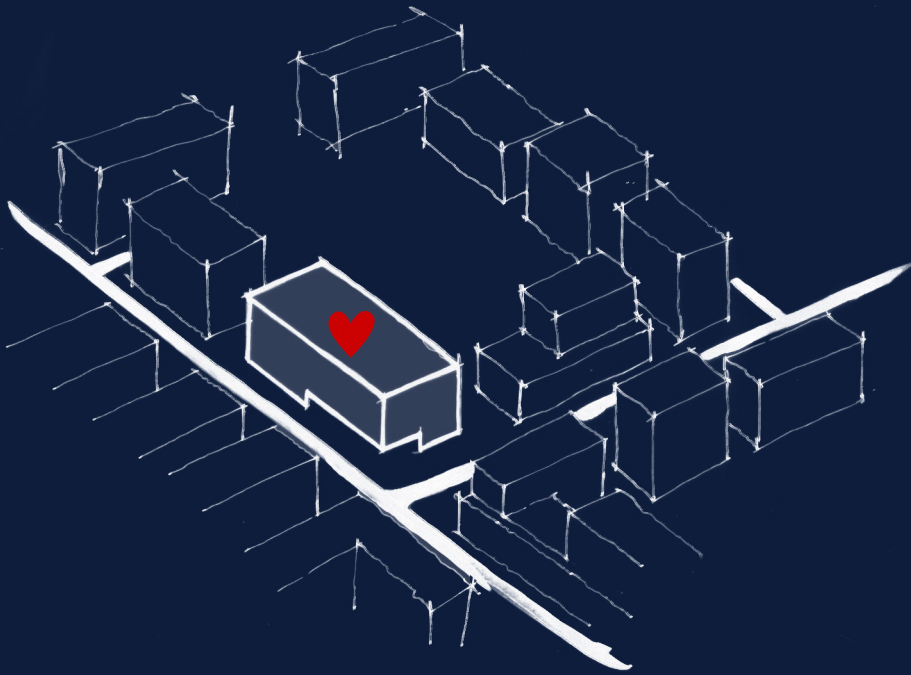




Urban School Guidelines

Best Practice Reference Document

REV. 2 - Version 1.2

June, 2024

schoolinfrastructure.nsw.gov.au

Purpose of this document

This document is provided as a guide for appropriate new school sites located in areas of high demand, carefully considering land efficiency, urban context and site constraints.

Planning for new schools should be undertaken in consultation with key stakeholders including the Department of Planning and Environment, Transport for NSW and the relevant local council and community, as appropriate.

This document is intended for use by a range of stakeholders including internal SINSW teams, urban planners and designers, developers, other government agencies and local councils.

It is important to note that this document is not intended to be used as a benchmark by which existing schools are assessed. This document provides insights and guidance on key design considerations for Urban Schools.

Version	Date	Notes
1.0	05/04/2024	Final Draft - for Review & Comment
1.1	14/05/2024	Rev 1
1.2	24/06/2024	Rev 2

How to use this document

The following sections provide a definition of Urban School typologies, highlight insights and provide outline key design considerations and design principles.

By necessity, Urban Schools are vertical in form and require departures from traditional horizontal school designs. This document is intended to guide designers through those departures.

Related Documents

This document forms part of the Educational Facilities Standards and Guidelines (EFSG) suite and is to be read in conjunction with:

Site selection and development (nsw.gov.au)

Master planning for schools (nsw.gov.au)

Standardised approach (nsw.gov.au)

Sustainability (nsw.gov.au)

Safety in design (nsw.gov.au)

New playground equipment in schools (nsw.gov.au)

Better Placed: Design Guide for Schools,
Government Architect NSW

Better Placed: Environmental Design in Schools,
Government Architect NSW

This document is intended to be reviewed, updated and improved regularly as additional information becomes available.

Disclaimer

These Guidelines help design teams easily access information and share successful project methodologies to ensure compliance with the Urban School design principles. Following this framework does not irrevocably replace any project obligations to deliver against Educational Facilities Standards and Guideline requirements. The information within this document once downloaded/ printed/ exported will be classed as an uncontrolled copy. Its currency must be checked by visiting the EFSG website prior to using the information for any purposes.

Contents

1.0 INTRODUCTION TO URBAN SCHOOLS	06
1.1 Defining an Urban School	06
1.2 Site Area Efficiency	07
2.0 KEY DESIGN REQUIREMENTS	08
2.1 Urban Design Requirements	08
2.2 Site Selection	09
2.3 Building Design Requirements	09
2.4 Urban Primary (Public) School Requirements	10
2.5 Urban High School Requirements	12
3.0 OPEN AND PLAY SPACES	15
3.1 Urban Primary School Play Space Requirements	16
3.2 Urban High School Play Space Requirements	18
4.0 MOVEMENT	19
4.1 Urban Primary School Movement	19
4.2 Urban High School Movement	20
4.3 Prioritising Movement by Stairs	20
4.4 Arrival and Departure	21
4.5 Stair Widths	21
4.6 Lift Requirements	21
5.0 OPERATIONAL PRINCIPLES	22
5.1 Timetabling Strategy	22
5.2 Shared Facilities	23
5.3 Security	23
6.0 CONCLUSION	23

List of acronyms

Acronym	Description
ALU	Additional Learning Units
COLA	Covered Outdoor Learning Area
DDA	Disability Discrimination Act
DEL	Director Education Leadership
DoE	Department of Education
EFSG	Educational Facilities Standards and Guidelines
FECA	Fully Enclosed Covered Area which includes all spaces that are enclosed with a roof, a façade and a floor slab. Including internal stairs, engineering, plant and circulation
FSR	Floor Space Ratio
GFA	Gross Floor Area
GLS	General Learning Space
HS	High School
MMC	Modern Method of Construction
NCC	National Construction Code (formally BCA)
OSHC	Out of School Hours Care
PS	Primary (Public) School
SINSW	School Infrastructure NSW
SLU	Support Learning Units
UCA	Unenclosed Covered Area which includes all spaces that have a roof and a slab but are unenclosed (without a façade). This includes circulation and COLA spaces that are bounded by balustrades or perforated mesh.

1.0 Introduction to Urban Schools

Traditionally schools have been low-rise buildings, one to two storeys, in greenfield sites. Changing demographic trends of families choosing to live closer to sources of employment, culture and public transport, has now necessitated a change in school typology.

By definition, Urban Schools are land efficient, located in urban areas of high demand, are vertical in form whilst continuing to make a significant contribution to civic and social infrastructure.

Due to their location in town centers and emerging high density environments, Urban Schools offer the local community access to their facilities which include playing fields, performance spaces and hard courts.

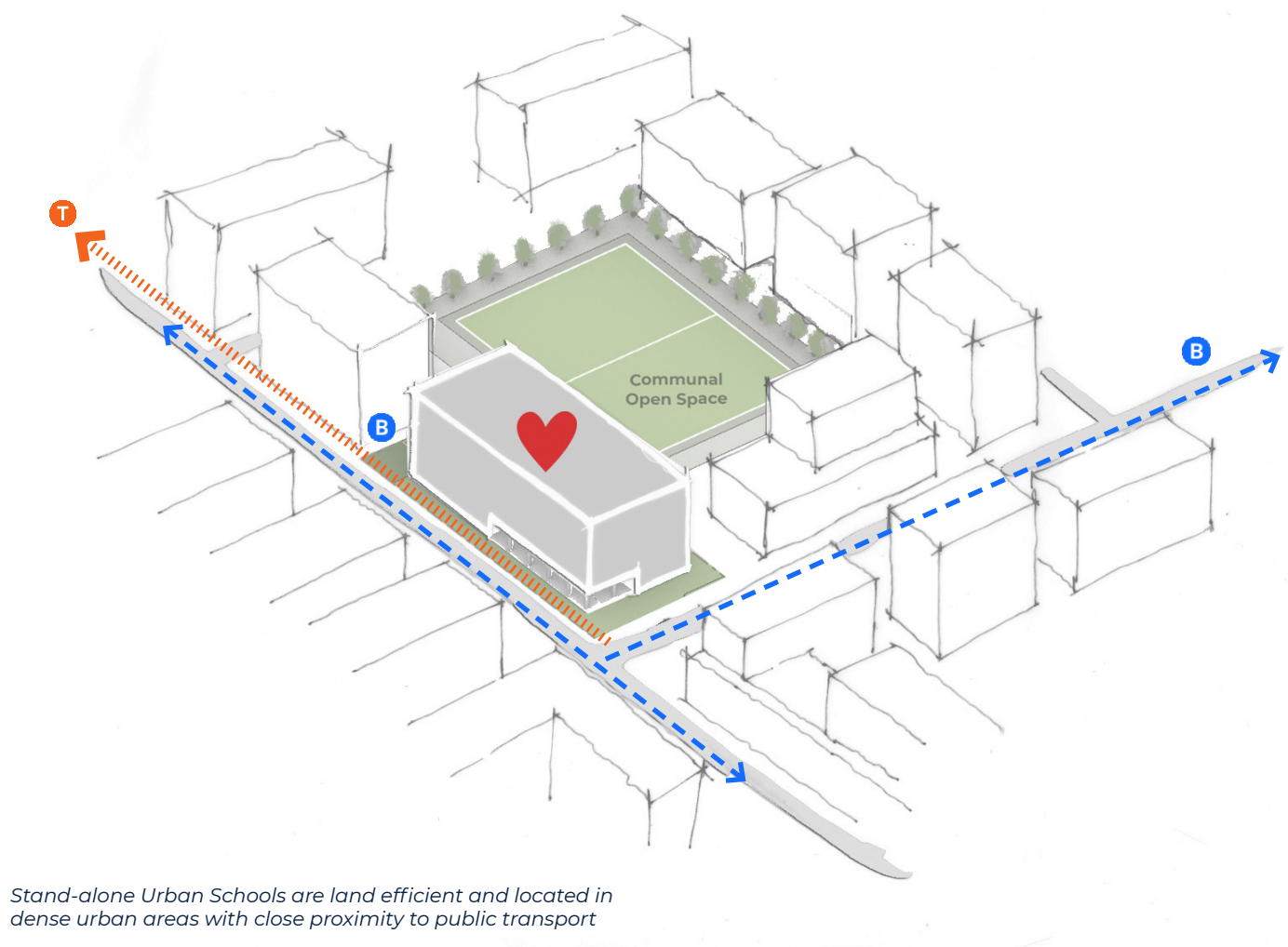
1.1 Defining an Urban School

SINSW have defined an Urban School as being a standalone, vertical school, between 4 and 7 storeys in height and located within proximity to public sports fields and public transport hubs.

