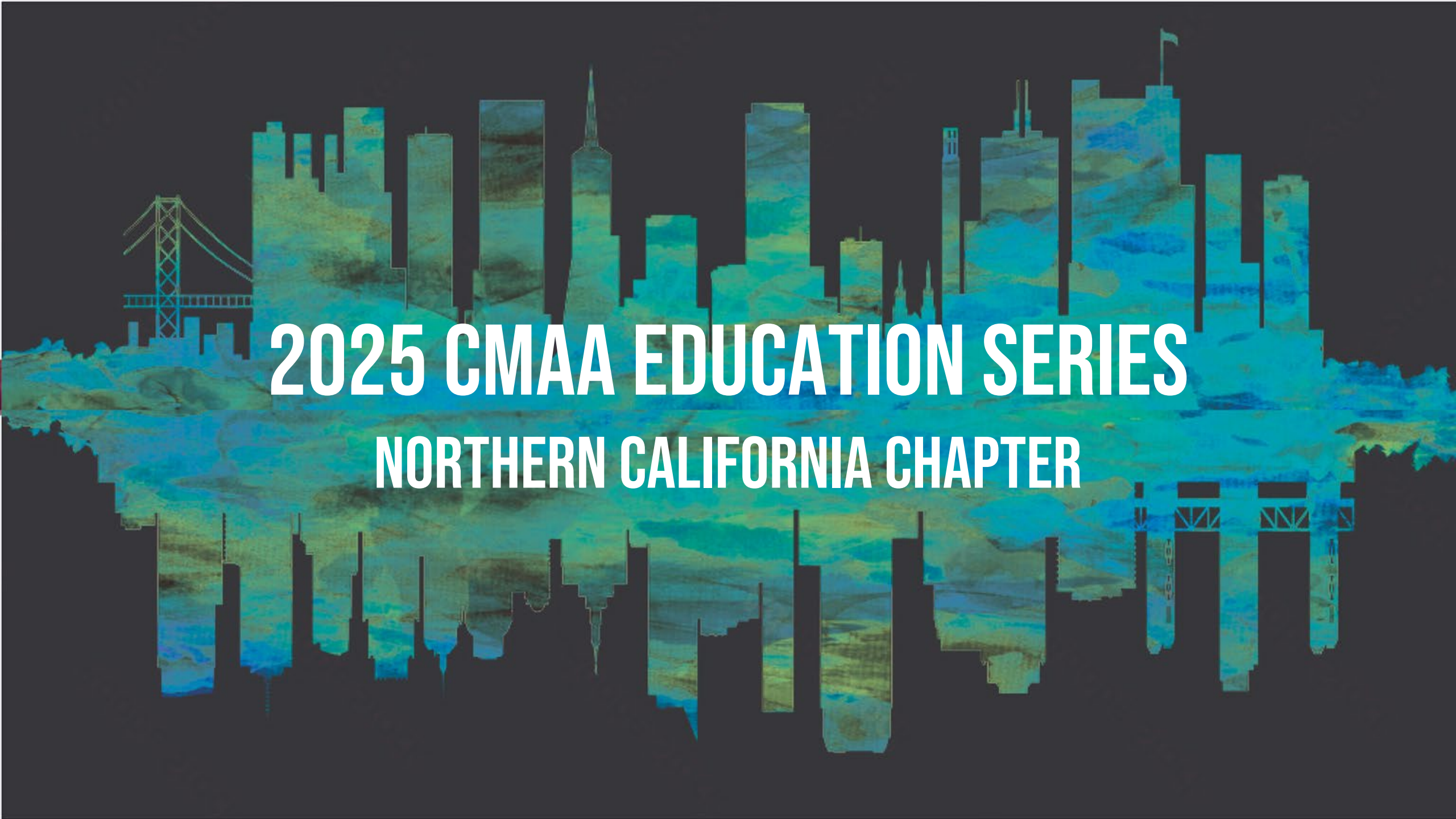


A stylized, artistic representation of a city skyline, likely San Francisco, rendered in shades of teal and blue. The skyline includes various skyscrapers and a prominent suspension bridge on the left. The entire scene is reflected in a body of water at the bottom, creating a symmetrical effect. The background is a solid dark grey.

