

M40 STONE/ CONCRETE/ QUARRY/ CERAMIC TILING/ MOSAIC

To be read with Preliminaries/General conditions.

TYPES OF TILING/ MOSAIC

112 TILING TO KITCHEN

- Tiles: Ceramic.
 - Manufacturer/Supplier: H & R Johnson.
 - Product reference and colour:
 - PRG01 White.
 - PRG23 Rice.
 - PRG24 Storm Grey.
 - PRG36 Peach Sorbet.
 - PRG45 Mint Water.
 - PRG50 Sun Haze.
 - PRG119 Flame.
 - Finish: Plain.
 - Size: 150 x 150mm.
 - Thickness: 6.5mm.
- Background/Base: Existing and new plaster.
- Intermediate substrate: Not required.
- Bedding: Thin bed adhesive as clause 650 or 651.
 - Adhesive: BAL Grip.
- Joint width: 2mm.
- Grout: BAL Waterproof grout, colour white.
- Accessories: Tile trim to all exposed edges to match coloured tiling.

PREPARATION

310 EXISTING BACKGROUNDS/ BASES GENERALLY

- Efflorescence, laitance, dirt and other loose material: Remove.
- Deposits of oil, grease and other materials incompatible with the bedding: Remove.
- Tile, paint and other nonporous surfaces: Clean.
- Wet backgrounds: Dry before tiling.

330 EXISTING PLASTER

- Defective areas: Remove plaster that is loose, soft, friable, badly cracked or affected by efflorescence. Cut back to straight horizontal and vertical edges.
- Making good: Use plaster or non shrinking filler.

380 NEW PLASTER

- Plaster: Dry, solidly bedded, free from dust and friable matter.
- Plaster primer: Apply if recommended by adhesive manufacturer.

390 PLASTERBOARD BACKGROUNDS

- Boards: Dry, securely fixed and rigid with no protruding fixings and face to receive decorative finish exposed.

FIXING

510 FIXING GENERALLY

- Colour/ shade: Unintended variations within tiles for use in each area/ room are not permitted.
 - Variegated tiles: Mix thoroughly.
- Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
- Cut tiles: Neat and accurate.
- Fixing: Provide adhesion over entire background/ base and tile backs.
- Final appearance: Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

530 SETTING OUT

- Joints: True to line, continuous and without steps.
 - Joints on walls: Horizontal, vertical and aligned round corners.
- Cut tiles: Minimize number, maximize size and locate unobtrusively.

550 FLATNESS/ REGULARITY OF TILING

- Sudden irregularities: Not permitted.
- Deviation of surface: Measure from underside of a 2 m straightedge placed anywhere on surface. The straightedge should not be obstructed by the tiles and no gap should be greater than 3 mm.

560 LEVEL OF TILING ACROSS JOINTS

- Deviation (maximum) between tile surfaces either side of any type of joint:
 - 1 mm for joints less than 6 mm wide.
 - 2 mm for joints 6 mm or greater in width.

650 THIN BED ADHESIVE - RIBBED (WALLS)

- Application: Apply 3 mm floated coat of adhesive to dry background in areas of approximately 1 m². Trowel to ribbed profile.
- Tiling: Press tiles firmly onto float coat.

651 THIN BED ADHESIVE - SOLID (WALLS)

- Application: Apply floated coat of adhesive to dry background in areas of about 1 m². Comb surface.
- Tiling: Apply thin even coat of adhesive to backs of dry tiles. Press tiles firmly onto float coat.
- Finished adhesive thickness (maximum): 3 mm.

MOVEMENT JOINTS/ GROUTING/ COMPLETION

875 GROUTING

- Sequence: Grout when bed/adhesive has set sufficiently to prevent disturbance of tiles.
- Joints: 6 mm deep (or depth of tile if less). Free from dust and debris.
- Grouting: Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.
 - Profile: Flush.
- Polishing: When grout is hard, polish tiling with a dry cloth.

V90 ELECTRICAL SYSTEMS - DOMESTIC

To be read with Preliminaries/General conditions.

SCOPE OF WORKS

- 100 Inspection of Electrical installation within the defined properties in accordance with Part 6 of the Current edition of BS: 7671 and guidance note 3. Classification code C1's identified to be addressed or made safe at time of testing. C2's to be completed where reasonably practicable.
- 105 Where it is not possible to complete remedial works (C2 failures) on initial visit, a follow-on return visit is to be arranged within 15 days of the original visit to complete any works to provide a satisfactory outcome.
- 110 Any properties that require further works such as a Consumer unit upgrade or Rewire to be notified to the CA via email.
- 112 All works including follow on return visits are to be measured and valued by the contractor for each property from the attached schedule of rates. Works must be completed within 60 days of being instructed in writing.
- 150 General design of electrical installation to current edition of BS 7671 and the requirements of the electricity distributor.
- Design: Complete the design and detailing of the electrical installation.
 - Proposals: Submit technical information and manufacturers' literature.
- 155 Separation/arrangement of particular circuits: Divide installation into separately controlled circuits:
- Ground floor lighting circuit.
 - First floor lighting circuit.
 - Hall, stairs and landing lighting circuit.
 - Power ring final circuits (minimum of two).
 - Cooker circuit (minimum 40Amp rating/10mm² CSA).
 - Shower circuit (where existing needs to be replaced, minimum 40Amp rating/10mm² CSA).
 - Immersion heater circuit.
 - Central heating circuit.
 - Smoke detection/alarm circuit.
 - Further subdivision: As required.

- 175 Small power design/outlets: Provide to serve the building and its equipment (outlet provision indicated below is the minimum standard required).
- Room:
 - Utility room/Store 1 double switched socket
 - Kitchen 3 double switched sockets

 - Kitchen (dishwasher/washing machine/tumble dryer/refrigerator position) Switched fused connection unit (above worktop) and 1 single socket outlet adjacent to appliance
 - Kitchen (cooker position) Cooker control panel (above worktop adjacent to appliance) and cooker cable outlet (below worktop behind appliance)

 - Kitchen/airing cupboard (boiler position) Switched fused connection unit with neon indicator and flex outlet in base located adjacent to appliance

 - Dining room 2 double switched sockets
 - Lounge (two sockets adjacent to TV outlet position) 4 double switched sockets

 - Dining room/Kitchen combined 4 double switched sockets
 - Dining room/Lounge combined 5 double switched sockets
 - Hall (one socket adjacent to telephone equipment position) 1 double switched socket

 - Landing 1 double switched socket
 - Single bedroom 2 double switched sockets
 - Double bedroom 2 double switched sockets
 - Integral garage 2 double switched sockets
 - Fixed equipment: Provide supplies.

