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Dr Dan Hull

An outline of stadium safety legislation and guidance

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This paper provides a summary of the Safety of Sports Grounds (Northern Ireland) Order 2006 and the Northern Ireland Guide to Safety at Sports Grounds.

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Key Points

- The Safety of Sports Grounds (Northern Ireland) Order 2006 sets out a safety certification system to be implemented by local councils and overseen by Sport Northern Ireland on behalf of the Department of Culture, Arts and Leisure.
- The accompanying Guide to Safety at Sports Grounds, otherwise known as the 'Red Guide', sets out the standards which certified sports grounds should adhere to.
- The Red Guide itself has no statutory force in Northern Ireland, though many of its recommendations will be given force of law through the certification system.
- The guide does not supersede existing Building Regulations, or legislation relating to people with disabilities, to health and safety, or to fire safety.
- The capacity of a sports ground is calculated in four ways: entry capacity, holding capacity, exit (or egress) capacity, and emergency exit capacity. An exit capacity calculation is made on the basis of the number of people able to vacate the stadium within a period of eight minutes, given a standard rate of passage.
- The standard rate of passage provided in the Red Guide for seated accommodation is 73 spectators per metre width per minute.
- An emergency exit capacity calculation is similar to exit capacity, but with a total evacuation time which may be *less* than eight minutes – potentially as low as two and a half minutes – depending on the safe rate of passage.
- Spectators must be able to move from the viewing accommodation to a place of safety within this time. A place of safety is defined as 'a place where a person is no longer in danger from fire or other types of emergencies'.
- The Red Guide recommends that new sports grounds are planned with four zones. The outermost zone – zone four – should enable spectators to walk freely around the outside of the ground. Zone four is also recommended as the designated place of safety in the event of an emergency.
- It is stated that the pitch *can* be used as part of the emergency evacuation route, but only if it 'leads directly to an exit which itself leads to a place of safety'.
- The guide states that deviations from its recommendations are only acceptable when considered to be necessary and reasonable, and that the precise nature of that deviation should be recorded, with supporting written evidence, and adherence to that variation in the future strictly monitored.

Executive Summary

The principal instruments through which the safety of larger sports grounds in Northern Ireland is controlled are the Safety of Sports Grounds (Northern Ireland) Order 2006 and the Northern Ireland Guide to Safety at Sports Grounds.

The legislation does not itself specify safety standards to be applied within sports grounds, but instead sets out a safety certification system to be implemented by local councils and overseen by Sport Northern Ireland on behalf of the Department of Culture, Arts and Leisure.

In terms of the standards to be applied at sports grounds, DCAL has published an accompanying Guide to Safety at Sports Grounds, otherwise known as the 'Red Guide', based on the UK Guide to Safety at Sports Grounds (or the 'Green Guide'). There are few differences between the two guides, though they do include a slightly different method for calculating safe exiting capacity.

The Red Guide itself has no statutory force in Northern Ireland, though many of its recommendations will be given force of law at individual grounds by their inclusion in safety certificates issued under the Safety of Sports Grounds (Northern Ireland) Order 2006. The Red Guide does not supersede Building Regulations, or legislation such as the Health and Safety at Work (Northern Ireland) Order 1978, fire safety legislation or legislation relating to people with disabilities.

The capacity of a sports ground is calculated in four ways: entry capacity, holding capacity, exit (or egress) capacity, and emergency exit capacity. An exit capacity calculation is made on the basis of the number of people able to vacate the stadium within a period of eight minutes, given a standard rate of passage.

The standard rate of passage provided in the Red Guide for standing accommodation is 109 spectators per metre width per minute. For seated accommodation, the recommended rate of passage is 73 spectators per metre width per minute.

An emergency exit capacity calculation is similar to exit capacity, but with a total evacuation time which may be *less* than eight minutes – potentially as low as two and a half minutes – depending on the safe rate of passage. Within this time, spectators must be able to move from the viewing accommodation to a place of safety. A place of safety is defined as 'a place where a person is no longer in danger from fire or other types of emergencies'. The safe capacity of a sports ground is regarded as the lowest of these four numbers.