2025 CMAA EDUCATION SERIES

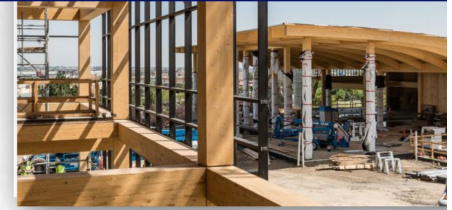
NORTHERN CALIFORNIA CHAPTER

EDUCATION PROGRAM

CONTINUING EDUCATION CREDIT

August 14, 2025

RISE OF MASS TIMBER



CAMILLE RAO
DBIA, LEED AP BD+C
PROJECT MANAGER II
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ANDREW RATZKE
LFA, LEED GREEN ASSOCIATE
SR. PROJECT ENGINEER
TIMBERLAB

AUGUST 14th
11:30 – 1:00 pm

WEBINAR

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Rise of Mass Timber



Introductions



CAMILLE RAO
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TimberLab

MASS TIMBER PRIMER



MASS TIMBER VS. HEAVY TIMBER



HEAVY TIMBER

- Solid pieces of timber milled from a single tree.
- Generally, pieces that are 4"x 6" or larger.
- Think timber framing.



MASS TIMBER

- Utilizes smaller timbers from multiple trees.
- Input lumber is jointed then glued or laminated together to make a solid element, such as a beam, column, or panel.

WHY MASS TIMBER?

- Sustainability
- Schedule / crew size
- Simplicity
- Aesthetics
- Durability
- Cost?



