The Node

Modular Mid-High Rise Student Housing Project

University District, Calgary, AB

kasian

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in collaboration with Kasian Architecture Interior Design and Planning

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Introduction
01

1.1 Project Overview

Situated in Calgary's University District, this modular student housing project responds to the growing demand for high-quality accommodation by prioritizing comfort, density, and community. Organized on a 2.6 × 2.6 m modular grid, the design enables construction efficiency and scalability while maintaining flexibility in unit configurations. Carefully proportioned layouts, acoustic separation, and durable material systems support everyday livability and long-term student comfort.

Beyond the private unit, the project strengthens community through a network of shared lounges, study areas, and collaborative pocket spaces integrated into the modular framework. These shared environments encourage informal interaction, academic support, and social connection, reinforcing a sense of belonging within a highly dense housing model.

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1.2 Why Student Housing?

Student housing plays an important role in supporting universities and the new generation of people who will shape the future of society. In studying precedents to understand how students live and share spaces, it became clear that rooms are often placed along the building perimeter to get natural light. On the right, we have included examples from University of Calgary dormitories, including Cascade Hall, Olympus Hall, Yamnuska Hall, and Aurora Hall. It is noticeable that units with larger accommodations tend to provide natural light in living and dining areas, but rely on long, narrow corridors with limited acoustic separation between rooms resulting in noise transfer and reduced personal comfort. In response, our design prioritizes acoustic privacy, spatial efficiency, and livability through a hybrid modular system that allows for precisely fabricated, sound-insulated unit assemblies.

In contrast to isolated living arrangements, the project also introduces shared community spaces on every floor to support collaboration, social interaction, and a sense of belonging. By balancing private, acoustically protected rooms with accessible communal environments, the design seeks to create a housing model that is not only efficient, but equitable and supportive of both student well-being and community life.

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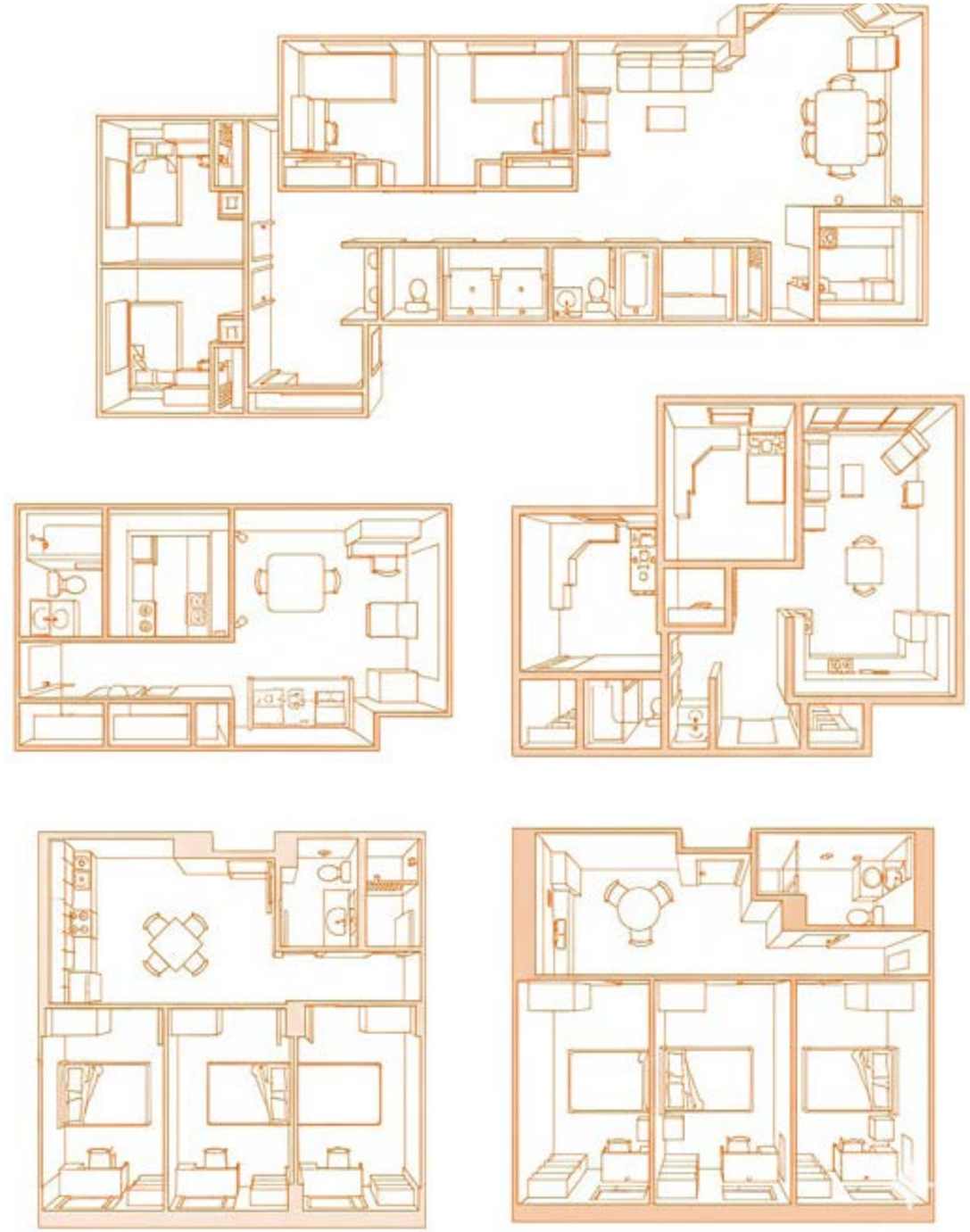

Precedent Study
02

2.1 Precedent Selection

Two primary precedents were selected to explore how contemporary buildings negotiate form, structure, and modular complexity. The first, the Victoria Park Avenue development, stands out for its activated central spine that fosters community engagement and creates a sense of shared place. This internal corridor functions as both a social anchor and an organizational element, allowing circulation, daylight, and communal programs to intersect naturally. Its modular organization, guided by a refined structural grid, demonstrates how efficiency, repetition, and flexibility can coexist within a cohesive architectural framework that remains adaptable to changing needs over time. The second precedent, Brock Commons Tallwood House, offers a distinctly Canadian example of mass timber innovation. As one of the most comprehensively documented timber high rises, it provides clear insight into the logistics, assembly strategies, and sequencing techniques that define modern modular wood construction. Its combination of prefabricated components and on-site efficiency showcases how tall wood buildings can achieve structural performance, sustainability goals, and rapid construction timelines. Together, these precedents highlight different yet complementary approaches to modularity, community-oriented design, and advanced building systems.

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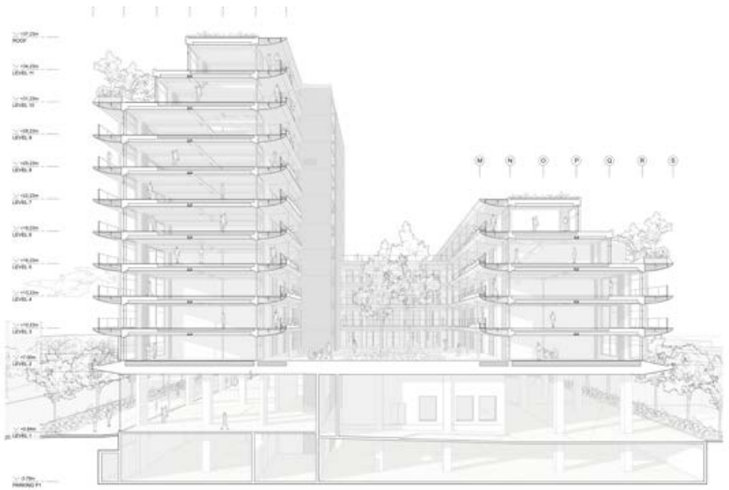
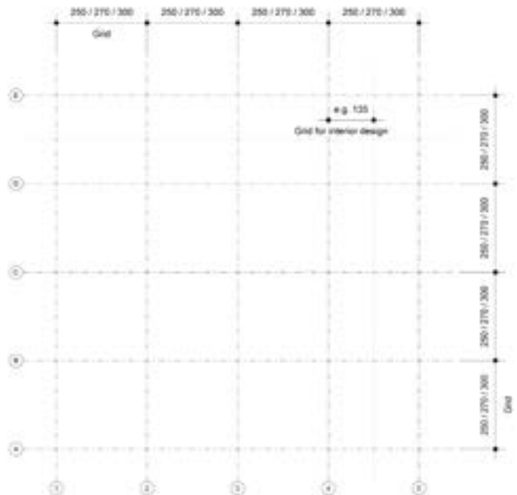
2.1 1925 Victoria Park Ave

Project Status	: Construction
Project Year	: 2027
Architect	: PARTISANS / CREE
Location	: Toronto, Canada
Type of Use	: Residential
Assembly Time	: 180 Days

1925 Victoria Park is a 12- story modular housing prototype that explores an advanced hybrid timber-concrete construction system. The building employs a prefabricated structural grid, integrating glulam timber columns and reinforced concrete floor panels to optimize assembly speed and material efficiency.

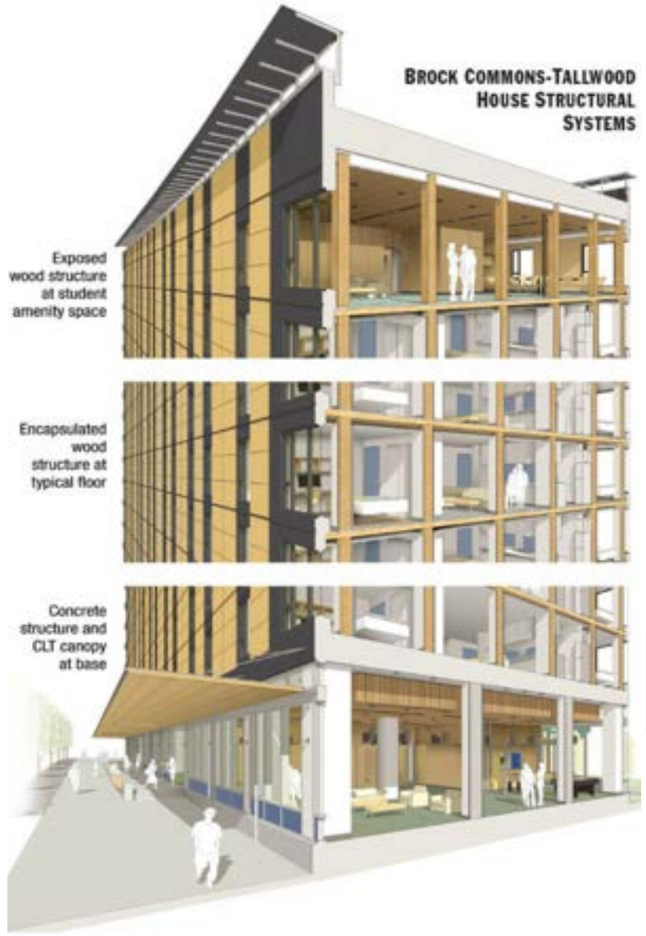


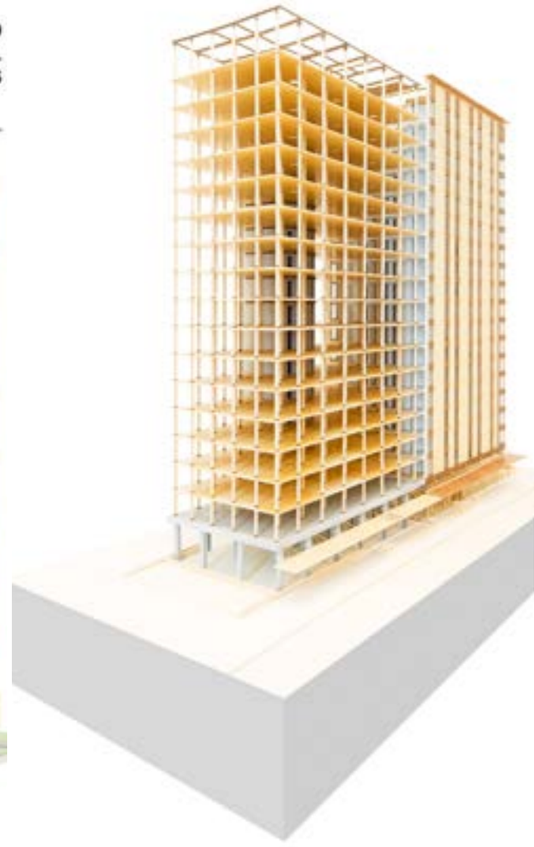
Using a typical 3 × 3 m modular grid alongside varied 2.5 m and 2.7 m spans, the system allows for flexible floor layouts and façade modulation while maintaining precision during off-site fabrication. Prefabricated components are manufactured in controlled environments and assembled on-site using a just-in-time process, significantly reducing construction time, waste, and on-site disruption.



Brock Commons Tallwood House is an 18-storey hybrid mass timber student residence completed in 2017 at the University of British Columbia. The building combines a concrete podium and cores with prefabricated cross-laminated timber floor panels and glulam columns, forming a highly efficient structural system. Its timber superstructure was assembled in just 66 days, rising at a pace of roughly two floors per week, while the entire project was completed within 18 months. This prototype demonstrated the speed, precision, and sustainability of modular timber-concrete construction, setting a global precedent for tall wood buildings.

Brock Commons Tallwood House employs an optimized 4 × 2.85 m structural grid that aligns with the student residence layout, integrating glulam columns and cross-laminated timber floor panels over a concrete podium. Prefabricated elements were manufactured off-site and assembled on-site through a just-in-time process, completing the 18-storey timber structure in only 66 days. The hybrid system enhances construction precision, minimizes waste, and demonstrates the scalability of tall timber-concrete design in high-density housing.





2.2 Brock Commons Tallwood House

Project Status	: Completed
Project Year	: 2017
Architect	: Acton Ostry Architects Inc.
Location	: Vancouver, Canada
Type of Use	: Residential
Assembly Time	: 18 months

Modular Construction
03

3.1 What is Modular Construction?

Modular construction is a building approach in which major components such as rooms, structural frames, façade panels, or fully finished “pods” are manufactured off-site in a controlled factory setting and then transported to the site for assembly. By shifting repetitive and labour-intensive work indoors, this method improves quality control, reduces material waste, and shortens construction timelines. Factory production allows for consistent detailing, enhanced building-envelope performance, and tighter tolerances than traditional site-built methods can achieve. Since modules arrive largely complete, on-site noise, traffic, and environmental disruption are significantly reduced. The result is a process that blends precision manufacturing with architectural construction, delivering buildings that are faster to build, more resource-efficient, and reliably constructed regardless of weather or seasonal constraints.

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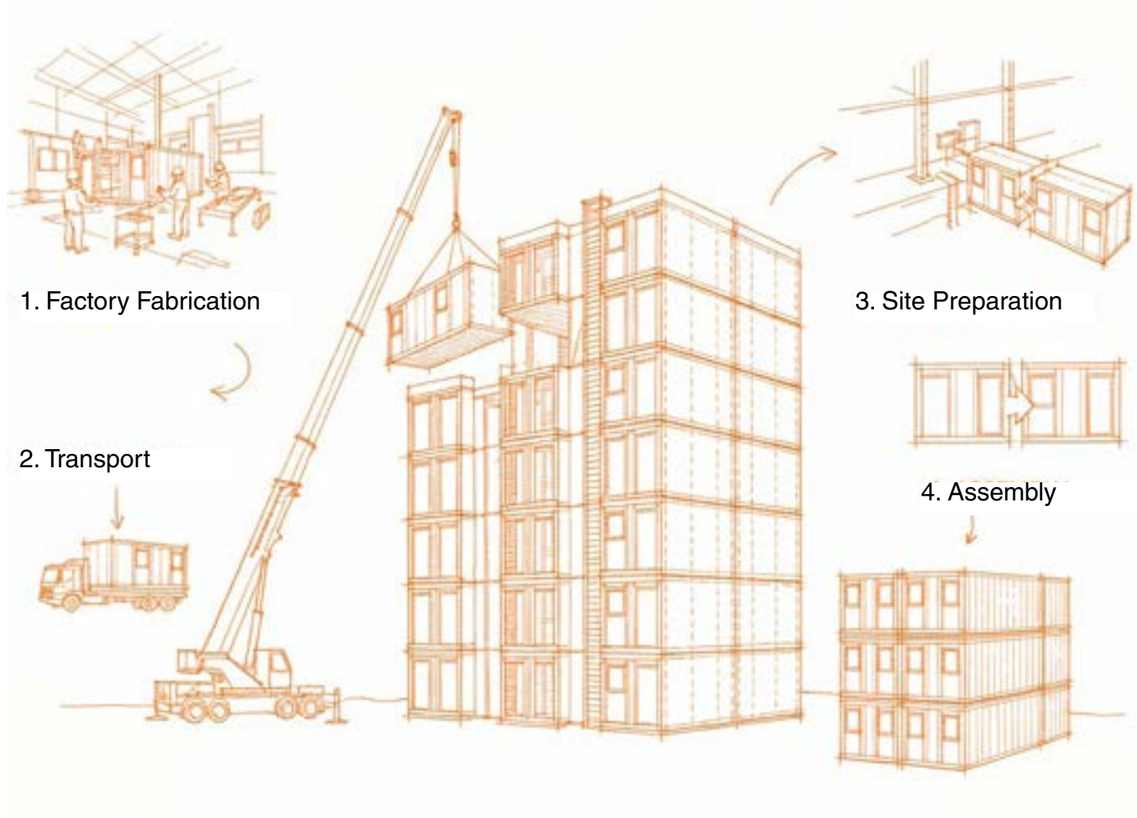

