4 ARCHITECTURAL TIMBER

4.1 GENERAL REQUIREMENTS

4.1.1 Scope

1 This part includes specifications for fabrication and installation of exterior and interior finished carpentry and millwork, and plastic laminate covered counters, cabinets, and other such items.

2 Related Sections are as follows:

This Section

Part 1..... General
Part 3 ..... Framing Furring and Blocking
Part 3 ..... Wood Doors
Part 5 ..... Joinery

4.1.2 References

1 The following references are referred to in this Part:

BS 476.....Fire tests on building materials and structures

BS 1088.....Marine plywood. Requirements

BS 1142.....Specification for fibre building boards; (EN 622-1 Fibreboards - Specifications - Part 1: General requirements; EN 622-2 Fibreboards - Specifications - Part 2: Requirements for hardboards; EN 622-3 Fibreboards - Specifications - Part 3: Requirements for medium boards; EN 622-4 Fibreboards - Specifications - Part 4: Requirements for softboards; EN 622-5 Fibreboards - Specifications - Part 5: Requirements for dry process boards (MDF); EN 310 Wood-based panels - Determination of modulus of elasticity in bending and of bending strength; EN 316 Wood fibre boards - Definition, classification and symbols; EN 317 Particleboards and fibreboards - Determination of swelling in thickness after immersion in water; EN 318 Wood based panels - Determination of dimensional changes associated with changes in relative humidity; EN 320 Particleboards and fibreboards - Determination of resistance to axial withdrawal of screws; EN 321 Wood-based panels - Determination of moisture resistance under cyclic test conditions; EN 322 Wood-based panels - Determination of moisture content; EN 323 Wood-based panels - Determination of density; EN 324-2 Wood-based panels - Determination of dimensions of boards - Part 2: Determination of squareness and edge straightness; EN 325 Wood-based panels - Determination of dimensions of test pieces; EN 382-1 Fibreboards - Determination of surface absorption - Part 1: Test method for dry process fibreboards; ISO 12460-5 Wood-based panels — Determination of formaldehyde release — Part 5: Extraction method (called the perforator method)

BS 1282.....Wood preservatives. Guidance on choice, use and application; (BS 8417 Preservation of wood. Code of practice)

BS 2572.....Specification for phenolic laminated sheet and epoxy cotton fabric laminated sheet; (EN 60893-3-4 Insulating materials. Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Specifications for individual materials. Requirements for rigid laminated sheets based on phenolic resins)

BS 3444.....Specification for blockboard and laminboard

BS 4072.....Copper/chromium/arsenic preparations for wood preservation

BS 4079.....Specifications for plywood for marine craft; (BS 1088 Marine plywood. Requirements)

BS 4965.....Decorative laminated plastics sheet veneered boards and panels

BS 5268-5 .....Structural use of timber - Code of practice for the preservative treatment of structural timber (EN 15228 Structural timber - Structural timber preservative treated against biological attack)

BS 5589.....Code of practice for preservation of timber

BS 5666.....Methods of analysis of wood preservatives and treated timber; (EN 212 Wood preservatives. General guidance on sampling and preparation for analysis of wood preservatives and treated timber)

BS 5707.....Specification for preparations of wood preservatives in organic solvents

BS 6566.....Plywood; (EN 313-2 Plywood. Classification and terminology – Terminology; EN 315 Plywood. Tolerances for dimensions; EN 636 Plywood. Specifications; CEN/TS 1099 Plywood - Biological durability - Guidance for the assessment of plywood for use in different use classes; EN 635-1 Plywood - Classification by surface appearance - Part 1: General; EN 635-2 Plywood - Classification by surface appearance - Part 2: Hardwood; EN 635-3 Plywood - Classification by surface appearance - Part 3: Softwood)

EN 635 .....Plywood - Classification by surface appearance; (EN 635-1 Plywood - Classification by surface appearance - Part 1: General; EN 635-2 Plywood - Classification by surface appearance - Part 2: Hardwood; EN 635-3 Plywood - Classification by surface appearance - Part 3: Softwood)

4.1.3 Submittals

1 In accordance with the Project Documentation, provide Shop Drawings and Samples as specified, or at minimum as follows:

(a) shop Drawings showing detailed finished work such as cabinetry, counters, built-in furniture requiring shopwork finished carpentry should have large scale shop drawings provided.

(b) samples of architectural woodwork) with final surface finishing and any required coatings of paint, varnish, stain or other coatings, at approximate size of 700 x 100 mm.

(c) samples of plastic laminate finish on plywood or particle board at size of 300 x 15 mm

(d) certificates indicating preservative treatments or fire retardant treatment of materials as meets the project requirements.

(e) certificates indicating moisture content of materials as meets the project requirements.

4.1.4 Product Delivery, Storage and Handling

1 Protect shopwork items from dampness both during and after delivery to site.

2 Store finished shopwork in weathertight well ventilated structures or in space in existing buildings designated by the Engineer.

3 Do not install finished shopwork in any room or space where concrete, masonry, or plaster work is not completed and dry.

