

Piermasters House

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K10 Gypsum board dry linings/ partitions/ ceilings

- 35 WALL LINING ON METAL FRAMING Kitchen and bedroom
- Manufacturer: Gypliner universal metal lathing.
 - Product reference: Gypframe.
 - Substrate: Brickwork.
 - Cavity between substrate and back of lining: 25mm.
 - Framing centres: 600 mm.
 - Bracket centres: 600 mm.
 - Insulation: Not required.
 - Recycled content: Not applicable.
 - Linings: 15mm.
 - Recycled content: Not applicable.
 - Screw centres: 300 mm.
 - Finishing: Skim coat plaster.
 - Primer/ Sealer: As recommended by board manufacturer for improved moisture resistance.
 - Accessories: Metal beads/ stops recommended by board manufacturer.
- 65 DRY LINING GENERALLY
- General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
 - Standard:
 - Gypsum plasterboard to BS EN 520.
 - Gypsum fibre board to BS EN 15283-2.
 - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).
 - Cutting gypsum boards: Neatly and accurately without damaging core or tearing paper facing. Minimize cut edges.
 - Two layer boarding: Stagger joints between layers.
 - Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.
- 67 SKIM COAT PLASTER FINISH
- Plaster type: As recommended by board manufacturer.
 - Thickness: 2-3 mm.
 - Joints: Fill and tape except where coincident with metal beads.
 - Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.
- 69 INSTALLING BEADS/ STOPS
- Cutting: Neatly using mitres at return angles.
 - Fixing: Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
 - Finishing: After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.
- 70 ADDITIONAL SUPPORTS
- Framing: Accurately position and securely fix to give full support to:
 - Partition heads running parallel with, but offset from main structural supports.
 - Fixtures, fittings and services.
 - Board edges and lining perimeters.

75 NEW WET LAID BASES

- Dpcs: Install under full width of partitions/ freestanding wall linings.

85 MINERAL WOOL INSULATION

- Fitting insulation: Closely butted joints and no gaps. Prevent slumping.
- Electrical cables overlaid by insulation: Size accordingly.

87 SEALING GAPS AND AIR PATHS

- Sealing: Apply sealant to perimeter abutments and around openings as a continuous bead with no gaps.
 - Gaps between floor and underside of gypsum board: After sealing, fill with joint compound.

90 SEAMLESS JOINTING

- Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.
- Finishing: Feather out jointing compound to give a flush, smooth, seamless surface.
- Nail/ screw depressions and minor indents: Fill to give a flush surface.

K30 Panel partitions

- 20 PLASTERBOARD PANEL PARTITIONS Dry Lined walls
- Manufacturer: Britich Gypsum.
 - Product reference: Moisture resistant board.
 - Panel thickness: 15mm.
 - Panel size: 2400 x 1200.
 - Timber sole plate: N/A.
 - Finishing: Taped seamless finish.
 - Other requirements: None.
- 50 WORKMANSHIP GENERALLY
- Setting out: Plumb, true to line and level and free from bowing, undulations and other planar distortions.
 - Stability: Fix securely, with additional supports where necessary at perimeters.
- 60 NEW WET LAID BASES
- Dpcs: Install under full width of partitions.
 - Material: Bituminous sheet or plastics.
- 70 PERIMETER SEALS
- Sealant material: A type recommended by the partition/ panel manufacturer.
 - Application: Continuously to clean, dry, dust free surfaces, leaving no gaps. In accordance with the sealant manufacturer's instructions.
- 80 FINISHING
- Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape. Apply more jointing compound and feather out to give a flush, seamless surface.
 - Minor imperfections: Remove by lightly sanding.
 - Primer/ Sealer: As recommended by the plasterboard manufacturer.

L20 Doors/ shutters/ hatches

10 TIMBER PROCUREMENT

- Timber (including timber for wood-based products): Obtained from well-managed forests and/ or 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.
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
- Certification scheme: Not applicable and UK Timber procurement policy Category A evidence certification scheme..
- Other evidence: None.

20 WOOD FLUSH DOORS EXTERNAL

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Facings: Exterior grade plywood.
- Lippings: Exposed lippings to long edges.
- Preservative treatment: Required.
- Finish as delivered: Primer and undercoat, as section M60.
- Glazing/ Infill details: Not applicable.
 - Manifestation: Not required.
 - Beading: Not required.
- Thermal performance (U-value maximum): Manufacturer's standard.
- Other requirements: None.

