Design Booklet

1056 Queen Street West, Toronto

ARCH 31452 Architectural Studio 5
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*All students involved in this submission had equal participation in research, writing, image selection and graphic elaboration.

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01 INTRODUCTION

a. Scope of Report

This report focuses on the analysis and design concept development of a new mid-rise building located at 1056 Queen Street West, Toronto.

The proposed construction is a 5-story building and falls under the following OBC Major Occupancy(s) Classifications (Table 3.1.2.1.):

- Group A2 Assembly occupancies intended for the production and viewing of the performing arts: Art Gallery and Cafe

- Group C Residential Occupancies: Apartments

To support this proposal, research was conducted about existing mid-rise mixed-use buildings, neighborhood's history and infrastructure, zoning bylaws, the Ontario Building Code, Performance Standards for Mid-rise Buildings, Best Practices for Effective Lighting, Bird Friendly Best Practices Glass, and Green Roof Guidelines (Singapore).

b. Program

The program, divided according to floors, is:

1. **Basement:** elevator lobby, cable/telephone/data room/electrical, water meter/sprinkler room, cisterns, lockers.

2. **Ground Floor:** residential lobby with vestibule, security, mail area, elevator and mechanical shaft, stairs (scissors), shared workspace, bike storage, 1 universal washroom, loading, garbage and recycling room, commercial use (gallery and café), exterior living spaces for both residential and commercial areas.

3. **Second to Fifth Floors:** elevator and mechanical shaft, garbage room, residential units (studio, one-bedroom and two-bedroom units), games/lounge, uncovered patio, planters, and balconies.

01
INTRODUCTION

c. Context

i. Neighborhood Context

Queen Street West neighborhood is named after its main street which is "composed of commercial, residential, and mixed-use building typologies that generate" (Toronto, 2019) a dynamic and lively neighborhood, home to the "city's best restaurants, nightclubs, cafés, independent boutiques, street art and galleries" (The Toronto Convention and Visitors Association, 2022). This variety of activities and dynamics is part of the neighborhood's history, which started as informal artist colonies and became a revitalized community with safe and affordable artist studios (Artscape, 2012).

1. History

In the 1960s, Queen Street West "had a reputation for drug problems, poverty and petty crime," according to Artscape (2012). In the early 1980s, with the relocation of the industrial manufacturing to the suburbs, artists who were "in search of cheaper rents" took over the "vacant warehouse buildings," that "were not zoned for residential occupation," which originated informal artist live-work studios in Queen Street West. In 1995, with the creation of safe and affordable artist studios such as Artscape West Queen West, the Candy Factory Lofts and Chocolate Factory Lofts, an influx of galleries, cafes, and specialty retail took place in the neighborhood (Artscape, 2012). evelopers agreed to plan for "better design and amenities, including the preservation of small-scale retail, public parks, and artist space" and for "the needs of the community" and the preservation of its "unique character" (Artscape, 2012).

2. Queen Street West x Fenning Street

Unlike Queen Street West, Fenning Street is an entirely residential neighborhood. It is less populated, peaceful and the varied architectural housing types - contemporary, Victorian, modern, and traditional – contribute to the neighborhoods' charm.


Queen Street West


Queen Street West dynamic community


Candy Factory Lofts


Chocolate Factory Lofts

d. Site and Zoning

Performance Standards for Mid-rise buildings have the goal of creating healthy, livable, and lively main streets while also safeguarding the stability and integrity of neighboring communities. After the application of these provisions, and the consideration of zoning requirements, the following section was produced to represent the allowable dimensions:

Zoning and Site Statistics

General Project Information	
Project	N/A
Address	1056 Queen Street West
Municipality	Toronto
Lot Area	847.2 sqm
Zoning Designation	CR 3.0 (c1.0; r2.5) SS2 (x1575)

BYLAW SECTION 40.10 COMMERCIAL RESIDENTIAL ZONE (CR)

Permitted Floor Space Index	
Commercial	1
Residential	2.5

40.10.20 Permitted Uses	
40.10.20.10 Uses	Retail Store / Dwelling Unit
40.10.20.40 Building Type	Mixed-Use Building

40.10.30 Lot Requirements	
40.10.30.20 Lot Frontage	Minimum: 9.0m ; Existing: 27.85m, 30.47m
40.10.30.40 Lot Coverage	No lot coverage applies

40.10.40 Principal Building Requirements	
40.10.40.1 General:	
(1)Location of Commercial Uses in a Mixed Use Building Condition	On a corner lot, dwelling units may be located in the first storey of a building behind the non-residential uses and with access to a minor street
(2)Commercial Uses - Location of Entrances and First Floor Elevation	First Floor Elevation: Maximum 0.2m ; Must have a pedestrian access with ramp if not level with public sidewalk
(6)Location of Entrances when Abutting Residential	Pedestrian access abutting a lot in residential zone category separated by lane, must not be within 12m except: (i)a service entrance; (ii)an entrance to a residential use; or (iii)an entrance or exit required by Federal or Provincial regulations
40.10.40.10 Height:	
Maximum height	16m
Minimum height	10.5m
Maximum number of storeys	5
Maximum height of first storey	4.5m

40.10.40.40 Floor Area	
(1)Floor Space Index:	Commercial: 1 ; Residential: 2.5

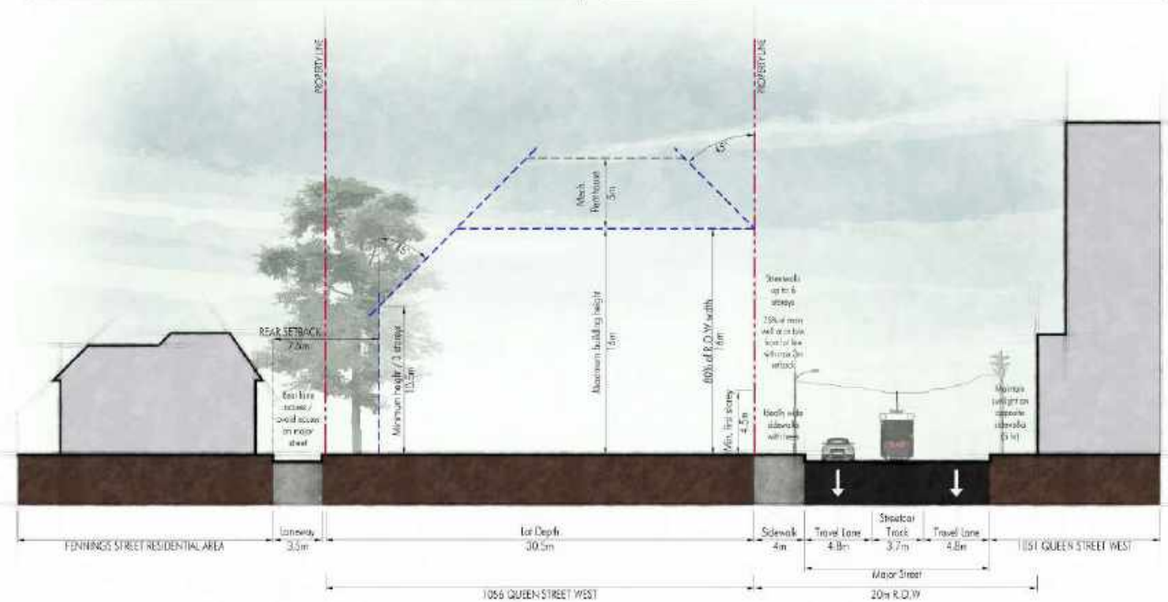
40.10.40.50 Decks, Platforms and Amenities	
(1)Amenity Space for Buildings with 20 or More Dwelling Units	Building w/ 20 dwelling units or more: 4sqm for each unit of which: (A)min. 2.0 sqm per dwelling unit is indoor amenity space; [Bylaw 1353-2016] (B)min. 40.0 sqm is outdoor amenity space in a location adjoining or directly accessible to the indoor amenity space; and (C)max. 25% green roof of outdoor area

40.10.40.70 Setbacks	
Front Setback	75% of main wall of or low front lot line with max 3m setback
Rear Setback	Where lot line abuts lane, 7.5m from the lot line abutting the lane on opposite side
Side Setback	Main wall with openings, min. 6.5m from side lot line not adjacent to street
Angular Plane	45 degrees along the entire required rear yard setback, starting at a height of 10.5 metres above the average elevation of the ground along the rear lot line

40.10.80 Parking	
40.10.80.10 Location	a surface parking space may not be located in the front yard
40.10.80.20 Setbacks	Min. 0.5m from lot line ; Min. 7.5m from a lot in residential category zone

40.10.100 Access to Lot	
40.10.100.10 Location	If the lot abuts a lane, vehicle access to that lot must be from the lane

40.10.150 Waste	
40.10.150.1 General	Storage should be in a wholly enclosed building ; if in ancillary building, then must not be located on front and side yard abutting a street. Setbacks: if a ancillary building: 7.5m from lot in R zone & 1.0m from all other lot lines



02 DESIGN CONCEPT

a. Neighborhood History and Symbolic Concept Correlation

The building concept is to refer, through the Dutch Art movement "De Stijl", to the engaged and artistic character of the Queen Street West neighborhood. It translates abstraction, pays homage to the surrounding community's art scene by simplifying the visual composition through linear shapes, primary colors, and strong asymmetry. The form highlights the site's various zoning and building regulations. The association between nature and building results in sustainability and residents increased mental health and boost of artistic and creative abilities. Taking further inspiration from the style, extrusions and negative spaces were used to their maximum potential to create balconies and planters on all the units..

02 DESIGN CONCEPT

b. Problems, Solutions, and Intentions

New construction may not solve contemporary issues relating to the city's social, environmental, and architectural aspects but must address them and contribute to their mitigation. Currently, the City of Toronto has developed a series of Best Practices manuals and guidelines that indicate some of the environmental problems faced. We are committed to applying the knowledge provided by the city into our multi-use building design in the Queens Street West neighborhood.

According to the City of Toronto, well-designed lighting provides safety and security, allowing citizens to navigate the city and use it at night. Effective lighting contributes to energy efficiency, resulting in increased quality of life in the city. When "poorly designed or improperly installed", nevertheless, it can cause light pollution – "glare, light trespass, overlighting and sky glow [which] can worsen visibility" for pedestrians and vehicles (Toronto, Best Practices Effective Lighting, 2017). Humans and wild animals are affected by the issue.

Effective Lighting Fixtures, by Gabriel Guillen

Associated with the first issue, as mentioned, comes the second: dead birds. Over 20 million birds perish each year in Canada due to window collisions, according to the City of Toronto's Bird Friendly Best Practices Glass. The causes are light (which distract birds from natural navigation cues such as the moon and stars and trap them into the urban environment), and glass (which provide tree and sky reflections that cannot be identified as such by birds, or cannot be perceived as a solid object, contributing to bird strike and subsequent death).

A dead Common Yellowthroat, by FLAP Canada

That being so, we've implemented several guidelines to provide the building with effective lighting and bird friendly glass, such as: minimizing glare, eliminating direct upward light, optimizing useful light, enhancing urban design, using appropriate color temperature, using **visual markers**, and **treating at least 85% of all exterior glazing**.

On the **social realm**, our intention was to:

- Create spatial and visual articulations that separates the public and private aspects of the building while maintaining visual cohesion with the whole built form.
- Provide residents with natural lighting and views to the exterior from all units.
- Promote biophilic design through planters and have residents surrounded by nature as a source of health and wellbeing.
- Provide residents with semi-private spaces to encourage social interaction.
- Contribute to heritage aspect of Queen Street West through rhythm resulting of 4-7 meters spaced columns and glazing.

When it comes to **shape, form, and concept**, we aimed to:

- Emphasize the primary colors of the style to create a unique entrance.
- Develop a dynamic composition that doesn't allow for the eye to be still.
- Convert 2D Mondrian paintings into a 3D form through exterior walls and negative spaces created by balconies and planters. Columns (structural/aesthetic) and panels contributed to defining the concept and form. To translate the De Stijl style into the walls, which were flat, we took inspiration from Japanese Shoji screens.

Proposed Building Fourth Flor Semi-private Spaces
View from Patio to Lounge/Games and Interior Garden

Rear View of Proposed Building
The 3D Mondrian, biophilic design, lighting and views

02 DESIGN CONCEPT

c. Material Selection

The material selection encompasses:

A Low e-glass combined with visual markers that are visible to birds but hardly visible to human eyes.

B Markers that provide a bird-friendly solution without having to compromise durability, views, and light flow. These are patterned in the asymmetrical shapes of "De stijl" to emphasize the style.

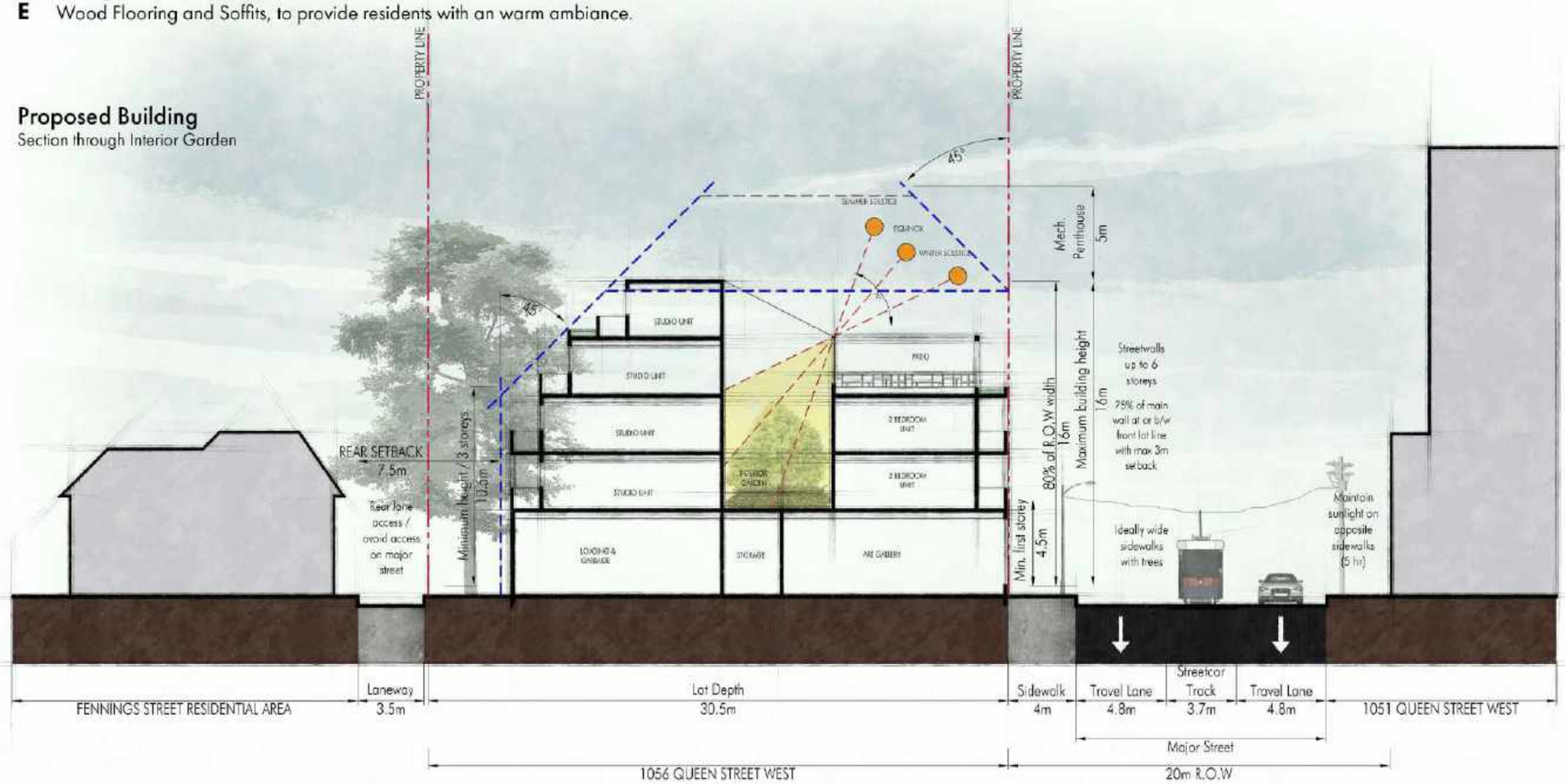
C Lightweight concrete cladding that is highly durable, low maintenance and fire resistant.

