



# FOREST TO FRAMEWORK

Oregon Innovates with Cross Laminated Timber (CLT)

**Anyeley Hallova**, Partner  
project^

**Jonathan Truitt**, Director of Development  
HomeForward

**Thomas Robinson**, Founding Partner  
LEVER Architecture

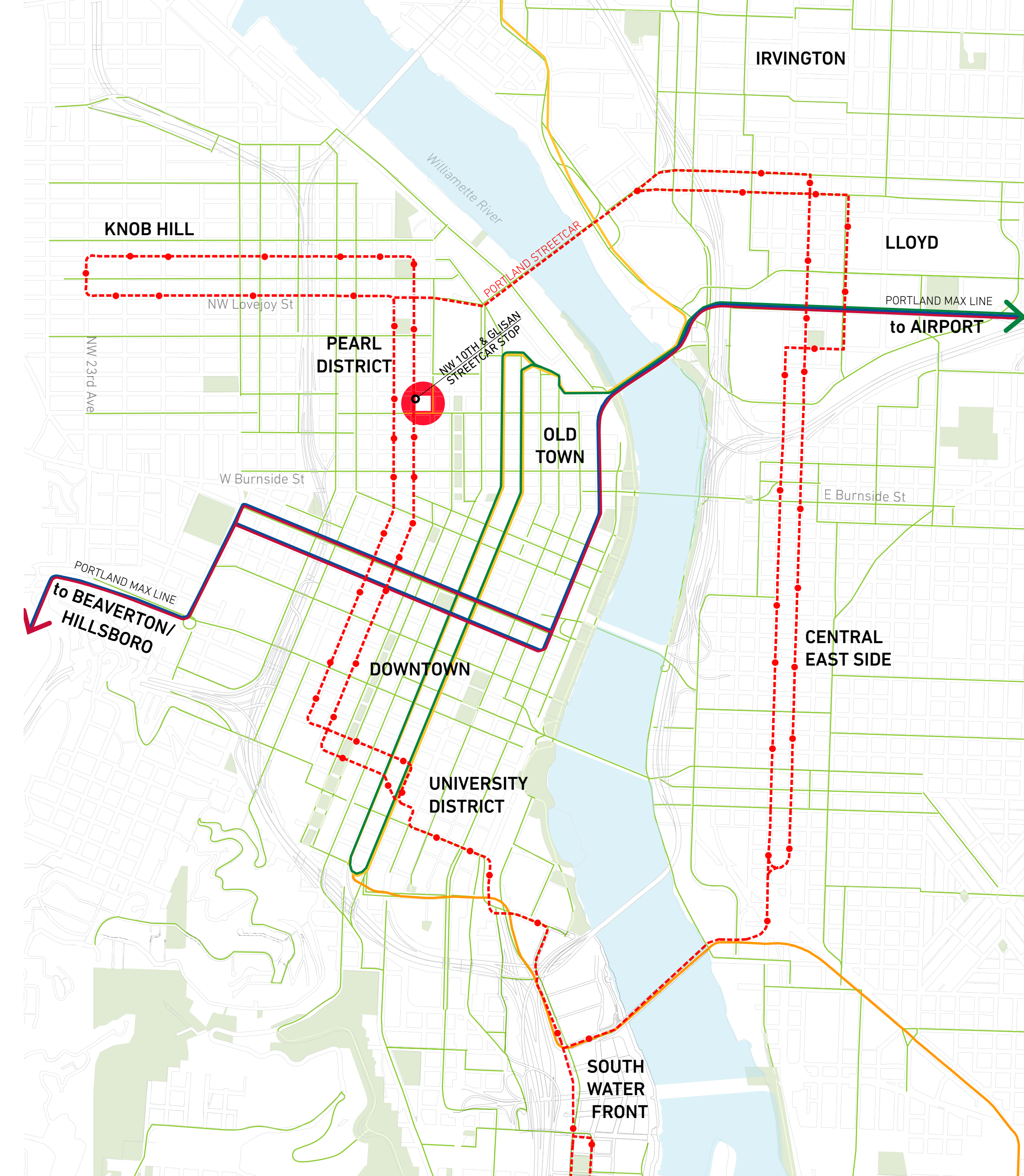
**Valerie Johnson**, President  
DR Johnson











**Economic  
Opportunity**



**Social  
Equity**



**Environmental  
Responsibility**



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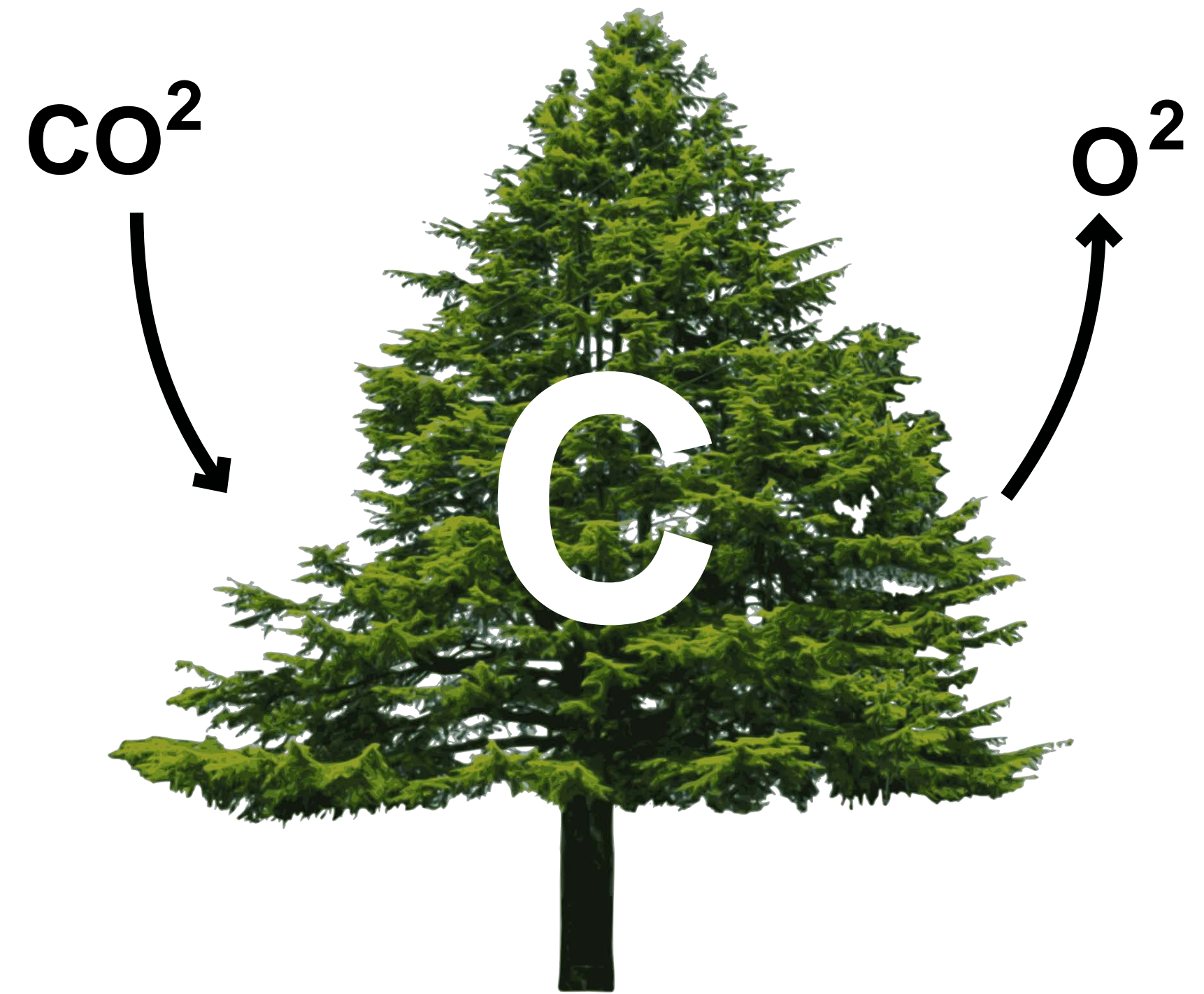
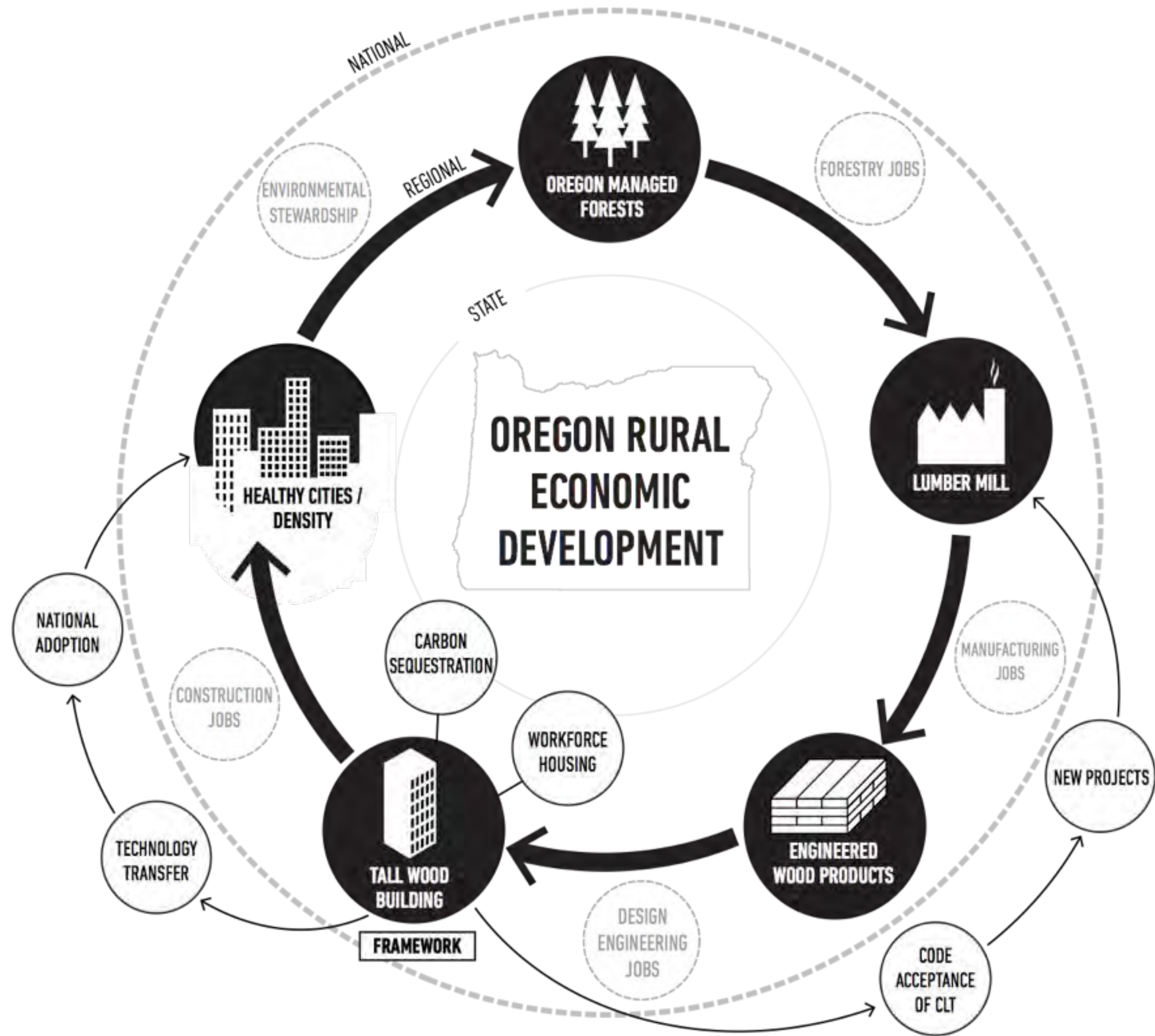
TALL WOOD BUILDING  
PRIZE COMPETITION  
WINNER  
MEW K



