THE CROWN ESTATE

GUIDELINES AND STANDARD SPECIFICATION TO ARCHITECTS FOR THE REGENT'S PARK, KENSINGTON PALACE GARDENS, ST. JAMES'S, PALL MALL SOUTH, HAYMARKET AND LOWER REGENT STREET RESIDENTIAL AND COMMERCIAL ESTATES

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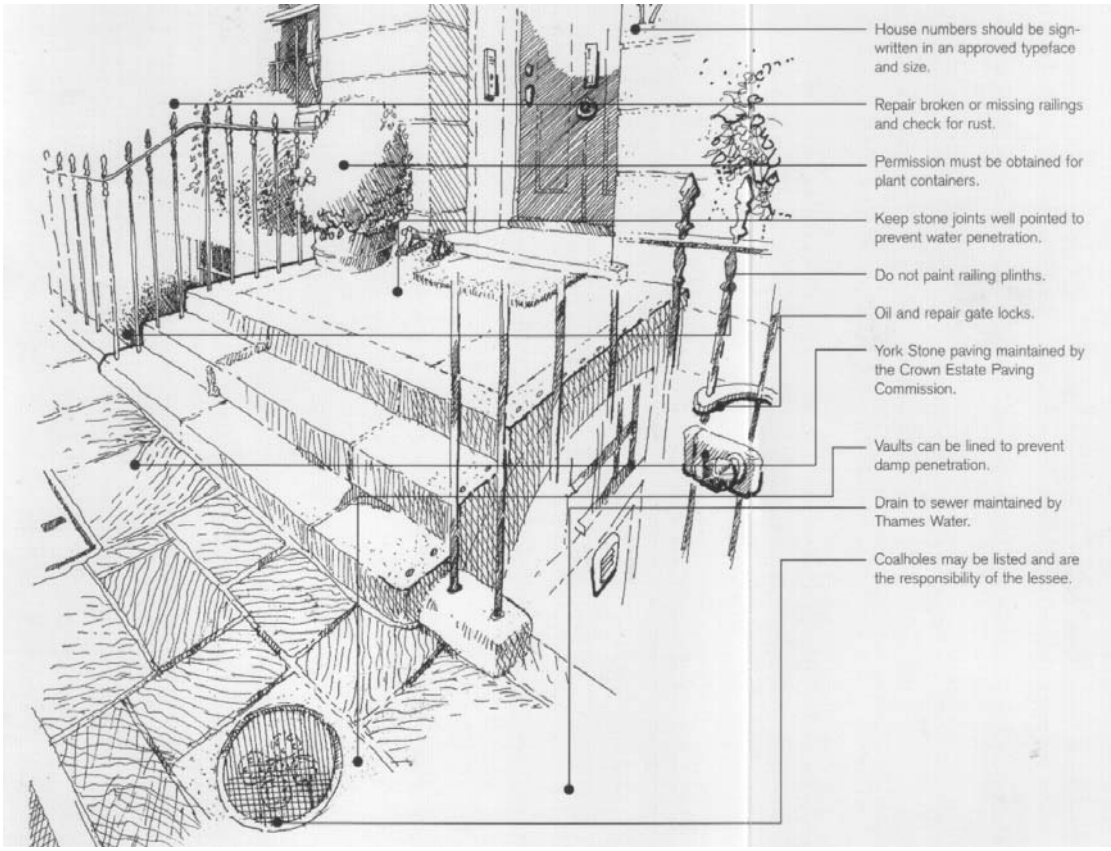
THE CROWN ESTATE



PURCELL

15 Bermondsey Square, Tower Bridge Road, London, SE1 3UN

chris.betts@purcelluk.com

www.purcelluk.com

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GUIDELINES TO ARCHITECTS

1.0 INTRODUCTION

1.1 The Regent's Park Estate

1.1.1 The Regent's Park Estate was built in the 1820s and 1830s as a speculative development by the Prince Regent, later George IV. The masterplan was drawn up by John Nash, who had overall control of the facades of the buildings. Building leases were then sold to developers in blocks, sometimes not a complete terrace, who built the houses to the agreed appearance, but with the construction and interiors to their own designs. The developers then had the benefit of the rents from their tenants for the period of the lease, after which the land and the buildings upon it reverted to the Crown.

1.1.2 Most of the properties in the Crown Estate's Regent's Park Estate were surveyed after the 1939-45 war and found to be in a sorry state. An extensive enquiry was carried out into the viability of retaining each Terrace and Villa, and the results published as the Gorell Report in 1947. Major refurbishment schemes commenced on a gradual basis, and the houses began to be let on twenty year leases. The regular cycle of exterior painting was reinstated, and a programme of conservation was instituted. This gradually developed into the system of Schedules of Minimum Requirements, last revised in 1991, and designed to deal with much longer leases, and more recently Conservation Schedules, for each property. The changes in the leasehold legislation have led to some terms running even longer and prompted this revision of the guidelines and specifications.

1.2 The Kensington Palace Gardens Estate

1.2.1 The early architectural development of Kensington Palace Gardens signalled a departure from previous crown development at Regent's Park insofar as the houses were always planned as single semi-detached villas, rather than composed as palace-fronted terraces. The prevailing architectural style in the early development of the street up to about 1865 is Italianate, enlivened here and there with some more surprising and exotic Moorish or Gothic elements.

1.2.2 A more notable architectural departure came with the building of No.1 Palace Green at the southern end of the street in 1869. Philip Webb, architect of this house, was a pioneer of the Arts and Crafts Movement, and reacted strongly against the stucco and Italianate tradition. Built in red brick with few stylistic references to classical architecture, his design was built only after a considerable battle, and some compromising with the Estate's architectural adviser.

1.2.3 Next door to this, No.2 Palace Green was built as the residence of the novelist William Makepeace Thackeray, author of 'Vanity Fair'. The house is noteworthy as an early (1860-2) example of the Queen Anne revival in English architecture.

1.2.4 The plane trees which are now such a feature of the street were planted at the request of the residents, 'so as to give an appearance of a Boulevard to the Gardens'. After early resistance, The Crown Estate agreed to the planting, provided it was done at the residents' expense, and that they undertook future maintenance. Twenty five plane trees were planted on each side of the street in 1870, between the southern

entrance gates and nos 15/15A. Those to the north were planted by the residents nine years later.

1.2.5 Queen Victoria opposed the building of houses opposite the Palace, and so it was only with her death in 1901 and the more accommodating views of Edward VII that the building of the houses at Nos. 4-10 Palace Green became possible. They too turn their back on the stucco and Italianate architecture of the early development of the street and are handsome, solid Edwardian structures of red brick with Portland stone dressings.

1.2.6 Several houses in the street were lost to redevelopment in the 1960s, the loss of No.3 Palace Green (the only building in the street which had survived from the time of the early days of Kensington Palace) and of Owen Jones's Moorish design at no 8 Kensington Palace Gardens being particularly regrettable. About the same time the sites of nos 25 and 26 at the top end of the street were cleared to make way for the new Czechoslovak Embassy (now divided between the Czech and Slovak republics). In 1969 properties in the street began to be listed for their architectural and historic interest, and since that time no historic buildings have been lost.

1.3 The St.James's Estate

1.3.1 The area bordered by The Mall, Piccadilly, St James Park and Haymarket broadly delineates the area which covers the St James Estate. This includes Pall Mall, Lower Regent Street and St James Street as the principal thoroughfares, and these are also the main streets of character which define this historic area. St James Square and the properties bordering it were granted freehold status from the Crown in 1665, and so is now excluded.

1.3.2 Facing up St James Street is Henry VIII's St James Palace and, alongside, the Chapel Royal. There were a number of grand mansions constructed along Pall Mall, including Schomberg House (late 17th century, but now just the facade remains), and Cumberland House (designed by Brettingham and Adam) and Buckingham House (Soane) and Carlton House (occupied by the Prince Regent) - all now demolished. John Nash's great scheme for the Prince Regent which created a grand processional route from Regent's Park to the Mall, and thence to the newly acquired Buckingham Palace, affected the eastern end of the area significantly, creating grand architecture lining Lower Regent Street (all now gone but for the Athanaeum and the former Oxford and Cambridge Club, and the two set pieces comprising Carlton House Terrace either side of the Duke of York Steps which face the Mall).

1.3.3 The National Gallery and the Royal Academy both had an early presence here, and this set the scene for the area's long association with the Arts, including too the theatre (the Theatre Royal Haymarket was designed by Nash) and the first commercial shopping arcade (the Royal Arcade, also by Nash).

1.3.4 The nineteenth century also saw the area become fashionable for upper class men to join the Gentlemen's Clubs which sprang up in profusion along Pall Mall and St James Street, including the Athanaeum and the Oxford and Cambridge (now the Institute of Directors), the Reform and the Travellers (both designed by Charles Barry), the Army and Navy, the United Services, and the Carlton, and from the 20th century the RAC.

1.3.5 Carlton House Terrace and Carlton Gardens now predominantly house learned societies (such as the Royal Society, the ICA and the British Academy) and government associated uses, as well as some residential.

1.3.6 Architectural styles vary enormously, from red brick (Tudor) through to stucco classical (the Nash period) and Stone classical (the mid 19th century clubs and later) and Edwardian Portland Stone Baroque (the commercial properties along Regent Street).

1.4 The Purpose of Conservation

1.4.1 Under The Crown Estate Act 1961, the Commissioners are bound not only to ensure that the properties are kept in good order to maintain their value, but also to conserve the historic buildings in their keeping. There are many reasons for conserving a building or group of buildings, but the principal ones can be set down as intrinsic aesthetic value, historical associations, contribution to the wider heritage context, value to communities, innovative construction or function, or what has been described as 'scenic usefulness'. In protecting and conserving the evidence of the history embodied in the building, the continuity of the cultural heritage is maintained to pass on to future generations.

1.5 Listed Building Legislation

1.5.1 Legislation protecting historic buildings in England has evolved over the past hundred years, initially taking ancient monuments into care and then gradually setting up a system – outlined in the Planning (Listed Buildings and Conservation Areas) Act 1990 – for drawing up comprehensive lists of buildings thought worthy of preservation because of their architectural or historic interest, age or rarity. Demolition of, or alterations to, any building on these lists must have consent from the Local Authority.

1.5.2 The National Planning Policy Framework (NPPF), the government's official policy regarding planning, outlines several important contributions to the historic built environment as "Heritage Assets" and requires that the history and significance of heritage assets as well as the impact of any proposals on these assets is fully understood prior to application. Heritage Assets are defined in the NPPF as "*a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing*)". These are typically considered to include (but not be limited to): listed buildings, conservation areas, locally listed buildings and registered parks and gardens.

1.5.3 Local authorities often hold their own list of buildings which are considered to be of local merit although they are not statutorily listed. These are typically called "Local Lists" and any building included should be subject to consultation with the local authority. Conservation areas, too, have been designated where individual buildings are not necessarily listed, but demolition or any alteration which will affect the character of the area must have consent. This applies to independent mews cottages, for example, and more modern buildings.

1.5.4 Prior to proposing any alterations, extensions or demolitions to heritage assets (or affecting the setting of heritage assets), suitable professional advice should be sought for the completion of a Heritage Statement or Historic Building Appraisal (HBA). These documents are based on historic research and on-site investigations and help to provide an understanding of what makes a heritage asset significant as well as detailing what areas, elements and features of a site should be retained or alternatively, are able to be altered. These investigations should form the basis for any proposals for change.

1.5.5 A listed building is one that is included in the list of buildings of special architectural and historic interest compiled by the Secretary of State for Culture, Media and Sport and maintained by English Heritage. There are three grades of listed building: Grade I, Grade II* and Grade II. Listed building control applies to all three grades.

1.5.6 Listed Building Consent is the means by which change to listed buildings is controlled to ensure that their special architectural and historic interest is not harmed. Section 7 of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires that Listed Building Consent is obtained for the demolition of a listed building and for any works of alteration or extension which could affect its character as a building of special architectural or historic merit.

1.5.7 Listed Building Consent is not normally needed for routine maintenance that uses the same materials and techniques as the original work, and does not involve an alteration that affects the special architectural and historic interest of the building. However, work that could be conserved as straightforward maintenance or repair, such as cleaning, repainting or replacing windows, may in fact affect the character of a listed building and require Listed Building Consent. Similarly, repairs that seem not to affect the visual appearance of a listed building can cause significant damage to its fabric and structure by introducing different physical conditions that the building has not been designed or constructed to accommodate.

1.5.8 Section 9 of the Planning (Listed Buildings and Conservation Areas) Act 1990 makes it a criminal offence to carry out repairs or alterations that affect the special architectural and historic interest of the listed building, or to demolish the listed building without Listed Building Consent. Those who contravene the Act in this way may be liable to prosecution and may be served with a Listed Building Enforcement Notice requiring any damage caused by unauthorised work to be made good, and the building resorted to its former state. Contravention of the Act can also lead to heavy fines and imprisonment.

1.5.9 Applications for Listed Building Consent are made to the planning department of the local authority in whose area the listed building is located. The local authority will make the application available for comment by local amenity groups and the public, and possibly the national amenity groups who are statutory consultees in respect of certain types of application. These groups include (but are not limited to) the Georgian Group, Victorian Society and Twentieth Century Society. Comments and views from all stakeholders are taken into account by the local planning authority when deciding whether or not to grant consent. Decisions by local authorities regarding consent should normally be made within eight weeks, but the process may take longer if the proposals are large or complex. In coming to a decision on an application, the local authority will have regard to the guidance contained in the NPPF. This will particularly refer to Section 12: Conserving and Enhancing the Historic Environment. It will also refer to its own polices and guidance, contained within the authority's own Local Plan (or equivalent) and Supplementary Planning Guidance (SPG).

1.5.10 As part of a Listed Building Consent application, a Heritage Impact Assessment (HIA) should be provided. This uses baseline information obtained as part of the preparation of a Heritage Impact Assessment or Heritage Statement during the early stages of design (as outlined in point 1.5). This meets the requirements of the NPPF, which recommend that the impact of change on heritage assets should be assessed. An HIA will also be in line with the requirements of Local Authorities.

1.6 What is Protected under the Legislation

1.6.1 The Regent's Park Terraces are mostly listed Grade I, the highest grade, with a few subsidiary buildings and outer Terraces listed Grade II* or II. The railings, lampposts and other miscellaneous items are also listed in their own right, usually Grade II. Many of the designations are for the Group Value, meaning that the consistency of the Terrace is the most important factor. It is for this reason that the external painting of all buildings in the Park takes place in a designated year, not on a cycle for individual buildings.

1.6.2 Many of the buildings in Kensington Palace Gardens and the Commercial Estates are also listed. The list status of individual properties should be checked via the Local Authority, who retain a record of listed properties, at the time of purchase or prior to alteration works being carried out.

1.6.3 Many of the lessees assume that only the facades are listed, or that items not specifically mentioned in the listing details are not covered. This is not, however, the case, and a listing description for any building or structures includes all internal spaces and features.

1.6.4 Some structures which are not included within a building listing may be considered to be within the building's curtilage. Any buildings, structure or objects considered to be within the curtilage of a listed property are subject to the legislation of that listing. There is outline guidance for what structures are within the curtilage, for example: if an object is fixed to the principal building in such a way that it is considered a fixture; structures fixed to the building which was ancillary in its use at the time of listing; pre-1948 structures within the vicinity of the site and of ancillary purpose. Given that the determination of curtilage can sometimes be unclear, it should be determined on a case-by-case basis and when any doubt is presented the Local Planning Authority should be consulted.

1.7 Statute, Regulation and Procedure Regarding Work to Listed Buildings

1.7.1 The Crown Estate's system of control over what happens to its historic buildings is consistent with the guidance contained in The National Planning Policy Framework (NPPF). It is therefore an important point of reference for those considering change to listed buildings on The Crown Estate, and its guidance should be used when designing proposals. However, The Crown Estate isn't bound by The NPPF when it comes to deciding what is acceptable in terms of its buildings, and will judge in each case what is best for the listed building and what it requires of proposals for change.

1.7.2 S. 57 of the Town and Country Planning Act 1990 requires that planning permission be obtained in order to carry out various types of development. This includes many types of work to listed buildings, for which Listed Building Consent is also required. A proposal for a listed building may therefore require both planning permission and Listed Building Consent. The Town and Country Planning (General Permitted Development) Order 1995 (as amended) sets out the types of development that do not require planning permission.

1.7.3 S.74 of the Planning (Listed Buildings and Conservation Areas) Act 1990 controls the demolition of unlisted buildings in conservations areas (defined as 'areas of special architectural or historic interest the character or appearance of which it is desirable

to preserve or enhance' by S.69 of the Act). Conservation Area Consent is required for such demolition.

1.7.4 S.5 of the Town and Country Planning (Control of Advertisements) Regulations 1992 regulates the display of advertisements. This includes signage to shops and businesses as well as banners and posters.

1.7.5 English Heritage has a statutory role in the planning process as defined in the DCLG Circular 08/2009. 'Arrangements for handling heritage applications' sets out the types of application for planning permission, Listed Building Consent and Conservation Area Consent that must be notified to English Heritage. The criteria for notification of applications of various types include: whether the building is listed or not, the grade of a listed building, whether it is within or outside a conservation area, and the scale and nature of the proposed works. Where a London Borough is required to notify English Heritage of applications for Listed Building Consent, S.14 of the Planning (Listed Buildings and Conservation Areas) Act 1990 prevents the London Borough from granting Listed Building Consent without the authorisation of English Heritage.

1.7.6 Applicants for listed building consent must be able to justify their proposals. They will need to show why works which would affect the character of a listed building are desirable or necessary. They should provide the local planning authority with full information, to enable them to assess the likely impact of their proposals on the special architectural or historic interest of the building and on its setting'. This means that applications for Listed Building Consent need to be accompanied by a detailed description, in drawings and words, of the proposed works.

1.7.7 The best way to ensure that proposals are properly prepared for submission to the local authority is to employ an architect or surveyor with the appropriate skill and experience in work to listed buildings. This person can advise on how to consider changes to the listed building so that they will not damage the special architectural and historic interest of the building. If such changes are likely to be acceptable in principle, then this person can prepare an application for approval in a manner likely to receive Listed Building Consent.

1.7.8 All work must be carried out as specified in the approved plans and drawings and in the Consent. The Consent will normally have certain conditions attached. Some of these will require the submission of further, more detailed information before work starts. If works are not commenced, Consent normally lapses three years after approval. If Listed Building Consent is refused, or conditions are imposed, owners have the right to appeal to the Planning Inspectorate. There is usually a time limitation on when appeals can be made.

