dB(A)	Corresponds to	Unprotected exposure
20	Whispers/leaves rustling	
40	Footsteps in gravel	
60	Normal conversation	
80	Speaking in a loud voice	
85	Worker protection limit. When working at over 85 dB Leq, ear protectors must be used.	
95	Heavily trafficked road	should be below 45 minutes
97	Maximum level for premises/places to which persons under the age of 13 have access	
100	Max level for places where only persons who are 13 years old and older have access	
110	High level at a discotheque	should be less than 1 min 30 sec
115	High level at concerts	should be less than 10 sec
125	Pain threshold. The human ear immediately feels distress. NB! Also lower acoustic pressures can be harmful.	
140	Jet engine	should be avoided
190	Highest possible sound volume in air	should be avoided

Permitted sound level

The Public Health Agency of Sweden has published general advice on high sound levels (FoHMFS 2014:15) with guideline values that can be applied when measuring sound both indoors and outdoors. This advice is designed on the basis of the health effects sounds can have, and the risk of hearing impairment as a result of a person having been exposed to, for instance, loud music. Loud sounds of several kinds should be included in the sound measurement: music, sound or noise from sports events, and pyrotechnics. The Public Health Agency of Sweden booklet providing guidance on noise indoors and high sound levels, *Vägledning om buller inomhus och höga ljudnivåer*, describes how the general advice can be applied. This booklet also contains examples from different environments and situations.

The guideline values for sound vary depending on the kind of audience present at an event. Children under the age of thirteen years are considered a special risk group with respect to hearing impairment, because they have neither the same knowledge of high sound levels nor the capacity to protect themselves as do adults. If children under the age of thirteen have access to the premises or the location of an event, lower guideline values will apply.

Read more about:

Noise and high sound levels in the Public Health Agency of Sweden booklets *Vägledning om buller inomhus och höga ljudnivåer* [Guidelines on noise indoors and high sound levels] and *Allmänna råd om höga ljudnivåer* [General advice about high sound levels] (FoHMFS 2014:15).

Table 12. Guideline values for sound

Guideline values for premises and locations	Children under the age of 13 do not have access	Children under the age of 13 have access
Maximum sound	115 dB(A)	110 dB(A)
Leq (average value during a given period of time)	100 dB(A)	97 dB(A)

An organiser is ultimately responsible for the specified sound levels not being exceeded, regardless of whether it is a performer's own staff causing the elevated sound level or someone else. The organiser shall also conduct continuous self-monitoring of the sound levels. Municipalities are responsible for supervision of these rules according to the Environmental Code via their environmental departments. A municipality may also have fines linked to a person exceeding a permitted sound level, or may alternatively prohibit the activity.

Ensure that the following apply so that a maximum permitted sound level is not exceeded:

- Inform an event's production staff about the permitted sound levels.
- Inform a performer and the performer's staff about the permitted sound levels.
- Regulate via a performer's contract that the performer (with staff) undertakes to comply with the maximum sound values.
- Establish your own measuring procedures to control that the maximum values are complied with.

An organiser is ultimately responsible for not exceeding specified sound levels. Contact the municipal environmental department to find out what sound levels apply in a specific municipality.

14.1.1. Ear protectors

The so-called pain limit for the human ear is 125 dB(A), but sound levels far under 125 dB(A) can also be harmful. When ear protectors are used correctly, they prevent the person wearing them from being exposed to higher sound levels than the lower limit recommended by the Swedish Work Environment Authority, i.e. 85 dB(A).

The organiser should ensure that there are ear protectors available at the event site. Anyone present at the event site – employees, performers, visitors, businesses on site, other staff, etc. – should be given or have an opportunity to buy ear protectors.

There are two kinds of ear protectors:

- **Ear protectors that lower harmful treble frequencies.** These ear protectors change a sound landscape so that the sound becomes duller. These are the most common and the least expensive.
- **Ear protectors that lower the sound level over the entire frequency range.** This kind of ear protector does not interfere with the sound landscape in the same way as do the cheaper kinds. Nor will the sound experience be lost in the same way. These are, generally speaking, more expensive but they can be found in several price ranges.

It is a good idea to distribute cheap but good-quality ear plugs to visitors free of charge. This can be complemented with the sale of higher-quality ear protectors.

14.1.2. Co-workers' exposure to sound

The people working at an event must be provided with satisfactory information about sound levels, limit values, risks of hearing impairment, and possible measures for limiting exposure to potentially harmful sounds.

The Swedish Work Environment Authority has set the following limit values for sound levels at work in their regulations on noise (AFS 2005:16):

- maximum equivalent (average) sound levels during an eight-hour work day: 85 dB(A)
- maximum sound levels (with the exception of impulse noise): 115 dB(A)

However, individual sensitivity varies significantly. Especially sensitive people may risk hearing impairment at prolonged exposure even to sound with acoustic pressure levels of around 75–80 dB(A). Anyone working in an environment where the sound levels are equal to or greater than these limit values shall be offered ear protectors.

Often, staff working with sound want to be able to hear the same sound as the audience in order to adjust the sound correctly. This not seldom leads to an overexposure to loud sounds. If possible, an event should try to limit staff exposure to noise.

Read more about:

Responsibility for health and safety at work in *Section 4.1.3.*

Permitted sound levels in *Section 14.1.1.*

Ear protectors are consumables and should be ordered in large quantities so that the organiser does not risk running out of them part-way through the event.

Offer the event staff ear protectors free of charge.

The following may act as points of reference:

- Inform staff about sound levels and the effect sound levels can have on their hearing.
- Offer all co-workers ear protectors free of cost.
- Post warning signs when there is a high risk of noise that exceeds or equals the limit values: 'Risk of hearing loss. Wear ear protectors.'
- Limit the time during which the staff are present in environments with loud sound levels.
- Screen off areas in which people do not need to hear everything in order to carry out their tasks, e.g. behind, under, and adjacent to the edge of a stage, in the first-aid area, and in the backstage area.
- Use ear protectors in areas where sound levels cannot be reduced by any other means to under 85 dB(A).

Read more about:

Accessibility in *Chapter 15.*

What an organiser can choose to prohibit in *Section 4.1.1.1.*

Permits for a public event or a public gathering in *Section 4.2.*

Sports events and pyrotechnics in *Section 19.6.4.2.*

14.1.3. Visitors' exposure to sound

When it comes to sound and noise protection for visitors, one needs to take into account the age limits for the event in question, because the permitted guideline values are affected by this.

The sound levels vary at different areas around a stage. If older speaker systems are used, the difference in levels becomes more pronounced, while newer speaker systems are often designed to provide an even sound level across an audience area.

Avoid, if possible, having a crowd closer to the speakers than three metres. Under no circumstances should the audience be closer to a speaker than one metre. At some events that do not have wheelchair-accessible stands, wheelchair users are sometimes placed in the stage pit directly in front of the speakers. This is totally inappropriate.

The simplest thing is to ensure an open space around speakers by using fences and barriers, but the best alternative is to suspend the speakers. In that way the sound is distributed better, while visitors avoid being exposed at too close a distance.

Also consider reviewing other sources of sound than speakers, such as pyrotechnic explosions, machines, and sound systems belonging to vendors, funfairs, or the like.

Air horns and similar devices can generate sounds that are as loud as 120 dB(A). Today there are no prohibitions against these, but an organiser is free to forbid an audience from bringing them into an event.

Offer an event audience earplugs free of charge or at a low cost.

14.2. Special effects

There are also various special effects that can be used at various events, for example pyrotechnics and smoke effects.

Avoid, if possible, having the audience closer to the speakers than three metres. Under no circumstances should the audience be closer to a speaker than one metre.

14.2.1. Pyrotechnics

There are a number of different pyrotechnic effects that are frequently used at events – everything from outdoor fireworks that require a greater safety distance and free height, to stage fireworks and arena effects that are designed to be set off in a safe manner close to a performer or the audience.

14.2.1.1. Permits

Permits are in principle always required when it comes to the use of pyrotechnics at events. Always check with the Police Authority to find out what applies at the event in question.

It is primarily an organiser who is responsible for all activities that are subject to permits at an event. If pyrotechnics are included in an event, this must be stated in the organiser's application for a permit and on any permit granted for the event. The organiser is then responsible for hiring staff who have the required competence for the assignment.

According to Chapter 2, Section 20 of the Public Order Act (1993:1617), pyrotechnic goods may not be used without permission from the Police Authority at a public gathering or public event held indoors. In addition, pyrotechnic goods may not be used without a permit from the Police Authority 'if their use, in view of the time, location of the site and other circumstances, entails a risk of injury or damage or considerable inconvenience to any person or property' (Public Order Act, Chapter 3, Section 7).

The use of pyrotechnics at events is regulated in Chapter 2, Section 20 and in Chapter 3, Section 7 of the Public Order Act (1993:1617).

According to the Public Order Act, carrying or using pyrotechnic items is prohibited at sports events without a permit from the Police Authority. Special regulations on the possession and use of pyrotechnic goods at certain sports events can be found in Chapter 5 of the Public Order Act.

Rules for handling pyrotechnics (explosive goods) can also be found in Section 16 of the Flammables and Explosives Act (2010:1011) and in the provisions announced in connection with this Act. According to this regulatory framework a permit is required for handling pyrotechnics, including, among other things, the use, storage, and transfer of pyrotechnics. Permission for such handling is given by the relevant municipality. There are some exceptions from the permit requirements, for instance concerning the use of certain fireworks. This is made clear in the MSB regulations on the handling of explosive goods. The use of so-called professional pyrotechnics, however, always requires a permit. Special training is required to be able to use such pyrotechnics.

Provisions concerning the handling of, training in, and storage of explosives, as well as concerning the requirements for a permit and any exceptions to these requirements, can be found in the MSB regulations and general advice (MSBFS 2019:1) on the handling of explosive goods.

If pyrotechnics that require permission are included in an event, a permit holder shall appoint a manager for the activity who is to ensure that the activity is conducted in a safe and legal manner. A permit holder must also make sure that the manager has the authority and means required to be able to carry out their tasks. The manager shall be approved by the licensing authority.

A manager of pyrotechnics shall make sure that the activity is conducted in a safe and legal manner, and should have the powers and means required to do so. The manager shall be approved by the licensing authority.

14.2.1.2. Suppliers of pyrotechnic goods

Pyrotechnics must always be handled by a person who has the competence required. To be on the safe side, always hire a pyrotechnics company to handle pyrotechnics during an event.

A supplier should be able to provide documentation concerning

- the training courses the staff have completed, and
- which concessions the staff have obtained from MSB in order to use pyrotechnic items.

Look for references from events and authorities that have previously worked with a pyrotechnics company.

All pyrotechnics items used in Sweden must have a CE marking. If foreign companies are hired, for example when the event has foreign guest performers, you should check to make sure that the pyrotechnic articles being used have CE markings.

14.2.1.3. Rehearsal and test firing

The organiser and the pyrotechnician should go through the chain of events and the safety preparations surrounding the firing of pyrotechnics together with the fire and rescue services and the police. It may also be advisable to ask a pyrotechnician to do a test firing, so that both the organiser and the authorities are given an idea of the scope of the pyrotechnic performance.

14.2.1.4. Safety distance

All pyrotechnic items must be classified and correctly labelled. This labelling must contain, among other things, information about the category and registration number of the item, the age limit for handling it, user instructions, and safety distances.

A pyrotechnician is responsible for providing the correct information about pyrotechnic items and their safety distances to the police. An organiser is responsible for making sure that safety distances are maintained with the aid of monitoring and barriers.

The organiser is responsible for making sure that safety distances can be maintained.

14.2.2. Stroboscopic effects

A stroboscope is a device that sends out strong light pulses at a rapid pace. There are no rules for using stroboscopic effects in Sweden, but research shows that exposure to stroboscopic sequences of longer duration may trigger epileptic seizures. What levels of stroboscopic effects may trigger epileptic seizures is difficult to determine, because it varies from one person to another. It is, however, clear that contrast, frequency, and exposure time play a role.

If stroboscopic effects are used, information signs can be put up so that people suffering from epilepsy can avoid these events.

Make sure that the smoke does not risk triggering fire protection or sprinkler systems.

14.2.3. Smoke effects

Various smoke effects are common at events, and are used both indoors and outdoors in order to create anything from a smoky atmosphere on the premises to mist and fog at outdoor concerts. Make sure that the smoke does not risk triggering fire protection or sprinkler systems. Organisers of indoor events should contact the fire and rescue services and discuss whether it is possible to shut off the fire alarm in parts of the premises or in the premises as a whole, if there is a risk that the smoke effects may trigger the fire alarm.

Smoke machines must be handled by competent staff. An operator must always be able to see the entire flow of smoke from the location from which it is activated. Prolonged use of smoke and smoke machines may lead to a thin layer of slippery by-products forming on the ground or the floor, something which is worth noting.

14.2.3.1. Heated smoke

Heated smoke (so-called light smoke) tends to rise upwards. Such smoke is often used in clubs and in dance halls, but is also a common feature as a special effect at outdoor concerts.

Always make sure that a manufacturer's instructions are followed to the letter when using smoke machines with heated smoke. Incorrect use can result in the formation of poisonous by-products or a fire breaking out. Never manipulate the built-in thermostat of a smoke machine, and always maintain the temperature stated in the manufacturer's instructions.

Use coloured filters for the light lighting up the smoke if you want to change the colour of the smoke. Never add dye to the smoke fluid.

14.2.3.2. Cryogenic smoke

Cryogenic smoke (so-called cold smoke) is used to create fog at ground level. Cold smoke is heavy and does not rise in the same way as light smoke does.

Make sure the manufacturer's instructions are always followed to the letter when using smoke machines for cold smoke. Also follow the manufacturer's instructions when handling the material that produces the smoke.

Always consult the supplier for detailed advice about how the material that produces the smoke is to be handled and stored. You should, for instance, always use well-insulated protective gloves when handling dry ice. Be extra careful when storing and handling liquid nitrogen. A person handling liquid nitrogen must always wear long, insulated, protective gloves and protective goggles or visors. A container in which in which liquid nitrogen is housed must be well ventilated – otherwise it may crack.

Cold smoke sinks, in part because of its low temperature, in part because carbon dioxide is heavier than air. When a smoke effect has settled, the smoke and the fumes become invisible. It is therefore difficult to determine the concentration of the gas with the naked eye.

Always make sure that all parts of the premises where people are present have sufficiently good ventilation. The by-products of cold smoke (carbon dioxide and nitrogen gas) can cause shortness of breath, which means that a high concentration of these gases can expose the audience and the event staff to risks. Be especially careful when it comes to orchestra pits, stage pits, or work areas under the stage. No one may under any circumstances lie down in cold smoke.

14.2.4. Fire effects using LPG

Fire effects using LPG are created by igniting LPG (or in certain cases methane). These effects are primarily used for on-stage effects, but they are also sometimes used in certain sports arenas.

A person handling and igniting such an LPG fire effect must have the competence required. Use a so-called dead man's switch for fire effects of this kind, so that the supply of LPG ceases immediately if the person igniting the effect lets go of the controls.

No special permits are required for using LPG effects. However, an organiser must report possession of LPG to the fire and rescue services if more than two litres of LPG are used, and if the fire effect is to be created indoors. If the effect is to be created outdoors, the fire and rescue services must be notified if the amount of LPG is greater than sixty litres.

Read more about:

The handling of LPG in *Section 11.4.1.*

The safe use of lasers at the website of the Swedish Radiation Safety Authority *www.stralsakerhetsmyndigheten.se/en/*.

The by-products, carbon dioxide and nitrogen gas, can cause shortness of breath. Make sure there is sufficient ventilation in all places where people are present.

Photo: Ivan Kokoulin/Mostphotos

14.2.5. Lasers

Lasers are often used as a light effect at dances and performances. There are different classes of lasers, and the lasers used in these contexts are often of class 3B or 4.

Lasers belonging to class 3B or class 4 can easily lead to permanent eye damage if handled incorrectly. In their regulations on lasers (SSMFS 2014:4), the Swedish Radiation Safety Authority have therefore imposed a requirement for a permit when using of these types of lasers. This permit is required for using such lasers for the purpose of entertainment, art, or advertising.

Possession of LPG in a greater than specified amount must be reported to the fire and rescue services.

15. Accessibility

Photo: Caiaimage / Johnér RF

15. Accessibility

It is obvious that people with functional impairments must also have access to and be given admission to an event on equal terms with everyone else. For this to be the case, the event must be made accessible.

Read more about:
ISO 20121:2012 in *Section 12.4.*

15.1. Good accessibility

Making an event accessible does not simply mean that it must be possible for a person to make their way through it when using a wheelchair or a wheeled walker. It also means making the event accessible to, among others, people with hearing impairments, visual impairments, allergies, visitors with prams, or persons with learning disabilities. When working with accessibility one should also keep in mind that a disabled person may be accompanied by an assistant or other companion.

Good accessibility is good for an entire event, because good accessibility and usability, clear information, and a high level of service is good for everyone. Therefore, you should as often as possible endeavour to use general options that work for as many people as possible. It is always better with general options than special options when making an event accessible and safe for people with functional impairments.

You should as often as possible endeavour to use general options that work for as many people as possible.

The following parts of an event should be made accessible and usable for everyone:

- information;
- the event site/the premises;
- the car park;
- entrances and exits;
- evacuation routes and emergency exits;
- evacuation procedures;
- spectator seats, preferably in various areas of the premises;
- stands for disabled people;
- ramps;
- toilets and showers;
- food outlets.

There is an international standard for management systems for sustainable events, ISO 20121:2012. A management system set up according to this standard may include, for instance, questions regarding improved accessibility, employers' responsibilities, and waste management.

In the National Board of Housing, Building and Planning regulations and general recommendations (BFS 2011:13 HIN) you can find additional information about how to make events more accessible and usable. The regulations apply to existing public premises and public places, and describe how to easily address obstacles one may encounter.

The National Board of Housing, Building and Planning has also published the booklet *Enkelt avhjälpt i lokaler* [Easily rectified on the premises]

and the book *Enklare utan hinder* [Easier without obstacles]. Other book recommendations are the manual *Bygg ikapp* [Build to catch up], published by Svensk Byggtjänst (Swedish Building Centre), and the book *Frångänglighet: Utrymning för personer med funktionsnedsättning* [Accessible evacuation: Evacuation for persons with functional impairments] published by the Swedish Fire Protection Association.

Read more about:

Audience information in *Section 16.4.4.*

Evacuation routes in *Section 9.5.*

Evacuation, sheltering in place, and lockdown in *Section 20.4.*

Read more about surfaces in *Section 6.1.2.*

15.2. Information about accessibility

It is a good idea to publish information, for instance on web sites or on tickets, regarding the manner in which an event is accessible and what parts of the event are more or less accessible. This facilitates planning for the affected members of the audience. The websites should be accessible in accordance with the series of standards SS-EN 301549.

At the event there should be clear signs telling people where to find, among other things, toilets, entrances, exits, and focal routes that are accessible for disabled persons. Written information should be presented with larger letters and in high-contrast colours, so that it can be read by people with visual impairments. The information should also be both easy to read and easy to understand, and it should be placed at a suitable height so that it can be read both by persons using a wheelchair and by standing people with visual impairments. The information should be placed where one expects it to be found, and set up in such a way that it is possible to get close to it.

Other important target destinations at an event, such as reception desks or actuators for automatic door openers, should be marked using colours of sufficient contrast from one another that there will be no trouble for people with visual impairments or reduced cognitive abilities to orient themselves.

In order to be able to convey information to persons with visual or hearing impairments, information desks can be complemented with technology to assist hearing (for instance hearing loops), visual information, or information in sign language. In addition, any reception desks should be sufficiently low that communication is possible with a person using a wheelchair.

It is a good idea to publish information, for example on web sites or on tickets, regarding the way in which an event is accessible and what parts of the event has better or worse accessibility.

15.3. Evacuation procedures

The concept of accessible evacuation refers to how easy it is to evacuate the premises. Information on how the evacuation of a venue is to be accomplished must be made accessible also to disabled people. Communicate an evacuation alarm in multiple ways – preferably using sound, light, and text messages, so that everyone will be able to understand it.

If some emergency exits are especially adapted for disabled people, this information should be disseminated prior to the start of a performance, for instance through information at the entrances and possibly also by a master of ceremonies.

During a potential evacuation, sheltering in place, or lockdown there should be staff guiding and helping disabled people. It can, for instance be difficult for someone who is functionally impaired to make his or her way through large crowds. Contact the fire and rescue services – they can provide suggestions for how safety staff can help do this. More information can also be found in the MSB report on evacuation safety for disabled people, *Utrymningssäkerhet för rörelsehindrade*.

Information on how the evacuation of the venue is to be done must be made accessible also to disabled people. Communicate an evacuation alarm in multiple ways – preferably using sound, light, and text messages.

15.4. The venue

At outdoor events it is important that the surface at a site is even and firm. Asphalt, concrete blocks, or paving bricks are good, as is hard gravel of the kind used on football pitches and dirt roads. A gravel-covered surface also makes it possible to bury cables.

On the other hand, poorly drained lawns or gravel paths with shingles and other kinds of loose gravel are not recommended, because they can make accessibility for disabled people more difficult.

In premises to which the general public has access and in public places, so-called easily removable obstacles shall be removed, if this is not unreasonable due to practical or economic circumstances. The economic consequences must not become an unreasonable burden for a property owner, a landlord, or a trader.

The following are examples of how to address easily removable obstacles:

- **increase passability** (by dealing with, e.g. thresholds, level differences, uneven surfaces, the placement of fixtures);
- **increase accessibility** (by changing the siting of, e.g. door phones, door bells, elevator buttons, automatic door openers)
- **increase the possibility of perceiving light and sound** (by way of light contrasts, room acoustics, hearing loops);
- **make moving about easier** (through the use of, e.g. banisters, automatic door openers, and the design of handles and locks on doors).

In both arenas and temporary venues, crowd flow can be affected by wheelchairs or people walking slowly. One must therefore have greater margins when making flow calculations that include disabled visitors.

It is also important to have staff in place when necessary to help disabled visitors find their way in strong crowd flows, for example during evacuations, sheltering in place, or at the end of an event.

Read more about:

Easily removable obstacles in the National Board of Housing, Building and Planning regulations on easily removable obstacles (BFS 2011:13).

Car parks in *Section 7.3.5.*

Entrances and exits in *Chapter 9.*

More information can be found in the MSB report on evacuation safety for disabled people, *Utrymningssäkerhet för rörelsehindrade.*

15.5. Parking

Make sure that there are parking spaces reserved for disabled people adjacent to the venue, located no further than twenty-five metres from an entrance. The surface should be firm, even, and non-slip, and the gradient in a car park should not be more than that required for water drainage. It may not exceed 1:50 – the gradient must, in other words, be no steeper than two centimetres per metre (a gradient of approximately one degree).

It must be possible to park a minibus, and there should be sufficient space on both sides of the vehicle so that it is possible to enter and exit it with a wheelchair. The width of a parking space where it is possible to move a wheelchair into and out of a vehicle from the side should be at least 5.0 metres. If there is free space beside the parking space, this can be included in the width measurement. When parking spaces are located along a street, there should be available sufficient space to pass between parked vehicles with a wheelchair.

15.6. Entrances and exits

In order for an entrance, exit, or emergency exit to be considered accessible, the passage must be 1.30 metres wide, even if it is possible to get through a narrower passage with a wheelchair. In addition, the area in front of and behind an entrance or exit must be level and free of obstacles. There should also be enough space to turn a wheelchair around on both sides of an entrance or exit. An appropriate turning diameter for an outdoor wheelchair is a circle with a diameter of two metres.

It is also important to mark out strategic points, such as entrances, exits, and, above all, evacuation routes, in primary colours with high contrast. Warning signs should also be used. This makes it easier for people with visual impairments to find their way around, but these measures also facilitate evacuation for the rest of the audience.

Read more about:

Evacuation routes in *Section 9.5.*

Sanitation areas in *Section 12.3.*

Food vendors in *Section 11.4.3.*

15.7. Evacuation routes and emergency exits

As many as possible of the evacuation routes should be available for use by people in wheelchairs. There should also be an accessible evacuation route linked to any potential stand for disabled people. However, you should always endeavour to have the same high level of accessibility along all of the evacuation routes. It should not be necessary to direct visitors to a special emergency exit during an evacuation.

According to the National Board of Housing, Building and Planning building regulations (BBR 2011:6), an evacuation route should have a minimum clearance width of 1.20 metres. In order for it to be considered accessible, it must be 1.30 metres wide. In addition, persons who cannot evacuate on their own must be able to await assistance at an evacuation site that is accessible to people with functional impairments.

Emergency exits for wheelchair users should be placed on level ground that does not contain obstacles, so that wheelchairs can pass through them without problems. For instance, evacuation routes with large differences in surface levels or stairs cannot be used by persons with mobility impairments. Obstacles near evacuation routes must be clearly marked with colours of high contrast and warning signs in a manner so that the signs can be understood by persons with visual impairments.

As many as possible of the evacuation routes should be available for use by people in wheelchairs.

15.8. Stands for disabled people

When there are fixed seats it is desirable for disabled people, such as wheelchair users, to be able to sit among the other visitors, and also to be able to choose various locations at different distances relative to the stage. This is often the case at indoor facilities, and it would also be desirable at outdoor events, but this not always possible to accomplish in practice. At outdoor events, a special stand next to the stage is therefore a good way of making it possible for disabled people to experience the event. Such stands are often called wheelchair-accessible stands.

However, keep in mind that there are disabled people who do not use wheelchairs but who nevertheless may have difficulties experiencing an event from the audience area. These people should also have access to the wheelchair-accessible stand.

Disabled people who do not use wheelchairs should also have access to the stands.

Photo: Lightpoet/MOSTPHOTOS

The most common type of wheelchair-accessible stand is a raised platform in the audience area. This stand should be sited on level ground outside the most crowded area. It should be easy to reach and easy to get out of. Because of its height, this kind of stand often obscures the view for the audience members located behind it, something that must be taken into account when siting it. Also avoid siting a wheelchair-accessible stand directly in front of loudspeakers because of the elevated sound level they can produce.

If a wheelchair-accessible stand is placed in front of the stage it can be appropriate to cordon it off, and possibly to staff it, in order to prevent people from injuring themselves on or misusing the stand. The stand should also be provided with an accessible ramp.

Count on each wheelchair needing a space of 1.5–2.0 square metres. In addition, the stand should preferably be provided with extra space and chairs for, for instance friends or assistants. The stand needs to be at least one metre high, so that those who use it will be able to see an event properly. Make sure that there are a sufficient number of seats for disabled persons (with or without wheelchairs) in order to meet the demands of an event. Do not forget that many disabled people are accompanied by assistants or other attendants.

15.9. Ramps

Ramps are used to bridge differences in surface level topography at an event site or on the premises. There can be steps, thresholds, or cables which, without ramps, would present obstacles, for instance to a wheelchair user or a person with a visual impairment. If possible, thresholds should be removed or modified, so that the level differences are evened out and people can pass without problems. If this is impossible, ramps are a good alternative for managing minor differences in levels.

The surface of a ramp should be even and non-skid. It should have a clearance width of at least 1.30 metres, and even when the ramp is short the gradient should not be steeper than five centimetres per metre, i.e. a 1:20 slope ratio. The ramp should also be equipped with handrails, edge protection, and markings. The handrails should be located at 0.9 metres of height and be easy to grip. When there is space, a stairway should be provided as a complement to the ramp.

15.10. Toilets and showers

In order for a toilet to be considered accessible to wheelchair users for limited outdoor use it should have an area of 220 × 220 cm and have a doorway clearance measurement of ninety centimetres. Directly adjacent to the door of the toilet, there should be a turning zone. A toilet should be equipped with grab rails, single-lever basin mixers, and a pull handle on the inside of the door. There should also be an alarm device and a description of where an alarm is sent to when it is activated.

In order for a shower to be accessible to disabled people, a user should be able to sit down in the shower. There should also be grab rails to make it easier to get up and to return to a source of possible aid.

Toilets and showers should be sited so that they are easily accessible, should be equipped with a ramp, and should have sufficient space in front of the entrance to the toilet where it is possible to turn a wheelchair around. Toilets and showers for people with motion impairments can be rented, if they are not already available on site.

In order to meet the needs of people with visual impairments, hygiene rooms should be complemented with high-contrast markings.

In order for a toilet to be considered accessible to wheelchair users for limited outdoor use it should have an area of 220 × 220 cm and have a doorway clearance measurement of ninety centimetres.

15.11. Serving food

An organiser should require food vendors at a venue to describe clearly to visitors the contents of the food they are being served to make it easier for people with various food allergies to find suitable food.

16. The audience

Photo: Josh Sorenson / Pexels

16. The audience

The audience comes to an event for the experience. They may want to see their favourite performers or their favourite teams, see an exciting competition, or simply be together and party. Most visitors come to an event with the attitude that they will have an enjoyable experience, live it up, and have fun.

However, there will be, above all in sports contexts, members of the audience who want to create an experience without regard for the safety rules in force. There are even those to come to cause trouble and commit acts of violence.

A satisfied audience whose expectations are fulfilled make the event safer and more secure. On the other hand, an angry or disappointed audience can create a number of different problems that can lead to risks or undesirable occurrences. For this reason, it is important that all co-workers, not just the safety staff, understand how an audience can act and how to work with its members so that they can experience an event in a positive and safe manner.

An audience at an event is also a potential target for antagonistic attacks, especially at events that are broadcast on TV or that receive a great deal of attention in other ways.

16.1. The individual

Understanding an audience is about seeing and understanding the relationship between individuals and a crowd, and the crowd's behaviour as a group.

Human beings are complex creatures. All individuals are unique and they all make their own choices. But one can also distinguish multiple patterns in human behaviour. Some of these patterns are described below. These are, of course, generalisations, but it may nevertheless be useful to be aware of them when working with crowd management.

Human beings are needs- and goals-oriented. In most cases, human beings are governed by their desires and needs. By analysing different situations and thinking about what visitors to an event might want to do, it is possible to make assumptions about where they are heading. The more organisers understand the needs and goals of their audiences, the better they can plan for an event's crowd management.

Human beings are social creatures. Human beings have a strong need for social interaction and acceptance. This means that individuals gathering in groups or crowds can adapt or forgo aspects of their normal behaviour in order to be part of the group. They can, for instance, choose a certain kind of clothing in order to fit in, or perform actions they would never have done under normal circumstances.

Individuals gathering in groups or crowds can adapt or forgo aspects of their normal behaviour in order to be part of the group.

Human beings move about in a certain way. Human beings tend to choose their paths according to certain patterns. When planning focal routes and dimensioning passages you should be aware of the following:

- Human beings prefer to choose a route that that they believe to be the simplest path from point A to point B, i.e. the straightest route with the smallest number of turns.
- Human beings tend to avoid taking detours and making unnatural turns, or walking in the opposite direction of their goals.
- Human beings use visible shortcuts. You should therefore identify shortcuts and either use them as regular audience pathways or close them off.

It is advisable for safety staff to act as role models, for example during an evacuation. It is also an advantage if an audience can relate to the safety staff. This is made easier when the staff are perceived to be equals and if they also seem to be having a good time, even if they are also working at an event festival. This however, must not be overdone. The members of staff should not act like clowns, and an audience must obviously have confidence in the safety staff.

Read more about:
Focal routes in *Section 6.3.1.4.*

16.1.1. Stress

Stress is an automatic defensive reaction that kicks in when the body prepares itself for physical activity, i.e. to fight or flee from a perceived physical danger. Another way of reacting to stress is to play dead. The capacity of human beings for logical reasoning is limited when they are under stress. Their social competence also becomes more reflexive.

Stress is a subjective reaction to an individual's perception that the demands they are experiencing exceed their ability to cope with a situation. At an event, stress can therefore arise when decisions must be made quickly, for instance when a person has not been able to obtain sufficient information, when they feel packed too tightly in a crowd, or when there is a fear of being too far back in a queue to be able to obtain tickets.

Stress is a subjective reaction to an individual's perception that the demands they are experiencing exceed their ability to cope with a situation.

16.1.2. Extreme stress

In situations of extreme stress, or situations in which an individual experiences strong anxiety, the body prepares for fight or flight. In such situations, the psychological response is limited to acting to ensure the survival of the individual. For this reason, it is in many cases impossible to communicate with a person who is experiencing extreme stress. This also leads to limitations in communicating with a stressed or anxious audience.

Persons who experience extreme stress or anxiety flee, in the first place from a perceived danger, in the second place towards something they believe to be safe and secure, and in the third place towards something they recognise or find familiar. Organisers can use this knowledge to their advantage.

For instance, the venue can be designed so that the emergency exits are always visible. You can also make a point of clearly informing an audience in advance (e.g. via an announcer before the gig) where it is safe to go in the event of an emergency. In this way emergency exits, evacuation routes, and protected locations become known to members of the audience, and the chances increase that they will flee to these places even in situations of extreme stress and anxiety.

A crowd consists of individuals perceiving, thinking, and reacting in different ways. When communicating with a crowd, you should communicate with the crowd as a whole, for example via loudspeakers or signs. A word-of-mouth method can easily lead to the spread of false rumours.

16.2. Crowds

It is often possible to respond to single individuals who misbehave or are exposed to intense stress. An exposed crowd is, however, more difficult to

control. It is important to understand that a crowd is not a homogeneous mass, but that it consists of many different individuals who all perceive, think, and react in different ways. A number of more or less general assumptions can, however, be made:

A crowd cannot communicate with itself. Individuals in a crowd can communicate with each other, but the crowd cannot in itself in any simple way communicate with itself. In other words, persons at the back of a crowd cannot communicate with those at the front and vice versa. In order to disseminate information to a crowd, regardless of whether you are inside or outside of it, you should communicate with the crowd as a whole, for example by way of loudspeakers, megaphones, or signs. Avoid disseminating information by word of mouth, because this can easily lead to an uncontrolled spread of false rumours.

Individuals in a crowd lack an overview of the entire situation. As an organiser it can be easy to delude oneself into thinking that all members of an audience will automatically know or understand the best way to act. But in reality, an audience consists of individuals who will act on the basis of their own perspectives, needs, and goals. A given situation is perceived in different ways depending on the previous knowledge that an individual has, and on whether that individual is tall or short, sober or drunk, young or old, is at the head or the tail end of a queue, and so on. Individuals will see, hear, and feel different things. In addition, it is usually difficult to get an overview of a crowd situation from the ground level, because other people largely block one's own view.

A crowd offers an opportunity for anonymity. An individual in a larger group sometimes feels that the risk of being caught or identified is reduced or disappears. This is at its core not a negative thing. Many people who visit an event want to achieve a sense of anonymity – an opportunity to live out their needs, dance, dress as they please, and socialise without being singled out or considered different or strange.

The negative side of anonymity is that certain people also live out actions that are prohibited or harmful to others – actions they normally would never perform because of the risk of being caught, or because the action violates their normal social codes. Such actions can be violent or inappropriate behaviour, such as fighting, pawing, crowdsurfing, or throwing objects towards a stage or pitch.

A good way of reducing the risk of such actions is to identify unruly people early on, thereby reducing or removing their anonymity. In many cases, it may be enough that someone in the safety staff or a steward indicates that they have seen what is going on in order for the undesirable behaviour to stop.

Another possible measure is to increase and make clear to the audience the presence of the safety staff, for example by having them wear high-visibility vests. If a crowd sees safety staff in their proximity all the time, the possibility increases that unruly persons will feel that they may be caught. However, it is very important for an audience to feel that the safety staff are there for their security and comfort – not to monitor them.

A crowd needs structure. In most cases, an organiser wants to avoid surprises during an event. This obviously also includes how an audience acts

Read more about:
Developing a crowd management method in *Section 16.4.*

Endeavour to identify unruly people early on and to reduce or remove their anonymity.