D Aluminum composite panels that are durable, fire resistant and offer a wide range of colors and design flexibility while being produced with raw materials which are bio-degradable and non-toxic.

E Wood Flooring and Soffits, to provide residents with an warm ambiance.

d. Building Section

As a result of construction near the existing adjacent building (on the right), windows were not allowed or possible to be implemented on that façade. The units in the location, would be too long and, therefore, lack natural lighting, which is not ideal. To bring light into the building and reduce possible not-lit space, an interior garden was proposed on the Second floor, reaching all levels above. The entire space is to be lit through a skylight structure that matches the garden size.



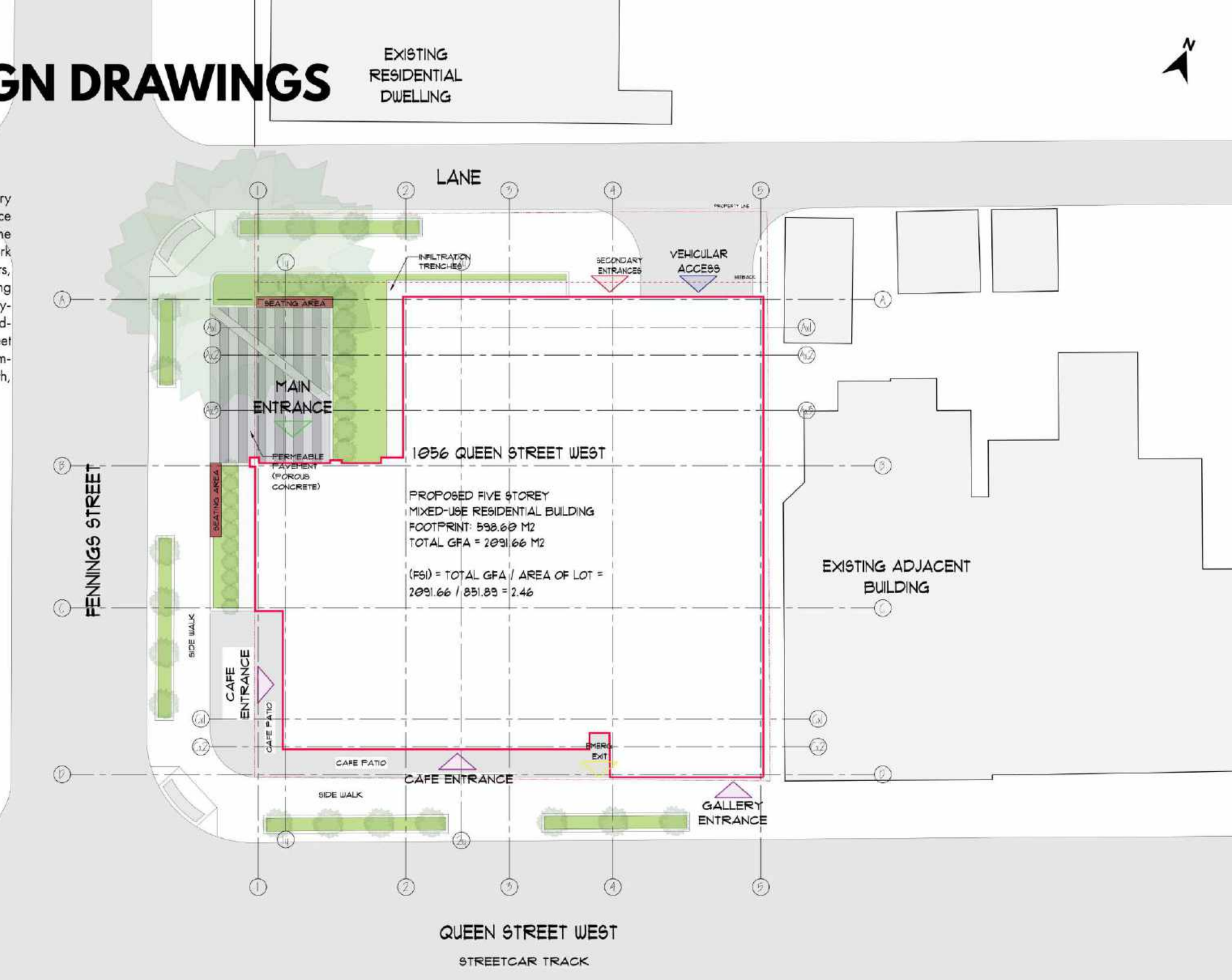
03 SITE AND SUN

SUMMER SOLSTICE

WINTER SOLSTICE

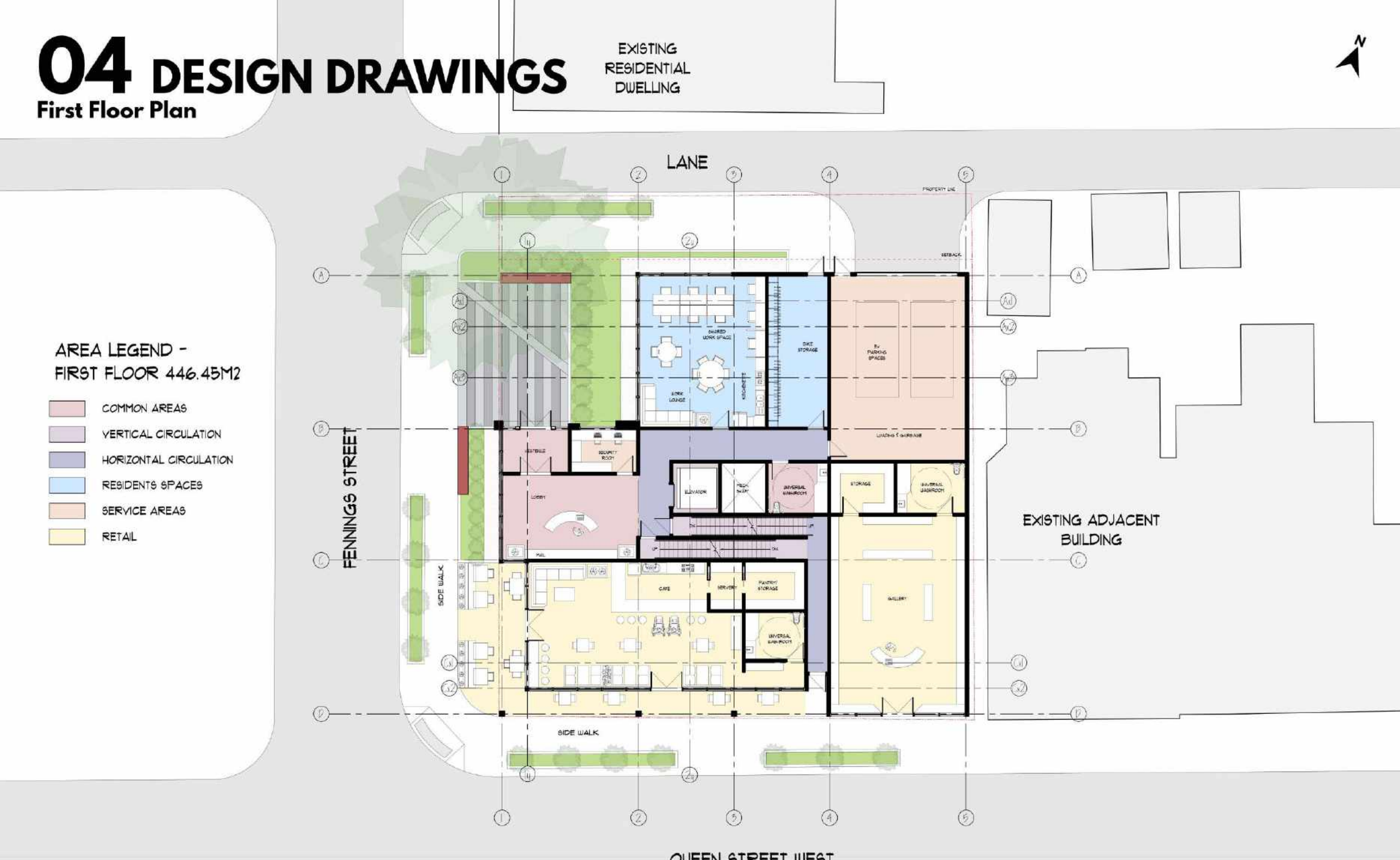
04 DESIGN DRAWINGS

The building encompasses an Art Gallery and a Café along with the residential space access on the main floor, residence on the 2nd to 5th floors, spaces for residents' work and leisure on both ground and 4th floors, and utilities in the basement. The building core is central, and the stairs are of scissor typology and lead to the exterior of the building through the front, towards Queen Street West. Reinforced concrete structure was implemented in the building due to its strength, sustainable qualities, and aesthetics.