1.7.9 Where possible, proposals for change should be discussed with the local authority's conservation officer at as early a stage as possible. The proposals should be described in as much detail as possible. At the very least, the following should be provided:

- A written description of the proposals
- Photographs of the existing situation
- A plan showing the location of the proposals
- Sketches giving an idea of the nature of the proposals
- Heritage Statement or HBA (as outlined under point 1.5.4) in the early stages of the design process

- Heritage Impact Assessment (as outlined under point 1.5.10) for inclusion with an application

1.8 Seeking Listed Building Consent

1.8.1 Applications for listed building consent are made on a form that may be obtained from the offices of the local authority's planning department. Forms can frequently be obtained online from the local authority's web site

1.8.2 Applicants are required to submit a certificate of ownership. The application should include a plan of the location which clearly identifies the building or site and its setting, a description of the proposed works, indicating how they relate to the building or site and its setting, detailed and clearly labelled 'before and after' drawings and photographs which describe all elevations of the building affected by the proposal. This should include its relationship to adjacent buildings or structures where these might be affected. The application should also include a statement of how the proposed works will affect the special architectural and historic interest of the building and its setting. It costs nothing to apply for Listed Building Consent. Inadequate information is a significant cause of delay in reaching decisions on listed building applications.

1.8.3 The following is a checklist of items that must be included with an application for Listed Building Consent:

- A location plan to identify the building in question;
- Measured drawings of all floor plans and external or internal elevations affected by the proposed works;
- Drawings showing the building as existing and as proposed;
- Photographs showing the part of the building affected (interior or exterior);
- Other plans and drawings as are necessary to describe the proposed works;
- A heritage impact assessment that describes the special architectural and historic interest of the listed building and the impact of the proposed works on that special interest.

1.8.4 When conditions are imposed upon a Listed Building Consent that has been granted, the process of applying for discharge of those conditions is the same as applying for Listed Building Consent. A separate form is used, also available from the Council as described above. Work should not commence until all of the conditions to a Listed Building Consent have been discharged.

1.9 During and After the Works

1.9.1 If any change is necessary during the detailed design of the works or when construction has commenced, the local authority must be informed in writing. Quite often, when such changes are minor, the local authority will acknowledge the change as a non-material amendment to the Listed Building Consent. However, if the changes are significant, the local authority may ask for a fresh application for Listed Building Consent.

1.9.2 The responsibility for ensuring that the works comply with the Listed Building Consent granted lies with all parties involved in the carrying out of works: the owner of the property, those supervising the works and those carrying out the works.

1.10 Statutory Requirements

1.10.1 All materials and workmanship shall be the best of their respective kinds in accordance with BS8000 and used in accordance with good current practice. They shall comply with the latest edition of the relevant British Standards specification or code of practice or be subject to independent certification by the BRE where applicable.

1.11 Acts and Byelaws

1.11.1 The works are to be carried out in accordance with all Acts of Parliament including the current Building Regulations and all subsequent amendments to the Fire Precautions Act 1971, the Health and Safety at Work etc. Act 1974 the Construction (Design and Management) Regulations 2007, the Prevention of Damage by Pests Act 1949 and all other Byelaws and Statutory enactments of Local and other Authorities. Where works affect party walls in The Crown Estates freehold ownership, notice under the Party Wall Act etc. 1996 must be served on The Crown Estate and all interested parties. The works are to comply with the latest version of the Disability Discrimination Act.

1.11.2 The Site Waste Management Plans Regulations 2008 requires a site waste management plan be prepared and implemented by client and principal contractors for all construction projects with an estimated cost greater than £300,000. The plans must record details of the construction project, estimates of the types and quantities of waste that will be produced and confirmation of the actual waste types generated and how they will be managed.

1.12 Right of Access

1.12.1 The Crown Estate and their representatives shall have the right of access to the premises at all reasonable times for the purpose of inspecting the works being carried out and to all site drawings and details. They shall have the right to have any of the works opened up for inspection if it is considered that faulty or defective materials or workmanship have been used

1.13 Insurance

1.13.1 The Crown Estate's building insurers are to be advised of the proposed works so that the building policy will not be prejudiced. The building owner should notify the insurers if additional cover is required.

2.0 THE CROWN ESTATE'S REQUIREMENTS

2.1 How The Crown Estate's System Operates

2.1.1 Repair and alteration works in the Park must be carried out in accordance with the standards and methods specified in this document. This is to ensure consistency and high standards of conservation on the Estates, and to ensure that the value of the properties, mostly listed grade I or II*so that this unique group of Regency buildings in a park setting is maintained.

2.1.2 The buildings in the Kensington Palace Gardens Estate comprise a selection of individual properties except where there is a group at Palace Green. The importance of retaining individuality is required while a uniform street-scape suitable to the 19th century is sought. The street is maintained by The Crown Estate, however the walls, gates fences and external lighting and appearance has considerable importance to the group of buildings.

2.1.3 The buildings in the St James's Estate also comprise a selection of individual buildings whose historic assets and character must be maintained.

2.1.4 To further this aim, The Crown Estate have appointed Purcell as their Conservation Consultants to produce conservation strategies and schedules of work for the buildings offered for leasing, and to monitor works in progress.

2.1.5 A Conservation Schedule is annexed to the lease and contains a brief description of the property with details of its historic importance, a list of the works necessary and the standard specification. On completion of the works, the monitoring architects confirm to The Crown Estate that the works have been completed to its requirements and standards, in accordance with the covenants included in the lease or building agreement.

2.2 Conservation and Intervention

2.2.1 The standard of conservation and amount of intervention is based on the ideal of a property that has been occupied by careful tenants, who have carried out repairs and regular maintenance with matching materials. The building has been updated with gas, electricity, and kitchens and bathrooms have been changed to meet modern circumstances and hygiene requirements, but the principal features have been left intact. The successive owners may have left their mark, but in a way that is in keeping with the original house, and any changes have been carried out to a high quality. The Crown Estate understands that lessees will want to have fashionable decorative schemes, kitchens and bathrooms, and as long as the changes are easily reversible, and existing features are not removed (e.g. protected and boxed-in), changes can be made, within the overall framework of the Conservation Strategy for the Terrace or Villa, subject to approval of The Crown Estate and their Conservation Consultants.

2.2.2 In carrying out refurbishment works the lessee will be obliged to employ an architect, preferably holding the AABC qualification (Architect Accredited in Building Conservation) or alternatively the appropriate level of RIBA accreditation, or RICS accredited building surveyor, all with extensive experience of works to listed buildings of this type. That architect or surveyor will be expected to prepare drawings and specifications and fully supervise the renovation scheme in accordance with the Guidelines to Architects.

Any significant structural alterations that may affect the historic fabric must be specified and overseen by a conservation accredited structural engineer.

2.2.3 The appointed Architect will discuss the scheme in general terms with The Crown Estate's Conservation Advisors before submitting the scheme to the Local Authority, to seek Planning Permission, Listed Building Consent and Building Regulations Approval.

2.2.4 Work must not start on site until plans and specifications have been approved by The Crown Estate and all fees due at that time have been paid, and consents received from the local authority. The Crown Estate will employ their Conservation Specialists, fees being recoverable from the Lessee, to monitor works in progress, and to approve all plans and specifications.

2.2.5 If modifications to the building are proposed, these must show proposed and existing construction. Such proposals should respect the historic layout of the building. A Licence to Alter must be obtained for any alteration work via The Crown Estate's Managing Agents, following the procedure set out in the Guidelines for Lessees booklet.

2.3 Repairs

2.3.1 Repairs to the properties should be carried out in accordance with the relevant sections of the Standard Specification and the Guidelines for Architects. Where repairs involve the removal of original fabric, listed building consent may be required. It is the responsibility of the Lessee to check with the Local Authority.

2.4 The Conservation Schedule

2.4.1 A Conservation Schedule is produced to take the opportunity to carry out a thorough high quality refurbishment of the building in accordance with best conservation practice and to avoid any major works for a considerable length of time. It sets out the basic parameters that will result in the required high quality scheme of conservation and renovation, including the maximum retention of the historic fabric.

2.4.2 It is included as a condition in the granting of a long lease and granting a substantial financial interest in the property to the lessee, and identifies those minimum items, procedures and standards that Lessees will be legally bound to undertake within a set time limit.

2.4.3 Originally, the scheme was intended to avoid any further major works within the term of the lease. With the introduction of longer leases, the intention is that the building/s should be put into a well conserved and sound condition at the beginning of the lease, and that in the course of time, repairs and maintenance should be carried out following the recommendations for repairs and maintenance set out in the Standard Specification and Guidance Notes for Architects.

2.4.4 The Conservation Schedule does not preclude the Lessee from carrying out works to a higher standard, but only with the agreement of The Crown Estate as to the extent of the works and methods and techniques used.

2.4.5 The Crown Estate's Conservation Consultant, appointed by The Crown Estate to monitor the works on its behalf, carries out regular inspections and recommends to The Crown Estate's agent that the works had been carried out and completed to The Crown Estate's satisfaction. The Crown Estate's managing agent will issue a certificate of completion once they are satisfied that all aspects of the project have

been satisfactorily signed off. Until this certificate has been issued, the lessee is unable to assign the lease without an undertaking from the assignee that the works will be completed.

2.4.6 The inclusion of the Conservation Schedule within the lease means that the estimated cost of the works has been taken into account by The Crown Estate when setting the premium. Therefore the requirements must not be diminished, specifications altered or set aside without the written approval of The Crown Estate. Initially, the proposals for carrying out the works, and any alterations the new Lessee desires, are to be submitted to the Managing Agents for a Licence to Alter. The Managing Agents consult with the Conservation Consultant and The Crown Estate before granting the Licence.

The Conservation Schedule comprises:

1. Identification of the premises
2. Description of the property and brief details of the history
3. Details of contract requirements, insurances etc.
4. A list of all the items required to be carried out on a room by room basis, including a Structural Engineer's and other specialist's reports, and requirements.
5. The time scale allowed for the works
6. The standard specification for workmanship and materials including painting and stucco repairs
7. A list of the plans which will be required by The Crown Estate for approval
8. An inventory of the historic items, including fixtures and fittings to be preserved or restored with photographs
9. Details of The Crown Estate's monitoring procedure for the works. The Conservation Consultant Architect monitoring the works must confirm to The Crown Estate that they have been carried out and completed in accordance with the covenants included in the lease or building agreement.

2.5 Variations

2.5.1 Any application for variations to the agreed works must be made in writing with a full historical analysis of the item or items to be altered, the grounds for the change and justification of the replacement.

2.6 Costs

2.6.1 The whole of the cost and expenses required to comply with the terms of this specification are to be borne by the building lessee.

2.7 Samples of Materials

2.7.1 In all cases samples of the building materials to be used for the facing of the building and any other materials which The Crown estate may require to be submitted for approval

and when approved the materials used in the building are to be of similar quality and appearance.

2.8 Right of Access

2.8.1 The Crown Estate shall have the right of access to the premises at all reasonable times for the purpose of inspecting the works being carried out and to all site drawings and details. They shall have the right to have any of the works opened up for inspection if it is considered that faulty or defective materials or workmanship have been used.

2.9 Matters Arising or Queries

2.9.1 If during the course of the works, queries arise or alterations to the agreed scheme are envisaged, the Lessee must obtain the consent in writing of The Crown Estate through their Conservation Consultant Architects, c/o Chris Betts, Purcell, St Mary's Hall, Rawstorn Road, Colchester, Essex CO3 3JH (Telephone 01206 244844, Fax 01206 244845, Email chris.betts@purcelluk.com) before commencing any work.

2.10 Contract Requirements etc.

2.10.1 The Lessee, the lessee's Advisers and Contractors are to remain fully responsible for the property and all alterations and improvements carried out to it, notwithstanding any approvals, certificates or licences that may be issued by or on behalf of The Crown Estate. The Commissioners are not responsible for any damage or defect arising from the carrying out of the works.

2.10.2 No warranty is given as to the originality of any items within the property, purchasers of leases are therefore advised to satisfy themselves in such matters.

2.10.3 The Lessee will be required to put forward details of a comprehensive Scheme of Renovation for written approval by The Crown Estate. It is to be drawn up and supervised by an Architect to be approved by The Crown Estate under normal RIBA terms of appointment. Under no circumstances should any work be started prior to The Crown Estate's formal consent being granted. The Lessee is to obtain all necessary consents; in particular Planning Permission, Listed Building Consent, Building Regulation Approval and Crown Estate Paving Commission consents (where appropriate) before any works are started and to serve the appropriate Notices under the Building Regulations, and the sections of the London Building Acts still in operation, and pay all fees. Copies of all planning and Listed Building applications and approvals must be sent to The Crown Estate's Conservation Consultants.

2.10.4 The Lessee must comply with the requirements of the Party Wall Act 1996 and all subsequent amendments, and notify all the adjoining owners and occupiers, including The Crown Estate, of works to or near party structures which come under the provisions of this Act, and follow the procedures for agreement of the works proposed. Copies of all Party Structure Awards and Notices must be sent toThe Crown Estate's Conservation Consultants.

2.10.5 The Lessee must comply with all recommendations contained in any Structural Engineer's Report on the property prepared for The Crown Estate and included in the Schedule of Minimum Requirements (Conservation Schedule).

2.10.6 All current statutory regulations must be complied with, but in a way that respects the irreplaceable historic fabric. Should it prove essential to seek a waiver of any regulation, the matter should be discussed with The Crown Estate before making an application to waiver.

2.10.7 The current Building Regulations are not retrospective, but are to be complied with as far as possible, but with respect to the irreplaceable historic fabric. Should it prove essential to seek a waiver of any regulation, the matter should be discussed with The Crown Estate before making an application to the Local Authority.

2.11 Monitoring of the Building Works

2.11.1 The Crown Estate's Conservation Consultants carry out the monitoring of Building works on site to ensure that the works are carried out in accordance with The Crown Estate's Standard Specification. The Conservation Consultant's agreement to any material, sample or sample panel or method statement relates solely to that requirement and does not imply any involvement in the contractual relationships between the Lessee, his or her architect and/or Contractor.

2.11.2 Where approval of The Crown Estate of works or samples is specified, or the agreement of The Crown Estate is required, adequate notice must be given to the Conservation Consultants to respond.

3.0 STANDARD BRIEF

3.1 General Requirements

3.1.1 The proposed scheme must conform to the section above on contract requirements.

3.2 Photographic Records

3.2.1 The Lessee will be required to submit a full set of photographs in triplicate of the exterior and interior prior to commencement of works, and a second set in triplicate when all the works are complete. A full photographic record may also be required in the case of alterations.

3.2.2 Photographs of the interior are to include all existing cornices, dados, doors, fireplaces, mouldings, ceiling roses, window shutters etc. It is particularly important to include small details such as locks and servant's bells and the like. Each photograph is to be marked to indicate the room shown, and all agreed with The Crown Estate. Each set and copies are to be mounted in photograph albums and each photograph identified.

3.3 Drawings Required

3.3.1 The following drawings are to be submitted by the Lessee's Architect to The Crown Estate with the Lessee's application for consent for the Refurbishment or Alteration Scheme. No such application will be considered unless accompanied by all these drawings.

- A full set of existing floor plans to a scale of not less than 1:50
- Full existing elevational drawings to a scale of not less that 1:50 showing adjoining houses.
- Full floor plans as proposed to a scale of not less than 1:50.
- Full proposed elevational drawings to a scale of not less than 1:50, showing adjoining houses.
- Sectional Drawings through all buildings in both directions to a scale of not less than 1:50.
- Location plan to a scale of not less than 1:1250
- Block plan showing the whole proposed property in relation to the adjoining buildings at a scale of not less than 1:500
- Detailed drawings to a scale of not less than 1:2, showing all proposed new cornices, ceiling roses, windows, doors, architraves, skirting, dado rails and all such other details as required. Drawings of complete doors and windows at 1:20 scale. The positions of these details to be cross referenced on the proposed floor plans.
- Proposed drawings and plans must indicate positions and external size of all pipes, ducts, fixtures and fittings, including services installations.
- All proposed structural steelwork, bressemers etc. to be shown to correct scale and position, with sizes annotated on plan.
- The above drawings must be accompanied by a detailed specification of the full refurbishment Scheme which must include all the items mentioned in the Schedule of Minimum Requirements (Conservation Schedule).
- Any other plans that may be required by The Crown Estate from time to time.

- All drawings must show the names of the person who drew it, and who checked it, with the date.

3.3.2 On completion, the Lessee's Architect must provide up to date drawings and specifications showing all amendments, even minor ones. These "as-built" drawings and specifications are then to be sent to the Monitoring Architects for checking and returning to The Crown Estate for record purposes.

3.4 The Crown Estate Specification

3.4.1 The Specification requires compliance with the NBS Specification, Intermediate Version unless where stated in this document. It must be checked against the requirements of the Contract employed. The clauses with specific requirements of The Crown Estate have been inserted below. The Specification must be read in conjunction with a Schedule of Works specially prepared for the project. Any omissions or variations made to clauses in the Specification caused by the particular circumstances of the project must be clearly identified and agreed with The Crown Estate before starting any work.

3.4.2 The Lessee's Architect is required to use the NBS Specification to ensure that a full and complete specification is provided for the works.

3.4.3 The summary requirements of The Crown Estate are issued as general guidance. The Lessee, the Lessee's Architect and Contractor remain responsible for their application in any particular situation.

3.5 Form of Contract

3.5.1 The Lessee must enter into a contract with a Building Contractor using one of the current Standard Forms of Building Contract issued by the Joint Contracts Tribunal published by RIBA Publications Ltd, and obtainable from the Royal Institute of British Architects, 66 Portland Place, London, W1N 4AD (Tel: 020 7580 5533). There are a variety of JCT contracts, suitable for a range of building works. The Lessee's Architect will advise the Lessee on the appropriate form of contract in relation to the size and complexity of the works.

3.5.2 The Lessee must be indemnified against injury to or death of persons or damage to property caused by the carrying out of any works and the need to insure the works as regards loss or damage by fire etc. Standard clauses dealing with such indemnities and insurance are contained in the above mentioned Forms. The Lessee's Contractor's third party all risks insurance should be for a minimum amount of £10,000,000. Lessees should ensure that they have sufficient insurance to cover their liabilities.

3.6 Deleterious Materials

3.6.1 There is no clause for 'deleterious' or 'excluded' materials included in the specification. The guidance incorporated in the document "Good practice in the selection of construction materials" by Ove Arup and Partners and sponsored by the British Council for Offices and the British Property Federation, has been followed in preparation of this specification.

The "Good Practice…" document states that it does not

> "obviate the need in any particular case to consult manufacturers, up to date references and key contacts as appropriate. It should also be noted that all materials have the potential to create risks. The application of the good practice approach summarised in Section 1 and outlined for particular materials in Section 2 should (and in the case of, for example, compliance with the CDMC Regulations must by law) be adopted for each material used on each project. If there is any doubt as to the standards to be followed, further independent advice should be sought."

3.6.2 General prohibitions on the use of CFC's and other ingredients harmful to the ozone layer, and asbestos are included in the relevant clause of the NBS.

3.6.3 The guidance issued by the NBS is to be used where applicable.

4.0 DESIGN PRINCIPLES

The Crown Estate has identified certain principles which will help to preserve the unique character of the various buildings and their settings within the Regent's Park, Kensington Palace Gardens and St James' estates, and the guidelines set out in Section 4 are to assist lessees and their agents to adhere to a common set of design rules in order to ensure that conformity is maintained.