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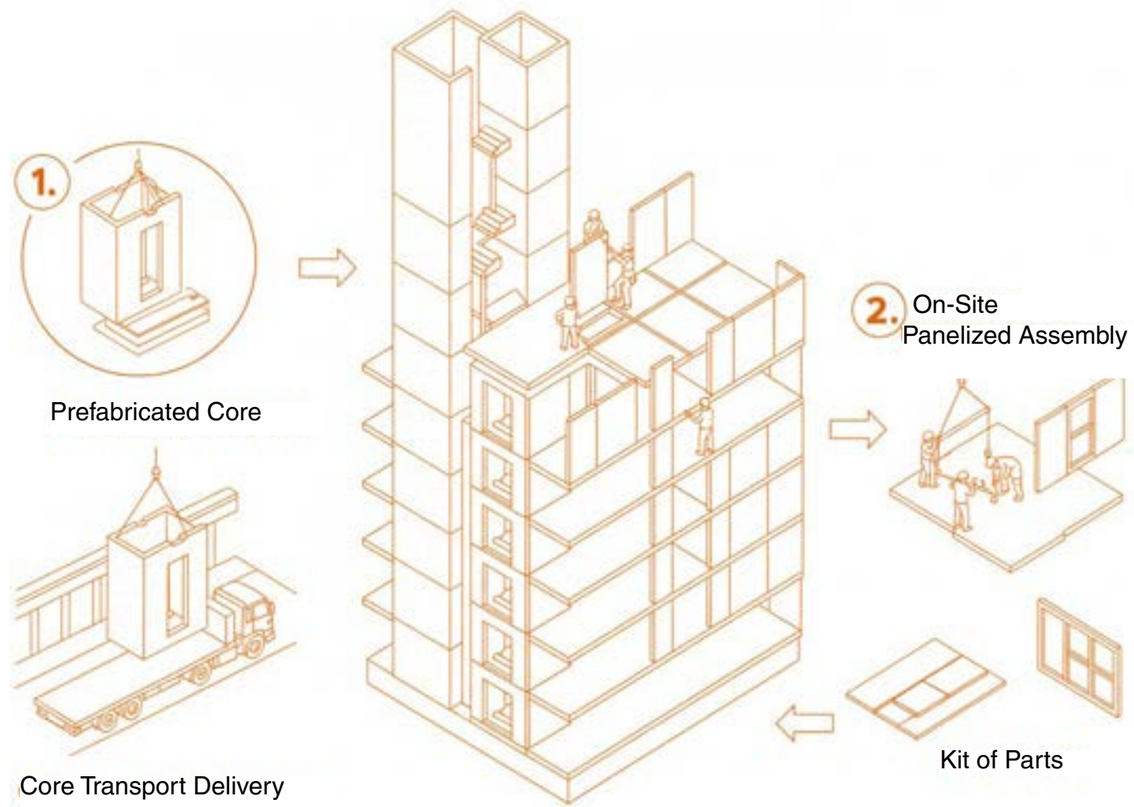
3.2 Our Modular System - Hybrid

A hybrid modular system combines a prefabricated structural core with a coordinated set of factory-produced building panels assembled on-site. In this approach, the concrete core consisting of vertical circulation, fire-rated shafts, and mechanical risers is manufactured off-site, transported in large prefabricated sections, and installed first to establish the building's structural and organizational framework. Surrounding this core, units are constructed using a kit of standardized floor, wall, and façade panels rather than fully volumetric modules. TThis approach combines the durability of concrete with the speed and precision of panelized fabrication, achieving both design flexibility and construction efficiency. Hybrid modular construction is particularly effective for high-rise student housing because it blends speed, quality, and flexibility;three factors essential for rapidly growing campus communities. Repetitive residential units are ideal for panelized fabrication, allowing consistent, factory-controlled production and faster on-site assembly. Meanwhile, a concrete core provides structural stability, fire separation, and design freedom for high-traffic communal and commercial spaces. This division of systems minimizes noise and disruption on campus. The result is durable, efficient student housing that delivers high comfort, strong performance, and the capacity to scale as enrollment increases.



3.3 Construction Process

The structural strategy for this project draws heavily from the construction logic and material systems demonstrated in Brock Commons Tallwood House. That precedent established a clear model for how mass timber, reinforced concrete, and selective steel components can work together to create an efficient, modular, and highly buildable system. Adapting these principles, the design incorporates a hybrid structural approach that prioritizes simplicity in assembly, clarity in load transfer, and the performance benefits of engineered wood products. The following building overview outlines the major components of this integrated system, illustrating how each material contributes to the building's overall stability and construction efficiency.

Building Overview

Cast-In Place Reinforced Concrete Structure

- Foundation
- Ground Floor
- Second Floor Slab
- Elevator + Stair Cores

Wood Structure Components

- CLT Panels For Floors
- GLT Columns
- PSL Heavy-Loaded Columns

Steel Structure Components
- Connections
- Floor Perimeters
- Roof Decking + Structure

Cross-Laminated Timber (CLT)

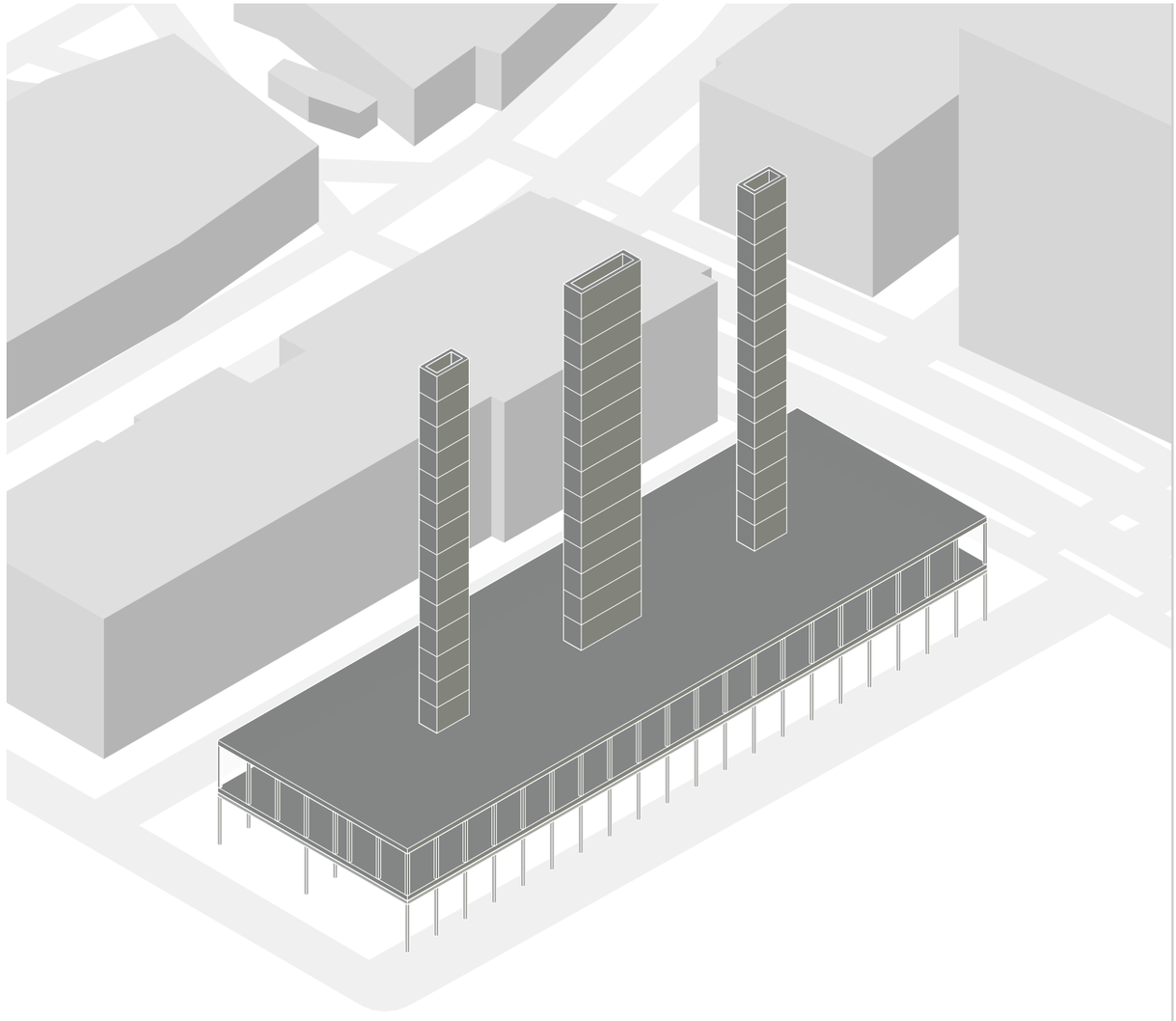
Parallel Strand Timber (PSL)

Glue-Laminated Timber (GLT)

Step 1: Foundation + Concrete Cores

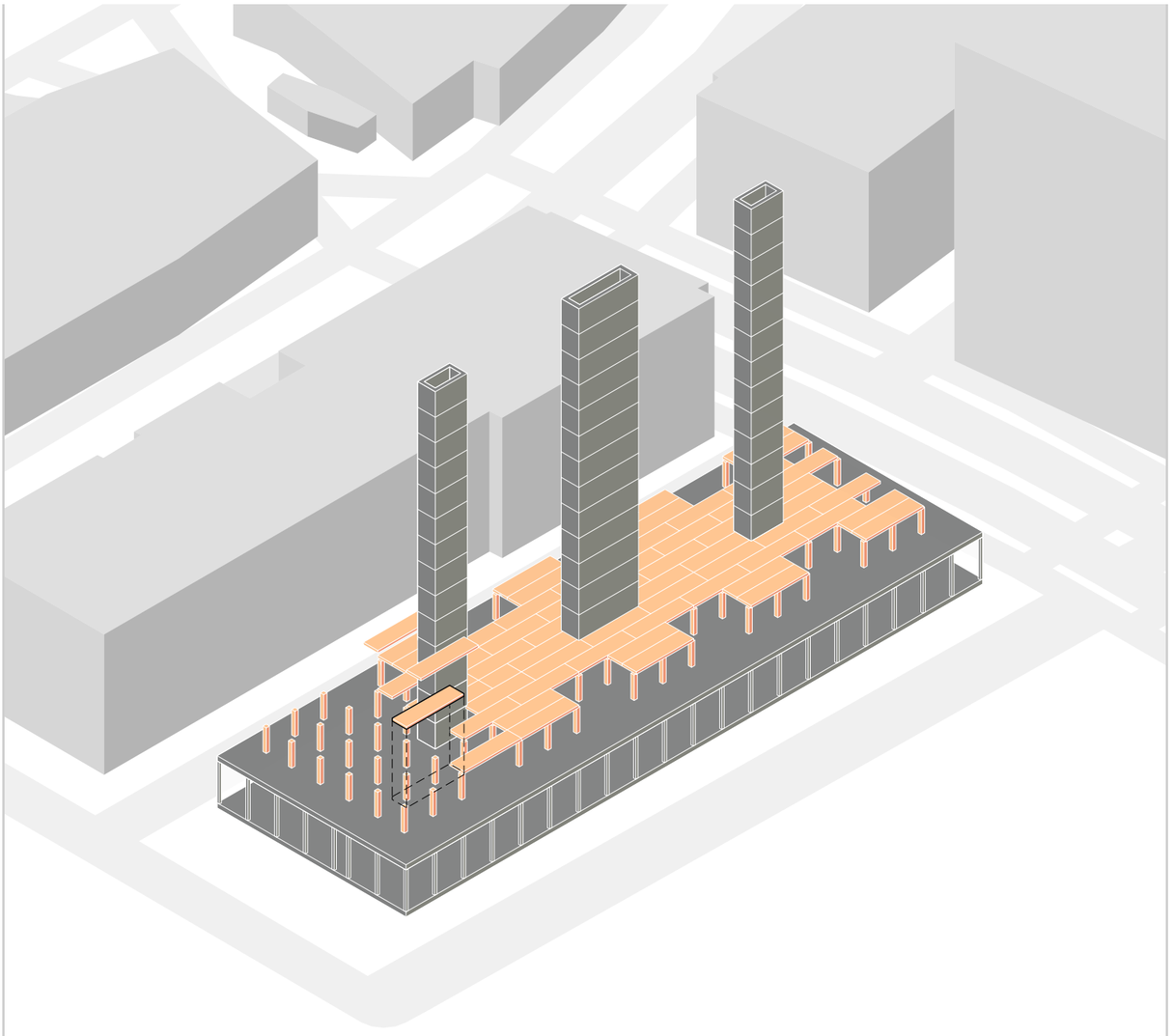
The building foundation, the ground floor, the second-floor slab, and the stair/elevator cores are reinforced cast-in-place concrete. The second-floor slab acts as a transfer slab, which transfers the gravity load from the upper-level mass timber structure to the lower-level concrete structure.

Cast-in place reinforced concrete cores provide the building with the rigidity to resist seismic and wind lateral forces. The concrete work is completely finished before the construction of the mass timber structure.

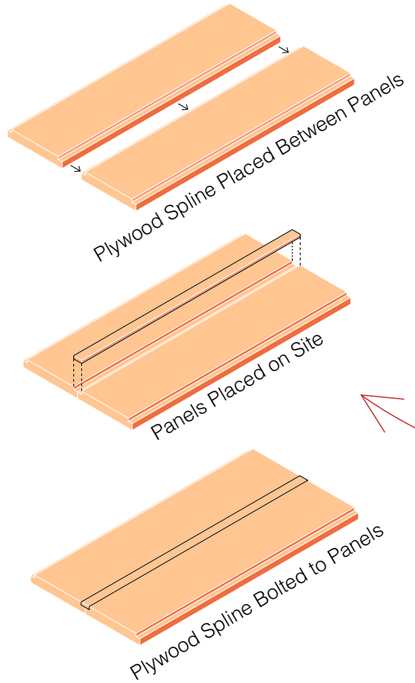


Step 2: PSL Columns and CLT Panels

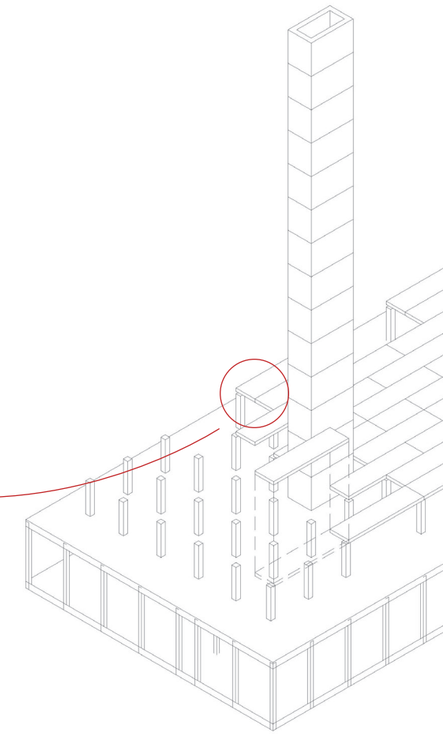
After completing the CIP concrete form, the pre fabricated parallel strand lumber (PSL) columns with steel connections are connected to the second floor slab. Cross-laminated timber (CLT) floor panels are then placed on the columns and plywood splines were nailed and screwed in between panels to connect them all into one single diaghram. Panels are delivered and sit on the truck bed as shown below.

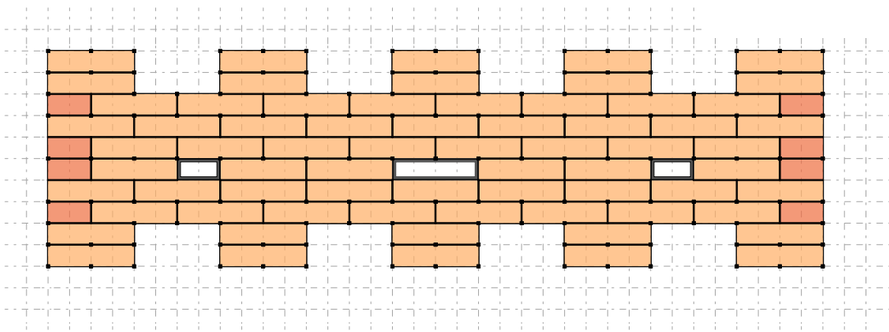


Plywood Spine Installation Diagram

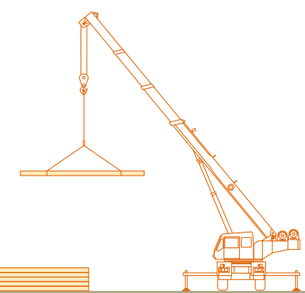


Panel Placement Close-Up Detail



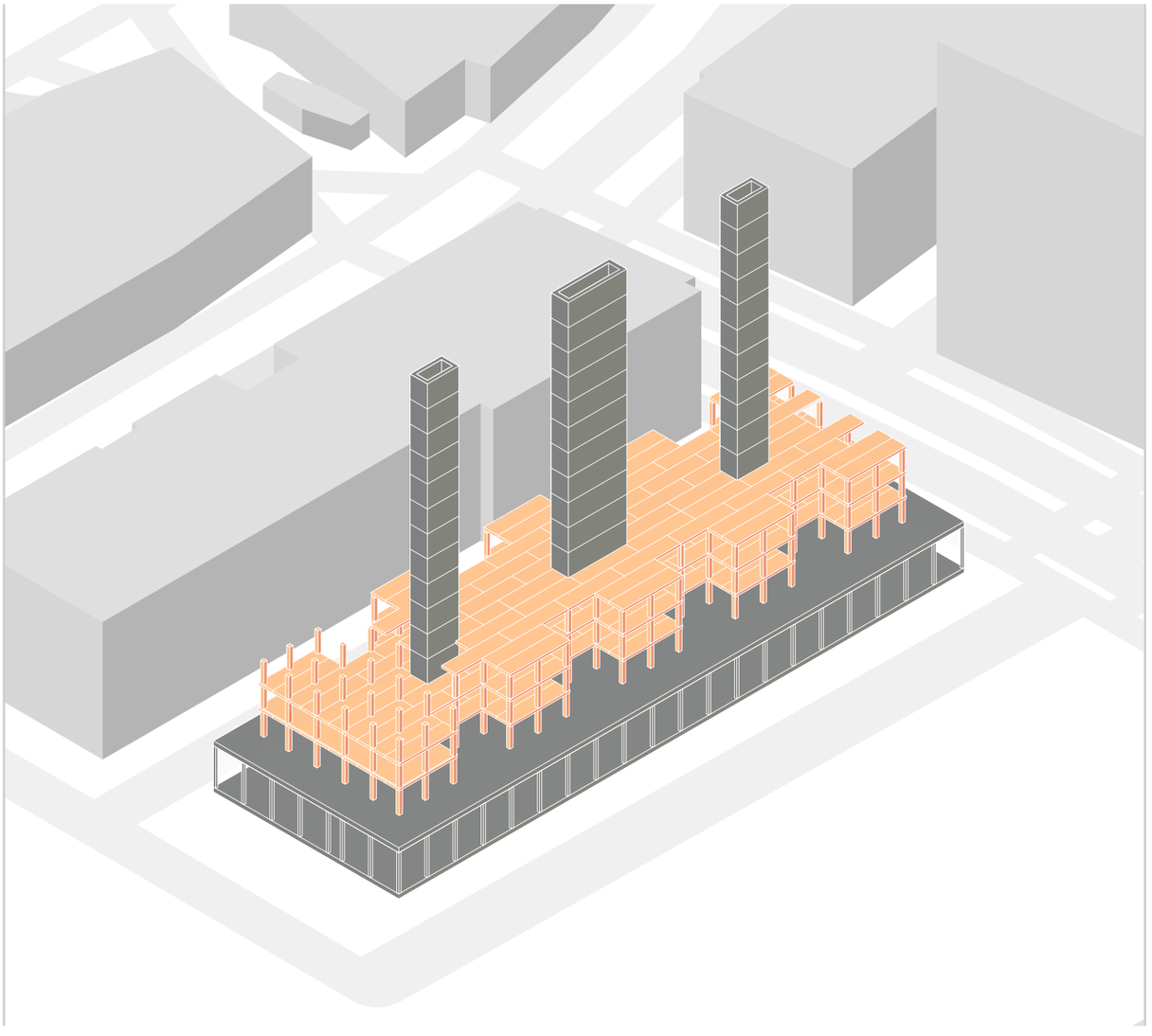


Above, shows a sample of the panel system for the building on the left. For panels next to the elevator and stairway cores, the panels are anchored to the cores with embedded steel plates and drag straps connected to the CLT.