Outdoor space in an Urban School is integrated into the design of the building, the rooftop and on the ground plane.

All Urban Schools accommodate the full range of teaching spaces and administration for the required curriculum and are typically for student enrollment numbers of between 750 to 2000 students.

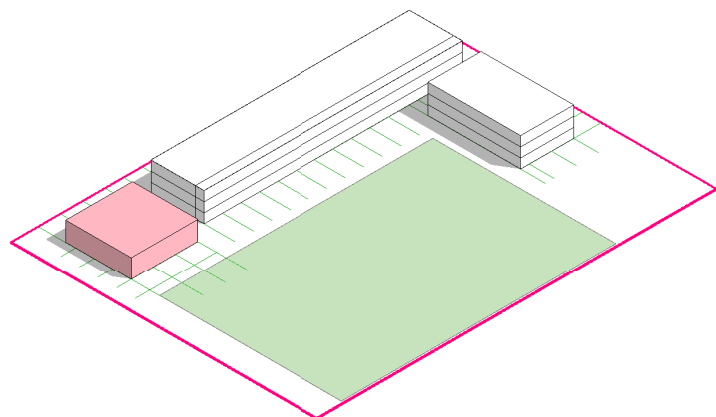
Urban Schools can be integrated into mixed use developments including residential apartment buildings above the schools. However, stand-alone Urban Schools are the focus of these Guidelines.



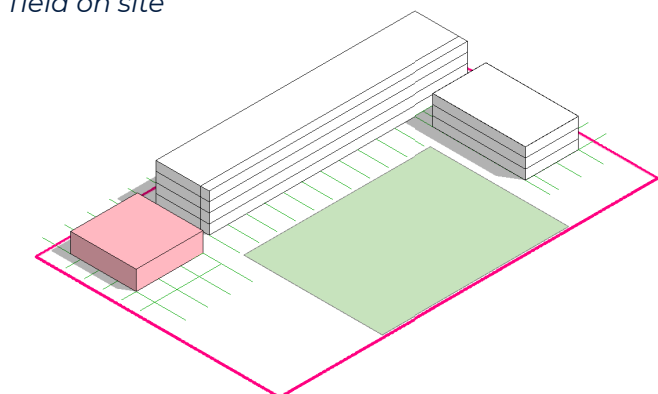
Stand-alone Urban Schools are land efficient and located in dense urban areas with close proximity to public transport

1.2 Site Area Efficiency

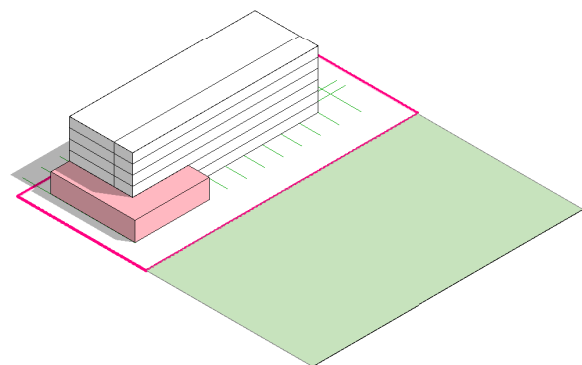
*Rural Location:
up to 3 storey building heights with field on site*



*Suburban Location:
up to 4 storey building heights with reduced sport field on site*



*Urban Location:
4+ storey building heights with close proximity to communal sport field*



The site areas for Urban Schools vary according to the proposed student enrollment numbers, building composition, site restrictions and planning constraints.

Primary Schools are between 4 and 6 storeys in height whilst High Schools are between 5 and 7 storeys in height, with their respective maximum student enrolment capacities of 1000 and 2000 students.

Below is a guide to the minimum building and site areas based on student enrolment numbers.

	Urban Primary Schools	Urban High Schools
Student number	1,000	2,000
No. of Storeys	5 - 6	6 - 7
GFA (minimum)* ¹	9,700 sqm	28,500 sqm
Hall / Gymnasium* ² (incl in GFA)	1,200 sqm	2,700 sqm
Circulation* ³ (walkways / stairs / lifts)	30%	25%
Land Area*⁴ (minimum)	3,500 sqm	8,500 sqm

Notes:

*¹ Number and layout of support learning units (SLU) and additional learning units (ALU) are school specific. The minimum allowance to comply with EFSG has been included in the area count. Site selection must consider project specifics.

*² Hall / Gymnasium and COLA areas in Urban Schools are sized to be flexible to accommodate various functions and activities, and can be used for assembly with the opportunity to spill out from the Hall.

*³ Circulation in Urban Schools may exceed 30%. contingent on site configuration.

*⁴ Site areas are based on 6 sqm/student open and play space on site. They are dependent on building arrangement and the number of storeys.

Building setbacks, parking, pedestrian and vehicular access and circulation are site dependent and have not been considered.

2.0 Key Design Requirements

SINSW have developed Urban School built form typologies using best practice pedagogy planning, based on the standardised hub layouts which are mandatory to meet SINSW pedagogical standards, sustainability requirements and comply with the Education Facilities Standards Guidelines (EFSG).

The typologies are essentially the ‘Chassis’ for an Urban School design. They are mandatory as they have been rigorously tested and refined through stakeholder engagement, application to actual projects, embedded lessons learnt and compliance with pedagogical, operational, security and SINSW Modern Methods of Construction (MMC) requirements.

The architectural expression and siting of each Urban School “Chassis” needs to be considered within its context to deliver design excellence with an appropriate built form and urban design response.

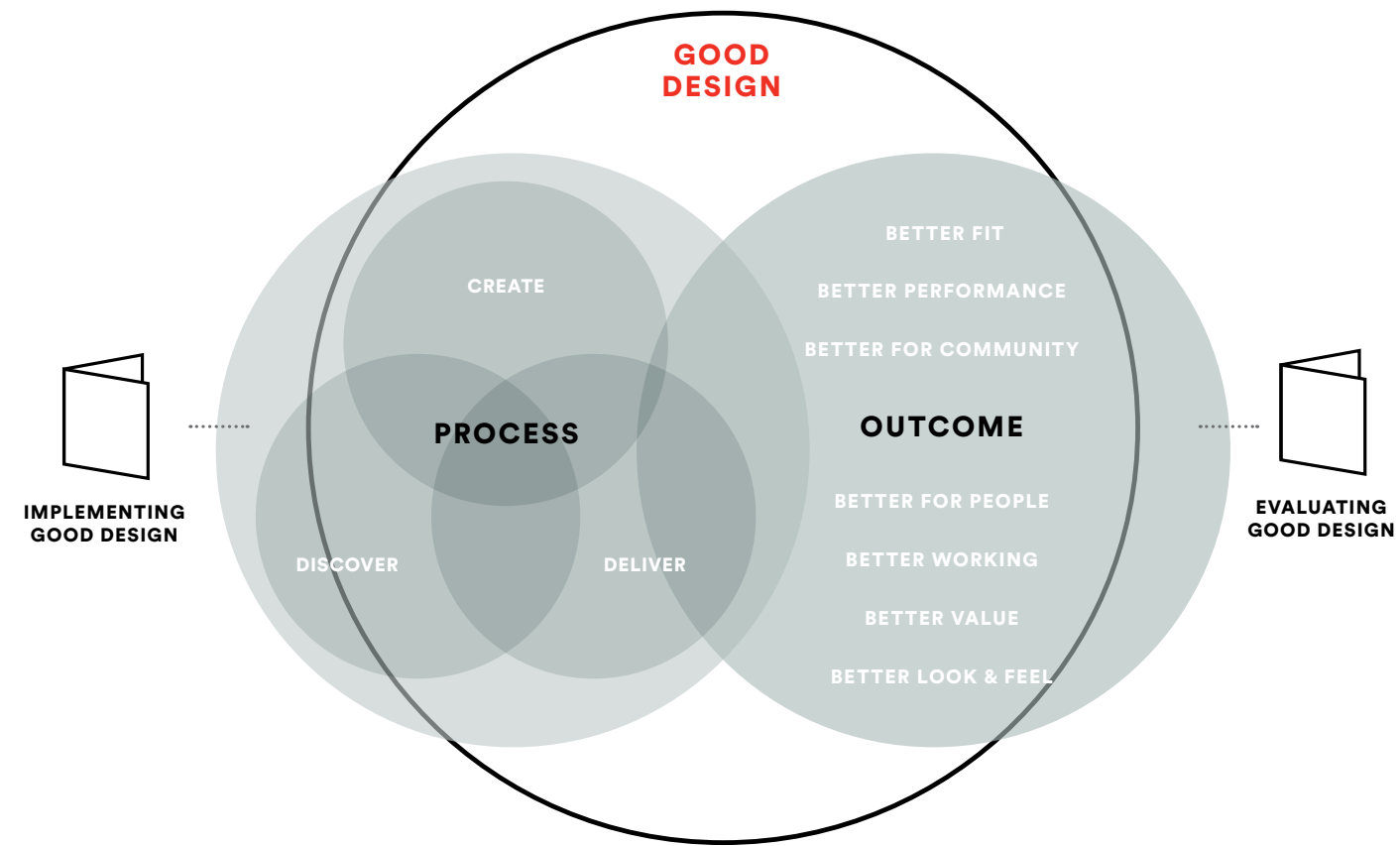
2.1 Urban Design Requirements

SINSW supports the NSW Government Architects’ ‘Design Guide for Schools’ approach to school design in the community which articulates that:

“Schools are a vital part of the community. They provide an important civic place for meeting and exchange and often operate as social as well as educational hubs, not just for parents and students, but for the wider community through the sharing of sports grounds and other facilities.

High quality, well designed schools create a sense of pride, identity and ownership for the communities they serve. They also help deliver better educational results.”