These guidelines in some cases refer also to NBS section reference numbers. These are the sections in the National Building specification, which The Crown Estate expect to be used to specify any works carried out to properties on its Estates. Here in Section 4 only the general guidelines are set out. In Section 5 a more detailed description of specifications is set out for the guidance of the specifier.

4.1 OVERALL DESIGN

4.1.1 Uniformity: The importance of The Regent's Park Estate lies in the disposition of the Terraces, disguised as Palaces, and villas, in a parkland setting. The uniformity of the Terraces is therefore of overriding importance.

4.1.2 The Park Villages are important as forerunners of the picturesque suburban villas of the Victorian era, but with a lightness of touch and delicacy that avoids the stiff formality of the later buildings.

4.1.3 Kensington Palace Gardens and Mews is an important example of 19th century and early 20th Century houses and associated mews properties. The individuality of the houses and the uniformity of the mews is to be retained.

4.1.4 Garage Policy: Garage and other extensions may have been added which are not necessarily suitable to the architecture. The policy on retaining or replacing such modern interventions is under regular review with the emphasis to removing these structures wherever possible and retain the character of the earlier building.

4.1.5 Under Pavement vaults: These are in the curtilage of the listed building and the requirements of The Crown Estate will apply. The Crown Estate policy for use of the vaults is that they make unsuitable living or bathroom accommodation and may only be used for plant room space or storage.

4.1.6 Space Under Entrance Steps: Each situation will be considered on its individual merits.

4.1.7 External Entrance Steps: In the Regent's Park Estate, external entrance steps are generally to be of Portland stone.

4.1.8 Entrance Halls: Generally Portland limestone is to be inserted in entrance halls in the Regent's Park Estate.

4.1.9 Front Area Paving: front areas are to be paved with York stone slabs.

4.1.10 Crown Glass is to be reinstated where replacing original panes of glass or otherwise as agreed with The Crown Estate's conservation advisors.

4.1.11 Floor Boards: Original floor boards are to be retained and not replaced.

4.1.12 House Numbering: The numbers are usually painted onto render and this is to be maintained, except where stated in the KPG Guidelines or in exceptional circumstances.

4.1.13 Security: The Crown Estate recognise the need for electronic security measures such as cameras and lighting. These are to be designed in such a way to be discreet in appearance and cause minimum damage to the fabric of the buildings when removed for future upgrades. The Crown Estate discourage the insertion of external security bars except where they exist as part of the historic fabric.

4.1.14 Architectural Features: All original architectural features must be retained and any new features should respect the existing. Non original architectural features may be identified by the conservation schedules or the monitoring consultants as being of importance.

4.1.15 Analysis of Materials: In all cases the principle is to match the original material as closely as possible. Careful examination and specialist analysis is sometimes required to determine the exact composition of the external stucco, or the original paint scheme of the building. The correct identification of the materials ensures that the appropriate repair or new paint specification can be applied, and the intervention be more successful over time.

4.1.16 Ridge Line: In the 1960s when most of the major refurbishments were carried out it was the accepted view that the elements of the buildings above the cornice line were unimportant. As various alterations have been carried out it has become apparent that the ridge line is an important factor and must be uniform; new roof lights and dormers should be of architectural merit in order to maintain the quality of the building in the context of their setting.

4.1.17 Wine Cellars are often found in the basements of the houses, with stone slabs and stone or brick dividers, and stone flagged floors. They can be either in the centre of the house or in one of the vaults under the pavement. These must be kept as they still perform a useful purpose as a cool space in the basement.

4.1.18 Railings and Garden Walls in Regent's Park Estate: The maintenance of these is born by the lessee and these components are to be treated as part of an application to alter or repair.

4.1.19 Railings and Garden Walls in Kensington Palace Gardens: The maintenance of these is born by the lessee and these components are to be treated as part of an application to alter or repair. The colour of the railings is to be suitable to the period of the property, ie green or black. Where the railings and gates are to be green, the colour is to be RAL colour reference (RAL 6007).

4.1.20 Permanent maintenance access to roofs and roof voids should be provided, to ensure that regular tasks, such as tank inspection and gutter clearing are carried out. The Crown estate will consider discreet options that minimise damage when the system is updated. The design should be considered at the outset of the proposals.

4.1.21 Alterations to address Disabled Access: Proposals, where applicable to comply with the Equality Act 2010, are to be presented as part of the proposals.

4.1.22 Records of the building works carried out are required to be copied to The Crown Estate to keep the history of the properties up to date, and to ensure that the

maintenance needs of each individual building are correctly identified. Two complete sets of 'as built' drawings are to be deposited with The Crown Estate's managing agents two weeks prior to completion of the works.

4.1.23 Mews buildings, where they are part of the curtilage of Grade I listed buildings are included in that listing. Detached mews properties may be unlisted, but all are within conservation areas, and restrictions apply on their alteration. In general The Crown Estate follow the guidance included in the City of Westminster Guidelines, except that vertical boarding to doors and apron panels, is preferred to the panelled version or diagonal boarded version. Lintels should be in a line to match the original. This guidance applies also to properties in London Borough of Camden to maintain consistency of standards.

4.1.24 Basements may be converted to residential use, however there is a limit to further excavation to create more accommodation and each situation will be considered on its individual merits and must be reviewed with the managing agent at an early stage.

4.1.25 Utilities: If it is found that there is insufficient power supply available for the proposed alterations, it is the responsibility of the applicant to negotiate suitable remedial works with the supplier.

4.1.26 Other Works: if the works proposed are not covered in these guidelines, Lessees should obtain the views of The Crown Estate before commissioning any design work or placing any order.

4.1.27 Environmental Policy: The Crown Estate has issued a policy statement, copies are obtainable from The Crown Estate., giving its overall objective 'To balance environmental considerations with commercial and other conflicting needs, in order to achieve effective stewardship of The Crown Estate.' Follow the principles of design and practice set out in this document.

4.1.28 Bats and their habitats have statutory protection under English and EC law. They are given special protection under the Wildlife and Countryside Act 1981. If any work is planned which would affect bats and their roosts (even if empty), the Statutory Nature Conservation Organisation (SNCO) must first be consulted for advice. The SNCO for England is Natural England, Foundry House, 3 Millsands, Riverside Exchange, Sheffield, S3 8NH. Tel: 0845 600 3078.

4.1.29 Bird Prevention Works: stainless steel wires and grey post bases and pins should only be sited where they can be lost to view from the street below.

4.1.30 Guides: Lessees are advised to consult the publications of English Heritage on conservation, particularly *London Terrace Houses 1660 –1860 : a guide to alterations and extensions.* The guides issued by the Georgian Group, 6 Fitzroy Square, London W1P 6DX, are also useful sources of information on appropriate materials and methods of repair. The Society for the Protection of Ancient Buildings, 37 Spital Square, London E1 6DY also issue guidance on the use of lime in plaster and mortar, timber repairs and the like.

4.1.31 Names of houses, public houses and commercial premises are part of the history of the buildings, and often are of some significance. The change of the name of commercial premises, colour schemes and signs in conservation areas are all items which will require permission from the local authority. The Crown Estate will usually require that the original name be displayed on the building in appropriate lettering.

4.1.32 Gardens: approval is to be sought from The Crown Estate's conservation advisors for proposals to alter, repave and re-landscape gardens including any works to trees.

4.2 THE SITE

4.2.4 In Kensington Palace Gardens (KPG), site huts are not allowed in front of the properties and a suitable alternative proposed (e.g. demountable structures placed to rear of property).

4.2.5 The contractor will be required to enclose the site with a hoarding not less than 2.4m in height painted in RAL colour for KPG and Crown Cream for Regent's Park. Statutory notices may be exhibited but all other signs, advertisements and posters on hoardings screens or scaffolds are prohibited.

4.2.6 The mixing of materials on any paving surfaces is prohibited.

4.2.7 No contractors' or consultants' boards or signs are to be erected upon the property, the scaffold or the hoarding unless written consent has been obtained.

4.2.8 The playing of radios or recorded music is not permitted outside the buildings while works are in progress. (This restriction is so as to avoid noise nuisance arising in the vicinity of the works).

4.3 STRUCTURAL REPAIRS

4.3.1 Structural Works: Because of the way that the buildings were originally constructed, there are lines of weakness in many of the terraced and semi-detached properties between the party and external walls, and the floors and the walls. It is for this reason that a conservation accredited structural engineer's assessment is required for any works which might affect the historic fabric.

4.3.2 Timbers: The original construction often included timbers embedded in the brickwork, for example as lintels, under window cills, and as 'bonding timbers' laid in the walls to improve the bond of the brickwork. Cracks in the render, leaking gutters and the like can allow water to reach these timbers and initiate decay. The ends of the lintels can be exposed and the timbers tested. Bonding timbers often show their presence by bulging or cracking of plaster. Defective timbers should be removed and the brickwork made good or pre-cast concrete lintels substituted as required.

4.3.3 Occasionally buildings are constructed from concrete, steel or iron frame. Each case is to be assessed for its individual merits and a structural analysis and proposal made.

4.3.4 Steel repairs in timber structures are not generally viewed by The Crown Estate as being a suitable conservation method of repair. Each situation is to be judged on its merits and a sensitive and repair or alteration made, to ensure the longevity of the building.

4.4 BRICKWORK REPAIRS

4.4.1 Brickwork: Although the brickwork elements of the Estate are usually the subsidiary elevations of the Terraces and the mews buildings in Regent's Park they are still

important in the overall character. In Kensington Palace Gardens the brickwork is the principal material, the bricks differing according to the age of the building and therefore the source. It is essential that any repointing is not obtrusive or physically damaging to the brickwork by aggressive cutting out or use of the wrong mortar mix. The gauged brick arches over the windows are particularly susceptible to coarse re-pointing, the refinement of the fine joints and crispness of the arrises of the bricks is easily destroyed. Use of too strong a mortar mix can lead to erosion of the brick itself. A mortar analysis of historic mortar should always be taken prior to repointing or rebedding and this is to be matched to minimise damage and obtrusive repairs.

4.4.1 Pointing: The original pattern of the pointing should be carefully determined and the new pointing carried out to match. Any tuck pointing should be reproduced as closely as possible.

4.4.2 Fletton bricks are not to be used in the properties at all unless to match like for like where they were installed originally. Their different movement characteristics can lead to cracking in walls where they are mixed with stock bricks.

4.4.3 Bricks generally: Samples must be presented for approval to match characteristics of original brickwork.

4.4.4 Mortar: Lime mortar was extensively used in the construction of the 19th century estates and should generally be used in brickwork repairs. The composition of the original mortar must be analysed by an approved agency to establish binder type, ratios by volume of binder to aggregate, grading characteristics and aggregate type.

4.4.5 Cementitious Mortars: all mortars should be analysed to match the original fabric , in the case of Kensington Palace Gardens there are some 1960's buildings where cementitious mortars are likely to have been used.

4.5 CHEMICAL DPCs

4.5.1 Chemical Damp Proofing: Damp proof courses have been inserted into many of the buildings, but injected chemical systems are usually only guaranteed for twenty years. Remedial work is therefore likely to be required in the life of the lease. Alterations, too, can sometimes mean that additional damp proofing work is required. Injection will also be required at vertical abutments of walls. The works to carry out damp proofing can often leave residual damage from insertion points in the buildings. Proposals should be discussed initially with the monitoring architects prior to a submission.

4.5.1 Damp Proofing: For a damp proof course to function properly, it must not be bridged and attention must be paid to rainwater disposal at the feet of the walls.

4.5.2 Waterproof renders: Care must be taken to follow the manufacturer's instructions for the system once it is installed – waterproof renders to basements must not be punctured or water will find its way though. Fixings for services, fixtures and fittings and the like must be considered at the time that the waterproof render is installed. The render forms the barrier; any perforation will allow water in the brickwork to leak through. The height of the render is also important: water pressure and capillary action will drive the water up the wall, and it may appear above the top of the render.

4.5.3 Plaster: The salts brought up the wall by rising damp will crystallise and disrupt the plaster as the walls dry out, and the dpc specialist installer will advise on the amount of plaster to be removed and the specification of the plaster to be reinstated.

4.6 STONE REPAIRS

4.6.1 Stone features are mostly confined to dressings, steps, balustrades and similar features. Natural stone develops subtleties of colour and wear which give life to the appearance of the building. Cast stone, pre-cast or in-situ concrete replacements weather differently and are not so durable and The Crown Estate does not accept their use.

4.6.1 Stone cills: cracked stone cills are to be replaced in natural stone complete, as repairs are rarely if ever satisfactory, and plaster and timber cill plates under the windows are susceptible to damage. This may go unnoticed if radiators are fixed below the window until extensive repairs are required.

4.6.2 Stone staircases are not to be painted, and paint should be removed from those that have been. Agree the method of work, and test areas with the Conservation Consultant before carrying out any paint removal.

4.6.3 Stair rods are preferred on stone stairs rather than screwed down gripper strips.

4.6.4 Stone paving internally: Typically, the entrance halls of the Regent's Park terraces were paved in Portland Stone slabs. Where these still exist, the slabs are to be cleaned and badly damaged stones replaced. Take opportunities to check the substrate. Do not fix carpet edge strips with nails or screws, but use a self-adhesive type that will not damage or stain the stone.

4.6.5 Open well staircases: the steps of open well staircases are not cantilevers as often supposed, but each step gains its support from the one below. The connection with the wall provides resistance to overturning. Consequently, major repairs should be undertaken by specialists and with the advice of a Structural Engineer experienced in working with this type of staircase.

4.7 RENDER REPAIRS

4.7.1 Stucco is to be repaired in accordance with the NBS clauses. It is essential that the type of material used for the render is correctly identified to determine the appropriate repair material. The majority of the original render found in the Regent's Park Estate is "Roman Cement", a reddish material usually with a coarse aggregate. There may be a few cases where "oil mastic" still survives, principally recognisable by the thinness of the render. Some areas where extensive renovation was carried out have a Portland cement based render.

4.8 PLASTERWORK REPAIRS

4.8.1 Original plasterwork should be retained wherever possible.

4.8.2 Original or historic cornices, mouldings, ceiling roses and the like must be retained and carefully repaired where possible.

New cornices shall be formed in solid run plaster or fibrous plaster of a pattern appropriate to the property.

4.8.3 Repairs to plaster mouldings should be carried out by a specialist sub-contractor and approved by the Conservation Consultant.

4.8.4 Where new plaster enclosures are inserted 'wedi board' or similar may be installed.

4.8.5 Where earlier plaster board exists and only requires localised repairs, plaster board may be used.

4.8.6 Lime plaster on stainless steel eml is to be used to carry out plaster renewals to existing studwork. In situations where a small area of chestnut laths are exposed, the plaster repair is to match using chestnut laths.

4.8.8 Under certain circumstances double layers of plasterboard may be acceptable in lieu of plaster on laths for new partitions only or for ceilings on new joists. If in doubt, consult with the Conservation Consultant.

4.9 REPAIRING METALWORK

4.9.1 Ironwork: All non–original ironwork to railings, balustrades, gates, balconies staircases etc. is to be replaced to match the original pattern by a Specialist Sub-Contractor, approved by the Conservation Consultant.

4.9.2 External ironwork to balconies is to be thoroughly cleaned and redecorated in accordance with the standard paint spec attached. Where the layers of paint have built up to a point where the detail of the ironwork is completely obscured, the paint is to be stripped off, using carefully controlled grit blasting, the railings repaired and redecorated. Care must be taken to provide protection to the general public as well as personnel on site, and to the building fabric. Where the railings can be easily removed, the work should be done off site. Paint layers may contain lead.

4.9.3 Prior to undertaking grit blasting of historic iron work, consideration should be given to carrying out paint analysis.

4.9.4 External Railings. Front area railings are characteristically constructed of cast iron standards and finials with wrought iron top rails. These are to be retained, and not replaced in mild steel which has an increased risk of rusting which will damage the structure into which they are fixed. Railings are to be fixed into the Portland Stone plinths using molten lead, and any new holes are to be kept to a small diameter not over-large for the convenience of erecting the railings. Note that old railings are likely to be painted with lead paint and health and safety precautions must be observed if the paint is to be removed or disturbed.

4.10 REPAIRING TIMBER

4.10.1 The extent of defective timber must be carefully determined to avoid cutting away more historic timber than strictly necessary. Generally, the principles set out in the SPAB publication "The Repair of Timber Frame and Roofs" Technical Pamphlet 12 are to be followed.

4.10.1 Ventilation will also be required to voids under suspended timber floors, to ensure that air circulates around the timbers, preventing the development of rot.

4.10.2 Existing pugging (sound insulation) to floors, e.g. plaster on lathing, or sand, is not to be removed without The Crown Estate's written permission.

4.11 REPAIRING JOINERY

4.11.1 Doors: The hierarchy of the rooms was reflected in the style of the doors, panelled and moulded on the principal floors, plain panelled on floors above and in the basement. Replacement doors are to maintain this hierarchy.

4.11.2 Doors, architraves, skirtings, dados and other timber trims that have been removed or replaced with inappropriate mouldings are to be replaced to match the original.

4.11.3 Fire Protection and separation. Because of the height of the buildings, the Building Regulations often require that some doors will need to be fire-resisting. Existing doors may be suitable for up-grading according to the guidance given in the 1997 English Heritage publications " Timber panelled doors and fire" and "The use of intumescent products in historic buildings". Proposals for the upgrading of doors and separation through eaves and the building are to be agreed with The Crown Estate. An assessment of fire separation requirements in accordance with Building Regulations requirements is to be submitted to The Crown Estate at the outset.

4.11.4 Windows: Generally follow the principles of repair set out in the SPAB publication "The Repair of Wood Windows" Technical Pamphlet 13 available from
The Society for the Protection of Ancient Buildings
37 Spital Square, London E1 6DY. Tel. 020 7 377 1644.

4.11.5 Where this is not applicable in more modern buildings, provide considered methodology and submit to The Crown Estate for approval.

4.12 FUNGUS AND BEETLE ERADICATION

4.12.1 Guarantees for fungus and beetle eradication are often time limited to twenty years, and so on expiry, a further specialist report will be required, and remedial works undertaken if required.

4.12.1 Inspections for timber treatment and rot must be undertaken by a specialist consultant or contractor experienced in work on historic buildings. A copy of the report prepared by the specialist should accompany any application for works that involves the treatment of timber decay, infestation or rot or the removal of decayed timber. The loss of original fabric should be minimised during any timber treatment work and the use of chemical preservatives avoided.

4.12.2 Chemicals and pesticides used in the treatment of timbers must be carefully chosen to cause least damage to the environment. Procedures for their use are to be included in the Health and Safety Plan for the project.

4.12.3 Environment: The growth of rots depends to a great extent upon damp conditions. Ensuring that the timbers are kept dry and well ventilated will avoid re-occurrence of the fungus.

4.13 CLEANING AND REPAIRING FIREPLACES

4.13.1 Chimney pieces, fireplaces and the cast iron registers are very important features of the properties. Under no circumstances are they to be removed without the prior approval of The Crown Estate. Missing fireplaces are to be replaced, complete with surrounds, fire baskets and register grates to match the original.