50 WOOD DOOR FRAMES EXTERNAL

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Species: Softwood.
- Preservative treatment: Required.
- Finish as delivered: Primer and undercoat, as section M60.
- Perimeter seals: EPDM weatherseal.
- Thermal performance: Unrated.
- Fixing: Plugged and screwed.
 - Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb, adjacent to each hanging point and at 600 mm maximum centres.

65 SLIDING POCKET DOORS Main Entrance

- Manufacturer: ADC.
 - Product reference: As ADC quote.
- Performance: Thermal: .
- Arrangement: Single leaf .
- Door leaf: As ADC quote.
 - Finish as delivered: As ADC quote.
 - Glazing/ Infill details: As ADC quote.
 - Glass manifestation: As ADC quote.
- Operation: As ADC quote.
- Ironmongery: As ADC quote.
- Other requirements: As ADC quote.

80 SEALANT JOINTS

- Sealant:
 - Manufacturer: Contractor's choice .
Product reference: Contractor's choice .
 - Colour: Black .
 - Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

85 FIXING IRONMONGERY GENERALLY

- Fasteners: Supplied by ironmongery manufacturer.
 - Finish/ Corrosion resistance: To match ironmongery.
- Holes for components: No larger than required for satisfactory fit/ operation.
- Adjacent surfaces: Undamaged.
- Moving parts: Adjusted, lubricated and functioning correctly at completion.

M20 Plastered/ Rendered/ Roughcast coatings

- 42 PROPRIETARY PLASTER Renderlite Renovating Plaster
- Substrate: Brickwork.
 - Preparation: Hack off damp affected plaster.
 - Manufacturer: Sovereign Chemicals Ltd.
 - Undercoats:
 - Product reference: Sovereign SBR Bonding Agent and 1 part water mixed with neat cement to produce a slurry.
 - Thickness (excluding dubbing out and keys): as manufacturers recommendations.
 - Final coat:
 - Product reference: Renderlite.
 - Thickness: 10 - 12mm.
 - Finish: Smooth.
- 62 ADMIXTURES FOR CEMENT GAUGED MORTARS
- Air entraining (plasticizing) admixtures: To BS EN 934-2 and compatible with other mortar constituents.
 - Other admixtures: Submit proposals.
 - Prohibited admixtures: Calcium chloride and admixtures containing calcium chloride.
- 65 MIXING
- Render mortars (site-made):
 - Batching: By volume using gauge boxes or buckets.
 - Mix proportions: Based on damp sand. Adjust for dry sand.
 - Mixes: Of uniform consistence and free from lumps.
- 67 COLD WEATHER
- Internal work: Take precautions to prevent damage to internal coatings when air temperature is below 3°C.
 - External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising.
- 71 SUITABILITY OF SUBSTRATES
- General: Suitable to receive coatings. Sound, free from contamination and loose areas.
- 74 EXISTING DAMP AFFECTED PLASTER/ RENDER
- Plaster affected by rising damp: Remove to a height of 300 mm above highest point reached by damp or 1 m above dpc, whichever is higher.
 - Perished and salt contaminated masonry:
 - Mortar joints: Rake out.
 - Masonry units: Submit proposals.
 - Drying out substrates: Establish drying conditions.
- 76 REMOVING DEFECTIVE EXISTING PLASTER
- Plaster for removal: Loose, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
 - Removing plaster: Cut back to a square, sound edge.

78 REMOVING DEFECTIVE EXISTING RENDER

- Render for removal: Detached, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.
- Removing defective render: Cut out to regular rectangular areas with straight, square cut or slightly undercut edges.
 - Render with imitation joints: Cut back to joint lines.
- Cracks (other than hairline cracks): Cut out to a width of 75 mm (minimum).

80 PLASTERBOARD BACKINGS

- Additional framing supports:
 - Fixtures, fittings and service outlets: Accurately position to suit fasteners.
 - Board edges and perimeters: To suit type and performance of board.
- Joints:
 - Joint widths (maximum): 3 mm.
 - End joints: Stagger between rows.
 - Two layer boarding: Stagger joints between layers.
- Joint reinforcement tape: Apply to joints and angles except where coincident with metal beads.

