Mid-Rise Wood Construction
Navigating Codes and Detailing Assemblies

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Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.
General Code
Under 2015 IBC, multiple stories are now allowed below 3-hr podium per Section 510.2. Construction below podium is Type IA construction.

Wood mid-rise podium construction is typically either Type IIIA (5 stories) or Type VA (4 stories). Note that it is possible to have a high-rise wood “mid-rise” Construction Type III building. T-504.3 allows for Type IIIA Group R occupancy to be 85’ above Grade Plane.

602.3 requires that Type III exterior walls are non-combustible. Fire-retardant treated wood framing is permitted.
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Podium Construction – Bump Ups

• To maintain separation, jog 3-hr fire ratings at up- and down-turns. Vertical wall is often termed “Vertical Separation Wall”
Podium Construction – Stairs

• What material is allowed for stairs that span both construction types?

• Safe bet pre-2021 IBC is wood above podium; non-combustible construction below. Some AHJs have allowed wood throughout.

• 2021 IBC will have changes to allow it more prescriptively

1011.7 Stairway construction. Stairways shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.
Combustible Facades & NFPA 285

• Type III exterior walls of certain heights require NFPA 285 testing when they include foam plastic insulation, combustible facades, or combustible AVBs

• Prior test standard did not accommodate FRT wood-framed backup walls, which are allowed by building code – there was a gap. The standard has been recently revised.

5.7 Construction Details of Test Specimen.

5.7.1 General.

5.7.1.1 The test specimen shall be constructed and secured to the test frame or apparatus using fastening and construction details representative of actual field installations in accordance with the manufacturer’s instructions.

5.7.1.2* Details of the construction of the test specimen shall be representative of actual field installations in accordance with the manufacturer’s instructions.

5.7.1.3* The framing system used to support the wall assembly that makes up the test specimen shall consist of steel studs or wood studs.
Assemblies & Details
Loadbearing Exterior Walls

- 2-hour Load Bearing Exterior Wall
  - UL W408 (*FSD)
  - UL U349 (*FSD)
602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.
Corridor Walls

- Interior bearing walls and floor-ceiling assemblies required to be 1-hr under Type IIA and VA. Note exceptions to IBC 708.4.
Corridor Walls

- **Floor or Roof Sheathing**
- **Corridor Ceiling Constructed as Required for the Corridor Walls**
- **Room Side Membrane to Deck Above**
- **Corridor Membrane Permitted to Stop at Ceiling**
- **Firestopping**
Interior Wall / Floor Intersections

• Demising Walls
  • UL U341

• 1-hour Floors
  • UL L563, System 2 (gypcrete)
  • UL L529, System 1 (no gypcrete)
  • UL L579, System 3 & 5 (gyp/mat)
Interior Wall / Floor Intersections

- **Ceiling Membrane Interruption**

- New to 2015 IBC: Exception 7 to §714.4.2
  - The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the double top plates are protected in accordance with Section 714.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.
Interior Wall / Floor Intersections

• Floor System Interruption

Design No. L529
January 08, 2018
Unrestrained Assembly Rating: 1 hr.
Finish Rating: 22 Min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BD-004 or BD-007.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

1. Flooring System — The flooring system shall consist of one of the following:

System No. 1

Subflooring — Min 23/32 in. thick T & G wood structural panels, min grade "Underlayment" or "Single-Floor". Face grain of plywood or strength axis of panels to be perpendicular to the trusses with end joints staggered 4 ft. Panels secured to trusses with construction adhesive and No. 6d ringed shank nails spaced 12 in. OC along each truss. Adhesive applied as 3/8 in. drip bead to top chord of trusses and grooved edges of plywood or panels.
Fire Safety During Construction
Minimum Compliance No Longer Cutting It

• Site superintendent responsible for fire safety
• Zero detection until FD F/A test
• Zero suppression until C of O
• One dry manual standpipe
• Stockpiling of combustibles
• Stair installation when subs are coordinated
• Dumpsters near buildings with non-FRT trash chutes
• Phased occupancy
Features for Consideration

- Strong NFPA 241 Plan
- Fire Protection Program Manager (FPPM)
- Passive barriers complete with rated doors installed
- Wireless detection and monitoring
- Onsite security with training and education
- Infrared scanning after hotwork
- Active suppression during construction with central station monitoring
This concludes The American Institute of Architects Continuing Education Systems Course

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