4.13.1 The cleaning of marble fireplaces is the work of a specialist. The Lessee must gain the approval of the specialist from The Crown Estate before allowing any work to start.

4.13.2 Flues must be swept and tested before use for coal, gas or flame effect fires. Use a member of an accredited organisation, and obtain a certificate. Flues will usually have to be lined to be used for gas fires.

4.14 ACCESSORIES FOR BRICKWORK

4.14.1 Air Vents: Modern conditions and regulations often require additional air vents. These are to match the existing and be buff terracotta or cast iron grilles.

4.14.2 Chimney pots are usually to be buff terracotta pattern, unless a different style emerges at the property. The original moulding is to be matched at the rim as closely as possible. All the chimney pots in a terrace are to be a uniform height. Gas terminal pots are available in the same colour clay; metal terminals are not appropriate.

4.15 NATURAL SLATING

4.15.1 Slate roofs: Generally, slate roof repairs are to be carried out in blue-grey Welsh slates to match the existing/original as closely as possible in source, colour, size and thickness. Artificial slates are not to be used, their uniform flatness is not historically accurate. 'Turnerising' and similar coating methods, and foam adhesive systems to the underside of slate roofs are not to be used. They are of limited efficiency and the slates cannot be salvaged and re-used after such treatment.

4.15.2 Some of the roofs have Westmorland green slate in Kensington Palace Gardens. A good match and samples are to be provided.

4.16 LEADWORK

4.16.1 Generally leadwork should not be painted as it seals up the joints and prevents the metal moving with the changes in temperature. The visible edges of the cappings to painted cornices and copings are to be painted, taking care not to seal the joints.

4.16.2 Leadwork must be repaired as noted in the specification clauses, section H71. On no account are bitumen, mastic and felt to be used for repairs – these are not effective for any length of time and prevent the lead being re-cast and used again. "Flashband" may be used for emergency temporary repairs only, and proper repairs must be carried out within three months of the leak occurring.

4.16.3 Underside lead corrosion. In recent years, there has been a considerable programme of research financed by English Heritage, the Historic Royal Palaces Agency and the Lead Sheet Association, into underside corrosion on lead roofs in historic buildings. The latest guidance from the Lead Sheet Association, *'An Advisory Note in Underside Corrosion',* confirms that:

'The Ventilated Warm Roof (VWR) remains the most effective roof construction for all situations. Adequate cross flow ventilation through the roof voids must be provided, together with an appropriate vapour control layer.
Ventilated Cold Roof (VCR) construction with adequate vapour control is more suited to areas of low humidity.'
The LSA consider that plywood still remains suitable provided a Class A (BS1521) building paper, is used as recommended and the plywood remains dry. In some flat roof situations a needle punched geotextile may retain moisture and therefore not be suitable.
However, historic properties rarely comply with the requirements for either cold roofs or VWR, and conversion is often not acceptable. Follow the guidelines given for inspection by the LSA, and provide an assessment on the likelihood of corrosion occurring. Where a risk is thought to be present, agree method of roof construction with the Conservation Adviser. Advice can also be found in the English Heritage publication 'Lead roofs on historic buildings – an advisory note on underside corrosion'. Consider the use of gapped softwood boarding and chalk buffering on the underside of the lead and on the top of building paper underlay is where there is a particularly high risk, following English Heritage interim guidelines, although this procedure is still under development and testing. . English Heritage also advise that timber preservatives should be avoided in deckings and roll battens to avoid electrolytic action of the salts.

4.17 ASPHALT ROOFING

4.17.1 Asphalt roofs are occasionally found to be suitable for use on the Kensington Palace Gardens properties, and entirely modern roofs where the decks have been carefully designed to take into account all the Mastic Asphalt Council and Employers' Federation recommendations for movement details and ventilation. Generally however this is not a suitable material for 19th century properties.

4.18 WINDOWS

4.18.1 Windows: The Crown Estate does not allow existing windows to be double glazed – the alterations required to the window to encompass double glazed units are unacceptable to The Crown Estate and to English Heritage. Discreet internal secondary glazing is allowed in existing buildings where it can be installed without damaging the window surround or the building fabric, and is not visually intrusive.

4.18.2 Double glazing may be installed in new buildings where appropriate.

4.18.3 One exception to the rule prohibiting double glazing on existing elevations is the rear elevation only of Chester Terrace (which was extensively altered in the 1960's incorporating new windows) where conservation double glazing will be allowed so long as the frame sizes and details remain the same, and subject to approval of the details by the CE Conservation Architect.

4.18.4 Glazing bars, of narrow lamb's tongue, not more than $^{5}/_{8}$ inch (15.9 mm) are the norm on the Regent's Park Estate. Ovolo glazing bars are sometimes found in later Victorian additions in Kensington Palace Gardens. The Crown Estate should be consulted if ovolo bars are to be retained or proposed.

4.18.5 Shutter boxes are to be overhauled and the shutters repaired, including the ironmongery. Missing shutter boxes are to be replaced. Lessees of properties reconstructed in the 1960s without shutter boxes are encouraged to replace them for energy saving and security considerations.

4.18.6 Trickle vents, hit and miss ventilators, or mechanical extract fans are not permitted in the windows unless in new structures. Proposals for ventilation to kitchens and bathrooms to comply with the current Building Regulations must be included in the drawings submitted to The Crown Estate.

4.19 DOORS

4.19.1 Ironmongery: in the absence of original door furniture, reeded brass knobs are considered appropriate generally in Regency Terraces. In other cases, proposals for suitable or matching door furniture is to be presented for approval by the monitoring architects.

4.19.2 Locks: In the Regency terraces, the original door locks internally would have been rim locks rather than mortised into the door.

4.19.3 External door ironmongery: in the absence of original, cast iron door furniture, painted black is considered appropriate. The pattern should match the original or to that on adjoining properties in the building.

4.20 GENERAL GLAZING

4.20.1 Solar reflective film is not allowed due to the noticeable visible difference. Sun control should be carried out using internal blinds or shutters.

4.20.2 Laminated glass is generally not allowed. Where the Health and Safety Regulations require protection to glazing, proposals must be agreed with The Crown Estate.

4.20.3 Crown Glass is irreplaceable and every care must be taken not to damage original glass.

4.20.4 New and replacement glass must be Crown Glass as Clause L40/157:
'Cordele' 2 mm or 'Restoration' glass supplied by
The London Crown Glass Company
21 Harpsden Road, Henley-on-Thames, Oxfordshire, RG9 1EE
Tel: 01491 413 227 Fax: 01491 413 228

4.20.5 In 20th century buildings, other types of glass may be considered to be more appropriate and suitable proposals should be made.

4.21 PLASTER AND RENDER

4.21.1 New plaster: lime-hair plaster, to match the original specification, is the preferred plaster finish internally to walls and ceilings, and is to be used for making good existing damaged or defective plaster . "Limelite" renovating or finishing plaster manufactured by Tilcon Products Ltd, or equivalent, can be used where new plaster is required on the inside of external brick or block walls, for instance where damp proof courses have been installed.

4.21.2 **Plasterboard** is not recommended for use in The Crown Estate properties unless used to match existing repairs. Existing joists and walls should be finished with a wet plaster, on expanded metal where appropriate, which will give a better result, as it can take up the variations in the existing structure without breaking or cracking. Double layer plasterboard may be used on new partitions or new ceilings. Standard plasterboard is not recommended as a base for ceramic tiling. In circumstances where the use of plasterboard may be appropriate, and such circumstances should be specifically identified on the drawings submitted for approval.

4.21.3 Plaster on stud partitions is to be on stainless steel expanded metal or traditional timber lath. The galvanising on mild steel can be damaged in the fixing and plastering, leading to rust staining.

4.21.4 Plastering onto timber laths with lime hair plaster, to stud partitions or ceilings, demands different techniques from those used with modern gypsum based plasters. It is essential that experienced craftsmen are employed in order to produce a successful result.

4.22 STONE AND CERAMIC TILING

4.22.1 Bathroom finishes: extreme care must be taken to ensure that floor and wall finishes to the bathrooms are watertight, to prevent any water entering the building fabric, and that the area under baths and showers are accessible and also sealed against water. The weight of floor finishes such as marble or ceramic tiles must be investigated before ordering to ensure that the existing floors can bear the load without undue deflection. Original floorboards are also part of the historic fabric and proposals for their removal agreed with the Conservation Consultant.

DECORATIONS

4.22.2 Although redecorations are to be carried out in conjunction with the Schedule of Minimum Requirements (conservation schedule) works, alterations or repairs, the lease requires that all properties on the Estate north of the Marylebone Road are to be painted in an agreed cycle and at five yearly intervals, similarly the properties south of the Marylebone Road. The specification for the redecoration is supplied to The Crown Estate some months before the painting is due to start.

4.22.3 External decorations are to be carried out to The Crown Estate's Standard Specification.

4.22.4 External decorations must be carried out only in the periods detailed in the lease, or such other times as agreed in writing by The Crown Estate. This is to ensure a successful and long lasting paint finish.

4.22.5 Careful examination and analysis of the old internal and external painting schemes can also identify layers of weakness which may cause the new coats of paint to fail as they dry, setting up tensile stresses.

4.226 Internal redecorations are to be carried out in accordance with section M60 of the Standard Specification. Listed Building consent is required where complete stripping of the paint is envisaged which involves removal of original paintwork. Paint analysis may be required to determine the original colour schemes and paint specifications before removal if stripping is allowed. The Conservation Consultant must be informed.

4.22.7 Identify existing paint on internal cornices and strip off if it is not water soluble. Repaint in a water soluble paint which can be washed off at every redecoration to preserve the detail of the plasterwork.

4.22.8 Intervals at which internal redecorations are to be carried out are included in each lease.

4.22.9 Evidence of original or fine internal decorations schemes must be brought to the attention of The Crown Estate Conservation Consultants, carefully recorded and the method of protection agreed before covering up.

4.23 FIXTURES AND FITTINGS

4.23.1 Original or historic sanitary fittings should ideally be retained in situ and should not be removed without consultation with the Conservation Consultant, but if they are not to be retained they are to be handed back to The Crown Estate.

4.23.2 Sanitary fittings should be of high quality and the installation and fixing arrangements investigated before ordering. Cast iron baths and ceramic cisterns are preferred to plastics. The weight of filled cast iron baths should be taken into account before installation and suitable floor strengthening carried out. Levels and the direction of the floor joists must be carefully considered when installing waste pipes to ensure that as little cutting and trimming of the original structure is carried out.

4.23.3 Traps and waste pipes are to be of copper, brass, or gunmetal, chrome plated where exposed.

4.24 INSULATION

4.24.1 Thermal Insulation: Modern requirements in the Building Regulations include additional thermal insulation. This is easily provided in conventional pitched roof spaces, but the timber rafters must have air circulating around them to prevent rot developing. Proprietary vents are now available inset into blue grey slates. Cold

bridging must be avoided and the requirements for the avoidance of condensation implemented.

4.24.2 Insulation of the walls is more difficult, as this would entail changing the relationship of the main face of the wall to the cornice, skirtings and door and window architraves. In view of the generally sheltered nature of inner London, and the fact that most of the buildings are terraces it is not considered that insulation of the walls is desirable at this time. Draught stripping of the windows, use of the timber shutters and heavy curtains are all cost effective in retaining heat. Shutters are also useful in summer, to protect fine furniture and fabrics from damage by sunlight, and to assist in natural methods of cooling the building.

4.25 PAVINGS AND EXTERNAL FEATURES

4.25.1 External Features: Over the years, the original cast iron stairs from the pavement level down to the basement area have been replaced in many cases by timber steps. It is The Crown Estate's policy to return these to the cast iron to retain the character of the houses.

4.25.1 Entrance gates and locks must be put in full working order.

4.25.2 Plinths to railings are to be in stone to match the original and are not to be painted. Repairs to the plinths are to be in natural stone, render repairs are not appropriate in this situation.

4.25.3 External Paving: the natural stone pavings, steps, kerbs, plinths and the like are important factors in maintaining the quality of the Estate. Area paving must be replaced in York Stone, and plinths to railings repaired in natural stone.

4.25.4 Stone steps: worn chipped or damaged stone steps should be carefully repaired until replacement is essential. To maintain the uniformity of the terrace, later finishes such as ceramic tiles should be replaced with stone to match the original when substantial repairs are required.

4.25.5 Resin Bound Gravel: The forecourts of the properties in Kensington Palace Gardens are to retain and repair or introduce resin bound gravel as a finish. This is to provide the continuity afforded from the main street scene.

4.25.6 Railings: The patterns of historic railings varies through the estates, depending on the design and the period of the buildings should be repaired and not replaced and fixed into stone plinths using molten lead. Holes drilled for standards in stone plinths should be proportioned to the standard and not over sized.

4.26 RAINWATER PIPEWORK

4.26.1 External rainwater pipes are to be tested and overhauled, sections renewed, or replaced entirely with new if they are cast iron. Proposals for dealing with lead rainwater pipes which may have historic interest in themselves and/or decorative castings are to be agreed with The Crown Estate.

4.26.1 Plastic pipework is not to be used internally, except where utilities suppliers mains are run in plastic (gas, mains water).

4.26.2 External pipework is to be cast iron; rainwater pipes are to have open joints. Below ground pipework is also to be in cast iron.

4.26.3 Only rainwater pipes in the original positions will be allowed on the exterior of the properties, all other pipes must be run internally. Rainwater pipes are to match the original pattern e.g. rectangular section in Park Village West.

4.26.4 The capacity of the rainwater system to cope with the anticipated flows must be checked and additional drainage installed as required, in accordance with BS 6367. Calculate the capacity as set out in Appendix A of the British Standard, using Category 3 or 4 as appropriate depending upon the position of the gutters and outlets. The increased level of security against flooding is required to protect the original irreplaceable fabric and finishes of the building.

4.27 DRAINAGE ABOVE AND BELOW GROUND

4.27.1 Services pipework is to be rationalised into one service duct where possible; pipework should be concealed in chases in the walls or under he floor boards. Ensure that the minimum of historic fabric is cut away. Where this is not possible, pipes are to be concealed in sound-proofed ducts.

4.27.1 Services installations in general require upgrading in 15 - 30 years due to wear and tear, improvements in technology or revised regulations. Therefore as little historic fabric as possible should be cut away to insert services. Historic walls should not be chased any deeper or wider than is strictly necessary to accommodate the specific services. Where alternative routes are available, historic walls and partitions should be avoided. Horizontal chasing of historic walls should be avoided. No chasing should be carried out which affects structural support. In any case the depth of chasing of historic masonry should be no deeper than 50mm from the outer face of the plaster and 150mm wide without the specific approval of the Conservation Consultant.

4.27.2 Public Health Services must be carried out by an accredited sub-contractor. The existing installation must be assessed in the light of current legislation, and defective or non-compliant elements removed. Redundant pipes are to be stripped out and chases, holes and notches made good with matching materials.

4.27.3 All pipework should be accessible for cleaning out through rodding eyes and access plates, and inspection chambers. Pipework in bathrooms, including waste traps, must be completely and easily accessible in case of leaks.

4.27.4 Drainage surveys have been carried out recently for some areas of the Estate, and CCTV surveys are to be included in the Schedules of Minimum Requirements in the future. In addition the drainage above ground is to be tested. The system is to be repaired and renewed as necessary.

4.27.5 Plastic pipework is not to be used internally, except where utilities suppliers mains are run in plastic (gas, mains water). Internal wastes are to be in copper pipework and traps to be of gunmetal, brass, or copper. Soil and vent pipes are to be cast iron. Below ground pipework is also to be in cast iron.

4.28 HEATING AND HOT WATER INSTALLATIONS

4.28.1 Gas Fired Boilers: Most of the heating systems on the Estate are heated by gas-fired boilers. Due to changes in boiler design conventional flued systems are becoming obsolete, and condensing boilers are the preferred option. These require small inlet and exhaust grilles which must be sited discreetly in the brickwork elevations or where all the walls are stuccoed, in basement areas.

4.28.2 Radiators must be substantial, cast aluminium or cast iron, on the ground, first and second floors, and preferably on all floors. Extra supports may be required to the floors to take the weight of the filled radiator. Pressed steel radiators are not recommended because of their appearance and quality. If used on principal floors proposals should be put forward for approval.

4.28.3 Sufficient combustion air must always be provided for gas fires and boilers. The latest regulations must be checked for compliance.

4.28.4 Underfloor Heating: The Crown Estate in general will consider the use of underfloor heating provided that moderate operating temperatures are maintained, minimal disruption is caused to the floors and ceilings, and every precaution is taken to avoid damage in installation and operation. Monitoring systems will be required to detect leaks before they can damage the historic fabric.

4.29 ELECTRICAL SERVICES

4.29.1 The electrical installation is to be tested and brought up to meet the requirements of the latest edition of the IEE Regulations, by an NICEIC approved electrician.

4.29.2 All cables are to be concealed, and are to be run in conduit.

4.29.3 Socket outlets at low level are to be set at a height of 400 mm above finished floor level, except where there are historic tall skirtings over 200 mm high. In these cases the socket outlets should be fixed to the wall above with a minimum clearance of 30 mm between the top of the skirting and the underside of the cover plate.

4.29.4 Socket outlets, switch plates etc. in principal rooms are to be of a design in keeping with the style of the building.

4.29.5 Air conditioning installations will only be allowed in exceptional circumstances; and written permission is required from The Crown Estate.

Where permission is granted, the installation shall only serve areas of justifiable need, primarily bedrooms on upper floors and kitchens. Surface mounted units are preferred within kitchens for ease of maintenance and future removal. Internal grilles, where required, are to be located in discreet positions and not within areas of historic fabric and not in ceilings of principal rooms. External units are to be located in maintainable positions out of sight of the public and neighbours and shall conform to restrictive acoustic criteria.

4.29.6 External floodlighting to the properties is generally not permitted. Security lighting installations must be agreed with The Crown Estate.

4.29.7 Lifts and Hoists: where existing lifts or hoists are to be retained they must be tested and repaired by an accredited specialist lift contractor and left in sound working order. Some of the early lift machinery may be of historic value although not original to the property. An historic assessment of the installation must be made and the proposals agreed with The Crown Estate before removal.

4.29.8 Roof Installations: The Crown Estate encourage the installation of cable communications rather than obtrusive aerials, satellite dishes and the like. Permission is required for the installation of such communications equipment on the roofs. Where permission is given, wiring to telecommunications equipment and the like are not to be trail across the external walls or roofs, but are to be re-fixed internally.

4.29.9 Security and IT: The Crown Estate recognise the changing technology of communications and security. Due to the rapid upgrading of technology, The Crown Estate encourage the creation of duct routes for the long term through the fabric, to accommodate upgrades. Proposals are to be a fundamental part of the scheme. Note the limitations to chasing in clause 4.27.2.

4.29.10 Lightning Conductors: the property must be assessed for lightning protection requirements by a specialist in accordance with BS 6651 1999 and the latest guidance of DDENV 6102: 1995 "Protection of Structures Against Lightning". Any recommendations for installation, or repairs, adaptation or improvements of the existing installation are to be carried out.