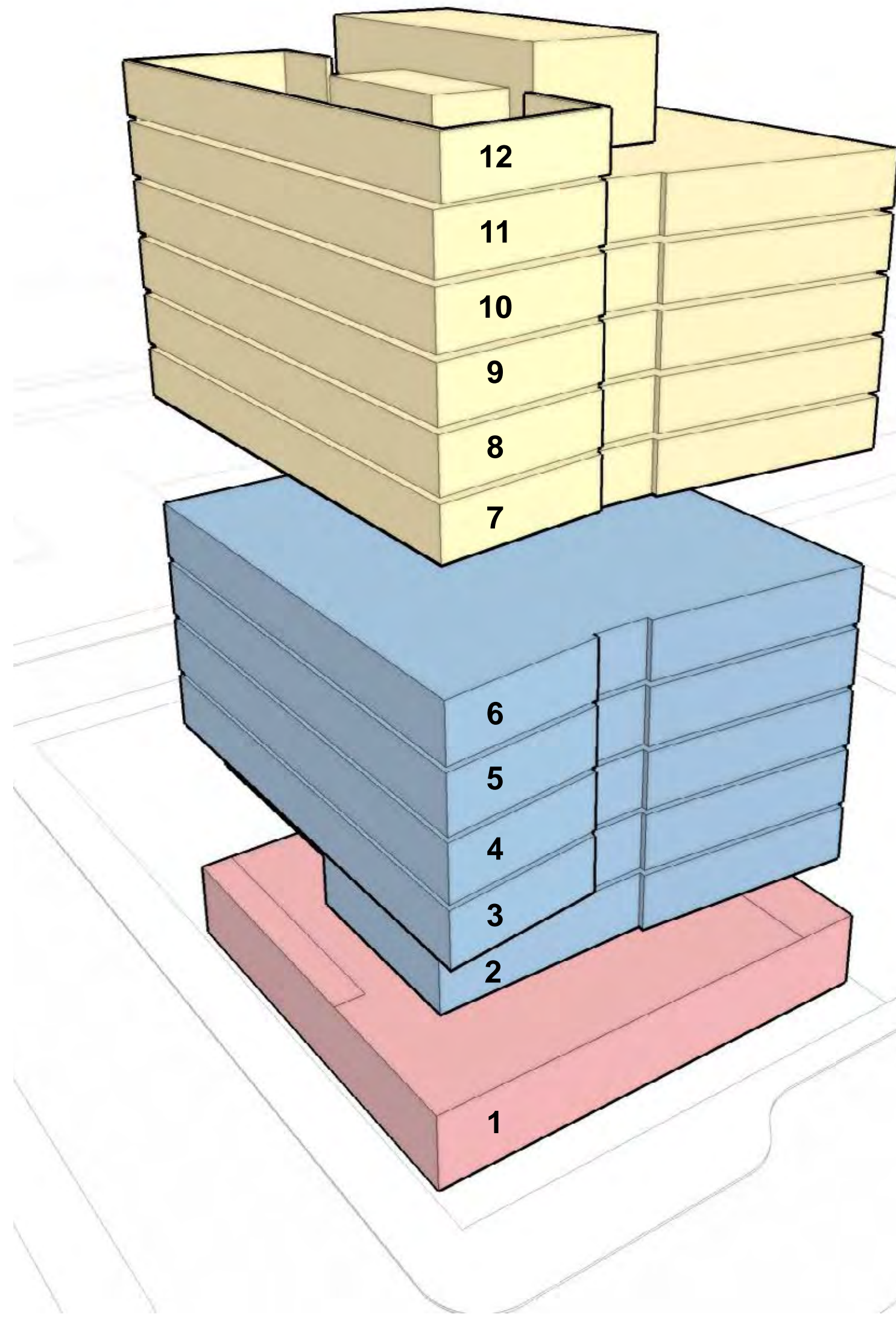
Artichoke Basille's Pizzeria

West 17th St









**Image 26:** Building Program

Level	Use
12	Roof Deck
7-11	Affordable Housing
4-6	Spec Offices
3	Beneficial Bank Offices
2	Albina Bank Offices
2	Community Room
1	Albina Bank Branch
1	Spec Retail Kiosk