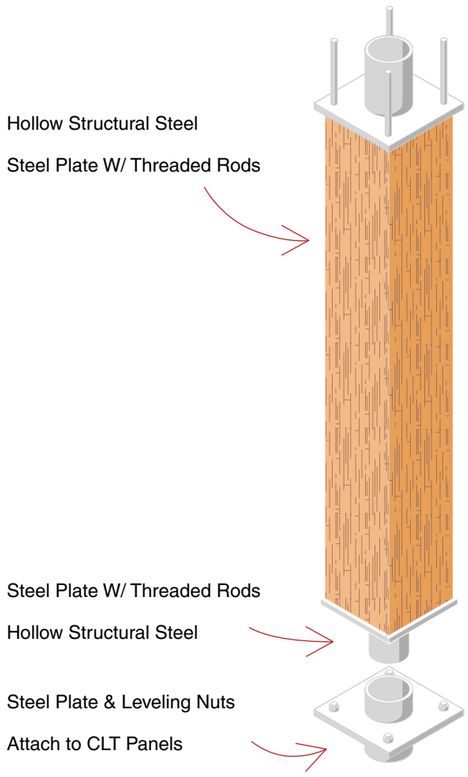


Step 3: PSL Columns and Concrete Top Coat

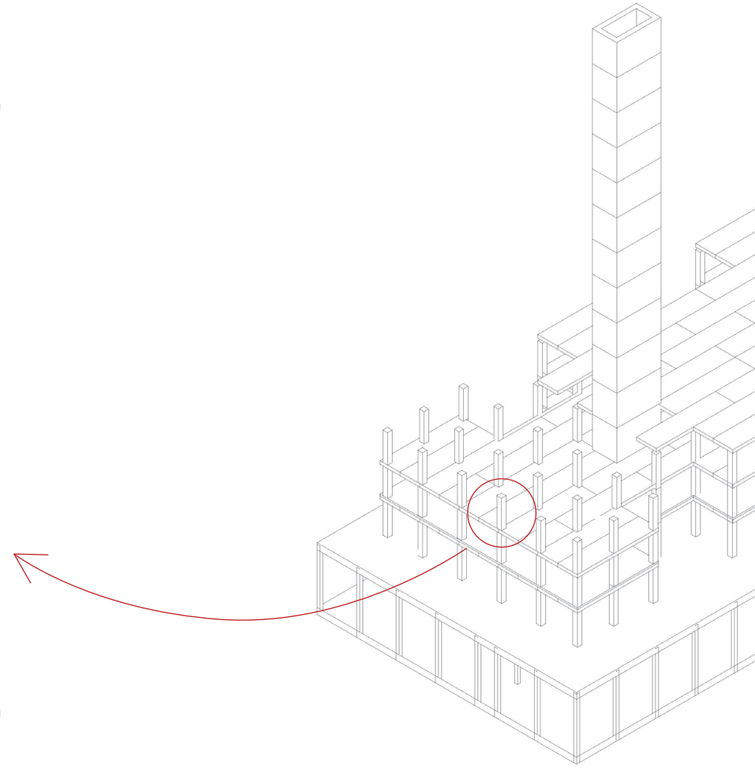
A second layer of sealant is added to protect the wood against water damage at this stage before the concrete topping is poured. Concrete topping is mainly for acoustics but was used for water- and fire-management measures as well. Gypsum board is also added later to increase fire ratings of the structure.



PSL Column Detail

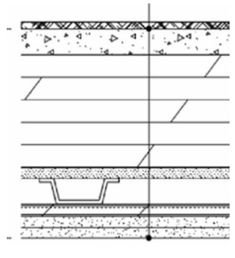


Column Placement Close-Up Detail



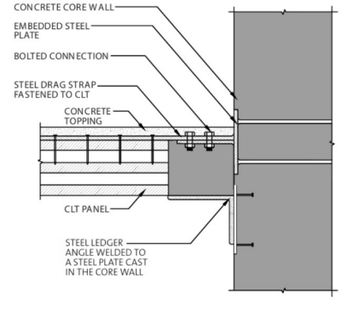
Construction Connection and Floor Assembly Details

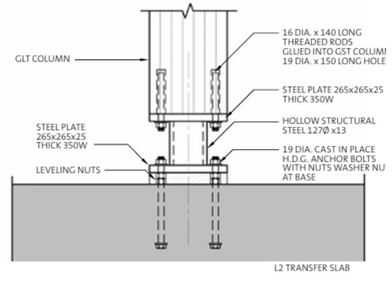
Acton Ostry Architects Inc



Assembly

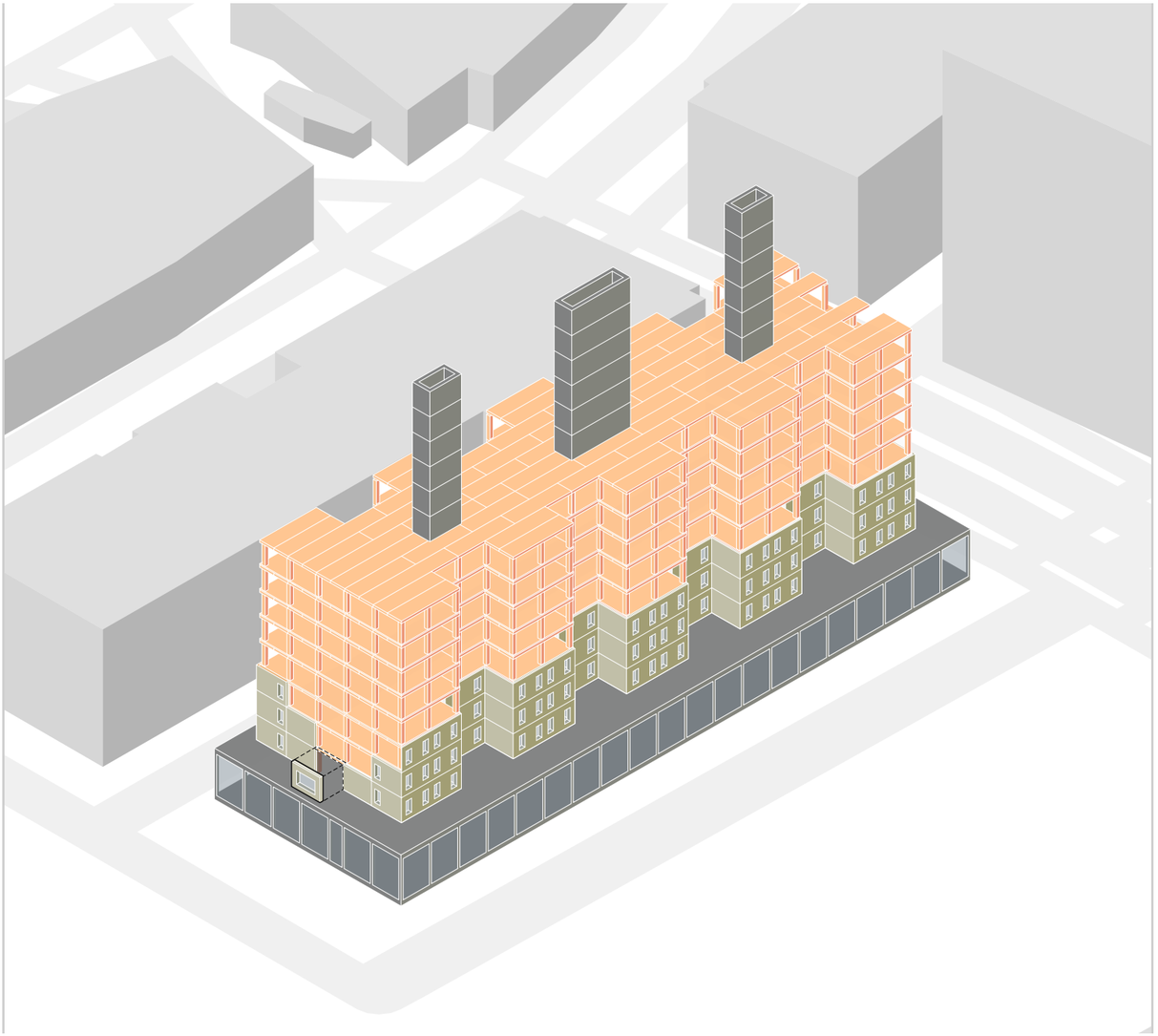
- Floor finish
- 40-mm concrete topping
- CLT slab panel
- 16-mm GWB type "X" —moisture resistant
- 38-mm steel hat track
- 19-mm steel res bar @ 400 mm o.c.
- 16-mm GWB type "X"
- 16-mm GWB type "X"
- Interior finish

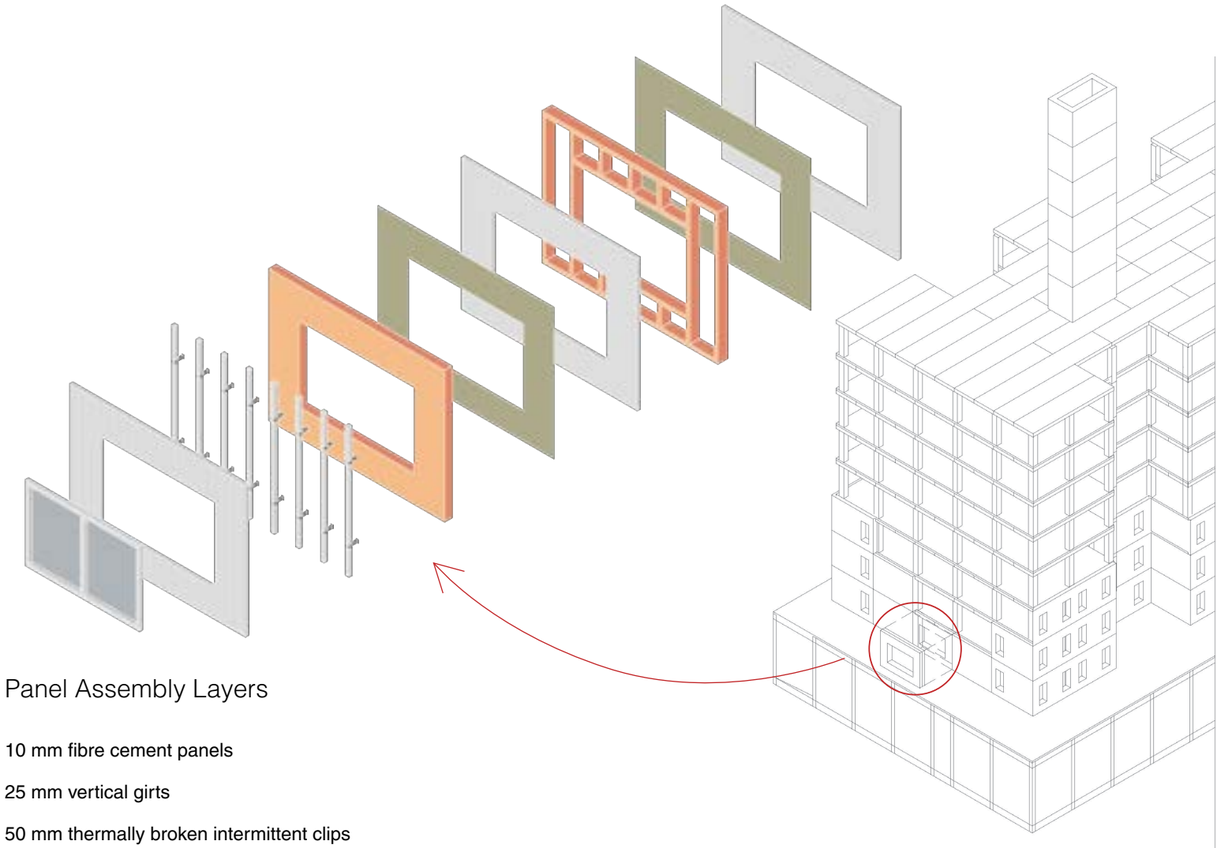




Step 4: Exterior Panel Installation

Panels are then installed as they are brought onto site. Each panel is composed of a structural steel stud system; fibreglass batt insulation; a wood-fibre, laminate-panel, rainscreen cladding system; and pre-installed window assemblies. Panels measure 5.2m wide (to span two structural grids) by 3m high (to span one storey). A steel perimeter angle which is attached at each floor supports the panels. The vapour barrier, batt insulation, and the interior layer of drywall will be applied on site.





Panel Assembly Layers

10 mm fibre cement panels

25 mm vertical girts

50 mm thermally broken intermittent clips

50 mm semi-rigid insulation in the panel

A liquid-applied vapour-permeable membrane (WRB)

Exterior sheathing board

Steel studs

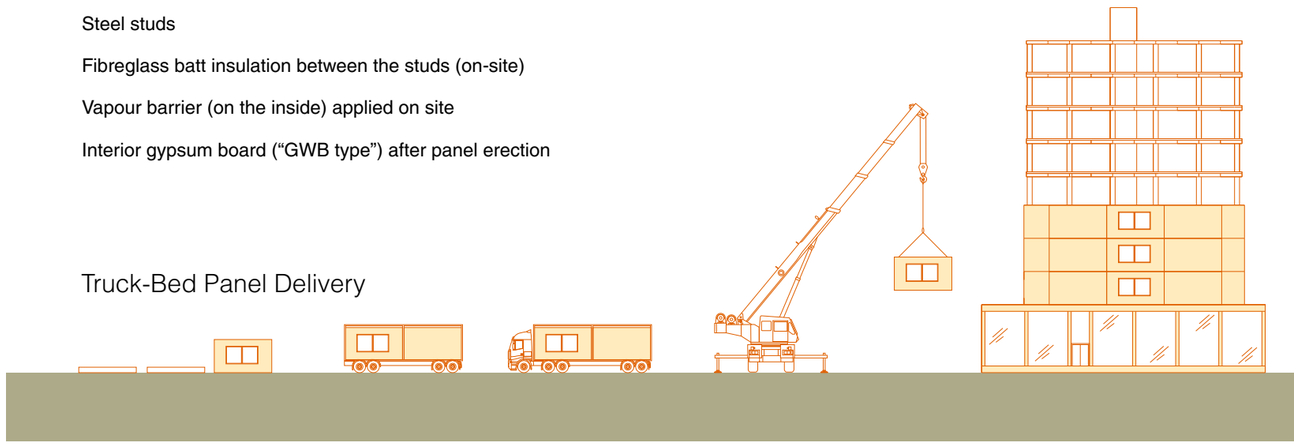
Fibreglass batt insulation between the studs (on-site)

Vapour barrier (on the inside) applied on site

Interior gypsum board (“GWB type”) after panel erection

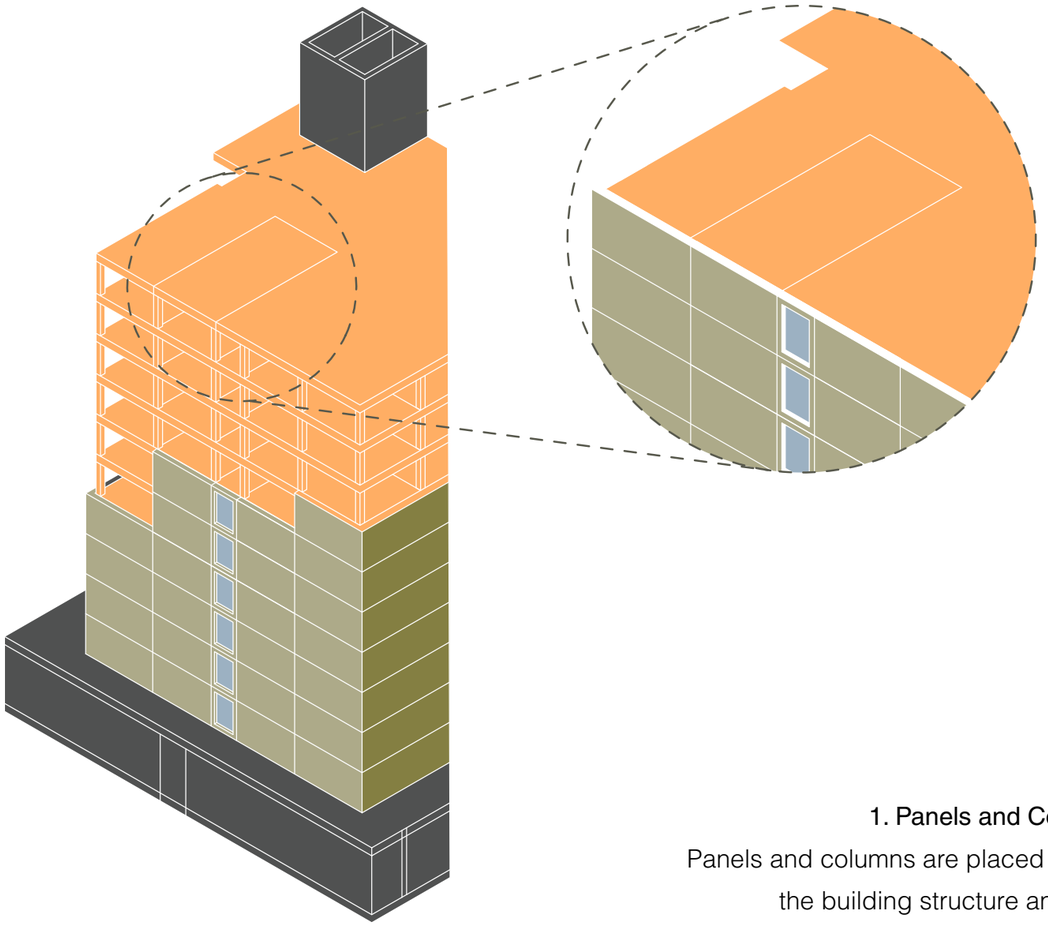
Wall Panel Placement Close-Up Detail

Truck-Bed Panel Delivery

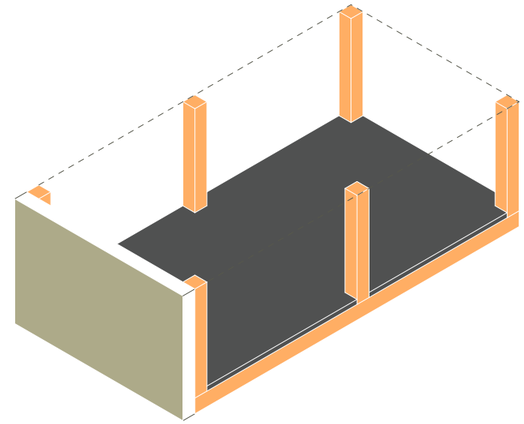


Step 5: Unit Interior Installation

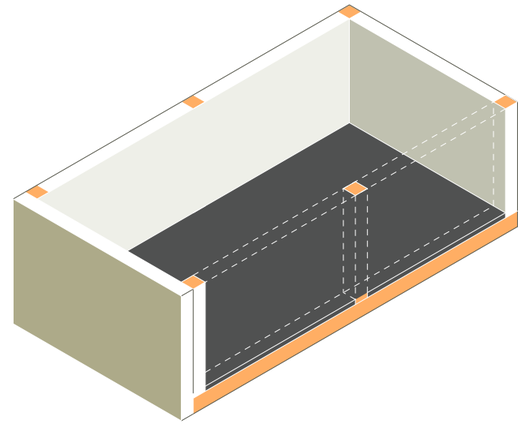
After the prefabricated timber panels and exterior walls were installed, a concrete topping was poured over the CLT floors to improve acoustic and fire performance. Interior walls were then framed within the structural grid, followed by the installation of mechanical and electrical systems. Once services were in place, finishes and appliances were added much like a traditional build, completing the interiors with minimal on-site adjustment.