82 BEADS/ STOPS

- Location: External angles and stop ends.
- Materials:
 - External render: Stainless steel.
 - Internal plaster/ render: Galvanized steel.
- Fixing: Secure and true to line and level.
 - Beads/ stops to external render: Fix mechanically.

85 DAMP PROOF LATHING

- Manufacturer: Gypliner Universal metal lathing.
 - Product reference: Gypframe 48 I 50.
- Joints between lathing sheets and junctions with openings: Prevent penetration and bridging of cavity by coatings.
- Ventilation gaps: not required.

87 APPLICATION OF COATINGS

- General: Apply coatings firmly and achieve good adhesion.
- Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
 - Accuracy: Finish to a true plane with walls and reveals plumb and square.
- Drying out: Prevent excessively rapid or localized drying out.
- Keying undercoats: Cross scratch (plaster coatings) and comb (render coatings). Do not penetrate undercoat.

M60 Painting/ clear finishing

- 10 EMULSION PAINT TO INTERNAL PLASTERED SURFACES
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Surfaces: painted plaster.
 - Preparation: Submit method statement.
 - Initial coats: 10% thinned primer.
 - Number of coats: 1.
 - Undercoats: As recommended by manufacturer.
 - Number of coats: 1.
 - Finishing coats: Matt vinyl.
 - Number of coats: 3.
- 12 GLOSS PAINT TO INTERNAL EXPOSED SOFTWOOD
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Surfaces: Preprimed and sealed.
 - Preparation: Remove existing gloss paint.
 - Initial coats: As recommended by manufacturer.
 - Number of coats: 1.
 - Undercoats: As recommended by manufacturer.
 - Number of coats: 1.
 - Finishing coats: Full gloss.
 - Number of coats: 2.
- 14 EGGSHELL/ SATIN PAINT TO INTERNAL EXPOSED SOFTWOOD
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Surfaces: Previously decorated.
 - Preparation: Degrease and provide key.
 - Initial coats: Sealer.
 - Number of coats: 1.
 - Undercoats: As recommended by manufacturer.
 - Number of coats: 1.
 - Finishing coats:
 - Number of coats: 2.
- 16 DECORATIVE WOODSTAIN/ VARNISH/ PRESERVATIVE Staircases
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Surfaces: timber stained surfaces.
 - Preparation: Submit method statement and Degrease and provide key.
 - Initial coats: wood stain.
 - Number of coats: As recommended by manufacturer.
 - Finishing coats: wood stain .
 - Number of coats: 2.
- 25 SURFACES NOT TO BE COATED
- Radiator valves and stop valves .

30 PREPARATION GENERALLY

- Standard: In accordance with BS 6150.
- Refer to any pre-existing CDM Health and Safety File and CDM Construction Phase Plan where applicable.
- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts, dirt, grease and oil: Remove.
- Surface irregularities: Provide smooth finish.
- Organic growths and infected coatings:
 - Remove with assistance of biocidal solution.
 - Apply residual effect biocidal solution to inhibit regrowth.
- Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Doors, opening windows and other moving parts:
 - Ease, if necessary, before coating.
 - Prime resulting bare areas.

32 PREVIOUSLY COATED SURFACES GENERALLY

- Preparation: In accordance with BS 6150, clause 11.5.
- Contaminated or hazardous surfaces: Give notice of:
 - Coatings suspected of containing lead.
 - Substrates suspected of containing asbestos or other hazardous materials.
 - Significant rot, corrosion or other degradation of substrates.
- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
- Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
- Alkali affected coatings: Completely remove.
- Retained coatings:
 - Thoroughly clean.
 - Gloss coated surfaces: Provide key.
- Partly removed coatings: Apply additional preparatory coats.
- Completely stripped surfaces: Prepare as for uncoated surfaces.

35 FIXTURES AND FITTINGS

- Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Removal: Before commencing work: Ironmongery, coverplates, grilles, wall clocks, and other surface mounted fixtures.
- Replacement: Refurbish as necessary, refit when coating is dry.

37 WOOD PREPARATION

- General: Provide smooth, even finish with lightly rounded arrises.
- Degraded or weathered surface wood: Take back surface to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.
- Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
- Resinous areas and knots: Apply two coats of knotting.
- Defective primer: Take back to bare wood and reprime.

