

Piccadilly Warehouse Refurbishment Project NBS Specification

11 April 2021

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G

Structural/Carcassing metal/timber

G20

Carpentry/ timber framing/ first fixing

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To be read with Preliminaries/ General conditions.

GENERAL

105 TIMBER PROCUREMENT

- Timber (including timber for wood based products): Obtained from well managed forests/ plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
- Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood based products.

150 STRENGTH GRADING OF TIMBER

- Grader: A company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR STRUCTURAL USE GENERALLY

- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
- Strength class to BS EN 338: C16.
- Treatment:
 - Preservative treatment: None required.
Design service life: 10 years.
 - Fire retardant treatment: None required.

- 210A TIMBER JOISTS (GRADED DIRECT TO STRENGTH CLASS) FOR THE NEW COMPARTMENT FLOOR AT FIFTH FLOOR OF BLOOM STREET
- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
 - Strength class to BS EN 338: To be in accordance with the information noted on GM Structures Drawings and Specification.
Size of timber joists to be in accordance with the information noted on GM Structures Drawings and Specification.
 - Treatment:
 - Preservative treatment: None required.
Design service life: 10 years.
 - Fire retardant treatment: None required.
For the loadings and fixing details please refer to the GM Structures Drawings and Specifications.
- 210B TIMBER JOISTS (GRADED DIRECT TO STRENGTH CLASS) FOR THE ROOF BUILD UP AT FIFTH FLOOR CEILING LEVEL OF BLOOM STREET
- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
 - Strength class to BS EN 338: To be in accordance with the information noted on GM Structures Drawings and Specification.
Size of timber joists to be in accordance with the information noted on GM Structures Drawings and Specification.
 - Treatment:
 - Preservative treatment: None required.
Design service life: 10 years.
 - Fire retardant treatment: None required.
For the loadings and fixing details please refer to the GM Structures Drawings and Specifications.
- 210C TIMBER JOISTS (GRADED DIRECT TO STRENGTH CLASS) FOR THE ACOUSTIC FLOOR BUILD UP TO ALL COMPARTMENT FLOORS WITH THE EXCEPTION OF THE FIFTH FLOOR OF BLOOM STREET
- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
 - Strength class to BS EN 338: To be in accordance with the information noted on GM Structures Drawings and Specification.
Size of timber joists to be 75 x 50mm at 400mm centres C24, in accordance with the information noted on GM Structures Drawings and Specification.
 - Treatment:
 - Preservative treatment: None required.
Design service life: 10 years.
 - Fire retardant treatment: None required.
For the loadings and fixing details please refer to the GM Structures Drawings and Specifications.
- 270 UNGRADED SOFTWOOD FOR INTERNAL NONSTRUCTURAL USE
- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
 - Surface finish: Planed all round.
 - Treatment:
 - Preservative treatment: None required.
 - Design service life: 10 years.
 - Fire retardant treatment: None required.

270A UNGRADED SOFTWOOD / FURRINGS FOR LEVELLING THE EXISTING COMPARTMENT FLOOR SUBSTRATE PRIOR TO FORMING THE ACOUSTIC FLOOR BUILD UP

- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: Planed all round.
- Treatment:
 - Preservative treatment: None required.
 - Design service life: 10 years.
 - Fire retardant treatment: None required.

As part of the tender a nominal 50mm zone has been noted across the extent of the existing floor that will be required to be levelled up prior to receiving the CMS Danskin acoustic cradle system as per NBS K11/115A. During the tender the joinery sub-contractor is to undertake a level survey of the existing floor substrate and confirm their proposal for levelling up the existing floor for the Cradle system to be located on.

311A NON-STRUCTURAL PLYWOOD FOR PARTITION WALLS & WALL LININGS GENERALLY TO BE USED AS A PATTESS

- Standard: To an approved national standard.
- Thickness: 12 mm.
- Appearance class to BS EN 635: II.
- Use class to BS EN 335: Use class 2.
- Bonding quality to BS EN 314-2: Class 1.
- Finish: Sanded.
- Edges: Square.
- Treatment:
 - Preservative treatment: None required.
 - Design service life: 10 years.
 - Fire retardant treatment: None required.

M&E sub-contractor to provide pattressing information for all M&E requirements as the Beech Design & Build Pattressing Information included in the Construction Information is only for the fitted furniture items.

311B NON-STRUCTURAL PLYWOOD FOR CEILINGS & BULKHEADS GENERALLY TO BE USED AS A PATTESS

- Standard: To an approved national standard.
- Thickness: 12 mm.
- Appearance class to BS EN 635: II.
- Use class to BS EN 335: Use class 2.
- Bonding quality to BS EN 314-2: Class 1.
- Finish: Sanded.
- Edges: Square.
- Treatment:
 - Preservative treatment: None required.
 - Design service life: 10 years.
 - Fire retardant treatment: None required.

