NESST-DASL Design Guide for Migrant Worker Living

V: APRIL 2026

Foreword by Minister of State for Manpower

Over the years, the Ministry of Manpower (MOM), together with the dormitory industry and stakeholders, has strengthened public health resilience and improved living standards in migrant worker dormitories. In 2021, MOM introduced new standards to enhance pandemic resilience and liveability, informed by lessons from the COVID-19 pandemic. Building on these efforts, NESST Singapore Limited was established in 2023 to drive innovation and transform migrant worker housing.

NESST Tukang welcomed its first residents in 2025, demonstrating that higher dormitory standards that protect health and well-being are both practical and achievable. Developed through extensive consultation with industry stakeholders and migrant workers, its design balances liveability, pandemic resilience, cost, and maintainability.

This Design Guide distils the key principles behind NESST Tukang and consolidates insights and practical design feedback from DASL, shared through platforms such as the NESST-DASL forum. It serves as a reference for future dormitories, supporting the sector to strengthen capabilities, adopt innovative solutions, and build a more resilient ecosystem. NESST Tukang reflects our vision for the future – building better homes today, pioneering dreams for tomorrow.

We invite dormitory operators, designers, and partners to draw on this Guide, apply these principles, and continue collaborating to raise standards across the sector.

Mr Dinesh Vasu Dash
Minister of State
Ministry of Manpower

Preface by CEO NESST

In land-scarce Singapore, good design has never been about space alone. At its best, thoughtful and innovative design enables us to do more with less — enhancing wellbeing, dignity, and quality of life beyond the mere provision of infrastructure.

At NESST, this belief shaped our approach to the development of the NESST Tukang Dormitory. From the outset, we were clear that we did not want to design based on what we thought migrant workers needed. Instead, we chose to listen — to understand what migrant workers themselves value and experience — and to anchor our design decisions in those insights.

This meant spending time on the ground and undertaking extensive consultation with industry, engaging migrant worker leaders, employers, and partners from the Dormitory Association of Singapore Limited (DASL). Through these engagements, we gained a deeper understanding of residents' lived realities, operational challenges, and opportunities to strengthen liveability, mental wellbeing, and resilience, including during periods of public health stress.

This Design Guide fundamentally maps the performance-based design journey of the NESST Tukang Dormitory. It documents the design intent, key considerations, and trade-offs that shaped its development, and includes examples of similar industry implementations guided by the same considerations or seeking to achieve similar outcomes. With a focus on everyday living and pandemic preparedness, the guide is not intended as a definitive blueprint, but as a practical sharing of lessons learnt and evolving practices.

Through this collaboration between NESST and DASL, we hope this guide contributes meaningfully to the collective effort to uplift dormitory design standards and support the continued transformation of the sector.

Our progress would not have been possible without the generous guidance and partnership of DASL, fellow dormitory operators, employers, NGOs, and government agencies. We are deeply grateful for this support and look forward to deepening these partnerships as we continue to build safer, more dignified, and more resilient living environments for our migrant workers.

A better home today, pioneering dreams for tomorrow!

Mr Thng Chee Meng

CEO

NESST SINGAPORE LIMITED

Preface by President DASL

The Dormitory Association of Singapore Limited (DASL) is honoured to be a part of this Design Guide for the NESST Tukang Purpose-Built Dormitory. Our partnership with NESST Singapore is rooted in a shared vision: to uplift standards in the worker dormitory sector and to champion the dignity and well-being of migrant workers who contribute so much to Singapore's progress.

This guide is more than a technical manual—it is a testament to our collective resolve to move beyond mere compliance, towards creating living environments that are truly liveable and sustainable. The NESST Tukang journey exemplifies how thoughtful, people-centric design can transform not only the quality of life for residents but also enhance operational efficiency and public health resilience for all.

By offering practical design insights and highlighting the power of collaboration, this guide sets a new benchmark for our industry. It is our hope that these learnings will inspire further innovation, leading to safer, more resilient, and dignified dormitories—places that migrant workers can proudly call home.

Let us continue to work together, across sectors and communities, to build a future where every dormitory reflects the values of respect, safety, and opportunity.

Mr Mohamed Fuad B.A. Rahman

President

Dormitory Association of Singapore Limited (DASL)

Content

High density living requires a rethinking of the typical dormitory archetype. This document contains the key innovations made in the NESST Tukang Dormitory, summarising their design principles and rationale for decisions made during the design process and incorporated adoption and implementation of progressive like-minded dormitories with similar design philosophy.

It is made to be a learning guide for future dormitories to continue to improve and innovate, in order to ensure migrant workers have access to a resilient, quality and sustainable living, working, social environment.

The design strategies adopted for NESST Tukang Dormitory were in response to its unique site configuration and design intent. Discretion should be adopted when applying strategies from this guide.

Introduction

Overview

Stakeholder Engagements

User Engagements

Desired Outcomes For NESST Tukang Dormitory

Overview

NESST Tukang Dormitory is one of the first seven PBD developments to be built on new dormitory standards. NESST Tukang Dormitory has incorporated innovative design features and practical enhancements that serve as a testbed for advancing migrant worker living environments. These improvements are specifically designed to promote both the physical and mental well-being of residents, creating a more supportive and comfortable living space that goes beyond basic accommodation requirements.

Promote Physical and Mental Well-being

- Dedicated in-room social space for social interaction and prayers
- 6-3-3 room configuration with single beds and loft beds
- Privacy nooks on each floor for residents to attend to private matters
- Diverse green spaces to enhance liveability

Bolster Pandemic Readiness

- Curbless carpark to support pandemic operations and built-in powe water and sewage infrastructure
- Convertible multi-purpose halls to support peacetime and pandem requirements

Enhanced Social and Recreational Options

- Open concept gym integrating with greenery view to enhance gy experience
- Centralised courtyard
- Commercial spaces to meet the diverse needs of residents
- Communal kitchens on each floor with assigned kitchen lane for ea room to drive ownership
- Flexible communal dining area to meet dining and recreational needs

Stakeholder Engagements

NESST adopted a multi-stakeholder approach and sought consultation with migrant worker leaders, DASL, employers and government agencies to understand operational pain points, user needs and re-imagine existing solutions.

NESST aims to create solutions that are innovative, practical, cost-effective and scalable across the industry catalysing transformation to uplift dormitory standards.

MOM's Design Advisory Panel (DAP) (est. June 2023)

- 5-member expert panel to provide technical advice and review design proposals to strengthen resilience in migrant worker housing and liveability
- Experts from: architectural design, healthcare infrastructure, dormitory operations, NGO, and retail/commercial sectors

Industry Stakeholders

- Established Quarterly NESST-DASL exchanges to facilitate industry collaborations and sharing
- Established NESST-SCAL Engagement Forum as open sharing platform for employers' feedback

Collaboration with Progressive Dormitory Operators

- Co-piloted innovation trials with like-minded progressive dormitory operators and employers to testbed innovation ideas

User Engagements

Extensive focus groups and engagement sessions are also held with migrant workers to ensure that the design addresses the existing pain points that they face in dormitories today, and the solutions are contextually and culturally relevant.

Dialogue Sessions

A dialogue session was conducted with Migrant Workers in October 2023 which drove the key considerations for the design of the dormitory rooms with the view to understand pain points from migrant worker leaders:

- More Personal Storage
- Prefer Single Beds over Double deck
- Belongings Near Me
- More Privacy
- Personal Reading Light
- Good Ventilation from Ceiling Fan
- Separate Space/Living Areas

IKEA Workshop

A furniture and fixture testing workshop was held in collaboration with IKEA to explore the possibility of using modular furniture for NESST Tukang Dormitory.

Participants were able to test out various types of bed settings, room furnishing, laundry yard and kitchen provisions and solicit user feedback.

Offsite Mockup

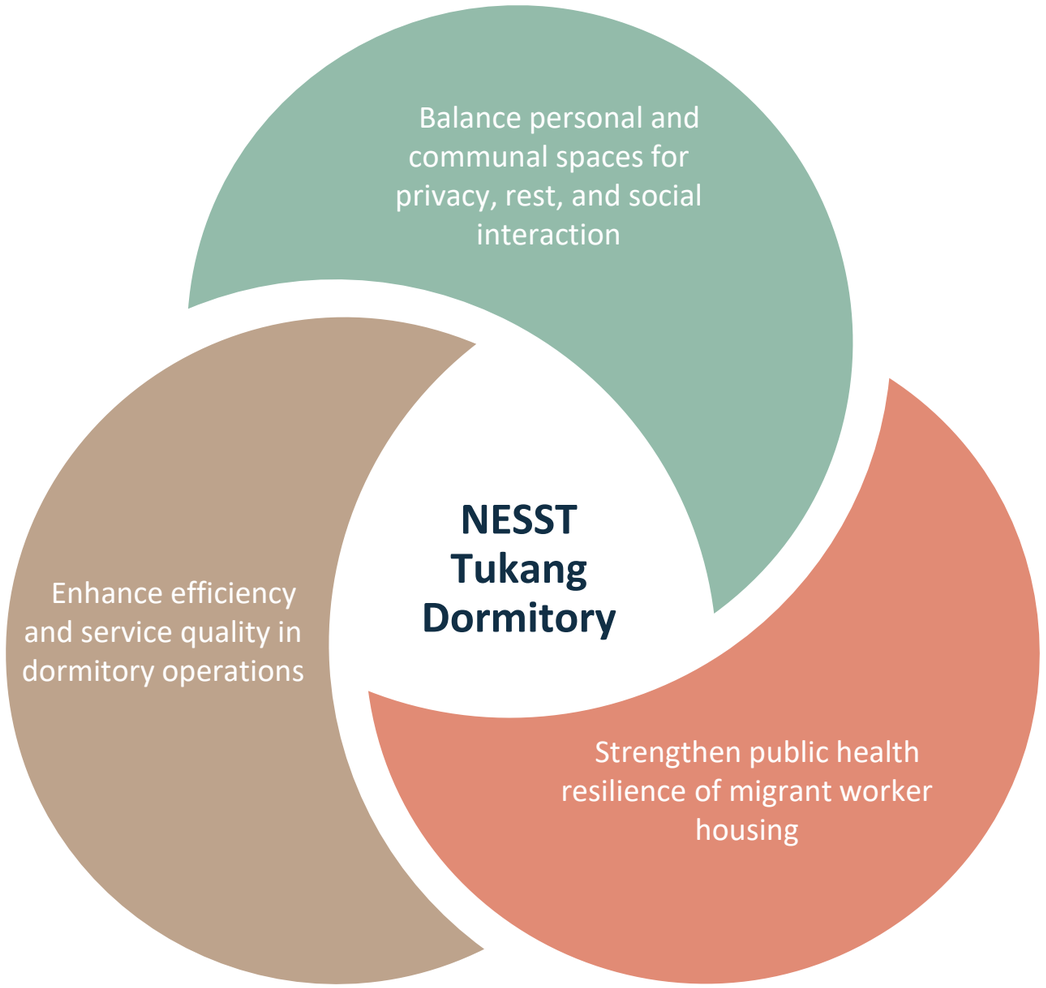
Ahead of the operationalisation of NESST Tukang Dormitory, NESST conducted design trials with like-minded, progressive dormitory operators through mock-ups to review and refine spatial configurations.

Engagement on Colours and Imagery

A series of engagements with diverse nationalities and backgrounds of migrant workers (both physical and digital workshops) were also held to better understand any cultural preference for colours and imagery.

These helped the team to fine-tune the design of dormitory rooms and key communal spaces to provide a sense of home away from home and avoid colours or imagery that may be culturally inappropriate.

Desired Outcomes For NESST Tukang Dormitory



“The challenge to design for high density living requires rethinking of fundamental design principles to meet the qualities of liveability, sustainability and resilience. It is actually also an opportunity, as you have the economies of scale to make an impact.

NESST Tukang is a new standard and a blueprint that when adopted widely, can uplift the entire ecosystem of dormitory living in Singapore.”

Ms Fun Siew Leng
Chief Urban Designer
Urban Redevelopment Authority

Design for Liveability

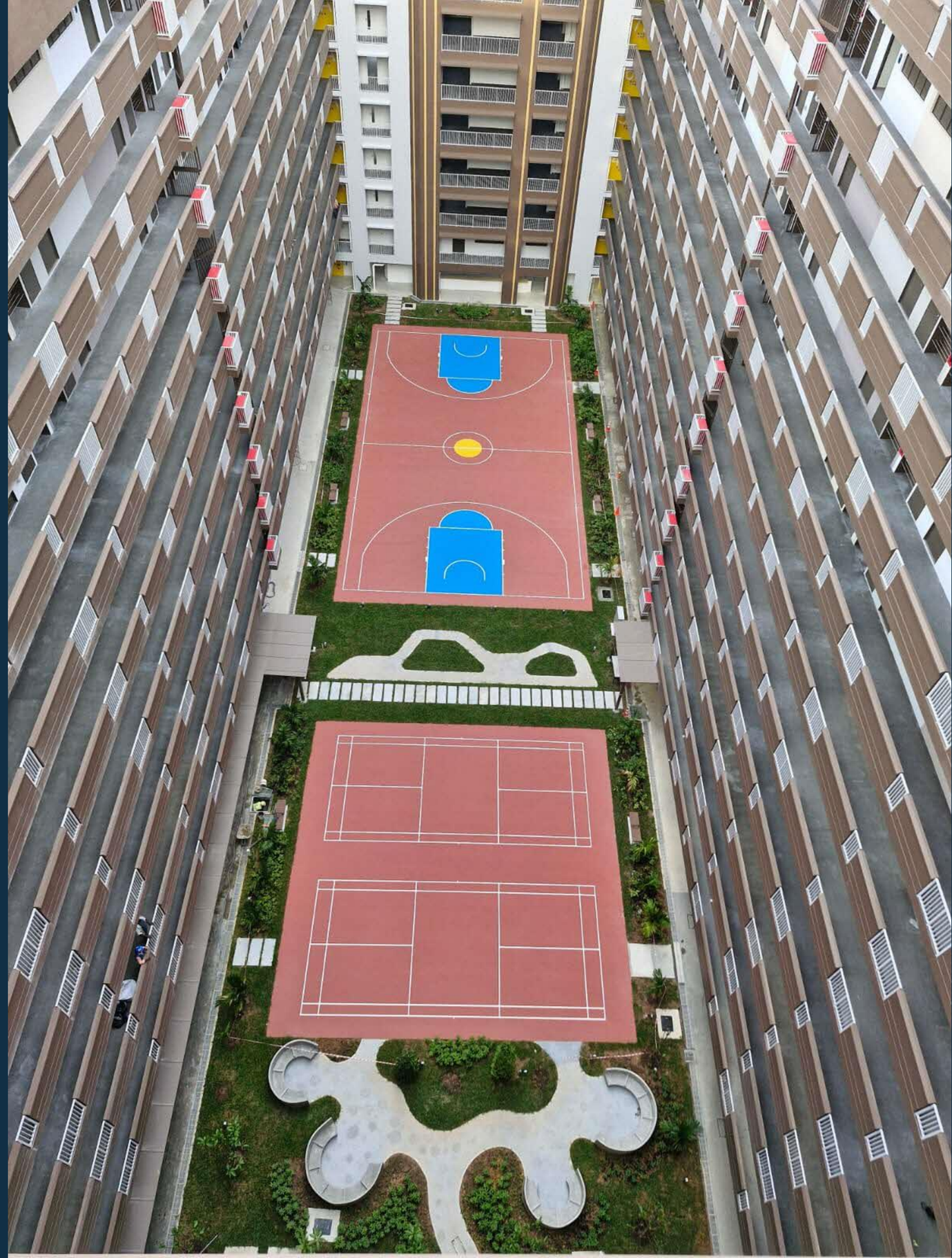
Design for Resilience

Design for Sustainability

Design for Liveability

The approach to Design for Liveability goes beyond the baseline provisions of typical dormitories. In NESST Tukang Dormitory, the design aims to enhance residents' well-being and promote social interactions with green spaces and ample social spaces.

The design approach also aims to break down the institutional look-and-feel of typical dormitories by creating a sense of homeliness with a variety of design touches, provision of private spaces in both common areas and dormitory rooms.



Design for Liveability

Diverse Green Spaces to enhance living environment and support mental well-being

Greenery helps to soften the overall environment, provides both visual and mental relief by lowering stress and anxiety while boosting positive moods.

- Provisions of a variety of green spaces throughout the dormitory, such as the centralised courtyard, community garden and integrated greenery at common areas.
- Communal spaces are integrated with greenery wherever possible, such as the open-concept gym, and activities courts.
- Boundary fences, apart from maintaining security, are painted dark and integrated with greenery to soften the building perimeter thoroughfare.

Design for Privacy in Common Areas

In a high-density living environment, It is important to provide a range of social spaces with varying degrees of privacy so residents can find the right spaces to match their needs.

- Privacy nooks on each floors and close to their living quarters for phone calls and attend to personal matters to enhance privacy in dormitory living

Design for Safety

To ensure a good quality rest, spaces should be designed for residents to feel comfortable and safe. A well considered space goes a long way to create the right environment for residents to relax.

- Design for Safety (DfS) Guide 1, 2 and 3 meetings were conducted to identify and eliminate or reduce safety and health risks through upstream design
- Adequate Lightning Protection System (LPS) provided to cover open areas
- Elements were prefabricated, welded or cut off-site in fabrication yards under controlled conditions to further improve construction safety and buildability.

Design for Liveability

Design for Social & Community Spaces that to promote cohesive and interactions

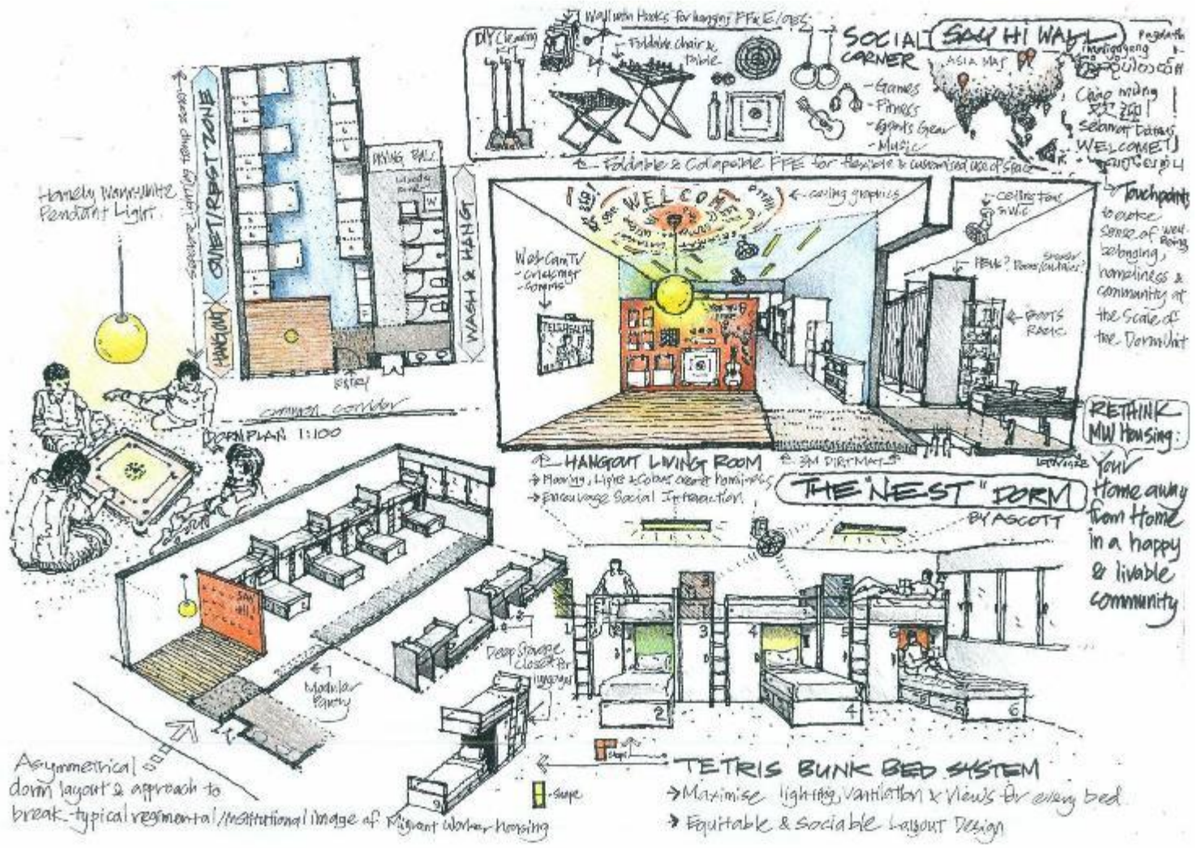
Away from home, social interaction is important to support residents' overall well-being. Spaces should be designed to allow different level of social activities and participation.

- Communal Kitchens on every level are provided to drive ownership and social bonding, as well as ergonomically designed with improve cooking experience.
- Communal Dining Area next to kitchen, overlooking courtyard to promote interactions amongst residents.
- User-focused retail and commercial spaces for everyday needs
- A variety of activities spaces, including the open-concept gym for fitness and recreation, cricket practice lanes to support leisure activities, multi-purpose halls, flexible use void decks, basketball and badminton courts as well as rooftop gardens.

Design For A Sense of Homeliness

To let residents feel at home and be comfortable in communal setting, it is important to have spaces that allow customisation and respect their sense of dignity and individuality.

- Use of colour to create warmth and welcoming feel
- Use of natural or natural-lookalike materials whenever possible
- Use of artwork (e.g mural or decal) to add visual interest to spaces
- Design considerations to allow dormitory residents to personalise private spaces (e.g rooms or bed areas)
- Design considerations are made for privacy and personal space for residents in dormitory rooms such as privacy screens and individual power sockets provided at each bed.
- Additional storage spaces are provided (e.g under bed drawer storage and bedside ledge)

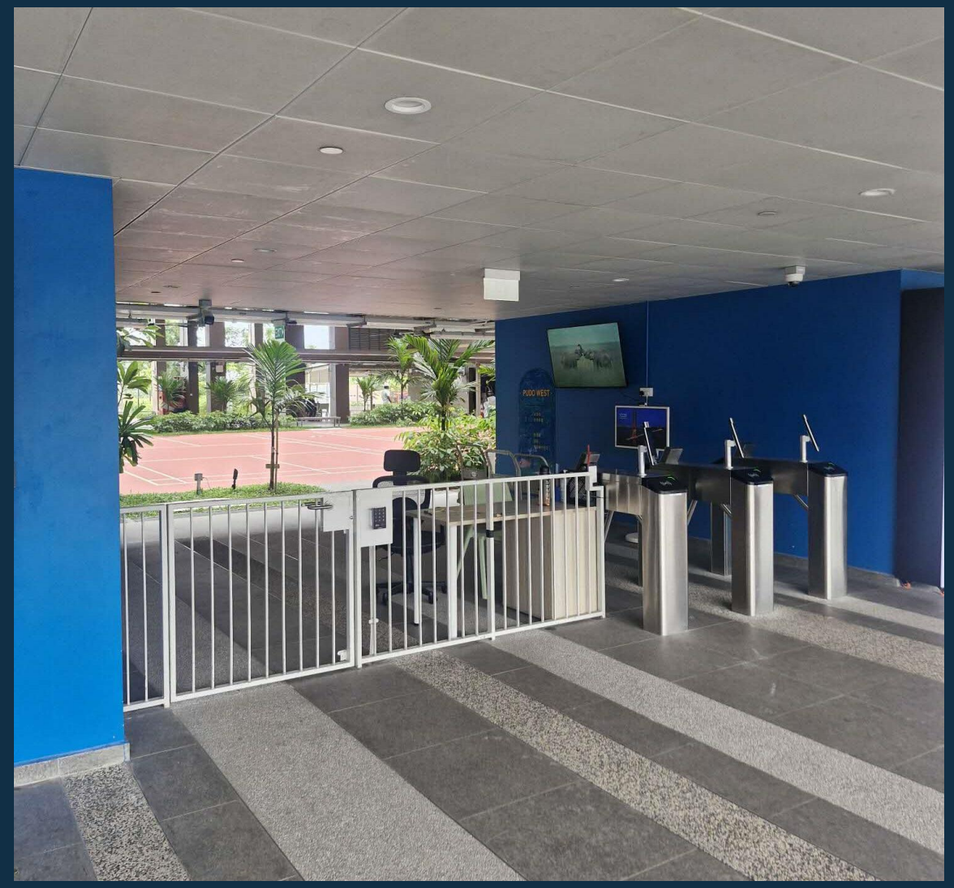


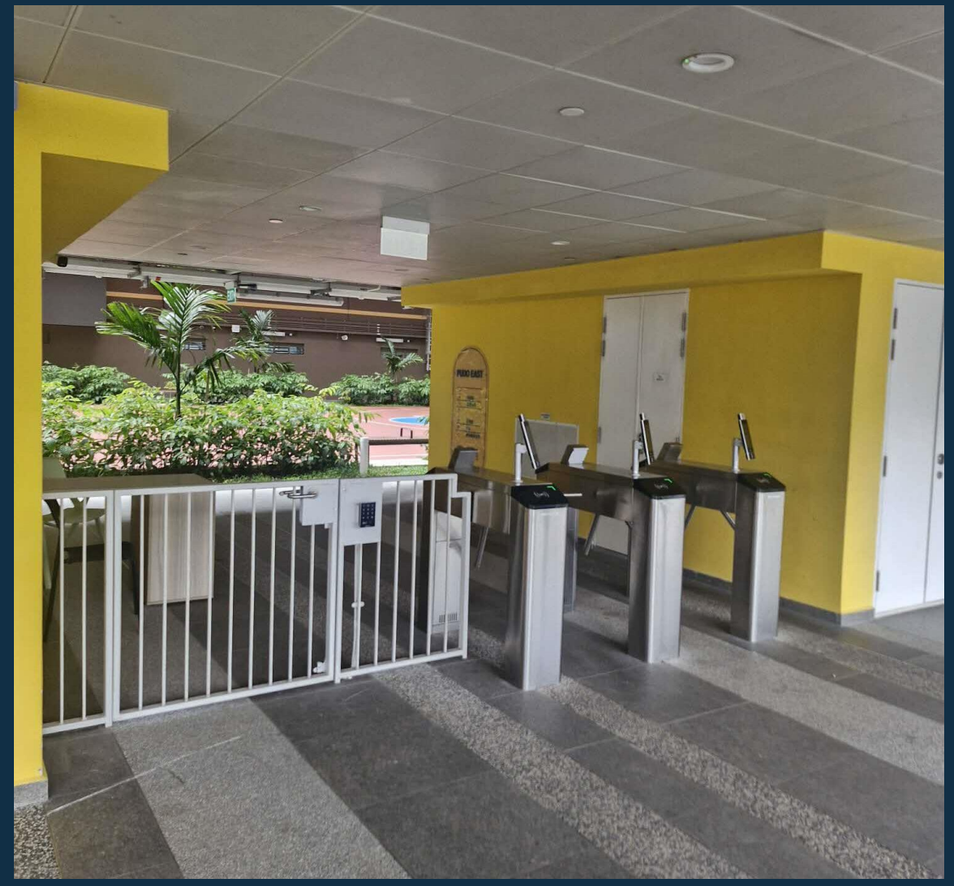
INITIAL CONCEPT SKETCH TO CAPTURE THE IDEAS OF LIVEABLE SPACES FOR DORMITORY RESIDENTS FROM ASCOTT

Design for Resilience

Referencing the new dormitory standards, the approach to Design for Resilience ensures that risk of transmission of infectious diseases in dormitories remain low during peacetime as well as in the event of a future pandemic.

Going beyond, the design of NESST Tukang Dormitory also includes a variety of future-ready provisions, such as separate east and west entrances that split the dormitory into 2 distinct clusters, as well as using innovative wayfinding to enable seamless transition for the users from peacetime to crisis, such as thermal scanners at walk-in gantries, alignment of wastewater provisions with pandemic clustering and innovative wayfinding concept to create behaviour during peacetime that will transit seamlessly during crisis





“Having gone through the painful experience of rushing out isolation facilities during COVID when the infection rate kept rising, I am glad this high density design creates a liveable sanctuary for our fellow migrant workers to live, engage and play; yet ever ready to manage any eventualities within the same liveable space”

Mr Ng Chee Yong
Vice President (Civil Engineering)
PSA Corporation Limited

Design for Resilience

Modularisation of Dormitory Living

The right application of modularisation across different scales enjoys the benefits of repeated modules while creating variations in living conditions.

- Up to 12 residents per room with six single beds and 3 sets of loft beds with mitigating measures for panels and more high performance fans as concluded in airflow study
- Up to 240 residents each floor, capable of being divided into self-contained sections of 120 residents through the utilisation of electronic magnetic (EM) gates
- 1 set of en-suite toilet, bathroom and sink per 6 residents

Segmentation of Communal Facilities

Decentralised communal facilities creates the flexibility to allow separation of residents to support varying future scenarios.

- Enable segmentation of communal facilities for dedicated use of smaller sections of residents
- Provision of 2 communal kitchens and social/dining area on every residential level, which reduces congregation and overcrowding and improving accessibility and convenience even in times of pandemic.
- Allow each cluster to be self-sufficient by reduce intermixing and virus spread across dormitory clusters

Enable Early Isolation of Suspected Cases to Contain Spread

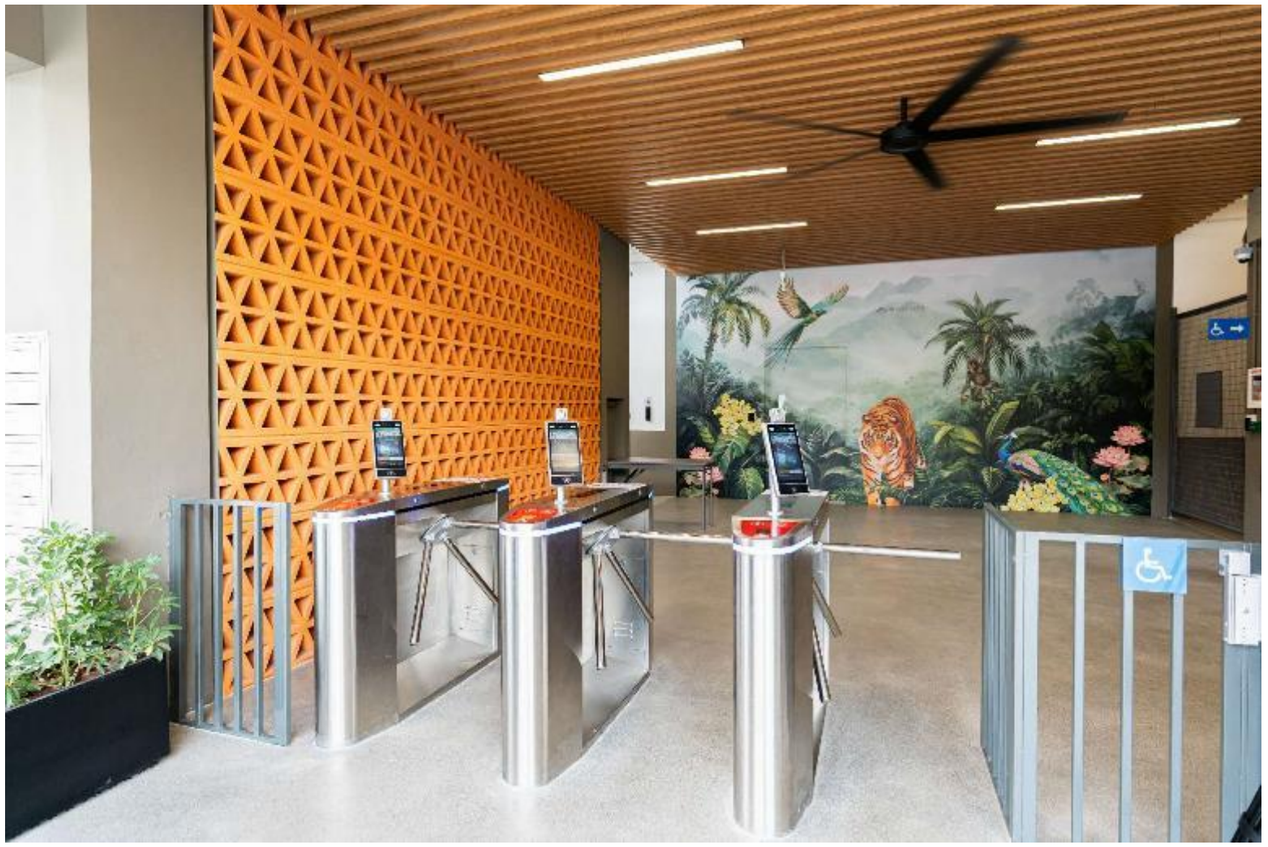
Design of pandemic ready features that does not reduce the quality of life for residents both in times of peace and emergency.

- Maintain access to communal kitchen and way of life during crisis
- Isolation beds: 24 beds (1% of licensed capacity of 2,400 beds) in accordance with FEDA LC
- Isolation rooms with ensuite toilets
- Integrate thermal scanning capabilities with walk-in gantries system to provide early detection and triaging of residents / visitors with low-grade fever and detect potential health clusters to trigger early intervention
- Indoor multi-purpose halls are kept flexible and convertible to isolation facilities, to fulfil the additional 1.5% needs when required by designing the infrastructure provisions (fans, lights, power sockets) based on isolation layout

Design Implementations at Progressive Dormitories

Capability to detect unwell residents through thermal capturing capabilities

WALK IN GANTRY WITH THERMAL SENSORS @ NESST TUKANG



WALK IN GANTRY THERMAL SENSORS @ WESTLITE UBI

Design for Resilience

Ventilation and future ready A/C provisions

Future proofing base design to meet emerging needs for different configurations and comfort levels.

- Natural ventilation as the ideal provision
- Ensure adequate air circulation
- Dedicated ledges for future A/C units
- Knock-out louver panels for future A/C connections

Wayfinding

Designed to encourage repeated movement and usage patterns in peace time to reduce disruption in times of emergencies.

- Way-finding concept where access routes are colour coded to facilitate easy navigation within the dormitory during peacetime.
- Way-finding concept follows the dormitory's segmentation of pandemic-cluster, allowing the shaping of behaviour during peace time that will transit seamlessly should physical segregation be required during health crises.

Additional Swing Spaces

Existing common areas are future proofed to allow ramping up of emergency amenities.

- Convertible outdoor swing spaces (centralised courtyard and curbless carpark) are kept free from permanent structures and with in-built power, water and sewage capabilities.
- Possibility to be a satellite node to cater to 2,400 dormitory residents and 1,600 migrant workers living within the vicinity.

Design for Sustainability

The approach to Design for Sustainability includes includes the adoption of passive design, leveraging on predominant wind direction, energy-efficient fittings as well as smart technologies to enhance Energy Sustainability.