COMPETENCY AND PREPARATION

- 200 All Service Providers undertaking electrical works on behalf of the Client must be registered with a UKAS Accredited Competent Person Scheme and any works undertaken must be within the remit of the Service Providers registration. Consideration to satisfy this requirement shall also be given where any works are sub-let to others.
- 201 Only engineers, inclusive of those of sub-contractors employed by the main Service Provider, who are authorised and qualified to the following standard will undertake works on behalf of the Client:
- Suitable level 3 electrical installation technical qualification or alternatively evidence of appropriate technical qualification that demonstrates sufficient competence for the nature of tasks to be undertaken (essential)
 - Level 3 award in the requirements for electrical installations BS 7671 current edition (essential)
 - JIB recognised level 3 qualification in inspection and testing (preferable)
 - Electro Technical Certification Scheme (ECS) approved (preferable)
 - Suitable asbestos awareness training (to be within renewal date throughout the duration of the contract).
- 202 The Service Provider warrants and represents that all staff assigned to the performance of the service inclusive of sub-contractors shall possess and exercise such qualifications, skill and experience as are necessary for the proper performance of the services. Competent Person Scheme registration inclusive of Qualified Supervisor assessments where applicable, and engineer qualifications are to be made available at time of the contract and upon request by the Client.
- 203 Proof of all calibration of equipment, inclusive of torque equipment and safe isolation equipment checks as required by the Manufacturer, shall be provided and updated throughout the contract upon request. Internal processes shall satisfy Competent Person Scheme requirements. Engineers must possess and utilise when undertaking any electrical works, a safe isolation kit incorporating:
- Proving Unit and Voltage Indicators (GS38 compliant as required)
 - Suitable Locking Off Equipment
 - Suitable Durable Signage
- Engineers should also be in possession of suitable equipment to enable them to verify the continuity of conductors inclusive of main protective bonding conductors.
- 204 Engineers should adhere to the guidance as laid out in the Electrical Safety First - 'Guidance on the Management of Electrical Safety and Safe Isolation Procedures for Low Voltage Installations' Best Practice Guide.
Note where replacement of a Distribution Board/Consumer Unit is to be undertaken the system must be de-energised in line with safe working practices. This may incorporate the need to remove the Distributors Main Supply Fuse. Where this is the case the local Distribution Network Operator or Electricity Supplier must be contacted to confirm who is permitted to undertake the task in line with the Electrical Safety, Quality and Continuity Regulations. In most cases there will be a requirement to instruct an authorised third party. If permission is given to a Service Provider to undertake the task, confirmation of the instruction must be obtained in writing and submitted to the Client for verification purposes.

205 Qualified Supervisors operating on the contract must be afforded sufficient time to undertake the quality management aspect of their role. Evidence of such tasks will be issued to the Client upon request. The Service Provider's own supervision and quality control protocols must be maintained and evidenced to the Client upon request to ensure levels of supervision are adequate.

206 The Service Provider should consider the following factors before attending site:

- Establish whether working during unsociable hours will be necessary and agree any assistance through the Client.
- Discuss and agree access issues, equipment, assistance, keys, and feasibility with the Client.

Note where a property layout incorporates multiple individually let rooms it must be verified that all rooms can be accessed at the time of works. 'Operational Limitations' will not be accepted in this instance and therefore it is critical that access is arranged beforehand as to enable issue of documentation and permit invoicing process to proceed.

Note meter-cupboards must also be accessed where distribution circuits (sub-mains) form part of the installation subject to works.

- Review any available installation certificates, diagrams, charts or tables. These are to be provided, where available, by the Client.
- Ensure risk assessments and method statements are completed and ensure all engineers and sub-contractors are aware and working to the approved documents.
- Give consideration to key services that may be affected by the inspection and testing process and liaise with the Client with regards to a contingency plan. The Service Provider should obtain details for any specialist Service Providers that may be required in the event of an issue arising i.e. Warden Call Systems etc.
- Obtain and digest any additional specification information (i.e. kitchen/bathroom installation requirements) as issued by the Client. Any queries should be raised and addressed before any works commence.

207 When attending site, the Skilled Person (Electrically) must:

- Verify that a dedicated electrical meter exists for the property subject to works. This in particular where a communal supply for Landlord arrangements is to be subject to inspection. Following investigation and confirmation that such a dedicated supply does not exist the Service Provider is to advise the Client immediately by phone and/or email as agreed with the Client and complete any relevant documentation as required by the Client i.e. exemption form.
- Familiarise themselves with earthing arrangements and the layout of the installation inclusive of sub-mains.
- Conduct a site-specific risk assessment to identify any health and safety concerns.
- Confirm that the installation is energised. Where this is not the case the relevant Client Representative must be informed immediately by phone and/or email as agreed with the Client.

Note It is anticipated that any Electrician carrying out a condition report is allowed an appropriate amount of time to undertake a thorough inspection and carry out remedial works during a single visit. All works completed to a high standard.

Note meter-cupboards must also be accessed where distribution circuits (sub-mains) form part of the installation subject to works.

Note where an individual room or similar that forms part of an electrical installation is due to be let to a Tenant/Occupier, a Visual Condition Report is to be undertaken by a Skilled Person (Electrically) to confirm safety of the property.

