



# Quayside – Buildings Pillar (Issues Identification)

Design Review Panel

October 24, 2018



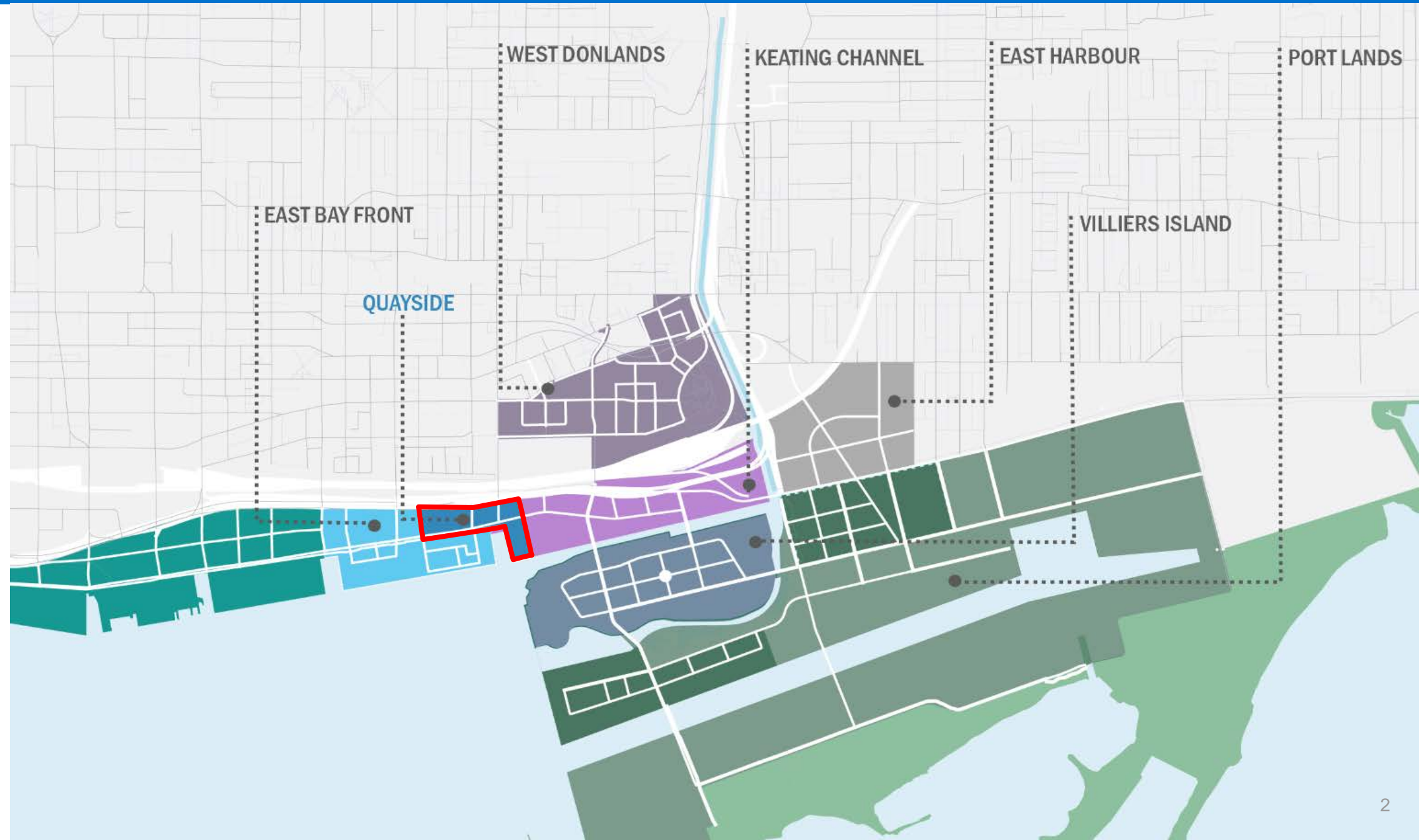
# Context: Existing Precincts



Quayside falls within both the **East Bay Front** and **Keating Channel** precinct boundaries.

Surrounded by existing communities, such as the **West Don Lands**.

As well as precincts in the planning phases, such as **East Harbour**.

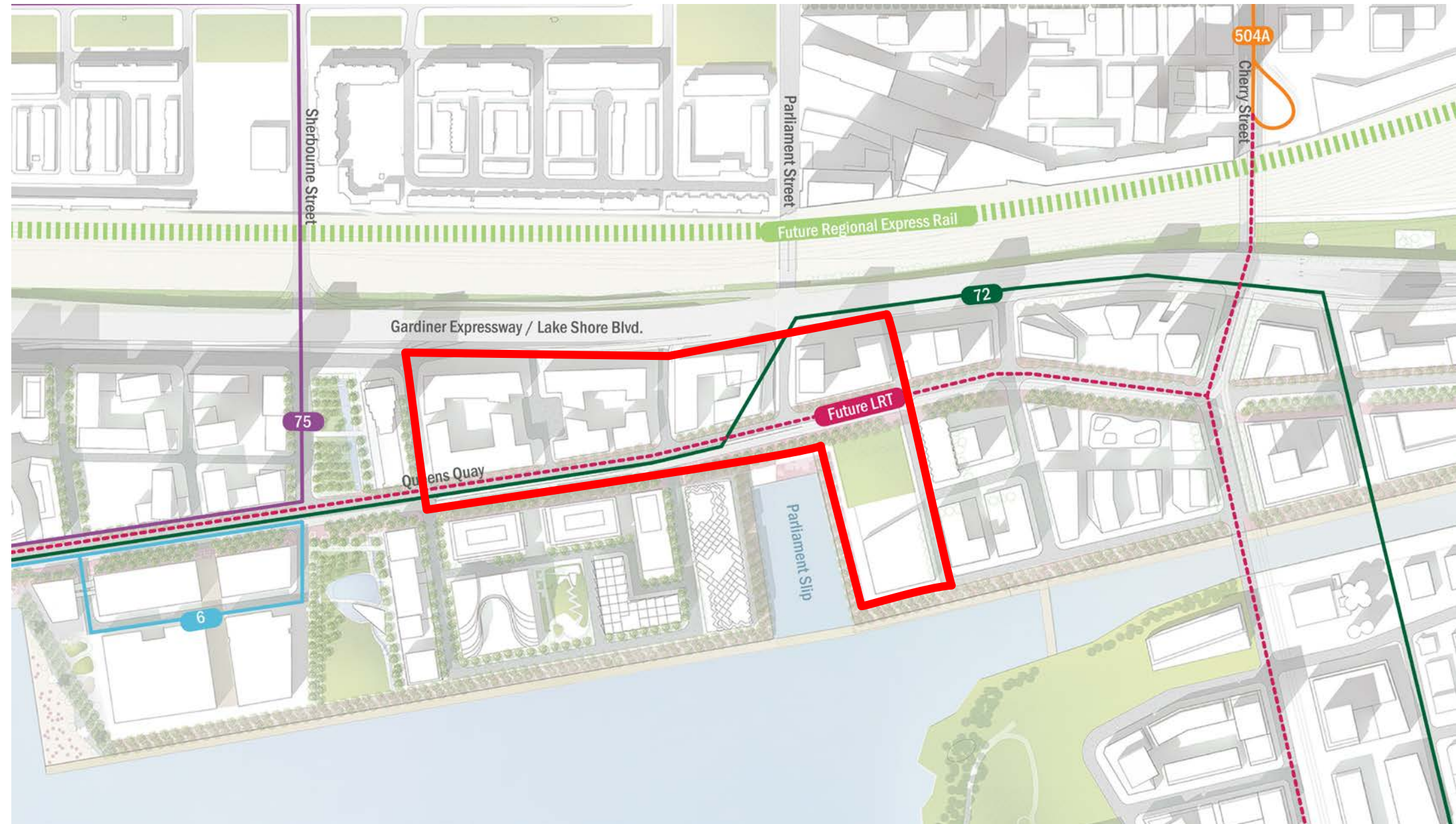




# Context: Current Existing, Planned or Proposed Transit



- **Bus routes** servicing the Eastern Waterfront
- Future proposed **waterfront LRT line**
- Future **Subway relief Line**



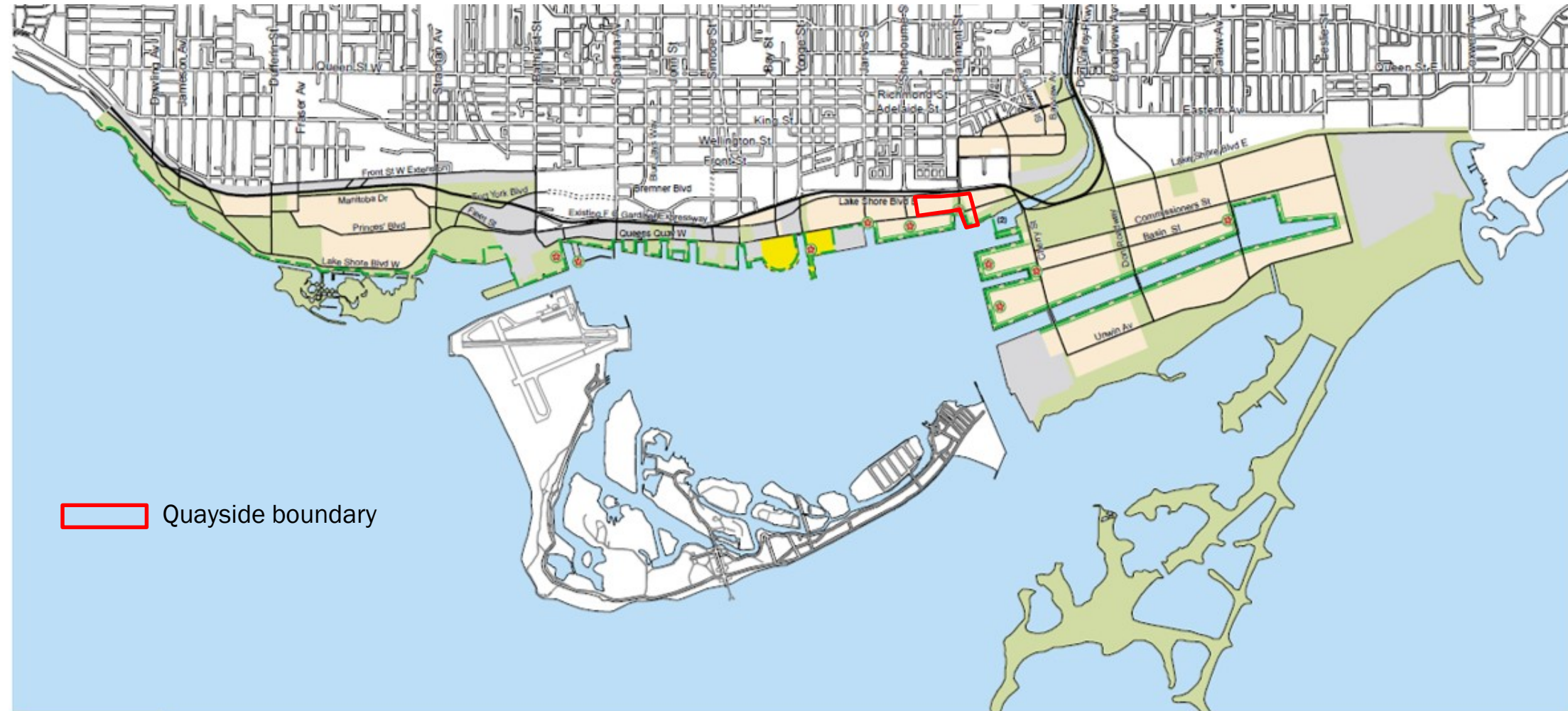


# Planning Context – Central Waterfront Secondary Plan



## Regeneration Area

- New development can incorporate a wide mix of uses both public and private, including residential
- These sites will be subject to particular attention in the precinct implementation strategies to ensure that they achieve the highest quality of built form and design
- The precinct implementation strategies will define their scale, range of uses and ensuring that the individual building design meets high standards of excellence through peer review.