In terms of Resource Sustainability, the focus is on the ease of maintainability to reduce the need for replacement, as well as using upcycled materials to reduce wastage.

Lastly, Environmental Sustainability is supported through strategic shade planning that allows for the optimisation of microclimate, as well as the thoughtful selection of low maintenance and hardy plant species.

“Migrant workers have played a vital role in Singapore’s nation-building. Providing dignified living environments is a way of recognising their contribution, while also supporting health and productivity. This design guide, which captures the knowledge and experience of NESST and DASL, shows how thoughtful dormitory design can strengthen public health resilience, foster community, and respect personal space – serving as a valuable signpost for the industry moving forward.”

Dr Benjamin Kuan
CEO
HealthServe

Design for Sustainability

Tukang PBD complies with GreenGov requirements for Simple Buildings, as a public sector building. Some of the sustainability considerations in building design and construction include:

Upfront design considerations such as lowering building temperature through interior design to meet 100% natural ventilated common and dormitory areas, and ensuring access for maintenance to areas to enhance longevity and efficiency of building (walkway with clear headroom to roof water tank; electrical room was 100mm higher than outside passageway)

Construction Materials, Technology and Best Practices such as minimising carbon footprint with the use of certified sustainable products like low carbon concrete, use of sustainable building materials of low volatile organic compounds (VOC) finishes which also improve air quality for occupants.

Green Energy Investments to address energy and water efficiency features such as PV-ready infrastructure, implementation of LED lighting, motion sensors, WELS 3 tick rating water fittings and smart individual utilities metering.

Design for Sustainability

Energy Sustainability: Energy Optimisation

- Solar Panels: Roof designed to accommodate the installation of solar panels to harness renewable energy
- Smart Technologies: Provision of light sensors with smart controls and Possibility to be a satellite node to cater to 2,400 dormitory residents and 1,600 migrant workers living within the vicinity. to optimise energy and water consumption
- Natural Lighting: Rooms are designed with larger windows and lighter-coloured walls to reduce the need for artificial lighting.

Energy Sustainability: Design for Thermal Comfort and Air Quality

- Green Spaces : Provision of shaded outdoor areas, trees, and community gardens to provide passive cooling and improve air quality
- Architectural Finishes: Use of architectural finishes such as cool paint on western and eastern facades to enhance thermal comfort in living areas
- Natural Ventilation: Design for cross-ventilation where the site and building layout allows to enhance air flow and reduce dependency on air-conditioning
- Large Windows: Large window openings to enhance natural lighting and ventilation

Design for Sustainability

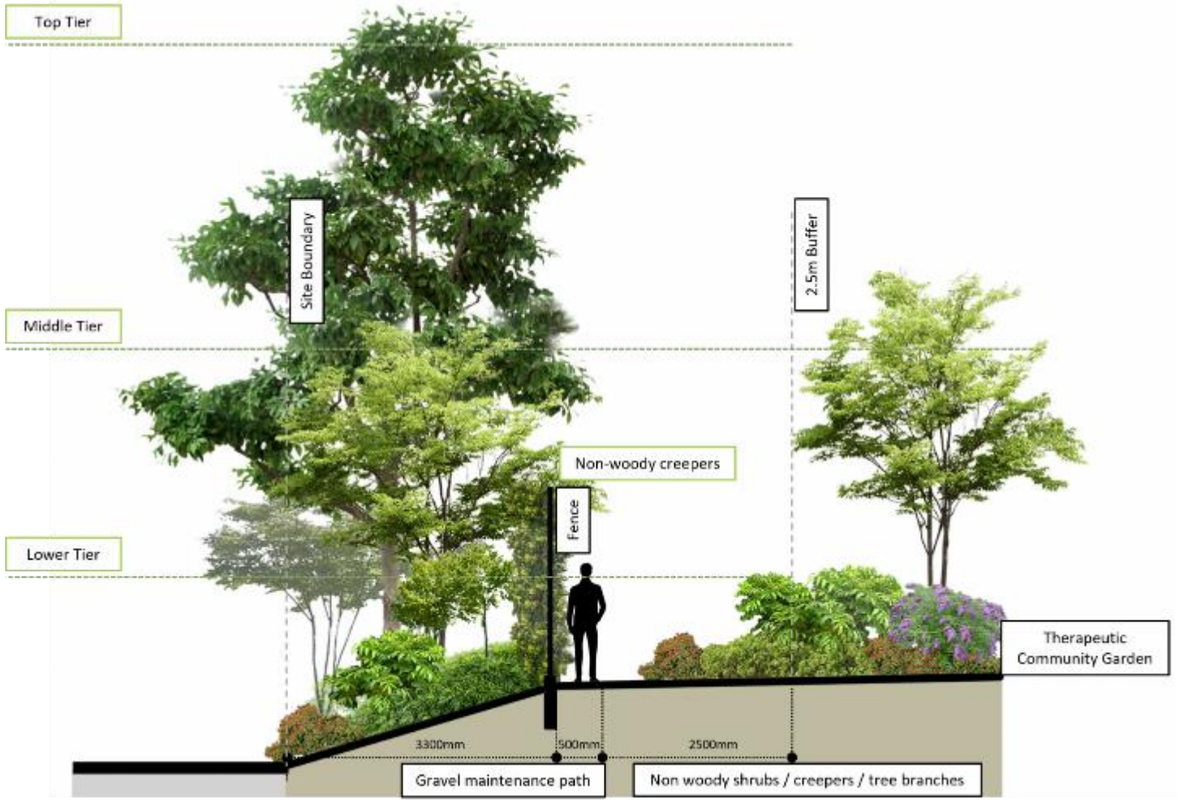
Resource Sustainability: Ease of Maintainability

- Spaces and details were designed to facilitate ease of maintenance during operations:
  i) Parapet Design: Parapet profiling and detailing to prevent streaking along surfaces
  ii) Ceilings: Open ceilings for ease of maintenance in common spaces
  iii) Choice of Materials: Materials selected are easy to clean and/or resistant to stain (such as tiles/vinyl for wet areas), which makes it easier to maintain and reduces need for replacement.

Design for Sustainability

Environmental Sustainability

- Strategic Shade Planning: Climate-responsive design enhances user comfort while strategy shade planning optimises microclimate and reduce the need for mechanical cooling
- Hardy Plant Selection: Selection of native and adaptive plant species that are easy to source and maintain ensures low water usage and easy maintenance
- Multi-tiered Planting: Multi-tiered planting with natural buffer zones using vegetation creates enhanced ecosystems, encourages biodiversity and soften the fenceline to create a more natural urban environment
- Diverse Planting Palette: A diverse planting palette supports biodiversity and ensures long-term viability of the landscape areas.



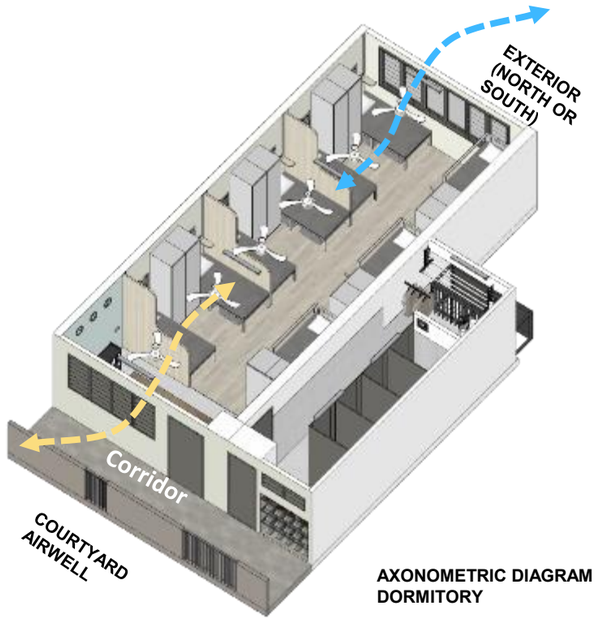
Site Planning

Zoning & Orientation
Building Massing
Traffic & Circulation
Commercial Zone
Greening of Services Areas
Variety of Recreational Spaces
Centralised Courtyard
Resilience Planning with Swing Spaces
Wayfinding Concept

The Tukang Dormitory stands as a testament to the journey of rigorous design evolution, shaped by user insights and lessons from the pandemic. Guided by a people-centric vision, the design aims to foster a sense of place and belonging through well-considered spatial planning, seamless connectivity, and adaptable shared spaces. Personal living spaces are conceived as bright, well-ventilated sanctuaries for rest and rejuvenation, while social zones, amenities, and green spaces are designed to encourage interaction and care for the environment. By piloting these inclusive and forward-looking design strategies, the project reimagines dormitory living, creating vibrant, supportive communities that enhance wellbeing and inspire future developments.

Ms Tang Hsiao Ling
Director, Urban Planning & Architecture Division
JTC

Zoning & Orientation



AXONOMETRIC DIAGRAM OF A TYPICAL DORMITORY

Key Features

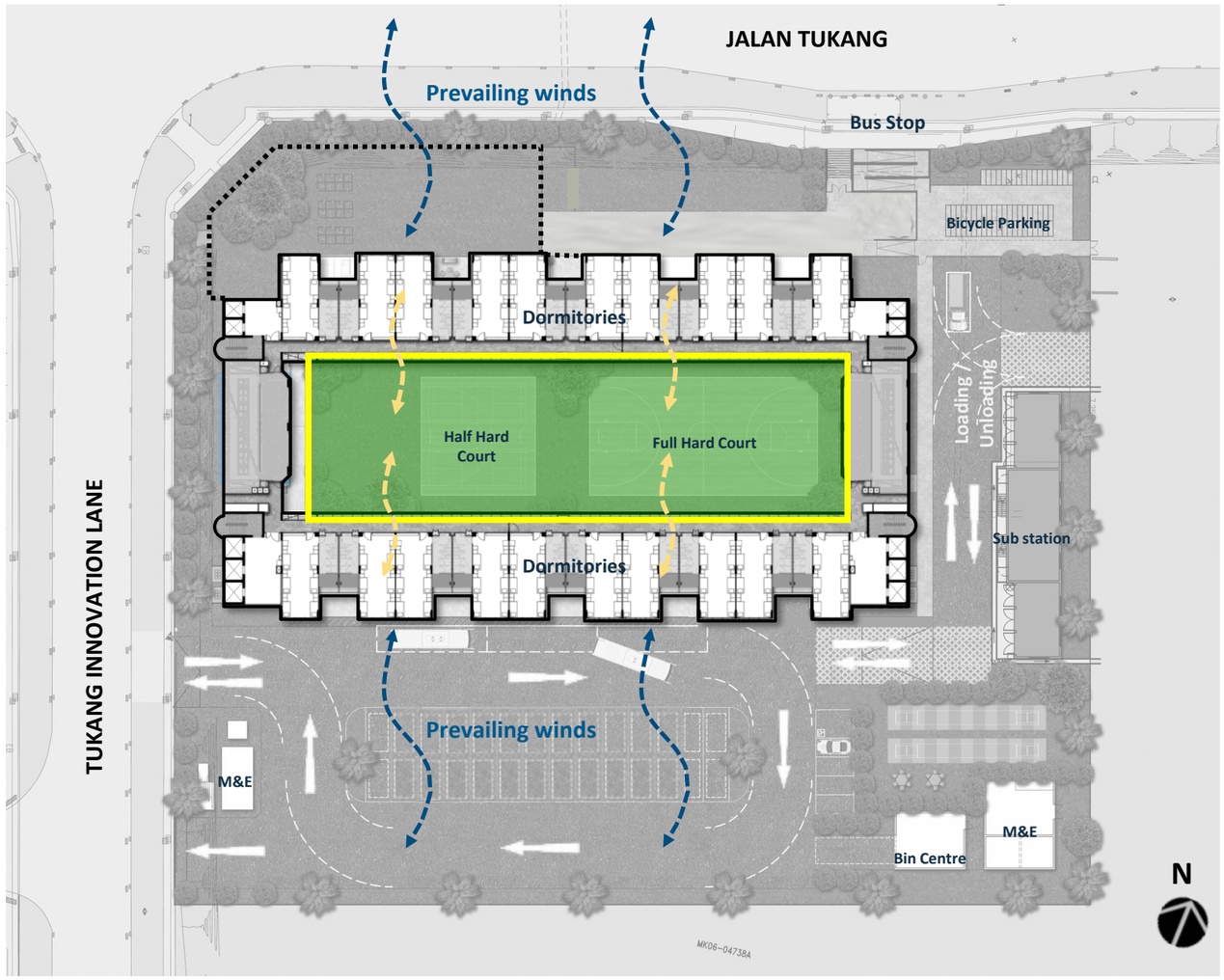
- Dormitory rooms (i.e. dormitory rooms) located on northern and southern elevations, to catch prevailing wind directions for better ventilation and avoid direct sunlight during dawn and dusk
- Non-dormitory rooms such as lift landings, kitchen and dining areas located on eastern and western elevations to act as buffer for dormitory rooms against direct sunlight
- Circulation spaces such as corridors, stairs and lobbies, act as buffer spaces between dormitory rooms and kitchens, where smell and heat from cooking are expected.

TYPICAL FLOOR ON SITE PLAN

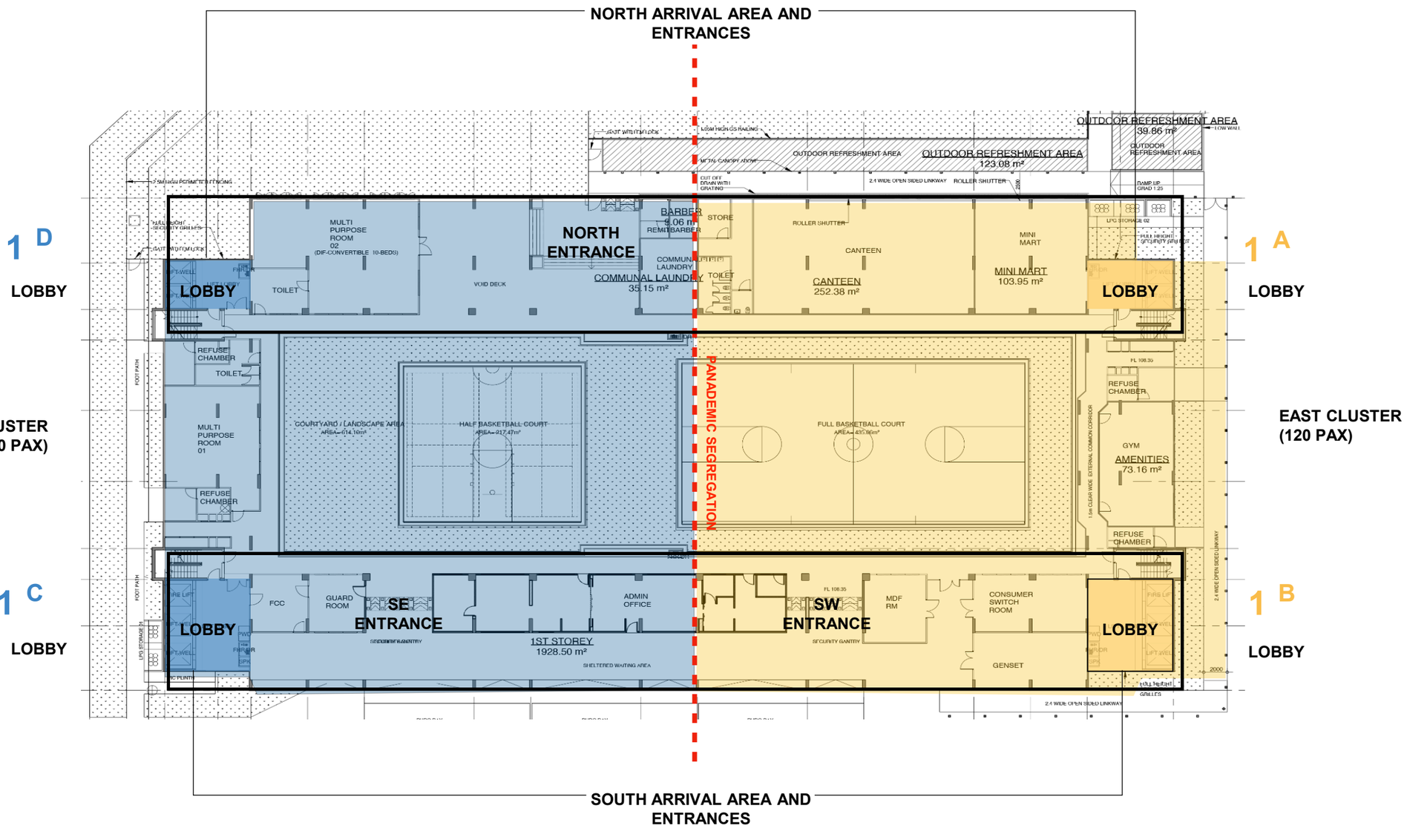
Zoning & Orientation

Centralised Courtyard

- **Key Features**
- **Centralised courtyard plays dual role as a recreational green space for residents, and as an airwell for cross-ventilation of dorm units on upper floors**
- **It acts as a focal point welcoming residents back home, and the as the point of connection between various indoor recreational spaces.**
- **Note: The centralised courtyard is only one example of a layout where landscaped spaces can enhance ventilation and recreational spaces. Other forms of open spaces should be considered depending on site configurations**



Zoning & Orientation



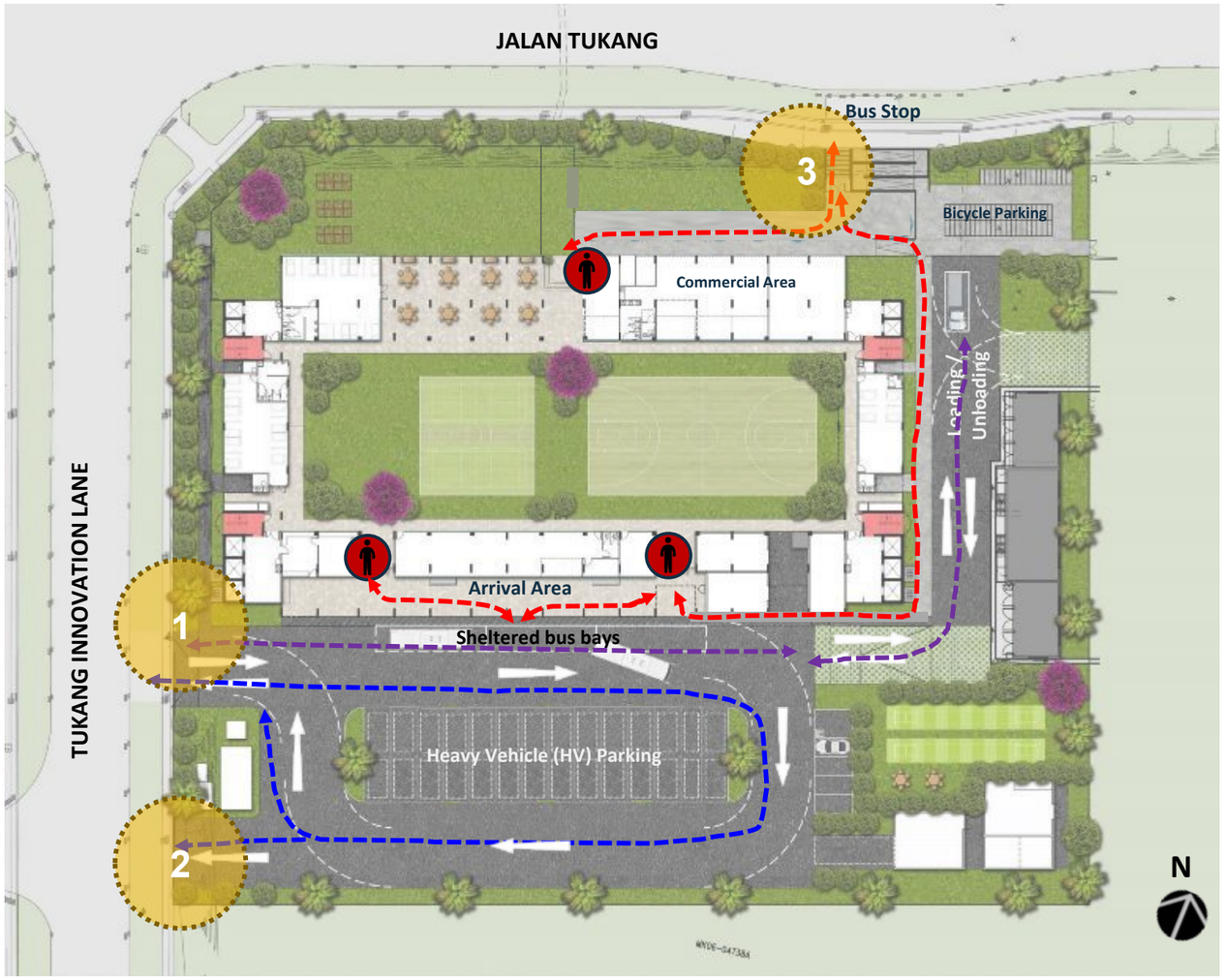
CENTRALISED COURTYARD VISIBLE FROM BUILDING ENTRANCE, OTHER RECREATIONAL AREAS, AND DORM UNITS

Traffic & Circulation

Key Features

- Three site accesses to ensure efficient circulation
  - Site access 1 is the primary vehicular access for both ingress and egress
  - Site access 2 is the secondary vehicular access for egress only
  - Site access 3 is for pedestrians only, to allow a convenient sheltered route by foot from the bus stop, safely separated from vehicular access routes

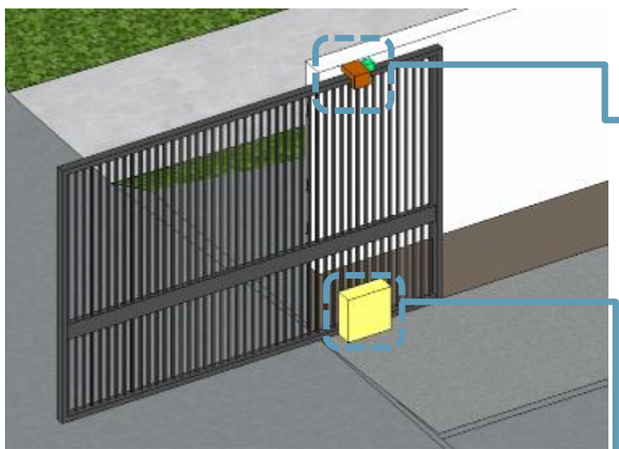
- Having two vehicular accesses (which were subject to LTA's conditions), along with a predominantly one-directional driveway, enabled smoother traffic flow despite the tight site
- As Site Access 1 is wide, features such as intermediate islands and warning signs/markings were added at the pedestrian crossing point, to enhance safety of pedestrians crossing the driveway.
- High traffic areas sited behind main building, to maintain pleasant environment along public frontage at Jalan Tukang
- Arrival area and bus bays are sheltered to be usable in all weathers
- Loading/unloading area sited near to commercial area.



1ST FLOOR ON SITE PLAN

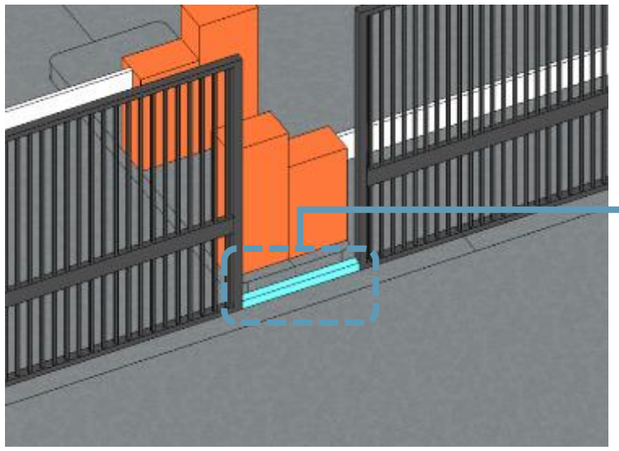
SITE ACCESS (WITH NUMBER)
HEAVY VEHICLE ROUTE
COMMERCIAL LOADING/UNLOADING ROUTE
SHELTERED PEDESTRIAN ROUTE
SECURED ACCESSES TO DORMITORY
BOOT WASHING AREA

Main Gate Safety Enhancement



1. 75mm x 75mm x 5mm thk hollow section, securely welded at the top to function as the stopper for the top bearing. This serves as an added safety feature to prevent the gate from overshooting if someone attempts to pull it manually and helps eliminate the risk of derailment.

2. The motor box is already fitted with a lockset and keys to prevent tampering. As an added feature, we propose providing an additional external metal frame with a padlock.



3. A 75mm x 75mm x 5mm thk hollow section is provided at the bottom end to replace the old small stopper. This will act as a more stable stopper and serve as an added preventive measure to keep the gate from derailing.

Key Features

- To prevent tampering of sliding gates and accidental dislodgements, the gate motor was further secured, and additional limiters were added.

Main Gate Safety Enhancement

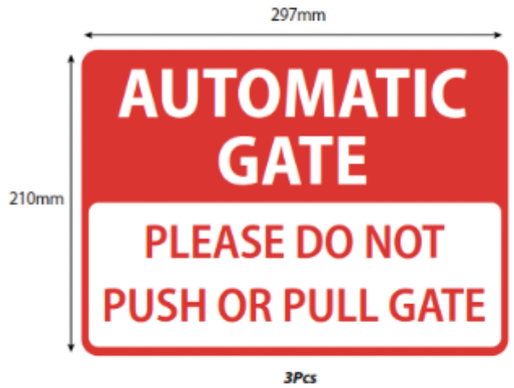
Provision of instruction/warning signage

Key Features

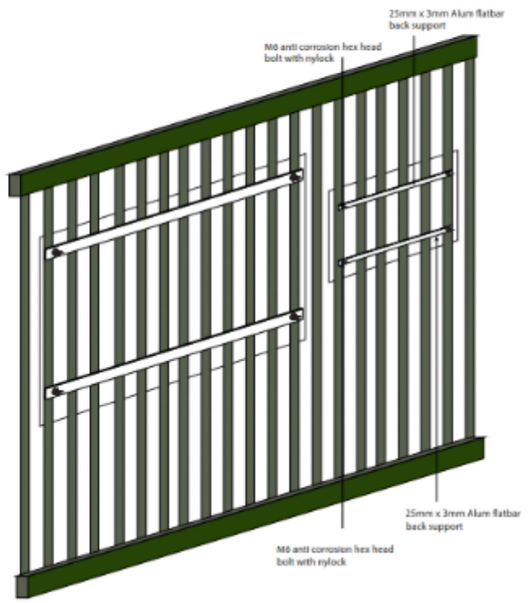
- This signage will inform users and visitors about the function of the automated gate and make it clear that it should not be manually overridden. Only the operations team is allowed to open the motor box. The signage will also serve as a clear reminder to outsiders that they are not permitted to touch or tamper with the motor box.

Automatic Gate Signage

Material : 2mm Thick Aluminium c/w Direct Paste Vinyl Sticker with Matt Lamination
Size : 297mm(W) x 210mm(H)
Quantity : 3 Pcs
Location : Maingate

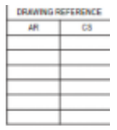


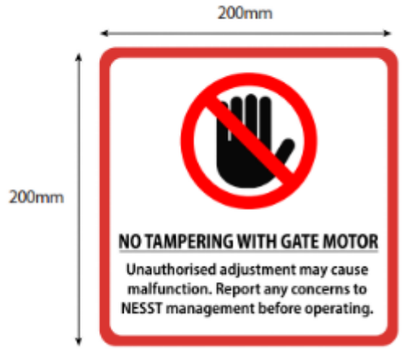
3Pcs



No Tampering with Gate Motor Signage

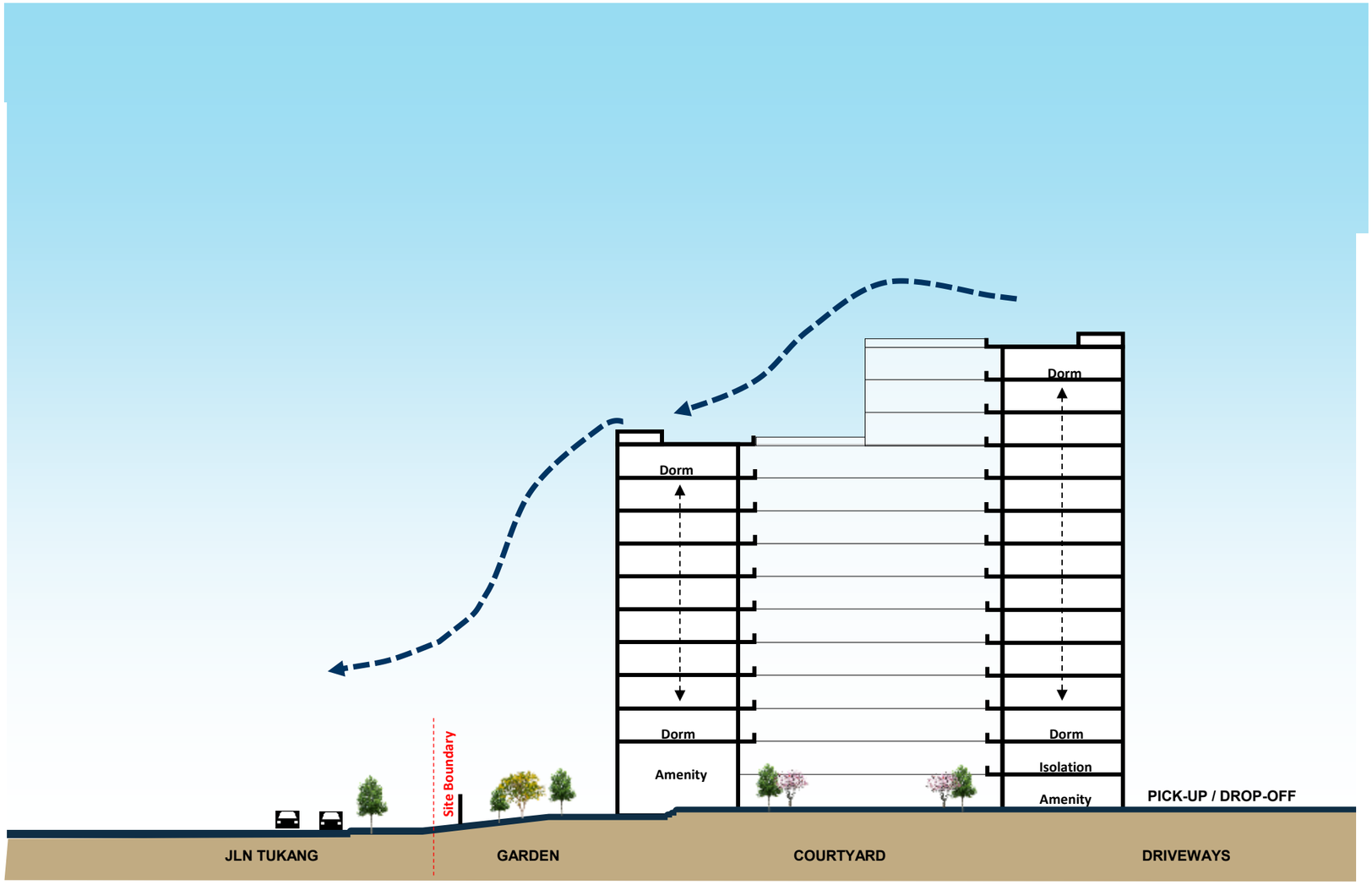
Material : 2mm Thick Aluminium c/w Direct Paste Vinyl Sticker with Matt Lamination
Size : 200mm(W) x 200mm(H)
Quantity : 3 Pcs
Location : Maingate Motor





3Pcs

Building Massing



SECTIONAL VIEW

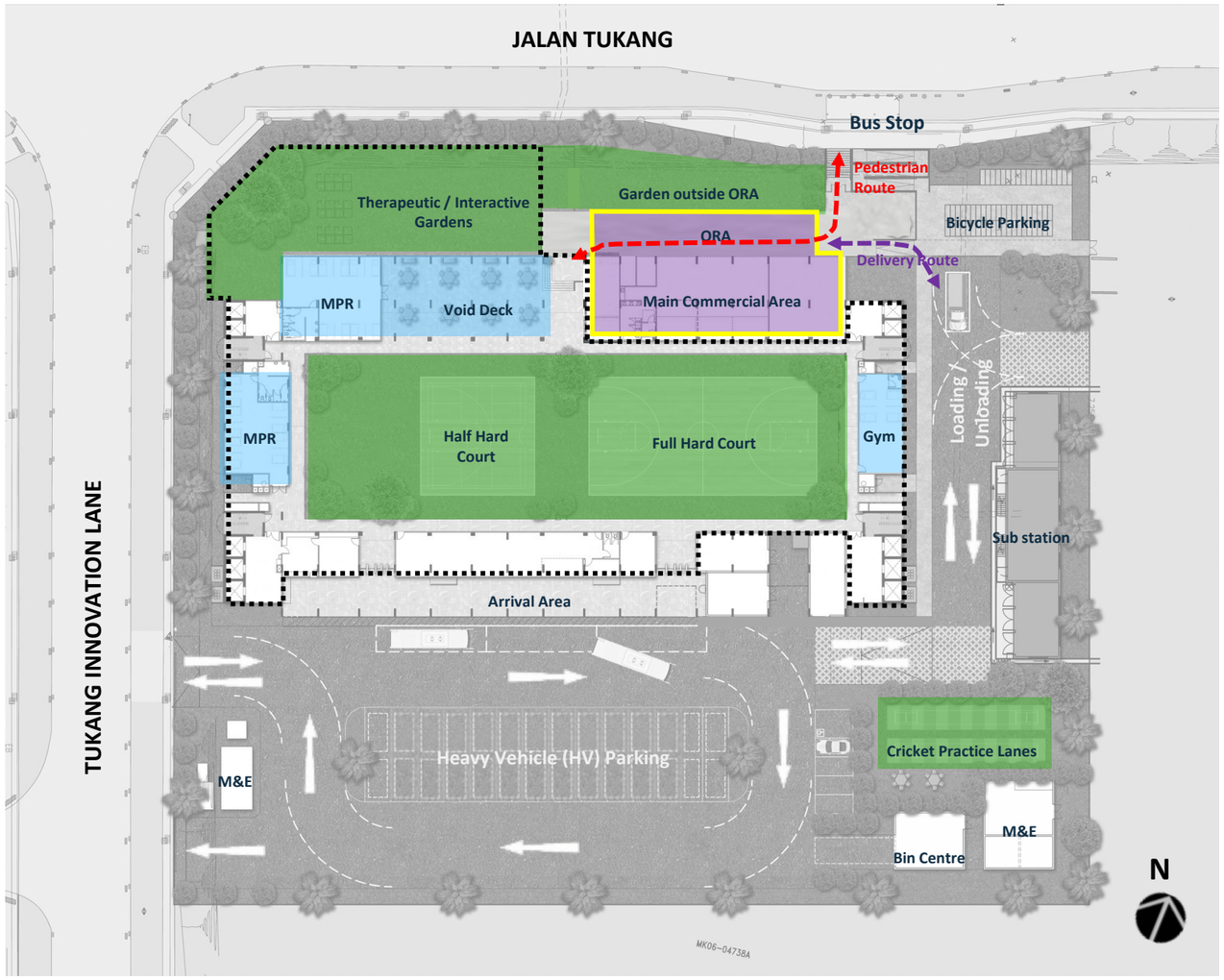
Key Features

- Building massing steps down towards public street (i.e. Jalan Tukang) to create more comfortable pedestrian environment
- Segregation of types of uses by levels (Level 1 for amenities such as recreational rooms and offices, Level 2 for dedicated isolation facilities, and Level 3 and above for dormitory units and communal kitchens / dining areas)

Commercial Zone

Key Features

- To capture higher footfall along the key pedestrian route, commercial amenities are conveniently located near main road Jalan Tukang and the bus stop
- To keep commercial amenities publicly-accessible, they are located outside the private domain and segregated from the main dormitory spaces by secured access
- Outdoor Refreshment Area (ORA) equipped with purpose-built shelter with retractable blinds, for use in all weathers
- Loading/unloading bay located near the commercial area to reduce the delivery time
- Perimeter fencing enclosing the development, including commercial areas, are in dark colours for better visual integration with the environment.