4.29.11 Internal lighting: the ceilings are also part of the historic fabric, and recessed downlighters must not be fixed into lath and plaster ceilings, or in principal rooms. The original lighting levels would have been lower than is common today, and most likely from candles in chandeliers, candlesticks, girandoles, sconces or torchères. There may have been oil lamps standing on tables, or in pendant fittings. Although gas lighting had been introduced for street lighting by 1810, it gave a harsh and unsteady light, and it was not until the 1840s and 50s that gas lighting began to be used domestically, and electric lighting in the 1880s. The appearance of the buildings is enhanced by sympathetic lighting, especially to the principal rooms where they will be visible from the Park or public streets.

4.29.12 External Lighting: The appearance of the historic street scene has architectural value and any proposals to add, alter or change external lighting are to be put to The Crown Estate's conservation advisers.

4.29.13 The formal Nash Terraces were designed to give the impression that the individual dwellings were part of a single palace facade, and any attempt to introduce features such as lamps at particular entrance doors will detract from the whole and are to be discouraged.

4.30 SECURITY INSTALLATIONS

4.30.1 Listed Building Consent will be required for the installation of security devices which affect the character of the properties. Installation must be strictly in accordance with the approved drawings.

4.30.2 The Crown Estate Consent will be required for any security installation, through the Licence to Alter procedure. Lessees must arrange to meet The Crown Estate's representatives on site with their Security Consultant at concept stage. Lessees are advised to use the services of an independent consultant for installations more than a simple device. Full details of the installation are required and Listed Building consent will be required before a Licence to Alter is granted. The system must be installed to The Crown Estate's satisfaction, to meet the full Licence conditions.

4.30.3 An assessment of the security risks must be carried out by the Lessee and his or her security advisor to determine the type of installation required.

4.30.4 Ensure that the physical security arrangements do not conflict with the safety of the residents by hindering escape or access by the emergency services.

4.30.5 The law imposes restrictions on the methods used to prevent physical access to the building. An intruder must not be deliberately exposed to a risk which might injure or even kill. Where there is such risk, all reasonable and practical steps must be taken to reduce, eliminate or give warning of the danger.

4.30.6 Neighbourly watching of premises and notification of the police if the properties are going to stand empty for any length of time is helpful for informal surveillance. Contractor's vehicles seen outside the normal working hours should be reported to CEPC where applicable to Regent's Park Estate. Resident's Associations also have a role to play, and co-operation in the siting of lighting and cameras will help to ensure proper coverage of each property can be obtained without a great proliferation of installations.

4.30.7 Security Patrols: consultations must be carried out with The Crown Estate, CEPC, The Royal Parks Agency and Constabulary, Cluttons in Kensington Palace Gardens and other interested parties before arranging private security patrols, and procedures agreed.

4.30.8 Careful landscaping can allow a balance between individual privacy and lack of concealment for people acting suspiciously. Quickthorn hedges in conjunction with railings are a visually acceptable and effective deterrent.

4.30.9 Timber Trellis work is one of the items specifically disallowed for fixing to external walls in the lease. However, The Crown Estate are aware of the deterrent advantages of trellis rising above the top of garden walls in preventing intruders from gaining a secure foothold. Proposals should be made for a complete terrace or run of walling, and so should be discussed with the Resident's Association for the Terrace where appropriate.

4.30.10 Planters and Window Boxes - The Nash Terraces were designed to give the impression that each dwelling formed part of a single palace facade, and any attempt to introduce planters in locations which individualise one at the expense of the others will upset this concept. On the principal facades planters should be restricted to the first floor balconies and the ground floor window sills. The rear elevations and rear wings are generally considered to be inappropriate for planters.
Planters should be watered by hand. Automatic watering of planters is not allowed, because these invariably cause unsupervised overflowing onto balconies and terraces, causing damp and structural damage.
See also A12/34 and detail guidance notes.

4.30.11 Attention to the repair of locks and gates to areas and gardens will deter casual intruders. Be careful not to prevent quick exit from the building in the case of fire.

4.30.12 Do not remove original locks; repairs must be carried out by a specialist locksmith . Do not install mortised three point locking devices to original doors. Surface mounted installations must be agreed with The Crown Estate.

4.30.13 Anti-climb paint is generally unsightly, but if necessary is available in Crown Cream colour. It must be applied correctly to be effective. Traditionally, rings or fans of spiked railings have been used to prevent access between balconies and from downpipes. Existing ones should be carefully repaired. New installations may require Listed Building Consent. Consult with The Crown Estate and the Local Authority before carrying out any work.

4.30.14 All security products and services must meet the requirements of the Loss Prevention Certification Board.

4.30.15 Burglar alarm boxes are to be positioned inconspicuously, on the inside face of the outer basement area walls.

4.30.16 Cameras must be positioned discreetly. Although the sight of cameras can act as a deterrent, it also makes them vulnerable to covering or damage. In areas such as this, intruders may be expecting electronic surveillance. Appropriately sign written notices to the effect are acceptable. Cameras always require approval from the Conservation Consultant.

4.30.17 Cameras must not be situated in obtrusive positions on balconies, parapets, porticoes or cornices, or on free-standing poles. Decorative features - lanterns urns etc. - in the garden may be used to conceal the cameras. They can also be positioned in basement areas - recessed into walls, concealed under steps, concealed behind or within piers, or set behind fanlights. Ensure that there is easy access for maintenance.

4.30.18 All wiring must be chased in and concealed, but only with consent from The Crown Estate to avoid damage to the historic fabric.

4.30.19 Floodlighting is not permitted. Normal domestic external lighting, operated by proximity alarm is permitted as long as it is adjusted with care, and is appropriate for the Estate. Where this does not provide enough light for surveillance cameras, infra-red lighting or image intensification must be used.

4.30.20 Access Control cameras must be positioned within flush fitting plates in the reveal to the front door. The face plates must be brass, or painted to match the background.

4.30.21 Internally, site movement detectors and cameras avoiding damage to the historic fabric, and where they will have least visual impact.

4.30.22 Electronic Asset Protection of valuable items, including fireplaces will assist in their identification and recovery. This involves electronic "tagging" or labelling, similar to the systems used for retailers, which will activate an alarm if the item is moved from its position or carried past a hidden sensor.

4.30.23 Concertina security grilles are not allowed by The Crown Estate as they are visually obtrusive. The Crown Estate encourage the use of the original timber shutters to provide security. External burglar bars are not to be installed to any window above basement level and the design is to be agreed with The Crown Estate.

4.30.24 A traditional method of protecting glazed doors in basement areas was by hinged timber shutters, clipped back against the wall during the day.

4.30.25 Laminated and bullet proof glass is not usually permitted in existing windows - the additional weight of glass requires an unacceptable level of alteration to historic windows, and the change in appearance of the glazing stands out when seen with the rest of the Terrace. The Crown Estate prefer the use of secondary glazing or the existing timber shutters. Consult The Crown Estate if there are particular circumstances where the use of laminated glass is unavoidable.

4.30.26 External Cables - Electrical cables should not be run across or up the external facades in prominent locations. They will only be acceptable if concealed from view by architectural

features such as behind rainwater pipes or beneath string courses, and as a general rule never on the principal elevations.

MAIN CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

This section contains information on The Crown Estate, The Crown Estate Paving Commission, the Managing Agents and the Conservation Consultants who will monitor the works. It sets out the requirements of the CEPC for access and licences for builder's vehicles, and general conditions for works to ensure the safety and avoidance of nuisance to the neighbours and users of the Park.

The contract preliminaries, general conditions and work sections are based on the NBS intermediate form of contract.

It inserts the spec clauses that are particular to the Crown Estate requirements: these are

A10 PARTICULARS OF THE CROWN ESTATE

Acting on behalf of The Crown Estate

A10/1 THE CROWN ESTATE'S CONSERVATION CONSULTANT ARCHITECTS (CC):

The Crown Estate's Conservation Consultant Architects, who carry out monitoring on behalf of The Crown Estate are:

Mr C Betts

Purcell

St Mary's Hall, Rawstorn Road, Colchester, Essex, CO3 3JH

Tel: 01206 244844 Fax: 01206 244845

e-mail: chris.betts@purcelluk.com

web page: http://www.purcelluk.com

A10/2 THE CROWN ESTATE'S MANAGING AGENTS:

The Managing Agents for The Crown Estate in Regent's Park and Kensington Palace Gardens dealing with the day-to-day administration of the Estate, are Savills:

FOR RESIDENTIAL and COMMERCIAL PROPERTIES:

John Dyer

Savills UK Ltd

33 Margaret Street, London, W1H 0JD

Tel: 020 3320 8206
e-mail: jdyer@savills.com

web page: http://www.savills.co.uk www.regentsparkliving.com

The Managing Agents for The Crown Estate in St. James's, Pall Mall South, Haymarket and Lower Regent Street dealing with the day-to-day administration of the Estate, are BNP Paribas:

FOR COMMERCIAL PROPERTIES:

Neil Glendinning

BNP Paribas Real Estate

Roxburghe House, 273-287 Regent Street, London, W1B 2HA

Tel: 020 7338 4471
e-mail: neil.glendinning@bnpparibas.com

web page: http://www.realestate.bnpparibas.co.uk

A10/3 THE CROWN ESTATE PAVING COMMISSION (CEPC):

The Crown Estate Paving Commission has statutory duties and powers to maintain footways, pavings, street furniture etc. in the Regent's Park. It also grants licences for scaffolding, parking permits etc.

The Crown Estate Paving Commission
12 Park Square East, Regent's Park, London, NW1 4LH

Tel: 020 7935 8049

A10/4 QUINQUENNIAL PAINTING – REGENT'S PARK

The Architect who oversees the Quinquennial Painting of Regent's Park on behalf of The Crown Estate is:

Chris Betts

Purcell, St Mary's Hall, Rawstorn Road, Colchester, Essex, CO3 3JH

Tel: 01206 244844 Fax: 01206 244845

e-mail: chris.betts@purcelluk.com

web page: http://www.purcelluk.com

The Crown Estate requires any works to buildings on its Estate to be carried out to standards and in ways which ensure that a high quality and a common methodology are adopted throughout.

For convenience the following descriptions follow the general order and numbering set out in the NBS, and the standards or methodologies particular to the Crown Estate described therein are to be incorporated as a minimum standard into the specification of works for each and every project.

The descriptions included under each NBS clause are for the general guidance of the lessee and his/her architect/surveyor. They are not to be used verbatim in place of clauses in the NBS. The responsibility for specification for any particular project remains with the lessee's architect/surveyor.

A12 THE SITE/EXISTING BUILDINGS

A12/1 THE EXISTING BUILDINGS: The majority of buildings in the Park are listed Grade I , with some of the smaller terraces Grade II*. The railings, lamp standards and the like are listed in their own right. Make every effort to ensure that no damage occurs to the historic fabric; its loss is irreversible; it can only be replicated, never replaced. Details of the listing can be obtained from the Local Authority, or the National Monuments Record Listed Buildings Information Service.

A12/2 ROADS ETC: determine if the surrounding roads and footways are the responsibility of the Crown Estate Paving Commission or the Local Highways Authority.

A12/3 COMPLY with the Local Authority's requirements for restrictions on axle weights, movement of large vehicles etc., and obtain all licences and permits for vehicle access.

A12/4 COMPLY with the Local Highways Authority's requirements for licences for scaffolding, skips, licences etc. unless the premises comes under CEPC regulations, where clauses 201 - 229 apply.

A12/5 OBSTRUCTION: ensure that obstruction of the pavement and roadway is kept to a minimum.

A12/6 THE CROWN ESTATE PAVING COMMISSIONERS and their appointed officers wish to co-operate at all times and in all respects with the employer and/or Contractor to ensure that works are carried out in a proper and orderly manner without damage to CEPC property or disturbance to residents.

A12/7 ACCESS TO THE SITE: The Crown Estate Paving Commissioners have statutory duties and powers to maintain footways, pavings, street furniture etc in the Regent's Park, and their approval must be obtained for any works which will affect these as noted in the following clauses.

A12/8 ENCROACHMENT ONTO PAVINGS, FOOTWAYS AND TERRACE ROADWAYS: Any person proposing to carry out building works that may result in any encroachment onto the pavings, footways or Terrace roadways must first obtain approval in writing from the CEPC to their appointed Surveyor. Such approval may be granted by licence, subject to conditions, and a charge being made. Application for a licence should normally be made to the appointed Surveyor, Mr A P Gardner, c/o 12 Park Square East, London, NW1 4LH.

A12/9 CEPC REGULATIONS: Where no temporary encroachment is proposed, regulations A12/204 - 229 are to be followed in all cases.

A12/10 CEPC APPROVAL: No commercial vehicle or Contractor's car will be permitted to park on the Estate road without prior approval by the Inspector acting on behalf of the Paving Commissioners. Prior notice must be given in writing (with registration numbers, names and addresses) to the Inspector, 12 Park Square East, London NW1 4LH. Any permission granted may be withdrawn at any time or on behalf of the CEPC.

A12/11 PARKING ON FOOTWAYS: No vehicle whatsoever will be permitted to park on or overrun any footway. Any vehicle found parked on a pavement, even one wheel only, will be seized by wheel clamp.

A12/12 DAMAGE: Any damage to kerbstones, paving, coal-cellar covers, lamp posts, street furniture or boundary railings will be claimed for in full against the employer and/or contractor

A12/13 PROTECTION: Pavings, kerbs and coal-cellar covers should be protected against damage with substantial timber boards during the course of loading, unloading, access or any other activity other than normal pedestrian use.

A12/14 NO MIXING of cement, concrete or plaster, asphalt boiling or similar work will be permitted on CEPC footways or roads. Should such trespass occur, the full cost of reinstating the marked or damaged paving or other surfaces will be charged against the employers and Contractors.

A12/15 PROTECTION against damage should be provided to lamp posts, by the use of substantial timber boarding

A12/16 PROTECTION against damage should be provided to coal-cellar covers.

A12/17 SPECIAL PROTECTION against damage must be provided to all iron railings.

A12/18 THE USE OF SKIPS will only be permitted subject to notice being given in writing to the appropriate authority. Skips must be covered by tarpaulin outside working hours, and be well lit during the hours of darkness by flashing lights.

A12/19 SKIPS AND SCAFFOLD LICENCES can be obtained upon application to the CEPC, Royal Parks or Local Authority (as appropriate) and upon payment of appropriate fee. Special fees and restrictions apply to roads refurbished within the previous seven years.

A12/20 NO DEBRIS, builder's rubbish or materials will be permitted on CEPC roads and paving either as temporary storage or deposited to await collection.

A12/21 NO SCAFFOLDING, hoarding or any plant or equipment will be permitted to be used or to encroach onto CEPC roads or footways other than by a licence previously sought and obtained against payment of an appropriate fee.

A12/22 DRAINAGE CHANNELS, gutters, etc must not be blocked or impeded by any action of the Contractor, and damage caused by failure to keep drainage runs clear of builder's materials etc will result in a claim against the employer and/or Contractor.

A12/23 NAME-BOARDS, advertisements or any other notices are not to be fixed to railings, hoarding or any part of the CEPC property.

A12/24 INDEMNITY: The employer and /or contractor must indemnify the Paving Commissioners against any claim arising from the works being carried out and requiring access over CEPC property. Protection by way of temporary lighting, temporary walkways etc will be required for anything that might otherwise constitute a hazard to the public. In particular, the paving protection is to be suitably ramped and free from hazard.

A12/25 MAKING GOOD: Upon completion of all works, the Inspector must be notified and any damage caused to CEPC property made good immediately to the satisfaction of the CEPC. Failure to make good any damage will result in a claim being legally enforced against the employer and/or Contractor.

A12/26 THE ROUTE into and out of Regent's Park for all vehicles (commercial or goods) with an unladen weight of more than half a tonne is to be agreed in

advance by the CEPC acting in co-operation with the Royal Parks Constabulary.

A12/27 SPECIAL LICENCES will be required for any vehicle of gross vehicle weight of more than 20 tons or any crane.

A12/28 PARK CLOSED TO VEHICLES: Employers and/or Contractors should note that the Regent's Park is not open to any vehicle between midnight and 7 a.m.

A12/29 PERMITTED WORKING HOURS: The permitted working hours at Regents Park are Monday to Friday only between the hours of 8am to 5pm. No work is permitted on Saturdays, Sundays or bank holidays. Noisy work, defined as noise exceeding 80 decibels, can only be carried out between the hours of 10am to 2pm, Monday to Friday only.

Please see appendix C for permitted working hours at Kensington palace Gardens/Palace Green.

Noisy works means Works involving the use of machinery or equipment which produces or is likely to produce noise levels in excess of eighty decibels including (by way if example but not limited to) mechanical hammering, sanding, drilling or other noisy operation.

A12/30 DEPOSITS: The CEPC may, in certain circumstances, request a deposit from any Contractor, Tenant or Developer, to be held against any damage to roadways or pavements.

A12/31 GARDENS: In no circumstances may any Contractor's staff enter any CEPC garden.

A12/32 PUBLIC UTILITIES replacing or altering services to properties are to give 21 days' notice to CEPC prior to commencement of works under CEPC property and are responsible for full reinstatement of pavings, setts and roadways disturbed to the satisfaction of the CEPC.

A12/33 SCAFFOLD LICENCES are required prior to the erection of scaffolding over CEPC property and can be obtained upon application to the CEPC and upon payment of the appropriate fee.

A12/34 NO SIGNS, window boxes, flower pots or urns are to be placed on any steps, pavings, balconies or cills without the prior consent of the CEPC.

See also 4.30.10

A12/35 USE OF THE SITE: Do not use the site for any purpose other than carrying out the Works.

A12/36 SURROUNDING LAND/BUILDING USES: The surrounding land and buildings within Regent's Park are elements of the Park environment, and the Contractor must be aware of casual tourists, children, and others who may not be expecting to find construction traffic in the area.

A12/37 RISKS TO HEALTH AND SAFETY:
The nature and condition of the building/s cannot be fully and certainly ascertained before it is opened up. However, risks are or may be present as indicated in the Schedule of Minimum Requirements. The Lessee, his Advisors, Agents and Contractor must ascertain for themselves any information that they may require to ensure the safety of all persons and the Works.

A12/38 SITE VISIT: The Contractor must ascertain the CEPC and the Crown Estate requirements before tendering.

A20 THE CONTRACT

A20/1 FORM OF CONTRACT: There shall be a recognised building contract in place between the lessee and the contractor to ensure that there is proper control of all aspects of the work.

A20/2 DEFECTS LIABILITY: The Contractor is to be held responsible for all defects, unreasonable shrinkages etc. that may occur within twelve months of the practical completion and is to uphold and maintain the work during the full period of the contract, including the maintenance period.

A30 TENDERING/SUBLETTING/SUPPLY

MAIN CONTRACT TENDERING

A30/1 PRICING/SUBMISSION OF DOCUMENTS

A30/1.1 QUALITY CONTROL RESOURCES: A statement must be submitted within one week of request describing the organisation and resources which the Contractor proposes and undertakes to provide to control the quality of the Works, including the work of subcontractors. The statement must include the number and type of staff responsible for quality control, with details of their qualifications and duties, and must be copied to CC.

