Infrastructure Requirements at Stations

Synopsis
This document mandates requirements for the design and maintenance of stations to facilitate their safe use.

Submitted by
Laura Beales
Standards Project Manager

Authorised by
Anne Blakeney
Acting Department Head
Railway Group Standards Management

This document is the property of the Rail Safety and Standards Board Limited. It shall not be reproduced in whole or in part without the written permission of the Department Head, Railway Group Standards Management, Rail Safety and Standards Board.

Published by:
Rail Safety and Standards Board
Evergreen House
160 Euston Road
London NW1 2DX

© Copyright 2004 Rail Safety and Standards Board Limited
This page has been left blank intentionally
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Issue record</td>
<td>3</td>
</tr>
<tr>
<td>A2</td>
<td>Implementation of this document</td>
<td>3</td>
</tr>
<tr>
<td>A3</td>
<td>Scope of Railway Group Standards</td>
<td>4</td>
</tr>
<tr>
<td>A4</td>
<td>Responsibilities</td>
<td>4</td>
</tr>
<tr>
<td>A5</td>
<td>Health and safety responsibilities</td>
<td>4</td>
</tr>
<tr>
<td>A6</td>
<td>Technical content</td>
<td>4</td>
</tr>
<tr>
<td>A7</td>
<td>Supply</td>
<td>4</td>
</tr>
<tr>
<td><strong>Part B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Purpose</td>
<td>5</td>
</tr>
<tr>
<td>B2</td>
<td>Application of this document</td>
<td>5</td>
</tr>
<tr>
<td>B3</td>
<td>Definitions</td>
<td>6</td>
</tr>
<tr>
<td>B4</td>
<td>Principles</td>
<td>8</td>
</tr>
<tr>
<td>B5</td>
<td>Introduction</td>
<td>8</td>
</tr>
<tr>
<td><strong>Part C</strong></td>
<td>Station platforms</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Load carrying capacity of platforms</td>
<td>10</td>
</tr>
<tr>
<td>C2</td>
<td>Platform and coper surfaces</td>
<td>10</td>
</tr>
<tr>
<td>C3</td>
<td>Prevention of rubbish accumulation under platforms</td>
<td>10</td>
</tr>
<tr>
<td>C4</td>
<td>Materials used for cleaning and de-icing</td>
<td>11</td>
</tr>
<tr>
<td><strong>Part D</strong></td>
<td>Structures, buildings and platform furniture</td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>Location of buildings and structures on platforms</td>
<td>11</td>
</tr>
<tr>
<td>D2</td>
<td>Location of platform furniture</td>
<td>12</td>
</tr>
<tr>
<td>D3</td>
<td>Location of isolated columns supporting lighting and signs</td>
<td>12</td>
</tr>
<tr>
<td>D4</td>
<td>Driver only operation (DOO) equipment</td>
<td>13</td>
</tr>
<tr>
<td>D5</td>
<td>Provision for colour contrasting markings</td>
<td>13</td>
</tr>
<tr>
<td>D6</td>
<td>Headroom on platforms</td>
<td>13</td>
</tr>
<tr>
<td>D7</td>
<td>Location of structures at terminal stations</td>
<td>13</td>
</tr>
<tr>
<td>D8</td>
<td>Provision for accidental loading from derailed trains</td>
<td>14</td>
</tr>
<tr>
<td>D9</td>
<td>Particular requirements for station roofs and platform canopies</td>
<td>14</td>
</tr>
<tr>
<td>D10</td>
<td>Vertical glazing and cladding</td>
<td>15</td>
</tr>
<tr>
<td>D11</td>
<td>Securing of platform furniture and lightweight structures</td>
<td>15</td>
</tr>
<tr>
<td>D12</td>
<td>Provision for storage of self-help trolleys</td>
<td>15</td>
</tr>
<tr>
<td>D13</td>
<td>Electrical clearances</td>
<td>16</td>
</tr>
<tr>
<td>D14</td>
<td>Maintaining signal visibility</td>
<td>16</td>
</tr>
<tr>
<td><strong>Part E</strong></td>
<td>Access and egress</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Design of entrances and exits</td>
<td>17</td>
</tr>
<tr>
<td>E2</td>
<td>Emergency evacuation</td>
<td>17</td>
</tr>
<tr>
<td>E3</td>
<td>Vehicular access</td>
<td>17</td>
</tr>
<tr>
<td>E4</td>
<td>Sub-surface stations</td>
<td>17</td>
</tr>
<tr>
<td><strong>Part F</strong></td>
<td>Lighting</td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>Provision of lighting</td>
<td>19</td>
</tr>
<tr>
<td>F2</td>
<td>Requirements for station lighting</td>
<td>19</td>
</tr>
<tr>
<td><strong>Part G</strong></td>
<td>Platform signs and markings</td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>General requirements for signs</td>
<td>20</td>
</tr>
<tr>
<td>G2</td>
<td>Passenger information signs</td>
<td>20</td>
</tr>
<tr>
<td>G3</td>
<td>Passenger and staff warning signs</td>
<td>20</td>
</tr>
<tr>
<td>G4</td>
<td>Signs for vehicular traffic at stations</td>
<td>20</td>
</tr>
<tr>
<td>G5</td>
<td>Signs for stopping position of trains</td>
<td>21</td>
</tr>
<tr>
<td>G6</td>
<td>Marking of platform edges</td>
<td>21</td>
</tr>
</tbody>
</table>
# Infrastructure Requirements at Stations

## Part H Services

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Location of new buried services</td>
</tr>
<tr>
<td>H2</td>
<td>Protection of new buried services</td>
</tr>
<tr>
<td>H3</td>
<td>Particular requirements for services in platforms</td>
</tr>
<tr>
<td>H4</td>
<td>Requirements for other service routes</td>
</tr>
<tr>
<td>H5</td>
<td>Requirements for all services</td>
</tr>
</tbody>
</table>

## Part J Fire precautions

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1</td>
<td>Fire safety of materials</td>
</tr>
<tr>
<td>J2</td>
<td>Referral to fire authority</td>
</tr>
<tr>
<td>J3</td>
<td>Fire protection arrangements</td>
</tr>
<tr>
<td>J4</td>
<td>Sub-surface stations</td>
</tr>
</tbody>
</table>

## Part K Managing the risk from unauthorized access and vandalism

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>Requirement for risk assessment</td>
</tr>
<tr>
<td>K2</td>
<td>Content of the risk assessment</td>
</tr>
<tr>
<td>K3</td>
<td>Action following a risk assessment</td>
</tr>
<tr>
<td>K4</td>
<td>Recording results of risk assessment</td>
</tr>
<tr>
<td>K5</td>
<td>Identifying trends and patterns of incidents</td>
</tr>
<tr>
<td>K6</td>
<td>Incidents of unauthorized access not requiring a risk assessment</td>
</tr>
<tr>
<td>K7</td>
<td>Increasing awareness of risk from unauthorized access and vandalism</td>
</tr>
</tbody>
</table>

## Part L Design for deterring unauthorized access and vandalism at a station

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Design for deterring unauthorized access</td>
</tr>
<tr>
<td>L2</td>
<td>Particular requirements for design</td>
</tr>
</tbody>
</table>

## Part M Protection from aerodynamic effects of passing trains

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Aerodynamic effects of passenger trains passing at speeds greater than 125 mph</td>
</tr>
<tr>
<td>M2</td>
<td>Aerodynamic effects of passenger trains passing at speeds greater than 100 mph but not exceeding 125 mph</td>
</tr>
<tr>
<td>M3</td>
<td>Aerodynamic effects of freight trains passing at speeds greater than 60 mph</td>
</tr>
<tr>
<td>M4</td>
<td>Risk assessment to determine actions</td>
</tr>
</tbody>
</table>

## Part N Provision for disabled passengers

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>Provision for disabled passengers</td>
</tr>
</tbody>
</table>

## Part P Design for passenger security

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Design for passenger security</td>
</tr>
</tbody>
</table>

## Appendices

1. Letter of undertaking from Network Rail
2. Possible measures to reduce recurrence of unauthorized access and vandalism at stations
3. Diagram illustrating requirements for headroom at station platforms

## References

- (Part I has not been used, to avoid potential confusion between upper case 'I', lower case 'i', and the number ‘1’. Part O has not been used, to avoid potential confusion between upper case 'O', and the number '0'.)
Infrastructure Requirements at Stations

Part A

A1 Issue record

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
</table>

This document will be updated when necessary by distribution of a complete replacement.