1ST FLOOR ON SITE PLAN

PRIVATE DOMAIN

COMMERCIAL AREAS

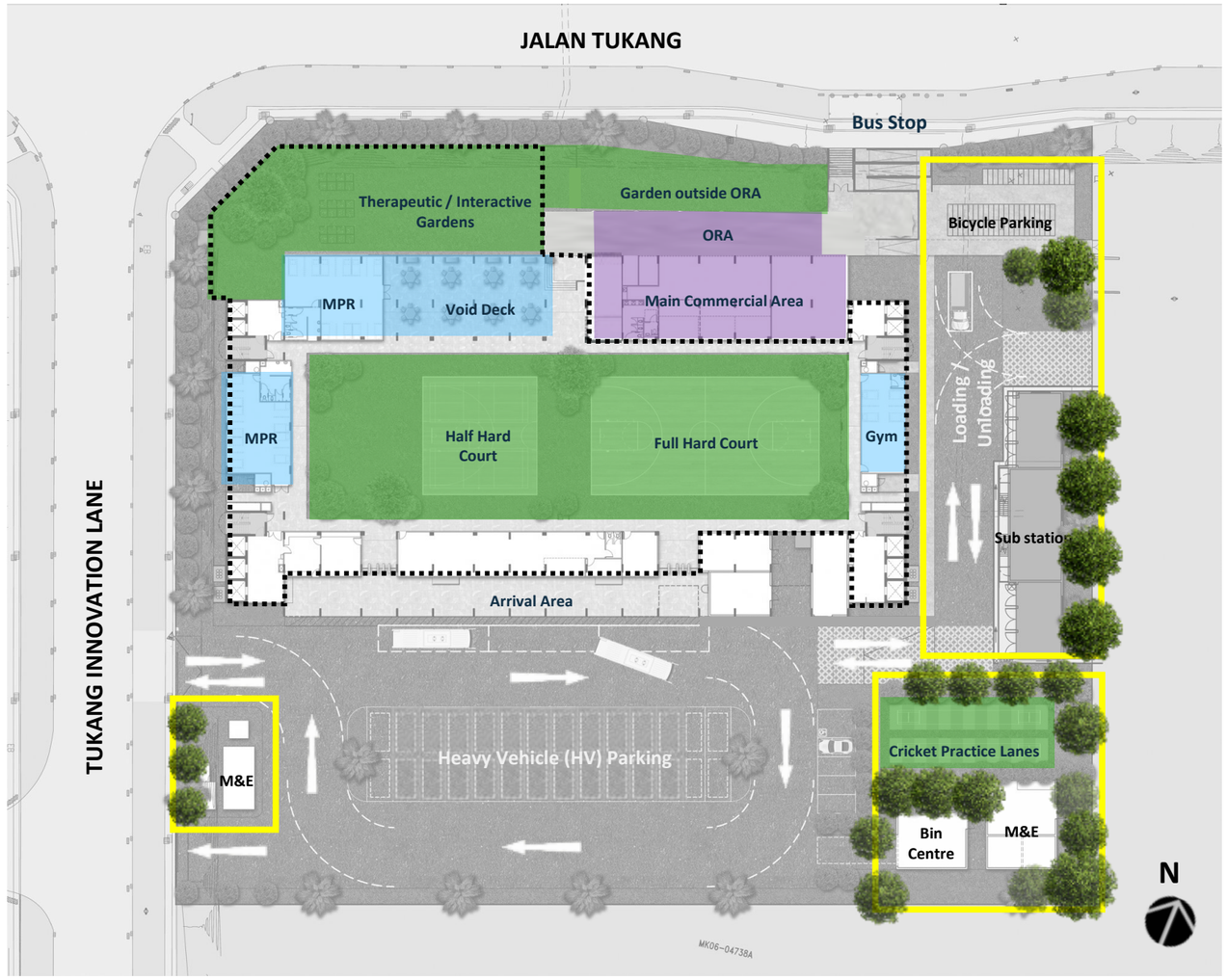
OUTDOOR RECREATIONAL AREAS

INDOOR RECREATIONAL AREAS

Commercial Zone

COMMERCIAL AREA AND OUTDOOR REFRESHMENT AREA (ORA) WITH PURPOSE-BUILT SHELTER

Greening of Service Areas



1ST FLOOR ON SITE PLAN

PRIVATE DOMAIN

COMMERCIAL AREAS

OUTDOOR RECREATIONAL AREAS

INDOOR RECREATIONAL AREAS

EXAMPLES OF SERVICE AREAS

Key Features

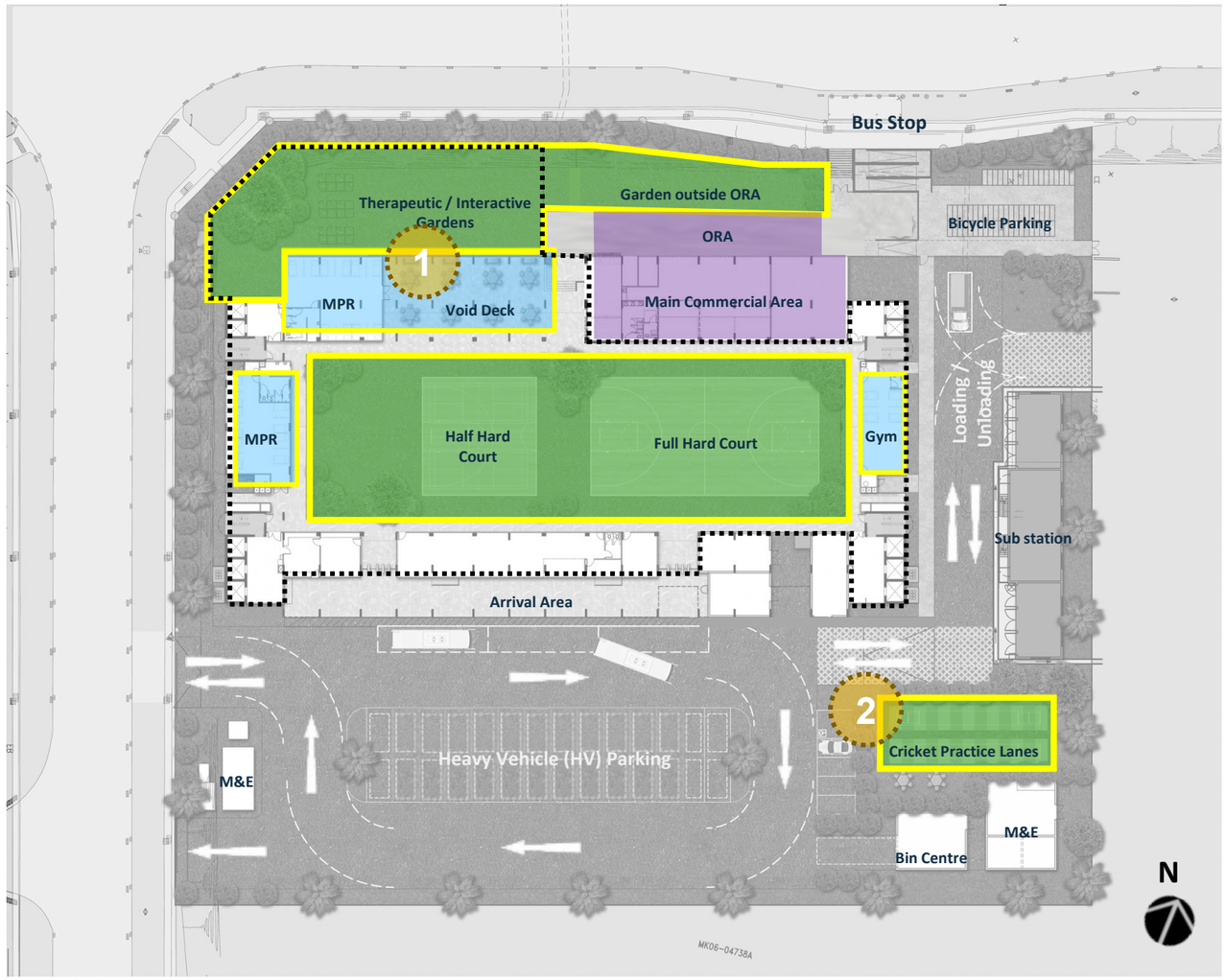
- Most service areas (e.g. bin centre, substation, other M&E rooms) setback substantially from site boundary along public roads, in order to be located away from public view
- Such service areas and routes are also sited away from primary activities, and are further screened by landscape features

Varied Recreational Spaces

Creating a range of recreational spaces gives residents options and ability to find their own communities for better social cohesion.

Key Features

- Variety of outdoor recreational areas provided in both the public and private domains, from intimate gardens tucked in the corner to large sports courts within the courtyard
- Adjacent recreational areas collectively create vibrant atmosphere, to encourage more frequent use
- Outdoor courts provided with peripheral planting and open areas with seats, to facilitate engagements between spectators and players
- Indoor recreational rooms such as the gym and void deck clustered near outdoor courts and gardens, for visibility and seamless connectivity between these spaces



1ST FLOOR ON SITE PLAN

PRIVATE DOMAIN

COMMERCIAL AREAS

OUTDOOR RECREATIONAL AREAS

INDOOR RECREATIONAL AREAS

EXAMPLES OF SERVICE AREAS

Varied Recreational Spaces

INDOOR VOID DECK OVERLOOKING OUTDOOR GARDENS WITHIN DORM'S PRIVATE DOMAIN

INTERACTIVE GARDEN TO ENGAGE POTENTIAL SPECTATORS

Resilience Planning with Swing Spaces

Key Features

- Through the availability of the outdoor swing spaces within the private domain (Hard courts) and public domain (HVP parking), this allows NESST Tukang Dormitory to be able to cater to the pandemic operations needs for its resident as well as serving the migrant workers staying in the FCDs within the vicinity of NESST Tukang Dormitory should the need arise
- HVP parking has been deliberately designed to be curb-less to facilitate the deployment of tentages when required to support the conduct of pandemic operations
- During peacetime, these outdoor swing spaces can also be repurposed to serve as temporary event spaces for movie screening, events and bazaars and health checkups or dental services
- Power, water and sewage provisions have been catered at the outdoor swing spaces to support both peacetime events and pandemic operations
- These utilities such as the bib taps also have dual usage as water sources for regular irrigation and maintenance of landscaped areas.

Site Planning

Design Considerations

Design for Liveability

Variety of recreational spaces

- Diverse outdoor spaces ranging from intimate garden corners to large sports courts create multiple settings for recreation and social interaction
- Strategic clustering of indoor recreational facilities near outdoor spaces, centered around the centralised courtyard which serves as a welcoming hub

Seamless sheltered connectivity

- Strategic location of commercial amenities near main road and bus stop creates an accessible public zone that serves both residents and the community
- Weather-protected arrival areas and bus bays with boot washing facilities enhance user comfort and maintain cleanliness of premises

Separation of circulation routes and service areas

- Dedicated pedestrian-only access route ensures safe and comfortable movement for residents accessing from public transport
- Service areas thoughtfully positioned away from main public roads and primary activity zones, screened by landscape features to maintain visual appeal

Design for Resilience

Convertibility of spaces

- Outdoor swing spaces in both private and public domains are designed to support multiple scenarios, from peacetime community events to pandemic operations serving both residents and nearby migrant worker communities
- Swing spaces strategically designed to be level, obstruction-free surfaces, enabling flexible repurposing

Infrastructural provisions

- Pre-installed utility points and provisions (e.g. water and power) serve dual purposes, supporting both regular maintenance and potential temporary conversions of spaces

Dedicated zones

- Clear vertical zoning strategy separates different use types: amenities at Level 1, isolation facilities at Level 2, and residential functions at Level 3 and above
- Segregation of functions enables effective management of movement and activities during emergency situations

Design for Sustainability

Building orientation and spatial zoning

- Strategic north-south orientation of dormitory rooms for passive solar design, minimising heat gain during dawn and dusk and capturing prevailing north-south winds for more thermal comfort
- Thoughtful placement of communal areas along east-west facades acts as thermal buffer for residential spaces

Enhancement of natural ventilation

- Centralised courtyard functions as both a recreational space and an airwell, facilitating cross-ventilation for upper floor dormitory units

Wayfinding Concept

Colour Proposal

Distinctive Arrival

Colour Navigation

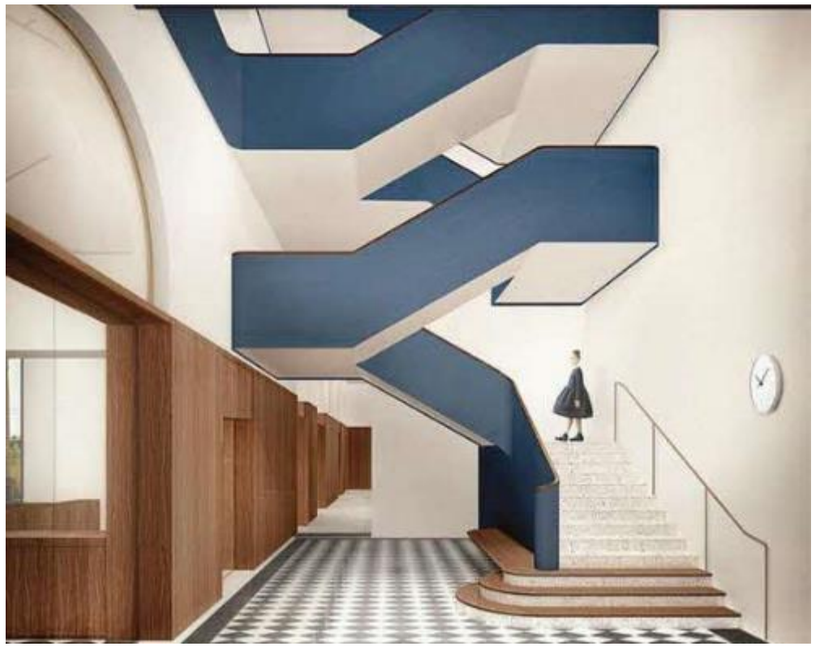
Neutral Common Areas

Our approach to wayfinding stems from the idea that structure drives behaviour. We wanted residents to navigate intuitively, just as they would during lockdown conditions. Every colour and icon were co-created with residents — ensuring clarity, legibility, and cultural sensitivity in every detail.

Mr Tiah Nan Chyuan,
Director
FARM

Colour Proposal

The colour proposal was the outcome from engagement with migrant workers on their preference for colours and imagery.



BLOCK A

BLOCK B

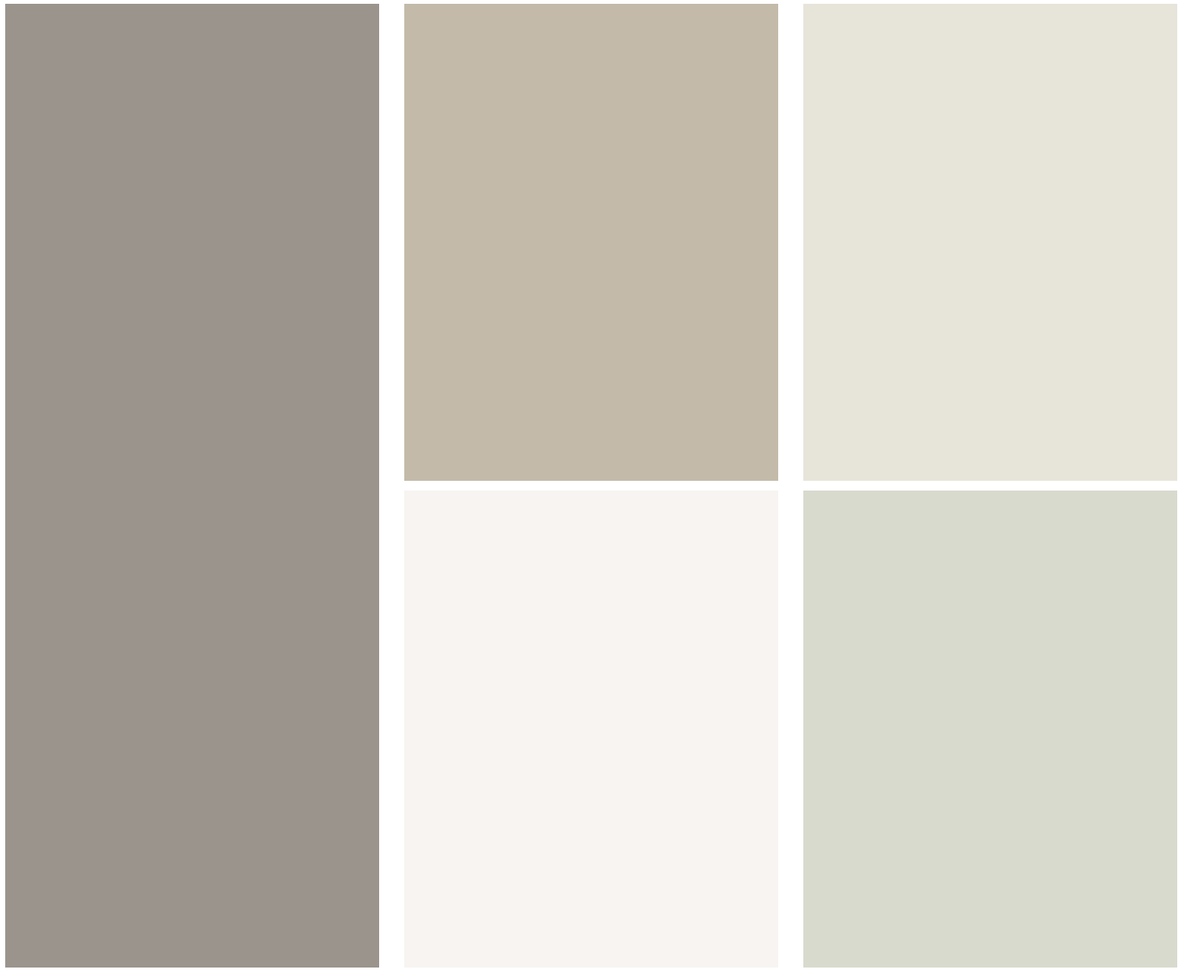
Design for Colour Inclusiveness
The majority of those surveyed preferred Accent Colour application, and using a high contrast colour palette will ensure that the colour application is visually accessible to users with colour vision deficiencies.

Nature Imagery
Majority of the those surveyed also preferred imagery of nature, compared to abstract imagery or line illustration.

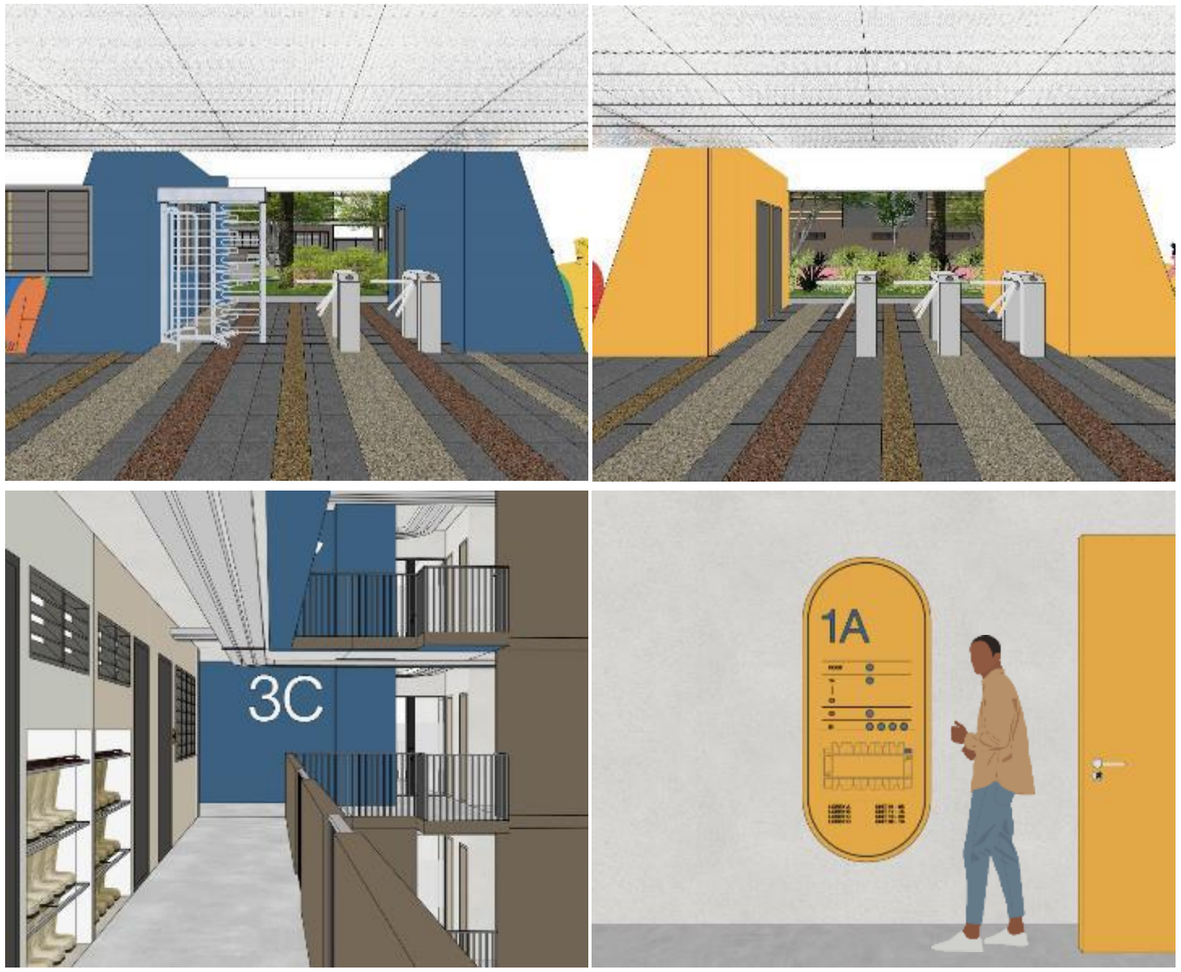
Cultural Sensitivity in Colour Selection
The colours red, green and black was also highlighted by those surveyed as taboo colours in their culture. Care was taken to avoid a huge application of these colours over key areas.

Colour Proposal

The final selection was a neutral colour palette over common area, with selected accent colours application for wayfinding



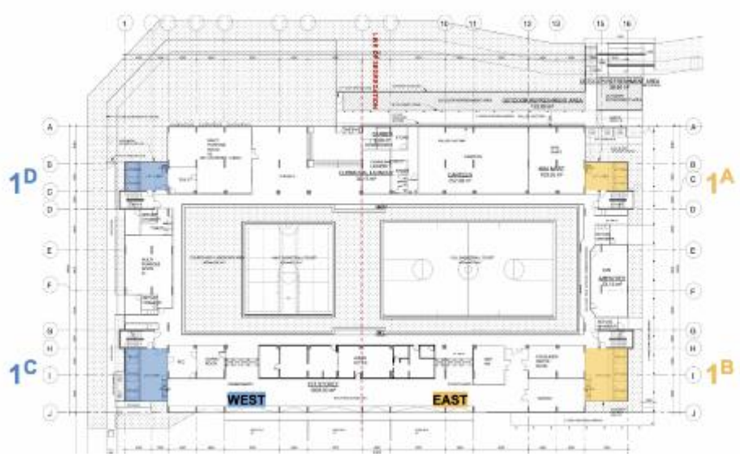
Neutral Colour Palette
These are applied in common areas such as on the building facade, corridor and communal areas.



Accent Colour Application
These are applied along areas key to wayfinding, such as entrances, lift lobbies and stairwell.

Distinctive Arrival

Entrance Portals are highlighted in distinct accent colours for each block, for easy identification during drop off and orientation during navigation



1ST STOREY PLAN SHOWING LOCATION OF LIFT LOBBIES

BLUE ACCENT COLOUR ON WEST PORTALS

YELLOW ACCENT COLOUR ON EAST PORTALS

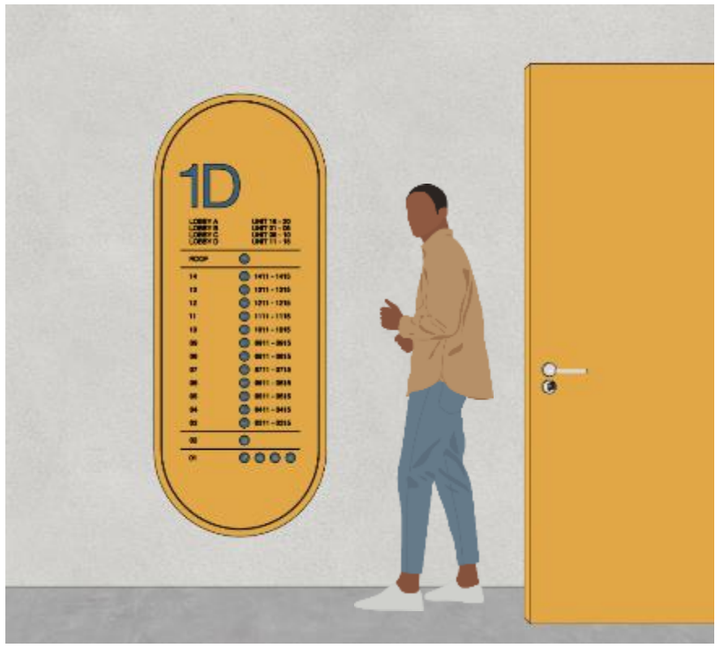
YELLOW ACCENT COLOUR CONTINUES FROM EAST ENTRANCE PORTAL TO WALKWAY LEADING TO LIFT LOBBIES

Key Features

- The dormitory can be isolated into 2 separate blocks in the event of a pandemic. This concept is carried through in the wayfinding design to ensure seamless transition from peace time to crisis.
- A different accent colour is applied on the East vs West blocks for easy orientation at the Entrance Portals, with the colour scheme carried throughout the main navigation spaces.

Colour Navigation

Matching lift lobby colours to enable seamless wayfinding and transition from entrance to dormitory rooms



TYPICAL VIEW OF FLOOR DIRECTORIES

TYPICAL VIEW OF LIFT LOBBIES

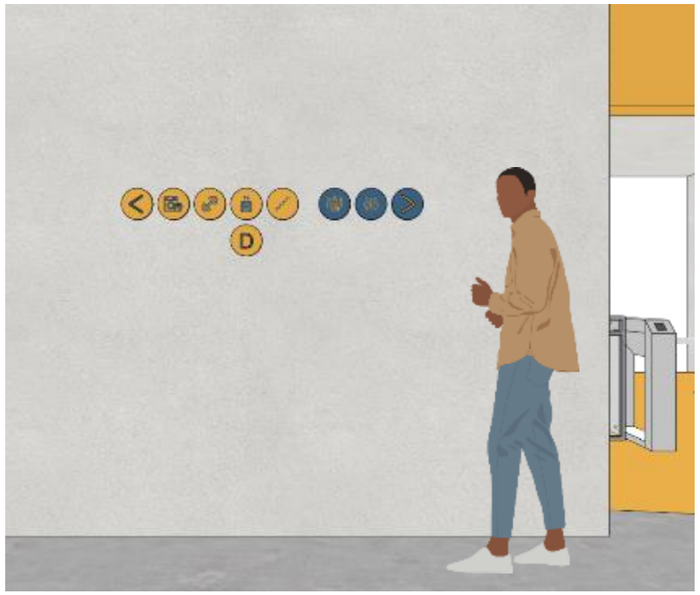
TYPICAL VIEW OF CORRIDOR END WALLS

Key Features

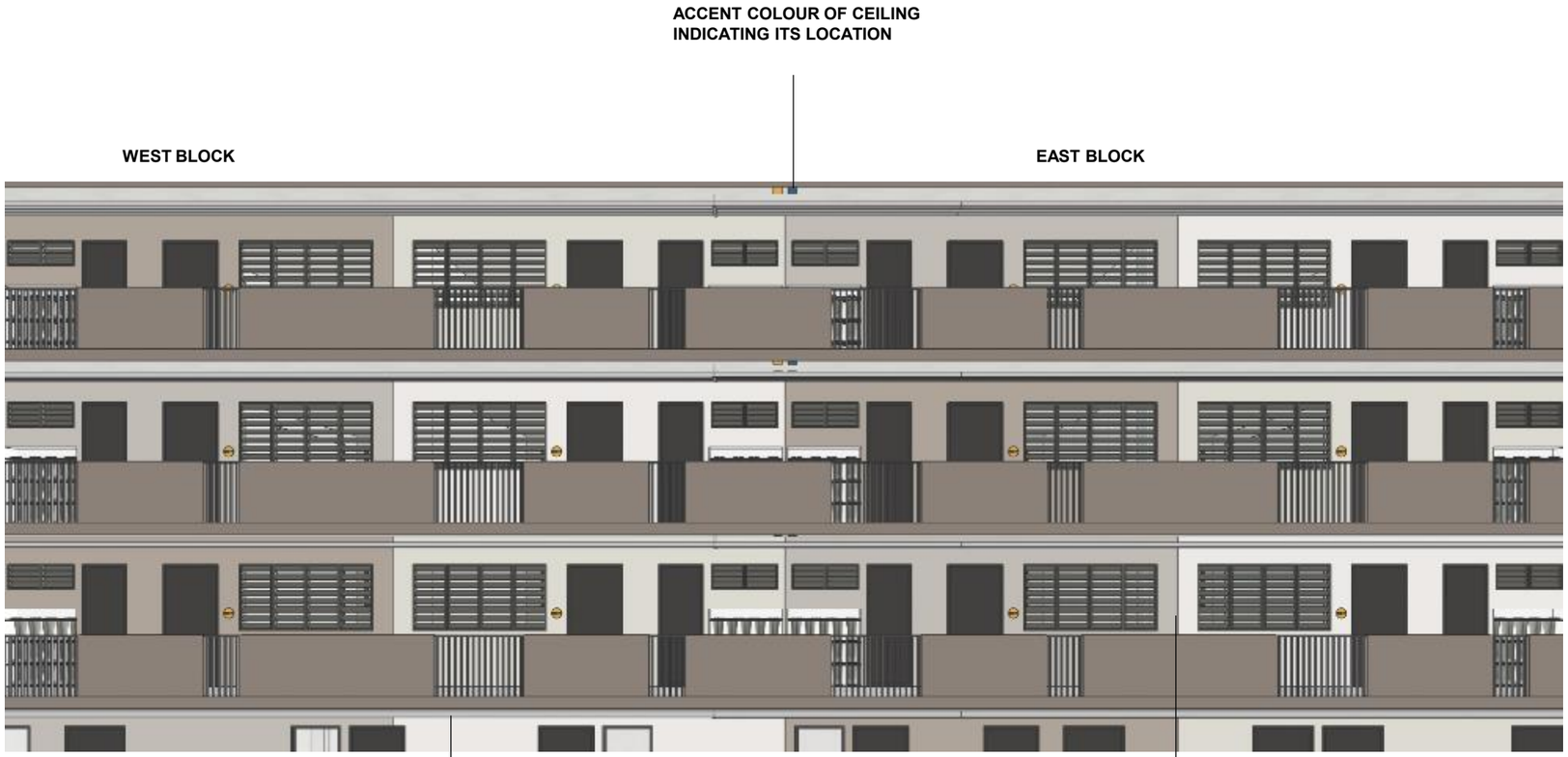
- Accent colour continues from Entrance Portals to Lift Lobbies and corridor end wall on each floor, for easier orientation and navigation.
- Lift lobbies and Floor Directories are also to be painted in a similar accent colour for each block to facilitate easy orientation.

