

Wood Architecture ::
Innovation,
Technology and
Reconnecting with a
Culture of Wood

Joseph Mayo
Mahlum Architects
12 November 2014



Source: Darius Kinsey



Photo: Ben Benschneider



Photo: Mahlum

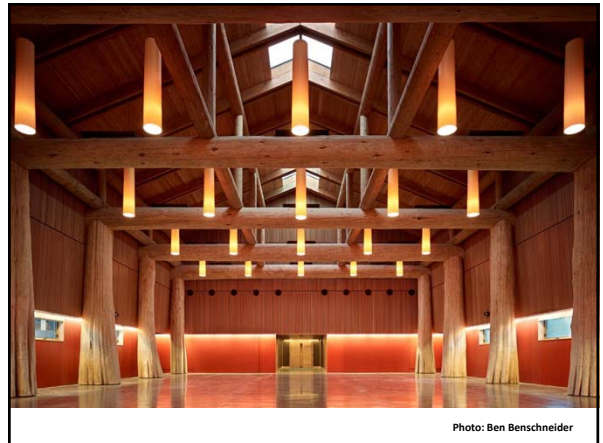
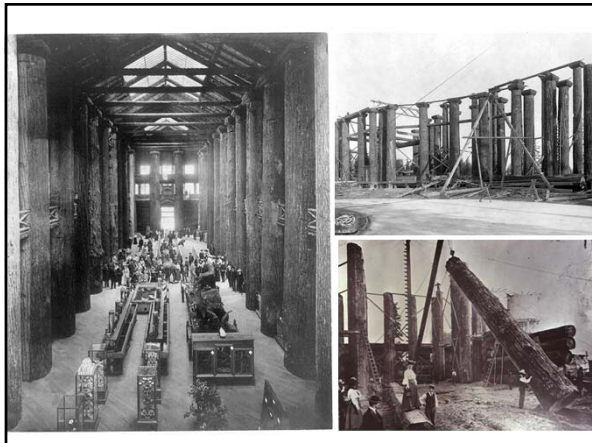


Photo: Ben Benschneider

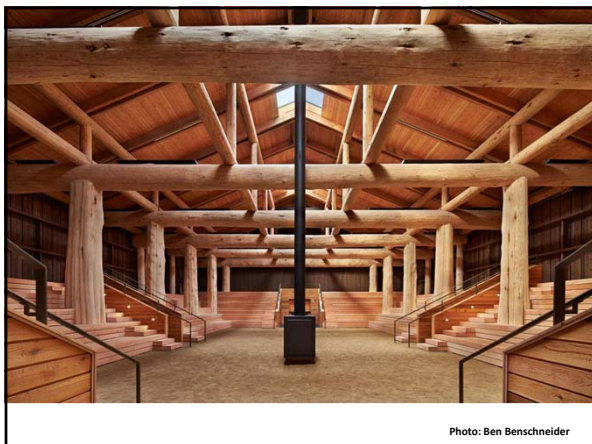
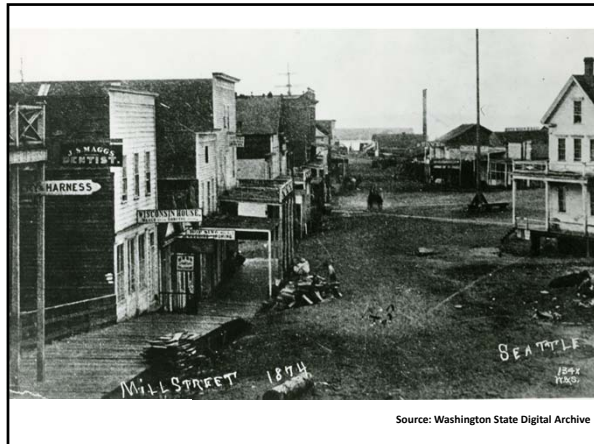