A2 Implementation of this document

The publication date of this document is 07 February 2004.

This document comes into force on 03 April 2004.

The dates by which compliance with the requirements of this document is to be achieved are set out in Part B2. Where those dates are later than the date on which this document comes into force, this is to give Railway Group members additional time to plan and commence implementation so as to achieve full compliance by the dates set out in Part B2.

This document supersedes the following Railway Group Standards, either in whole or in part as indicated:

<table>
<thead>
<tr>
<th>Railway Group Standard</th>
<th>Issue No.</th>
<th>Title</th>
<th>RGS sections superseded by this document</th>
<th>Date(s) as of which sections are superseded</th>
</tr>
</thead>
<tbody>
<tr>
<td>GC/RT5161</td>
<td>Two</td>
<td>Station Design and Maintenance Requirements</td>
<td>5.3, 5.7, 5.9, 6.5, 7, 8, 9, 10 (not 10.7), 11, 12, 13, 14 (not 14.2 or 14.9) 15, 16</td>
<td>03 April 2004</td>
</tr>
<tr>
<td>GC/RT5164</td>
<td>One</td>
<td>Design Requirements for Roofs and Glazing</td>
<td>All</td>
<td>03 April 2004</td>
</tr>
<tr>
<td>GC/RT5201</td>
<td>Two</td>
<td>Lineside Security</td>
<td>All requirements in so far as they relate to stations</td>
<td>03 April 2004</td>
</tr>
<tr>
<td>GI/RT7008</td>
<td>One</td>
<td>Pipelines, Buried Services and Undertrack Crossings</td>
<td>All requirements, in so far as they relate to services within stations</td>
<td>03 April 2004</td>
</tr>
</tbody>
</table>
The remaining sections of GC/RT5161 are superseded by GI/RT7016, which also comes into force on 03 April 2004. GC/RT5161 ceases to be in force and is withdrawn with effect from 02 October 2004.

GC/RT5164 ceases to be in force and is withdrawn from 03 April 2004.

The remaining sections of GC/RT5201 are superseded by GE/RT8063, which also comes into force on 03 April 2004. GC/RT5201 ceases to be in force and is withdrawn with effect from 02 October 2004.

GI/RT7008 remains in force; however, the requirements, in so far as they relate to services within stations, are superseded as from 03 April 2004.

### A3  Scope of Railway Group Standards

The overall scope of Railway Group Standards is set out in Appendix A of GA/RT6001. The specific scope of this document is set out in Part B2.

### A4  Responsibilities

Railway Group Standards are mandatory on all members of the Railway Group* and apply to all relevant activities that fall into the scope of each Railway Safety Case. If any of those activities are performed by a contractor, the contractor’s obligation in respect of Railway Group Standards is determined by the terms of the contract between the respective parties. Where a contractor is a duty holder of a Railway Safety Case then Railway Group Standards apply directly to the activities described in the Safety Case.

* The Railway Group comprises Network Rail Infrastructure Limited, Rail Safety and Standards Board Limited, and the train and station operators who hold railway safety cases for operation on or related to infrastructure controlled by Network Rail Infrastructure Limited.

Network Rail Infrastructure Limited is also known as Network Rail.

Rail Safety and Standards Board Limited is also known as RSSB.

### A5  Health and safety responsibilities

Each Railway Group member is reminded of the need to consider its own responsibilities to ensure health and safety at work and its own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.

### A6  Technical content

The technical content of this document has been approved by:

Jon Taylor, Principal Track and Structures Engineer, RSSB

Richard Evans, Principal, Operations, RSSB

Enquiries should be directed to RSSB – Telephone: 020 7904 7518, or e-mail enquiries@rssb.co.uk

### A7  Supply

Controlled and uncontrolled copies of this document may be obtained from the Industry Safety Liaison Department, Rail Safety and Standards Board, Evergreen House, 160 Euston Road, London NW1 2DX, or e-mail enquiries@rssb.co.uk.
Part B

B1 Purpose

This document mandates requirements for the design and maintenance of stations to facilitate their safe use.

B2 Application of this document

B2.1 To whom the requirements apply

This document contains requirements that are applicable to duty holders of the following categories of Railway Safety Case:

a) infrastructure controller

b) station operator.

At a station contractual arrangements (including a station lease) do not of themselves relieve the duty holder of his obligation to comply with Railway Group Standards that are relevant to the duty holder’s licensed activities. This obligation is established by the duty holder’s licence and his railway Safety Case which has been submitted and accepted in accordance with the Railways (Safety Case) Regulations 2000.

Where all the following conditions apply, the obligations on the station operator in respect of services, set out in Part H, will be discharged by Network Rail:

i) the station is owned by Network Rail

ii) there is a landlord and tenant agreement between Network Rail and the station operator

iii) the services fall within the scope of the letter of undertaking dated 21 May 2003 from Network Rail (copy attached as Appendix 1).

B2.2 Compliance requirements

The requirements of this document shall be complied with no later than 03 April 2004, except as set out below:

a) compliance with Part K5 (identifying trends and patterns of incidents) is required no later than 02 October 2004

b) where passenger trains currently pass on the line adjacent to a platform at speeds greater than 100 mph, compliance with section M2.2 (protection from aerodynamic effects of passing trains) is required no later than 07 February 2005.

The requirements of this document are mandatory for new stations and for alterations (as defined in section B3) to existing stations for which Approval in Principle has been given on or after 03 April 2004.

When Approval in Principle has been given before 03 April 2004, but the station (or station alteration) has not yet been brought into service, the design shall be reviewed and, where reasonably practicable, brought into line with the requirements of this document. Where it is not reasonably practicable to do so, the situation shall be regularised by means of a non-compliance or derogation (see section B2.3).

B2.3 General compliance requirements

Until the compliance dates, or the dates by which compliance is achieved if earlier, the applicable requirements of the predecessor documents shall continue to be met (see Part A for details).
Infrastructure Requirements at Stations

After the compliance dates, or after the dates by which compliance is achieved if earlier, Railway Group members shall not deviate from the requirements set out in this document.

Where it is considered not reasonably practicable to comply with the requirements set out in this document, authorisation not to comply shall be sought in accordance with GA/RT6001, GA/RT6004 or GA/RT6006.

B2.4 Related requirements in other documents
GM/RT1201 and GM/RT1251 set out requirements for escalators.
GO/RT3471 sets out requirements for incident response planning.
GC/RT5033 sets out the requirements for buffer stops at stations. GC/RC5533 sets out recommendations for assessing the risk from train overruns at bay platforms and terminal stations.
GC/RT5100 sets out the general requirements for the examination, assessment and evaluation of structures, including platforms and associated structures.
GC/RT5101 sets out the technical approval requirements for changes to the infrastructure.
GC/RT5110 sets out the design requirements for structures.
GI/RT7015 sets out the requirements for automatic ticket gates at stations.
GI/GN7515 provides guidance on the requirements contained in GI/RT7015.
GI/RT7016 sets out requirements for the design and maintenance of station platforms for their safe interface with trains.
GI/RT7033 sets out the requirements for the management and specification of lineside operational signs.
GE/RT8025 sets out the design requirements for the avoidance of direct contact between persons and live parts of electrification equipment and electrical equipment on trains.
GE/RT8034 sets out the requirements necessary to ensure that the visibility and alignment of signals, and signs that perform the function of signals, are not adversely affected during the life of the signalling equipment.
GE/RT8063 sets out the requirements for lineside security at locations other than stations.

B3 Definitions

Accident
An unplanned, uncontrolled or unintended event giving rise to death, ill-health, injury or other loss. For the purpose of this document this is restricted to death or injury as a result of contact with either trains or railway equipment and infrastructure.

