Annex 1
(Item 3.1)

EXPANSION OF DETAILS FOR POINT 7.3

7.3 Fire Rated Hinged Doors (Wooden Composite)

7.3.1 *Material*

Wooden Fire Rated Hinged Doors will be manufactured using door components of timber with specific range of Moisture Content and Density as mentioned in **7.3.3** together with Wooden Composite materials like Particle board, Medium Density Fibreboards or High-Density Fibreboards and may or may not require any additional inorganic materials like calcium silicate boards, ceramic blanket or Magnesium oxide sheets etc. in addition to the Wooden composite materials.

7.3.3 *Construction*

Fire Rated Hinged Doors (Wooden Composite) will include the complete Door-set which comprises of the Door Shutter/ Door leaf + Door Frame + Intumescent Strips + Interdens Sheets + Hardware and it is mandatory to test the Door-set as a package and all Fire Rated Hinged Doors (Wooden composite) will be mandatory to supplied as the complete assembly from the manufacturer i.e. Entire Door-set including Hardware and sealing systems to be supplied by the Fire Door manufacturer.

Fire Rated Hinged Doors (Wooden Composite) Fire Doors can be manufactured in 2 methods of constructions namely:

a) Box Type Construction
b) Door blank Construction

a) Box Type Construction

A box type construction will have 3 major door components namely Door Infill, Face panel and Stiles + Rails

For 30 minutes Fire Rating – FD30:

Door Components	**Specification**	**Additional References or Points**	**Minimum Thickness/Length/Width (in mm)**
Door Infill	Low Density Particle board	Thickness Swelling to be below 5% as per IS 2380 Part 17 in General Absorption 2 hours Only 1 horizontal joint allowed in bottom side of the door only when the infill height is shorter than the door height	

Door Components	Specification	Additional References or Points	Minimum Thickness/Length/Width (in mm)
Face Panel*	Fibreboards	Grade 1 of IS 12406:2021 with minimum density of 850 kgs/m3	Minimum 3 mm thickness
Stiles and Rails	a) Timber b) OR c) Laminated Veneer Lumber	a) Timber to be of Minimum Density of 400 kgs/m^3 with Moisture Content as 8-12% as per IS 287. b) Laminated Veneer Lumber conforming to IS 14616 of minimum density of 700 kg/m^3	a) Timber will be of Minimum 55 mm width. b) Minimum width of Laminated Veneer Lumber required is 40 mm.
Edge Bands	a) Hardwood Timber OR b) Any other edge banding upto 2 mm (as agreed to between the manufacturer and the purchaser)	a) External Lipping of any hardwood of Minimum density of 650+ kgs/m3 at Moisture Content of 8-9 % as per IS 287. b) Any other edge-band to be as agreed to between the manufacturer and the purchaser and can be PVC (Poly Vinyl Chloride) or ABS (Acrylonitrile Butadiene Styrene) etc. Edge-banding to be glued using Moisture Resistant Glue only.	a) Hardwood to be of minimum 6 mm thickness and maximum of 12 mm thickness. b) Maximum of 2 mm thickness allowed for edge-banding other than hardwood timber.

Minimum Door shutter/ Door Leaf thickness of the Finished Fire Rated Hinged Doors (Wooden Composite) for 30 minutes Fire Rating will be 45 mm.

Intumescent Strips and Interdens:

Minimum 1 no. of Intumescent Strips of 15 mm width × 2 mm thick Graphite with additional option of maximum of 2 mm PVC casing over and above the 2 mm Graphite to be used and the same to be installed on the Door frame and bottom side of the door leaf/door shutter. Minimum 1 mm Interdens sheets to be used as padding material behind the hinges or door closer or any additional hardware and for cladding the lock body such that no metal directly touches the wood.