Two further factors are taken into account and these are described as the 'P' factor (or the physical condition of a ground) and the 'S' factor (or the quality of safety management within a ground). The poor physical condition of certain terraces or safety management which is not up to standard can substantially reduce the calculated safe capacity.

The Red Guide states with regard to exit routes that they should be ‘planned and managed safely, to provide for spectators a smooth, unimpeded passage through an exit system until they reach the boundary of the ground, or, in emergency situations, a place of safety’. However, the Red Guide is perhaps less clear in dealing with the issue of an exit that becomes impeded and therefore cannot be used in an evacuation. While it is stated that if a designed exit point is impeded for any reason ‘spectators should be able to use an alternative exit route or routes’, it is not stated clearly what impact such a diversion should have on the re-calculation of emergency exiting capacity.

The Red Guide recommends that new sports grounds are planned with four zones: the pitch, spectators’ accommodation, an outer circulation area, and a buffer zone outside the sports ground perimeter used for the public to gather before entry. It is stated of zone four that spectators should be to walk freely around this zone, and that it should be the designated place of safety in the event of an emergency. The pitch can be used as part of the emergency evacuation route, but only if it ‘leads directly to an exit which itself leads to a place of safety’.

In terms of deviations from the recommendations made in the Red Guide, it is stressed that such changes are only acceptable when considered to be necessary and reasonable. The precise nature of that deviation should be recorded, with supporting written evidence, and adherence to that variation in the future strictly monitored.

The role of outside agencies in dealing with emergency incidents is set out in the Red Guide. For all designated grounds a plan should be prepared by a multi-agency group including the emergency services, ground management and the relevant district council defining actions in response to a range of potential incidents. Multi-agency planning meetings should be held at regular intervals, initiated and hosted by ground management.

Contents

Key Points 3

Executive Summary 4

Contents 7

1 Safety of Sports Grounds (Northern Ireland) Order 2006 9

2 Northern Ireland Guide to Safety at Sports Grounds ('The Red Guide') 10

2.1 Introduction 10

2.2 Calculating safe stadium capacity 11

2.3 Exit routes 14

2.4 Use of the pitch as part of an emergency evacuation 16

2.5 Access for emergency vehicles 16

2.6 Variations from the guidance 16

2.7 Safety management 17

2.8 Annual structural review 19

2.9 Other considerations 19

1 Safety of Sports Grounds (Northern Ireland) Order 2006

The primary legislation governing spectator safety at major stadia in Northern Ireland is the Safety of Sports Grounds (Northern Ireland) Order 2006[1]. This legislation does not itself specify safety standards to be applied within sports grounds, but instead sets out a safety certification system to be implemented by local councils and overseen by Sport Northern Ireland on behalf of the Department of Culture, Arts and Leisure. In terms of the standards to be applied at sports grounds, DCAL has published an accompanying Guide to Safety at Sports Grounds, otherwise known as the 'Red Guide'.

Responsibilities for safety at sports grounds in Northern Ireland are therefore distributed as follows:

DCAL	The Department of Culture, Arts and Leisure (DCAL) may, by regulations: Prescribe the procedure for the issue, amendment, replacement, transfer, and cancellation of safety certificates. Prescribe fees to be charged in respect of applications or the cancellation of safety certificates. Prescribe the times for appeals to be brought. Prescribe that records be kept of the attendance of spectators at fixtures and relating to the safety at sports grounds.
Sport NI	Sport NI carried out the following functions in support of DCAL: Monitors the performance of district council staff in the execution of the certification process and regulation process to ensure appropriate levels of safety are adopted at larger venues and structures in Northern Ireland. Provides technical/legal advice, including drafting of guidance material to all relevant parties. they will liaise with interest groups (such as the emergency services) and keep themselves updated in the development of the field of safety at sporting venues. Promotes a culture of safety at sporting events.
Local councils	From 31 December 2009, it became the duty of every council to enforce, within its district, the provisions of the Safety of Sports Grounds (NI) Order 2006 and of regulations made under it, and for that purpose to arrange for the inspection of each designated sports ground within its district at least once every 12 months. Councils should, in performing their duties, act in accordance with such guidance as DCAL may give them.
Venue operators	Operators (sometimes referred to in guidance as ground management, have overall responsibility for the safety at sports grounds. In particular they must: Comply with the terms and conditions of a safety certificate. Comply with the requirements of the Safety of Sports Grounds (NI) Order 2006.