If there is no clear structure to an event, a crowd may try to create a structure of its own.

A good way to deal with this is to ask yourself, 'How do we want the audience to act here?' and then 'What can we do to encourage this behaviour?'

or moves about the area. Because the crowd itself cannot communicate internally, it usually adapts to circumstances when an event offers a clear structure. If there are no clear guidelines for good behaviour, an audience can sometimes create their own structures by generalising the actions of the rest of the crowd. This is often the reason why individuals sometimes copy a crowd's actions without reflecting on what is happening.

In order to get a crowd to act in the desired manner, you therefore need to offer people information and a clear structure that they will accept. In this case, structure means making it as easy as possible for the crowd to do what an organiser wants them to do, and as difficult as possible to do things the organiser does *not* want them to do.

A good way to deal with this is to ask yourself, 'How do we want the audience to act?' and then 'What can we do to make them do what we want?' The most effective tools for providing structure to a crowd is through the well-thought-out design of an event (both physically and temporally), as well as clear information.

High crowd density in a crowd can give rise to undesirable occurrences. For instance, crowd density at the front of a crowd near the stage during a concert may be high, sometimes greater than seven people per square metre. There is often a lower crowd density further back in the crowd or at more tranquil events. A crowd with high crowd density will acquire characteristics that an organiser should know about:

- When crowd density is greater than six to seven people per square metre, an individual loses control of their own movement. A person may, for instance find it difficult to move and parry lateral movement. This may result in a person being swept along by crowd movement, and it is very easy to fall if there is a surge in the crowd.
- The sense of not being able to control one's own movement is perceived as very unpleasant by many people. If one person or a couple of people in a dense crowd are affected by intense anxiety or distress but cannot leave the area, this anxiety can sometimes spread to other individuals in a crowd.
- Surges in a dense audience will be propagated in a crowd and they will sometimes continue until they reach the edge of the crowd itself.
- Surges can mean temporary high crowd pressure, and under these circumstances so-called craters develop more easily. A crater is formed when several people fall in a kind of domino effect, often as a result of a surge in the audience. When the crowd then closes up again, it may be difficult for someone who has fallen to get up.
- When crowd density is very high, when an audience is so tightly packed that even small movements of individual members of the audience is transferred between their bodies, the force may build up and create intense surges in the crowd. This is known as *crowd turbulence*, and it can also arise even without overt pushing and shoving. The force of crowd turbulence can be very great and may lead to serious injuries.

16.2.1. Emotional charges in crowds

A crowd can be defined as a group of individuals who share a common focus. A crowd at an event, i.e. the audience, comes to the venue to have fun and an enjoyable experience, and it is hopefully charged with positive

Read more about:

How to deal with undesirable occurrences connected to high crowd density in *Section 19.5.4.*

Uncontrolled releases of energy in *Section 1.1.1.1.*

emotions. But in certain instances, external factors can charge an audience with negative emotions in the form of, for instance aggressiveness or fear.

The following are examples of factors that can emotionally charge an audience:

- **functional circumstances** – a cancelled gig, a delayed performer, a sold-out concert;
- **occurrences at the event** – special effects or video screenings, referee decisions in sports, reruns of situations from the game on LED screens;
- **performer behaviour** – offensive behaviour, exhortations, challenges;
- **spectator factors** – crowding, alcohol, drugs, a rush for good seats, thrown objects;
- **security or police factors** – excessive force, provocation, arguments with members of the audience;
- **social factors** – rivalry, nationalism, racism, anarchism, gang activities;
- **weather factors** – heat, humidity, rain/hail, lack of ventilation;
- **other serious occurrences** – the collapse of structures, stands, marquees or barriers, fire.

A charge usually develops over a long period of time and is generated by external circumstances. In team sports, for instance, it may be that there is already a high degree of rivalry between different supporter groups because of earlier encounters. It can also be that a single incident occurs that causes a situation to erupt.

It is important for an organiser to sense the mood early on in different parts of an audience, and to counteract factors that may negatively charge the mood of the crowd. In many cases, the audience needs to gain control over a situation and be provided with structure. Often it may be enough to clearly and distinctly inform the audience why there is a delay and for how long it will continue, or to identify and remove elements of concern or irritation, for example false rumours, unnecessary queues, or problematic individuals. In many cases, emotional charges can be predicted, for instance at the last concert of a tour or at an important game between rival teams.

Read more about:

Safety work during a game in *Section 19.6.*

It is important for an organiser to sense the mood early on in different parts of the audience, and to counteract factors that may negatively charge the mood of the crowd.

16.2.2. The audience at a competition

In sports, and especially in team sports, special conditions obtain for the audience. In sports competitions, individual athletes or teams compete against each other, and in many team sports rivalry towards the opposing team is a part of the basic idea of the sport: 'Us against them'. Furthermore, an audience visiting a sports event often has a favourite athlete or a favourite team that they follow or root for.

Unfortunately, the rivalry between the supporters of different teams can sometimes degenerate, mainly in football and ice hockey. Sports arenas have become the location for violent confrontations between supporter groups, police, and public security guards, and threats and hatred are directed towards referees, players, and opposing teams. Managing the risk presented by supporters of the various teams is an important part of security work.

At long-distance races or at motor rallies, where the course extends over a long distance, there are other challenges. When planning the safety efforts an organiser must, for instance, put great emphasis on crowd flow and crowd capacity during the course of an event. Often the members of the audience tend to gather in particular places, for example at the start or finish area, or in particular locations along the race course.

Here temporal factors become particularly important, because the intensity of the focal points shifts over the course of an event. When the starting shot is about to be fired, the starting line is the most attractive place to be, and many visitors will gather at the start area. At the same time, the finish area is usually completely empty, but this situation will change over the course of the race. During particular periods of time certain places, and the routes leading to them, can be heavily trafficked. Here it is important to consider not only the crowd flow of an entire event and its crowd capacity, but also the possibilities for evacuation, accessibility for rescue vehicles, and the impact of the event on the regular activities in a location.

Read more about:
Risk behaviour in *Section 19.5.4.2.*
An audience profile in *Appendix D.*

16.2.3. The audience as a resource

The audience is an important resource for an organiser, at both music and sports events. One must remember that most supporters going to see a match do root for a team, but they do not want the match to be interrupted and therefore do not want any trouble at all.

By having a good relationship with the audience, an organiser will have access to their eyes and ears, and they can also be helpful in other, purely practical, ways. In many cases an audience can help out, for instance by lifting a person across a stage barrier, calling 112, or getting medical assistance.

It is a good idea to inform the members of an audience about how they, as spectators, can report to the event organisation something they believe to be a risk or a danger, without getting themselves into trouble.

The power of hello is a concept that is sometimes used. This means that you maintain good contact with the audience as a preventative measure, and say 'Hello' to people, particularly persons that have perhaps been identified as potential troublemakers. This establishes the beginning of a relationship with audience members, while at the same time it removes the anonymity of the troublemakers by making them visible. Often this can cause them to refrain from creating problems. Having been noticed when planning to do something that is prohibited has a powerfully deterrent effect on a person.

16.3. Get to know the audience

If an organiser knows what kind of audience will come to an event, it is possible to predict to a certain extent how they will behave in a given situation, what undesirable behaviours to expect, and what their needs will be.

The organiser can divide an audience into several different categories, on the basis of, for instance age or sex. It is also important to remember that different types of events attract different kinds of audiences. Performers are, for example, often a part of the identity package of young people – they like a specific performer or a specific type of performer, and for that reason they dress and act in a certain way. This means there is a specific audience profile for an event with specific types of performers. The same is true for sports events. Certain sports, teams, or athletes can attract a specific audience group, or affect the composition of the audience.

An audience profile can help an organiser form an opinion and gain a deeper understanding of how the audience will act and react to different situations.

16.3.1. Audience profile

An audience profile is a compilation of relevant facts about a specific audience group. By using an audience profile, one can form an opinion and gain a deeper understanding of how the probable audience at an event will act and react to different situations.

An event can have a homogeneous audience, for example at a concert or a sports event without rivalry in the audience. Then it is usually enough to have a single audience profile for the entire audience. For events with a greater variation of concert and audience groups, or where there are obvious supporter groups, several different audience profiles may be necessary.

The audience profile maps the audience's characteristics – for example their physical capacities, opinions and attitudes, mental states, and possible experiences. Here it is advisable to exchange experiences about the audience's behaviour with organisers or arenas that have already conducted events with the performer or team in question. In the audience profile, assumptions are made about the needs and wishes of the audience. The audience profile can give an organiser an idea of, among other things,

- the goals of the members of the audience – e.g. to be seen, to be seen by the performer, to achieve status in a supporter group, to become inebriated;
- the behaviour that can be expected from the members of the audience – e.g. to stand in front at the stage, to pick fights, to mosh, i.e. throw themselves headlong in different directions;
- what reactions can be expected to various occurrences.

Note that audience profiles are based exclusively on assumptions. The conclusions drawn can, in other words, not be used in the same way as facts can be. However, a well-drawn-up audience profile can indicate a suitable direction for the safety work, the attitude of the staff, and other crowd management issues.

Read more about:
Crimes and disturbances of public order at sports events in *Section 19.6.4.2.*

16.3.2. Supporter culture

It is important to differentiate between positive and negative supporter cultures, and, above all, not to tar all supporters with the same brush. The great excitement at football and ice hockey matches at the elite level involves a sea of banners, flags, positive chants, and songs, but there can also be pyrotechnic devices, mainly flares and bangers.

Objects are sometimes also thrown onto a pitch – coins, lighters, plastic cups, or whatever is at hand – possibly in connection with a referee's decision or as the result of a player from the opposing team having done something. Sometimes there are also pitch invasions, i.e. when supporters illegally gain entry onto the pitch. These may have happened because of discontent, but can also happen when happy supporters at the end of a match want to celebrate their team.

16.3.3. Risk supporters

When making risk assessments of matches, one differentiates between supporters and so-called risk supporters. A supporter comes to the event to cheer and support their team. A risk supporter is a person who on numerous occasions has been involved in disturbances of public order or has a proven tendency to participate in acts of violence or other types of crime.

In football the risk supporters are divided into ultras and firms:

- Ultras use, in more or less organised ways, flags, banners, songs, and common arrangements in the stands (so-called tifos). Ultras do not have expressions of violence or acts of violence as their primary focus, but violent confrontations with the supporters of an opposing team sometimes occur.

- Firms on the other hand put acts of violence and fights, sometimes by prior arrangement, with the supporters of other teams at the forefront.

There are also more or less organised supporter groups, often with younger members, where the membership is mainly about confirming one's identity and one's reputation as a criminal.

16.4. Crowd management

Crowd management includes everything from thoughts about how each individual visitor should be treated to how to handle larger crowds and the movement patterns of an audience during an event. There are two approaches for dealing with a crowd: crowd management and crowd control.

- **Crowd management** represents structures, communication, and measures with positive overtones in order to get a crowd to act in the way one wants them to act.
- **Crowd control** involves instead forcing a crowd to act in the way one wants, for example by barriers or sometimes threats of reprisals or violence.

In event safety, one always endeavours to use crowd management, i.e. to make a crowd want to do what the organiser wants them to do, without producing a sense of coercion or discomfort. Crowd control, on the other hand, should only be used as a last resort, if crowd management has failed and serious risks arise.

Practical crowd management consists largely of analysis, planning, and preparations, but also of working continuously with the audience over the course of an event. This means that crowd management is done according to fixed procedures, but that it is nevertheless flexible when circumstances (e.g. crowd flow, the resource situation, or time) change. Crowd management changes on the basis of information and prognoses concerning, in part, how an audience moves, and in part, how they are expected to move.

The aim of crowd management is to make an audience *want* to do what an organiser wants them to do, and to ensure that the audience thinks that what the organiser has planned is the smoothest, nicest, and best way of doing things. This can be achieved in two ways: either by changing an event to suit the will of the audience, or by changing the will of the audience to suit the requirements of the event – or both.

16.4.1. Crowd management tools

The measures that can be used to influence the will and wishes of a crowd can be subdivided under the headings of *design*, *information*, and *management*. Good crowd management takes all three into account.

Design refers to the physical aspects of an event: endeavouring to create a venue that is safe, promotes good crowd management, and does not generate risks. The goal is a venue that can deal with all aspects of the event.

The following are examples of important factors when planning the design of an event:

- **Siting of focal points.** If a focal point is moved, the flow at that location changes. If a new focal point is added, that can lead to crowd flow spreading across several focal routes or to new routes arising.

Read more about:

Lighting in *Section 7.6.*

Sightlines in *Section 8.2.6.*

Handling bottlenecks in *Section 6.4.3.1.*

Design and dimensioning of a venue in *Chapter 6.*

The goal of crowd management is to make an audience do what the organiser wants them to do, and to ensure that the audience think that what an organiser has planned is the smoothest, nicest, and best way of doing things.

Crowd management aims to make an audience *want* to do what an organiser wants them to do.

- **Dimensioning of audience areas**, e.g. stands or stages.
- **Angling of focal points** or the management of sightlines, to control how the members of an audience want to move or where they will stop.
- **Siting and dimensioning** of audience routes, entrances, and exits.
- **Identification and response** to bottlenecks and other phenomena that reduce the flow of people.
- **Stress** on audience areas. The surface must be able to withstand the stress to which it will be exposed.
- **Steering** of the flow of people through the siting of guiding fences, such as queueing systems at the entrances or those used for guiding the crowd past a bottleneck.

Design can also mean changing the attractiveness of a place. The locations and routes where you want an audience to be should be as attractive as possible. At the same time, the attractiveness of areas where you do *not* want the audience to be should be reduced. This can be done, for instance, with light and darkness – light is in most cases being interpreted as open, active, and interesting, while darkness is usually interpreted as closed, inactive, and uninteresting.

Another way of controlling attractiveness is to regulate what the audience can see from a specific location, for example by sightline kills. The audience will stand where there is an unobstructed view of what they consider attractive and want to see.

Design as a tool for influencing crowd flow can be expensive or take a long time, but in return it is what produces the greatest effect. When working with design it is important to be audience-centric: to constantly take as one's point of departure the circumstances of the audience.

Information refers to ensuring that correct and easily understood information is available to an audience prior to, during, and following an event, so that its members can make informed decisions. Information includes everything from the event's visitor information and communication system to signposting, broadcasting over a public address system, news, social media, safety, medical care, etc.

Information is a relatively weak instrument – messages rarely reach every single visitor, not even when they are repeated through many different channels. Nevertheless, information is an important complement to good design and good management. Information efforts are often comparatively easy and cheap to use, but if not supported by design and management, information usually has little effect on the behaviour of an audience. When working with information, it is important to adapt the information to the recipient by sending simple and clear messages through robust and reliable channels.

Management refers to how an event is run and with making sure that what goes on at the event happens in a safe way. This includes everything from the schedule of an event to its organisation, work duties, rules, procedures, plans, etc. Management also to a large extent involves being prepared for the possibility that everything may not go according to plan and being able to handle unforeseen occurrences.

Read more about:

Communication as a crowd management tool in *Section 16.4.4.*

Plans and procedures for crowd management in *Section 16.5.* and *Section 16.6.*

Organisation and staff in *Chapter 5.*

Working at entrances in *Section 19.2.*

Management includes, among other things, the following:

- **Controlling the time at which different occurrences take place.** The audience is not only governed by *what* happens at an event, but also by *when* it happens. By controlling the time occurrences take place (e.g. the time that elapses between the opening of the event and the beginning of the first attraction, the order in which different occurrences take place, or the duration of the intermission between halves or periods) the circumstances of crowd flow can be affected.
- **The organisation and its circumstances.** Good crowd management requires an organisation that is custom-made for crowd management, i.e. that there are staff who report changes in crowd flow and that have the knowledge and competence to act when necessary. The organisation should be flexible and possibly somewhat over-dimensioned, so that staff resources are always available to be put into action if measures need to be taken.
- **Staff working methods.** The methods employed for such things as body searches should be optimised for good crowd flow. At an entrance, saving ten seconds per visitor makes a huge difference to the total situation.
- **Plans and routines for crowd management.** If it is discovered during the planning that potential crowd flow problems cannot be solved through construction, the event should create a procedure for how to deal with this problem – a so-called crowd management procedure.

Management can be a flexible tool. You can relatively quickly make changes to, or change the direction of, specific tasks, on condition that the design allows for this and that there are sufficiently good prerequisites for spreading information.

16.4.2. The event phases linked to crowd behaviour

The motivation and behaviour of individual audience members vary during an event. Although it may be impossible to chart in detail the individual focus of an entire audience, it may nevertheless be a good idea to make a rough division of potential audience behaviour into categories. In simplified terms, an event can be divided into three distinct phases of audience behaviour:

- **Ingress** is the phase when an audience is on the way to an event, and when they enter the event site. During this phase, the focus of the members of an audience is usually on the arrival at and entry into the event. The audience members are normally motivated and full of positive expectations. They are often less familiar with the design of the event, especially of one-time events, and are thus willing to go with the flow. In the audience the ingress phase normally extends over a period of time, because audience members usually arrive at a venue over a longer period of time and in various ways.
- **Circulation** is the phase when the audience members are inside the event and when they move about the event site. Their motivation and behaviour are governed by what is going on at the event.
- **Egress** is the phase when the audience members are about to leave the event, and are on their way away from the event site. This phase means that the motivation and behaviour of the audience shift: they are now

more focused on getting out of the event site and going home. In this phase, the audience members have often formed an idea of the design of the venue. This phase often occurs simultaneously for many people, because most of them want to leave a venue once the event is over.

The three phases are primarily about the motivation and behaviour of an audience. This means, for instance, that an individual who is late for an event can be in the ingress phase while the rest of the audience are in the circulation phase. At certain types of events where different attractions take place at the same time or in quick succession, all three phases may sometimes coexist simultaneously.

It is important to consider how a crowd management measure affects crowd flow in different phases of an event. For instance, building a queueing system from temporary fencing outside the entrance can facilitate the entry process at the ingress phase. However, this queueing system may be less useful during the circulation phase because most visitors have already entered the area, and it may even pose a risk in the egress phase, if all visitors want to leave the event at the same time.

Read more about:
Ingress, circulation, and egress in *Section 16.4.2.*

A satisfied audience whose expectations are fulfilled make an event safer and more secure.

16.4.3. The crowd management process

Crowd management begins long before the audience arrive at an event. In order to give the audience a good experience which is both objectively safe and subjectively secure, you need previous knowledge, flow analyses, planning, and preparations before the implementation of an event can begin.

Figure 29. Figure 29. The crowd management process

16.4.3.1. Previous knowledge

An organiser who does not understand the audience will find it difficult to meet their expectations, needs, and desires – and the audience whose expectations regarding the experience or the service provided are not fulfilled can become disappointed, irritated, or, if worst comes to worst, angry. An audience charged with negative emotions is a bad point of departure for a safe event.

Organisers and their staff need knowledge about and an understanding of human behaviour in event situations, as well as knowledge concerning the composition and type of audience visiting the event in question.

Information-sharing and collaboration with other actors, organisers, or arenas – both nationally and internationally – are invaluable sources of information for planning and risk assessment. Through such exchanges of experience, one can learn how the audience of a performer has acted at previous concerts, or how the supporters of a particular team have acted when visiting another arena.

All crowd management should be based on such knowledge and understanding – and the deeper the understanding, the better. Theoretical knowledge and one's own experience are the absolutely best combination.

16.4.3.2. Analysis for crowd management

During the analysis, the nature of the interactions of the audience, the venue, and the relevant occurrences at an event should be identified, and questions about what this will mean during the event should be posed: Are there routes used by the audience that risk becoming congested? Are there times when certain areas risk becoming overcrowded or when different flows of people collide? Here a separate flow analysis can be made but it should be combined with the other risk analyses of an event. A flow analysis should be done on a map according to scale, and analyses should be done for all three phases of the event.

The following is a possible method of flow analysis:

1. **Identify the focal points of the event.** It is to these places that the audience want to go during certain periods: for instance, entrances, stages, stands, or sales outlets.
2. **Identify focal routes** that will be used by an audience in order to travel between the focal points. Differentiate between where the audience preferably should walk and the route they will actually take. Note any bottlenecks or other limitations.
3. **Identify areas** where an audience will gather. Often these areas are linked to strong focal points, but also areas before bottlenecks or places where there are several weaker focal points may be busy during certain periods. These areas can be dynamic (e.g. a sales outlet or a queueing area) or static (e.g. the audience area in front of a stage).
4. **Calculate the capacity** of focal routes, audience areas, bottlenecks, and other places with limitations. Endeavour to identify what is possible, and what an audience might do: How many people can pass through a bottleneck per minute? How many visitors can fit into a specific area?
5. **Do a walkthrough of the event** on the basis of the schedule. Use your previous knowledge about an audience and their behaviour as your point of departure. Here you should endeavour to identify what the audience is likely to do: How many will want to pass through a bottleneck during a given period of time? How many visitors will want to be in a specific area at the same time?
6. **Identify shortcomings and problems** regarding capacity and crowd flow, for instance
   - focal routes or bottlenecks that are very busy, leading to a risk of being crushed and long queues;
   - focal points or bottlenecks that risk giving rise to queues that obstruct crowd flow;
   - strong crowd flows that pass through a stationary crowd or intersect with other strong flows;
   - areas that risk becoming overcrowded or being filled unevenly when audience members who are already on site block the view of audience members just arriving.

Read more about:

Cooperation in *Section 5.2.*

Crowd management routines in *Section 16.6.*

The individual in *Section 16.1.*

Crowds in *Section 16.2.*

All crowd management should be based on knowledge about and understanding of human behaviour in event situations and about the audience of a specific event.

16.4.3.3. Planning crowd management

On the basis of the analysis, the event is then planned so as to reduce the risks and increase the chances for a safe and secure event. During preparations and planning, an organiser lays the foundation for a good event. This means that he or she surveys the event site, and reviews the prerequisites for information and organisation, and the event schedule. By using design, information, and management (see above), crowd behaviour can be influenced to different degrees.

Here you should also identify the need for collaboration, both within and outside the safety organisation, in order to ensure that there is a shared view of the situation and a coordinated effort to address it. During the planning, you must also make clear the preparedness for an undesirable development in the audience, and draw up plans and appropriate procedures for crowd management.

16.4.3.4. Preparation

Preparation has to do with creating the prerequisites for the plan to actually work. Complex analyses or planning results should be made clear, so that those who need to understand them will be able to do so.

Disseminate information to those concerned and initiate collaboration, both within your own organisation and with external parties. During the collaboration, the parties are informed of the prerequisites for an event, and practical aspects of the measures to be taken are discussed. Make clear what is required in order to make the crowd management successful, and what this means for other parts of the organisation. The safety organisation often needs to impose demands on several different aspects of the design of the event.

Train and walk your staff through the procedures so that they have a good understanding of the relevant prerequisites, measures, and tasks.

In good time prior to an event, the safety organisation should check that the agreed-on prerequisites have been met. This refers, above all, to redundancy: important prerequisites may need to be double-checked.

16.4.3.5. Implementation

Events are complex activities with many variables that can affect what happens. Not least are they affected by the hundreds or thousands of individuals in an audience, each of whom possesses an independent will of his or her own. Problems in crowds can escalate quickly – from being a bit unpleasant to becoming dangerous. For this reason, it is important that an organiser is observant of changes or indications of problems during the implementation of an event, and is prepared to address them. Do not forget that small measures at an early stage are often better than large measures at a later stage.

Problems in crowds can escalate quickly. Be observant. It is often better to consider taking small measures early on than waiting and being forced to take large measures later.

During the implementation of an event, crowd management is mainly about doing the following:

- **Monitor and predict.** An organiser should have the capacity to detect and predict major changes and problems in crowd flow. At larger events, the people in charge should get continuous crowd flow reports from an event site in general and from risk areas in particular. This can be done with, for example, camera surveillance or observation posts with staff who register and sound an alarm in the event of predetermined occurrences or major changes in crowd flow.

- **Correct and communicate.** If an undesirable development is discovered, the organiser should have an opportunity to change the conditions (design, information, and management) using the event's crowd management procedures and staff. It is important to be ready (and prepared) to deviate from the original plan, if the situation requires it.

16.4.4. Communication as a tool for crowd management

Good communication is an important factor for successful crowd management. This is true of both communication prior to an event and communication at the event itself. Well-informed visitors manage better on their own and are easier respond to than uninformed visitors. Visitors receiving good service and who have good access to information feel content. This is an important prerequisite for a safe event.

Everyone working with an event should be service-minded and sufficiently well-informed to be able to answer questions and provide information. If they cannot answer the questions themselves, they should know who can and be able to refer visitors to that person.

All information to the audience has the following in common: it should be simple, clear, and redundant.

16.4.4.1. Preliminary information

Via a website, social media, tickets, posters, programme leaflets, etc. an audience can find out what applies at an event with respect to times, prices, offers, performers, and various stages. People can also be informed about the rules and policies in force during the event, such as what may not be brought into the event site. This provides a visitor with a sort of basic course regarding the event. However, remember that many visitors do not gain access to all the preliminary information.

16.4.4.2. Orientation information

Orientation information is information that makes it easier for visitors to find their way around an event site and its vicinity. Using orientation information, a visitor will know where to find stages, other attractions, exits, food outlets, toilets, and other services. This information can be disseminated via signs, information boards, brochures, and staff.

16.4.4.3. Activation information

Activation information is information that exhorts visitors to act in various ways, for instance to calm down in front of a stage, to choose another entrance to avoid long queues, or to make their way to the exit because the event is closing for the night.

If you want a crowd to act in a certain way, all individuals in the crowd should preferably receive the same message from the same source. Different messages from difference messengers increase the risk of misunderstanding or the spread of rumours. It is also important for the information to be simple and clear when you communicate with a large crowd in order to cause it act in a certain way. A message should also be repeated several times.

Information disseminated to a large group of people should be carefully prepared and preferably written down in order to reduce the risk of inaccuracies, ambiguities, or misunderstandings.

Read more about:

Simple, clear, and redundant information in *Section 1.2.3.* and *Section 20.5.1.*

Signs in *Section 7.2.*

All information to an audience has the following in common: it should be simple, clear, and redundant.

Information disseminated to a large group of people should be carefully prepared and preferably written down, in order to reduce the risk of inaccuracies, ambiguities, or misunderstandings.

Combining a temporary barrier fence, a temporary sign, personal exhortations from the staff and an announcer on stage has a much greater effect than does a sign alone.

The following media are suitable for communicating with large crowds:

- **Announcer.** With an announcer you have access to a sender who appears on stage or at a central location prior to or during the event in order to transmit a message at a time when the members of an audience in many cases are very receptive to information. Remember to choose an announcer for whom the audience feels confidence.
- **Sound systems.** A sound system has similar advantages to an announcer. The drawback is that it can sometimes be difficult to catch the attention of visitors and that it can sometimes be difficult to comprehend a message.
- **Megaphone.** A megaphone is a portable alternative when there is no access to a sound system or when there is no electrical power. It may be advisable to equip all places that involve potential risks to an audience with a megaphone. Keep in mind that there are many different kinds of megaphones with varying sound volumes and sound qualities.
- **Temporary signs.** A sign has the advantage of requiring a comparatively small amount of work. In addition, it can communicate a message from a distance and be read by several people at the same time. For instance, making an audience understand that a certain entrance is closed is much easier with a clear sign.
- **LED screen.** A message being scrolled across a LED screen prior to a performance can be read by a large part of the audience. Make sure that the text and animations on a LED screen are clear and simple, so that they are not misunderstood.
- **Personal exhortations.** The safety organisation's patrolling staff can talk to or call out to passers-by along routes where many people pass by, for example when the goal is to redirect an arriving audience to less crowded entrances.

For increased clarity one should communicate the same message in different ways. Combining a temporary barrier fence, a temporary sign, personal exhortations from the staff, and an announcer on stage has a much greater effect than does a sign alone.

16.5. Crowd management plan

A crowd management plan is a tool intended to ensure that the movements of an audience during an event do not pose a risk to either visitors or staff. It may help an organiser think through an entire event in advance, so that he or she sees what might happen and what can be done about it.

The crowd management plan should have two parts – an analysis part and a management part:

- **The analysis part** creates a picture of crowd movement patterns and of the conditions at the venue, so that crowd movements do not create any problems.
- **The management part** deals with how to address the areas or situations where crowd flow can be complicated, either by adapting an event site or through measures for changing the movement patterns of the crowd.

Read more about:

LED screens in *Section 8.1.6.*

Flow analysis in *Section 16.4.3.2.*

Risk management in *Chapter 3.*

For increased clarity, you should communicate the same message in different ways.

A crowd management plan is a tool intended to ensure that the movements of an audience during an event do not pose a risk to visitors or staff.

The analysis is a good tool – not only for identifying risks associated with crowd flow, but also for creating a picture of what an organiser might expect during the event. The analysis part of the crowd management plan should also be a part of the total risk analysis of an event.

A crowd management plan can, for instance, include the following:

- the comprehensive aim and goals of the crowd management;
- a description of the characteristics of crowd flow;
- limitations and risks that have been identified;
- measures and preparedness;
- methods and tools;
- scales for the assessment of audiences.

Read more about:

Focal points in *Section 6.3.1.3.*

Focal routes in *Section 6.3.1.4.*

Flow analysis in *Section 16.4.3.2.*

16.5.1. Overall aims and goals of crowd management

The description of the overall aims and goals of the crowd management is a kind of letter of intent for crowd management. It can describe, among other things, the following:

- **The background** to why the event works with crowd management in the form of risks, problems, and concerns.
- **The aims** of crowd management. Aims can be prioritised in various ways, for example
  1. what must never happen;
  2. what should be avoided;
  3. what to strive for.
- **Goals of the work**, for instance the quality of materials, the educational level of the staff, and how far in advance entrances should receive warnings before larger crowds reach them.
- **Goals of the results**, for example maximum waiting time, length of queues, customer satisfaction, flow rate through entrances, or sales at individual locations.

16.5.2. Description of the characteristics of flows

You should also describe the characteristics of event crowd flow using a flow analysis. The flow analysis should include the following:

- **A flow map.** A flow map is a map to scale or a drawing over the venue with structures, focal points, and strong focal routes marked out.
- **Focal points.** The event focal points are the places to where audience members want to go or where they want to remain stationary, e.g. entrances, exits, stages, the finish area. Here you should describe the characteristics of each focal point, e.g. the maximum capacity of the adjacent audience areas or stands, the conditions of the surface, and other relevant characteristics.
- **Focal routes.** Focal routes are the routes many members of an audience will use when moving between different focal points – both to and from an event as well as inside the event site. Here you should describe the characteristics of, above all, strong focal routes, for example bottlenecks along the routes, surfaces, lighting conditions, and other relevant characteristics.

- **Temporal aspects of an event.** The entire schedule of an event should be presented, where the occurrences that will have a great effect on how an audience moves around should be foregrounded and their effects analysed. One example of such an occurrence is the times at which a large number of visitors are expected to arrive at or, respectively, leave the event. Other examples are the times when a focal point is extra interesting to the visitors, or when many people are expected to move along a certain route in the area, for example to a stage right before a gig or during the intermission of a match.
- **Behavioural history of audiences.** How an audience will act in various situations or at different locations can, in part, be gleaned from analysing how similar audiences tend to act. When doing this, an audience profile can be of great help. Examples of such behaviour is, for instance, a rush to obtain good seats, overcrowding, and picnics or other activities that require a good deal of space.

Other factors can also affect crowd flows, such as the results of a match, rumours, changes in the celebrity status of a focal person, or the weather. If so, these factors should also be included in the flow analysis, together with an analysis of the attendant effects that can be expected.

Read more about:
Bottlenecks in
Section 6.4.3.1.

16.5.3. Limitations and previously identified risks

In a crowd management plan it is advisable to address any limitations and previously identified risks. The following topics should be included:

- **The capacity of audience areas.** The maximum number of visitors that can fit into each previously identified audience area.
- **Capacity of bottlenecks.** An assessment of how many people can pass through, under normal circumstances, each bottleneck per minute. Here phenomena that may slow down flows of people should be taken into account, e.g. the surface, ticket inspections, or two-way flows.
- **Acceptable crowd density levels.** It can be advisable to set targets for an acceptable crowd density in various areas. This target can be affected by both safety and the experience you want to give audience members. You can also decide in advance what to do if the target is exceeded, for example whether to initiate crowd management procedures. For this you can use an assessment scale for crowd density (see below).
- **Identified risks.** During the analysis you can identify the places and times that may pose increased risks and the effects this may have. Examples of this are
  - previously identified bottlenecks (e.g. entrances or walking paths with poor surfaces, curves, or walking paths that successively narrow) where congestion may arise;
  - focal routes or audience areas that risk being very busy at certain times;
  - areas or focal points that risk becoming overcrowded at certain times (e.g. audience areas in front of a stage, queueing areas in front of an entrance, or a camping site).

Each identified risk should be marked out on a map drawn to scale along with the approximate time when the risk may occur.

Risks and problems with crowd flows and capacity can be responded to either by changing the event or by changing the behaviour of the audience – or both.

16.5.4. Measures and preparedness

The risks and problems identified during the analysis and planning can be responded to in two ways – either by changing the event or by changing the behaviour of the audience. Examples of changing the event include increasing the number of lanes at an entrance, widening audience routes, or postponing occurrences, while examples of changing the audience include increasing the clarity and intensity of information directed to the audience or increasing the number of staff that can facilitate flows.

Read more about:
Tools for crowd management in *Section 16.4.*

Here the following should be kept in mind:

- **Preventive measures.** Preventive measures should answer questions concerning
  - where and when you wish visitors to move about both outside and inside a site, and what should be done to make this possible;
  - where and when you do *not* wish visitors to move about both outside and inside a site, and what to do to prevent this.

In addition, you should provide a description of the preventive measures that have been taken in order to counteract the previously identified risks. Examples of such measures are changes in the design of an event or the times scheduled for the event, informational efforts directed to an audience, staff initiatives, training courses, or the development of special procedures.

- **Preparedness to respond to risks.** Here the organiser can describe
  - how they plan to handle identified risks if they occur in spite of preventive measures having been taken;
  - what general preparedness exists to respond to crowd flow and capacity problems.

Photo: Ryan Garrison

16.5.5. Methods and tools

When it comes to methods and tools, a crowd management plan should answer the following questions:

- **Management and control.** What does the crowd management organisation look like – roles, allocation of responsibilities and mandates at different levels, and communication channels?
- **Crowd management procedures.** For what locations or situations have crowd management procedures been developed?
- **Equipment.** What equipment, e.g. temporary barriers, signs, and megaphones, is used when working with crowd management? Where is it located?
- **Human resources.** What staff is used when working with crowd management?
- **Assessment scales.** Have scales for assessment and communication been developed? (See examples below.)

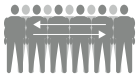
16.5.6. Assessment scales for audiences

It is difficult to assess crowd density without using technical aids during an ongoing event. Communicating about crowd density with someone who does not see the same thing is even more difficult. For this purpose, predetermined rough scales can be developed that can be used for assessment and communication.

The following are two examples of such scales:

- **Crowd density scale.** This scale takes as its point of departure an observer's assessment of crowd density and the ability of an individual to move freely relative to other visitors. (This scale is an applied version of John J. Fruin's *Level of Service*.)

Table 13. Applied Level of Service

Applied Level of Service		
A Excellent		Free flow, no conflicts. Mnemonic: can get though the crowd with arms stretched out.
B Good		Stable flow. Few conflicts. Mnemonic: can get though the crowd with elbows held out.
C Fair		Speed limitations. Mnemonic: can get though the crowd with arms down.
D Sufficient		Limited movement for many people. Mnemonic: can push one's way through the crowd with arms drawn in against one's body.
E Insufficient		Limited movement for everyone. Mnemonic: can in principle not push one's way though crowd even with arms drawn in against one's body.
F Unacceptable		Gliding movement for everyone. Mnemonic: cannot control one's own movement. Glides with the flow, at times without a stable foothold.