Alteration [for example, of a platform or other equipment]
For the purpose of this document, the substantial lengthening or rebuilding of all or part of an existing platform and/or an associated structure, or renewal of station equipment or platform furniture, which provides a reasonable opportunity to significantly improve the safety performance of the element subject to alteration.

Authorised access point
A designated point intended to allow authorised people to gain access to the railway, usually by means of a lockable gate in the railway boundary fence.
Automatic ticket gate
Automatic ticket gate (ATG) is a power-operated gate between the paid and unpaid areas of the station, which opens to permit an authorised station user to pass through when a valid ticket or gate pass is either inserted into the gate or scanned by a reader on the gate.

Buried services
Services which are below the ground immediately surrounding the service. This definition does not include services that are only nominally covered by ballast. See also ‘Services’ and ‘Services in platforms’.

Cattle-cum-trespass guard
A device provided adjacent to a level crossing designed to deter animals from straying, and pedestrians from trespassing, onto the railway.

Colour contrasting marking
A marking on a structure which breaks up the surface of the structure, or part of the structure, so that it can be seen by visually impaired station users.

Coper [or Platform coper]
That part of the platform surface adjacent to the track, when formed of a separate concrete or masonry slab. Also known as the ‘platform coping’ or ‘coping stone’.

Depth [of a buried service]
For the purpose of this document, depth means the vertical distance from the underside of a sleeper to the top surface of the buried service (including any surround or ducting), warning tape or undertrack crossing, or where the service is more than 1380 mm away from the edge of the nearest running rail, the vertical distance from the surrounding ground level to the top surface of the buried service or warning tape. In respect of steel sleepers, the measurement of depth is from the lowest point of the sleeper.

Double face platform (island platform)
A platform with operational track on both sides.

High voltage
Normally exceeding low voltage (see low voltage).

Incident
An unplanned, uncontrolled or unintended event which under different circumstances could have resulted in an accident.

Low voltage
For the purpose of this document voltages not exceeding 1000 V rms ac or 1500 V dc between conductors, 600 V rms ac or 900 V dc between conductors and earth.

Permissible or enhanced permissible speed
The maximum speed published in the Sectional Appendix at which traffic is allowed to run on a line.

Platform
The structure forming the part of a station that provides access to or from a train.

Platform furniture
Permanent or semi-permanent equipment or apparatus, or seating placed upon a platform for station users.

Services
The term ‘services’ include all cables (including surrounds or ducting) and pipes used for the conveyance of electricity, signalling, telecommunications, gas, water, petrochemicals and effluents.
Infrastructure Requirements at Stations

**Services in platforms**
Services which are located below the platform surface. See also ‘Services’.

**Single face platform**
A platform with operational track on one side only.

**Sub-surface station**
A station with platforms enclosed or underground as set out in section 3 of the Fire Precautions (Sub-surface Railway Stations) Regulations 1989.

**Unauthorised access [to or from a station]**
For the purpose of this document, unauthorised access means any access to the railway by people not authorised to be there.

**Vandalism**
For the purpose of this document, vandalism means any malicious action with the potential to result in derailment or collision, for example, placing objects on the line or damaging safety-critical equipment.

**Voided platform**
A platform comprising structural elements spanning between discreet supports and providing a void beneath.

**B4 Principles**
This document supports the following HM Railway Inspectorate Railway Safety Principles:

a) Principle 2: ‘The railway should be protected against unwanted intrusion and unauthorised access’.

b) Principle 10: ‘Stations should provide for the free and safe movement of people’.

c) Principle 11: ‘Platforms should allow for the safe waiting of people, their boarding and alighting from trains’.

d) Principle 14: ‘The station and its control arrangements should allow for safe evacuation in an emergency’.

e) Principle 15: ‘Stations should have fire and fume prevention and control measures commensurate with the fire risk and evacuation arrangements’.

**B5 Introduction**
This section (B5) is a descriptive introduction to GI/RT7014. It does not contain mandatory requirements, but draws attention to two important points.

**B5.1 Alterations to stations**
It is the intention of this document that alterations to stations contribute to improving safety. However, this should be achieved without imposing unreasonable costs on the industry.

Alteration is therefore defined (in section B3) as ‘the substantial lengthening or rebuilding of all or part of an existing platform and/or an associated structure, or renewal of station equipment or platform furniture, which provides a reasonable opportunity to significantly improve the safety performance of the element subject to alteration’.

It is important to understand that the requirements of this document do not apply simply because an alteration is made to part of a station. The requirements are only mandatory where the alterations provide a reasonable opportunity for achieving compliance.
B5.2 Geometry of platforms

As noted in section B1, this document (GI/RT7014) sets out requirements for the design and maintenance of stations to facilitate their safe use. Essentially, the document deals with providing a safe physical environment for passengers waiting on platforms for trains.

Requirements for the design and maintenance of station platforms for their safe interface with trains are set out separately in GI/RT7016. GI/RT7016 therefore contains requirements for the position of platforms relative to the adjacent track (both height and offset); the useable length of platforms; and the useable width of platforms. These issues are dealt with in a separate document because the infrastructure controller has the principal responsibility for compliance, and because the UK has a 'specific case' relating to these issues in the High Speed Technical Specification for Interoperability (TSI) and is expected to retain a similar 'specific case' in the Conventional Rail TSI.

The two documents should be read in conjunction with each other.
Part C  Station platforms

C1  Load carrying capacity of platforms

C1.1 Platforms where vehicular traffic is excluded (crowd loading)
New platforms and alterations to platforms from which vehicular access is excluded shall be designed to carry a live load of 5 kN/m², representing crowd loading.

C1.2 Platforms where vehicular traffic is permitted or required (vehicular loading)
If it is proposed to permit access for vehicles and/or if access for emergency vehicles is required to platforms, the platform shall be capable of carrying the maximum anticipated loading from such vehicles.

At stations where tractor-hauled station traffic exists, or is likely to be utilised, new platforms and alterations to platforms shall be designed to carry the maximum anticipated loading from such vehicles.

C2  Platform and coper surfaces

C2.1 Materials for platform surfaces
Surfaces of platforms, copers and ramps (where provided), shall be firm, even and anti-slip and shall not provide tripping hazards. The design of surfacing shall take into account the expected rainfall and the effects of any substances used for activities such as cleaning or de-icing.

Surfaces shall be formed from materials that allow the platform to be cleaned of dirt and debris. Platform edges shall be non-friable.

C2.2 Drainage
Adequate provision and maintenance of drainage for the removal of storm water and spillage shall be provided for platform surfaces, platform buildings and canopies to avoid discharge or overflow onto the platform surface.

C2.3 Platform cross fall
For new platforms and alterations to platforms, unless otherwise justified, the surfacing shall be constructed to provide a fall away from the rear edge of the platform coper or platform edge if there is no separate platform coper.

If provided, copers for new or altered platforms shall be nominally level from the platform edge to the rear of the coper.

C2.4 Security of platform copers
Platform copers shall have a suitable restraint to prevent them from moving and thereby infringing clearances or endangering passengers.

C3  Prevention of rubbish accumulation under platforms

For new platforms and alterations to platforms, a suitable barrier (for example, a mesh screen) shall be provided at the front and rear of voided platforms to prevent rubbish accumulation under the platform giving rise to a health and/or fire risk.

At existing voided platforms, the provision of a suitable barrier shall be considered, particularly where there is evidence of rubbish accumulation to the extent that it is likely to give rise to a health and/or fire risk.

GI/RT7016 requires provision of a recess beneath the platform edge. Any screens or other suitable barrier shall not encroach within this space.
C4 Materials used for cleaning and de-icing

The effect that cleaning and de-icing materials have on the durability of platform surfaces shall be considered and only those that do not cause premature deterioration of the surface and adjacent track shall be used.
Infrastructure Requirements at Stations

Part D  Structures, buildings and platform furniture

D1  Location of buildings and structures on platforms

Buildings and structures, including supports to station roofs, platform canopies and any associated barriers that protect structures from impact, shall not unduly restrict the movement of passengers.

