



Department
for Education

School output specification

**Technical annex 2B: external spaces and
grounds**

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Summary

Technical Annex 2B provides the minimum requirements for creating external school spaces for building users. It is to be read in conjunction with the Generic Design Brief (GDB) and the School-specific Brief (SSB).

Who is this publication for?

This document is for technical professionals involved in the design and construction of school premises, as part of the Employer's Requirements of the DfE Construction Frameworks (the DfE Construction Framework 2021 and the Offsite Schools Framework (incorporating Modular and MMC delivery) (MMC)). It may also be used as the basis of similar documentation for other procurement routes using the Output Specification.

Uniclass codes

This document captures Uniclass codes for the management of exchange of information. To access all codes and associated titles reference should be made to [Uniclass 2015 | NBS \(thenbs.com\)](#).

Revision history

This table lists the key changes in each update.

ISO revision code	ISO status code	Date	Amendment
C01-C10	A	2016-2020	Previous OS versions
C11	A	2021-11-23	Amended issue of publication
C12	A	2022-05-27	CF21/MMC Consultation changes on NZCiO. Clause 6.4 added
C13	A	2023-12-18	Amendments made at: 7.1.1, 7.1.2, 7.1.4, 7.1.6, 7.1.8, 7.1.9, 7.1.10, 7.1.12, 7.1.13, 7.1.14, 8.3.2, 8.3.3

1 Introduction

1.1 Overview

1.1.1 This document is one of the Technical Annexes that forms part of the Generic Design Brief (GDB). [PM_10_20]

1.1.2 The definitions listed in GDB shall apply to this Technical Annex and all other parts of the Output Specification. [PM_10_20]

1.1.3 This document shall be read in conjunction with the GDB and all other Technical Annexes as well as the SSB, including the School-specific Annexes. [PM_10_20]

1.1.4 This document sets out the required technical standards and performance criteria for external space and grounds. [PM_10_20]

1.1.5 The information exchange required at each stage of the design, build and completion process is detailed in the DfE's Exchange Information Requirements (EIR). [PM_10_20_28]

1.1.6 The requirements in this Technical Annex shall apply to all parts of the works; New or Refurbished. [PM_10_20]

1.1.7 This Technical Annex shall apply to all external spaces and grounds (as defined in BB103 and BB104, including all external elements such as lighting, fencing, play equipment etc) and shall:

- a) apply to all external areas, facilities and equipment adjacent to or supporting any New or Refurbished Buildings (including areas required for access, or which are affected or disturbed due to the proposed Works) [PM_10_20]
- b) apply to parts of the existing grounds within the Site that are specifically described in the SSB [PM_10_20]
- c) apply to all parts of the Site where designated a Whole School Project in the SSB [PM_10_20]
- d) not apply to existing grounds beyond the Site except for any part that is specifically described in the SSB (for instance for consequential work). [PM_10_20]

1.1.8 The categories and the types of external space described in this document reflect those in BB103 and BB104 for:

- a) soft and hard outdoor PE (part of the Net Site Area) [PM_10_20]
- b) soft and hard informal and social area (part of the Net Site Area) [PM_10_20]
- c) habitat area (part of the Net Site Area) [PM_10_20]

d) Non-net Areas (all parts of the Non-net Site Area except the footprint of Buildings, but not including routes within the Net Site Area such as footpaths through informal and social areas). [PM_10_20]

2 General requirements

2.1 Overview

2.1.1 The Project shall implement a Green Infrastructure strategy to meet the requirements as defined in Technical Annexes 2H and 2J. [PM_35_40]

2.1.2 The external space requirements set out in the GDB, SSB and Annex 1C shall be provided. [PM_10_20_90]

2.1.3 The Minimum Life Expectancy requirements set out in the GDB Section 2.4 and External Space and Grounds Table 4 shall be met. External spaces and or facilities shall meet the requirements identified in this Technical Annex. [PM_35_10_47]

2.1.4 Materials or finishes used in external spaces shall:

- a) be selected with due regard to their performance, durability, ease of cleaning, maintenance and repair, resistance to accidental or malicious damage and to their environmental impact [PM_35_10_47]
- b) not contravene any planning conditions [PM_10_20]
- c) be sufficiently robust to stand up well to prevailing weather conditions and heavy use typical of a School [PM_35_10_47]
- d) considered holistically, taking into account the impact on the natural microclimate e.g., tarmac against buildings. [PM_35_40]

