

SECTION 2 –
NBS/WORKMANSHIP SPECIFICATION
REV A

**SHAUN CHURCH
& ASSOCIATES**

Chartered Surveyors • Project Managers

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Website: www.scassociatesltd.co.uk

Project: **Refurbishment & Modernisation – The Byways, 11 Court Close, Kirby Muxloe, Leicester, LE9 2DD**

Client: **Kirby Muxloe Parish Council**

Job Number: **190106**

Above Ground Foul Drainage Systems

95 INSTALLATION GENERALLY

- Standards: To BS EN 12056-1, BS EN 12056-2 (including National Annexes NA-NG) and BS EN 12056-5.
- Drainage from appliances: Quick, quiet and complete, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
- Components: From same manufacturer for each type of pipework.
- Access: Provide access fittings in convenient locations to permit cleaning and testing of pipework.
- Thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Fixings: Allow the pipe to slide.
 - Finish: Plated, sherardized, galvanized or other nonferrous.
 - Compatibility: Suitable for the purpose, material being fixed and substrate.

96 PIPEWORK

- Fixing: Securely plumb and/ or true to line. Fix lengths of discharge stack pipes at or just below socket collar or coupling.
 - Additional supports: Provide as necessary at junctions and changes in direction.
- Cut ends of pipes: Clean and square with burrs and swarf removed.

Below Ground Drainage Systems

97 EXISTING DRAINS

- Setting out: Before starting work, check levels and positions of existing drains, inspection chambers and manholes against drawings. Report discrepancies.

98 GULLIES

- Standards:
 - Clay: To BS EN 295-1 and Kitemark certified, or Agrément certified.
 - Plastics: To BS 4660 and Kitemark certified, or Agrément certified.



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- 99 **INSTALLATION OF FITTINGS**
- Appearance: Square with and tightly jointed to adjacent construction as appropriate.
 - Bedding and surround of fittings, traps, etc: Concrete, 150 mm thick.
 - Permissible deviation in level of gullies: +0 to -10mm.
- 100 **TESTING AND INSPECTION GENERALLY**
- Obstructions and debris: Remove. Check that the installation is clear before testing.
- 101 **CLEANING**
- General: Flush out the whole installation and remove silt and debris immediately before handing over.

S90 Hot & Cold Water Supply Systems - Domestic

System Performance

- 102 **DESIGN**
- 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.
- 103 **PIPELINE SIZES**
- Sizing: Calculate sizes to meet simultaneous demand for the building in accordance with BS 8558. Submit proposals.
 - Performance:
 - Water velocity (maximum): 1.3 m/s for hot water and 2.0 m/s for cold water.
- 104 **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.



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Execution

105 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.

106 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.



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107 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.

108 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.

109 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.



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110 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.

111 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

112 FLUSHING AND FILLING

- Standard: To BS EN 806-4.

113 SYSTEM DISINFECTION

- Disinfection: To BS EN 806-4.



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114 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.

115 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.

116 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.



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Natural Gas Supply Systems - Domestic

System Performance

117 DESIGN

- Design: Complete the design of the gas supply system.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

Execution

118 INSTALLATION GENERALLY

- Domestic gas pipelines: To BS 6891.
- Secondary gas meters: To BS 6400.

119 GAS SAFE REGISTRATION REQUIREMENTS

- Type of service: Domestic.
- Type of gas: Natural gas.

Completion

120 TESTING, COMMISSIONING AND PURGING GAS PIPELINES

- Standard: To BS 6891.

121 DOCUMENTATION

- Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
- Record drawings: Submit drawings showing the location of circuits and operating controls.



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Heating Systems - Domestic

System Performance

- 122 DESIGN
- Design: Complete the design of the heating system.
 - Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
- 123 BASIC DESIGN TEMPERATURES
- Room temperatures: Design the system to provide the following temperatures for the specified air change rates and an external air temperature of -4°C:
 - Living rooms: 21°C, for 1.5 air changes per hour.
 - Dining rooms: 21°C, for 1.5 air changes per hour.
 - Bedsitting rooms: 21°C, for 1.5 air changes per hour.
 - Bedrooms: 18°C, for 1 air changes per hour.
 - Halls and landings: 18°C, for 1.5 air changes per hour.
 - Kitchens: 18°C, for 2 air changes per hour.
 - Bathrooms: 22°C, for 2 air changes per hour.
 - Toilets: 18°C, for 2 air changes per hour.
 - Submittals: Submit heat loss calculations for each room using the HEVACOMP suite of programmes.
- 124 SYSTEM CONTROL
- Temperature and time control: Fully automatic and independent.
 - Controls: Compatible with each other and with central heating boiler.
- 125 COPPER PIPELINES FOR GENERAL USE
- Standard: To BS EN 1057, Kitemark certified.