MASS TIMBER TIME LEAPS

FIRST MASS TIMBER
STRUCTURE IN NORTH
AMERICA

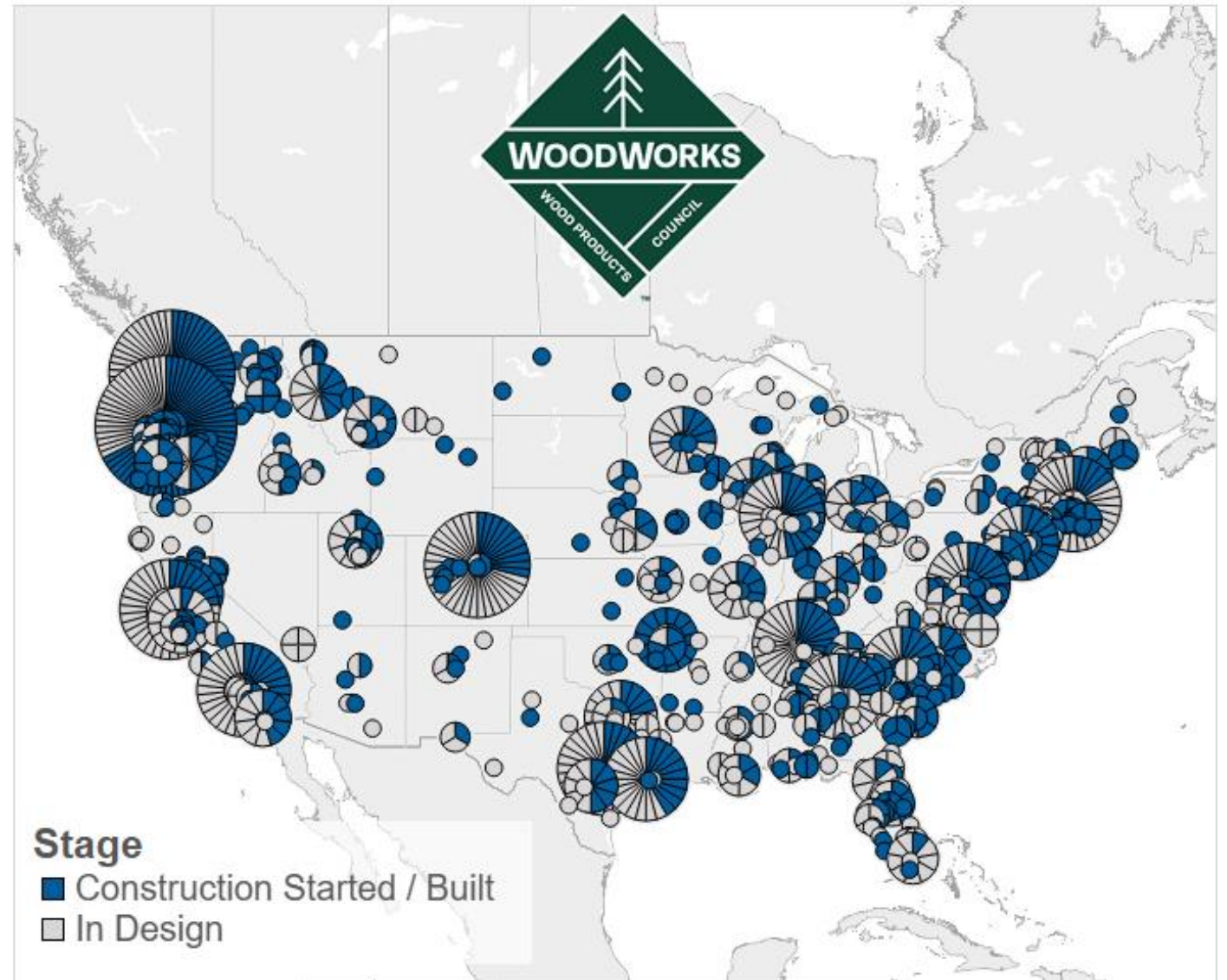
2010

NUMBER OF MASS TIMBER
STRUCTURES IN 2016

9

NUMBER OF MASS TIMBER
STRUCTURES IN 2023

2,035



WOOD SPECIES



SPECIES DECISIONS & CONSIDERATIONS

Size

The size of members vary from one species to the other

Strength

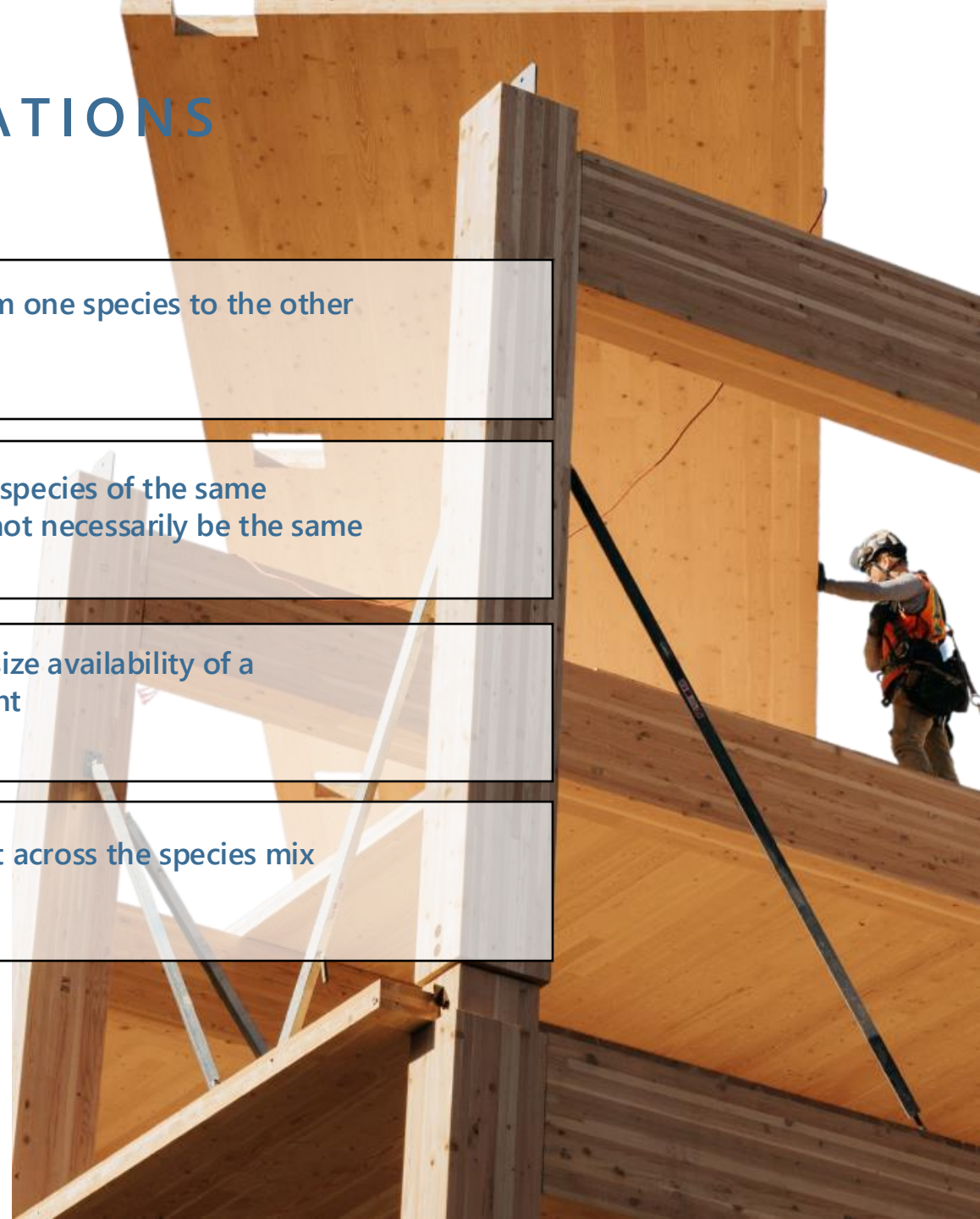
Performance of two different species of the same volumetric size will vary and not necessarily be the same