‘Good design process leads to good design outcomes’



*‘Better Placed - Design Guide for Schools’
Government Architect NSW*

Urban Schools are at the heart of emerging communities, contributing to their vitality and therefore require a very considered response in terms of siting, urban design and architectural expression.

Key design considerations for Urban Schools within existing and growing communities must include:

- Appropriate contextual urban and architectural design, including siting and choice of materials, to ensure a meaningful aesthetic and civic contribution to the streetscape and the surrounding urban environment.
- Access to diverse, external open play and outdoor learning spaces with excellent amenity to sun, shade and soft landscaping.
- Quick, direct and safe access to external sports fields.
- A civic address which includes a 'front door' and school identity to the overall presentation of the school within the streetscape.
- An activated ground floor comprised of school facilities only including administration, canteen, hall and play areas. The ground floor is not shared with commercial or retail spaces.
- Secure community access to ground floor facilities comprised of the hall and gym with stage and indoor basketball court, outdoor hard courts and playing fields.
- Managing privacy and overlooking from the adjacent built environment.
- Student safety in the form of access, egress, evacuation and a secure boundary for use of the grounds during school hours.
- Daylight access into all teaching spaces; and
- Traffic and transport assessment including safe student drop off and collection zones, particularly for Primary Schools.

2.2 Site Selection

Ideally Urban Schools are located on corner sites or sites which provide multiple egress points for students, enable a separate and dedicated service delivery, staff and visitor parking access when required, and are immediately adjacent or within a contiguous walking distance to open space with natural grass.

All Urban Schools are to provide a variety of outdoor spaces for students to run and play. Site sizes will vary in accordance with the scale of the school and the adjacent amenity.

2.3 Building Design Requirements

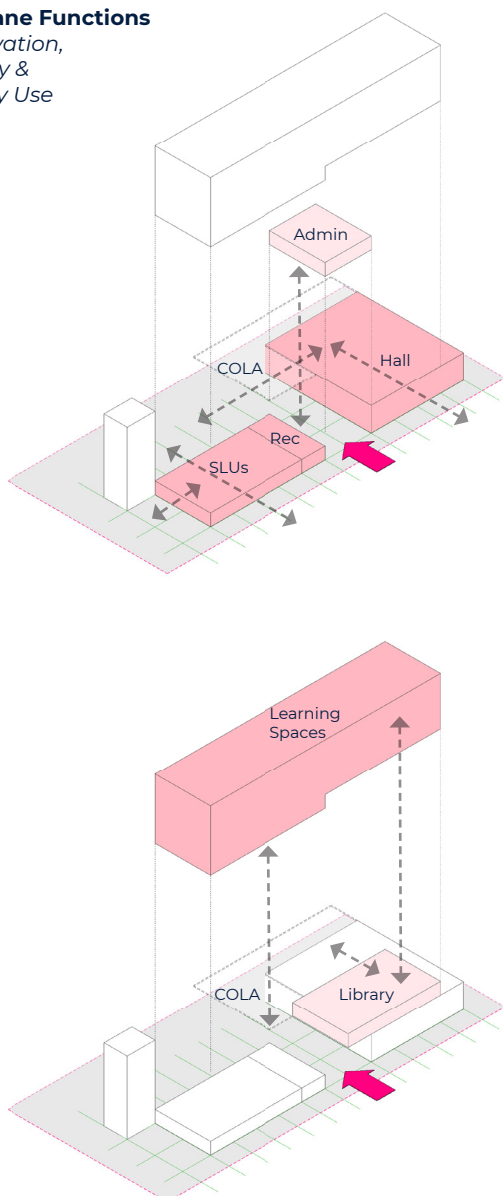
Mandatory building design requirements which are common to both Urban School types (Primary and High School) are:

- EFSG Schedules of Accommodation and Room Data Sheets
- Standardised hub layouts and internal planning grid of 9m x 7.5m
- Minimum 3.6m floor to floor heights for general learning levels and generally in line to achieve required floor to ceiling heights
- 6 sqm of open space per student to be provided within the Urban School with a minimum additional 4 sqm per student to be provided off-site within a contiguous walkable distance of no more than 5 minutes or 400m
- Functional relationships and floor planning as per the Urban School typology "Chassis" specific to the school type (Primary or High School)
- Ground floor uses are to be school uses only and not to include retail or commercial uses
- Spaces and facilities to be shared with the community are located easily accessible from the ground floor and include the hall, basketball court and hard courts
- Access and security measures control use of the school during and outside school hours. Building forms serve as secure lines where possible, in addition to the EFSG security and secure boundary requirements.
- Street level "kiss and ride" drop-off and collection areas with short term car queuing spaces in accordance with the Rapid Transport Assessment. These are to be located as close to the school entry as possible
- Given the proximity to transport hubs, parking is to be kept to a minimum of 8 – 12 spaces, in accordance with Green Travel Plans and noting Local Government Area requirements.
- Bike Parking and End of Trip facilities are to be provided as per the EFSG

- Loading Dock requirements as per the EFSG and with a 4.2m minimum height clearance
- Architectural expression and articulation should be achieved through exceptional master planning, building composition and landscape design, as well as material selection and via “add-on” elements such as shade structures to glazing. The standardised hubs which are also pedagogical planning layouts, are not to be altered.
- All learning commons are to be internal spaces when adjacent and included in the standardised hub layouts.
- Compliance with EFSG performance Criteria for sustainability and building performance including cross flow ventilation and acoustic standards

Ground Plane Functions

Street Activation,
Accessibility &
Community Use



2.4 Urban Primary (Public) School Requirements

Mandatory building design requirements which are specific to Urban Primary Schools (PS) compared to Urban High Schools (HS) are outlined in the following section.

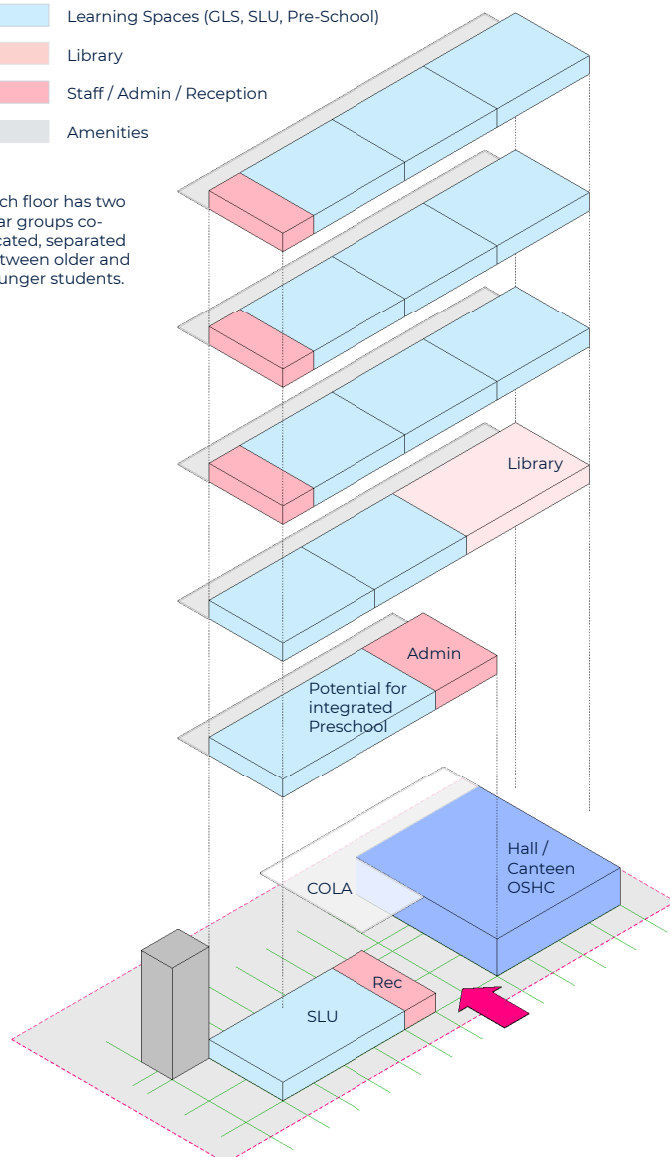
2.4.1 Functional Relationship Urban PS Chassis

The Urban Primary School “Chassis” is a standardised floorplan which optimizes functional relationships for teachers and students.

Whilst the specific uses of the ground floor will remain consistent, the arrangement of these will be site specific.

- Potential community shared spaces (subject to agreement with the school)
- Learning Spaces (GLS, SLU, Pre-School)
- Library
- Staff / Admin / Reception
- Amenities

Each floor has two year groups co-located, separated between older and younger students.



Example 'Block & Stack' arrangement of an Urban Primary School (PS 1000 shown above)

2.4.2 Building Heights

- 750 student PS not to exceed 5 storeys with the 5th level to be used for rooftop play
- 1000 student PS not to exceed 6 storeys with the 6th level to be used for rooftop play

2.4.3 Main Entry and Ground Level

The ground floor entry must be configured to provide a logical and easy progression from street or drop-off point to the administration areas.

- Ensure clear way finding to the main entry and administration for students, staff and visitors.
- Entry and Access points shall include planning and arrangement of spaces to minimise congestion during morning, lunch time and afternoon peak periods.
- The Entry Lobby should be designed to include high quality and durable finishes, with a walk off zone and provision for touch-less entry.
- Ensure a clear line of sight from the street entry to the administration and arrival area of the school to enable supervision by one teacher in the morning and afternoon.
- Main entries for both Urban Primary and High schools, including administration and arrival concourse areas, must be separate. This is a mandatory requirement to ensure the safety of smaller Primary School children.
- Support Learning Units (SLUs) must be located directly accessible to a safe evacuation point. SLU evacuation is not to rely on lifts.
- Where sites are more compact and constrained, administration areas can be stacked with a reception located on the street level.

2.4.4 Primary School and OSHC

All Primary Schools are to provide Outside School Hours Care (OSHC). The OSHC is to be located on the ground floor adjacent the hall and COLA in accordance with the standardised hub layouts, EFSG facilities and, where possible contingent on site specifics, compliant with the Urban School typology design.

