

Annex 2: Generic School Design Brief

The following considerations for the Design Brief are to be read and used by the in-house engineer responsible for the school construction project, and the engineering firm that will develop the modular school design.

1. Context and Key Principles

This document is the Generic School Design Brief (GSDB) and integral Technical Annexes which forms the Generic Technical Specification (GTS). The Generic Technical Specification is part of the Terms of Reference for the [Engineering Services](#).

The GTS sets out the general requirements for School Buildings and Outdoor spaces supported by UNICEF.

Definitions

This section identifies and explains the terms and acronyms used throughout this document.

Building - Any building or other erection on the Site.

Building Elements – Different parts of any building, including roof and floor structure and coverings, stairs, ceilings, walls, finishes and doors.

Existing Buildings - The Buildings at the School prior to the relevant Completion Date but excluding any new facilities comprising the Works.

Generic School Design Brief (GSDB) – the GSDB sets out UNICEF’s generic requirements for School Buildings and Outdoor spaces.

Good Industry Practice - the exercise of that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced Consultant engaged in the same type of undertaking under the same or similar circumstances.

Mobility Equipment - A wheelchair, a motorised wheelchair, a walking stick or a standing frame or any other mobility aid required to be used within the School.

Modular building system – is a construction technology and approaches that aim cost and time-efficient construction by using high-quality building components and units prefabricated off-site for efficient on-site assembly. Another advantage of modular prefabricated buildings is flexibility in size, shape, exterior and interior finishes with AC, compact kitchen, generator.

New Buildings - Any Buildings constructed as new as part of the Works.

School - The school facility and the responsible body representing it.

Site - The work area or areas on the relevant Site Plan(s) together with the Buildings or relevant part(s) of the Buildings within the work mentioned above and the service ducts and media for all utilities and services serving the Buildings or relevant part(s) of the Buildings.

Teaching Resources - Material that supports teaching and learning, including printed material and equipment.

Works - All of the works (including design and works necessary for obtaining access to the Sites) to be undertaken to satisfy the Terms of Reference for design service.

Compliance with National and local regulations

The Consultant shall ensure that all school infrastructure provided, including the item within this document, will comply with relevant and appropriate national and local building regulations for safety and quality of material, design and performance standards in line with the Programme objectives described in this document.

The kinds of design standards that the Consultant must consider in a project are:

- (1) Local legal requirements: e.g. relevant and applicable building law, permission for site access, building code related to health, fire safety.
- (2) Ministry requirements: specific standard for the country’s Educational infrastructure, if available.
- (3) Best practice standards: recommended (not mandatory) technical detail to follow to extend the life of the buildings and make them more comfortable for the people using them.

Where the Consultant is not able to meet the requirements in full, or not able to identify relevant existing building regulations and standards, details of alternative proposals are to be submitted to UNICEF for approval, stating where or how they do not comply and why they are considered a satisfactory alternative to achieve the programme objective.

Programme objective

[CO to address specific programme goals and objectives]

The objective of construction activities within UNICEF is the timely delivery of the right and quality works and services while addressing: (1) Effectiveness, (2) Value for money and (3) Sustainability.

Effectiveness

Suitable for their intended purpose and provide an appropriate learning environment for all, taking account of the accessibility for all including with disability and different age ranges of the school children.

Modular in shape and size, capable of being prefabricated off-site and replicated for similar types of schools or facilities, so that best practice can be assured without the need for whole new designs.

Removable, relocatable and reusable at the end of the programme cycle if necessary.

Value for money

The selection of design that matches the defined purpose, local context including market conditions and procurement strategy (LTAs), will facilitate the participation and competition among local market to establish a collaborative partnership.

The design of the built environment facilitates an efficient approach to long-term use, operation and maintenance, which may significantly reduce future maintenance liabilities.

Sustainable

Contribute to the achievement of 'Sustainable Development Goal 9'

Cost-effective and resource-efficient by:

- optimises passive design measures
- minimises the use of all resources
- reduces the demand for energy and water use during the Works Period
- minimises waste and CO2 emissions during the Works period
- allows opportunities for recycling during the Works Period.

Key Design Principles

[CO to address specific quality-related objectives]

While the design of school infrastructure addressing the UNICEF programme objective, the design must also meet the following four (4) overarching School Design Principles.

Inclusive

Children with disabilities must not be placed at a disadvantage in terms of access to teaching, learning and common spaces by the design of the school infrastructure provided.