New buildings and structures, and alterations to existing buildings and structures, shall be located to provide the following minimum distances to the platform edge:

a) 3000 mm where the permissible or enhanced permissible speed on the line adjacent to the platform exceeds 100 mph (165 km/h)

b) 2500 mm at other platforms.

Particular requirements for the location of platform furniture and isolated columns supporting lighting, signs and driver only operation (DOO) equipment are set out in sections D2, D3 and D4.

D2  Location of platform furniture

Platform furniture shall not unduly restrict the movement of passengers.

New platform furniture, and alterations to existing platform furniture, shall be located to provide the following minimum distances to the platform edge:

a) 3000 mm where the permissible or enhanced permissible speed on the line adjacent to the platform exceeds 100 mph (165 km/h)

b) 2500 mm at other platforms.

D3  Location of isolated columns supporting lighting, signs and other equipment

Isolated columns supporting lighting, signs and other equipment shall be positioned to avoid creating obstructions to the free flow of station users.

Isolated columns for new lighting, signs and other equipment or alterations to such items shall be located to provide the following minimum distances to the platform edge:

a) 3000 mm from the platform edge where the permissible or enhanced permissible speed is greater than 100 mph (160 km/h)

b) 2500 mm at other platforms.

Where particular site constraints prevent this, isolated columns for new lighting, signs or other equipment or alterations to such items shall be located not less than 2000 mm from the platform edge.
Infrastructure Requirements at Stations

D4  Location of driver only operation equipment

The position of supports for new driver only operated (DOO) closed circuit television (CCTV) and other DOO equipment on platforms and alterations to existing DOO CCTV and other DOO equipment on platforms shall take into account both:

a) the need to provide adequate clearance between the support and the platform edge

b) the need for the driver of the train to be able to see the DOO CCTV screen or other DOO equipment.

If the clearance provided meets the requirement of section D3, no further justification is required.

If the clearance provided does not meet the requirement of section D3, the clearance shall be justified and recorded.

In all cases the DOO equipment shall be at least 450 mm clear of the swept envelope of trains using or passing through the station, and shall be positioned so as not to restrict the movement of people (see also GE/RT8060).

D5  Provision of colour contrasting markings on obstructions

Colour contrasting markings shall be provided on isolated columns or other obstructions, when new or subject to alteration, where these could interrupt the movement of visually impaired station users.

Appropriate markings or other protection to vertical glazing and cladding shall be provided to prevent accidental collision by station users, including visually impaired people.

D6  Headroom on platforms

The minimum headroom to new station roofs and platform canopies or alterations to station roofs and platform canopies, suspended equipment, signs and lighting shall be 2500 mm for the following distances from the platform edge:

a) 3000 mm where the permissible or enhanced permissible speed on the line adjacent to the platform exceeds 100 mph (165 km/h)

b) 2000 mm at other platforms.

Beyond these distances, it is permissible to reduce the headroom to 2300 mm.

Appendix 3 contains a diagram illustrating the headroom requirements for new station roofs and platform canopies and alterations to station roofs and platform canopies.

GC/RT5212 sets out requirements for defining and maintaining clearances to trains.

D7  Location of structures at terminal stations

D7.1 Location of permanent new structures in relation to terminal tracks
Permanent new structures, including buildings and columns supporting canopies shall not be located within a zone extending 20 m behind the face of the buffer
stop and 5 m either side of the projected centre line of the track approaching the buffer stop. This is referred to in sections D3.2 and D3.3 as the 'overrun risk zone'.

D7.2 Alterations to existing structures or track layouts
Unless justified by a risk assessment that shows that there is an overall decrease in risk as a result of an alteration, alterations to an existing structure or track layout shall not:

a) cause the structure that is outside the overrun risk zone to come within the overrun risk zone (see section D3.1)

b) cause the structure which is within the overrun risk zone to become closer to the centre line of the track and/or closer to the face of the buffer stop.

The alteration shall result in the structure that is currently within the overrun risk zone being located outside the overrun risk zone unless this has been justified by a risk assessment taking into account the likelihood and consequences of an overrun.

D7.3 Location of temporary structures at terminal stations
Unless otherwise justified by a documented risk assessment, temporary structures shall be located outside the overrun risk zone.

D8 Provision for accidental loading from derailed trains

Where there is an alteration at a station, either to the track or to the station itself, that would bring columns within 4.5 m of the nearest rail, the risk from derailed trains shall be assessed.

Where additional protective measures are required the following shall, as a minimum, be considered:

a) the provision of a solid platform wall and platform construction to protect the columns

b) the provision of continuity within the structure supported by the columns to prevent progressive collapse (for example, by designing the structure to remain standing with any single column removed).

D9 Particular requirements for station roofs and platform canopies

D9.1 Loading for new station roofs and platform canopies, and station roofs and platform canopies subject to alteration
In addition to normal design loadings (for example, wind, snow, self weight) the aerodynamic effects from passing trains shall be considered in the design of new station roofs and platform canopies, and station roofs and platform canopies subject to alteration.

On platforms where vehicular access or tractor-hauled station traffic is permitted, new columns (or columns subject to alterations) supporting station roofs or platform canopies shall be designed to withstand the collision loading appropriate to the vehicle type and its velocity, or shall be protected by adequate and suitable barriers.

D9.2 Assessment of aerodynamic effects of passing trains on existing station roofs and canopies
Unless otherwise justified, an assessment of the aerodynamic effects from passing trains on existing station roofs and platform canopies shall be carried
out where proposals have been made for passenger trains to pass on the line adjacent to the platform containing the canopy at a speed greater than 125 mph (200 km/h), or for freight trains to pass on the line adjacent to the platform containing the canopy at a speed greater than 90 mph (140 km/h).

D9.3 **Access for station roofs and platform canopies**
The design of new station roofs and platform canopies shall provide access for installation, cleaning, inspection and maintenance and future dismantling without jeopardising the safety of train operations and station users.

In order to achieve this, consideration shall be given to the provision of permanent walkways, inspection cradles and ladders.

D9.4 **Selection of materials for station roofs and platform canopies (including glazing)**
When selecting materials for roofs (including glazing), the following shall be considered:

a) the effects of fire, including both damage to the materials and, where appropriate, the use of the roof or glazing as fire separation (see also Part J)
b) the effects of explosion
c) the effects of ultra-violet light
d) thermal effects of expansion and differential temperature gradients
e) the effect of materials used for cleaning and removal of graffiti.

D9.5 **Resistance to accidental or wilful damage to station roofs, platform canopies (including glazing and cladding)**
The design of new station roofs or platform canopies or alterations to existing station roofs or platform canopies shall take into account the risks to train operations and station users caused by accidental or wilful damage to any glazing, cladding or other roofing system and/or its supports.

Accidental and wilful damage from vandals, falling objects, road and rail vehicles shall be considered.

D10 **Vertical glazing and cladding**
Where vehicles, trolleys and other equipment have access adjacent to vertical cladding and glazing, barriers shall be provided to prevent collision.

D11 **Securing of platform furniture and lightweight structures**
Platform furniture and other lightweight structures shall be fixed to the platform or otherwise secured to prevent accidental or malicious movement.

D12 **Provision for storage of self-help trolleys**
Where passenger self-help trolleys are in use, appropriate measures shall be in place to reduce the risk of them falling onto the track (including the provision of safe storage areas and automatic braking devices).
D13 Electrical clearances

For stations where 25 kV overhead electrification exists or is proposed, the electrical clearances between the overhead line equipment and platform canopies and station footbridges are set out in GE/RT8025. For electrical clearances to other overhead electrification systems, specialist advice shall be sought.

D14 Maintaining signal visibility

GE/RT8034 sets out the requirements for ensuring that the visibility and alignment of signals and signs that perform the function of signals are not adversely affected during the lifetime of the equipment.
Infrastructure Requirements at Stations

Part E  Access and egress

E1  Design of entrances and exits

Access to and from platforms shall be direct, obvious and provide for access by wheelchair users and other people with impaired mobility.