For 60 minutes Fire Rating – FD60:

Door Components	**Specification**	**Additional References or Points**	**Minimum Thickness/Length/Width** (in mm)
Door Infill	Low Density Particle board with or without any inorganic material	Thickness Swelling of Particle board to be below 5% as per IS 2380 Part 17 in General Absorption 2 hours Only 1 horizontal joint allowed in bottom side of the door only when the infill height is shorter than the door height.	
Face Panel*	Fibre-boards	Grade 1 of IS 12406:2021 with minimum density of 850 kgs/m^3 No Joints allowed	Single face panel of minimum 5.5 mm thickness
Stiles and Rails	a) Harwood Timber (Not Beech) OR b) Laminated Veneer Lumber	a) Hardwood Timber to be of Minimum Density of 630 kgs/m3 with Moisture Content as 8-9% as per IS 287. b) Laminated Veneer Lumber conforming to IS 14616 of minimum density of 740 kgs/m3 c) No Joints allowed in Stiles or Rails.	a) Hardwood Timber will be of Minimum 60 mm width. b) Minimum width of Laminated Veneer Lumber required is 40 mm.
Edge Bands	a) Hardwood Timber OR b) Any other edge banding upto 2 mm (as agreed to between the manufacturer and the purchaser)	a) External Lipping of any hardwood of Minimum density of 650+ kgs/m3 at Moisture Content of 8-9 % as per IS 287. b) Any other edge-band to be as agreed to between the manufacturer and the purchaser and can be PVC (Poly Vinyl Chloride) or ABS (Acrylonitrile Butadiene Styrene) etc.. c) Edge-banding to be glued using Moisture Resistant Glue only.	a) Hardwood to be of minimum 6 mm thickness and maximum of 12 mm thickness. b) Maximum of 2 mm thickness allowed for edge-banding other than hardwood timber.

Minimum Door leaf thickness of the Finished Fire Rated Hinged Doors (Wooden Composite) for 60 minutes Fire Rating will be 50 mm.

Intumescent Strips and Interdens:

Minimum 2 nos. of Intumescent Strips of 15 mm width x 2 mm thick Graphite with additional option of maximum of 2 mm PVC casing over and above the 2 mm Graphite to be used and the same to be installed on the Door frame and bottom side of the door leaf/door shutter.

Minimum 1 mm Interdens sheets to be used as padding material behind the hinges or door closer or any additional hardware and for cladding the lock body such that no metal directly touches the wood.

For 90 minutes Fire Rating – FD90 and 120 minutes Fire Rating FD120:

Door Components	**Specification**	**Additional References or Points**	**Minimum Thickness/Length/Width** (in mm)
Door Infill	Low Density Particle board or Fibreboard with or without any inorganic material	Thickness Swelling of Particle board to be below 5% as per IS 2380 Part 17 in General Absorption 2 hours Only 1 horizontal joint allowed in bottom side of the door	
Face Panel*	Fibre-boards	Grade 1 of IS 12406:2021 with minimum density of 850 kgs/m3 Or Plywood as per IS 303:2024 BWP Grade No Joints allowed	Single face panel of minimum 5.5 mm thickness
Stiles and Rails	a) Harwood Timber (Not Beech) OR a) Laminated Veneer Lumber	a) Hardwood Timber to be of Minimum Density of 730 kgs/m^3 with Moisture Content as 8-9% as per IS 287. b) Laminated Veneer Lumber conforming to IS 14616 of minimum density of 780 kgs/m^3 c) No Joints allowed in Stiles or Rails.	a) Hardwood Timber will be of Minimum 75 mm width. b) Minimum width of Laminated Veneer Lumber required is 60 mm.
Edge Bands	a) Hardwood Timber OR b) Any other edge banding upto 2 mm (as agreed to between the	a) External Lipping of any hardwood of Minimum density of 650+ kgs/m3 at Moisture Content of 8-9 % as per IS 287.	a) Hardwood to be of minimum 8 mm thickness. b) Maximum of 2 mm thickness allowed for

Door Components	**Specification**	**Additional References or Points**	**Minimum Thickness/Length/Width** (in mm)
	manufacturer and the purchaser)	b) Any other edge-band to be as agreed to between the manufacturer and the purchaser and can be PVC (Poly Vinyl Chloride) or ABS (Acrylonitrile Butadiene Styrene) etc. c) Edge-banding to be glued using Moisture Resistant Glue only.	edge-banding other than hardwood timber.

Minimum Door thickness of the Finished Fire Rated Hinged Doors (Wooden Composite) for 90 minutes and 120 minutes Fire Rating will be 54 mm.