The environmental design and the building fabric are appropriate to the needs of all, including children with disabilities.

Health and protective

Create health-promoting and protective school environment that prevents the children and staff from immediate injury or disease and promotes prevention activities and attitudes against known risk factors that might lead to future disease or disability.

Provide a 'child-friendly spaces' to mean safe spaces where communities create nurturing environments in which children can access free

and structured play, recreation, leisure and learning activities.

Effective for learning

Provide an effective healthy indoor environment with natural light, ventilation, thermal comfort and good acoustics which are designed to support educational attainment.

The design takes account of the educational needs under specific local context, and support innovative and thoughtful design, particularly in outdoor spaces.

Connected

The design creates child-centred, family-focused and community-based school environment that is also:

Welcoming, reflecting the local culture, value and heritage, encouraging local partnership in education.

Promotes child and community participation in school events that helping children, parents, and teachers establish harmonious relationships.

Well-connected internally and to the community and environment outside to facilitate the involvement in sharing the value of learning.

2. BUILDINGS AND OUTDOOR SPACES

[CO to address the expected performance of infrastructure design, Refer relevant local standards and make necessary adjustments]

Site Selection

The selection of the Site should maximise the potential use of the Site, while mitigating the effects of adverse environmental conditions.

Conditions and factors below should be taken into consideration when selecting the site.

Site character and environmental factors

The natural disaster that poses risks to the school environment, including:

- Earthquake including tsunami
- Windstorms including storm surge
- Flooding
- Landslides
- Wildfires.

The other site-specific character, opportunities and risks including but not limited to:

- Climate and microclimate, sunlight and shadows, wind direction
- Location of the community centre and children's houses
- Noise, traffic, a nearby building, community, and industry
- Available services (water, power and fuel)
- Topography of the Site, subviews and vistas

- Site access and features, levels and dimensions, existing buildings
- River/stream, Subsoil, and the local vegetation, ecology.

Building and site design factors

- Single storey vs double storey,
- Floor area and shape of Classroom, Teacher's office and school WASH facilities
- Passive surveillance for the site and building security, transport and access.

Site Layout

General considerations include

- how the building is going to be best situated on the site to create the better use of the space available concerning safety, security and effectiveness
- how a school can be developed over time with functional requirements in mind
- the future population change in the catchment area to address overcrowding and needs of additional learning spaces in mind.

The safety and security related consideration can be addressed by:

- including suitable guarding and barriers where there is a risk of falling or traffic accidents
- providing clearly defined boundaries which discourage trespass and vandalism and, ensures excellent visibility to facilitate passive surveillance across the Site
- providing organised circulation path for all and to aid orientation and ease of movement to external areas, particularly in the event of an emergency
- Girls particularly benefit from having water available for washing and an accessible store of sanitary supplies, and separate toilets for privacy, preferably located close to classrooms to allow teachers to monitor girls' safety
- Locating quieter activities away from noisier activities and neighbourhood and traffic noise, wherever possible.

2.3 School Entrance area

Entrance gate and fence

- The Site and the entrance to be accessible to all people including those with impaired movement or other disabilities

- The entrance area that is welcoming, reflecting the local culture, value and heritage, encouraging local partnership in the education community by creating a signature element and visual destination element (e.g. decorated gate, free-standing sculpture or a piece of artwork or local history representative of the site, child-built projects)
- The access to any school infrastructure provides for safe and convenient access for pedestrians, cyclists and vehicles, including emergency vehicles, balancing the demands of different users and keeping the vehicular movement within the Outdoor spaces to a minimum, and as far as possible separate from pedestrian routes
- Locate the office space close to the main entry or visible for visitors who seek the help they need from school
- Any fencing provided shall meet the standards relevant to the proposed use.

Drop-off, Parking and Cycle Storage

- A clear drop-off point is provided at each school entrance area without risking the safety of children, staff or visitors to the School
- Ample parking space for major mode of local transportation is carefully positioned not to dominate the main arrival area. It should be open and visible, where possible, from the main entrance
- Separate bays are provided for disabled users and visitors
- the cycle storage is easily accessible to cyclists without crossing vehicular routes wherever possible and includes a means of securing bikes
- the cycle storage should be located so that it is overseen from buildings, ideally from the school office
- paths used for both pedestrians or cyclists are adequately dimensioned and marked to show separation.