M&E sub-contractor to provide pattressing information for all M&E requirements as the Beech Design & Build Pattressing Information included in the Construction Information is only for the fitted furniture items.

311C STRUCTURAL PLYWOOD FOR HANDRAILS TO BE USED AS A PATTRESS

- Standard: To an approved national standard.
- Thickness: 2 Layers of 12mm.
- Appearance class to BS EN 635: II.
- Use class to BS EN 335: Use class 2.
- Bonding quality to BS EN 314-2: Class 1.
- Finish: Sanded.
- Edges: Square.
- Treatment:
 - Preservative treatment: None required.
Design service life: 10 years.
 - Fire retardant treatment: None required.
M&E sub-contractor to provide pattressing information for all M&E requirements as the Beech Design & Build Pattressing Information included in the Construction Information is only for the fitted furniture items.

311D NON-STRUCTURAL PLYWOOD FOR THE NEW COMPARTMENT FLOOR AT FIFTH FLOOR OF BLOOM STREET

Manufacturer: UPM Plywood .

- Web: www.wisaplywood.com.
- Email: plywood.uk@upm.com.
- Product reference: WISA-Spruce
- Face veneer appearance class to BS EN 635: Class III.
- Thickness: 18 mm.
- Edge profile: Tongued and grooved two long edges.
- Panel size: Contractor's choice, to suit the working sapce.
Where buildierswork holes are being formed in the floor the opening must be lined with plywood.

WORKMANSHIP GENERALLY

401 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD

- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
- Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
 - Tolerance class 1 (T1) for sawn surfaces.
 - Tolerance class 2 (T2) for further processed surfaces.

402 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL SOFTWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1, clause 6 for sawn sections.

420 WARPING OF TIMBER

- Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, or BS 5756 for hardwood.

430 SELECTION AND USE OF TIMBER

- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

435 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes:
 - General: Avoid if possible.
 - Sizes: Minimum needed to accommodate services.
 - Position: Do not locate near knots or other defects.
 - In same joist: Minimum 100 mm apart horizontally.
 - Notches in joists:
 - Position: Locate at top. Form by sawing down to a drilled hole.
 - Depth (maximum): 0.15 x joist depth.
 - Distance from supports: Between 0.1 and 0.2 x span.
 - Holes in joists:
 - Position: Locate on neutral axis.
 - Diameter (maximum): 0.25 x joist depth.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from supports: Between 0.25 and 0.4 of span.
 - Notches in roof rafters, struts and truss members: Not permitted.
 - Holes in struts and columns: Locate on neutral axis.
 - Diameter (maximum): 0.25 x minimum width of member.
 - Centres (minimum): 3 x diameter of largest hole.
 - Distance from ends: Between 0.25 and 0.4 of span.
- Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER

- Cutting and machining: Carry out as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
- Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 MOISTURE CONTENT

- Moisture content of wood and wood based products at time of installation: Not more than:
 - Covered in generally unheated spaces: 24%.
 - Covered in generally heated spaces: 20%.
 - Internal in continuously heated spaces: 20%.

451 MOISTURE CONTENT TESTING

- Procedure: When instructed, test timber sections with an approved electrical moisture meter.
- Test sample: Test 5% but not less than 10 lengths of each cross-section in the centre of the length.
- Test results: 90% of values obtained to be within the specified range. Provide records of all tests.

510 PROTECTION

- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Trussed rafters: Keep vertical during handling and storage.

520 EXPOSED END GRAIN PROTECTION

- Components: Seal exposed end grain of the following before delivery to site:
 - As required.
- Sealer: Clear end grain sealer.

530 PAINTED FINISHES

- Structural timber to be painted: Primed as specified before delivery to site.

540 CLEAR FINISHES

- Structural timber to be clear finished: Keep clean and apply first coat of specified finish before delivery to site.

550 EXPOSED TIMBER

- Planed structural timber exposed to view in completed work: Prevent damage to and marking of surfaces and arrises.

JOINTING TIMBER

570 JOINTING/ FIXING GENERALLY

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

580 FRAMING ANCHORS

- Manufacturer: Contractor's choice, based on information noted on the GM Structures Drawings and Specifications.
 - Product reference: Submit proposals.
- Material/ finish: Submit proposals.
- Fasteners: Galvanized or sherardized square twist nails.
 - Size: Not less than size recommended by anchor manufacturer.
- Fixing: Secure using not less than the number of nails recommended by anchor manufacturer.

590 METAL PLATE FASTENERS/GUSSETS

- Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.

630 BOLTED JOINTS

- Bolt spacings (minimum): To BS EN 1995-1-1, section 8.5.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
 - Checking: At agreed regular intervals up to Completion. Tighten as necessary.