4.2 TIMBER MATERIALS (NON-STRUCTURAL FRAMES)

4.2.1 Grading and Marking

1 Members are to bear the grade mark, stamp, or other identifying marks indicating grades of materials, and rules or standards under which produced.

4.2.2 Sizes

1 Size references, unless otherwise specified are nominal sizes, and actual sizes are to be within manufacturing tolerances allowed by the standard under which the product is produced.

4.2.3 Specific Items

1 Timber for (shopwork), exterior walkways handrails, shelves, handrails, seats, cabinets and other such items is specified in the Project Documentation and drawings.

4.2.4 Moisture Content

1 Moisture content of timber and shopwork at the time of delivery to the site should be as follows:

(a) interior finished timber, trim and shopwork 30 mm or less in thickness, moisture content to be 12 % minimum on 85 % of the work and a maximum of 15 % on the remainder.

(b) exterior treated or untreated finished timber 100 mm or less in thickness, moisture content to be 15 % minimum.

4.2.5 Fire Retardant Treatment

1 Where timber members and plywood are specified to be fire retardant treated, the treatment is to be in accordance with BS 476.

2 Treatment and performance inspection is to be by an independent and qualified testing agency.

3 Each piece of treated material is to bear the identification of the testing agency and should indicate performance in accordance with such a rating.

4.2.6 Preservative Treatment

1 All softwood for permanent incorporation in the Works to be treated with preservative to provide protection against damage from insect larvae, termites and fungal decay. Organic solvent type preservatives are to contain a water repellant.

2 The preservative treatment is to be applied by pressure impregnation or the double vacuum process. Dipping, deluging, spraying, brushing or other methods which only provide shallow protection are not permitted.

3 The treatment is to be carried out under factory conditions at the source of supply of the timber and the Contractor is to provide a Certificate of Impregnation when required by the Engineer.

4 Treatment is to be carried out after all cutting and shaping has been completed. If subsequent cutting of the timber is unavoidable all freshly exposed surfaces are to receive a liberal application of the preservative recommended in the relevant treatment specification. Refer to BS 1282, BS 4072, BS 5268, BS 5589, BS 5666 and BS 5707.

4.2.7 Fixing of Exterior Shopwork

1 Fixing of exterior shopwork:

(a) all edges of timber members exposed to weather are to be end grain.

(b) all shopwork is to be primed and back painted before fixing.

(c) shopwork is to be nailed, screwed or bolted at each support (blocking).

(d) all joints are to be close fitted, mitred, tongue and grooved, rebated or lapped to exclude water.

2 Edges of members in contact with concrete or masonry are to have a square corner caulking rebate.

3 Staff beads are to have a caulking rebate.

4.2.8 Fixing of Interior Shopwork

1 Except where special profiles are shown, trim is to be standard stock molding and all members to be of the same species. All finished shopwork is to be free from pitch pockets. Plywood is to be a minimum 12 mm thick, unless otherwise shown or specified.

2 No interior woodwork is to be set until primed and back-painted; or until all concrete, masonry and plaster in buildings is complete and dry.

3 Interior shopwork which is to receive a transparent finish is to be primed and back-painted only on surfaces to be concealed. Secure trim with fine finishing nails and with screws and glue where required. Set nails for putty stopping.

4 All members such as moulding strips, chair rails, and base strips which are less than 4.25 m in length are to be from one piece of timber, back channeled and molded as shown.

5 Interior trim and items of shopwork to be painted may be fabricated from jointed, built-up, or laminated members, unless otherwise shown on the drawings.

4.3 PLYWOOD

4.3.1 Softwood Plywood

1 Softwood plywood is to comply with the relevant provisions of EN 635 Part 2.

2 Fire resistant softwood plywood is to meet all requirements for flamespread and smoke developed when tested in accordance with BS 476.

3 Plywood is to bear the label of the testing agency designating rate of flame spread, fuel contributed and smoke developed.

4 Each sheet of plywood is to bear the mark of a recognized association or independent inspection agency that will maintain a continuing control over the quality of the plywood. The mark is to identify the plywood by species group or identification index, and show the glue type, grade, and compliance with BS 6566.

4.3.2 Hardwood Plywood

1 Hardwood plywood is to comply with the relevant provisions of EN 635 Part 2.

2 Fire resistant hardwood plywood

(a) core is to be exterior type softwood plywood; face and back veneer to be untreated; factory seal planed edges, to prevent loss of fire retardant by the manufacturers

(b) plywood panels are to meet all requirements for flamespread, smoke developed and fuel contributed, when tested in accordance with BS 576

(c) each panel is to bear the label of testing agency designating rate of flame spread, fuel contributed and smoke developed.

4.3.3 Marine Plywood

1 Marine plywood shall comply with the relevant provisions of BS 1088 and BS 4079.

4.4 WOOD PANELING

4.4.1 General

1 This part specifies requirements for use of board planks or sheet panelling of unfinished or pre-finished surfaces for use as wall covering, wainscots, or built-in type furniture such as counter surfaces.