New entrances and exits and alterations to entrances and exits to station platforms, escalators, lifts, passenger conveyors, ramps and stairways shall be positioned to provide unobstructed access and to avoid local congestion.

Where site circumstances permit, escalators, lifts, passenger conveyors, ramps and stairways shall be orientated so that access to and from them is parallel to the platform edge.

Where site circumstances prevent this, suitable barriers shall be provided to prevent persons or objects having direct access to the platform edge.

E2  Emergency evacuation

At new stations, the design shall take account of the needs for safe evacuation in the event of fire at the station or on a train stopped at a platform that forms part of the station.

At existing stations and stations subject to alteration, the station operator’s emergency evacuation plan shall take into account the access and egress facilities provided from stations.

At new stations, the provision of access and egress facilities shall be designed to cater for the anticipated maximum number of people using the station and developed in co-ordination with the station operator’s evacuation plan.

The needs of disabled people shall be considered in the design of emergency evacuation arrangements.

E3  Vehicular access

E3.1 Platforms where vehicular traffic is permitted or required

If access for vehicles is permitted and/or if access for emergency vehicles is required, adequate clearances for such vehicles shall be provided. Where vehicles are restricted to certain areas or routes, the limits of such areas or routes shall be clearly marked on the surface of the route on which they are permitted to travel.

E3.2 Prevention of unauthorised vehicular access

If the platform is not designed to permit vehicular access, barriers shall be provided to prevent such access where necessary, without causing undue obstruction to passenger movement.

E3.3 Segregation of vehicular and pedestrian traffic

Consideration shall be given to the segregation of vehicle and pedestrian movements at stations (for example, on platforms and bridges) where these movements pose a risk to safety.

E4  Sub-surface stations

E4.1 Number, width and location of exits from platforms

For all sub-surface stations, the number, width and location of exits from the platform shall be such that the maximum design passenger capacity of a fully occupied train, and any passengers occupying the platform when the train arrives, can be evacuated from the platform in an emergency within the time period specified by the relevant Fire Authority.
Infrastructure Requirements at Stations

For all sub-surface stations, each platform shall have a minimum of two exits for use in an emergency.

E4.2 Calculation of emergency exit capacity
In calculating the time period to evacuate a platform in an emergency, one exit shall be assumed to be closed.

At all sub-surface stations, escalators providing access to, or egress from, platforms shall be considered as fixed staircases for calculation of emergency exit capacity, with one escalator not available.
Infrastructure Requirements at Stations

Part F   Lighting

F1 Provision of lighting

All platforms, including subways, footbridges and the accesses to, and egresses from, the platform shall be provided with lighting to enable safe use by passengers and staff in the hours of darkness or low light conditions.

Suitable platform lighting for emergency and escape shall be provided at all sub-surface stations.

F2 Requirements for station lighting

Requirements for location of isolated columns for new lighting or alterations to lighting, and the headroom to suspended lighting, are set out in Part D.

General requirements for station lighting are set out in GI/RT7010.

Particular requirements for lighting for driver only operated stations are set out in GE/RT8060.
Infrastructure Requirements at Stations

Part G  Platform signs and markings

G1 General requirements for signs

Requirements for the specification and positioning of operational safety signs are set out in GI/RT7033.

The requirements for warning notices for electrified lines are set out in GM/RT1041.

Requirements for location of isolated columns for new signs or alterations to signs, and the headroom to suspended signs, are set out in Part D.

G2 Passenger information signs

At all stations, passenger information signs shall be provided to clearly indicate:

a) access to, and egress from, platforms
b) station name and, where appropriate, the unique platform identity
c) emergency escape routes
d) emergency telephones and help points where provided
e) disabled facilities, where provided
f) routing of passengers via a subway or footbridge and routing of disabled passengers where this is different
g) the parts of the station out of bounds to members of the public.

Sufficient illumination shall be provided for these signs to be visible in the hours of darkness or low light conditions when the station is open to station users (see also Part F).

G3 Passenger and staff warning signs

At all stations, passenger and staff warning signs shall be provided at:

a) locations with high voltage electrical equipment
b) the top of platform ramps or redundant platforms barred to unauthorised persons
c) other access points where there is a risk of injury from unauthorised entry.

Consideration shall be given to the provision of appropriate warning signs where wide gaps and stepping distances between train and platform edge are unavoidable.

Section M sets out particular requirements for signage to warn passengers about the aerodynamic effects of trains passing at speeds exceeding 100 mph.

G4 Signs for vehicular traffic at stations

In all cases where vehicular access is permitted onto a platform, signs clearly visible to vehicle drivers shall be provided to show any vehicle or axle weight limits and vehicle height limits which apply.
G5 Signs for stopping position of trains

Signs shall be provided at all through platforms where there are variations in train length to indicate to drivers of passenger trains the authorised stopping position of the front of all trains that regularly stop at the platform.

G6 Marking platforms edges

Platform edges shall be clearly identified by visible marking and provision of a tactile surface. Such marking shall not be provided to the edge of platform ramps except where ramps are used for access under normal operating conditions. The SRA code of practice ‘Train and Station Services for Disabled Passengers’ sets out requirements for the tactile surface.

Section M sets out particular requirements for yellow lines on platforms to warn passengers about the aerodynamic effects of trains passing at speeds exceeding 100 mph.
Infrastructure Requirements at Stations

Part H Services

H1 Location of new buried services

H1.1 Depth of new buried services clear of the track
Every service shall be placed at such a depth as to avoid any damage or danger which may come about by any reasonably expected use or disturbance of the ground above the service.

The minimum depth for the following buried services shall be:

a) gas 600 mm
b) water 750 mm
c) electricity 450 mm.

H1.2 Location of new buried services in the vicinity of the track
No buried service shall be installed closer than 1380 mm to the edge of the nearest running rail (measured horizontally) unless its minimum depth is 900 mm below the underside of the sleepers at the point considered.

All buried services under the track and closer than 1380 mm to the edge of the nearest running rail (measured horizontally) shall be designed to be adequate to carry the imposed loading from the track. The design of temporary works provided for the installation of such services shall afford adequate support to the tracks.

H1.3 Common excavation for services
Where a common excavation is provided for more than one type of service, (for example, gas pipes and high voltage electric cables), either a minimum clearance between the different buried service types of 300 mm shall be maintained or the different buried service types shall be installed in either separate ducts or separate chambers of multi-chamber ducting.

H1.4 Relationship to existing buried services
The placement of new buried services shall take account of the locations of existing buried services, in particular the potential for electromagnetic interference. The requirements for electromagnetic compatibility are set out in GE/RT8015.

H1.5 Access manholes, thrust and reception pits
The following items shall be considered when determining the location of access manholes, thrust and reception pits:

a) access during construction and installation of the services
b) access for inspection and maintenance after completion.

The covers for access manholes, thrust and reception pits shall be designed to prevent unauthorised operation and to provide safe access for legitimate operation.

H2 Protection of new buried services

H2.1 Marking the route of buried services
Buried services shall be marked at appropriate regular intervals along the line of the service route and at any changes of the line of the route. The marker plates used for this purpose shall, as a minimum, describe the type of service, the position and depth of the service.
H2.3 Incorporation of warning measures
As far as practicable all buried services shall be laid incorporating warning measures to ensure that any person excavating the ground above any service receives warning of its presence. It is permitted to use protective tiles, warning tape, cable markers or other devices, as appropriate, but in the absence of any other marking on non-metallic services, a warning tape containing a metallic core shall be installed at least 150 mm above the service.

The colour coding for buried service, pipes and marker/warning tapes is set out in legislation. Existing services do not necessarily conform to current legislation in respect of colour coding.

Where required by relevant national or international standards, cables shall be indelibly marked with their rated voltage.

H2.4 Protection of cables (high and low voltage)
Buried high and low voltage cables shall be protected by an electrically continuous metallic screen, such as steel wire armour or concentric neutral connected to earth. Joints and terminations shall be protected by recognised mechanical means, such as sleeving, boxing or over sheathing.

The protection shall be placed to ensure that any tool or device likely to be used in the vicinity shall make contact with the protective screen before it can make contact with the conductor.