OREGON CLT





**ALBINA YARD - FIRST US MADE CLT BUILDING**

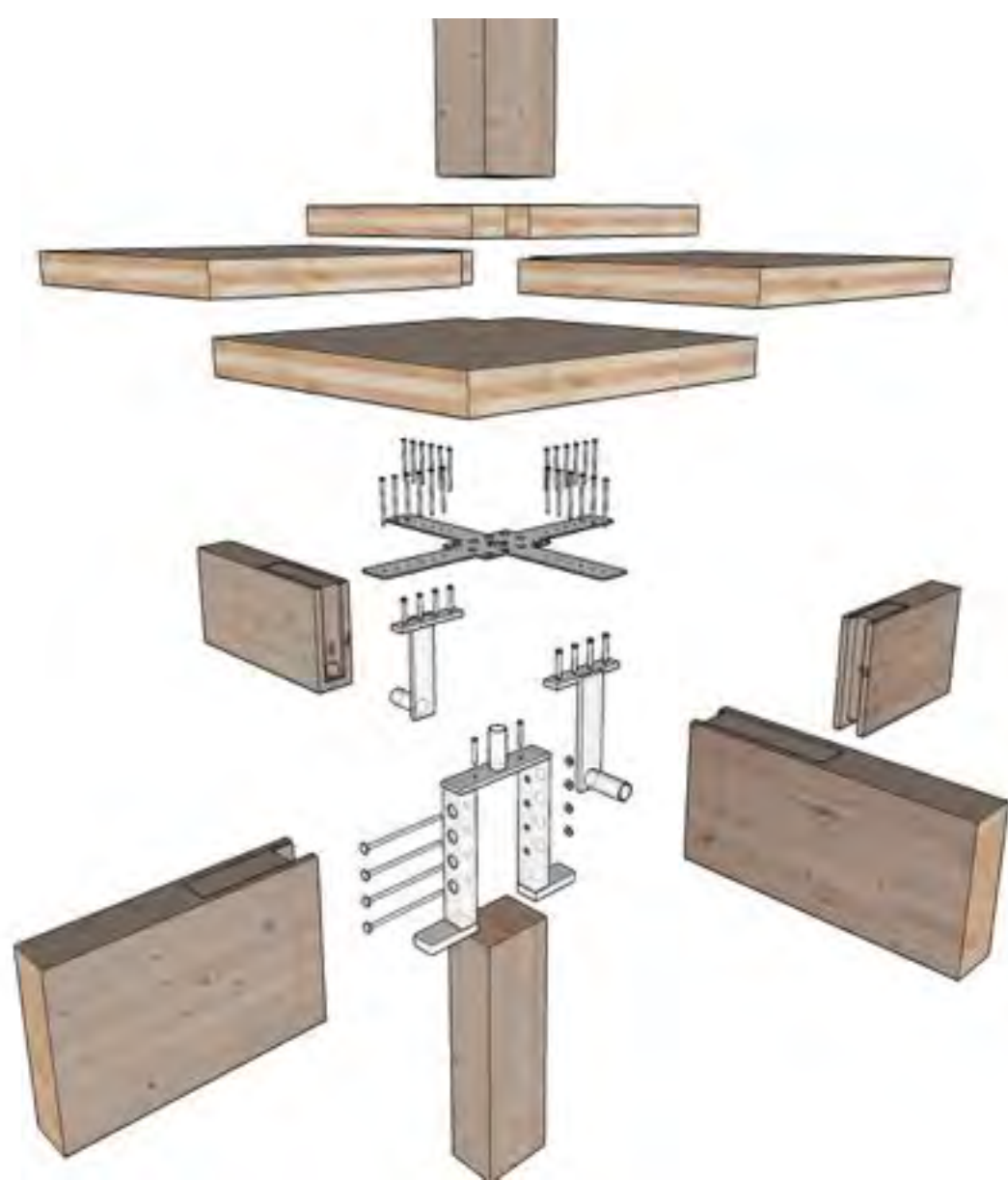
















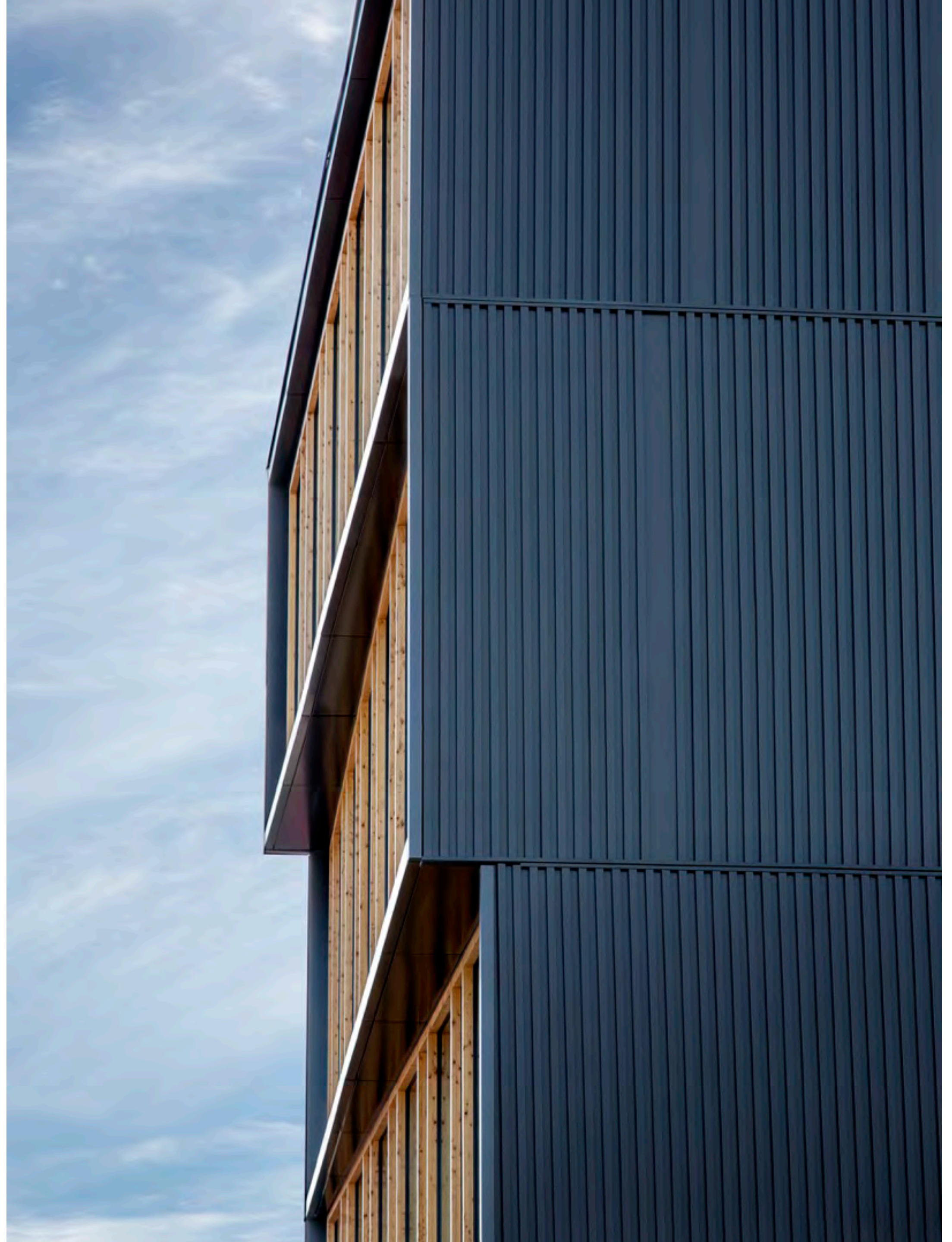
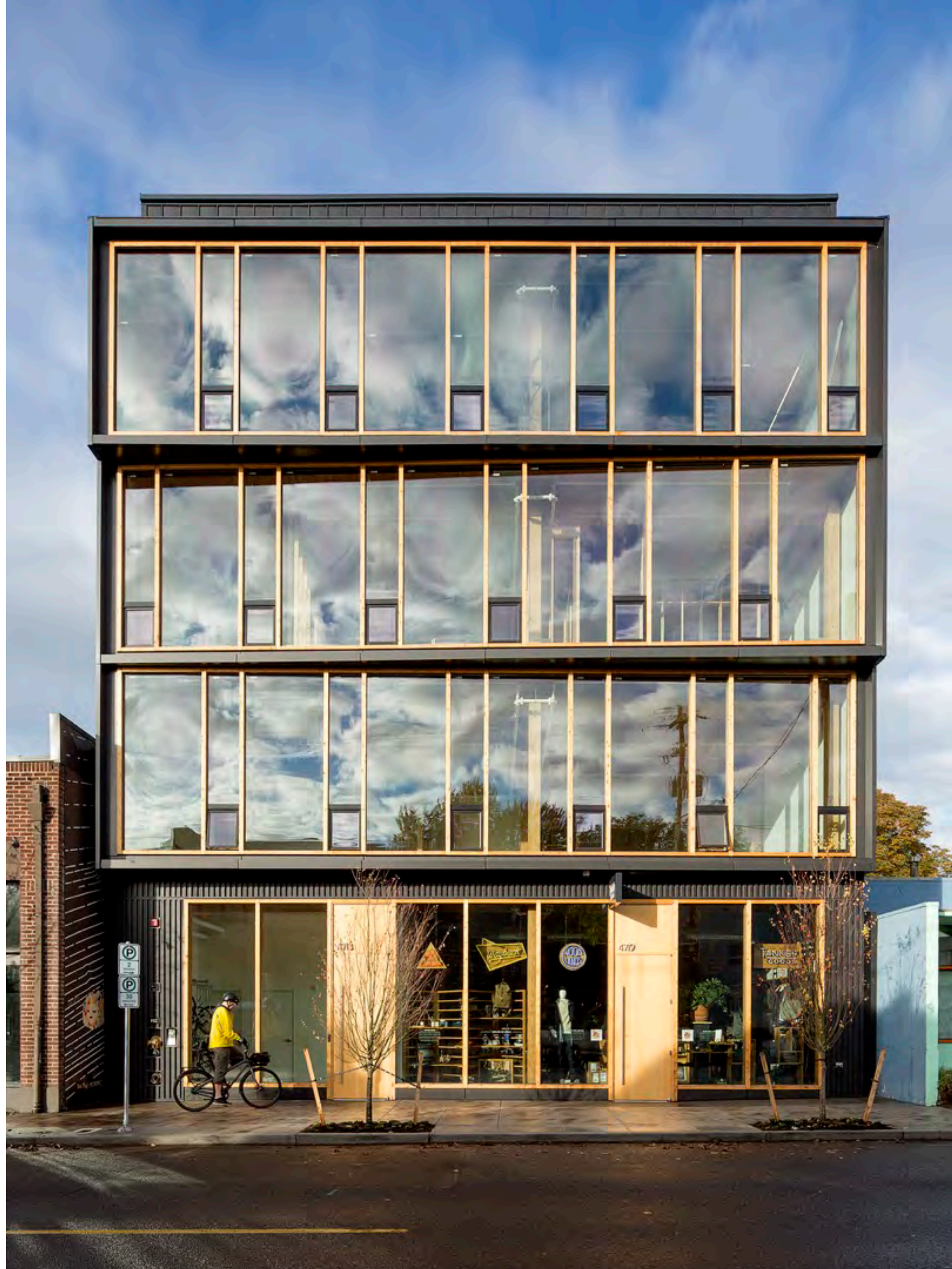