2.1.5 Landscaping included in the Works and any new or replacement outbuildings shall meet the requirements of the section on [Outbuildings and External Storage](#). [PM_10_20_90]

2.1.6 New or replacement fencing shall meet the requirements of the section on [Fencing and Barriers](#). [PM_10_20_90]

2.2 Refurbishment of external space and grounds

2.2.1 Work required to Refurbished Buildings shall be as defined in the Refurbishment Scope of Works (RSoW), under the headings of architectural elements (including FF&E) and M&E elements (including ICT Infrastructure). [Ac_10_70_70]

2.2.2 External spaces adjacent to Building(s), including hard paved areas, mains services and drainage plant, shall be delivered under one of the following categories: Renewed, Replaced, Repaired, Retained or have 'No Work'.

- a) Renewed external space or grounds shall be designed to satisfy the relevant outputs of the GDB as well as this Technical Annex. [Ac_10_70_70]

- b) Replaced external space or grounds shall satisfy the relevant outputs of the GDB as well as this Technical Annex, as far as possible within the constraints of the location, the adjacent elements, and the sub-structure. [Ac_10_70_70]
- c) Repaired external space or grounds shall comply with the specifications in any project-specific specification or drawing issued as part of the SSB. The overall performance after repair shall be at least as good as that of the existing provision. [Ac_10_70_70]
- d) Retained external space or grounds shall be left as existing, with minimal work required unless needed to complete other Works that form part of the Project, and the overall performance shall be no worse than the existing performance. [Ac_10_70_70]
- e) Elements requiring 'No Work' shall be left as existing. [Ac_10_70_70]

2.2.3 External space or grounds on the Site not identified in the SSB shall be deemed to require 'No Work', as described above. [PM_10_20]

2.2.4 In respect of Refurbished Works, the required level of compliance with this Technical Annex is set out in the RSoW. [PM_10_20_90]

2.2.5 The requirements in this Technical Annex refer to all parts of the Works, as set out in the SSB, except any external space and grounds that are designated Repaired, Retained or 'No Work' in the RSoW. [PM_10_20_90]

2.2.6 All refurbishment works shall be assessed to identify where retrospective legislation may apply and works shall be carried out to comply. [Ac_10_70_70]

3 Outdoor Physical Education (PE)

3.1 Overview

3.1.1 The overall area of the outdoor PE spaces is as defined in Building Bulletin 103 (BB103). [PM_10_20_90]

3.1.2 Sports pitches and courts provided shall:

- a) meet the School's PE and sports requirements set out in the SSB [PM_10_20_90]
- b) have surfaces that are level, drain well and have an even surface free of obstructions with no ponding or static water. [PM_35_50_65]

3.1.3 Requirements for floodlighting to all-weather pitches or multi-use games areas (MUGAs) that are to be used outside the School's Core Hours, under a formal Community Use agreement, shall be as noted in the SSB. [PM_10_20_90]

3.2 Soft Outdoor PE

3.2.1 Soft outdoor PE area can include multi-purpose grassed areas suitable for PE, or areas with artificial all-weather surfaces, such as synthetic turf. These areas shall meet the requirements of Technical Annex 1C. [PM_10_20_90]

3.2.2 Soft outdoor PE areas provided shall have:

- a) a gradient (a uniform fall of approximately 1:100 is the requirement but an even fall of up to 1:80 is allowable along the line of play, or up to 1:40 if it is across the line of play) [SL_42_15_60]
- b) pitch margins and run-offs as set out in Technical Annex 1C, which may overlap with the same type of pitch (an overlap between heavily used winter pitch areas, such as goal mouths, and heavily used summer pitch areas, such as cricket squares or athletics track, shall be avoided) [SL_42_15_60]
- c) reasonable orientation of pitches where possible (an approximately north-south direction is desirable for most games) [SL_42_15_60]
- d) dimensions, surfaces and markings as recommended for Community Use in Sport England guidance 'Comparative Sizes of Sports Pitches & Courts (Outdoor)', 'Natural Turf for Sport' and 'Artificial Surfaces for Outdoor Sport' (restricted sites shall follow the Sport England design guidance on 'Compact Athletics Facilities'). [SL_42_15_60]