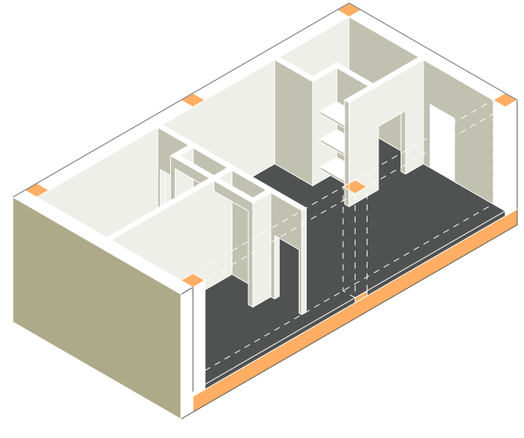
1. Panels and Columns
Panels and columns are placed to give the building structure and form



2. Unit Closeup + Concrete Topping
Concrete topping is added to the floor panels

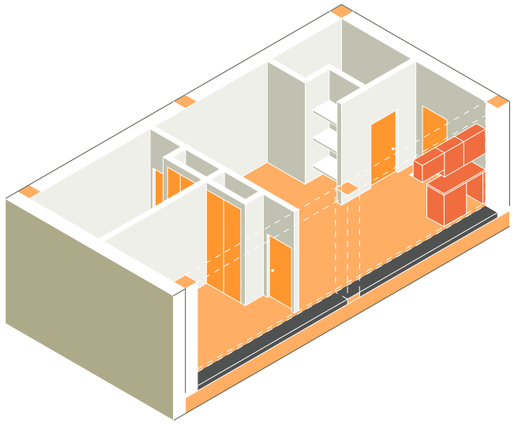


3. Interior Walls
Interior walls are added to divide the rooms

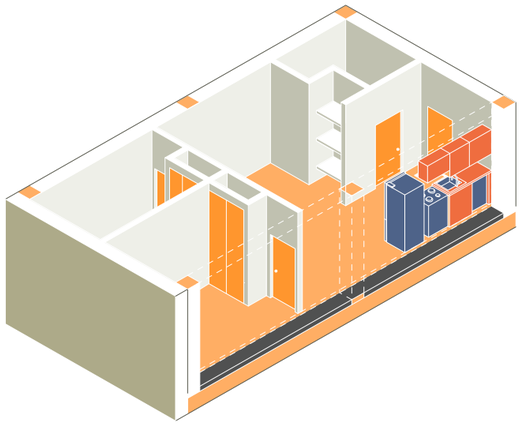


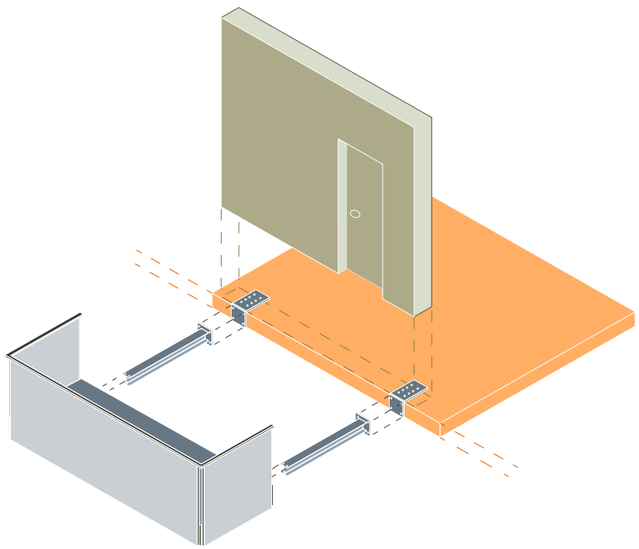
4. Interior Walls
Walls of each unit are added in

5. Installation of Millwork and Doors



6. Appliance Installation





7. Balcony Installation

Each balcony is manufactored off-site, shipped, then lifted by crane and clipped directly onto pre-installed hooks and brackets on the building façade. Because the balconies use a thermally broken connection with hooks, brackets, and support rods, they reduce heat transfer and prevent thermal bridging, improving the building's energy efficiency.

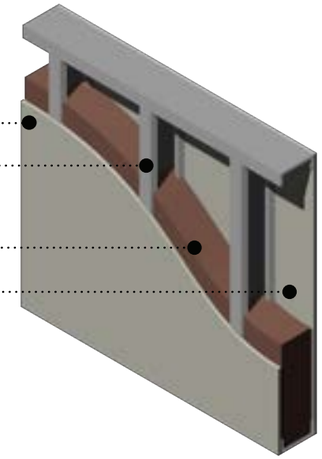
Step 6: Final Touches + Completion

Once the exterior panels have been fastened, the interior walls and internal working are connected and installed, like HVAC and mechanical systems that make the building run and habitable. Details are finished and added. Construction is completed.

3.4 Building Details

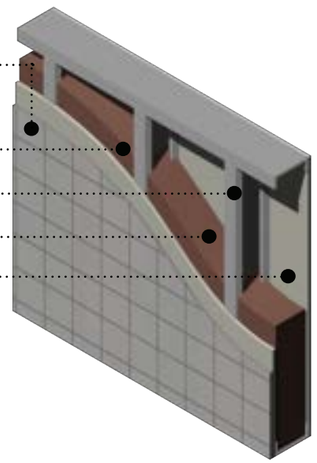
Interior Wall

12.5mm Gypsum Board
75-150mm Steel Stud Frame
(dependent on acoustics)
Insulation (acoustic batt)
12.5mm Gypsum Board



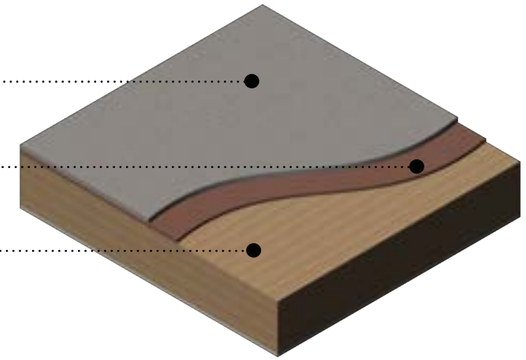
Interior Wall

6-12mm Tile or Finish Surface (wet wall)
12.5mm Cement Board or Moisture-Resistant Gypsum
75-150mm Steel Stud Frame
Insulation (optional, acoustic or service)
12.5mm Moisture-resistant gypsum board
Paint or finish



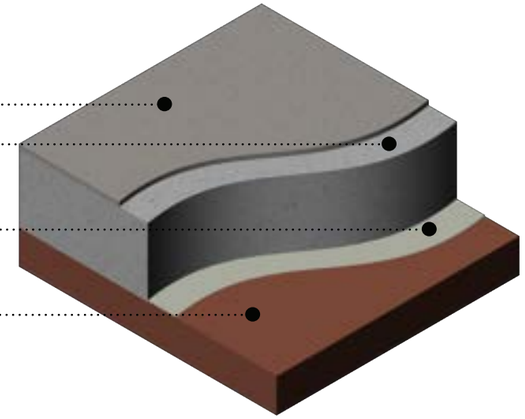
Floor

6-20mm Finish flooring (varies: vinyl, laminate, wood, etc.)
3-12mm Acoustic underlayment (resilient layer if used)
140-200mm CLT floor panel (5-ply)



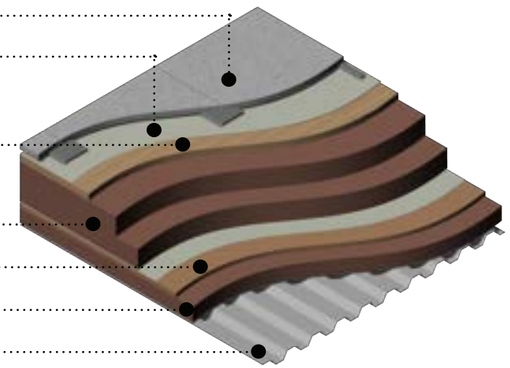
Podium

3-20mm Finish flooring
150-300mm Concrete slab (podium often 200-300mm)
Vapor barrier (slab-on-grade)
50-150mm Rigid insulation (slab-on-grade)



Roof

Pavers on Pedestal
2-Ply SBS Modified Bitumen Membrane Roof System
25mm Fibre Board
305mm Mean Thickness Rigid Insulation
EPDM Rubber Waterproof
16mm Gypsum Board
Concrete Roof Metal Deck



Design Framework
04

4.1 Project Principles

Comfort

Comfort is established through well-considered unit design that prioritizes livability, acoustic performance, and spatial clarity. The hybrid modular system reinforces these goals by enabling precisely fabricated wall, floor, and facade assemblies that improve thermal efficiency and reduce sound transmission. Together, these strategies provide students with environments that are supportive of their daily routines and personal wellbeing.

Community (Shared Spaces)

Community is fostered through a network of shared interior and rooftop spaces designed for collaboration, social engagement, and everyday interaction. Modular planning supports this framework by enabling repeatable yet adaptable layouts, ensuring communal spaces are accessible, well-connected, and integrated with circulation. These shared environments reinforce belonging and strengthen the social fabric of the student housing.

4.2 User Groups

Undergraduate Students

Undergraduate students are in a transitional stage, often living away from home for the first time and actively shaping personal identity and community skills. Their housing environment must support social connection, adaptability, and proximity to campus life. Shared lounges, activity rooms, and floor kitchens promote belonging and ease of meeting new people, while simple, durable finishes and clear sightlines create comfort and reassurance. Undergraduates value youthful, bright spaces that encourage interaction while still supporting basic privacy and safety.

Graduate Students

Graduate students require an environment that supports independence, concentration, and personal control. Their priorities include privacy, quiet, and acoustically separated spaces suitable for research, writing, and late-night work. Units designed with functional kitchens, neutral materials, and calm lighting support mature living patterns. Graduates prefer environments that minimize social pressure, offering the option to engage or withdraw as needed while maintaining stability and a sense of autonomy.

4.3 Understanding Differences

To design student housing that truly supports its residents, it's important to recognize that undergraduate and graduate students have distinct lifestyles, needs, and expectations. Their differences shape how they use community spaces, study areas, social zones, and private rooms. To ensure these environments are comfortable, functional, and responsive, additional research was conducted to better understand the habits, priorities, and daily rhythms of each group.

Comfort and Collaborations		
Undergraduate		
Stage of life: transitional, often first time away from home, building identity, learning community skills. Undergrads need to feel part of something — that they're not alone, that this is home but also an extension of campus life.		
1	**Social connection & belonging**	Shared lounges, game rooms, floor kitchens Easy ways to meet new people — open doors, common hall patterns Events, visible activity
2	**Flexibility & adaptability**	Rooms that can rearrange easily Furniture that handles messy living Simple, durable finishes
3	**Proximity to campus life**	Close to classes, food halls, libraries Walking paths that feel active
4	**Basic comfort over luxury**	Temperature control that just works Simple, clean bathrooms (even if shared) Light, sound, and privacy that meet minimum "I can sleep" levels
5	**Safety as reassurance**	Clear sightlines RA presence Keycard access, but not fortress-like
Graduate		
Stage of life: more independent, often balancing work, research, family, and quiet focus. Grad students need to feel respected as adults, and that their home supports focus, not forces more social exposure.		
1	**Privacy**	Solo bedrooms or full studio units Private bathrooms strongly preferred Acoustically separated walls and floors
2	**A sense of control**	Independent thermostats Ability to cook properly The option to not participate socially
3	**Study-friendly environment**	Desk space that is big enough for real work Quiet rooms & sound isolation Places in the building for writing, Zoom calls, and late-night work
4	**Stability & neutrality**	Neutral colors, wood textures, soft light No "freshman energy" chaos More grown-up materials (less industrial carpet, more wood or soft finishes)
5	**Life support beyond school**	Good kitchen equipment Laundry close by Space to store a bike or stroller Some grad students have partners, kids — design needs to allow that

Community Spaces - Interior Podium - Level		
	Undergraduate	**Graduate**
1	**Multi-purpose Social Lounge:** Large open lounge with mixed seating	**Quiet Reading Lounge:** Fireplace or soft lighting
2	**Floor Kitchen + Dining Commons:** Shared kitchen with large tables	**Co-working / Study Space:** Partitioned desks, semi-private booths
3	**Game + Activity Room:** Pool tables, ping-pong, casual seating	**Cafe/ Lounge**: Quiet cafe space for study
Community Spaces - Rooftop		
	Undergraduate	**Graduate**
1	**Indoor/ Outdoor Social Terrace:** Casual seating, group tables, and gathering zones for informal hangouts.	**Garden Terrace:** Soft landscaping, sheltered seating, and calm zones for reading or reflection.
2	**Game + Activity Room:** Pool tables, ping-pong, casual seating	**Study Lounge:** Small enclosed "quiet pods" with desks or lounge chairs for private work.
3	**Fitness / Activity Deck:** Weather-resistant flooring for yoga, stretching, or informal exercise	

Shared Values Between Undergrad and Grad		
Features	**Undergrads want ...**	**Grads want ...**
Noise	Social buzz, but not chaos at night	Quiet as default
Social space	Open lounges, fun events	Calm shared kitchens or study nooks
Room setup	Compact and furniture-ready	Spacious with "real" living tools
Location	Near campus action	Close but peaceful
Design tone	Youthful, bright, fun	Calm, warm, minimal
Bathrooms	Shared acceptable	Private preferred
Kitchen	Quick meals, microwave & mini-fridge fine	Real cooking, real storage

Unit Design & Modular Typologies
05

5.1 Planning and Layout of Student Dormitory Spaces

Before designing the building, a clear logistical framework needed to be established, which was guided by the forms and units being designed and the intended use of the student living spaces. This included careful consideration of bedrooms, bathrooms, and overall quality of life within these areas. This is important in noting the relationship each space had to the others. For example, the living room or communal areas were always high-traffic zones and became the core of the unit, with all other spaces circulating around this core. Bedrooms were positioned along the edges to ensure constant access to natural light for students throughout the year.