Availability

Regional considerations and size availability of a species is a potential constraint

Aesthetics

Color, touch, feel are different across the species mix



PROCUREMENT: NATIONWIDE



(DF)

DOUGLAS FIR

Appearance:

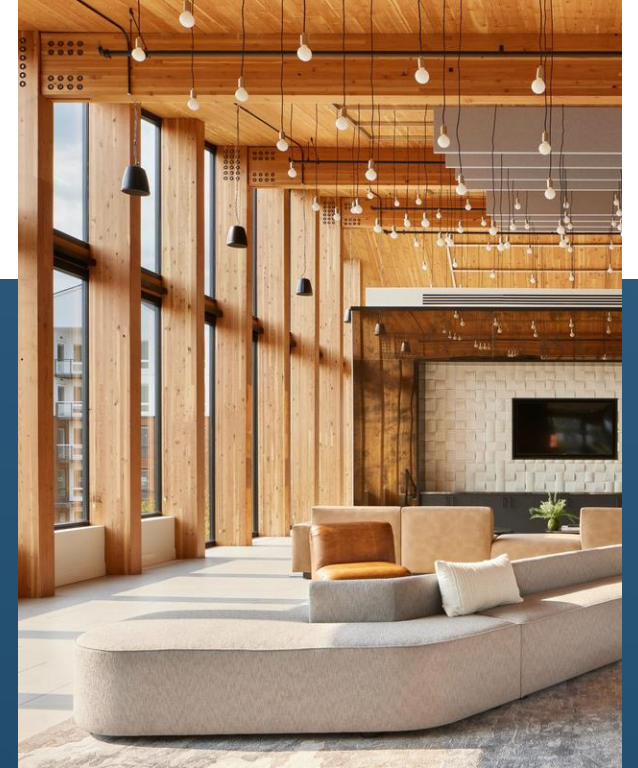
Sapwood is generally a light straw color. Heartwood is a deep russet brown. Grain is straight or slightly wavy.