- 39 STEEL PREPARATION
- Corrosion and loose scale: Take back to bare metal.
 - Residual rust: Treat with a proprietary removal solution.
 - Bare metal: Apply primer as soon as possible.
- 41 MASONRY AND RENDERING PREPARATION
- Loose and flaking material: Remove.
- 43 PLASTER PREPARATION
- Nibs, trowel marks and plaster splashes: Scrape off.
 - Overtrowelled 'polished' areas: Provide suitable key.
- 45 PREVIOUSLY PAINTED WINDOW FRAMES
- Paint encroaching beyond glass sight line: Remove.
 - Loose and defective putty: Remove.
 - Putty cavities and junctions between previously painted surfaces and glass: Clean thoroughly.
 - Finishing:
 - Patch prime, reputty, as necessary and allow to harden.
 - Seal and coat as soon as sufficiently hard.
- 61 COATING GENERALLY
- Application standard: In accordance with BS 6150, clause 9.
 - Conditions: Maintain suitable temperature, humidity and air quality.
 - Surfaces: Clean and dry at time of application.
 - Thinning and intermixing: Not permitted unless recommended by manufacturer.
 - Priming coats: Apply as soon as possible on same day as preparation is completed.
 - Finish:
 - Even, smooth and of uniform colour.
 - Free from brush marks, sags, runs and other defects.
 - Cut in neatly.
 - Doors, opening windows and other moving parts: Ease before coating and between coats.
- 65 CONCEALED JOINERY SURFACES
- General: After priming, apply additional coatings to surfaces that will be concealed when component is fixed in place.
 - Components: External door frames.
 - Additional coatings: One undercoat.
- 66 CONCEALED METAL SURFACES
- General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.
 - Components: Window bars.
 - Additional coatings: Black paint to BS 1070.
- 68 STAINING WOOD
- Primer: Apply if recommended by stain manufacturer.
 - Application: Apply in flowing coats and brush out excess stain to produce uniform appearance.
- 70 EXTERNAL DOORS
- Bottom edges: Prime and coat before hanging.

N11 Domestic kitchen fittings, furnishings and equipment

10 FITTED BASE UNITS AND WALL UNITS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Dimensions: To BS EN 1116.
- Surface finishes: To BS 6222-3.
- Doors and drawer fronts:
 - Material: Plastics laminate.
 - Finish and colour: Clear finish .
 - Edges: Not required.
- Side panels, plinths and shelves:
 - Material: Plastics laminate.
 - Finish and colour: Clear finish.
 - Edges: Not required.
- Accessories: Legs and plinths.

20 WORKTOPS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Material: Laminate covered particle board type ???.
- Dimensions: 38mm thick.
- Exposed edges: Laminate moulded.
- Support: battens where needed..

30 SINKS, TAPS, TRAPS AND WASTES

- Sinks:
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Configuration: Sink and a half with double drainer.
 - Material: Stainless steel .
 - Colour and finish: Cromed steel.
- Tap/ chainstay/ overflow holes: 2 tap holes chainstay hole and Overflow hole..
- Taps: Pillar.
 - Manufacturer: Twyfords.
 - Product reference: SF2401CP.
 - Operation: lever handle.
- Wastes: Plug and chain.
 - Manufacturer: Twyfords.
 - Product reference: as supplied.
 - Size: To fit sink .
- Traps: Tubular, P type.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Size: To fit waste.
 - Depth of seal (minimum): 75 mm.
- Accessories: Support brackets.

50 SEALANT

- Standard: To BS EN ISO 11600, class F20 HM.
- Type: One part silicone.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Colour: clear.

N13 Sanitary appliances and fittings

11 WC PANS AND FLUSHING ARRANGEMENTS

- Type: Close coupled cistern.
- Pan: Vitreous china to BS EN 33 and BS EN 997, Class 2, white.
 - Seat: To BS 1254 and Kitemarked, colour to match pan.
 - Pan connector: To BS 5627, colour to match pan..
- Flushing arrangement: Flushing valve with concealed flush pipe.
- Accessories: Overflow connector.

30 WASH BASINS

- Type: Pedestal.
- Taps: Thermostatic basin mixer.
 - Water supply temperature (maximum): 43°C.
- Wastes: Chain and plug.
- Traps: DN 30 tubular P type trap, 75 mm seal.
- Accessories: None.