Photo: Ben Benschneider

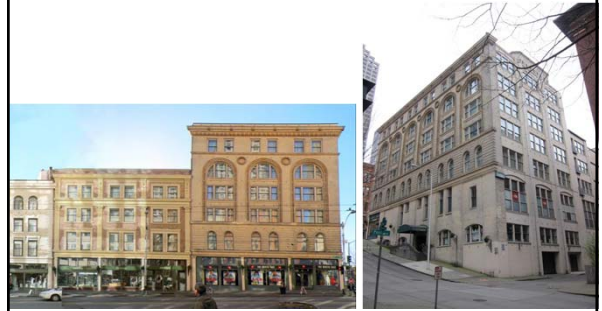


Source: Washington State Digital Archive

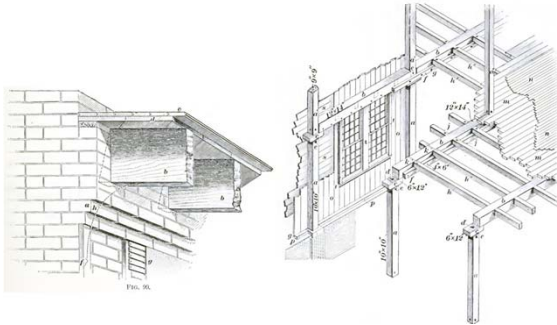


Source: Washington State Digital Archive

Globe, Beebe and Hotel Cecil

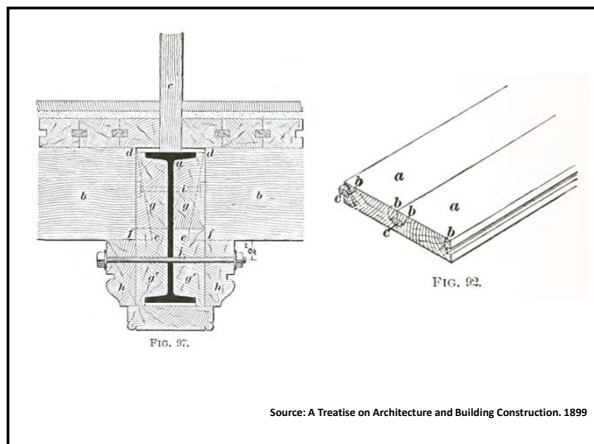


Fire Resistive Construction



Source: A Treatise on Architecture and Building Construction. 1899

Polson Building

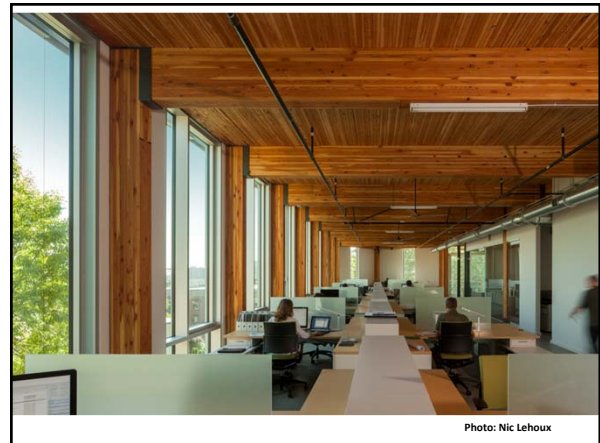
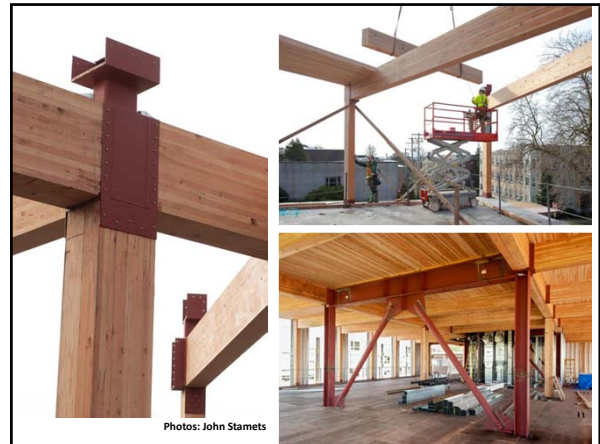