It is permissible to exempt low voltage dc cables, signalling equipment cables and cables for communication services from the requirement to be protected by an electrically continuous metallic screen so long as, when buried, the cables are mechanically protected by means such as ducting. This means of protection shall be in addition to any cable insulation or sheathing.

H2.5 Protection of services other than cables (high and low voltage)
No special protection is normally required for these services. However, consideration shall be given to the risks involved and additional mechanical protection provided (for example, ducting, steel pipe, concrete troughing, plastic pipe) where particularly heavy loading conditions exist.

H3 Particular requirements for services in platforms

H3.1 Location of new services in platforms
Service routes in station platforms shall be located so that they do not present a hazard to station users.

New service routes (including associated chambers) in station platforms shall be located at a distance sufficiently far back from the platform edge to permit safe access whilst trains are running.

All new services within solid fill platforms shall either be ducted or treated as buried services. In the latter case, the requirements of section H1 shall be applied, but with the depth of the services measured from the platform surface.

All new service routes within voided platforms shall either be ducted or placed beneath the platform slab.

If ducted, different service types shall be installed in either separate ducts or separate chambers of multi-chamber ducting.

The placement of services shall take account of the locations of existing services, in particular the potential for electromagnetic interference. The requirements for electromagnetic compatibility are set out in GE/RT8015.
Infrastructure Requirements at Stations

**H3.2 Protection of services in platforms**
Where appropriate, the requirements of section H2 shall be applied to services in platforms.

**H3.3 Covers to service accesses in platforms**
Covers to service accesses (for example, manholes, service chambers, cable pits, ducts) shall:

a) be capable of withstanding an imposed loading commensurate with platform usage and platform design loading set out in section C1

b) meet the requirements for materials for platform surfaces set out in section C2.1

c) be secured against unauthorised lifting or removal

d) provide safe access for legitimate operation

e) be designed to avoid being lifted by the aerodynamic effects of passing trains.

Where services to trains are provided at the edge of platforms, they shall be protected when not in use by a movable cover that meets the requirements of this section.

**H4 Requirements for other service routes**
Service routes in stations shall be located so that they do not present a hazard to station users.

New service routes (for example, in canopies) shall be located at a distance sufficiently far back from the platform edge to permit safe access whilst trains are running.

**H5 Requirements for all services**

**H5.1 Inspection and maintenance of services**
A plan shall be prepared and implemented that takes account of the necessary inspection, maintenance and decommissioning arrangements for services to ensure the protection of the operational railway and continuity of the service. The plan shall include any requirements for monitoring and subsequent repairs necessary to ensure the continued safe operation of the railway.

**H5.2 Abandonment of services**
Where there is a proposal to abandon a service it shall be removed unless justified by the particular site constraints. Where a service is not removed, this shall be recorded.

**H5.3 Change of use for a new service**
Endeavours shall be made to ensure that no change of use of a service within the scope of this document is undertaken without prior agreement between the relevant Railway Group member and the service provider.

**H5.4 Records of services**
Records (including plans if necessary) shall be kept for all known services. Records shall include details, where these are known, of the position and depth below surface level (where relevant) and the number, construction, and configuration of ducts. As additional information becomes available, it shall be added to the records to update them.

Records shall also include the user and/or owner of the service and a point of contact.
Copies of records shall be made available to people who can show reasonable cause for requiring the information contained in the records.

Arrangements shall be in place to provide identification of positions of known services to assist in dealing with emergencies.
Infrastructure Requirements at Stations

Part J  Fire precautions

J1  Fire safety of materials

The requirements for fire safety of materials that are used in the construction of stations, associated structures, lighting and platform furniture are set out in GE/RT8005. GE/RC8505 sets out recommendations for the fire safety of such materials and also identifies where compliance with such recommendations is required by the Fire Precautions (Sub-surface Railway Stations) Regulations 1989.

J2  Referral to fire authority

The Fire Precautions Act 1971 sets out the requirements for the referral of new stations or stations subject to alteration to the relevant Fire Authority.

Additional requirements are set out in Fire Precautions (Workplace) Regulations 1997 as amended 1999. At the time of publication of this document, these Regulations were subject to review.

J3  Fire protection arrangements

The fire protection arrangements for a platform area shall be compatible with the arrangements for the whole station and shall include consideration of requirements for the following:

a) evacuation procedures (including communication requirements associated with the evacuation)

b) escape routes

c) emergency lighting

d) smoke detectors

e) fire alarm system(s)

f) fire extinguishers.

J4  Sub-surface stations

The Fire Precautions (Sub-surface Railway Stations) Regulations 1989 set out a number of requirements for sub-surface stations.
Part K  Managing the risk from unauthorised access and vandalism

There are particular compliance requirements associated with this part of the standard. These are set out in section B2.2.

K1  Requirement for risk assessment

The station operator shall carry out a risk assessment to identify the need for measures to reduce risk arising from unauthorised access and vandalism (as defined in section B3) after any of the following:

a) an incident of unauthorised access results in an accident (as defined in section B3)

b) an act of vandalism

c) a trend in incidents of unauthorised access is identified.

K2  Content of the risk assessment

K2.1  Likelihood of unauthorised access or vandalism

In assessing the likelihood of recurrence of unauthorised access or vandalism, the risk assessment shall take into account the following:

a) the number, frequency and details of recorded incidents (see section K5)

b) the land use adjacent to the station (for example, school, playing field, shopping centre or other facility where large numbers of people are likely to gather)

c) the number of platforms and the ease with which passengers can change or access platforms

d) incentives for unauthorised access or vandalism

e) any other relevant factors.

K2.2  Consequences of unauthorised access or vandalism

In assessing the potential consequences of recurrence of unauthorised access or vandalism, the risk assessment shall take into account the following:

a) the consequences of previously recorded incidents (see section K5)

b) the characteristics of the operational railway at the station (for example, the track layout, presence of electrification equipment, proximity to a tunnel entrance or exit)

c) the speed and frequency of trains using or passing through the station and the presence or absence of obstacle deflectors on trains

d) the presence and vulnerability of particular safety critical equipment

e) the more severe consequences that could result from vandalism.
Infrastructure Requirements at Stations

K3 Action following a risk assessment

Following a risk assessment, carried out in accordance with section K1, the station operator shall have procedures in place to:

a) determine whether the existing measures to deter unauthorised access or vandalism are adequate
b) if the measures are not adequate, determine the course of action and the timescales required for repairing, maintaining or changing the measures to deter unauthorised access or vandalism so that they are adequate
c) determine the frequency of any required inspections of measures to deter unauthorised access or vandalism
d) carry out any course of action that has been determined
e) check that the course of action has been carried out to the required standard and within the specified timescale.

Appendix 2 sets out a non-exhaustive list of measures for consideration in order to reduce risk from incidents of unauthorised access and vandalism.

K4 Recording results of risk assessment

The station operator shall keep records of any risk assessment carried out in accordance with section K1. Such records shall include, as a minimum:

a) the existing measures reviewed
b) any additional measures considered
c) any measures repaired, maintained or changed
d) any measures rejected
e) a justification for the action taken.

K5 Identifying trends and patterns of incidents

The station operator shall have a procedure in place to identify trends and patterns of incidents of unauthorised access and vandalism.

The procedure shall include a requirement to record the following, if known, for each incident:

a) the station and point of unauthorised access
b) in the case of vandalism, the location where the vandalism took place
c) the time and date of the incident
d) the demographic profile of the person committing the act of unauthorised access or vandalism
e) the reason for the unauthorised access (short cut, vandalism)
f) any incentives that affected the act of unauthorised access or vandalism.
Infrastructure Requirements at Stations

K6 Incidents of unauthorised access not requiring a risk assessment

K6.1 Reviewing the adequacy of existing measures
Where incidents of unauthorised access occur, but do not require a risk assessment in accordance with section K1, the station operator shall review the adequacy of existing measures to deter such incidents.

The review shall take into account, where appropriate:

a) the recorded data associated with the incident (see section K5)

b) related safety intelligence (for example, from the initiatives taken in accordance with section K7).