Outdoor Spaces

General

The outdoor spaces shall:

- provides a safe and attractive environment for children, offering a different setting for sports, outdoor teaching, social and recreational activities
- provides facilities for physical and non-physical activities to meet age-appropriate children' needs with a separate zone for junior and senior grade children, where possible

- maximises opportunities for passive supervision, making positive use of overlooking, interaction and encounters with staff and other children
- takes account of climate change adaptation measures in planning external spaces, to reduce internal temperatures and provide outdoor shelter by vegetation as well as by structures
- provide an opportunity to experience learning that could not take place indoors, such as large projects, and messy activities, gardening, play equipment that develops motor skills
- promote to develop life-long healthy habits by providing incidental physical fitness opportunities as well as a range of competitive and non-competitive sports
- Provide good circulation spaces within a school that encourage interaction and facilitate connections between learning spaces.

Passive Supervision

The design of School infrastructure ensures that:

- the site plan should create a clear line of sight across the school site to allow for natural and passive surveillance, both from within the school and from outside
- the location of WASH facility allows monitoring children and visitor's engagement to discourage wilful anti-social behaviour and acts
- internal glazed screens are provided in staff offices and are located to allow passive supervision of corridors, circulation and outdoor spaces.

Sports field

Provide a multi-use games area and are of appropriate dimensions to suit a wide range of competitive sports, including five-a-side football, basketball, netball, and volleyball.

Informal and Social Areas

The informal and social areas, including the courtyard and planted areas, recreational space, areas for non-competitive play, are provided to meet the children's age and to take consideration of followings:

- The area can be accessed easily by children but located so that activities do not disturb other teaching activities
- Creating an area of shade for summer months with several existing mature tree canopies or a permanent shade structure which covers a similar area to the tree canopy

- A typical range of playtime games and responsibility of supervisory staff to deal quickly with any instances of accidents, bullying or undesirable behaviour
- Flexibility of space design that can accommodate different users and their needs
- Facilitate greater community engagement and partnerships through the use of common spaces.

Internal Space

Introduction

- The design of internal space of school infrastructure is suitable for the intended purpose, the right size, proportions and specification for their population, functions and also meet the following requirements
- All spaces are accessible to all including those with disabilities and users of mobility equipment
- All relevant fire legislation or guideline is adhered to, to allow safe egress from the building in the event of a fire
- Appropriate consideration should be given to the age group and ergonomics of children for access, practical use and comfort, prevention of accident and injuries.

Classroom Blocks (Teaching spaces) shall be designed to:

- suit the age range of the children using them
- include a provision for storing children's belongings, teaching resources, and should include ample chalkboard and other display space
- maximize the number of children can visually access nature from their learning spaces
- allow displaying children's work that is visible for visitors to communicate the purpose of school.

Dimensions and Proportions

- Recommended maximum number of children per classroom is 40-45
- Recommended minimum floor area of classroom per child should be planned for 1.2 - 1.4 m² per child allow for more flexible use of the learning space
- The teaching spaces are an appropriate shape as well as size to ensure a good hearing of teacher's instruction
- No children in a class should be at a distance greater than 7.0m from the teacher
- Any teaching spaces shall be orthogonal and square-shaped in plan and no narrower than 2:1 in either direction

- The teaching spaces between 35m² and 70m² shall have a minimum depth of 7.2m to optimise the room's functionality and facilitate future adaptation
- The clear width of any main circulation routes, including corridors, shall be at least 1.8m.

Administration Blocks (Non-teaching spaces) shall be designed to:

- Centrally located yet close to the main entrance area of the School
- Provide dedicated workspaces for teachers with multiple personal storage options, large table and chalk/whiteboard for collaboration
- Provide lockable stores where required, for (1) cleaning and maintenance tool, outdoor sports equipment and (2) learning and teaching material
- Dimensions and Proportions
- Recommended minimum floor area for the head teacher's room should be planned for 13m²
- Recommended minimum floor area for the Teacher's office for up to 6 teachers should be planned for 16m²
- For the teaching spaces (and medium-sized spaces such as a staff room) between 35m² and 115m²: minimum floor-to-ceiling height of 2.7m.

Library space shall be designed to:

- Be positioned for easy access by all children
- Well illuminate with natural lighting and sightlines for easy supervision
- Have an adjacent secure storeroom and adequate shelves for display.

External Fabric

The design of the External Fabric for the school infrastructure meets the following requirements.