Crowd mood scale This scale can be used to further facilitate communication about the audience situation. The crowd mood scale categorises the perception of the observer about the general mood in a crowd. (It is desirable to combine this with the crowd density scale.)

Table 14. Mood in a crowd

Mood in a crowd		
1 Tranquil		Tranquil mood. Calm people.
2 Good		Good mood. Happy people.
3 Generally good		Generally good mood. A majority of the people are happy. Risk or occurrence of isolated conflicts.
4 Negative		Negative mood. Risk or occurrence of conflicts in smaller groups.
5 Very negative		Rancorous mood. People under stress. Conflicts occur.
6 Risk		Incitement to riot. Sense of panic. Risk of riots.

This scale can be useful at an event to effectively communicate the assessment of the mood in a crowd and indicate what measures, if any, may need to be taken in connection with previously identified risks.

A crowd management procedure is a predetermined way of managing various phenomena regarding crowd flow and crowds.

16.6. Crowd management procedures

A crowd management procedure is a predetermined way of managing various phenomena regarding crowd flow and crowds. Unlike, for example, an operative contingency plan, a crowd management procedure is rarely initiated because of a dramatic occurrence. The purpose of a crowd management procedure is instead to prevent dramatic occurrences from taking place, i.e. *before* something serious has happened.

A crowd management procedure is initiated when something occurs that already during the planning phase was identified as something that could lead to increased risk. An example of this is that crowd flow towards an entrance is increasing, or that an audience area is filling up. In order to create a functioning crowd management procedure, three roles are needed:

- **Alarm functionaries**, i.e. people whose job it is to report to a decision-maker when certain predetermined criteria have been met – e.g. that a queue outside the entrance is longer than ten metres, that crowd density exceeds level of service C, or that an audience area is filled to more than seventy per cent.
- **Decision-maker**, i.e. the person who makes the decisions about whether to escalate or de-escalate the procedure on the basis of the reports of the alarm functionaries. A decision-maker should be as far down in the structure of the organisation as possible in order to avoid long decision-making times. This person should, in addition, always be available and should have a deputy.
- **Resources**, which can be mobilised when a procedure is activated. These resources can consist of staff, extra barriers, or extra management resources.

The advantage of a predetermined and practised procedure is that the staff is prepared for probable scenarios and know what to do should these occur. In addition, the need for the communication of complicated internal information, where orders are given face to face or via radio, is reduced. The only communication required is really that the decision-maker says, 'Let's activate the crowd management procedure'.

A carefully planned crowd management procedure can solve several types of problem, and an event should have different crowd management procedures for different occurrences. One crowd management procedure can be used, for instance to quickly alter the crowd flow in a focal route, or to reduce the inflow to an audience area that is becoming overcrowded. Another crowd management procedure can be used to increase the event's resources in relation to expected visitor numbers, for example when visitor numbers increase in front of an entrance. In this case, a crowd management procedure can maximise the inflow capacity of the entrances, for instance by using more staff and opening more lanes.

Read more about:

Deputies in *Section 5.1.* and *Section 5.4.*

Operative plans and procedures in *Section 1.5.8.*

The advantage of a predetermined and practised procedure is that the staff is prepared for probable scenarios and know what to do should these occur.

How to create a crowd management procedure:

1. **Identify the problem or the risk that needs to be responded to.** This may be virtually any type of problem regarding crowd dynamics – e.g. that an audience area in front of a stage is becoming overcrowded, that a focal route is becoming too busy, or that the pressure on one of the entrances is becoming too great.
2. **Decide on measures** to eliminate the problem or reduce the risk. This can, for instance, mean sending extra staff to the area in question, opening up more lanes at an entrance, or redirecting crowd flow. Also decide on how to implement the measures. Here a procedure should be very clear and comparatively detailed: Who sends out how many staff? Who is responsible for carrying out the various measures that have been decided on?
3. **Decide on the predetermined criteria** that are to be reported to the decision-maker. This can, for instance, be that a queue in front of the entrance is too long, that crowd flow along a certain focal route is increasing, or that an audience area is full.
4. **Appoint alarm functionaries** for the various criteria. These should consist of staff who have the competence to make the relevant assessment, and who are at a location where they can confidently determine whether the criteria have been met.
5. **Ensure that a procedure is operational**, fail-safe, and can be escalated.
6. **Write down the procedure** and draw up work descriptions for the key staff affected by the procedure.
7. **Conduct a walkthrough** of the procedure with everyone involved.

Example of a crowd management procedure to counteract overcrowding

Crowd management procedure A is meant to prevent an area in front of a stage from becoming overcrowded. The pit manager is the decision-maker, the staff at the entrance to the area are the alarm functionaries.

- **Level 1:** Area is 60% full – preparation for steps 2 and 3: Staff is activated, barriers and signs are readied, and the mental preparedness of the entire organisation is raised.
- **Level 2:** Area is 80% full – soft closure: The entrance to the audience area is narrowed and the rate of inflow of people is reduced. A queue forms outside. The staff ensures that there is good order in the queue, and inform the people in the queue that not everyone will be able to get in.
- **Level 3:** Area is 100% full – hard closure: The area is completely sealed off with barriers. Information via signs, staff, and potentially the public address system informs visitors that the area is full.

Example of a crowd management procedure at an entrance

Crowd management procedure B is meant to prevent too long queues from forming outside an entrance, with a risk for crowd pressure and an irritated crowd forming outside the entrance. The group manager for the entrance is both the decision-maker and the alarm functionary.

- **Level 1:** When the queue in front of an entrance has reached reference point 1, the entrance group manager activates the first level of the crowd management procedure: More entrance lanes are opened up and more staff resources are sent to the entrance.
- **Level 2:** If the queue grows so that it stretches beyond reference point 2, the entrance group manager activates the second level of the crowd management procedure: All lanes except for one exit lane are used as admission lanes, more staff is sent to the entrance, and the degree of frisk searches is reduced in the admission lanes. When necessary, the group manager informs the crowd via a megaphone: 'Please be calm. Do not push forward. You will soon get in'.

16.7. Ticketing strategy

At many events some form of proof, such as a ticket, is required to gain access to a venue. A ticket is proof that its holder has paid the required entrance fee.

Tickets can

- be unnumbered or linked to a particular seat;
- give access to parts of or the entire venue;
- be sold in advance or on site on the day of the event;
- be paid for either electronically or in cash.

How an organiser chooses to design a ticketing strategy can have a significant effect on crowd flow, crowd behaviour, and the implementation of an event.

Keep the following in mind with respect to tickets and audience seating and standing room:

- The best thing to do is to sell tickets in advance if an event is likely to be full or almost full. If so, this should be clearly communicated in advance.
- Make sure that the ticketing strategy supports an ambition to keep certain audience groups separate if this has been deemed necessary.
- Endeavour to distribute the number of tickets evenly among the entrances.
- Make sure that all aisles, sections, passages, rows, and seats are clearly marked and correspond to the information on the ticket.
- State clearly on the ticket if a seat has a restricted view of the stage.
- Do not sell tickets to seats with a very restricted view.

How an organiser chooses to design a ticketing strategy can have a significant effect on crowd flow, crowd behaviour, and the implementation of an event.

Having only advance purchase tickets for numbered seats will result in the smoothest admission procedure, but will hinder more spontaneous visits. If tickets are also sold at an event on the day the event takes place, you should make sure that they are sold at a separate box office, so that those who have bought advance tickets do not have to wait in line. Cash payments are increasingly rare, but if someone wants to pay by cash it is an advantage if the price is an even sum, so that no complicated managing of loose change is required.

If the event has no numbered or marked seats, the flow into the area will be quicker, but this can lead to an undesirable rush to get the best seats.

A ticket must be difficult to forge or copy. You must nevertheless be prepared to deal with people holding a forged ticket who are denied admission. For the same reason, must also be a clear policy regarding resales and third-party sales. Can such sales lead, for instance to people with access restrictions nevertheless being allowed in?

The entire audience should preferably not arrive at the same time prior to the beginning of an event. Package offers with travel on trains or buses can even out the inflow if the travellers arrive on time. Warm-up acts and other entertainment can also contribute to an entrance process with a longer duration.

16.7.1. The ticket as an information carrier

The seat a ticket is intended for should be clearly stated on the ticket. This information should correspond to clear signage at the event that uses the same designations. Using different colours for guidance can be a good idea, but avoid having only colour markings, so that you do not treat people with reduced colour vision unfairly – both text and numbers must always be included on signs.

A floor plan of the seating on the back of a ticket makes it easier for the members of the audience to find their way around. The part of a ticket that a visitor can retain after the admission inspection must have all the necessary information about the location of a seat – section, row, seat number, etc. There can also be information on the ticket of importance for a visitor from a safety perspective.

16.7.2. Children and minors

An organiser should have a clear policy with respect to children and minors:

- Should there be an age limit for admission?
- What is the policy regarding children on their own who should properly be accompanied by an adult?
- Are children included in the tickets of their guardian or other adult, or do they have their own tickets?
- Do children who are accompanied by their guardian have a different age limit than unaccompanied children?
- What happens if an unaccompanied child is denied entrance?
- How many children should there be in the audience relative to the number of adults?

17. Performers, athletes, and other focal persons

Photo: Piqsels.com

17. Performers, athletes, and other focal persons

Performers or athletes are often at the centre of everyone's attention during an event. During competitions others carrying out central functions, such as referees or umpires, are also at the centre of attention. Performers, athletes, and other people who attract an audience's attention can, to use a single term, be referred to as focal persons.

There are many differences, but also quite a few similarities, among these roles. While the entire purpose of a performer is to communicate directly with an audience, athletes and referees or umpires communicate directly with the audience only in exceptional cases. However, what all focal persons have in common is that they are members of a group that can have a strong influence on the audience. They also have in common that they often must have exposure in order to fulfil their roles.

This chapter takes up safety-related, legal, and practical aspects surrounding the presence of focal persons at an event. The chapter first discusses the aspects all focal persons have in common. Following this are specific sections devoted to performers, athletes, and referees, as well as other officials.

Read more about:

The area around the stage in *Chapter 8.*

Requirements placed on the safety staff in *Section 5.5.*

Access control in *Section 19.2.2.1.*

17.1. Security for focal persons

Focal persons are at the centre of visitors' attention and can therefore need a personal security detail (PSD) throughout the entire time of their presence at the event. The need for this varies according to the popularity of the practitioner, the audience profile, and any controversies surrounding the person or team. The risks can include both threat profiles (regarding, e.g. harassment, threats, violence, or sabotage) and the popularity of a focal person causing dangerous crowd flows or high crowd pressure in an audience. Include these factors in any safety planning with respect to a focal person.

An organiser should conduct a dialogue with a representative of the focal person regarding wishes and requirements for security and surveillance at the event. These wishes should, however, never be allowed to undermine the safety at the event. The following occasions and areas connected to someone performing at the event may need to be monitored by event staff:

- transport to and from the event;
- accommodation and parking;
- the backstage or private area;
- transport within an event site;
- areas adjacent to a stage or an event area (e.g. the stage pit);
- peripheral activities, e.g. interviews or autograph sessions.

17.1.1. Transport to and from an event

Focal persons should be given information about how to reach an event, where to park, and at what times it is appropriate for them to arrive. If there is a significant risk that transport to and from the event will attract a

great deal of attention, the transport should be guarded and, if possible, be done in a way that will remain unnoticed by the event's visitors.

A focal person should be able to use entrances and exits to which visitors to the event do not have access. In this way, turbulence and crowding among visitors trying to get close to the performer or athlete can be avoided. The same goes for parking spaces intended for a focal person and his or her equipment, if any. These parking spaces should preferably be located adjacent to the stage, the backstage area, or a focal person's private area.

17.1.2. A focal person's private area

A focal person needs a private area for preparation and recreation before and after an event. The availability of private areas can vary depending on the size and appeal of the event. Areas outside the event site, e.g. the backstage area and dressing rooms, should be guarded. It is important that only authorised persons have access to these areas.

17.1.3. The movement of a focal person at a venue

In some cases a focal person must move around at a venue. This might be because of autograph sessions, interviews, or simply a wish to move from one place to another. On these occasions the focal person might need an escort.

Conduct a dialogue with the representative for the focal person about planned activities at the venue where there might be a need for an escort. When a performer is very popular, things like a record signing can attract a large audience. In such cases, the same safety level should apply to these activities as to the rest of the event.

17.1.4. Staff working around the focal person

In order to reduce the risks of unauthorised people gaining access, areas around a focal person should be access-restricted while at the same time the number of staff members working around the focal person is kept to a minimum. These staff members can be provided with special access certificates linked to their tasks in order to avoid irresponsible staff members disturbing a focal person with requests for autograph or the like. In the focal person's private area and the backstage area there should only be staff with tasks relevant for these areas.

17.2. The performer

By drawing up performer profiles and entering into agreements about how performances are to be carried out, work with safety around performances becomes more predictable and thereby easier to accomplish.

17.2.1. Performer profile

A performer profile is quite simply a description of a performer. A performer profile can be used to create a picture of the type of audience that can be expected, how a performer is expected to act during a performance, and what effect the performer will have on the audience.

In order to draw up a performer profile, an organiser needs to know how the performer has behaved towards organisers and audiences in the past, and what type of audience behaviour the performer's presentation might elicit. This information can be collected in various ways, for instance by talking to a performer's contact persons and to organisers who have

A performer's profile can be used to create a picture of the type of audience that can be expected, how the performer is expected to act during a performance, and what effect the performer will have on the audience.

commissioned the performer on earlier occasions. Information about a performer can of course also be found on the internet.

A performer profile is then summarised in a risk analysis containing the following components:

- previously perceived risks;
- risks of material damage;
- risks of injuries to the audience or staff;
- special measures.

Read more about:
The performer profile in *Appendix E.*

17.2.2. Performer contracts

During an event, uncertainties and disputes may arise between an organiser and a performer. These can be about a change in circumstances, about either of the parties acting inappropriately or feeling that they are being badly treated , or about the responsibilities of either party being questioned. On such occasions it is advantageous for both parties that there is a contract to fall back on. The organiser and the performer should therefore enter into such an agreement – a so-called performer contract.

In a performer contract it is possible to regulate issues that are not directly regulated by laws and regulations. Examples of this are rules and policies regarding items the organiser feels should be banned from the event, which person is responsible for various tasks being carried out, and which times have been decided for the event. The contract should also make clear what safety requirements are imposed on a performer and his or her co-workers, and what safety level the performer can expect at the event.

In many cases a booking company, a performer's agent, or a production company write their own contracts and send them to the organiser. The organiser should read this contract carefully and send feedback to the performer's agent concerning any desired changes or additions to the contract.

It is important to keep in mind that the contract is an agreement between two equal parties who must both guarantee that it will be fulfilled. The contract should therefore be formulated so that all relevant points for both parties are taken up. It is better to write too much into a contract than too little. Even things that may at first glance seem obvious should be addressed explicitly in the contract.

A performer contract is an agreement between two equal parties and should be drawn up accordingly.

The following points can be taken up in a performer contract:

- When a performer has access to the stage and the backstage area.
- What insurance does each party (the organiser and the performer, respectively) have.
- Limitations regarding vehicles at the venue.
- A reduction of the sound level on the basis or permitted values.
- Requirements concerning the notification of the use of pyrotechnic effects, noting that this use can be stopped by an organiser if necessary.
- Safety arrangements surrounding a performer – surveillance, stage barriers, etc.
- Occasions when a performer is responsible for his or her own safety.
- Responsibility for equipment – whether a performer is responsible for guarding their own equipment, and whether an organiser is liable for damages if any equipment should disappear.

- Information about the safety organisation at an event.
- Information about the head of security at the stage in question having the right to stop a performance, permanently or temporarily.
- Information and regulations regarding the working conditions at the stage for representatives of the media.
- Information about whether members of the audience have a right to take pictures of a performance from the audience area.
- Information about actions that are not allowed, e.g. jumping into the stage pit, crowd surfing, or throwing things into the audience.
- Contract confidentiality – whether the agreement is to be considered confidential or whether either party is allowed to communicate its contents to the press.

Read more about:
Safety work during a performance in *Section 19.5.*

Even after the signing of a contract, a continuous dialogue should be conducted about any issues of importance between an organiser and a performer or a representative of the performer. When a performer arrives at an event, it is advisable to have an oral run-through of what applies. A quick review of these issues can also be done just before the performer is going on stage.

A complement to a contract is a performer's so-called *rider*, which can be said to be the performer's wish list. The performer can send wish lists in advance about most issues – technology, security, how the dressing room is to be decorated, etc. In brief, it can take up activities both on stage and backstage that can it be useful for the event safety organisation to know about.

The wishes of the performer should be taken into consideration, but they should not be allowed to undermine event safety.

Sometimes a performer has wishes that relate to the safety work, for example with respect to the placement of stage barriers or the number of pit staff or medical care staff. These wishes should obviously be taken into consideration, but they should not have a negative effect on event safety.

17.2.3. A performer's effect on the audience

A performer's actions on stage can have an effect on his or her audience – a performer who acts in a positive manner can infuse the audience with positive emotions, while an artist who acts irritated and irresponsibly can infuse the audience with anger, for example towards an organiser and their staff or towards other members of the audience.

Prohibiting a performer from spreading illegal propaganda or expressing him- or herself in a discriminatory manner should be regulated in the contract.

An organiser should in good time prior to an event ensure that the performer knows what he or she is allowed and not allowed to say or do during a performance and during the rest of the event. Discuss this with the performer, or a person representing the performer, and insert the rules that apply into the performer contract. The organiser should also in advance think through what to do if it turns out that the performer does not honour the agreements that have been made.

17.2.4. Run-through before the performance

In reasonable time prior to the performance in question, the organiser should go through the safety aspects around the performer's presentation together with the performer or the performer's representatives. At this run-through, the following should be gone through:

- the items regarding safety in the performer contract to ensure that neither of the parties have missed or misunderstood something;
- the safety procedures that apply on and around the stage;

- the event procedures for a safety emergency pause during a performance, and the role of the performer during such a potential pause.

The parties should also go through the intended course of events at the performance and check to make sure that nothing is in violation of laws, regulations, agreements, or policies. Check the following:

- Does the performer intend to throw objects out into the audience? Some things are more dangerous to throw than others, e.g. broken guitars.
- Will there be pyrotechnics and special effects? If so, at what times during the performance?
- Are there any plans for the performer to go down into the stage pit or out among the audience?
- Are there any plans for members of the audience to come up on stage?
- Does the performer usually encourage the audience to take some action?
- How long is the performance? Is there a risk that the performer may overrun the agreed-on time schedule?

The run-through with the performer gives the organiser an opportunity both to remind the performer of what is prohibited, and to facilitate permitted activities with increased preparedness during the performance.

Read more about:

Stage pits in *Section 8.1.1.*

Who should have the right to pause or stop a performance in *Section 19.5.5.*

17.2.5. Guarding equipment on stage

Before and after the performance, the stage pit and the area around the stage may need guarding, to protect the equipment of both the performer and the event as well as to stop unauthorised persons from coming up onto the stage or into the stage area. The party responsible for providing the guarding and who is liable for damages if equipment is stolen or destroyed can be regulated in the performer contract. Note that there is a difference between being responsible for the surveillance and being liable for damages to a performer's equipment.

Do not change the safety procedures after the run-through.

17.2.6. The performer's safety during a performance

The performer's safety during the performance should be ensured by monitoring all passages to a stage or stage area. It is especially important that unauthorised people do not have access to these areas while a performance is in progress. If there is no backstage area, the performer should be escorted to and from the stage by security personnel.

The organiser should also take measures to reduce the risk of members of the audience throwing objects at a performer. For this reason, all visitors should, if possible, be searched at the entrances. The organiser can also increase the depth of the stage pit in order to increase the distance between the audience and the performer, and make sure that the audience area is free of objects that are easy to throw.

If the organiser wants to involve a performer in the work during an emergency situation, this needs to be discussed carefully before the performance and be prepared for in accordance with the event's operative plans.

17.2.7. The actions of a performer in a potential emergency situation

A performer has the attention of the audience during his or her performance. In an emergency situation, correct information and appropriate exhortations from the performer can therefore facilitate the dissemination of information and aid in a potential evacuation.

Performers can, in other words, help the organiser inform the audience about what has happened and how they should act in an emergency situation. Note, however, that incorrect information or inappropriate exhortations from a performer are likely to produce undesirable effects. It is therefore important *not* to involve the performer in the safety work during an emergency situation if the organiser is not completely sure that the performer will relay the information the organiser wishes to disseminate.

If the organiser wants to involve a performer in the work during an emergency situation, this needs to be discussed carefully before a performance and be prepared for in accordance with the event's operative plans.

17.3. Athletes

17.3.1. Preparations prior to an event

The outcome of a sports event is uncertain, which means that the mood among the audience members and the frame of mind of an athlete can be difficult to assess in advance. With respect to safety, this means that the organiser may have to prepare for several different possible outcomes of an event.

The various specialist sports associations in Sweden decide which rules apply for the sport in question.

The outcome of a competition is key, both to the sport and to an audience. This means that operational safety needs to be high. The risk that someone, unintentionally or intentionally, can affect the results should, in principle, be eliminated.

17.3.2. Athletes

Focal persons at sports events may be both individual athletes and whole sports teams. It is part and parcel of the competitive nature of sports that most members of the audience have a favourite, and that the other athletes involved are therefore that favourite's competitors. The main difference between team sports and individual sports is that in team sports an audience can have a negative attitude towards half of the participating athletes, while the same kind of situation rarely exists with respect to individual sports.

The antipathy against athletes who are not the audience's favourites can be manifested in various ways – anything from playful disagreements to more serious and dangerous actions that may pose a safety risk to the athletes.

A risk assessment can be complemented by information from previous events in which the athletes in question participated: How does an athlete usually act during events? How have the supporters acted previously? What type of status does the athlete have? Some athletes are virtual celebrities and may have strong supporter groups linked to them as individuals. There are also athletes who, because of controversial statements or polarising views, can require a necessary adaptation of the security around them.

17.3.3. An athlete's effect on the audience

Players' behaviour towards their supporters is important. Naturally the mood between players and their supporters should be a good one, and it is important that players do not encourage negative behaviour. Purely for safety reasons, players should not handle items thrown onto a pitch, least of all pyrotechnic devices.

How an athlete acts affects the sentiment and actions of the audience during an event, both positively and negatively. Often this is not intentional, but it is in many cases unavoidable. An athlete can, for instance, become upset by something that happens during an event and thus be careless of his or her actions, choice of words, or gestures. Strict neutrality towards irregularities in the stands is a good point of departure, even if an organiser must realise that an athlete in the heat of the moment is under high stress.

In certain sports, a sports association regulates how an athlete may behave during an event or a competition. Find out what applies to the sport in question prior to the event.

Read more about:

The vulnerability of referees, umpires, and sports officials in the Swedish National Council for Crime Prevention (Brå) report on counteracting unauthorised influence in sports, *Att motverka otillåten påverkan inom idrotten* (Brå 2018:5).

17.3.4. Run-through prior to an event

Before an event, the organiser should go through the safety aspects of the competition with representatives of the athletes and discuss any risk profiles and what is permitted or not permitted during an ongoing event. If the participants bring equipment to an event, the responsibility for guarding this equipment should be made clear in advance for both the organiser and the participants.

17.3.5. The safety of an athlete during an event

Different athletes may be exposed to different risks. These risks may be anything from the risk of serious injury to the risk of interference in the competition in question so that the result is invalidated. In some cases the reason for the risk is carelessness or poor judgement, in other cases there may be an intention behind it. These risks should be taken into account in an event's risk analysis.

The safety around an athlete and an event will have to be organised in such a way that the risks that have been identified can be minimised. For instance, safety staff may have to monitor the competition area and all passages to and from it so that unauthorised people cannot enter, visitors may have to be searched in order to minimise the risk of something being thrown onto the pitch, or bans may have be introduced regarding bringing specific objects into the venue.

17.3.6. An athlete's actions in an emergency situation

In certain emergency situations, athletes can communicate directly with the audience, but this should only be done if it has been decided on beforehand. This can be done, for instance, in situations when the audience's behaviour makes it necessary to stop a sports event, or when an appeal to the audience must be made concerning potential changes. Athletes, unlike performers, are usually not used to communicating directly with an audience. If a situation within a team sport should arise in which athletes must communicate with the audience, authority figures from *both* teams should communicate, so that the entire audience can be reached in an appropriate way.

When evacuating a competition area because of an emergency situation, the athletes should evacuate through passages specifically intended for them, in order to avoid attracting undue attention.

17.4. Referees, umpires, and other sports officials

At sports events most people in the audience root for an athlete or a team, while at the same time they consider other athletes or the other team as opponents. Referees and umpires end up in the middle of this dynamic. Depending on how the decisions of a referee or umpire are perceived, a crowd's attitude towards these individuals can change quickly. This means that the role of referee or umpire is in some cases vulnerable.

Other sports staff at a sports event can, without intending to, also end up in the audience's focus, for example inspectors, spokespersons, observers, or managers for service, order, and safety.

Problems surrounding the safety of referees and umpires is relatively widespread in certain sports. Often there has also been a normalisation of this problem, which leads to many people not taking action against the resulting harassment. It is therefore important that organisers, organisations, and clubs foreground the vulnerability that referees or umpires and other sports officials may experience, and openly support these persons. This can have a positive effect not only for an individual but also for safety work at large.

The Swedish National Council for Crime Prevention (Brå) has collected tips on possible measures that can be taken to increase the safety of referees and umpires. These are, to a large extent, also applicable to people in other vulnerable positions.

- It should be made clear that a referee or umpire is there in his or her capacity as a professional, and is acting on the basis of a regulatory framework. This can, for instance, be accomplished by putting a number on the referee's or umpire's back instead of his or her name.
- Make public the name of the persons who will act as referees or umpires in the match in question as late as possible.
- Prevent visitors from coming too close to the referees or umpires before, during, and after a competition.
- Prevent, as far as is possible, banned objects from being brought into the arena, and see to it that objects are not thrown onto the pitch.
- Reduce the visibility of the likes of contact information for referees and umpires on the internet and in social media.

If a violent situation should arise, an affected person should try to leave the area, escape from harm's way, and alert the police.

In order to have consensus in safety work, the event organisation can also

- make sure that incidents are taken seriously and show that they will be prioritised within the event organisation;
- strive to have a culture of transparency within the organisation, thereby counteracting normalisation;
- increase the inclination to report issues by actively working with reports and feedback to vulnerable people.

18. Mass media

Photo: Petter Arvidson / Bildbyrån

18. Mass media

If a large crowd, well-known performers, well-known athletes, or something else of great news value is expected, this will be of interest to various mass media, which will then send journalists and photographers to an event. The mass media thus become yet another partner with whom an organiser must collaborate actively.

There may be a contradiction between, on the one hand, safety measures that limit the media's freedom of movement, and, on the other, the media's mission to freely cover news-worthy events. This means that the safety planning for an event also has to include safety for the mass media. At the same time, the influence of the mass media on event safety has to be taken into account.

There may be a contradiction between, on the one hand, safety measures that limit the media's freedom of movement, and, on the other, the media's mission to freely cover newsworthy events.

18.1. Media organisation

With a larger media contingent, one also needs a special media organisation. This is important not least if something unforeseen happens. The task of an event's media organisation is to meet the needs created by the presence of media representatives at an event. It must also establish and maintain guidelines and rules that apply to the mass media. Within the event's media organisation it may also be advisable to appoint a person who is responsible for monitoring the flow of social media, in order to quickly pick up on occurrences or activities related the event.

18.1.1. Press officer

The event media organisation should be run by a press officer whose job it is to ensure that anything relating to the presence of mass media representatives at the event functions smoothly. The press officer is usually the contact person with the mass media at the event.

A press officer's task can be to

- develop a media policy and rules in consultation with the event safety coordinator and the production manager;
- manage an event's media organisation;
- provide accreditation for the mass media;
- be the spokesperson for the event both during normal circumstances and in any emergency situation;
- ensure that there is a functioning press centre;
- inform the mass media about their rights and obligations;
- inform the mass media about the rules and licencing rights that apply prior to and during the event;
- make sure that the social media posts connected to an event are analysed.

18.2. Rules and policies

18.2.1. Media policy

Legally speaking, all event staff have a right to voice their personal opinions in the media. However, it is advisable to appoint a press officer or some other functionary of the event to make statements to the media as the official representative of the event as a whole.

Who makes statements to the media can be regulated through a media policy that contains guidelines on how the event staff should behave towards the media and what services should be offered to representatives of the media. This media policy should be drawn up by the press officer in consultation with the safety coordinator and other appropriate representatives of the event's management.

18.2.2. Obligations and rights of the media

The organiser should draw up rules and regulations for people working with the media, thereby avoiding confusion and irritation as a result of the work of the media at the event. These rules and regulations should be disseminated to both media and staff.

The following issues can be regulated by an organiser:

- Which, and how many, photographers and journalists will be accredited?
- Where, and at which times, are photography and filming permitted or prohibited?
- Who has the right to interrupt the work of the media at the event, and on what grounds?
- Who has the right to use an event's press centre?
- To what parts of an event does the media have access?

In addition to this, further rules apply that are regulated by performance contracts or licencing agreements linked to different leagues or sports associations.

The media have the following rights:

- The media have a right to freely give an account of occurrences at the event.
- The media have a right to not have their photographs or equipment confiscated.
- The media have a right to take photographs and film in specified locations, as long as they are not in the way or in other ways negatively affect the safety work or the security.

18.3. Accreditation

Accreditation means that a journalist is given official permission to work at an event while the event is in progress. Normally, journalists send in an application for accreditation in good time prior to an event, which gives good advance notice on how large the media contingent will be. In its turn, the attention from the media decides the size of the event's media organisation.

Often, the number of accredited mass media representatives is regulated on the basis of the event's capacity to receive them. In a stage pit or an arena, or at sports grounds there is usually only limited space offered to

The accreditation system is a good communication channel for communicating the rules that apply to the work of the media at an event, for example the event safety regulations.

a certain number of people, and the number of photographers in front of the scene of action must sometimes be limited.

An application for accreditation should therefore make it possible to convey requests about what performances or competitions the photographers prioritise.

The accreditation system is also a good communication channel for communicating the rules that apply to the work of the media at the event, for example the event safety regulations.

The following applies to the information supplied by the event about the working conditions for the media:

- The information should be available in connection with an application for accreditation via a website.
- It should be sent out together with any accreditation documents.
- It should be handed over in person when the media arrive.
- It should be posted in the press centre.

Read more about:
Design of a stage pit in *Section 8.1.1.*

18.4. The media's work on site

18.4.1. Special access for the media

The media's need for getting close to a performance or sports grounds means that in general they should be given access to some areas to which an audience does not have access. An example of such an area is the area closest to the stage, between the stage barriers and the edge of the stage – often called the photo pit. At sports events there may be special areas or boxes for the media.

In order for the media to work undisturbed, it is also recommended that the event establish a press centre or a so-called media backstage area, to which only accredited media staff have access.

A performer may have opinions concerning when and where photography can take place in connection with a performance. An organiser should communicate this to the photographers.

18.4.2. Photography

The basic principle is usually that the media can work freely in all parts of a site to which an audience has access. However, for security reasons or for certain other reasons, there may be restrictions on photography in other locations than in the audience area. For instance, at a cultural event performers may have opinions concerning when and where photography can take place in connection with a performance. All these issues should be settled and communicated clearly in advance by the organiser to the media.

While private individuals taking photos on site may sometimes be restricted to using small cameras without interchangeable lenses, there are rarely restrictions on the photo equipment of professional photographers.

18.4.3. TV productions

TV production at an event is usually governed by the event. An agreement is generally entered into with a TV producer about what may be filmed and broadcast.

At some larger events, above all at sports events and especially at various league games, it is sometimes the case that production companies own the licencing rights to broadcasting an event live. If so, then the production is often regulated in a contract between the league association and the production company. It is important to have a successful dialogue with a pro-

Conduct a dialogue with the TV production company and discuss beforehand what to do if a major accident, an attack, or some other undesirable occurrence should take place.

duction company and discuss in advance what to do if a major accident, an attack, or some other undesirable occurrence takes place.

At events where there is strong antagonism between rival supporter groups, a dialogue should be conducted in advance about how events that may have a provocative effect (e.g. replays of controversial decisions by a referee or umpire) should be displayed on the event's LED screens. The safety work in connection with a TV production has primarily to do with making sure that no one is injured by equipment, and that the equipment itself is not damaged.

Sometimes equipment may have been mounted above the audience, and sometimes movable cameras swoop through the air above the heads of audience members. Make sure that there is a safe distance when equipment is used above an audience, so that the people in the audience do not risk coming too close to the equipment. Also make sure that the equipment is mounted properly.

A TV production must obviously not be allowed to hinder safety work. It may be desirable to have special podiums or closed-off areas adapted for TV production.

18.4.4. Staff competence

It is important that safety staff working close to the media have knowledge of and understand the task of the media. Here the media policy is an important instrument. It should clarify what rules apply to the media and identify the person from the event who communicates with the media about safety issues.

All safety staff should know the basics of the event's media organisation.

Some reference points:

- All safety staff should know the basics of the event's media organisation, so that they can refer the media staff to the appropriate person in the event organisation. This person should be available both for discussing the regulatory framework and for making statements on behalf of the event.
- All safety staff should be aware of the mission of the media, both
- in general and at the current event, so that friction can be avoided.
- All safety staff should know the differences between the rules that apply to the work of the media, the safety rules, and other relevant rules, e.g. in the form of conditions from performers.

18.4.5. Press centre

The event should establish a press centre in a separate area to which the audience does not have access, so that the media can work in peace. Only the event staff and persons holding a media or photo pass should have access to this area.

18.4.6. Photography next to a stage or an arena

For safety reasons, there is a space between the audience and the stage or the pitch. At a concert, this space is called a stage pit, whereas in football matches it is called the red zone. Sometimes a part of the stage pit can be demarcated as a work space for pit staff, and also to provide a dedicated area reserved for photographers (a so-called photo pit).

These areas can only hold a limited number of photographers. For this reason, the organisers of an event should decide in advance *how many* and *which* photographers are to be given photo passes. The photographers in question should be informed about this decision already at the accreditation stage. At sports events, photographers can have accreditation to photograph only an audience, only a pitch, or both. The press officer should be on site during larger events, so that there is always a person present to whom the mass media can turn with questions.

Read more about:

Work in a stage pit in *Section 19.5.*

Communicating with the media during a crisis in *Section 20.5.1.4.*

18.4.6.1. Praxis regarding photography close to a stage or pitch

Safety work is given top priority. The basic rule is that photographers must never disturb or negatively affect the safety work. At the same time, no photographer may be disturbed in his or her work, as long as the photographers follow the rules and regulations that are in place.

Common praxis at concerts is that photographers may take photographs during the first three songs of a performance. Setting a limit consisting of a number of songs is a good idea, because then no one needs to check their watches to know when to empty the photo pit.

If a serious situation should arise that demands an increased work space, the person responsible for safety at the location in question (e.g. the pit manager) can evacuate the photographers earlier than had been previously agreed on. A stage pit should be of sufficient size that minor safety efforts can be done without the need for an evacuation, for example lifting audience members across the stage barrier under normal circumstances,.

The following praxis is usually in force for media management in the stage pit, and similar rules can be applied, for instance to a football game and in the red zone:

- The pit manager always has the last word in the stage pit.
- Photographers are escorted to the stage pit in a group by staff from the event's media organisation who then hand the photographers over to the pit manager.
- Access to a stage pit is valid for a certain number of songs (often the first three songs) or a certain amount of time depending on what has been previously agreed on. The photographers should subsequently leave the pit at the request of the pit manager.
- A pit manager can cut short the photographers' work in the pit earlier than was previously agreed on if the safety work should so require.
- All photographers should be provided with access cards that are clearly visible.
- Equipment must not be placed so that it negatively affects or disturbs the safety work.
- A pit manager should inform the media if there will be pyrotechnics during the period when photographers are in the stage pit. A pit manager should also make sure that members of the media are not inappropriately located when the pyrotechnics are to be set off.