Source: A Treatise on Architecture and Building Construction. 1899



Source: Washington State Digital Archive

1. WOOD IS NATURAL



2. WOOD MUST BE SUSTAINABLY MANAGED

3. WOOD IS HI-TECH

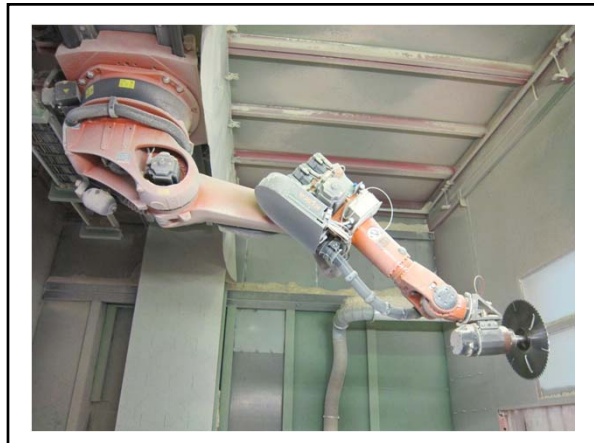
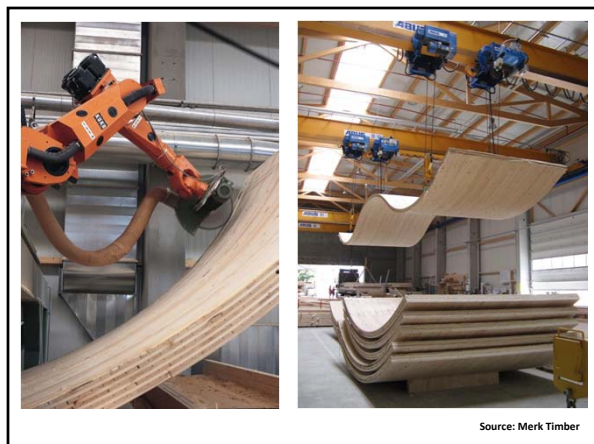


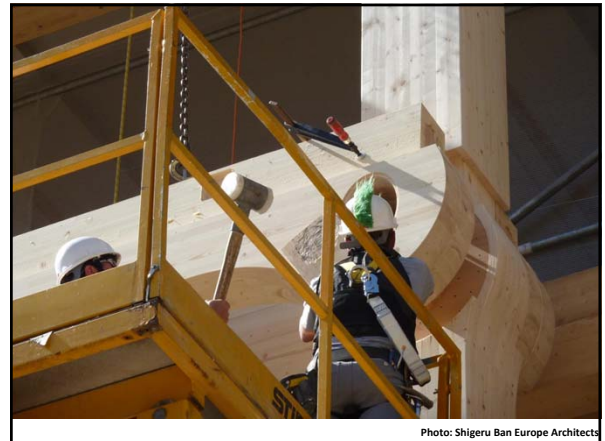
Photo: Didier Boy de la Tour



Source: Merk Timber



Photo: Shigeru Ban Europe Architects



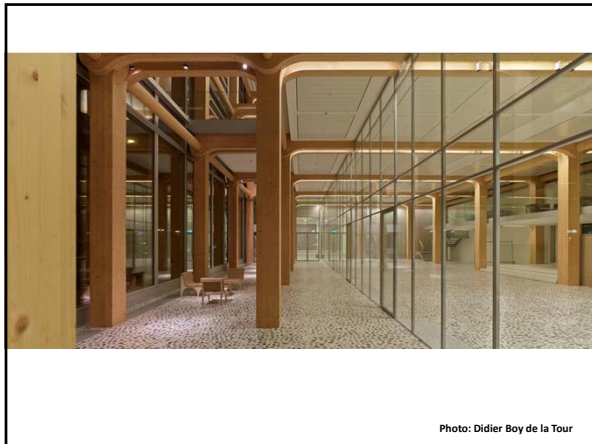
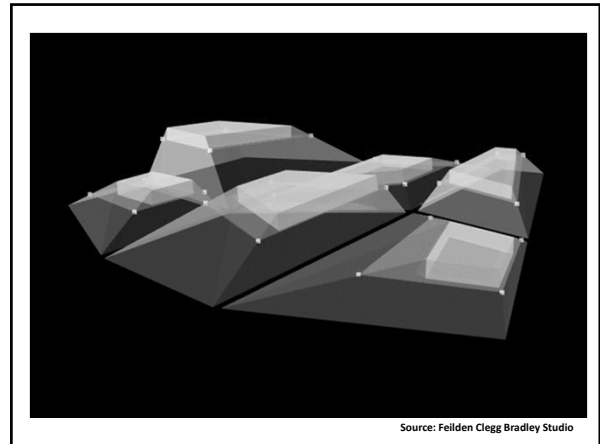


