# PARTICULAR SPECIFICATION

# FRAME & SHUTTERS

1.0 **INDIAN STANDARDS** :

1.1 Work shall be carried out to Indian Standards and Code of Practices. In absence, International Standards shall be followed. These shall be latest issue. List given hereunder is not to be considered as conclusive and is for reference and guidance only. Any discrepancies / conflict noticed shall be directed to the EIC for his direction/approval. However, as a general rule more stringent specification shall take precedence.

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| 1 | IS 287 | Recommendation for maximum permissible moisture content for timber used for different purposes in different zones. |
| 2 | IS 401 | Code of practice for preservation of timber. |
| 3 | IS 851 | Specification for synthetic resin adhesive for construction (non-structural) in wood. |
| 4 | IS 852 | Specification for animal glue for general wood working purposes. |
| 5 | IS 1141 | Code of Practice for seasoning of timber. |

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| 6 | IS 2191 | Specification for wooden flush door shutters (cellulral and hollow core):<br>Part-I Plywood face panels<br>Part II Particle board and hard board face panels |
| 7 | IS 2202 | Specification for wooden flush door shutter (Solid core type)<br>Part I Plywood face panels<br>Part-II Particle board and hard board face panels |
| 8 | IS 4020 | Door shutters – method of test (Part 1 to 16) (Part 1 to 17) |
| 9 | IS 12896 | Indian timber for doors and windows shutters and frames Classifications |

**WOODN DOORS**

2.0 **MATERIALS :**

2.1 Timber shall be of quality as specified in BOQ and well seasoned. When a kind of timber is not specified, good quality teak shall be used. It shall have uniform colour, be free from defects such as cracks, dead knots, soft spongy spots and waves of injurious open shakes. Grains shall be reasonable straight. The individual hard and sound knot shall not be larger than 6 sqcm diameter. The aggregate area of all knots shall not exceed 0.5% area of piece.

2.2 All timber shall be kiln-seasoned to IS 1141 and conform to IS 287 for moisture content. Maximum permissible limit shall be +3% for average moisture content of all samples from a given lot and +5% for individual sample of the given lot. This is applicable when thickness of timber is more than 50 mm. Small size tolerance shall be +2% and +3% respectively.

2.3 Timber used shall be treated with a 10 years guaranteed and approved anti-termite treatment. Wood work in contact with masonry or concrete shall be painted with hot bitumen coaltar before being placed in position.

2.4 Readymade flush shutters shall be as specified and shall comply to respective code of practice. Manufacturer's certificate confirming that shutters supplied comply to IS shall have to be obtained and submitted to the Engineer. Also a copy of test certificate from an independent laboratory shall be obtained. In large projects, one door shutter shall be tested from approved laboratory to get confirmation that door shutter comply to IS specifications.

2.4.1 Shutters shall be of specified thickness. They will have teak wood veneer finish or 1.2 mm thick melamine sheets as specified. These shall be hot pressed and bonded with water resistant formaldehyde synthetic resin of exterior quality as per IS Specifications. The adhesive used for bonding cross band to core and face veners to cross band shall conform to IS 848 (Phenoli and Aminoplastic).

2.4.2 Tolerance on width and height shall be +2mm. Tolerance on thickness shall be +1.2 mm. Thickness of shutter shall be uniform throughout variation.

2.5 Fittings and fixtures shall be as specified in bills of quantity and shall comply to respective IS Specifications.

2.6 All nails, screws etc. shall be hot deep galvanized or of brass or non ferrous material as directed.

2.7 Adhesives and glue shall be as per IS code for exterior quality and water repellent.

3.0 **WORKMANSHIP**

3.1 Timber brought at site shall be as approved by the Engineer.

3.2 No timber shall be painted, tarred, oiled etc. before its inspection by the Engineer. Any effort to hide the defects by plugging, painting etc. shall render the piece to be rejected by the Engineer.

3.3 All rejected timber shall be removed at once from the site of work.

3.4 All sawing of timber shall be done in straight lines and planes of uniform thickness.

3.5 All joints shall be tongued and grooved or of the type shown in the drawings specified in the item or as directed by the Engineer. All joints shall be glued with approved adhesive.

Joints shall be strong, neat and shall fit without wedging or filling. They shall be pinned with hard wood or bamboo pins of 10-15 mm dia after the members of the frame are glued and pressed together in a suitable vice-mechanism.

3.6 Prior to joining, wood members of frame shall be planed smooth and accurate to the full depth. Rebates, rounddings, mouldings etc. as shown in the drawing shall be done before the members are joined.