- Robust materials and finishes are used that are resilient and durable and provide protection against potentially malicious or physical abuse
- Products and materials are used that comply with relevant national and local safety standard on disaster reduction construction
- Products and materials are not specified and generally known within the local and regional market and institutions at the time of specification to be deleterious/harmful to the environment, and health and safety, or diminish the durability of other structures, finishes, and plant

- The materials are selected with due regard to their suitability for purpose and performance, durability, ease of maintenance and repair, resistance to accidental or malicious damage and their environmental impact
- The materials used must also take account of any particular local requirements. The Consultant shall ensure that robust materials and finishes are used that stand up well to the heavy use typical of a school and the prevailing weather conditions.

Roofs

The roof system and associated rainwater goods provided meet the following performance requirements.

- Flat roofs are capable of being overlaid, upgraded or replaced without difficulty and without adversely affecting the deck below
- Roof construction and design addresses movement, compatibility of components and lightning protection
- Appropriate measures are taken to deter animals or birds from sheltering under overhanging eaves and canopies
- Rainwater pipes, if installed, are detailed and arranged so that they prevent climbing, are easy to maintain, have uniform finishes and do not show signs of oxidation on their external surfaces at completion.

External Wall

The external walls and the materials chosen for them are designed and constructed to:

- be secure, robust, disaster and vandal-resistant and suitable for use in their proposed location.
- require minimal maintenance, and only periodic cleaning, to avoid future disruption to the School.

Doors and Windows

General considerations:

- The positions of doors, windows and vents are co-ordinated with the ventilation strategy and general requirements for daylight in spaces
- Measures shall be taken to reduce the effects of direct sunlight and glare through external glazing to satisfy the requirements of "Internal environmental conditions" of this document
- The ironmongery, shading, and mechanisms are robust and tamper-proof and shall be easy to operate from floor level.

The windows, vents and shading are designed and constructed to:

- provide sufficient light and natural ventilation



- be of a type that does not create a noise nuisance
- be safe in closed or open positions, and not be hazardous to persons passing by windows internally or externally
- prevent children from falling out at all levels
- require minimum maintenance to avoid future disruption to the School
- does not compromise the security of the Building

The doors and door hardware provided shall:

- be robust enough to withstand the heavy use typical of a school, require minimal maintenance, be weatherproof, and maintain the safety and security of the facility and perform their necessary protective and decorative functions
- take into account the different ages and abilities of all users and allow disabled access
- be vandal-resistant and incorporate appropriate controls or fittings to discourage misuse, but afford the safe operation and adequate security
- from sustainable sources, wherever possible, and able to be recycled at the end of the product's life
- take into account the capability of the user (in terms of skill, strength and visual acuity)
- does not create any reflections likely to disturb children or affect visually impaired people's ability to use the door set
- be wide enough to allow Mobility Equipment access, with good visibility maintained on both sides of the door
- be lockable, with a suited manual key system unless specified.

2.7 Internal Elements and Finishes

General considerations

The effect that specific colours, patterns and textures can have on some people; and the higher risk of harm and infection for the most vulnerable children and young people.

Common hazardous material used in local construction industry, including asbestos, paint, cleaning agents should be identified and ensure compliance with relevant material safety guideline.

Prevent poor finish of construction work including uneven surface, sharp edges and corners thorough inspection with the participation of users where possible.

Internal Walls

The finishes of all internal walls and the internal face of external walls, are adequately protected from damage, especially on corners of main

circulation routes, and areas vulnerable to impact by mobility and teaching equipment.

Internal Stairs

The design shall:

- contributes to an efficient and balanced circulation provision, with enclosed fire escape stairs being available for normal use
- takes account of the effect of the staircase locations on the potential for future expansion
- provides fire escape stairs with a level exit directly to the outside of the Building
- minimises travel times between lessons
- reduces congestion by being sized to enable the efficient flow of children and staff during class changeovers
- assists navigation and wayfinding around the building, being easy to find and differentiated

Guarding

The design addresses the prevention measure from falling in the design in addition to the followings:

- guarding of walkways or stairs with voids on both sides shall be 1250mm high
- guarding of walkways or staircases with a void on one side shall have 1250mm high
- any occupied, furnished mezzanine area (such as a learning resource area) shall have guarding of 1500mm high adjacent to the void
- any additional requirements for the height of guarding based on an on-site risk assessment

Floor Finishes

The choice and installation of any floor finish comply with the following criteria in all internal areas of the Buildings.