Table 1: The distribution of responsibilities for safety at sports grounds in Northern Ireland[2]

[1] The Safety of Sports Grounds (Northern Ireland) Order 2006: http://www.legislation.gov.uk/nisi/2006/313/contents

[2] Sport Northern Ireland. 'Safety of sports grounds: Roles and responsibilities': http://nia1.me/2n1 Page consulted 14.5.15.

2 Northern Ireland Guide to Safety at Sports Grounds (The 'Red Guide')

2.1 Introduction

The Northern Ireland Guide to Safety at Sports Grounds[3] (or the 'Red Guide') is based on the UK Guide to Safety at Sports Grounds[4] (the 'Green Guide'), the most recent (fifth) edition of which was published in 2008. The Green Guide is published by the Sports Grounds Safety Authority (SGSA), a non-departmental public body funded by the Department for Culture, Media and Sport[5]. The SGSA has a statutory role in relation to football in England and Wales. Its role in relation to grounds other than football grounds in England and Wales, and to all forms of sports grounds outside of England and Wales, is merely advisory.

There are few differences between the two guides. The Red Guide specifies provision of facilities for people with disabilities (in terms of physical disability but also people who are hearing or visually impaired), including obligations under the Disability Discrimination (Northern Ireland) Order 2005. The Green Guide is less detailed in this area.

A further difference concerns the calculation of safe exiting capacity. The Red Guide for Northern Ireland states that the recommended rate of passage for egress within routes out of seated accommodation is 73 spectators per metre width per minute[6]. The Green Guide, which applies in England and Wales, states that 66 spectators can exit per metre width per minute[7].

The Red Guide itself has no statutory force in Northern Ireland, but 'many of its recommendations will be given force of law at individual grounds by their inclusion in safety certificates issued under the Safety of Sports Grounds (Northern Ireland) Order 2006', as described in the previous section. The Guide states that,

> *It is the distillation of many years of research and experience of the safety management and design of sports grounds.*

The recommendations in the guide are designed to provide advice to local councils in their issuing of safety certificates. It does not supersede or prejudice Building Regulations, or legislation such as the Health and Safety at Work (Northern Ireland) Order 1978, fire safety legislation or legislation relating to people with disabilities.

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3 Department of Culture, Arts and Leisure. 2007. *The Northern Ireland Guide to Safety at Sports Grounds*. Belfast (often referred to as the 'Red Guide').

4 Department for Culture, Media and Sport. 2008. *Guide to Safety at Sports Grounds*. London: http://nia1.me/2mr

5 Sports Grounds Safety Authority. 'About us': http://www.safetyatsportsgrounds.org.uk/about-us Page consulted 19.5.15.

6 Red Guide (as above): p85.

7 Red Guide (as above): p83.

2.2 Calculating safe stadium capacity

The Red Guide provides guidance on how to calculate a safe stadium capacity. This is carried out on a section-by-section basis. Capacity is calculated in four ways, as follows:

- **Entry capacity**: the number of people who can pass through all the turnstiles and other entry points. This is generally calculated over a period of one hour.
- **Holding capacity**: where a section provides seated accommodation, capacity is calculated on the basis of the number of seats, minus any that cannot be used due to seriously restricted views or inadequate condition. Calculating standing capacity will include an assessment of crash barrier strengths and layouts.
- **Exit capacity**: this calculation is made on the basis of the number of people able to vacate the stadium within a period of eight minutes[8], given a standard rate of passage. The rate of passage for standing accommodation is 109 spectators per metre width per minute. For seated accommodation, the recommended rate of passage is **73 spectators per metre width per minute**[9].
- **Emergency exit capacity**: This calculation is similar to exit capacity, but with a total evacuation time which may be less than eight minutes – potentially as low as two and a half minutes – depending on the safe rate of passage[10]. Within this time, spectators must be able to move from the viewing accommodation to a place of safety. A place of safety is defined as 'a place where a person is no longer in danger from fire or other types of emergencies'[11].