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Execution

- 126 **INSTALLATION GENERALLY**
- Standard: To BS EN 14336.
 - 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, use corrosion resistant fittings/ fixings and avoid contact between dissimilar metals by use of suitable washers, gaskets, etc.
- 127 **PIPELINE 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.



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128 PIPELINE 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.

129 JOINTS IN 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.



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Completion

130 TESTING

- Standard: To BS EN 14336.
- Notice (minimum): 3 days.
- Preparation: Secure and clean pipework and equipment. Fit cistern/ tank covers.
- Leak testing: Start boiler and run the system until 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.

131 SETTING TO WORK AND COMMISSIONING

- Equipment: Check and adjust operation of equipment, controls and safety devices.
- Outlets: Check operation of outlets for satisfactory rate of flow and temperature.

132 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.



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General Ventilation – Domestic

Execution

133 FLEXIBLE DUCTWORK

- Installation: Fully extend without overstretching.
- Support: Form smooth flowing curves without kinking, sagging or slumping.

134 RIGID DUCTWORK GENERALLY

- Joints: Seal. Provide a robust airtight installation.
- Support: Do not distort ductwork or reduce cross-sectional area. Do not strain joints.
- Falls: Fall away from fans, dampers and other in-line accessories.
- Sleeves: Locate where ducts pass through building fabric. Bed solidly to the surrounding construction. Leave a gap of 10-20 mm between sleeve and duct and fill completely.

Completion

135 COMMISSIONING

- Ventilation system: Balance airflow using methods recommended by the system manufacturer.
- Operation: Examine ductwork for leakage. Test the operation of fans, equipment, controls and sensors. Verify correct operation. Submit report.

136 OPERATION AND MAINTENANCE

- Operating and maintenance instructions: Submit copies of manufacturers' operating and maintenance instructions for equipment and controls.
- Tools: Supply tools for operation, maintenance and cleaning purposes, including keys for valves and vents.



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Electrical Systems – Domestic

General

137 GENERAL DESIGN

- Standards: To BS 7671 and the requirements of the electricity distributor.
- Design: Complete the design and detailing of the electrical installation.
- Design information: Submit calculations, manufacturer's literature and drawings showing equipment positions and routes.

138 DESIGN AND LIGHTING CALCULATIONS

- Design: Complete the design of the electrical installation.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
- Lighting calculations:
 - Type: Computer generated point calculations.
- Submit the following:
 - Luminaire layout drawings.
 - Luminaire photometric data including flux fraction ratios and polar intensity curves.
 - Lamp technical information.
 - Maintenance factor calculations, including proposals for luminaire maintenance and lamp replacement.
 - Isolux contour plots for the working plane.
 - Schedule of design and calculated maintained average illuminance values.
 - Schedule of design and calculated uniformity values.



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Products

- 139 PRODUCTS GENERALLY
- Standard: To BS 7671.
 - CE Marking: Required.
- 140 CABLES
- Standard: To BS 7671.
 - Approval: British Approvals Service for Cables (BASEC) certified.
 - Cable sizes not stated: Submit proposals and calculations.
- 141 PROTECTIVE CONDUCTORS
- Type: Cable conductors with yellow/ green sheath.
- 142 ELECTRICAL ACCESSORIES
- Standard: To BS 5733.
 - Switches: To BS EN 60669-1.
- 143 LUMINAIRES
- Standards: To BS EN 60598-1 and BS EN 55015.
- 144 EXTERNAL LUMINAIRES
- Standards: To BS EN 60598-1 and BS EN 55015.

Execution

- 145 GENERAL EXECUTION
- Standard: To BS 7671.



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146 INSTALLING CONDUIT AND FITTINGS

- Fixing: Fix securely. Fix boxes independently of conduit.
- Drainage outlets: Locate at lowest points in conduit installed externally, and where condensation may occur.
- Location: Position vertically and horizontally in line with equipment served, and parallel with building lines. Locate where accessible.
- Jointing:
 - Number of joints: Minimize.
 - Lengths of conduit: Maximize.
 - Cut ends: Remove burrs, and plug during building works.
 - Movement joints in structure: Manufactured expansion coupling.
 - Threaded steel conduits: Tightly screw to ensure electrical continuity, with no thread showing.
 - Conduit connections to boxes and items of equipment, other than those with threaded entries: Earthing coupling/ male brass bush and protective conductor.
- Changes of direction: Site machine-formed bends, junction boxes and proprietary components. Do not use elbows or tees. Alternatively, use conduit boxes.
 - Connections to boxes, trunking, equipment and accessories: Screwed couplings, adaptors, connectors and glands, with rubber bushes at open ends.