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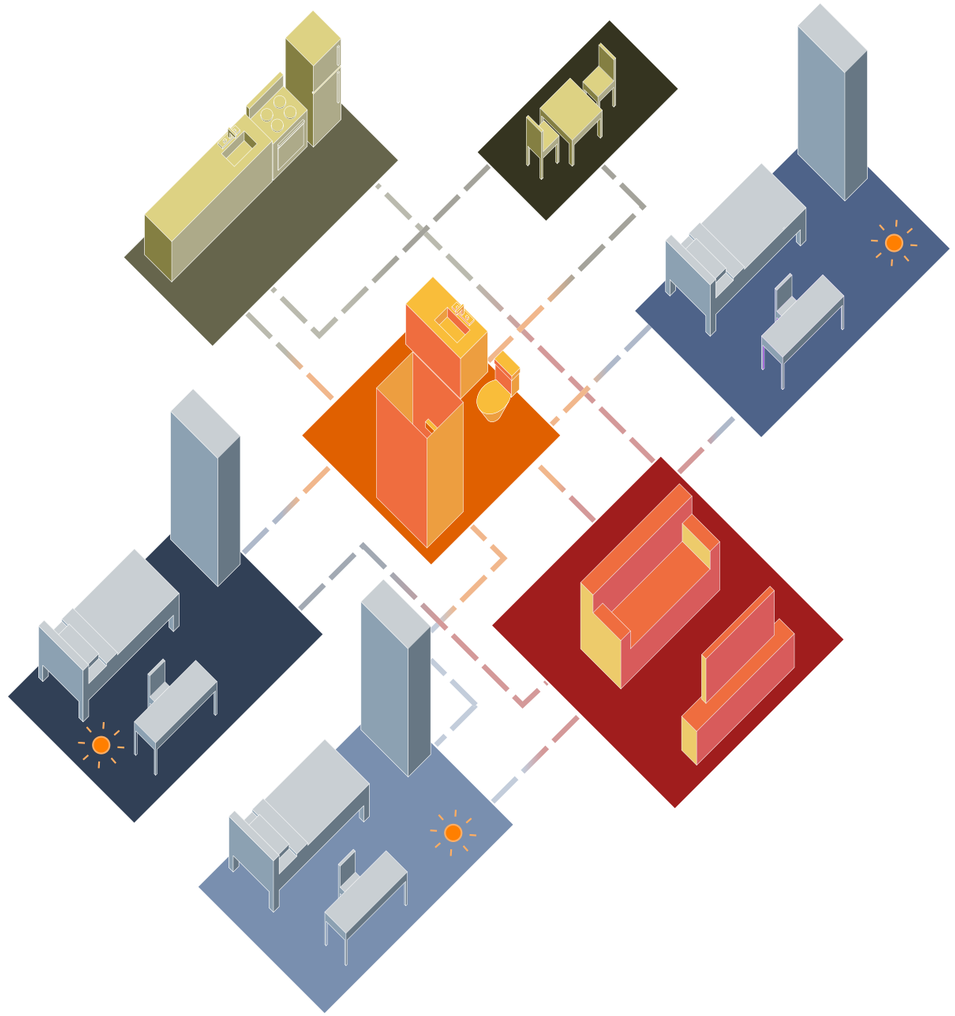
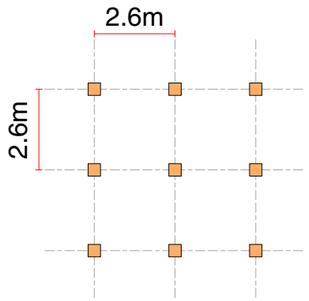


5.1.1 Residential Units

The residential unit design was organized around a 2.6-meter grid system, which was determined based on the size of a standard truck bed. This dimension made transporting and handling materials on site much easier, especially when deliveries were frequent, and allowed for a more efficient construction process.



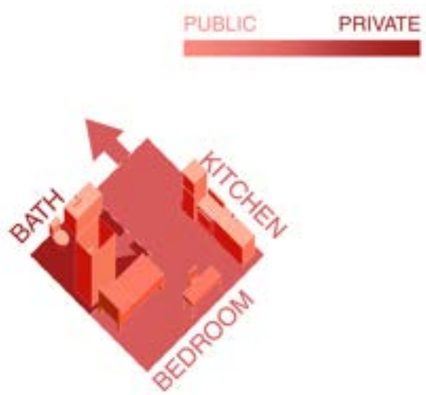
5.1.2 Undergraduate Units

Two-Bedroom Unit

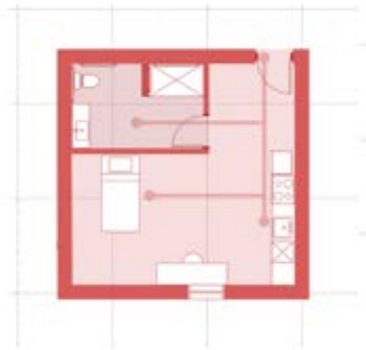
Four-Bedroom Unit

5.1.3 Graduate Units

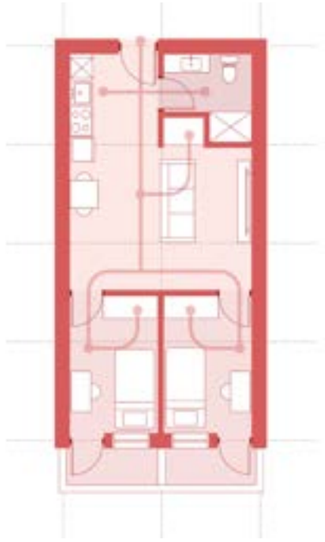
Studio Unit



Accessible Studio Unit

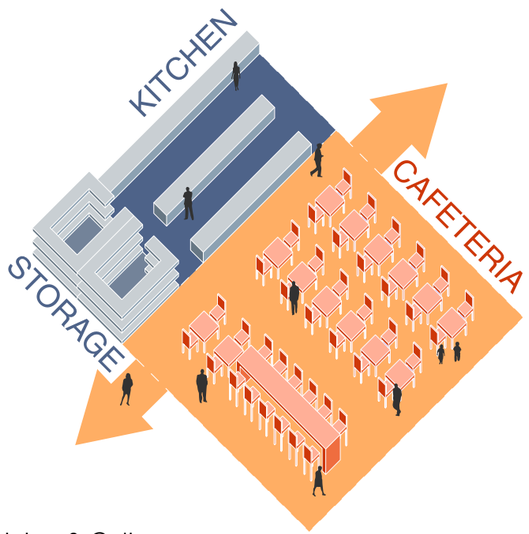


Two-Bedroom Unit

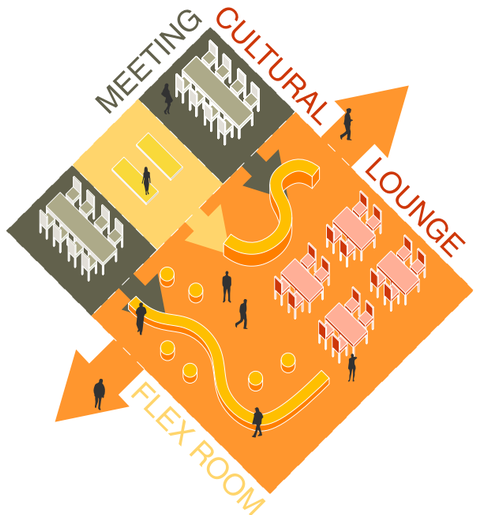


5.2 Toolkit of Programmable Community Spaces

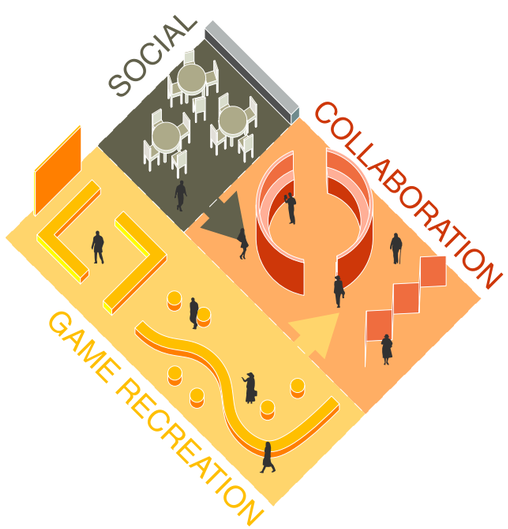
PUBLIC — PRIVATE



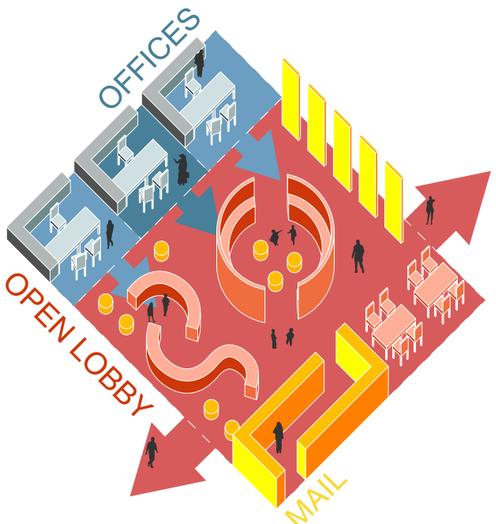
Dining & Culinary



Cultural & Multipurpose Suite

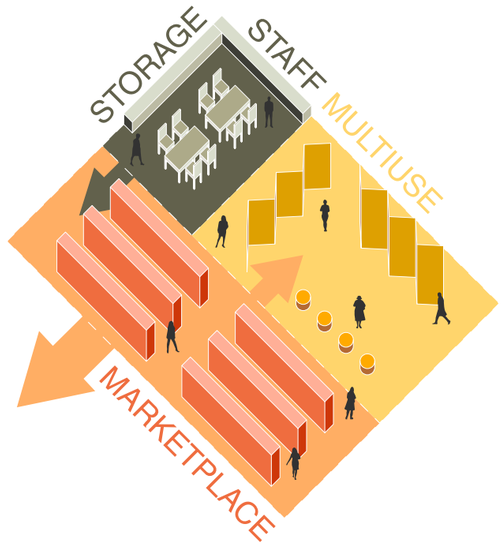


Social Recreation Hub

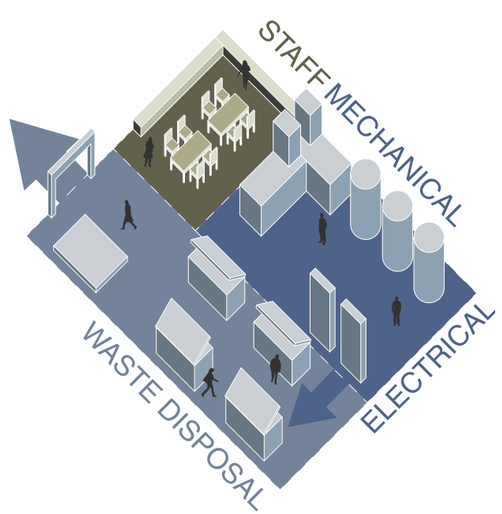


Resident Services & Administration

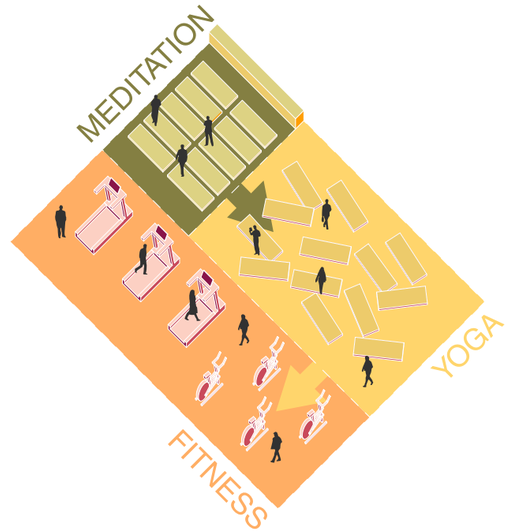
The tookit of programmable community spaces was curated for a better general understanding of the community spaces within the building and its relationship with each other. It also provides a general idea of the flow and access entry points through the spaces.



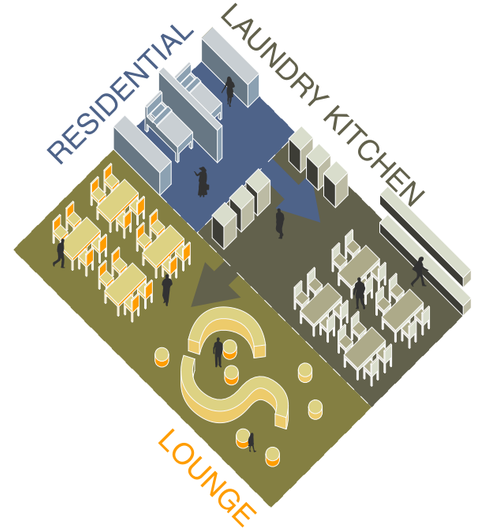
Marketplace & Flexible Retail Zone



Building Services & Operations

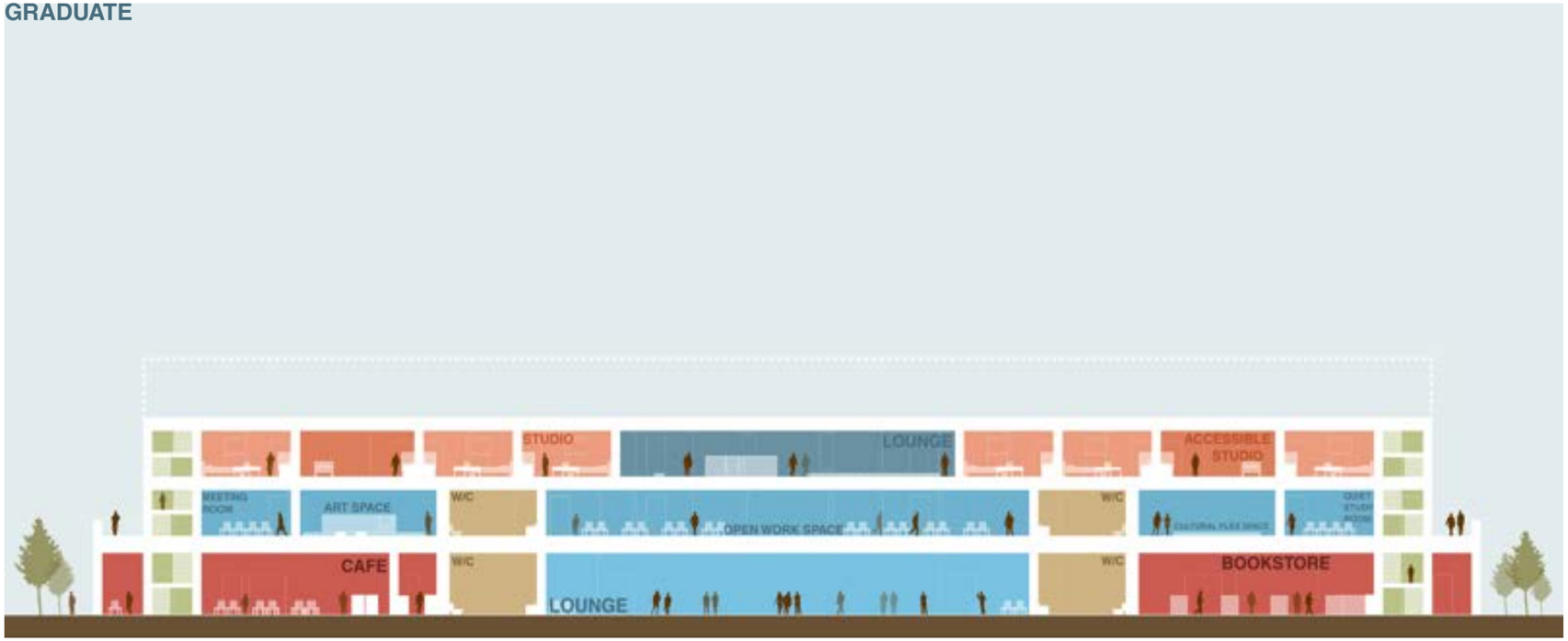


Wellness & Fitness

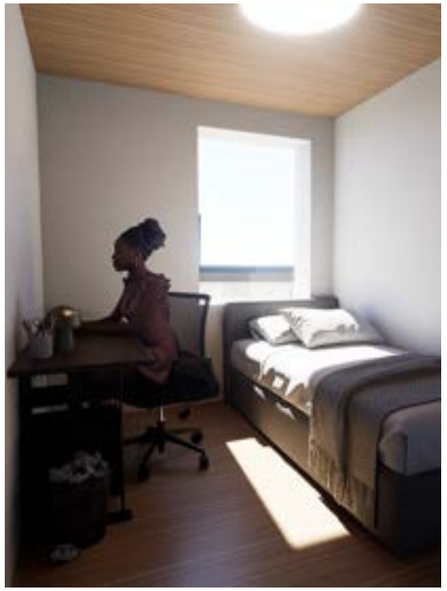


Residential Living

5.3 Sectional View of the Building's Interior Life



This sectional study of the building reveals how residential student units and programmable public spaces work together to create a vertically connected living environment. The upper floors are dedicated to student housing, organized to provide comfort, privacy, and a consistent modular rhythm. Whereas, the second and first floors transition into more open, community-oriented zones that support learning, gathering, and daily activity. This layered arrangement allows movement, light, and social energy to flow naturally between levels, illustrating how the building's interior is shaped not only by its structural logic but also by the relationships between private living spaces and the shared environments that anchor student life.

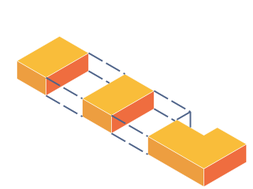


These accompanying renders offer a glimpse into these spaces in use, capturing moments of student activity and illustrating how the architectural layout encourages connection, visibility, and shared experience throughout the building.

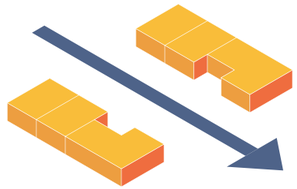
Massing Development
06

6.1 Massing Sequence

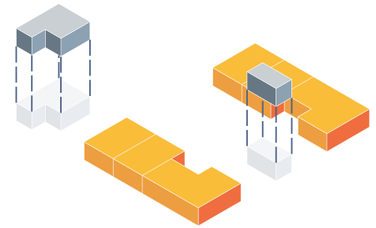
The massing process begins with the framework on both sides. The central space placement of individual residential units, formed between the two residential bars is arranged side by side according to projected student numbers, unit types, and a balanced overall form. Additional units are then introduced on the opposite side to establish a clear linear hallway running between the two rows. Core elements, including primary entry and exit routes, are integrated directly into this layout to support efficient circulation and safety. To achieve a symmetrical composition, the arrangement is mirrored, creating a uniform then infilled with a flexible communal zone on each floor, offering shared areas for student activity or the option for additional units. With this sequence, a complete residential floor is defined. This floor module is then vertically stacked to form the tower mass, which is ultimately grounded on a secure podium that provides stability, structural reinforcement, and a clear architectural base for the building.