Photo: Didier Boy de la Tour



Source: Feilden Clegg Bradley Studio

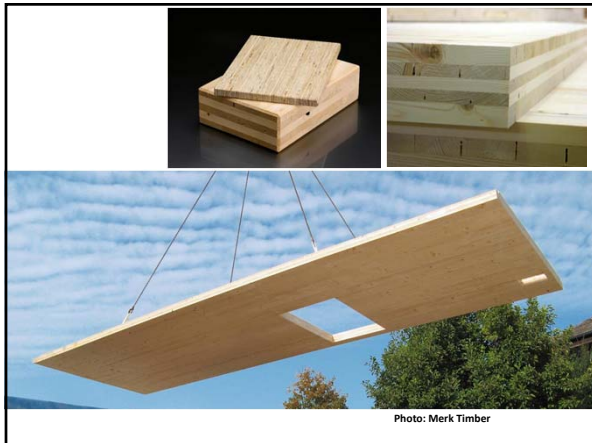


Photo: Merk Timber



Photo: KLH UK

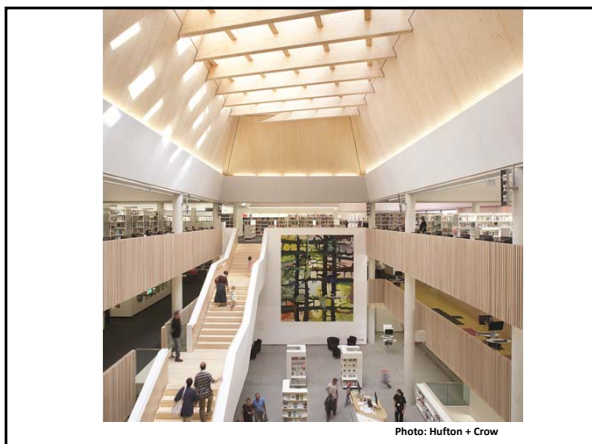
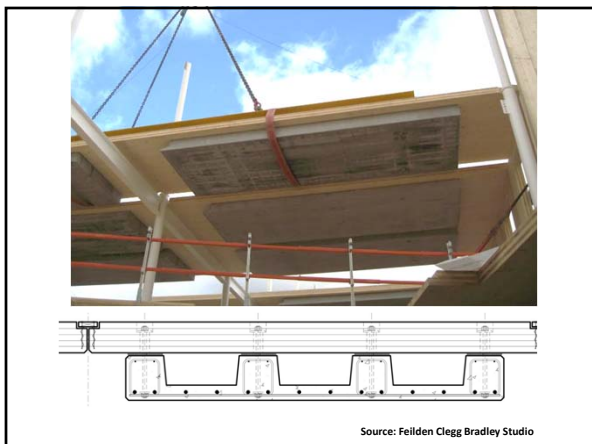