640 BOLTED JOINTS WITH CONNECTORS

- Connectors: To BS EN 912.
 - Types and sizes: As shown on drawings.
 - Bolt hole: Where appropriate, size to suit bolt diameter.
 - Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
 - Finish: Submit proposals.
- Bolts and washers: To BS EN 1995-1-1.
- Connector location: Where not otherwise shown, spacings, end and edge distances are to be not less than Standard values to BS EN 1995-1-1, section 8.9 for split ring and shear plate connectors, and BS EN 1995-1-1, section 8.10 for toothed plate connectors.
- Centres of bolt holes: Not more than 2 mm from positions shown on drawings.
- Assembly: Do not crush timber, deform washers or overstress bolts.

670 ANTI-CORROSION FINISHES FOR FASTENERS

- Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
- Sherardizing: To BS 7371-8, Class 1.
- Zinc plating: To BS EN ISO 4042 and passivated.

ERECTION AND INSTALLATION

710 PROPOSALS FOR ERECTING STRUCTURAL TIMBER

- Proposals: Submit details of:
 - Method and sequence of erection.
 - Type of craneage.
 - Temporary guys and bracing proposed for use during erection.
- Latest date for submission: 10 days before erection starts.

721 EXPANSION ANCHORS

- Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
- Size: Main Contractor to provide drawings for approval by the Clients Agent.
- Material/ finish: Submit proposals.
- Spacing/ edge distance (minimum): Manufacturer's characteristic values for maximum load.
 - Obtain instructions if specified spacing or edge distance cannot be achieved.
- Installation holes: Drilled to diameter and depth recommended by manufacturer. Clean and free from dust.
- Installation/ tightening: To manufacturer's instructions.

725 HAMMER-IN FASTENERS

- Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
- Type: Main Contractor to provide drawings for approval by the Clients Agent.
- Size: Main Contractor to provide drawings for approval by the Clients Agent.
- Spacing/ edge distance (minimum): Manufacturer's characteristic values for maximum load.
 - Obtain instructions if specified spacing or edge distance cannot be achieved.
- Installation holes: Drilled to diameter and depth recommended by manufacturer. Clean and free from dust.

740 PRE-ERECTION CHECKING

- Timing: Not less than 10 days before proposed erection start date.
- Checklist:
 - Foundations and other structures to which timber structure will be attached: Check for accuracy of setting out.
 - Holding down bolts: Check for position, protruding length, condition and slackness.
- Inaccuracies and defects: Report without delay.
- Erection: Obtain permission to commence.

750 MODIFICATIONS/REPAIRS

- Defects due to detailing or fabrication errors: Report without delay.
- Methods of rectification: Obtain approval of proposals before starting modification or remedial work.
- Defective/damaged components: Timber members/ components may be rejected if the nature and/or number of defects would result in an excessive amount of site repair.

- 760 TEMPORARY BRACING
- Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.
- 770 ADDITIONAL SUPPORTS
- Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheets materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings
 - Material properties: Additional studs, noggings and battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.
- 775 BEARINGS
- Timber surfaces which are to transmit loads: Finished to ensure close contact over the whole of the designed bearing area.
 - Packings: Where provided, to cover the whole of the designed bearing area.
 - Crushing strength: Not less than timber being supported.
 - In external or inaccessible locations: Rot and corrosion proof.
- 780 WALL PLATES
- Position and alignment: To give the correct span and level for trusses, joists, etc.
 - Bedding: Fully in fresh mortar.
 - Joints: At corners and elsewhere where joints are unavoidable use nailed half lap joints. Do not use short lengths of timber.
- 784 JOISTS GENERALLY
- Centres: Equal, and not exceeding designed spacing.
 - Bowed joists: Installed with positive camber.
 - End joists: Positioned approximately 50 mm from masonry walls.
- 786 JOISTS ON HANGERS
- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
 - Joists: Cut to leave not more than 6 mm gap between ends of joists and back of hanger. Rebated to lie flush with underside of hangers.
 - Fixing to hangers: A nail in every hole.
- 790 STANDARD JOIST HANGERS GENERALLY.
- Standard: To BS EN 845-1.
 - Size and type: To suit joist, design load and crushing strength of supporting construction.
 - Material/ finish: Stainless steel or zinc coated steel.
- 791 PROPRIETARY JOIST HANGERS GENERALLY.
- Manufacturer: Contractor's choice Contractor's choice, based on information noted on the GM Structures Drawings and Specifications.
 - Product reference: Submit proposals.
 - Material/ finish: Submit proposals.
 - Size: To suit joist, design load and crushing strength of supporting construction.
- 795 TRIMMING OPENINGS
- Trimmers and trimming joists: When not specified otherwise, not less than 25 mm wider than general joists.
- 850 INSPECTION GENERALLY
- Structural timber-work: Give reasonable notice before covering up.

860 BOLTED JOINTS INSPECTION

- Timing: Inspect all accessible bolts at the end of the Defects Liability Period and tighten if necessary.