- **Resilience** - floor finishes can support the school furniture and Equipment, withstand pedestrian traffic without undue deformation or permanent marking; and can accommodate thermal and structural movement in both the finish and the sub-floor
- **Continuity** – there are minimal joints and flush joints between different finishes
- **Cleaning** - the ease and frequency of cleaning is taken into account, as well as the level of hygiene required
- **Suitability** - the finish including texture and colour is suitable for the age and needs of children
- **Safety** - including slip resistance.

Ceilings

The acoustic and thermal performance of ceilings is considered as a whole alongside other internal surfaces, to satisfy the "Internal environmental conditions" of this document.

Decorations and Finishes

The decorations and finishes shall:

- take account of safety and fitness for purpose
- be suitable for the activities taking place in the area, and for the age and any special needs of the occupants
- be able to withstand heavy use typical of a school
- be resilient to impact and minimise noise
- be easy to clean and maintain
- contribute to the level and quality of light in a space and ensure visual comfort
- apply the colour based on cultural and climatic content, available resource and lighting
- must not leave in a rough, unfinished condition following completion of the Works.

Consider a school environment as a powerful tool for learning by:

- emphasizing literacy-rich displays and elements that reinforce the use of scientific and mathematical skills
- Wooden rails in classrooms can provide space for tacking up literacy-rich displays
- Graphic design ideas for incorporating key learning areas into the built environment, from window grills that promote pre-writing skills, to door tracks that teach the concept of radian degrees
- Create inviting colourful indoor courtyard to extend indoor learning that has direct connections from classroom
- Make the sustainable elements (such as rainwater harvesting, utilization of natural energy, sun and wind) of school building visible for children to engage their imaginations and spur learning about buildings as physical textbook.

Wayfinding and Signage

The wayfinding system shall be designed to:

- guide visitors from the Site boundary to an individual room, displaying only the level of information required at each decision point
- give clear indications of directions for all users, including those new to the School, and shall define the purpose of the Buildings, providing reassurance and confirmation that they are moving in the right direction
- guide wayfinding by pedestrians and vehicles, especially for visitors, in directing them from the site entrance (via visitor parking if arriving by car) to the main reception/office

- identify assembly points, public and staff parking, restrictions and limitations, warnings and hazards, signs for every room and space as agreed with the School.

WASH facility

The design of WASH facility shall address:

- Adequate number of sanitation facility required separately for boys, girls and staff following the applicable local WASH in school standards
- The needs of girls toilet to include space and facility for menstrual hygiene management with adequate privacy
- The requirements of water supply and drainage to ensure hygienic conditions and the effective disposal of waste and all liquid waste from the School
- The quality of structure manufactured from durable materials, and easy to clean and maintain
- Accessibility and usability of facilities suitable for different ages and any special needs
- The safe location to provide easy access by children and allow for informal supervision by staff, without compromising children' privacy
- The comfort of use that includes covers for toilets and appropriate ventilation that helps to reduce odours
- the privacy and features that discourage anti-social behaviour and vandalism.

2.8 Internal Environmental Conditions

The design of the internal environmental conditions of all spaces meets the general requirements within this section.

Natural daylight and illumination

A sufficient effective and pleasant visual environment that employs low maintenance solutions while minimising glare through the management of the daylight by:

- properly orienting the building on site
- provision of shading device and thoughtfully located trees and vegetation including deciduous trees to block hot summer sun and allow winter sun
- design the window size at a minimum correspond to 20% of the classroom floor area, with auxiliary electric lights whenever possible
- apply paint colour with higher Light Reflective Value (LRV) for ceiling, wall and furniture surface to boost lighting efficiency but with saturated accent colours in selected areas to provide a varied and stimulating learning environment

- chalkboards or other visual aids should not be located on walls having windows to avoid glare.

Thermal Comfort and Indoor Air Quality

All spaces provided are designed with consideration to meet the requirements as described below.