Notable Characteristics:

Stiff and strong for its weight, among the densest softwoods in North America. Dimensionally stable, glues well, and machines well.

Availability:

Douglas-fir accounts for 37% of forest land in Oregon, with 10.9 million acres of cover and is the most prevalent tree species in the Pacific Northwest.





(SYP)

SOUTHERN YELLOW PINE

Appearance:

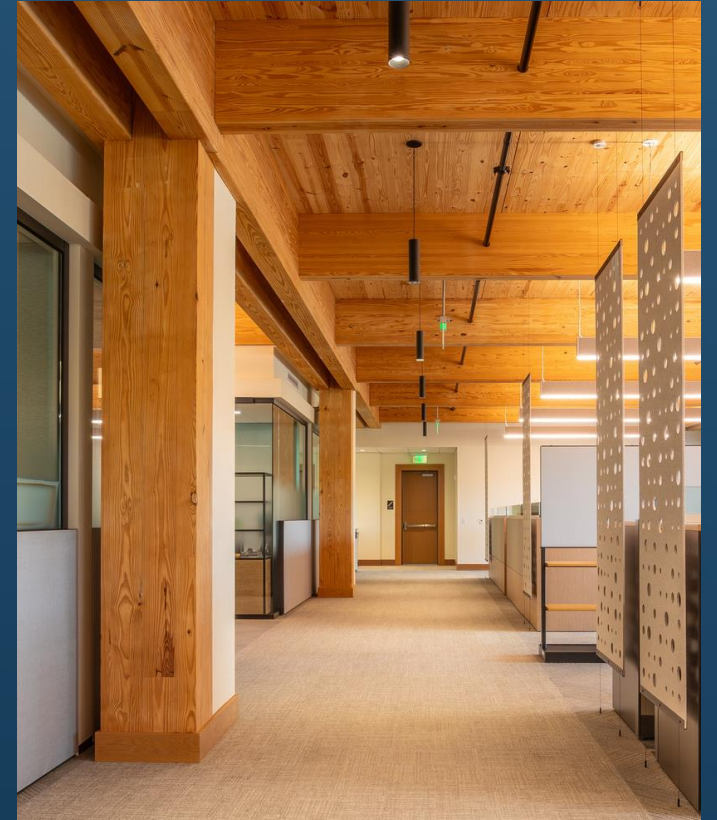
Sapwood ranges from white to yellow or golden. Heartwood from yellow to reddish-brown. Distinct grain pattern.

Notable Characteristics:

Highest specific gravity of all common softwoods. Harder to machine than other wood species because of the density of the fiber.

Availability:

Limited availability. While Southern Pine forests are some of the most productive in North America, it has primarily not been grown or processed for lamstock.





(SPF)

SPRUCE PINE FIR

Appearance:

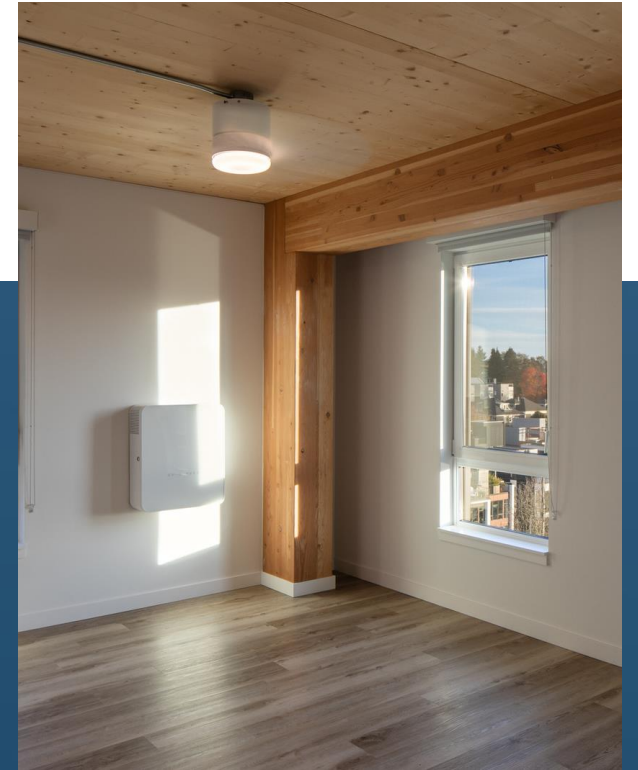
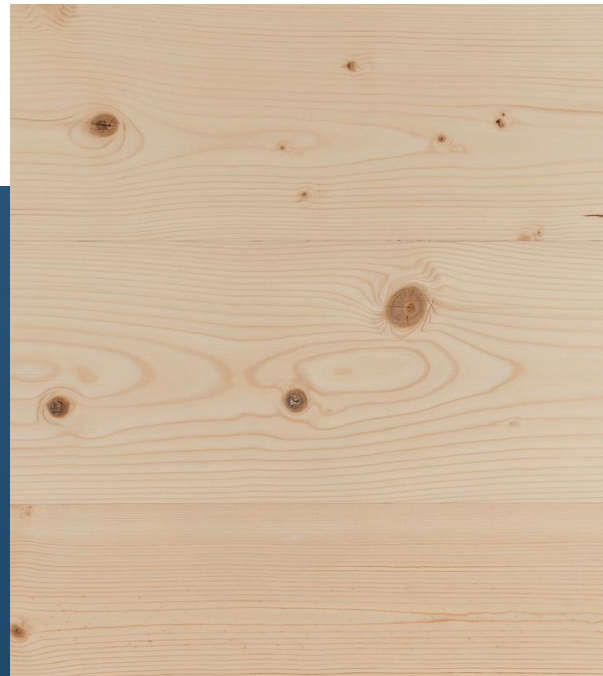
SPF has a neutral coloration that ranges from pale cream to light brown. SPF's fine grain and subtle color create a clean, modern aesthetic. Higher prevalence of knots, which are more visible given their darker color.

Notable Characteristics:

SPF is a softer wood, making it a great species for CNC machining and precise geometry.

Availability:

SPF is sourced from Northeast and Southeast forests and is used in cross-laminated timber.