Sometimes an organiser will accept more stringent restrictions from a performer than the ones mentioned above. In such cases, the media should be informed about this in connection with the accreditation process, or at least in good time prior to a gig. Such restrictions can have reference to

the performance of which songs photography is allowed, or whether photography with a photoflash is allowed. This, however, is the responsibility of the event's media organisation – not the safety organisation.

18.4.7. The work of the media in a crisis situation

If a crisis or special incident has occurred, the mass media's interest in an event will increase. In such cases, unaccredited news media may show up, while at the same time the accredited media representatives on site will change into being accident reporters. Cordoned-off areas, evacuations, etc. must be respected by the media, and the media may not obstruct the safety work. At the same time, the media must not be prevented from doing their jobs of giving an account of the incident.

18.5. Social media

The media officer or another person appointed within the event's media organisation should be assigned the task of monitoring social media both prior to and during an event, in order to acquire information early on about occurrences that may affect the event. Often a number of so-called *hashtags* (#) linked to an event are created that simplify the search for information.

The information on social media can be used by the rest of the event organisation, for instance in order to indicate whether an event generates more interest than was expected, or if some kind of antagonism exists prior to the event. In this way, social media can provide a basis for the safety organisation's decision-making, for example regarding whether there is a need to raise an organisation's preparedness level, take specific actions, or investigate certain issues further.

18.5.1. False rumours (so-called *fake news*)

By always monitoring social media it is possible to identify at an early stage whether there are false rumours in circulation about the event. Lies, rumours, or downright slander can spread incredibly rapidly on social media. Even information that is essentially correct can be disseminated and slanted in a way that can be disadvantageous to the event.

An event's media organisation should have a strategy, a preparedness, and predetermined channels for early on countering rumours that have arisen before they are disseminated widely.

19. Safety work during an ongoing event

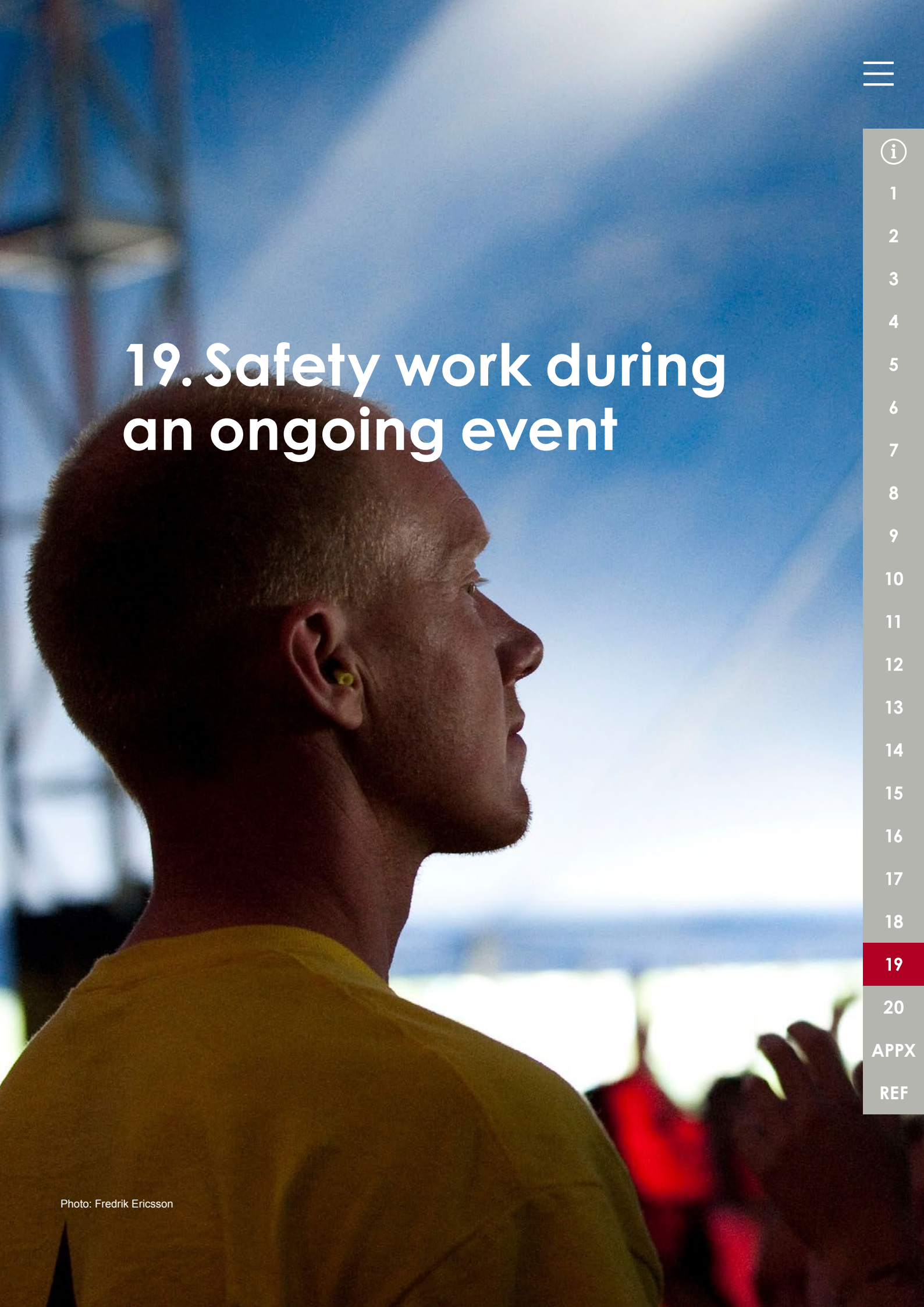


Photo: Fredrik Ericsson

19. Safety work during an ongoing event

When everything is in place in the form of entrances, vendors, audience, staff, and, not least, those who are to perform – whether musical performers or football teams – the practical work begins with making sure that the event can proceed without incident.

Each separate area at an event has its own, special tasks and its own working methods. At the same time, all safety staff, regardless of their tasks, strive towards the same goal – that an event should be safe, secure, and provide a good experience for everyone involved. In this chapter we will discuss safety work during the course of an event.

Read more about:
The precautionary principle in *Section 1.2.4.*

19.1. Safety, security, experience

The purpose of safety work during an event is to ensure the safety, security, and experience of the audience. This is the basis for a good event.

The practical safety work during the implementation of an event therefore concerns largely two things:

- **Proactivity**, i.e. attending to the safety of and providing service to the audience in order to prevent and avert safety incidents.
- **Reactivity**, i.e. planning well in advance and with appropriate preparedness to be able to deal with undesirable occurrences.

The main task of the safety staff is to provide a safe and secure experience for the audience. This means working pre-emptively, being observant, and being prepared to act if something undesirable does occur.

One of the primary preventative factors involves creating a good mood among visitors through information, service, and a welcoming attitude. This provides a major contribution to a safe event. You should therefore think about supplying the safety staff and audience stewards with information about the event in the form of programme leaflets or the like, so that they can answer questions from the audience. However, the staff must obviously always prioritise safety measures over service work.

One of the primary preventive factors involves creating a good mood among visitors by means of information, service, and a welcoming attitude.

19.1.1. The role of the safety staff

All staff working with safety – whether they are safety staff, public security guards, or medical care staff – are the public face of an event, and represent security for the audience. At the same time, they should be the eyes and ears of the head of safety, and must thus be aware of risks and possible incidents.

In other words, the staff have a broad role to play. They must be able to change tempo mentally: be pleasant, calm, and secure in safe situations, but also to react quickly and resolutely when necessary. At the same time, it is important to emphasise that safety staff are not the same as public security guards.

The safety staff have no official authorisation and rarely any training in or knowledge concerning managing risk-filled situations. You should therefore communicate clearly, both in work descriptions and through briefings, that safety staff should not expose themselves to risks.

Safety staff are not public security guards. They usually lack training regarding risk-filled situations. Communicate clearly to the safety staff that they should not expose themselves to risks.

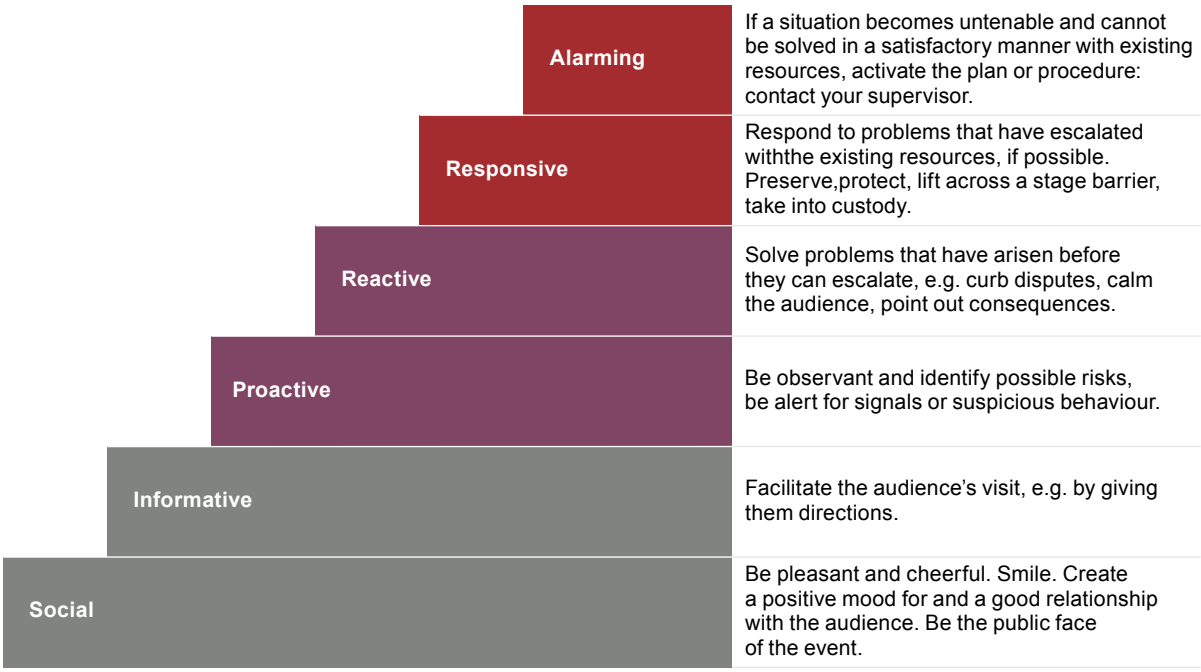
Here is where the precautionary principle should be applied. When a member of the safety staff is unsure whether something is risky or not, they should consider it risky and thus call the police, public security guards, or other staff who are trained to deal with the situation.

The focus ladder is a good illustration of the focus of awareness for people working with audience safety. This model can be applied to all audience safety work.

The two bottom steps are the normal situation, but one must always be prepared to ascend one step if the situation changes, or descend one step once the danger has passed or if the situation becomes easier to manage. You should therefore not forget that de-escalation is also important. Safety staff pumped full of adrenalin who constantly look for problems to solve can very well contribute to creating anxiety in or be perceived of as a provocation to an audience.

Read more about:
Security culture in *Section 5.9.*

Figure 30. The focus ladder



19.1.1.1. Social and informative

The two lowest steps in the focus ladder should be the normal position and the starting point for the staff. The audience come to an event to take part in an enjoyable experience – this is usually the very purpose of the event. But in addition to being the actual protagonist of an event, the audience is also a valuable tool for the safety organisation.

Polite, correct, and professional safety staff are key for an enjoyable experience. An enjoyable experience often involves a favourably disposed audience, which, generally speaking, brings with it fewer problems. In addition, a good relationship with an audience means that chances are greater that they turn to the organiser's organisation with information or if they need help.

Informing the members of an audience and referring them to the appropriate place or person contributes to better crowd flow, heightens the mood, and gives the staff an opportunity to interact with the audience and thereby sense undesirable developments at an early stage.

19.1.1.2. Proactive and reactive

The staff is key to all safety work at an event. When the staff moves around among an audience they have a good chance of influencing developments and of detecting early signs of undesirable occurrences about to happen. It is therefore important that the staff know what to look for and how to act if they notice that things are trending in the wrong direction.

Experience is important. At recurring games it is, for instance, an advantage that the same personnel work with the same audience. This engenders recognition, as well as an increased ability to read the mood of the audience and to notice deviations, etc.

In order to be effective during proactive and reactive work, the staff should:

- **Be in the right place**, i.e. move about in areas that have been identified in the risk analysis as places with increased risks. Instructions to the staff should include clearly demarcated work areas and special locations (so-called *hotspots*) that they should pass by or move about in.
- **Be safety-aware** and have a positive attitude towards safety measures.
- **Know what to look for.** The staff should have both knowledge about and an understanding of the risks of an event and what signs to be observant of.
- **Know what to do** should they identify a risk or a potential problem. The event should provide clear instructions or procedures regarding what staff should do if they, e.g.
  - identify an accident risk;
  - see a person who acts suspiciously or notice a suspicious object;
  - see a crime being committed;
  - see persons in trouble, e.g. injured people or victims of crime.
- **Have the right equipment** to do their jobs. In addition to the basic equipment of the staff, it is a good idea to also prepare so-called emergency kits. These bags of emergency equipment should be packed and placed in suitable locations, ready to go. The necessary contents of these bags vary among different events.

Proactivity and reactivity are about working in order to identify risks and potential problems, and about counteracting them before they have a chance to escalate. It is important to note that this is not only the case with major or dramatic risks. The staff should have wide-angle vision and also be attentive to risks with minor consequences, for example cables that someone risks tripping over, poor lighting, or unstable fences.

Accident prevention

When it comes to accident prevention, proactivity and reactivity are about moving about the event site and identifying, at an early stage, risks or chains of events that can develop into risks. What these risks are varies from one event to another.

An example of accident-preventative work is, for instance, noticing warning signs among the members of an audience – both physical signs (e.g. high density or rapid crowd flow) and mental signs (e.g. irritation, frustration, fear, stress, or exhaustion). Another example is looking at the event

Emergency kit, example:

- Cordon tape on a roll
- Fire blanket
- Dextrose (for diabetics)
- Torch with extra batteries
- Tourniquets
- First-aid materials Defibrillator
- Camera
- Glow sticks
- Two-way radio with extra batteries
- Charger
- Laminated map of the venue
- Megaphone
- Keys or access cards Emergency rations, high energy value, e.g. chocolate
- Pen and paper
- Personal protective equipment (e.g. face mask, gloves, goggles, helmet)
- Plans and procedures on paper
- Power bank
- Reflective emergency blanket silver foil
- High visibility vest
- Risk markers (e.g. yellow laminated paper)
- Telephone with pre-programmed telephone numbers
- List of telephone numbers on paper
- Felt-tip pen
- Water
- Tools and multi-tool Whistle
- Wet wipes
- Duct tape

from an accident-related perspective: 'How could members of the audience get into trouble or injure themselves here?' In this context it is important to differentiate between what you want the audience to do and what it actually does in various situations. It is not certain that an audience will always behave in a particular way just because you want them to. There is a big different between 'The audience *should not* sit on the railing' and 'The audience *will not* sit on the railing'. In order to get an audience to behave in a certain way, an organiser needs to create incentives for them to do so.

Read more about:
Crowd management in *Section 16.4.*

In order to get the audience to behave in a certain way, an organiser must create incentives for them to do so.

Antagonistic threats, suspicious behaviour, and suspicious objects

Often it is possible to in advance see signs of a crime or an antagonistic threat being planned or initiated, but the staff must then have been given instructions to be observant of suspicious phenomena. In general, this is about being observant of the presence of unusual occurrences, or of the absence of normal ones.

In their daily work, there is an increased risk over time that the staff will allow minor deviations to pass without saying anything about them. However, the basic rule is always 'If you see something, say something'.

If you see something, say something.

Suspicious behaviour is not primarily about what people look like, but about what they do or how they behave. This means that what needs to be identified are unusual objects, behaviour, or situations. You must be observant and active – go the extra mile, ask people in the vicinity about an abandoned bag, or say hello to a lost visitor.

Properly used, communication can be a powerful tool. Remember the expression 'the power of hello'. It may seem trite, but 'hello' can be said by anyone to anyone. By saying 'hello' you signal that you see the other person, and you open up a channel for further communication. Such a simple introductory word can start a brief conversation with unfamiliar individuals, which can help the safety staff determine their possible motives.

Depending on the motives of an addressee, a 'hello' can evoke various responses: A lost person may dare to ask about the correct route, a happy person may become happier, a sad person may feel acknowledged. Presumptive perpetrators may realise that they have been seen.

A person is not suspicious – but their behaviour can be.

Suspicious behaviour can be about unidentified people behaving in an odd way for the situation or place in question, such as someone who

- behaves unusually (may be frightened, upset, shocked);
- is not part of the target group of an event (e.g. a middle-aged man at a children's event);
- hides their connection to another person (e.g. persons in different queues exchanging glances);
- is perceived of as uncomfortable or nervous;
- hides something;
- avoids answering questions;
- has been in a particular place for an unusually long time;
- does not have a clear reason for being in the place in question;
- moves around trying door handles without any obvious purpose;
- carries, e.g. tools, heavy bags, or a laptop around, at an unusual time or place;
- lingers without an explanation, especially in out of the way places;

- is abnormally curious about an event's operation, safety routines, staff, or changes of shifts;
- tries to bypass access controls or produces fake documents;
- wears concealing clothes, e.g. sunglasses, headgear, or hoodies, in excess of normal behaviour;
- takes photos of and documents sensitive areas.

Also occurrences that at first glance may seem unrelated to an attack may be warning signs. The following are examples of occurrences that under certain circumstances may be considered suspicious:

- an attack on, or interference with, an event's IT system;
- theft or relocation of, e.g., uniforms, working clothes, high visibility vests, or access cards;
- sabotage, manipulation, damage to buildings, infrastructure, or safety measures;
- a vehicle repeatedly passing by the venue;
- persons sitting in a parked car over a longer period of time;
- packages and bags without apparent owners;
- windows and doors that are usually closed left open for no apparent reason;
- unusual sounds, e.g. alarms, bangs, or screams.

Crime prevention

Working with crime prevention is, to a large extent, similar to working against antagonistic threats – both types of work have to do with being observant of suspicious behaviour and suspicious occurrences. Certain types of crime can, however, be difficult to detect, even while they are being committed. One example of such a crime is sexual offences. In some of these cases it is clear that something is happening, but in many instances ongoing crimes of this kind can be difficult to detect.

In situations of extreme stress or fear, people react in different ways. One sometimes speaks of a fight, flight, or freeze response to threats, where some victims of crime try to struggle or escape the situation. In other cases, the response may instead be to stop acting or to 'freeze'.

Here the catchwords for the staff can be, 'It is better to be solicitous than suspicious'. A solicitous atmosphere can contribute to more people becoming observant of situations that may arise. You should also make sure that you do not focus on the wrongdoer alone, but also on the people who are the victims. One aspect of being solicitous can be having a place at an event site to which visitors can turn when they need support or contact.

Solicitude can also mean that the staff is attentive to facial expressions and body language that signal discomfort or fear, or to an unusual atmosphere developing in a group. Someone may, for instance, seem to be afraid or tense, or a person may be quiet in a way that attracts attention.

It is better to be solicitous than suspicious.

In such situations the following can provide advice on how the staff should act:

- Dare to be the first to approach a person and engage with him or her, or address directly people who seem to be feeling bad. It may feel unfamiliar to go outside one's comfort zone, but by taking action early

on you could be the person who prevents a sexual assault. Acting at an early stage can both provide a clearer indication of whether something is happening, and give a potential victim an opportunity to escape from the situation.

- Attempt to break off or avert a situation that seems unclear, by being present and interacting with the persons concerned. Small measures can also change a situation. It is always better to intervene at an early stage.

If it is, or becomes, clear that a crime has been or is being committed, you should follow the *Checklists for sexual crimes*. If possible and appropriate, you can also support a victim by providing emotional first aid by

- telling the victim who you are;
- show that your help is an offer, and its acceptance is not obligatory;
- listen more than you speak;
- take the person seriously and show that you believe what they tell you;
- support the person in the moment – your job is not to investigate the crime;
- refer the person to someone who can help them long-term;
- try to convince the person to report the incident to the police.

Read more about:

Checklists for sexual crimes in *Appendix G*.

Contingency plans and procedures in *Section 20.3*.

19.1.1.3. Handling and alerting

In some cases, it is impossible to proactively or reactively prevent an occurrence from happening. In these cases, you must first try to deal with the problem with the available resources. This can mean rescuing (e.g. saving someone who is a victim or lifting people across stage barriers) or working to reduce or mitigate the effects of an occurrence (e.g. dressing wounds or putting out a minor fire). The staff should have been given education and training in how to deal with various situations within the framework of their tasks, and an event should have clear work procedures and plans for how the organisation will respond to various developments.

But it is impossible to have detailed plans for all conceivable occurrences. For this reason, instructions to staff should always contain an instruction to contact their supervisor (or if necessary – to call 112) if something should happen that needs to be addressed but is not taken up in the work description, or if they are unsure of how to handle a particular situation.

If there is a risk that the available resources or the available capacity are insufficient, then there must be a predetermined way of handling the situation and getting help from within or outside of one's own organisation. Examples of this are, for instance, pausing a concert, activating a plan, or contacting superiors in the internal organisation or the emergency services.

In order for the handling and alerting steps to function well, it is important to have preparedness and forward planning.

Through forward planning it is often possible to detect, prevent, avoid, or respond to situations before they lead to problems or accidents.

19.1.2. Preparedness and forward planning

Good preparedness means that you

- are prepared for what might happen;
- have planned ahead;
- have access to resources that can be activated when needed.

Forward planning is about being able to escalate an effort and gradually prepare to deal with an undesirable situation. The goal is to continuously be one step ahead of developments, i.e. having a buffer between an imminent accident and what is actually happening. The safety organisation must be aware of the situation, react in time, and put staff and resources on standby before the situation deteriorates into a problem that is difficult to respond to or into an accident.

Many situations can be anticipated. One can, for instance, find out if a large audience is about to arrive, if there is risk for rain so that people will huddle together in small areas under a roof, or if there are indications that portions of a crowd may become violent. Through forward planning it is often possible to detect, prevent, avoid, or respond to situations before they lead to problems or deteriorate into accidents. It can be a good idea to rehearse plans and actions in scenario walkthroughs or incident training together with the event management and the authorities concerned.

A prerequisite for forward planning is that one has made analyses and plans prior to different expected or unexpected situations. But it is important to emphasise that events are changeable, and that not all occurrences can be anticipated. During the course of an event, the situational picture should therefore be continuously complemented and updated, for example through regular reports from safety staff and authorities, and through information from observation posts or surveillance cameras.

The head of safety should always have a good overview, both of what is going on and of what may yet happen at an event – and should ensure that there is sufficient preparedness to respond to these situations. When developments cannot be managed with normal operations, there should be a predetermined way of acting.

In many cases, the worst mistake may be to not do anything at all or to 'wait and see'. Generally speaking, it is better to launch an acceptable effort in time than a perfect effort too late. However, keeping one step ahead leads to a risk of making rash decisions, for instance in situations that are not as dangerous as was originally anticipated. It should therefore be possible to stop or revoke an inappropriately activated plan.

A contingency model is a good way of gradually escalating the preparedness. In this way one can often avoid initiating large-scale safety efforts unnecessarily.

Read more about:

Identifying risks in *Chapter 3.*

Preparedness for special incidents in *Chapter 20.*

Activation of operative contingency plans in *Section 20.3.1.2.*

Contingency model in *Section 1.5.8.3.*

Perimeter protection in *Section 6.6.1.*

The head of safety should always have a good overview of what is going on at an event.

An acceptable effort in time is better than a perfect effort too late.

19.1.3. Searching

The purpose of perimeter protection of a venue is to protect the content inside the perimeter of an event. In the gaps in a perimeter – e.g. entrances, gates, or goods reception bays – there should be safety measures that, among other things, are meant to ensure that dangerous items are not brought into a venue. However, during periods between events, a venue often has weaker perimeter protection and the safety measures are less rigorous. This leads to an increased risk of dangerous items being brought into the venue.

In order for the safety measures of an event to be effective, one needs to know that what is found inside the perimeter has been checked, and that it fulfils the safety conditions required by the event. This is the goal of searches.

At arenas and events it can be a good idea to search rooms and the surroundings prior to an event's opening, before a specific occurrence, or if the threat profile is elevated. Searching the venue before an event is a way of minimising the vulnerability of the event.

19.1.3.1. Frequency of searches

Searches may be a part of the daily safety routine or may take place in connection with an incident. They can be effective for, among other things, protection against accidents, terrorism, or other types of crime.

The scope and frequency of the searches should be adapted to the ongoing activities, and be proportionate to the existing threats and risks. The times for searches should vary and remain secret until they are carried out to reduce the risk of a presumptive perpetrator detecting the pattern.

In order for a search to be effective, it is important that it is planned and carried out in a structured manner. Below are three examples of different levels of search – simple, extended, and special searches.

In order for a search to be effective it is important that it is planned and carried out in a structured manner.

Simple search

In principle, a simple search can be done prior to each event. It means that the staff go through their geographical work areas and look for suspicious objects, missing safety measures, and other indications of risks. This is a good procedure to include also at shift changes, etc.

In this procedure several safety factors can be included, for example to

- be observant of suspicious objects, unusual occurrences, or the absence of normal occurrences;
- check that the safety measures are working, e.g. that doors that are supposed to be locked are in fact locked, that the perimeter protection is intact, and that nothing is blocking evacuation routes;
- check that medical supplies and firefighting equipment are where they should be;
- work preventatively – e.g. identifying a risk of people slipping or tripping;
- maintain good conditions for normal crowd flow – make sure that nothing blocks or obstructs a normal flow.

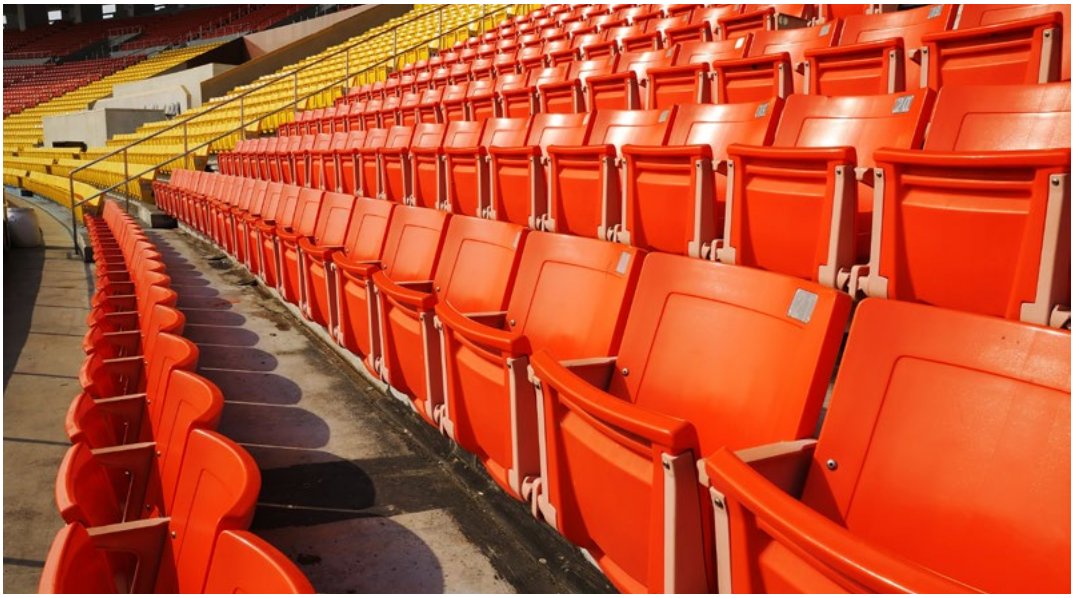


Photo: 501room/Shutterstock

Read more about:
Insider threats in *Section 5.9.1.*
Zones in *Section 6.5.*

Extended searches

Somewhat less frequently, an arena can be searched more thoroughly. This can be done at a predetermined frequency or as a result of specific circumstances, for example in the event of an elevated threat profile. During an extended search, the regular event staff can be used, or staff can be brought in specifically for the search. All staff deployed should be familiar with the venue and have the confidence of the search management.

In an extended search, members of the staff actively search the various areas of the venue according to a search plan while looking carefully for risks or dangerous objects, for instance under roof tiles, in ceiling panels, in waste bins, and in other spaces concealed from view. It is important to be especially careful in places where there is no natural supervision.

Special search

A special search means that different areas are thoroughly searched using staff, expert personnel, technical aids (e.g. detectors, CCTV), and other more sophisticated search methods, such as detection dogs to find explosives. This type of search can take one or several days.

This is a more resource-intensive method, and it may therefore have to be limited to fewer occasions or to special occasions when the threat profile is elevated.

19.1.3.2. Search methods

It is important to prioritise *how* to conduct a search in order to carefully search a large venue. Out-of-the-way places and places to which many people have access should be searched more thoroughly, but the risk of insider threats must also be kept in mind when prioritising search areas.

With respect to explosives, even a small explosive charge can have a devastating effect in a tightly-packed crowd. However, if an audience is more thinly spread out, a perpetrator would need larger, and thus bulkier, charges in order to cause great damage. An explosive charge will also have a greater effect in a more limited or enclosed space in comparison to more open spaces. Places where a small charge would have a large effect therefore need to be searched more thoroughly.

Below you can find examples of how to categorise thoroughness when searching different search sectors.

Table 15. Example of search levels

Distance to the asset, e.g. a large crowd	Search level	Look for hidden or suspicious objects that may contain	The object's approximate size corresponds to
0–5 metres	Red	250 g or more	beverage can, portable computer, small handbag
5–25 metres	Yellow	5 kg or more	small backpack, handbag, small cardboard box
25–50 metres	Green	20 kg or more	larger backpack, cabin bag, larger cardboard box, vehicle-borne charges

It is important that the search reflects the vulnerability of the site over the *entire* duration of an event. Certain places will be empty of people for the greater part of the event, but will perhaps have a large crowd or crowd

flow for a shorter period. Such places include entrances, bus stops, sales outlets, and toilets during intermissions.

Divide up an event site into search sectors and mark these out in the search plan according to the search level (red/yellow/green) that applies to each sector. In certain sectors, one can elect to have special places (hot-spots) that are searched more thoroughly. For instance, an entrance hall will be searched at the yellow level while the queueing area outside a booth will be searched at the red level.

A division into search levels may be a good complement to the use of zones.

19.1.3.3. Search plans

When drawing up a search plan, the following should be kept in mind:

- **Planning:** The search plan should be decided in advance and the staff should be given advance training and practice.
- **Instruction:** The staff should be given clear instructions as to where to search and how thoroughly they should search. They must look for objects that should not be there, that are missing, and that are in the wrong place. It must also be clear how and to whom they should report if they find something.
- **Knowledge level:** The members of staff searching the venue do not have to be experts on explosive charges or other objects, but they do have to be familiar with the place being searched.
- **Equipment:** Make sure that the staff have access to keys, access cards, technical drawings, torches, note-taking equipment, plastic gloves, communications equipment, and other things needed for their search. All search staff should also carry predetermined risk markers for marking a place where something suspicious has been found. This can, for instance, be a yellow laminated sheet of paper. The advantage of risk markers is that the search staff do not have to approach an object again in order to aid emergency responders in finding its location.
- **Aids:** Decide what aids should be used during the search, for instance CCTV, detectors, or detection dogs.
- **Search areas:** Divide up the venue into search areas. The search areas should overlap each other somewhat in order to make sure nothing is overlooked. If there is are natural divisions in an area, take advantage of these. The search area divisions are used to divide up an event site into manageable parts, but also to differentiate how thorough a search should be. The search should be done from the outer edges and inwards, should an evacuation need to be done in connection with the search.
- **Staffing:** Divide up the staff into search groups with two people in each group. Assign an appropriate number of search areas to each search pair. Endeavour to let staff already working in an area search it as well, because it is easier for them to see if something deviates from the normal.

A 'risk marker' can be used to mark a spot where something suspicious has been found, so that the staff do not need to get close to the object in question in order to guide emergency responders to it.

Prior to beginning a new search, you should stop and survey the sector in question. Note obvious discrepancies, potential hiding places, and places that will be difficult to search.

19.1.3.4. Conducting a search

This is how a search can be done:

1. Have an initial run-through that includes all members of the staff.

2. Make sure that the entire area is ready to be searched, i.e. that no unauthorised persons are in or have access to the area.
3. Search the venue, search area by search area.
4. Prior to searching a new search sector, the search pair in question should stop outside the sector and survey it – look low, in the middle, and high – and note any obvious discrepancies, potential hiding places, and places that will be difficult to search. Here the following questions can be posed: 'Where do I not want to go? Where can I not go? Where would I not think that something is hidden?'
5. Let one member of a search pair search while the other rests while maintaining an overview and making sure that nothing is overlooked.
6. Search high, low, and in the middle. Sometimes it may be necessary to get on your knees or to use a ladder.
7. Keep in mind that the search areas should overlap to make sure nothing is overlooked.
8. Report an all-clear (or any discrepancy) to the search manager when you are finished searching each area.

Read more about:
Equipment for searching in *Section 19.1.3.3.*

If there are visitors at a venue during the search, it is important to do the job without causing unnecessary concern. Use radios, mobile phones, or coded messages on the speaker system if necessary.

Most searches result in nothing suspicious being found. Over time there is therefore a risk that a search becomes routine or is done sloppily. It is important that the staff doing the search take their work seriously, are meticulous, and are observant of anything that deviates from normal.

Over time there is an increased risk of the search becoming routine or being done sloppily. It is important that the staff take their work seriously and are meticulous.

Improvised explosives can, in principle, look like just about anything. The following questions can function as a guide during a search:

- **Is the object hidden?** Has someone tried to conceal the object?
- **Is someone the owner of the object?** Ask the people nearby.
- **Is the object obviously suspicious?** Can you see, e.g. cables, tape, or batteries? Does the object smell or is it smoking?
- **Is the object typical for the surrounding environment?** Is the object atypical or does it stand out in some other way?

19.1.3.5. If something is found during a search

Some objects found during a search – for example a flare, a knife, or drugs – do not make it necessary to evacuate the arena. But if you should find something during a search that may, for instance be an explosive charge or another object that has the capacity to injure a great many people, apply the 4 Cs protocol:

- Confirm that the object is suspicious
- Clear the area
- Control the object to avoid tampering
- Communicate to appropriate emergency services

Confirm

- Confirm that the object is suspicious.
- Check if anyone in the vicinity will admit to being the owner.
- Do not touch the object and do not use a radio or a mobile phone within fifteen metres of the object.
- Get your colleagues to help, so that you can do several things at the same time.

Clear

- Clear the area; evacuate the site for a radius of at least one hundred metres if the object in question is small (e.g. a backpack). Keep in mind that if the whole arena that has already been filled with an audience is to be evacuated, this should be done using the evacuation plan of the arena or event.
- Urge people to seek protection behind something robust and to avoid places surrounded by windows and skylights.

Control

- Do not touch the object; make sure that no additional people enter the risk area. If possible, cordon off the area.
- Carefully take note of the location of the object (e.g. by noting the chair number and row) and mark it with a predetermined risk marker.

Communicate

- Notify the appropriate emergency services.
- Notify the persons in charge and alert the police.