The OSHC requires a separate, secure entrance from outside and within the Hall, not just from within the Hall.

2.4.5 Canteens

Canteens are to be located on the ground floor and designed in accordance with the standardised hub layouts and EFSG requirements. Canteens require protection from weather and direct delivery access.

2.4.6 Hall size and ground floor COLA

Urban Primary Schools are to include a full-sized basketball court in the Hall, which is to be openable to an adjacent, sufficiently sized Covered Open Learning Area (COLA) to enable the PDHPE syllabus to be taught on site as well as facilitate assemblies with opportunity to spill out from the Hall.

The combined area of the hall and COLA needs to accommodate 7 x 115 sqm play areas which each accommodating 23 students for PDHPE.

If an adjacent field is not available within a 5 min contiguous walk, an Urban Primary School will require a multi-purpose, synthetic field sufficient to meet the student number requirements. The field is to be line marked to support a range of active games and can be partially accommodated within the COLA space.

2.4.7 Staff Areas and Student Amenities

Primary School staff require a centrally located 'homebase' on level 1 and smaller staff rooms distributed on upper levels, for passive supervision. Refer to the Urban Primary School typology Chassis.

Whilst various studies and theories exist regarding amenity strategies, School Infrastructure have found it is the Principals and teaching staff who manage the operations of toilet facilities on a daily basis, in both Primary and High Schools.

Specific requirements of toilet layouts, locations and operational management are to be considered in the development of the strategy for student amenities.

2.5 Urban High School Requirements

Urban High School building design requirements vary from Urban Primary School requirements in the key areas of scale, spatial arrangement, area and type of play, and functional relationships which include specialist spaces.

High Schools are more complex in their arrangement and require additional learning units (ALU) which are determined on a project by project educational basis. ALUs are to be co-located to their relevant Specialist Learning Hubs and there may be some variance from the typology “Chassis”, however the design principles are to be maintained.

Open and Play Space is covered in a separate chapter, however as a guide, given passive rooftop play is acceptable in an Urban Primary School, rooftops in Urban High Schools can also be used for social and passive activities which do not include active or ball games. Preferably, Urban High School roof tops would be areas for senior students or a dedicated use by year groups. High School play requires more ground area to accommodate a range of play types which include active and ball games on either full size or half sized games fields.

Refer to the Urban High School (HS) typology design and additional mandatory requirements as follows.

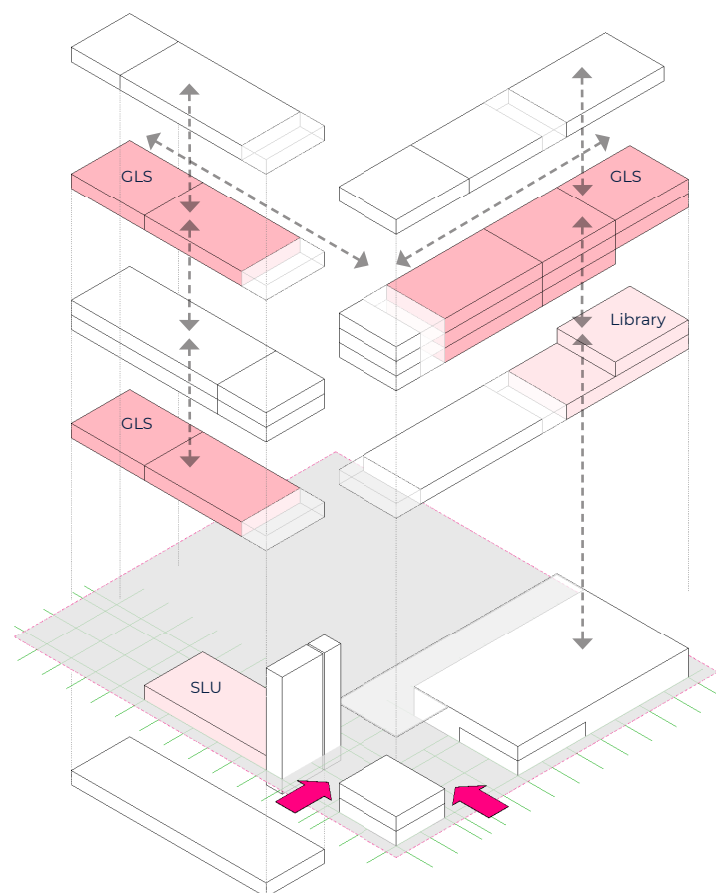
2.5.1 Building Heights

- 1500 student HS not to exceed 6 storeys
- 2000 student HS not to exceed 7 storeys

2.5.2 Main Entry

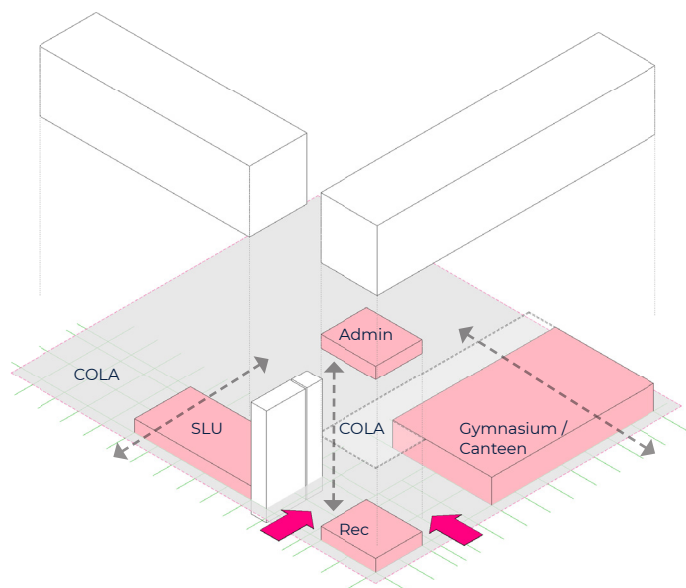
The Urban Primary Schools principles can be applied to the main entry design for Urban High Schools with the following additional mandatory requirements:

- Admin and Support Learning Units (SLUs) are co-located in High Schools and there is to be a clear line of sight and DDA access to the SLUs for students, teachers and parents.
- Arrival and concourse areas need to be of sufficient size to enable students to move comfortably through these areas in the peak times in the morning and at the end of the school day.



Distribution of General Learning Spaces

There should be enough GLS on a single level to accommodate two year groups and every year level needs to be close to another year level's GLS to allow for easy overflow



Ground Plane Functions

Street Activation, Accessibility & Community Use

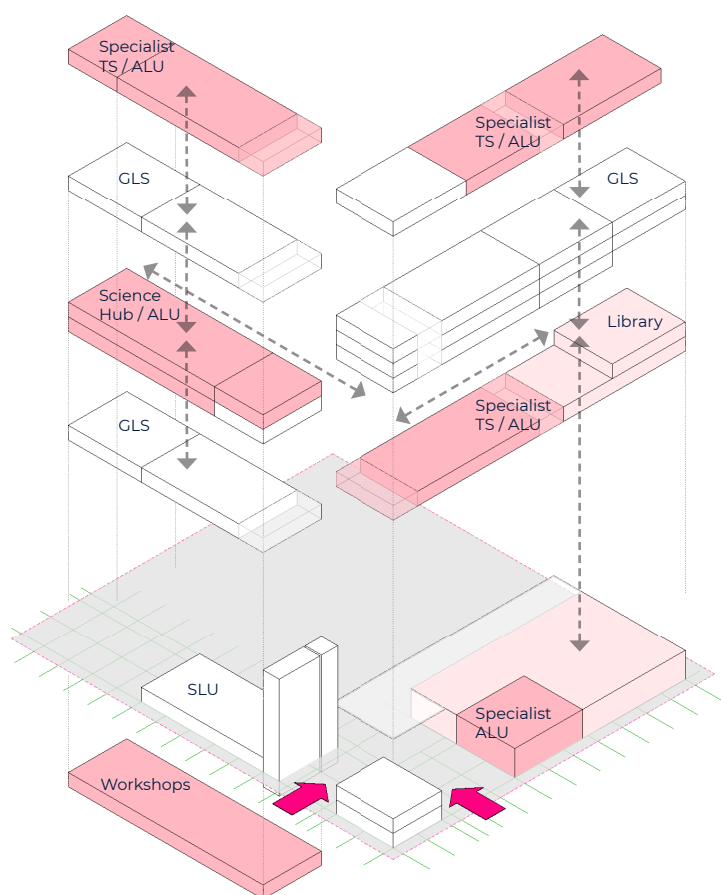
2.5.3 Canteens

Canteen design requirements are the same as the Urban Primary School EFSG requirements with the additional mandatory requirement of being in close proximity to the gymnasium.

2.5.4 Gymnasium Sizes and Ground Floor COLA

Gymnasias are large enough to fit a min of 2x full size basketball courts within the main hall. All other support facilities are to be compliant with EFSG requirements.

Gymnasias can be located below the school building if direct access and an adjacent COLA are provided.



GLS connection to Specialist Learning Hubs

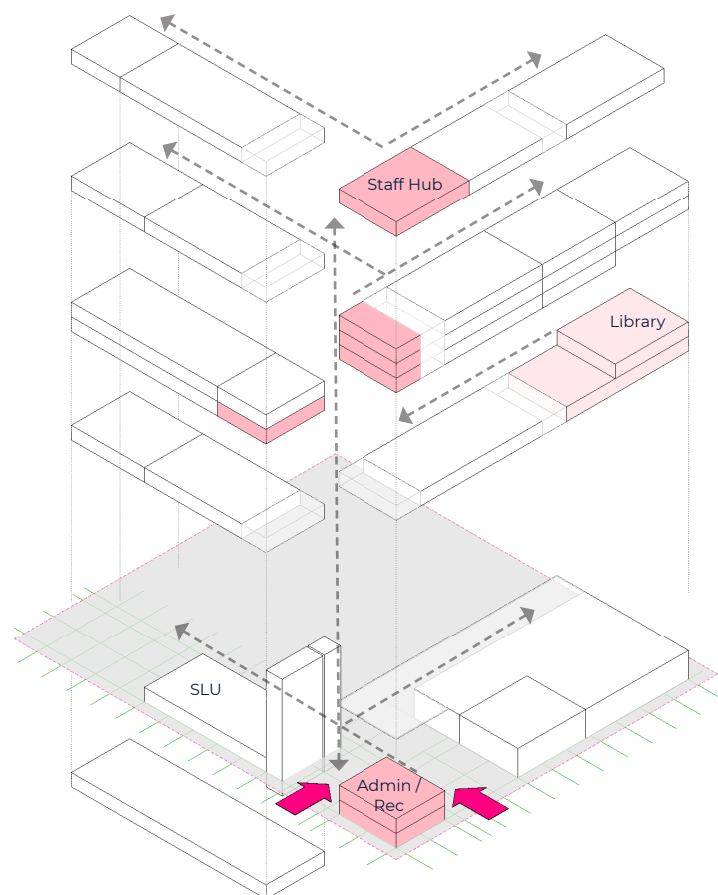
Specialist areas need to be accessible to all year levels without preference. Science is the specialist area timetabled most frequently to all year levels and should be placed centrally to GLS

2.5.5 Staff Areas and Student Amenities

High School staff require a centrally located 'homebase' and smaller staff hubs distributed throughout the building which can be attached to specific specialist learning units.