3.3 Hard Outdoor PE

3.3.1 Hard outdoor PE area can include hard-surfaced multi-use games courts, and other hard-surfaced areas such as outdoor climbing areas. Surface materials shall meet the

requirements in Technical Annex 1C. Courts shall be defined with thermoplastic line markings. [PM_10_20_90]

3.3.2 The surfaces of any hard outdoor PE area provided for Community Use shall be designed in accordance with Sport England 'Artificial Surfaces for Outdoor Sport'. [SL_42_15_59]

4 Soft and Hard Informal and Social Areas

4.1 Overview

4.1.1 Hard or soft informal and social areas shall comply with the requirements of Technical Annex 1C. [PM_10_20_90]

4.1.2 Informal and social areas required to be adjacent to Teaching Spaces i.e., Outdoor Class Spaces and outdoor training spaces, shall be located immediately outside the relevant Teaching Space. Other informal and social areas provided shall:

- a) be at a safe distance from windows [PM_35_50_65]
- b) be located to avoid low level trip hazards [PM_35_50_65]
- c) be located to avoid physical barriers such as external fire escapes in accordance with AD K [PM_35_30_24]
- d) drain well with no ponding or standing water and have an even surface, free of obstructions [PM_35_50_65]
- e) be level, with the exception of any isolated play mounds which shall be at a height agreed with the Employer and smooth contoured with a maximum gradient of 1 in 3 and edges flush with surrounding surfaces. [PM_35_50_65]

4.1.3 New or relocated play equipment shall:

- a) be on a suitable surface for the equipment being used, as specified in Technical Annex 1C [PM_10_20_90]
- b) comply with BS EN1176 - 'Playground equipment and surfacing General safety requirements and test methods' and BS EN1177 - 'Impact attenuating playground surfacing. Methods of test for determination of impact attenuation'. [PM_10_20_90]

4.1.4 Early Years Outdoor Class Spaces shall have an external canopy which shall provide at least 0.5m² per FTE Early Years pupil place and be at least 2.4m wide. [SL_25_10_61]

4.1.5 Outdoor Class Spaces provided outside a Special School or AP classroom shall be a minimum of 30m² per classroom, and shall be provided with an external canopy of 15m² per classroom and be at least 2.4m wide. [SL_25_10_61]

4.1.6 The canopy provided to the Outdoor Class Space outside an Early Years or Special School or AP classroom shall:

- a) have a structure that is robust and corrosion resistant, and able to resist dead, live, wind and snow loads relevant to its location [Ss_25_50_45_10]
- b) be adjacent to the classroom and designed so as not to obstruct the Building's method of ventilation and daylight design [Ss_25_50_45_10]

- c) have a roof that is robust, transparent and resistant to UV degradation, thermal creep and sun bleaching as well as protecting pupils from UV light
[Ss_25_50_45_10]
- d) collect rainwater and connect into a surface water drainage system or SuDS
[Ss_25_50_45_10]
- e) include lightning protection, if required following an assessment.
[Ss_75_50_45_45]

5 Habitat Areas

5.1 Overview

5.1.1 This section shall be read in conjunction with the requirements in the healthy and productive site section of Technical Annex 2J. [PM_10_20_90]

5.1.2 Habitat areas provided shall comply with the requirements in Technical Annex 1C. [PM_10_20_90]

5.1.3 Habitat areas include managed water habitats, marshes and wetlands, allotments and animal enclosures. Other areas of woodland, meadowland or soft landscaping should be identified as soft informal and social space and be available to pupils throughout the School day (not fenced or gated). [SL_32_80]

5.1.4 Habitat areas shall be separated from other areas with simple fencing to prevent unsupervised access, unless specified otherwise in the SSB. [SL_32_80]

5.1.5 Habitat areas shall be accessible via a gate to ensure that pupils can access the space under supervision, for instance for science lessons. [SL_32_80]