 Quayside boundary

MAP E

## CENTRAL WATERFRONT SECONDARY PLAN LAND USE PLAN

### MAP INDEX

- |  |  |
|--|--|
|  PARKS AND OPEN SPACE AREAS (1) (3) |  FOOT OF YONGE SPECIAL STUDY AREA           |
|  REGENERATION AREAS (3)             |  PUBLIC PROMENADE (DOCKWALL / WATER'S EDGE) |
|  EXISTING USE AREAS (3)             |  INNER HARBOUR SPECIAL PLACES               |

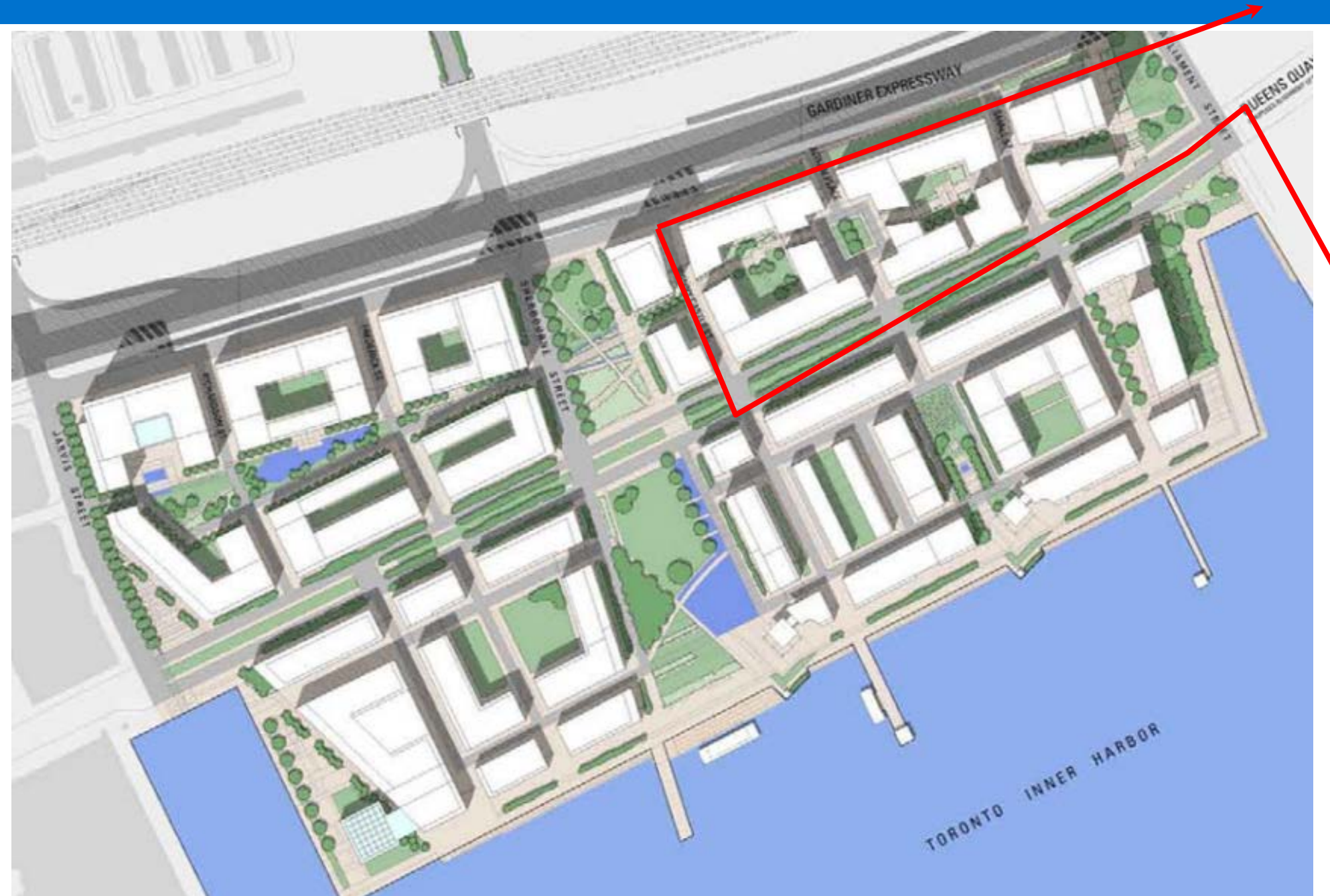
NOTE: (1) SEE MAP C FOR FURTHER DETAIL  
(2) NEW MOUTH OF DON RIVER SHOWN CONCEPTUALLY  
(3) SEE DEFINITIONS SECTION FIVE: MAKING IT HAPPEN, 1) A SIMPLIFIED APPROACH TO LAND USE REGULATION



# Planning Context – East Bayfront Precinct Plan



- East Bayfront Precinct Plan was approved by Council in December 2005
- It encoded the overall Master Plan for the Quayside site including: streets and blocks, parks and open spaces, heights and densities, land uses, and affordable housing and sustainability targets.
- The vision for East Bayfront precinct is for a new urban waterfront community, a place of design excellence, high levels of sustainability and strong relationships to the water's edge. East Bayfront will accommodate a mixture of uses and a range of urban built form with buildings arranged to collectively give appropriate definition, identity and scale to the public realm of the district while serving their intended uses.

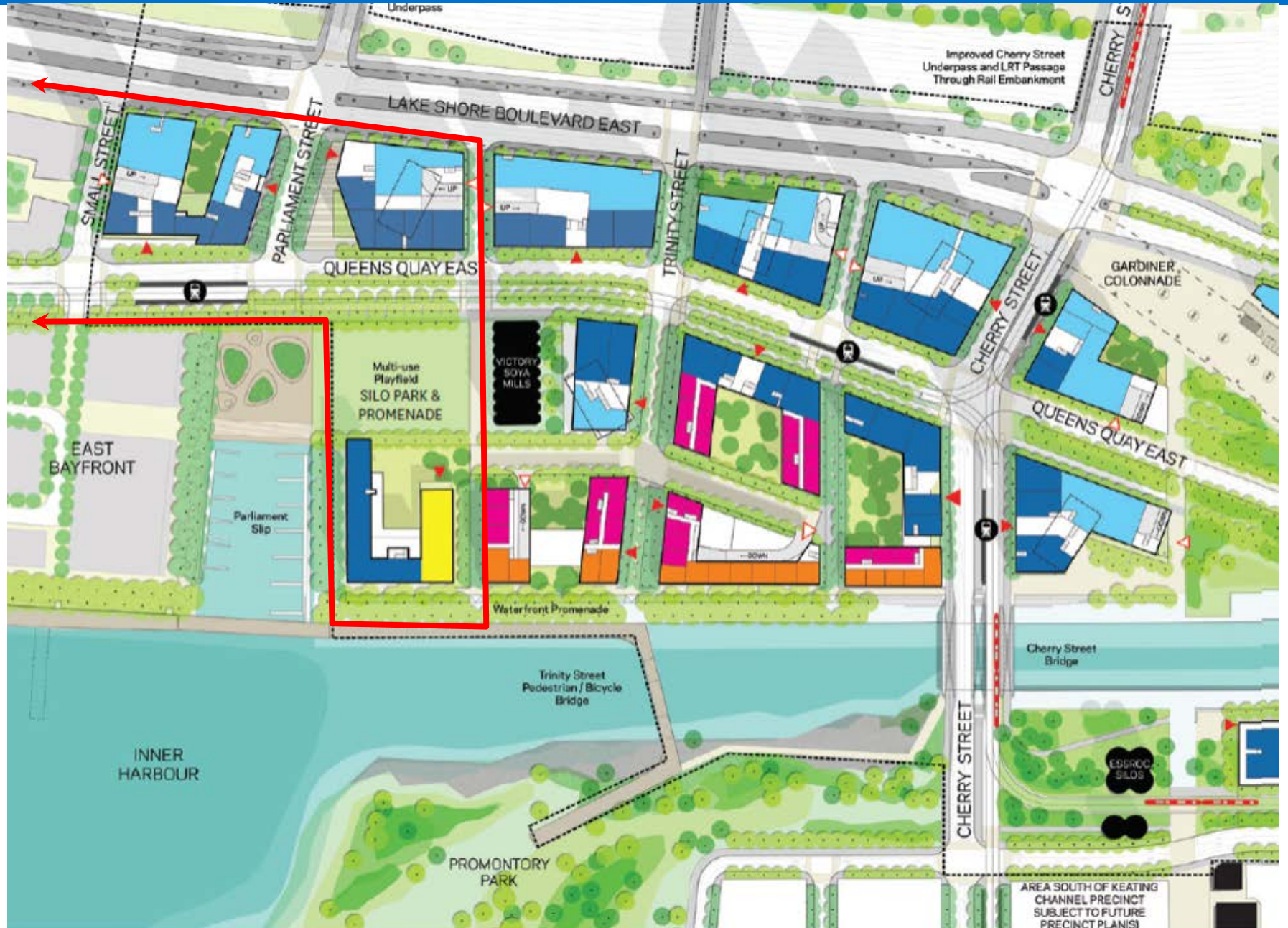




# Planning Context – Keating Channel Precinct Plan



**Building Typology:** the urban design strategy draws on the mid-rise and high-rise building typologies that are so prevalent in Toronto. These elements will be combined within the Precinct to create a more sustainable model for a dense and compact built form that supports active pedestrian life.





# Site Boundary



Gardiner Expressway / Lake Shore Blvd.

Queens Quay

Victoria Soya Mills Silos

Sherbourne Common

East Bayfront

Parliament Slip

Inner Harbour

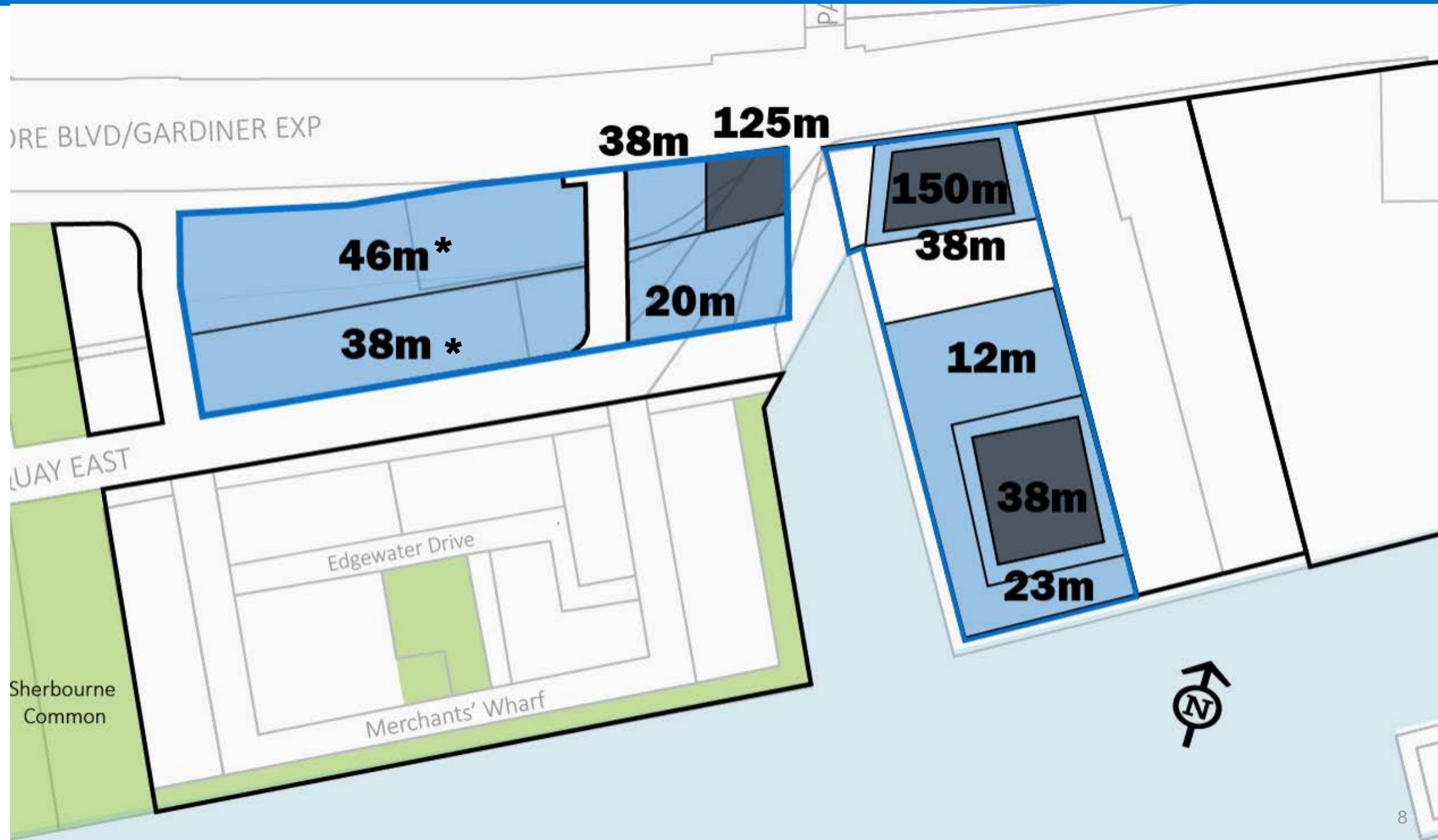


# Current Zoning: Height



Zoning areas are approximate, drawings reflect the current allowable height and tower placements.

\* The zoning bylaw permits an additional 12 m above the permitted height in this location.

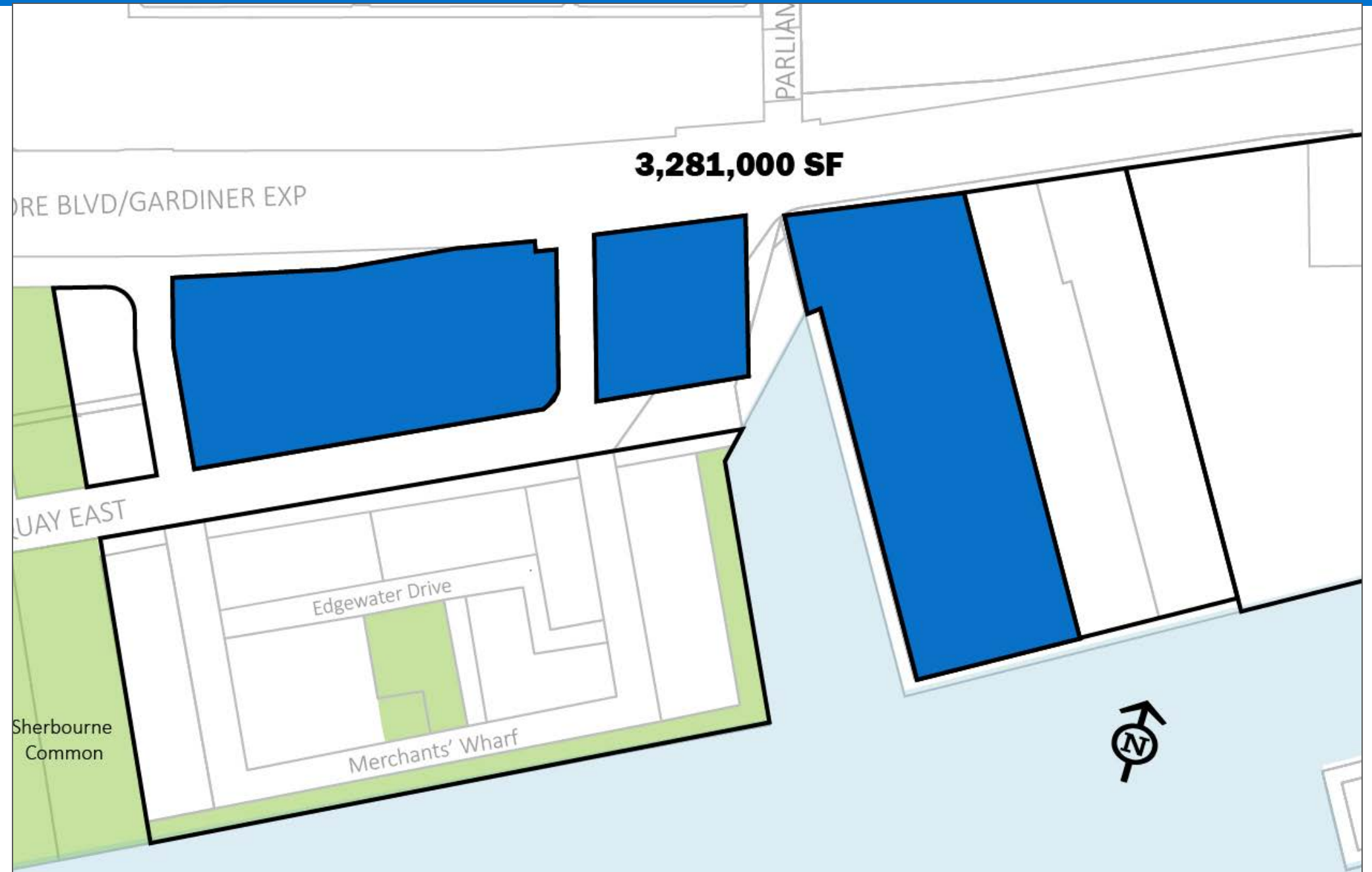




# Current Zoning: Density



Zoning areas are approximate, drawings reflect the current allowable as of right GSF





# Current Zoning: Height + Massing



Zoning areas are approximate, drawings reflect the current allowable height and tower placements.