68 SEALANT FOR POINTING

- Standard: To BS EN ISO 11600.
 - Class: F20 HM.
- Type: Silicone.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Colour: white.

70 INSTALLATION GENERALLY

- Assembly and fixing: Fix appliances securely to structure, without taking support from pipelines, level and plumb and so that surfaces designed to fall drain as intended.
- Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes, to form watertight joints between appliances and backgrounds (except cisterns) and between appliances and discharge pipes.

75 CISTERNS

- Cistern operating components: Obtain from cistern manufacturer.
- Inlet and flushing valves: Match to pressure of water supply.
- Internal overflows: Into pan, to give visible warning of discharge.
- External overflows: Fix pipes to falls, and locate to give visible warning of discharge. Agree position.

81 SEALANT BEDDING AND POINTING

- Bedding: Bed sinks to top of worktops.
- Pointing: Joints between appliances and splashbacks.

P21 Door/ window ironmongery

2 QUANTITIES AND LOCATIONS

- Quantities and locations of ironmongery are on the drawings .
- Fixing: As sections L10 and L20.

8 DOOR HINGES Main Entrance

- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Type: Hook and band .
- Size: 150 mm .
- Material/ finish: Aluminium .
- Other requirements: None .

16 ELECTROMAGNETIC HOLD OPEN/ SWING-FREE DEVICES As ADC quotation

- Type: As ADC quotation.
- Standard: To BS EN 1155.
 - Devices to fire/ smoke control doors: CE marked.
- Manufacturer: As ADC quotation.
 - Product reference: As ADC quotation.
- Material/ finish: As ADC quotation.
- Electric supply: As ADC quotation.
- Means of release: Alarm or failure of power supply.
- Test switch: In a convenient position adjacent to door.
- Operational adjustment of integral closer:
 - Variable power: Matched to size, weight and location of doors. Fully closing latched doors and holding unlatched doors closed.
 - Closing against smoke seals of fire doors: Positive. No gaps.

32 PANIC EXIT DEVICES Main entrance doors

- Standard: To BS EN 1125.
 - Devices for locked doors on escape routes: CE marked.
- Manufacturer: Britton .
 - Product reference: 376E .
- Type: Push bar .
- Material/ finish: Powder coated steel, colour to match door furniture .
- Additional requirements: External locking attachment to be suited with other locks .

34 DOOR BOLTS Main Entrance

- Standard: To BS EN 12051.
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
- Type: Barrel .
- Size: 250 mm .
- Material/ finish: Anodized aluminium, colour ??? .

- 42 PULL HANDLES Entrance Door
- Standard: To BS 8424.
 - Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Shape: Straight bar with stand-off spacers.
 - Diameter: 22 mm.
 - Distance between centres: 300 mm.
 - Material/ finish: Anodized aluminium, colour ???.
 - Mounting: Bolt through.
- 56 DOOR HOLDERS To main entrance doors and door into living room
- Manufacturer: Contractor's choice .
 - Product reference: Contractor's choice .
 - Type: Cabin hook silent pattern .
 - Size: 100mm .
 - Material/ finish: Polished brass .

P31 Holes, chases, covers and supports for services

10 HOLES, RECESSES AND CHASES IN MASONRY

- Locations: To maintain integrity of strength, stability and sound resistance of construction.
- Sizes: Minimum needed to accommodate services.
 - Holes (maximum): 300 mm².
- Walls of hollow or cellular blocks: Do not chase.
- Walls of other materials:
 - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
 - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
- Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
- Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

20 NOTCHES AND HOLES IN STRUCTURAL TIMBER

- General: Avoid if possible.
- Sizes: Minimum needed to accommodate services.
- Position: Do not locate near knots or other defects.
- Notches and holes 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.

30 PIPE SLEEVES

- Material: Match pipeline.
- Sleeves: Extend through full thickness of wall or floor. Position accurately.
 - Clearance around service (maximum): 20 mm or diameter of service, whichever is the lesser.
- Installation: Bed solid.