5.1.6 Planted areas shall meet the requirements in the section on [Soft Landscaping and Groundworks](#). [PM_10_20_90]

6 Non-net Site Areas

6.1 Overview

6.1.1 Other than the footprint of the Building(s), the Non-net Site Area can include access and drop-off for people and deliveries, parking, refuse and recycling areas, Outbuildings and Enclosures. [PM_10_20]

6.1.2 In any Non-net Site Areas provided, a means of separating pedestrian access from vehicular circulation, delivery areas, refuse collection areas and parking shall be provided. [PM_10_20]

6.2 Access

6.2.1 Where vehicular or pedestrian access is provided it shall meet the requirements of Technical Annex 1C. [PM_10_20_90]

6.2.2 Surfaces and substructures used by maintenance vehicles and equipment, including mobile elevating work platforms (MEWPs), shall be designed and constructed for this purpose, providing:

- a) sufficient space for safe movement, off-loading and delivering [SL_80_35]
- b) safe ground conditions (terrain and gradient) [SL_80_35]
- c) safe ground-bearing capacity along the route and the Works [SL_80_35]
- d) clear passage between street furniture for access for MEWP equipment of appropriate size for the Building. [SL_80_35]

6.2.3 Surfaces and sub-structures for MEWP access shall meet the requirements in the HSE General Information Sheet No. 6: 'The selection, management and use of mobile elevating work platforms'. [SL_80_35]

6.2.4 Access routes to any new or relocated outbuildings, including storage sheds, garages or plant (such as tanks storage) shall have a suitable surface and sub-structure for the equipment identified to be stored and/or those likely to require access to the spaces. [SL_80_35]

6.3 Outbuildings and External Storage

6.3.1 New or relocated outbuildings or external storage, including storage containers, garages, sheds, greenhouses and animal pens shall be located away from main buildings to prevent risk of spread of fire. [PM_35_30_26]

6.3.2 The design and selection of materials for any new or relocated outbuildings shall be selected with due regard to their performance, durability, ease of cleaning, maintenance and repair and resistance to accidental or malicious damage. [PM_35_10_47]

6.3.3 There shall be controlled and locked access to any outbuildings. [PM_10_20]

6.4 External Covered Areas to accommodate renewable technology

6.4.1 Where the extent of PVs required to meet net zero carbon in operation cannot be accommodated on the school roof, the contractor shall reduce the EUI target as far as reasonably practicable, following a fabric-first approach before assessing the need for alternative locations. [PM_10_20_82]

6.4.2 For secondary schools, if a contractor can demonstrate that they have reduced the EUI as far as reasonably practicable, they may use any structures available across the site which are suitable to support PVs. [PM_10_20_82]

6.4.3 For primary schools, existing structures shall not be utilised. [PM_10_20_82]

6.4.4 External structures shall be designated to support PVs in the following order:

- a) Minimum 55m² external covered outdoor classroom(s) to accommodate 30 pupils for projects with a building GIFA of up to 4305m² and a maximum 110m² to accommodate 60 pupils, where the GIFA exceeds 4305m². [PM_10_20_82]
- b) External covered dining up to a maximum of 90m². [PM_10_20_82]

6.4.5 Designated covered dining areas above 10m² in area shall be provided with lighting. All lighting shall be in accordance with Technical Annex 2E. [PM_10_20_90]

6.4.6 All external structures shall be designed to suit their designated function including technical requirements such as power, ICT, lighting and controls in accordance with the Generic Design Brief and associated Technical Annexes. [PM_10_20_90]

6.4.7 External covered outdoor classrooms shall be provided with two IP65 lockable double power sockets and Wi-Fi coverage in accordance with the requirements in Technical Annexes 2G and 2I, and/or as specified by the ICT Advisor. [PM_10_20_90]

6.4.8 External structures shall have a minimum height of 3m above external ground level, unless otherwise stated in the SSB. [PM_10_20_90]

6.4.9 All new external structures and canopies shall:

- a) be positioned so as not to negatively impact the daylight penetration or ventilation to the school building(s) [PM_10_20_82]
- b) designed to suit the local climate [PM_10_20_82]
- c) be waterproof [PM_10_20_82]
- d) be constructed using materials with a low embodied carbon impact [PM_10_20_82]

e) be risk assessed to identify a safe method of access for maintenance and cleaning purposes. [PM_40_30_22]

7 Soft Landscaping and Groundworks

7.1 Overview

7.1.1 Planting shall be chosen to promote spaces for pupils to experience nature and their natural environment. Planting and trees shall be installed to a high standard and maintained during the establishment (defects liability) period, providing a low maintenance landscape at handover. Planting shall be selected to conserve and enhance biodiversity and allow site management without the use of hazardous pesticides.