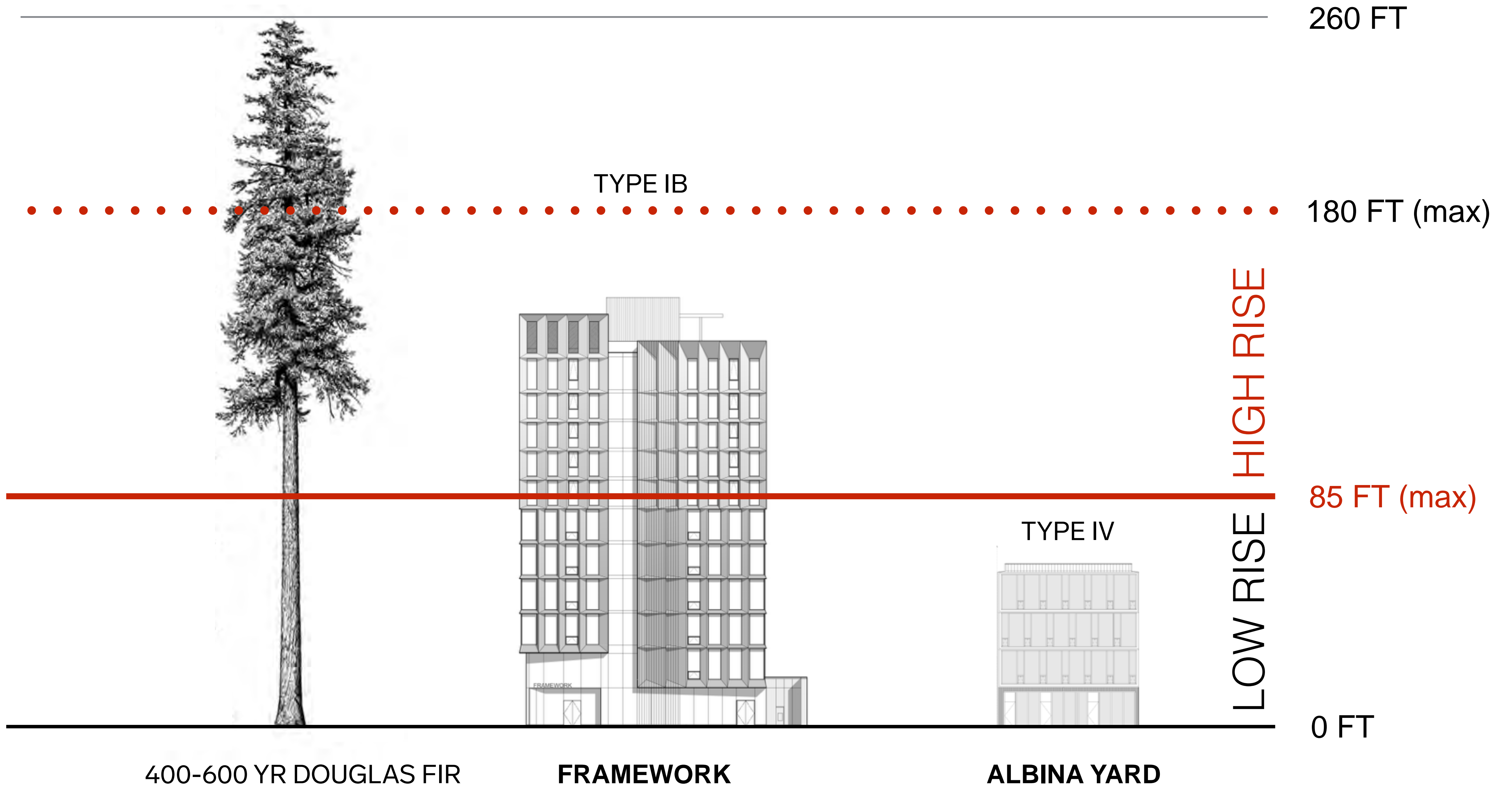




A tall, narrow wooden structure, possibly a cabinet or shelving unit, made of light-colored wood. It features a central door with a vertical metal handle and a lock mechanism. The structure is composed of vertical posts and horizontal shelves, creating a grid-like pattern. The background is a plain, light-colored wall.

**FRAMEWORK: HIGH RISE WOOD**





400-600 YR DOUGLAS FIR

FRAMEWORK

ALBINA YARD

TYPE IB

TYPE IV

260 FT

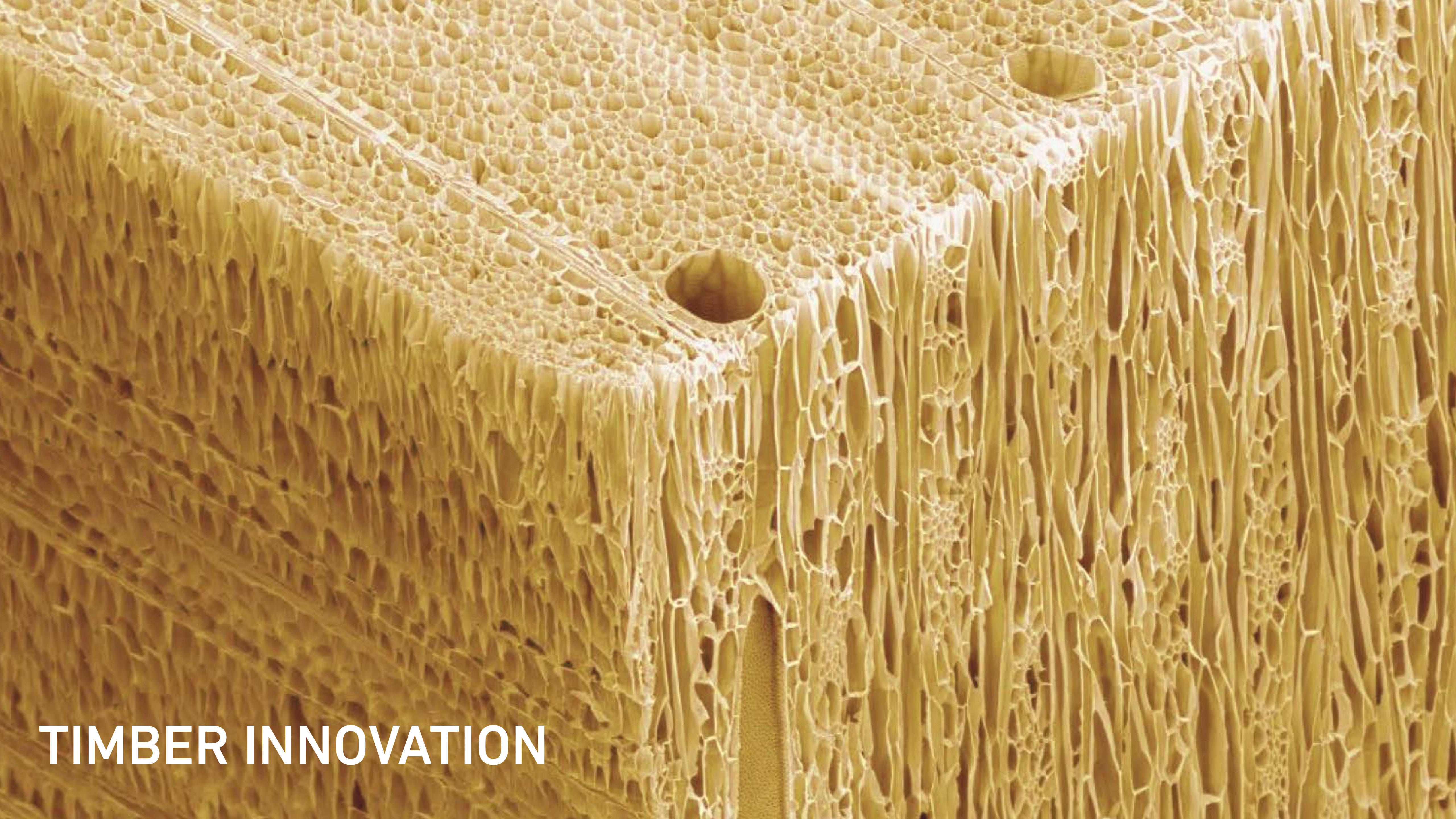
180 FT (max)