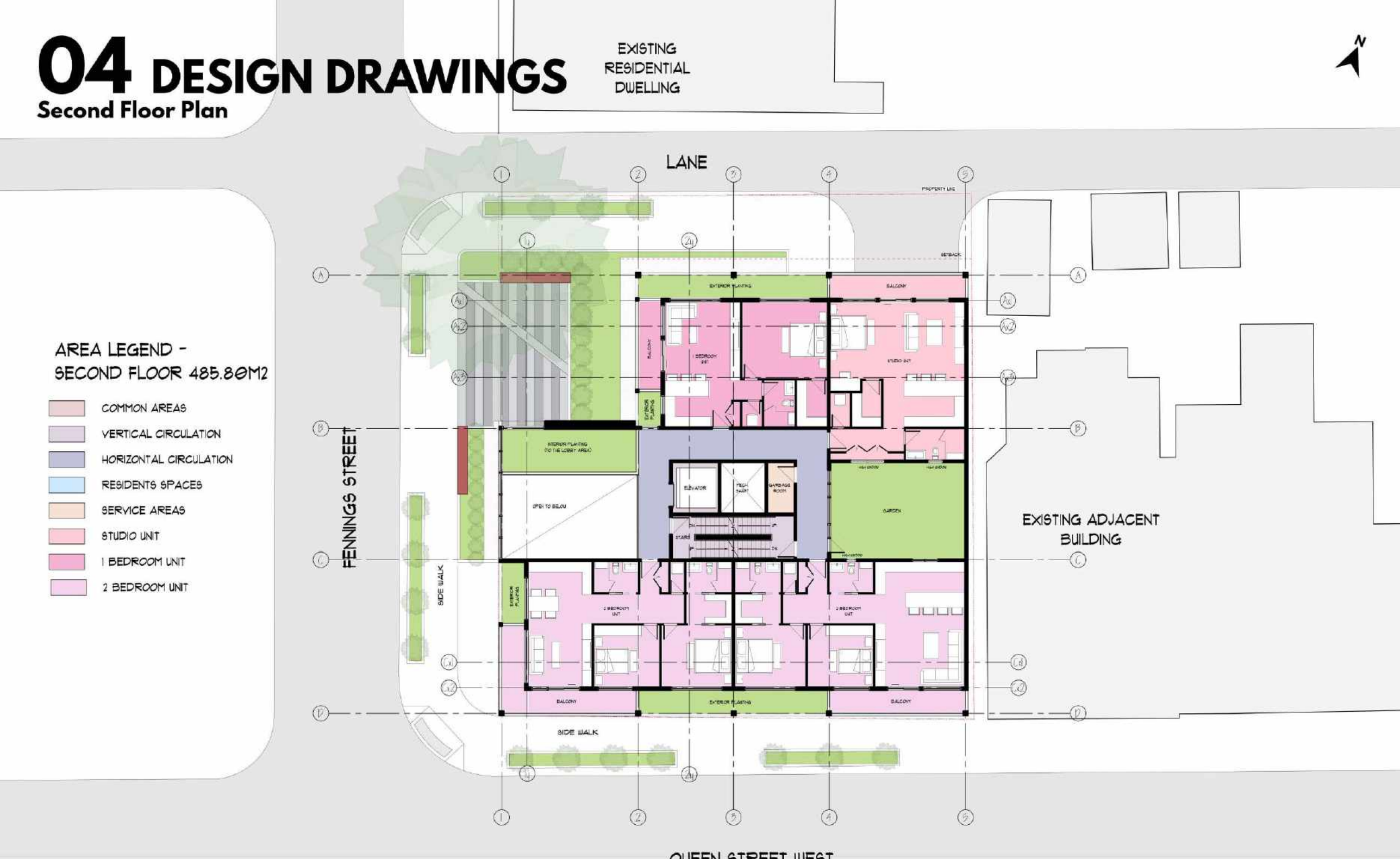
04 DESIGN DRAWINGS

First Floor Plan



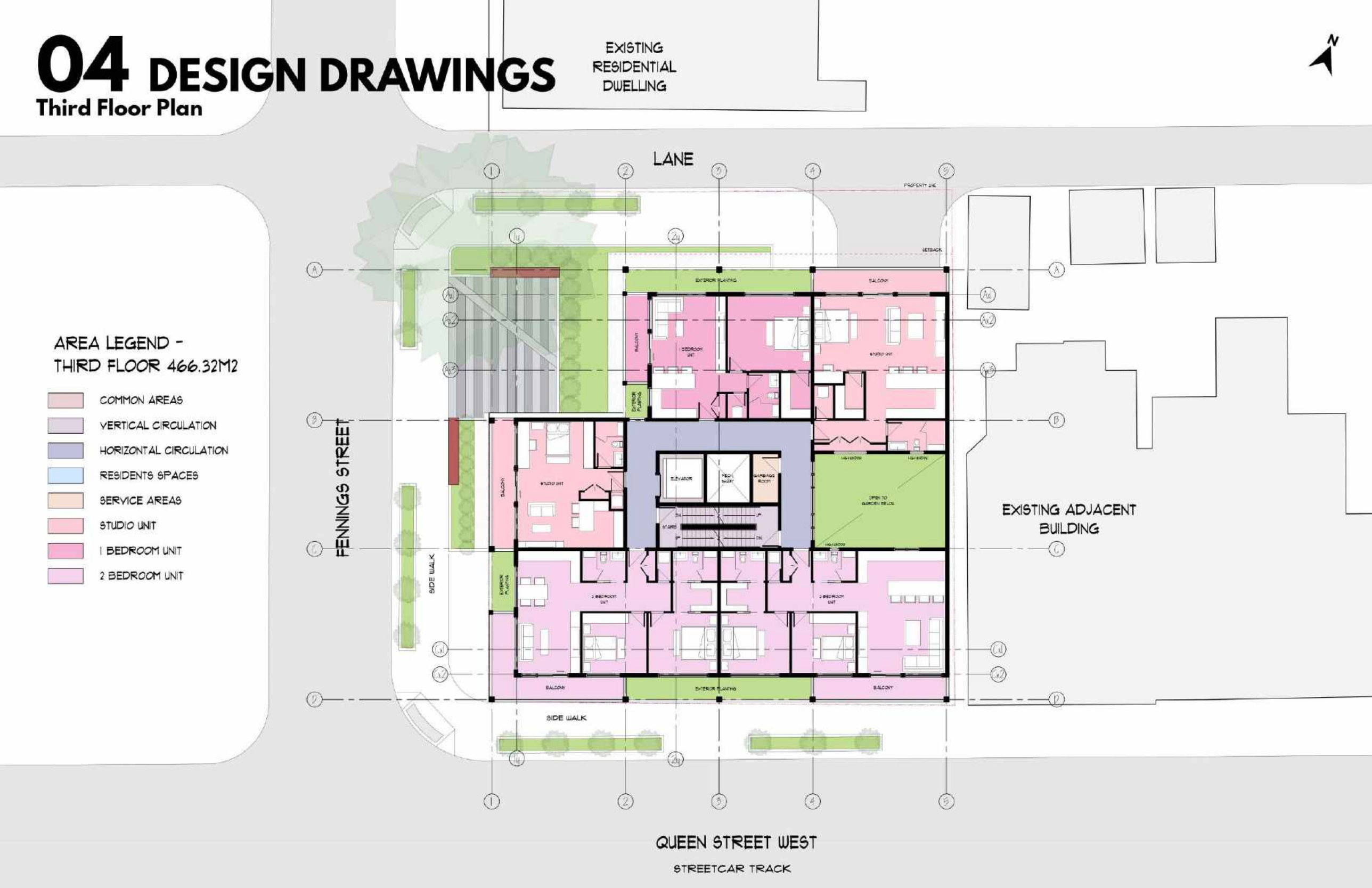
04 DESIGN DRAWINGS

Second Floor Plan



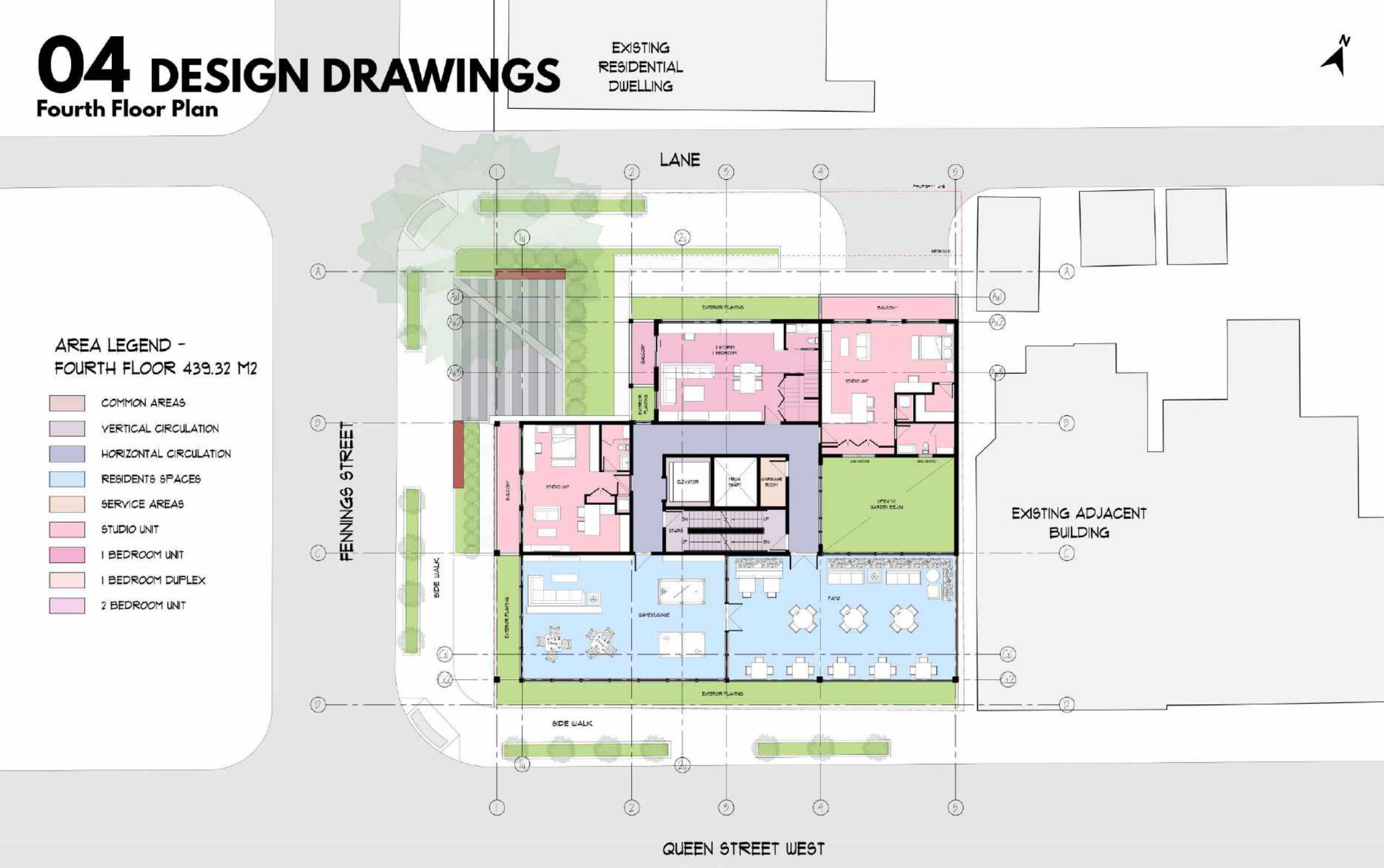
04 DESIGN DRAWINGS

Third Floor Plan



04 DESIGN DRAWINGS

Fourth Floor Plan

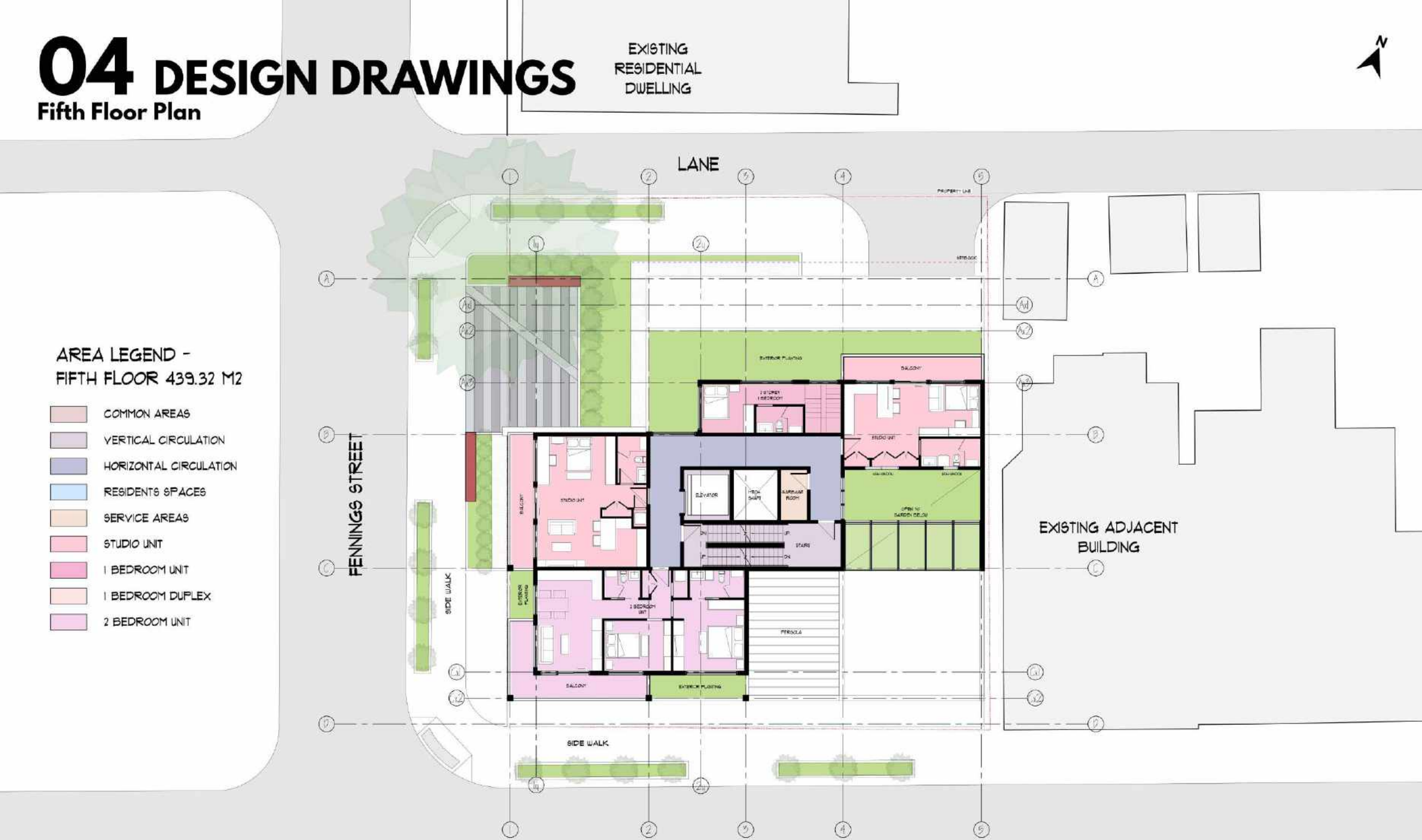


AREA LEGEND -
FOURTH FLOOR 439.32 M2

- COMMON AREAS
- VERTICAL CIRCULATION
- HORIZONTAL CIRCULATION
- RESIDENTS SPACES
- SERVICE AREAS
- STUDIO UNIT
- 1 BEDROOM UNIT
- 1 BEDROOM DUPLEX
- 2 BEDROOM UNIT

04 DESIGN DRAWINGS

Fifth Floor Plan



04 DESIGN DRAWINGS

1-Bedroom Unit Layout

Living areas have been placed on the exterior wall of the building so that the residents have access to views and receive maximum sunlight. In contrast, more functional spaces (washroom, laundry, walk-in closet) have been allocated on the inner wall of the unit (corridor). The living room was intentionally placed on the left side of the unit to get access to the balcony and interact with the existing tree. Moreover, the bedroom faces the lane for privacy and has enough space for placement of study/work desk if required by the resident.