[PM_35_40]

7.1.2 All plant stock shall conform to the standards set out in The National Plant Specification to be sturdy, healthy and vigorous, of good shape and without elongated shoots, grown in a suitable environment and hardened off, free from pests, diseases, discoloration, weeds and physiological disorders, have a balanced branch system and be true to name. [PM_10_20_90]

7.1.3 Tree planting shall be in accordance with BS 8545:2014 - 'Trees: from nursery to independence in the landscape: Recommendations'. [PM_10_20_90]

7.1.4 Tree planting in hard landscaped areas shall be planted in accordance with TDAG's Trees in Hard Landscape: A Guide to Delivery and shall include permanent and permeable material or grille at the base of the trunk. [PM_10_20_90]

7.1.5 Shrubs shall be planted in accordance with BS 3936-1:1992 - 'Nursery stock'. Specification for trees and shrubs. [PM_10_20_90]

7.1.6 'Flowering Lawn Mix' shall be utilised instead of meadow grass, unless meadow grass soil, installation and maintenance and management specification is extensive, ensuring meadow areas thrive with minimal future maintenance by the School.

[PM_10_20_82]

7.1.7 All planting shall be non-toxic in accordance with the series of BS 3936 - 'Nursery stock', or good practice advice. [PM_10_20_90]

7.1.8 Loose materials proposed for paths and/or play/social areas shall be agreed with the Responsible Body. [PM_10_20]

7.1.9 For grass and long flowering lawn mix areas, seed and soil experts and seed providers shall be consulted to inform seed selection depending on soil type and condition. [PM_10_20_82]

7.1.10 For top and subsoil specification and the alleviation of compaction during construction, Good Industry Practice shall be followed for all areas to be planted, in accordance with Defra: 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (2009); BS 8601:2013 - 'Specification for subsoil and requirements

for use'; Sport England's Design Guidance Note, 'Natural Turf for Sport' (2011); BS 7370-4 - 'Grounds maintenance. Recommendations for maintenance of soft landscape (other than amenity turf)' and BS 3882:2015 - 'Specification for topsoil'. [PM_10_20_90]

7.1.11 Materials used for the preparation of landscaped areas (whether imported or re-used from the site) shall be free of pests and disease, corrosive materials, fragments of aggressive weeds, sticks, straw, pieces of brick, concrete, glass, lumps of vegetation and rubbish or any other deleterious materials detrimental to human, animal or environmental health, or the impediment of successful plant establishment. [PM_10_20_82]

7.1.12 Trees, plants, seeding and turfing shall only be undertaken in suitable growing seasons and/or when an appropriate watering regime is in place. [PM_10_20_82]

7.1.13 All planted, seeded/turfed areas shall be protected with temporary fencing for a minimum of 6 months from germination/planting and maintained by the Contractor for a minimum of 12 months and/or until successful establishment occurs or the end of the defect's liability period, whichever is longer. [PM_10_20_82]

7.1.14 As soon as the grass and flowering lawn mix have started to establish, a rigorous programme of aftercare shall commence with a sequence of operations to encourage the development of a strong dense sward/flowering lawn mix. If meadows are to be utilised, they shall be established in accordance with RHS's Wildflower Meadow Establishment and have an extensive soil, installation and maintenance/management plan in place. Amenity grass areas shall utilise Sport England's Design Guidance Note, 'Natural Turf for Sport' (2011). This shall continue until the surface is ready for play. [PM_10_20_82]

7.1.15 The Contractor shall be responsible for carrying out this aftercare and maintenance including regular inspection, cutting, watering and required remedial work to turfed/seeded areas 12 months following first acceptance of the planted area. [PM_10_20_82]