Photo: Hufton + Crow



Photo: Hufton + Crow

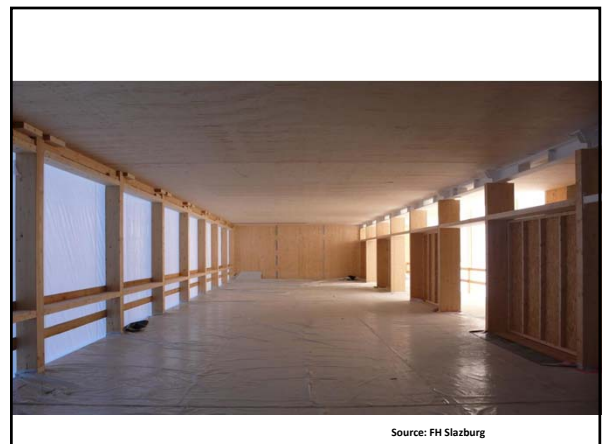
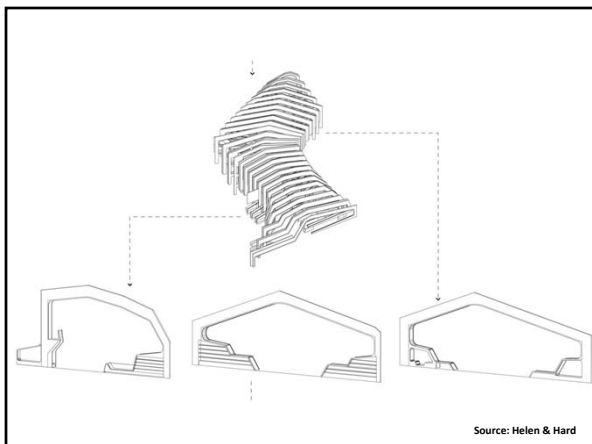
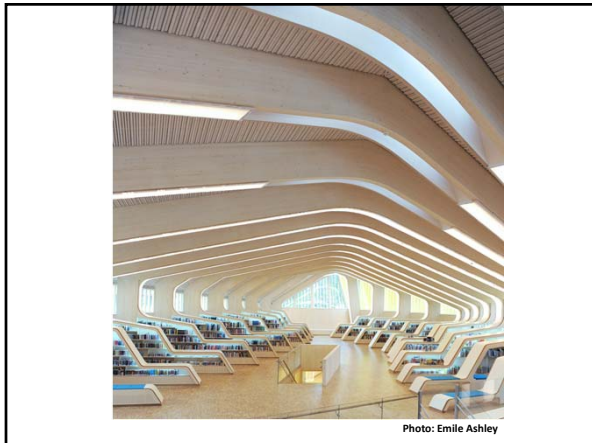
4. WOOD STRONG