19.1.3.6. Following the search

All searches should be reported and documented. After an area has been searched it may be considered 'sterile', but for an area to remain sterile the perimeter protection and suitable security measures (e.g. access control or conditional searching) need to be activated.

19.1.4. Working in a command and control centre

The command and control centre (in an arena usually know as a command and control cabin) is an important place of work that is usually intended to function as a command and coordination location for the command functionaries from different organisations.

The command and control centre is a place where information, authority, and management meet. Usually an organiser invites relevant representatives of the macro-organisation to work together during an event.

A well-functioning command and control centre facilitates collaboration among organisations, makes it possible to form a joint picture of the situation, and makes possible quicker and more well-founded decisions. But for a command and control centre to function effectively, it is important that it provides a good working environment for the people who make the decisions. This means that it is important to control access to a command and control centre so that only necessary staff are present.

An access log, i.e. a list of people who are allowed to be present in the command and control centre, is one method of counteracting disorder and ensuring that the functionality of the centre is not undermined.

During the work itself, the person responsible for the work at the command and control centre should make sure that there is a suitable level of sound in the room. Small talk is unavoidable, even desirable, but it is also important that everyone's attention is kept sharp. A good method is the use of predetermined cautionary commands. For instance, if someone says, 'information' in a loud and clear voice, this means that all conversations must stop and that important information will be conveyed. The word

Read more about:

Collaboration in *Section 5.2.*

Macro organisation in *Section 5.3.1.*

For an area that has been searched to remain 'sterile' the perimeter protection and suitable security measures need to be activated.

In a command and control centre a good working environment is the most important thing. Control access so that only necessary staff are present, maintain good order, keep sounds at an acceptable level, and use cautionary commands.

'decision' can denote that a co-worker in the command group has made a decision within their own area of competence that everyone should know about and which is therefore being announced.

The command and control centre should be shielded from sound from the outside. Loud sound from the event itself can interfere with radio communications. Even inside buildings made from reinforced concrete, such as arenas, there may be difficulties in using radios. Couriers should be available if the communications equipment fails. This is important not least when key people are out and about in the public areas.

In a command and control centre you can find, e.g. the following roles:

- the organiser's coordinator for safety staff and stewards;
- the organiser's heads of safety;
- the police senior arena officer;
- the head of the public security guards;
- the safety representative of the guest team;
- representatives of the fire and rescue services;
- representatives of the medical services;
- the communications manager;
- camera operator;
- the evacuation manager;
- representatives of the arena's own staff.

It should have been made clear in advance who has what role, what contact channels there are, and who has the authority to make decisions within different areas of competence. Before an event begins, it is appropriate for everyone in the command and control centre to describe their tasks and their authority to make decisions, so that there are no uncertainties. Examples of these tasks are

- redistribution or reallocation of resources;
- changes to work methods, e.g. the degree of frisk searching at the entrances;
- interpretation of different public order rules and which measures should be taken if necessary;
- interventions in the stands;
- pausing or suspending a performance or a match;
- activating a plan for evacuation, sheltering in place, or lockdown.

It is a good idea to make relevant information available on the walls of the command and control centre, for example key command documents or information about the current situation and about what is going on in the venue. This information can consist of

- weather prognoses;
- information about on-going gigs or competitions;
- surveillance camera screens;
- current audience numbers;
- topics trending on social media;
- large-scale drawings of the site with coordinate grids;

- schedules;
- overviews of the organisational structure of an event and lists with contact information;
- preparedness levels.

The important thing is *that* relevant information is available to the people working in the command and control centre, rather than *how* it is presented. In many cases, a frequently updated whiteboard can be a sufficiently good medium.

19.2. Safety work at entrances

The entrance is one of the most critical areas at an event. Here crowding and queues can arise when many event visitors want to pass through an entrance at the same time. But an entrance also offers an excellent opportunity for raising the safety and comfort level of an entire event by making sure that the first impression visitors get of the event is a positive one. For this reason, it is important that there are as few sources of irritation as possible, and that visitors feel welcome.

There is a psychology of queueing. The key aspect of this psychology is that feelings dominate the experience, and thus also to a great extent how people in queues behave. Putting in a good deal of work at the queues and the admissions pays off. It is easier to maintain a good mood during an event than try to turn a bad mood into a good one later on. Make sure that the situation in a queue is as pleasant and appealing as possible. The physical environment is a part of this, but the staff and the working methods are of course also important.

Here are some practical tips for achieving a good mood in a queue:

- **Make sure people are treated well.** Emotions dominate the queueing experience. Cheerful and polite staff and clean and orderly circumstances contribute to creating a good mood.
- **Eliminate confusion.** It should be perfectly clear how things work in the queue. Without a clear structure, the risk is that an audience will create its own. Things must be cleverly designed and well signposted. The staff must be able to tell people which rules apply.
- **Have an appropriate waiting time.** Delays should have a cause that is (perceived to be) reasonable. Avoid over-optimistic estimates that lead to disappointed expectations.
- **Keep the audience occupied.** It is better to have a queue that continuously moves ahead slowly than a queue that is stationary, then moves ahead rapidly, only to once again grind to a halt. Occupy people's time in a queue by giving them things to look at or do.
- **Be fair.** Endeavour to minimise people elbowing ahead in the queue or getting what is perceived to be an unfair advantage. Consider locating VIP queues out of sight of the regular queues.
- **Respond to discontent quickly.** Discontent spreads rapidly. Respond to disgruntled visitors as quickly as possible.
- **Take breaks out of sight.** Staff breaks should be taken out of sight of a queue. If not, the people in the queue may start projecting their situation onto the staff, who are then seen as being 'just lazy'.

Read more about:

Audience profiles in *Section 16.3.1.*

Entrances and exits in *Chapter 9.*

Crowd management procedures in *Section 16.6.*

Entrance capacity and the siting of an entrance in *Section 6.3.2.4.* and in *Chapter 9.*

Work done at the entrances pays off – it is easier to maintain a good mood than trying to turn around a bad one.

- **Start strong, end strong.** The most important thing for a visitor's experience is that the end experience is good. But expectations are set up at the beginning of the queue, and bad expectations are difficult to turn around.

Read more about:
Scales for crowd density and audience mood in *Section 16.5.6.*

19.2.1. Preparations at the entrance

A queue can involve irritation and a spoiled experience for an individual visitor, but it can also mean that vulnerability to terrorist attacks increases. A long queue can be the target of a terrorist attack. In order for the flow of visitors through an entrance to be as smooth as possible, it is therefore important to have a plan for how frisk searching will be done.

Find out as much as possible prior to an event in order to reduce queues:

- How many people are expected to show up?
- When and over what period of time will they arrive?
- Do we know anything about their anticipated behaviour and what the visitors normally bring with them?

A number of different things can affect the time at which people arrive, such as the weather, traffic, external events, preliminary activities and opening acts, what has been communicated to an audience, and the audience's demography. At events with a single performance or match, the audience will usually arrive during the hours just prior to the event, but at events with several performances or competitions, not all visitors will arrive at the same time.

Try to estimate how long the admissions process will take, and make sure that the staff and the entrances have sufficient capacity. Depending on the type of event, the different elements at admission can vary. They can consist of ticket sales, access controls, age verifications, frisk searches, and cloakrooms. All of these elements take time, and each element should be included in the capacity calculations for an entrance.

Always make sure to allow for sufficient margins. Have a surplus of staff members who can deal with unexpected occurrences and a predetermined procedure for how a large influx should be handled.

Safety staff who do not have any direct tasks at the moment should focus on giving visitors a pleasant welcome. When necessary, they can also act as rapid reinforcements for the entrance staff.

It is important to be able to acquire information quickly about changes in the crowd flow and the queueing situation. You can, for instance, use surveillance cameras and set up observation posts along focal routes that lead to an entrance, where staff with radios will announce when large crowds of people are beginning to arrive.

What is meant by 'large crowds of people' should be decided in advance. There should be agreement on a specific level, for example a certain number of arrivals per minute. An agreed-upon model can also be of help here, such as a crowd density scale or an audience mood scale.

Assume that visitors are unfamiliar with a site and that they do not possess good local knowledge about the location of the event. At sports events it is necessary for good planning to hold early and frequent dialogues with visiting supporters, the police, and the guest association.

When a large number of spectators are expected to arrive from a non-Swedish-speaking country, the organiser should make available oral, and preferably also written, information in the language of the visiting supporters.

19.2.2. Work at the entrance

Queues at an entrance are, in many cases, unavoidable. The important thing is that there is structure. It should not pay to elbow one's way ahead, and no one should have to fight to keep their place in a queue. If visitors notice that it is possible to queue-jump, fewer will queue quietly and they may instead form a disorganised group in front of the entrance.

The truly dedicated audience members who are the first to arrive will be at the front of the queue. They will want the best seats and may therefore have a tendency to rush inside. Make sure that you are fair when letting people through the entrance. You can either resort to reprisals for negative behaviour or encourage good behaviour in an crowd, for instance by letting those who wait quietly in line get in quickly.

When larger queues form it can be a good idea to send out staff to tell the audience what rules apply – how they are expected to behave, what stages they will pass through before being allowed in, and how long they can expect to wait.

Make sure that you are fair when letting people through the entrance. Also encourage good behaviour in the crowd, for instance by letting those who wait quietly in line get in quickly.

Photo: TK Kurikawa/Shutterstock

At certain types of events and for certain types of audiences, there is a risk of a major and more competitively oriented surge when a crowd is let into the event site. This is more common at events without seat reservations, and if an event is especially popular or a performer has a large number of dedicated fans. A surge begins because some members of the audience, in a perceived competition with other members of the audience, try to obtain or achieve something thought to be valuable but only available in a limited number or amount, for example good seats at a concert or a coveted object. When this happens, there is often a rapid development that escalates out of control with great risks of high crowd pressure and of people falling and being trampled.

The central strategy in situations where there is a risk of a competitive crowd surge is to endeavour to limit its scope, calm things down, and reduce the speed of the crowd movement. It can, for instance, be a good idea to reduce the incentives for 'being the first';

- try to tone down a sense of there being limited availability in the marketing and the information provided to the audience;
- communicate in advance with the audience at the front of the queue;
- calm down the admission situation (calm music, calm staff, slow tempo, no pepping up of the audience);
- work clearly and meticulously with the queueing situation in order to avoid disorder or queue-jumping;
- allow the audience admission in smaller groups and limit the number being let in at the same time;
- let staff accompany the first audience members in (or take point and lead the audience members into the arena in a paced line).

Working at an entrance is a continuous balancing act between efficiency and meticulousness. On the one hand, you want to have a rapid influx of people in order to avoid the formation of queues, crowding, irritation, and an increased vulnerability to attacks. On the other hand, you want to be meticulous when doing frisk searches and ticket inspections in order to avoid allowing the entry of the wrong people or undesirable items into the venue.

The following checklists can act as aids in making an entrance efficient:

Read more about:

Suspicious behaviour in *Section 19.1.1.2.*

Perimeter protection in *Section 6.6.1.*

Working at an entrance is a continuous balancing act between efficiency and meticulousness.

Design

- Site procedures that take a long time per person, such as ticket sales or the trade-in of tickets for access certificates, at another location than at the entrance.
- Strive to be explicit. If audience members can find their way around immediately you save time and improve the mood of everyone involved.
- Use tables to facilitate checking bags and backpacks.
- Increase the access to drinking water if the weather is hot.

Roles and working methods

- Make sure that the staff is trained both in their roles and in the practical demands of how to do a frisk search.
- Consider placing an external welcoming steward to greet people, show them where to go, point out which items may not be brought into the site, and remind them to take out their tickets and be ready for inspection with their bags. The person who has this role should also be observant of any inconsistencies in people's behaviour or of suspicious objects.
- Consider having a problem-solving person assigned directly to the entrance. This person can move any discussions out of a queue, so that its flow can be maintained.
- Consider having a small surplus capacity with respect to staff in order to handle any unpredictable occurrences.
- Have public security guards close by the entrance in order to manage, e.g. arguments, banned items, or people who are denied entrance.

Management, control, and development

- Endeavour to have an even distribution of resources among all the entrances when there are several queues.

- Try to keep a queue moving continuously, and maintain an even flow of people. Avoid creating queues as far as it is possible.
- If there is a procedure for an increased influx of people, use it as soon as a queue begins to lengthen. Small measures at an early stage are always better than large measures at a late stage.
- Examine which element in an entrance process is causing a bottleneck and try to improve the process. Every second saved in a procedure has a large effect on the flow of visitors.
- Analyse the queues and the influx of people. Search for weaknesses or problems, so that the system can be improved before the next event.
- Make sure that the safety management has a good overview of the situation at the entrances with respect to, e.g. queue formation, crowding, the mood of the crowd, or disturbances. Use CCTV or have the responsible person on site send frequent reports.

Do not wait. Small measures at an early stage are always better than large measures at a late stage.

Practical work at an entrance

- Always inform a visitor that a frisk search will be conducted before beginning this procedure.
- Show respect and patience for any discomfort the visitor may experience. Be humble.
- Allow visitors to be searched by staff of the same gender if they so prefer.
- Keep in mind that an entrance is an excellent opportunity to sense, but also to heighten, the mood of visitors. Offer all visitors a friendly reception and identify any unruly persons or persons who may need a bit of extra help or attention.
- Get a sense of the audience at an entrance: Is the inebriation level high? Are the visitors tired? What is the mood of the audience? Are there tensions? What attitude towards the event do they seem to have? Information of this kind can suggest future risks and give an organiser an opportunity to prevent them.
- Be observant of people who act strangely or other things that are inconsistent with a normal situation.

19.2.2.1. Access control

Gates and entrances are passages through the perimeter of the venue. What rules apply to ingress depends on the place to which the gate leads. It is important to decide in advance what applies at each gate in order to maintain the intended level of safety:

- Must the entrants show an access certificate?
- Shall the entrants show their bags or be frisked?

At all events and arenas it is important to control which persons have access to which areas. These areas can be special stands, backstage areas, the command and control centre, or the event site itself. This is done through an access system.

A well-functioning access system contributes to reducing vulnerability to undesirable occurrences, such as theft, gatecrashing, or disturbing a competition or performance. In addition, it contributes to an increased peace of mind and efficiency of staff and management.

Access to certain areas is only permitted for specific groups of people. The reason for this can be, for instance, that athletes or performers wish to be left alone or that equipment worth stealing is kept there. An inquisitive or inebriated guest who gains access to an area to which they should not have access can very well get in the way of, or be left behind during, an evacuation.

An access system is a balancing act between security and functionality

Photo: Tickster

Furthermore, a well-functioning access system is key in the fight against antagonistic threats. The access system can contribute to

- **deter** perpetrators from initiating an attack, because they feel that the chance of success is low;
- **detect** perpetrators if they have the wrong access certificate or display suspicious behaviour during the access process;
- **deny** perpetrators an opportunity to get close to assets.

One way to design an access system is to

- identify the type of areas that are called for, e.g. audience area, press area, or backstage area;
- determine which persons require access to each type of area or zone;
- decide how permission to access the zone shall be proven. Common access certificates are bracelets, stamps, tickets, or access cards in the form of a badge or a laminated card; decide how and where access should be checked.

An access system is a balancing act between security and functionality. On the one hand, you want to make sure that no unauthorised people get admission to a site. On the other hand, you do not want the system and the control of access certificates to prevent peace of mind, reduce efficiency, or undermine a good experience.

In order for an access system to work in a desirable manner, the following things are important:

- An access permit must be designed so that it is clear, for instance by having certain colours in combination with text, and is difficult to forge.
- An access permit must be easy to check, so that the control procedure is quick and does not hold up the flow of people more than is necessary, while at the same time it enables a meticulous check of the permit.

- An access system must be as simple and clear as possible – avoid building exceptions into the system.
- The flexibility of the system must be clearly communicated: May a person with an incorrect access permit be accompanied through a checkpoint? Must all access permits be checked or can an admissions controller base an access decision on personal recognition of someone in the queue?
- You must decide and communicate how a person with the wrong access permit should behave in order to modify their access level in a simple manner.

If there is a queueing system at the entrance, the access control can, under certain circumstances, be done already among the visitors in the queue, in order to expedite passage through the entrance itself.

Read more about:

Buffer zone and zones in *Section 6.5.*

Search levels in *Section 19.1.3.2.*

19.2.2.2. Frisk searches

At many events, one condition for buying a ticket may be that the organiser is allowed to search a visitor in order to reduce the risk of dangerous items being brought into the event. The search is conditional. Visitors can, of course, choose not to be searched, but then they may not be allowed access to the event.

As an organiser you can reserve the right to search visitors who want to enter. This is called a conditional search and means that a visitor voluntarily submits to a search in order to gain access to an event.

Conditional frisk searches

On order to conduct a frisk search of an audience member, acceptance of the search must be a condition already at the time the ticket is purchased. The conditions of the ticket are thus an agreement between the organiser and the visitor. The organiser should also post signs outside the entrance with information stating that the organiser reserves the right to perform frisk searches of visitors.

A conditional search should preferably done by the safety staff, but it may also be done by public security guards, on condition that this does not affect the performance of the guard's regular duties. The Police Authority can, following a review of the case in question, make it a condition that frisk searches of visitors must be performed by public security guards.

At sports events with a risk of, for instance pyrotechnics being smuggled into an event, it is important to make clear exactly where the arena area begins. If a visitor has tried to bring an item which is not in itself illegal into a site in violation of event rules, they should be allowed to surrender this item. If the item is illegal (i.e. the possession of pyrotechnics at a sports event in an arena) and legal proceedings are to be taken against the person, it is important that there is no doubt about what applies.

It is a good idea to do frisk searching early on in the admission process, so that visitors who are denied entrance because they refuse to surrender inappropriate items can leave the queue more easily.

When the threat profile is elevated or for other reasons, it is also possible to choose to expand the arena area and do searches further away from the venue itself. This will reduce the risk of visitors who have not been searched getting close to large crowds.

At such high-risk or high-profile events it is also possible to divide up the frisk searches geographically, for instance in the following way:

- In an outer buffer zone a rough search is first made (search level green or yellow) before the visitors are allowed into the site, where they then queue up for entry into the arena.

- Visitors thereafter go through the access control and the actual frisk search (search level red).

Read more about:

Prohibited items in *Section 4.1.1.1.*

Crowd density scales in *Section 16.5.6.*

Control of vehicles

If vehicles are to be allowed in an area, the organiser should decide whether some form of vehicle control must be done. Vehicles can be used both as weapons and as a means of transport for dangerous objects, and it is up to the organiser to decide whether some form of search should be made of vehicles that are to be given access to the event site. If searches are to be made of visitors' vehicles, this needs to be stated as a condition in the contract represented by the ticket. Searching vehicles can take a long time, but it may be important if there is a threat profile for an event.

Keep the following in mind when searching vehicles:

- Do the check without touching the vehicle.
- Start with an overview. Does something about the vehicle attract your attention, e.g. does it seem to be heavily loaded? Are the front or rear registration plates missing, or are the front and back plates different from each other? Is visibility into the car through some of the windows limited?
- Look for what is out of the ordinary – or a lack of the ordinary.
- Prioritise places where larger objects could be concealed, e.g. in the boot or the cabin.
- Check the cabin from both sides of the vehicle.
- Check the wheelhouse and look under the car.

Prohibited items

Items that are prohibited by law, such as fire arms, knives, or drugs, are always banned from an event site. In addition to items prohibited by law, it is up to the organiser to decide what can be brought into an event. There may be strict prohibitions against bringing items into an event but also limitations, for example regarding the size and shape of flagpoles or bags so that these objects cannot be used as weapons, or regulations to prevent bringing in dangerous items, such as an improvised explosive device.

An organiser's staff may not confiscate items found on people when searching them, regardless of whether or not these items violate the event rules. Only the police or public security guards may confiscate items, and then only items prohibited by law, for instance weapons, knives, pyrotechnics, or drugs.

For this reason there should be public security guards at the entrances – both because people who are denied entry or requested to surrender items may act violently, and because there should be someone available with the authority to confiscate prohibited items. If a public security guard arrests a person or takes him or her into custody, a so-called protective search (*skyddsvisitation*) may be conducted in order to look for dangerous items.

Visitors should be given an opportunity to voluntarily surrender items that an event organisation does not want to be brought into a site but which are allowed by law. The alternative is that the visitors are denied entry. It is also important to have clear definitions of what is permitted and what is not. The definition of 'pointy umbrella' leaves room for varying interpretations from person to person, and thereby leading to ambiguity in the rules.

There should be public security guards at the entrances.

Any prohibitions concerning bringing items into a site should be communicated clearly. This can be done at the entrances, in connection with the distribution of tickets, in text on the tickets themselves, or on webpages prior to an event. A lack of clarity in communication about prohibited items can create irritation and increase stress at the entrance to an area or an arena.

19.2.2.3. Age verification

Certain events have an age limit. This can be the case when, for instance, an event site is an area that is serving alcohol or when the organiser has a policy of only admitting audience members of a certain age.

Age verification is done by the event staff. Public security guards may also verify a person's age, as long as this task does not mean that a guard neglects the duty of maintaining public order. However, public security guards may not ask people to show their IDs solely for identification purposes.

19.2.2.4. Preparedness at entrances

An entrance is a bottleneck for the crowd flow where long queues can quickly form. A long queue is not always a cause for concern, but problems can arise if that for which visitors are queueing is imminent or if crowd flow to a queue increases drastically. There should therefore always be preparedness for handling longer queues.

- Draw up a plan in advance about what will be done if the queues become too long or if the queueing situation around an entrance becomes untenable.
- Open up additional entrances or add more staff if visitors flock to the entrances in greater numbers than was anticipated.
- If possible, redirect the crowd to other entrances to reduce pressure on a queue.
- Specify what a 'long queue' is or what 'a lot of people are on their way' means. One can, for instance, place one or more indicators outside an entrance against which to measure a queue, or calculate how many visitors per minute pass specific places on the paths leading to the entrance, and compare these numbers to the admission capacity.
- It is a good idea to use a crowd density scale as an aid in decision-making and communication regarding queues.

Not arriving on time before a concert or match begins can be a major stress factor for audience members in a queue. If there is a risk of dangerous pressure on a queue, it may be desirable to postpone the beginning of the concert or match, and to inform the persons in the queue about this. This reduces the stress level in the crowd and thus the risk of high pressure in the queue. Such a measure should be part of a crowd management procedure, and it should be written down in its entirety, including information concerning contact channels and a specification of who has the authority to make decisions.

19.2.2.5. Gatecrashing

Gatecrashing is a term that is commonly used to refer to people who gain admission to an event site without permission. Someone can, for instance, get into a festival area without tickets or into a backstage area without the appropriate permit. Gatecrashing means that the person is

Read more about:

Crowd management procedures in *Section 16.6.*

Crime-preventative design (CPTED) of event sites in *Section 6.4.4.*

Choice and design of a venue in *Chapter 6.*

Work reactively – endeavour to constantly reduce a queue. Small measures early are better than large measures late.

Concepts:

Citizen's arrest (Chapter 24, Swedish Code of Judicial Procedure) Anyone has the right to apprehend a person who has committed 'an offence for which imprisonment may be imposed' (e.g. shoplifting, assault and battery, or trespassing). A person apprehended must have been caught in the act or in the process of fleeing from it. An apprehended person must immediately be turned over to the police.

Keep in mind that a citizen's arrest often involves great risks. If possible, call the police or a public security guard instead.

guilty of petty fraud – an offense where the penalty is a fine or prison for up to six months.

Gatecrashing is also a safety problem. Gatecrashers can bring prohibited items into an event site and may also injure themselves trying to get into the site. Gatecrashing also means that a calculation of the number of people in an area may be incorrect, and people who gatecrash also reduce the profit made by the event.

Completely preventing gatecrashing can require major resources in the form of planning and staff. The risks can, however, be reduced, for instance through good planning of the siting of fences, the deployment of staff, and appropriate lighting.

An organiser should strive to make sure that the areas immediately outside and inside fences are well-lit, clearly visible to the staff, and free of vegetation, structures, or anything else that might be used to climb over the fences.

Gatecrashers detected inside an event site may, according to Section 13 of the Police Act, be removed by public security guards or the police, but not by regular event staff. An event staff member can, however, apprehend a gatecrasher through the use of a so-called citizen's arrest. The gatecrasher must then immediately be handed over to the police. The police are required to report the crime, but can decide against this if the crime is considered trivial and it is obvious that the penalty will only be a fine.

Keep in mind that there may be a large number of gatecrashers at certain types of event, which can mean that significant resources will have to be used in order to prevent gatecrashing and respond to the individuals caught doing it. The organiser of an event is not normally allowed to have some form of billing system where the gatecrasher is charged a fee for the gatecrashing.

Read more about:

The role of the safety staff in *Section 19.1.1.*

Access control in *Section 19.2.2.1.*

19.3. Safety at an event site

At many events, the bustle of the crowd is in itself an attraction. The members of an audience do not simply come to see performances or competitions, but also to party, socialise, and experience an event site. For this reason there should be safety staff in all the parts of an event site where there are visitors. Highly vulnerable areas should be permanently staffed by safety staff, while less exposed areas can be monitored by patrolling staff.

Safety staff are in many cases perceived to be a safety element simply because they are clearly visible. In addition, visitors can turn to the safety staff in order to ask questions, obtain help, or report potential incidents.

The safety staff are the eyes and ears of an event, and it should be a part of the event's standard procedures that anything seen or heard by the safety staff that is relevant to the safety work should immediately be reported to the nearest supervisor. This increases the opportunities for the safety management to anticipate possible developments.

Certain areas can be so critical that it is wise to station safety staff there permanently as on location observers. This can be done, for example, at bottlenecks or focal routes to the event, or where increased crowd flow can be detected that will in its turn affect entrances, stage areas, stands, race tracks, etc.

The safety staff are the eyes and ears of an event. A good safety culture and rapid reports are important.

19.3.1. Safety roles at the venue

There are a number of different safety roles at an event site that have different tasks but that share a common goal – a safe and secure event and a good experience for everyone involved.

Below you can find a description of various safety roles. An individual member of the safety staff may simultaneously hold numerous of these roles.

- **Observers.** From one point of view, all safety staff are observers whose tasks include observing and then either acting on or passing on information to the nearest supervisor. In certain cases, the need for information retrieval can be so important that this becomes the main task of the staff. This information can, for instance, concern suspicious behaviour in particularly vulnerable locations, crowd flow on busy focal routes, or crowd movement and crowd density at focal points.
- **Stationary members of staff.** In certain locations it is a good idea to have a constant presence of safety staff. One such category is safety staff at stands or gates to areas with restricted access for audience members. Stationary staff members often work to maintain perimeter protection by checking access permits at ingress, and sometimes also controlling what is brought into the area. Because stationary staff remain at the same location, they can also act as observers and disseminators of information.
- **Patrolling staff.** By patrols are meant safety staff who do not remain at a fixed location. Patrols can be used to cover large areas or areas that are especially vulnerable to problems or that are too difficult or even impossible to monitor from a single fixed location, for example an outer perimeter fence. It is important to patrol out-of-the-way spaces and areas where illicit acts such as dealing drugs or violent crime may occur.
- **Nighttime security guards.** Many venues are located outdoors and are relatively easy to break into. At the same time, it is not uncommon for equipment to be left on site at night, particularly during events that continue over several days. In order to avoid damage and theft, the venue can be guarded at night. If you choose to use security staff for guard duty at night, you must make sure each of these guards is over the age of eighteen. The option is to hire special security guards for night duty. The task of the security staff is not to intervene but to report or sound an alarm.
- **Resource staff.** There will always be occurrences for which the basic staff is insufficient. For this reason, there should always be a preparedness and a capacity to act when something unexpected occurs. This preparedness may consist of a group on call or a staff pool whose members can step in and cover the need for extra resources in a particular area. At some events these staff members can also take on special assignments, for example acting as fire watchers for the storage of alarms from smoke detectors, or dealing with burned-out pyrotechnics in the stands.

With respect to major occurrences where the need for interventions exceeds the access to resources, an event must have an operative contingency plan describing how to alert SOS Alarm. This plan should also specify who does what while waiting for the arrival of the police, the fire and rescue services, and the medical care services.

Read more about:

Preparedness for emergency events in *Chapter 20.*

Safety at camping sites in *Chapter 10.*

The planning of safety work at a camping site should be given as much attention as the safety work at a venue.

19.4. Safety at a camping site

A camping site functions as the living quarters for event visitors, but also as a place of assembly to which the visitors go to socialise and celebrate prior

to, during, and following the event. This means that safety work is required twenty-four hours a day at a camping site.

Knowledge and information retrieval are key factors for safety work at the camping site. Some of the major challenges of safety work at the camping site are, on the one hand, the detection of incidents while it is still possible to control them, and, on the other, the management of situations before they deteriorate.

Risk factors that can spread to an event site, for example groups of unruly visitors, can be monitored extra closely already when they head towards the event site. Observation posts and frequent patrolling are good tools for observing incidents at an early stage. The staff working with this should have clear procedures for how, and to whom, information should be reported.

19.4.1. Various safety roles at a camping site

Event camping sites present a special kind of environment. People who were previously strangers become neighbours, often without the possibility of deciding who will end up next door to them. At some events, a considerable amount of alcohol is typically consumed, and a camping site is usually open – or at least active – around the clock.

In principle, the same risks can be found at a camping site as at an event site, but in the camping site environment certain risks often increase:

- fire (in tents or in vegetation);
- poisoning (alcohol or drugs);
- crime (violent crime, sexual crime, theft);
- public order offences.

Also other risks, for example the vulnerability of a camping site to antagonistic threats, should be analysed during risk management.

The safety organisation of a camping site needs to be active around the clock and to focus on preventing risks. It should also have the capacity to react and deal with the risks that occur. Several of the roles needed to accomplish this are similar to those needed at an event site, for instance the following:

- observers;
- stationary staff;
- patrolling staff;
- night-time surveillance staff.

The design of and conditions at a camping site are usually different from those at an event site. Large camping sites can house a myriad of tents and people, and the nearest fire extinguisher or first-aid station can be quite a distance away. Staff on patrol should have basic training in and equipment for firefighting and first aid, but in addition it may be advisable to keep the following in mind:

- **Observation posts.** Fixed, manned observation posts, elevated for a better view, are often a good tool. These provide an overview of the area, have a crime-preventative effect, and reduce intervention times if something does occur. At an observation post there should also be equipment for firefighting and first aid.

- **Transportation.** It is desirable to have access to things like quad bikes or golf carts for transporting visitors with minor injuries or for rapid deployment of medical care staff or other types of staff.

Read more about:
Pausing performances in *Section 19.5.5.*

19.5. Safety by the stage

Large concerts on a stage and with a single performer, possibly including a warm-up act, can go on for three or four hours with or without an intermission. At a festival with several stages, a performance usually continues for forty to sixty minutes, and the following band performs after a pause of about an hour.

The stress varies both for the audience and the staff, but the safety work is usually managed in a similar manner for both of these categories. Safety work by a stage is focused primarily on safety during the performance, while the audience remains in front of the stage. Immediately prior to and following the performance, stage safety is mainly about guarding equipment and preparing for the next performance. The main part of this section deals with the work carried out around the stage pit. This is the part of a stage area where the greatest efforts are needed in terms of staff and material.

19.5.1. Safety roles at a stage

Safety work during a gig is based on close cooperation between the safety staff and the staff working with performers and production.

A pit manager is responsible for safety around the stage, leads the work in the pit, and should have the final say regarding safety issues at the stage. In addition, the pit manager should keep an eye on what is going on in the audience during a gig and then delegate tasks to his or her pit staff. It is therefore desirable that the pit manager be able to work from a position with a good overview of the audience area, while he or she at the same time is able to communicate with pit staff and the stage manager using hand signals.

The pit manager should be given complete authority to determine whether or not something is safe – this includes, for instance, a right of veto on the issue of whether a gig must be paused.

Resources should be sufficient so that a pit manager is able to concentrate exclusively on his or her work without having to perform additional tasks in the stage pit. In addition, a pit manager should be given complete authority to determine whether or not something is safe. This means a right of veto on the issue of whether a gig must be paused or if previous agreements must be altered, for instance by sending photographers out of the pit earlier than planned if a gig is too unruly, or by giving safety or medical care personnel additional space in which to work should they need this.

Keep the following in mind:

- The pit staff are under the supervision of the pit manager.
- During a gig, the pit staff provides water to the audience and are observant of audience members who do not feel well, who signal that they want to leave, or who end up in a situation that requires intervention. The pit staff is the security for the audience.
- The entire length of a pit should be manned. If one co-worker leaves, another must take his or her place. Organise the work so that each co-worker is responsible for their own particular area.
- There should always be backup available. Lifting a person across a stage barrier is arduous work, and sometimes individual staff members must rest. For this reason, there should be procedures for how the pit staff help and relieve each other without leaving some area unmonitored.

There should always be backup available. Lifting a person across a stage barrier is arduous work, and sometimes individual staff members must rest.

Other staff who do not have safety work as their main task, for example a stage manager or an area manager, often become involved in the safety work around the stage. Because the various roles originate in different parts of an organisation, you should work out in advance who is responsible for what and how they should cooperate. Below is an example of such a distribution of tasks:

- The stage manager is in charge of the work and deals with everything that happens on stage – anything from the performer during the performance to technicians working with sound and lighting.
- The stage manager is usually the counterpart of the pit manager in the production organisation.
- A stage manager can have specified safety tasks, but above all provides an invaluable contact interface with technicians and performers. It is important that it is always possible to contact a stage manager during a performance. A stage manager should also preferably be at a specific location from where it is possible to signal the pit manager.
- A stage manager should, just like a pit manager, be given the authority to pause a performance.
- The area manager is responsible for the performer prior to and following the performance, and provides service to the performer in and around the stage area, for instance with respect to catering, dressing rooms, and logistics.

Read more about:
Special effects in
Section 14.2.

A stage manager should, just like a pit manager, be given the authority to pause or suspend a performance.

19.5.2. Safety prior to a performance

Good safety requires preparations. It is not enough to simply man the stage pit. The aim of the preliminary work at a stage is to create the best possible conditions for the performance itself. Once the performance begins, there is no longer scope for major changes.

Think ahead and study the audience's and the performer's profiles in order to obtain knowledge about what can be expected, and how the performer and the audience may act in particular situations. In this way, the actions of the pit staff can be adapted to the type of audience that is expected to attend an event.

The work of a pit manager prior to a performance includes checking equipment, resources, and the information given to the pit staff, the stage manager, and the area manager, as well as creating a good relationship with the audience.

Good safety requires preparations. It is not enough to simply man the stage pit.

19.5.2.1. Checks prior to a performance

The following should be checked prior to each performance:

- consumables – e.g. ear protectors, water bottles/cups, and water;
- the stage barrier –it should be well positioned and have been assembled correctly;
- firefighting equipment;
- medical supplies;
- the audience area – it should be free of objects that are easy to throw or otherwise dangerous;
- equipment needed for the show stop procedures – e.g. speech script, emergency microphone;

- emergency electricity;
- emergency lighting.

At some performances, the lighting design can mean that there is no lighting for the audience. Conduct a dialogue with the people responsible for sound and lighting about the possibility of having extra audience lighting during performances held in the dark.

The pit manager is responsible for manning the stage pit with enough people. The pit manager should also make sure that there are medical staff and public security guards available if necessary.