The safe capacity of a sports ground is regarded as the lowest of these four numbers. However, two further factors are taken into account and these are described as the 'P' and the 'S' factors. These factors are described as follows:

- **(P) factor**: the ground should be assessed according to its physical condition.
- **(S) factor**: the ground's viewing accommodation should be assessed according to the quality of the safety management in each area.

Therefore, the safe capacity of a sports ground is the lowest of the four capacities combined with an assessment of the quality of safety management and the physical condition of each constituent part of the ground.

8 The Red Guide states on page 86 that, 'The limit of eight minutes has been set as a result of research and experience, which suggests that within this period spectators are less likely to become agitated, or experience frustration or stress, provided they enter an exit system at an acceptable rate, or are familiar with the sports ground and/or can identify their point of exit.'

9 It is stated on page 85 of the Red Guide that these rates of exit should be regarded as the maximum: 'This is because research and experience show that, in certain situations, maximum rates can be sustained only over a short period of time'.

10 The Red Guide states on page 88 that the appropriate rate of passage depends largely on the level of fire risk present; ie if there is a high fire risk the evacuation time should be no more than two and a half minutes, but for grounds where the fire risk is reduced it could be as high as eight minutes.

11 Red Guide (as above): p70.

The following diagram is provided in the Red Guide to illustrate the method for calculating the safe capacity of a seated stadium:

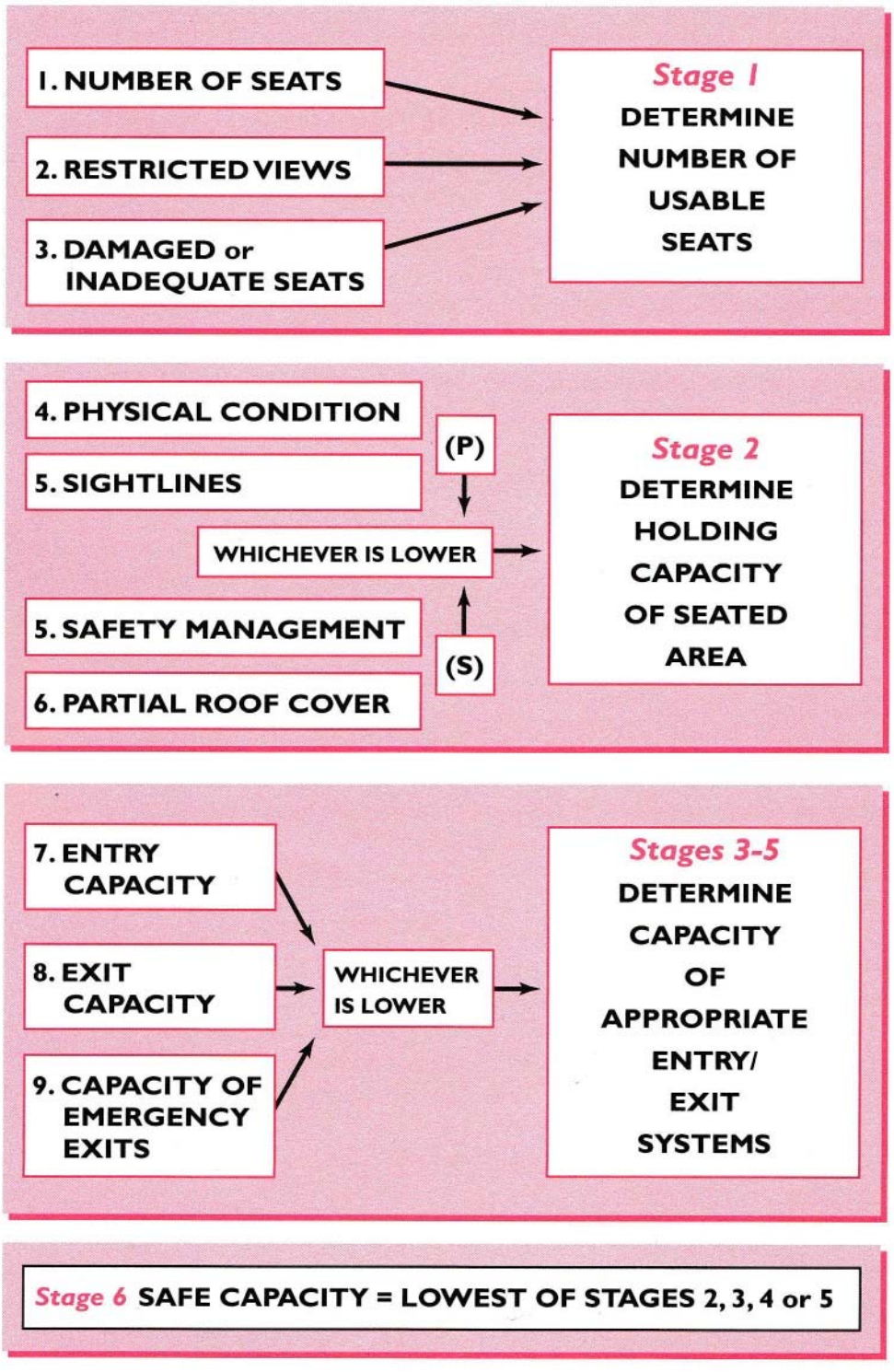

Figure 1: Calculating the safe capacity of a seated stadium[12]

[12] Red Guide (as above): p10.

The Red Guide provides a number of worked examples in an appendix to illustrate the way in which calculations should be worked out. One of these examples is as follows[13]:

Example of an emergency evacuation calculation

The terrace of a particular ground is non-combustible and exit routes are good. Therefore the maximum emergency evacuation time of eight minutes should be deemed acceptable. In addition to the normal exits, there are also four gates in the pitch perimeter providing forward evacuation onto the pitch, at a rate of passage of 109 persons per metre width per minute. Each gate is 1.1m wide.

Therefore the total exit width available in an emergency is as follows:

Stairways: 5.5m

Perimeter gates: 4.4m

Therefore the emergency exit capacity is: (5.5 x 73)+(4.4 x 109)=401+480= 881

881 x 8 minutes = 7,048

The emergency evacuation capacity is 7,048, a figure larger than the holding capacity. It is thus necessary to calculate in what time (T) the holding capacity of 2,074 can be evacuated.

Thus: 881 x T = 2,074 Therefore T= 2.35

The emergency evacuation time is 2.35 minutes; that is, within the eight minutes limit.

It is recommended that capacity assessments should be carried out 'by competent persons with knowledge and understanding of the ground concerned' and that 'written records of all assessments be kept'.

It is also stated that for newly constructed sports grounds Building Regulations will apply to the provision of wheelchair spaces. Using these regulations, the Red Guide provides the following table:

Seating capacity of newly constructed ground	Number of wheelchair spaces
Under 10,000	Minimum of 6, or 1 in 100 of seated capacity (whichever is greater)
10,000 to 20,000	100 plus 5 per 1,000 above 10,000
20,000 to 40,000	150 plus 3 per 1,000 above 20,000
40,000 or more	210 plus 2 per 1,000 above 40,000

Table 2: Number of wheelchair spaces in a newly constructed ground

[13] Red Guide (as above): pp249–254.

2.3 Exit routes

The Red Guide states with regard to exit routes that[14],

> *Management should ensure that exit routes are planned and managed safely, to provide for spectators a smooth, unimpeded passage through an exit system until they reach the boundary of the ground, or, in emergency situations, a place of safety.*

In order to achieve this, management should ensure that the following are addressed:

- There are sufficient numbers of exits in suitable locations;
- All parts of exit routes are of adequate width and height;
- People do not have to travel excessive distances in order to exit from the ground;
- Provision is made for the control of spectators entering an exit system;
- All exits are identifiable in both normal and emergency conditions.

It is stated in the Red Guide that in the case of all new constructions circulation routes should be at least 1.2m wide, and that there should not be any aspect of the exit system where narrowing occurs along its length.

In terms of the location of exits, the Guide states that,

> *'…to ensure a smooth, unimpeded passage for spectators through an exit system, there must be a sufficient number of exits in suitable locations (although no simple calculation of the number can be given that would apply to all situations). To avoid inconvenience and confusion, it is also important that exits are not inconveniently located or spaced too widely apart.'*[15]

In terms of alternative arrangements if a designed exit point is impeded for any reason, the Red Guide states that, 'In the event of an incident which renders the usual exit route unusable, spectators should be able to use an alternative exit route or routes'[16].