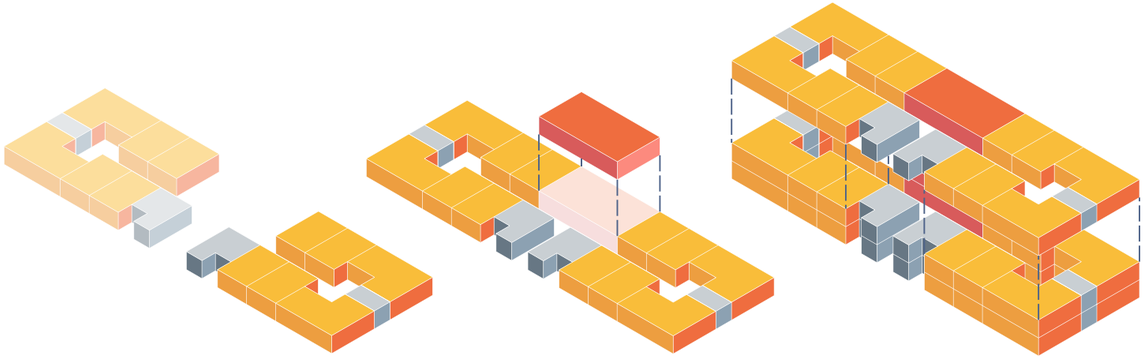
1 Initial Unit Arrangement



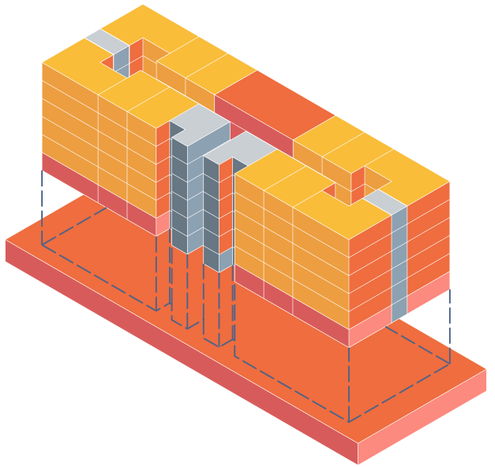
2 Mirrored Units With Hallway



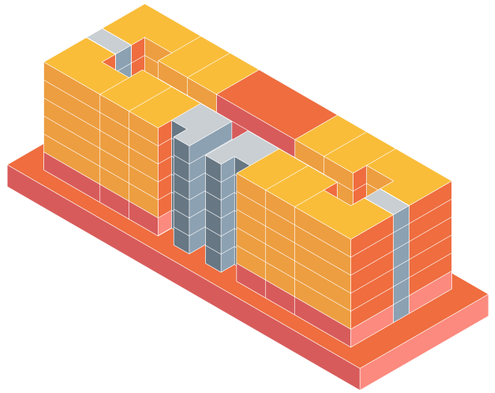
3 Core Exits Integration



4 Symmetrical Massing Formation **5** Insertion of Flex Spaces **6** Vertical Stacking of Floors



7 Podium Integration



8 Final Massing Form

Final Design Proposal
07

7.1 Final Form

For the final massing and architectural resolution, the project adopts a more efficient overall form, prioritizing cost effectiveness, streamlined circulation, and clarity in how spaces are organized. The programming established in earlier stages carries directly into the design, ensuring continuity between concept and built logic. The main floor and second floor function as community-oriented zones, with shared amenities and gathering spaces, while access to the upper residential levels is intentionally concentrated within a defined lobby area on the ground floor. The residential floors themselves are tailored to the differing needs of undergraduate and graduate students, reflecting variations in lifestyle, privacy, and spatial preferences. This approach creates a building that is both responsive to its users and efficient in its architectural strategy.

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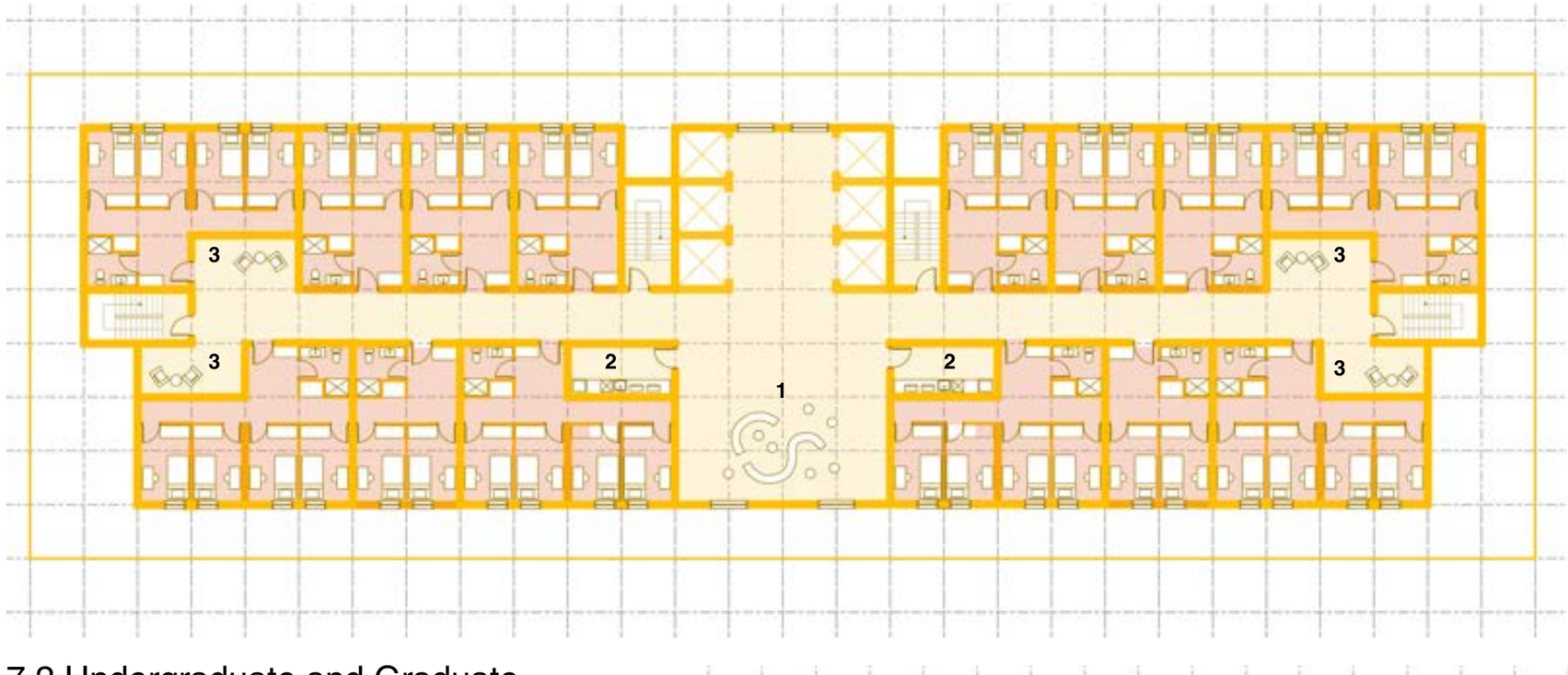


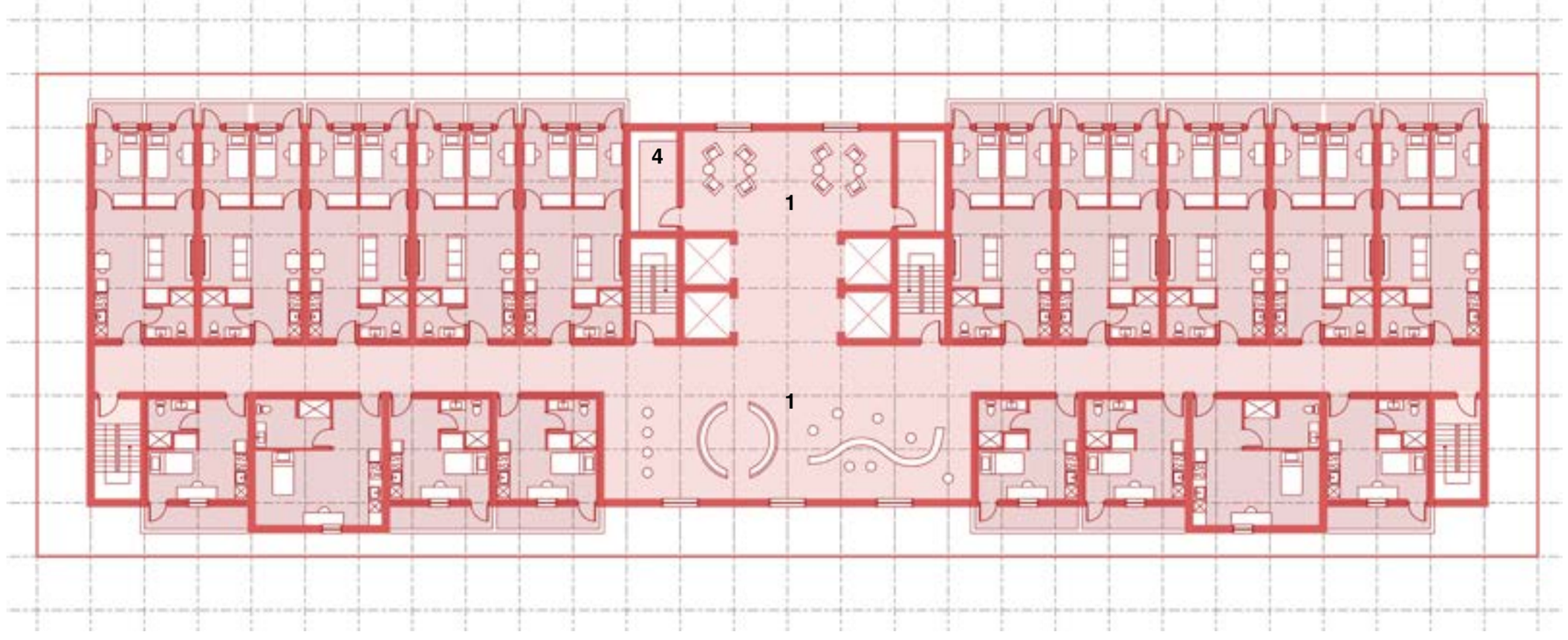
7.2 Undergraduate and Graduate Residential Floorplan

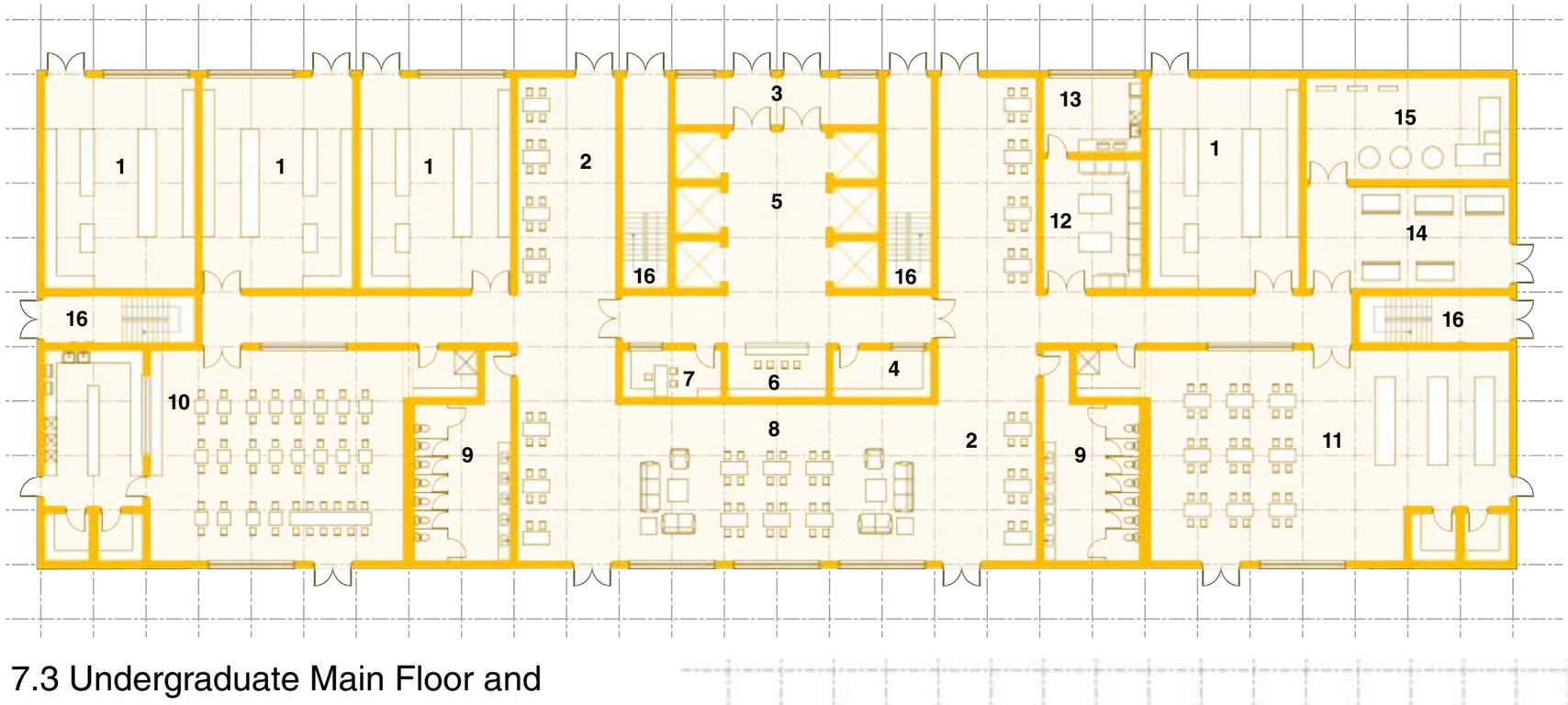
1 Social Lounge
2 Pantry Kitchen
3 Sitting Nook
4 Laundry

Graduate Floor Plan
Number of Students : 28 Students Per Floor
Types of Rooms : 6 Studio Units
2 Acessible Units
10 2-Bedroom Units
Area Per Floor : 1383 m2

A key distinction between the undergraduate and graduate buildings lies in the design and distribution of communal spaces. In the undergraduate residence, where individual units do not include personal kitchens, each floor is equipped with a shared communal kitchen to support daily cooking and social interaction. Because the undergraduate population is larger, an additional pair of elevators is provided to accommodate higher circulation demands and reduce wait times. In contrast, the graduate building prioritizes more private, quiet living arrangements, with individual units offering greater autonomy. Communal areas are more limited on the lower floors, but each level includes two designated social spaces and a shared laundry room to encourage interaction while still respecting the need for privacy. This differentiation reflects the distinct lifestyles and expectations of undergraduate and graduate students, ensuring that each building supports its residents appropriately.

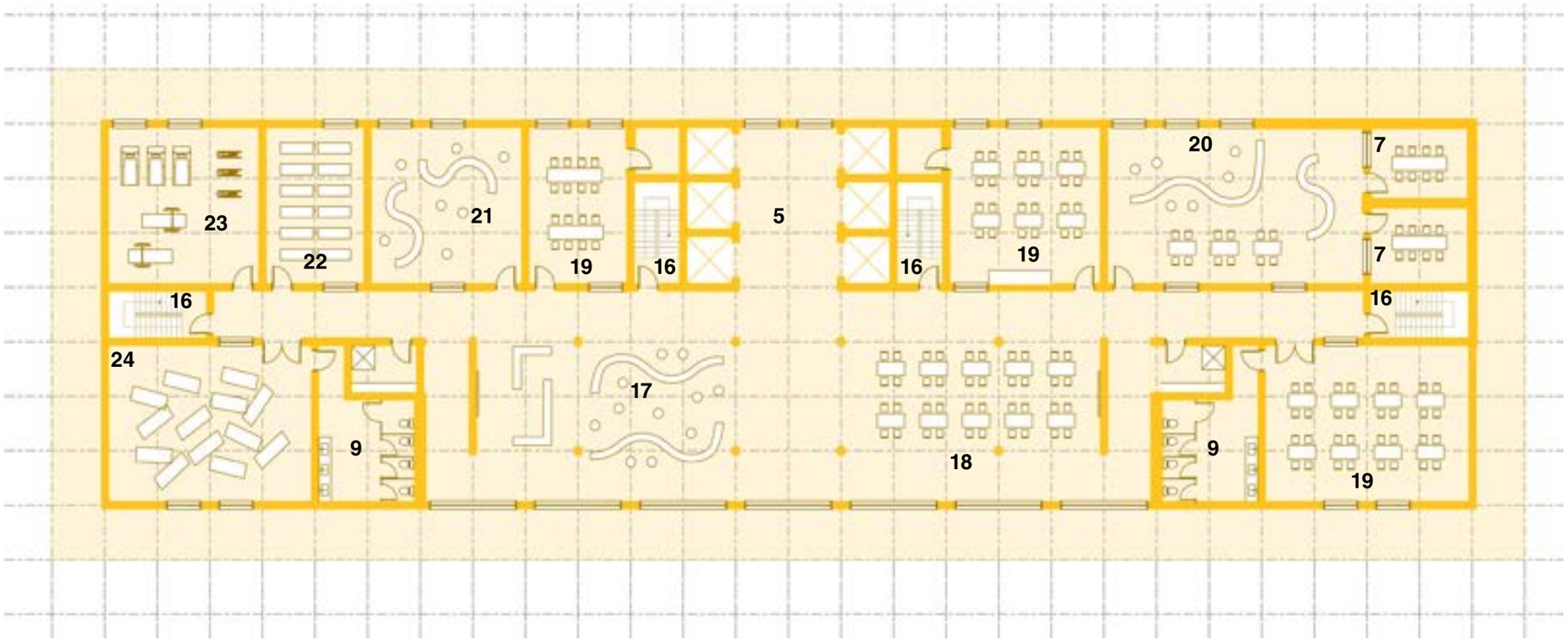
Undergraduate Floor Plan
Number of Students : 40 Students Per Floor
Types of Rooms : 8 2-Bedroom Units
6 4-Bedroom Units
Area Per Floor : 1225 m2





7.3 Undergraduate Main Floor and Second Floorplan

1 Retail
2 Hallway/ Study Area
3 Vestibule
4 Mail
5 Foyer
6 Reception
7 Meeting Rooms
8 Lounge
9 Washroom
10 Kitchen/ Cafeteria
11 Grocery/ Cafe
12 Laundry
13 Staff
14 Waste
15 Mechanical/ Electrical
16 Emergency Exit
17 Game Room
18 Social Lounge
19 Study Rooms
20 Cultural Room
21 Flex Room
22 Meditation
23 Gym/Fitness
24 Yoga



In the undergraduate building, the first and second floors place a strong emphasis on communal activity and student support. The main floor operates as a vibrant hub, featuring retail spaces, a generous lobby with a mail room and reception area, as well as several meeting rooms for academic or administrative needs. Adjacent to the staff room is the communal laundry facility, conveniently positioned for everyday use. A cafeteria and a dedicated café space further animate the ground level, offering students accessible places to dine, gather, and socialize.

The second floor shifts toward wellness and recreation, organized into zones that encourage both activity and cultural engagement. Fitness and yoga spaces occupy the left side, while the right side accommodates cultural rooms and additional meeting areas. Two quiet study rooms provide focused work environments, and a large open lounge supports games, relaxation, and informal interaction, reinforcing the building's role as a lively support center for undergraduate life.