# Current Zoning: Residential Use Scenario



Ranges are approximate, and reflect a scenario of residential uses within the current allowable as of right GSF

	Quayside
As of Right Development GSF	3,281,000

Lower Range Residential		Upper Range Residential	
SF	Number of Units	SF	Number of Units
1,183,000	Approx 1,180	2,273,000	2,260



# Project Structure



We are beginning to build on the years of planning work already done by the City of Toronto and Waterfront Toronto

**Targeted outcomes inform every step of our planning**

## SUSTAINABILITY

A truly climate positive community

## MOBILITY

A competitive, safer alternative to the private automobile for every trip

## PUBLIC REALM

A public realm for the entire region that is delightful and vibrant year-round

## BUILDINGS

A built environment that is more usable, efficient and affordable

## COMMUNITY & CITY SERVICES

A close-knit, healthy community with seamless access to vital daily services

## DIGITAL PLATFORM

Open digital infrastructure that inspires innovation

## HOUSING AFFORDABILITY

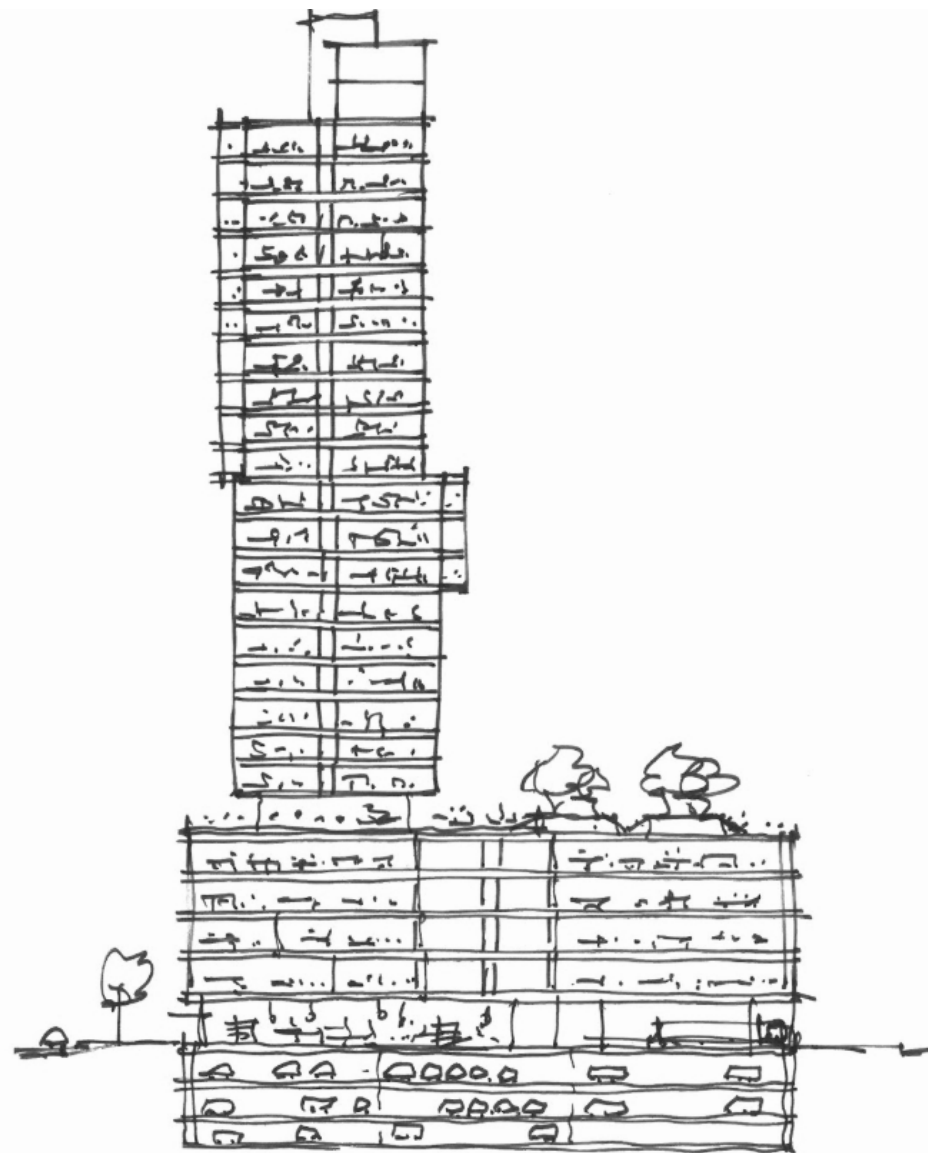
Inclusive, affordable communities for people of all ages, abilities, and means

## PRIVACY & DATA GOVERNANCE

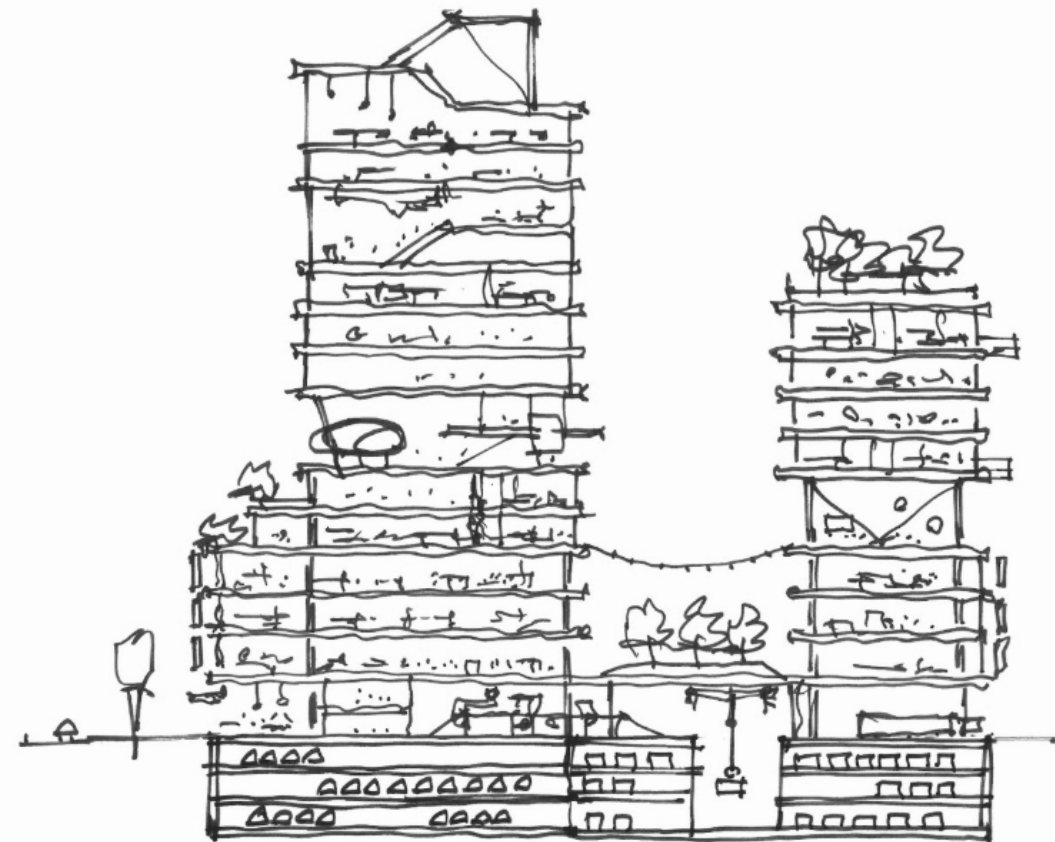
A new standard for transparent, accountable, and responsible data use



# Buildings - Overview



Fixed Uses



Flexible Uses

New construction techniques such as timber and modular combined with new program typologies such as micro-housing and radical mixed-use result in a wide variety of building shapes and block sizes, generating new forms of street grid.

# Buildings - Public Engagement

- **Mass Timber Event:** Tuesday, July 17, 2018 (during Open Sidewalk)
- **Biophilic Building Design with Bill Browning:** Saturday, July 22, 2018 (during Open Sidewalk)
- **Roundtable #4** Tuesday & Wednesday, August 14-15, 2018
- **Design Jam: Vertical Living:** Monday, September 17, 2018





## **Buildings Goals and Innovations:**

- **Success of key strategies in creating more adaptable, affordable and sustainable buildings**
- **Appropriateness of approach to building innovation components**
- **Feedback on proto-model design**

# SIDE WALK LABS

KARIM KHALIFA

Director of Buildings Innovation



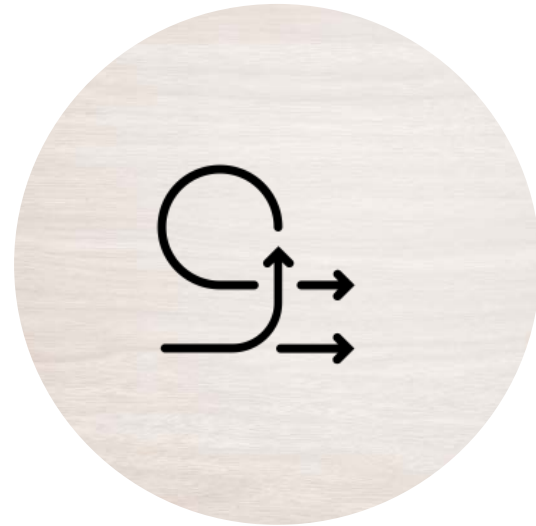
# Consultants Engaged for MIDP Development

**Sidewalk is working in partnership with several teams on the Buildings Innovation strategy that will inform the Master Innovation and Development Plan, including:**

- Proto-Model: MGA and Equilibrium
- Building Concepts: 3 architects
- Flexible Unit Design: 3 architects
- Engineering - General
- DC Building Design
- Cost Estimating
- Code consultant

# Buildings





## **Adaptability**

Create structures that are more responsive to the people's needs over time, both on Day 1 and years later.



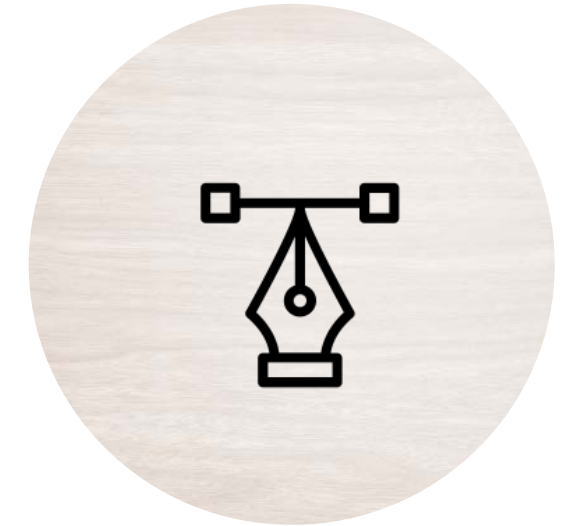
## **Affordability**

Reduce the cost and speed of construction through a manufactured approach to buildings.



## **Sustainability**

Build at the highest sustainability standard to help the environment, reduce utility costs, and improves occupant well-being.



## **Design Excellence**

Uphold and deliver innovative building design and architectural excellence on the waterfront.

