Ascent MKE: Designing the Tallest Mass Timber Building in the World

Chicago Wood Design Symposium

Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board
TYPE IV (IBC 2015)
CONSTRUCTION:

HEIGHT LIMIT:
85 FT/ 25.9 M

SIX STORIES OF TIMBER
OVER A CONCRETE
PODIUM
ACTON OSTRY ARCHITECTS: BROCK COMMONS VANCOUVER

HEIGHT:
174 FT/ 53 M

SEVENTEEN STORIES OF TIMBER OVER A CONCRETE PODIUM.

HYBRID STRUCTURE – STAIRS AND ELEVATOR CORE ARE CIPC

FIRST COMPLETED PROJECT UNDER CANADA’S TALL WOOD DEMONSTRATION BUILDING PROJECT

ACHIEVES CLASS FIRE RESISTANCE THROUGH ENCAPSULATION – ALL TIMBER IS COVERED WITH THREE LAYERS OF GYPSUM BOARD
LEVER ARCHITECTS/ KPFF: FRAMEWORK PORTLAND

HEIGHT:
148 FT/ 45 M

TWELVE STORIES OF TIMBER ABOVE GRADE

PURE MASS TIMBER BUILDING – INCLUDING STAIR + ELEVATOR CORES

APPROVED + PERMITTED UNDER 2015 IBC’S “SPECIAL ASSEMBLY” SECTION

TESTED TO WITHSTAND EARTHQUAKES THROUGH ROCKING WALLS

PRIMARY STRUCTURAL MEMBERS MUST MEET A TWO HOUR FIRE RATING, FLOORS ARE TWO HOUR

ACHIEVES CLASS FIRE RESISTANCE THROUGH SACRIFICIAL/CHAR METHOD – ALL TIMBER COLUMNS, BEAMS, AND SLABS ARE EXPOSED

CANCELLED DUE TO FINANCIAL CONSIDERATIONS
VOLL ARKITEKTER: Mjøstårnet: 85.4M / 280.2FT
Why Mass Timber: Aesthetics
Why Mass Timber: Sustainability

1. The building will sequester approximately 7,200 metric tons of CO2.
2. It will take approximately 25 minutes to grow this volume of wood in North American forests.

This CO2 benefit is also equivalent to taking approximately 2400 cars off the road for a year or the energy to operate over 1100 homes for a year.
ASCENT MILWAUKEE

EIGHTEEN STORIES OF TIMBER OVER A CONCRETE PODIUM

HEIGHT:
284 FT/ 86.56 M

FLOOR AREA OF TIMBER:
APPROX. 324,400 SF /30,136 SM

APPROVALS PURSUED UNDER 2015 IBC’S “SPECIAL ASSEMBLY” SECTION

HYBRID STRUCTURE – STAIRS AND ELEVATOR CORES ARE CIPC

ACHIEVES CLASS FIRE RESISTANCE THROUGH BOTH EXCAPSULATION AND SACRIFICAL/ CHAR METHOD – APPROX. 50% OF TIMBER COLUMNS, BEAMS, AND SLABS ARE EXPOSED – PRIMARILY IN LIVING SPACES

VERTICAL STRUCTURAL MEMBERS MUST MEET A THREE HOUR FIRE RATING, FLOORS ARE TWO HOUR
Ascent MKE Timeline:

01 March 2018: Directive from New Land Enterprises to pursue MTF Tower

03 May 2018: Presentation to DNS Commissioner and Alderman

24 July 2018: Introduction to DNS Staff

21 October 2018: Project unveiled at CTBUH World Conference, Dubai

11 November 2018: Presentation to MFD leadership

22 July 2019: First working meeting with DNS Staff

07 November 2019: Second working meeting with DNS Staff

17 December 2019: Witnessed three hour fire test (4th of 9)

13 February 2020: Variance review meeting with DNS Staff

21 February 2020: Four variance petitions filed with DNS

21 February 2020: Footings and Foundation Permit applied for

15 May 2020: Anticipated groundbreaking

Intermediate design May 2019
PRESCRIPTED CHAR RATE:
1.5IN/ HR

TESTED CHAR RATE:
1.29-1.31 IN/ HR
EXPOSED GLULAM BEAM TO GLULAM COLUMN CONNECTION (D1C)

NOT TO SCALE
6  WINDOW WALL SECTION AT KNEE WALL

3  WINDOW WALL - SLAB EDGE SECTION
Thank you!
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