Where the measures are found to be inadequate, the station operator shall take action to repair, maintain, improve or change the measures in place to ensure that risk arising from unauthorised access is adequately controlled.

K7 Increasing awareness of risk from unauthorised access and vandalism

Station operators shall take action to increase the awareness of the public of the risk from unauthorised access and vandalism.

Where appropriate, these actions shall take into account comparable action required by GE/RT8063.
Part L  Design for deterring unauthorised access at a station

The need to deter unauthorised access shall be taken into account in the design of stations (for example, in the design of fencing and openings, the design of lighting, location of buildings, station roofs, canopies and other structures).

L2 Particular requirements for design

L2.1 Deterrence of unauthorised access onto platforms
Fencing shall be provided and maintained at the rear of single face platforms to deter unauthorised access and to protect people from falling off the rear of the platform, except where:

a) there is authorised access
b) the platform is in a cutting, there is no drop at the rear of the platform and there is adequate boundary fencing.

L2.2 Deterrence of unauthorised access under platforms
Where unauthorised access is likely at the back of voided platforms, fencing shall be extended to ground level, or other means provided to deter such access (for example, a mesh screen).

L2.3 Design of fencing to withstand surge loading
Where there is a likelihood of crowd loading, fencing shall be designed to withstand appropriate lateral surge loading.

L2.4 Openings in platform fencing
Apart from authorised access points, the openings in platform fencing shall be small enough to prevent children being able to climb through the fence and to minimise the likelihood of parts of their bodies from becoming easily trapped in the openings.

Unless otherwise justified, the openings in fencing to the rear of single face platforms shall not permit the passage of a 100 mm diameter sphere.

L2.5 Design of platform ends at new stations

L2.5.1 Provision of ramps
Ramps at the end of new station platforms shall not be provided unless their presence is justified, for example because the ramp is used:

a) by train crew or station staff
b) as an access point for people authorised to work on or near the line
c) as part of the emergency evacuation procedures for the station.

L2.5.2 Barriers to deter unauthorised access
Barriers to deter unauthorised access, together with appropriate warning signs, shall be provided at the end of new station platforms. The design of the barriers shall take into account:

a) clearances to passing trains (making allowance for open doors on slam-door rolling stock)
b) the need for access to and from platforms by station staff, train crews and infrastructure maintenance staff (for example, by means of a gate)
c) the proximity of other track access points in the vicinity
Infrastructure Requirements at Stations

d) if a gate is provided, the means of securing the gate

e) compatibility with station evacuation plans

f) the height, robustness and limitations on openings required to make the barrier effective.

Where a new station platform is provided with a ramp, the barrier and warning sign shall be located immediately before the start of the ramp.

L2.5.3 Dimension of ramps to platform ends when provided
Where ramps to new platforms are justified they shall not be steeper than 1 in 8 or flatter than 1 in 12. Such ramps shall be the same width as the platform unless the particular site circumstances prevent this.

If physical constraints prevent a full width ramp being provided at new platforms, the maximum ramp width achievable shall be provided. In addition, where applicable, fencing shall be provided.

If a new platform or extension of an existing platform intercepts a lineside walking route, arrangements at the ramp shall be made to maintain a safe thoroughfare.

L2.6 Design of platform ends at existing stations
The requirements of section L2.5 shall be applied when alterations (as defined in section B3) to existing platforms are being carried out.

Appendix 2 recommends consideration to be given to provision of barriers at platform ends and, where appropriate, removal of platform ramps as a measure to reduce the likelihood of incidents of unauthorised access or vandalism originating at a station.

L2.7 Platforms located on a bridge
Where single face platforms are on bridges and the rear of the platform is close to the edge of the bridge, a bridge parapet or fence whose inner face is smooth and without handholds or footholds shall be provided and maintained for the length of the platform and any platform ramp on the bridge.

L2.8 Platforms located above an overhead electrified railway
In addition to the requirements of section L2.7, fences or parapets to platforms over a railway electrified by the overhead system shall be imperforate, of a minimum height of 1500 mm and extend a minimum 3000 mm beyond any uninsulated electrical equipment. They shall also be bonded to the general mass of the earth to counter induction currents (see also GE/RT8025).

L2.9 Ramps at platform ends adjacent to level crossings
Unless the ramp provides an authorised means of public access to the platform, platform ramps close to a level crossing shall be provided with appropriate measures (for example, cattle-cum-trespass guards) to deter unauthorised access to the track side of the level crossing barriers.

GI/RT7011 and GI/RT7012 set out additional requirements for level crossings.
Infrastructure Requirements at Stations

Part M Protection from aerodynamic effects of passing trains

M1 Aerodynamic effects of passenger trains passing at speeds greater than 125 mph

At station platforms where the permissible or enhanced permissible speed on the adjacent line is greater than 125 mph, the station operator shall prevent people from gaining access to the parts of the platform exposed to the aerodynamic effects of trains passing at speeds exceeding 125 mph.

M2 Aerodynamic effects of passenger trains passing at speeds greater than 100 mph but not exceeding 125 mph

M2.1 New station platforms

At new station platforms, where the permissible or enhanced permissible speed on the adjacent line is greater than 100 mph, a yellow line shall be provided on the platform, together with warning signs. The yellow line shall be positioned so that people standing immediately behind the line are at least 1500 mm away from the platform edge.

M2.2 Existing station platforms or station platforms subject to alteration

At existing station platforms and station platforms subject to alteration, where passenger trains pass or are proposed to pass on the line adjacent to a platform at speeds greater than 100 mph, warning signs shall be provided together with a yellow line, in accordance with section M2.1, unless the position of the yellow line is likely to lead to overcrowding.

Where the position of the yellow line in accordance with section M2.1 is likely to lead to overcrowding, the station operator shall take action to mitigate the risk from the aerodynamic effects of passing trains to lightweight objects and vulnerable passengers on the station platform (for example, pushchairs, the elderly or frail).

The action shall be determined on the basis of a risk assessment, as set out in section M4.

There are particular compliance requirements set out in section B2.2 where passenger trains currently pass on the line adjacent to a platform at speeds greater than 100 mph.

M2.3 Increasing the speed of trains above 100 mph

Where it is proposed to increase the speed of trains passing on the line adjacent to the platform to a speed greater than 100 mph, the infrastructure controller shall notify the station operator to enable the action required by section M2.2 to be carried out.
M3 Aerodynamic effects of freight trains passing at speeds greater than 60 mph

M3.1 Reducing the risk from the aerodynamic effects of freight trains passing at speeds greater than 60 mph

At station platforms where freight trains (including container traffic but excluding those trains with the same aerodynamic profile as passenger trains, such as mail trains) pass, or are proposed to pass, on the adjacent line at speeds greater than 60 mph, the station operator shall take action to reduce the risk from the aerodynamic effects of passing trains to lightweight objects and vulnerable passengers on station platforms (for example, pushchairs, the elderly or frail).

The action shall be determined on the basis of a risk assessment, as set out in section M4.

M3.2 Introducing new freight train services

Where it is proposed to introduce new freight train services, which would pass through a station at speeds greater than 60 mph and could therefore expose station users to harmful aerodynamic effects, the infrastructure controller shall notify the station operator to enable the action required by section M3.1 to be carried out.

M4 Risk assessment to determine actions

M4.1 Risk assessment to determine actions

The action required when the conditions set out in section M2.2 or section M3 exist, shall be determined on the basis of a risk assessment that takes into account:

a) the anticipated number of lightweight objects and vulnerable station users at risk
b) the speed, type and frequency of trains passing
c) the possible freight vehicle configuration and their loads (particularly container vehicles where some are carrying containers and some are not)
d) the layout of station structures on the platform
e) the level of exposure of the platform to cross-winds
f) the level of station staffing
g) any recorded incidents or accidents at the station caused by the aerodynamic effects of passing trains.

Where both passenger trains at speeds greater than 100 mph and freight trains at speeds greater than 60 mph pass, it is permissible for the risk assessment and subsequent actions to be considered together.