# Buildings Innovations

## Adaptability

### PANEL SYSTEMS

20-40% of upper interior walls  
50% of lower interior walls

### UNDERGROUND DELIVERY SYSTEM

Cost partially offset by  
basement construction

### LOFT TYPOLOGY

First two floors of  
buildings have loft  
typology

### RADICAL MIXED-USE

Buildings include: micro-units,  
radical mixed-use

### CENTRALIZED PARKING

Includes centralized  
parking structure





# Buildings Innovations

## Affordability

### COST NEUTRAL

Cost reduction 15% with scale beyond Quayside

### DELIVERY OF MATERIAL

Tall timber products are manufactured and delivered by Canadian factories

### PROTO MODEL SIZE

10, 20, and 30-storey models with standardized factory based building format

### DC POWER

Integration of DC power system

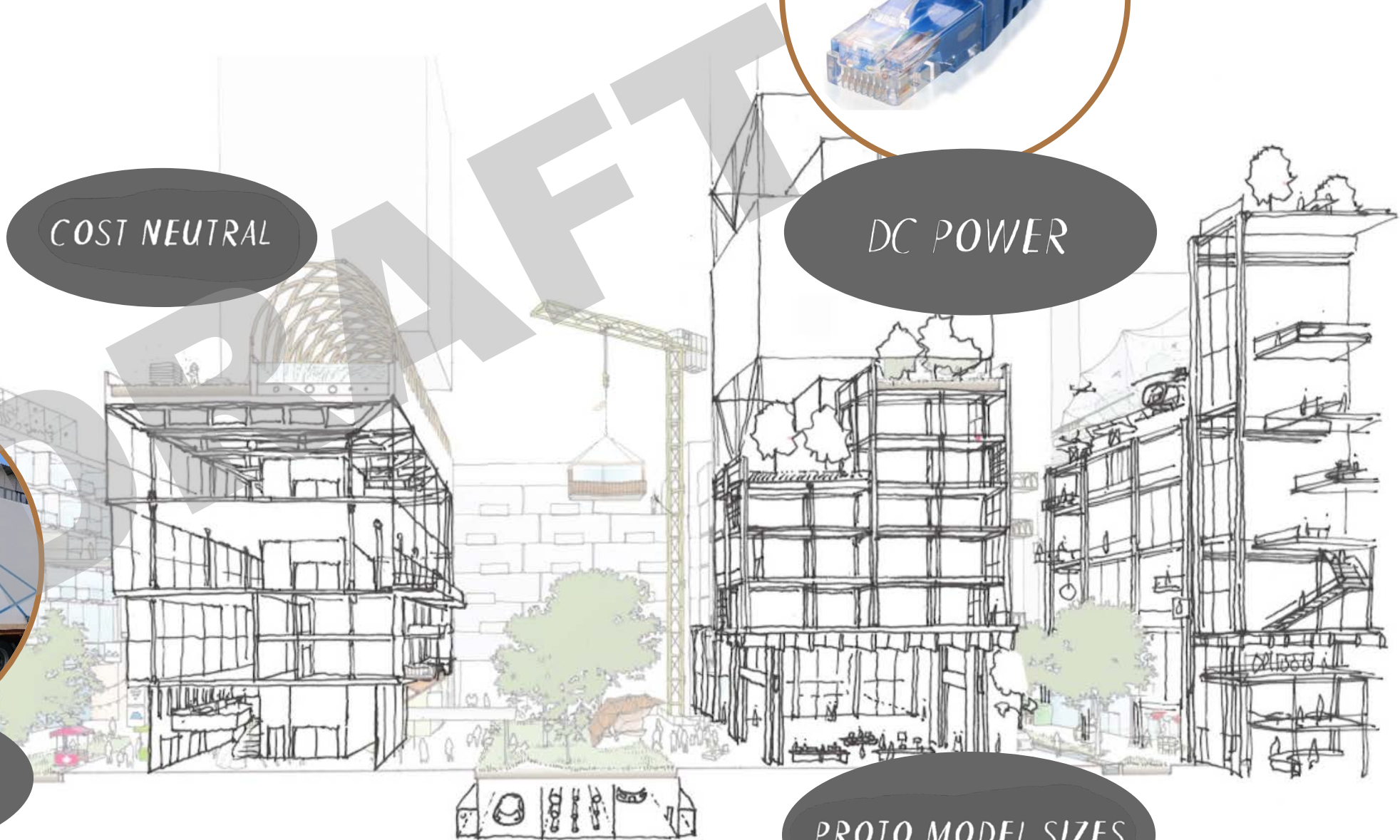


DELIVERY OF  
MATERIAL

COST NEUTRAL



DC POWER



PROTO MODEL SIZES



# Buildings Innovations Sustainability

## C2C MATERIALS

Achieve Toronto Tier 3 Green Standard with Cradle to Cradle (C2C) Material Certification

## GREEN ROOF

Green roof with potential for urban farming or PV's

## FACADE GLAZING

Facade glazing is photosensitive. South-facing facade designed to reflect glare-free light to north facing buildings

## POWER + SPRINKLERS

Surface-mounted low voltage power and high pressure sprinklers enable partition walls to be movable. Extend BMS to wall plug



GREEN  
ROOF

HIGH VOLUME  
MATERIALS

TIER 3 GREEN  
STANDARD C2C  
MATERIAL



POWER AND  
SRINKLERS



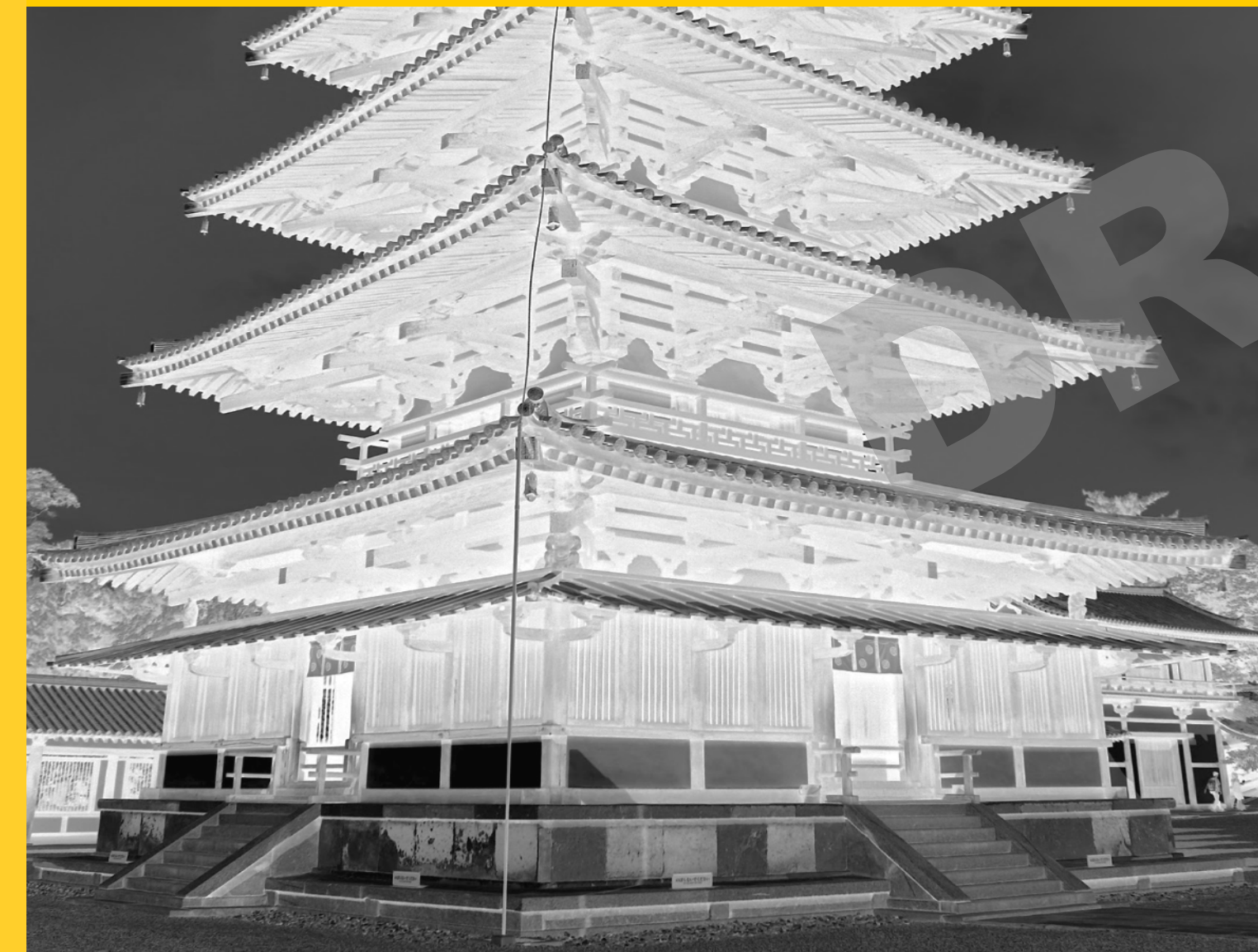
FACADE GLAZING





Making Old

New Again



## OLD: CURRENT PRACTICE

Unsustainable Steel & Concrete

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Concrete Cores

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Single-Use Elevators

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Frame in Place

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Drywall & Insulation Support

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Sprinkler Systems

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Widespread AC Wiring

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Fragmented Supply Chain

## NEW: SIDEWALK LABS INNOVATION



C2C Plaster

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Configurable Walls

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Modular Solutions

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Safer DC Power

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Faster-Response Mist System

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Renewable Canadian Resource

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Off-site Fabrication

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Combo Internal Freight System

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# Horyuji Temple / Japan

Oldest wooden building in the world

Five-story pagoda

32.5 meters in height

Built in 711 AD





# OLD: Poor Sustainability Concrete & Steel

# NEW: Sustainable Timber





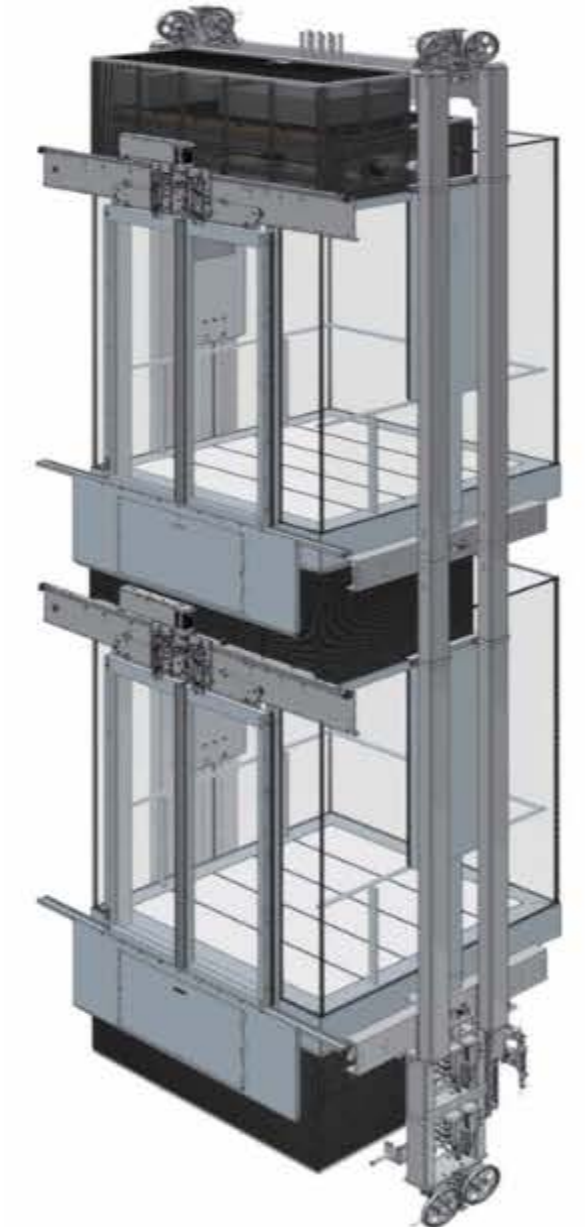
# OLD: On Site Concrete Core

# NEW: Modular Elevator Core



# OLD: Passenger - Freight Elevator

# NEW: Passenger - Freight Elevators





OLD: Frame in Place

NEW: CLT Panel Wall





# OLD: Plaster & Lathe Installation

# NEW : Factory Plaster Installation





**OLD: Fabric Fire Blanket**

**NEW : Mist Fire Blanket**

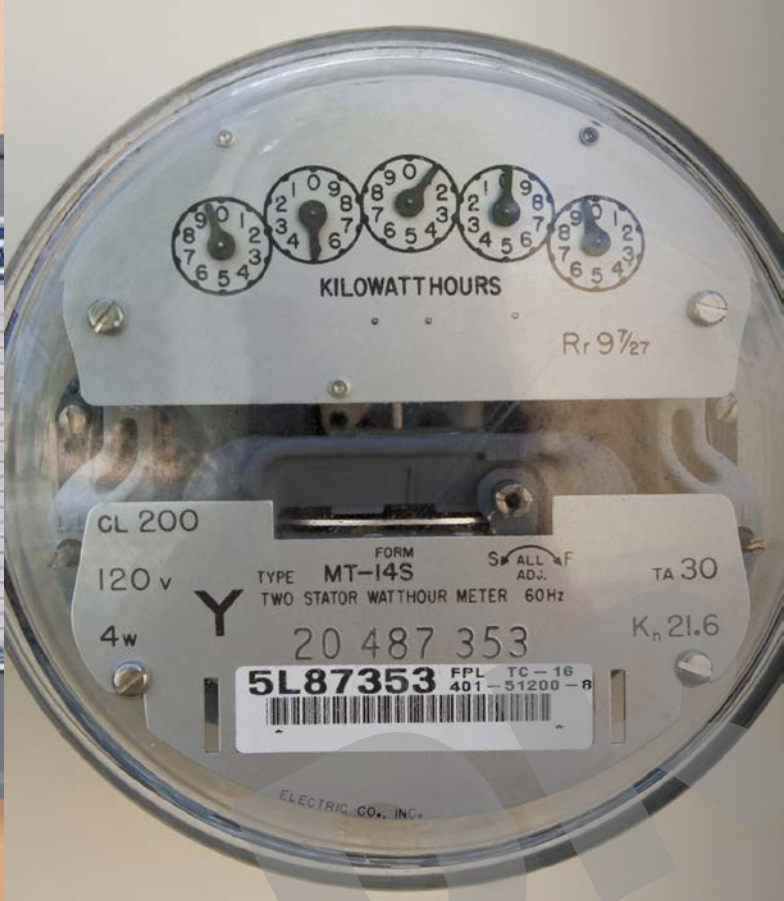


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# OLD: Widespread AC Wiring

# NEW: Safer DC Power





Building Block

# The Opportunity of Timber



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**SIDEWALK TORONTO IS CONSIDERING** using tall timber technologies on an unprecedented scale, and exploring what it would mean to build Quayside primarily, or even entirely, out of tall timber.