85 FT (max)

0 FT

LOW RISE | HIGH RISE





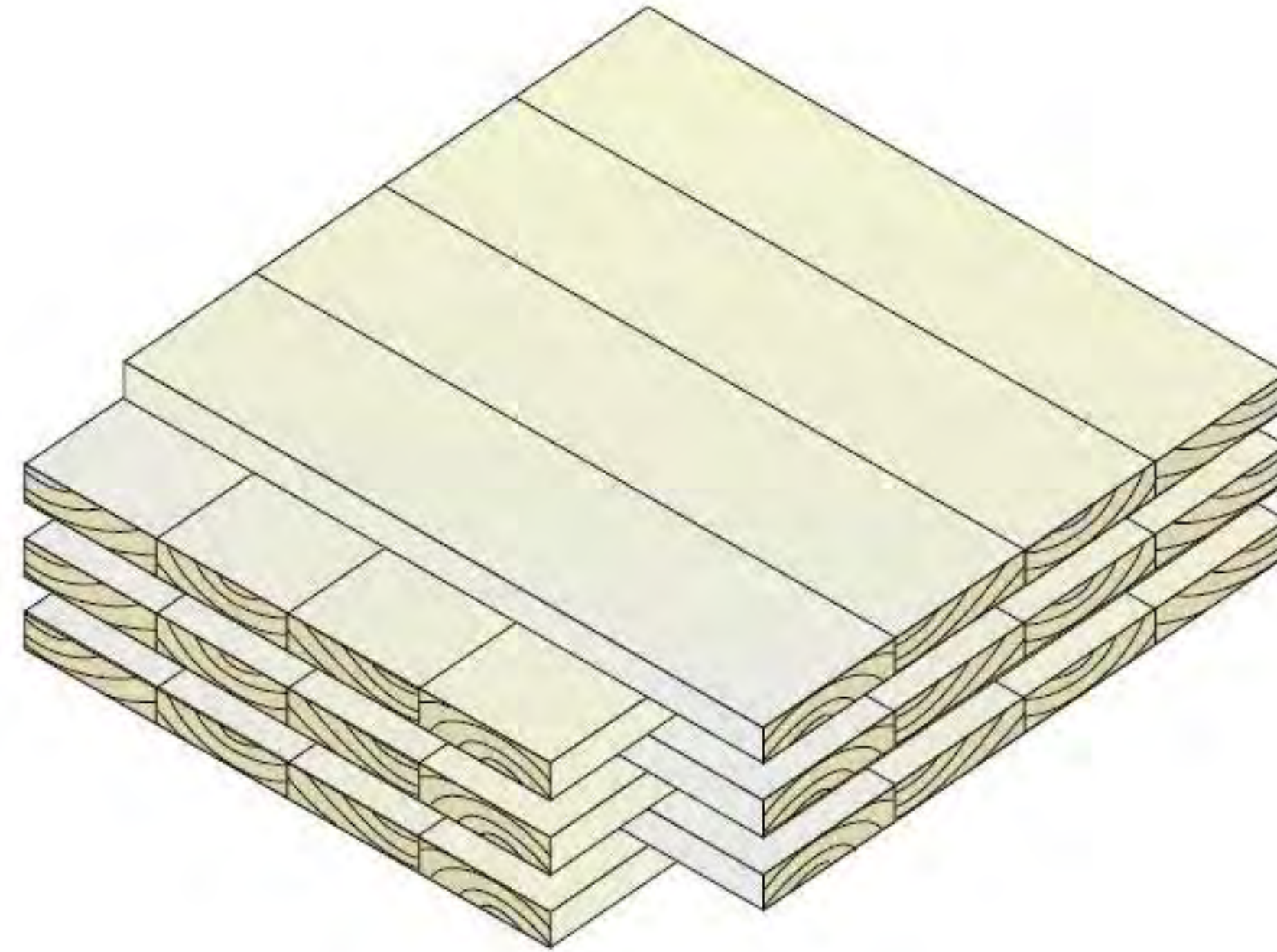
**TIMBER INNOVATION**







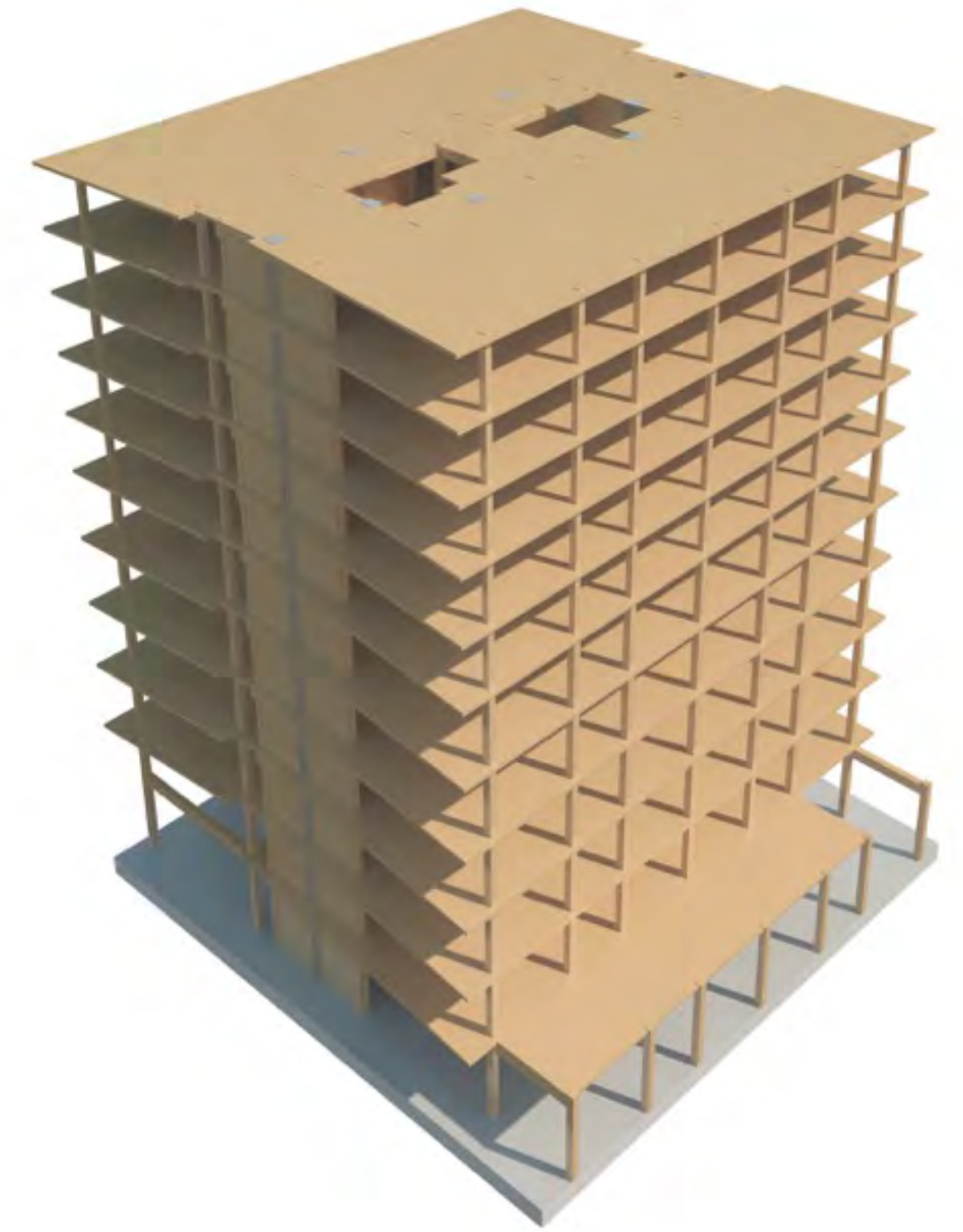
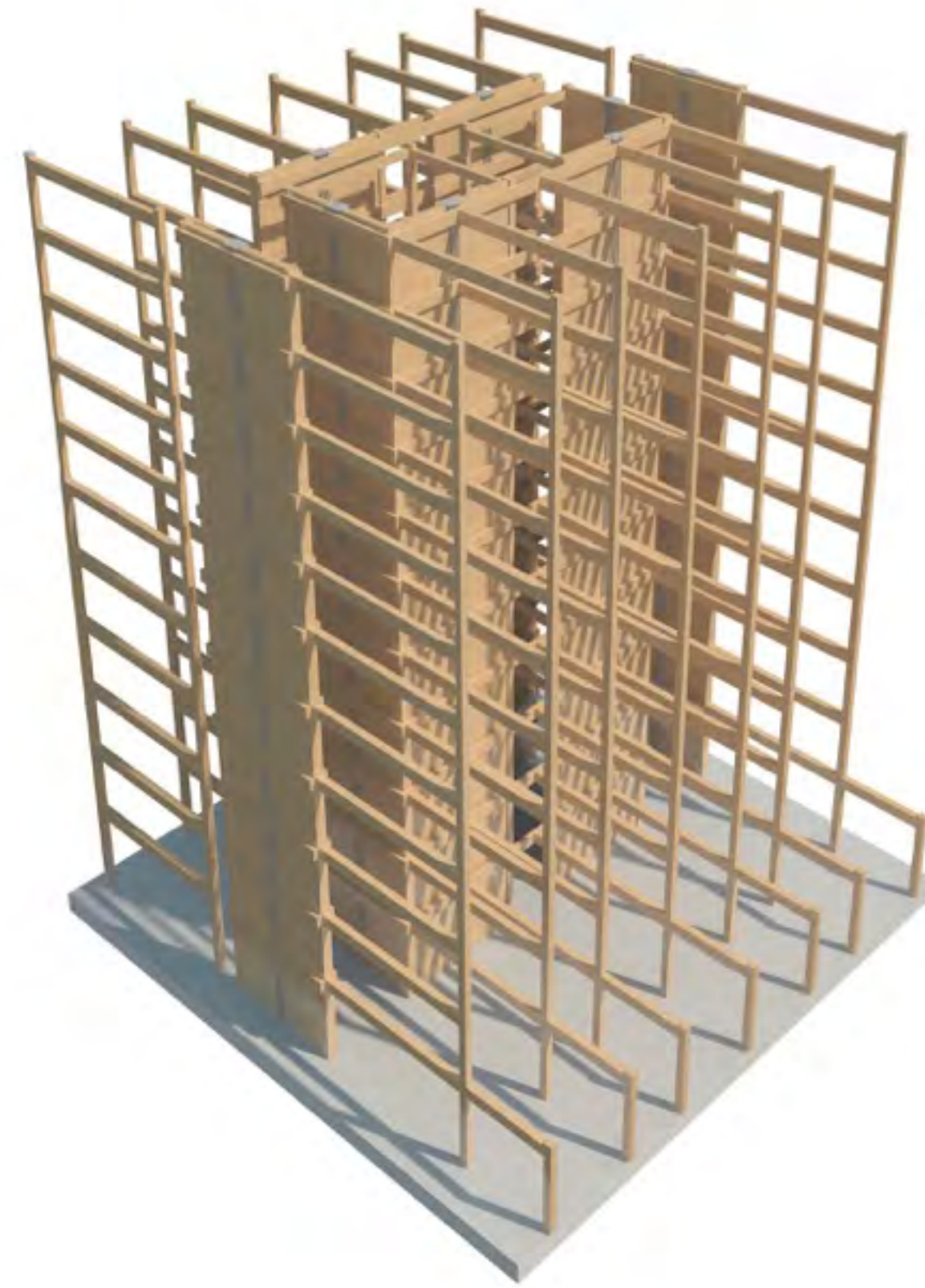
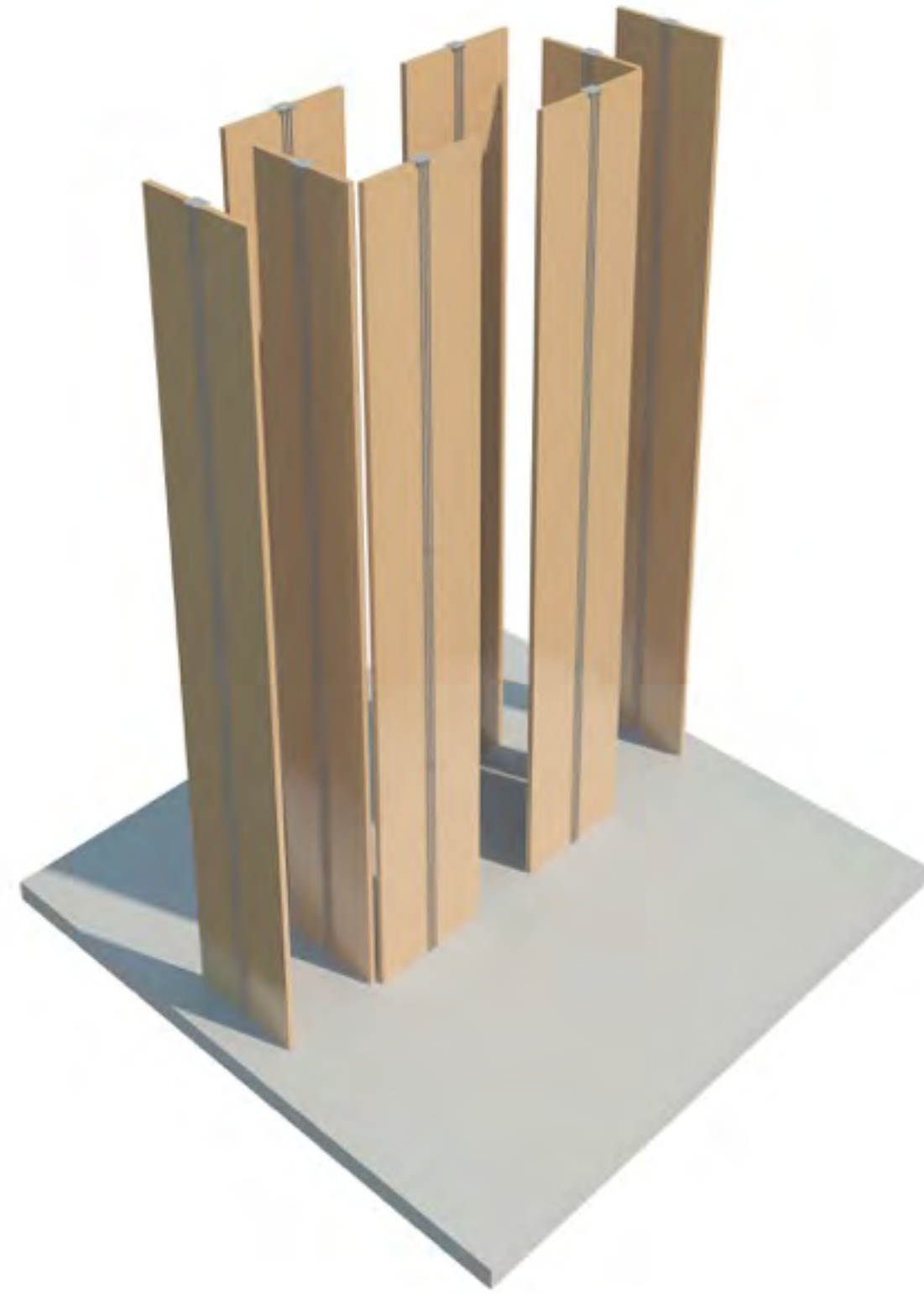
- Strong
- Dimensionally stable
- Fire resistive
- Large format sizes
- Pre-fabrication
- Clean and quiet construction
- Cost competitive
- Carbon sequestering