04 DESIGN DRAWINGS

1-Bedroom Unit Layout

05 INTERIOR RENDERS

Cafe Lounge

05 INTERIOR RENDERS

Lobby

05 INTERIOR RENDERS

Shared Workspace

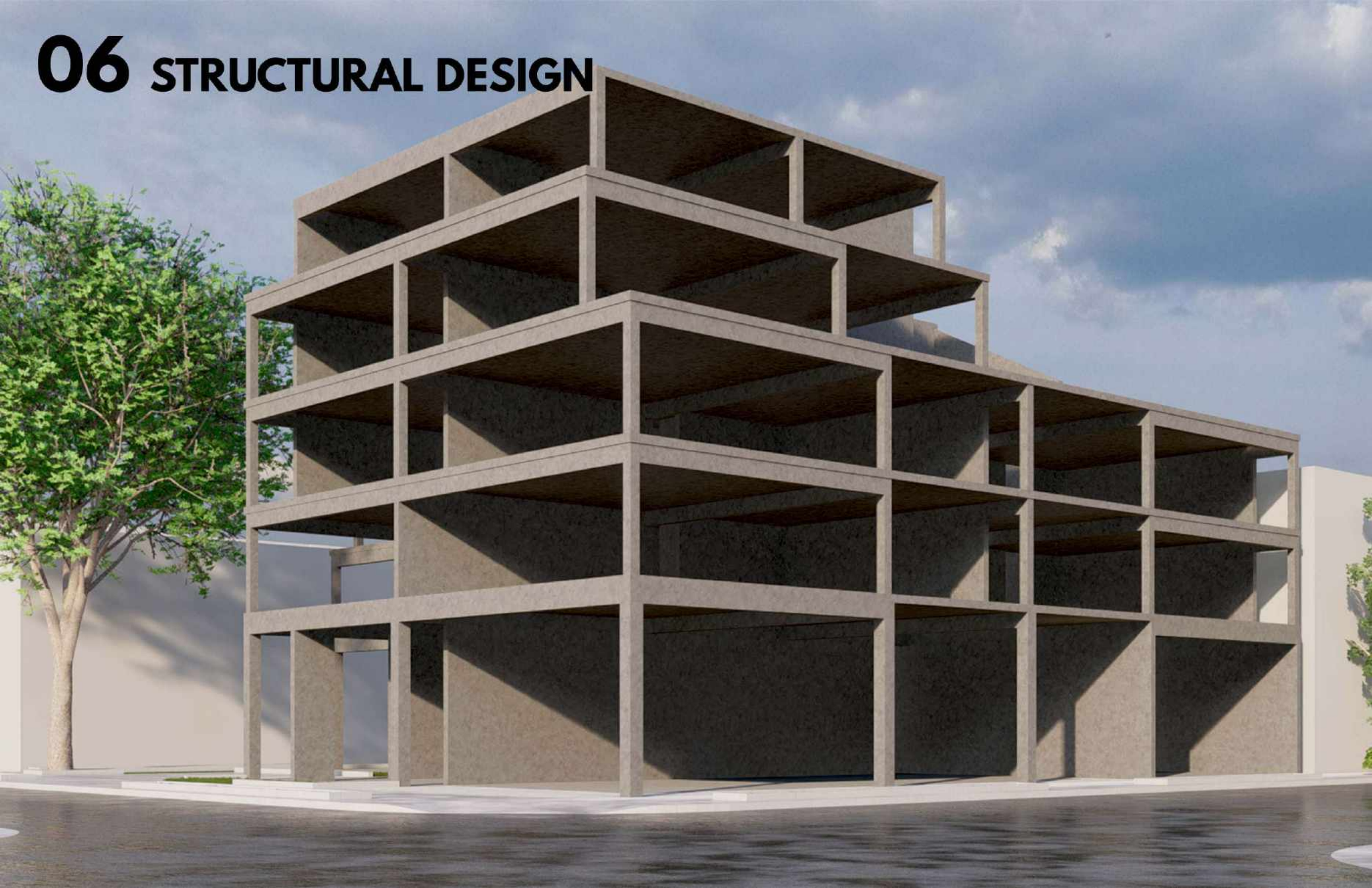
05 INTERIOR RENDERS

Lounge

05 INTERIOR RENDERS

Patio

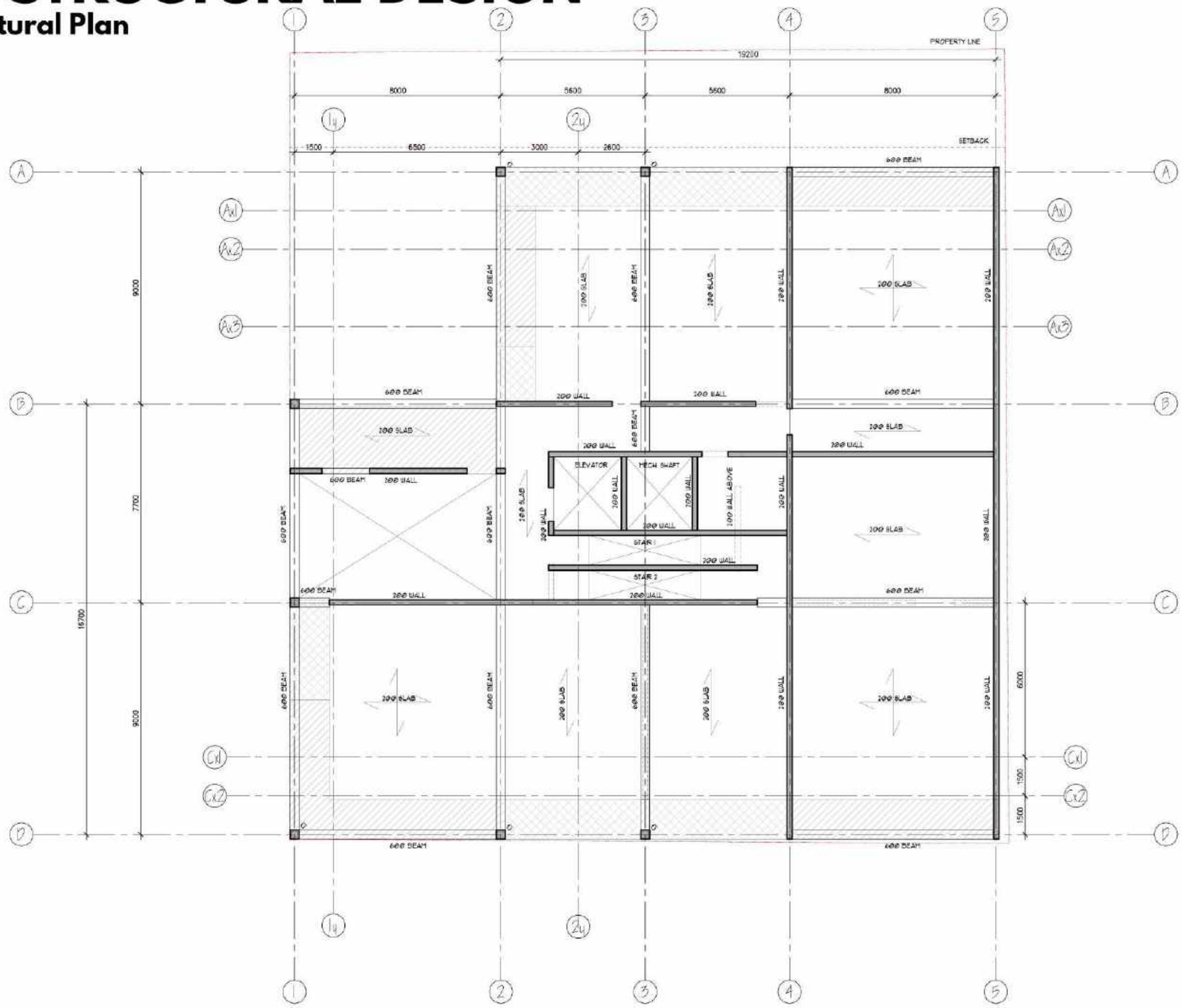
06 STRUCTURAL DESIGN



06 STRUCTURAL DESIGN

06 STRUCTURAL DESIGN

First Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT = 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 150MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMNS SIZES SHOULD GENERALLY NOT VARY BW FLOORS ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1 HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 200MM. EVERY 50MM ADDED INCREASES 1 HR.

2. WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS.

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS 6 TO 9M.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL.

1 HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 180MM. EVERY 25MM ADDED INCREASES 1 HR.

3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

SIZE THE BEAM WITH THE LONGEST SPAN. BEAMS WITH SHORTER SPANS CAN BE THE SAME SIZE BUT WITH REDUCED REINFORCEMENT.

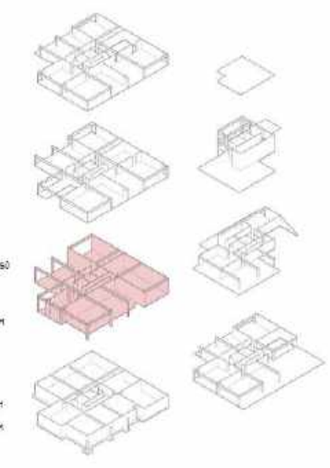
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

250MM CONCRETE BEAMS AND GIRDERS EQUALS 4HRS OF FIRE RESISTANCE RATING.

BEAM WIDTH SHOULD BE 1/3 TO 1/2 OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

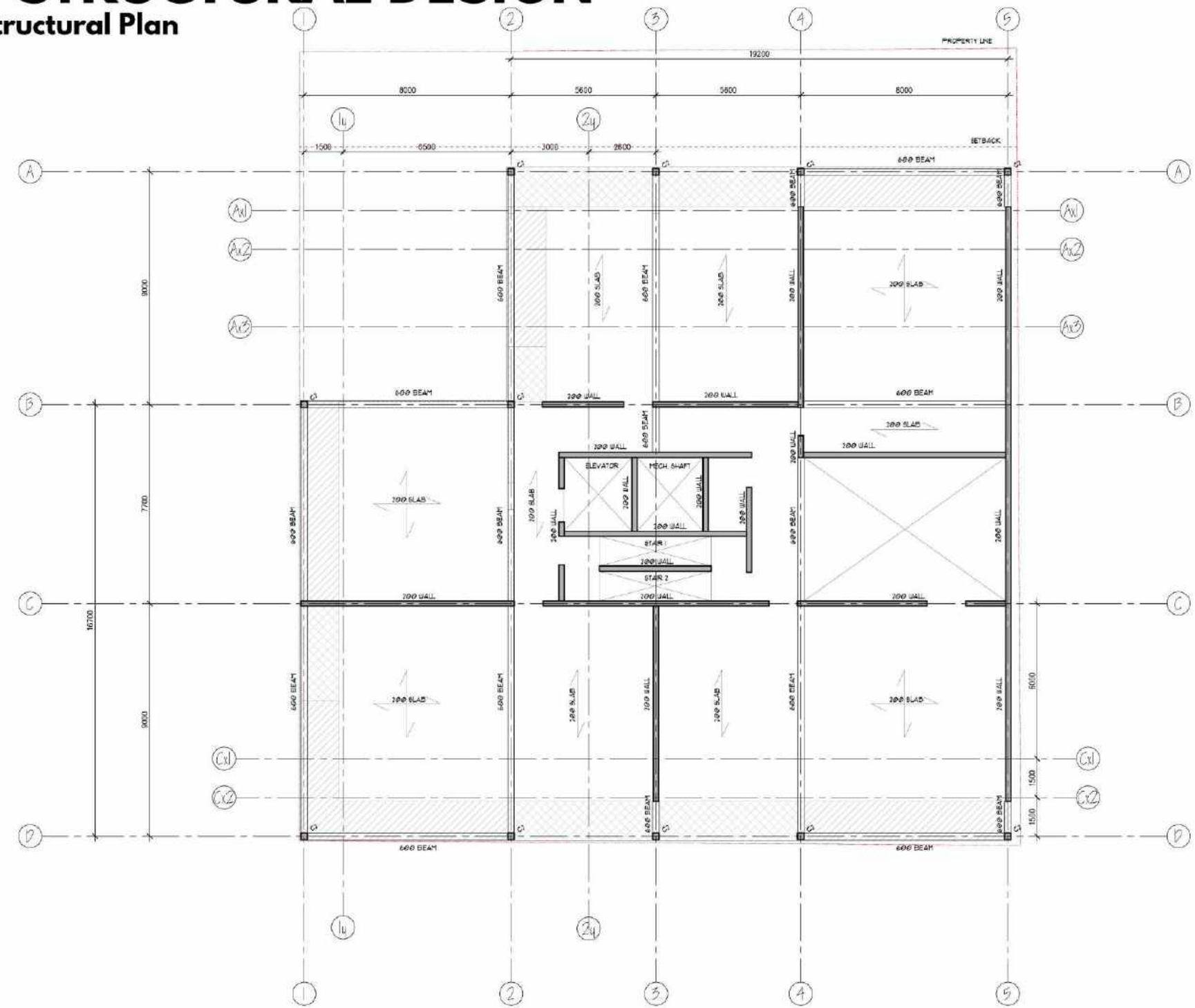
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 200 MM (4000 PSI)
  1ST FLOOR: 300 MM (6000 PSI)
  2ND TO 5TH FLOORS: 200 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 300 MM X 600 MM
  1ST FLOOR: 350MM x 600MM
  2ND TO 5TH FLOORS: 250 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (6000 PSI)
  C2 250 X 250 (6000 PSI)
- FOOTINGS
  F1 PAD: 1200 MM X 1200 MM X 400 MM
  F2 STRIP: 950 MM X 300 MM
  F3 PAD: 950 MM X 950 MM X 400 MM



06 STRUCTURAL DESIGN

Second Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT - 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 250MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMNS SIZES SHOULD GENERALLY NOT VARY BUT FLOORS ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING.

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1 HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 200MM. EVERY 50MM ADDED INCREASES 1 HR.

2. WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS.

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS 6 TO 15M.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL.

1 HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 180MM. EVERY 25MM ADDED INCREASES 1 HR.

3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

SIZE THE BEAM WITH THE LONGEST SPAN. BEAMS WITH SHORTER SPANS CAN BE THE SAME SIZE BUT WITH REDUCED REINFORCEMENT.

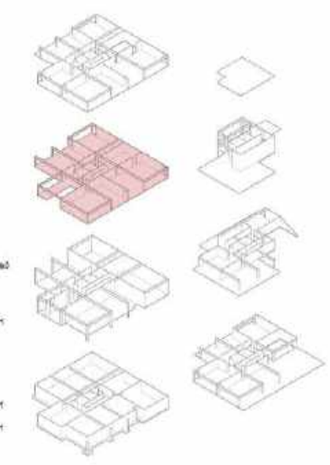
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

1 HOUR CONCRETE BEAMS AND GIRDERS EQUALS 4 HRS OF FIRE RESISTANCE RATING.

BEAM WIDTH SHOULD BE 1/3 TO 1/2 OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

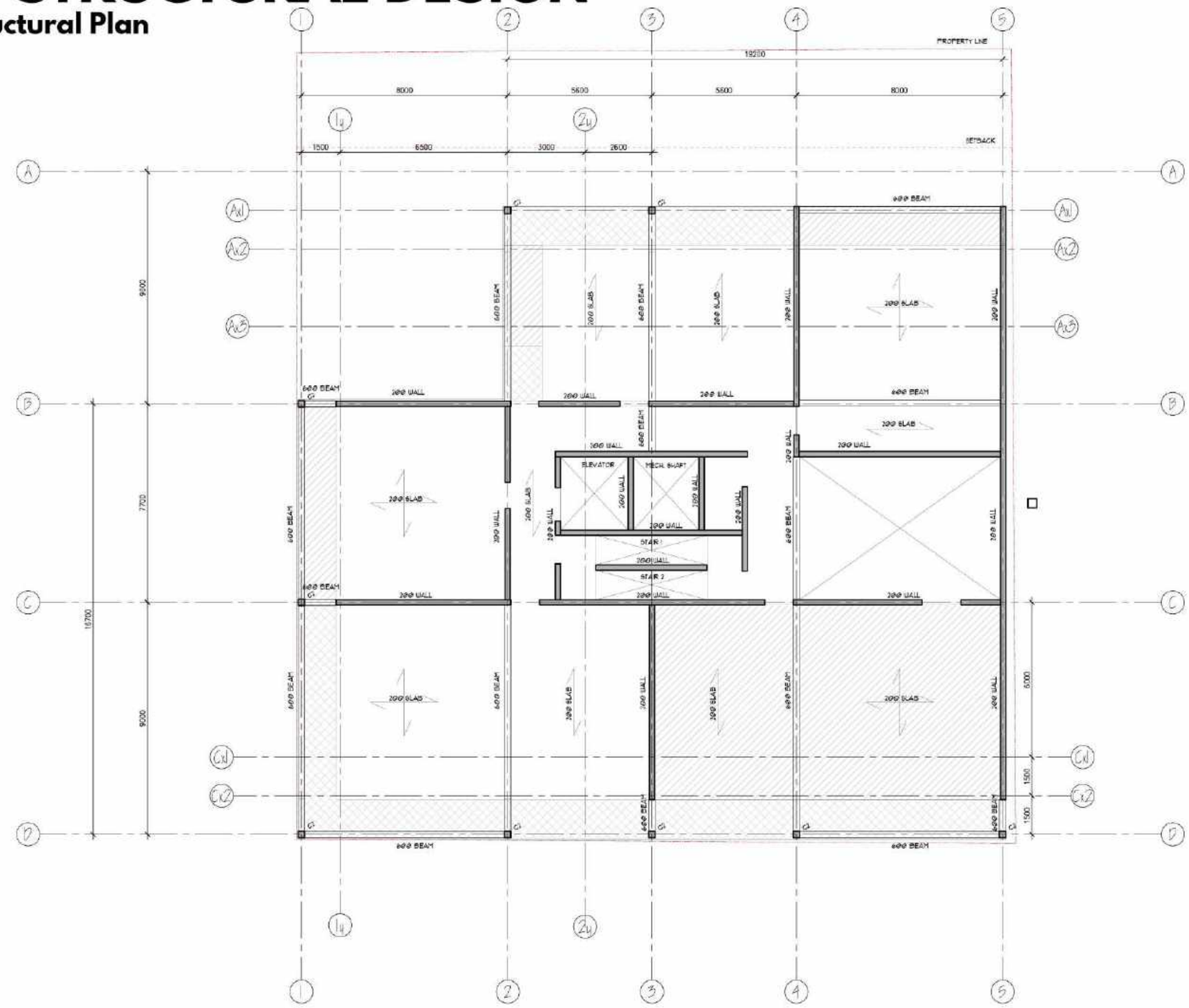
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 200 MM (4000 PSI)
  1ST FLOOR: 200 MM (4000 PSI)
  2ND TO 5TH FLOORS: 200 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 200 MM X 600 MM
  1ST FLOOR: 350MM X 600MM
  2ND TO 5TH FLOORS: 350 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (5000 PSI)
  C2 350 X 350 (5000 PSI)
- FOOTINGS
  F1 PAD: 1200 MM X 1200 MM X 400 MM
  F2 STRIP: 350 MM X 300 MM
  F3 PAD: 1550 MM X 1550 MM X 400 MM



06 STRUCTURAL DESIGN

Third Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT = 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 150MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMNS SIZES SHOULD GENERALLY NOT VARY BW FLOORS. ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1 HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 200MM. EVERY 50MM ADDED INCREASES 1 HR.

2 WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS.

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS 6 TO 9M.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL.

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3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

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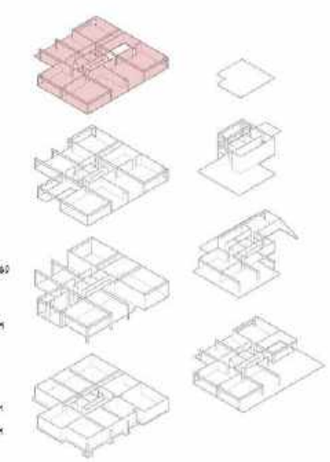
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

250MM CONCRETE BEAMS AND GIRDERS EQUALS 4HRS OF FIRE RESISTANCE RATING.