Read more about:
Suspicious behaviour in *Section 19.1.1.2.*

19.5.2.2. Information to the pit staff

Once an area has been prepared, the pit manager should hold a brief information meeting with the pit staff. The training regarding tasks, working methods, and plans for pausing the performance should have been completed much earlier, but before each performance the pit staff should be informed about the following:

- **The performer and the audience profiles** – a concise version of the performer and the audience profiles, along with what can be expected from the performer and the audience, how they are expected to behave or react, and potential risk factors.
- **Special effects** – pyrotechnic effects, fog, smoke, etc. The pit staff should know what will happen and when and where it is inappropriate to be while special effects are being used.
- **Special incidents** – the pit staff should know of anything that will involve a safety intervention or increased risk, e.g. if a performer will go into the pit or out among the crowd, if the performer will throw things into the audience, or if the performer plans to bring members of the audience up on stage.
- **Photographers** – how many photographers can be expected and at what times they will have access to the stage pit or the photo pit.
- **Placement and the distribution of work** – who works where in the pit and who is responsible for various tasks. For instance, someone may have to count songs in order for everyone to know when the special effects will be set off or when something special has been planned. In many cases, someone who is responsible for guiding the photographers into and out of the pit will also be needed.

Photo: Fredrik Ericsson

19.5.2.3. Information to the stage manager and the area manager

The pit manager, the stage manager, and the area manager should always hold a meeting prior to a performance in order to discuss new factors that have arisen, and to verify that everyone is aware of his or her role during an intermission or during a pause of the performance.

19.5.2.4. The pit staff's work with the audience before a gig

When the pit is manned, the pit staff should find their positions and look after any members of the audience who may have arrived early. It is important to keep in mind the following:

- **Service and social contact.** Take the opportunity to chat a little with the people who arrive first in order to create a personal relationship. Successively include later arrivals in order to create a positive mood in the crowd. Distribute drinking water to visitors who have waited for a long time and, if possible, distribute ear protectors to those who do not already have them.
- **Persons at risk.** It is a good idea to seek out those people who risk getting into trouble. Young and inebriated people are often in the risk zone. Speak to them early on, and make it clear to them that they can get help if the pressure becomes too great. Tell them that there is water to be had if it becomes too warm during a gig.
- **Dangerous items.** Remove dangerous items, e.g. flags or placards, if the bearer does not seem able to be responsible for them. Even a bracelet with many studs may pose a risk. Keep these items by the edge of the stage so that they can be returned to their owners after the gig is over.
- **Problem persons.** Identify any problem persons at an early stage. It is a good idea to show that you have seen them. This removes their anonymity and makes it less likely that they will cause trouble during the gig.
- **Suspicious occurrences.** Be observant of people who act strangely or other things that are inconsistent with a normal situation.

Often people in the audience want pit staff to look after their bags. Try to avoid doing this. If bags are allowed in the pit, it will not take long before the stage pit looks like a cloakroom. It may also be difficult to return the items to their proper owners, and the items can be in the way of the safety staff during the gig.

The task of the pit staff is service work. For this reason, the pit staff should preferably display kindness, security, and comfort – not rejection or distancing.

19.5.3. Safety during a performance

The execution of the work itself is about ensuring that members of the audience can take part in a performance without being injured or feeling unsafe. Because the pit manager is the person who has an overview of, and makes the decisions about, activities in the pit, he or she should, for as long as possible, avoid going into the pit and talking to or lifting members of the audience across the stage barrier. The pit staff must always be able to turn around and should always know where their manager is.

19.5.3.1. Stage pit etiquette

The pit staff should work without interfering with the experience of the audience and strive to be discreet, as long as this does not affect safety.

This means, for instance, avoiding encroaching on an audience's field of vision unless necessary, and not stealing the attention of a performer unless this is part of the safety work.

The task of the pit staff is service work. Remember that the pit staff work on an open stage – the audience sees everything they do and hears a good deal of what is said before a gig. It is therefore advisable for the pit staff to display kindness, security, and comfort – not rejection or distancing. Consequently, sunglasses, crossed arms, or frowns should be avoided.

19.5.3.2. Lifting audience members

It is not uncommon to have to lift people across a stage barrier a few times during a gig. If someone begins to show signs of feeling unwell, the pit staff should try to make eye contact with them, go up to them, and talk to them. Offer the person a drink of water, tell them that you are prepared to lift them out if necessary, and enquire as to whether they are asking for help in getting out. People who feel unwell should be handed over to the medical care staff. Avoid taking the medical care staff into the pit. Instead lead the person who needs looking after to the medical care staff.

If the person lifted out feels better, they may be escorted back into the audience area again. It is important to escort the person who was lifted out all the way to the area's gate – otherwise one risks having members of the audience running into the backstage area.

A good way of lifting people is to turn them so their backs are towards a stage barrier, grab hold in an appropriate manner, and then lift upwards. Do not forget to lift with your legs and not with your back. The person can then be pulled over the barrier, possibly with a short stop to allow him or her to sit briefly on the fence. If turned in the wrong direction, a person lifted out can be injured when the crowd presses against their legs and their legs cannot be bent forwards at the knee joints.

19.5.3.3. Attention and activity

The primary focus of the pit staff in their work is the audience. This also means that the pit staff have good opportunities to work in a crime-preventative roles as so-called 'capable guardians', and to detect undesirable developments or occurrences already before they can escalate.

19.5.4. Preparedness during performances

Gigs are the element of an event that has the most difficult conditions linked to it – loud noise, darkness often combined with intense blinking lights, crowding, and a high degree of deindividuation. It is therefore important that the members of the safety organisation are extra alert during a gig.

19.5.4.1. Risks during a gig

There may be a number of risky occurrences during a gig. Many of these are natural audience elements during a performance that need only be monitored, while others demand action by the safety staff. The pit manager is responsible for drawing attention to occurrences or risks, and making sure that the pit staff acts in an appropriate manner.

If an occurrence risks getting out of control and posing a serious hazard to the audience, the pit manager should consider pausing the concert.

Read more about:

Preparedness in *Section 19.2.2.4.*

Proactive and reactive staff in *Section 19.1.1.2.*

Procedures for pausing a performance in *Section 19.5.5.*

People who feel unwell should be handed over to medical care staff. Avoid taking the medical care staff into the pit. Instead lead a person who needs looking after to the medical care staff.

A good way of lifting people is to turn them so their backs are towards a stage barrier, grab hold in an appropriate manner, and then lift upwards. Do not forget to protect your back and to lift with your legs.

Pay attention to the following risks:

High crowd density. It is not unusual to have five to eight persons per square metre by the stage barrier at the front of the crowd during a concert with a popular performer or a dedicated audience. A high crowd density rarely involves a constantly high crowd pressure, because the pressure often comes in surges. When there is a high crowd density, both crowd surges and craters can develop (see below).

Keep the following in mind:

- Be observant of someone beginning to show signs of feeling unwell. Look at the faces of the audience members. If someone is looking pale, tired, or afraid – make eye contact and go up to the person to talk.
- Offer them water and tell them that you are prepared to lift them out if necessary and if they ask for it.
- Note that there can be a high crowd density, and thus also a risk of being crushed, at the stage barrier and at sound and lighting towers. If these areas are extra vulnerable because of a large crowd or because they are inappropriately sited, sound and lighting towers can also be fenced in with stage barriers and can be monitored by pit staff.

Craters develop when surges are generated in a crowd with a high crowd density and someone falls down. Members of the audience will then fall in different directions, and this looks like a crater has formed in the crowd. It can be difficult to get up before the crater closes once more, and the risk of injury is great for members of an audience who cannot manage to get to their feet in time. This is sometimes called a *progressive crowd collapse*.

Keep the following in mind:

- If craters develop, the pit staff and the pit manager should make sure that everyone has had the time to get to their feet before the crater closes again. It can, however, be difficult to evaluate the situation if the crater develops at some distance from the stage barrier.
- Illuminate the crater area with a bright torch and analyse the faces and reactions of the audience members found there. Does anyone look exhausted, frightened, or sad? Does anyone in the crowd look downwards or seem to be searching for something? These can be signals that someone still remains on the ground.
- If an audience looks untroubled, you can assume that everyone managed to get up. Note that this is merely an assumption. It is best to continue to monitor the area for a while after everyone has apparently got back on their feet.

Surges. Surges in an audience usually develop when the crowd density is relatively high. They can develop in connection with irritation, aggressive dancing, agitation from a performer, etc. Surges mean that large portions of the audience move vigorously from side to side (or in some cases forwards and backwards). Surges propagate, and a powerful surge through a crowd usually does not peter out until it reaches the crowd's edges, where crowd density is lower. Powerful surges also involve a significant risk of craters.

Keep the following in mind:

- If surges develop in a crowd, the pit staff should increase their contact with the audience members at the front of the crowd and intensify their observations of the crowd.

Be restrictive with direct intervention. All measures give rise to counter-reactions.

19.5.4.2. Individual occurrences in a crowd

There are a number of risk behaviours in an audience that should not be permitted for safety reasons. The basic rule for managing these involves attention and eye contact.

Keep the following in mind:

- Do not be afraid to illuminate a situation with your torch. If guilty parties know they are being watched, illicit behaviour will, in many cases, cease. Keep in mind, however, that the work effort should be proportional to the risk – it is usually sufficient if a single person from the staff takes action.
- Try to communicate with the people who are actively involved and convince them stop on their own.
- Be restrictive with direct intervention. All measures give rise to counter-reactions, and the task of the pit staff is to make sure no one in the audience is injured. If the pit staff should, for instance, catch sight of a pickpocket or someone lighting a cannabis cigarette in the audience, the pit staff should remember that person's appearance, and as soon as possible alert the police or public security guards once their own tasks have been completed.
- Even persons who are obligated by law to intervene should consider the potential consequences of an intended act. Sending in a police officer or public security guard to address a problem in a crowd during a performance can lead to undesirable consequences.

The primary task of the pit staff is to make sure members of the audience are not injured.

Crowd surfing means that a person gets up onto the raised hands of a crowd and is carried forward (surfs) across the heads of the crowd. This is risky behaviour which should not be permitted because there is an obvious risk that the crowd surfer or other people in the audience will be injured. On the other hand, crowd surfing is an effective way to get people who feel unwell out of a crowd.

Keep the following in mind:

- Receive crowd surfers by turning them so that they are positioned alongside a stage barrier.
- Do not pull at a crowd surfer.
- The best option is for several people to receive each crowd surfer.
- Guide the crowd surfer out of the stage pit.

Stage diving means that someone in a band or from the audience jumps from the edge of the stage or the stage barrier into the crowd, landing on the raised hands of the audience members. Risks associated with this are, for instance, that the person in question falls through the crowd and lands on the ground, or that the members of the audience on whom the person lands are injured.

Audience members sitting on someone's shoulders are fairly common at concerts. The risk of injury from a potential fall is, however, great. In addition, this practice irritates the people behind those who have people on their shoulders, since it blocks their view.

Unruly persons sometimes turn up. They can be dealt with in the following manner:

- Point to the person, make eye contact with them, keep them under continued observation.
- Warn the person if the behaviour continues.
- Evict the person if necessary.
- If you need to, alert a public security guard for an eviction.

Aggressive dancing (e.g. *moshing*) is more common in certain, more aggressive, music genres (punk, hardcore, screamo, metal, etc.). A so-called *mosh pit* is created when several members of the audience generate an area in the crowd where they jump and dance into each other. This can result in powerful collisions, with injuries or with members of the audience falling down as a consequence. In many cases, it can be difficult to prevent a mosh pit that has already started in the midst of a crowd from continuing or growing.

Joint audience mass movements can occur, of which the most common is known as the *wall of death*. This means that the audience – on their own or at the request of a performer – splits into two parts that then run towards and collide with each other. This phenomenon is also most common in the more aggressive music genres. There are similar variants of the same phenomenon, for example dancing in a circle, often at high speed, or the audience running sideways. These phenomena can involve risks if many people participate.

Flags being waved carelessly should be confiscated and returned to their owners following the end of the gig.

19.5.4.3. Occurrences in a performance

The actions of a performer can affect the audience in many ways. Prior to a gig, you should have discussed in detail the upcoming performance with the performer or their representative. Already when a performer contract is signed, all parties should know about and accept how the gig will be performed.

Keep the following in mind:

- **Pyrotechnic effects** on stage are a risk factor which can be minimised by the staff being prepared. The pit manager should make sure that the pit staff wear ear protectors, know during which songs pyrotechnics will be used, and know where the fire extinguishers are located. Just before any explosion, the pit staff should take a step forward towards the crowd. It is also important for the pit staff to read an audience's reactions extra carefully after powerful pyrotechnics have been used.
- **Agitation or dangerous exhortations from performers.** It happens that performers urge an audience to do dangerous things, for instance to form a wall of death (see above), or that they agitate against the pit staff, which can result in an engaged audience going off the rails. This

can be counteracted by communicating with the performer prior to the gig and by good preparatory work with good audience contact. Should something nevertheless occur, the pit manager should contact the stage manager. The stage manager can then communicate with the performer's staff to see to it that the undesirable behaviour ceases.

- **Audience member to the stage.** Sometimes a performer wants to get someone from the audience up on stage. This can give rise to crowding at the very front of the audience, and should be avoided as far as possible. If it is to be done, it should have been decided beforehand who will go up onto the stage, and these persons should, if possible, be brought up in another way than across the stage barrier.
- **Performers who are late** can create irritation among the members of an audience, not least because the audience is unaware of when the concert will actually begin. If possible, an appropriate announcer can explain the reason for the delay and tell the audience how long they can expect to wait. In such a situation, the pit staff should continue with positive audience interactions.

Read more about:

Operative plans and procedures in *Section 1.5.8.*

How a plan can be escalated in *Section 1.5.8.3.*

19.5.5. The show stop procedure – how to pause a gig

During a performance, the scope to manoeuvre is limited. The pit staff can only help or provide service to the audience members closest to the stage barrier, and in addition, the safety staff are few relative to the total number of audience members. This means that if there is a risk for an accident, it is practically impossible to respond to the situation without special measures, such as pausing the gig.

Pausing a performance must be done with sensitivity in order to avoid undesirable consequences. There should therefore always be a plan for how to pause a gig in the smoothest way possible – a show stop procedure. The show stop procedure should always be walked through with all parties involved.

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19.5.5.1. The purpose of a show stop procedure

The aim of a show stop procedure is to introduce, in a simple and controlled manner a smooth but distinct pause into a performance, so that the organiser can act in response to the incident that is causing the pause. A show stop procedure is an operative procedure. The show stop procedure should be a single plan, i.e. the same plan should be activated regardless of the nature of the incident that causes it.

Pausing a gig quickly, smoothly, and without undesirable consequences is more difficult than it sounds. For this reason, all key persons in the procedure need to know what their tasks are, and how and when to perform them. It is not enough that the pit manager knows what must happen during a pause. Also the stage manager, the sound and light technicians, the area manager if there is one, the tour manager the staff of the band, and any other people involved in the procedure need to understand their roles.

It is strongly recommended that the event staff have gone through the procedure and practised it in advance.

The pit manager and the stage manager should each have the power to make the decision to pause a gig.

19.5.5.2. Making the decision to pause a gig

The pit manager and the stage manager should each have the power to make the decision to pause a gig. Deciding to pause a gig can be a challenge in itself, because the decision affects a lot of people. Time is, however, often an important factor. If a decision is made too late, this can have very

serious consequences. This is yet another reason why both the pit manager and the stage manager should have professional experience, and the sensitivity and competence needed to make such decisions.

A show stop procedure should be possible to escalate – in part to avoid activating it for the wrong reasons, in part to prepare all parties involved so that all stages of the procedure can be carried out smoothly. A first step before a pause can be, for instance that all decision-makers (e.g. the pit manager and the stage manager) meet and discuss how best to proceed. Often the situation can be solved already through such a dialogue.

19.5.5.3. Creating a show stop procedure

The following is a good way to create a show stop procedure for an event:

- Decide who has the authority to pause a gig.
- Identify what needs to be done, and how it should be done, in order to pause a gig.
- Decide who will perform each respective task.
- Distribute work descriptions and other documents, e.g. a speech script for the announcer.
- Practise the show stop procedure with everyone involved.

In the event of a pause, four steps should occur at a rapid pace, one after the other and without any waiting time between steps. For this reason, it is extra important that everyone involved knows the procedure and understands their tasks.

1. **The performer stops playing or the stage PA is shut off.** The organiser should obviously not transfer the responsibility for a pause to the performer. If the performer does not stop playing, the organiser should therefore be prepared to disconnect the sound. In either case, the performer should be informed before the pause and, if possible, be involved in what is happening.
2. **A fixed light is turned on above the stage and the audience.** Flashing lights in combination with loud music can easily make a confused situation completely chaotic. In contradistinction, a fixed clear light can calm the situation down.
3. **The audience is informed about the situation.** If the audience is not informed, they will draw their own conclusions and can react with anger or disappointment. Often the best effects are achieved when it is possible to use the performer to communicate with the audience, but if the organiser is unsure whether the performer is well-suited for communicating with the audience in a serious situation, the organiser should have their own announcer at the ready.
4. **The problem is rectified.** The cause of the pause is managed. Afterwards, the concert can usually begin again, after the pit manager has given the all-clear. The announcer should always have a speech script as an aid when relaying information to the audience. Information to the audience during a pause can, for instance, contain the following points:
    - What has happened?
    - What is the audience expected to do?

When pausing a performance, the procedure should proceed at a rapid pace. For this reason, it is extra important that everyone involved knows the routine and understands their own tasks.

- What will the organiser and the performer do?
- What happens afterwards?
- How long will it be before the gig starts up again?

19.5.6. Safety following a gig

It is important to finish the work properly. The gig is not over for the pit staff until the pit manager says so, and before the work is completed the pit manager should do the following:

- Make sure that everyone in the audience has left the venue.
- Do a quick run-through with the staff: What worked and what did not work? How should the work be changed before a possible next gig?
- Document the gig via an incident report. This should preferably be done even if nothing serious has occurred – the greater the basis for analysis, the better the decisions will be in future.

Read more about:

Frisk searches in *Section 19.2.2.2.*

Risk classification and the planning and permit process prior to a match in *Section 4.2.2.*

Searching in *Section 19.1.3.*

19.6. Safety during a match

Safety work during elite matches of team sports has much to do with managing so-called risk supporters who may perpetrate acts of violence against an opposing team's supporters or the safety staff.

An additional task is to make sure that the match is not disrupted by objects thrown or spectators rushing onto the pitch. Pyrotechnics in the form of bangers and flares or other prohibited activities in the stands, for example disruptive laser pointers, can lead to a game having to be paused. By searching the spectators when they enter, such factors can be limited.

Risk supporters are primarily found in football and ice hockey, but the methods and strategies developed for dealing with such supporters can be used in other sports as well, if there are indications of risky supporter behaviour.

Photo: kovop58/Shutterstock

19.6.1. Risk matches

In the highest divisions, matches are classified into three risk levels. This classification is based on, among other things, the expected number of visitors, the history of the supporters' behaviour, and the significance of a match in terms of the sport in question.

If a match is considered a high-risk match, the safety measures should also be increased prior to the match. You can, for instance, do the following:

- hold a planning meeting prior to the match (see below);
- perform an extended or special search of the arena;
- change the rules for, e.g. the size of bags or personal tickets;
- change the scheduled times, e.g. set an earlier start time for a match or begin admissions earlier, or delay egress for one of the supporter groups;
- change the design of the venue, e.g. separate the supporter groups, create an extra buffer zone outside the event, or have special queueing systems;
- introduce an increased or more thorough search at admission;
- add increased camera surveillance and other technical aids;
- increase the number of staff in various roles;
- provide extra educational or informational efforts for the staff;
- reduce audience numbers or hold a match without an audience present;
- establish different levels of prohibition concerning the sale of alcohol.

The safety measures should always be in proportion to the perceived risks at an event. It is important that the choice of safety measures is made after due consideration and for clear reasons, otherwise an event's resources risk being wasted on the wrong things.

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19.6.1.1. Planning meeting prior to a match

Prior to all high-risk football matches, and in some cases also normal-risk matches, a planning meeting is held no later than seven days before the match. This meeting is convened by the home team club, and a number of actors are invited to attend:

- the match delegate, and also the safety delegate, if one has been appointed;
- the person responsible for the event at the organising association;
- the safety managers for the home team club and the away team club;
- the representative of the arena owner;
- the police;
- the fire and rescue services.

If necessary, *the Supporter Liaison Officer* (SLO) from each association and representatives of the supporter associations are also invited. In addition to this, a number of other stakeholders may be invited to the planning meeting, for example a representative for public transport, individual local economic operators, or persons in crime-preventative roles. Normally, however, only those actually affected by the playing of the match are allowed to attend a planning meeting.

At the planning meeting the following can be taken up:

- An agreement to play the match.
- The history of previous matches between the teams.
- Risk assessment from a safety perspective.
- Attending supporters (number, mode of travelling, arrival times, manner of getting to the arena from an assembly point, estimated time of arrival at the arena, ticket situation, etc.).

- Conditions for the away team supporter section (admission, frisking and responsibility, emergency exits, departure following the game).
- The safety organisation (survey of the safety organisation of the home and away teams, stewards and other service staff for the respective supporter groups, public security guards for the home and away teams, surveillance and final inspection of the arena before the match, etc.).
- Tifo arrangements (decoration of the stands, etc.) and times for access to the arena for the people responsible for the tifo of each team.
- The safety organisation of the arena owner: Has the arena been approved for the arrangement? What does the basic staffing look like? Who is the responsible work supervisor? etc.
- The police postings and the initial threat and risk profile analyses of the police.
- Arrangements at or adjacent to the arena before kick-off or at half-time.
- Emptying of the arena following the game, with the aim of avoiding confrontations between the rival supporters of the two teams.
- Other issues of relevance for the event.

Minutes are taken at the planning meeting by the representative of the home team and are communicated to all actors in good time prior to the game.

19.6.1.2. Prevention and preparedness

The specialist sports associations and the Swedish National Council for Crime Prevention (Brå) have worked with these issues for a long time. Brå suggests that the following measures be taken before a high-risk game:

- Create arrangements outside and inside the arena that aim to both reduce an aggressive atmosphere, and to get spectators to arrive earlier at the arena. In this way, long queues can be avoided, which creates scope for more careful frisk searches.
- Introduce a latest time of arrival at the arena for the purpose of creating scope in terms of the time available for more careful frisk searches.
- Be clear about not accepting any obvious inebriation at admission.
- Plan to play all high-risk matches at lunchtime on weekends.
- Increase cooperation with local public transport in order to quickly transport the spectators away from the area around the arena, so that the police can concentrate on supporters who disturb public order.
- Review the technical equipment regarding camera surveillance at the arena for the purpose of ensuring successful identification of persons caught on camera.

19.6.1.3. Prior information

It is important to keep yourself informed about the more organised supporter groups. In the regulatory framework for football, there is a requirement that clubs at the highest levels must have a *Supporter Liaison Officer*, an SLO. This person often has a background in the supporter organisations, and has good insight into the situation within the club supporter groups before a game – through contacts and by way of social media, and also via his or her equivalent colleague for the opposing team. Corresponding work is also done with respect to ice hockey, even if it is not always one particular person who has this as a specific assignment.

Good contact with supporters (at least in a technical sense) also makes it possible to quickly disseminate information to supporter buses when they are on their way to a match if a change has been made, for instance that the buses have been assigned to different places than originally. Anything that can complicate matters during admission to an arena must, however, be avoided to the greatest extent possible. For this reason, you should make as few changes as possible at short notice.

19.6.1.4. Separation of supporter groups

At a low-risk match the whole arena can be open. But at a high-risk match the basic strategy is, on the other hand, to keep the away and home team supporters completely separated – prior to, during, and following the match. The supporters of the two teams should, in a logistical sense, be in two separate arenas. Their being separated does not simply apply to the stands but to anything from the entrances to the service areas, such as food outlets and toilets. However, a well-thought-out separation begins already outside the arena. Refer the different supporter groups to different assembly points, preferably located far from one another, and endeavour to keep the arrival and departure routes separate. Ideally, the assembly points and arrival routes will be found in the same cardinal direction as the respective entrances allotted to the supporter groups.

At events where supporter factions must be kept separate, you should plan in advance so that they

- feel welcome to the game;
- are referred to the correct entrances;
- are given correct information about the event.

If transport to the arena is done with buses, these can be parked close together and be used as an external barrier between the away team supporters and the home team supporters. It can be advisable to write down the registration numbers of the buses and the telephone numbers of their drivers when they arrive, in case the buses need to be moved at short notice or if some supporter remains in a bus rather than entering the arena.

Home team supporters and supporters at derby games do not always arrive in an orderly fashion, such as by bus, in the same way as away team supporters do. Here it is important to have good collaboration between the people responsible for each team's supporters. Also home team supporters usually have places where they assemble prior to a game before going to the arena, and if they are risk supporters, the police usually have knowledge about where they tend to assemble.

19.6.2. Safety work in the standing room sections of the arena

By tradition, the most dedicated supporters, including risk supporters, can be found in the standing room sections of the arena. That is therefore the place where the organiser primarily needs to have a well-organised safety structure.

Sufficient space should be created between the standing room sections of the different teams. In ice hockey this is done through various measures, for example by having a number of empty rows of seats between the groups and placing a net over the seats. A person trying to run across the net will then inevitably become entangled and can then easily be removed.

It can be a challenge to fill a standing room section, because people have a tendency not to want to walk further than necessary. If a standing room section is filled up from the bottom, there can be crowding at the entrances, because people do not continue upwards. It is therefore important to have active stewards who can distribute an audience evenly across the section. More organised supporter groups are usually capable of handling this themselves, and then it is enough simply to be available if needed.

Safety work in the standing room sections during a match is based on close cooperation between the supporter police, the public security guards, and the stewards. At high-risk matches it also happens that a guest team brings their own head of security, supporter police, public security guards, and stewards, because these people know their own supporters best.

Safety work in the standing areas is based on close cooperation between the police, the public security guards, and the stewards.

Photo: Carl-Johan Thorell

19.6.3. Organisation and staffing during a match

The police, the public security guards, and the stewards play different roles during an event.

- **Public security guards** work primarily with maintaining order inside an arena.
- **The police** work above all outside the arena and its area, but will intervene if necessary also inside the arena.
- **Stewards** work with safety and service for the event visitors. They will, however, not intervene in any incidents. This is a job for the public security guards and potentially the police.

The tasks of the stewards include

- frisking the audience members at the entrances;
- showing the audience members to their places;
- making sure that an evacuation can be carried out by keeping stairways and passageways free;
- drawing up lines that cannot be crossed between different sections of the stands and between the audience area and the pitch in order to indicate boundaries that must not be crossed;
- sensing the mood of a crowd and maintaining good contact with spectators.

The Swedish Sports Confederation and the major sports associations have training courses for stewards that must be completed by anyone who wishes to serve in the top divisions.

19.6.4. Safety in the standing room sections before a match

The purpose of the preliminary work in a standing room section is to create conditions that are the best possible for the match itself. Once the match begins, there is no longer any scope for major changes. Before a match the stands and terraces, equipment, and resources, as well as the information to the supporter police, public security guards, and stewards are checked.

Prior to each match the following should be checked:

- there are functioning fire extinguishers;
- there are functioning medical supplies;
- the stands are free of objects that can be thrown and other dangerous items;
- railings are well anchored;
- any throwing nets are whole;
- any nets covering seats between supporter sections have been laid out;
- evacuation routes are free and any gates along these routes can be opened.

Before high-risk matches, you can also elect to perform an extended or special search of the arena.

When the area has been prepared, the responsible person in each section should hold a brief information meeting with the standing room section staff. The training regarding tasks, methods of working, and procedures should have been completed much earlier, but before each period or half, the standing room section staff should be informed of the following:

- information about the situation, e.g. problem profile, changes in the number of risk supporters, the mood, or status in various stands or sections;
- any changes in the management of how various incidents should be dealt with;
- work distribution – who works where and who is responsible for which tasks;
- potential special tasks, e.g. roles in procedures.

19.6.4.1. Working with the audience during a match

When the standing room sections are staffed, the standing room section staff should find their posts and look after the audience members who arrive early.

It is important to keep the following in mind:

- **Service and social contact.** Take the opportunity to chat a bit with the people who arrive first to create a personal relationship. Successively include later arrivals in order to create a positive mood in the crowd. It is also important that the stewards fill all the places in the stands early on, so that everyone can find a place.
- **Risk persons.** It is a good idea to seek out those who risk getting into trouble. Young and inebriated people are often in the risk zone. Also identify supporters who have ended up in the wrong section. Talk to

Read more about:
Searching in
Section 19.1.4.

The purpose of the preliminary work in a standing room section is to create conditions that are the best possible for the match itself. Once the match begins there is no longer any scope for major changes.

them early on, and make it clear that they can get help if a situation should escalate. The task is to identify, not to confront.

- **Dangerous items.** Remove dangerous objects, such as flags with flag poles if they do not meet safety requirements, or placards or banners if the person holding them does not seem capable of taking responsibility for them. Check with the head of safety in the event of uncertainty.
- **Problem persons.** Identify problem persons at an early stage. It is a good idea to show that you have seen them. This removes their anonymity and makes it less likely that they will cause trouble during the match.

The execution of one's duties has to do with making sure that the audience members can enjoy the match without being injured or feeling unsafe.

The standing room section staff should face the crowd throughout the entire game. Avoid making an intervention as far as is possible during an on-going event. It is easier to make an intervention during a pause and at a different location than in the stands, when physical level differences do not have to be taken into account. In addition, it is easier to confront the person in question face to face.

The standing room section staff should work without interfering with the experience of the audience and strive to be discreet, as long as this does not adversely affect safety. This means, for instance, avoiding encroaching on the audience's field of vision unless necessary, and not drawing attention from a game unless this is part of the safety work.

The task of the standing room section staff is service work. Remember that the standing room section staff work on an open stage – the audience sees everything they do and hears a good deal of what is said. It is therefore a good idea for the standing room section staff to display kindness, security, and comfort – not rejection and distancing. Consequently, sunglasses, crossed arms, and a frown should be avoided. A steward should be neutrally dressed in a vest with the word *Steward* on it, but without any club insignia or advertisements.

Neutrality is important: Avoid cheering when the home team scores. The stewards are recruited from dedicated club members who sometimes accompany the supporter bus to away games. In this way, good contact is maintained between the steward and other supporters.

A stable temper, good training, and good preparation lead to high-stress situations being minimised.

Prohibited pyrotechnics may only be handled by the fire and rescue services or other specially trained personnel.

19.6.4.2. Undesirable occurrences during a match

Violations of rules of public order or laws during a game can be manifested in many ways. For instance, laser pointers and pyrotechnic items such as rockets, bangers, or flares can be used, someone might throw something onto the pitch, or a pitch invasion may happen when one or more members of the audience run onto the pitch. With respect to prohibited pyrotechnics, these items may only be handled by the fire and rescue services or other specially trained staff.

Serious cases of illness or injury can occur among the audience in the stands. These situations can be characterised by limited accessibility and poor, even dangerous, working conditions for the staff. In these cases, it may be necessary to pause a game in order to deal with a situation in an effective and safe manner.

Disputes can break out among people in the stands, where even different supporter categories for the same team can end up in conflict with each other. It also happens that supporter groups express themselves inappropriately, even illegally, in chants or via placards. Verbal threats can also be made from the seating area.

Rockets require a permit and are not sold over the counter, which means that they may be difficult to obtain. The danger with rockets is that they have a long range when they are fired along the ground. A projectile can hit people, and a rocket also has a certain explosive force when it detonates.

Bangers and squibs require a permit and exist in different variants and sizes. They contain a chemical explosive substance with a more rapid burn time and more powerful explosive power than regular black powder. Larger squibs are usually called bangers. These have a greater explosive power and a very high sound level. Here there is a great risk of, above all, hearing damage. Even smaller squibs can cause hearing damage.

Emergency flares and Bengal flares do not require a permit but are illegal to use at events. These burn with an intense light and a very high temperature, which means there is a risk for burns or of starting a fire. Bengal flares are fireworks that produce a strong light in different colours when they burn. Emergency flares burn with a stronger light than Bengal flares. Some emergency flares burn with such a strong light (almost like a welding flame) that there is a risk of eye injury for people close by.

Smoke grenades and smoke generators are products that generate powerful smoke. These generally do not become particularly hot, which means there is no serious risk of fire. However, the smoke is poisonous and harmful to inhale. A permit is required for possessing these products.

Objects thrown onto the pitch If an object is thrown onto the pitch and it must be removed, this should, if possible, be managed without interrupting the game. Afterwards, one can often document who threw the object by looking at film from surveillance cameras, and the person can be taken into custody during an intermission or following the game.

Pitch invasion means that audience members rush onto the pitch. At football games, both the pitch and the area between the stands and the pitch (often called the red zone) are prohibited areas for audience members. If visitors get into the red zone or onto the pitch, they have forfeited their tickets, are expelled from the arena, and will probably be banned from visiting the arena for a certain number of games.

So-called pitch invasions are prohibited, whether they are done in joy at the success of the pitch invader's team, in anger at the opposite happening, or because of controversies during the match. This is true also following a match.

A pitch invasion can be large or small. Sometimes a large pitch invasion begins as a small one, and a pitch invasion, when one or a few people try to run onto the pitch, can be difficult to predict. Sometimes the motivation for the person in question is simply to show off or be seen, but there are also numerous examples where visitors have attacked players.

If a small pitch invasion is about to happen, the following four steps may be a way to deal with the situation:

1. **Convince.** When indications show that a violation is about to occur – approach the visitor and try to convince them that their actions are a bad idea.
2. **Prevent.** If a visitor gets into the red zone – prevent them from getting onto the pitch.
3. **Revert.** If the visitor gets onto the pitch, stop the attempts to prevent their actions, return to your original location, and be prepared to prevent the next potential pitch invader.
4. **Expel.** Special staff whose tasks includes dealing with audience members on the pitch, catch the visitor and expel them.

A small pitch invasion not handled effectively can easily degenerate into a large pitch invasion.

A small pitch invasion not handled effectively, for example where several audience members one after the other manage to get onto the pitch, can easily degenerate into a large pitch invasion. A large pitch invasion can either begin as a small one and escalate, or nay consist of many small pitch invasions happening simultaneously, i.e. that many audience members get into the red zone or onto the pitch at the same time.

Often a large pitch invasion occurs in connection with some incident that evokes strong emotions, such as winning or losing a game, a controversial decision by an umpire or referee, or as a reaction to something done by an opposing supporter group. It is often easier to predict a large pitch invasion than a small one, because it is possible to read the mood in the stands and gauge the actions of the audience.

The following can be an appropriate strategy in the event of a large pitch invasion:

- The staff (while facing away from the pitch) back up and try to keep the intruders in front of them.
- If the supporters continue ahead, the staff also keep backing onto the pitch. This usually results in the game being stopped.
- More staff resources should be added in order to reduce the risk of someone getting through the staff chain that has been formed.

The goal is to reduce the speed and minimise the risk of someone getting through the chain. The purpose is both to protect the players and the referees or umpires, and to clearly signal that there are organiser's resources *between* the supporters of the home and away teams. In other words, it is not supposed to be easy to simply run up to the stands of an opposing team's supporters. This also reduces the perceived need for an opposing team's supporters to defend themselves, which can mean that the incident does not escalate further.

If a pitch invasion is large enough that it is impossible to work according to the strategy above, the organiser should change from using a preventive strategy to trying to ensure that the pitch invasion can be done without someone being injured.

Disputes or disturbances of public order in the stands. Sometimes disputes or disturbances of public order erupt in the standing room sections, but an intervention in a stand full of agitated audience members risks having major undesirable consequences. In most cases, you should in the first

place try to de-escalate the situation, for instance by clearly signalling that you see what is going on and that it is unacceptable behaviour. Often this is enough for the parties to calm down. The continuing situation is then monitored via surveillance cameras. Interventions and efforts during a match by staff from the standing room sections should only take place if there is a serious danger to someone's safety.

In some cases, disturbances of public order can also occur in the seating stands. Often this is because individual away-team supporters intentionally or unintentionally provoke the home audience. In this case, you should mainly try to calm down the situation, but if this strategy becomes untenable, the away-team supporter can be offered a place in the standing room section, or, alternatively, be expelled from the arena.