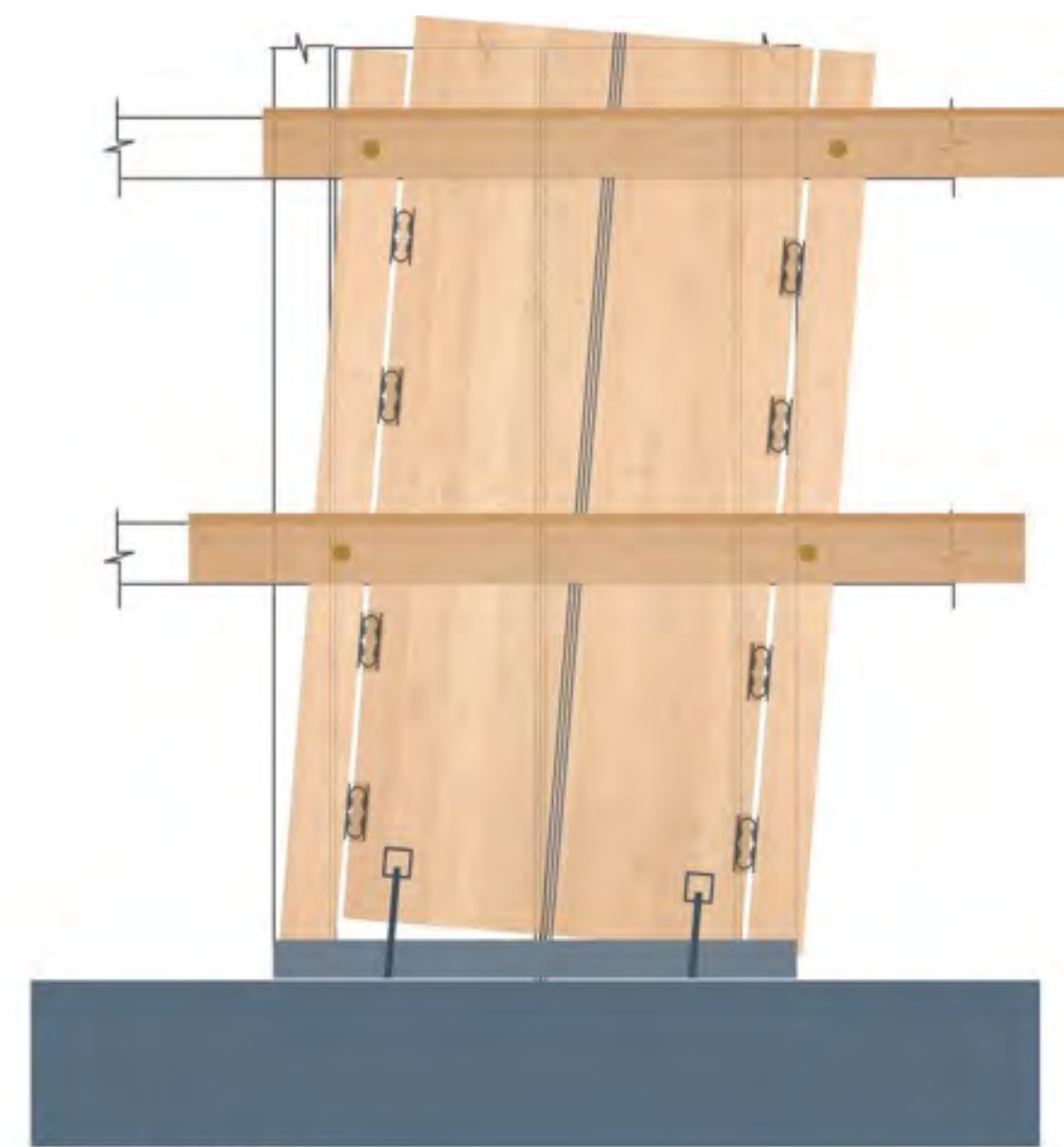
# CROSS LAMINATED TIMBER



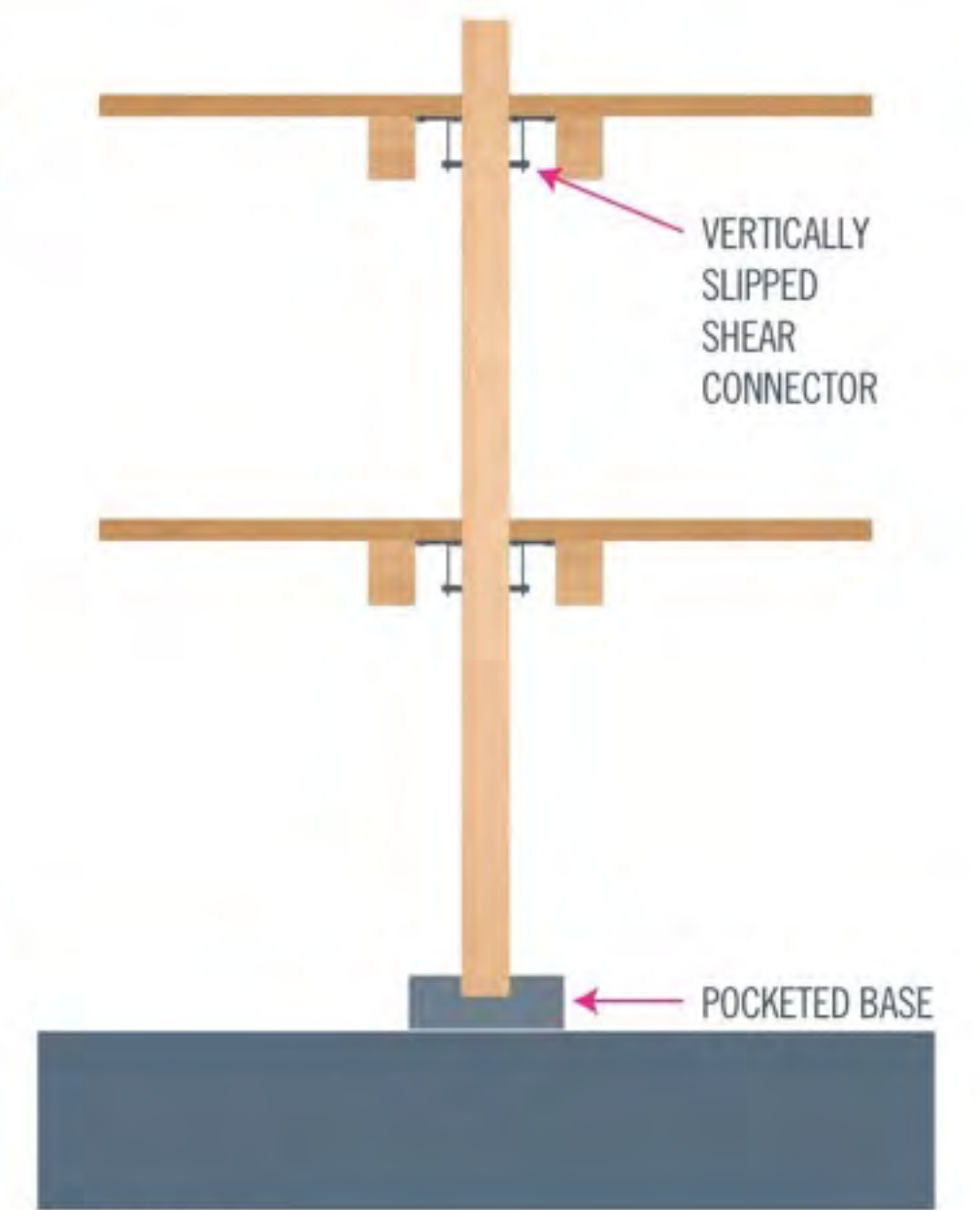
# RESILIENT LOW DAMAGE DESIGN / POST TENSIONED CLT ROCKING WALL







ROCKING STATE



WALL SECTION

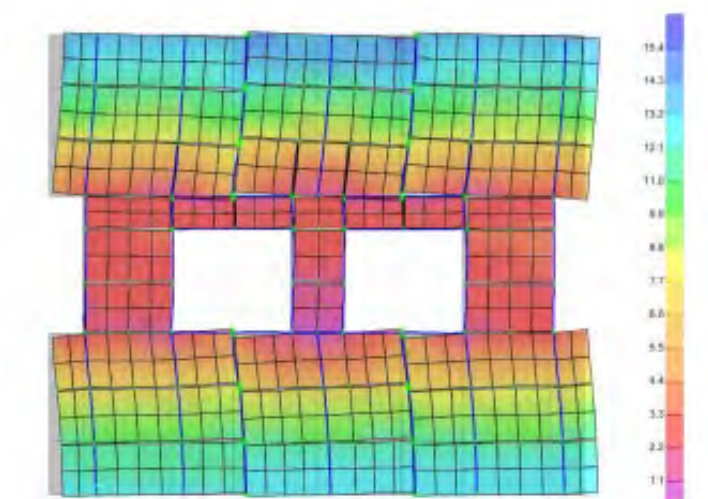
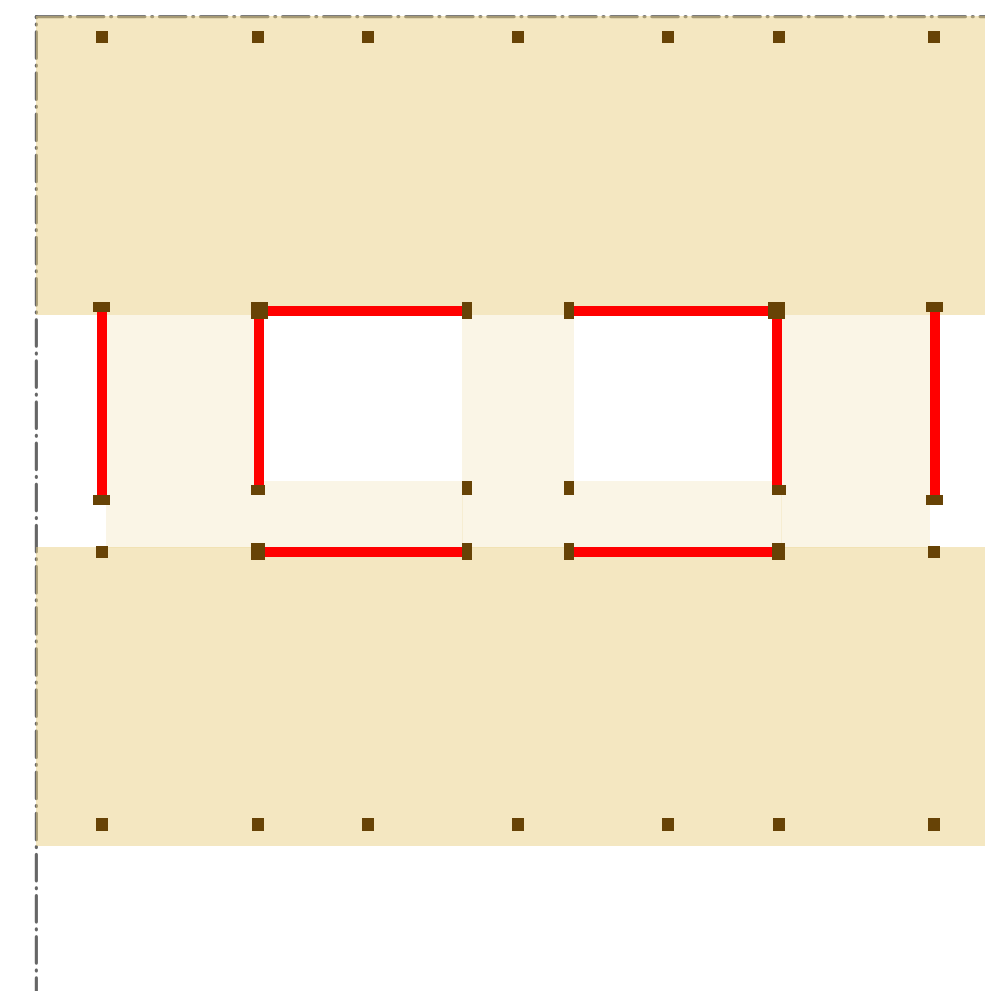


Figure 16: Diaphragm Deflection to E-W Load (mm scale)

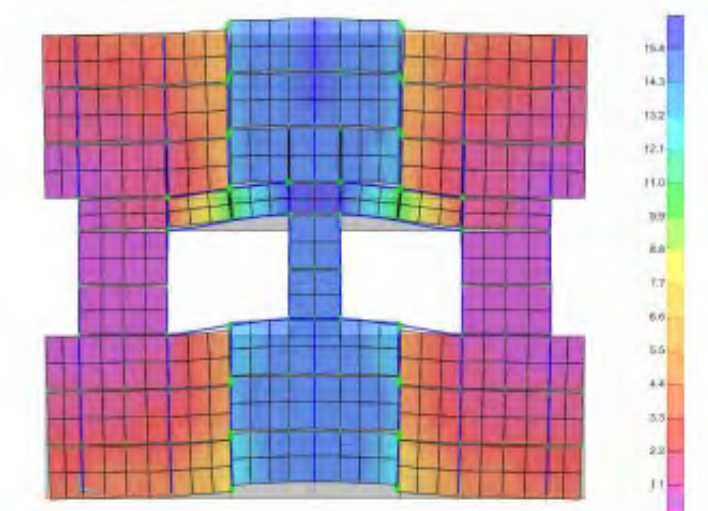


Figure 17: Diaphragm Deflection to N-S Load (mm scale)













**Coffee MENU**  
CRAFT YOUR PERFECT

Espresso	\$1.50