- 208 It must be verified beforehand that the entire electrical installation (covering all areas and rooms) has been subject to a full Electrical Installation Condition Report within the previous 5-year timeframe. Where this is not the case a full Electrical Installation Condition Report on the entire electrical installation (covering all areas and rooms) must be undertaken.
- 209 Alternately where the electrical installation has been subject to a full Electrical Installation Condition Report within the previous 5-year timeframe, however concerns are raised upon the Visual Condition Report, then a full Electrical Installation Condition Report may need to be undertaken on the entire installation to verify safety and should be discussed with the Client before proceeding with works.
- Note** when undertaking a Visual Condition Report as part of the Mutual Exchange process it must be verified beforehand that the electrical installation has been subject to a full Electrical Installation Condition Report within the previous 28-day timeframe. Where this is not the case the Client is to be made aware as soon as possible and a full Electrical Installation Condition Report on the electrical installation may need to be undertaken.

INITIAL VISUAL INSPECTION ON UNDERTAKING AN ELECTRICAL INSTALLATION CONDITION REPORT

- 300 The inspection of an electrical fixed wire installation and all testing shall be undertaken in line with the requirements and guidance given within the current edition of IET Guidance Note 3. This is inclusive of testing with the supply both de-energised and energised. Distribution circuits (sub-mains), where applicable, are considered to form part of the electrical installation that is to be subject to the inspection and testing process. It is to be noted that the fixed wiring of central heating controls, electric vehicle charging, and photovoltaic systems is to form part of the inspection and testing process and should not be excluded as a limitation.
- 302 See clause 512 of this document for specific 'Agreed Limitations' further outlining requirements regarding the inspection element of the Report.
- 303 On undertaking the initial visual Inspection when commencing an Electrical Installation Condition Report if any visual Classification Code 1 (Immediately dangerous) items are identified the inspection is to stop and the required remedial action carried out to mitigate the Classification Code 1 (Immediately dangerous) observation. Following rectification, the remainder of the process can proceed.
- 304 Existing cables installed within trunking or conduit containment are to be visually inspected where practicable to verify adequacy of cable support in the event of fire.
- 305 Accessible loft spaces will be entered to verify condition of any installed electrical equipment and to confirm circuit reference methods where impacted by thermal insulation. Where applicable, investigation maybe required to ascertain if cables are suitable for installation method and findings recorded to confirm if they are indeed adequate for continued use or if remedial actions are required.

TESTING TO BE UNDERTAKEN ON AN ELECTRICAL INSTALLATION

401 When undertaking testing of an existing electrical installation all distribution and final circuits are to be tested with the supply de-energised and energised. Agreed limitations may be applied to the process as detailed within this document. The following tests as applicable are to be undertaken by the Service Provider with results logged accordingly:

1. Continuity of Circuit Protective Conductors
2. Continuity of Main Protective Bonding Conductors
3. Continuity of Ring Final Circuit Conductors
4. Insulation Resistance
5. Polarity
6. Earth Electrode Resistance (If required)
7. External Earth Fault Loop Impedance
8. Prospective Fault Current
9. Earth Fault Loop Impedance
10. Verification of Phase Sequence (If required)
11. Testing of RCD's (Inclusive of Functional Test)
12. Testing of AFDD's (Visual Inspection and Functional Test Where Applicable)
13. Functional Testing of Circuit Breakers, Isolators and Switching Devices
14. Verification of Voltage Drop (If required)

Note the tests need not necessarily be carried out in the order shown.

Note some of the tests may not need to be undertaken where the information can be obtained by enquiry or calculation.

402 Upon installation of new electrical circuitry requirements for initial verification testing as laid out in the current editions of BS 7671 and IET Guidance Note 3 must be satisfied in the required order.

REPORTING AND CERTIFICATION

501 Testing with both the Electrical supply de-energised and energised must be completed before any Reporting and Certification is issued to the Client.

502 All completed Reporting and Certification must be issued to the Client within 7 working days following completion (non-urgent). Any reports and /or works undertaken due to an issue giving rise to a Health and Safety risk (urgent) are to be completed with Reporting and Certification to be issued with immediate effect.

503 All Reporting and Certification will be in PDF format and the naming convention of the file must be as agreed with Client.

- 504 Where the outcome of the Electrical Installation Condition Report is 'Unsatisfactory' it will be issued as such along with relevant certification evidencing that all identified Classification Code 1, 2 and Further Investigation observations have been rectified. Minor repairs undertaken may be noted on the Electrical Installation Condition Report where additional certification is not warranted. This may include:
- Replacement of Accessories
 - Replacement of single items of switchgear (in a like for like manner only)
 - Fault finding (not extending to replacement of cables).
- Note if **only** minor repairs have been undertaken and no additional certification is required, then a 'Satisfactory' outcome may be issued on the Electrical Installation Condition Report.
- It must be clear that all Classification Code 1 ,2 and Further Investigation observations have been rectified.
- Where remedial works have been undertaken and warrant additional certification it is essential that the Client is in receipt of all documentation inclusive of the Electrical Installation Condition Report and where applicable Electrical Installation Certificate or Minor Electrical Installation Works Certificate(s). For absolute clarity; the Client requires all documentation generated during an Electrical Installation Condition Report to be provided in 1 PDF file; For example, if an Electrical Installation Condition Report contains Code 2 faults that require an Electrical Installation Certificate to certify the corrective works, then the Electrical Installation Condition Report and Electrical Installation Certificate must be provided in one PDF document. The ultimate purpose of this requirement is that the Service Provider provides 1 PDF containing the initial failed Electrical Installation Condition Report and evidenced rectification certification.
- Where access is not granted within a time frame as agreed with the Client to undertake required remedial works and where applicable, an 'Unsatisfactory' report will be issued to the Client within 7 days.
- 505 Building Control Notification documentation must also be issued to the Client either directly from the authority or Service Provider as agreed.
- 506 All addresses on the report or certificate shall include the following detail:
- Street name / number
 - Block Number (Where Required)
 - District (If applicable)
 - Town
 - County
 - Postcode
- It is essential that the property subject to works is traceable based on the address details recorded.
- 507 All reports/certificates shall record the Client's Head Office as Client address. Input should be as follows:
The Havebury Housing Partnership, Havebury House, Western Way, Bury St Edmunds, Suffolk, IP33 3SP.

