

Tall Mass Timber Type of Construction Comparison

Feature	Type IVA	Type IVB	Type IVC
Description of new Type IV Types	100 % Noncombustible (NC) protection on all surfaces of Mass Timber (MT).	NC protection on all surfaces of mass timber (MT) except for limited exposed areas.	Exposed mass timber (MT), except shafts, concealed spaces, and outside of exterior walls.
Permitted Materials			
Structural Building Elements	MT or NC	MT or NC	MT or NC
Nonloadbearing Ext Walls	MT or NC	MT or NC	MT or NC
Nonloadbearing Int Walls	MT or NC	MT or NC	MT or NC
Exit and Hoistway Enclosures			
Highrise* to 12 stories or 180 feet:	NC or MT protected with 2 (or 3 when 3 hr FRR) layers of 5/8" Type X.	NC or MT protected with 2 layers of 5/8" Type X gypsum or equiv each side of enclosure.	NC or MT protected with one layer of 5/8" Type X gypsum each side of shaft or enclosure.
Above 12 stories or 180 ft: <small>*see IBC definition of highrise</small>	NC	Not Permitted	Not Permitted
Noncombustible Protection			
Interior Protection Req'd 3 hr FRR	3 layers of 5/8" Type X gypsum	Same as Type IV-A for protected MT. Limited exposed MT elements must have same FRR, but may be calculated.	All MT is allowed to be exposed except for 1 layer of 5/8" Type X on outside surfaces of exterior walls, inside and outside of shafts and exit enclosures, and in concealed spaces.
Req'd for 2 hr or less FRR	2 layers of 5/8" Type X gypsum		
Exterior Protection	Minimum of 1 layer of 5/8" Type X gypsum	Minimum of 1 layer of 5/8" Type X gypsum	Minimum of 1 layer of 5/8" Type X gypsum
Floor Surface	1 inch of NC protection	1 inch of NC protection	No protection required
Roof	No NC protection on exterior roof surface, 2 layers of 5/8" Type X gypsum on inside of roof deck.	No NC protection on exterior roof surface, 2 layers of 5/8" Type X gypsum on inside of roof deck.	No protection on roof surface or inside of roof deck is required (unless concealed space).
Concealed Spaces	No exposed MT in concealed spaces. NC protection in concealed spaces.	No exposed MT in concealed spaces. NC protection in concealed spaces.	No exposed MT in concealed spaces. One layer of 5/8" Type X gypsum NC protection in concealed spaces.
Table 601 Fire Resistance Rating (FRR)			
Primary Frame or Bearing Wall:	3 hr FRR (2 hr at roof)	2 hr FRR (1 hr at roof)	2 hr FRR (1 hr at roof)
Floors:	2 hr FRR	2 hr FRR	2 hr FRR
Roof:	1.5 hr FRR	1 hr FRR	1 hr FRR
Fire Resistance Rating Trade-off	No FRR reduction for sprinkler in 403.2.1	No FRR reduction for sprinkler in 403.2.1	No FRR reduction for sprinkler in 403.2.1