General consideration:

- A temperature of 20-23°C is preferable for optimal learning
- Observe the direction of seasonal prevailing wind and strength of the wind at different point of the school site
- Consider positioning and orient building to efficiently use the wind to facilitate cross ventilation for passive cooling or avoid cold wind to enter the classroom during the cold season
- Consider planting tree protect buildings from strong winds
- Roofing materials should be durable and regularly repaired to provide sun protection and to prevent leaking and to cave in
- Extra ventilation is needed wherever there are emissions from chemicals and heating fuels

Schools in a warm climate:

- Designing a building to exclude heat, and depending on humidity, permits the penetration of cooling breezes inside the building by adequate ventilation
- Raised ceilings, deep overhangs, adequate shading, and ventilation grills with wall and roof with bright colour will reflect light and heat, which can reduce classroom temperatures
- Heavy closed buildings with eave are preferred in hot, dry zones to prevent direct sunlight from entering
- Light weight, open buildings are comfortable in the hot humid tropical zones
- Direct sunlight should not be allowed to fall in any of the spaces inside the school during the school hours
- The solar load on buildings is to be reduced to a minimum by orientating their major areas in north-south, so very little sunlight will come through the window openings
- Buildings to be oriented so that the winds prevailing at the site can blow through the teaching space
- Where possible, provide a window that can be open and close by children to let in natural air which will give a sense of connectedness to the outdoor and also knowledge of control over their condition.

Schools under cold climate:

- Designing a building to maximize heat retention with well-insulated structures, wall, window and by providing fuel to generate the heat needed for comfort
- Doors should be on the eastern/western side of buildings, to avoid the adverse effects of cold northerly winds and hot southerly winds and structure will receive morning and afternoon sun to heat the building.

Acoustics

General considerations:

- The design of all spaces takes into account Site and internal room layout, provision of noise attenuation barriers and choice of ventilation systems on how to mitigate the impact of noise
- Where roads or other noise-producing activities are located on-site boundaries then noise reduction is to be achieved by locating buildings as far from site boundaries as is possible
- Where above is not possible, by presenting a blank wall to the noise source, with windows only on the side of the building away from the source
- The intelligibility of speech of a teacher in a classroom depends on the level of background noise, and where this rises above 60dbA., then noise reduction becomes necessary
- Bare concrete or brick walls reflect sound, while the paper or cloth displays can help to absorb it.

2.9 Electrical Services

General consideration

- Where it is proposed, the design of electrical services shall meet the technical and local requirements for the design, installation and commissioning of the Electrical services
- The electrical services shall be arranged so that they do not impede access to other services
- The selected energy-using equipment and the electrical installation complies with appropriate directives and standards and is installed following good installation practice.

2.10 Security and safety

Any works on the Site are designed to be safe and secure, and so that children and staff feel safe and secure.

General consideration for Security

- The level and type of security measures will vary from site to site and will need to be appropriate to the location as well as the level and type of security risk(s)
- The security strategy should be established based on a site assessment which shall take account of the merits of different kinds of fencing, hedges and defensive landscaping and security measures
- The School shall have clear and well-defined boundaries, fences and gates to help control who gains access to its Site and Buildings.

The school security is enhanced by:

- avoiding complex building forms that may result in creating areas which cannot be easily supervised
- ensuring physical barriers do not obstruct views towards or away from School Buildings and Outdoor spaces
- avoiding designs incorporating recessed doorways and alcoves that could provide cover for intruders
- positioning windows to facilitate passive supervision of external areas from inside
- designing canopies and drainpipes so that they do not provide access to high-level windows and roof lights
- designing roofs, wall and surrounding elements to prevent unauthorised access and avoid the provision of cover for intruders

General consideration for Fire Safety

- Any means of escape, fire-fighting equipment, and fire signage provisions comply with relevant local Building Regulations
- All elements of the structure, finishes, fixtures and fittings in the Works comply with all applicable legislation, codes of practice and guidance
- For evacuation of children with disabilities, design the Building to enable all occupants to escape unaided so far as is practicable.

2.11 Operation

- The School shall have sufficient information to allow all operators to understand how the relevant items and systems are designed to run effectively, efficiently and reduce running and maintenance costs
- By handover, ensure the School management have a thorough understanding of how the building systems work, how to check and adjust building systems, and how to monitor and review the Buildings' environmental performance in use

- ensure that appropriate school staff have been trained on the basic operational understanding of how the Building works, e.g. ventilation and illumination of teaching spaces, as required
- Provide full technical operation and maintenance manuals and non-technical building user guides as detailed in the Terms of Reference for design service Deliverables.

2.12 Maintenance

- The Works are designed and constructed so that they are easy to clean and maintain and incorporate materials and components that can be easily and safely replaced when necessary
- The choice of materials and components causes minimum inconvenience and disruption from breakdowns, repairs and maintenance activities
- Provide all necessary permanent means of access for cleaning and maintenance, shall be designed to be carried out safely, easily, without disruption to normal School operations and without the need for the School to hire or purchase additional maintenance equipment.