- 508 The occupier of the property will be titled as applicable from the following:
- ‘HHP - Tenant’
 - ‘HHP - Void’
 - ‘HHP - Communal Area’
- 509 The purpose of an Electrical Installation Condition Report shall be worded as follows:
‘To check the electrical fixed wiring within the property for safety of continued use and to highlight any non-compliances with the current BS 7671 regulations’
This may be elaborated further to indicate if this is following a change of tenancy or upon request for another reason i.e. insurance purposes.
- 510 The extent of an Electrical Installation covered by the report shall be worded as follows:
‘This report covers the inspection and testing of the fixed electrical wiring system within the named property with the exception of any agreed or operational limitations as documented’.
- 511 The extent of any installation work covered by an Electrical Installation Certificate or Minor Electrical Installation Works Certificate must identify explicitly what works have been carried out and what the certificate specifically covers.
- 512 Agreed Client limitations **that may be applied** to an Electrical Installation Condition Report shall include the following:
- As a minimum, 20% of electrical accessories shall be opened for inspection.
 - The main heating system for the property shall be tested with circuit protective conductor continuity confirmed at all relevant points. Insulation resistance tests will also be carried out. It is acceptable to measure insulation resistance between the live conductors connected together and the earthing arrangement or to perform the insulation resistance test at 250 V d.c. where connected equipment may cause a misleading reading to be obtained or where components therein are likely to be damaged if the test was performed at 500 V d.c.
 - Where storage heaters provide the source of heating the circuit shall be tested to the point of isolation only with the circuit protective conductor continuity being confirmed at the appliance by the R2 testing method. A visual inspection of the appliance shall also be undertaken to confirm adequacy.
 - The fixed wiring (AC) of photovoltaic systems (PV) is to form part of the inspection and testing process. The fixed wiring is to be tested to the furthest point of isolation (AC) with a visual inspection undertaken beyond the point of isolation to verify the system is safe for continued use.
 - In communal areas, specialist installations inclusive of Lifts and Fire Alarms shall not be considered as part of the electrical fixed wiring of the property and shall be tested up to the point of local isolation only (**Communal Areas Only**).

The following Operational Limitations are likely to occur throughout the duration of a contract and will require consideration. **In the event that any of the items below do apply they are to be recorded as an ‘Operational Limitation’ and not an ‘Agreed Limitation’ and the reasons for application given.**

- Distribution Network Operator’s fuse information shall be obtained in every case where practically possible. If the Distribution Network Operator cannot provide the required information the fuse characteristics shall be written as ‘LIM’ within the Electrical Installation Condition Report.
- For circuits supplying large or integrated appliances the final point of testing shall be considered as the control switch or spur and not the socket outlet behind the appliance. This shall be to minimise damage to floor areas by moving of appliances and prevent damage to appliances during testing. In this instance an R2 test shall be undertaken to verify that an appliance is adequately earthed, and a visual check of the relevant outlet made if possible, i.e. a cooker outlet that can be visibly seen in some cases even with the cooking appliance in place. **(Tenanted Properties Only).**
- As described in IET Guidance Note 3 if required Line to Neutral Insulation Resistance testing shall be omitted as part of the testing carried out in order to minimise risk of damage to sensitive equipment **(Tenanted Properties Only)**
- Some accessories may be inaccessible, and each individual case should be listed as an Operational Limitation and the reason as to why this is the case **(Tenanted Properties Only).**
- Off-Peak systems not energised at time of inspection.

Agreed Limitations as above maybe documented on an additional page of the report with the following input applied on Page 1; ‘See Page X for applied Agreed Limitations’.

Note it must be made clear which of the limitations have indeed been applied as not all will be applicable on every Installation.

Note lack of access to any parts of the installation due to clutter are to be brought to the Clients attention immediately and guidance sought on how to proceed. Details of the Client instruction should be recorded on the Electrical Installation Condition Report.

Note the fixed wiring of Electric Vehicle Charging Systems is to form part of the inspection and testing process and should not be excluded as a limitation.

- 513 Service Providers wishing to agree any other standard Client limitations should send these to the Client for authorisation prior to commencement on site. The Client may defer to their technical advisor to respond.
- 514 The name of the Client representative who has approved ‘Agreed Limitations’ is Paul Garland who can be named on the Electrical Installation Condition Report. Any change of the Client representative will be notified to the Contractor.

- 515 On an Electrical Installation Condition Report, the summary of the condition of the installation shall provide a clear summary of the installation having considered for example:
- Adequacy of earthing and bonding
 - Suitability of switchgear
 - Type and condition of wiring systems
 - Serviceability of equipment including accessories
 - The extent of any wear and tear or any other deterioration
 - Changes in the use of the building
- Minimal descriptions such as 'poor' and 'satisfactory' condition are considered unacceptable.
- 516 Where the next inspection date is inputted this is to state time frame in months/years along with the statement 'or change of tenancy' (domestic only). Reasoning for the given timeframe is to be clearly stated.
- 517 On an Electrical Installation Certificate or Minor Electrical Installation Works Certificate, the 'Comments on the Existing Installation' should make reference to any deficiencies observed in the existing installation which do not affect the safety of the new work. Example's maybe deterioration and minor defects. Reference may be made to the relevant Condition Report undertaken on the property.
- 518 Where possible Electrical Installation Certificates shall record on them the serial numbers of the associated Electrical Installation Condition Report and Building Control reference number where applicable. This may be recorded in the 'Schedule of Additional Records' section of the certificate.
- 519 Where possible Minor Electrical Installation Works Certificates shall record on them the serial numbers of the associated Electrical Installation Condition Report and Building Control reference number where applicable. This may be recorded in the 'Comments on Existing Installation' section of the certificate.
- 520 Where fire detection is installed all appropriate certification shall be issued to satisfy both BS 7671 and BS 5839 Part 6 (current editions) requirements. Fire detection certification should state the correct grade and type of system installed. The description should be clear, and all applicable fields ticked as required. Note in many cases some tests will not be undertaken in accordance with manufacturer instruction and this should be clearly stated in the 'variations' section of the certificate.
- 521 Primary supply overcurrent protective device information should be recorded as 'Limitation' on all report and certification where actual information cannot be obtained. Rating based on labelling should not be assumed.
- 522 Where primary supply overcurrent protective device is unknown comment on the condition of any supply conductors with CSA of 16mm or less where deemed adequate for continued use is required.
- 523 Where the main earthing conductor for the installation is not sized in accordance with table 54.7 of the current edition of BS 7671 and has been verified as adequate by means of calculation this is to be stated on the report/certification as applicable.