3.7 All timber items shall be subjected to inspection by the Engineer prior to any treatment to be carried out. No item shall be installed unless it is approved by the Engineer.

## 4.0 DOORS/WINDOWS

### 4.1 Flush Shutters

4.1.1 The timber used in core of flush door shall be from species specified in IS 2202 part I . For styles, rails and lipping timber specified in group 2 in IS shall be used. Moisture content in the timber shall not be more than 12% when tested according to IS 1708.

4.1.2 Timber shall be seasoned, chemically treated and antitermite treated. It shall be free from decay and insect attack.

4.1.3 Plywood used in flush shutters shall conform to BWP grade.

4.1.4 Cross band used in flush door shutters shall conform to the requirements laid down in BWP grade plywood.

4.1.5 Adhesives used shall be phenol formaldehyde synthetic resin of exterior quality conforming to IS. All bonding such as core members to one another including core frame, lipping, cross band and plywood to core and face veneers to cross band shall be with phenol formaldehyde specified in IS 848.

4.1.6 Construction shall conform to specification given in IS 2202 Part I.

4.1.6.1 A frame constructed of styles and rails shall be provided for holding the core. Width shall not be less than 50 mm and more than 100 mm inclusive of lipping if provided.

4.1.6.2 Core may be of wooden strips, particle board, combination of block board and particle board.

4.1.6.3 Styles and rails shall be made of one piece glued together.

4.1.6.4 Levelling by planning of surfaces shall be carried out at each stage of construction to eliminate impressions of the core strips on the outside face.

4.1.6.5 Face panel shall be formed by gluing by hot press process on both faces of the core. Face panels shall be minimum 6 mm ply.

4.1.6.6 Lipping may be internal or as edge-band as specified and approved by the Engineer. External lipping shall be solid and minimum 6 mm thick on the face of door. Edge bad lipping shall have a total depth of minimum 25 mm. Joints shall not be permitted in lipping.

4.1.6.7 Opening for glazing and ventilation shall be provided if specified. Opening of glazing shall be lipped internally with solid timber.

4.1.6.8 Shutters shall be shop-prepared for taking mortice lock or latches as may be ordered. Sizes of block for fixing hardware shall conform to IS 2209.

4.1.7 All four edges of shutters shall be square or free from twist or warp in its plane. Both faces shall be sanded to a smooth even texture.

4.1.8 The shutters shall be sampled as per criteria given in IS 2202 part I and tested as per detail given in IS 2202 part I and IS 4020 (Part 1 to 17)

a) End Immersion Test
b) Knife Test
c) Glue Ahesion Test 17 tests as per IS

5.0 **FITTINGS AND FIXTURES**:

Standard fittings and fixtures shall be fixed as specified in the drawing and specifications. This shall also include making grooves, chases, reinforcing etc.

6.0 **ITEM INCLUDES**:

6.1 Item shall include supply of specified quantity and type of timber, sawn, cut, joined, framed and fixed in position including supply and fixing of approved anti-corrosive treated fixtures straps, bolts, hold-fasts, spikes, nails, screws etc. supplying and applying glue, coaltar, paint and anti-termite treatment. The item shall also include all materials, labor, scaffoldings, use of equipments etc.

6.2 Fixtures and fittings shall be as approved by the Engineer, if not detailed elsewhere in the drawing or the BOQ.

6.3 If wood work is found to be defective due to bad workmanship, shrinkage, etc. within 1 year after completion of work, the defective wood work shall be refixed by the contractor at his cost to the satisfaction of the Engineer. This includes the repairs required to complete the work as it was finished earlier.

**DOUBLE PATTI MARBLE DOOR FRAMES**

**7.0 DOOR FRAMES OF DOUBLE PATTI MARBLE STONE IN ONE PIECE**

7.1 Providing and fixing window frame and door frame of machine cut and mirror polished marble double patti 20 mm thick in single piece up to 2.0 m. length and 100 to 300 mm wide on a bed of 1:4 white cement mortar 20 mm thick mortar including cement float filling

joints with neat cement slurry, watering, curing, polishing and cleaning etc. complete. Net measurement of marble patti excluding overlap from inside of window / door shall be considered for the payment.

**8.0 FRP DOORS**

FRP moulded shutters 28mm thick to fit in above frame, shutter with depressed panel design, with core Polyol Foam done in –situ & sandwich panel of 4 mm plywood and embedded wooden blocks for fixture. FRP thickness to be 1.5 to 2.0 mm . The whole shutter to be waterproof, acid/alkali resistant in any color.