Neutral Common Areas

Common corridors are painted in shades in calming shades of beige and brown to keep an overall neutral palette, allowing accent colours to stand out



TYPICAL VIEW OF WAYFINDING SIGNAGES



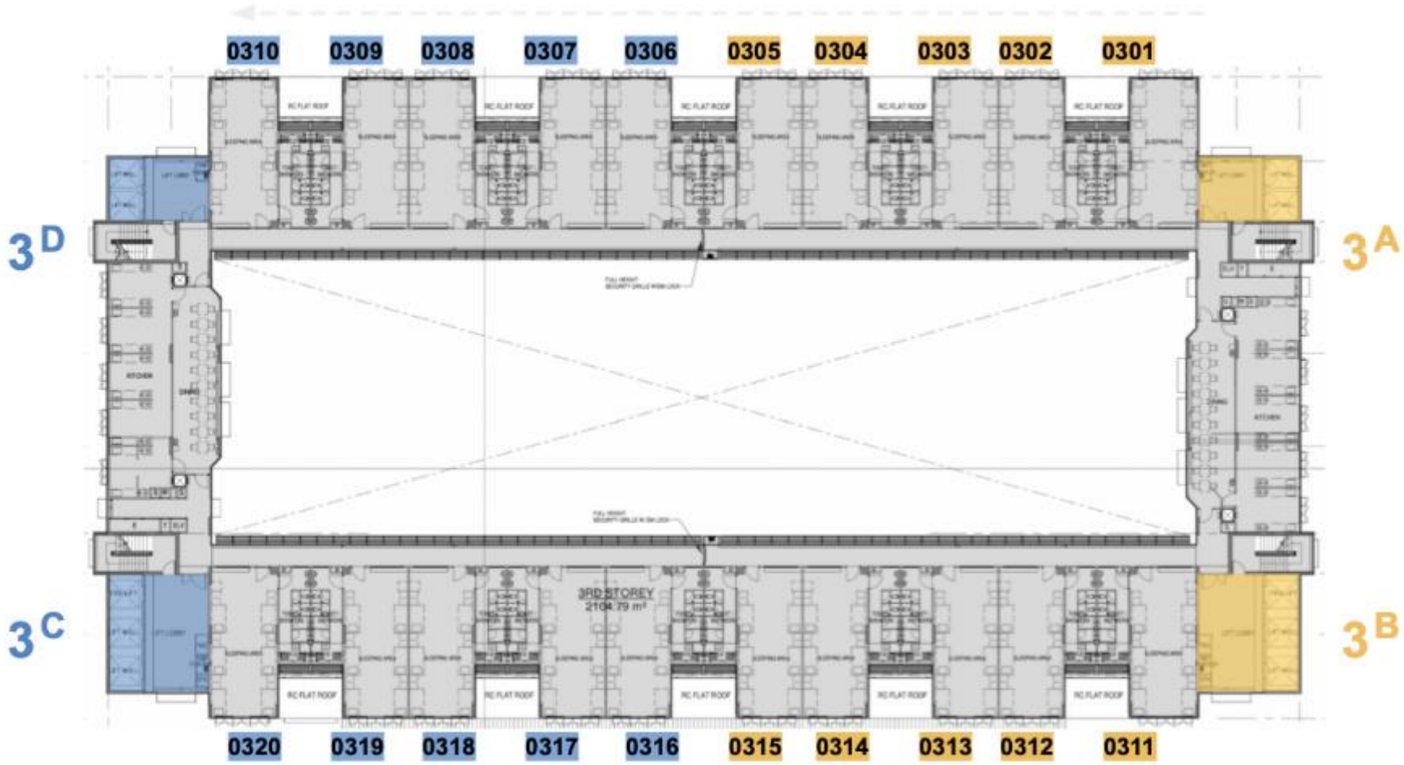
Key Features

- Dorm rooms external to be painted in 4 different neutral shades
- Parapet in single colour for uniformity
- Ceiling accent colour indicate the division of the blocks

Room Number Signages

Common corridors are painted in shades in calming shades of beige and brown to keep an overall neutral palette, allowing accent colours to stand out

TYPICAL VIEW OF ROOM SIGNAGES



TYPICAL FLOOR PLAN WITH ROOM NUMBERING

Key Features

- Room number signages are also colour coded in the same fashion, with yellow or blue colour signages corresponding to each of the block.
- Numbering sequencing follows a clockwise fashion, starting from the East block, to make it easier for visitors or maintenance vendors to find the rooms.

Landscape Design

Landscape as Social Spaces

Community Planting Opportunities

Planning & Optimisation of Landscape Areas

Climate Responsive Design

Lighting Design for Vibrancy and Safety

The landscape design of Tukang Dormitory reflects our commitment to dignity, wellbeing, and community for those who contribute significantly to our nation's development, whilst advancing Singapore's City in Nature vision. Grounded in three fundamental principles—liveability, resilience, and sustainability—this approach informs every design decision, from site-wide spatial planning to individual plant selection, ensuring our landscapes serve immediate needs whilst evolving over time.

Through careful application of these principles, we create environments that actively nurture residents' mental and physical wellbeing. Our goal extends beyond providing basic accommodation; we aim to cultivate vibrant, liveable communities that offer residents a true home away from home.

Mr Jason Wright,
Director Design
NParks

Landscape as Social Spaces

Landscape to enhance the living environment and support residents' well-being

- Multiple green spaces for sporting activities as well as smaller spots for relaxation and stress relief to support social and recreational needs.
- Provide range of seating options including open lawned spaces
- Understand users' requirements for sports facilities that they would like to see incorporated within the proposed landscape areas
- Diverse planting palette shaped by migrant workers' inputs, featuring species that evoke a sense of home, including fragrant plants, herbs and spices used in familiar dishes.
- Usage of upcycled materials for landscape furniture

THERAPEUTIC COMMUNITY SPACE

LOW MAINTENANCE CONCRETE SEATINGS

RESTING SPOT

SENSORY PLANTING

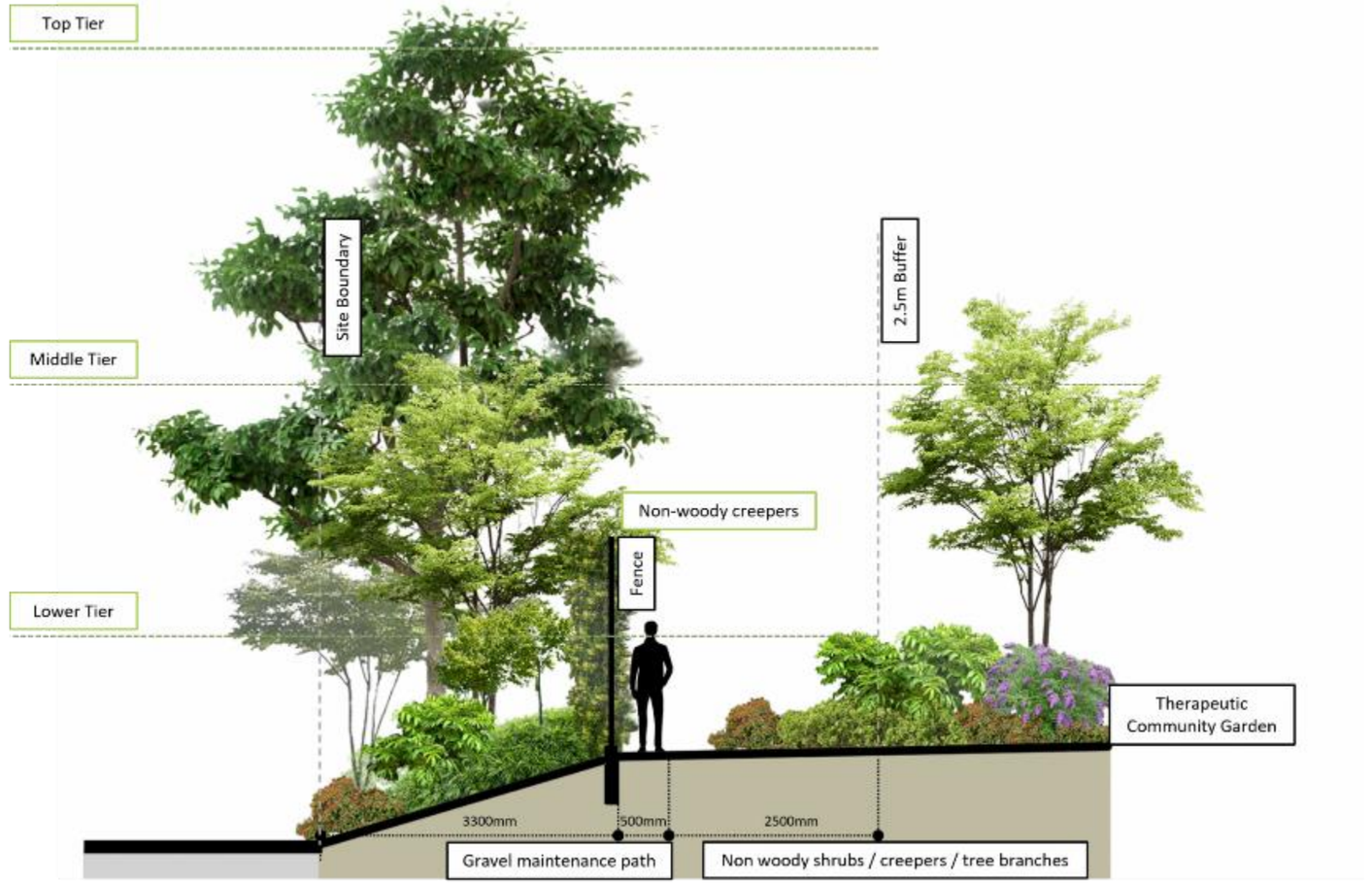
Community Planting Opportunities

Using Landscaping to Engage Residents

- Edible Garden area where the users have flexibility to select plants as per their culinary likings and needs
- Community gardens with user-selected plants
- Engagement with dormitory residents about familiar plant species

CULTURAL PLANT SELECTION THROUGH RESIDENT ENGAGEMENT

Planning & Optimisation of Landscape Areas



Multi-tiered planting

- Multi-tiered planting and a diverse planting palette creates varied habits to support biodiversity
- Select native and adaptive species that are easy to source and maintain

Optimising Landscape Areas

- Maximised softscape areas to allow more area for planting
- Use screening plants to create soft boundaries instead of fences where possible
- Explore techniques to soften the aesthetics of hardscape finishes such as concrete with leaf imprints
- Select naturalistic colours for hardscape materials

MULTI-TIERED PLANTING FOR ENHANCED ECOSYSTEM SERVICES

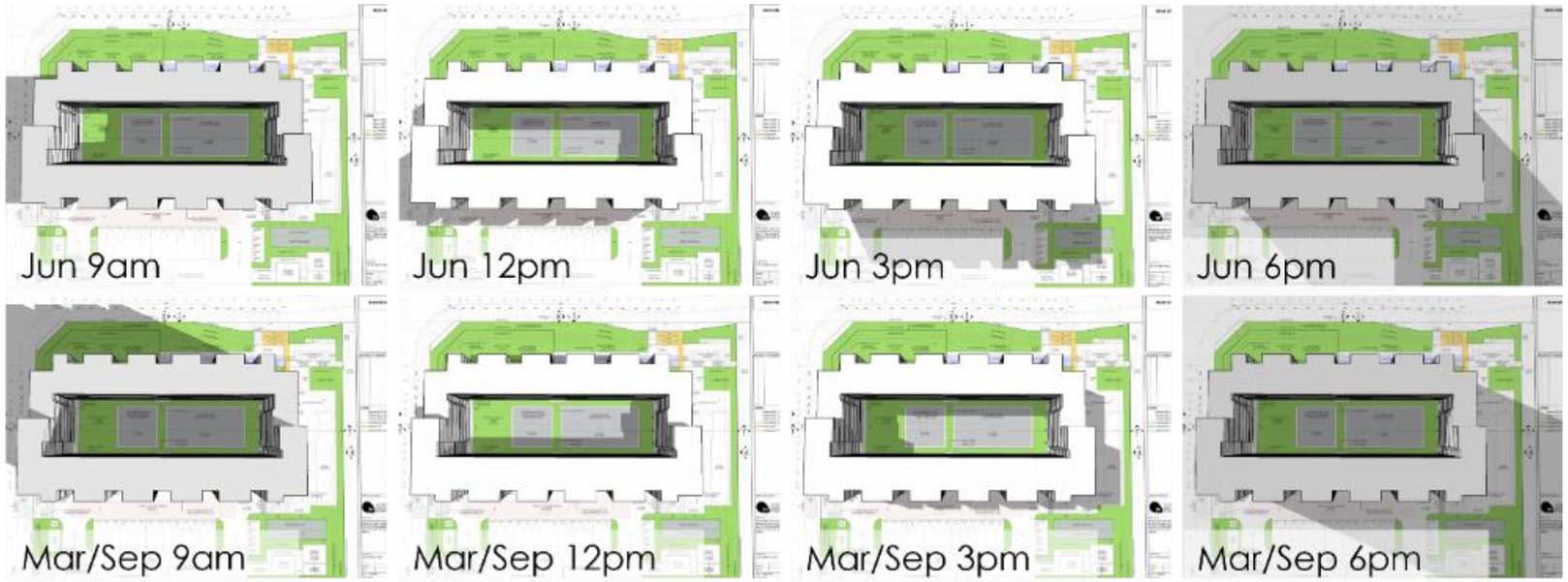
Climate Responsive Design

Using Landscape to Enhance Thermal Comfort

- Microclimate optimisation through shade studies and vegetation
- Selection of climate-responsive species that are easy to source and maintain
- Incorporate shade loving palms and shrubs into courtyard spaces with limited daylight and maintenance access
- Provide trellises with creepers in more exposed locations

Strategic placement of plants to act as environmental buffers for noise and heat mitigation

- Screen the boundary fence with multi-tiered planting which layers up towards the outer boundary fence
- Incorporate non-woody creepers on the boundary fence
- Boundary fence to be in dark colours to better blend in with greenery
- Provide a 2.5m security buffer behind the boundary fence with non woody shrubs



CLIMATE-RESPONSIVE LANDSCAPE DESIGN THROUGH SHADE STUDY

Lighting Design for Vibrancy and Safety

Vibrancy

- Using light to active spaces and enhance spatial character, such as feature tree uplighter, and creation of focal points and visual interest

Functionality & Safety

- Specify downward and/or uni-directional lighting to minimise disturbance to worker dorm rooms
- Functional lighting with higher luminance for such as cricket practice nets and flexible courts
- Minimise accessible areas within the killer litter zones

FUNCTIONAL LIGHTING

LIGHTING DESIGN TO CREATE VIBRANCY

Landscape Design

Design Considerations

Design for Liveability

Landscape as Social Spaces

- Cater different spaces for various levels of social interaction within landscape area, ranging from private resting gardens to landscapes for active sports
- Provide a variety of seating options, including open lawn areas

Community-driven Plant Selection

- Diverse planting palette with colourful and fragrant species for wellbeing
- Engagement with dormitory residents about familiar plant species
- Flexible areas for users to select plants based on culinary preferences

Vibrancy

- Using light to active spaces and enhance spatial character, such as feature tree uplighter, and creation of focal points and visual interest
- Use screening plants to create soft boundaries instead of fences where possible

Functionality & Safety

- Strategic location of edible gardens near kitchens for efficient access and use
- Clear wayfinding through landscape features and integrated circulation and access points within landscape areas
- Functional lighting with higher luminance for such as cricket practice nets and flexible courts

Design for Resilience

Flexible Spaces

- Flexible green spaces supports diverse activities and also enables spaces to be easily converted in times of crisis.

Integrated Landscaping

- Maximised softscape areas with integrating landscape areas such as the open-concept gym and centralised courtyard ensures that residents are still able to enjoy open-spaces an greenery in the event of a lock-down, to maintain their well-being.

Design for Sustainability

Landscape Planning & Design

- Optimised microclimate through strategic shade planning and climate-responsive design for user comfort
- Multi-tiered planting with natural buffer zones using vegetation creates enhanced ecosystems and encourages biodiversity

Planting Selection

- Selection of native and adaptive plant species that are easy to source and maintain ensures low water usage and easy maintenance
- A diverse planting palette supports biodiversity and ensures long-term viability of the landscape areas.

Resource Sustainability

- Low maintenance concrete seatings
- Energy-efficient lighting design
- Water-efficient plant selection

Arrival Area

Main Areas

North and South Arrival Points

Entrance Portals

Void Deck

Amenities

Public Washrooms

Lockers

North and South Arrival Areas

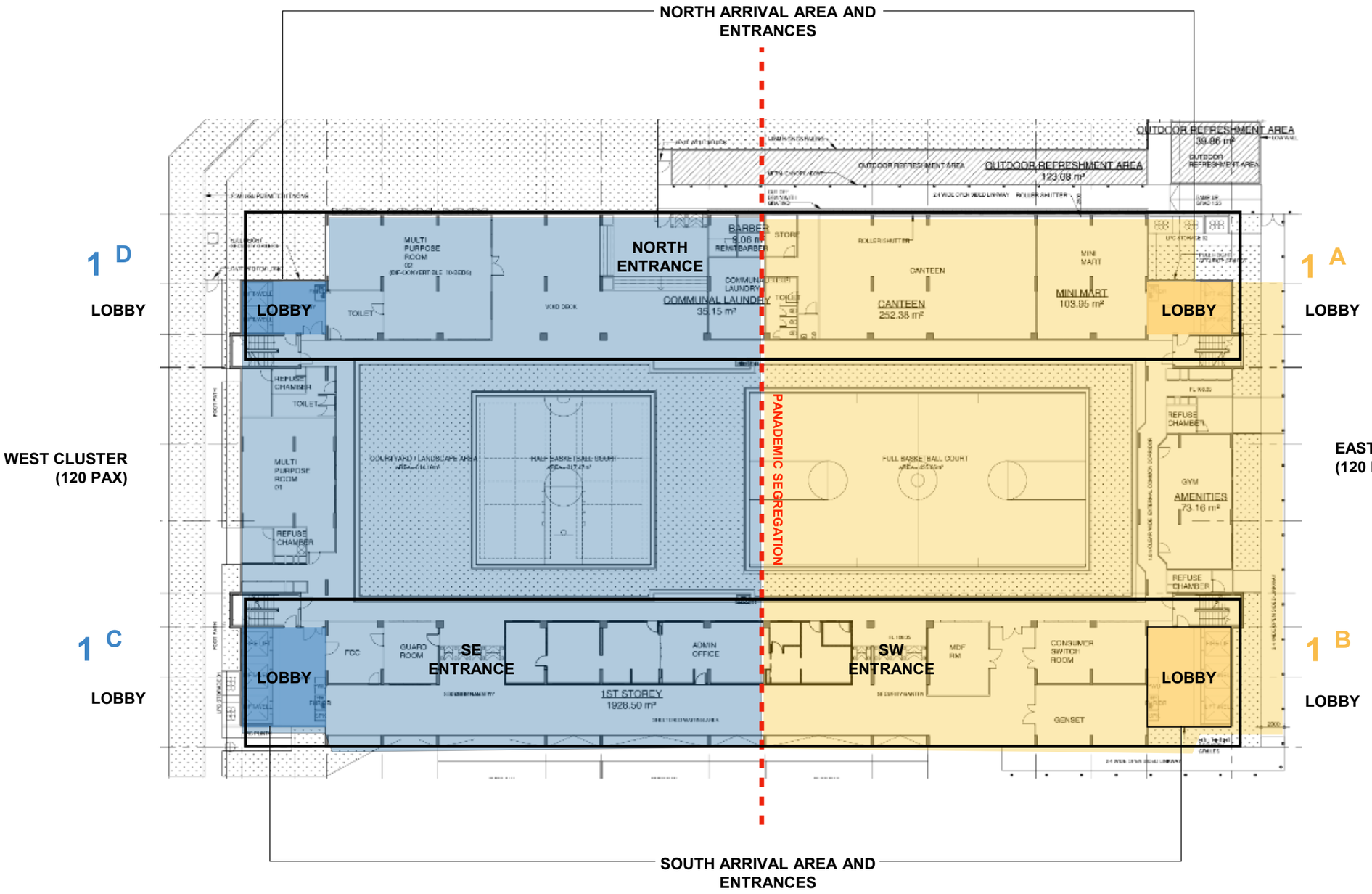
The dormitory is designed to allow for seamless segregation into two clusters in the event of the health crisis/crises. As a result, the entrance portals of each cluster are distinctly colour-coded to allow for two identification.

AXONOMETRIC DIAGRAM SHOWING ENTRANCE PORTALS AT THE SOUTH ARRIVAL AREA

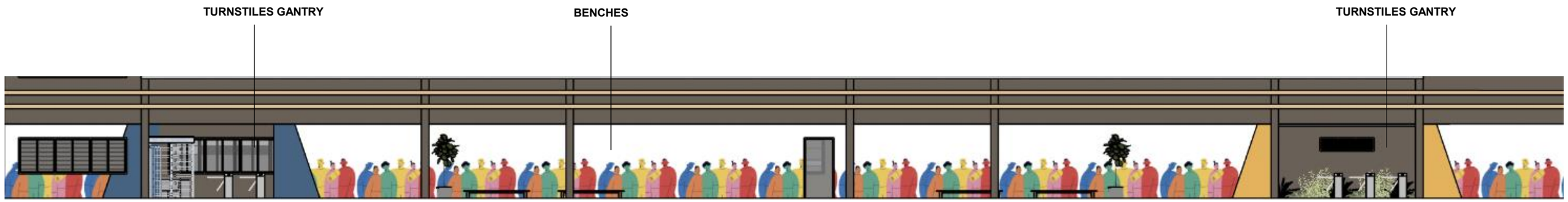
Key Features

- The dormitory is segmented into 2 clusters (east and west), creating behavior since Day 1 that will transit seamlessly from peacetime to pandemic.
- This results in 2 arrival areas, which are designed to be easily distinguishable by colours, to enable intuitive wayfinding.
- Colour Portals in contrasting accent colours to create a home welcoming feel for residents.
- Color-blind–friendly palette is introduced at entrance portals to enhance accessibility and ensure clear visual recognition for all users.

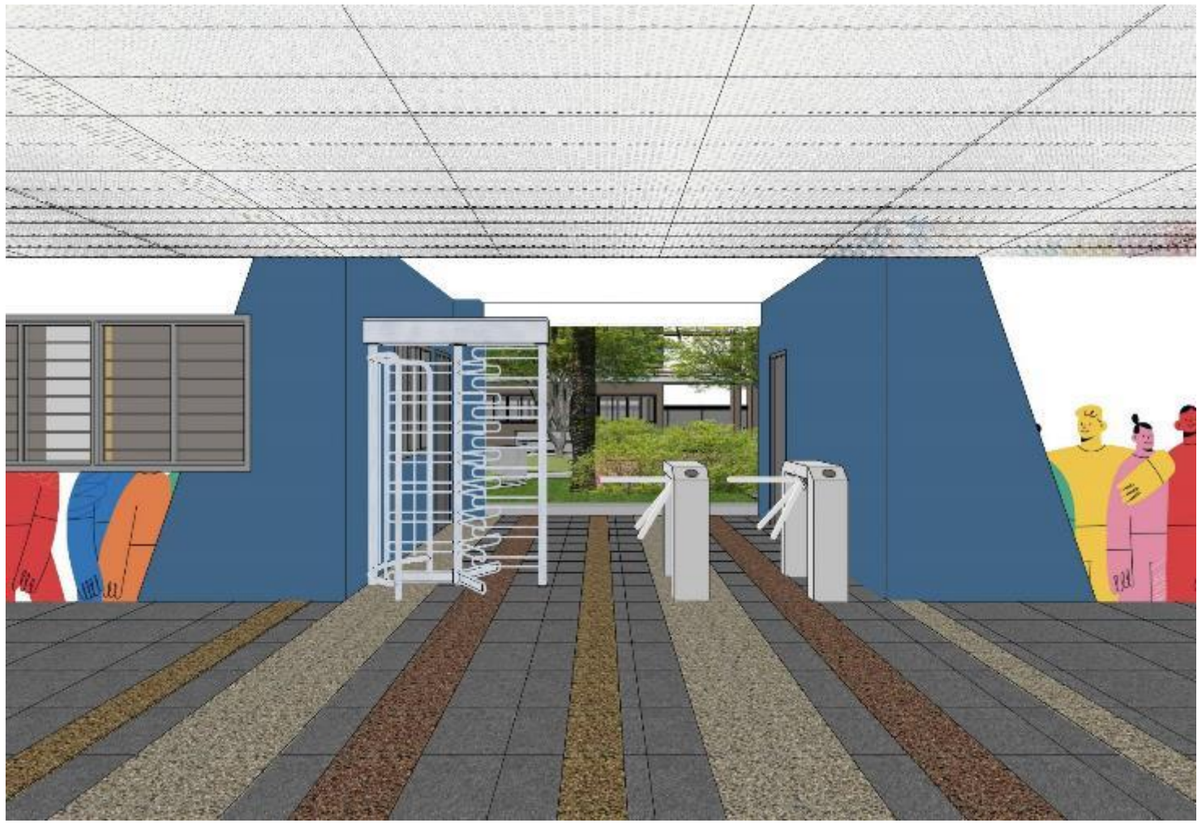
North and South Arrival Areas



Entrance Portals



ELEVATION OF ENTRANCE PORTALS



WEST CLUSTER ENTRANCE PORTAL (IN BLUE)

EAST CLUSTER ENTRANCE PORTAL (IN BLUE)

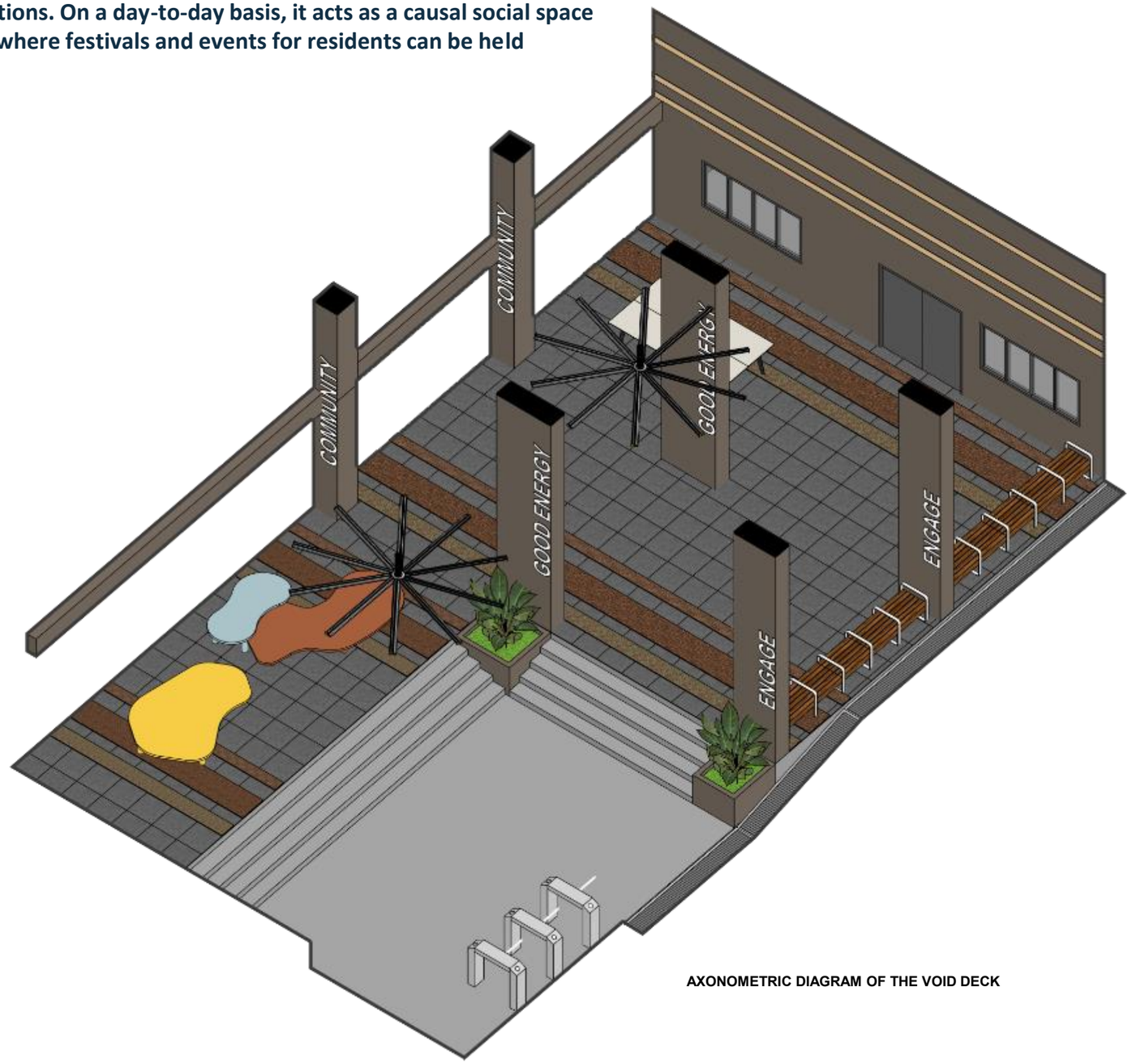
Arrival Area

1. Low profile turnstiles gantry to create a more pleasant entrance experience.
2. Provision of design touches such as potted plants to add warmth and homeliness
3. Color portal to control the traffic / pandemic control

ARTIST IMPRESSION OF THE ENTRANCE PORTALS AT THE EAST ARRIVAL AREA

Void Deck

The Void Deck is a flexible space that is designed to suit a variety of functions. On a day-to-day basis, it acts as a causal social space for residents to hang out. It serves as a sheltered area close to greenery where festivals and events for residents can be held



AXONOMETRIC DIAGRAM OF THE VOID DECK

Key Features

- Interactive communal space
- The Void Deck located directly outside MPR 1 provides an excellent complementary space, offering the flexibility to function as an extended holding area or to accommodate fringe activities as required.
- High volume low speed fans for better air circulation
- High ceiling to create a bright airy spatial quality

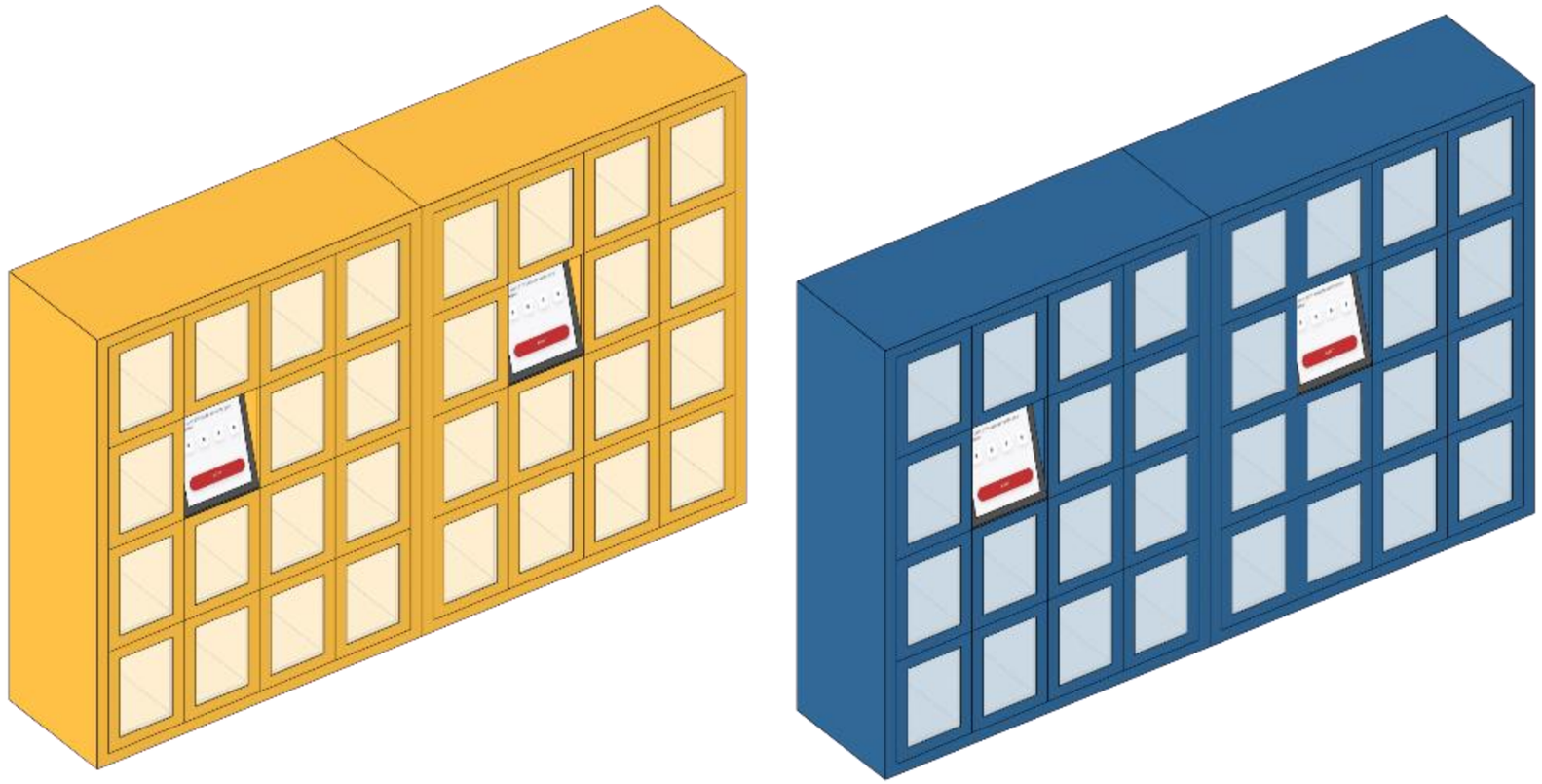
Void Deck

1. High volume low speed fans for better air circulation
2. High ceiling to create a bright airy spatial quality
3. Recreational equipment (e.g table tennis) can be installed to provide residents with more variety of activities.
4. Sitting platform that can double up as mini stage
5. Walls and columns are good places to apply community values statements for the dormitory.

ARTIST IMPRESSION OF THE VOID DECK AREA

Food Lockers

Food Lockers are installed near the entrances to allow residents to pick up food easily



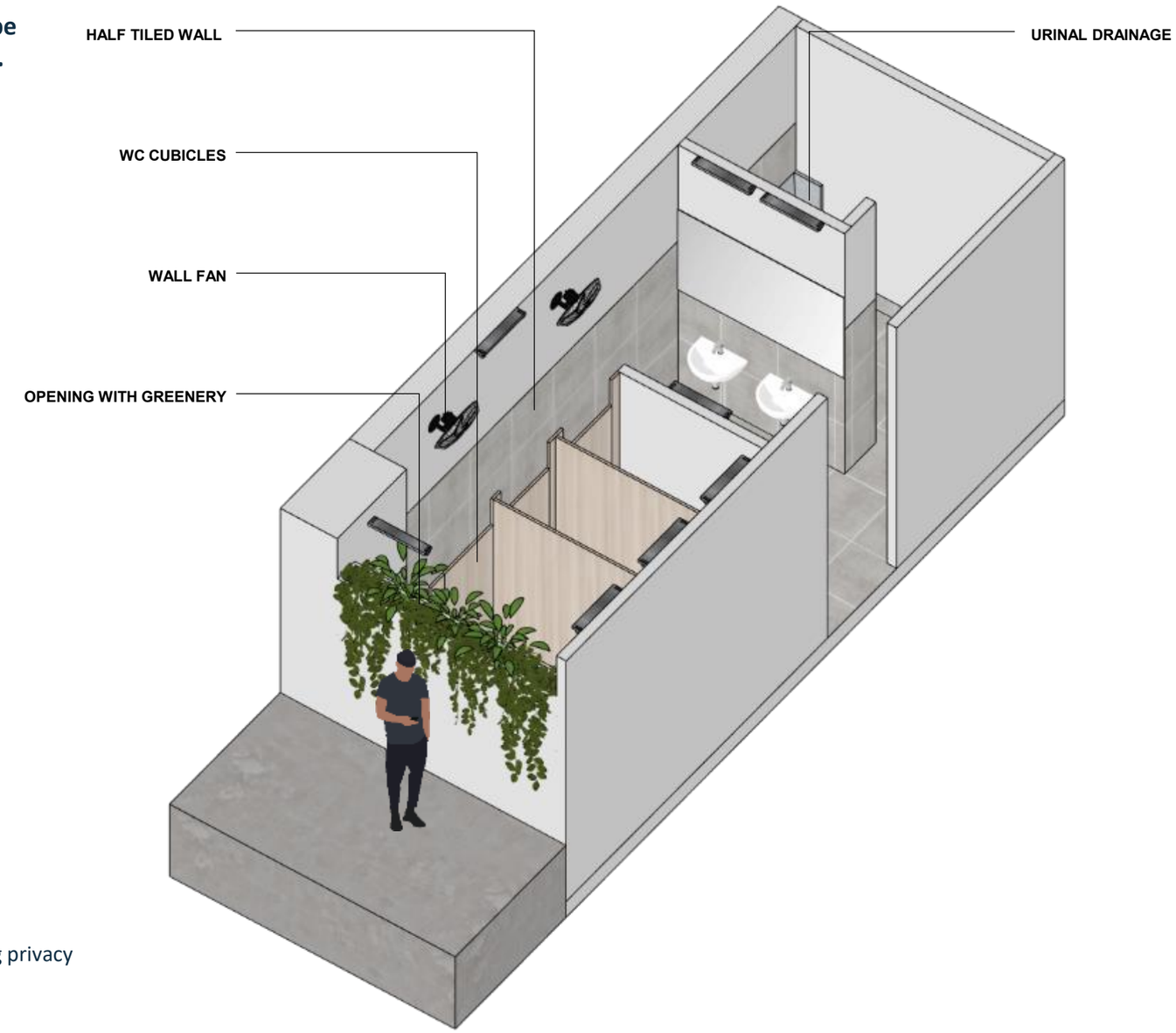
AXONOMETRIC DIAGRAM OF FOOD LOCKERS

Key Features

- Food lockers and delivery lockers to be placed in our commercial space (public domain) for easy accessibility
- Visible acrylic door panels with ventilation holes for security and easy maintenance

Public Washrooms

Public washrooms at NESST Tukang Dormitory are designed to be bright and airy, with natural-tone materials to add a sense of warmth.