- 524 Comment is to be made on the condition of any main protective bonding conductors not sized in line with the current edition of BS 7671 yet deemed adequate for continued use.
- 525 Maximum demand must be recorded where additions or alterations are made to an existing Installation.
- 526 Where distribution circuits (sub-mains) apply, the details for this circuit will be applied on the top line of the schedule of test results (unless the certificate or report type allows for an alternate method to record sub-main details). In this circumstance the values of External Earth Fault Loop Impedance (Z_e)/ R_a , Prospective Fault Current and main switch information recorded in 'Supply Characteristics' and 'Particulars of Installation at the Origin' are to be obtained at the earliest point on the installation. This in many cases will indeed be at the switch-fused isolator for the installation nearest the origin and not at the flat distribution board. The (R_1+R_2) and Total Earth Fault Loop Impedance (Z_s) values of the distribution circuit (sub-main) cable will be recorded on the top line of the schedule of test results. Note that the Prospective Fault Current value recorded on the schedule of test results is to be obtained at the flat distribution board and therefore should not have the Prospective Fault Current value obtained at the origin inputted. It should be noted that where Total Earth Fault Loop Impedance (Z_s) values of final circuits are to be obtained by calculation, that the resistance of the sub-main cable is also to be considered and applied. It should also be noted that in some cases it may not be possible to measure true External Earth Fault Loop Impedance (Z_e) due to the potential risk that maybe introduced on other installations in close proximity. The Service Provider should also consider the conductor sizes and whether the distribution circuit (sub-main) protective conductor is also acting as a main protective bonding conductor within the installation.
- 527 Where applicable U, line to line voltage, shall be recorded as 400 Volts with U_o , line to earth voltage, recorded as 230 Volts.
- 528 Preferably 100 percent maximum Total Earth Fault Loop Impedance (Z_s) values as per the current edition of BS 7671 shall be inputted.
- 529 Disconnection times in line with current edition of BS 7671 are to be applied.
- 530 Circuit designation is to accurately reflect installation layout. Where multiple lighting and socket circuits apply, these are to be specifically referenced i.e. upstairs lighting circuit, downstairs lighting circuit etc.
- 531 Types of wiring and reference methods are to be accurately stated.
- 532 Line-Neutral Insulation Resistance Testing should be undertaken in-line with IET Guidance Note 3 and should only be omitted where circuits or equipment are vulnerable to test voltage. Details of such equipment is to be recorded in the relevant fields on the report/certificate. It would not be expected that this test would be omitted for newly installed works documented on an Electrical Installation Certificate or Minor Electrical Installation Works Certificate. If vulnerable equipment is encountered and the test is omitted this must be recorded giving reasoning as to why on the certification. Insulation Resistance test voltages are to be stated on the report/certificate in the applicable field.

- 533 Where applicable all RCD modules are to be clearly identified on the Schedule of Test Results.
- 534 Where applicable all spare ways are to be clearly identified on the Schedule of Test Results.
- 535 Preferably the power rating of any electrical shower is to be recorded in brackets next to the circuit title on the Schedule of Test Results.
- 536 Ring final circuit end to end values are to be verified as consistent based on conductor CSA. Where parallel paths impact testing outcomes this is to be identified and stated.
- 537 RCD operating times are to be applied to all circuit specific boxes.
- 538 Designation of Distribution Board/Consumer Unit should accurately reflect how it is identified on site where applicable.
- 539 Full serial numbers or traceable asset references of testing equipment are to be recorded.

REMEDIAL WORKS FOLLOWING AN ELECTRICAL INSTALLATION CONDITION REPORT

- 600 The following codes and recommendations as outlined in the Electrical Safety-First Best Practice Guide No.4 shall be referred to for guidance:
- All works identified as Code 'C1' - 'Danger Present, Risk of Injury. Immediate Remedial Action Required' shall be rectified and carried out on the same day whilst the Skilled Person (Electrically) is in attendance.
 - All works identified as Code 'C2'- 'Potentially Dangerous. Urgent Remedial Action Required' shall be rectified and carried out on the same day whilst the Skilled Person (Electrically) is in attendance where possible.
 - All works identified as Code 'C3'- 'Improvement Recommended' are to be logged on the report.
 - All works identified as Code 'FI'- 'Further Investigation Required' shall be addressed the same day whilst the Skilled Person (Electrically) is in attendance where possible.
- Where a follow-on visit is required due to the nature of the remedial works i.e. replacement of Distribution Board/Consumer Unit, full re-wire etc, the Contract Administrator is to be informed at the earliest opportunity to advise on required actions. Where the replacement of a Distribution Board/Consumer Unit requires involvement of an authorised third party to provide a means of isolation (Service Provider to arrange), the works are to be fully completed within 3 months from the date the original Electrical Installation Condition Report was undertaken. Full re-wires are to be completed within 6 months from the date the original Electrical Installation Condition Report was undertaken.
- 601 Where any observations that are identified concerning specialist equipment such as fire alarms and door entry systems, the client is to be informed immediately who will arrange for the relevant Service Provider to attend and address.