Student amenities are not a "one size fits all" approach and careful consideration needs to be given to the type and location of toilets to ensure student safety which includes mitigating anti-social behaviour such as bullying and vandalism, and providing access to toilets to manage self-harming.

Passive surveillance from Admin or Staff areas on all levels, including the playing field level of the school, is to be ensured.



Allocation of Staff Areas

Provide safe, equitable and appropriately configured Learning Spaces with a scaffolding level of passive surveillance by staff

2.5.6 Functional Relationships

Refer to the Urban High School typology "Chassis" for preferred functional relationships, noting that additional learning units impact final relationship planning.

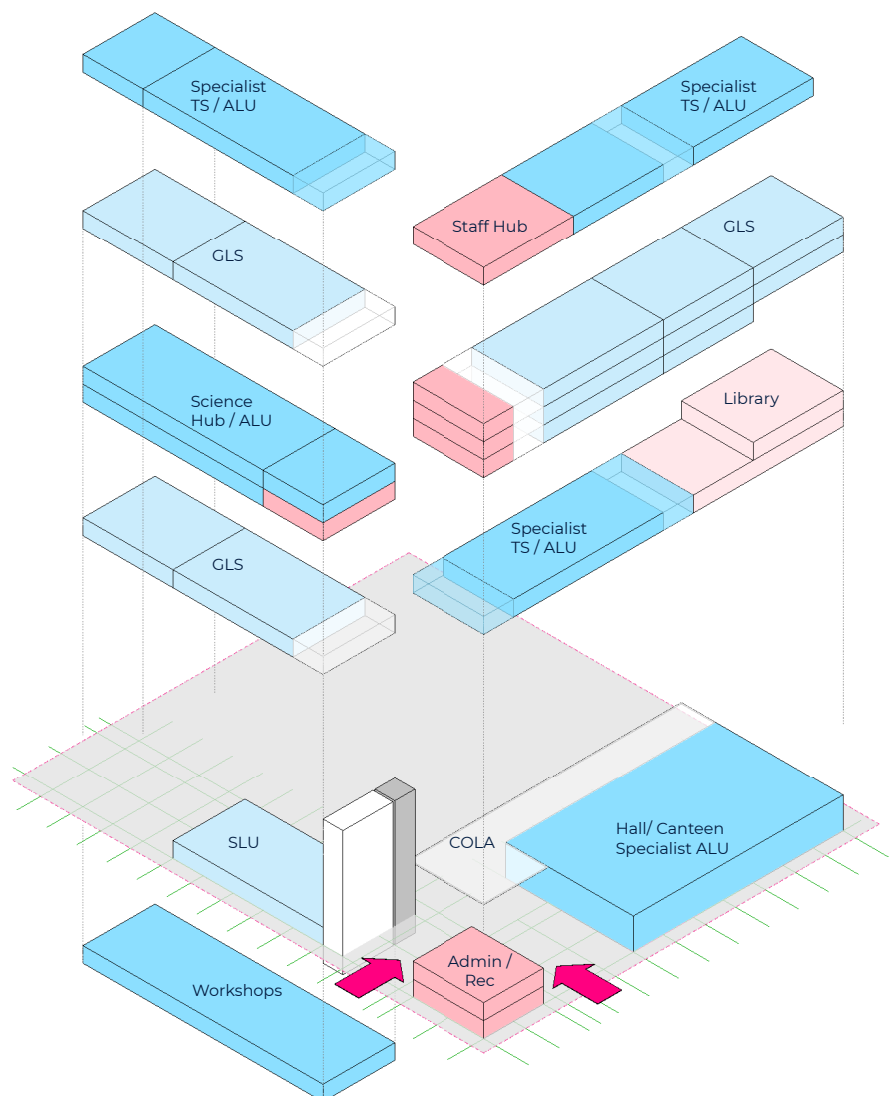
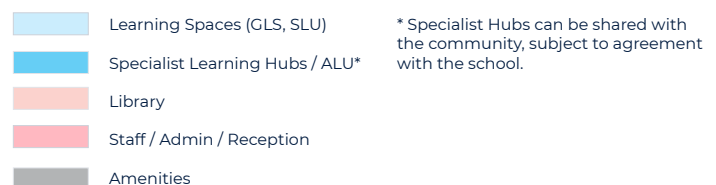
Key principles for Urban High School functional relationships have been developed in conjunction with timetabling, student movement analysis and operational requirements. For Urban High Schools the following are mandatory:

- Reception and Administration are located on the ground floor, however if site constraints do not accommodate this, administration can be vertically stacked but there must be a reception on the ground floor at street level.
- SLUs are to be located where they have direct access to safe evacuation which is not reliant on lifts and within close proximity to administration or staff for supervision.
- Wood and Metal Workshops must be located to support direct delivery and storage of materials. Direct access to external open space or natural light are not required.
- Food and Textiles are located to be well connected to deliveries and placed within the building to allow potential sharing with the community or to facilitate VET classes.
- The Library is ideally located on one level if site constraints allow this and benefits from rooftop terrace space.
- The Staff Hub accommodating the staff lounge can be co-located with administration. Smaller staff study areas are distributed throughout the school for supervision.
- Movement, Performing Arts and Fitness cluster can be co-located to share changing facilities.
- Gymnasium and specialist spaces requiring greater floor to ceiling heights are co-located. Performance and fitness hubs can be co-located with the Gymnasium to share change and toilet facilities.

Functional Relationship Urban HS Chassis

The Urban High School "Chassis" is a standardised floorplan which optimizes functional relationships for teachers and students.

Planning and Layout arrangement of an Urban High School is dependent on selection of ALU.



Example 'Block & Stack' arrangement of an Urban High School (HS 2000 shown above)

3.0 Open and Play Spaces

The quality and comfort of play spaces in Urban Schools is of critical importance. All spaces are to be of a high quality, balancing natural light and shade, minimising environmental impacts whilst promoting biophilic design.

The spaces must have a purpose and a defined use in accordance with the identified five zones of play, to encourage a diversity of experience for students.



Five Zones of Play defined by type, quantity and purpose

If Urban Primary and High Schools are co-located, play areas are to be designed to enable the separation of younger and older students. This is necessary to ensure easily supervised and safe play areas.

Primary and High School students are to have dedicated and independent open space play areas with potential for supervised interaction as required and managed by the schools.

Calculating Play Space

Play space is to be a dedicated area as opposed to a circulation space or transition space between teaching areas or other uses. When calculating the minimum requirement of 6 sqm per student in an Urban School, the following criteria is to be applied:

- Corridors, circulation space and waiting areas to lifts, stairs, toilets etc are not considered play space and cannot be included in play space calculations.
- Areas included in the calculation are to be a minimum consolidated area of 100 sqm.
- The EFSG minimum circulation paths of 2.1m are to be mapped to ensure the remaining play space is greater than 100 sqm otherwise it cannot be considered or calculated as play space.
- Learning commons are not to be considered or calculated as play space.
- Outdoor workshops are not to be considered or calculated as play space.
- Halls and Gymnasias can be included in the play space calculation.

In both Urban Primary and High Schools, all play areas are to be designed to have clear lines of sight, avoiding dead corners and “nooks” and comply with teacher supervision requirements.

Play areas for Primary School students have different requirements when compared with High School students and this is reflected in the typology designs and following section.

3.1 Urban Primary School Play Space Requirements

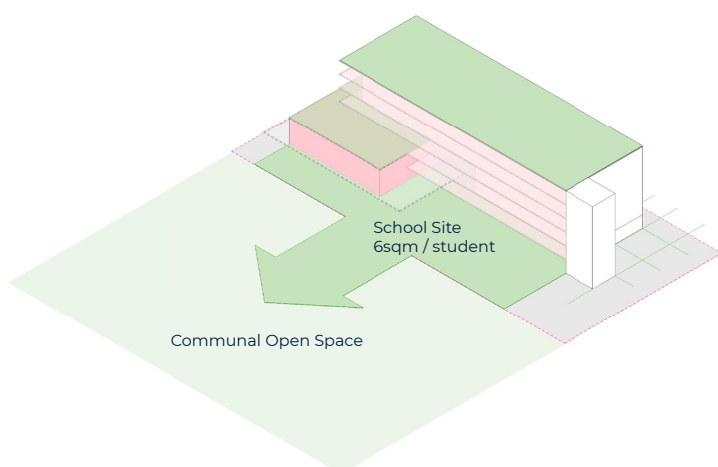
Urban Primary Schools have specific design requirements for the location, type and size of play space within the building. This includes play areas on the ground floor, on each level of the building and on the rooftop.

The typology “Chassis” has been tested and refined with teachers to ensure the types of play areas meet both education requirements as well as create interesting, diverse and safe play spaces for students.

The PDHPE syllabus must be able to be taught on the ground floor of an Urban Primary School. The school must provide 6 sqm per student of play space which is a combination of the ground floor for PDHPE syllabus, covered verandah play space on each level and rooftop play with appropriate shading.