AXONOMETRIC DIAGRAM OF THE PUBLIC WASHROOMS

Key Features

- Opening above 2100mm height to provide natural ventilation while maintaining privacy
- Inclusion of greenery and timber-tone laminates to add warmth
- Wall fans are installed to provide extra air flow and reduce odours

Public Washrooms

1. Opening above 2100mm height to provide natural ventilation while maintaining privacy
2. Inclusion of greenery and timber-tone laminates to add warmth
3. Wall space can accommodate messaging on hygiene or other relevant content.
4. Usage of light-coloured vinyl tiles for easy cleaning and maintenance. Recommended to provide anti-slip rating of R10.

ARTIST IMPRESSION OF THE INTERIOR OF PUBLIC WASHROOMS

Arrival Area

Design Considerations

Design for Liveability

Use of Colour

- **Use of accent colour creates visual interest and adds warmth to the overall spatial quality.**
- **The application of accent colour at the Entrance Portal and subsequently along the main thoroughfare also provides a initiative way for wayfinding.**

Recreation Equipment

- **Different recreation equipments provide variety for residents with different interests and needs.**

Seating Areas

- **A variety of seating areas (lounging, chairs, benches etc) provide different spaces for residents to interact, promoting social interaction and cohesion.**

Use of Greenery

- **Incorporation of greenery wherever practical softs the look and feel of the spaces, and adds to the feeling of homeliness.**

Design for Resilience

Air Flow

- **Naturally Ventilated Space: Spaces should be naturally ventilated wherever possible to reduce the spread infectious diseases.**
- **High ceiling with ceiling fans: High ceiling height where possible, together with provision of adequately sized ceiling fans improves air circulation within the space.**

Use of Materials

- Selection of materials should prioritise consideration for easy maintenance and cleaning

Choice of Furniture

- Stackable / foldable furniture that can be easily stored or moved away allows spaces to be convertible, isolated and cleaned in the event of a pandemic.

Design for Sustainability

Energy Efficiency

- **Smart Sensors: Lighting that are activated by sensors reduces energy consumption when spaces are not in used.**
- **Nature Ventilation: Naturally ventilated space reduces reliance on A/C and lowers overall consumption of energy.**

Communal Facilities

Multi-purpose Halls

Residents’ Gym

Privacy Nooks

Communal Kitchen

Courtyard

Roof Top

Multi-Purpose Halls

The multi-purpose halls (MPH) are flexible spaces which can serve as additional recreational spaces for residents. They may be used for workshops or social events during regular times and convertible for additional isolation requirements in the event of a pandemic.

At NESST Tukang Dormitory, there are two types of MPHs. The smaller Adaptive Multi-Purpose Hall can be used for orientation talks or movie nights, and the larger Interactive Multi-Purpose Hall, which functions day-to-day as a recreational room with games and books, but convertible to a workshop space, barber space or flea market space.

ARTIST IMPRESSION OF INTERIORS OF THE ADAPTIVE MULTI-PURPOSE HALL (TOP) AND THE INTERACTIVE MULTI-PURPOSE HALL (BOTTOM)

Multi-Purpose Halls

Adaptive MPH

AXONOMETRIC DIAGRAM OF THE ADAPTIVE MULTI-PURPOSE HALL

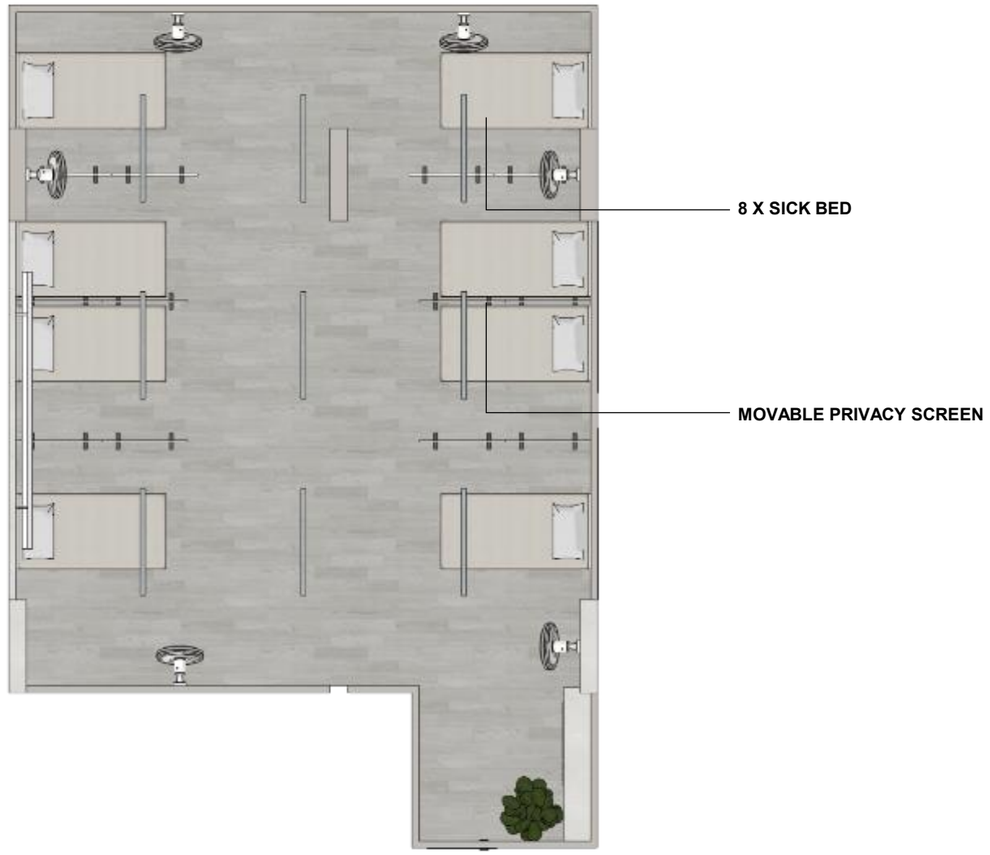
Key Features

- Smaller, more intimate space for movie nights, counselling sessions or residents' orientation
- Stackable / foldable furniture that can be easily stored
- Movable TV screen
- Provision for projector screen
- Accent wall colours to add vibrancy to the spatial quality
- Tile flooring for easy maintenance
- Direct connection to washroom, for pandemic period

Multi-Purpose Halls

Adaptive MPH

DAY-TO-DAY LAYOUT



PANDEMIC LAYOUT WITH ISOLATION BEDS

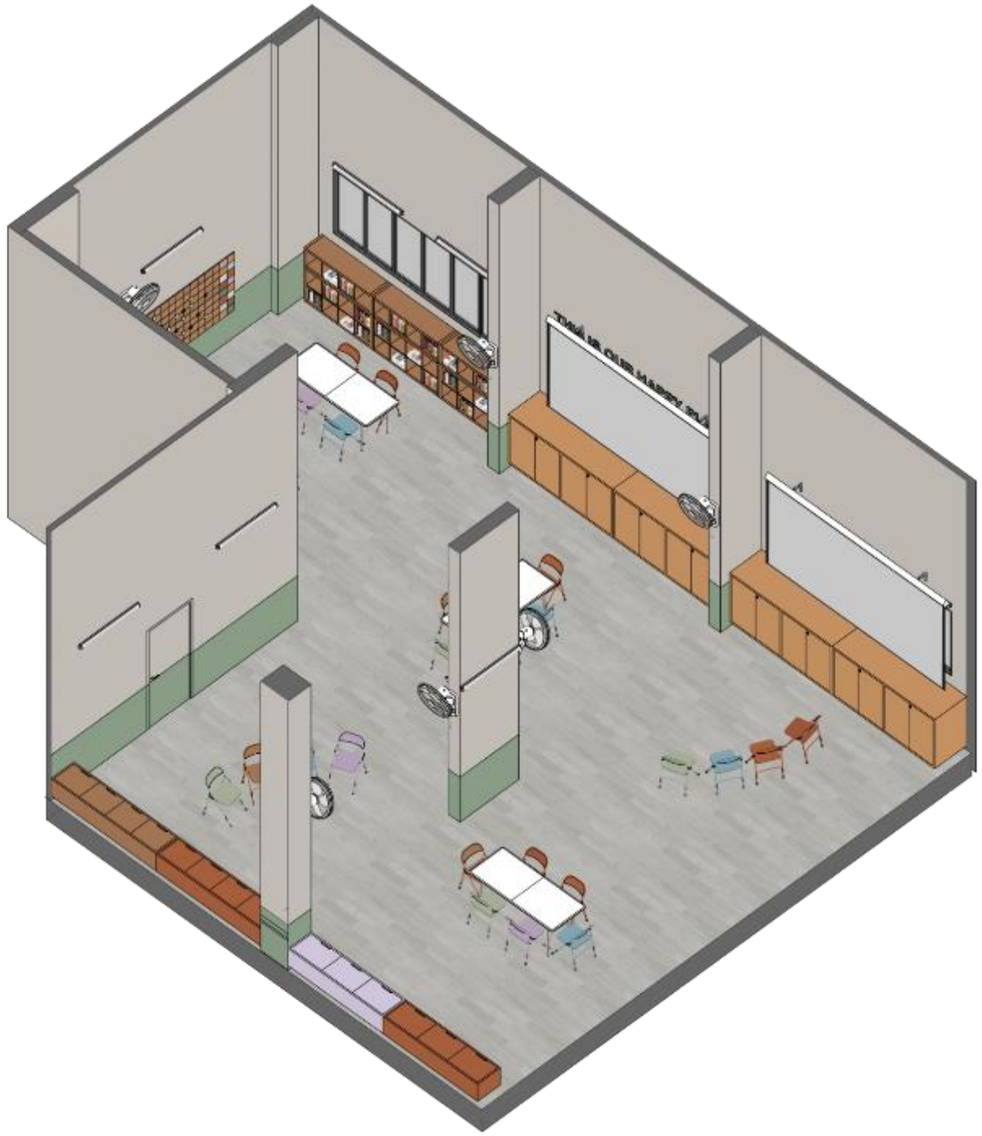
Multi-Purpose Halls

Adaptive MPH

1. Foldable and stackable furniture can be easily stored to allow for MPH to support additional isolation requirements during a pandemic.
2. MPH is directly connected to toilets, for used as a ward setting during pandemic.
3. Installation of LED TV allows space to be used flexibly for orientation / workshop / movie nights

Multi-Purpose Halls

Interactive Multi-Purpose Hall



AXONOMETRIC DIAGRAM OF THE INTERACTIVE MULTI-PURPOSE HALL

Key Features

- Large regular space to accommodate more residents and usage such as flea market, health screening and charity hair cuts.
- Stackable / foldable furniture that can be easily stored
- Movable TV screen
- Provision for projector screen
- Accent wall colours to add vibrancy to the spatial quality.
- Tile flooring for easy maintenance
- High ceiling height, ceiling fans and openable windows for natural ventilation and improved air circulation
- Direct connection to washroom, for pandemic period

Multi-Purpose Halls

Interactive Multi-Purpose Hall

DAY-TO-DAY LAYOUT

PANDEMIC LAYOUT WITH ISOLATION BEDS

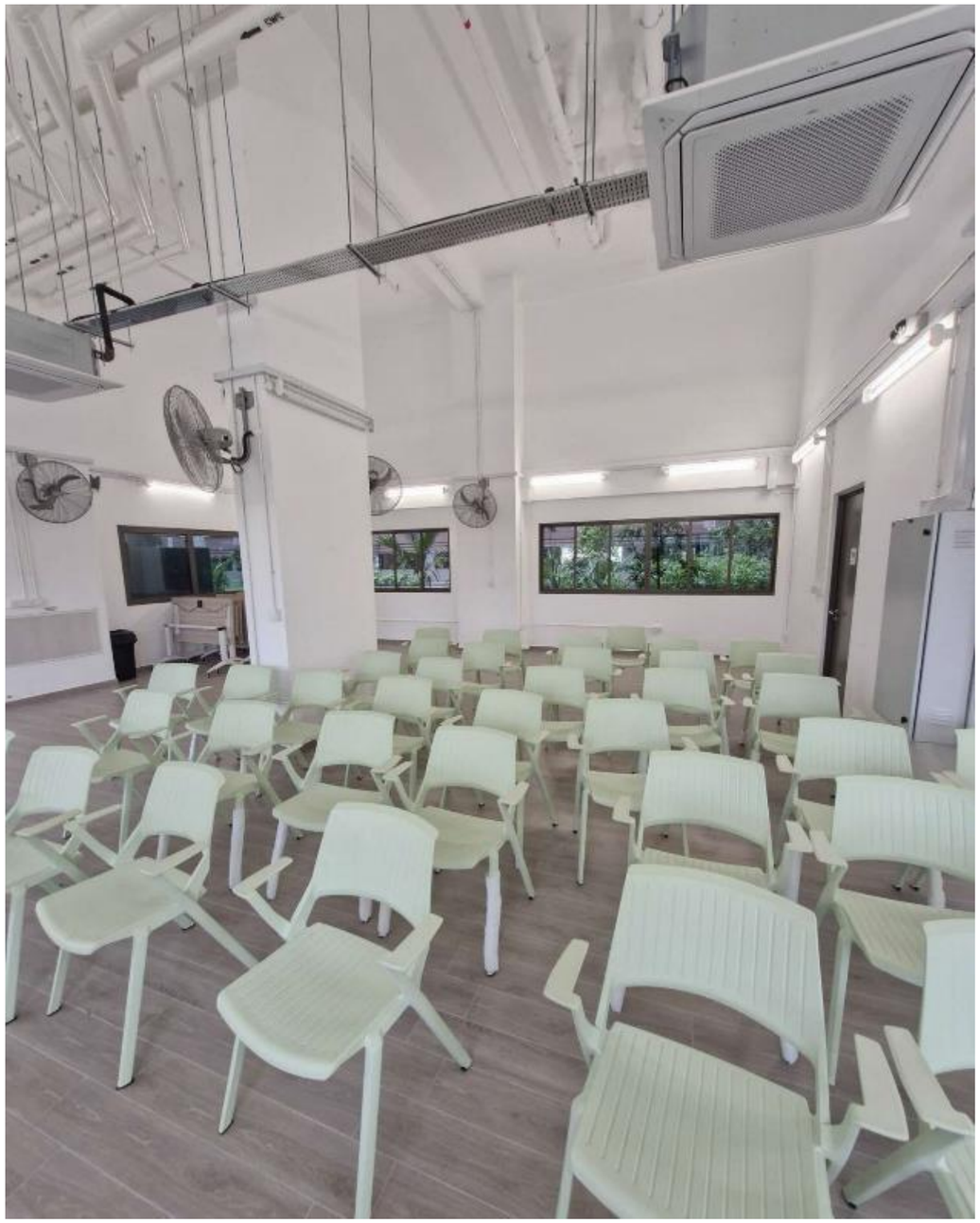
Multi-Purpose Halls

Interactive Multi-Purpose Hall

1. Foldable and stackable furniture can be easily stored to allow for MPH to support additional isolation requirements during a pandemic.
2. MPH is directly connected to toilets, for used as a ward setting during pandemic.
3. Installation of LED TV allows space to be used flexibly for orientation / workshop / movie nights
4. Due to the high ceiling space, tube lights are mounted on wall for easy maintenance.

Design Implementations at Progressive Dormitories

Flexible space design to meet peacetime and pandemic needs



MPR @ NESST TUKANG

ACTIVITY CENTRE @ WESTLITE UBI

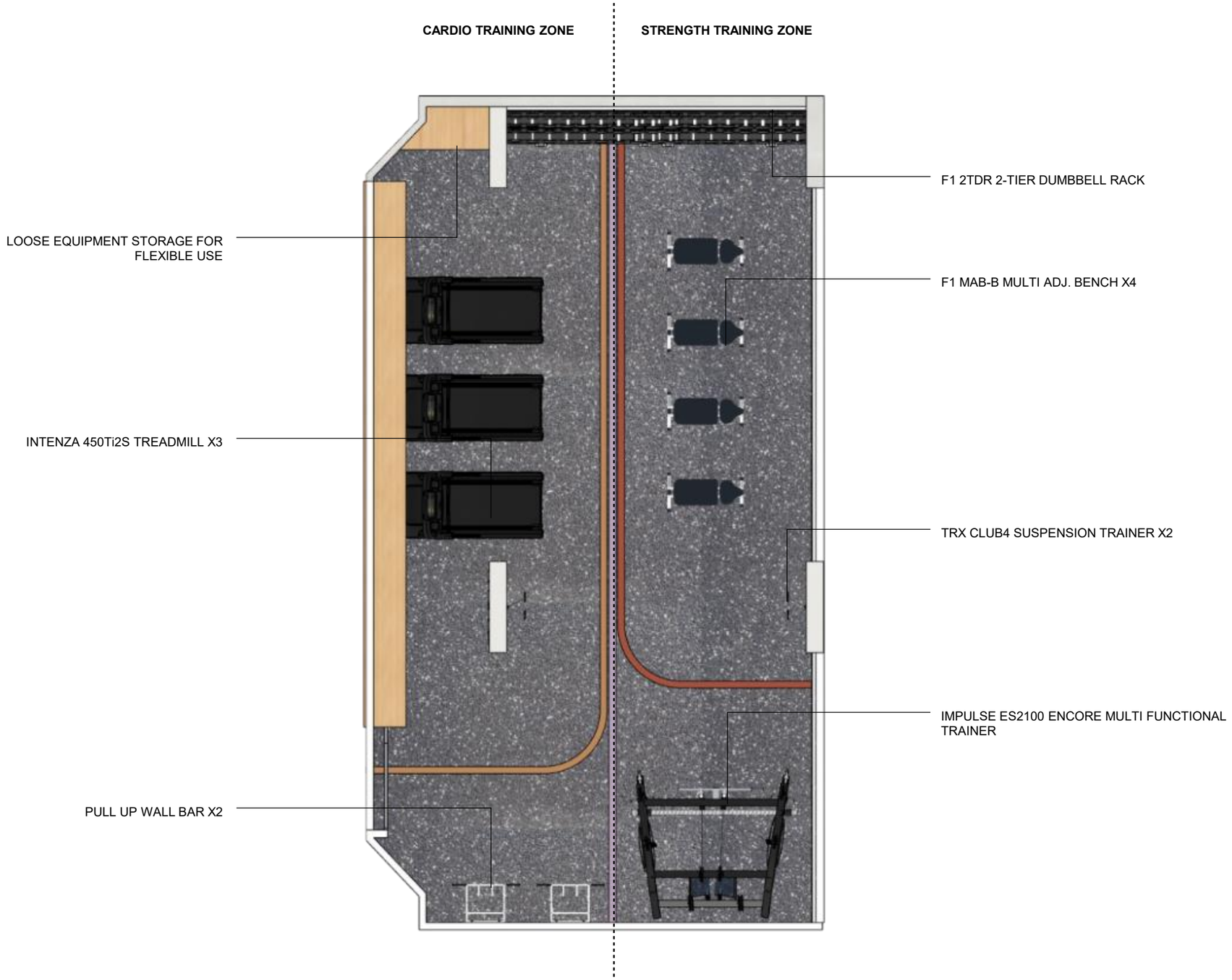
Residents’ Gym

The Residents’ Gym is a recreational area for residents to enjoy a workout during their day off. The Open-concept gym integrates the adjacent landscaping view and creates a sense of openness from the interior and enhance the overall gym experience

Key Features

- Wide entrance for bringing in equipment and maintenance
- Open ledge facing the courtyard to increase openness of space towards greenery and encourage conversation between residents.
- Windows for natural ventilation. Windows are fitted with grille on the outside for added security measure.
- Rubber mat flooring for easy maintenance and protection
- Provision of water point for water dispenser
- A variety of different gym provisions to fulfil provisions of strength and cardio training.

Residents' Gym



TYPICAL FLOOR PLAN OF GYM

Residents’ Gym

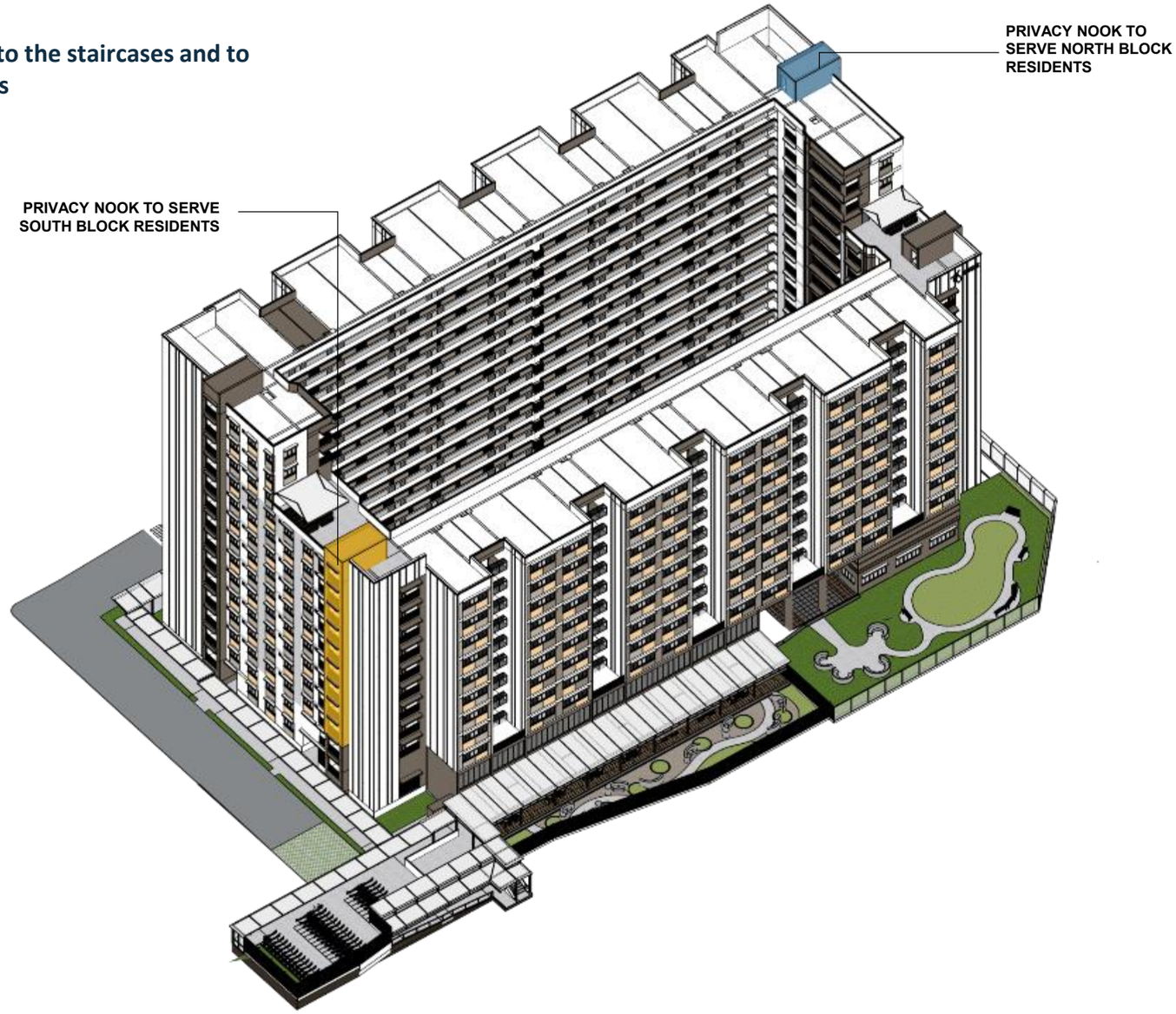
1. Gym overlooks the centralised courtyard (and greenery), providing a refreshing environment for active living. Its open-air concept encourages residents to stay active while remaining connected to the vibrant dorm community. By being visible and accessible, the gym naturally promotes social interaction and a healthier, more dynamic lifestyle.

2. Open ledge facing the courtyard to increase openness of space towards greenery and encourage conversation between residents.

3. Provision of water point for water dispenser and shelving for accessories.

Privacy Nook

The privacy nook was an innovative use of spaces by utilising the space next to the staircases and to give residents a space away from their rooms for private calls with loved ones



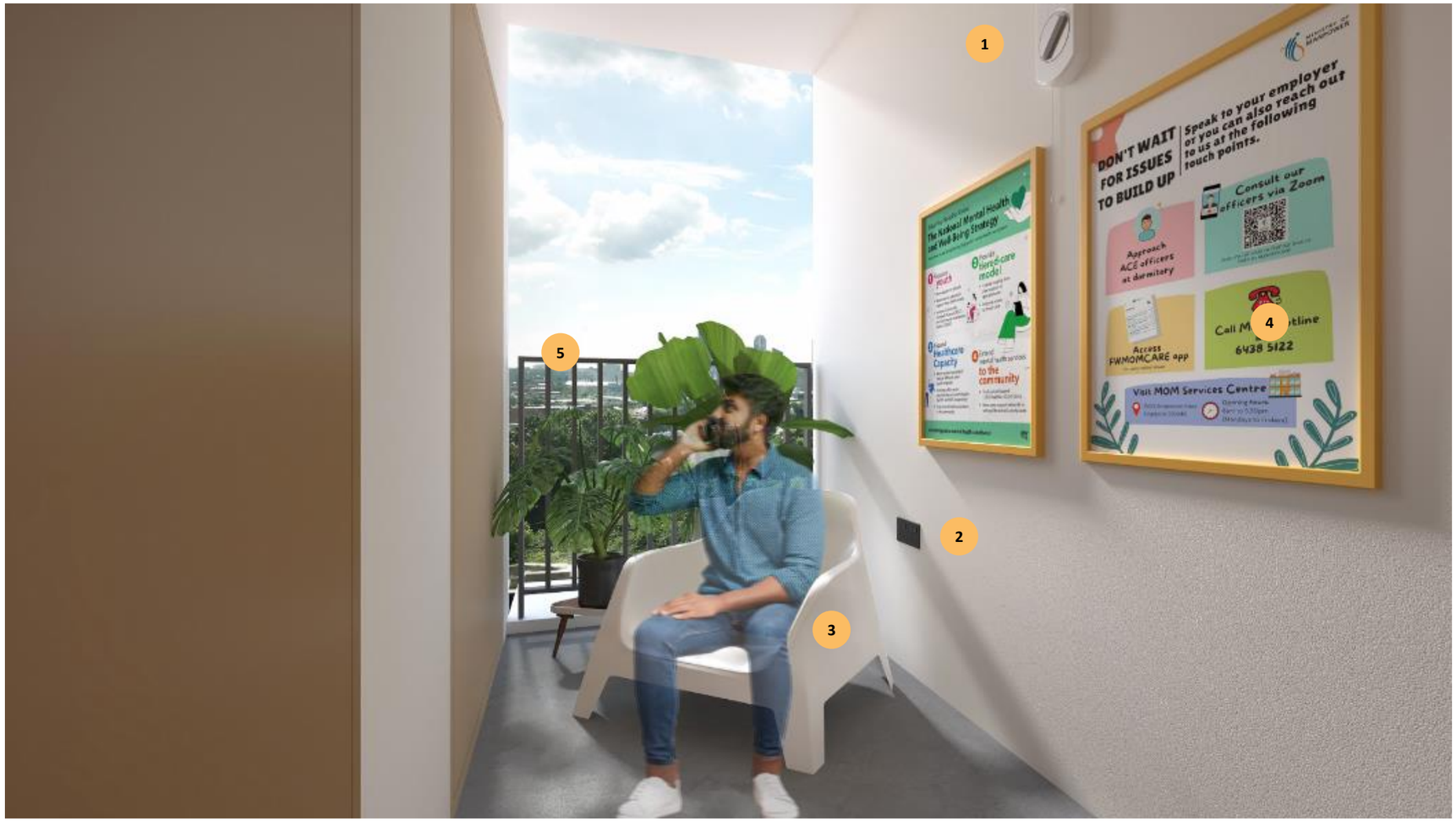
AXONOMETRIC DIAGRAM OF THE DORMITORY BLOCK SHOWING THE LOCATIONS OF THE PRIVACY NOOKS

Key Features

- 1 privacy nook per zone on each floor (total 2 per floor) that can be conveniently accessed by residents
- Entry way enclosed by wooden door with vision panel for privacy whilst allowing others to know that the space is being used.
- Wall fan for cooling
- Equipped with internal socket for charging of mobile devices

Privacy Nook

1. Wall fan provides extra air flow and thermal comfort
2. Provision of power point allows residents using the privacy nook to charge their devices if needed. A splash proof case is recommended if the power point is exposed to the elements. Splash proof and/or weather proof case is recommended depending on whether power point is directly exposed to splashing or to the elements
3. Provision of weather proof outdoor furniture for durability.
4. Wall space can accommodate messaging on mental well-being or other relevant content.
5. Using metal railings instead of parapet wall allows for more airflow in the area.



ARTIST IMPRESSION OF A PRIVACY NOOK

Design Implementations at Progressive Dormitories

Private Nook for residents to attend to private matters

PRIVACY NOOK @ NESST TUKANG

PRIVACY CORNER @ WESTLITE UBI

Communal Kitchen

The Communal Kitchen allows residents to prepare their own meals with convenience, with ergonomically designed L-shaped counter and assigned to each room to drive ownership and improve overall hygiene and cleanliness. The adjacent dining area contains communal dining furniture for residents to enjoy their freshly prepared meals together. This space can be easily converted to serve as recreational spaces for the residents" after together.

Cooking Area

<u>Cooking Experience Considerations</u>

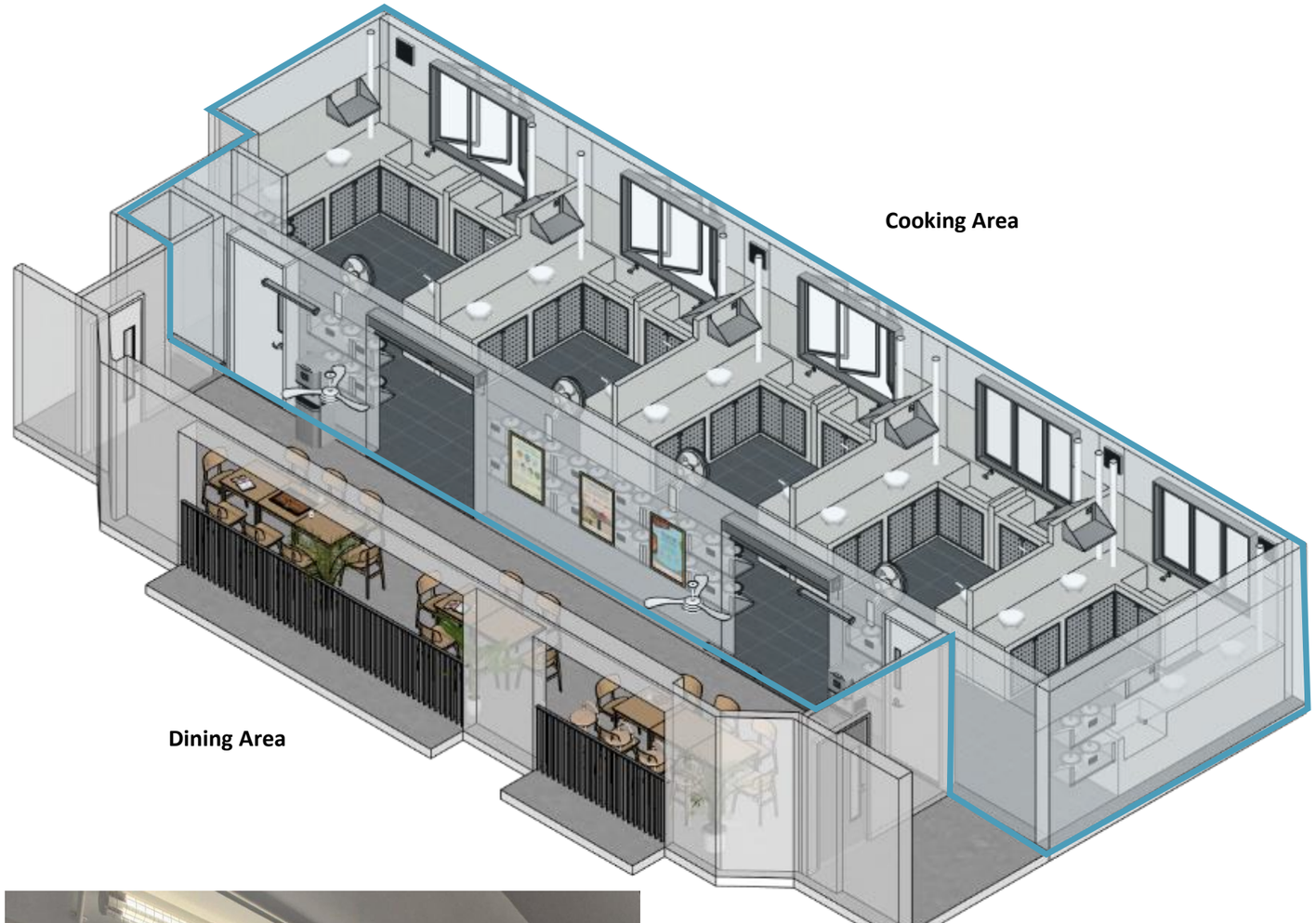
- Ergonomic design for food preparation and cooking which improves residents' overall cooking experience.
    - i) Modularised L-shaped cooking units with 2 stoves and washing bay per unit to drive ownership.
    - ii) Adjacent rice cooker area caters to 4nos of rice cookers per room
    - iii) Overhead metal shelving for condiments
    - iv) Provision of power socket for mini fridge

<u>Ventilation Considerations</u>

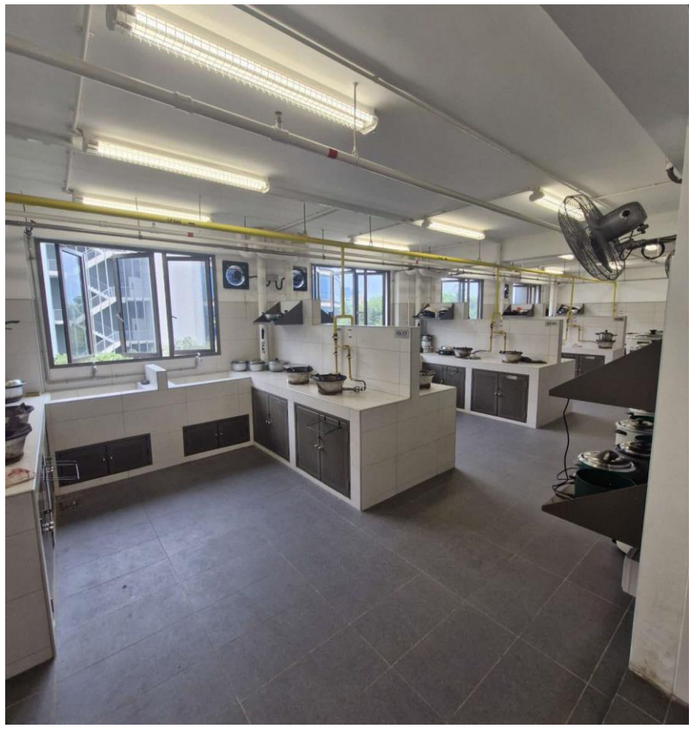
- Open dining space with roller shutter and larger casement window to allow for better ventilation
- Wall fan and exhaust fan for air ventilation and enhanced ventilation
- Kitchens are located away from rooms to reduce smell and heat from cooking affecting residents who want to rest.