7.1.16 Account shall be taken of the drainage conditions of the land and changes in water flows addressed wherever levels are being amended and/or spoil is being retained on site, to avoid excessive flooding, ponding of water on landscape areas and/or topsoil washing onto low lying/paved areas. [PM_10_20_82]

7.1.17 Where existing site trees and woodlands form part of the Works, appropriate measures shall be taken, in accordance with Local Planning Policy and BS5837 to retain, protect and enhance or remove trees in accordance with an Arboricultural Report or Planning Condition(s). [PM_10_20_90]

8 Fencing and Barriers

8.1 Boundary Fencing

8.1.1 Boundary fencing shall be designed to meet the security requirements in the SSB. Boundary fencing shall:

- a) be a minimum of 2.4m in height unless specified in the SSB [Ss_25_14]
- b) be constructed of appropriately spaced posts and panels of anti-climb weldmesh with no horizontal footholds [Ss_25_14]
- c) have gates at agreed locations; the design, height and construction of which match the corresponding fencing system and maintain the same level of security [Ss_25_14]
- d) have gates designed such that a 100mm sphere cannot pass under them when closed and meet The Royal Society for the Prevention of Accidents (RoSPA) guidance to avoid injury such as crushing and finger traps. [Ss_25_14]

8.1.2 Secure Line fencing shall be designed to meet the security requirements in the SSB. Secure line fencing shall:

- a) be a minimum of 2.4m in height in Mainstream Schools and Special Schools unless specified otherwise in the SSB [Ss_25_14]
- b) be constructed of appropriately spaced posts and panels of anti-climb weldmesh with no horizontal footholds, especially around ironmongery [Ss_25_14]
- c) have gates at agreed locations; the design, height and construction of which match the corresponding fencing system and maintain the same level of security. [Ss_25_14]

8.1.3 In the event that the site boundary fencing provides the Secure Line, the Secure Line height and specification requirements shall apply. [PM_10_20_82]

8.1.4 Fixed external F&E shall not be located where it could provide a climbing aid over a fence. [PM_10_20_82]

8.2 Fencing to Hard-surfaced Games Courts

8.2.1 New fencing to multi-use games courts and other hard-surfaced games courts shall be undertaken in accordance with the appropriate sections of BS 1722 and comply with the requirements of SAPCA Code of Practice for the Construction and Maintenance of Fencing Systems. [PM_10_20_90]

8.2.2 Fencing to multi-use games courts shall also comply with Technical Annex 1C and the following requirements:

- a) the material is to be heavy-duty steel mesh with panels hot dip galvanised to BS EN ISO 1461 and polyester powder coated to standard colour agreed with the Employer [PM_10_20_90]
- b) the height is to be 3m unless otherwise stated in the SSB [Ss_25_15_85_55]
- c) kick boards are to be a nominal 250mm high x 50mm thick, pressure treated, made from 40yr weather resistant smooth planed timber with a chamfered top edge [Ss_25_15_85_55]
- d) rebound boards (where required in the SSB) are to be 1.2m high by at least 12mm thick, made from homogenous resin based exterior grade boarding (colour to be agreed with the Employer). [Ss_25_15_85_55]

8.2.3 Gates in fencing to a multi-use games court or other hard-surfaced games court shall be provided with access at locations to suit adjacent roads, paths and directions of travel. Where provided they shall:

- a) be fully infilled with weldmesh/rebound boards/kick boards as appropriate, and provided with a suitable locking mechanism [Ss_25_15_85_55]
- b) open outwards for the safety of players [Ss_25_15_85_55]
- c) have boot cleaning facilities at main access gates, to prevent contamination of the playing surface with mud and material from outside the playing area [Ss_25_15_85_55]
- d) have level or slightly ramped (i.e., not stepped) thresholds [Ss_25_15_85_55]
- e) be positioned so as not to create 'tight' gathering or milling points, especially where pitch / games area team changeovers are scheduled [Ss_25_15_85_55]
- f) be 1.2m wide (single gates) or 3.0m wide with a removable lintel panel above for ease of access with soccer goals (double gates). [Ss_25_15_85_55]

8.3 Fencing to Informal and Social Areas and Habitat Areas

8.3.1 For fencing requirements, refer to Technical Annex 1C and the SSB. [PM_10_20_90]

8.3.2 The use of hedges instead of fencing may be used where appropriate if agreed with the Employer. See also Natural England's Urban Greening Factor Guidance. [En_32_10_37]