Threats or denigrating messages. Threats or denigrating chants and placards are dealt with as common penal or civil cases once the perpetrator has been identified.

19.6.4.3. Tactical considerations regarding measures and interventions

At any event with an audience, you should consider carefully before making a direct intervention during an on-going event. This is because such measures risk giving rise to counter-reactions with undesirable consequences as a result.

One basic rule is not to intervene with public security guards or groups of staff in a standing room section during an on-going match unless it is absolutely necessary, for example if there is imminent danger to someone's safety. Instead, violations of the rules of public order are noted and documented, for example via the surveillance cameras that exist in larger arenas.

Stewards who have good contact with supporters can, during the calmer periods, go in and remind people about what is permitted and what is not, but direct confrontation should be avoided. If you should, for instance, take note of a visitor who violates the rules or is inebriated, but who is no danger to him- or herself or to other people, you can wait to approach the person until an intermission between periods or halves. Many times it is enough to ask, 'How are you?' in order for the person in question to feel sufficiently observed. Should this not help, it may be time for a public security guard to intervene.

19.6.4.4. Safety in the standing room sections following a match

The mood and the conditions following a match to a large extent depend on the results of the match. In some cases, the supporters of a losing team may behave badly.

An organiser should have thought through the situation and created a procedure for handling the situation following matches that end in ways that mean there might be a risk for problems. Depending on the risks accompanying post-game conditions, several measures can be taken, for example the following:

- enhance security at the players' entrance and buses;
- enhance security at the referees' entrance and car park;
- enhance security in spaces where the board of the association or other association-related staff are present;

- delay the egress of one of the supporter groups until the other supporter group has left the immediate vicinity;
- plan for how the buses of the guest supporters should be boarded and how the supporters are to be escorted away from the area safely in order to avoid a confrontation.

It is important to have any surveillance cameras directed at the supporter groups in order to document what happens for a potential investigation afterwards.

After the match a safety check should be performed:

- Are there medical supplies and fire-fighting equipment, and are they functional?
- What is the condition of the standing room section?
- Are there cast nets and other safety measures, and are they functional?
- Are the railings well anchored?

19.6.5. Following a match

Shortly after each match an assessment meeting should be held with everyone concerned, where those who have been active in the safety work can express their views about the arrangement. This meeting should include the police, the arena owner, and the heads of safety from both clubs. Problems and any shortcomings, but also good experiences, are discussed. It can also be necessary with a debriefing of staff who have been involved in any serious incidents.

Photo: Cecilia Sandén

19.7. Weather factors

The weather is a factor that strongly influences outdoor events. An organiser should therefore obtain good prognoses concerning the weather, for example through the Swedish Meteorological and Hydrological Institute (SMHI).

Keep the following in mind:

- Rain, hail, or snow can make a surface wet and thus may represent an increased risk of slipping in the event of high crowd density. Umbrellas obstruct the view of the people behind them and may have sharp tips. In addition, precipitation increases the risk that large parts of an

audience will suddenly decide to seek protection. Cold weather can also lead inexperienced visitors to put on too many clothes and consequently become too warm.

- Heat and strong sunlight often make members of an audience tired. The risk of dehydration, overexertion, or fainting increases. Prepare yourself with an increased supply of drinking water and the availability of first-aid and medical care staff.
- If there is a risk of more extreme weather, SMHI will issue a number of warnings:
  - **Yellow warning:** Weather development is expected that involves certain risks for the general public and disturbances to some social functions. Weather that involves danger, damages, or disturbances for certain activities, but no unusual weather phenomena.
  - **Orange warning:** Weather development is expected that can involve a danger to the general public, significant material damage, and major disturbances to important social functions. The general public is urged to follow up new information on the internet, radio, or TV.
  - **Red warning:** Very extreme weather is expected that can involve a significant danger to the general public and very large disturbances to important social functions. The general public is urged to follow up new information on the internet, radio, or TV.

If something serious should happen, information can be obtained from Swedish Radio's (Sveriges Radio) local channel, P4, in the area where you are located.

Remember that weather that does not lead to warnings from SMHI can still lead to limitations for an event. It is better to discuss, in good time before an event, with the municipality and other concerned authorities what to do in the event of extreme weather:

- What effects can the extreme weather have?
- How can one counteract or deal with these effects?
- What resources does an event, the municipality, or other stakeholders have?
- How should one deal with information to the audience, the media, and the general public?

The radio channel P4 is the Swedish emergency channel. Its task is to convey information from the Swedish authorities in the event of crises, major accidents, and, in the worst case, war. Find your local P4 channel at *www.sr.se* or on the Swedish Radio (Sveriges Radio) app for mobile phones.

20. Preparedness for special incidents

Photo: Christian Ferm / Johnér RF

20. Preparedness for special incidents

This chapter explains how you should act in the event of a special incident and how to plan for situations you hope will never happen.

Special incident is a term that refers to a sudden or unpredictable incident that cannot be managed within the framework of ordinary conditions, and that therefore is dealt with by using special organisation and management. Special incidents can be major incidents with many people injured, but also minor incidents that have significant consequences, for example a murder or the death of a minor. The concept is used by, among others, the police and regional authorities, such as regions or county administrative boards. Decisions concerning classifying a particular occurrence as a special incident can only be made within the organisation in question.

Preparedness refers to being prepared for the possibility of a special incident occurring and then knowing what must be done and who will do it. It also means being prepared to act quickly and knowing what to do in the period of time directly following such an incident.

A *crisis* or crisis situation can be defined as an incident or situation that occurs suddenly or unexpectedly, that deviates from what is normal, and that seriously threatens the assets of an event. A crisis is often difficult to handle within the scope of regular operations, and should in most cases be managed as a special incident.

Read more about:

Risk management in *Chapter 3.*

The safety plan in *Section 1.5.*

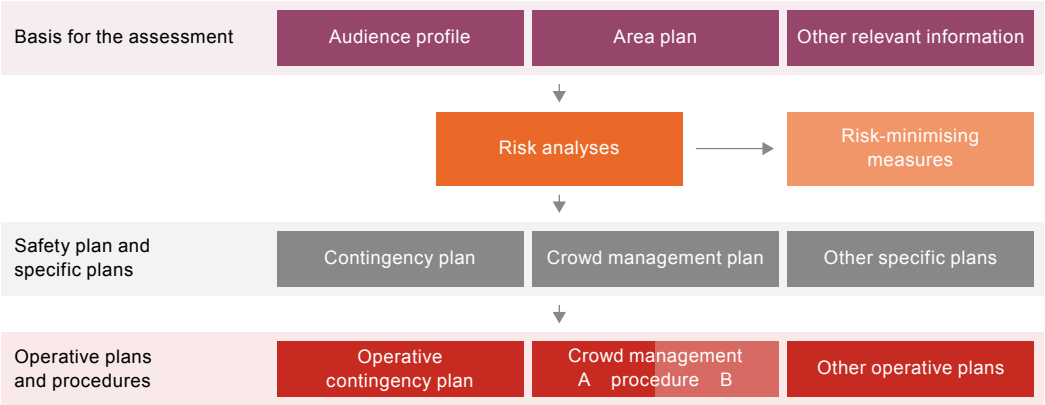
Event-specific plans and procedures in *Section 1.5.8.*

20.1. The preparedness process

Creating good preparedness is a process that begins long before an event and continues to and through the post-event work. This process can, for instance, be done in the following manner:

- The risk analysis is the hub of the entire process. If this analysis is to be relevant, a certain basis for assessment is needed. On the basis of the risk analysis, an action plan is then developed concerning measures to minimise risk.
- The result of the analysis is taken into account in the event safety plan – in the contingency plan, the crowd management plan, and other specific plans.
- Operative plans are drawn up on the basis of the specific plans, the purpose of which is to prevent, manage, or eliminate undesirable occurrences if and when they take place.

Figure 31. The preparedness process



The preparedness process should be a continuously evolving process. If the real world changes, the basis for assessment needs to change along with it – and thus also the preparedness and safety planning for an event.

Read more about:
Organisations and roles involved in *Section 4.2.2.1.*

20.2. Planning for a crisis situation

A common reason for inadequate action in the event of a crisis situation is that no one believed that the crisis would actually come to pass. The situation was felt to be so unlikely that no one had even thought about what to do if it should occur. In addition, the low probability may in itself make it difficult to understand that a situation is actually as serious as it in fact is. The psychological adjustment from a normal situation to one in which people are seriously injured and perhaps even die is so great that one tends to rationalise away the seriousness of the situation. Experience from earlier events and an increased awareness of potential incidents can, however, help staff understand more clearly and manage the situation.

It is very important to have planned for what is to be done in the event of special incidents, and that there is a preparedness for dealing with such situations. If not, the likelihood of being able to manage the situation well and mitigate its effects is severely diminished. The prerequisites for managing a situation are completely dependent on the key persons' knowledge, mental preparation, and ability to stay calm in times of extreme stress.

The prerequisites for successfully managing a crisis situation are completely dependent on the key persons' knowledge, mental preparation, and ability to stay calm in times of extreme stress.

Think through the preparedness and efforts required in the event of special incidents and crises. This will dramatically improve the possibility of dealing with the situation and mitigating the effects of an incident.

20.2.1. Collaboration with the authorities

Close cooperation with the police, the fire and rescue services, and the medical care services is absolutely essential. You should therefore meet with these authorities at as early a stage as possible in order to discuss how to carry out the safety work. You should also find out how the police, the fire and rescue services, and the medical care services want the collaboration to function. Conduct a dialogue on the possibility of having the authorities represented on site during an event. If hospitals, ambulance stations, the fire and rescue services, or a police station are located far from an event, the authorities should stand by near the venue.

When a special incident occurs, the event crisis preparedness should make sure that as much as possible has already been done when the police, the fire and rescue services, and the medical care services arrive at the site and the formal rescue efforts can begin. The authorities can therefore

Close cooperation with the police, the fire and rescue services, and the medical care services is absolutely essential.

already in advance contribute with a number of constructive viewpoints regarding how the crisis preparedness should be designed. This will make the circumstances as favourable as possible when the authorities arrive on site during a special incident. Already when planning an event, it should be decided that the authorities and the event organiser will set up a command and control centre in the event of a serious accident or crisis situation. At the command and control centre the resources can then be coordinated and a shared overview of the situation can be acquired. In this way, consensus can be created in preparation for the work to come.

20.2.2. Crisis organisation

The purpose of a crisis organisation is to be able to effectively counter or manage a crisis or a special incident. A crisis organisation can in many cases be a streamlined version of the regular event organisation. The event's crisis organisation should be designed according to the following three principles:

- **The responsibility principle:** The person who is normally in charge of an aspect of the event should continue to be in charge of this aspect even in the event of a crisis.
- **The proximity principle:** A crisis should be managed from as close as possible to the location at which the incident takes place and by those immediately concerned and responsible.
- **The equivalence principle:** The crisis organisation should, as far as possible, coincide with the event's regular activities and organisation.

The regular command structures should, in other words, stay intact also in the case of a special incident. In addition, the staff should, as far as possible, have tasks in the areas in which they normally work and have assignments similar to their regular assignments. For instance, safety staff who usually work with and are responsible for admissions should be responsible for evacuation during a special incident.

The roles and functions included in an event crisis organisation vary from one event to another. Areas of responsibility and roles that are often necessary in a crisis organisation are the following:

- principal – the person who is primarily responsible for the entire event and who makes the overall decisions concerning it;
- safety – the person who has knowledge concerning, and controls, the event safety resources;
- press – the contact person for the press and media;
- information – the person who has knowledge, channels, and resources to collect and disseminate information or answer questions from the public;
- infrastructure – the person who has knowledge about, and controls, the event infrastructure;
- administration/office – the person managing the administration and other *back office* functions;
- staff – the person who has the knowledge and resources to manage staff issues.

Other roles that involve knowledge and resources that can be useful in the event of a crisis or during a special incident should also be represented in the crisis organisation.

When designing the crisis organisation, it is important to find a balance between size and effectiveness. If an organisation is too large, it risks becoming slow, but if it is too small, it instead risks lacking important knowledge and relevant capacities.

One aim of the crisis organisation is that it must be able to work efficiently together with the police, the medical care services, the fire and rescue services, and the municipality in case of a special incident. For this reason, interfaces and contacts must be made clear in advance. The goal is that staff who have the authority to make decisions on the same level should be able to work side by side.

On the basis of a well-structured crisis organisation it should already be clear in advance

- who from the event should join the command and control centre of the authorities;
- who is in tactical control of the work at the event during an incident;
- who will aid the authorities operatively at the incident site.

In practice it will often be the safety coordinator who joins the command and control centre, the head of safety who is in tactical control of the safety organisation, and a team leader who operatively aids the authorities at the incident site.

An event crisis organisation should

- be decided in advance;
- have knowledge about the appropriate respective areas of responsibility and tasks during a crisis;
- be communicated to its collaboration partners (e.g. the emergency service authorities, the municipality, the region);
- have a predetermined way of working and a predetermined location where it will convene.

Read more about:

Risk management in *Chapter 3.*

Audience behaviour in *Section 16.4.2.*

Preparedness for fire in *Section 4.3.3.*

Figure 32. Examples of levels of collaboration during a special incident

	Event	Police	Fire and rescue services	Medical care services
Command and control centre for the incident	E.g. safety coordinator	E.g. strategic commander	E.g. duty officer	E.g. operations command from the regional medical care management
Leads the activities on site	E.g. head of safety	E.g. police operational commander	E.g. fire and rescue services operational commander	E.g. medical care manager
	E.g. team leaders	E.g. police team leader	E.g. crew leader	E.g. medically responsible person or sector manager

Among other things, a crisis organisation may need to quickly and effectively be able to

- evacuate and rescue people in immediate danger;
- alert and inform authorities about a situation;
- cordon off dangerous places;
- contribute with information, manpower, and infrastructure to the authorities;
- make decisions on whether an event should continue or be cancelled;
- communicate clearly and in a controlled fashion with the general public and the media;
- mobilise resources, manpower, and infrastructure in order to deal with a situation;
- collect information as a basis for the decision-making of the authorities;
- document the incident and its own work;
- safeguard and deal with staff reactions to the incident.

It is a good idea to practise plans and efforts together with the management of an event and the concerned authorities in scenario drills or incident training.

Read more about:

Medical care services in *Section 4.3.2.* and *Section 5.7.*

Operative contingency plans in *Section 20.3.1.*

Information to the media in *Section 20.5.1.4.*

How to make a plan operative and failsafe in *Section 1.5.8.*

20.3. Contingency plan

A contingency plan describes the event preparedness for different occurrences. In a contingency plan, human and material resources are described, as well as the planning in preparation for accidents, crisis situations, and special incidents.

The basis of a contingency plan is a risk analysis. In this analysis, you identify and assess different risks on the basis of the likelihood of their happening, as well as the potential consequences if they should happen. On the basis of this analysis, a number of risks are then identified that an event must have preparedness for, such as broken bones, and more serious incidents, such as fires and deaths. Remember that accidents and special incidents can happen at any time over the course of the entire event. A contingency plan should also take into account incidents that occur during ingress and egress, not simply during the circulation of visitors.

The contingency plan describes the event preparedness in preparation for accidents, special incidents, and crisis situations. It should include the following areas and answer the questions listed below:

- **Preparedness for fires.** What is the event plan of action if a fire breaks out? What procedures have been developed? Are the staff trained in the use of fire extinguishers and fire blankets? Where is the firefighting equipment located? Will the fire and rescue services be on site while the event is being implemented?
- **Medical care preparedness.** What medical care preparedness exists and what situations can be dealt with? What competence does the on-site medical care staff have? Are they, for instance trained in administering first aid? Are there authorised medical care staff on site?
- **Crisis organisation.** How will the event organisation function if a special incident should occur? This should include a description of how

the collaboration with the police, the fire and rescue services, and the medical care services will be organised.

- **Operative contingency plan.** What must the event organisation do immediately in case of a special incident, before the police, the fire and rescue services, and the medical care services arrive on site?
- **Contingency map.** Where are the emergency exits, the emergency access roads for emergency vehicles, assembly places, etc.? These will have been marked out on a contingency map.
- **Channels for crisis information.** How will an event manage informing its own organisation and the audience? What procedures exist for contacting SOS Alarm in a crisis situation?
- **Communicating with the media.** How will the attention from the mass media following a special incident and after a crisis situation be managed? Who is the spokesperson for the event? What questions should that person answer and what questions are best left to the spokespersons of the authorities?

Read more about:

Phases related to audience behaviour in *Section 16.4.2.*

Making a plan operative in *Section 1.5.8.1.*

Evacuation in *Section 20.3.1.3.*

Audience information in *Section 20.5.1.2.*

Staff pool in *Section 20.3.1.4.*

Information to the mass media in *Section 20.5.1.4.*

Contingency model in *Section 1.5.8.3.*

20.3.1. Operative contingency plan

An operative contingency plan is an action plan for how an event should act in case of a special incident, for example a major accident, a terrorist attack, or if the event site must be evacuated. The operative contingency plan should always be operative and failsafe, because it is of the greatest importance that it does not fail.

A special incident is often extensive and it may involve the entire event organisation. A well-functioning operative contingency plan promotes the ability to

- manage an incident in the best possible manner;
- try to minimise the consequence of the incident;
- hand over the work to the police, the medical care services, and the fire and rescue services when they are on site.

Note, however, that the organiser can be an important resource for the rescue work also after the emergency service actors have arrived on site, because of his or her knowledge and access to manpower, information, and communication channels.

At an event, several different kinds of occurrences can be dealt with through the support of one and the same plan. It is therefore advisable to prepare a general and comprehensive operative contingency plan for important roles in an emergency situation. Drawing up different plans for different types of incidents promotes confusion about which plan to use, when it is to be activated, and who is supposed to do what.

An operative contingency plan is an action plan for how an event should act in case of a special incident.

20.3.1.1. Drawing up an operative contingency plan

Special incidents are often sudden, unexpected, and can be experienced as chaotic. Sometimes special incidents also occur in unpredictable ways or without previously having been included in risk analyses. In such situations, a plan that is too detailed or specific risks becoming too narrow and incapable of actually working. Because you cannot always know in advance what will happen, the purpose of an operative contingency plan is, to a large extent, to be prepared for being unprepared.

An operative contingency plan needs to create good prerequisites for as quickly as possible discovering, understanding, and reacting in an appropriate manner to a special incident. Reacting to a special incident often involves collecting resources or putting them on stand-by, as well as creating prerequisites so that someone with the knowledge of and access to current information will be able to make wise decisions.

Keep the following in mind when developing an operative contingency plan:

- **Identify** what types of incidents the plan should cover.
- **Decide** who in an organisation has the authority to activate the plan and under what circumstances it may be activated. Is, for instance, a collective decision required? Endeavour to create redundancy, where several decision-makers each independently, or at least two together, make a decision.
- **Decide** what must be done, and how it is to be done, when a plan is activated. (See the examples below.)
- **Make** clear who will perform each respective task. Strive for redundancy, i.e. have several people be given the same task, for
- **important** tasks.
- **Test** the plan in reality and run drills of it with the event organisation and the concerned authorities: Will this work in a real-life situation?
- **Design** the plan so that it is possible to terminate it and return to normal conditions if the plan has been activated by mistake.
- **Ensure** that the plan will work during ingress, circulation of visitors, and egress.
- **Make** the plan operative.

The following points can be included in an operative contingency plan:

- Contact SOS Alarm.
- Inform the safety organisation.
- Inform the event organisation.
- Isolate or cordon off the incident site.
- Keep emergency roads accessible.
- Obtain and organise information about the relevant circumstances and the current situation.
- Begin a potential evacuation, sheltering in place, or lockdown.
- Potentially inform all or parts of the audience, depending on what is most appropriate.
- Create a staff pool.
- Maintain contacts with the media according to plan.

20.3.1.2. Activating an operative contingency plan

It is important that the people who have the authority to activate an operative contingency plan also dare to do so. For this reason, a mistaken activation done in good faith should not have negative repercussions. The organisation should also be permeated by an atmosphere which does not foist blame on people.

Read more about:

Code words in *Section 1.5.8.4.*

Sheltering in place in *Section 20.4.2.*

The phases of the event in *Section 16.4.2.*

The purpose of an operative contingency plan is to be prepared to be unprepared.

Rehearsals are a central part of preparedness. Rehearse big, rehearse small, rehearse multiple times, drill the command group, drill the staff, hold planned drills, hold unplanned drills.

It is advisable to include a preparedness model in an operative contingency plan, which can lower the threshold for a decision to activate the plan.

Activation can be done in various ways. If a code word is used, this can be communicated together with information about the location, a description of the incident, and the name of the person who has activated the plan. The people whose task it is to activate an operative contingency plan will do this by specifying

- the code word for the activation of the plan;
- the location of the incident and, potentially, a short description of the incident;
- who is activating the plan and where this person is located.

It is important that the people who have the authority to activate an operative contingency plan also dare to do so.

20.3.1.3. Evacuation

A decision about a potential evacuation should be made by the police or in consultation with several decision-makers. An evacuation can have negative consequences. The risks of an evacuation must therefore be reviewed in advance. There must be evacuation routes with sufficient capacity, and staff who can help out at the exits. Also, the place to which the audience is being evacuated should be larger than the place from which they are being evacuated. In certain cases, it can be appropriate to evacuate from one part of the venue to another.

It is also important that there are staff on site at the location to which the audience is directed, and that these staff contribute to calming people down.

Evacuating a venue always has consequences. You should therefore keep in mind that not all incidents require an immediate evacuation. Sometimes it may be possible to deal with a special incident by first cordoning off the incident site and then gradually seeing to it that members of the audience leave the event. The evacuation plan needs to be designed in such a way that an evacuation is possible during all of an event's phases. The evacuation of a venue should be included as a separate part of an operative contingency plan.

Evacuating a venue always has consequences. You should therefore keep in mind that not all incidents require an immediate evacuation.

20.3.1.4. Staff pool

An operative contingency plan can include a plan for a staff pool. This staff pool should consist of those members of the staff who do not have key tasks in the plan, but who are available or can leave their normal tasks at short notice.

Gathering the event's personnel resources into a staff pool means that they are easily and quickly available as manpower. Also, with a staff pool you can avoid having staff who are stressed or in a state of shock going on their own initiative into an accident site or the scene of a crime. The staff pool should assemble at a predetermined assembly point, and the work should be managed by the key person who is named in the plan.

The staff's own safety always has the highest priority. Staff at an accident site should never expose themselves to danger.

The staff's own safety always has the highest priority. Staff at an accident site should never expose themselves to danger.

All work at the site of an accident should be coordinated and managed by the persons responsible for the event until the police, the fire and rescue services, or the medical care services arrive and take charge of the rescue efforts. Before the authorities arrive, the members of the staff pool can assist with

- rescuing people in immediate danger;
- cordoning off the incident site;
- managing the incident, for instance by administering first aid, beginning to extinguish major fires, or putting out minor fires completely.

When the police operational commander, fire and rescue services commander, or medical care manager arrive, the event staff pool can also be offered as manpower to aid these functions.

20.3.2. Contingency map

The purpose of a contingency map is to make sure that all parties involved in a crisis situation use the same designations, for example for emergency roads, evacuation routes, and assembly points. A contingency map should therefore be drawn up in consultation with the authorities, and be disseminated to staff and other collaboration partners who may find it useful. Make sure that SOS Alarm is made aware of the contents of the contingency map.

It is not always easy to explain at which event location an accident has occurred, but if both parties use a common contingency map as a point of departure, this will be much easier. You should, however, avoid disseminating the contingency map to the general public.

A contingency map should be drawn up in consultation with the authorities and be disseminated to anyone who may find it useful.

Make sure that SOS Alarm is made aware of the contents of the contingency map.

The contingency map does not have to be detailed, but the following should be included:

- the structure of the area in rough outline;
- emergency access roads;
- crowd passages, doors, and gates;
- emergency exits and evacuation routes;
- the location of medical care functions;
- fire hydrants;
- defibrillators;
- bandages and tourniquets;
- collection points for manpower or injured people;
- assembly points and internal meeting places;
- command and control centres;
- the assembly points for the authorities (so-called forward control points), so that these are not blocked or used by mistake.

It is advisable to provide your own grid and coordinates on a map. This makes it easier to communicate about positions.

20.4. Evacuation, sheltering in place, or lockdown

Evacuation means moving the audience from a dangerous to a safe location, usually by emptying a venue or parts of it. By evacuating the audience, for instance from a burning building, they can be dispersed so that they escape the danger.

Evacuation is a concept most people in an audience and the staff understand automatically: It means leaving a place of danger to get to a safe place. Evacuation is also a comparatively simple procedure if the premises are

adapted for it: The aim is to get the audience to walk towards and through the emergency exits, and then to continue away from the premises.

In situations with antagonistic threats there is an actor behind the threat who actively tries to circumvent an event's security measures. In these cases, it is not certain that a traditional evacuation is the best option for the safety of the audience. It can be difficult to evacuate a venue, because it is difficult to know where the danger is to be found. In these cases, sheltering in place or a lockdown can be a viable option.

Sheltering in place or a lockdown are, however, more complicated measures than evacuation. This is because they are less familiar concepts for the audience and the staff, and because it is not automatically obvious what is the safest choice.

20.4.1. Evacuation

Evacuation means that the audience and the staff leave a place that has become dangerous in order to seek protection. The safe place is usually outside the venue, but in some cases another part of the venue can be a safe place. Evacuation is often an effective strategy against accidents and other unintentional incidents where there is an obvious accident site.

Evacuation can also be an appropriate strategy in the event of antagonistic attacks when the venue for some reason does not provide the best protection. An evacuation in these cases is based on an assessment that the perpetrator either will not discover, or cannot attack, the people fleeing the venue. An evacuation can also be the most appropriate measure if the perpetrator uses explosives, or if lethal violence is being committed inside the venue.

If a particular area is dangerous, or if a specific evacuation route would involve passing through or close to a threatened area, a so-called directed evacuation can be used. This option can mean that the evacuation may take longer to complete, but may it may also provide a higher degree of safety.

During a directed evacuation, the staff and visitors must know about, or be able to differentiate between, various evacuation routes, which means that the evacuation routes must be clearly marked out with different designations. There must also be an opportunity for communicating to visitors and staff about which evacuation routes will be used, for instance through lighting, loudspeakers, or staff on site who provide information.

20.4.2. Sheltering in place

Sheltering in place means moving an audience and the staff to a safe location, but instead of emptying a venue the audience is assembled at a safe place *inside* the venue. By moving people away from danger, and locking or barricading access to the place to which people have been moved, it becomes more difficult for a perpetrator to get in.

Sheltering in place is no guarantee of safety, but it can contribute to preventing people from being injured. One decisive factor for whether sheltering in place can be done is the layout of a site, and because all events and arenas have unique layouts, it is important to have thought about how sheltering in place would work at the event in question.

Sheltering in place works best if it has been planned for in advance and experts have been consulted in order to identify protected places in a venue. These places should be indicated in the planning. Make sure that you have taken into account the air supply, toilets, available seats, drinking water, lighting, and the possibility of communicating with the outside

world. All this needs to be in place if people are to be able to stay in the place for a longer period of time.

20.4.3. Lockdown

Another method that can be used under certain circumstances is to lock a perpetrator out of the venue. If an attack begins outside the event, it can be an effective measure to close doors and passages and keep the audience and the staff inside the perimeter while the perpetrators are locked out.

The possibility of, and prerequisites for, being able to successfully carry out a lockdown vary significantly among different events and venues.

20.4.4. Planning for evacuation, sheltering in place, and lockdown

When planning for evacuation, sheltering in place, and lockdown, the goal is to create conditions for

1. being able to quickly obtain relevant information;
2. making rapid decisions, often on very uncertain grounds;
3. being able to take measures that have been decided on the basis of an event's capacities and resources;
4. creating a good situational awareness regarding what measures are currently being taken and of continuing developments.

The goal with respect to antagonistic threats is to prevent or delay an impending or already initiated attack. Note that an incident that gives occasion for evacuation, sheltering in place, or lockdown can happen during any phase of an event, whether ingress, circulation of visitors, or egress.

It is important to take this into account when planning an event, for example regarding

- physical conditions, e.g. using a queueing system that can quickly be moved;
- informational conditions, e.g. being able to reach a queueing area with information;
- conditions concerning the event's organisation, e.g. that the staff has had training and are mentally prepared.

20.4.4.1. Urgency and the basis for making decisions

In a crisis situation every second counts, especially when it comes to attacks. A decision to carry out an evacuation, sheltering in place, or lockdown therefore must balance between a need for speed and a sufficient basis for making decisions.

Endeavour to keep the plans for sheltering in place, evacuation, or lockdown as simple and clear as possible. Complicated plans rarely work well. A decision should be both easy to make and easy to communicate clearly. It should be possible to carry out a plan rapidly, without increased risk for staff or visitors.

It is also important that a situation and the flow of information around a decision-maker is controlled and comparatively calm. The ability to make wise decisions is at its best if the stress level is not too high. High stress usually impairs a person's ability to gain an overview, which can lead to a someone over- or underestimating the danger. Too much stress can also

Read more about:

Tools for crowd management in *Section 16.4.1.*

The phases of an event in *Section 16.4.2.*

Endeavour to make a situation and the flow of information around a decision-maker controlled and calm. The ability to make decisions is at its best if the stress level is not too high. Keep any plans simple and clear. The decision should be easy to make and easy to communicate clearly.

cause a person to neglect delegating tasks, to fail to use all the resources in the most effective manner, or to give too complex or unclear orders to subordinates. Other shortcomings can be an exaggerated striving for consensus, excessive confidence, or excessive caution.

During planning, you should identify the prerequisites of a venue for sheltering in place and lockdown. Some areas are more suitable for protecting people against an attack in progress. These can, for instance, have doors that can be locked, thicker walls, or be places with limited visual access. These areas can be registered as *protected locations*. Areas that lack physical protection or are particularly exposed can instead be registered as *exposed locations*.

Having identified the protected and exposed locations of a venue can aid decision-making during an ongoing incident. Depending on the circumstances of the incident, some protected locations can be areas appropriate for the audience to shelter in place, while the audience may need to be evacuated from certain exposed locations.

20.4.4.2. Support for the planning process

The information below can be of assistance when developing prerequisites so that an organisation can plan for sheltering in place and lockdown.

Prerequisites for decisions

- **Think things through.** Having thought through various possible scenarios in advance provides a better starting point for making the right decisions in an emergency situation. Use the event or arena risk analysis for antagonistic threats as a point of departure.
- **Identify** how an organisation can obtain information at as early a stage as possible about something that is about to happen. This will then form the basis for making quick decisions about appropriate measures that need to be taken. For this you can use, among other things, alarms, cameras, or communication from staff or external actors.
- **Identify** who in an organisation has the best capacity to make a decision. Keep in mind that several people in an organisation should be able to make such a decision. Also consider how to best create a suitable working situation for the decisions-maker: How can he or she get rapid access to the right information?
- **Make sure** that the decision-maker has the best possible information situation already from the outset. Decisions in situations of this kind must nearly always be made on the basis of limited information. This means that a decision-maker needs to know what is going on at an event, for example where the audience is at any particular moment.
- **Make sure** that the processes are sufficiently flexible to work with both sheltering in place and evacuation.

Prerequisites for the implementation of a decision

- **Identify** all access points in a venue – in both public and private areas. Remember that access points can be more than just entrances and exits or doors and gates.
- **Identify** how the access points can quickly be secured or locked.
- **Identify** how a venue can be sectioned off, so that specific areas can

be shut off or locked. Also identify which of the access points have to be closed in order to limit access to various sections. You should, for example, consider the possibility of deactivating lifts without their automatically descending to the ground floor.

- **Identify** areas that can function as *protected locations*, and especially unprotected or exposed areas that can be categorised as *exposed locations* (see above).
- **Decide** how communication should be executed during an incident. Make sure that the chosen means of communication work in practice, and that they are sufficiently robust.

Staff-related prerequisites

- **Include** different staff roles and staff tasks in the plans: Who needs what knowledge? Who needs what information?
- **Educate** the staff so that they understand their tasks and can act effectively. Hold regular repetition courses.
- **Train** the staff. It is important that the staff can act quickly and effectively, because of the often rapid course of events in an attack situation.
- **Test and drill** for the plans regularly with the staff.

20.5. During a crisis situation

If an event should become the subject of a crisis situation without having prepared itself, the scope for action is limited. There can also be a risk of key persons becoming stressed and finding it difficult to think rationally and logically. With a contingency plan and a well-rehearsed operative contingency plan in place, the chances increase for dealing successfully with the situation.

20.5.1. Crisis communication

A person under stress can easily misunderstand information. People under stress can also have problems conveying information to other people. In order to avoid disseminating incorrect information, or that information is misunderstood, all communication during a crisis situation should therefore follow certain rules – regardless of whether this is internal information or information to the audience.

All communication during a crisis situation should follow certain rules: The information should be straightforward and clear. Repeat the information. Use urgent appeals.

Keep the following in mind:

- **Provide straightforward and clear information.** Crisis information must always be straightforward and clear. A good idea is to combine information in Swedish with a version in English, if possible. Avoid unclear formulations or words choices that can contribute to the information being misunderstood.
- **Repeat the information.** Repeat important information several times and preferably through several channels.
- **Use urgent appeals.** People who end up in a crisis situation need structure. Information in the form of requests, such as 'Proceed towards the exit to the left of the stage' has a greater effect than merely a request to evacuate the area. Audience safety staff under stress also need clear directives. Saying, for instance, 'Open emergency exit A' probably produces better results than a general order to open the emergency exits.

20.5.1.1. Information to SOS Alarm

In an emergency situation, an event does not need to inform all the relevant authorities directly. It is enough to contact SOS Alarm, which in turn will alert the fire and rescue services, the police, ambulance, and other parts of society's emergency resources. It is, however, important that the person contacting SOS Alarm is calm and objective.

The following information should be provided:

- the person's own name and function at the event;
- what has happened;
- the extent of the situation, e.g. the number of injured people or how large an area is on fire;
- the location of the incident;
- other information important to the police, fire and rescue services, and medical care services, e.g. the presence of antagonistic threats or if the emergency access roads are blocked.

Read more about:

Activation information in *Section 16.4.4.3.*

Internal communication in *Section 5.10.*

20.5.1.2. Information to the audience

In a crisis situation, the audience will have to be informed according to the same rules as for all crisis information, i.e. the information must be clear, abundant, and exhortative. Informing an audience can be done in multiple ways, and the more channels and media used, the greater the chance of the audience understanding the information correctly.

It is, for instance, advisable to have a master of ceremonies inform an audience from the stage about what has happened and how they should act. Make sure that there is a prepared script for such situations. Also jumbotrons are a good aid if you want to convey information to large crowds.

20.5.1.3. Internal information

In a crisis situation it is important to inform the safety organisation and the rest of the event organisation, but also other stakeholders.

The work with internal information is one of the most difficult tasks at an event, above all if the event is large and there are many co-workers, sections, and stakeholders involved. Crises and special incidents are stressful situations, which can mean that important information is overlooked. It is therefore important to identify in advance which persons should be informed and in what order. Draw up a checklist so that no important role is overlooked. For example, the press officer should be high up in the communication hierarchy. Other roles that need information quickly and who are not usually involved in an operative sense at an event are, for instance, the managing director, the board, or the owners of the event.

A crisis or special incident can continue for a long time. This means that you may have to inform internal stakeholders several times over the course of time of the efforts required to deal with the incident. Decide in advance who is to manage the internal dissemination of information. With an appointed communicator and a communication plan, the person who leads the efforts has only to inform a single person and can then feel secure knowing that the information will reach the correct roles.

20.5.1.4. Information to the mass media

When a special incident has occurred, the mass media will have an increased interest in the event. Unaccredited news media will most likely show up at the event, while at the same time the accredited entertainment or sports journalists on site transform into news reporters.