<u>Maintenance & Sustainability Considerations</u>

- Metal cabinetry door for the ease of cleaning
- Lights are activated by occupancy sensors
- Anti-slip floor tile (R10) in dark tone, as well as fully-tiled cooking countertop & backsplash (till 1800mm) allow for easy maintenance and cleaning



AXONOMETRIC DIAGRAM OF A TYPICAL COMMUNAL KITCHEN



Communal Kitchen

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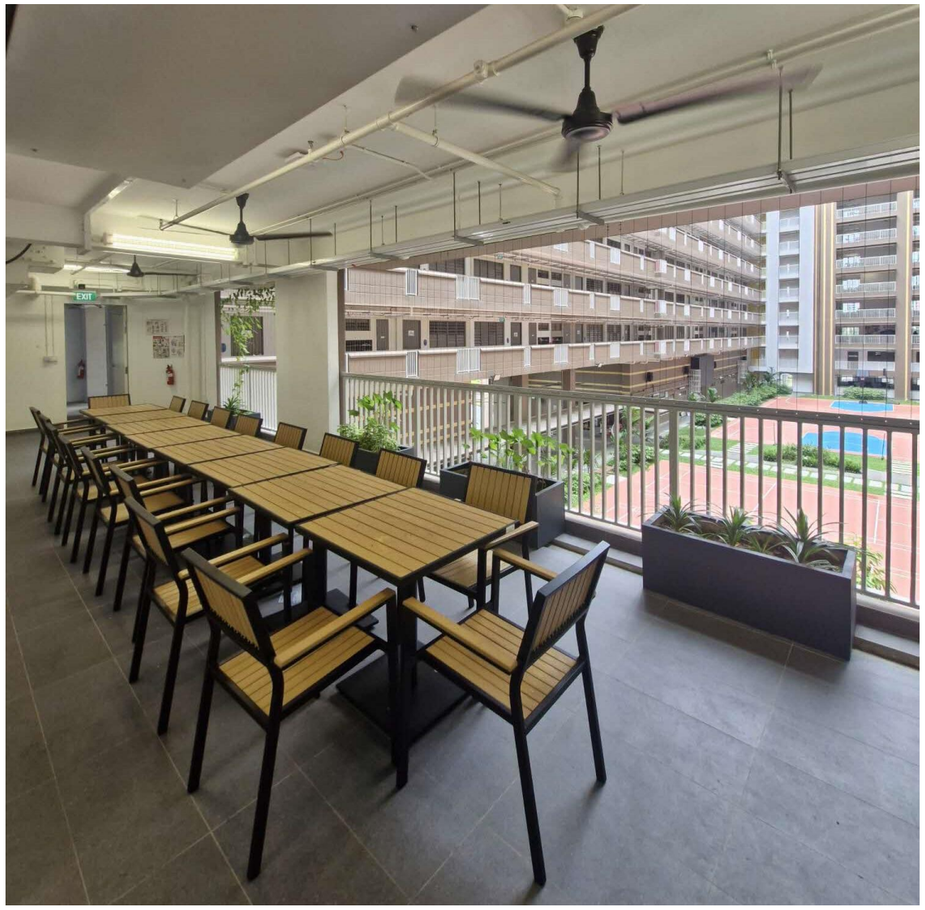
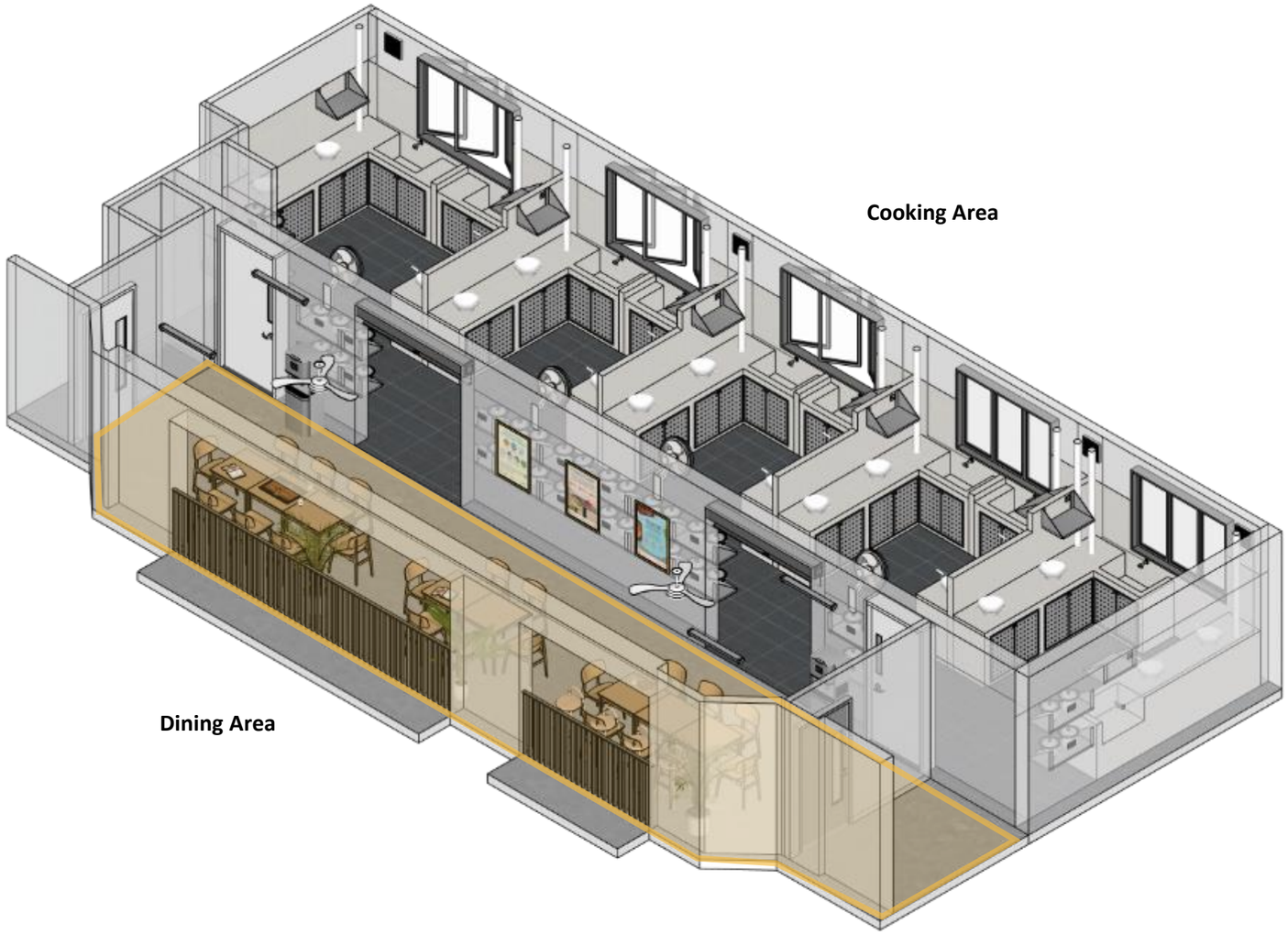


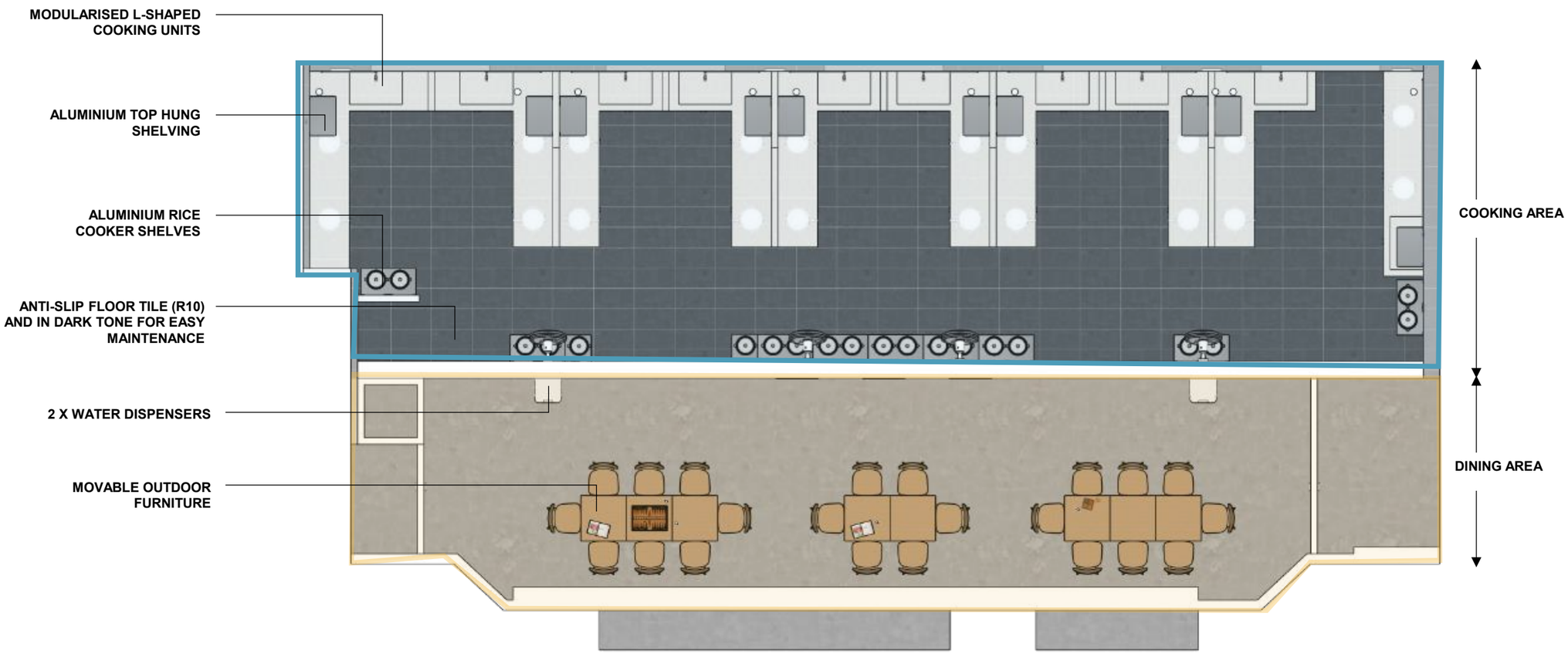


AXONOMETRIC DIAGRAM OF A TYPICAL COMMUNAL KITCHEN

Dining Area

- Area overlooks courtyard space below to create sense of openness
- Weather-proof dining furniture that are movable and convertible for social recreational purposes
- 1 water dispenser each dining area
- Lights are activated by occupancy sensors
- Naturally ventilation with ceiling fan for improved air circulation.

Communal Kitchen

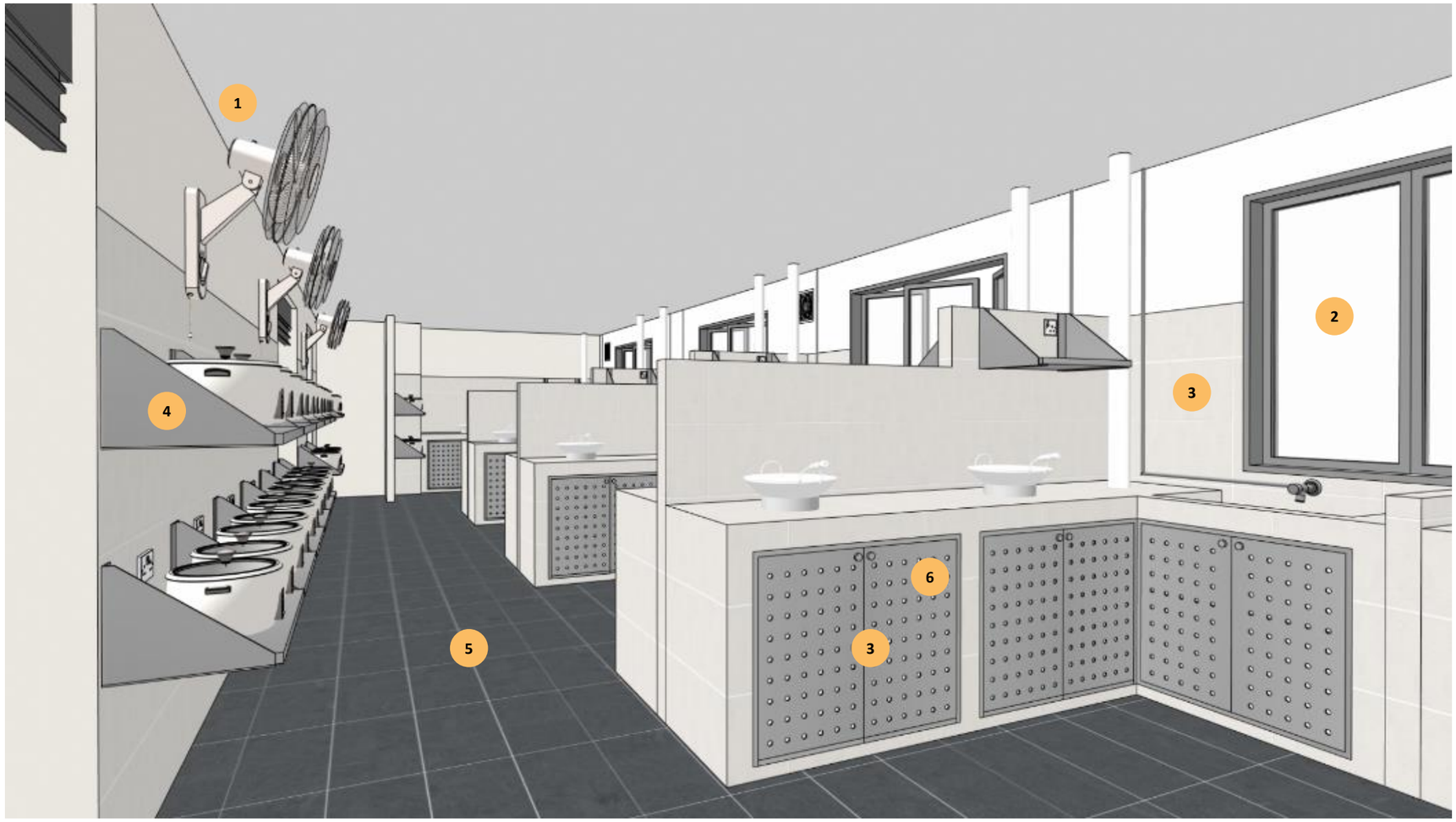


TYPICAL FLOOR PLAN OF THE COMMUNAL KITCHEN

Communal Kitchen

Cooking Area

1. Provision of wall fans improves air circulation for thermal comfort during cooking and facilitates cooling of the kitchen area after cooking.
2. Windows are provided in each cooking station for natural ventilation and lighting.
3. Walls are half-tiled for ease of maintenance.
4. Dark and rough tile for anti-slip & easy maintenance.
5. Rice cooker shelving and cabinetry door are designed in metal to facilitate for jet washing.
6. Provision of power points inside the cabinet for mini fridge.



ARTIST IMPRESSION OF THE COOKING AREA

Communal Kitchen

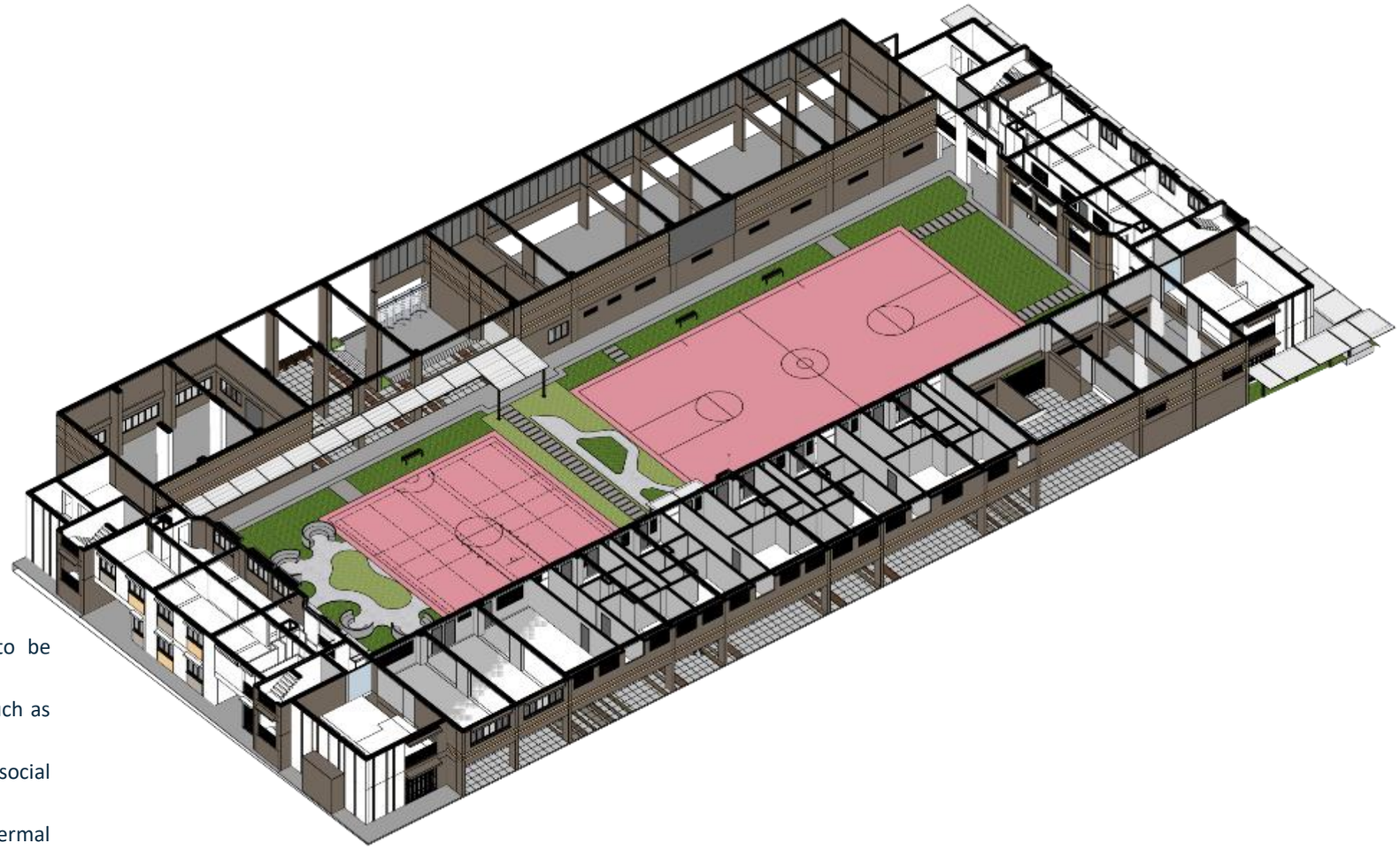
Dining Area

1. Lights are activated by occupancy sensors
2. Area overlooks courtyard space below to create sense of openness
3. Movable outdoor furniture that can be use flexibility for social activities
4. Provision of 1 water dispenser at each dining area ensures there is adequate water point during peak dining hours.

ARTIST IMPRESSION OF THE DINING AREA

Centralised Courtyard

The Centralised Courtyard plays dual role as a recreational green space for residents, and as an airwell for cross-ventilation of dorm units on upper floors. It acts as a focal point welcoming residents back home, and point of connection between various indoor recreational spaces. During pandemic or crisis, this flexible space can be served as swing spaces for operational flexibility.

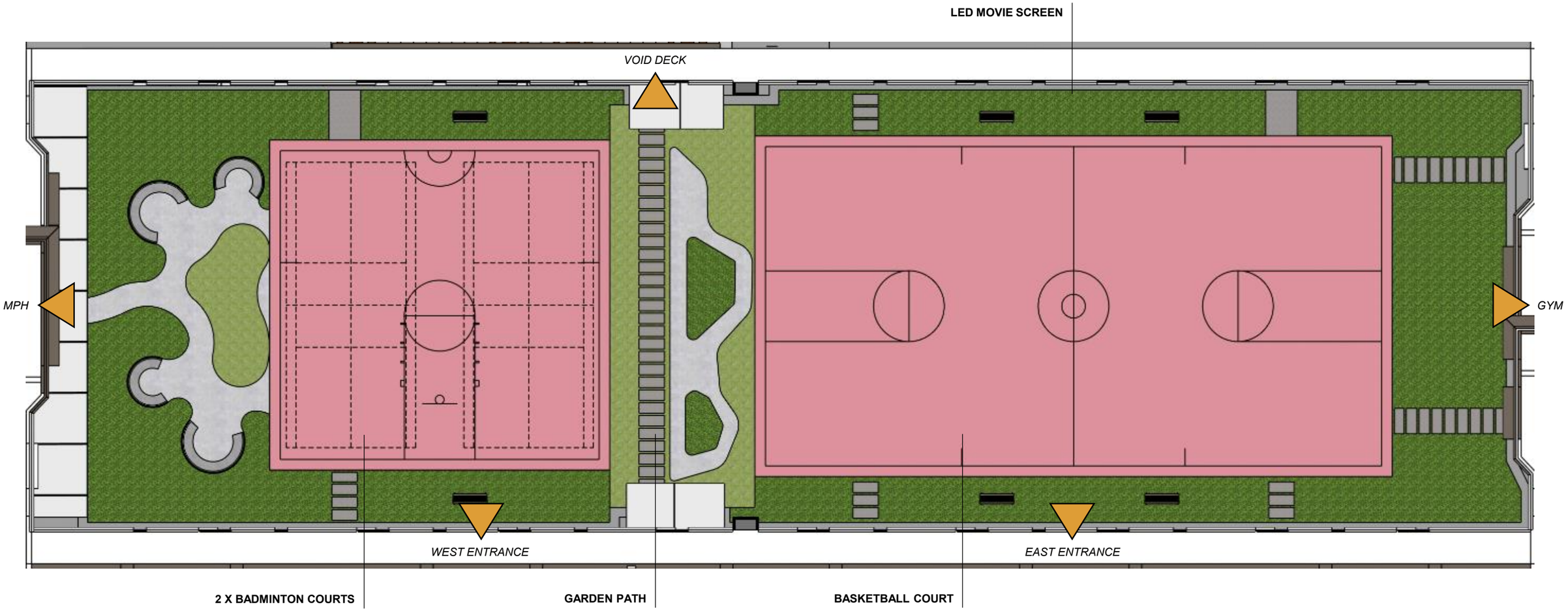


AXONOMETRIC DIAGRAM OF THE CENTRALISED COURTYARD

Key Features

- Flexible marking of courts allows the 2 sets of badminton courts to be converted to a half basketball court if required.
- Design of the courtyard is flexible to allow for a variety of activities, such as movie screening for weekend movie nights
- Main basketball court is suited next to the residents' gym, to promote social interactions.
- Centralised courtyard is surrounded by greenery to increase the thermal comfort and sense of openness.

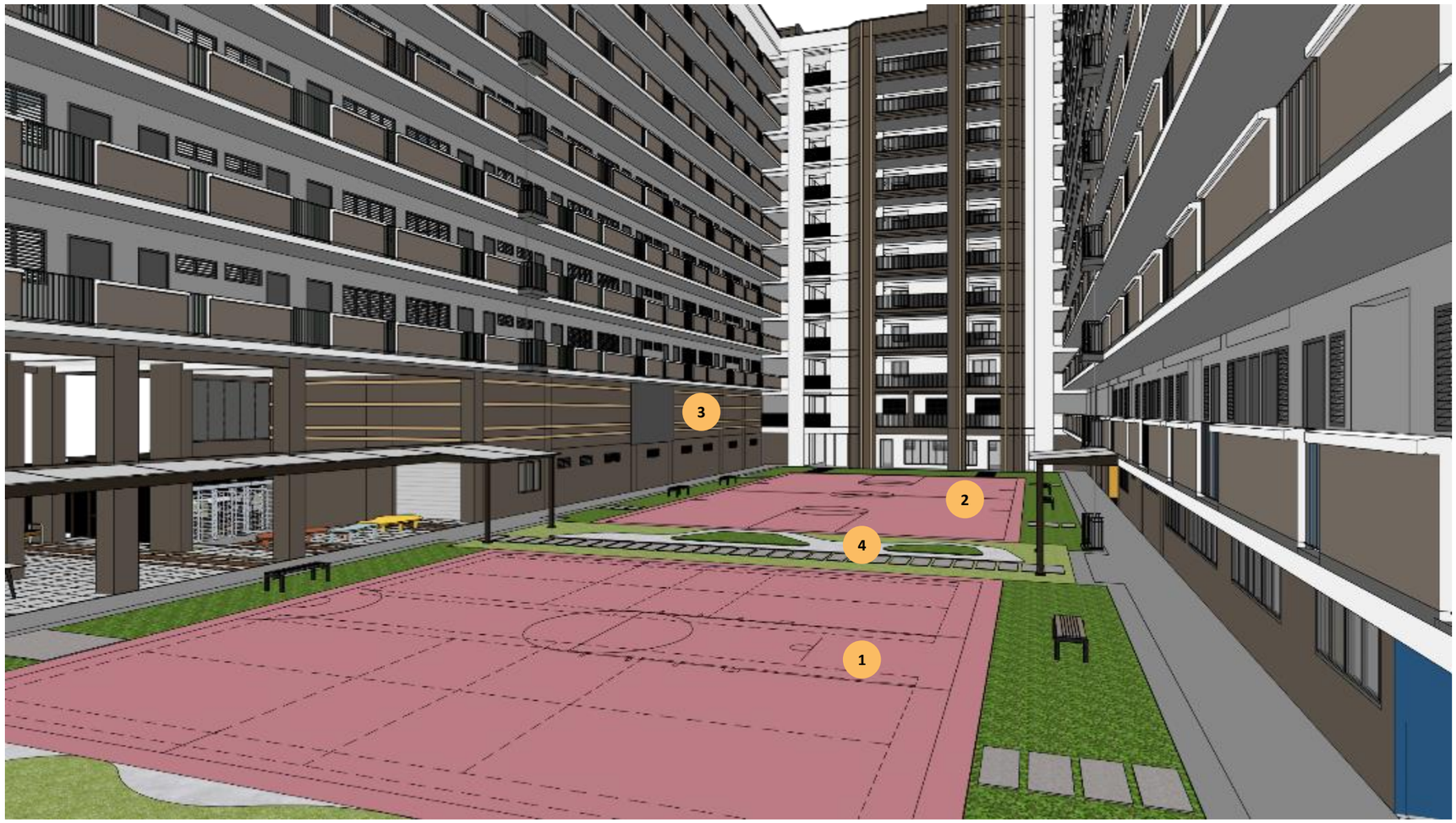
Centralised Courtyard



FLOOR PLAN OF THE CENTRALISED COURTYARD

Centralised Courtyard

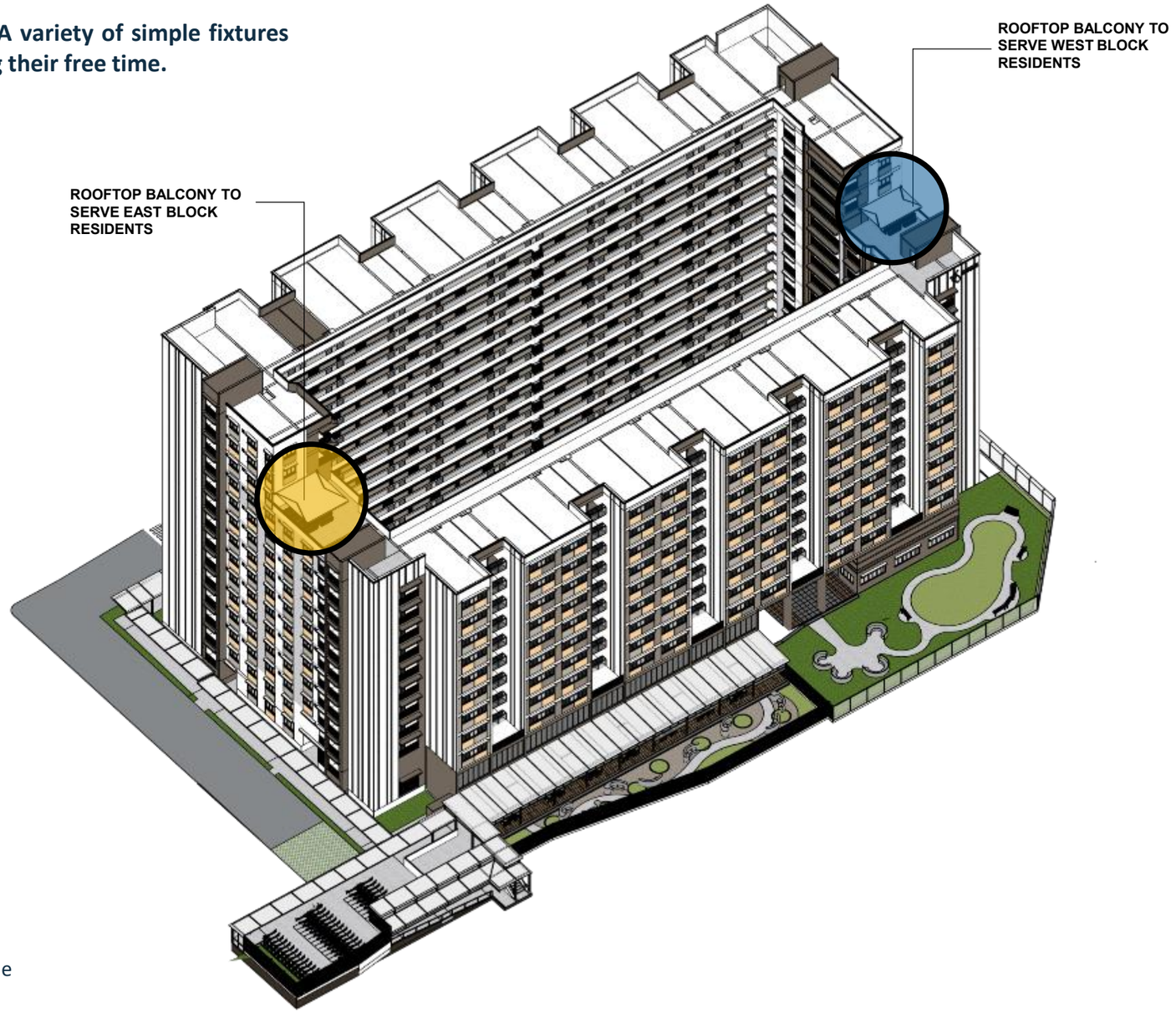
1. These recreational spaces positioned within the courtyard, with integrated seating provided around the courts support passive engagement and visual connectivity.
2. Enhances opportunities for social interaction and community bonding, as residents can easily gather as spectators or informal participants.
3. Proximity and visibility of activities encourage spontaneous involvement, strengthening overall social integration within the shared environment.
4. Flexible marking of courts allows the 2 sets of badminton courts to be converted to a half basketball court if required.
5. Main basketball court is suited next to the residents' gym, to promote social interactions.
6. Provision of LED panel screen for flexible uses (e.g movie session / news/ announcements)
7. Garden path with greenery to connect north and south blocks



ARTIST IMPRESSION OF THE CENTRALISED COURTYARD

Communal Garden

The Rooftop is a flexible space repurposed as a social gathering space. A variety of simple fixtures are installed to allow residents to gather for informal BBQ sessions during their free time.



AXONOMETRIC DIAGRAM OF THE DORMITORY BLOCK SHOWING THE LOCATIONS OF ROOF TOP SPACES

Key Features

- Provide motorised awning for sun protection purpose
- Loose table and bench - flexible space (to be able to relayout)
- Provision of weatherproof power socket
- Utilise this space for gardening activities e.g. edible garden to promote farm to table concept and enhance residents' mental well-being

Communal Garden

1. Motorised awning that can be extended when required to provide shade or rain protection.
2. Communal table setting that encourages interaction built with durable and easy to maintain materials.
3. Light-colour paint reduces heat retention in the day, to ensure space is cool to use in the evening.