S90 Hot and cold water supply systems - domestic

GENERAL

SYSTEM PERFORMANCE

- 20 DESIGN OF INSTANTANEOUS HOT WATER SUPPLY
- Design: Complete the design of the hot and cold water supply system.
 - Standard: To BS EN 806-2, BS 8558 and in accordance with HSE publication 'The control of legionella bacteria in water systems. Approved code of practice and guidance'.
 - Proposals: Submit drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturers' literature.
- 26 COMBUSTION AIR SUPPLY TO GAS APPLIANCES
- Size: Submit proposals.
 - Location: Submit proposals.

PRODUCTS

- 35 INSTANTANEOUS WATER HEATERS, ELECTRIC Kitchen
- Standard: To BS EN 60335-2-35, BEAB approved.
 - Manufacturer: Santon.
 - Product reference: 5L Speedboil Heater.
 - Type: Single point - mains supply.
 - Rating: 2.5 Kw.
 - Flow rate: To suit draw off requirements.
 - Casing finish: White vitreous enamel.
 - Controls: Submit proposals.
 - Accessories: Submit proposals.
- 38 DIRECT INSULATED COMBINATION UNITS Kitchen
- Standard: To BS 3198, Kitemark certified.
 - Manufacturer: as quotation.
 - Product reference: as quotation.
 - Hot water capacity: as quotation.
 - Accessories: as quotation.
- 60 VALVES GENERALLY
- Types: Approved for the purpose by local water supply undertaker and of appropriate pressure and/ or temperature ratings.
 - Control of valves: Fit with handwheels for isolation and lockshields for isolation and regulation of circuits or equipment.

EXECUTION

70 INSTALLATION GENERALLY

- Installation: To BS EN 806-4.
- Performance: Free from leaks and the audible effects of expansion, vibration and water hammer.
- Fixing of equipment, components and accessories: Fix securely, parallel or perpendicular to the structure of the building.
- Preparation: Immediately before installing tanks and cisterns on a floor or platform, clear the surface completely of debris and projections.
- Corrosion resistance: In locations where moisture is present or may occur, provide corrosion resistant fittings/ fixings and avoid contact between dissimilar metals by use of suitable washers, gaskets, etc.

75 INSTALLING GAS FIRED INSTANTANEOUS WATER HEATERS

- Label: In accordance with BS 5546.

77 INSTALLING FLUE PIPES

- Joints and bends: Minimize number.
- Slope: Not more than 30° from the vertical.
- Joints: Install with sockets uppermost, fully supported and fixed securely with brackets supplied for the purpose. Do not locate joints within the depth of floors.
 - Seals: Seal joints in accordance with manufacturer's installation instructions, to provide a gas-tight installation.
- Expansion and contraction: Accommodate thermal movement.
- Fire safety: Locate a safe distance from combustible materials.
- Roof junction: Weatherproof. Fit terminal and flashings, collars, and the like.

78 BALANCED FLUE TERMINALS

- Opening in external wall: Submit proposals .
- Flue guard: Submit proposals.

79 PIPELINES INSTALLATION

- Appearance: Install pipes straight, and parallel or perpendicular to walls, floors, ceilings, and other building elements.
- Pipelines finish: Smooth, consistent bore, clean, free from defects, e.g. external scratching, toolmarks, distortion, wrinkling, and cracks.
- Concealment: Generally conceal pipelines within floor, ceiling and/ or roof voids.
- Access: Locate runs to facilitate installation of equipment, accessories and insulation and allow access for maintenance.
- Arrangement of hot and cold pipelines: Run hot pipelines above cold where routed together horizontally. Do not run cold water pipelines near to heating pipelines or through heated spaces.
- Electrical equipment: Install pipelines clear of electrical equipment. Do not run pipelines through electrical enclosures or above switch gear distribution boards or the like.
- Insulation allowance: Provide space around pipelines to fit insulation without compression.

80 PIPELINES FIXING

- Fixing: Secure and neat.
- Joints, bends and offsets: Minimize.
- Pipeline support: Prevent strain, e.g. from the operation of taps or valves.
- Drains and vents: Fix pipelines to falls. Fit draining taps at low points and vents at high points.
- Thermal expansion and contraction: Allow for thermal movement of pipelines. Isolate from structure. Prevent noise or abrasion of pipelines caused by movement. Sleeve pipelines passing through walls, floors or other building elements.
- Dirt, insects or rodents: Prevent ingress.