Latte	\$2.50
Cappuccino	\$2.50
Macchiato	\$2.50
Flat White	\$2.50
Dirty Chai	\$3.00
Seasonal Specials	

**Menu**  
WELCOME LIGHT TASTINGS  
of FRIENDS

Hot Chocolate	\$2.50
Chocolate Brownie	\$2.50
Vanilla Protein Cookies	\$2.50
Seasonal Specials	













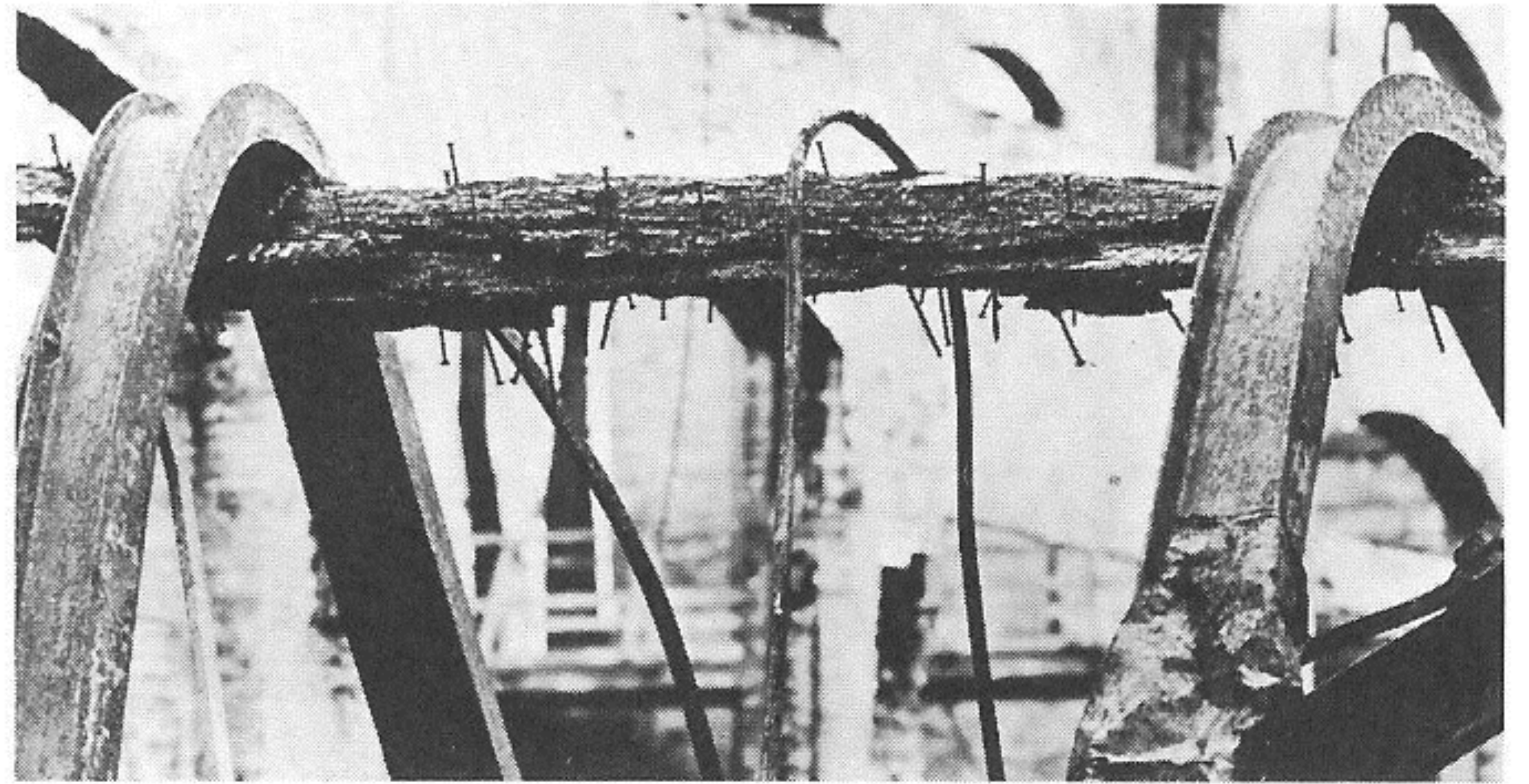
FRAMEWORK FULL SCALE TESTING:  
FIRE, SEISMIC, ACOUSTIC





**FIRE TESTING IN SAN ANTONIO, TX**





*Fig. 20-4. After fire scene. Shows a wood beam supporting twisted steel I-beams. (Forest Products Laboratory)*