A30/1.2 HEALTH AND SAFETY INFORMATION: A statement must be submitted with the tender describing the organisation and resources which the contractor proposes and undertakes to provide to safeguard the health and safety of operatives, including those of subcontractors and of any person who may be affected by the works, including:

- A copy of the contractors health and safety policy document, including risk assessment procedures.
- Accident and illness records for the past five years.
- Records of previous Health and Safety Executive enforcement action.
- Records of training and training policy.
- The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
- A copy of this document provided by the successful tenderer is to be sent to CC

A30/1.3 AN OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN must be submitted within two weeks of request and is to include the following:

- Method statements related to the construction hazards identified in the pre-tender health and safety plan and/or statements on how the hazards will be addressed and other significant hazards identified by the contractor.
- Details of the management structure and responsibilities.
- Arrangements for issuing health and safety directions.
- Procedures for informing other contractors and employees of health and safety hazards.
- Selection procedures for ensuring competency of other contractors, the self-employed and designers.
- Procedures for communications between the project team, other contractors and site operatives.
- Arrangements for co-operation and co-ordination between contractors.
- Procedures for carrying out risk assessment and for managing and controlling the risk.
- Emergency procedures including fire precautions.
- Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.
- Arrangements for welfare facilities.
- Procedures for ensuring that all persons on site have received relevant health and safety information and any training.
- Arrangements for consulting with and taking the views of people on site.
- Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.

- Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.
- Review procedures to obtain feedback.
- A copy of this document provided by the successful tenderer is to be sent to CC

A30/2 SPECIALIST SUB-CONTRACTORS

A30/2.1 SPECIALIST SUB-CONTRACTORS: the following works are to be executed by a competent specialist firm. Submit details of the company for approval , with details of their competence, experience, and references to the Crown Estate:

a) Plasterwork, including fibrous plaster mouldings, cornices and the like, and external stucco

b) Joinery

c) Fireplaces

d) External ironwork balconies and railings

e) Stonework

f) Stone or brick cleaning

g) Any other works of a specialist nature which may arise for a particular scheme.

A31 PROVISION, CONTENT AND USE OF DOCUMENTS

A31/1 DEFINITIONS AND INTERPRETATIONS

A31/1.1 THE CONSERVATION CONSULTANT, or the abbreviation CC, means the Crown Estate's Conservation Consultant Architects or their authorised representative. All correspondence is to be directed to the Conservation Consultant in the first instance.

A31/1.2 THE MANAGING AGENT means the Crown Estate's Managing Agent or his/her authorised representative.

A31/1.3 THE CROWN ESTATE means the Residential Business Manager, or his authorised representative.

A31/1.4 THE CONTRACTOR means the Lessee's Contractor.

A31/1.5 THE ARCHITECT or Contract Administrator, abbreviated to CA, means the Lessee's Architect.

A31/1.6 IN WRITING: When required to notify, inform, instruct, agree, confirm, obtain information, obtain approval or obtain instructions do so in writing.

A31/1.7 THE CROWN ESTATE'S APPROVAL (and words derived therefrom) means the approval in writing through the CC or Managing Agents unless specified otherwise.

A31/1.8 PRODUCTS means materials (including naturally occurring materials) and goods (including components, equipment and accessories) intended for permanent incorporation in the Works.

A31/1/9 EQUIVALENT PRODUCTS:

The CA is to ensure that any product of different manufacture substituted for one specified is its equivalent

A31/1.10 BRITISH STANDARD PRODUCTS:

The CA is to ensure that any product substituted for a British Standard one is of an equivalent international standard.

A31/1.11 REFERENCES TO BSI DOCUMENTS are to the versions and amendments listed in the latest BSI Standards Catalogue and in subsequent issues of BSI News to date.

A31/2 TERMS USED IN REFURBISHMENT/ALTERATION

A31/2.1 REMOVE means disconnect, dismantle as necessary and remove the stated element, work or component and all associated accessories, fastenings, supports, linings and bedding materials, and dispose of unwanted materials. It does not include removing associated pipework, wiring, ductwork or other services.

A31/2.2 KEEP FOR REUSE means:

- During removal prevent damage to the stated components or materials, and clean off bedding and jointing materials.
- Stack neatly, adequately protect and store until required by the Employer or for use in the Works as instructed.

A31/2.3 REPLACE means:

- Carefully remove the stated existing components, features and finishes, and hand to the Crown Estate for their records.
- Provide and fit in lieu new components, features or finishes which, unless specified otherwise, must match those which have been removed.
- Make good as necessary.

A31/2.4 REPAIR means carry out local remedial work to components, features and finishes as found in the existing building. Re-secure or refix as necessary and leave in a sound and neat condition. It does not include:

- Replacement of components or parts of components.
- Redecoration.

A31/2.5 MAKE GOOD means carry out local remedial work to components, features and finishes which have been disturbed by other, previous work under this Contract and leave in a sound and neat condition. It does not include:

- Replacement of components or parts of components.
- Redecoration.
- The meaning of the term shall not be limited by this definition where used in connection with the defects liability provisions of the Contract.

A31/2.6 EASE means make minor adjustments to moving parts of the stated component to achieve good fit in both open and closed positions and

ensure free movement in relation to fixed surrounds. Make good as necessary.

A31/2.7 TO MATCH EXISTING means use products, materials and methods to match closely all visual characteristics and features of the existing work, with joints between existing and new work as inconspicuous as possible, all to approval of appearance.

A31/3 DOCUMENTS TO BE PROVIDED

A31/3.1 AS BUILT DRAWINGS AND INFORMATION must be provided to the CC as soon as possible after Completion. The CC's confirmation that the works have been carried out and completed in accordance with the Crown Estate's requirements and specification, will not be issued until these drawings are received.

A31/3.2 MAINTENANCE INSTRUCTIONS AND GUARANTEES:

Retain copies delivered with components and equipment (failing which, obtain), and hand copies to CC for the Crown Estate's records on or before Practical Completion.

A32 MANAGEMENT OF THE WORKS

A32/1 GENERALLY

A32/1.1 SUPERVISION: The Lessee must supply the Crown Estate with the name and telephone number of the Contractor's representative on site for contact in case of emergency.

A32/1.2 INSURANCES: Before starting work on site, send copies of the documentary evidence and/or policies and receipts for the insurances required by the Conditions of Contract to the CC.

A32/2 PROGRAMME/PROGRESS

A32/2.1 PROGRAMME:

- As soon as possible and before starting work on site send a copy of the Contractor's programme to the CC and to the MA.

A32/2.2 COMMENCEMENT OF WORK: Inform the CC at least 7 working days before the proposed date for commencement of work on site.

A32/2.3 NOTICE OF COMPLETION: Give the Monitoring Architect at least 2 weeks notice of the anticipated dates of Practical Completion of the whole or parts of the Works.

A33 QUALITY STANDARDS/CONTROL

A33/1 AS NBS PLUS ADD ANY REQUIREMENTS OF THE CROWN ESTATE AS SET OUT IN THESE GUILDELINES.

A33/1.1 APPROVALS: Inspection or any other action by the CC must not be taken as approval of products or work on behalf of the Crown Estate unless the CC so confirms in writing in express terms referring to:

- Date of inspection
- Part of the work inspected
- Respects or characteristics which are approved
- Extent and purpose of the approval
- Any associated conditions

A33/2 ACCURACY/SETTING OUT GENERALLY

A33/2.1 SETTING OUT: Check the levels and dimensions of the site against those shown on the drawings, and record the results on a copy of the drawings. Notify CC in writing of any discrepancies which will affect the works as approved by The Crown Estate.

A33/2.2 RECORD DRAWINGS: Record details of all grid lines, setting-out stations, bench marks and profiles on the site setting-out drawing. Retain on site throughout the contract and a send a copy to CC at completion.

A33/2.3 SERVICE RUNS: centralise service runs in one duct if possible and comply with the construction phase of the Health and Safety Plan.

A33/2.4 MECHANICAL AND ELECTRICAL SERVICES must have final tests and commissioning carried out so that they are in full working order at Practical Completion, and for the CC's final inspection.

A33/3 SUPERVISION/INSPECTION/DEFECTIVE WORK

A33/3.1 ACCESS FOR CC: Provide at all reasonable times access for the CC to the Works and to other places of the Contractor or Subcontractors where work is being prepared for the Contract.

A33/3.2 ACCESS FOR PARTY WALL SURVEYORS: Provide at all reasonable times access to the Works for Party Wall Surveyors and provide facilities to permit inspection of any work required.

A33/3.3 DEFECTS IN EXISTING CONSTRUCTION to be reported to the CC without delay, and obtain approval for the remedial works before proceeding with work which may:

- Cover up or otherwise hinder access to the defective construction, or
- Be rendered abortive by the carrying out of remedial work.

A33/3.4 ACCESS FOR INSPECTION: Give CC, and Party Wall Surveyors not less than one week's notice before removing scaffolding or other facilities for access.

A33/3.5 PROPOSALS FOR RECTIFICATION OF DEFECTIVE WORK/PRODUCTS:

- As soon as possible after any part(s) of the work or any products are known to be not in accordance with the Contract or the Licence to Alter, or appear that they may not be in accordance, submit proposals to CC for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Such proposals may be unacceptable to the CC, and he may issue contrary instructions.

A34 SECURITY/SAFETY/PROTECTION

A34/1 GENERALLY

A34/1.1 THE PRE-TENDER HEALTH AND SAFETY PLAN: a copy of the pre-tender Health and Safety Plan must be submitted to the Conservation Consultant.

A34/1.2 THE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN: a copy of the Construction Phase Health and Safety Plan must be submitted to the Conservation Consultant not less than 7 days before the proposed date for start of construction work, with a copy of the Lessee's confirmation in writing that in his view the Construction Phase Health and Safety Plan includes the procedures and arrangements required.

A34/1.3 SECURITY: Take down ladders and lock up at the end of each day's work to discourage unauthorised access to the building. Lock up power tools each night and remove them from site at weekends.

A34/1.4 STABILITY: Ensure that responsibility for the stability and structural integrity of the Works during the Contract are clearly defined. Prevent overloading.

A34/1.5 THE CROWN ESTATE'S REPRESENTATIVES' SITE VISITS:

Inform the CC in advance of all safety provisions and procedures (including those relating to materials which may be deleterious) which will require the compliance of the CC or representatives of The Crown Estate when visiting the site. Provide protective clothing and/or equipment for the CC and representatives of the Crown Estate as appropriate.

A34/1.6 COMPLY FULLY WITH THE REQUIREMENTS OF THE ENVIRONMENTAL ACT 1990

A34/2 PROTECT AGAINST THE FOLLOWING:

A34/2.1 NOISE:

- Comply generally with BS 5228.
- Comply with the requirements of the Local Authority regarding noise levels and the Control of Pollution At 1974.
- Ensure that noise from the works does not cause a nuisance to adjoining owners.
- Fit all compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Do not use pneumatic drills and other noisy appliances during the permitted working hours without consent of the CC, and agreement with the MA.
- Do not use or permit employees to use radios or other audio equipment in ways or at times which may cause nuisance.

A34/2.2 NUISANCE: Take all necessary precautions to prevent nuisance from smoke, dust, rubbish, vermin and other causes. Keep noise and dust to a minimum.

A34/2.3 NUISANCE: Accept responsibility and indemnify the Lessee against all claims in connection with noise, dust, smoke or other nuisances arising from the execution of the Works.

A34/2.4 FIRE: Take particular fire precautions to protect the irreplaceable historic building, including 24 hour security and a temporary system of smoke detectors in all rooms, entrance halls, corridors, staircases, and basement areas.

A34/2.5 HOT WORK PERMIT procedures will operate for all "hot work" as follows:

- ONLY COLD CUTTING will be permitted as far as possible, but exceptionally, where Contractors are required to carry out a hot work process as part of the contract, including the use of welding apparatus, cutting equipment, angle grinders and other spark or flame producing equipment, they must obtain a
- HOT WORK PERMIT from the Lessee's Contractor before the work starts, who must notify the CA in good time.
- THE CONTRACTOR AND SUB CONTRACTOR must provide PROOF OF INSURANCE to carry out "hot work" to the CA and CC.
- ONLY SKILLED TRADESMEN, who have been made aware of the safety precautions relevant to the job in hand, will be allowed to operate welding, cutting, brazing, disc cutting, plumber's furnaces, bitumen boilers and the like.
- REMOVE all litter, rubbish and combustible material from the vicinity of the work.
- PROTECT fixed or immovable combustible material with non-combustible material such as fire-resisting board, fire-resisting quilt or a fire blanket.
- PROTECT FLOORS from heat, sparks, flames or hot slag.
- PREVENT FLAME, sparks or molten metal from reaching or entering ducts, channels, chases or open ended pipes, or through other openings in walls or floors.
- PLUG holes temporarily with non-combustible material.
- INVESTIGATE the possibility of damage by the conduction of heat along fixed metalwork through partitions, walls or floors; remove combustible material in contact with such metalwork.
- DO NOT use flame or spark producing apparatus near containers of highly flammable liquids or compressed gases, whether they are full or empty.
- DO NOT leave heat or flame producing apparatus unattended when alight.
- A SECOND OPERATIVE is to be present all the time that the hot work is in progress as an observer.
- FIRE FIGHTING EQUIPMENT appropriate to the job in hand is to be immediately to hand and both the operative and the observer must be trained in its use. The equipment must remain in place until all possibility of an outbreak has passed.
- NO HOT WORK is to be undertaken in any part of the last hour of work for the day.
- EXAMINE CLOSELY the danger area immediately after the completion of the work to make sure that there is no smouldering or incipient fire;

included any cavities, voids, rooms, cupboards, ducts or any other concealed space where stray heat or sparks may have penetrated.

- INSPECT THE AREA ONE HOUR after the operatives have finished work and record the inspection in writing.
- INSPECT THE AREA also at meal breaks and at the cessation of work for the day and record the inspection in writing.

A34/2.6 LEAD BURNING on site is not permitted.

A34/2.7 FLAME LAMPS are not permitted for fixed or portable site lighting or heating.

A34/2.8 BURNING OFF paintwork is not permitted.

A34/2.9 THAWING of frozen pipes with naked flames is not permitted.

A34/2.10 INFECTED TIMBER: Where instructed to remove timber affected by fungal/insect attack from the building, do so in a way which will minimise the risk of infecting other parts of the building. Agree extent of removal and methods of treatment with CA and CC before cutting away any timber.

A34/2.11 WASTE:

- Remove rubbish, debris, surplus material and spoil regularly and keep the site and Works clean and tidy.
- Remove all rubbish, dirt and residues from voids and cavities in the construction before closing in.
- Ensure that non-hazardous material is disposed of at a tip approved by a Waste Regulation Authority.
- Remove all surplus hazardous materials and their containers regularly for disposal off site in a safe and competent manner as approved by a Waste Regulation Authority and in accordance with relevant regulations.
- Retain waste transfer documentation on site.

A34/3 PROTECT THE FOLLOWING:

A34/3.1 EXISTING SERVICES:

If any damage to services results from the execution of the Works, notify CC and appropriate service authority without delay. Make arrangements for the work to be made good without delay to the satisfaction of the service authority or other owner as appropriate.

A34/3.2 ROADS AND FOOTPATHS: Adequately maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris. Any damage to roads and footpaths caused by site traffic or otherwise consequent upon the Works must be made good to the satisfaction of the Local Authority, CEPC or other owner. Bear any costs arising.

A34/3.3 TREES/HEDGES/SHRUBS/LAWNS: Adequately protect and preserve, except those which are to be removed. Replace to approval or treat as instructed any species or areas damaged or removed without approval. See also CEPC regulations above.

A34/3.4 EXISTING WORK: Prevent damage to existing property undergoing alteration or extension and make good to match existing any defects so caused. Remove existing work the minimum necessary and with care to avoid the loss of the irreplaceable historic fabric.

A34/3.5 BUILDING INTERIORS: Protect building interiors exposed to weather during the course of alteration work with temporary enclosures of sufficient size to permit execution of the work and which will remain weathertight in severe weather.

A34/3.6 EXISTING FURNITURE, FITTINGS AND EQUIPMENT: Prevent damage to any furniture, fittings or equipment left in the existing property. Move as necessary to enable the Works to be executed, cover and protect as necessary and replace in original positions. The Lessee must provide a list of items that will be removed by the Lessee before work in each room starts:

A34/3.7 ESPECIALLY VALUABLE/VULNERABLE ITEM(S): Ensure the provision and maintenance of special protective measures to prevent damage to, or theft of all items included in a Schedule of Historic Items in the Schedule of Minimum Requirements, and other fine elements such as banisters, handrails, staircases, marble floors, parquet floors, fireplaces, ironmongery, fittings cornices, panelling, statues, ornamentation and other enrichments.

A34/3.8 MARBLE FIREPLACES: protect marble fireplaces in situ where restoration is not required, and removal is very difficult, using a stout casing with a spy hole for inspection. This will only be permitted when adequate security for the property is provided at all times, and agreed with the Crown Estate.

A34/3.9 ADJOINING PROPERTY: Prevent trespass of workpeople. Take all reasonable precautions to prevent damage to adjoining property. Obtain permission as necessary from the owners if requiring to erect scaffolding on or otherwise use adjoining property, and pay all charges. Remove and make good on completion or when directed. Bear the cost of repairing any damage arising from execution of the Works.

A34/3.10 EXISTING STRUCTURES:

- Provide and maintain during the execution of the Works all incidental shoring, strutting, needling and other supports as may be necessary to preserve the stability of existing structures on the site or adjoining, that may be endangered or affected by the Works.
- Support existing structure as necessary during cutting of new openings or replacement of structural parts.
- Do not remove supports until new work is strong enough to support the existing structure. Prevent overstressing of completed work when removing supports.
- Do not overload existing structures by storing materials or allowing debris to accumulate.

A35 SPECIFIC LIMITATIONS ON METHOD/SEQUENCE/TIMING

A35/1 DESIGN CONSTRAINTS:

- DO NOT USE materials containing CFC's or other ingredients harmful to the ozone layer.
- DO NOT USE asbestos based products.
- ENSURE that all materials are used in accordance with British Standards or European Codes of Practice, Trade Association guidance notes, Agrément certificates.
- SPECIFY products which come from sustainable resources
- FOLLOW the Crown Estate Policy Statement "Stewardship in Action".

A35/2 SCAFFOLDING

For many properties, providing adequate scaffolding for the works will not be straightforward because of the restricted site access, proximity of adjoining properties and variations in ground levels around the property. It is therefore recommended that particular care should be taken in the choice of scaffolding contractor to ensure an adequate level of experience is available. The lessee or its advisors should look for Membership of the National Association of Scaffolding Contractors (NASC).