82 SUPPORTS FOR PIPELINES

- Spacing for copper pipelines: Fix securely and true to line at the following maximum centres:
 - 15 and 22 mm pipe OD: 1200 mm horizontal, 1800 mm vertical.
 - 28 and 35 mm pipe OD: 1800 mm horizontal, 2400 mm vertical.
 - 42 and 54 mm pipe OD: 2400 mm horizontal, 3000 mm vertical.
- Spacing for thermoplastics pipelines: Fix securely and true to line at the following maximum centres:
 - Up to 16 mm pipe OD: 300 mm horizontal, 500 mm vertical.
 - 17-25 mm pipe OD: 500 mm horizontal, 800 mm vertical.
 - 26-32 mm pipe OD: 800 mm horizontal, 1000 mm vertical.
- Additional supports: Locate within 150 mm of connections, junctions and changes of direction.

83 PIPELINE SPACING

- Clearance (minimum) to face of wall-fixed pipes or pipe insulation:
 - From floor: 150 mm.
 - From ceiling: 50 mm.
 - From wall: 15 mm.
 - Between pipes: 25 mm.
 - From electrical conduit, cables, etc: 150 mm.

84 JOINTS IN PIPELINES

- Copper pipelines:
 - Preparation: Cut pipes square. Remove burrs.
 - Joints: Neat, clean and fully sealed. Install pipe ends into joint fittings to full depth.
 - Bends: Do not use formed bends on exposed pipework, except for small offsets. Form changes of direction with radius fittings.
 - Adaptors for connecting dissimilar materials: Purpose designed.
 - Substrate and plastics pipes and fittings: Do not damage, e.g. by heat when forming soldered joints.
 - Flux residue: Clean off.
- Capillary joints in plastics coated pipelines.
 - Plastics coating: Do not damage, e.g. by direct or indirect heat. Wrap completed joint (when cool) with PVC tape of matching colour, half lapped.
- Thermoplastics pipelines:
 - Standard: Fusion jointing in accordance with WIS 4-32-08.
 - Fittings and accessories for joints: Purpose designed.
 - Preparation: Cut pipes square. Remove burrs.
 - Joints: Neat, clean and fully sealed. Install pipe ends into joint fittings to full depth.
 - Compression fittings: Do not overtighten.

88 **INSTALLING VALVES**

- Isolation and regulation valves: Provide on equipment and subcircuits.
- Access: Locate where valves can be readily operated and maintained and next to equipment which is to be isolated.
- Connection to pipework: Fit with joints to suit the pipe material.

COMPLETION

90 **FLUSHING AND FILLING**

- Standard: To BS EN 806-4.

91 **SYSTEM DISINFECTION**

- Disinfection: To BS EN 806-4.

92 **TESTING**

- Standard: To BS EN 806-4.
 - Notice (minimum): 3 days.
- Preparation: Secure and clean pipework and equipment. Fit cistern and tank covers.
- Leak testing: Start boiler and run the system until all parts are at normal operating temperatures and then allow to cool to cold condition for a period of 3 h.
- Pressure testing: At both hot and cold conditions joints, fittings and components must be free from leaks and signs of physical distress when tested for at least 1 h as follows:
 - Systems fed directly from the mains, and systems downstream of a booster pump: Apply a test pressure equal to 1.5 times the maximum pressure to which the installation or relevant part is designed to be subjected in operation.
 - Systems fed from storage: Apply a test pressure equal to the pressure produced when the storage cistern is filled to its normal maximum operating level.
 - Inaccessible or buried pipelines: Carry out hydraulic pressure test to twice the working pressure.

93 **COMMISSIONING**

- Standard: To BS EN 806-4.
- Equipment: Check and adjust operation of equipment, controls and safety devices.
- Outlets: Check operation of outlets for satisfactory rate of flow and temperature.

94 **TESTING SERVICE PIPELINES**

- Test method: Disconnect from the mains, fill with potable water, exclude air, and apply at least twice the working pressure for 1 h.
- Test criterion: No leakage.

95 **DOCUMENTATION**

- Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
- System operating and maintenance instructions: Submit for the system as a whole giving optimum settings for controls.
- Record drawings: Submit drawings showing the location of circuits and operating controls.

96 **OPERATING TOOLS**

- Tools: Supply tools for operation, maintenance and cleaning purposes.
- Valve keys: Supply keys for valves and vents.