# Why Mass Timber?

## CLIMATE-FRIENDLY

Helps Sidewalk Toronto make progress towards meeting Waterfront Toronto's ambitious sustainability goals and achieving climate positive

## ECONOMIC BOOST

Supports and leverages the expertise of Canada's world-leading timber industry

## HEALTHIER SPACES

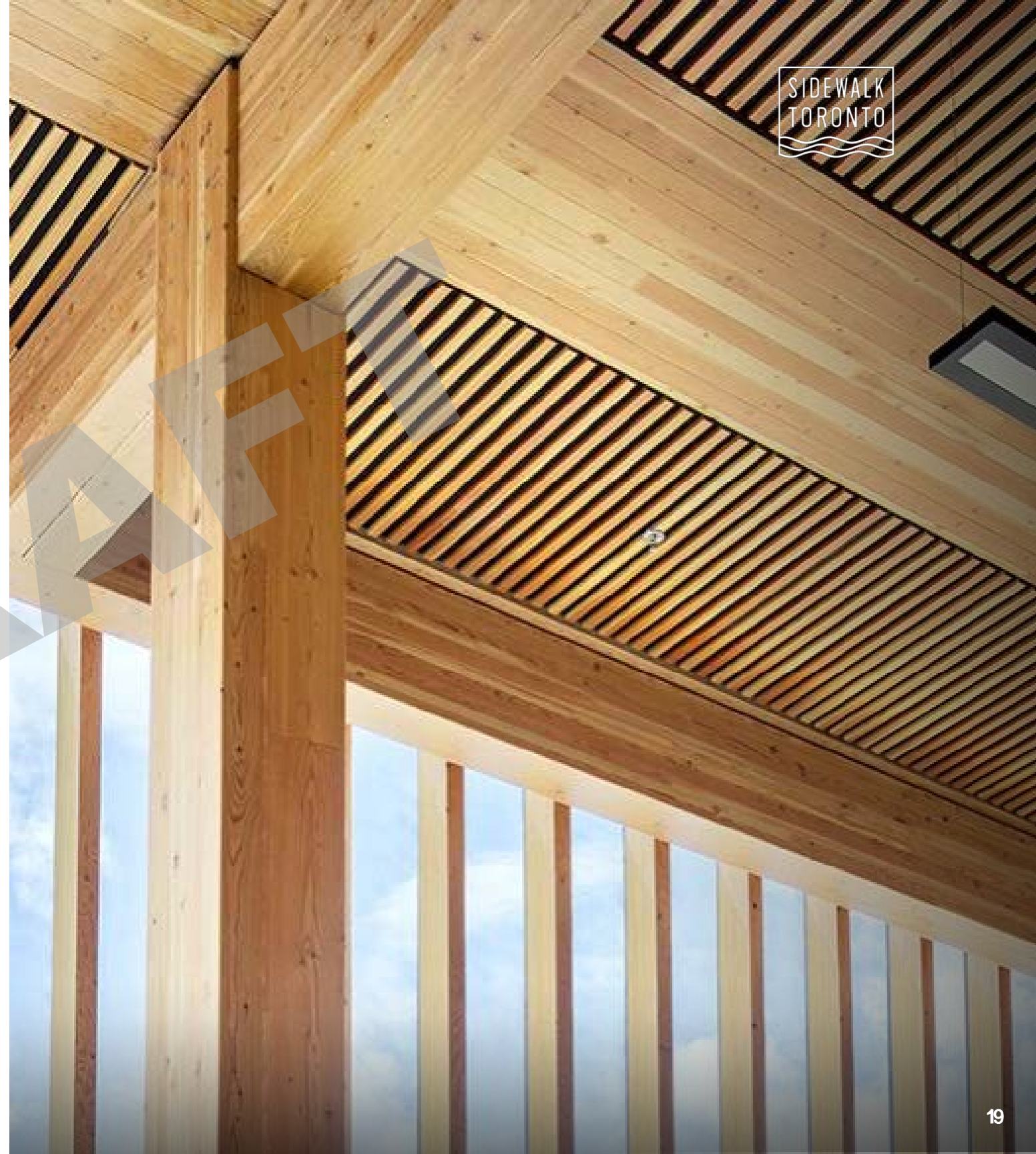
Provides warmth and character to living spaces

## FASTER CONSTRUCTION

Achieves faster construction times, less on-site noise, less congestion, and safer sites via off-site manufacturing

## COST SAVINGS

Realizes significant cost savings in the long term, especially as the market expands





Building Block

# Mass Timber Challenges



## TECHNOLOGICAL CAPACITY

Timber construction limited to 30 storeys

## INDUSTRY CAPACITY

Supply chains will need to grow to support larger-scale construction

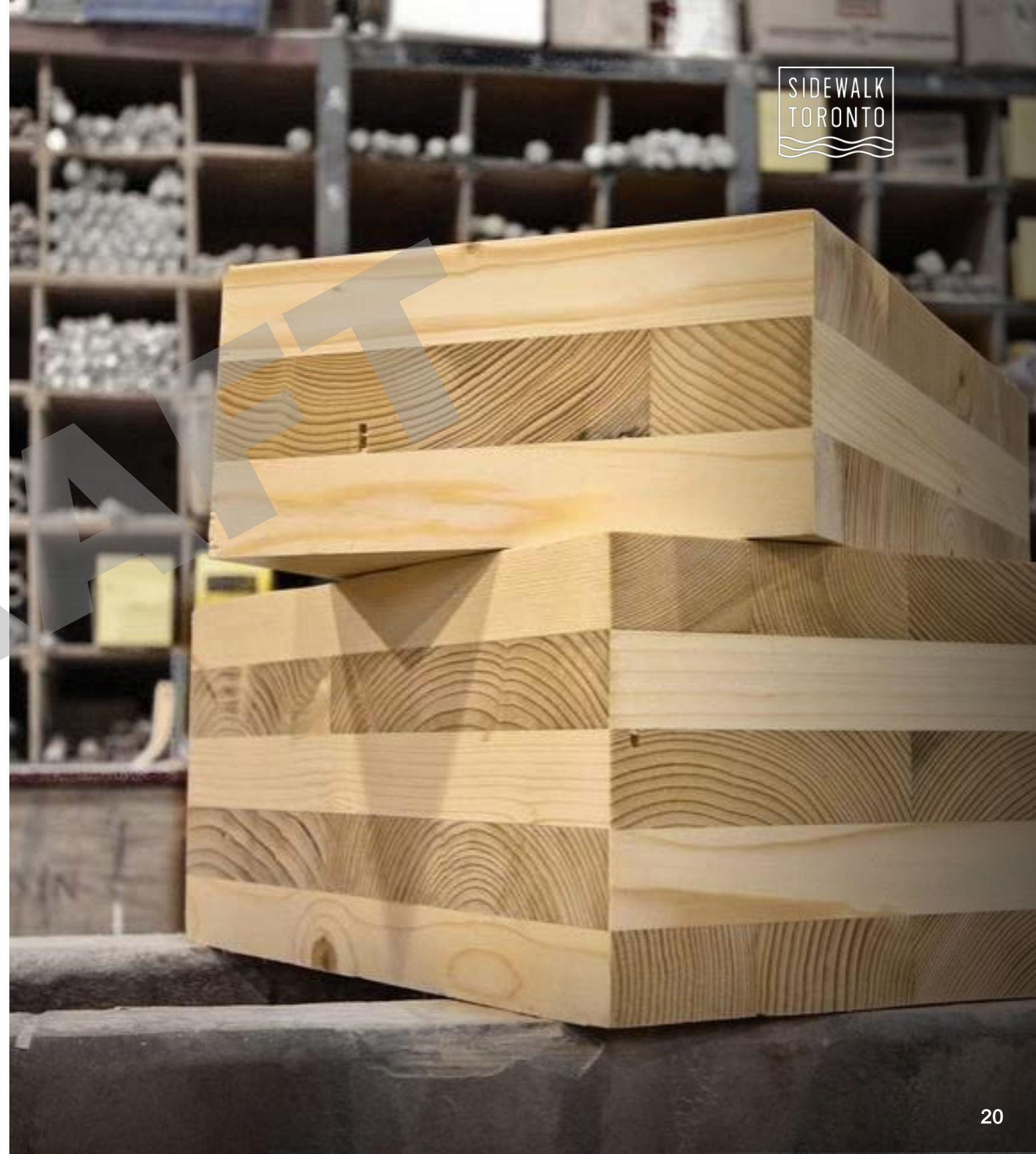
## BUILDING CODE

Regulation would require amendment for buildings above 6 storeys (the current limit)

## IMMEDIATE COST

Savings may not be realized at the scale and timber frame envisioned for Quayside

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## Building Block

# Tall Timber in Canada

## PRECEDENT

Canada is leading tall timber building construction in the Americas with residential buildings, scholastic buildings, and commercial buildings, including Brock Commons and The Arbour.

## CODE

Current code pre-approves buildings up to 6 storeys, with performance-based approvals for taller buildings. In 2021, the code is anticipated to pre-approve timber buildings up to 12 stories and performance based approvals for taller buildings.

## TRI-GOVERNMENTAL SUPPORT

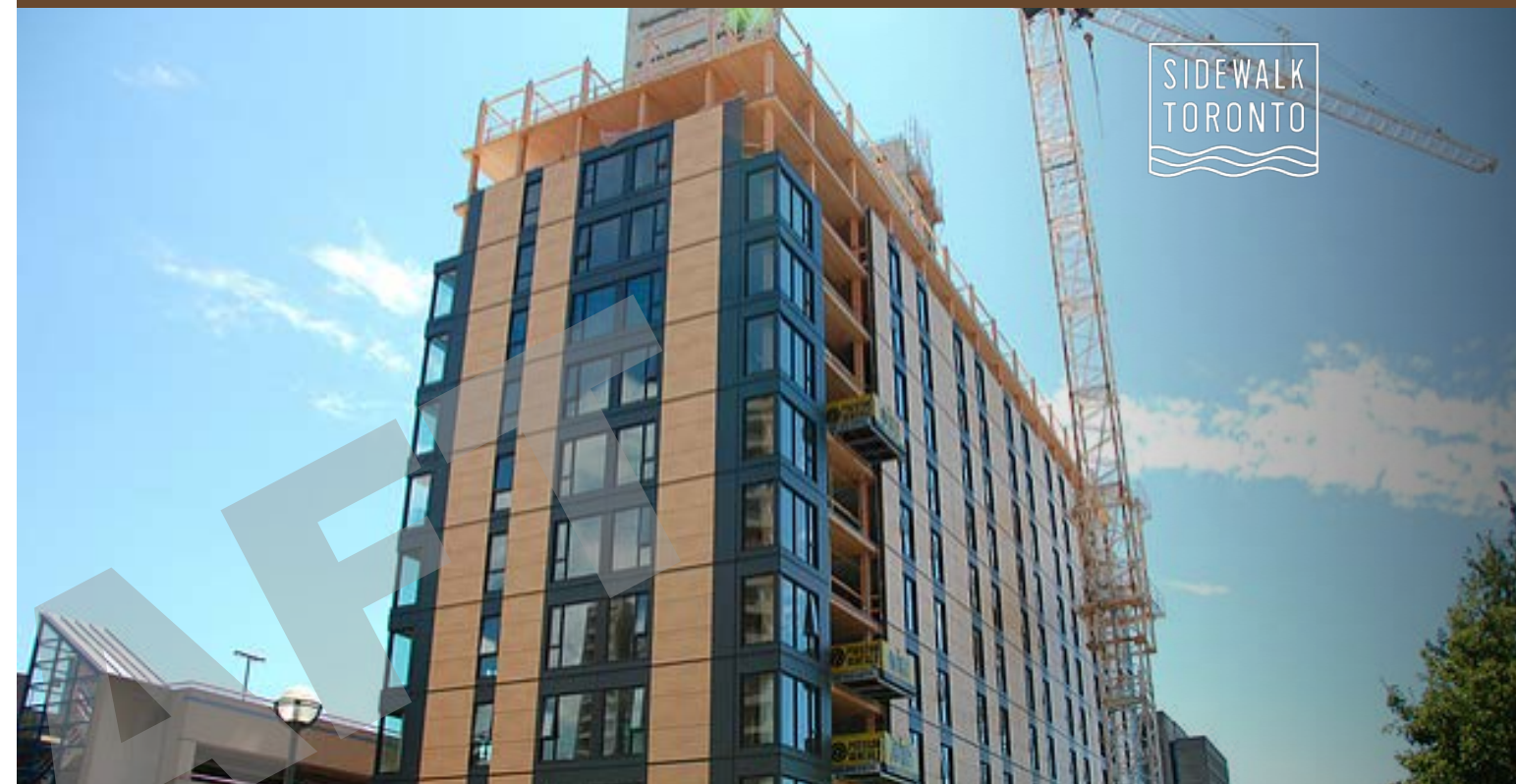
Federal, provincial, and city agencies have partnered to support the advancement of timber technologies and industry growth.

## LOCAL NATURAL RESOURCES

Canada is home to the largest supply of certified forests that can be sustainably cultivated. For example, it would take just 100 minutes of growth of these forests to support an entirely timber Quayside.

## GROWING INDUSTRY

Expanding the existing tall timber industry could allow Toronto to become a global resource for tall timber expertise.