147 CABLE ROUTES

- Cables generally: Conceal wherever possible.
 - Concealed cable runs to wall switches and outlets: Align vertically with the accessory.
- Exposed cable runs: Submit proposals.
 - Orientation: Straight, vertical and/ or horizontal and parallel to walls.
- Distance from other services running parallel: 150 mm minimum.
 - Heating pipes: Position cables below.

148 INSTALLING ELECTRICAL ACCESSORIES AND EQUIPMENT

-
- Arrangement: Coordinate with other wall or ceiling mounted equipment.
- Positioning: Accurately and square to vertical and horizontal axes.
- Alignment: Align adjacent accessories on the same vertical or horizontal axis.



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149 **CLEANING**

- Electrical equipment: Clean immediately before handover.
- Equipment not supplied but installed under the electrical works: Clean immediately before handover.

Completion

150 **INSPECTION AND TESTING GENERALLY**

- Standard: To BS 7671.
- Notice before commencing tests (minimum): 24 hours.
- Labels and signs: Fix securely before system is tested.

Communications & Security Systems – Domestic

General

151 **DESIGN OF FIRE DETECTION AND ALARM SYSTEMS**

- Standard: In accordance with BS 5839-6.

Products

152 **SMOKE ALARMS**

- Standard: To BS EN 14604.
- Approvals: Kitemark certified.

153 **CARBON MONOXIDE ALARMS**

- Standards: To BS EN 50291-1 and in accordance with BS EN 50292.



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Execution

154 INSTALLING SMOKE ALARMS

- Installation: In accordance with BS 5839-6.
 - Interlink individual smoke detectors.
- Environment at installation: Clean and dust free.
- Power supply: Dedicated circuit from main switchboard or consumer unit.

Completion

155 FIRE ALARM DETECTION AND ALARM SYSTEM TESTING AND COMMISSIONING

- Testing and commissioning: In accordance with BS 5839-6.
- Smoke alarms: Verify the operation using smoke canisters.
- Standby operation: Verify.
- Certification:
 - Grade B, C, D, E and F systems: To BS 5839-6, Annex F.

156 CARBON MONOXIDE ALARM TESTING AND COMMISSIONING

- Standby operation: Verify.
- Customer guidance: Submit guidance and advice to the user.

157 DOCUMENTATION

- Timing: Submit at completion.
- Contents:- Full technical description of each system installed.
 - Manufacturers' operating and maintenance instructions for fittings and apparatus.
 - Manufacturers' guarantees and warranties.
 - As-installed drawings showing circuits and their ratings and locations of fittings and apparatus.
 - List of normal consumable items.



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SECTION 2 –
NBS/WORKMANSHIP SPECIFICATION
REV A

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Project: **Refurbishment & Modernisation – The Byways, 11 Court Close, Kirby Muxloe, Leicester, LE9 2DD**

Client: **Kirby Muxloe Parish Council**

Job Number: **190106**

Purpose Made Joinery

158 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.

159 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.

160 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.

161 MOISTURE CONTENT

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

162 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
 - Arises: 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.



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Purpose Made Metalwork

163 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.

Fixings & Adhesives

164 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.

165 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.

166 FIXINGS THROUGH FINISHES

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

167 PACKINGS

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

168 CRAMP FIXINGS

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



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169 PELLETED 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.

170 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.

171 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.

Mortars

172 MORTAR MIXES

- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

173 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS

- Standard: To BS EN 13139.
- Grading: 0/2 (FP or MP).
 - Fines content where the proportion of sand is specified as a range (e.g. 1:1: 5-6):
Lower proportion of sand: Use category 3 fines.
Higher proportion of sand: Use category 2 fines.
- Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.



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174 CEMENTS FOR MORTARS

- Cement: To BS EN 197-1 and CE marked.
 - Types: Portland cement, CEM I.
Portland limestone cement, CEM II/A-LL.
Portland slag cement, CEM II/B-S.
Portland fly ash cement, CEM II/B-V.
 - Strength class: 32.5, 42.5 or 52.5.
- White cement: To BS EN 197-1 and CE marked.
 - Type: Portland cement, CEM I.
 - Strength class: 52.5.
- Sulphate resisting Portland cement:
 - Types: To BS EN 197-1 Sulphate resisting Portland cement, CEM I/SR and CE marked. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - Strength class: 32.5, 42.5 or 52.5.
- Masonry cement: To BS EN 413-1 and CE marked.
 - Class: MC 12.5.

175 MAKING MORTARS GENERALLY

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: Based on dry sand. Allow for bulking of damp sand.
- Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
- Contamination: Prevent intermixing with other materials.

Sealants

Execution

176 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.



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177 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.



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