Access to an additional 4 sqm per student of natural grass open space, such as a sport field, is to be within a contiguous walk of no more than 5 minutes or 400m or ideally to be direct. Students should not have to cross major roads to access the open space.

If the PDHPE syllabus can be met within the 6 sqm of play space within the Urban School grounds and building design, the additional 4 sqm is optional.



Urban PS play areas are located on the ground floor, on each level of the building and on the rooftop. Access to additional natural grass open space is ideally to be direct.

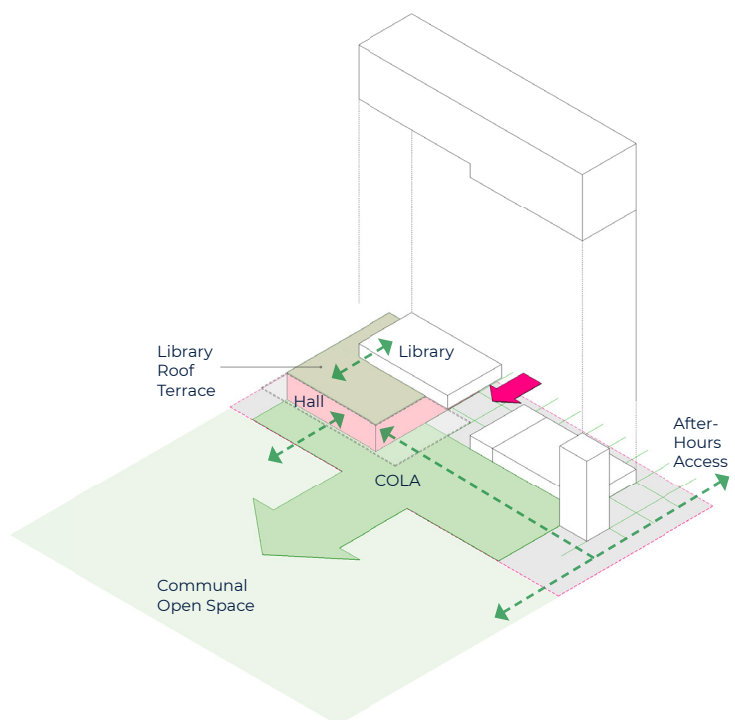
3.1.1 Ground Floor Play Space

As outlined in 2.4.6 Hall size and ground floor COLA, the ground floor must comply with minimum site areas to ensure the PDHPE syllabus can be taught on site. Ground floors are to be used for ball game and active play activities. Rooftops are not to be used for active ball games.

The primary use of the basketball court in the hall is for students. As a secondary use, it can be shared, after school hours, for use by the community. An Urban Primary School court is not required to be a competition level court and therefore does not require a 7m floor to floor height.

As shown in the Urban Primary School typology, the adjacent COLA area needs to accommodate half basketball and handball courts, requiring a minimum 4m floor to floor height.

The ground floor play areas must accommodate covered play area as well as a minimum of 20% of the site for deep soil planting (with minimum dimension of 6m) and a minimum of 300 sqm of nature play. The purpose of nature play is to ensure a diversity of learning and play experiences for students and to support outdoor teaching opportunities.



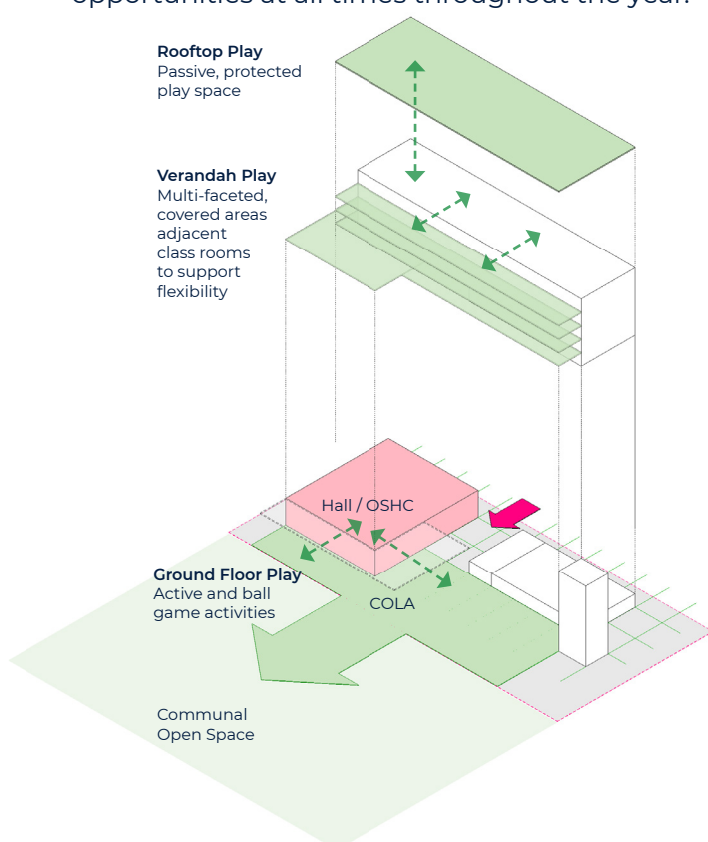
The PDHPE syllabus must be taught on the ground floor and needs to accommodate ball courts, covered play area and nature play.

3.1.2 'Verandah' Play Space

"Verandah" play spaces are the large areas immediately adjacent teaching spaces on each teaching level. These are unique to Urban Primary Schools and are not applicable to Urban High Schools. The purpose of these areas is multi-faceted and was developed in conjunction with Primary School teachers.

Purpose of Verandah Play Space:

- To support flexibility for teachers to teach and demonstrate practical applications to classes in large, contiguous and covered outdoor areas, adjacent classrooms, which improves the student learning experience.
- Each floor has two year groups co-located, separated from older and younger year groups. The verandah spaces support year groups sitting together, in a secure and easily supervised environment, to eat their morning tea and lunch before they disperse to play; and
- The covered spaces are protected from inclement weather and provide a range of play opportunities at all times throughout the year.



Requirements for a combination of Ground Floor, "Verandah" and Rooftop play spaces in Urban Primary Schools

Verandah depths can vary but must comfortably accommodate, at a minimum, two year groups for passive, social and discovery play as well as provide permanent circulation pathways and waiting zones in front of amenity blocks, lifts and stairs. A minimum of 2.5 sqm per student is recommended.

The maximum depth of a verandah is 11m which necessitates voids to enable natural light penetration through the building. The depths have been modeled however site specific modeling may also be required to ensure EFSG daylight penetration compliance into teaching spaces.

3.1.3 Rooftop Play Space

Rooftop play requires significant fencing and creates issues with noise and vibration throughout the school building, if ball sports are allowed to be played. Rooftop play in Urban Primary Schools must be designed to be passive and needs to be carefully considered in terms of the surrounding context.

Ball sports are to be played on the ground floor only which in addition to eliminating impacts from noise and vibration, provides a more practical and larger expanse of play area for students. The location of ball sports on the ground floor also means the area can be used by the community after school hours.

Rooftop play areas need to balance the needs of shade and protection from the elements whilst providing students with access to direct sunlight.

Adjacent and future residential tower overlooking needs to be considered and managed, however as these are Urban Schools, in an urban environment, overlooking cannot be eliminated.

3.2 Urban High School Play Space Requirements

In response to their more dense local context, Urban High Schools are more compact in size and therefore EFSG on site requirements of 8 x basketball courts and a full sized games field are not feasible.

In developing the typology and play space strategy for a large Urban High School, research, stakeholder engagement and lessons learnt were completed over a two year period with a focus on creating diverse and inclusive play space experiences in an urban environment.

Urban Schools tend to be of a medium and large size with between 1500 and 2000 student places.

The following requirements for play space areas in an Urban High School are mandatory:

- Urban High Schools must ideally be located within a contiguous, 5 minutes or less than 400m walk to a sports field and students should not have to cross major or busy roads to access the field.
- The 6 sqm per student of open play space provided on site is to predominantly provided on the ground floor, podium and lower levels of the school; and
- All play spaces must have a dedicated use and be a minimum of 100 sqm of consolidated area. (Refer to Section 3.0 for calculation of play space)

3.2.1 Games field and basketball courts

Large Urban High Schools should accommodate a minimum of 6 x basketball courts which includes at least 2 x full sized basketball courts inside the gymnasium and a further 4 x courts or 8 x half courts located on site.

Medium Urban High Schools should accommodate a minimum of 4 x basketball courts which includes at least 2 x full sized basketball courts inside the hall and a further 2 x courts or 4 x half courts located on site.

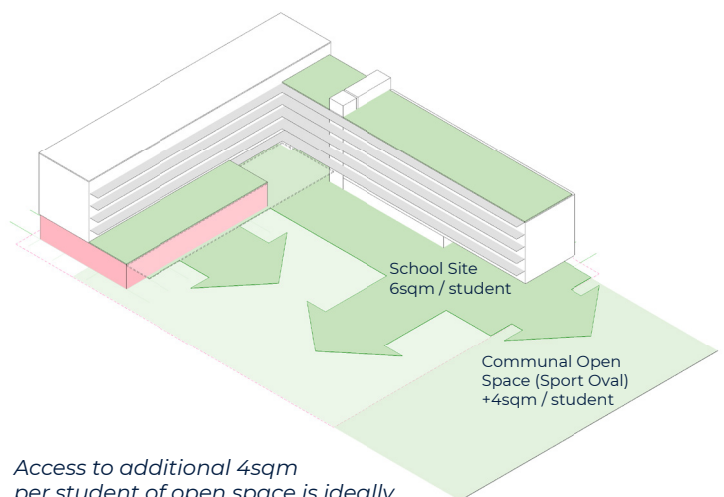
Hard courts for more social ball sports such as badminton, handball, pickleball etc should be accommodated on site as line markings, where space and site constraints permit.