In an emergency situation, there is no requirement that either the head of safety or the person with the main responsibility for the event must make a statement. Instead you should wait until the situation has calmed down somewhat and then answer questions from the mass media or refer them to an upcoming press conference.

It is important to be quick and correct when communicating with the mass media during a crisis situation. This is more important than providing complete information. It is better to tell them what little you know and ask to be allowed to return with details than to say nothing at all. Complete silence or absence of information creates a scope for rumours. A lack of information also reduces trust in the capacity of an organisation to handle a situation. Always stick to the truth. Even white lies meant to tone down the seriousness of an incident will most likely lead to trouble later.

The mass media can also be used as a resource during special incidents. You can, for example, use the media to reach visitors and worried relatives with important messages and information, such as asking relatives to avoid going to an event by certain routes so that they will not block emergency access roads.

Event co-workers should never speculate about the incident to the media or make statements about the cause of an incident. Instead they should refer to the spokespersons of the authorities or the event.

When the crisis organisation is on site, more comprehensive statements to the media should be made through it. The event press officer may still handle the contact, but the information should come from the crisis response team. Alternatively, the responsibility for contacts with mass media will be handed over to the information or media officer of the crisis response team, usually a person from the police or the fire and rescue services.

20.5.2. Handing over to the authorities

When the police operational commander, fire and rescue service commander, or medical care manager arrive at the scene, they must have an opportunity to exercise their command responsibility over the continued efforts. The police, the fire and rescue services, and the medical care services then collaborate based on the nature of the incident and the efforts that are required to manage it. They should also collaborate with the organiser. The authorities can, in many cases, have good use of the organiser's specialist knowledge regarding the venue, the sequence of events that have unfolded, and the available resources. Also the event staff can continue to be an important resource, depending on the situation, and can be used to assist and help out the emergency services staff. However, the organiser should always follow the orders given by the authorities.

It is important that there is collaboration between the authorities and the organiser already during the planning stage of the event. This enables clarification of, among other things, contact routes, as well as what resources the organiser can contribute and how these are to be handed over and controlled. On site it is, however, the orders of the authorities that apply.

Read more about:

Cooperation in *Section 4.3..*, *Section 5.2.* and *Section 20.2.1.*

The work of the police in *Section 4.3.1.*

The work of the fire and rescue services in *Section 4.3.3.*

The work of the medical care services in *Section 4.3.2.* and *Section 5.7.*

In an emergency situation there is no requirement that either the head of safety or the person with the main responsibility for the event must make a statement. Wait until a situation has calmed down somewhat, and then answer questions from the mass media or refer them to an upcoming press conference.

When the authorities are on site at an event, the safety organisation should not take initiatives on its own. It should instead await orders from the police operational commander, fire and rescue service commander, or medical care manager.

20.5.2.1. The on-site work of the police

The general goal of the police is, in the first place, to save people's lives and health, in the second place to save property, and in the third place to secure evidence. During an incident with ongoing lethal violence, the primary task of the police will thus be to neutralise an active perpetrator.

After this acute stage it is the task of the police to investigate, evacuate, and monitor the scene of a crime or accident. The police will also set up an assembly point for people who have not been injured, register the injured people, and identify and take care of the bodies of any deceased persons. The police are also responsible for managing found belongings and lost property.

The public security guards at the event are under the authority of the police while the police remain on site. The role of the public security guards at a larger or special incident can be to assist the police in their work.

The police operational commander can be recognised from his or her blue-and-white-chequered vest bearing the text police operational commander (*Polisinsatschef*).

Read more about:

The work of the mass media at an event in *Chapter 18.*

Crisis organisation in *Section 20.2.2.*

20.5.2.2. The on-site work of the fire and rescue services

The work of the fire and rescue services involves limiting damages that result from accidents or antagonistic incidents. In the event of personal injuries, first aid can be administered.

If there is no threat profile, the fire and rescue services establish a command and control centre from which the authorities can organise and coordinate their resources. In as far as it is possible and appropriate, the event staff can also assist with this work. The fire and rescue services also play a key role in disseminating information to the general public and the media. The fire and rescue service commander can be recognised from his or her red-and-white-chequered vest and helmet, bearing the text fire and rescue service commander (*Räddningsledare*).

20.5.2.3. The on-site work of the medical care services

The medical care services assess the need for medical care and sort and prioritise the injured based on their injuries and how severe these are (so-called triage). Following this, the treatment of injured people begins at the incident site and at various collection points in order to ensure the vital functions of the patients before they are transported to hospitals or health care centres. In as far as it is possible and appropriate, the event staff can assist with this work.

The medical care manager can be recognised from his or her green-and-white-chequered vest and helmet, bearing the text medical care manager (*Sjukvårdsledare*).

20.6. Following a crisis situation

An organiser's work following a crisis situation has a lot to do with taking care of his or her own organisation by ensuring that staff needing relief get assistance, and that materials and equipment are checked and repaired or replaced. The organiser must also decide whether to continue, reduce in size, or cancel an event. The organiser also must provide the general public with correct information through the media about what has happened.

20.6.1. Restore the organisation

After a special incident, it is important to decide what should be done next. This decision should be based on the risk of additional incidents, and on the capacity, prerequisites, and possibilities of an organisation to continue with an event. If the event is to be reduced in scope or cancelled, this should be done in as controlled a fashion as possible. Always play it safe if there is any doubt about the capacities of your own organisation.

Your own organisation should be inventoried also after incidents of a less serious nature. Make sure that your own staff are well, and replace co-workers who need recuperation or to be relieved. Make an inventory of equipment, replace materials that have been depleted in connection with the incident, and replenish consumables.

20.6.2. Take care of the staff

After an incident it is important that an organiser assembles the staff and informs everyone about what has happened, so that everyone is given the same situational overview of an incident. At the same time, it is important to make sure that everyone in the staff is well. Some individuals may, for instance, need extra support or psycho-social assistance.

The local fire and rescue services, the social services, and the health- and medical care services have trained staff who can take care of people in need of psychological assistance following a crisis situation. Municipalities also often have special groups for psychological and social assistance (so-called POSOM groups) that can intervene and support both staff and other affected individuals, relatives, and others. Also the social services, the fire and rescue services, the primary health care services, schools, churches, the Red Cross, and others can be involved in providing support.

20.6.3. Information to the mass media at a special incident

You should summon the media to a press conference when information can be provided about the scope of an incident. The press conference will probably be handled by the police or the fire and rescue services according to the agreements made in advance. This can preferably be done at a different location, for example, if the event is in the same town or city, in the local police station. The planning for this, except for the actual time of day, can be included in the contingency plan.

If an event's press spokesperson is unsure of what is to be said in a potential statement, he or she can collaborate with the information officers of the other participating organisations.

Appendices

Photo: Henrik Nilsson

Appendix A: Analysis for the dimensioning of medical care

It is difficult to create reliable calculation models for the required medical care capacity prior to an event, because the need will vary based on a number of factors that are difficult to predict and quantify. Below you can find an adaptation to Swedish circumstances of a two-step evaluation model for staff. The model is taken from Chapter 5, 'Medical', from the British safety guide The Purple Guide (August 2020).

Step 1: Selection of level of medical competence and resources

Estimate and evaluate the need for care and level of problems associated with the event. First, estimate the number of persons who are expected to seek medical care at the event on a scale of 1–5 (very few–very many).

Then estimate the expected proportion of these people who will seek medical care because of acute or serious medical problems, problems related to alcohol and drugs, and problems related to the risk of violence and disorder.

Keep in mind that there may be comparatively many injuries and cases of illness even at calm events, if these events attract a great many visitors.

		1 Very low	2 Low	3 Medium	4 High	5 Very high
Clinical activity	Expected number of people seeking medical care					
	Expected level of patient acuity					
Event characteristics	Expected level of drug or alcohol problems					
	Expected level of violence and disorder					

No individual score over 1	First responder-led service
No individual score over 2	Nurse-led service
No individual score over 3	Doctor-led service
Any individual score of 4 or 5	Doctor-led with specialist competence within medical care management or disaster medicine

Examples of factors that can contribute to an increased or reduced risk of medical cases at an event.

Increased risk

- Outdoor event
- Area not fenced in
- Venue full
- Heat
- Humidity
- Dance event
- Rock or pop concert
- Standing audience
- Overnight stay
- Alcohol and drugs
- History of multiple medical cases
- Risks identified by the police or fire and rescue services
- Larger proportion of visitors with health problems
- Simultaneous events (including external events)
- Long travel time to hospital

Reduced risk

- Indoor event
- Seated audience
- Family event
- Classical music
- Free access to drinking water
- Climate control system
- Experienced organisation

Step 2: Guidance for staffing during the most demanding period of the event.

The table below identifies that which best describes the planned event on the basis of the results in step 1. If the description does not completely correspond with the event – see also the column Also consider to assess whether you need to reinforce preparedness or move up one organisational level.

First responder-led service		
Description:	**Minimum staffing:**	**Also consider:**
• Small event, typically fewer than 2,000 visitors. • No significant problems anticipated.	• 2 first-aiders for up to 500 visitors. • 4 first-aiders for up to 2,000 visitors. • 1 manager.	• Assistant nurses or paramedics with emergency or pre-hospital competence for initial treatment of injured or sick people. • Patient transport capacity for transports within or between parts of the event site.

Nurse-led service		
Description:	**Minimum staffing:**	**Also consider:**
• Small event, usually 2,000–10,000 visitors. • Low risk of significant problems.	• 1–2 assistant nurses or paramedics. • 2–4 nurses. • 1–2 first-aiders per 2,000 visitors. • 1 manager.	• Doctor. • Event ambulance. • Emergency response units.

Doctor-led service		
Description:	**Minimum crew:**	**Also consider:**
• Medium-sized event, 10,000–20,000 visitors. • Moderate risk of acute care needs.	• 1–2 doctors. • 2–4 nurses or nurses with specialist training in pre-hospital care or emergency care. • 1–2 assistant nurses or paramedics. • 1–2 first-aiders per 2,000 visitors. • 1 event ambulance. • 1 emergency response unit. • 1 road ambulance (in dialogue with region's health and medical care services). • 1 mission manager.	• Communication centre and command and control centre. • One additional road ambulance if longer transport times are anticipated (in dialogue with region's health and medical care services).

Doctor-led service		
Description:	**Minimum crew:**	**Also consider:**
• Medium-sized event, 10,000–20,000 visitors. • Moderate risk of acute care needs.	• 1–2 doctors. • 2–4 nurses or nurses with specialist training in pre-hospital care or emergency care. • 1–2 assistant nurses or paramedics. • 1–2 first-aiders per 2,000 visitors. • 1 event ambulance. • 1 emergency response unit. • 1 road ambulance (in dialogue with region's health and medical care services). • 1 mission manager.	• Communication centre and command and control centre. • One additional road ambulance if longer transport times are anticipated (in dialogue with region's health and medical care services).

It is important that staff working with medical care at the event have the right equipment, clothing, and experience of working in the relevant environment.

This model should only be seen as guidance and must never supersede the expert assessments of medical care professionals. Nor should it replace a transparent and event-specific risk analysis that includes a visit on site, done jointly by the organiser and the medical care supplier and in dialogue with the preparedness organisation of the region.

If the result of the risk analysis, based on the available evidence, is a high risk from a medical care perspective, you should consider whether the event should be implemented at all, or if it should be implemented at another location or with other preconditions.

Also keep in mind that physical barriers, long distances, and simultaneous risk activities affect the response times and may therefore require a larger organisation.

Because the risk analysis is done at an early stage, you should pay close attention to, and take into consideration, changes in the surrounding world or other factors that have formed the basis of the risk analysis and the dimensioning of the medical care capacity.

Sports and spectator events

Sports events can use the above dimensioning model as a point of departure, but may also need to take into account additional requirements, for instance from national or international central associations or sports organisations.

In certain sports there are requirements for an ambulance and/or ambulance helicopter to be on site. In these cases, it is important to make clear whether this resource and its staff have a particular target group (for instance competitors) or if it is included in the general preparedness of the event. It should also be made clear which rules apply if this unit has to take a patient to hospital. Can the event continue before a new unit is in place? In the same way as at other public events, it is important to make clear the command and communication structure for other parts of the safety organisation.

You should also take into account accessibility in spaces where there are many people, both for the event staff and the ambulance staff. Poor accessibility can mean that there needs to be a greater number of staff.

Complementary guidance and scientific evidence

Simple calculation models are attractive, but they always build on assumptions based on historical data. A model can therefore never replace a careful risk analysis and comparisons with similar events. The models provide guidance, but they seldom take into account specific risks for special incidents, or rare cases that are important to include in a contingency plan.

Previous occurrences point to the importance of, among other things, having the proper competence on site (which can reduce the pressure on emergency hospitals), joint planning with the local health and medical care services, and quick and high-quality communication.

International reports from sports events are usually dominated by abrasions, impact injuries, fractures, and dislocations of joints, especially on thighs, knees, or backs. However, infections, gastric complaints, and alcohol-related injuries also occur. At music festivals, the injuries reported are usually alcohol- and drug-related injuries, soft tissue injuries, burns, sprains, and head injuries, but infections occur also in this context.

In order to evaluate events, the term patient presentation rate (PPR) is sometimes used, i.e. the number of people seeking medical care per 1,000 participants. In a study comparing 87 music festivals in Belgium, a PPR of between 0.14 and 42 per 1,000 participants was reported. The majority (94 per cent) of all cases were simple cases, while 5.3 per cent were acute cases requiring treatment on site and an assessment by a doctor. Another 0.6 per cent were assessed to be potentially life-threatening. The majority of the life-threatening cases (76 per cent) were reported from electronic music festivals.

In connection with participatory sports, the PPR is affected by the type of sport and the skill level of the participants, but also by external, weather-related factors, such as sunshine or humidity. Calculations based on a compilation of data from five years (2013–2017) of the Göteborgsvarvet Half Marathon produce a PPR of between 1.19 and 2.21 per 1,000 participants.

Read more about:

The various competence levels in *Section 5.7.*

Appendix B: Check list for handling LPG

Applies to all handling	
☐	Will the LPG be transported to and from the place of consumption before and after opening hours?
☐	Will the LPG cylinders be transported with a protective cover?
☐	Is no more than the daily requirement of LPG available at the place of consumption? If there is more: Have the fire and rescue services agreed to this?
☐	Are the LPG cylinders kept in an upright and stable position in a well ventilated place? Are they protected from unauthorised people?
☐	Is any container used exclusively for storing LPG?
☐	Is the container ventilated?
☐	Is there a manual or automatic switch between LPG cylinders so that a change of cylinders is avoided while activities are ongoing?
☐	Applies to a portable gas device: Are the cylinders placed on the same cart as the device?
☐	Are the gas devices CE-marked?
☐	Is the LPG cylinder equipped with a control valve which corresponds to the gas pressure of the gas device and its CE marking?
☐	Has the prescribed warning sign been placed in an easily visible location on each marquee or booth in which there is LPG?
☐	Is the hose that is used intended for LPG?
☐	Is the LPG hose no longer than 1.5 metres? If it is longer: Have the fire and rescue services agreed to this?
☐	Are the conduit and the hose protected from damage?
☐	Are the conduits marked in the prescribed manner?
☐	Has the installation been leakage-tested?
☐	Are cooking flames constantly monitored?
☐	Is the distance between the LPG burner and any flammable material located above it, such as a cabinet, a shelf, or a canvas, no less than 0.6 metres? Is the lateral distance at least 0.2 metres? If not, have the fire and rescue services agreed to this?
☐	Are there written operating and maintenance instructions for each consumption device?
☐	Can the flow of gas be shut off manually when the gas is not being used, and shut off quickly in the event of an emergency?

Applies to all handling	
☐	Is the cylinder valve closed every day at the end of the working day or during longer pauses?
☐	Is public order satisfactory?
☐	Is there a fire extinguisher type BE or ABE (powder or carbon dioxide) class II in every location where LPG is used? Is the fire extinguisher easily available and marked according to European standards?

Applies to handling subject to a permit	
☐	Is there a manager for each place of consumption (to the extent required according to law) who makes sure that the points listed below are followed?
☐	Has the name, address, and telephone number of the manager been reported in writing to the fire and rescue services?

Sources:

- The Flammables and Explosives Act (SFS 2010:1011).
- The MSB regulations on permits for handling flammable gases and liquids (MSBFS 2013:3).
- The MSB regulations on the handling of flammable gas and flammable aerosols (MSBFS 2020:1).
- The MSB information leaflet *Gasol i restauranger* [LPG in restaurants].
- The MSB handbook *Hantering av brandfarlig gas för yrkesmässig verksamhet* [Handling flammable gas for professional activities] (MSB1589).

Appendix C: Checklist for temporary structures

Planning

- [ ] Make clear what the intended use of the structure is, what functions it needs to have, who will be using it, and how it is to be used.
- [ ] Write clear specifications regarding the intended use of the structure. Make sure that the specifications contain the technical details required for a supplier to be able to construct or deliver the structure.
- [ ] Include information in the specifications regarding whether the structure will be covered in some way, e.g. with banners or advertising material.
- [ ] Make sure that the supplier contracted to construct, deliver, assemble, handle, and disassemble the structure is competent and has enough resources.
- [ ] Make sure that the supplier has the relevant information about the site where the structure is to be located. Allow them visit the site to make their own assessment.
- [ ] Make sure that the structure is designed by a person who has the appropriate competence and who has taken into account how the structure is to be used and under what circumstances it is to be installed. This is especially important if the structure is new or unusual. It may then have to be tested extra carefully to make sure that it can withstand different types of stress.
- [ ] Make sure that the person who is to construct or assemble the structure makes a risk assessment for the structure. The risks in question can include falls from a height, durability, and safety during assembly and disassembly.
- [ ] Manage the identified risks so that the structure can be assembled, used, and disassembled in a safe manner.
- [ ] Make sure that different suppliers for the same structure cooperate well – especially if they work at the same time or if their respective work is connected physically or temporally.
- [ ] Make an agreement with the supplier beforehand concerning who controls what during the process, and how the responsibility is to be handed over, so that the responsibility for safety is understood and maintained throughout the entire event.

Assembly and disassembly

- [ ] Use the assessments made during the planning stage as a guide for how to assemble and disassemble the structure in a safe manner.
- [ ] Make sure there are enough time and resources set aside for assembling and disassembling the structure in a safe manner.
- [ ] Use competent staff and create an appropriate organisation that can ensure compliance with safety regulations.
- [ ] It is a good idea to develop a construction plan, including the necessary safety checks. Such a plan can be useful for explaining critical steps in the assembly and disassembly for area managers, foremen, and staff.
- [ ] Make sure that the working environment at assembly and disassembly complies with current regulations.
- [ ] Check to make sure that the structure has been constructed according to plan before it is put into use.

Use

- [ ] Inspect the structure while in use according to a predetermined plan, and rectify any deficiencies.
- [ ] Check the structure once more in the event of any changes in its intended use, or if new conditions at the site may affect the structure.
- [ ] Ensure that all users of the structure know how to use it. If there is a risk of error in handling the structure, implement measures that prevent erroneous use.
- [ ] Develop procedures and working methods that ensure that the structure is safe when in use. For instance, if the structure is weather-sensitive – develop procedures for checking local weather conditions and make sure that there is a plan for what is to be done in the event of bad weather.

Do not forget:

- Never use incomplete plans as a point of departure, because this may result in changes at the last minute, which in turn can lead to safety problems.
- Never use flammable materials.
- Avoid even small changes to the structure. A simple cloth banner can change the wind load for the whole structure and thus increase the risk of collapse.
- Never erect structures on unstable ground.

Appendix D: Audience profile

Audience profile – cultural events

General information about the audience	
Audience size	The expected audience size based on the number of tickets released or the expected number of participants.
Group size	Typical group size as well as the minimum/maximum group size
Expected crowd density	The expected crowd density in various situations, e.g. audience areas, entrances and exits, crowd flows, or in connection with sales.
Focal persons	Performers or various phenomena of great interest which are expected to draw a large crowd.
Event experience	The familiarity of the audience with this type of event, e.g. previous knowledge of processes and occurrences.
Knowledge about the venue	The degree to which the audience has been to the venue before and may be expected to be familiar with its design.
Age distribution	Approximate age distribution in the audience. Any locations (e.g. serving areas) where the age distribution is different from at the rest of the event.
Gender distribution	Approximate share of women and men, respectively.
Physical condition/ physical build	General description of the physical condition/physical build (e.g. robust/ normal/slight). This can provide information about how resistant the audience is to physical stress or pressures in the crowd.
Estimated share of people with functional impairments	Share of people who may need support with respect to, e.g. extra places or raised stands.
Other information	Other relevant information about the audience

Behaviour and characteristics	
Personality	Relevant aspects of the personality of the audience, e.g. enthusiasm, commitment to the event, or awareness of consequences.
Values, attitudes, and lifestyle	Especially notable values that can be relevant for how the audience behave at the event.

Behaviour and characteristics	
Earlier and expected behaviour	The behaviour of the audience during previous events, e.g. occurrences of crowd surfing, gatecrashing, rushing, violence.
Emotional charge	Whether there are factors contributing to the mood of the audience, e.g. if it is the final concert on a tour.
Degree of violence	The propensity of the audience to use violence.
Tendency to commit infractions	The propensity of the audience to disobey laws, rules, and requests.

Summary	
The goals of the audience	The aim of the audience by attending the event, e.g. to experience the concert, show off, be seen by the performer, meet friends. Are some visitors there for other reasons than taking part in the event?
Anticipated manner of acting in various situations	The behaviour expected by the audience in various situations.
Conceivable reaction to expected occurrences	How the audience is expected to react to specific occurrences during the event, e.g. the start of the concert, when the performer enters the stage pit, guest performers on stage, or if the organiser has to intervene for some reason.
Risk of personal injury	Estimated risk of members of the audience being injured in various situations during the event. Where, when, and how this can happen.
Risk of material damage	Estimated risk of materials being damaged in various situations. Where, when, and how (e.g. vandalism) this can happen.
Other risks	Other risks, e.g. safety risks for focal persons, theft, enhanced risk of fire, increased exposure to crime, live broadcasts.
Special requirements and measures	If the requirements of the audience make it necessary for the event to take special measures, such as new rules, extra informational efforts, increased staffing in particular locations or situations.

Audience profile – sports events

General information about the audience	
Audience size	The expected audience size based on the number of tickets released or the expected number of participants.
Group size	Typical group size as well as the minimum/maximum group size
Expected crowd density	The expected crowd density in various situations, e.g. in the stands, in crowd flows, or in connection with sales.
Focal persons	Athletes or various phenomena of great interest which are expected to draw a large crowd.
Event experience	The familiarity of the audience with this type of event, e.g. previous knowledge.
Knowledge about the venue	The degree to which the audience has been to the venue before and may be expected to be familiar with its design.
Rivalry among visitors	The relationship between supporter groups.
Distribution of supporter groups	The proportion of the audience who are home-team supporters and away-team supporters, respectively.
Approximate number of risk supporters	Total number and, if possible, number per supporter group.
Arrival and departure	Circumstances surrounding the arrival and departure of supporter groups. Are they expected to arrive together or separately?
Age distribution	Approximate age distribution for the audience. Any locations (e.g. terraces) where the age distribution is different from at the rest of the event.
Gender distribution	Approximate proportion of women and men, respectively.
Physical condition/ physical build	General description of the physical condition/physical build (e.g. robust/ normal/slight). This can provide information about how resistant the audience is to physical stress or pressures in the crowd.
Estimated share of people with functional impairments	Proportion of people who may need support with respect to, e.g. extra places or raised stands.
Other facts about the audience	Other things that can be good to know about the audience.

Situation	
Weather/season	Seasonal or weather-related conditions that can affect, e.g. the risk of heat stroke or the risk of fire in jackets being worn or carried.
Waiting time	Waiting time for various processes. May affect the mood and physical stamina of the audience.
Type of day	What type of day it is – holiday, vacation period, weekend, weekday. May have an effect on the mood and any risks, e.g. an increased consumption of alcohol.
Means of transport	How the audience gets to and from the event.
Degree of inebriation	Expected presence of alcohol and drugs, and a general description of the degree of inebriation in people who drink.

Behaviour and characteristics	
Personality	Relevant aspects of the personality of the audience, such as enthusiasm, commitment to the event, or awareness of consequences.
Values, attitudes, and lifestyle	Especially notable values that can be relevant to how the audience behave at the event.
Earlier and expected behaviour	The actions of the audience during previous events, for example if pyrotechnics have been used or objects have been thrown onto the pitch.
Emotional charge	Whether there are factors contributing to the mood of the audience, e.g. if it is an important match or if there are feelings regarding certain focal persons.
Degree of violence	The propensity of the audience to use violence.
Tendency to commit infractions	The propensity of the audience to disobey laws, rules, and requests.

Summary	
The goals of the audience	The aim of the audience by attending the event, e.g. to see the competition/match, show off, meet friends. Are some visitors there for other reasons than taking part in the event?
Expected manner of acting	The behaviour expected from the audience, and behaviour which has previously been exhibited at similar events, e.g. songs and chants, staying in the stands during the intermission, provocations or attacks on another supporter group.
Conceivable reaction to expected occurrences	How the audience is expected to react to occurrences during the event, e.g. if their team loses or wins, controversial decisions by a referee or umpire, or provocations from another supporter group.
Risk of personal injury	Estimated risk of people being injured through, e.g. pressures in the crowd, violence among supporters, or violence against sports officials or focal persons.
Risk of material damage	Estimated risk of material damage, e.g. because of vandalism.
Risk of disturbances of public order.	Estimated risk of disturbances of public order and how these may be manifested, e.g. people forcing their way past ticket inspections, pitch invasions.
Other risks	Other risks that are estimated to have an effect on the event, e.g. security risks for focal persons, the risk of fire, alcohol poisoning, live radio and TV broadcasts.
Special requirements and measures	If the requirements of the audience make it necessary for the event to take special measures, such as new rules, changes in the design, extra informational efforts, increased staffing in particular locations or situations.

Appendix E: Performer profile

Performer's background	
Known occurrences from previous performances	Earlier actions by the performer and relevant occurrences from previous events, e.g. the performer breaks rules or goes into the stage pit. Are these linked to a particular audience, situation, or point in time?
Propensity to be late	Whether the performer usually starts the concert on time, or if there is a risk for tardiness or overruns at the beginning or end of the concert.
Exhortations to the audience	Whether the performer usually exhorts the audience or urges them to do something that affects safety. If so, what is communicated and how it affects safety.
Previous incidents	Known incidents from previous performances, e.g. injuries, interruptions, or quarrels.

Behaviour and characteristics	
Message	Whether the performer has a particular message that can be understood as controversial or provocative.
Tendency to commit infractions	The propensity of the performer to disobey laws, rules, and requests. Any antipathy against authorities.
Violent behaviour	The performer's propensity for violent behaviour.

Occurrences during the performance	
Out into the crowd	Whether the performer on earlier occasions has gone out into the crowd, and the risk of this happening.
Audience members on stage	Whether the performer has previously invited members of the audience up on stage, and whether this was done according to plan or not. The consequences this had.
Special effects or pyrotechnics	Presence of pyrotechnics or other special effects and the placement of these.

The performer's view of safety work	
Degree of cooperativeness	To what degree the performer and the performer's staff are likely to cooperate with the organiser before, during, and after the performance, or during a pause of the performance.
Possibility to influence	To what degree the performer is likely to listen to suggestions from the organiser.
Performer's own security staff	Whether the performer has his or her own security staff to and from the event and during his or her presence at the event.

Appendix F: Template for the safety plan

This template can act as an inspiration to what may be included in a safety plan. Depending on the size of the event or other circumstances, the necessary contents can vary greatly.

Safety plan

Event description

Describe the event by answering the following questions:

- Who is the organiser or permit holder?
- What type of event is it?
- Where will the event take place?
- When does the work of setting up and winding down the event begin (day/time)?
- When does the event open and close (day/time)?
- What are the central items on the programme?
- Who will perform or act? Does this involve any particular risks?
- What type of audience is expected to come?
- Does the audience profile involve any particular risks?
- How many visitors are expected to attend?
- What is the maximum number of simultaneous visitors?
- How many participants (performers, competitors) are expected to participate?
- Are there any other activities in the vicinity going on at the same time?
- Is alcohol served at the event? When, where, and by whom?
- Include other information as well that may be relevant to the safety work.

Safety policy

A policy is a declaration of intent for steering decisions and work in the desired direction. Describe the overall attitude at the event to safety, for instance:

- Is safety a prioritised activity?
- If so, what does this mean?
- What safety aspects in particular does the event focus on?

The chosen safety aspects should correspond with the results of the risk analysis. Describe the conditions the event wants to achieve with respect to these safety aspects, for instance 'The event should be…'.

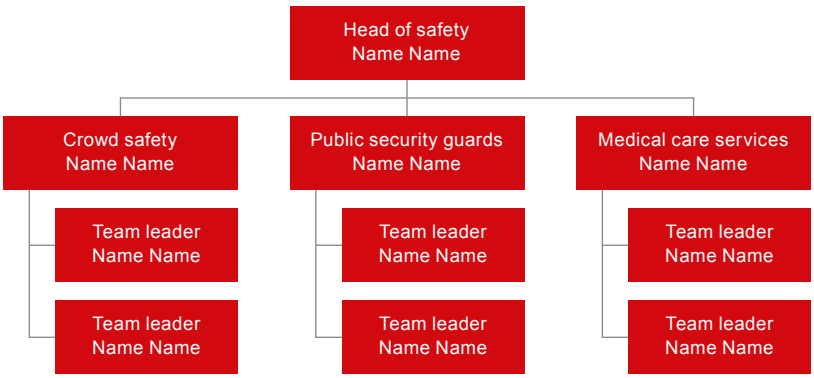
Rules and general guidelines

Describe the rules and general guidelines that apply to the event, e.g. a ban on certain items being brought into the event, age limits, and entrance policy.

Organisation

Describe the event organisation: What positions are there? Who has what role and what responsibility is included? Write down the contact information for the people responsible for each position.

Describe the size of the staff working at the event and at what times they are present. Describe, in particular, staff members who have special competence, e.g. public security guards or medical care staff. Also describe how communication is conducted within the organisation.



List of risks

Do a risk analysis by using the analysis tool described in Chapter 3. Present the inventoried risks, and the measures that will be taken, in a table.

	Low danger	Limited danger	Dangerous	Critical
Very probable	Manage	Eliminate	Eliminate	Eliminate
Probable	Manage	Manage	Manage	Eliminate
Improbable	Monitor	Manage	Manage	Manage
Very improbable	Monitor	Monitor	Monitor	Manage

Table 16. Example of a list of risks

Risk	Causes	Probability	Consequences	Critical	Preventative measures	Probability following measures	Consequences following measures

Area plan

Attach a map or sketch created to scale over the entire venue and any camping sites. Mark out important sites on the map, for instance the following:

- **Focal points** – e.g. stands, stages, entrances, exits, and car parks.
- **Peripheral activities** – e.g. vendors, places that serve alcohol, or funfairs.
- **Structures** – e.g. marquees and stands.
- **Accessibility** – accessible places, e.g. car parks, entrances, toilets, and ramps.
- **Emergency exits** – emergency exits and evacuation routes.
- **Emergency access roads** – access roads for emergency vehicles.
- **Rescue equipment** – e.g. firefighting equipment, medical care equipment, and all other materials that may be needed if a serious incident should occur.

Describe the characteristics of the area, e.g. the following:

- **The maximum capacity of audience areas.** The maximum number of visitors who can fit into each specific audience area.
- **Traffic and logistics:** What car parks are available and how many vehicles can park there? Are there pedestrian crossings that need to be monitored or pedestrian routes that need marking out? Are there specific road sections that are especially busy during certain periods?
- **Flows and capacity:** Are there places or focal routes that risk being especially busy during certain times? What is the acceptable crowd density of various areas?

Programme items

Attach a list of all the programme items of the event.

Safety work

Outline how you work within the relevant areas, for instance:

- **Audience safety:** How do you work to make sure that audience members do not injure themselves?
- **The audience's sense of security:** How do you work to make sure the audience feels secure?
- **Order:** How do you work to make sure that good order is maintained?
- **Occupational health and safety:** How do you work with safety for staff and focal persons?
- **Fire safety:** How do you work with fire safety?
- **Traffic:** How do you work to reduce the risk of incidents in traffic?
- **Crime prevention:** How do you work to reduce crime?
- **Protection from antagonistic threats:** How do you work to reduce the risk and consequences of a terrorist attack?

Here you can describe, for instance, the educational efforts, exercises, work strategies, materials, and staff being used, as well as what procedures and plans that exist.

Preparedness

Describe the event preparedness for undesirable occurrences. The event preparedness should be based on a risk analysis. Here you can, for instance, describe the following:

Medical care preparedness: What medical care preparedness does the event have? Do the sports officials have any medical training? What medical equipment is available on site? Does the event have its own medical care organisation? If so, where is it stationed?

Preparedness for fires: What preparedness for fires does the event have? What firefighting training do the sports officials have? What firefighting equipment is available on site? Are there special fire watchers? If so, where are they placed?

Crisis organisation: What persons are included, what roles and what responsibilities do they have? Are there replacements for key persons? Where does the crisis organisation meet? How does it cooperate with the emergency service authorities? How and through what channels does the event communicate should a special incident occur?

Appendices

The scope of the event may lead to certain parts of the event requiring special plans. Append these plans to the safety plan. The following are examples of plans that can be added as an appendix:

- Contingency plan
- Crowd management plan
- Communication plan
- Implementation plan
- Medical care plan
- Fire protection plan
- Plan for protection against terrorist attacks.

Other documents can also be added as appendices if necessary, for instance the following:

- Risk analysis
- Performer profile
- Supporter profile
- Audience profile

Read more about:

Specific plans in *Section 1.5.7.*

Appendix G: Checklists regarding sexual offences

The checklists below take up appropriate measures for when a person has been sexually abused or raped. The lists may be good to have on hand for staff working with the audience.

The checklists have been drawn up by the project 'Trygga, säkra evenemang' [Secure and safe events], in collaboration between the Swedish National Council for Crime Prevention, the Swedish Association of Local Authorities, Swedish Live, the Swedish Association for Sexuality Education, the Police Authority, and MSB.

Sexual abuse	Rape
1. Find out the exact time and place of the crime. 2. If the perpetrator is still on site, detain them if possible (with a so-called citizen's arrest). 3. Contact the police in the area. If there are no police officers in the area, call 112. 4. Alert the rest of the staff and the public security guards. 5. Produce a description of the perpetrator.	
6. Emotional first aid: Look after the victim, listen, and be available. 7. Ask any witnesses to remain on site. 8. Ask the victim to remain on site. If the person wants to leave the site, ask them to report the crime to the police as soon as possible.	6. If there is a need for medical care, call an ambulance. 7. Try to prevent the victim from washing him- or herself. 8. Take the victim to a safe place and await instructions from the police. 9. Emotional first aid: Look after the victim, listen, and be available. 10. Carefully note what the victim says. 11. Ask any witnesses to remain on site, but prevent them from talking to the victim.

Emotional first aid

Good basic prerequisites for support are to take the person seriously, not diminish what he or she has been exposed to, and listen more than you talk. You are welcome to try to motivate the person to report the incident to the police, but you yourself do not have a duty to report it.

- **Say** who you are and that you are offering your help.
- **Listen** more than you speak.
- **Show** the victim that you believe what they tell you. Your job is not to investigate the crime but to provide support.
- **Support** the victim but do not promise more support than you are able to provide.
- **Convey** a positive basic disposition, for instance by telling the victim it is a good thing that they are talking about the incident and seeking support.
- **Do not try** to resolve the situation, but put your energy into referring the victim to those who can help long-term.

It is the responsibility of the police to deal with what has happened, but you can support them by helping out, so that what has happened can be resolved.

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