However, in terms of the impact of such an impedance, and the way in which such eventualities should be accounted for in the calculation of emergency exit capacity, the Red Guide is less clear. Section 9.14 states that,

> *'There are no hard and fast rules as to whether or not an exit route should be discounted when calculating the emergency exit capacity of a sports ground or section of a ground. Each case needs to be determined in the light of local circumstances, taking into account the importance of a*

14 Red Guide (as above): p82.
15 Red Guide (as above): p87.
16 Red Guide (as above): p86.

particular exit from an area of spectator accommodation and an assessment of the level of fire risk present.[17]'

The Red Guide states that 'it may be helpful' to plan the circulation of spectators in terms of four different but linked zones, as follows:

Figure 2: Zonal planning for new stadium constructions[18]

A further explanation of these zones is as follow[19]:

- **Zone One**: The pitch or area of activity. This may be considered a 'place of comparative safety' to which spectators can be evacuated before using other exits.
- **Zone Two**: Spectators' accommodation, including internal concourses and hospitality areas. If this area needs to be evacuated, 'it should preferably be to Zone Four'.
- **Zone Three**: The outer circulation area. This area can serve as a vital access area for emergency vehicles without disrupting circulation in Zone Two.
- **Zone Four**: A buffer zone outside the sports ground perimeter used for the public to gather before entry and for links to car parks and public transport. Spectators should be to walk freely around this zone in order to find an appropriate entrance. 'Zone Four should be the designated place of safety in the event of an emergency'. A place of safety is 'a place where a person is no longer in danger from fire or other types of emergencies'[20].

17 Red Guide (as above): p90.
18 Red Guide (as above): p53.
19 Red Guide (as above): p53.
20 Red Guide (as above): p70.

2.4 Use of the pitch as part of an emergency evacuation

The pitch (or other area of activity) can be used as part of the emergency evacuation route, but only if it 'leads directly to an exit which itself leads to a place of safety'[21]. However, use of the pitch as part of an emergency evacuation plan depends on whether the pitch perimeter barrier has a sufficient number of gates and openings, and also what the pitch is made of (ie some forms of synthetic materials may represent a greater fire risk).

The Red Guide also states that,

> *'If the pitch or area of activity is wholly surrounded by covered accommodation, with no breaks in the roofing, it may not be a suitable route for emergency evacuation in the event of fire.[22]'*

2.5 Access for emergency vehicles

The Red Guide states that 'management should ensure that adequate access is provided for emergency vehicles to all areas of the sports ground' and that,

> *'Wherever possible such access routes should be separate from those used by spectators for ingress and egress…The police, fire and ambulance authorities should be consulted about suitability of access roads and access to the ground generally.[23]'*

2.6 Variations from the guidance

The Red Guide states that deviations from the recommendations should only be made with caution:

> *This Guide seeks to encourage the meeting of achievable standards, particularly for new construction, but does not attempt to provide a universal minimum standard for existing sports grounds.*
>
> *It may therefore be possible to deviate from individual guidelines without detracting from the overall safety of a sports ground.*
>
> *However, it is stressed that the recommendations within this Guide are based upon research and experience. Deviations from this Guide should therefore only be acceptable when considered to be necessary and reasonable.*

The Red Guide goes on to state that where deviations are decided upon, the precise nature of that deviation should be recorded:

21 Red Guide (as above): p89.
22 Red Guide (as above): p89.
23 Red Guide (as above): p54.

> *It is the responsibility of ground management and where applicable organisers or promoters to ensure that any decision to deviate from this Guide should be recorded, with supporting written evidence, including the details of a risk assessment. If the deviation is then approved (by management, and, where a safety certificate is in place, by the district council), the action taken should strictly adhere to the contents of the written evidence.*

2.7 Safety management

As stated in section 2.2 above, the (S) factor is a critical consideration when calculating the safe capacity of a sports ground. This factor means that the ground's viewing accommodation should be assessed according to the quality of the safety management in each area. If all of the management's safety-related responsibilities are fully met and the stewarding is of a high standard, an (S) factor of 1.0 should be applied. Therefore, multiplying the capacity of a particular section, or of the ground as a whole, by 1.0, there will be no lowering of the capacity required on safety management grounds.