The Arbour, George Brown College, Toronto





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# Mass Timber Innovations

Concrete Podium , Glulam Columns, CLT Flooring





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# Mass Timber Precedent

CLT Gymnasium





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# Mass Timber Precedent

Custom Glulam Beams





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# Mass Timber Construction

UBC Centre for Interactive Research on Sustainability, Vancouver






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# Mass Timber Precedent

Credit Valley Hospital, Mississauga







Mass timber at Quayside can help enable a unique new living experience on the waterfront, and expand housing options for a diverse range of residents.



# Quayside Proto Model

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# 01

## Identification of Technology

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Explored and identified a series of innovations that make up our strategy for the built environment

# 02

## Proto-Model Development

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Developed proto-models to test the integration of specific technologies and variations in design

# 03

## Design & Cost Benchmarking

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Commence benchmarking exercise to better understand design and costs of construction based on proto-models

# 04

## Building Design Check

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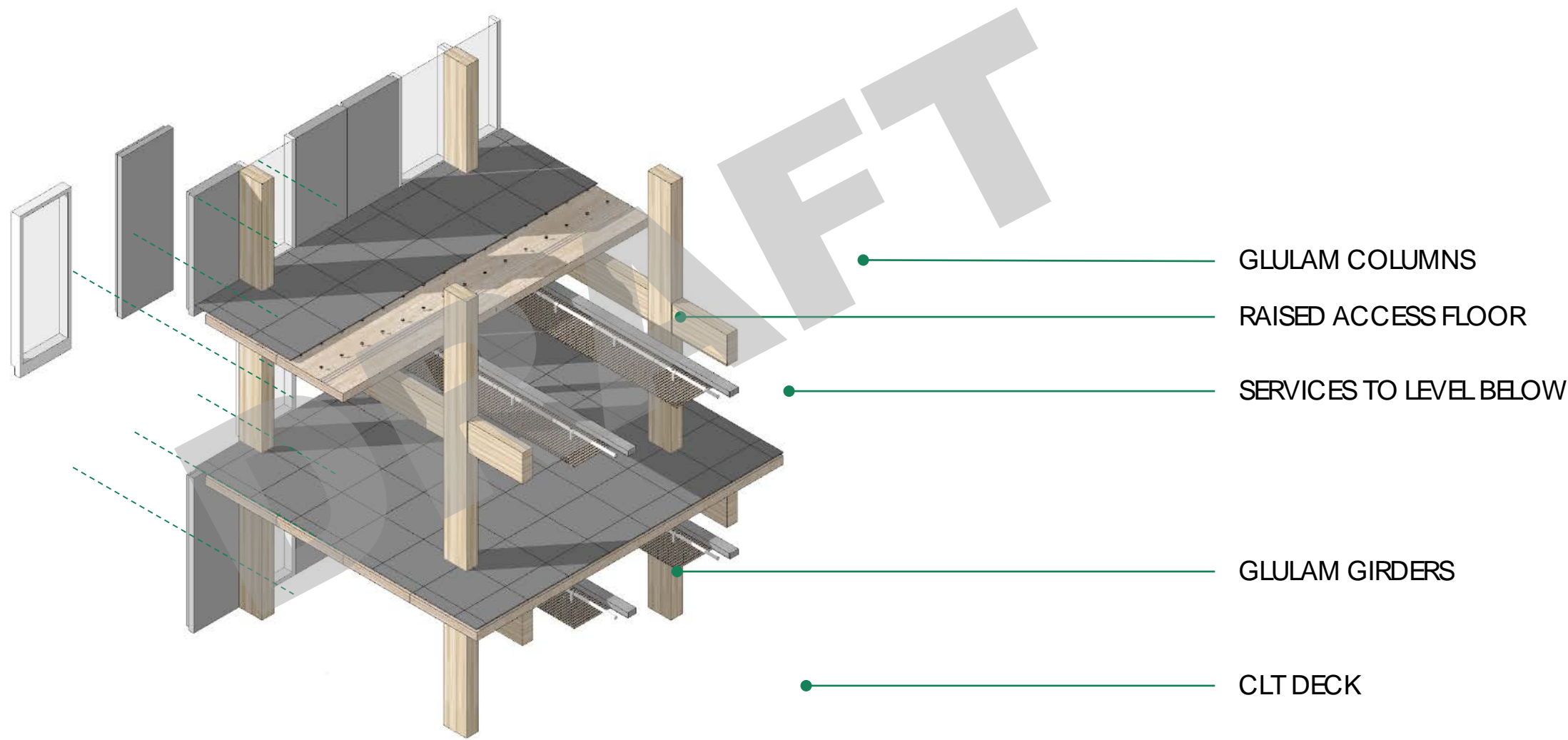
Develop building designs for buildings on Quayside that we will measure against our benchmarks and goals