MASS TIMBER PRODUCTS

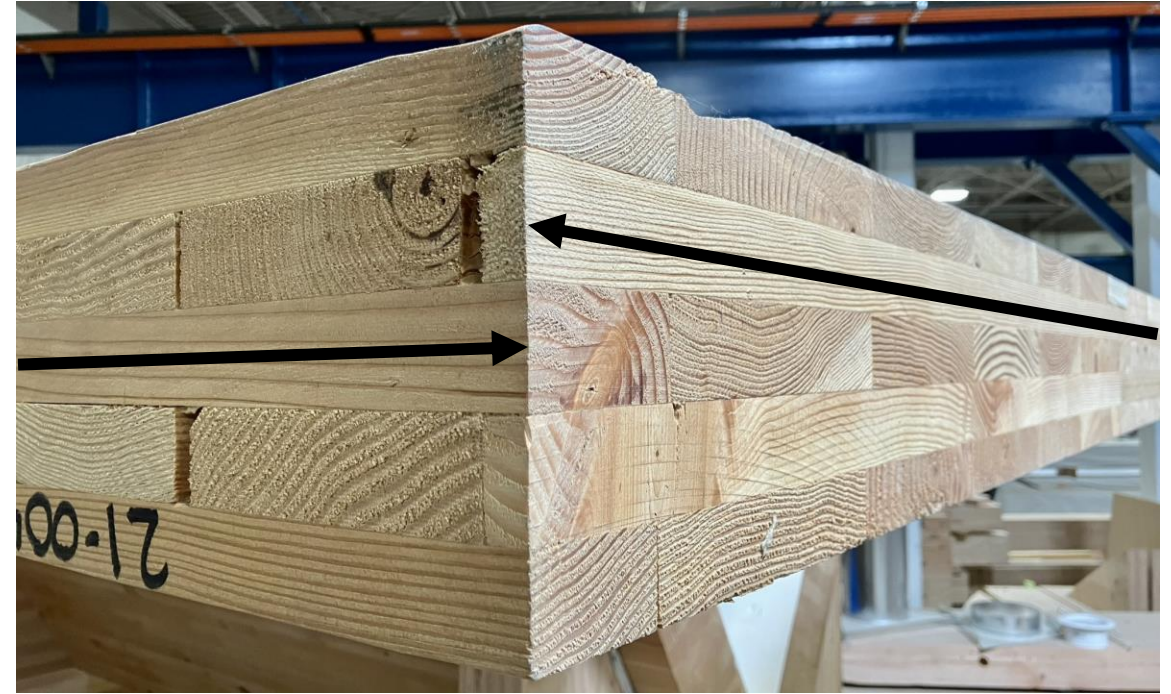


MASS TIMBER PRODUCTS



GLUE-LAMINATED TIMBER (GLULAM)

- Commonly used to create beams and columns.
- Produced by gluing and pressing solid sawn lumber on their wide faces.
- Can be curved, bent, and fabricated in a variety of ways.
- Beams and columns can span long distances and be incredibly deep if needed.



CROSS-LAMINATED TIMBER (CLT)

- Created by stacking layers of solid sawn lumber, oriented at right angles to one another, with an adhesive between each layer.
- The cross layering, or cross lamination, creates an exceptionally strong and rigid panel that can be used for floors, ceilings, and walls.

MASS TIMBER PRODUCT GRADES



ARCHITECTURAL GRADE

- These products will be exposed in their installed condition.
- Input lumber is selected for visual appeal.
- Often requires additional sanding and the filling of holes and gaps.
- Exposed sides are typically without any physical defects.



INDUSTRIAL GRADE

- These products will either not be exposed or are being used in a quantity or application that would make using architectural grade products too costly.
- Do not need to be finished to the same standard as architectural grade products.
- May have more visible defects in the wood.

HARDWARE



PRE-ENGINEERED HARDWARE

- Fixed cost that is known.
- Inventory / stock is known.
- US supply possible.
- Tend to be more expensive than custom steel, but generally easier to procure and install.



CUSTOM STEEL HARDWARE

- Can be used in conditions that are not possible to achieve with pre-engineered hardware.
- Pricing can be variable.
- Lead times need to be identified with supplier.
- Challenges with supply as timber connectors are typically a small scope/package for a metal fabricator.



WOOD BEARING CONDITIONS

- Can be more cost effective than steel connections.
- Can help in achieving fire ratings
- Trade off is a slight increase in fiber at the columns to incorporate a bearing shelf.
- Installation can be much faster.