ARTIST IMPRESSION OF THE COMMUNAL GARDEN AREA

Communal Facilities

Design Considerations

Design for Liveability

Use of Colours

- **Use of accent wall colours add vibrancy to the spatial quality.**
- **Furniture in complementing colour palette also adds liveliness to the common spaces.**

Variety of furniture and fixtures

- **Use different furniture types (e.g sofa, bean bags) apart from standard tables and chairs add interest to the spaces and create the feeling of homeliness.**
- **Provision of communal table settings in common areas encourages interaction.**

Connection to Greenery

- **Where possible, spaces designed to open to nature increases the feeling of spatial openness and create a more pleasant and relaxing environment for the residents.**

Messaging

- **Rather than blank walls, wall spaces can accommodate messaging on mental welling, community living or other relevant content.**

Design for Resilience

Air Flow

- **Openable windows:** Openable windows allow for natural ventilation to reduce the spread infectious diseases. Windows can be fitted with performance louvers where necessary to mitigate incoming rain water.
- **High ceiling with ceiling fans:** Provision of high ceiling height where possible, together with ceiling mounted fans, improves air circulation within the space.
- **Wall fans:** Even in naturally ventilated spaces, the provisions of wall fans is good to have to provide extra air flow..

Use of Materials

- **Anti-slip floor tile (R10) in dark tone, as well as fully-tiled cooking countertop & backsplash (till 1800mm) allow for easy maintenance and cleaning**

Choice of Furniture

- **Stackable / foldable furniture that can be easily stored or moved away allows spaces to be convertible, isolated and cleaned in the event of a pandemic.**

Design for Sustainability

Energy Efficiency

- **Smart Sensors:** Lighting that are activated by sensors reduces energy consumption when spaces are not in used.

Dormitory Rooms

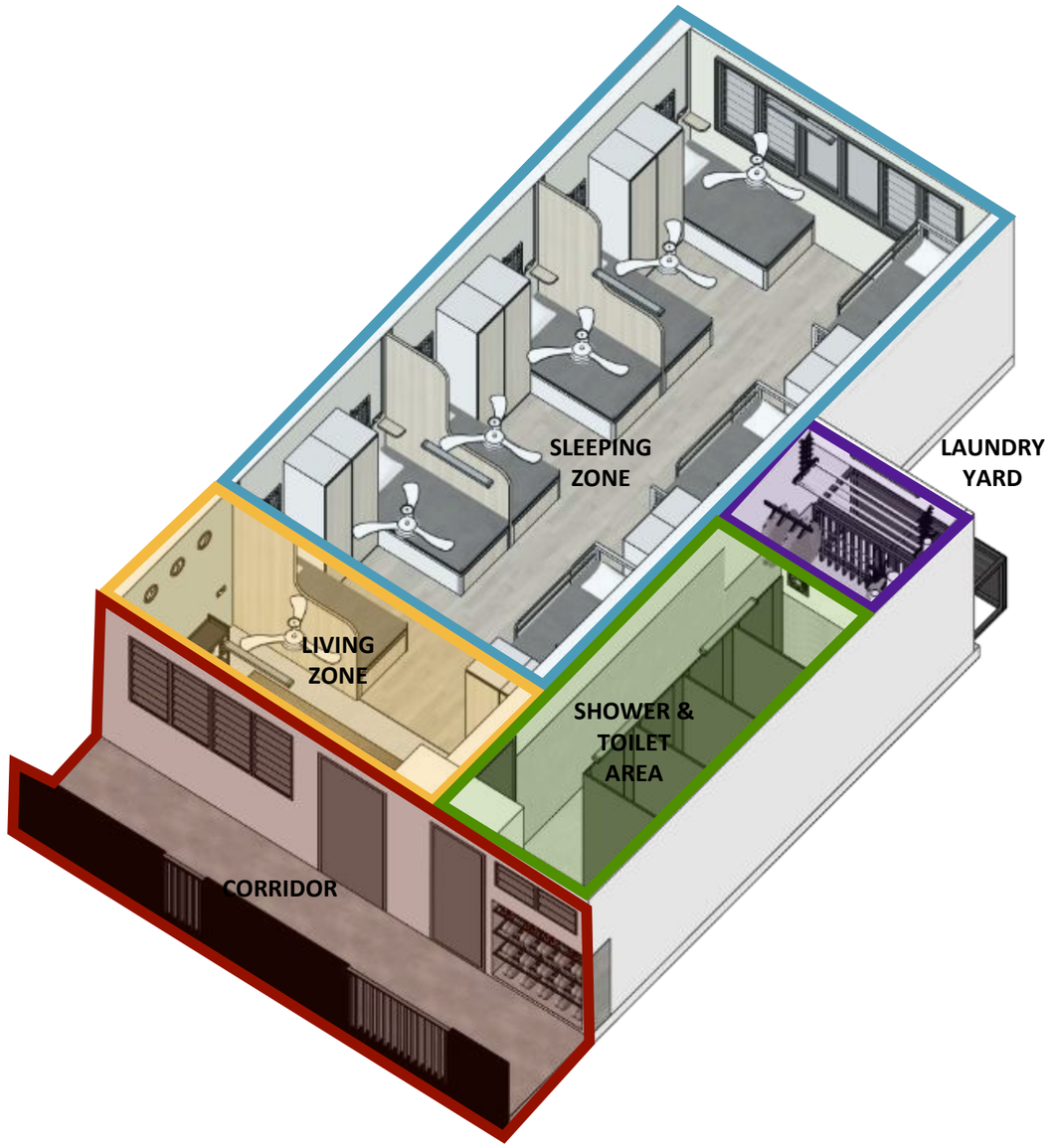
In-room Social Space
Sleeping Zone
Airflow & Thermal Comfort

Laundry Yard
Shower & Toilet Area
Corridor

The new room design seeks to bring a sense of home to every resident. The separate living and sleeping zones help to encourage social interaction while maintaining privacy. The design adopts feedback from residents in terms of comfort, storage and personalisation. The single and loft bed configurations reflect their preference for autonomy and the dignity of choice.

Mr Tiah Nan Chyuan,
Director
FARM

Dormitory Rooms

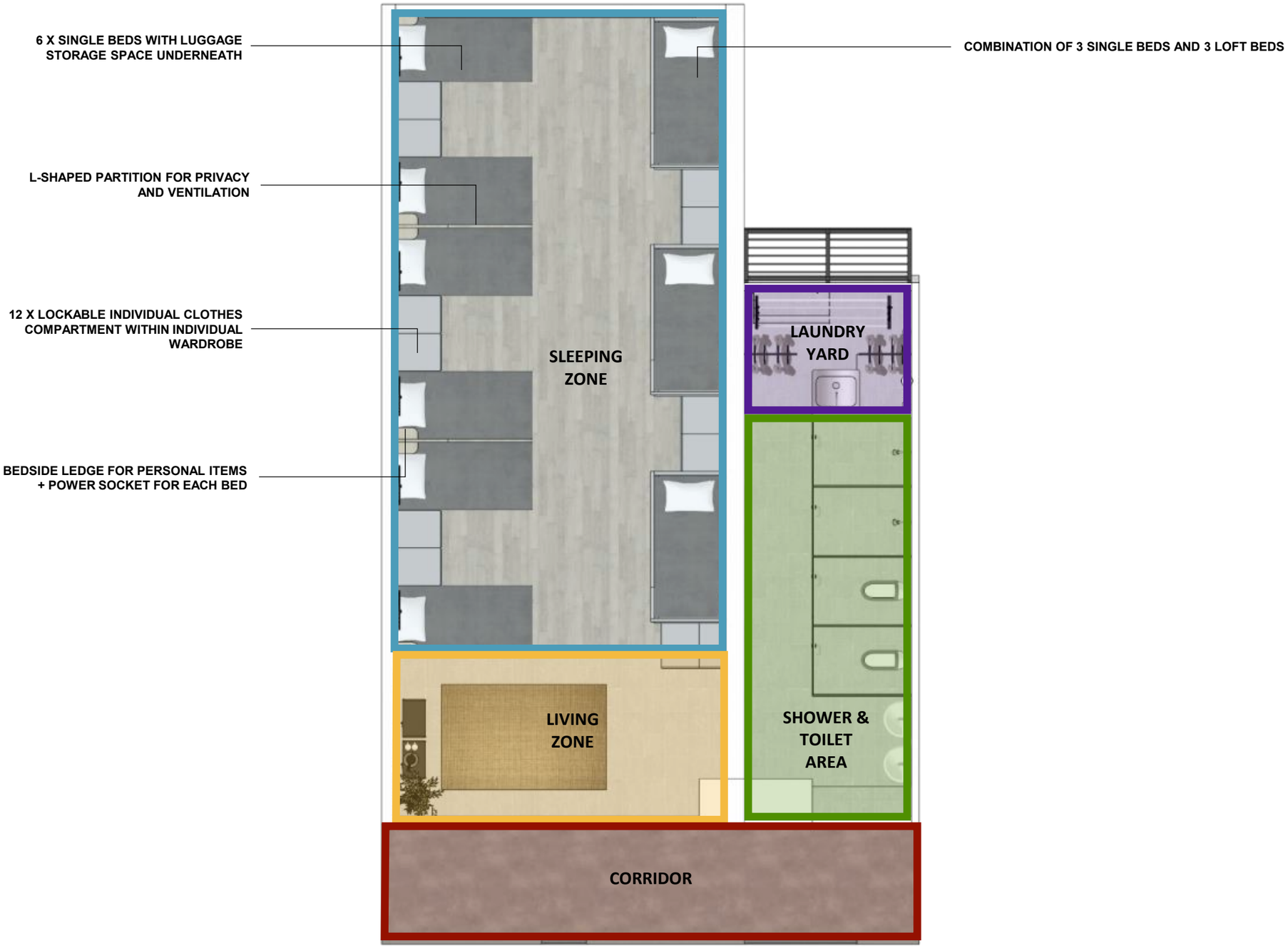


AXONOMETRIC DIAGRAM OF A TYPICAL DORMITORY ROOM

The design of the typical dormitory room was conceived with these 4 key touchpoints to enhance the liveability and quality of space for its residents:

1. Separate areas for living and sleeping
2. Maximise the number of single beds
3. Improved Air Circulation
4. Home-like environment with natural-look materials and warm lighting

Dormitory Rooms



PLAN VIEW OF A TYPICAL DORMITORY ROOM

In-room Social Space

The in-room social space is a dedicated social space which allows residents to have a distinct area for activities away from their sleeping quarters. Residents may use it for socialising, relaxing, and other activities in their free time.

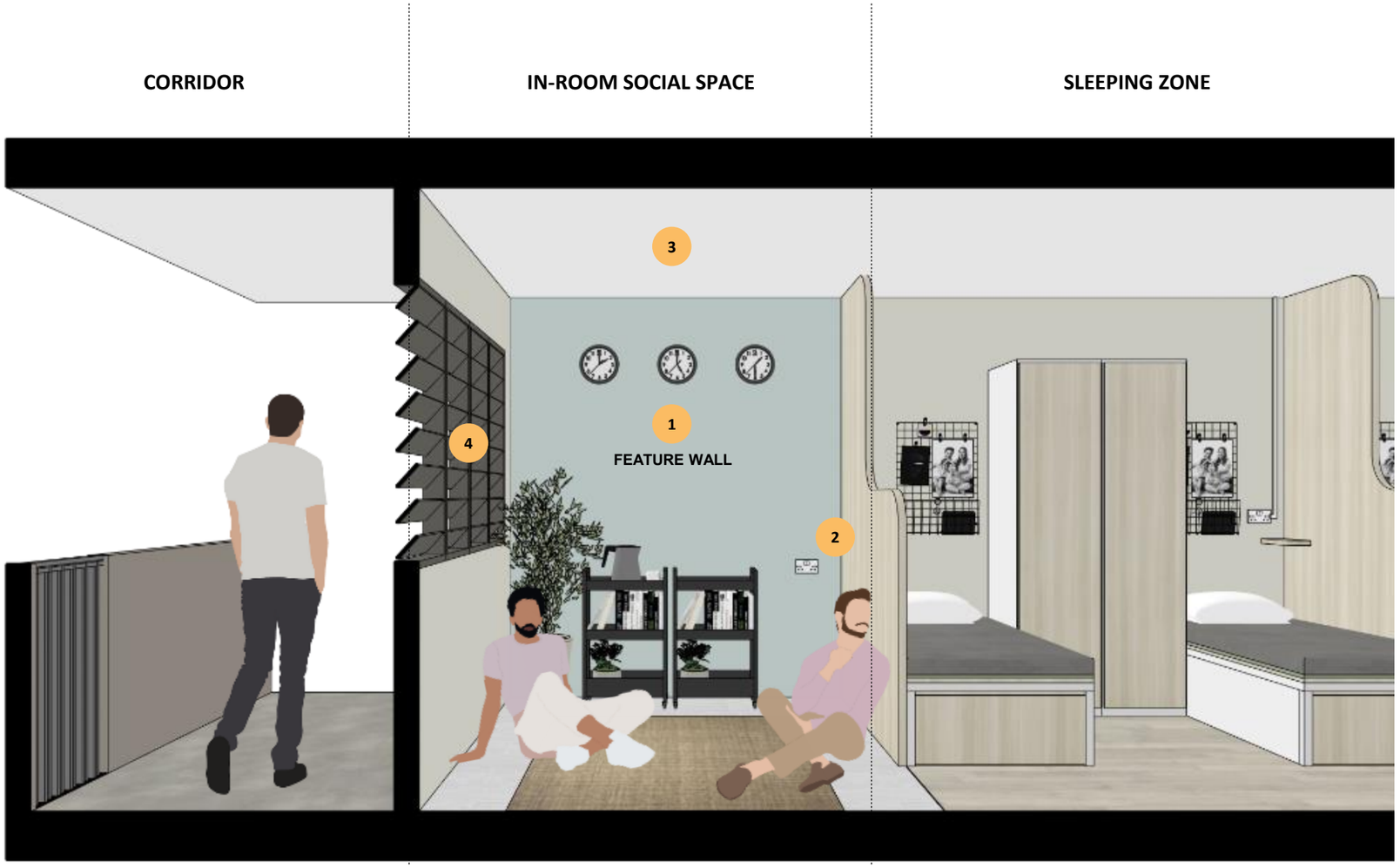
AXONOMETRIC DIAGRAM OF THE IN-ROOM SOCIAL SPACE IN A TYPICAL DORMITORY ROOM

Key Features

- Colour of feature wall paint for the in-room social space was selected in consultation with migrant workers.
- Residents have the flexibility to personalise this space with items such as mobile trolleys, wall photos or wall clocks to make the space feel more home-like.
- Provision of power socket.
- The in-room social area comes with its own set of lights and fans that is separately controlled from the rest of the room.

In-room Social Space

1. Feature wall that can be personalised with accent colour, clocks or other decorative items.
2. Provision of power socket.
3. Provision of a separate electrical circuit for control of lights and fans for the in-room social space and the sleeping zone, so that each area can be individually turn on/off.
4. Provision of louvred windows allows for natural ventilation while providing privacy into the living space.



SECTION VIEW OF A TYPICAL DORMITORY ROOM

Design Implementations at Progressive Dormitories

Dedicated space for social interaction and prayers

IN ROOM SOCIAL SPACE @ NESST TUKANG

IN ROOM SOCIAL SPACE @ TS GROUP DEFU FCD

Design Implementations at Progressive Dormitories

Dedicated space for social interaction and prayers

IN ROOM SOCIAL SPACE @ COASTAL DORM

IN ROOM SOCIAL SPACE AND STORAGE AREA @ WESTLITE TOH GUAN

Sleeping Zone

The Communal Living Room is a new social space which allows residents to have a distinct area for activities away from their sleeping quarters. Residents may use it for socialising, relaxing, small group prayers and other activities in their free time.

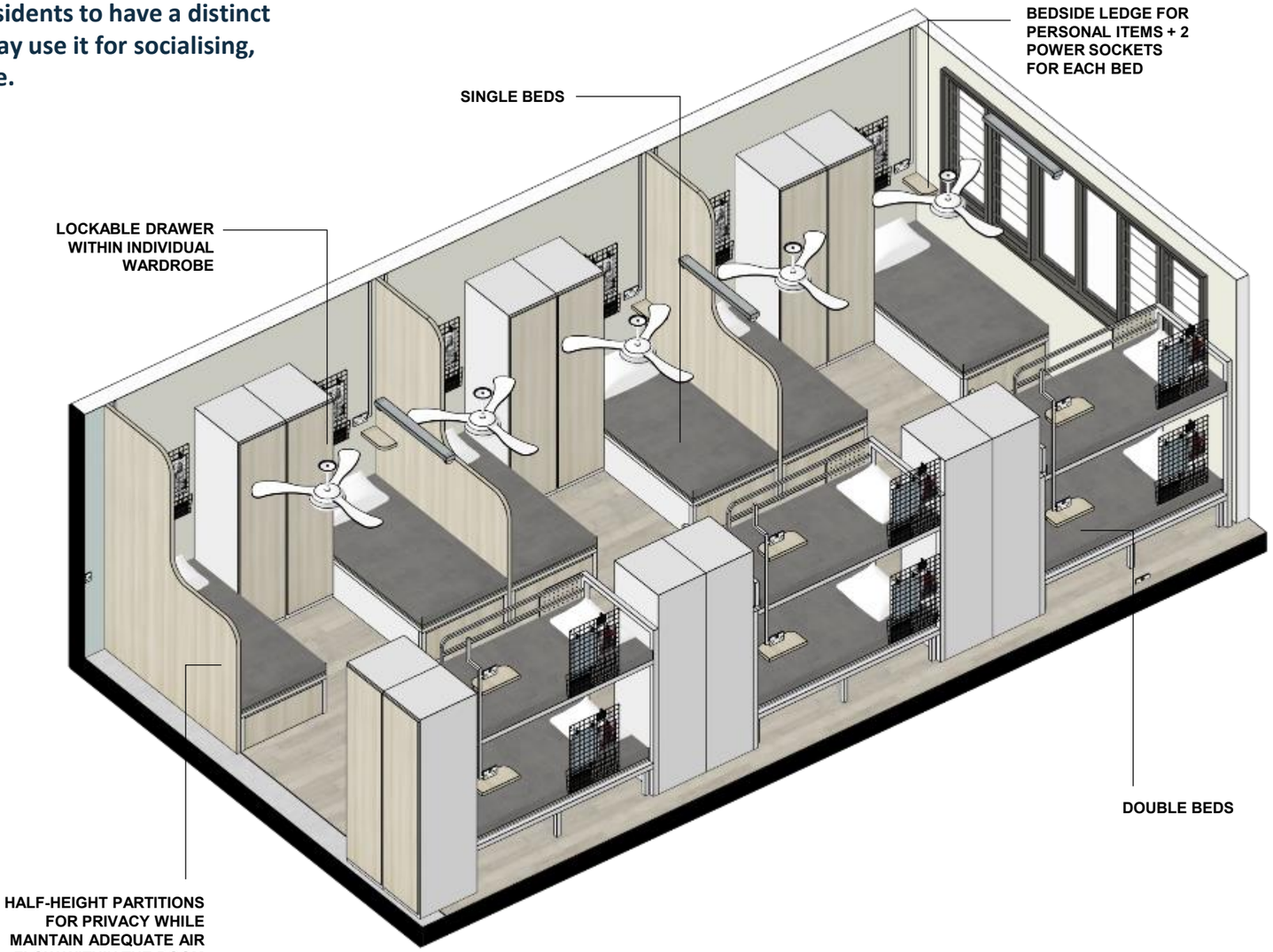
Key Features

Personal Storage Considerations

- Bedside ledge for keeping personal items close by
- 2 power points for each resident near to their bed
- Lockable drawer to safe keep valuables within individual wardrobe
- Under bed drawer storage
- Wall space where residents are encouraged to put up decorative items such as personal photos

Privacy & Comfort Considerations

- Neutral and calming colour scheme with warm tone material
- Half-height partitions for privacy (min. 800mm from mattress), while maintain adequate air flow within the room.
- 2 bed configurations - single beds and loft beds
- Lightweight and sturdy aluminum independent bed frame to minimise disturbance to the lower deck
- Adequate ceiling fan to improve air circulation, whilst maintaining adequate distance from bunk beds for safety
- Privacy partitions with ventilation openings provided below loft beds for increased privacy



AXONOMETRIC DIAGRAM OF THE SLEEPING ZONE IN A TYPICAL DORMITORY ROOM

Sleeping Zone

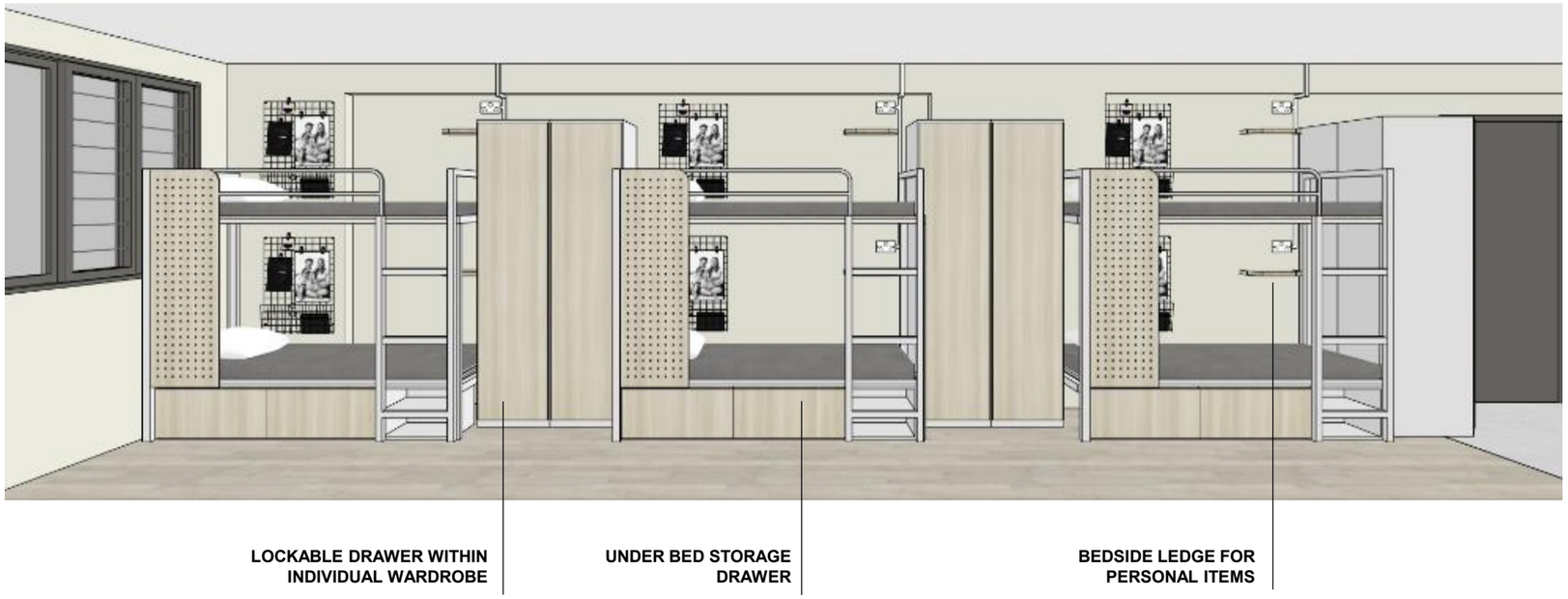
Residents feedback that they prefer single beds, as these are subjected to less disturbances from the movement of roommates.

To accommodate 12 residents per dormitory, NESST Tukang Dormitory developed:

- 2 different bed configurations to maximise the number of lower beds within the limited room space
- Loft bed concept where the upper bed and lower bed are constructed with separate frames, to reduce disturbance when residents climb up/down from the upper bunk.
- Beds not separated by screen are 1m apart
- A 1m walkway is also provided between the 2 bed configurations.

SINGLE BED CONFIGURATION

DOUBLE BED CONFIGURATION



Sleeping Zone

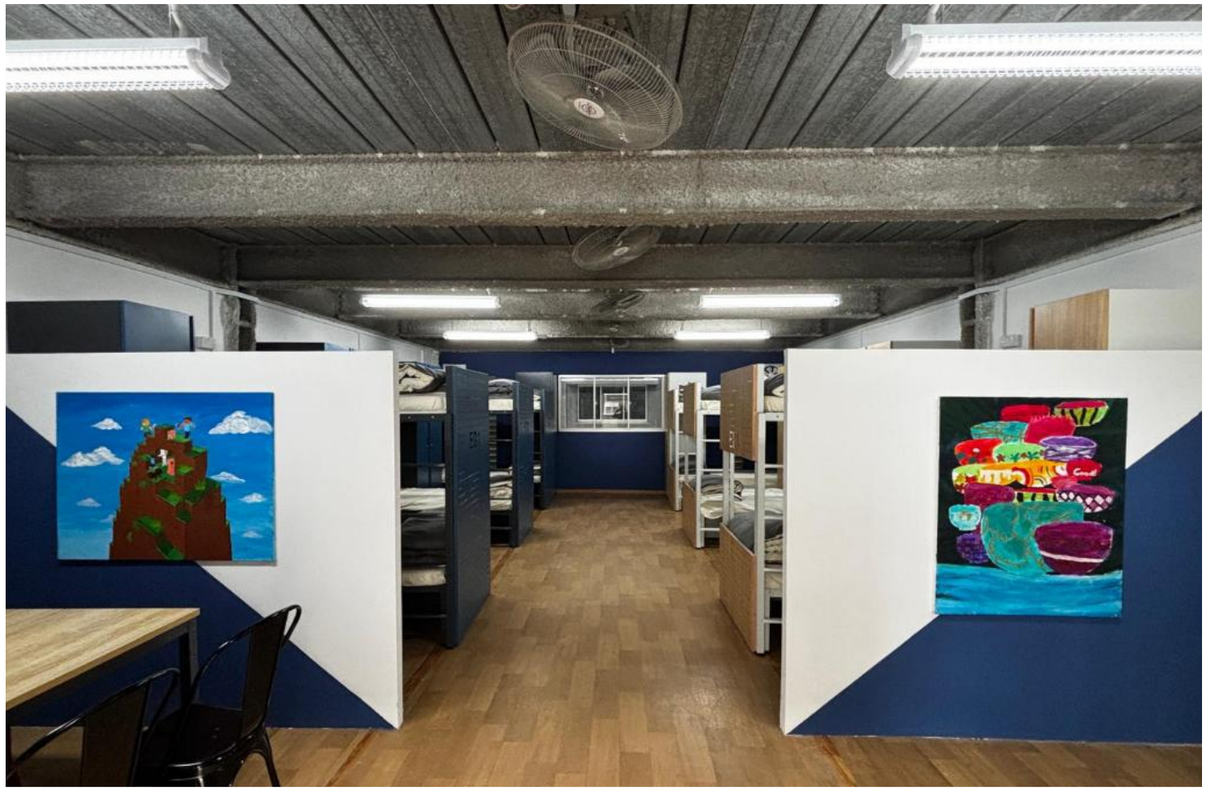
1. Consideration for neutral and calming colour scheme with warm tone material to appeal to the majority of residents.
2. Provision of half-height partitions for privacy (min. 800mm from mattress), while maintain adequate air flow within the room.
3. Loft bed concept where the upper bed and lower bed are constructed with separate frames, reduces disturbance when residents climb up/down from the upper bunk.
4. Provision of adequate ceiling fan to improve air circulation, whilst maintaining adequate distance from bunk beds for safety
5. Provision lockable drawer compartment within individual wardrobe allows residents to store personal items.
6. Provision of under bed drawer storage
7. Provision of window grille next to bed for safety.

ARTIST IMPRESSION OF THE SLEEPING ZONE IN A TYPICAL DORMITORY ROOM

Design Implementations at Progressive Dormitories

Larger window openings and provision for more fans to enhance ventilation

DORM ROOM @ NESST TUKANG



DORM ROOM @ COASTAL DORM

Design Implementations at Progressive Dormitories

Larger window openings and provision for more fans to enhance ventilation

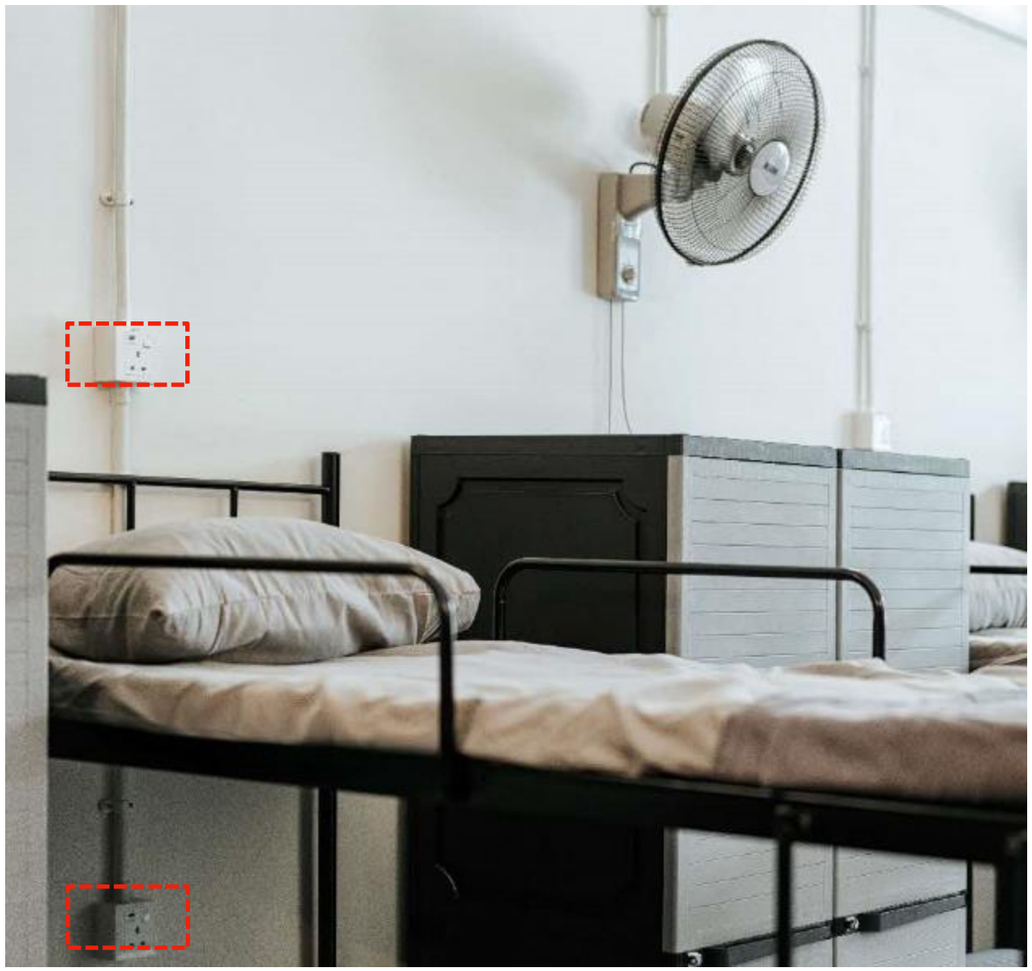
DORM ROOM @ WESTLITE UBI

DORM ROOM @ PIONEER LODGE

Design Implementations at Progressive Dormitories

Power socket for each resident, reducing fire and trip hazards

DORM ROOM @ NESST TUKANG



DORM ROOM @ WESTLITE UBI

Design Implementations at Progressive Dormitories

Power socket for each resident, reducing fire and trip hazards

DORM ROOM @ COASTAL DORM

DORM ROOM @ PIONEER LODGE

DORM ROOM @ PPT1A

Design Implementations at Progressive Dormitories

Lockable drawer for safekeeping of valuables and additional storage for each resident

LOCKABLE DRAWER @ NESST TUKANG

ADDITIONAL STORAGE @ NESST TUKANG

ADDITIONAL STORAGE @ NESST TUKANG

Design Implementations at Progressive Dormitories

Lockable drawer for safekeeping of valuables and additional storage for each resident

LOCKABLE DRAWER @ PPT1A

ADDITIONAL STORAGE @ PPT1A

ADDITIONAL STORAGE @ PPT1A

Design Implementations at Progressive Dormitories

Loft bed concept for better comfort and screen for privacy

LOFT BED WITH PRIVACY SCREEN @ NESST DORM

LOFT BED @ TS GROUP DEFU FCD

Design Implementations at Progressive Dormitories

Loft bed concept for better comfort and screen for privacy

LOFT BED WITH PRIVACY SCREEN @ COASTAL DORM

LOFT BED WITH PRVACY SCREEN @ WESTLITE TOH GUAN

In close collaboration with MOM, NESST, S&TPPO and partners, we are reimagining dormitories of the future through science-based, simulation-led innovation - where comfort, sustainability, and pandemic preparedness converge to create resilient and human-centred living environments for tomorrow's workforce and communities.