- 602 When installing electrical equipment this should be done in line with best practice and manufacturer's instructions should be taken into account. Advised torque settings by the manufacturer are to be adhered to.
- 603 Where encountered upon an electrical installation condition report and where readily accessible (i.e. not located at height or in a locked, secure location), Distribution Board/Consumer Unit spare way blanking units that are not securely fitted and durable are to be replaced with such a type that can only be removed with use of a tool and would require the Distribution Board/Consumer Unit to be internally accessed.
- 604 Where a Distribution Board/Consumer Unit is to be replaced Surge Protection Devices are to be installed in all scenarios - inclusive of dwellings.
- 605 Where a Distribution Board/Consumer Unit is to be replaced RCCB and main switch components are to be rated at 100 amps.
- 606 Where a Distribution Board/Consumer Unit is to be replaced RCD devices are to be Type A.
- 607 Where shower circuits wired in 6mm cable are identified and based on their method of installation are underrated for the connected load i.e. due to covering of thermal insulation, the circuit is to be re-wired with cables sized in accordance with BS 7671 or alternate measures undertaken to address the issue.
- 608 Any damaged accessories are to be repaired/replaced inclusive of pendant light fittings where single insulation is on show which is accessible to touch and could lead to strained cable terminations.
- 609 Upon Inspection it is to be verified that the adequate labelling is in situ in the correct locations where applicable as laid out in the current version of BS 7671. Where upon inspection it is found that required labelling is absent the Service Provider is to record as an observation or install as required. As a minimum, a Next Inspection Recommendation Label is to be applied with any absent labelling recorded and coded accordingly on the report.
Note any absent labelling that would warrant a Classification Code 2 observation must be rectified by the Service Provider.
- 610 New cables installed within trunking or conduit containment are to be adequately supported throughout their length to prevent premature collapse in the event of fire.
- 611 Any 'DIY' installation work identified that doesn't comply with the current version of BS 7671 is to be disconnected and made safe.
Note Contractors are not to remove any of the installed equipment - only isolate and the Client should be informed immediately from site of any actions required. Consideration should be given where disconnection of such installations would cause disruption for the Tenant and guidance should be sought from the Client on how to proceed i.e. supplies to chest freezers etc.

ON-GOING MONITORING

- 700 Service Providers are to act upon written instructions from the Client and are to pass such information to the specified sub-contractor (if applicable) as necessary and act as the sub-contractor's agent in this respect. Service Providers acting in this capacity also accept responsibility for all quality, inspection, management information and subsequent delivery and invoicing that would apply to the supply.
- 701 The Client intends to instruct a Consultant/Quality Control Inspector to conduct various Inspections of the electrical works undertaken as part of this specification. The Consultant/Quality Control Inspector shall carryout desktop checks and will conduct physical inspections of works undertaken.
- 702 The Service Provider is required to undertake Quality Control Inspections undertaken in-house on works that form part of the applicable works programme by directly employed engineers and sub-contractors. These inspections are to be evidenced upon request.
- 703 Any remedial works required as a result of any deficiencies discovered by the Inspector will be the Service Provider's responsibility to remedy and will be carried out at the Service Provider's own cost e.g. non-compliant certification being issued, poor workmanship on site etc. (only where confirmed Service Provider liability following investigation).
- 704 Inspection findings will be issued and discussed with both Client and Service Provider as required.

FINISHING WORKS

- 800 All redundant items and cabling relating to the existing system to be removed where practicable and any holes/damage to the building made good to the satisfaction of the Client. Contract schedule of rates shall be referred to in order to ascertain whether the making good forms part of the rate being applied for or whether the cost is to be claimed for in addition to the specific rate.
- 801 All finishing works shall be of a quality level acceptable to the Client, any works identified as not meeting this standard will be put right at the Service Provider's expense and offered back to the Client for final inspection.

PRODUCTS

900 PRODUCTS GENERALLY

- Standard: To BS 7671.
- CE Marking: Required.

902 MAINS SUPPLY ISOLATOR

- Manufacturer: Wylex.
- Product reference: REC2S.
- Main control: Double pole switch.
- Rating: 100A.
- Location: To be confirmed with CA.

903 DISTRIBUTION BOARDS AND CONSUMER UNITS

- Standard: To BS EN 61439-3, ASTA certified.
- Manufacturer: Wylex.
- Product reference: NH All Metal range.
- Main control: Switch disconnecter.
- Rating: To suit maximum demand.
- Number of ways: 12 Way (NM1206FLEXS) 17 Way (NM1706FLEXS)
- Spare capacity: 2 No spare ways.
NXSB40AFD (40A AFDD/RCBO Single Mod)
NXSB32AFD (32A AFDD/RCBO Single Mod)
NHXS1B32 (32A RCBO)
NHXS1B16 (16A RCBO)
NHXS1B06 (6A RCBO)
NHB1PP (dummy MCB blank)
- Circuit protection: Miniature circuit-breakers.
- Standard: To BS EN 60898.
- Additional circuit protection: 80A/30mA RCD's to protect all circuits.
- Standard: To BS EN 61008 or BS EN 61009.
- AFDD's as above
- Standard; To BS EN 62606
- Enclosure: All metal, surface mounted on pattress.
- Ingress protection to BS EN 60529: Manufactures standard.
- Location: As existing unless otherwise specified.
- Domestic Switch-fuse for use at origin of supply where a sub main is required
- Manufacturer: Wylex.
- Product reference: DSF60M.

904 CONDUIT

- Standard: To BS EN 50086-1 or BS EN 61386-1.
- Type: Suitable for location and use.

905 PVC TRUNKING SYSTEMS

- Standard: To BS 4678-4.
- Manufacturer: MK Electric Limited.
- Product reference: EGA Min Trunking.
- Sizes: To suit installation.
- Accessories and fittings: Factory made of the same material type, finish and thickness as cable trunking.
- Strength class: Light duty.
- Colour: White.