3.2.2 Diverse, Inclusive and Social Play Spaces

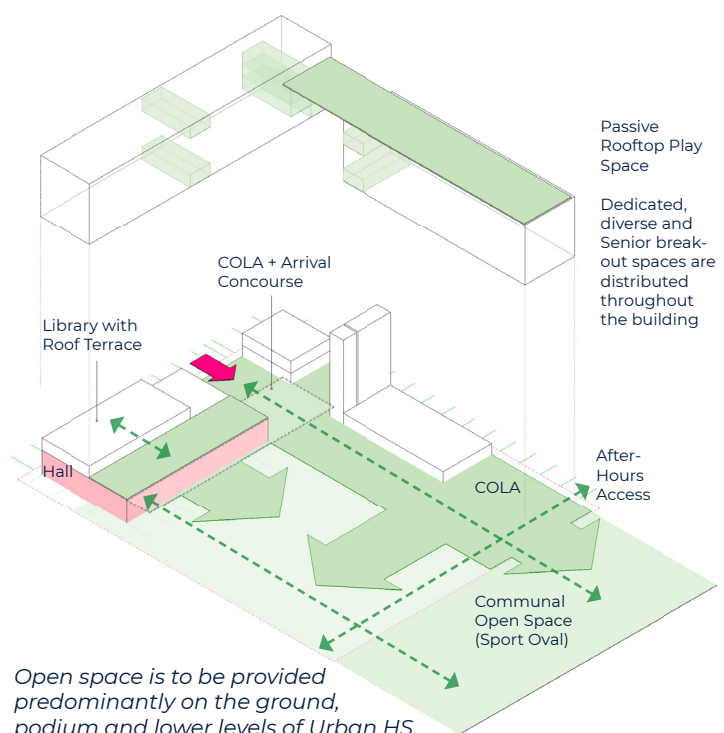
Of equal importance to active play areas are spaces which are quieter, secure and ideally within a biophilic setting. These spaces cater to the large proportion of students who do not participate in physical activity during their breaks but instead seek creative, social or passive engagement opportunities.

The quality of landscaped spaces is very important to the diversity of play spaces in an Urban High School. Passive supervision surveillance needs to be maintained to ensure students feel safe and secure.

Similarly, there needs to be a range of inclusive play spaces which cater to cultural and social diversity and enable creative exploration and discovery.



Access to additional 4sqm per student of open space is ideally within a contiguous, 5min or less than 400m walk.



Open space is to be provided predominantly on the ground, podium and lower levels of Urban HS.

4.0 Movement

Movement refers to how students and teachers travel, circulate and move through an Urban School environment. It encompasses both the use of stairs and lifts to support the pedestrian flow of the school occupants.

It is a critical issue in Urban Schools which are reliant upon a lot of vertical student movement before, between and after classes at the end of the day. The majority of student movement happens at the beginning and end of the school day. The end of the school day (departure) creates the most movement and highest reliance upon stairs.

More than a dozen school scenarios were tested to develop an optimum approach to movement and vertical transportation. Key interdependencies in the development of movement strategies are timetabling and functional relationships of teaching spaces.

The SINSW movement strategy for Urban Schools prioritise the use of stairs, as opposed to lifts, for student movement. This approach isolates the use of lifts for students going to the top floor classrooms at the beginning of the day and use by teachers, staff and special needs requirements. Various timetabling, vertical functional relationships and stacking of teaching spaces, were modeled, resulting the typology “Chassis” for the Urban Primary and High Schools.

The typologies rely on floors being connected with stairs, encouraging primary reliance upon stairs for student movement between classes, during breaks and the beginning and end of the day.

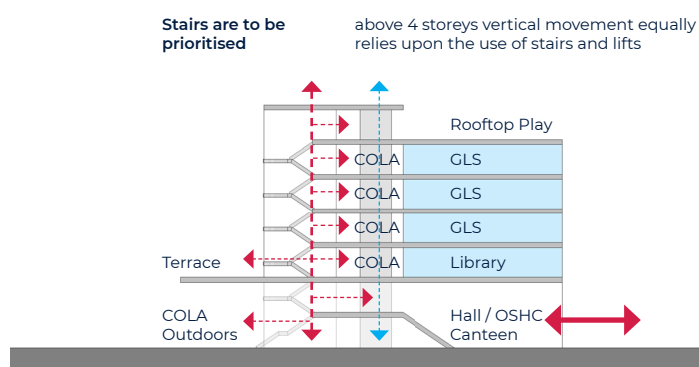
The modeling for student movement and pedestrian flow is based on the assumption of 33 students per meter and per minute of movement which is derived from industry best practice and lessons learnt.

4.1 Urban Primary School Movement

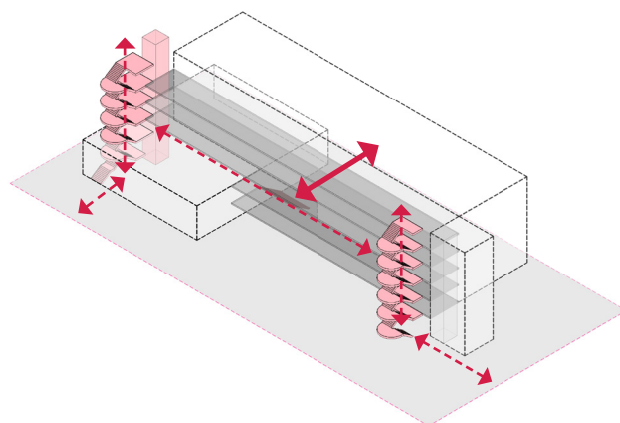
Primary School students have dedicated “Homebase” classrooms which are allocated to year groups. As such, they tend to move much less throughout the day, than High School students.

SINSW undertook extensive pedestrian modeling of Primary School students in Urban School environments which resulted in the mandatory school heights criteria in section 2.4.2.

The combination of the grouping and defined play spaces, and location of the library, as shown in the typology “Chassis”, minimizes student movement through the building during the day.



The use of stairs and lifts supports the pedestrian flow throughout the school day. Key interdependencies are timetabling and functional relationships of teaching spaces.

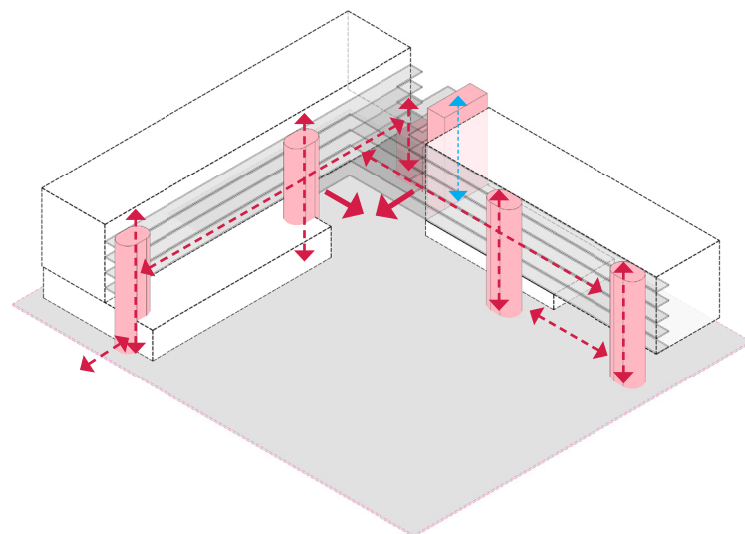


4.2 Urban High School Movement

Urban High Schools are much more complex than Urban Primary Schools as they require at least 60% of the student population to be moving between teaching and specialist spaces. The design must consider requirements and differences between fire-isolated stairs, external stairs and open circulation stairs, and which of these are designated as required exits.

The typology “Chassis” is representative of optimum movement strategies which take into account the following:

- Reliance upon vertical transportation (VT) for people with disabilities.
- Implementation of operational principles of staggered starts and departure times.
- Timetabling of teaching spaces and use of open space within the Urban School needs to be considered and endorsed by School Operations and Performance.

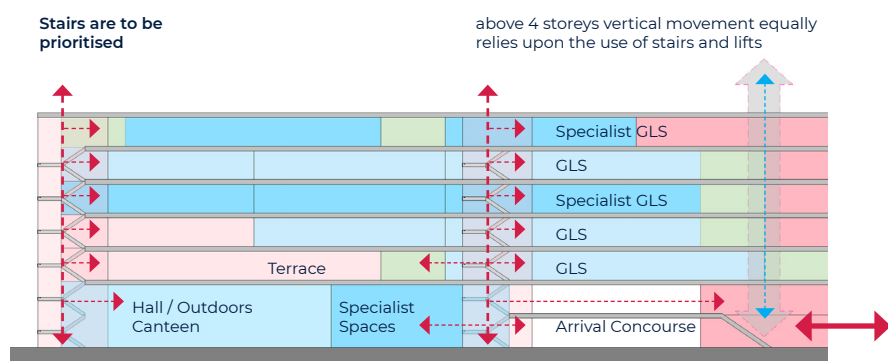


Urban Schools rely on floors being connected with stairs, encouraging primary reliance upon stairs for student movement

4.3 Prioritising Movement by Stairs

Lessons learnt from existing operational Urban Schools and extensive modeling and analysis have informed the following key principles:

- Stairs are to be prioritised for vertical movement and pedestrian flow.
- Above 4 storeys, vertical movement is equally reliant upon the use of stairs and lifts (50/50 split).
- The strategy for stair placement is that primary staircases are located in accordance with supporting safe and efficient student movement, with key sight-lines for supervision and ensuring their location retains consolidated play space, especially for Primary School ‘verandah’ play.
- Stairs are not to be located in dedicated spaces such as libraries. Multiple stairs are preferable to a central atrium staircase and the use of fire stairs for overflow movement is acceptable.
- Each school design requires a fire and life safety assessment and development of fire strategy early in the design phase.
- All stair widths must comply with EFSG clear minimum widths (2.1m) with a minimum of 3 circulation lanes, each 0.7m wide and including double handrails.
- Stair riser heights in Urban Primary and High Schools are to be a consistent 163mm to enable students to move between floors and to standardise stair component design for MMC.



Lifts are for use by teachers, staff and disability access. The predominant mode of movement for students is via stairs with lifts utilised in the morning and at lunch for students required to move more than 4 storeys.