Dr Kang Chang Wei

Division Director

*A*STAR Institute of High Performance Computing*

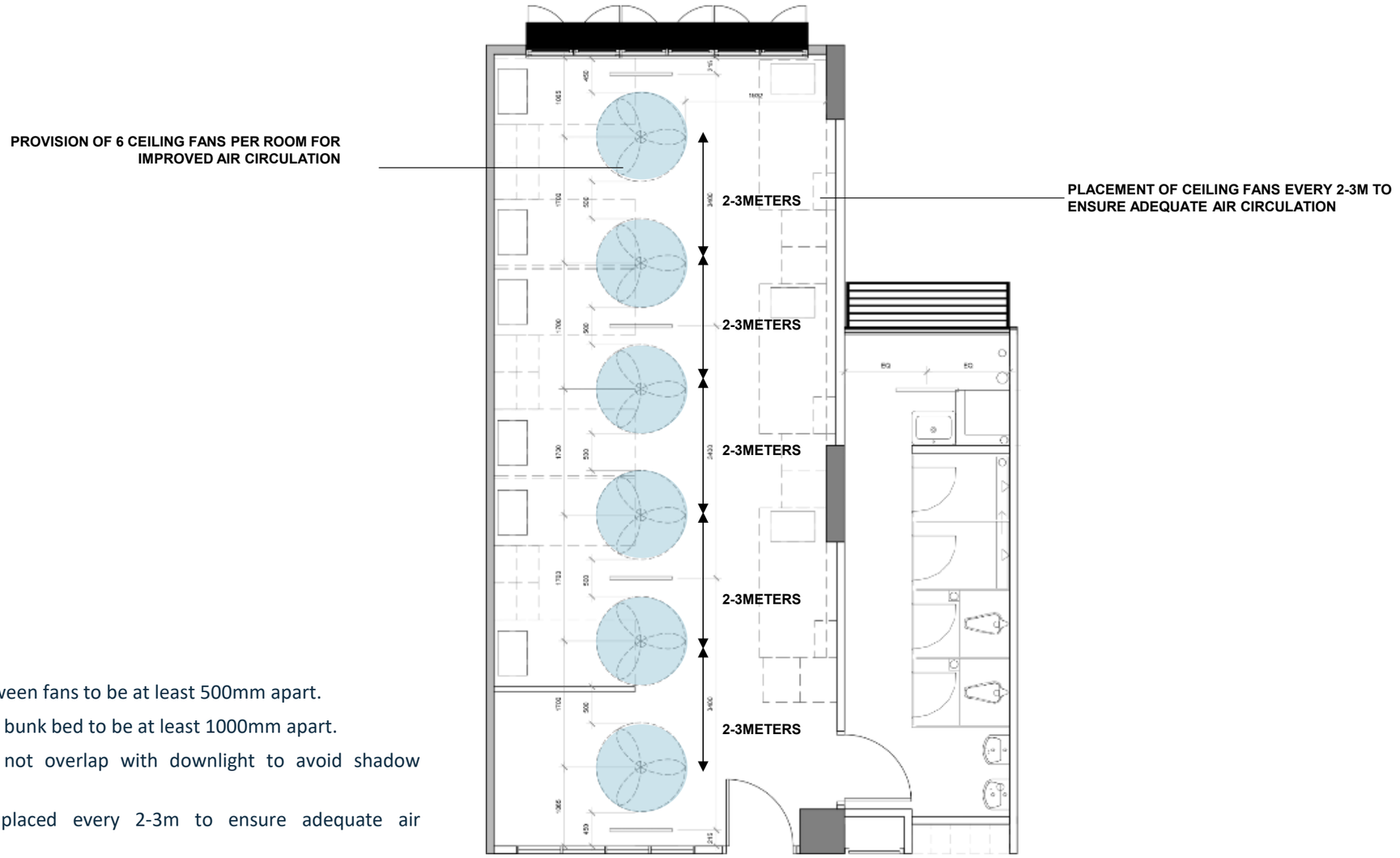
Airflow & Thermal Comfort

SECTION VIEW OF A TYPICAL DORMITORY ROOM

Key Features

- Provision of 6 ceiling fans per room for improved air circulation
- Ceiling fan is preferred which produce stronger air flow + easier for maintenance
- North-south facing orientation for optimal natural light and airflow
- Enhanced natural ventilation for a healthier living environment

Airflow & Thermal Comfort



PLAN VIEW OF A TYPICAL DORMITORY ROOM

- Blade to blade between fans to be at least 500mm apart.
- Ceiling fan blade to bunk bed to be at least 1000mm apart.
- Fan blade should not overlap with downlight to avoid shadow strobing effect
- Ceiling fans are placed every 2-3m to ensure adequate air circulation

Airflow & Thermal Comfort

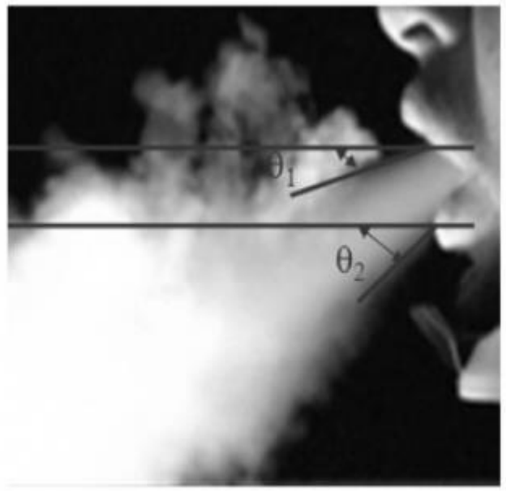
Computational fluid dynamics (CFD) methodology has been adopted to assist in the design of the dormitory, to effectively and efficiently used to assess, improve and optimize the design for the sake of minimising the viral spread transmission risks without compromising thermal comfort conditions.

CFD Methodology adopted

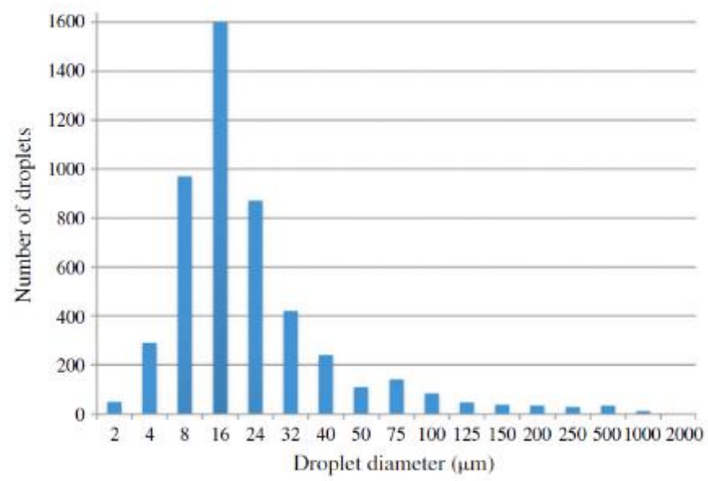
- Viral emission source: Coughing process as worse-case scenario
- Tiered risk levels for transmission risk assessment : Jointly developed between NCID and ASTAR
- CFD-based simulations and analyses : By quantifying viral load falling on human subjects in various scenarios based on CFD simulation results
- Thermal comfort assessment: Based on predict mean vote formula recommended by BCA Green Mark for residential buildings

Parametric Studies in Optimisation Design

- Bedroom layouts
- Fans, in terms of location, numbers, induced flowrate and type (ceiling fans and axial fans)
- Partition height (1.0m, 1.24m, 1.33m)
- Status of main door (open or closed)
- Cougher's position (varied) & posture (lying and sitting)



COUGH ANGLE EFFECT[1].



DROPLET SIZE DISTRIBUTION THROUGH COUGHING PROCESS [2].

Infectivity based on viral load (copies) falling on subjects	Tiered Risk
< 58	LOW
58 - 840	MEDIUM
> 840	HIGH

3-TIER RISK LEVELS[3].

[1] GUPTA J., LIN C.-H AND CHEN Q., 2009, INDOOR AIR, 19, 517-525.
[2] LIN Y., LI X., YAN Y. AND TU J., 2018, THE JOURNAL OF COMPUTATIONAL MULTIPHASE FLOWS, 10(2), 72-82.
[3] OOI CC ET. AL. PHYSICS OF FLUIDS 2021; 33 (8): 087118. HTTPS://DOI.ORG/10.1063/5.0055547.

Airflow & Thermal Comfort

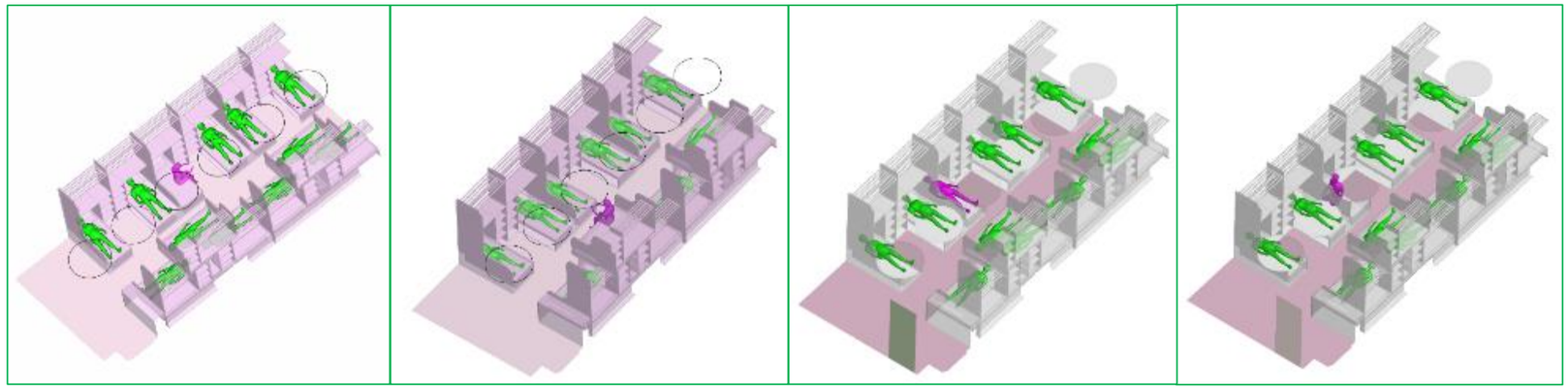
Outcome out of CFD-based Studies

- 25 CFD models created and simulated
- One optimised designs corresponding to all low risk levels of occupants are produced.

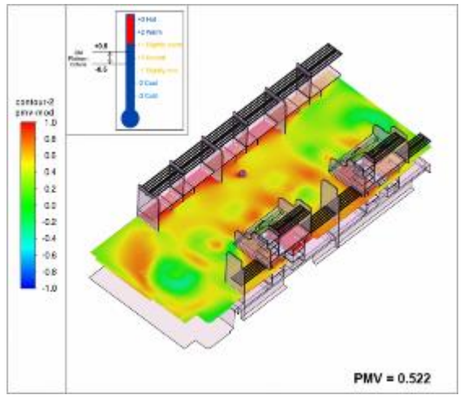
Take-away from the Studies

- The proposed CFD methodology is proven to be powerful & useful for performance-based design.
- Risk conditions and thermal comforts are sensitive to design parameters, including the layout of the dorm, types, location and operational conditions of fans, and locations of occupants.
- Low risk does not mean no risk. It is advised to upkeep personal hygiene.

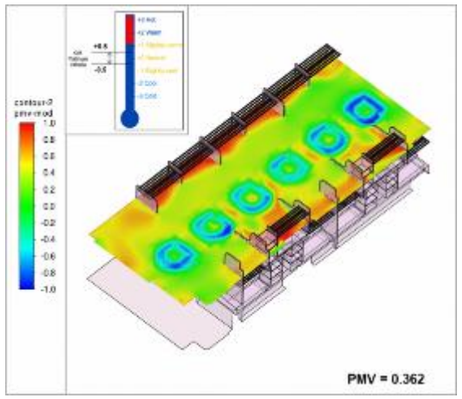
ALL LOW RISK CONDITIONS FOR OCCUPANTS WHEN COUGHER (IN PINK) AT DIFFERENT LOCATIONS.



THERMAL COMFORT CONDITIONS AT DIFFERENT HEIGHT LEVELS.



(A) 1.2M (SLIGHT ABOVE LOWER-LEVEL BED)



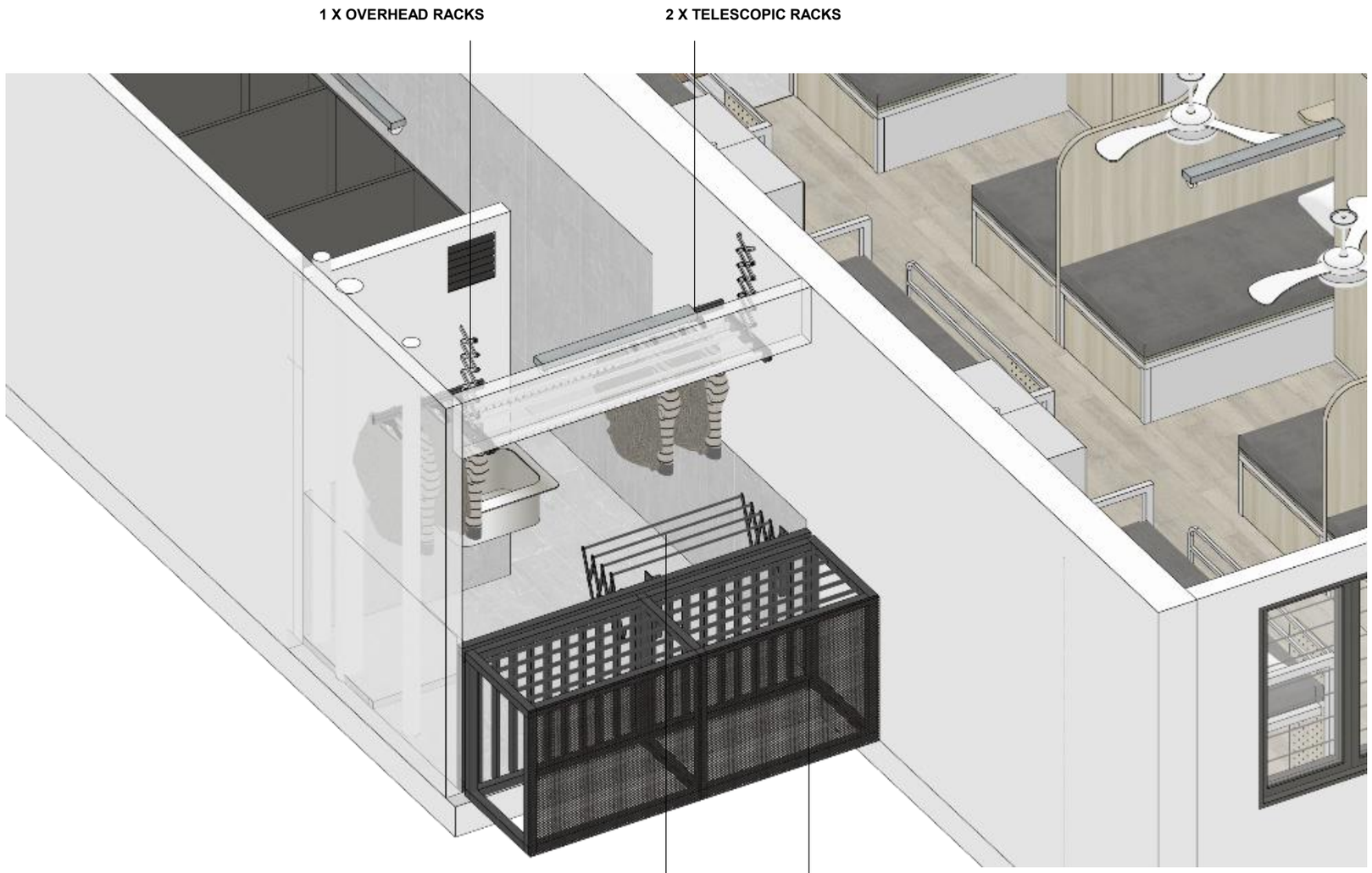
(B) 2.1M (SLIGHTLY ABOVE UPPER-LEVEL BED)

Laundry Yard

The Laundry Yard is a designated area for residents to hang their laundry out to dry. The quantity of racks and drying space is maximised to ensure adequate space for each resident to hang their laundry, ensuring that residents do not need to dry them inside the rooms or along the corridor.

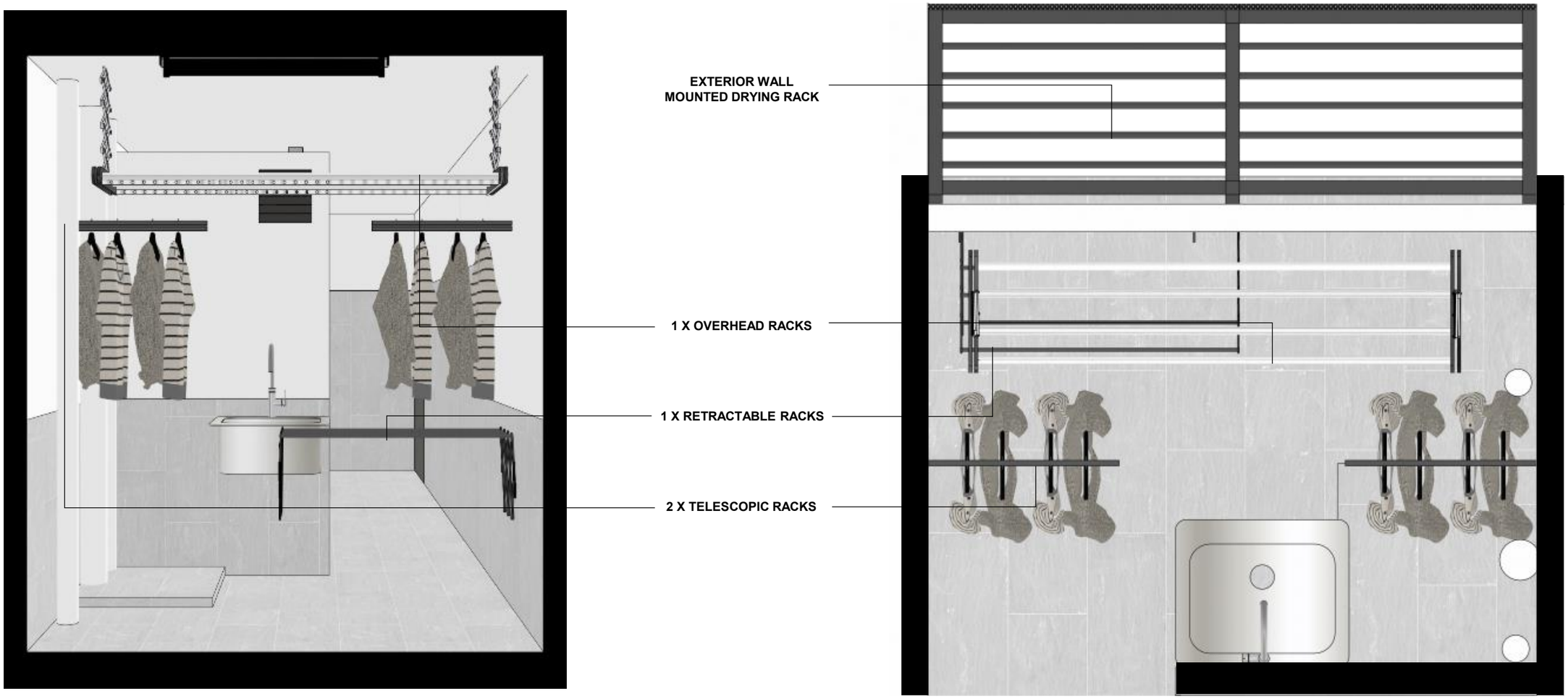
Key Features

- There are 3 modes of laundry options:
  i. communal laundry service
  ii. self wash or washing machine if requested by employers
  iii. coin operated washing machines
- Provision of a variety of racks allows for maximisation of spaces for drying wet laundry and allows residents to dry differently-sized items efficiently (clothes, shoes, caps etc):
  i. Overhead racks mounted on ceiling
  ii. Retractable racks mounted on wall
  iii. Telescopic racks mounted on ledge
  iv. Exterior wall mounted drying rack with wire mesh
- Floor drain outlet to drain off water from wet laundry
- Laundry sink
- Natural ventilation
- Power point provision for future washer
- Perforations of laundry rack screens were optimised to allow ventilation whilst also acting also as effective privacy screens



AXONOMETRIC DIAGRAM OF A TYPICAL LAUNDRY YARD

Laundry Yard



SECTION VIEW OF A TYPICAL LAUNDRY YARD

PLAN VIEW OF A TYPICAL LAUNDRY YARD

Laundry Yard

1. Natural ventilation allows for better air flow and drying of wet laundry.

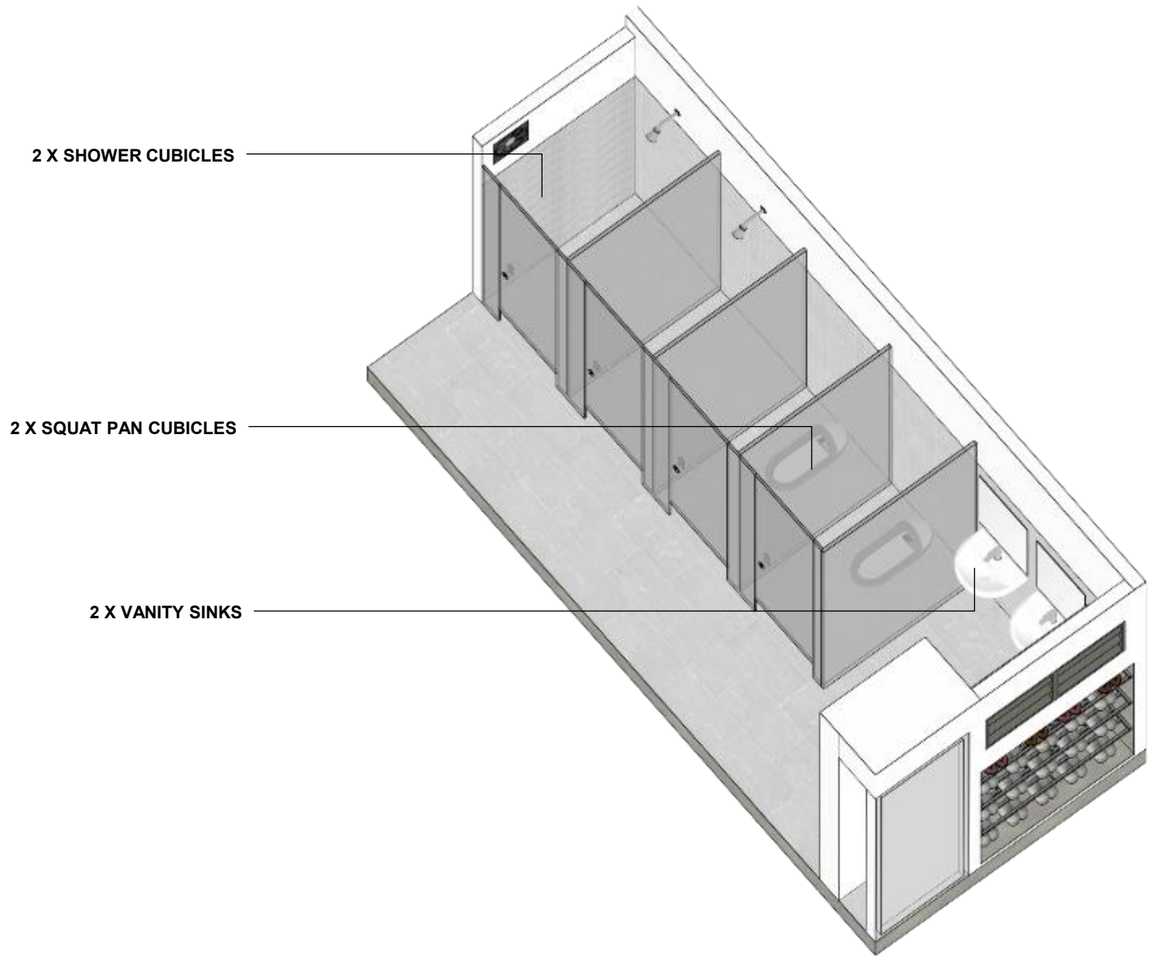
   Provision of a variety of racks allows for maximisation of spaces for drying wet laundry and allows residents to dry differently-sized items efficiently (clothes, shoes, caps etc):

2. Overhead racks mounted on ceiling
3. Retractable racks mounted on wall
4. Telescopic racks mounted on ledge
5. Exterior wall mounted drying rack with wire mesh, to visually screen externalised laundry from public view for a more pleasant outlook for the community
6. Laundry sink for cleaning

ARTIST IMPRESSION A TYPICAL LAUNDRY YARD

Shower & Toilet Area

The en-suite shower and toilet area provides convenience and privacy for residents to be able to change up before or after work easily.



AXONOMETRIC DIAGRAM OF A TYPICAL SHOWER & TOILET AREA

Key Features

- 1 set of sinks, water closets and shower units per 6 residents
- Natural ventilation with cross airflow via window openings on both ends of the space
- Usage of dark coloured or grey tile for easy maintenance
- Walls are tiled up 1.8m for easy cleaning
- Bidet spray for each WC for easy cleaning.
- Anti slip tiles for safety (standard slip rate: R10)
- Wall-mounted adjustable shower head with short arm

Shower & Toilet Area

1. Provision of 1 set of sinks, water closets and shower units per 6 residents per existing guidelines.
2. Natural ventilation with cross airflow via window openings on both ends of the space.
3. Usage of dark coloured aor grey tile for easy maintenance
4. Walls are tiled up 1.8m for easy cleaning
5. Anti slip tiles for safety (standard slip rate: R10)
6. Wire mesh grille at outdoor laundry rack to provide privacy

ARTIST IMPRESSION OF A TYPICAL SHOWER & TOILET AREA

Corridor

The corridor is a shared passageway in front of each dormitory room. Design consideration was made to allow residents to control the air flow into the rooms while maintaining privacy.

This was also conceived as a 'dirty zone' where residents may leave their work boots outside before entering their living area.

ELEVATION VIEW OF A TYPICAL CORRIDOR

Key Features

- Louvred windows for residents to open for more airflow into the room or close it during rainy days or if A/C is to be subsequently installed.
- Shoe storage: adequate height and space to accommodate 1 pair of work boots + 1 pair of shoes/slippers per resident

Corridor

1. Recommended to provide at least 3 tiers of shelving with different heights to accommodate 1 pair of work boots + 1 pair of shoes/slippers per resident
2. Provision of metal shelving for easy maintenance
3. Cement screeded wall for easy maintenance

ARTIST IMPRESSION OF A TYPICAL CORRIDOR

Dormitory Rooms

Design Considerations

Design for Liveability

Separation of Living and Sleeping Zones

- Residents in the same room may have different work schedules or have different needs for relaxation and socialisation.
- Having separate areas for social interaction and sleeping creates a more conducive environment for residents who wish to rest or sleep from others who wish to socialise.

Use of Materials

- Use of accent colour creates visual interest and adds warmth to the overall spatial quality.
- The application of accent colour at the Entrance Portal and subsequently along the main thoroughfare also provides an initiative way for wayfinding.

Personalisable Areas

- The in-room social space can be personalised by residents, either with a choice of wall colour and/or items such as mobile trolley, coffee tables or wall decorations.
- This mades the space feel more homelike and creates a sense of belonging.
- Wall space near bedside where residents are encouraged to put up decorative items such as personal photos

Storage Space for Personal Items

- Provision of adequate storage space for residents should include consideration for personal items, wardrobe space and large items such as suitcases.
- In NESST Tukang Dormitory, each resident is provided with:
    i) Bedside ledge for shortage of personal items such as mobile phones or other small items.
    ii) Lockable drawer compartment
    iii) Under bed drawer storage

Privacy

- Half-height Privacy Screens between beds provide privacy for residents whilst maintain adequate airflow within the room.

Bed Provisions

- Residents have feedback that they prefer single beds for less disturbance during rest. Considerations should be made to maximise the number of single beds in each room to provide optimum rest for the residents.
- When bunk beds are required due to spatial constraints, considerations can be made for the upper bed and lower bed to be constructed with separate frames, to reduce disturbance when residents climb up/down from the upper bunk.

Dormitory Rooms

Design Considerations

Design for Resilience

Air Circulation

- Ceiling fans are placed every 2-3m to ensure adequate air circulation, to reduce transmission risks in an enclosed area.
- For toilet and laundry yard, considerations should be made for natural ventilation to promote sufficient air flow to limit transmission of infectious diseases.

Ensuite Showers & Toilets

- Ensuite showers & toilets not only provide convenience for residents but also limit the transmission of infectious diseases between rooms.

A/C-Ready Provisions

- Dedicated ledges for future A/C units
- Knock-out louver panels for future A/C connections

Design for Sustainability

Energy Efficiency

- **Natural Lighting: Rooms are designed with larger windows and lighter-coloured walls to reduce the need for artificial lighting.**

Indoor Air Quality

- **Natural Ventilation: Windows are designed to facilitate cross-breezes and reduce AC usage.**

Exhibits of NESST-DASL Industry Sharing Forum (8 May 2026)

NESST Exhibits

DASL Exhibits

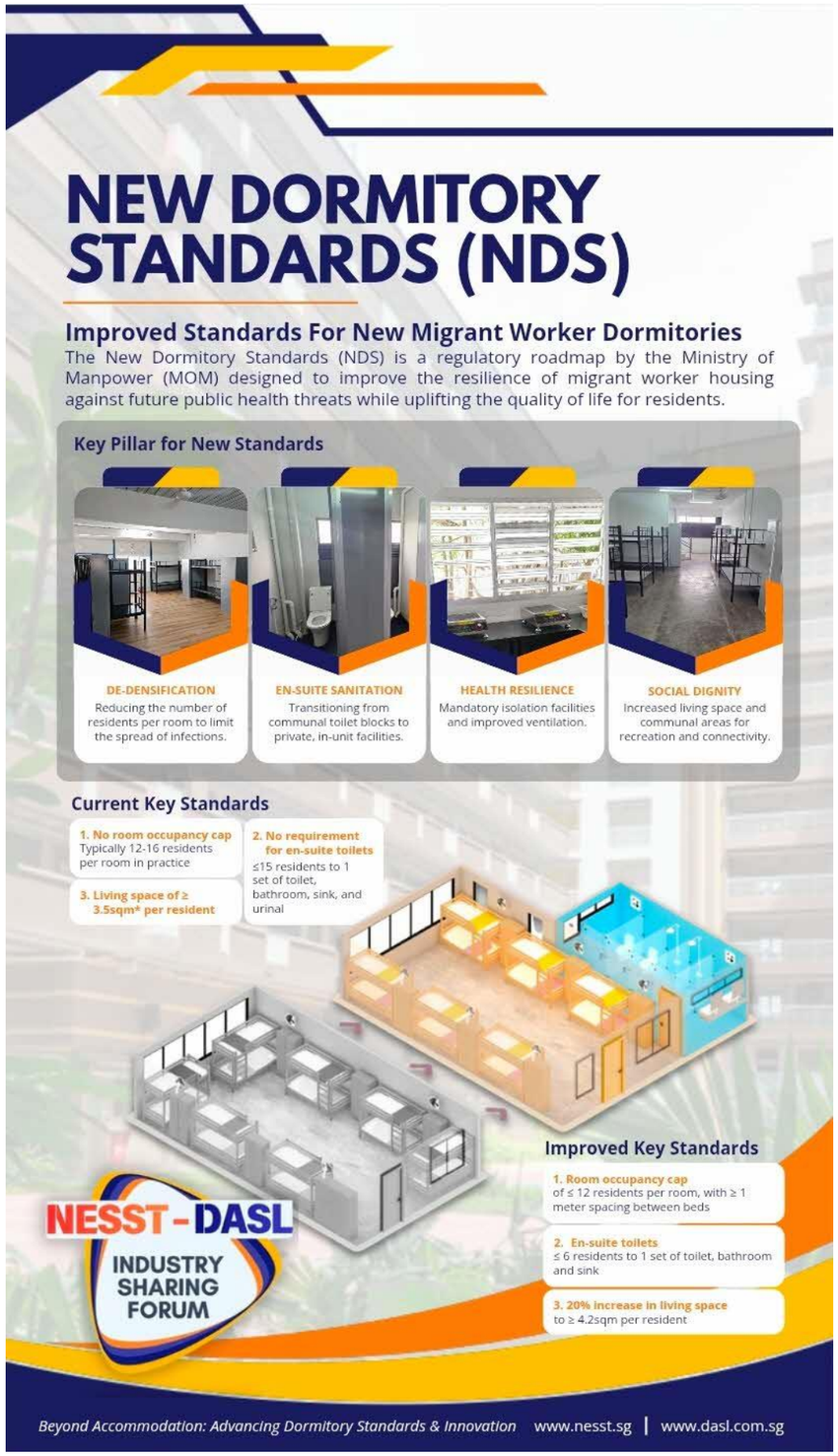
NESST Exhibit: Design Principles

NESST Exhibit: i-SMART

NESST Exhibit: Multi-Stakeholder Engagement Journey

NESST Exhibit: Innovation in Dormitory Living

DASL Exhibit: New Dormitory Standards (NDS)



DASL Exhibit: Dormitory Transition Scheme (DTS)

BATHROOM INSTALLATION CHALLENGES

Transitioning to En-suite Bathroom Provisions

The Strategic Shift

The transition from communal "block" toilets to private, en-suite solutions represents a fundamental "step-change" in dormitory living. By integrating modern sanitary facilities directly into living units, operators prioritize resident dignity while significantly enhancing privacy

Public Health Resilience

A primary driver for this transition is the mitigation of health risks. En-suite bathrooms effectively reduce the risk of cross-contamination during public health episodes by limiting the shared use of sanitary facilities.

Engineering Challenges & Solutions

Retrofitting existing industrial floor plates for Factory-Converted Dormitories (FCDs) is recognized as one of the most complex challenges under the Dormitory Transition Scheme (DTS). Key technical considerations include:

Raised Floor Optimization:
To bypass the complexities of running sewerage discharge pipes through the floor below, the most feasible engineering method is to raise the floor levels of the bathroom facilities.

Versatile Deployment:
This raised-floor methodology has been successfully deployed in both Factory-Converted Dormitories (FCDs) and Purpose-Built Dormitories (PBDs).

Material Durability:
Installations utilize water-resistant partitions and floorings to ensure longevity and hygiene in high-usage environments.

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BATHROOM INSTALLATION CHALLENGES

Transitioning to En-suite Bathroom Provisions

Implementation Examples of Ensuite Bathroom Installations at an FCD

Raised-floor installations and water-resistant partitions and floorings

Ample space in each cubicle

Examples of Ensuite Bathroom Installations at PBD

Raised-floor installations

Ample space in each cubicle with water-resistant partitions and floorings

External view of sanitary pipe connections

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DASL Exhibit: Showcasing Practical Initiatives

OTHER PRACTICAL IDEAS

Practical Initiatives Implemented by Dormitory Operators

Dormitory operators are increasingly implementing innovative solutions that go beyond basic compliance to improve the daily lives and living environments of residents.

Optimizing Living Space and Organization

Under-bed Drawers: These provide residents with easily accessible, private storage for daily essentials. By utilizing the footprint of the bed, rooms remain clutter-free, which enhances floor space and maintains the "Resident-First" layout.

Dedicated Luggage Storage: Moving rarely-used suitcases to separate storage supports de-densification and ensures clear, "Resident-First" living zones.

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OTHER PRACTICAL IDEAS

Practical Initiatives Implemented by Dormitory Operators

Health, Hygiene, and Nutrition

Food Storage Cabinets: Dedicated cabinets for catered food deliveries ensure that meals are kept in a secure, hygienic environment until residents return from work. This reduces the risk of food contamination and pest issues, supporting the broader NDS goal of strengthening public health resilience.

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OTHER PRACTICAL IDEAS

Practical Initiatives Implemented by Dormitory Operators

Sustainability and Comfort

Solar Panels: Implementing renewable energy solutions like solar panels helps offset the dormitory's carbon footprint and can reduce operational costs. For Hulett Dormitory, the installations resulted in significant electricity cost savings of 12-20%.

Sustainable Cooling System: The energy harnessed from the solar panels can also be channelled to power a chilled-water cooling system. This system delivers cool air to all parts of the factory space, such as offices and the dormitory area.

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JTC Corporation
Little India Shopowners and Heritage Association (LISHA)
Migrants Workers' Centre (MWC)
MOH Holdings
MOH PREPARE
National Parks Board (NParks)
PSA Corporation Limited
S&TPPO
Singapore Contractors Association Limited (SCAL)
Tee Up Capital Pte Ltd
TG25 Pte Ltd
The National Environment Agency (NEA)
TS Group
Urban Redevelopment Authority (URA)
Westlite Accommodation

End.

DESIGN GUIDE FOR NESST TUKANG DORMITORY