- 906 CABLES
- Standard: To BS 7671.
 - Approval: British Approvals Service for Cables (BASEC) certified.
 - Mineral insulated copper sheathed cables: To BS EN 60702-1.
 - Mineral insulated copper sheathed cable terminations: To BS EN 60702-2.
 - Cable sizes not stated: Submit proposals and calculations.
- 907 PROTECTIVE CONDUCTORS
- Type: Cable conductors with yellow/ green sheath.
- 908 ELECTRICAL ACCESSORIES
- Standard: To BS 5733.
 - Switches: To BS EN 60669-1.
 - Manufacturer: MK Electric Limited.
 - Product reference: White Logic Plus.
 - Finish: White plastic.
 - Mounting: Recessed.
- 909 LUMINAIRES BATTEN LAMPHOLDER
- Manufacturer: Ashley.
 - Product reference: Access BC straight batten lampholder ref SEL96T.
 - Mounting: Ceiling.
 - Lamp: Existing lamp from removed fitting to be reused.
- 910 LUMINAIRES PENDANT
- Manufacturer: Ashley.
 - Product reference: Safety pendant set with 150mm short skirt ref 624SEL2126.
 - Mounting: Ceiling.
 - Lamp: Existing lamp from removed fitting to be reused.
- 911 LUMINAIRES LINEAR FLUORESCENT
- Manufacturer: Thorn.
 - Product reference: 1500 Popular Range with diffuser.
 - Mounting: Ceiling.
 - Lamp: Tubular fluorescent.
 - Wattage: 58 W high efficiency white T8.
- 912 LUMINAIRES BULKHEAD - BATHROOM 15W LED FITTING
- Manufacturer: NVC.
 - Product reference: NP015LED/WH/O/850.
 - Or
 - Manufacturer: Ascot.
 - Product reference: ABHLEDRND.
 - Mounting: Ceiling.
- 913 EXTERNAL LUMINAIRES BULKHEAD
- Manufacturer: Timeguard.
 - Product reference: SLW89.
 - Mounting: Wall.
 - Lamp: Megaman Liliput low energy compact fluorescent ref SLU214i with E27 base.
 - Wattage: 14 W.

914 LAMPS GENERALLY

- Standards:
 - Compact fluorescent lamps: To BS EN 60901 and BS EN 61199.
 - High pressure mercury lamps: To BS EN 60188 and BS EN 62035.
 - High pressure sodium lamps: To BS EN 62035.
 - Metal halide lamps: To BS EN 62035.
 - Tubular fluorescent lamps:
 - Single-capped lamps: To BS EN 60901 and BS EN 61199.
 - Double-capped lamps: To BS EN 60081 and BS EN 61195.
 - Tungsten halogen lamps: To BS EN 60432-2 and BS EN 60357.
- Manufacturer:
 - Lamps of the same type and rating: Same manufacturer.

915 EARTHING AND BONDING

- Earth electrodes: In accordance with BS 7430.
- Earth clamps: To BS 951.

916 EARTH BARS

- Separate earth bar: Required.
- Size: Determine.
- Material: Copper.

917 SMOKE ALARMS

- Standard: To BS 5446-1.
- Approvals: Kitemark certified.
- Manufacturer: AICO Limited.
 - Product reference: Ei3016.
- Power supply: AC mains with lithium cell back-up.

918 HEAT ALARMS TO KITCHENS

- Standard: To BS 5446-1.
- Approvals: Kitemark certified.
- Manufacturer: AICO Limited.
 - Product reference: Ei3014 thermistor type sensor (range 54 - 64 degrees centigrade).
- Power supply: AC mains with lithium cell back-up.

919 CO DETECTOR

- Standard: To BS EN 50291-1:2010.
- Approvals: Kitemark certified.
- Manufacturer: AICO Limited.
 - Product reference: Ei3018
- Power supply: AC mains with lithium cell back-up.

EXECUTION

1000 ELECTRICAL INSTALLATION GENERALLY

- Standard: To Current edition of BS 7671.
- Installation: All electrical work is to be carried out by a firm who is a member of the National Inspection Council for Electrical Installation Contractors (NICEIC), Electrical Contractors Association (ECA) or similar approved organisation.

1005 INSTALLING CONNECTION TO INCOMING SUPPLY

- Main switchboard/ distribution board: Connect to main incoming metering equipment.

1010 INSTALLING TRUNKING/ DUCTING SYSTEMS

- Positioning: Accurate with respect to equipment served, and parallel with other services and where relevant, floor level and other building lines.
- Access: Provide space encompassing cable trunking to permit access for installing and maintaining cables.
- Jointing:
 - Number of joints: Minimize.
 - Lengths of trunking/ ducting: Maximize.
 - Steel systems: Mechanical couplings. Do not weld. Fit a copper link at each joint to ensure electrical continuity.
- Movement: Fix securely. Restrain floor mounted systems during screeding.
- Junctions and changes of direction: Proprietary jointing units.
- Cable entries: Fit grommets, bushes or liners.
- Internal fire barriers: Provide to maintain integrity of fire compartment.
- Protection: Fit temporary blanking plates. Prevent ingress of screed and other extraneous materials.
- Service outlet units: Fit when cables are installed.

1015 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.

1020 INSTALLING CABLES

- General: Install cables neatly and securely. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
- Timing: Do not start internal cabling until building enclosure provides permanently dry conditions.
- Jointing: At equipment and terminal fittings only.
- Cables passing through walls: Sleeve with conduit bushed at both ends.
- Cables surrounded or covered by insulation: Derate.

1025 INSTALLING CABLES IN PLASTER

- Protection: Cover with plastic channel nailed to substrate.

- 1030 INSTALLING CABLES IN VERTICAL TRUNKING/ DUCTS
- Support: Pin racks or cleats at each floor level or at 5 m vertical centres, whichever is less.
 - Heat barrier centres (maximum): 5 m.
 - Heat barriers: Required except where fire resisting barriers are not provided.
- 1035 INSTALLING CABLES IN ACCESSIBLE ROOF SPACES
- Cables running across ceiling joists: Fix to timber battens which are nailed to joists.
- 1040 INSTALLING ARMOURED CABLE
- Temperature: Do not start installation if cable or ambient temperature is below 0°C, or has been below 0°C during the previous 24 hours.
 - Galvanized steel guards: Fit where cables are vulnerable to mechanical damage.
 - Earthing: Bond armour to equipment and main earthing system.
 - Connections to apparatus: Moisture proof, sealed glands and PVC shrouds.
- 1042 INSTALLING PVC SHEATHED CABLE
- Temperature: Do not install cables if ambient temperature is below 5°C.
- 1045 INSTALLING MICC CABLE
- Bending: Do not corrugate sheath.
 - Connection to equipment and boxes: Fit PVC shrouded glands.
 - Testing: Test each length immediately after fixing. Repeat test 24-48 hours later.
- 1050 INSTALLING ELECTRICAL ACCESSORIES/ EQUIPMENT
- Location: Coordinate with other wall or ceiling mounted 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.
 - Mounting: Recessed.
 - Mounting heights (finished floor level to underside of equipment/accessory):
 - Socket outlets As existing (if utilising existing conduit) or 450mm to bottom edge
 - Socket outlets above worktops 1125mm to bottom edge
 - Cooker control outlet 1125mm to bottom edge
 - Light switches As existing (if utilising existing conduit) or 450mm to bottom edge
- 1055 FINAL CONNECTIONS
- Size: Determine.
 - Cable: Heat resisting white flex.
 - Length: Allow for equipment removal and maintenance.
- 1060 INSTALLING MULTIGANG SWITCHES
- General: Connect switches so that there is a logical relationship with luminaire positions. Fit blanks to unused switch spaces.
 - Segregation: Internally segregate each phase with phase barriers with warning plates.
- 1062 INSTALLING LUMINAIRES
- Orientation: Parallel with ceiling.
 - Supports: Adequate for weight of luminaire.