IMPORTANT CONSIDERATIONS FOR IMPLEMENTATION

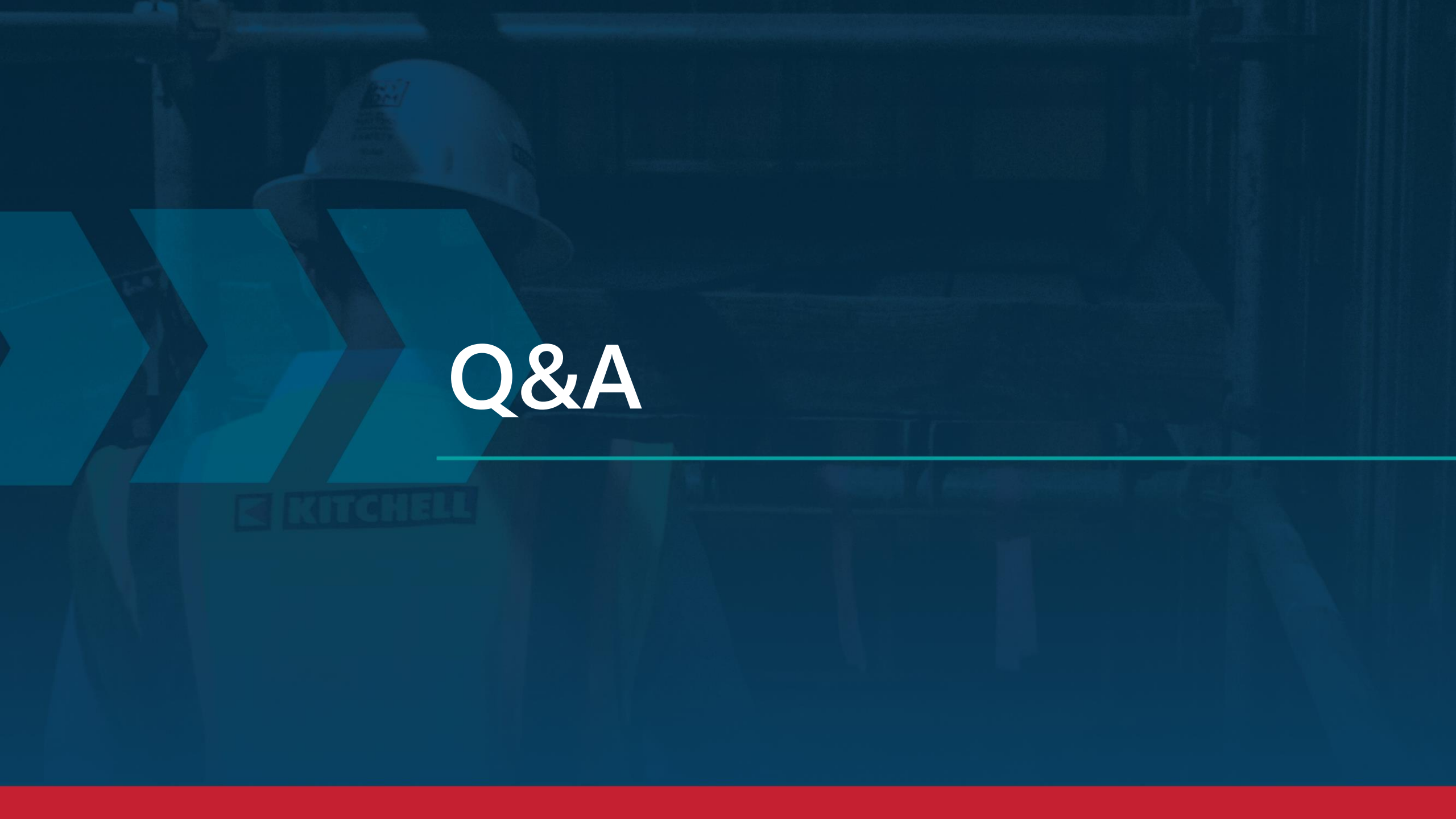
- Not every timber partner is the same
- Early collaboration is a must!
- Connection detailing is critical
- MEPF Coordination is where you stand to gain the biggest efficiencies
- Moisture Mitigation is essential to long term success





ZGF

KITCHELL



Q&A

Thank You



TOGETHER, BUILDING VALUE EVERY DAY.