# PROTO MODEL



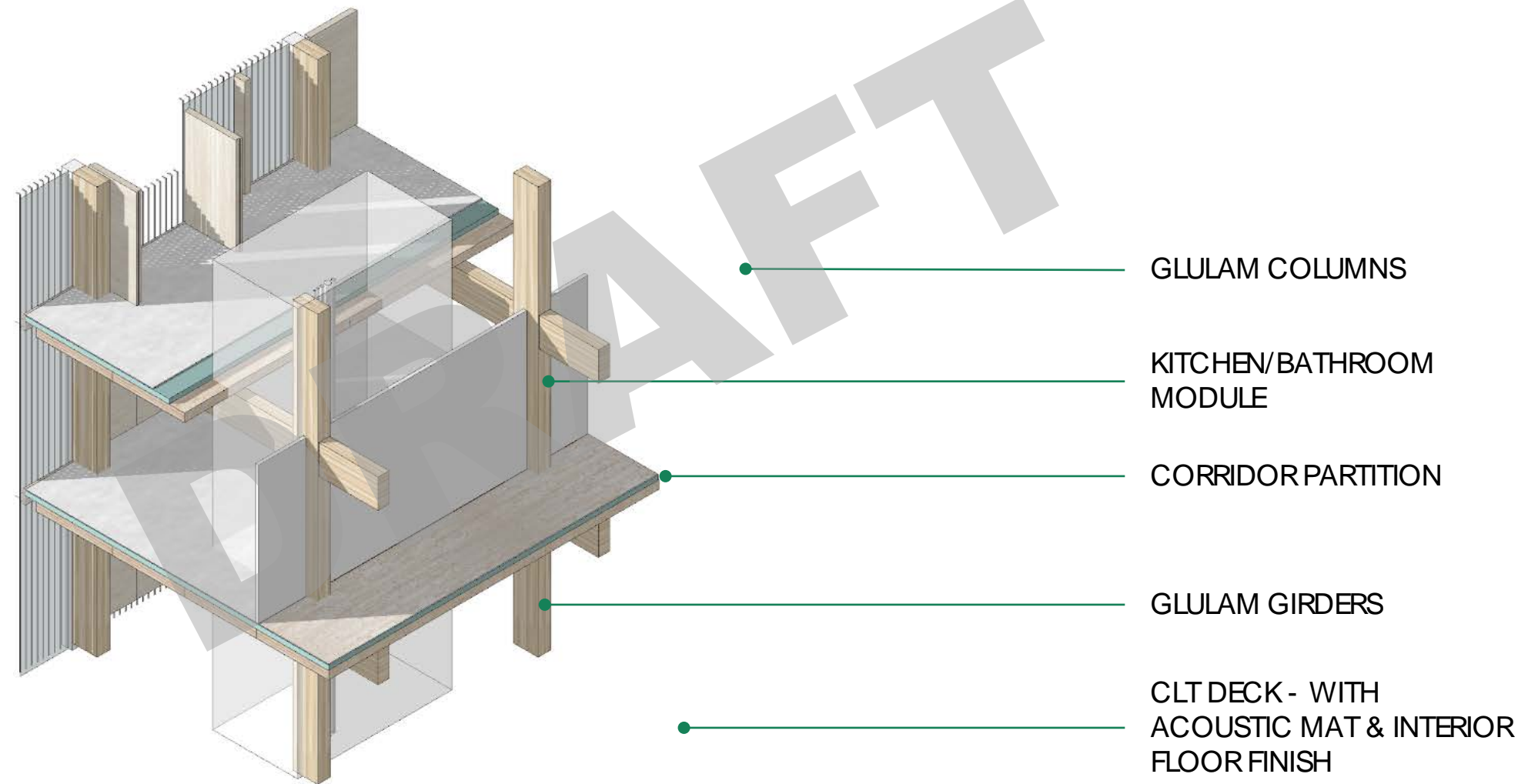
# 20' X 20' COMMERCIAL BAY







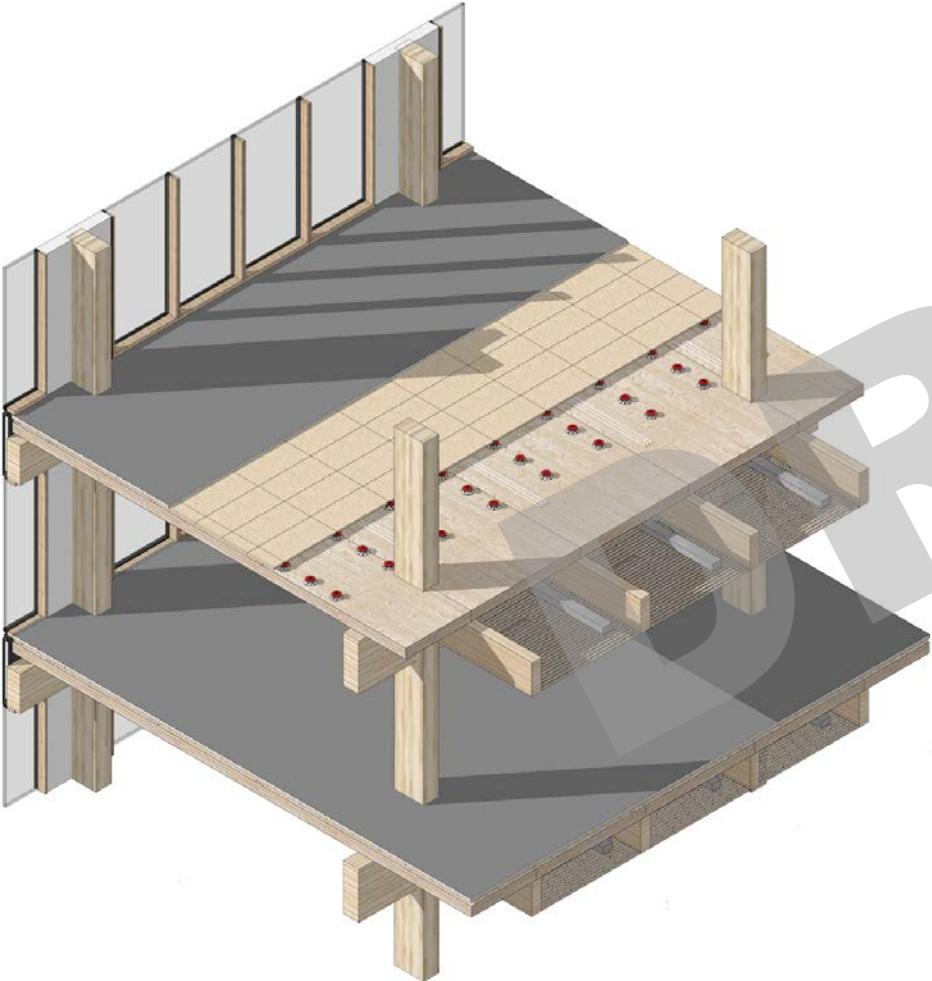
# 20' X 20' RESIDENTIAL BAY



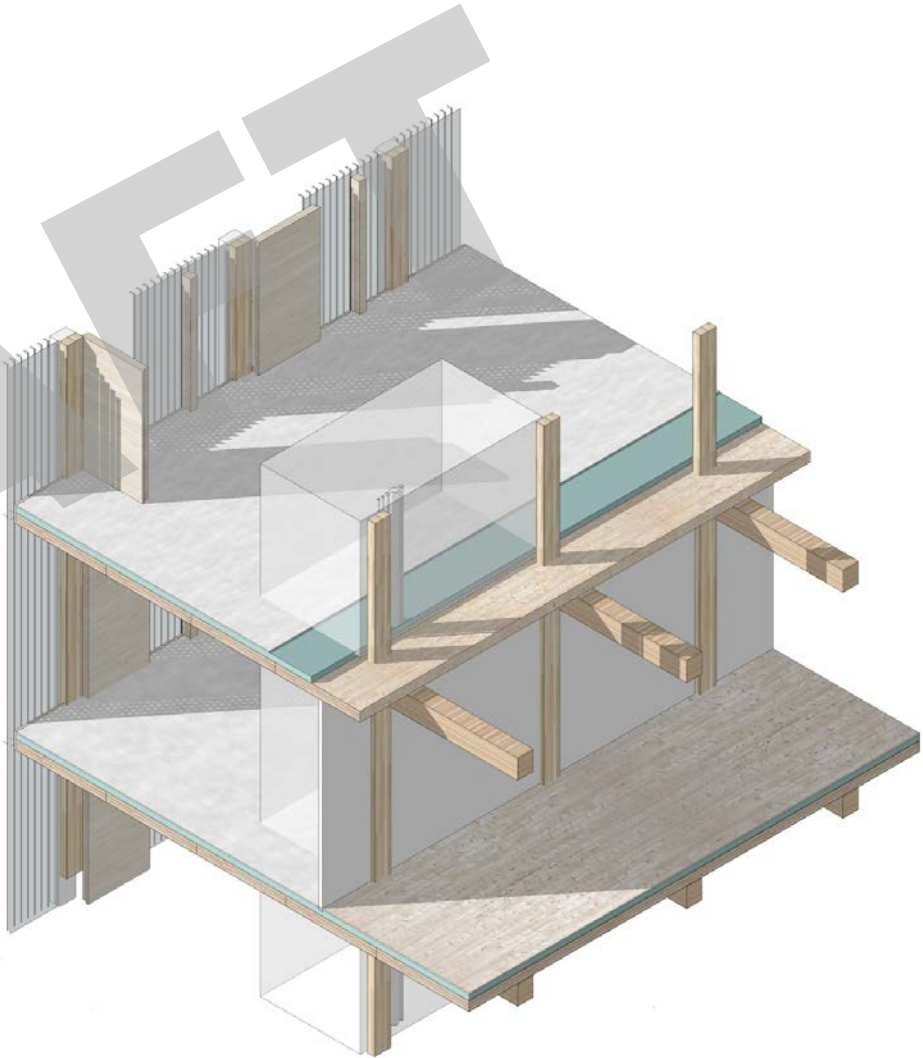


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# 24' X 24' LOFT BAYS



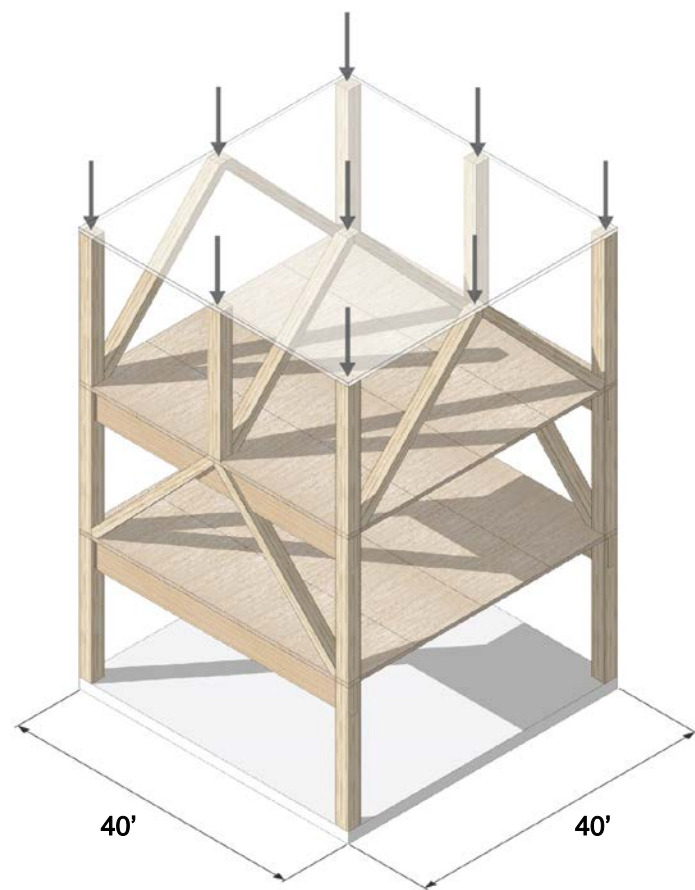
**COMMERCIAL**



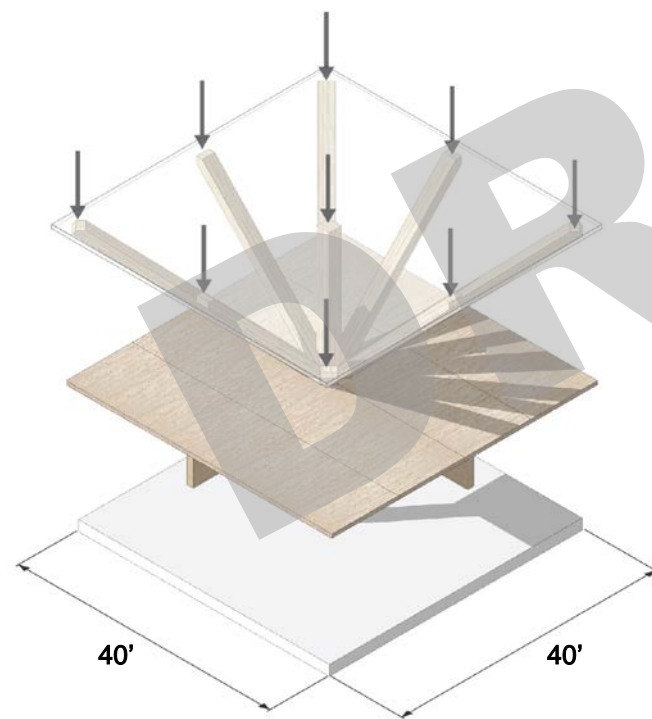
**RESIDENTIAL**



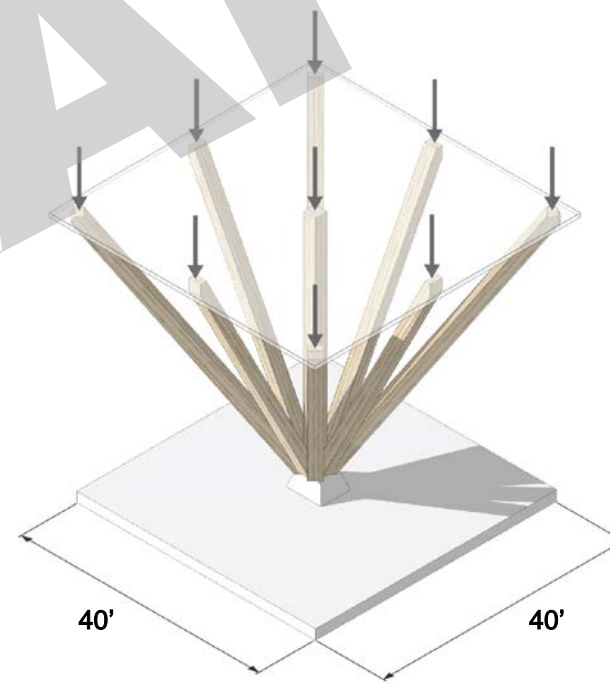
# STOA TRANSFER SYSTEMS



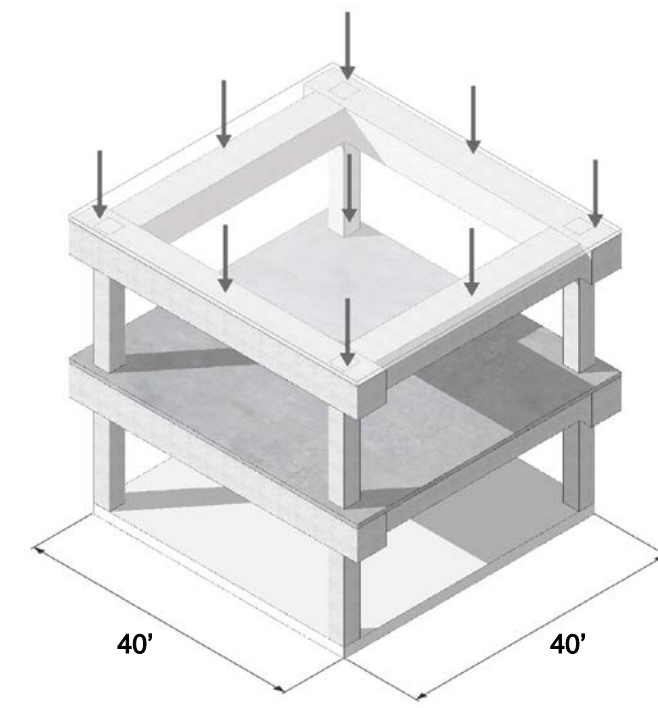
**2- STOREY**



**1- STOREY**

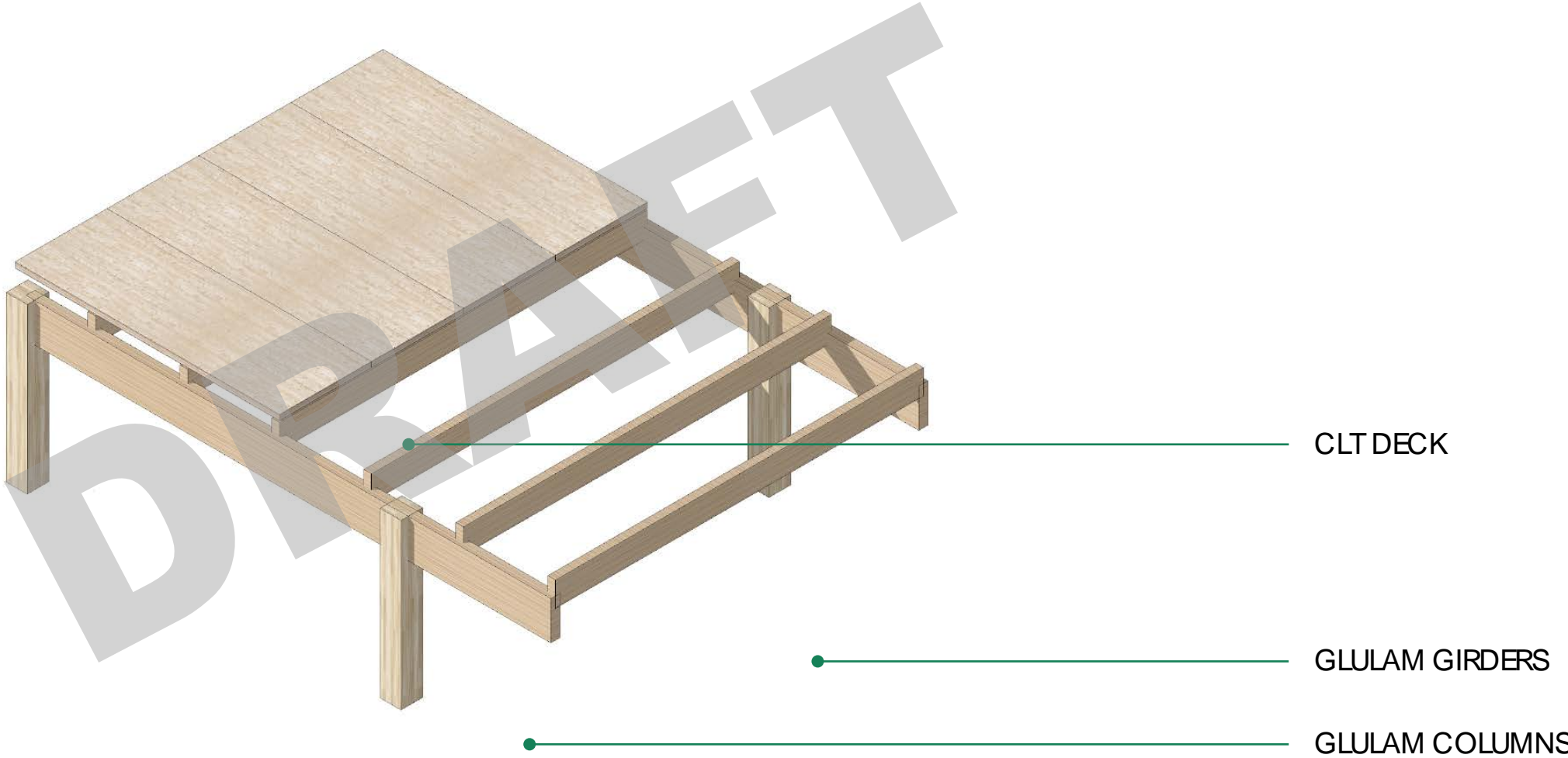