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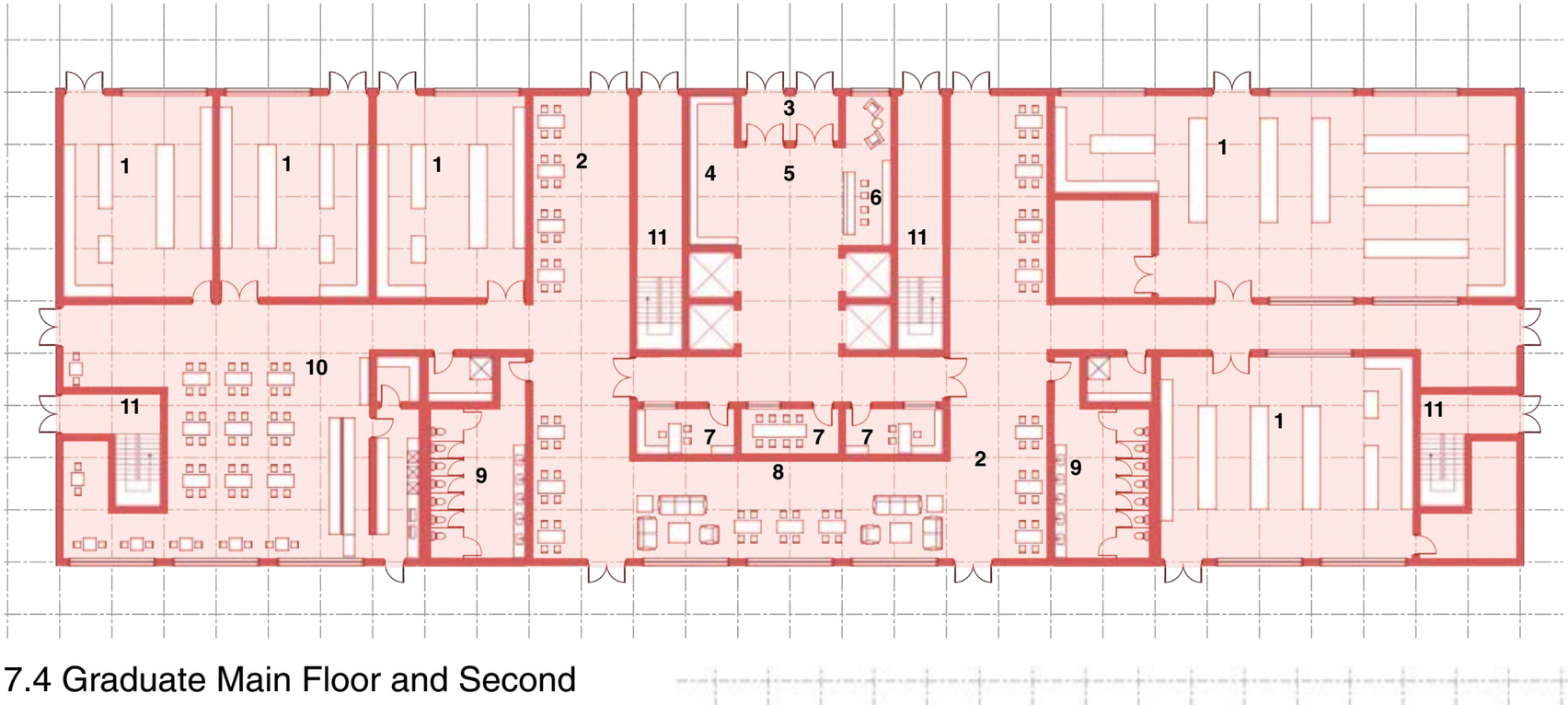


In the graduate building, the first floor mirrors the undergraduate layout in its essential functions but shifts its priorities to accommodate a more independent resident population. A larger portion of the ground level is allocated to retail, while the lobby with its mail room, reception, and meeting rooms remains a clearly defined anchor for resident services. A café space is also included, offering a comfortable setting for informal work or conversation.

The second floor follows a layout similar to the undergraduate building but places greater emphasis on meeting rooms and dedicated study areas to support graduate level work habits. This floor also includes two specialized rooms designed for film screenings, presentations, and display events, which provide flexible spaces that can host a variety of academic or social gatherings.

7.4 Graduate Main Floor and Second Floorplan

1 Retail
2 Hallway/ Study Area
3 Vestibule
4 Mail
5 Foyer
6 Reception
7 Meeting Room
8 Lounge
9 Washroom
10 Cafe
11 Emergency Exits
12 Theatre
13 Social Lounge
14 Art Room
15 Gym/Fitness
16 Meditation
17 Yoga
18 Study Room

7.5 Material Selection

Undergraduate spaces use brighter colours and strong accents to support energy, social interaction, and visual identity. Graduate spaces shift toward muted, neutral tones and natural finishes to promote focus, calm, and long-term comfort. Both palettes align with durable, prefabricated materials suited for modular high-rise construction in Calgary's climate.

Undergraduate Material Selection

Exterior

Grey Fibre Cement

Orange Fibre Cement

Orange Accents

Smooth Formed Concrete

Interior

Soft Neutral

Orange Accents

Light-Gray Tiling

Oak Flooring

Graduate Material Selection

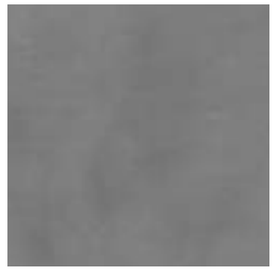
Exterior

Light Grey Fibre Cement

Red Fibre-Cement

Red Accents

Smooth Formed Concrete



Interior

Soft Neutral

Olive Green Accents

Olive Green Accents

Oak Flooring

Site Integration
08

8.1 Test Site Selection

To further explore the potential of the final massing, the building was situated on a real site within the University District. This location was chosen for its proximity to the campus and its active blend of student life, local residents, and everyday urban activity. Placing the building within this context allowed for a deeper understanding of how its form, scale, and program might interact with the rhythms of the surrounding community. This section of the report examines how the proposed structures settle into the site, how they respond to existing circulation patterns and public realms, and what opportunities emerge for strengthening connections, enhancing vibrancy, and supporting the evolving character of the district.

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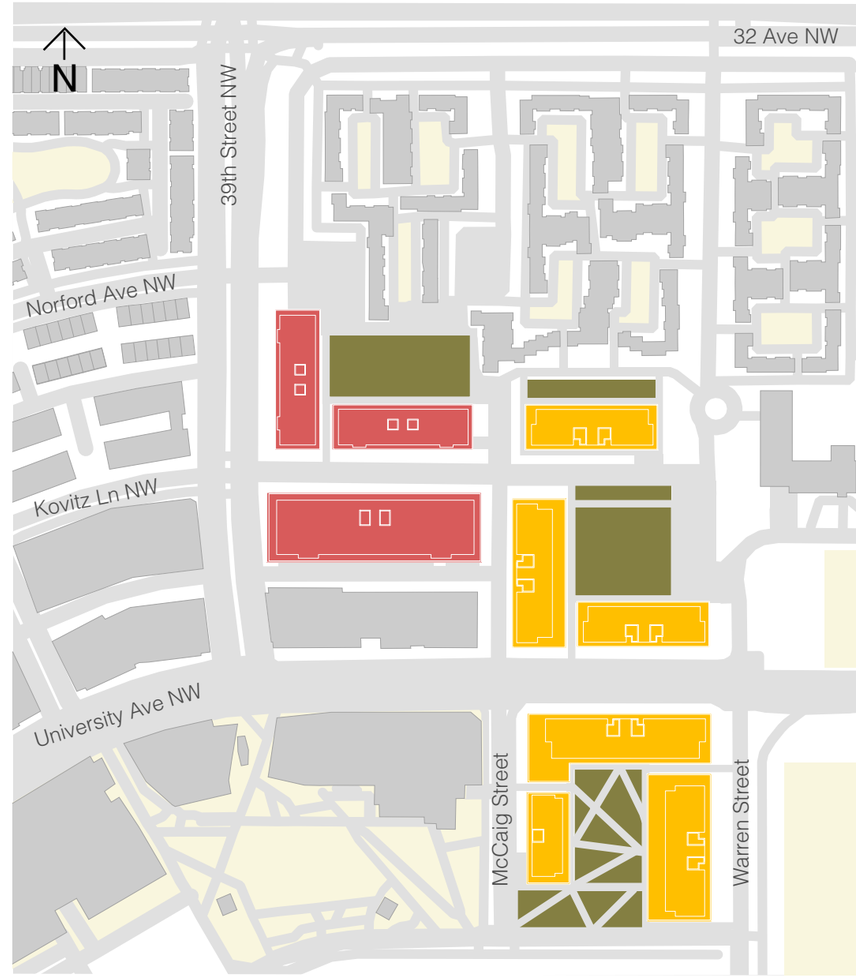
Location : University District, Calgary, AB



8.2 Urban Site Plan
The Network

Using the modular housing units designed for undergraduate and graduate students, the site can be envisioned as clusters that build on the character of Calgary's University District, an area already anchored by shops, services, and pedestrian-friendly streets. These clusters can extend that vibrancy by creating walkable nodes of living, learning, and social activity, seamlessly connecting student housing with the surrounding community fabric.

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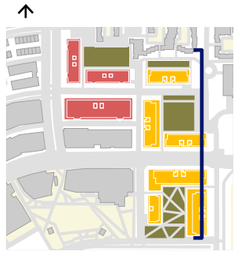
8.3 Urban Section



UNDERGRAD GRAD COLLABORATION SPACES RETAIL

These views illustrate the project's integration of density, comfort, and community at both the building and urban scale. The hybrid modular system supports a vibrant public realm, active ground-floor edges, and well-lit living environments, reinforcing student life as an extension of the surrounding University District.

References
09

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BROOK COMMONS

UBC. (2017). BROCK COMMONS PROJECT OVERVIEW TALLWOOD HOUSE. https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/symposium/2017/04_brock_commons_tallwood_house_angelique_pilon.pdf

University of British Columbia's Centre for Interactive Research on Sustainability. (n.d.). BROCK COMMONS TALLWOOD HOUSE DESIGN AND PRECONSTRUCTION OVERVIEW. https://sustain.ubc.ca/sites/default/files/brockcommons_designpreconstructionoverview_web%20%281%29.pdf

University of British Columbia's Centre for Interactive Research on Sustainability. (n.d.). BROCK COMMONS TALLWOOD HOUSE CONSTRUCTION OVERVIEW. https://www.naturallywood.com/wp-content/uploads/brock-commons-construction-overview_case-study_naturallywood.pdf

1925 VICTORIA PARK

Partisans. (2025). 1925 Victoria Park | PARTISANS. PARTISANS. https://partisans.com/project/1925-victoria-park/

Well Grounded Real Estate. (2025). 1925 Victoria Park (Coming soon). Greenhouseliving.ca. https://www.greenhouseliving.ca/

RESEARCH & IMAGES

University of Calgary. (2024). Cascade Hall. Ancillary Services. https://www.ucalgary.ca/ancillary/residence/live-with-us/places-to-live/upper-year/cascade-hall

University of Calgary. (2025). Crowsnest Hall. Ancillary Services. https://www.ucalgary.ca/ancillary/residence/live-us/places-live/graduate/crowsnest-hall

University of Calgary. (2025). International House. Ancillary Services. https://www.ucalgary.ca/ancillary/residence/live-us/places-live/first-year/global-village

Pixelrz. (n.d.). Grey Floor Tile Texture Seamless. https://www.narodnatribuna.info/lists/pictures/grey-floor-tile-texture-seamless/

Pixelrz. (n.d.). 10 Of The Best Realistic Seamless Wood Textures Wood Texture. https://narodnatribuna.info/lists/1/10-of-the-best-realistic-seamless-wood-textures-wood-texture/

Cedral. (n.d.). Cedral Thrutone Fibre Cement Slate Roof Tile. https://www.roofingsuperstore.co.uk/product/cedral-thrutone-fibre-cement-slate.html

Deposit Photos. (n.d.). Fibre Cement Panel Stock Photo. https://depositphotos.com/photos/fiber-cement-panel.html

Appendix
10

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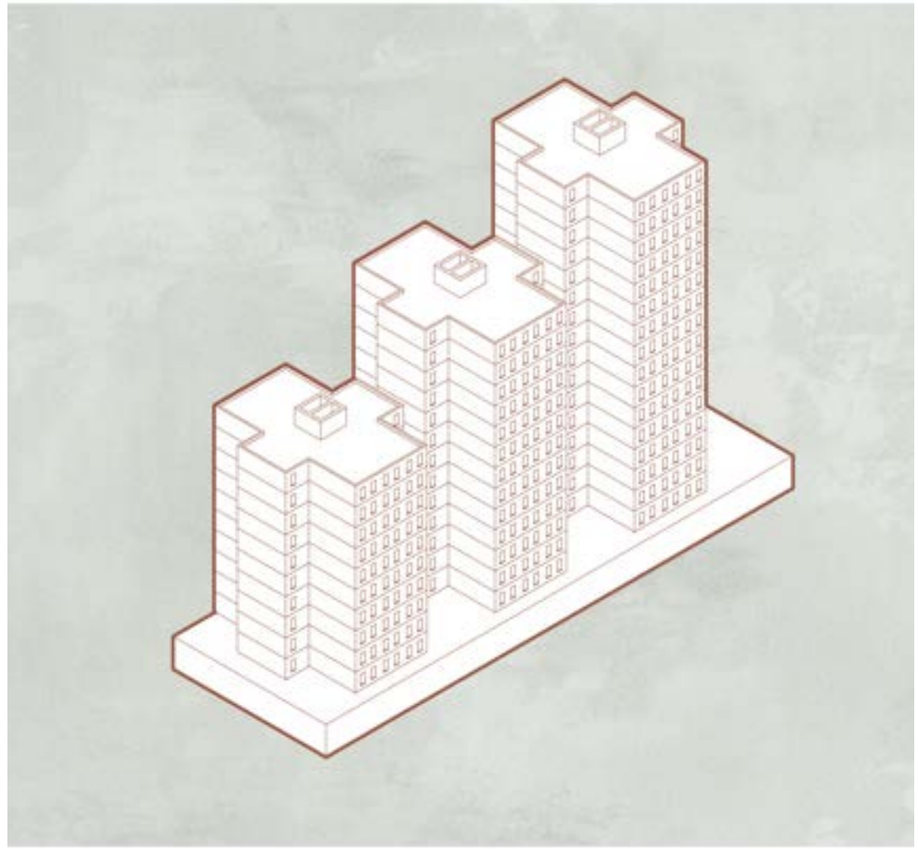


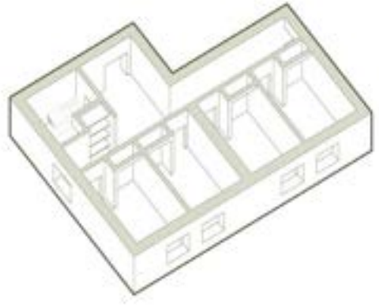
A1. Initial Unit Designs

The initial unit layouts matched those in the final plans, but two larger unit types were removed after further evaluation. The six-bedroom undergraduate unit and the four-bedroom graduate unit were both eliminated because their shared spaces felt too constrained to provide a comfortable living environment.and overall livability. These revisions ensured that the remaining unit types provided an appropriate balance between density, privacy, and quality of life.

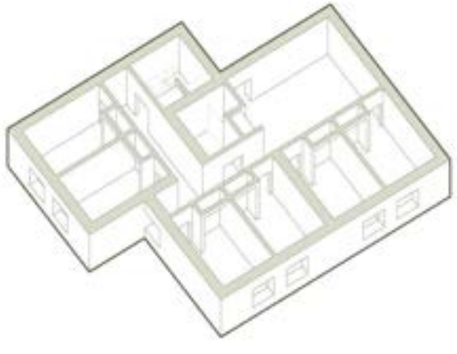
A1.1 Undergraduate Units

TWO BEDROOM UNIT

FOUR BEDROOM UNIT

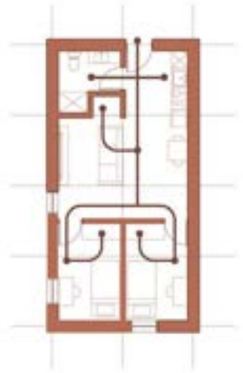


SIX BEDROOM UNIT



A1.2 Graduate Units

STUDIO UNIT



TWO BEDROOM UNIT

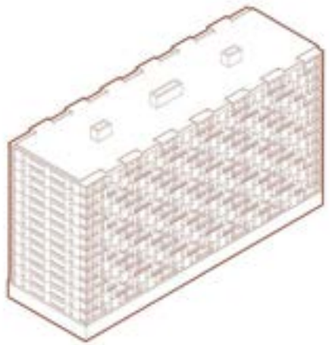
FOUR BEDROOM UNIT

A2. Initial Iterative Process

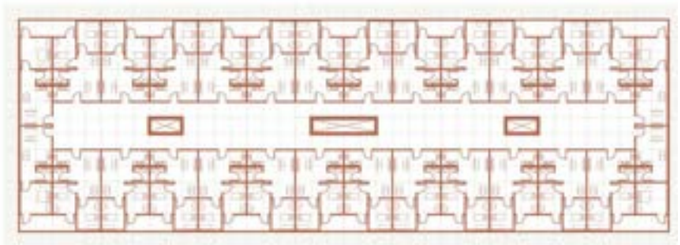
During the initial iterative process following the unit development, numerous massing variations were explored. These included schemes with balconies wrapping around the building, configurations with open cavity spaces to introduce more light into the center, and versions that extended upward into taller tower forms. Each iteration tested different ways of enhancing natural light, circulation, and overall spatial character before arriving at the final design direction.