Contractors should be able to demonstrate:

a) A sound Health & Safety Policy

b) Adequate Employers and Public Liability Insurance

c) Scaffolding operatives that are registered under the Construction Industry Training

d) Board (CITB)

e) All operatives are fully trained, registered and competent in activities undertaken

f) All works is adequately supervised by competent trained supervisors

g) Materials conform to the specified standards and are regularly checked and maintained

h) Work is carried out in accordance with relevant codes of practice

A35/3 SCAFFOLDING AND CRADLES must not be erected on any balcony, cornice or steps or vaults without adequate protective support on the underside to prevent breakage.

A35/4 CRADLES are not suitable for the general painting of the exteriors, but can be used for minor touching up, repairs etc. Take care not to damage arrisses, mouldings, and decorative features when using cradles.

A35/5 ALL TRANSOMS, PUTLOGS AND BRACES are to be end capped where they touch the building.

A35/6 RESTRAINTS FOR SCAFFOLDING: agree with CC all positions of fixings to be installed to stabilise scaffolding to comply with Health and Safety regulations. Such fixings to the face of the façade should be kept to the minimum and shall be cut back/ removed when the scaffolding is struck and the surface made good.

A35/7 USE OR DISPOSAL OF MATERIALS:

DUST which is likely to contain lead from old paint is to be placed in sealed bags and disposed of as detailed in the Health and Safety Documentation.

A35/8 WORKING HOURS:

The permitted working hours at Regents Park are Monday to Friday only between the hours of 8am to 5pm. No work is permitted on Saturdays, Sundays or bank holidays. Noisy work, defined as noise exceeding 80 decibels, can only be carried out between the hours of 10am to 2pm, Monday to Friday only.

Please see Appendix C for permitted working hours at Kensington Palace Gardens/Palace Green.

A36 FACILITIES/TEMPORARY WORK/SERVICES

A36/1 LOCATIONS: Inform CC of the intended siting of all spoil heaps, temporary works and services.

A36/2 NAME BOARDS/ADVERTISEMENTS: Consultants/Contractor's/ Subcontractors' name boards or advertisements will not be permitted.

A36/3 LIGHTING: During finishing work and inspection provide temporary lighting, the intensity and direction of which closely resembles that provided by the permanent installation.

DEMOLITION/ALTERATION

This section deals with requirements for safety and protection of the retained building and services during demolition, removal of asbestos and restrictions on the disposal of waste.

C20 DEMOLISHING STRUCTURES

To be read with Preliminaries/General conditions.

GENERAL REQUIREMENTS

C20/1.1 SURVEY: Before starting work, examine all available information, carry out a survey of the structure(s), site and surrounding area, and submit a survey report and method statement to the CC, covering all relevant matters listed below and in the Health and Safety Executive Guidance Note GS29/1 paragraph 32:

- The form, condition and demolition methods of the structure(s).
- The form, location and removal methods of any toxic or hazardous materials.
- The identification and location of services above and below ground.

C20/1.2 OPENING UP: Carry out opening up to determine the extent of structural defects, rot and the like, as itemised in the SMR, and agree remedial works with CA and CC before commencing any works. Note that extensive opening up may require Listed Building Consent.

C20/1.3 ARCHITECTURAL FEATURES: Protect all architectural features to remain with casings/protection to be agreed with the CC before commencing any demolition.

C20/1.4 BENCH MARKS: report any bench marks or other survey information, boundary markers and the like found on structures to be demolished. Do not destroy without the written permission of CC.

C20/2 SERVICES AFFECTED BY DEMOLITION

C20/2.1 Services carried out to or which affects new or existing services. Carry out in accordance with the byelaws or regulations of the relevant statutory authority.

C20/2.2 SERVICES WHICH ARE TO REMAIN: Notify the CC and service authority or owner of any damage. Make all arrangements for repair to the satisfaction of the CC and service authority or owner.

C20/3 DEMOLITION WORK

C20/3.1 WORKMANSHIP GENERALLY:

- Demolish structure(s) in accordance with BS 6187 and Health and Safety Executive Guidance Notes GS29/1, 3 and 4.
- Operatives must be appropriately skilled and experienced for the type of work and hold or be training to obtain relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of the work are to be experienced in the assessment of the risks involved and in the methods of demolition to be used.

C20/3.2 GAS OR VAPOUR RISKS: Take adequate precautions to prevent fire or explosion caused by gas or vapour.

C20/3.3 DUST: Reduce dust by periodically spraying demolition works with water. Avoid wetting plasterwork etc which is to remain.

C20/3.4 BURNING ON SITE will not be permitted.

C20/3.5 NOISE: works that cannot be executed without undue noise or vibration are to be carried out at such times as are to be agreed with CC and MA.

C20/3.6 HEALTH HAZARDS: Take adequate precautions to protect site operatives and the general public and neighbours from health hazards associated with dangerous fumes and dust arising during the course of the Works.

C20/3.7 ADJOINING PROPERTY:

- When demolishing structure(s) against adjoining property leave adequate temporary support and protection at each stage and arrange for inspection by the CC and MA. Maintain and alter temporary supports and protection as necessary as work progresses.
- Demolish structure(s) causing a minimum of damage to adjoining property and leave no unnecessary or unstable projections.
- Do not disturb support to foundations of adjoining property unless otherwise instructed.
- CA to report to the CC any defects exposed or becoming apparent in adjoining property.
- Promptly repair any damage caused to adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.

C20/3.8 STRUCTURE(S) TO BE RETAINED:

- Adequately protect parts of existing structure(s) which are to be kept in place.
- Cut away and strip out the minimum necessary and with care to reduce the amount of making good to a minimum.
- Prevent debris from overloading any part of the structure which is not to be demolished.

C20/3.9 PARTLY DEMOLISHED STRUCTURE(S):

- Leave partly demolished structure(s) in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse.
- Prevent debris from overloading scaffolding platforms.
- Prevent access of unauthorised persons to partly demolished structure(s). Leave safe outside working hours.

C20/3.10 DANGEROUS OPENINGS: Illuminate and protect as necessary. Keep safe outside working hours.

C20/3.11 ASBESTOS ENCAPSULATION of asbestos is not acceptable.

C20/3.12 UNFORESEEN HAZARDS: Inform the CC of any unrecorded voids, tanks, chemicals, etc. discovered during demolition work. Agree with the CC, methods for safe removal, filling, etc.

C20/3.13 RETAINING WALLS: Ensure that retaining and party walls always have sufficient buttressing; provide temporary supports as necessary to the approval of a suitable experience Structural Engineer (preferably conservation accredited).

C20/4 MATERIALS ARISING

C20/4.1 DEMOLITION MATERIALS are not to be sold direct from the site.

C20/4.2 EMPLOYERS PROPERTY: Agree with the CC, components and materials which are to remain the property of the Crown Estate. Carefully remove and store on site where directed. Protect until removed by the Crown Estate, reused in the works, or end of the Contract.

C20/4.3 SURPLUS MATERIALS which are the property of the CEPC are to be handed back to the CEPC.

CONSERVATION

C30 SHORING AND SUPPORTS

C30/1.1 LOADING AND MAINTAINING SUPPORT STRUCTURES:
Agree with the CC, MA and Structural Consultant the method statement for the loading and maintaining of support structures.

C30/1.2 COMMENCEMENT CONDITION SURVEY:

- Before starting work, survey the existing state of structure to be kept in place to locate and record the magnitude and extent of all cracks, spalling, flaking and other irregularities of the fabric.
- Agree the commencement condition survey record with the CC.

C30/1.3 RETENTION OF STRUCTURE:

- Where structure is to be retained, agree details of supporting structure and structural monitoring procedures with the CC's Monitoring Architect and Structural Consultant.

C30/1.4 UNKNOWN HAZARDS: Inform the CC of any unrecorded voids, flues, services, etc. discovered during erection of support systems. Agree with the CC methods for infill, making good, relocation of support connections, etc.

C30/1.5 DAMAGE: Promptly repair any damage caused to adjoining property by erection or connection of support systems. Make good to ensure safety, stability, weather protection and security.

- Report to the CC any damage caused to retained facades by erection or connection of support systems. Agree methods of repair with the CC.

C30/1.6 COMPLETION CONDITION SURVEY:

- After disconnection of support systems, survey and record the state of structure kept in place.
- Ensure that all defects caused by or due to support systems have been remedied.
- Agree the completion condition survey record with the CC.

C30/1.7 MAKING GOOD: Repair any connection holes made in the structure kept in place with methods and materials as agreed with the CC.

C35 STRUCTURAL REPAIRS

C35/1.1 TYING IN: check that all internal walls are tied into the floors at each level and carry out remedial works as required.

C35/1.2 TYING IN: check that all party walls are tied into the front and rear elevations and carry out remedial works as required.

C35/1.3 LINTELS: expose all the ends of the inner timber lintels over the windows, check for rot and replace if necessary with pre-cast concrete.

C40 CLEANING AND REPAIRING BRICKWORK

C40/1.1 RECLAIMED BRICKS: facing bricks reclaimed from demolitions and cutting away on the site will be approved for re-use only if they are free from fungus, have no deep or extensive cracks , or damaged corners or arrisses, and are free from old mortar.

C40/1.2 SAMPLES: obtain samples of facing bricks and voussoirs to be used in external brickwork to CC's approval; keep samples on site.

C40/1.3 CONTROL SAMPLE PANELS: prepare sample panels of brickwork and pointing to match existing, for approval by the CC. Give notice to CC of the removal of any sample panels.

C40/1.4 MORTAR: to be as specified in Section Z21.

- Ensure that the mortar for the repair is the same strength or weaker than the existing.

C40/1.5 EXISTING MORTAR SAMPLES: in cases of fine brickwork, take samples of mortar for analysis by others; record positions of each sample.

C40/1.6 CLEANING: the method of cleaning brickwork depends upon the degree and cause of the soiling.

- Contractors must be experienced in cleaning historic buildings.
- Present details of soiling and proposals for cleaning to CC for approval before commencing any work.
- Proposals must included details of collection of run -off and disposal/recycling of dirty water.

C40/1.7 CLEANING: comply with section 1 of BS 6270: Parts 1 and 2 in respect of:

- means of access;
- protection of building fabric, external and decorative fixtures;
- protection of operatives, building users and public.

C40/1.8 SURFACE REPAIR: comply with the general requirements of BS 6270 and use the particular method of repair specified in the Part and Section of BS 6270 stated below for the surface repair of:

- mortar joints (Part 1, Section 3, paragraph 13)
- brickwork (Part 1, Section 3, paragraph 14.3)

C40/1.9 BRICK TIES: ensure that the inner and outer skins of brickwork are properly bonded together; carry out remedial work as necessary using a suitable method of non-ferrous ties. Agree method with CC

C40/1.10 BIOCIDES FOR ALGAE AND LICHEN: apply a biocide as approved by the Advisory Committee on Pesticides following Health and Safety Executive guidelines and COSHH Regulations.

C40/1.11 ACCURACY: keep courses level and perpends vertical and in line with existing courses; plumb all wall faces, angles and features. Adjust joint thicknesses to match the existing.

C40/1.12 SET OUT repairs carefully to achieve satisfactory junctions with existing brickwork / elements.

C40/1.13 BOND: repairs are to match the existing bond. Additional ties / reinforcement are to be inserted to ensure patched brickwork is securely integrated.

C40/1.14 BOND: unless stated otherwise 112 mm walls are to be in stretcher bond, and other brickwork in Flemish bond.

C40/1.15 BACKING BRICKWORK to faced walls is to be in the same bond as the facework.

C40/1.16 LAY FACING BRICKWORK to be pointed later on a full bed of mortar and fill all frogs and joints; rake out to C40/240 TCE as the work proceeds.

C40/1.17 LAY FACING BRICKWORK on a full bed of mortar and fill all frogs and joints; strike off joints as the work proceeds; tamp lightly with a stiff bristle brush when nearly dry to match weathered pointing.

C40/1.18 LAY GENERAL WALLING brickwork on a full bed of mortar and fill all frogs and joints; strike off joints with a trowel as the work proceeds.

C40/1.19 FROGS: lay single frogged bricks frog uppermost and double frogged bricks with the deeper frog uppermost.

C40/1.120 REPAIRS: agree the extent of all brickwork repairs with the CC before starting any cutting out or repointing.

C40/1.21 STITCHING: carefully cut out bricks as agreed between the by CA/SE/CC:

- remove all mortar from all faces of the hole. Do not damage the arrisses of the retained brickwork
- install reinforcement / ties in accordance with Particular Specification
- fill hole with facing brickwork to match existing
- point to match in with the wall

C40/1.22 REPAIR OF GAUGED BRICK ARCHES is to be carried out by a qualified craftsman bricklayer experienced in repair/renovation of historic gauged brickwork.

C40/1.23 REPLACEMENT OF GAUGED BRICK ARCHES using arch sets

- Install temporary centring
- carefully dismantle the whole arch, setting aside any undamaged voussoirs for re-use in new arch set by specialist manufacturer
- remove section of brickwork above existing timber lintels and cast in new reinforced concrete lintel as described in Section E, with cast in brick ties to Structural Engineer's requirements

- check that the arch set is the correct one for the particular opening
- bed voussoirs to designated pattern, using lime putty between them and bedding mortar behind them, ensuring that brick ties are in the correct position
- point using method C40/1.27 if required

C40/1.24 REPAIR OF GAUGED BRICK ARCHES using whole voussoirs

- install temporary centring as necessary to support existing and new voussoirs
- carefully cut out damaged voussoirs
- bed new voussoirs with lime putty between them, and bedding mortar behind
- point with lime putty as C40/ 1.27

C40/1.25 REPAIR OF DROPPED VOUSSOIRS: where one or two voussoirs have dropped but are still sound

- clean off the remaining mortar using a purpose made or hacksaw blade
- ease the bricks back into position
- wedge with a sliver of lead or slate
- point in lime putty as C40/ 1.27

C40/1.26 KEYED POINTING: rake out joints to a depth of 20 mm as the work proceeds. Point and form joints to approved profile with mortar in a continuous operation as scaffolding is taken down.

C40/1.27 FINE POINTING: gauged brickwork and other fine joints

- lay a strip of carpet tape over the joint to be pointed
- slit the tape into the joint with a sharp knife, and press the edges of the tape into the cut
- point with mortar mix as Section Z21
- press the mortar home with a pointing key until the joint is full
- strike off and peel off the tape.

C40/1.28 RE-POINTING:

- clean out joints to a minimum of 25 mm using hand, not power tools
- Do not use angle grinders for cutting back joints
- tamp or hand grout empty joints with mortar to a depth of 25 mm from the face of the masonry
- clean the prepared face using a bristle brush

- flush the joint out thoroughly with clean water, taking care to avoid saturation
- remove all dust and loose material working from the top to the bottom of the wall
- Lightly wet the joints and point neatly in the appropriate mortar mix from Section Z21
- Brush over lightly with a stiff bristle brush or dab with a piece of coarse sacking after the initial set has taken to leave a slightly textured finish

C40/1.29 TUCK POINTING:

- Prepare joints for pointing or re-pointing as above
- Mortar to match the colour of the brick
- finish with a flush face
- immediately afterwards cut a 3 mm deep groove carefully along each joint, width to match existing or approved sample
- tuck in the groove with the aid of a pointing rule and a flat-edged jointer, with lime putty gauged with a small amount of silver sand
- allow the putty to project 3 mm or to match existing brickwork adjoining
- cut both top and bottom joints off neatly
- form the bed joints first, followed by the vertical joints

C40/1.30 ALGAE AND LICHENS:

Remove any algae or lichens found in old weathered joints using an approved biocide following the manufacturers recommendations.

C41 CLEANING AND REPAIRING MASONRY

C41/1 CLEANING AND REPAIRING STONE

C41/1.1 CAST STONE is only to be used where the use of natural stone is impossible, and with the prior consent of the CC. Cast stone to be generally in accordance with BS 1217 :1997.

C41/1.2 APPROVED FIRM: employ an approved specialist firm in compliance with A30/2.1 for ashlar stone repairs. The name of the proposed sub-contractor must be submitted to the CC, supplying evidence on demand of the sub-contractor's experience in the repair/renovation of historic stonework.

C41/1.3 PROVIDE DETAILED workshop drawings for all replacement stone profiles, sections and fixings; and submit to CC for agreement prior to the commencement of any works.

- base drawings on surveys and templates taken from least weathered areas at points agreed on site with the CC.
- Do not damage existing sound work whilst taking the templates.

C41/1.4 CLEANING comply with the general requirements of BS 6270 and use the particular method of repair specified in the Part and Section of BS 6270 stated below for the surface repair of stonework (Part 1, Section 3, paragraph 14.2)

C41/1.5 CILLS work all cill stones to match existing dimensions and profiles, with throating, to agreed profile

C41/1.6 STEPS - work to steps to follow dimensions and profiles of existing, unless existing are historically inappropriate.

C41/1.7 COPINGS

- Work coping stones to match existing profiles.
- Stones to be rubbed and throated in lengths to match the original
- Knee and bend stones to be solid as existing

C41/1.8 IRON CRAMPS: When iron cramps are encountered during the repair works

- Carefully remove all rusting cramps, dowels and any associated lead flashings etc.
- Replace with non-ferrous fixing
- Remove any loose or friable materials from sound cramps with a wire brush and treat with a suitable rust inhibitor

C41/1.9 STONE TO BE REINSTATED

- make a note of the position of all stones to be removed and reinstated
- mark in indelible marker
- cut out the perimeter joints with a purpose made fine saw blade
- carefully set aside and store as for new stone
- re-fix stones in their exact positions and proper beds

C41/1.10 CUT OUT defective stones to 100 mm on bed or to sound stone, whichever is the deeper, or other depth agreed.

- cut out perimeter joint with a masonry saw , take care not to damage the arrisses of the surrounding stones

- break down the stone with vertical saw cuts or hammer and chisel.

C41/1.11 TEMPORARY SUPPORTS; allow for temporary supports and centring to SE's approval and in accordance with the Health and Safety plan.

C41/1.12 CUT OUT for piecing in using a small sharp chisel and small saw blades to a neat square profile

C41/1.13 TOOLING BACK: dress back friable, loose or flaking stone to a firm edge

- leave without pockets or ledges to catch rainwater

C41/1.14 PREPARATION OF BACKGROUND for the replacement of new or retained stones; clean out the cavity or open bed of all loose and friable material

- spread mortar bed in accordance with Particular Specification/Schedule onto the wetted old stone
- do not saturate the cavity
- re-fix the stone with joint width to match existing

C41/1.15 POSITIONING AND GROUTING; dampen new stone and handle into position

- ease in correct alignment on the bed of wet mortar
- pack up with lead or slate shims for temporary support for very heavy stones
- stop up the bed joint and perpendicular joints at the surface; leaving openings for grouting
- grout with mortar as Section Z21
- avoid staining of the stone face with mortar

C41/1.16 ISOLATING PAINT: where new stone is laid against a core of brickwork

- treat brick with one coat of bitumen and sand finish.
- Where it is not possible to paint the core, paint the new stone on all faces except the front, keeping the bitumen back from the face.