1065 INSTALLING EARTH BARS

- Location: At incoming electrical service position.
- Mounting: Wall mounted on insulated supports.

1070 INSTALLING SMOKE ALARMS

- General: Fire risk assessment to be carried out to confirm level of cover and need for special alarms (alarms for the deaf).
- Installation: To BS 7671 and in accordance with BS 5839-6, Grade D, category LD3.
 - Interlink individual smoke detectors.
- Maintenance: Locate to provide safe access for maintenance and testing.
- Environment at installation: Clean and dust free.
- Power supply: Dedicated circuit from the building's main switchboard or consumer unit.

1075 EQUIPMENT LABELLING

- Electrical equipment: Install labels indicating purpose.
- Voltage warning notices:
 - Location: Apply to equipment when the voltage exceeds 230 V.
 - Format: To BS EN ISO 7010 W012, include warnings of the voltage present.
- Distribution boards and consumer units: Card circuit chart within a reusable clear plastic cover. Fit to the inside of each unit. Include typed information identifying the outgoing circuit references, their device rating, cable type, size, circuit location and details. Label each outgoing way corresponding to the circuit chart.
- Sub-main cables: Label at both ends with circuit reference using proprietary cable marker sleeves.

1080 ENGRAVING

- Metal and plastic accessories: Engrave, indicating their purpose.
- Emergency lighting test key switches: Describe their function.
- Multigang light switches: Describe the luminaire arrangement.

1085 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 x 300 mm.
- 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.

1090 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: Locate at top. Form by sawing down to a drilled hole.
 - Depth (maximum): 0.125 x joist depth.
 - Distance from supports: Between 0.07 and 0.25 x span.
- Holes in joists: 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.

COMPLETION

1100 MAKING GOOD

- Painting and decorating is excluded from “Making Good” except any required as a result of the Installer’s negligence.
- All brickwork, concrete, plaster etc., which has been cut away by the Installer, all damage caused by and all holes made by the Installer (including damage and holes in floors, wall and ceilings) shall be made good. New plaster work shall be trowelled off to a smooth, flat finish flush with existing finish.
- Undamaged skirting board, picture rail and other woodwork etc., which the installer has removed shall be replaced and matching woodwork shall be fitted to replace that which has been damaged as a result of the works. All work including any joints shall be clean and neat.
- Cupboard shelves, which have been removed, shall be replaced, provided these can be refixed in the position previously occupied. New shelving shall not be installed, unless at an additional charge and specified by separate instruction.
- Should floorboards need to be removed, this work shall be carried out in a workmanlike manner using a floorboard saw and boards shall be replaced and held firmly in position with counter sunk screws only. Floorboards damaged by the installer beyond the point of re-use shall be replaced with correctly sized floorboard timber.
- Lifting and replacement of hardboard floors is not included and, where necessary, this work shall be undertaken by others.
- No responsibility is undertaken by the installer for the making good on linoleum, vinyl or similar floor covering which cannot be removed without causing damage, but every possible care shall be taken to avoid damage.
- Existing unsound flooring or damage to flooring etc., not caused by the installer, shall be reported to the Contract Administrator IMMEDIATELY this has been discovered.

1105 FINAL FIX

- Accessory faceplates, luminaires and other equipment: Fit after completion of building painting.

1110 CLEANING

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

1115 INSPECTION AND TESTING GENERALLY

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

1150 DOCUMENTATION

- Submit: The following documentation on completion of the works:
 - Electrical Installation Condition Report, Electrical Installation Completion Certificate and/or Minor Works forms within 7 working days of completion.
 - Part P Certificate (where applicable) within 28 working days of completion.Format: One electronic copy for each property to be e-mailed to the CA.
Handwritten forms will not be accepted
- Certificate(s): Practical completion of the works will not be achieved until receipt of documents.

Z20 FIXINGS AND ADHESIVES

To be read with Preliminaries/General conditions.

PRODUCTS

310 FASTENERS GENERALLY

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

320 PACKINGS

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

340 MASONRY FIXINGS

- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

350 PLUGS

- Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

390 ADHESIVES GENERALLY

- Standards:
 - Hot-setting phenolic and aminoplastic: To BS 1203.
 - Thermosetting wood adhesives: To BS EN 12765.
 - Polyvinyl acetate thermoplastic adhesive: To BS 4071.

410 POWDER ACTUATED FIXING SYSTEMS

- Types of fastener, accessories and consumables: As recommended by tool manufacturer.

EXECUTION

610 FIXING 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/ sleeves to avoid bimetallic corrosion.
- Appearance: Fixings to be in straight lines at regular centres.

610 FIXING THROUGH FINISHES

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

630 FIXING PACKINGS

- Function: To take up tolerances and prevent distortion of materials and components.
- Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
- Locations: Not within zones to be filled with sealant.

640 FIXING CRAMPS

- Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

670 PELLETTED COUNTERSUNK SCREW FIXING

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

680 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.

690 USING POWDER ACTUATED FIXING SYSTEMS

- Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
- Operatives: Trained and certified as competent by tool manufacturer.

700 APPLYING ADHESIVES

- Surfaces: Clean. Adjust 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.