BEAM WIDTH SHOULD BE 1/3 TO 1/2 OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

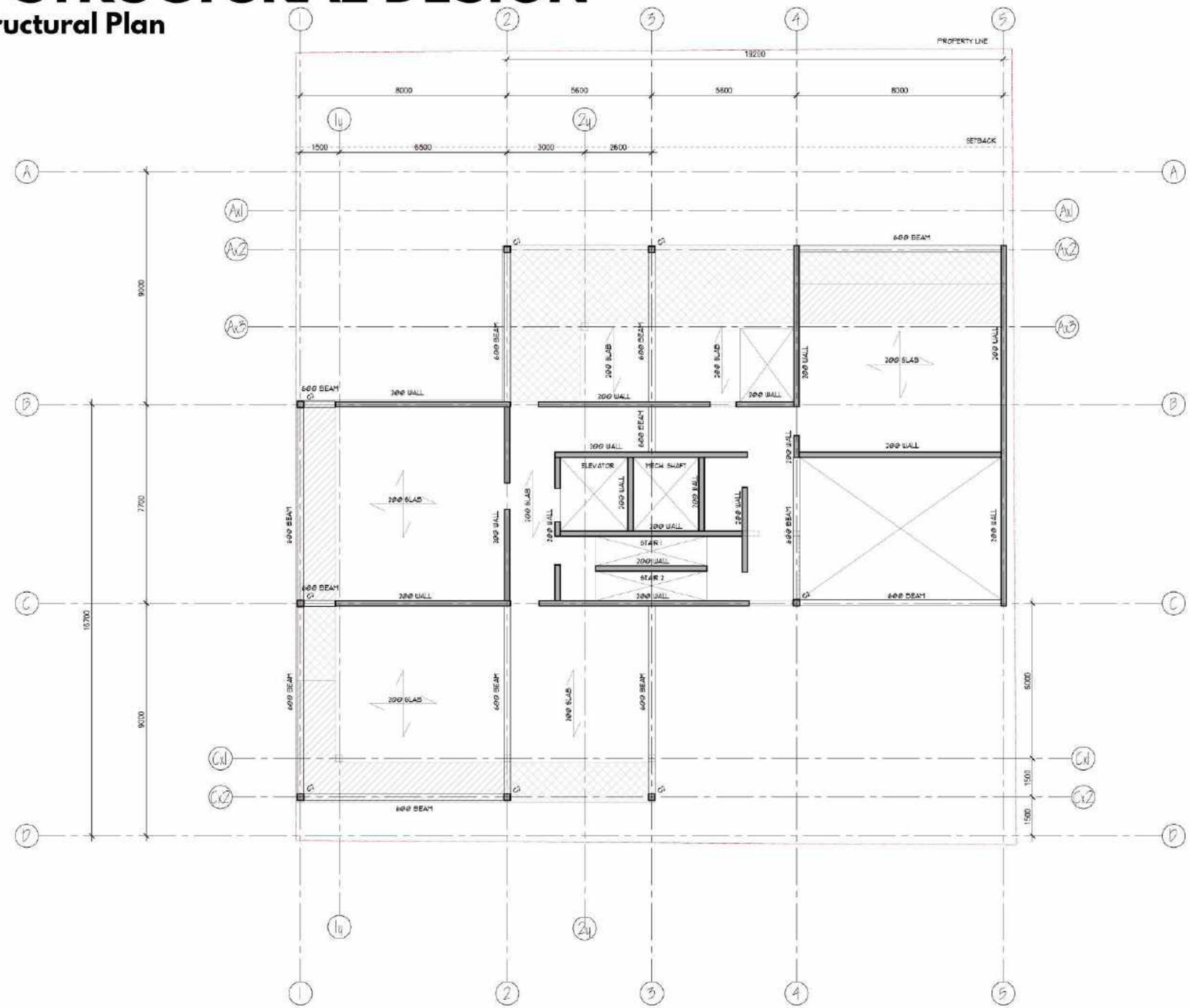
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 300 MM (4000 PSI)
  1ST FLOOR: 300 MM (4000 PSI)
  2ND TO 5TH FLOOR: 200 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 300 MM X 600 MM
  1ST FLOOR: 350MM X 600MM
  2ND TO 5TH FLOOR: 250 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (5000 PSI)
  C2 250 X 250 (5000 PSI)
- FOOTINGS
  F1 PAD: 1200 MM X 1200 MM X 400 MM
  F2 STRIP: 950 MM X 300 MM
  F3 PAD: 1550 MM X 1550 MM X 400 MM



06 STRUCTURAL DESIGN

Fourth Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT = 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 350MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMN SIZES SHOULD GENERALLY NOT VARY TWO FLOORS. ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 350MM. EVERY 50MM ADDED INCREASES 1 HR.

2. WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS.

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS P TO N1.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL.

1HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 150MM. EVERY 25MM ADDED INCREASES 1 HR.

3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

SIZE THE BEAM WITH THE LONGEST SPAN. BEAMS WITH SHORTER SPANS CAN BE THE SAME SIZE BUT WITH REDUCED REINFORCEMENT.

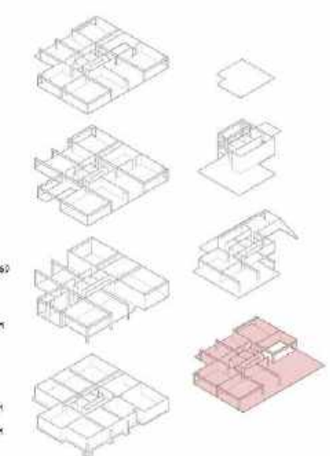
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

250MM CONCRETE BEAMS AND GIRDERS EQUALS 4HRS OF FIRE RESISTANCE RATING.

BEAM WIDTH SHOULD BE 1/3 TO 1/2 OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

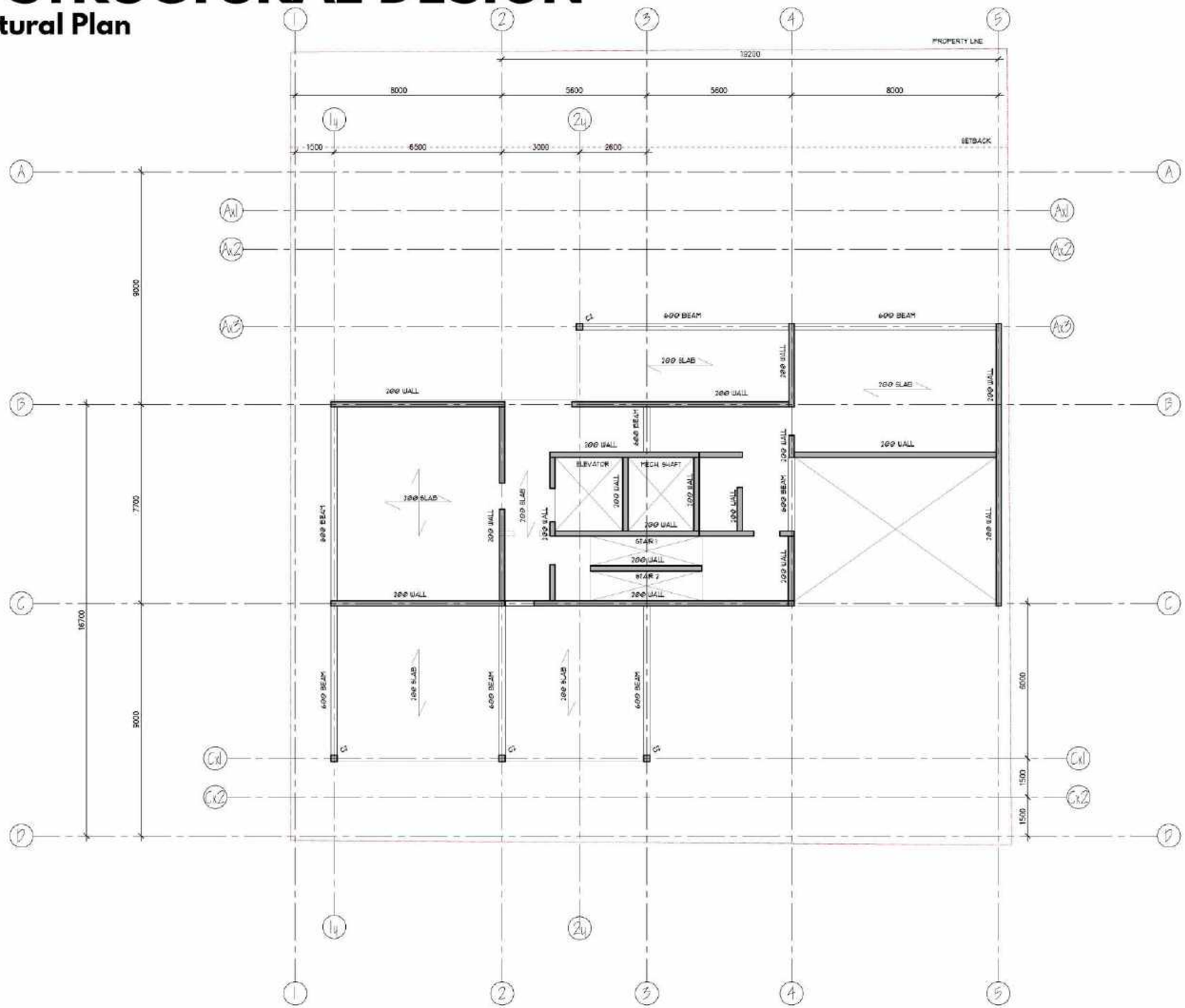
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 200 MM (4000 PSI)
  1ST FLOOR: 300 MM (6000 PSI)
  2ND TO 5TH FLOOR: 200 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 300 MM X 600 MM
  1ST FLOOR: 350MM X 600MM
  2ND TO 5TH FLOORS: 350 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (6000 PSI)
  C2 250 X 250 (6000 PSI)
- FOOTINGS
  F1 PILE: 1200 MM X 1200 MM X 400 MM
  F2 STRIP: 1500 MM X 300 MM
  F3 PAD: 1550 MM X 1550 MM X 400 MM



06 STRUCTURAL DESIGN

Fifth Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT = 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 250MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMNS SIZES SHOULD GENERALLY NOT VARY EAV FLOORS; ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1-HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 200MM1 EVERY 50MM ADDED INCREASES 1 HR.

2. WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS.

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS 6 TO 7M.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL.

1-HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 180MM1 EVERY 25MM ADDED INCREASES 1 HR.

3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

SIZE THE BEAM WITH THE LONGEST SPAN. BEAMS WITH SHORTER SPANS CAN BE THE SAME SIZE BUT WITH REDUCED REINFORCEMENT.

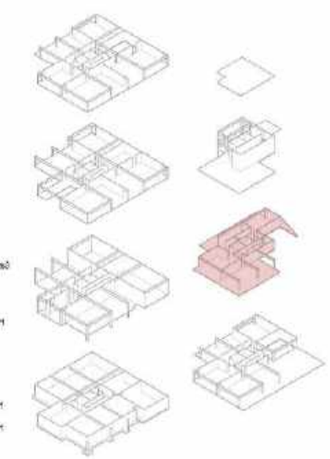
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

250MM CONCRETE BEAMS AND GIRDERS EQUALS 4HRS OF FIRE RESISTANCE RATING.

BEAM WIDTH SHOULD BE 1/3 TO 1/2 OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

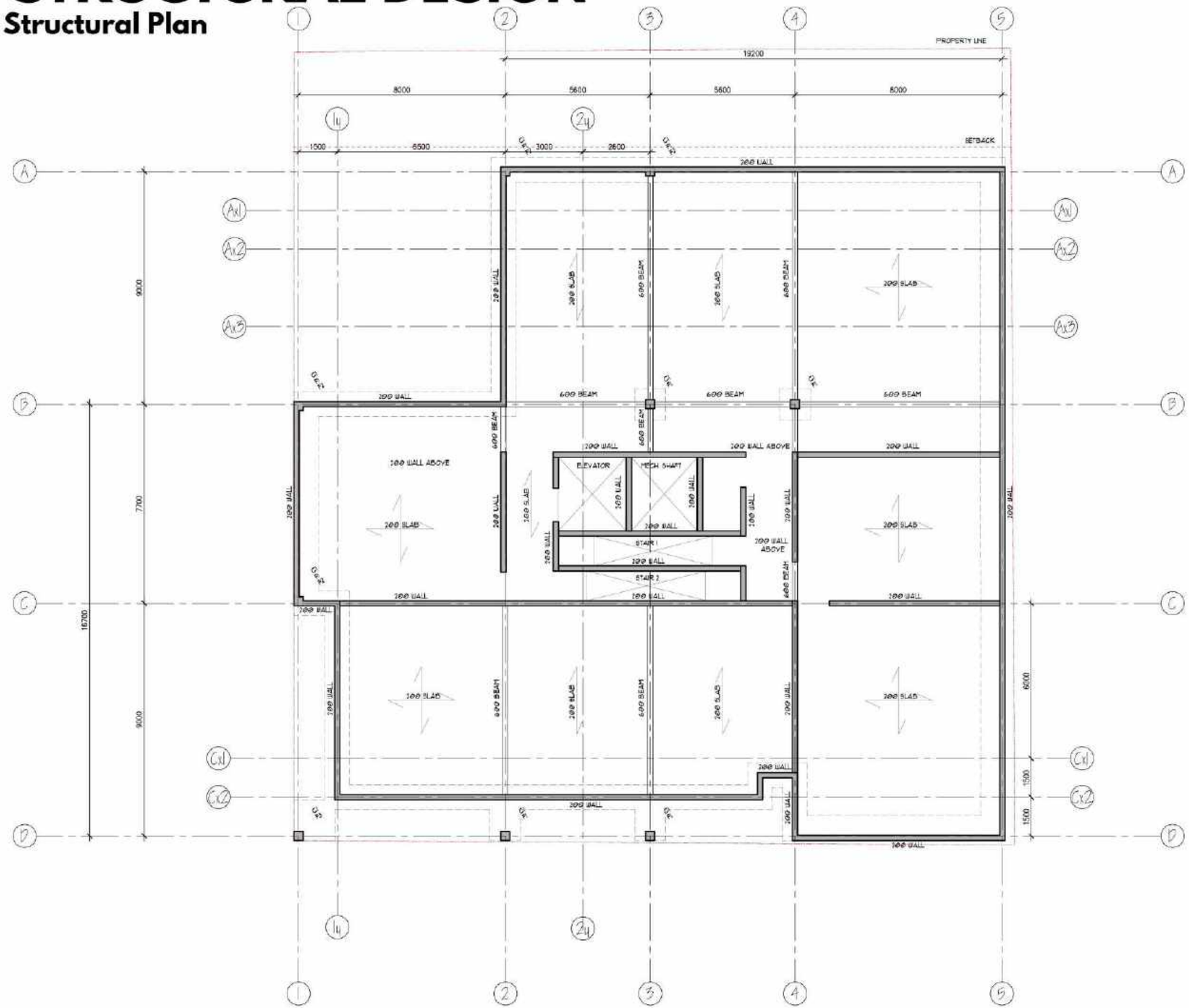
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 200 MM (4000 PSI)
  1ST FLOOR: 200 MM (4000 PSI)
  2ND TO 5TH FLOORS: 200 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 200 MM X 600 MM
  1ST FLOOR: 350MM X 600MM
  2ND TO 5TH FLOORS: 350 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (4000 PSI)
  C2 250 X 250 (4000 PSI)
- FOOTINGS
  F1 PAD 1200 MM X 1200 MM X 400 MM
  F2 STRIP 550 MM X 300 MM
  F3 PADH 1550 MM X 550 MM X 400 MM



06 STRUCTURAL DESIGN

Basement Structural Plan



SITE CAST CONCRETE NOTES:

1. COLUMNS

CONCRETE WITH REINFORCING APPROPRIATE FOR BUILDINGS OF LOW TO MODERATE HEIGHT = 4000 PSI

SQUARE CONCRETE COLUMNS SHOULD NOT BE LESS THAN 250MM ON EACH SIDE.

IN MULTISTORY BUILDINGS, COLUMNS SIZES SHOULD GENERALLY NOT VARY ELV FLOORS ITS PREFERABLE TO ADJUST THE STRENGTH OF CONCRETE MIX OR THE AMOUNT OF REINFORCING

COLUMNS SHOULD BE AS UNIFORMLY SPACED AS POSSIBLE.

1HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 200MM. EVERY 50MM ADDED INCREASES 1 HR.

2. WALLS

LOAD BEARING WALLS 200MM WIDE ARE SUITABLE FOR LOW RISE STRUCTURES AND LIGHT TO MEDIUM LOADS

LOAD BEARING WALLS SHOULD BE CONSISTENT FROM FLOOR TO FLOOR AND CONTINUOUS TO THE BUILDING FOUNDATION.

WHEN THERE IS A NEED TO REMOVE LOAD-BEARING WALLS ON THE GROUND FLOOR, MAKE THE UPPER WALLS ACT AS A DEEP BEAM SPANNING BETWEEN COLUMNS 6 TO 9M.