**GROUND FLOOR**



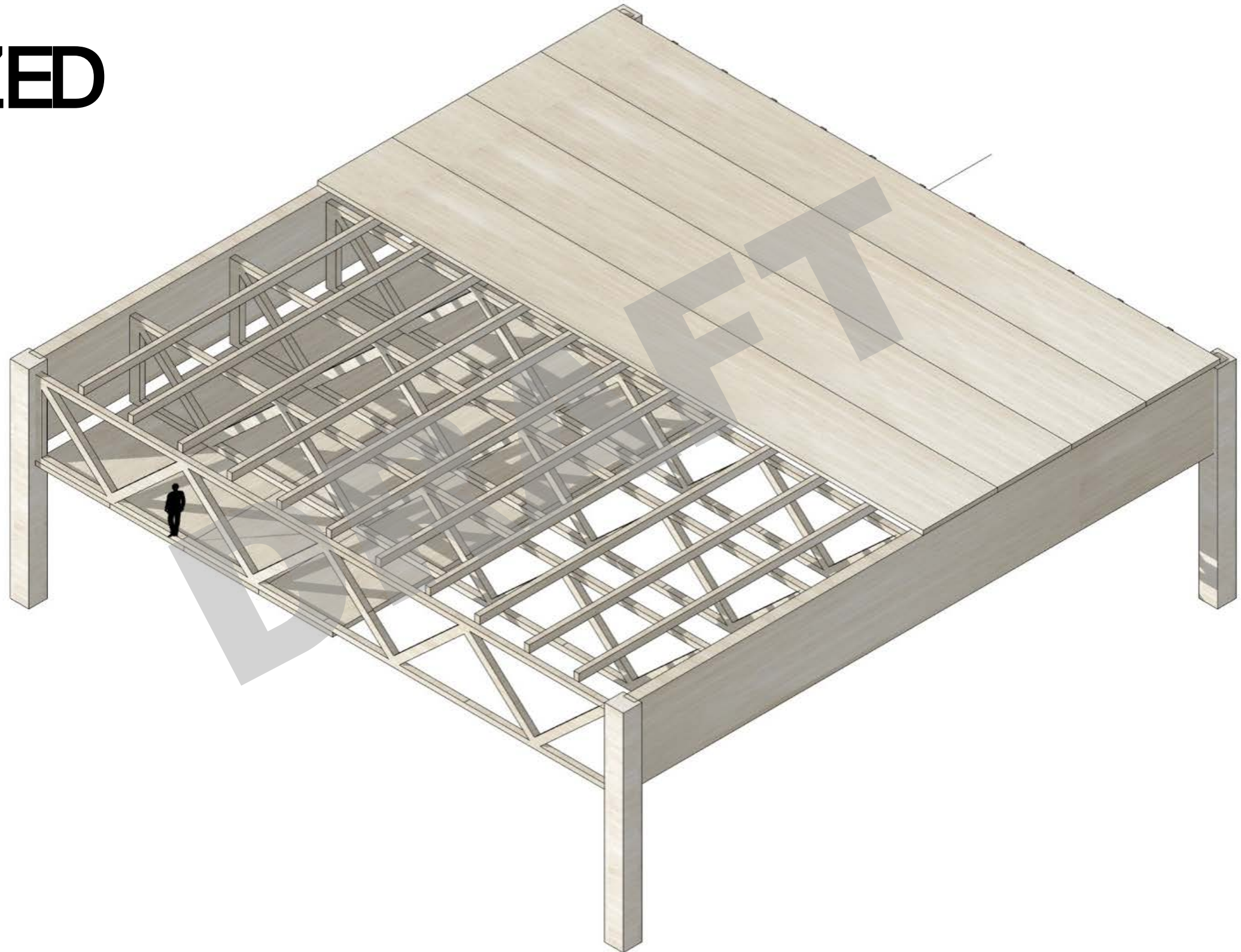
**CONCRETE**

# 40' X 40' STOIA

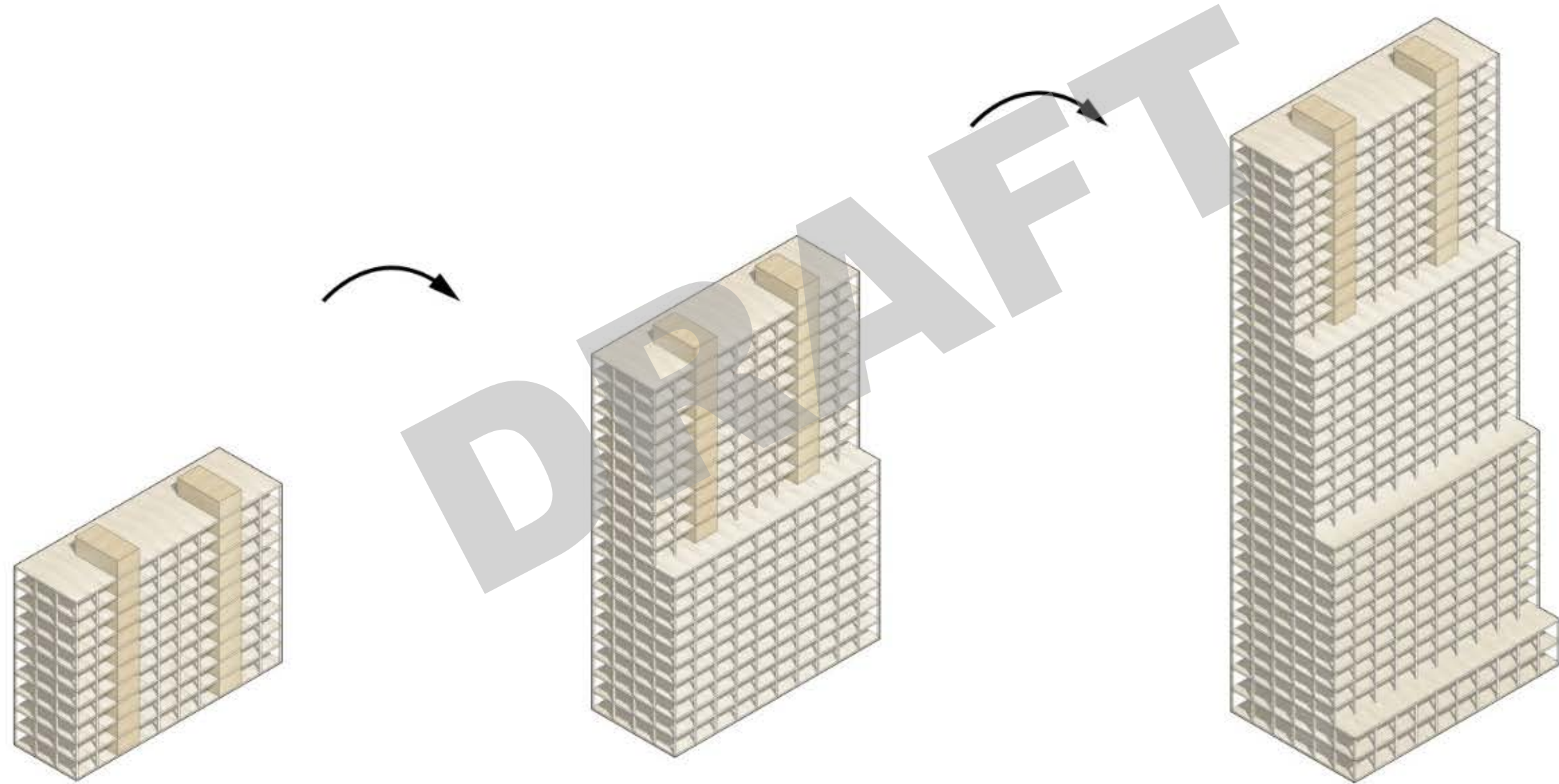




# OVERSIZED

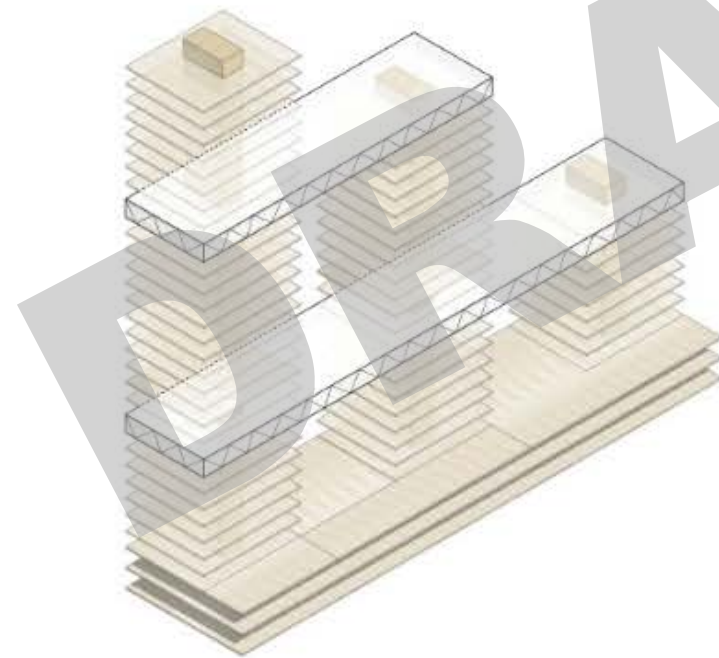
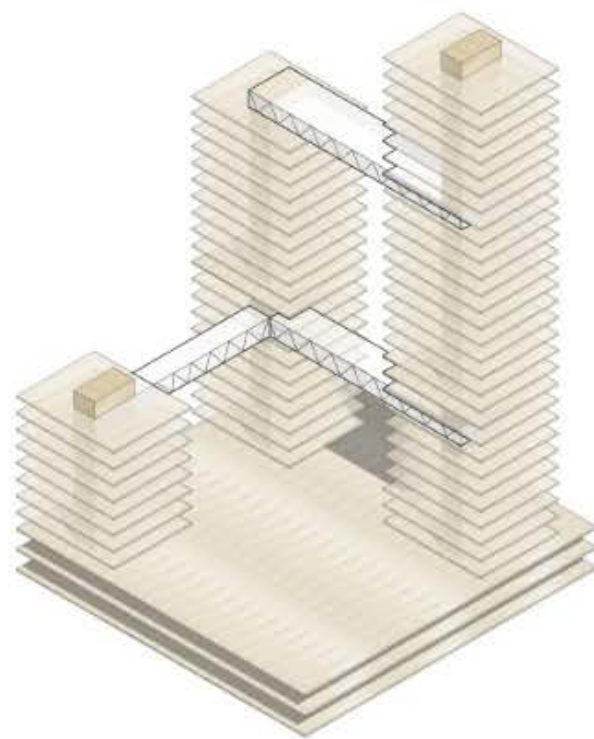


# BASE MASSINGS



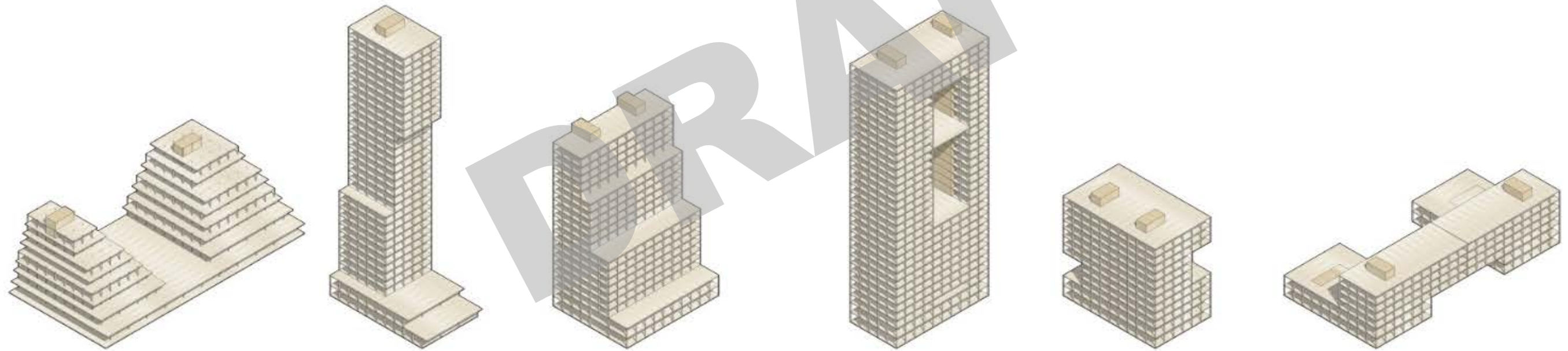


# LATERAL SYSTEMS



PROPRIETARY

# MASSING STRATEGIES





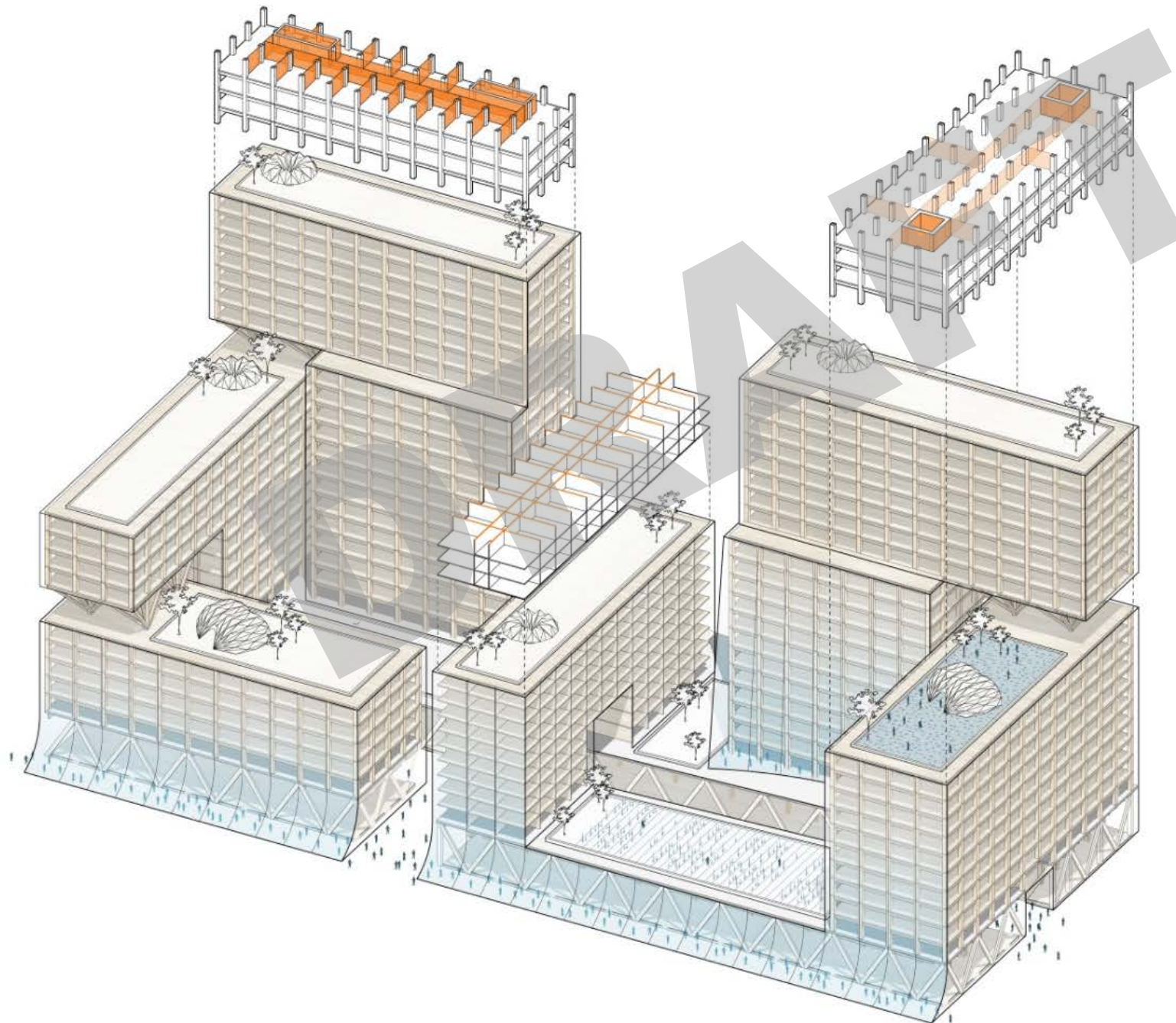
# MASSING STRATEGIES



MA6 Paris competition\_MGA



# BLOCK MASSING STUDY









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