M4.2 Mitigation measures to be considered

When determining appropriate action, consideration shall be given to the following mitigation measures:

a) the provision of warning signs and platform markings
b) the provision of marked safe areas for the use of waiting passengers
c) poster campaigns to alert people to the dangers from the slipstream effects of passing trains, particularly to unrestrained pushchairs
d) announcements warning people of the risk (in addition to those required by GE/RT8000)
Infrastructure Requirements at Stations

e) staff attendance

f) the agreement of the train operator to minimise the aerodynamic effects of the train (for example, for container trains, by using continuously loaded trains with all unloaded container vehicles at the end of the train, or by using empty containers to fill any gaps between loaded containers)

g) the agreement of the train operator to reduce the speed of trains.

GE/RT8000 sets out requirements for managing the safety of passengers and station equipment on platforms.
Part N  Provision for disabled passengers

The provision of facilities to cater for the requirements of disabled passengers shall be taken into account at an early stage of the design of a new station or the alteration of a station.

The Strategic Rail Authority has published a code of practice ‘Train and Station Services for Disabled Passengers’. This code of practice states that ‘all licensed passenger train operators and station operators are required as a condition of their licence to have due regard to this code of practice when providing facilities or services for passengers with disabilities’.
Infrastructure Requirements at Stations

Part P  Design for passenger security

The security of passengers on platforms from personal attack shall be taken into account in the design of stations (for example, in the design of the lighting, the location of buildings, canopies and other structures).

Further information on designing for passenger security can be obtained from the Department for Transport guidelines for ‘Personal Security on Public Transport’.
Appendix 1
Letter of Undertaking from Network Rail

Network Rail
40Melton Street
London NW1 2EE
Tel: +44(0)20 7337 8000
Fax: +44(0)20 7337 9000

Mr. George Muir
Director General
Association of Train Operating Companies
3rd Floor
40 Bernard Street
London
WC1N 1BY

21st May 2003

Dear George,

RAILWAY GROUP STANDARD GI/RT7008

Thank you for your email of yesterday morning in response to my letter of 19 May.

I am writing to confirm Network Rail’s position in greater detail. However, I consider this can be succinctly stated by reference to the Station Access Conditions.

Accordingly, I confirm Network Rail accepts that, at stations it owns, it is obliged to comply with Railway Group Standard GI/RT7008 in relation to the carrying out of activities by itself or at its request in connection with matters that are Network Rail’s responsibility in respect of maintenance or repair pursuant to Condition D4 of the National Station Access Conditions (1996). You will note in that Condition, 4.1.1 refers to maintenance and/or repair of items of Equipment and Elements of the Station listed as Network Rail’s responsibility in the relevant Inventory, and 4.1.2 addresses the repair of Elements of the Station not listed as the responsibility of Network Rail or the Station Facility Owner.

It follows that Station Facility Owners retain responsibility for compliance with GI/RT7008 in respect of mace-re-identified as their obligation to maintain and/or repair and in respect of the activities of their own staff and contractors. Insofar as not covered above, I confirm that Network Rail for the purposes of GI/RT7008 manages the Interface with the utility companies in respect of third party services except in respect of matters that are the Station Facility Owner’s responsibility under the National Station Access Conditions.

The general statements of responsibility in this letter are subject to any variations agreed in relation to particular stations concerning maintenance and/or repairing obligations as contained in the terms of individual station leases.

Continued
I believe this letter meets the requirements of Table A (ii) of the Revised Note of 9 May meeting, I accordingly look forward to hearing from you in relation to the next steps which were identified at that meeting.

I have also sent this letter to Len Porter at RSSB.

Yours sincerely

John Abbott
Director, HSQE Systems
Appendix 2  Possible measures to reduce recurrence of unauthorised access and vandalism at stations
(This appendix is non-mandatory)

The following is a non-exhaustive list of measures to be considered to reduce unauthorised access and/or vandalism at stations:

A2.1  Measures to deter unauthorised access and vandalism
a)  improvement of station boundary security arrangements
b)  more frequent inspection of security measures
c)  provision or improvement of CCTV equipment, or improved usage of existing functionality
d)  provision of barriers at platform ends and, where appropriate, removal of platform ramps
e)  provision of increased lighting at platform ends (taking into account any possible interference with train control equipment)
f)  provision of new or additional warning signs
g)  use of markings, such as cross-hatching, at the top of platform end ramps to indicate unauthorised areas
h)  provision of additional station staff and/or provision of improved staff training, possibly in conjunction with other involved parties
i)  liaison with British Transport Police.

A2.2  Measures to remove incentives for unauthorised access and vandalism
a)  improving accessibility to platforms within the station
b)  removing or reducing other incentives for unauthorised access or vandalism
c)  liaison with Youth Offending Teams and other community care agencies such as truancy teams.

In determining the measures to reduce unauthorised access and vandalism, any adverse effect that the measures could have on the access provisions for disabled people should be taken into account.
Infrastructure Requirements at Stations

Appendix 3  Diagram illustrating requirements for headroom at station platforms
(This appendix is non-mandatory)

Required clearance to kinematic envelope (see GC/RT5212)

2500 mm
2300 mm

x = 3000 mm where speed > 100 mph, or 2000 mm elsewhere
Infrastructure Requirements at Stations

References

Railway Group Standards and other Railway Group Documents

GA/RT6001 Railway Group Standards Change Procedures
GA/RT6004 Temporary Non-Compliance with Railway Group Standards
GA/RT6006 Derogations from Railway Group Standards
GC/GN5533 Assessment of Risks from Train Overruns at Terminal or Bay Platforms
GC/RT5033 Terminal Tracks - Managing the Risk
GC/RT5100 Safe Management of Structures
GC/RT5101 Technical Approval Requirements for Changes to the Infrastructure
GC/RT5110 Design Requirements for Structures
GC/RT5112 Loading Requirements for the Design of Bridges
GC/RT5212 Requirements for Defining and Maintaining Clearances
GE/RC8505 Recommendations for the Fire Safety of Materials at Operational Premises
GE/RT8000 Rule Book
GE/RT8005 Fire Safety of Materials at Operational Premises
GE/RT8015 Electromagnetic Compatibility between Railway Infrastructure and Trains
GE/RT8025 Electrical Protective Provisions for Electrified Lines
GE/RT8034 Maintenance of Signal Visibility
GE/RT8060 Technical Requirements for Despatch of Trains from Platforms
GE/RT8063 Lineside Security
GI/GN7515 Guidance on Automatic Ticket Gates at Stations
GI/RT7002 Acceptance of Systems, Equipment and Materials for Use on Railtrack Controlled Infrastructure
GI/RT7008 Pipelines, Buried Services and Undertrack Crossings
GI/RT7010 Lighting of Railway Premises
GI/RT7011 Provision, Risk Assessment and Review of Level Crossings
GI/RT7012 Requirements for Level Crossings (currently in draft)
GI/RT7015 Automatic Ticket Gates at Station
GI/RT7016 Interface Between Station Platforms, Track and Trains
GI/RT7033 Lineside Operational Safety Signs
GM/RT1041 Warning Signs and Notices for Electrified Lines
GM/RT1201 Escalators and Passenger Conveyors on Railway Stations
GM/RT1251 Escalators and Passenger Conveyors – Registration and Periodic Examination Details and Records
GO/RT3471 Incident Response Planning

The Catalogue of Railway Group Standards and the Railway Group Standards CD-ROM give the current issue number and status of documents published by RSSB.
Infrastructure Requirements at Stations

Other References
Department for Transport guidelines for ‘Personal Security on Public Transport’
Fire Precautions Act 1971
Fire Precautions (Sub-surface Railway Stations) Regulations 1989
Fire Precautions (Workplace) Regulations 1997 as amended 1999
(At the time of publication of this document, fire legislation was subject to review)
HMRI Railway Safety Principles and Guidance
Code of Practice ‘Meeting the Needs of Disabled Passengers’ published by the Office of the Rail Regulator
Strategic Rail Authority code of practice ‘Trains and Station Services for Disabled Passengers (February 2002)"