SHEAR WALLS HEIGHT SHOULD NOT BE MORE THAN FOUR TIMES THE LENGTH OF THE WALL

1HR FIRE-RESISTANCE RATING CAN BE ACHIEVED WITH COLUMNS NOT LESS 180MM. EVERY 25MM ADDED INCREASES 1 HR.

3. BEAMS

MAINTAIN UNIFORM SIZES OF BEAMS THROUGHOUT THE BUILDING.

SIZE THE BEAM WITH THE LONGEST SPAN. BEAMS WITH SHORTER SPANS CAN BE THE SAME SIZE BUT WITH REDUCED REINFORCEMENT.

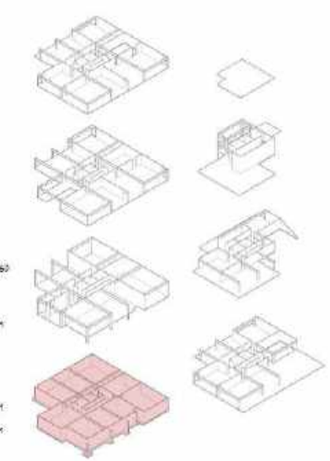
USE BEAM WIDTH EQUAL OR GREATER THAN THE COLUMN WIDTH SUPPORTING THEM.

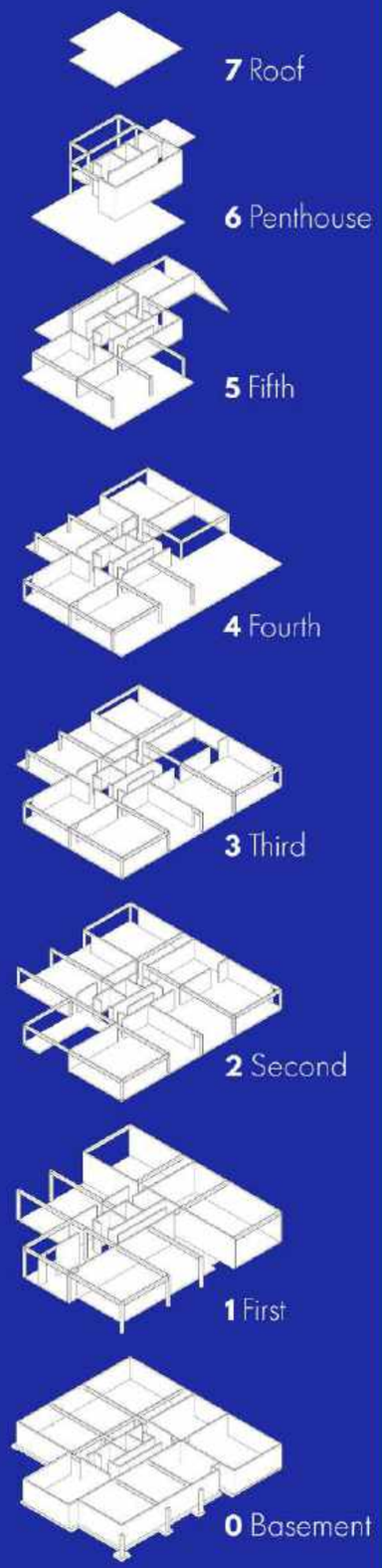
2HRFM CONCRETE BEAMS AND GIRDERS EQUALS 4HRS OF FIRE RESISTANCE RATING.

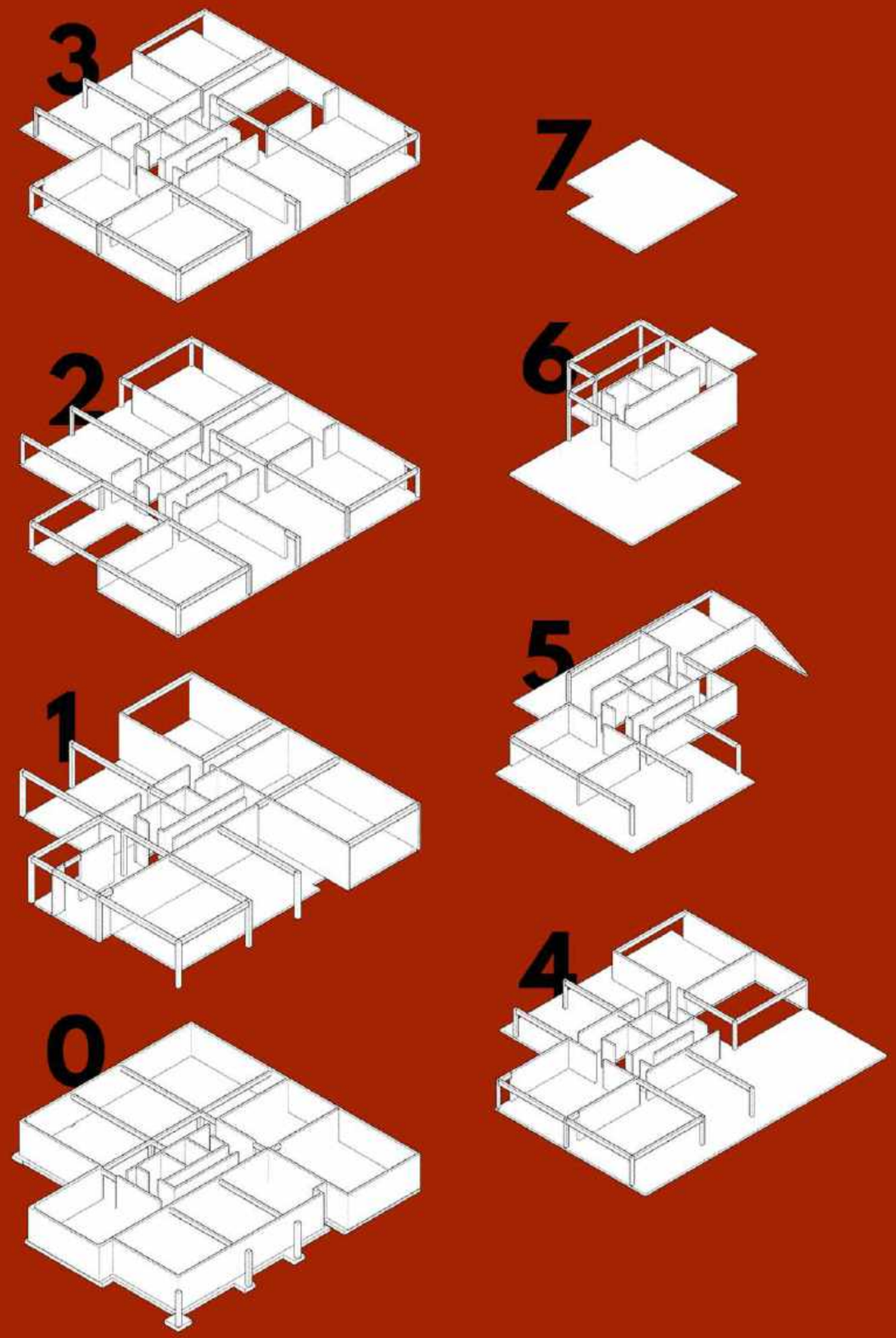
BEAM WIDTH SHOULD BE 1/3 TO ½ OF THE BEAM DEPTH. USE MULTIPLES OF 25 OR 50 MM.

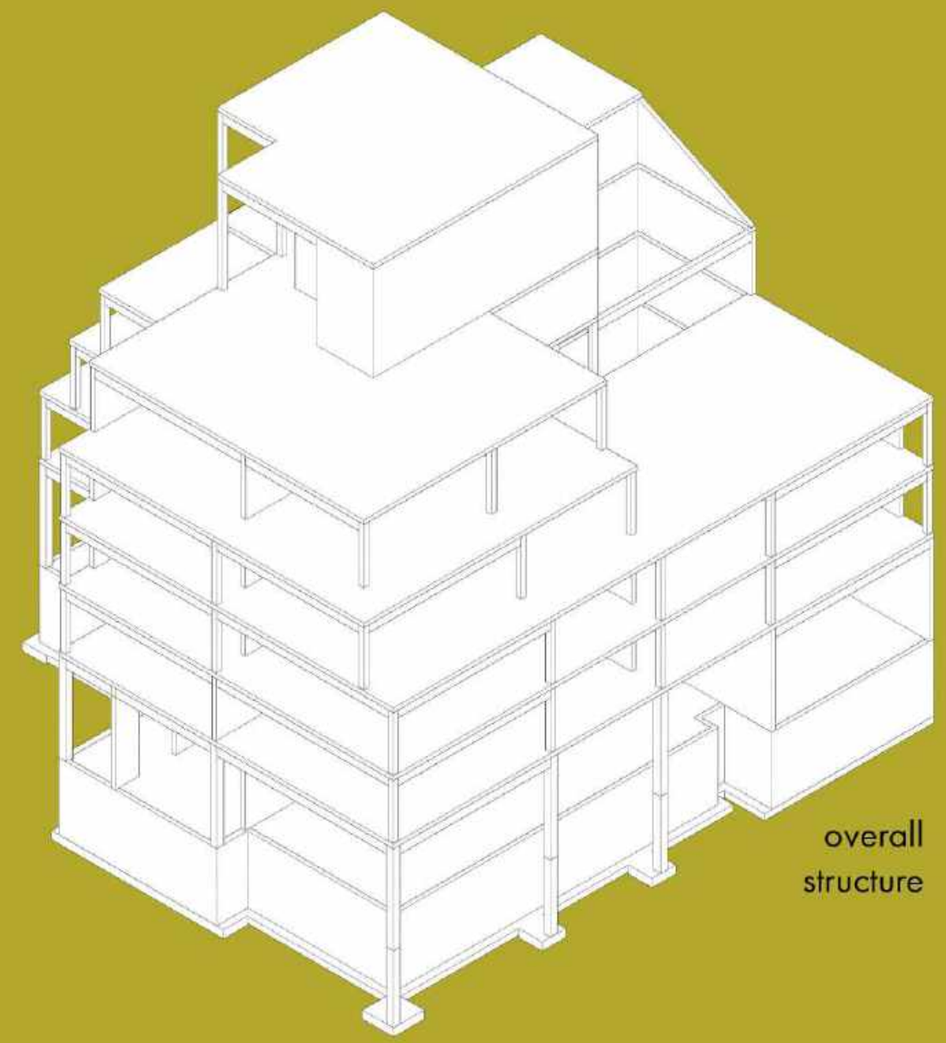
LEGEND

- FLOOR EXTENT
- BALCONIES ABOVE
- PLANTER ABOVE
- PROJECTION OF STRUCTURE ABOVE
- ONE WAY SLAB
- TWO WAY SLAB
- SITE CAST SHEAR WALLS
  BASEMENT: 200 MM (4000 PSI)
  1ST FLOOR: 180 MM (4000 PSI)
  2ND TO 5TH FLOORS: 160 MM (4000 PSI)
- CONCRETE BEAMS
  BASEMENT: 200 MM X 600 MM
  1ST FLOOR: 550MM X 600MM
  2ND TO 5TH FLOORS: 250 MM X 600 MM
- CONCRETE COLUMNS
  C1 350 X 350 (5000 PSI)
  C2 250 X 250 (5000 PSI)
- FOOTINGS
  F1 PAD: 1200 MM X 1200 MM X 400 MM
  F2 STRIP: 550 MM X 300 MM
  F3 PAD: 1800 MM X 1800 MM X 400 MM









overall structure

07 ENERGY

Passive Solar Design

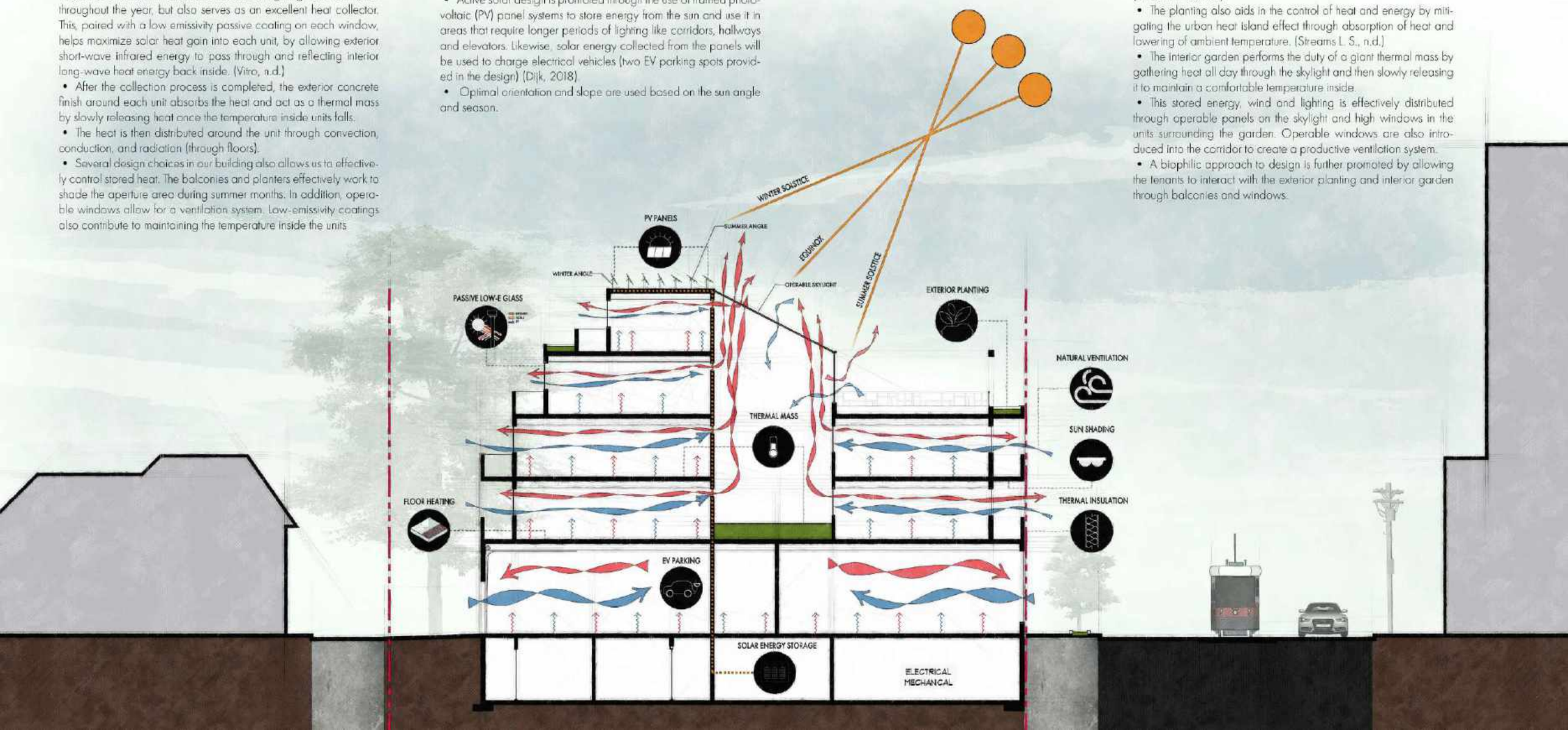
- Passive solar design refers to the utilization of the sun's energy for the heating and cooling of living spaces without substantial use of electrical and mechanical devices. (Williams, n.d.)
- In terms of passive solar design, the appropriate amount of glazing around each unit, especially the southern façade, not only provides the tenants with efficient amounts of lighting and ventilation throughout the year, but also serves as an excellent heat collector. This, paired with a low emissivity passive coating on each window, helps maximize solar heat gain into each unit, by allowing exterior short-wave infrared energy to pass through and reflecting interior long-wave heat energy back inside. (Vitro, n.d.)
- After the collection process is completed, the exterior concrete finish around each unit absorbs the heat and act as a thermal mass by slowly releasing heat once the temperature inside units falls.
- The heat is then distributed around the unit through convection, conduction, and radiation (through floors).
- Several design choices in our building also allows us to effectively control stored heat. The balconies and planters effectively work to shade the aperture area during summer months. In addition, operable windows allow for a ventilation system. Low-emissivity coatings also contribute to maintaining the temperature inside the units

Active Solar Design

- Active solar design is promoted through the use of framed photovoltaic (PV) panel systems to store energy from the sun and use it in areas that require longer periods of lighting like corridors, hallways and elevators. Likewise, solar energy collected from the panels will be used to charge electrical vehicles (two EV parking spots provided in the design) (Dijk, 2018).
- Optimal orientation and slope are used based on the sun angle and season.