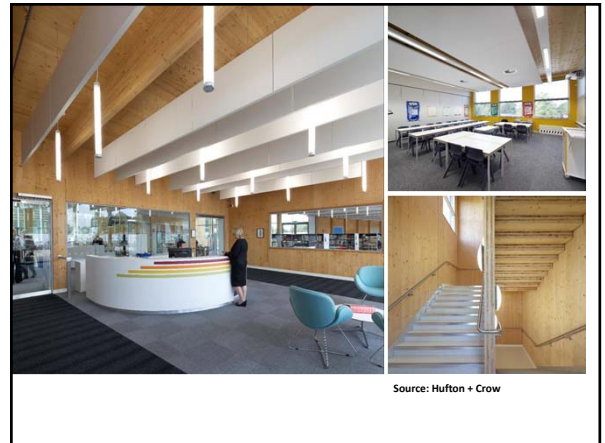


5. WOOD FLEXIBLE



6. WOOD IS BIG





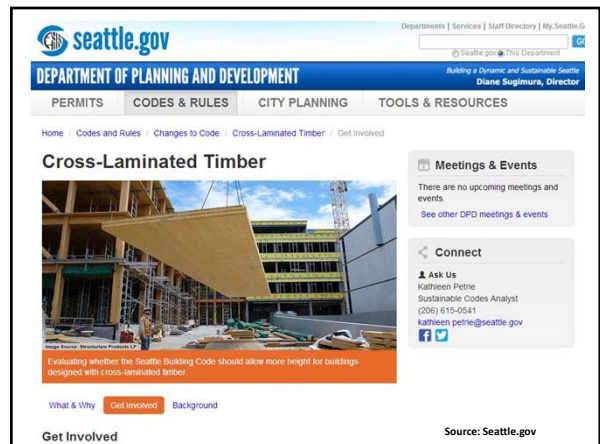
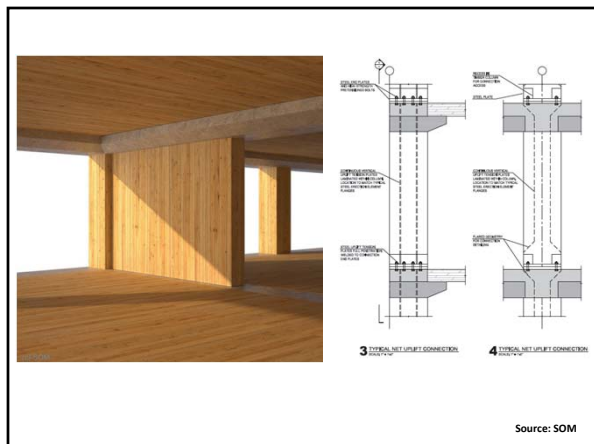
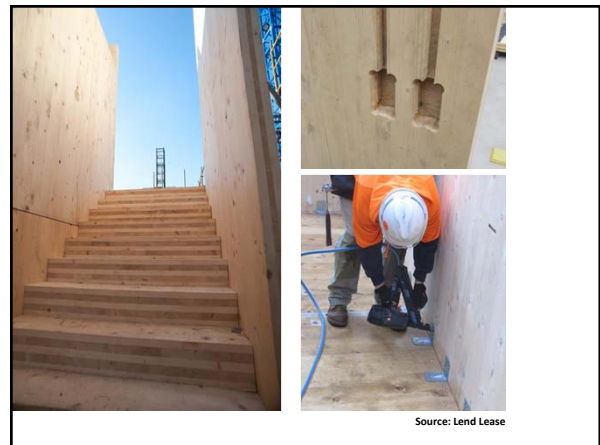
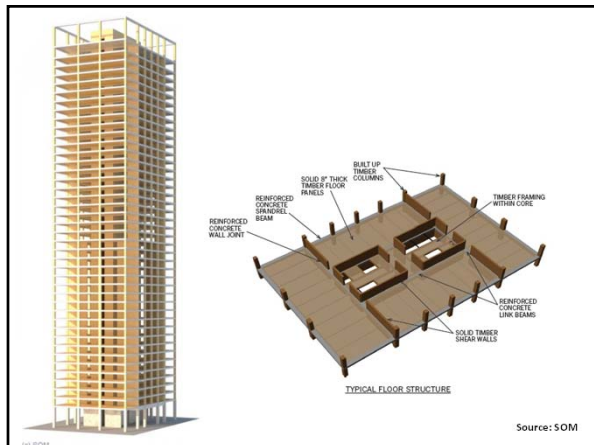




Photo: Ben Benschneider

2 HOUR RATED WALL ASSEMBLY	
FPInnovations Fire Test	
Sply CLT ungrouted = 113 min	
Proposed Modification	
Sply CLT + 1 layer 5/8" gap = 143 min estimated	

1 HOUR RATED WALL ASSEMBLY	
FPInnovations Fire Test	
Sply CLT + 2 layers 1/2" gap = 108 min	
Proposed Modification	
Sply CLT + 1 layer 5/8" gap = 98 min estimated	

Source: Mahlum

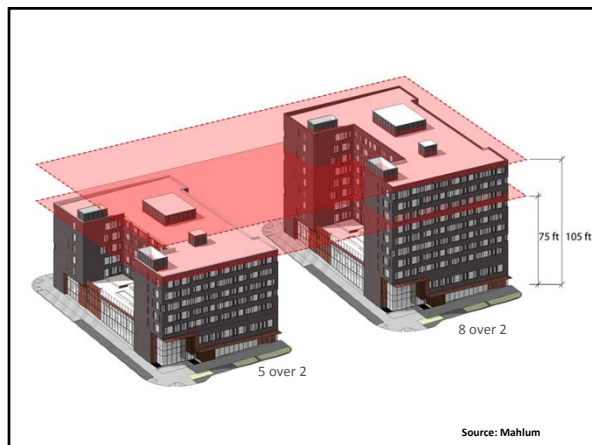
CLT Feasibility Findings

- CLT offered 4% cost savings compared to concrete
- CLT offered 2% cost savings compared to steel. However steel prices in Seattle have risen sharply since study completed and CLT is likely more competitive now than



8 over 2

Source: Mahlum



Source: Mahlum



Thank you!

Joe Mayo
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 206-441-4151

Gravity Support System - Interior Walls

G
R
A
V
I
T
Y

5 psf Lateral + Gravity (Height = 10 ft)

3-Layer CLT
 (4.125" thick)

Allowable Design Ratio- 41 %

5-Layer CLT
 (6.875" thick)

Allowable Design Ratio- 18 %

2x6 Studs
 (@ 16" O.C.)

Allowable Design Ratio- 250%

*Effective char layer for 1 hour fire resistance: 1.8"

Source: Couglin Porter Lundeen Engineers