8.3.3 The use of hedges alongside temporary fencing may be used where appropriate if agreed with the Employer. See also Natural England's Urban Greening Factor Guidance. [En_32_10_37]

8.4 Barriers, Balustrades and Guarding

8.4.1 Protection to exposed elevations to New Buildings shall be provided using protective planting or low fencing of at least 1.2m high, to avoid casual disturbance, such as balls striking windows or pupils banging on windows. [PM_35_50_72]

8.4.2 Appropriate street furniture and/or landscape detailing shall be provided to prevent accidental or deliberate vehicular contact with buildings or structures. [PM_35_50_72]

8.4.3 The design and materials of all external balustrades, barriers or guarding shall be as defined in Technical Annex 2C, BS 6180:2011 and AD K. [PM_10_20_90]

8.4.4 Glass to external balustrades, barriers or guarding shall be in accordance with BS 6180: 2011. Glass shall be laminated and toughened and fixed with bolt-through fixings when using an infill panel system. [PM_10_20_90]

8.4.5 Balustrade and barrier systems shall be designed to meet BS6180:2011. [PM_10_20_90]

8.4.6 Balustrade and barrier system designs shall be certified by chartered structural engineers or a BSI kitemark registered manufacturer. [PM_10_20_82]

8.4.7 Balustrade and barrier systems shall be installed by qualified, accredited, and certified installers. [PM_10_20_82]

8.4.8 The design of external stairs/ramps and handrails shall be coordinated so that handrails are continuous without vertical steps in the handrails. [PM_35_50_72]

9 Demonstrating Compliance

9.1 Overview

9.1.1 The Contractor shall demonstrate compliance with the Employer's Requirements by use of protocols detailed in the Contractor's Quality Assurance procedures capturing evidence of both coordinated design and its implementation into the construction of the School Building(s) with photographic evidence and/or third-party accreditation.

[PM_70_15]

10 References

10.1 Overview

10.1.1 The design and construction of any external spaces, landscaping or ground works shall take account of the following reference standards and guidance. [PM_10_20_90]

- a) HSE General Information Sheet No.6: 'The selection, management and use of mobile elevating work platforms' [FI_70]
- b) AD K: 'Protection from falling, collision and impact' (2013) [FI_70]
- c) Building Bulletin 103: 'Area guidelines for mainstream schools' (2014) [FI_70]
- d) Building Bulletin 104: 'Area guidelines for SEND and Alternative Provision' (2015) [FI_70]
- e) EN1176: 'Playground Equipment Standard' [FI_70_85]
- f) EN1177: 'Impact attenuating playground surfacing. Methods of test determination of impact attenuation' in 2018 [FI_70_85]
- g) BS 8545:2014 'Trees: from nursery to independence in the landscape: recommendations' [FI_70]
- h) BS 3936-1:1992: 'Nursery stock' [FI_70_85]
- i) Sport England 'Comparative Sizes of Sports Pitches and Courts (OUTDOOR)', 2015 [FI_70]
- j) Sport England 'Artificial Surfaces for Outdoor Sport', 2013 [FI_70]
- k) BS 7044-4:1991: 'Artificial sports surfaces. Specification for surfaces for multi-sports use' (partially replaced by BS EN 14904:2006, BS EN 14877:2006, BS EN 15330-2:2008, BS EN 15330-1:2007) [FI_70_85]
- l) BS EN 15330-2:2017: 'Surfaces for sports areas' [FI_70_85]
- m) BS 6180: 2011: 'Barriers in and about buildings' [FI_70_85]
- n) Sport England guidance: 'Natural Turf for Sport' (2011) [FI_70]
- o) Related sections of the GDB:
 - i) Site Plan [FI_70]
 - ii) External Space and Grounds [FI_70]
- p) BS 7370-4: 'Grounds maintenance. Recommendations for maintenance of soft landscape (other than amenity turf)' (1993) [FI_70]
- q) BS 4428: 'Code of practice for general landscape operations (excluding hard surfaces)' (1989) [FI_70]
- r) Defra: 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (2009) [FI_70]



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