Exterior Planting and Interior Garden

- The intent of the project is to surround tenants with nature to boost and improve their psychological health.
- The exterior planting around units promotes high quality of life and health by filtering airborne pollutants, providing favorable sights, scents & sounds and acting as an effective noise insulator. (Streams L. S., n.d.)
- The planting also aids in the control of heat and energy by mitigating the urban heat island effect through absorption of heat and lowering of ambient temperature. (Streams L. S., n.d.)
- The interior garden performs the duty of a giant thermal mass by gathering heat all day through the skylight and then slowly releasing it to maintain a comfortable temperature inside.
- This stored energy, wind and lighting is effectively distributed through operable panels on the skylight and high windows in the units surrounding the garden. Operable windows are also introduced into the corridor to create a productive ventilation system.
- A biophilic approach to design is further promoted by allowing the tenants to interact with the exterior planting and interior garden through balconies and windows.



07 WATER

As to promote "sustainable stormwater management [through] natural infiltration and retention of rainwater" (Mississauga, Site Plan Application: Process Guidelines, 2017), various Low Impact Development (LID) practices have been implemented in the project, such as:

Green Roofs and Flow-Through Planters to Primary Filter

Planters and Green Roofs (intensive and extensive areas) collect water and gently release it through evaporation and plant usage. Green roofs reduce "building energy usage and noise levels, while increasing the durability and lifespan of the roof" (EPA, n.d.) and decrease "stormwater runoff so there is less water directed into storm drains" (Streams L. S., n.d.).
Storm water planters, contained in concrete structures, absorb runoff and filter out debris and pollutants (Maria Cahill, 2018). The water captured from rooftops, green roofs and planters is filtered and because, in this project, infiltration directly to the ground is not appropriate, the water is "discharged into a traditional stormwater drainage system (Flow-Through Planter)" (Association, 2008).

Permeable Pavement and Infiltration Trenches

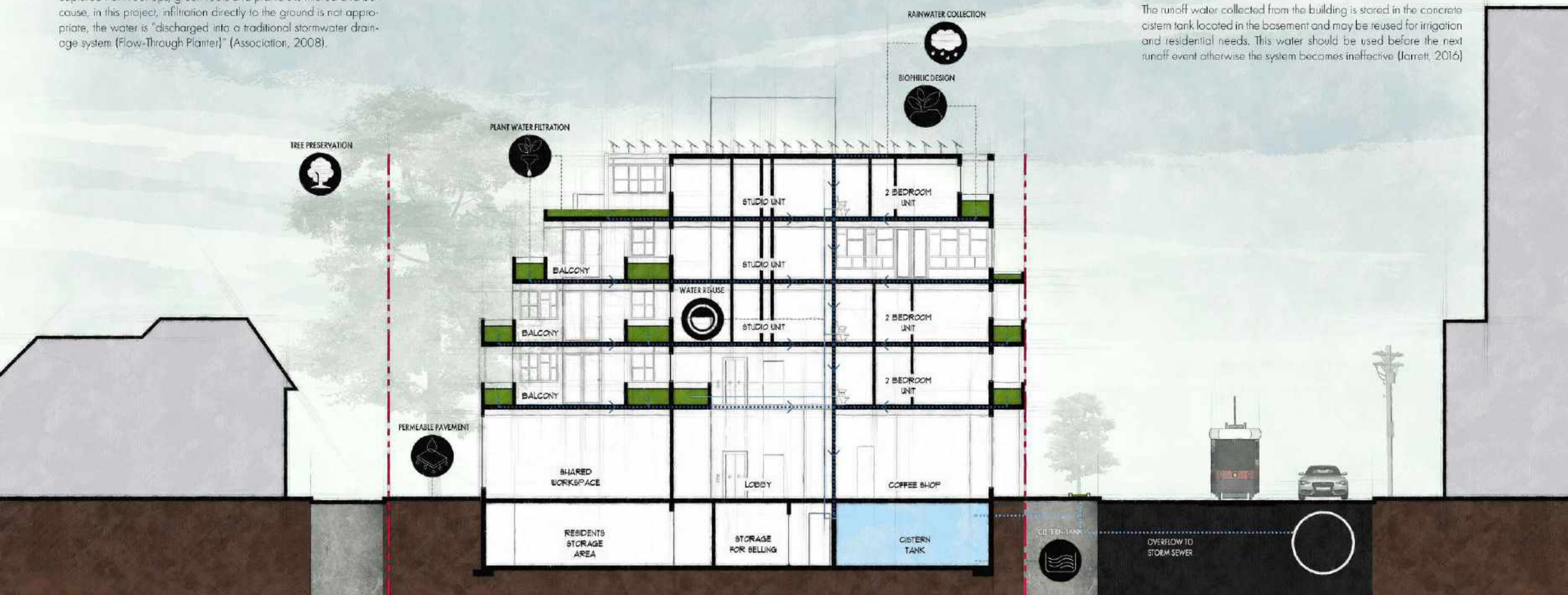
Permeable pavements enhance "reduction of runoff, which reduces flood risk, ... removal of contaminants from infiltrated stormwater, and reduction in heat flux from the pavement surface to the atmosphere, which helps to mitigate against the urban heat island" (Program, n.d.). Having accessibility in mind, the permeable pavement of choice for this project is porous asphalt or porous concrete.
Rectangular strips of trenches were developed. The system consists of a "long, narrow, shallow excavation located over porous soils and back-filled with stone to form a subsurface reservoir to hold stormwater and allow it to infiltrate the soil" (Council, 1987). The trenches implemented require a sheet flow of stormwater from surrounding areas. The sheet flow enters the trench via a layer of vegetated porous soil at the trench's top (Council, 1987).

Healthy Soils

To efficiently infiltrate water, absorb additional nutrients, purify residues, and effectively regulate peak stream discharges and temperatures (Healthy Soils, n.d.), the following practices were implemented:
a. Removal, storage, and conservation of existing topsoil on-site for reuse in areas with landscape developments
b. Preserving existing trees, plants, and soil and leaving them undisturbed to the maximum extent possible (Healthy Soils, n.d.).
These practices will also assist in maintaining landscaped areas' capacity to absorb rain and snowfall, as well as preventing runoff directed to them from nearby impervious surfaces from leaving the site where it is created (Healthy Soils, n.d.).

Underground Storage (Cisterns)

The runoff water collected from the building is stored in the concrete cistern tank located in the basement and may be reused for irrigation and residential needs. This water should be used before the next runoff event otherwise the system becomes ineffective (Jarrett, 2016)



08 WALL SECTION 1

01 - FOUNDATION WALL
2X15MM SEMI RIGID INSULATION
DRAINAGE BOARD
DAMPPROOFING
200MM CONCRETE WALL

02 - EXTERIOR ALUMINUM COMPOSITE PANEL WALL
13MM ALUMINUM COMPOSITE PANEL ATTACHED
W/ VERTICAL Z-GIRTS @400MM O/C
25MM AIR SPACE
50MM SEMI RIGID INSULATION
AIR BARRIER
13MM OSB SHEATHING
152MM STEEL STUDS @400MM O/C W/
152MM BATT INSULATION
VAPOUR BARRIER
13MM G.W.B.

03 - EXTERIOR ALUMINUM COMPOSITE PANEL @ PLANTER
13MM ALUMINUM COMPOSITE PANEL ATTACHED
W/ VERTICAL Z-GIRTS @400MM O/C
25MM AIR SPACE
50MM SEMI RIGID INSULATION
AIR BARRIER
200MM CONCRETE WALL
EPDM MEMBRANE
FILTER FABRIC / ROOT PROTECTION LAYER
GROWING MEDIUM

04 - EXTERIOR CONCRETE WALL @PLANTER
EPDM MEMBRANE
200MM CONCRETE WALL
152MM STEEL STUDS @400 O/C W/
152MM BATT INSULATION
VAPOUR BARRIER
13MM G.W.B.

05 - EXTERIOR CONCRETE SKIN WALL
13MM CONCRETE SKIN PANEL ATTACHED
W/ VERTICAL Z-GIRTS @400MM O/C
25MM AIR SPACE
50MM SEMI RIGID INSULATION
AIR BARRIER
13MM OSB SHEATHING
152MM STEEL STUDS @400MM O/C W/
152MM BATT INSULATION
VAPOUR BARRIER
13MM G.W.B.

06 - PARAPET
13MM ALUMINUM COMPOSITE PANEL ATTACHED
W/ VERTICAL Z-GIRTS @400MM O/C
25MM AIR SPACE
50MM SEMI RIGID INSULATION
AIR BARRIER
250MM CONCRETE WALL
VAPOUR BARRIER
15MM SEMI RIGID INSULATION
EPDM ROOF MEMBRANE

07 - SECOND FLOOR ASSEMBLY
13MM T&G HARDWOOD FLOORING
12MM ACOUSTICAL PAD
200MM CONCRETE FLOOR SLAB
STEEL TIES IN CONCRETE WIRED TO
38MM PRIMARY CHANNEL @1200 O/C ON
22MM FURRING CHANNEL PERPENDICULAR TO
ONES ABOVE @600 O/C
13MM G.W.B.

08 - TYPICAL UNIT FLOORING
13MM T&G HARDWOOD FLOORING
12MM ACOUSTICAL PAD
200MM CONCRETE FLOOR SLAB
13MM G.W.B.

09 - EXTERIOR PLANTER ABOVE SUSPENDED CEILING
GROWING MEDIUM
FILTER FABRIC / ROOT PROTECTION LAYER
DRAINAGE LAYER
2X15MM SEMI RIGID INSULATION
EPDM MEMBRANE
200MM CONCRETE FLOOR SLAB
STEEL TIES IN CONCRETE WIRED TO
38MM PRIMARY CHANNEL @1200 O/C ON
22MM FURRING CHANNEL PERPENDICULAR TO
ONES ABOVE @600 O/C
13MM G.W.B.

10 - EXTERIOR PLANTER ABOVE SOFFIT
GROWING MEDIUM
FILTER FABRIC / ROOT PROTECTION LAYER
DRAINAGE LAYER
EPDM MEMBRANE
200MM CONCRETE FLOOR SLAB
AIR BARRIER
2X15MM SEMI RIGID INSULATION
19MM OSB SHEATHING
22MM METAL FURRING CHANNEL
13MM WOODEN SOFFIT PANELS

11 - GREEN ROOF
LIGHT VEGETATION
GROWING MEDIUM
FILTER FABRIC / ROOT PROTECTION LAYER
DRAINAGE LAYER
2X15MM SEMI RIGID INSULATION
EPDM ROOF MEMBRANE
200MM CONCRETE FLOOR SLAB
13MM G.W.B.

12 - WHITE ROOF
EPDM ROOF MEMBRANE
2X15MM SEMI RIGID INSULATION
VAPOUR BARRIER
200MM CONCRETE FLOOR SLAB
13MM G.W.B.

13 - EXTERIOR SIDEWALK ON GRADE
150MM CONCRETE SLAB ON GRADE
15MM SEMI RIGID INSULATION
COMPACTED GRANULAR A
150MM PERFORATED PIPE
COMPACTED GRANULAR A
UNDISTURBED SOIL

14 - INFILTRATION TRENCH
COMPACTED GRANULAR A
FILTER FABRIC
COMPACTED GRANULAR A
150MM PERFORATED PIPE
COMPACTED GRANULAR A
100MM SAND FILTER
UNDISTURBED SOIL

15 - COMPRESSIBLE FILLER

16 - ALUMINUM FLASHING DRIP EDGE

17 - CURTAIN WALL

18 - BACKER ROD AND CAULKING

19 - TAPERED WOOD BLOCKING

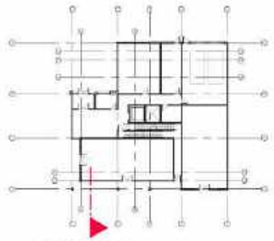
20 - WINDOW WALL

21 - RETENTION TRIM

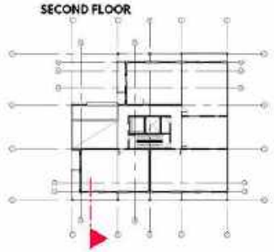
22 - VEGETATION FREE ZONE

08 WALL SECTION 2

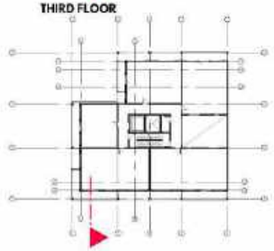
FIRST FLOOR



SECOND FLOOR

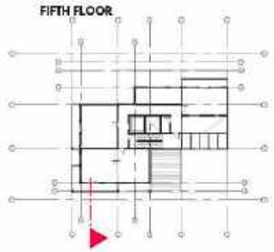


THIRD FLOOR



FOURTH FLOOR

FIFTH FLOOR



01 - FOUNDATION WALL
- 2X75MM SEMI RIGID INSULATION
- DRAINAGE BOARD
- DAMPPROOFING
- 200MM CONCRETE WALL

02 - EXTERIOR ALUMINUM COMPOSITE PANEL WALL
- 13MM ALUMINUM COMPOSITE PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C
- 25MM AIR SPACE
- 50MM SEMI RIGID INSULATION
- AIR BARRIER
- 13MM OSB SHEATHING
- 152MM STEEL STUDS @400MM O/C W/
- 152MM BATT INSULATION
- VAPOUR BARRIER
- 13MM G.W.B.

03 - GUARDRAIL
- 13MM ALUMINUM COMPOSITE PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C
- 25MM AIR SPACE
- 50MM SEMI RIGID INSULATION
- AIR BARRIER
- 250MM CONCRETE WALL
- WEATHER RESISTANT BARRIER
- 25MM AIR SPACE
- 13MM ALUMINUM COMPOSITE PANEL ATTACHED W/ VERTICAL Z-GIRTS @400 O/C

04 - PARAPET
- 13MM ALUMINUM COMPOSITE PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C
- 25MM AIR SPACE
- 50MM SEMI RIGID INSULATION
- AIR BARRIER
- 250MM CONCRETE WALL
- VAPOUR BARRIER
- EPDM ROOF MEMBRANE
- 25MM AIR SPACE
- 13MM ALUMINUM COMPOSITE PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C

05 - EXTERIOR CONCRETE SKIN WALL
- 13MM CONCRETE SKIN PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C
- 25MM AIR SPACE
- 50MM SEMI RIGID INSULATION
- AIR BARRIER
- 13MM OSB SHEATHING
- 152MM STEEL STUDS @400MM O/C W/
- 152MM BATT INSULATION
- VAPOUR BARRIER
- 13MM G.W.B.

06 - BASEMENT FLOOR
- 100MM CONCRETE SLAB
- VAPOUR RETARDER
- 75MM RIGID INSULATION
- 150MM COMPACTED GRANULAR A
- UNDISTURBED SOIL

07 - SECOND FLOOR ASSEMBLY
- 13MM T&G HARDWOOD FLOORING
- 12MM ACOUSTICAL PAD
- 200MM CONCRETE FLOOR SLAB
- STEEL TIES IN CONCRETE WIRED TO
- 38MM PRIMARY CHANNEL @200 O/C ON
- 22MM FURRING CHANNEL PERPENDICULAR TO ONES ABOVE @600 O/C
- 13MM G.W.B.