4.4.2 Board Planking

1 Timber type and finish to be applied is to be as specified by the Project Documentation.

2 Unless specified otherwise board planks are to be as follows:

(a) timber stock to be 19 mm thick with each board in one piece floor to ceiling, V-cut as shown on plans

(b) blind nail each board at each bearing on furring strips.

4.4.3 Wall Sheet Paneling

1 Use hardwood plywood, premium grade, with unfinished or factory prefinished surface. Project drawings will specify, thickness and if surface will be vertical V-grove random planked, or flush grooved.

2 Joints are to be tightly butted and plumb.

3 Panelling is to be laid vertically and blind nailed to wood furring.

4 Wood mouldings are to be solid wood members of the same species as the wall paneling.

5 The Type of finish required on factory prefinished wall panels to be as specified on the drawings.

4.5 BLOCKBOARD AND LAMINBOARD

4.5.1 General Requirements

1 Blockboard and laminboard to be free from bow, twist and warp and conform to BS 3444.

2 On 3-ply boards the thickness of the veneers to be a minimum of 2.5 mm and a maximum of 3.6 mm.

3 Cores are to consist of strips of wood of the same species throughout any one board. In blockboard the width of each strip is not to be less than 8 mm and not more than 25 mm, and in laminboard it is not to be less 7 mm.

4 The strips are to be laid side by side with the grain parallel and run in the longer direction of the board. The strips may be butted end to end provided there is not gap at the butt and that the butts in adjacent strips are staggered by at least 150 mm. The strips are to be assembled in such a manner that the finished board is the equivalent of a solid slab free from all voids.

5 The grain of each veneer is to be parallel to that of the corresponding veneer and that of the veneers next to the core to be at right angles to the direction of the strips in the core.

6 Face plies Class 1 and Class 2 finish to be as for plywood except that Class 1 finish veneers may be of one or more pieces. When of more than one piece it is to be well jointed and matched for colour at the joints. The pieces are to be equal in width subject to a deviation of ± 10% and not less than 250 mm wide.

4.5.2 Fixing Laminated Timber Boards

1 Blockboard and laminboard are to be fixed with the laminations running in the direction of the longest span.

2 Blockboard and laminboard are not to be used externally.

3 Plywood is not to be installed with exposed edges in external work.

4 The new edges formed by cut-outs in laminated timber boards for sinks, taps and the like are to be liberally coated with waterproof glue to form a seal.

4.6 LAMINATED PLASTIC SHEET

4.6.1 General Requirements

1 Laminated Plastic is to comply with BS 2572 and BS 4965.

(a) standard grade: thickness is to be not less than 1.59 mm for horizontal work and 0.08 mm for vertical work

(b) bending grade: thickness is to be not less than 0.60 mm for on site bending to a radius of 75 mm or less

(c) post formed grade: minimum thickness to be 1.1 mm.

4.6.2 Fixing Laminated Plastics

1 Adhesive to be used in accordance with the manufacturer's recommendations and be approved by the sheet surfacing manufacturer. Adhesives other than a contact type are to be bonded in presses.

2 Where veneers are next to each other they are to be matched both for colour and pattern.

3 When not otherwise specified, the Contractor is to apply to the back face a sheet of similar timber veneer the same thickness as the face veneer, ensuring that moisture content of the veneers is equal.

4 When using laminated plastics, a sheet of similar material and thickness to the face sheet is to be applied to the back face unless otherwise specified. The material to be conditioned before fixing in accordance with the manufacturer's recommendations.

5 Edges of laminated plastics are to be chamfered at all external angles. Standard grade is to be used for flat work and postforming grades for shaped work. The material is to be bonded to chipboard, blockboard or plywood of at least 15 mm thickness.

6 Joints are to be made level by positioning cores splines or dowels and tightened by means of drawbolts. Joints between postformed sections should be mitred at 45º for accurate positioning. Vertical joints are to be bevelled to produce a V joint.

4.7 MISCELLANEOUS WOOD PRODUCTS

4.7.1 Building Board (Handboard)

1 Building board is to comply with the relevant provisions of BS 1142.

4.8 STAIRWORK AND HANDRAILS

4.8.1 Wood Handrails

1 To be installed in one piece and one length when practical. Where rails change slope or direction, a special or curved section is to be used.

2 Ends of rails are to be returned to the wall.

3 Rails are to be secured with wood screws to metal brackets at approximately 450 mm centres as detailed in the Project Documentation.

4 Wall handrails for stairs are to start on line with the first riser and terminate on line with the last riser, or as indicated in the project documentation.

5 Joints are permitted only where the rail changes direction or slope, or where necessary for field erection or shipping. Scarf or dowel all joints to provide smooth and rigid connections. Glue all joints. Joints are to be fitted to show not more than a hair-line crack.

6 Handrails are to be completely shop fabricated in accordance with approved shop drawings.

7 Brackets for wood handrails are to be cast aluminum with satin polish finish or extruded aluminum with a mechanical applied medium satin finish or malleable iron castings or as specified in the project documentation.

8 Anchor brackets as detailed in the drawings. Install brackets within 300 mm of end of handrails and at evenly spaced intervals between, not exceeding 1500 mm on centres and at intervals between as shown on drawings.

END OF PART