However, where there are deficiencies in safety management, the (S) factor should be reduced accordingly, to 0.0 if necessary. An (S) factor of 0.0 would mean that the safe capacity of that section of the ground, or of the ground as a whole, would have to be reduced to 0.

Factors to be taken into account when the (S) factor is assessed are issues such as good ticketing practices, seat and row identification, stewarding, grounds where only partial cover is provided, and the ability of management to keep gangways clear.

The Red Guide states that:

> *…responsibility for the safety of spectators at sports grounds lies at all times with the ground management*[24]*.*

It is also specified that management must carry out risk assessments and that these should consist of the following steps:

- Identify hazards to which spectators may be exposed;
- Determine the level of risk to which spectators may be subject from the hazards identified;
- Assess whether existing safety management procedures (including staff training) are adequate to eliminate the hazards, where possible, and where this is not possible, to reduce the risk to an acceptable level;
- Plan preventative and/or protective measures;
- Assess and review the adequacy and effectiveness of such measures.

[24] Red Guide (as above): p15.

It is recommended that when conducting risk assessments, management should consult with the relevant authorities including district councils and the Health and Safety Executive for Northern Ireland. Ground management should also appoint a safety officer with a detailed job description and clearly identified functions.

Stewarding is also described as an important part of crowd management. A ratio of at least 1:250 stewards per spectator is recommended, with further specialist stewards for areas used by children and spectators with disabilities. Furthermore, stewards 'should be trained to a standard recognised by the Department of Culture, Arts and Leisure'[25].

A contingency plan must be put in place with guidance from DCAL. At designated grounds (those designated by the Safety of Sports Grounds (Designation) (No 2) Order (NI) 2009 – generally, those with a capacity over 5,000) an exercise should be staged at least once a year to test contingency plans in consultation with the relevant authorities. While the contents of contingency plans may vary according to the specific sports ground in question, the following headings are recommended:

a. Fire
b. Bomb threat, suspect package
c. Buildings and services
    i Damage to structures or failure of structures
    ii Power cut or failure
    iii Gas leak or chemical incident
d. Safety equipment failure
    i Turnstile counting mechanism
    ii Closed circuit television
    iii Public address system
    iv Electronic information boards
    v Stewards' radio systems
    vi Internal telephone systems
e. Crowd control
    i Surging or crushing
    ii Pitch incursion
    iii Late arrivals or delayed start
    iv Lock-outs
    v Disorder inside the ground
    vi Large-scale ticket forgery
f. Emergency evacuation
    i Ticket strategy in the event of an abandoned fixture
    ii Features/consideration specific to the location.

[25] Red Guide (as above): p22.

The role of outside agencies in dealing with emergency incidents is set out in the Red Guide. It is stated, for example, that for all designated grounds a plan should be prepared by a multi-agency group including the emergency services, ground management and the relevant district council.

This inter-agency emergency plan should define the actions of, and relationships between, each organisation to potential incidents inside the ground, in the immediate vicinity, and incidents involving spectators on their way to or from an event. Considerations outside the ground could include traffic management (for example, to ensure a clear route for emergency vehicles), routes for spectators on foot, and crowd management procedures outside the ground.

Multi-agency planning meetings should be held at regular intervals, initiated and hosted by ground management.

2.8 Annual structural review

The Red Guide states that in terms of the physical condition of a sports ground, a 'detailed annual inspection of all structures, components and installations' should be carried out, with relevant tests carried out by structural engineers. Of the features to be reviewed each year are the following:

- Standing surfaces, seats, stairs, ramps, doors, gates, boundary walls, fences and claddings;
- Load-bearing elements, to ensure they are capable of withstanding the loads to which they are likely to be subjected;
- Barriers;
- Mechanical and electrical installations.

2.9 Other considerations

The Red Guide states that ground management is responsible for 'the keeping of comprehensive and accurate records', including plans and specifications for the sports ground itself, approach roads and car parks, the principal means of ingress and egress, and the location of key features such as fire points, the first aid room and high risk areas[26].

[26] Red Guide (as above): pp46–47.