08 - TYPICAL UNT FLOORING
- 13MM T&G HARDWOOD FLOORING
- 12MM ACOUSTICAL PAD
- 200MM CONCRETE FLOOR SLAB
- 13MM G.W.B.

09 - BALCONY FLOOR ABOVE SOFFIT
- 35MM PERMEABLE CONCRETE PAVERS
- ADJUSTABLE SLEEPERS
- FILTER FABRIC
- WEATHER RESISTANT BARRIER
- 200MM CONCRETE FLOOR SLAB
- AIR BARRIER
- 2X75MM SEMI RIGID INSULATION
- 19MM OSB SHEATHING
- 22MM METAL FURRING CHANNEL
- 13MM WOODEN SOFFIT PANELS

10 - GREEN ROOF ABOVE SOFFIT
- LIGHT VEGETATION
- GROWING MEDIUM
- FILTER FABRIC / ROOT PROTECTION LAYER
- DRAINAGE LAYER
- EPDM ROOF MEMBRANE
- 200MM CONCRETE FLOOR SLAB
- AIR BARRIER
- 2X75MM SEMI RIGID INSULATION
- 19MM OSB SHEATHING
- 22MM METAL FURRING CHANNEL
- 13MM WOODEN SOFFIT PANELS

11 - BALCONY FLOOR ABOVE CEILING
- 35MM PERMEABLE CONCRETE PAVERS
- ADJUSTABLE SLEEPERS
- FILTER FABRIC
- 2X75MM SEMI RIGID INSULATION
- WEATHER RESISTANT BARRIER
- 200MM CONCRETE FLOOR SLAB
- 13MM G.W.B.

12 - GREEN ROOF
- LIGHT VEGETATION
- GROWING MEDIUM
- FILTER FABRIC / ROOT PROTECTION LAYER
- DRAINAGE LAYER
- 2X75MM SEMI RIGID INSULATION
- EPDM ROOF MEMBRANE
- 200MM CONCRETE FLOOR SLAB
- 13MM G.W.B.

13 - EXTERIOR SIDEWALK ON GRADE
- 150MM CONCRETE SLAB ON GRADE
- 75MM SEMI RIGID INSULATION
- COMPACTED GRANULAR A
- 150MM PERFORATED PIPE
- COMPACTED GRANULAR A
- UNDISTURBED SOIL

14 - WEEPER TILE

15 - COMPRESSIBLE FILLER

16 - ALUMINUM FLASHING DRIP EDGE

17 - CURTAIN WALL

18 - BACKER ROD AND CAULKING

19 - SLIDING DOOR

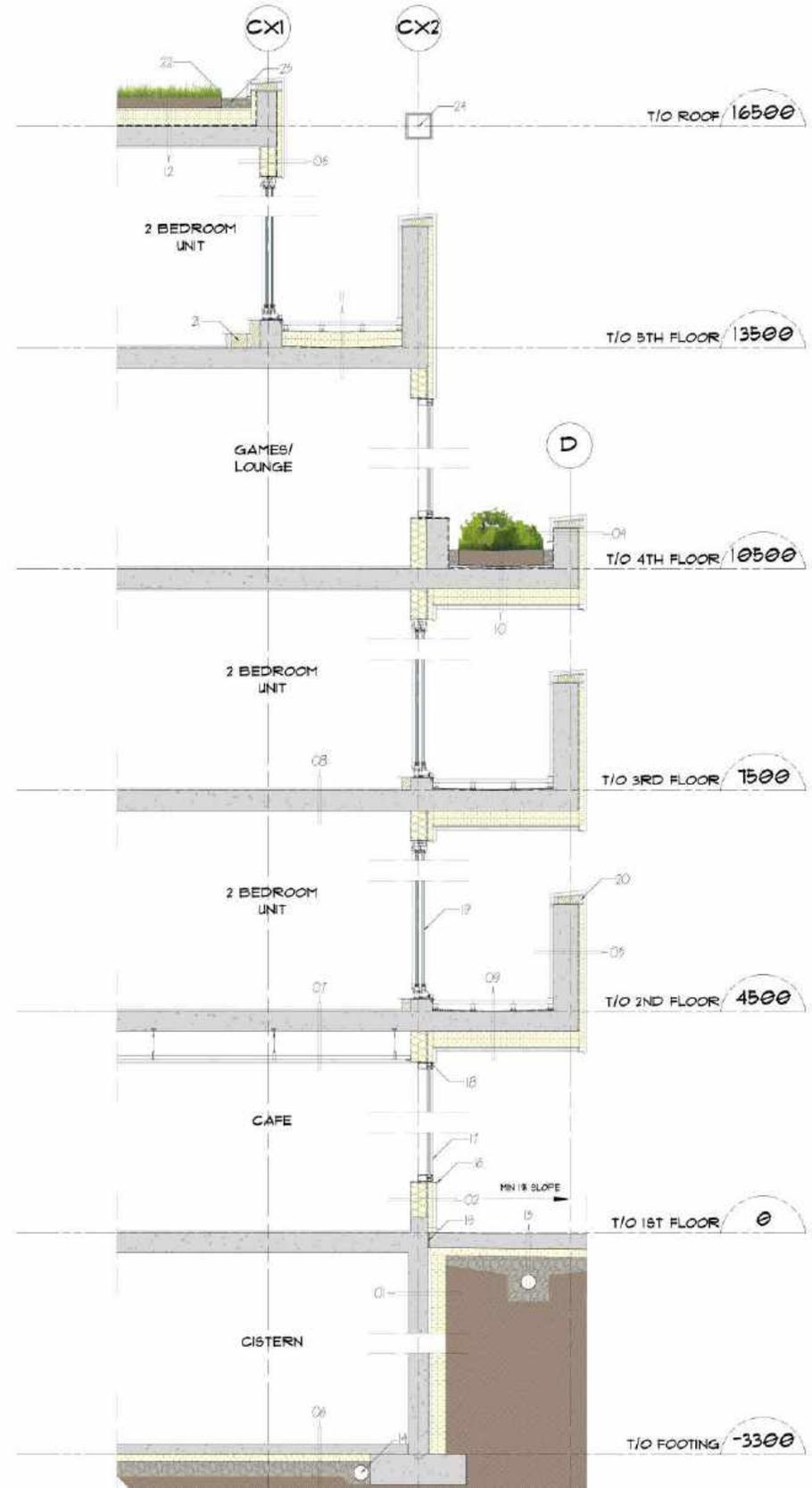
20 - TAPERED WOOD BLOCKING

21 - STEPS W/ SPRAY FOAM INSULATION

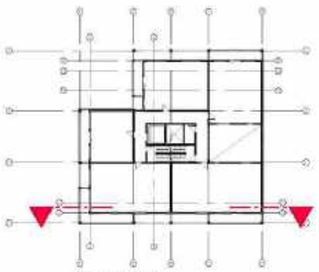
22 - RETENTION TRIM

23 - VEGETATION FREE ZONE

24 - 250X250 HSS UPSTAND



08 PLAN DETAILS



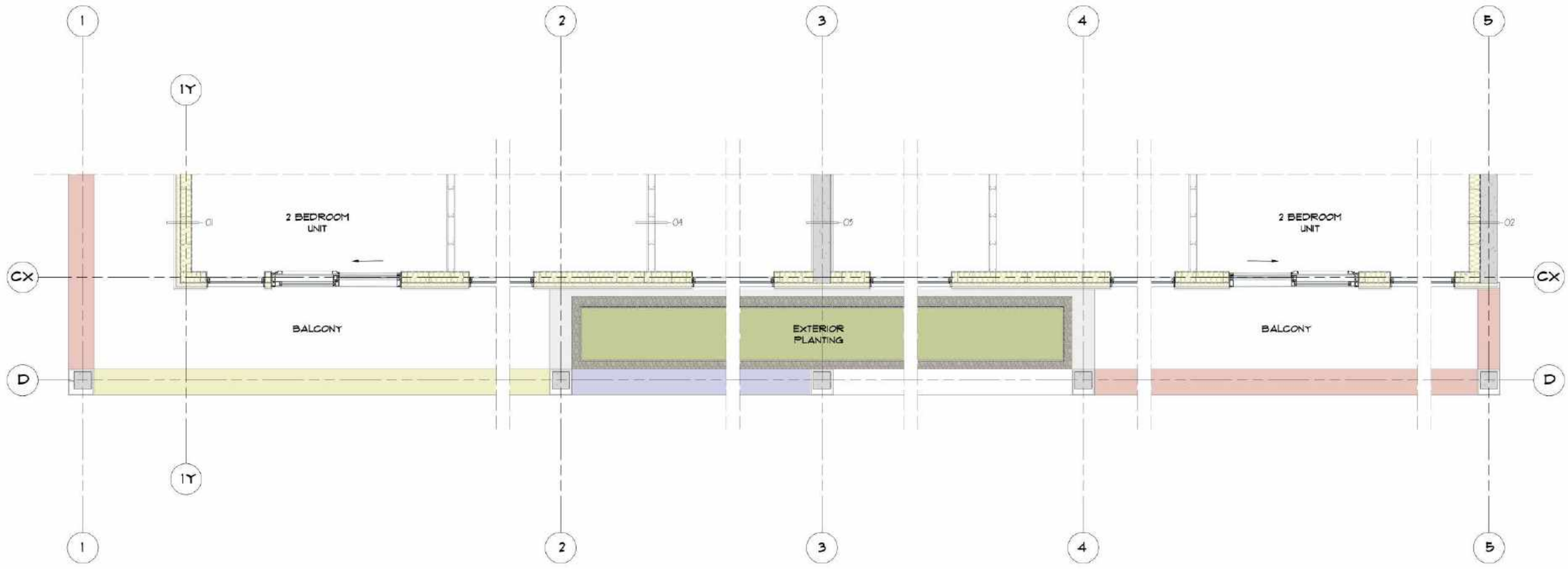
THIRD FLOOR

01 - EXTERIOR CONCRETE SKIN WALL
- 13MM CONCRETE SKIN PANEL ATTACHED W/ VERTICAL Z-GIRTS @400MM O/C
- 25MM AIR SPACE
- 50MM SEMI RIGID INSULATION
- AIR BARRIER
- 13MM OSB SHEATHING
- 152MM STEEL STUDS @400MM O/C W/
- 152MM BATT INSULATION
- VAPOUR BARRIER
- 13MM G.W.B.

02 - CONCRETE INFILL WALL
- 250MM CONCRETE WALL W/ SEALED AND PAINTED EXPOSED FINISH
- AIR BARRIER
- 152MM STEEL STUDS @400MM O/C W/
- 152MM BATT INSULATION
- VAPOUR BARRIER
- 13MM G.W.B.

03 - INTERIOR CONCRETE SHEAR WALL
- 13MM G.W.B.
- 22MM METAL FURRING CHANNEL
- 250MM CONCRETE WALL
- 22MM METAL FURRING CHANNEL
- 13MM G.W.B.

04 - TYPICAL INTERIOR PARTITION
- 13MM G.W.B.
- 89MM STEEL STUDS @400MM O/C
- 13MM G.W.B



09 TORONTO GREEN STANDARDS

Mid to High Rise Residential and all New Non-Residential Development

The Toronto Green Standard Version 3.0 Statistics Template is submitted with Site Plan Control Applications and stand alone Zoning Bylaw Amendment applications. Complete the table and copy it directly onto the Site Plan submitted as part of the application.

For Zoning Bylaw Amendment applications: complete General Project Description and Section 1.

For Site Plan Control applications: complete General Project Description, Section 1 and Section 2.

For further information, please visit www.toronto.ca/greendevelopment

General Project Description	Proposed
Total Gross Floor Area	2,092
Breakdown of project components (m²)	-
Residential	1,873
Retail	219
Commercial	-
Industrial	-
Institutional/Other	-
Total number of residential units	15

Section 1: For Stand Alone Zoning Bylaw Amendment Applications and Site Plan Control Applications

Automobile Infrastructure	Required	Proposed	Proposed %
Number of Parking Spaces	-	2	-
Number of parking spaces dedicated for priority LEV parking	-	-	-
Number of parking spaces with EVSE	-	2	-

Cycling Infrastructure	Required	Proposed	Proposed %
Number of long-term bicycle parking spaces (residential)	11	11	100
Number of long-term bicycle parking spaces (all other uses)	1	1	100
Number of long-term bicycle parking (all uses) located on:			
a) first storey of building	-	12	-
b) second storey of building	-	-	-
c) first level below-ground	-	-	-
d) second level below-ground	-	-	-
e) other levels below-ground	-	-	-

Mid to High Rise Residential and all New Non-Residential Development

Cycling Infrastructure	Required	Proposed	Proposed %
Number of short-term bicycle parking spaces (residential)	1	1	100
Number of short-term bicycle parking spaces (all other uses)	4	4	100
Number of male shower and change facilities (non-residential)	-	-	-
Number of female shower and change facilities (non-residential)	-	-	-

Tree Planting & Soil Volume	Required	Proposed	Proposed %
Total Soil Volume (40% of the site area ÷ 66 m² x 30 m³).	154.04	154.04	100

Section 2: For Site Plan Control Applications

Cycling Infrastructure	Required	Proposed	Proposed %
Number of short-term bicycle parking spaces (all uses) at-grade or on first level below grade	5	5	100

UHI Non-roof Hardscape	Required	Proposed	Proposed %
Total non-roof hardscape area (m²)	-	186.46	-
Total non-roof hardscape area treated for Urban Heat Island (minimum 50%) (m²)	93.23	93.23	100
Area of non-roof hardscape treated with: (indicate m²)	93.23	93.23	100
a) high-albedo surface material	-	93.23	-
b) open-grid pavement	-	93.23	-
c) shade from tree canopy	-	37.81	-
d) shade from high-albedo structures	-	-	-
e) shade from energy generation structures	-	-	-
Percentage of required car parking spaces under cover (minimum 75%)(non-residential only)	2	2	100

Green & Cool Roofs	Required	Proposed	Proposed %
Available Roof Space (m²)		474.03	
Available Roof Space provided as Green Roof (m²)	-	299.48	-
Available Roof Space provided as Cool Roof (m²)	-	92.95	-
Available Roof Space provided as Solar Panels (m²)	-	191.86	-

Mid to High Rise Residential and all New Non-Residential Development

Water Efficiency	Required	Proposed	Proposed %
Total landscaped site area (m²)	-	248.6	-
Landscaped site area planted with drought-tolerant plants (minimum 50%) (m² and %) (if applicable)	124.3	62.15	50%

Tree Planting Areas & Soil Volume	Required	Proposed	Proposed %
Total site area (m²)	-	847.2	-
Total Soil Volume (40% of the site area ÷ 66 m²x 30 m³)	154.04	154.04	100
Total number of planting areas (minimum of 30m³ soil)	-	2	-
Total number of trees planted	-	4	-
Number of surface parking spaces (if applicable)	-	-	-
Number of shade trees located in surface parking area interior (minimum 1 tree for 5 parking spaces)	-	-	-

Native and Pollinator Supportive Species	Required	Proposed	Proposed %
Total number of plants	-	25	-
Total number of native plants and % of total plants (min.50%)	13	13	100

Bird Friendly Glazing	Required	Proposed	Proposed %
Total area of glazing of all elevations within 12m above grade (including glass balcony railings)	-	636.073	-
Total area of treated glazing (minimum 85% of total area of glazing within 12m above grade) (m²)	540.66	636.073	117.65
Percentage of glazing within 12m above grade treated with:			
a) Low reflectance opaque materials	-	-	-
b) Visual markers	-	636.073	-
c) Shading	-	-	-

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*All students involved in this submission had equal participation in research, writing, image selection and graphic elaboration.