*Face panel can have additional decorative faces over and above the specified minimum thickness of materials like PVC (Poly Vinyl Chloride) foils upto 0.3 mm or other type of foils (as agreed between the manufacturer and the purchaser) or ABS (Acrylonitrile Butadiene Styrene) sheets, shall pass 1H of pencil hardness test as per Annex C to IS 17637. Face panel of prelaminated MDF or HDF shall meet the requirement of abrasion resistance Type IV of IS 14587. Face panels with any decorative laminates (as agreed between the manufacturer and the purchaser) upto 1 mm thickness and CPL (continuous pressed laminates) upto 0.3 mm thickness shall meet the requirements of type VLS of IS 2046 or Decorative Veneers as agreed between the manufacturer and the purchaser.

b) Door Blank Construction

Door shutters with either Particle board or MDF solid door blanks with or without additional face panels having edge banded or beaded edges type core shall be manufactured with core of particle board, MDF board or veneered particle board conforming to Grade 1 of IS 3087, Grade 1 of IS 12406, Grade 1 of IS 3097, respectively. The beading shall be of solid timber of any of the hardwood species (not beech) or of PVC (poly vinyl chloride) or ABS material. The beading shall be to the full thickness of the door. The thickness of the beading will be minimum of 10 mm. Faces of such doors shall have decorative faced panels meeting the properties of the faces as described for Box Type construction.

Door Frames

For FD 30:

Door Frame can be manufactured using timber of any species with Moisture Content between 9-12% as per IS 287 with the Door Frame or Laminated Veneer Lumber conforming to IS 14616.

The Width should be minimum of 75 mm with thickness of base frame as 30 mm and additional rebate of 12 mm, i.e. total thickness of the door frame will be 42 mm as minimum. No Finger Jointed or any other joints allowed in the Door Frame for Fire Rated Door application.

For FD 60:

Door Frame can be manufactured using timber of any hardwood species with Moisture Content between 8-9% as per IS 287 with the Door Frame width of minimum 80 mm with base frame thickness of 32 mm and additional rebate of 12 mm as minimum or Laminated Veneer Lumber conforming to IS 14616 with the door frame width of minimum 80 mm with base frame thickness as minimum 40 mm and additional rebate of minimum 22 mm i.e. total thickness of the door frame will be 62 mm as minimum or Steel frames of 45 mm thick Base Frames using Electro-galvanised steel with 1.5mm thickness, Single rebated steel hollow profiles with an architrave face of at least 21mm wide and providing additional rebate/door stop at least 15 mm. Total Frame width will be minimum 75 mm.

For FD 90:

Door Frames can be manufactured using either any hardwood timber species (not beech) of Minimum Density of 730 kgs/m3 at Moisture Content of 8-9% as per IS 287 having minimum width of 100 mm and base frame of minimum 45 mm and additional rebate of 12 mm or Laminated Veneer lumber conforming to IS 14616 of minimum density of 780 kgs/m3 having minimum width of 100 mm and base frame of minimum 45 mm and additional rebate of minimum 22 mm or Steel frames of 45 mm thick Base Frames using Electro-galvanised steel with 1.5mm thickness, Single rebated steel hollow profiles with an architrave face of at least 21mm wide and providing additional rebate/door stop at least 15 mm. Total Frame width will be minimum 75 mm.

For FD 120:

Door Frames can be of either any Hardwood timber species (not beech) of Minimum Density of 720+ kgs/m3 at Moisture Content of 8-9% as per IS 287 having minimum width of 140 mm and base frame of minimum 45 mm and additional rebate of 35 mm or Laminated Veneer lumber conforming to IS 14616 of minimum density of 780 kgs/m3 having minimum width of 140 mm and base frame of minimum 45 mm and additional rebate of minimum 22 mm or Steel frames of 45 mm thick Base Frames using Electro-galvanised steel with 1.5mm thickness, Single rebated steel hollow

profiles with an architrave face of at least 21mm wide and providing additional rebate/door stop at least 15 mm. Total Frame width will be minimum 75 mm.

Fire Rated Hinged Doors (Wooden Composite) can be either Single Door leaf or Double Door leaf and can be offered with or without Vision Panel. The Door-sets with vision panel will be permitted to be offered only upto the size of the vision panel tested by the Door Manufacturer and as mentioned in the Test report and license.

Single Door leaf and Double Door leaf have to be tested separately as a Door-set system.

The Manufacturer can offer Door-sets upto the size of the Fire Door tested only.

Test Certificate from the laboratory to clearly mention the sizing of the Door tested together with detailed door construction of the door-set and images of the front side and burnt side of the door before starting the tests and after conclusion of the test also to be added in the report.