A2.1 Massing Iterations

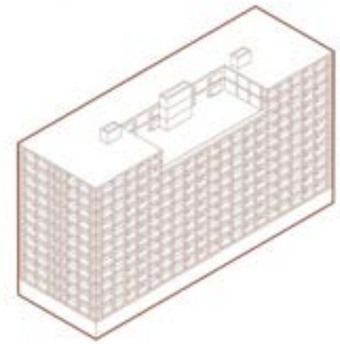
ITERATION A



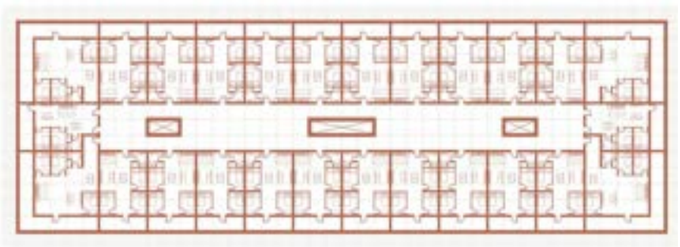
1-2 BEDROOM UNIT WITH BALCONY



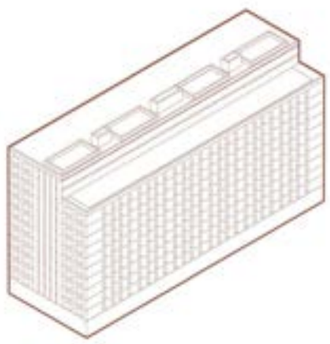
ITERATION B



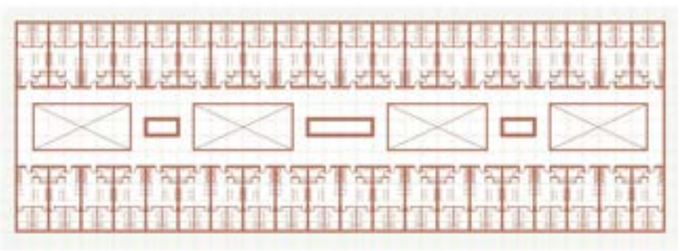
2-3 BEDROOM UNIT WITH WRAP-AROUND BALCONY



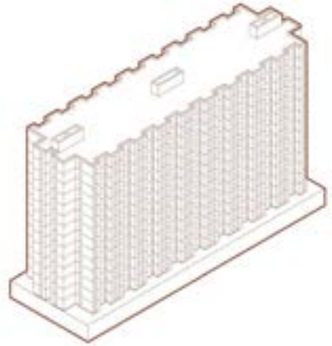
ITERATION C



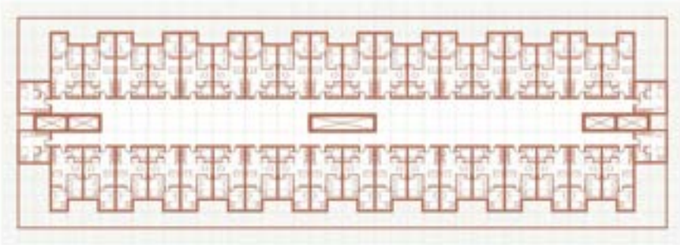
2 BEDROOM UNIT WITH SKYLIGHT



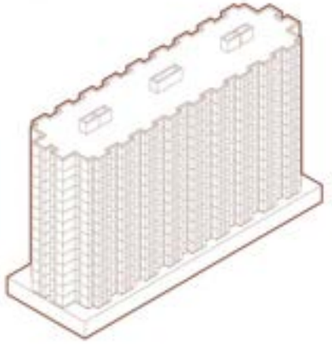
ITERATION D



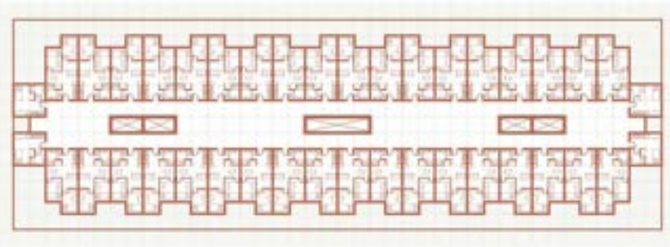
1-2 BEDROOM UNIT WITH EDGE CORE



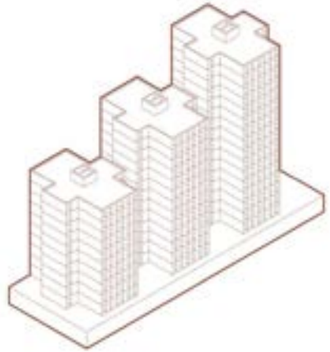
ITERATION E



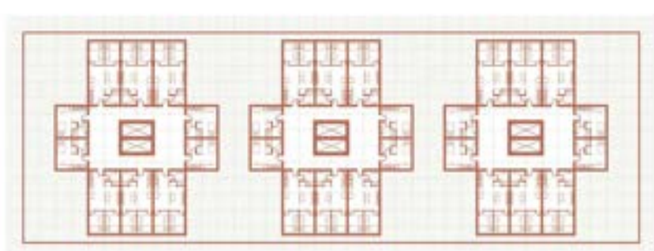
1-2 BEDROOM UNIT WITH CENTRAL CORE



ITERATION F



1-2 BEDROOM UNIT: 3 TOWERS

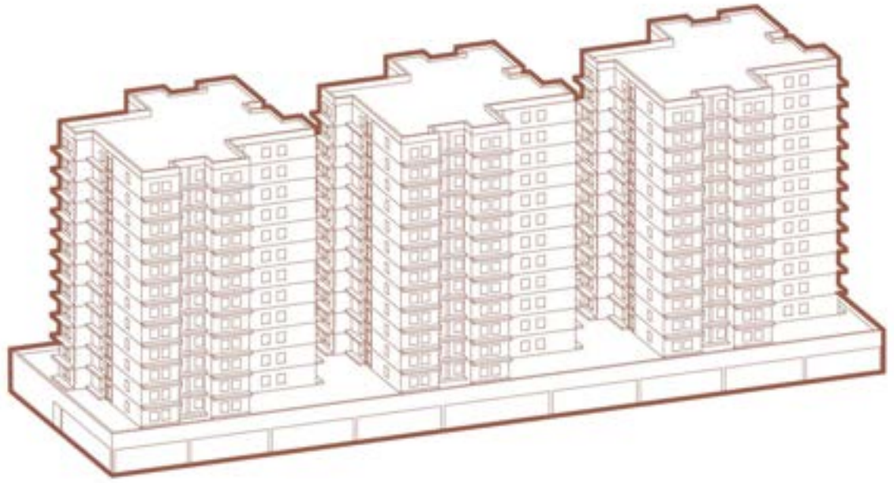


A3. Sample Test 1

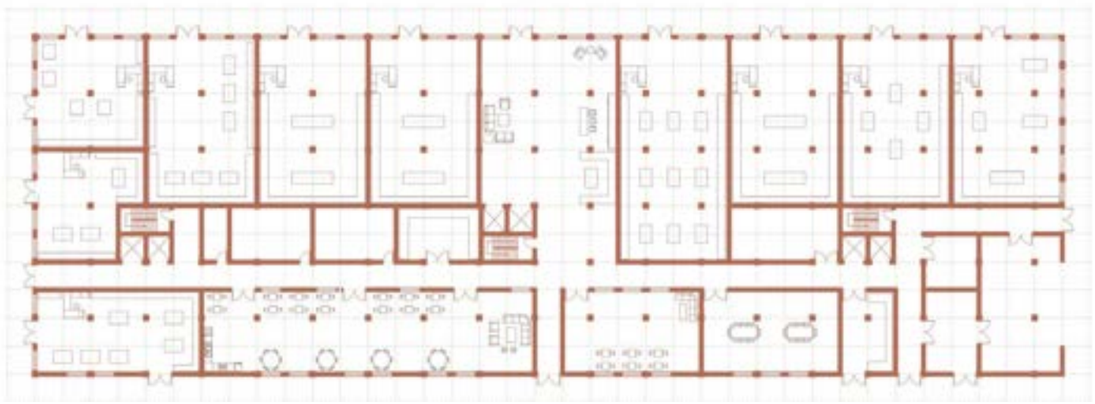
After testing several massing iterations, the team concluded that the version featuring towers best aligned with the overall vision. This approach offered greater comfort and flexibility within the units compared to earlier schemes. The tower configuration enabled more free-flowing layouts and efficient circulation organized around a single core per tower. During this phase, various room arrangements were examined in Sample Test 1, which prompted a deeper exploration of how community spaces should function throughout the building.

128 STUDIO UNITS
155 TWO BEDROOM UNITS
TOTAL OCCUPANCY: 438 STUDENTS

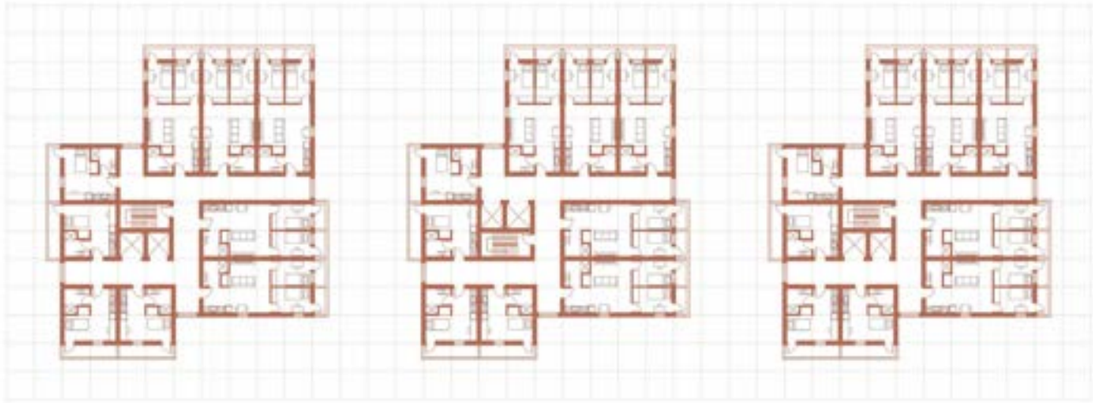
RESIDENTIAL: 11 STOREYS
TOTAL HEIGHT: 13 STOREYS



GROUND FLOOR



FLOOR 2-4, 6-8, 9-12



4 STUDIO UNITS
5 TWO BEDROOM UNITS
14 PEOPLE/PER FLOOR /PER TOWER

FLOOR 5 AND 9

4 STUDIO UNITS
3 TWO BEDROOM UNITS
10 PEOPLE/PER FLOOR/
PER TOWER

4 STUDIO UNITS
2 TWO BEDROOM UNITS
8 PEOPLE/PER FLOOR
/PER TOWER

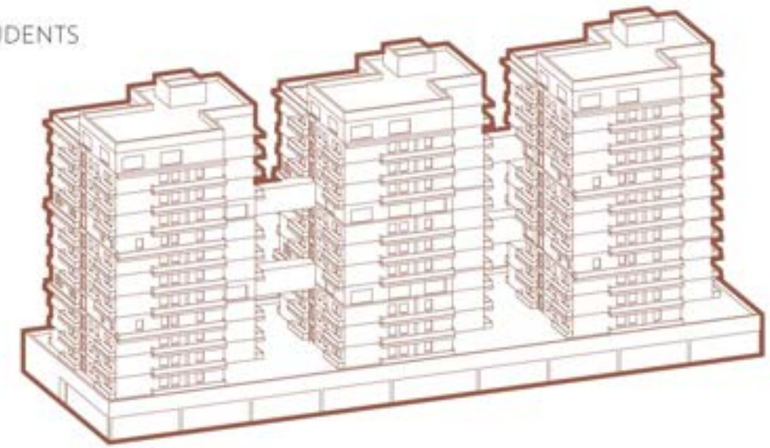
2 STUDIO UNITS
5 TWO BEDROOM UNITS
12 PEOPLE/PER FLOOR
/PER TOWER

Questions emerged about the amount of shared activity occurring beyond the ground floor and whether more intimate gathering areas could be incorporated at higher levels. These considerations led to the idea of passageways connecting the three towers on select floors, with enclosed rooms along these links serving as elevated community hubs for collaboration and events. Structurally, these connections were envisioned as lightweight bridging elements that complemented the clarity of the tower forms.

A4. Sample Test 2

14 STUDIO UNITS
1 TWO BEDROOM UNIT
2 FOUR BEDROOM UNITS
TOTAL OCCUPANCY: 438 STUDENTS

RESIDENTIAL: 11 STOREYS
TOTAL HEIGHT: 13 STOREYS



FLOOR 2-4, 6-8, 9-12

4 STUDIO UNITS
1 TWO BEDROOM UNIT
2 FOUR BEDROOM UNITS
14 PEOPLE/PER FLOOR/PER TOWER

Sample 2 introduced a four-bedroom unit layout that maintained density while strategically opening the shared living zone to bring more natural light into the main communal space.

A5. Sample Test 3

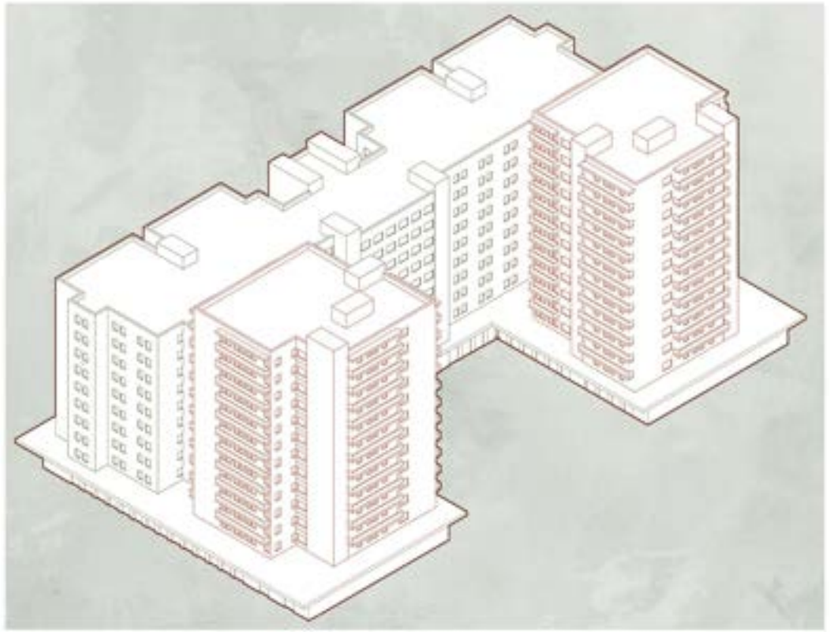
12 TWO BEDROOM + STUDIO UNITS
4 THREE BEDROOM UNITS
TOTAL OCCUPANCY: 570 STUDENTS

RESIDENTIAL: 11 STOREYS
TOTAL HEIGHT: 13 STOREYS

FLOOR 2-4, 6-8, 9-12

2 TWO BEDROOM
2 STUDIO UNITS
4 THREE BEDROOM UNITS
18 PEOPLE/PER FLOOR/PER TOWER

Sample 3 increased overall student occupancy by testing a three-bedroom arrangement that still ensured shared spaces received sufficient daylight for comfort and usability.

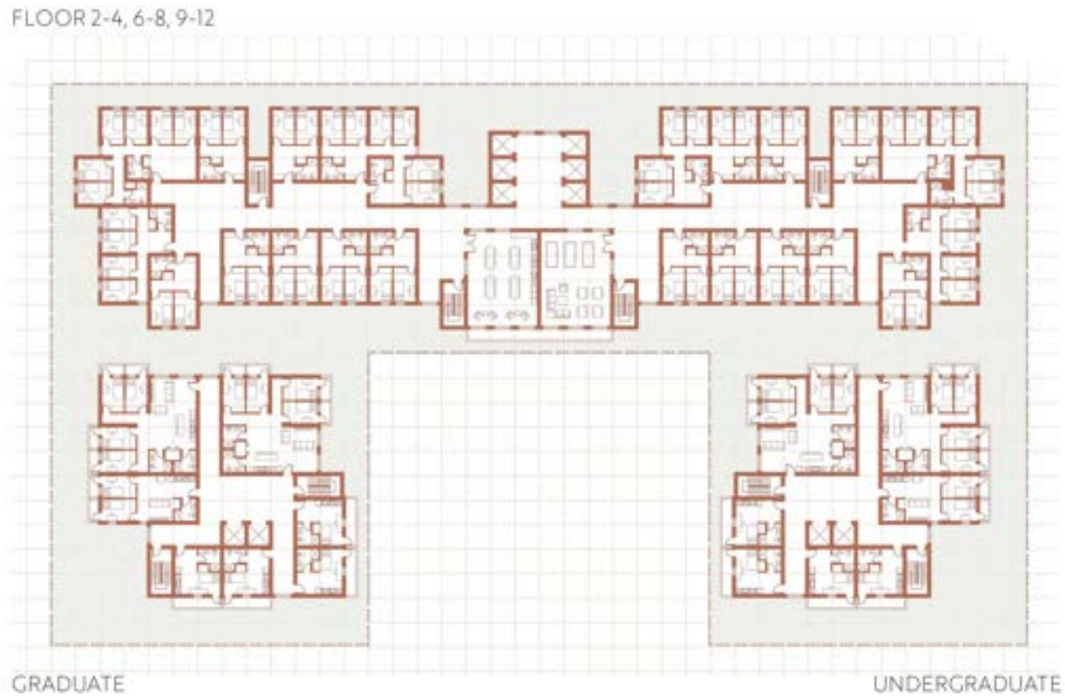


MAIN FLOOR PLAN

A6. Sample Test 4

In the final massing, we recognized the different lifestyles of undergraduate and graduate students. Undergraduates tend to be more social and energetic, while graduate students prefer quieter, more focused spaces. This showed us that they could not comfortably share the same areas, so we explored how both groups could inhabit one building while still maintaining separation.

The design places undergraduate housing in the north street-facing tower and graduate housing in the two southern towers, all connected by a shared podium. Passageways create controlled moments of interaction, allowing the groups to meet without disrupting each other's spaces. At the ground level, a shared community hub offers dining and event space for everyone. The upper levels provide quieter, collaborative study areas especially for graduate students. This arrangement supports meaningful and informal connections, such as a spontaneous conversation with a faculty member, while still respecting the needs of each group.



GRADUATE	UNDERGRADUATE
4 STUDIO UNITS	14 TWO BEDROOM UNITS
1 TWO BEDROOM UNIT	2 FOUR BEDROOM UNITS
2 FOUR BEDROOM UNITS	4 SIX BEDROOM UNITS
14 PEOPLE/PER FLOOR/PER TOWER	60 PEOPLE/PER FLOOR
RESIDENTIAL: 12 STOREYS	RESIDENTIAL: 9 STOREYS
TOTAL HEIGHT: 13 STOREYS	TOTAL HEIGHT: 10 STOREYS
TOTAL OCCUPANCY: 188 STUDENTS	TOTAL OCCUPANCY: 540 STUDENTS

kasian

The Node

Modular Mid-High Rise Student Housing Project

University District, Calgary, AB