97 **LABELS**

- Valve labels: Provide labels on isolating and regulating valves on primary circuits, stating their function.

Z10 Purpose made joinery

10 FABRICATION

- Standard: To BS 1186-2.
- Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
 - Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- Joints: Tight and close fitting.
- Assembled components: Rigid. Free from distortion.
- Screws: Provide pilot holes. Heads of countersunk screws sunk at least 2 mm below surfaces visible in completed work.
- Adhesives: Compatible with wood preservatives applied and end uses of timber.

20 CROSS SECTION DIMENSIONS OF TIMBER

- General: Dimensions on drawings are finished sizes.
- Maximum permitted deviations from finished sizes:
 - Softwood sections: To BS EN 1313-1.
 - Hardwood sections: To BS EN 1313-2.

30 PRESERVATIVE TREATED WOOD

- Cutting and machining: Completed as far as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

40 MOISTURE CONTENT

- Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

50 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
 - Arrises: Eased unless shown otherwise on drawings.
- End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Z11 Purpose made metalwork

- 31 METAL PRODUCTS
 - Grades of metals, section dimensions and properties: To the appropriate British Standards and suitable for the purpose.
 - Fasteners: Generally, same metal as component, with matching coating and finish.
- 50 PREPARATION FOR APPLICATION OF COATINGS
 - General: Fabrication complete, and fixing holes drilled before applying coatings.
 - Paint, grease, flux, rust, burrs and sharp arrises: Removed.
- 51 FABRICATION GENERALLY
 - Contact between dissimilar metals in components: Avoid.
 - Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
 - Moving parts: Free moving without binding.
 - Corner junctions of identical sections: Mitre.
 - Prefinished metals: Do not damage or alter appearance of finish.
- 52 COLD FORMED WORK
 - Profiles: Accurate, with straight arrises.
- 53 WELDING AND BRAZING GENERALLY
 - Surfaces to be joined: Clean thoroughly.
 - Tack welds: Use only for temporary attachment.
 - Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
 - Surfaces of materials that will be self-finished and visible in completed work: Protect from weld spatter.
 - Flux residue, slag and weld spatter: Remove.
- 54 WELDING OF STEEL
 - Method: Metal arc welding to BS EN 1011-1 and -2.
- 56 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK
 - Butt joints: Smooth, and flush with adjacent surfaces.
 - Fillet joints: Neat.
 - Grinding: Grind smooth where indicated on drawings.

Z20 Fixings and adhesives

10 FIXINGS AND FASTENERS GENERALLY

- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers or sleeves to avoid bimetallic corrosion.
- General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
- Fixings: To be in straight lines, at regular centres.

25 FASTENER DURABILITY

- Materials: To have:
 - Bimetallic corrosion resistance appropriate to items being fixed.
 - Atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

30 FIXINGS THROUGH FINISHES

- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

35 PACKINGS

- Materials: Noncompressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

40 CRAMP FIXINGS

- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

50 PELLETTED COUNTERSUNK SCREW FIXINGS

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Pellets: Cut from matching timber, grain matched, glued in to full depth of hole.
- Finished level of pellets: Flush with surface.

55 PLUGGED COUNTERSUNK SCREW FIXING

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Plugs: Glue in to full depth of hole.
- Finished level of plugs: Projecting above surface.

60 APPLYING ADHESIVES

- Surfaces: Clean. Regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z22 Sealants

- 31 JOINTS generally
- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

- 61 SUITABILITY OF JOINTS
- Presealing checks:
 - Joint dimensions: Within limits specified for the sealant.
 - Substrate quality: Surfaces regular, undamaged and stable.
 - Joints not fit to receive sealant: Submit proposals for rectification.
- 62 PREPARING JOINTS
- Surfaces to which sealant must adhere:
 - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
 - Clean using materials and methods recommended by sealant manufacturer.
 - Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
 - Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
 - Protection: Keep joints clean and protect from damage until sealant is applied.
- 63 APPLYING SEALANTS
- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
 - Environmental conditions: Do not dry or raise temperature of joints by heating.
 - Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
 - Sealant profiles:
 - Butt and lap joints: Slightly concave.
 - Fillet joints: Flat or slightly convex.
 - Protection: Protect finished joints from contamination or damage until sealant has cured.