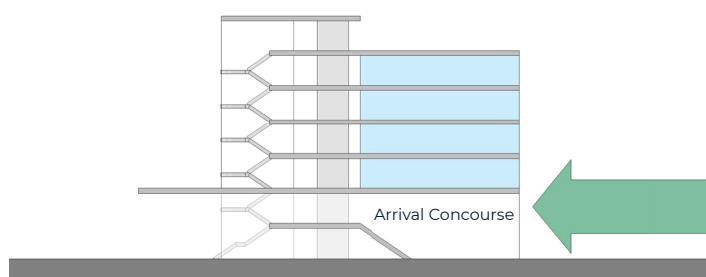
It can be assumed that when lifts are too busy in ‘down peaks’, students will instead choose to use the stairs. Students are incentivised to do so when moving down the building to go play or to go home.

4.4 Arrival and Departure

At the peak movement times of the day, entry and access points need to be designed to include planning and arrangement of spaces to minimise congestion during morning, lunch time and afternoon peak periods.

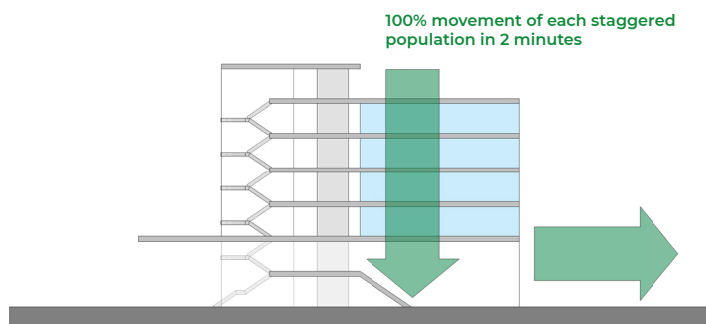
Arrival concourse areas must connect into overflow open spaces to accommodate all students comfortably at the peak times of the day.

Congregation areas are required on the ground floor for students to start the day and wait for siblings and parents at the end of the day.



School Arrivals - no vertical movement

Students arriving to school before the first bell are assumed to wait on Ground Floor until the "First Bell" peak.



School Departures - Students leaving at the end of school day

It is assumed that all students get to the stairs on their floor within 2 minutes of the end of day bell. They can then travel down to the ground floor in a period that extends beyond 2 minutes.

4.5 Stair Widths

The first two levels in an Urban Primary School and four levels in an Urban High School require a generous approach to the provision of stairs to enable students to move quickly to and from their classes at the beginning and end of the school day.

The majority of movement occurs on the lower levels and all stairs will require pedestrian flow modeling and analysis.

The following are guides, subject to student numbers and modeling, to consider in the design of the width of a main staircase:

- Stairs should be widest from the ground floor to level 1 with an approximate minimum consistent clear width to enable up to 6 lanes of pedestrian movement
- Stairs can taper to a width of up to 4 lanes of pedestrian movement from levels 1 to 2 (if there is a main staircase) or;
- Stairs from levels 1 and above should comply with minimum widths outlined in the EFSG and ensure there are a suitable number available

4.6 Lift Requirements

Lift capacities are to be assessed on a project by project basis through pedestrian movement analysis. Following the completion of the pedestrian movement analysis, a VT analysis can be completed.

As a guide, the following minimum principles can be used for Urban Schools in the concept design phase subject to project modeling and analysis:

- Urban Primary Schools can be serviced by stretcher-sized lifts. A maximum of two lifts is required.
- Lifts should have clear visibility and be co-located with stairs and toilets. However, as stairs are the primary mode of vertical transport in Urban Schools, the lifts do not need to be centrally located on a floor.
- Lifts are available at all times for use by teachers and for disability access.
- At least one of the lifts will be utilised as emergency lift for buildings over 25m.
- Allocate a goods lift to service all levels of the building, basements, carparks, plant areas and the loading dock securely. Ensure separation of the use of goods lifts from the rest of school use.
- Access control can be maintained by integrated access systems or by allocating specific lift usage or a combination of both.
- Dedicated waiting areas which support access and egress to lifts and stairs are to be accommodated in the design of the floor layouts.
- It can be assumed that when lifts are too busy in 'down peaks', students will instead choose to use the stairs.

5.0 Operational principles

5.1 Timetabling Strategy

Timetabling for rooming efficiency or optimal rooming is important in all school timetables.

The timetable structure that contains the greatest number of elements that will facilitate timetable strategies for reduced movement is:

- A five period day
- Staggered starts
- Integrated curriculum in Stage 4
- Some double lessons in Stages 5 and 6

The simplest timetable structure that may have the least amount of student movement if there are open spaces on multiple levels, is a four period day with staggered starts.

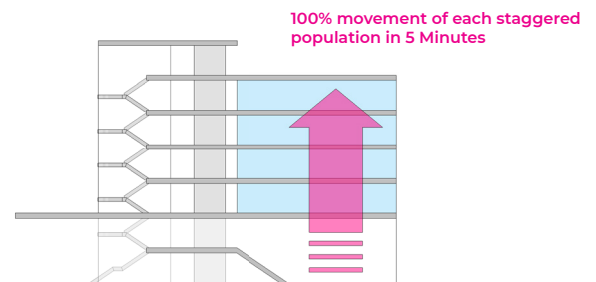
Timetable staggering at the start and end of the day should separate the movement time of the different year levels.

An allowance of 3 minutes from class to class is required to be considered in timetabling, to enable students to move vertically through an Urban School.

Staggered Starts

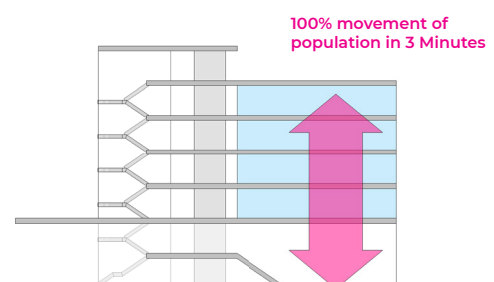
Staggered starts are applied in the following way to manage student movement, pedestrian flow and student safety:

- All year groups arrive on agreed staggered times of 10 min intervals
- All year groups depart on agreed staggered times of 10 min intervals with the exception of Kindergarten students who may depart up to 30 minutes prior to the rest of the school



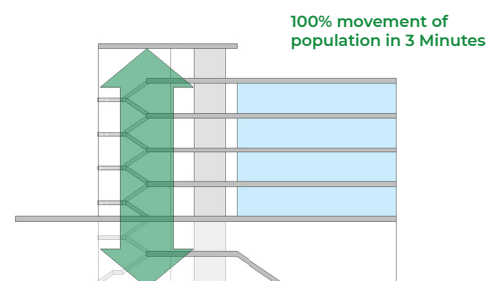
First Bell - Students moving to their first class

It is assumed that 5 minutes will be allowed between the first bell and the start of the first class, to allow students to move through the building.



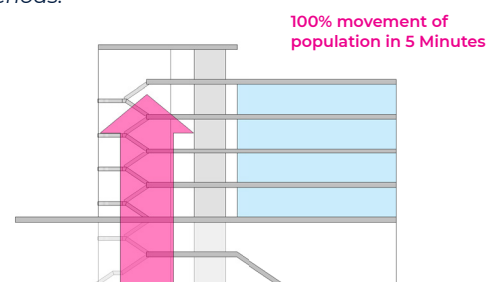
Class to Class - Students moving between classes

It is assumed that 3 minutes will be allowed for class-to-class movements.



Class to Lunch - Students going to lunch

It is assumed that all students get to the stairs on their floor within 3 minutes of the lunch bell. They can then travel down to the ground floor in a period that extends beyond 3 minutes. Shifts of demand from lifts to stairs can be expected at the start of lunch periods.



Lunch to Class - Students moving to class after lunch

It is assumed that 5 minutes will be allowed between the end of recess / lunch bell and the start of the next class.

Standard GLS in Urban Primary Schools

- Each level of the urban primary and high school should have enough space to accommodate two year groups.

Standard GLS in Urban High Schools

- Ideally, there should be 17, 18 and 25 GLS on three different levels if it is predetermined where each stage will be accommodated. For a more flexible arrangement, 18, 18, and 24 GLS is the best alternative
- If the GLS must be spread across four or more separate levels, layouts with combinations of 9 and 12 should be considered
- 60 GLS divided equally between three, four, five or six levels is not recommended if each set is on a different level

Specialist GLS in Urban High Schools

- Specialist areas in an Urban High School are to be accessible to all year levels without preference.
- If practical, they can be grouped together in the same area.
- For a narrow site, with multiple levels, specialist areas should be positioned in the middle level with General Learning Spaces (GLS) above and below.
- Specialist spaces should not be grouped at one end of the site as this requires some year levels to travel through all other year level areas to access the spaces.
- Science is the specialist area timetabled most frequently to all year levels and should be easily accessed from all areas of the school. Students will not only travel to those rooms from their GLS but from every other specialist area and if one specialist area only can be placed central to the GLS, then it should be Science.

5.2 Shared Facilities

Outdoor and ground level facilities such as Hall, Gymnasium, Kitchen, Canteen and Metal & Wood Workshops provide potential shared use opportunities with the wider community, subject to careful consideration of placement, location, security requirements and agreement with a school Principal.

5.3 Security

Urban Schools use building lines, fences and gates to create secure lines. Careful design consideration is required to provide the best privacy and security offer within.

Wherever possible the building is used as the secure line in order to enable the school to interface with and activate the ground plane at street level. Visual connectivity is maintained through fenestration whilst restricting physical connectivity.

Key principles:

- Secure separate arrivals for High School and Primary School
- Secure line between High School, Primary School and Pre-School play areas
- Secure line for out of school hours OSHC and community shared spaces
- Supervision is considered in the design of security and play space
- Overlooking from adjacent buildings is to be 'designed out' as much as is practicable in an urban environment, with use of building orientation, siting, privacy screens and structures

6.0 Conclusion

The Urban School Guidelines are a live document and will be reviewed and updated on annual basis, capturing feedback and lessons learnt from the Post Occupancy Evaluation and Education Planning Unit reviews.

There is more research planned to identify the landscape and play requirements of the five zones of play in both Urban Primary and High Schools.



For more information or to provide feedback, please contact us at
schoolinfrastructure@det.nsw.edu.au

schoolinfrastructure.nsw.gov.au