**FIRST FULLY LOADED EXPOSED TWO HOUR WOOD CONNECTION IN WORLD**









SEISMIC DRIFT TEST AT PSU LAB



Portland State  
UNIVERSITY





POST TENSIONED CLT ROCKING WALL TEST AT OSU







**ACOUSTIC TESTING FOR CLT FLOOR ASSEMBLY AT INTERTEK**



# Framework

Portland, OR

## First Mass Timber high-rise in the United States

- Tallest Mass Timber Building in the United States
- Tallest ALL Mass Timber Building in North America
- Tallest post-tensioned rocking wall project in the whole world
- First high-rise building with exposed wood (of any %) in North America
- First project carrying out fire tests on exposed Cross Laminated timbers floors and walls in the United States.
- First fully loaded, exposed glum connection requiring a two-hour fire rating in the world
- Test results will be made public







**D.R. JOHNSON**  
OREGON, USA

**WOOD  
INNOVATIONS**





**D.R. JOHNSON**  
OREGON, USA

**WOOD  
INNOVATIONS**





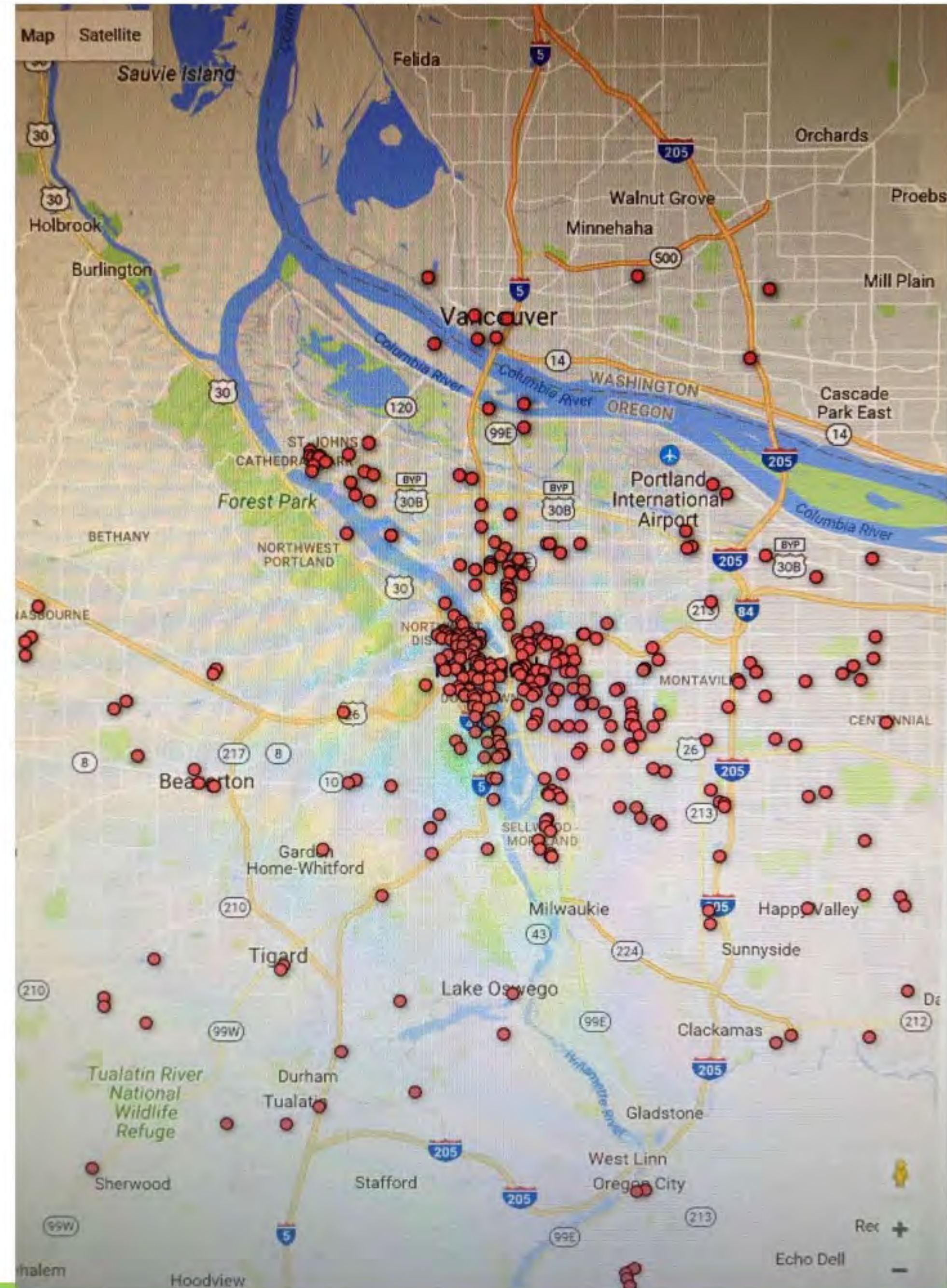
# PRODUCT TESTING

*D.R. JOHNSON*  
OREGON, USA

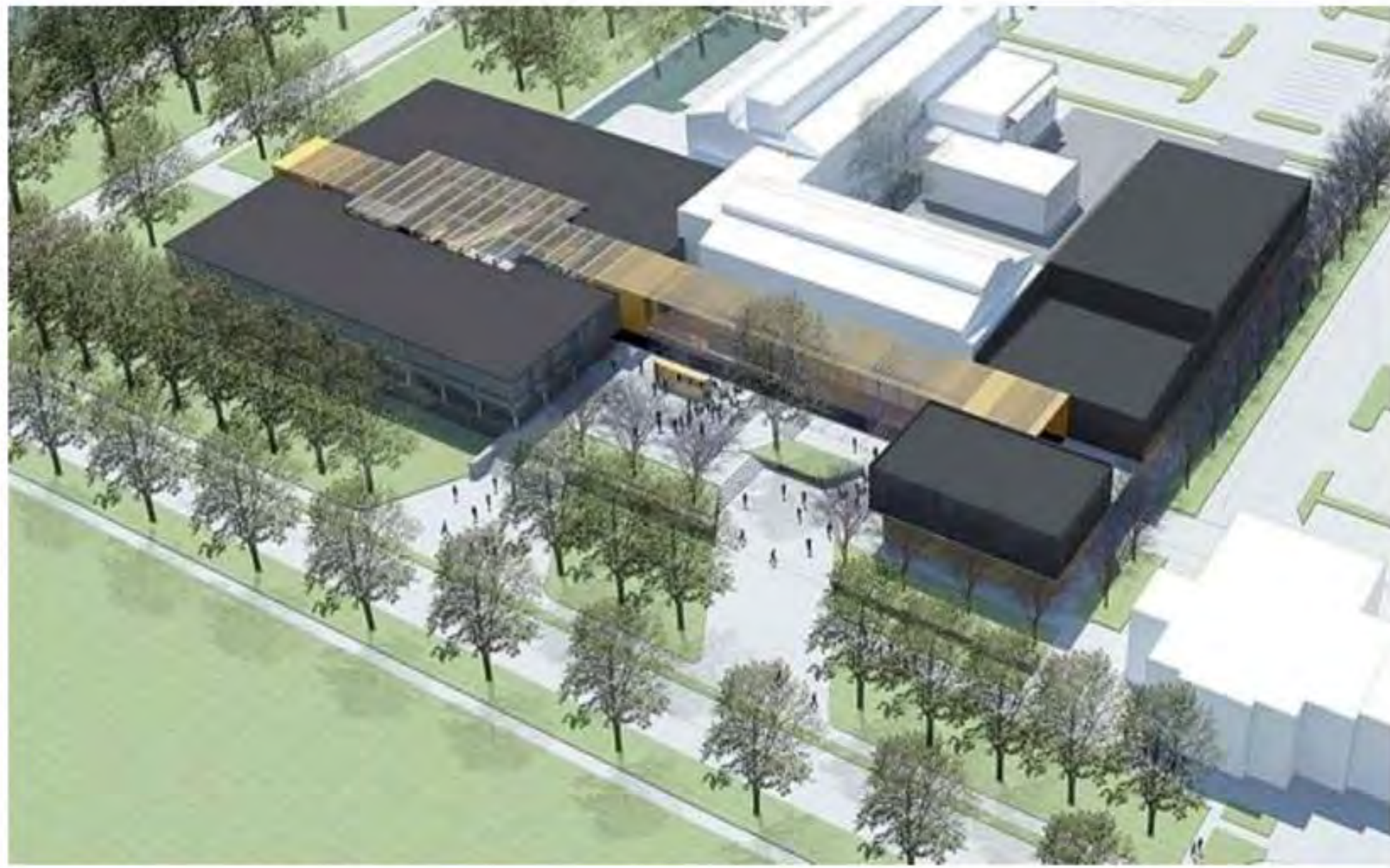
WOOD  
INNOVATIONS



# Growth Tracker: New Portland, OR Construction Projects 2015







**OSU**  
Oregon State  
UNIVERSITY  
College of Forestry





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OREGON, USA

**WOOD  
INNOVATIONS**