C41/1.17 BEDDING AND POINTING; bed new stones not to be grouted up but do not point until the new work has settled in

- place mortar only under the bearing points of the cills and lintels
- tamp and point last 25 mm to match original work or as clause …

C41/1.18 PIECE IN stones as described in preparation and grouting clauses above

- no ashlar to be less than 75 mm in depth
- no feather edging will be permitted
- tool the exposed face to match the existing stone
- observe existing joint lines
- properly secure with dowels, joggles, cramps and mortar as agreed with CC

C41/1.19 PIECING IN REPAIRS to weathering sections are to be cut under existing brickwork or stonework by a minimum of 75 mm to prevent rain penetrating behind repairs.

C41/1.20 STITCHING:

- Where possible, carefully cut out stone plug and set aside sound top section for re-use
- protect face of stone with latex paint
- drill hole for dowel or pin across fracture and flush out with volatile solvent
- fill hole 2/3 full with epoxy resin
- protect cored recess, and insert threaded stainless steel dowel cut to required length
- point up recess or replace stone plug
- remove protective latex paint

C41/1.21 CRAMPS AND DOWELS: all new work, repairs and rebuilt work is to be properly cramped and dowelled together and to existing adjoining fabric, using cramps and dowels as specified.

C41/1.22 CRAMPS:

- Austenitic stainless steel
- bedded in mortar, as Section Z21,depending upon location

C41/1.23 DOWELS :

- Austenitic stainless steel
- bedded in mortar or epoxy resin depending upon location

C41/2 CLEANING AND REPAIRING TERRACOTTA

C41/2.1 TERRACOTTA: The majority of terracotta elements in Regent's Park are the statues on pediments. Method statements for cleaning, repairs or replacement works to any terracotta elements are to be agreed with CC before any work commences.

- Consult the CC on repairs to statues of other materials, e.g. Roman Cement.

C44 REPAIRING RENDER

C44/1 RENDER: refer also to section M20 for new rendering

C44/2 RENDER: correct identification of the material used for the render is essential for its repair. Generally it is Roman cement, but more recent repairs have been carried out with Portland cement. There may be areas of oil mastic, applied in noticeably thinner coats which requires a completely different repair technique. Obtain a specialist's analysis if there is any doubt.

C44/3.1 PORTLAND CEMENT RENDER:

- Location: to repair Portland cement-based renders to the exterior
- Background: existing
- Preparation: as C44/6
- The following mixes are typical, and must be checked against the particular project conditions:
- Spatterdash coat: (if required for key)

  Cement: ordinary Portland cement:

  Sand: coarse sand to BS 1199, to pass a No. 7 sieve

  Mix Proportions: 1:3 cement sand by volume

  Thickness: 3 to 5 mm thick. Do not level or smooth in any way
- Dubbing Out: as required

  Cement: ordinary Portland cement

  Lime: sand mix(coarse stuff): to be mixed from lime putty as Section Z21 or Ready-mixed to BS 4721 using sand to BS 1199, Type A

  Mix proportions 1:1:5 cement: lime: sand by volume

  Thickness Not more than 10 mm in any one coat
- Undercoat:

  Materials as for dubbing out

  Mix Proportions 1:1:6 cement: lime: sand by volume

  Second undercoat to be a weaker mix

  Thickness (excluding dubbing out): not more than 10 mm in any one coat, and to decrease each subsequent undercoat

  Finish well score for key
- Top Coat:

  Materials: as for dubbing out

Mix Proportions: 1:2:9 cement: lime: sand

Thickness: average 7 mm

Finish: wood float, leave ready for painting. A single pass with a steel float will match new work to the original surface.

Joint as C44/6

C44/3.2 MOULDED WORK:

- Location: repair of moulded work
- Background: existing. The core of the moulding may be solid or formed with timber or metal lathing. Take care not to damage the core when removing defective render
- Preparation: as C44./6
- The following mixes are typical and must be checked against the particular project conditions.
- Dubbing Out: as required

  Cement: ordinary Portland cement

  Sand sand to BS 1199, Type A

  Mix Proportions 1.5: 1.5: 6 cement: sand

  Thickness not more than 10 mm in any one coat
- Undercoat(s):

  Cement ordinary Portland cement

  Lime: sand mix(coarse stuff): to be mixed from lime putty as Section Z21 sand to be washed graded silica sand (<3 mm)

  or Ready-mixed to BS 4721 using sand to BS 1199, Type A without coarse aggregate

  Mix Proportions 1:1:6 cement: lime: sand

  Thickness not more than 10 mm in any one coat, and to decrease each subsequent undercoat.
- Top Coat:

  Materials as for undercoat, sand to be washed graded silica sand (<1 mm)

  Mix Proportions: 1:2:9 cement: lime: sand by volume

  Thickness average 7 mm

  Finish run with a zinc mould.
- Overall: overall thickness of render to match thickness to match existing adjacent.

C44/3.3 ROMAN CEMENT REPAIRS:

- Location: to repair existing Roman Cement render
- Background: as existing

- Preparation as C44/6

Supplier: Rose of Jericho at St Blaise Ltd
Westhill Barn, Evershot, Dorchester
Dorset DT2 0LD
Tel: 01935 83676/83662

- Basecoat:

Lime: French Hydraulic Lime Grade XHN 100

Sand: washed quartz silica sand (<3 mm)

Colour: pigments for colour (lime-fast)if required

Mix Proportions: 2:5 lime:sand

Thickness not more than 10 mm in any one coat

- Topcoat:

Lime: French Hydraulic Lime Grade XHN 100

Sand: washed quartz silica sand (<1 mm)

Colour: pigments for colour (lime-fast)if required

Mix Proportions: 1:3 lime: sand

Thickness: average 7 mm

Finish wood float, leave ready for painting. A single pass with a steel float will match new work to the original surface.
joint as C44/6

C44/3.4 OIL MASTIC STUCCO REPAIRS:

Location:to repair existing oil mastic stucco, a patent material used in the first quarter of the 19c and then discontinued.

Background: as existing

- Health & Safety One of the constituents of oil mastic is a form of lead monoxide. Ensure that any removal of oil mastic stucco, or any procedure that will raise dust is carried out in accordance with the current regulations relating to the Control of Lead at Work and other Health and Safety Legislation.
- Analysis: Obtain specialist analysis of sample to determine best repair material.
- Preparation: as C44/120.TCE in addition, saturate the background with boiled linseed oil, allowing it to soak into the joints; leave to dry.
- Repair materials Dependent upon analysis. Oil mastic is typically applied in one thin coat, 6 - 8 mm thick.
- Reinforcement Fix stainless steel expanded metal lathing if substitute material is used based on Portland cement.

C44/4 MATERIAL FOR MOULDED WORK:

Material to match the type of existing render, generally each coat to be thinner and a weaker mix than the previous.

C44/5 REINFORCEMENT FOR RENDER: to be stainless steel expanded metal to comply with BS 1369 Part 1 1987 and Austenitic stainless steel type 304/515 to BS 1449: Part 2 1993.

C44/6 DEFECTIVE AREAS:

- Hack off defective render with sharp chisels to a rectangular area bounded by ashlar lines where possible
- Remove loose and defective ornamental features
- Slightly undercut edges of old render except for the bottom
- Use a bristle brush to remove all dust, loosely adherent material, efflorescence and any organic growth
- Treat with biocide as recommended by the external paint manufacturer where necessary
- Leave the area clean, firm and sterile

C44/7 CRACKS: cut out cracks back to the structural background to a width of not less than 75 mm; clean as above

C44/8 MOULDED WORK: make good in situ if possible

- Do not use GRP or plastic substitutes

C44/9 STRUCTURAL BACKGROUND:

- Pin or stitch repair brickwork as necessary
- Rake out defective mortar
- Ensure that there is sufficient key for the new render
- Fix stainless steel expanded metal lath reinforcement across potential lines of movement as required

C44/10 EXISTING PREVIOUSLY PAINTED BACKGROUNDS: carefully hack and comb rake to provide key.

C44/11 DUBBING OUT:

- Dub out in as many coats as necessary, no coat exceeding 10 mm in depth
- Dampen background before rendering
- Well score for key

C44/12 EXISTING LINING OUT in imitation of ashlar

- Reinstate jointing which has been obscured but is still visible.

C44/13 LINING OUT in imitation of ashlar

- This work should be carried out by a skilled craftsperson or conservator
- Reinstate where completely obscured or missing
- Carefully re-cut to match existing adjacent lines in depth, width and finish
- Use a steel jointer and straight edged rule for marking out
- Do not attempt to mark out freehand

C45 CHEMICAL DPCS TO EXISTING WALLS

To be read with Preliminaries/General conditions.

C45/1.1 SURVEY OF EXISTING WALLS: Carry out a survey to determine the following and submit a report to the CC:

- The presence and extent of rising damp using methods recommended in BS 6576, clause 3.2.
- The suitability of walls for treatment by the proposed system
- That proposed alterations and renovation work will not adversely affect the suitability of the proposed chemical dpc system
- Any building defects causing damp or rising damp or any feature which would prevent the installation of an effective dpc

C45/1.2 BEFORE INSTALLATION:

- Before drilling starts agree with CC positions of chemical DPCs not shown on drawings. DPCs to be not less than 150 mm above external ground level.

C45/1.3 EXTERNAL RENDER to be completely removed up to a line maximum100 mm above proposed dpc level.

C45/1.4 REPAIRING/REPOINTING of walls on the line of the proposed dpc to be carried out prior to installation.

C45/1.5 CHEMICAL DPC SYSTEM: A type:

Currently certified by the British Board of Agrément

Installed to BS 6576 to form an effective barrier against rising damp

C45/1.6 MAKING GOOD: Holes which will be exposed to view to be neatly and fully filled with a mortar mix recommended by the chemical dpc system manufacturer and finished flush. Mortar to match existing masonry in colour and texture. Inform CC before starting and obtain approval of appearance of first few holes before completing the remainder.

C45/1.7 MAKING GOOD IN RENDER: fix render stop and make good existing render to walls down the level of the drilled holes; render up plinth from ground level, leaving a gap to ensure that the new dpc is not bridged.

C45/1.8 GUARANTEE: Provide an insurance backed guarantee, administered by an independent insurance protection company, for a period of not less than 20 years from Practical Completion.

C47 REPAIRING PLASTERWORK

C47/1 REFER to section M20 for plastering generally

C45/2 HAZARDS:

- The old plaster in the building will have been decorated with lead paints. The contractor must ensure that the works are carried out in accordance with the Approved Code of Practice to the Control of Lead and Works Regulations 1980. The contractor must keep all dust under control and dispose of in sealed bags to Local Authority Requirements.
- There is also a very small risk of anthrax spores being present on the animal hairs used in old plaster. Comply with the precautionary measures included in Guidance Note 23 (HSE 1979), and ensure all persons who might be exposed to the risk are aware of the early recognition of symptoms and prompt treatment.

C47/3 REPAIRING EXISTING PLASTER:

- Remove plaster which is loose, soft, friable, badly cracked or affected by efflorescence. Gently tap all remaining intact surfaces and remove hollow sounding areas of plaster. Remove stained plaster to 300 mm beyond last point of visible staining.
- Cut back to straight horizontal and vertical edges.
- Advise CC if any built-in timbers, structural deficiencies or sources of damp are revealed.
- Thoroughly dry brush the background and edges to remove dust, loose material and efflorescence before applying plaster.

C47/4 REPAIRING EXISTING DAMP PLASTER:

- Remove plaster on walls affected by rising damp up to a height of 300 mm above the highest point reached by the damp or 1 m above the dpc, whichever is higher.
- Rake out perished and salt contaminated mortar joints and cut out and renew any heavily salt contaminated bricks or blocks in the background.
- Advise CC if any built-in timbers, structural deficiencies or additional sources of damp are revealed.
- Provide the maximum ventilation possible and leave walls to dry for as long as possible before applying new plaster.
- Thoroughly dry brush background to remove dust, loose material and efflorescence before applying plaster.

C47/5 REPAIR PLASTER FOR DAMP WALLS

- Location: internal faces of walls generally affected by rising damp
- Manufacturer and reference:

  Limelite Renovating Plaster
  Tilcon Special Products Division
  (Limelite Lightweight Products)
  Harrogate House, Parliament Street, Harrogate,
  North Yorkshire HG1 2RF
- See Section M20 for details of application

C47/6 REPAIR OF LATHING:

- Clear dust, loose and friable material from the back of the lathing by brushing and vacuuming
- Refix detached laths by pre-drilling, using wood screws with wide washers and wire gauze washers to give key for plaster
- Reinforce small gaps in plaster using plaster bridges, or expanded stainless steel mesh
- For larger areas, agree method of repair with CC before cutting away any original plaster

C47/7 LIME PLASTER REPAIR MIXES: Plaster mix to match existing; typically

- Render Coat: 1:3 lime: sand with hair if appropriate, 8-10 mm thick
- Floating Coat: 1:3 lime: sand with less hair than render coat, 8-10 mm thick
- Setting Coat : 3:2 lime: sand with no hair, 3mm thick

C47/8 REPAIR OF DECORATIVE PLASTER MOULDINGS: Agree method and extent of repairs to decorative plaster mouldings with CC before cutting away any original fabric.

C47/9 REPAIR OF PAPIER MACHE, OR COMPOSITION ETC. MOULDINGS:

- The material of any moulding must be carefully identified, especially where chemical stripping is proposed. Proposals for repair of mouldings in papier mache, composition or other materials must be agreed with CC before starting any work.

C47/10 SMALL PATCHES AND CRACKS IN LIME PLASTER:

- Cut out patches and large cracks to a firm edge, undercutting the edges to form a dovetail key, taking care not to cut through any lathing
- Brush and vacuum away any loose material, dust and dirt
- Treat the surrounding area with size
- Wet up old plaster with lime water
- Plaster with coats no more than 10 mm thick to the depth of the surrounding plaster

C47/11 ZINC OXYCHLORIDE PLASTER:

- Location: where walls have been treated for dry rot
- Manufacturer and reference: as included in Particular Specification/Schedule and recommended by timber treatment specialist
- Apply not less than 6 mm thick, extending beyond infected area by not less than 300 mm. Do not penetrate coating when cross scratching for key

C48 REPAIRING AND RENOVATING METAL

C48/1 REPAIRS TO CAST IRON FEATURES:

- Take care to identify the material of railings. The majority are believed to be cast iron, but different methods of repair apply to wrought iron. Horizontal rails are often of wrought non vertical standard cast. Methods of cleaning and/or repair of wrought iron must be agreed with CC before commending any work.

C48/2 REPAIRS TO CAST IRON RAILINGS IN SITU

- Corroded balusters at junction with stone plinth
- Clean surface and remove all loose and defective material as C46/170.TCE
- Cut back rusted bar to good metal
- Clean out pocket in stone plinth
- Weld on new section of stainless steel or ;
- Bolt on new Delta bronze section, lapped joint, with bed of sealant
- Run in pocket with molten lead

- Where railings serve to guard areas, steps, and the like, take care that the repaired railings will conform to the requirements of the current Building Regulations

C48/3 REPAIRS TO CAST IRON RAILINGS

- Carefully remove railings from plinths and fixings
- Protect areas with barriers and warning tapes
- Replace missing bars, sections and decorative features
- Clean surface and make repairs
- Reassemble railings and re-fix in position
- Run in pockets with molten lead

C48/4 CAST IRON HOPPER HEADS AND DOWN PIPES

- Label and carefully take down cast iron hopper heads
- Remove all rust and treat with rust inhibitor "Jenolite" by Jenolite Ltd. Rusham Road, Egham, Surrey TW20 9SL
- Re-cast hopper heads where beyond repair
- Paint backs before re-fixing
- Re-fix using bolts and holderbats as specified in section R11
- Label and carefully take down cast iron rainwater pipes
- Check backs for leaks
- Remove all rust as for hopper heads
- Renew sections where necessary
- Paint backs before re-fixing
- Re-fix using bolts and holderbats as specified

C48/5 CAST IRON PAVEMENT GUTTER

- Replace damaged cast iron gutters running across pavements

C48/6 CAST IRON GRILLES

- replace any broken cast iron grilles to match existing.

C48/7 LEAD HOPPER HEADS AND DOWNPIPES

- Label and carefully take down decorative cast lead hopper heads
- Take paint samples to determine original paint colour if any
- Clean off old paint; remove any corrosion
- Repair by lead-burning off site

- Re-fix in original position.
- Take down existing lead rainwater pipes
- Check for leaks and repair where necessary
- Boss out dents
- Replace sections that have been renewed in cast iron in lead
- Fix new ears to match existing; re-fix pipes
- Apply patination oil

C48/8 CLEANING METAL SURFACES:

CAST IRON AND STEEL:

- Carry out a test clean of a small area to be agreed with CC before commencing the work.
- Manual cleaning : chip, scrape grind or wire brush to remove all corrosion and rub down with abrasive paper.
- Use wet abrasive methods where lead based paint is to be removed; use a rust inhibitor in the final wash; blow water off horizontal surfaces, and out of water traps.
- Dispose of sludge to the satisfaction of the Local Authority
- Remove a 25 mm area of paint around chips, scratches and other small defects to ensure that all rust is removed.
- Blast cleaning ; use metallic abrasive to BS 7079 Part A1:1989 to achieve a finish to meet the paint manufacturer's requirements. Do not sand blast
- Feather edge the sound paint immediately prior to application of a rust inhibiting primer

NON FERROUS METALS:

- Scrape or wire brush to remove all loose and defective material and rub down with abrasive paper.

C49 RENOVATING AND REINSTATING LEAD ROOFING

C49/1 LEAD ROOFING REPAIRS:

- Do not use bitumen, felt or mastic for repairs to lead roofs. "Flashband" may be used for emergency repairs only, but must be replaced within three months of the leak occurring.

C49/2 LEAD REPAIRS:

- Lead repairs involving lead burning or soldering should take place off site where possible.

- Patch repairs must be lap jointed, butt jointing must not be used in any circumstances.
- Hot work permits and procedures will be required for every instance of lead burning or soldering in situ.

C49/3 LEAD REPLACEMENT: follow the materials and methods set out in NBS Section H71 for replacement and renewal of leadwork.

C50 REPAIRING TIMBER

C50/1 Read in conjunction with NBS Sections C52 Fungus/Beetle Eradication, G20 Carpentry, Timber Framing etc.

C50/2 TIMBER REPAIRS:

- Scope of work to be scheduled under the Particular Specification or shown on the drawings.

C50/3 TIMBER REPAIRS:

- The minimum amount of historic timber must be cut away in making repairs
- Generally follow the guidance in the SPAB publication "The Repair of Timber Frames and Roofs" Technical Pamphlet 12 for the repair of structural timbers, obtainable from
  Society for the Protection of Ancient Buildings (SPAB)
  37 Spital Square
  London E1 6DY Tel: 0171 377 1644
- Repair methods to principal structural timbers to be agreed with CC before commencing any cutting away of timber.
- Epoxy resin is not to be used in timber repairs except with the written agreement of CC

C50/4 TIMBER REPAIRS:

- Generally concealed timbers, including lintels, bressummers and bonding timbers are to be checked for rot and replaced if necessary as listed below.
- inner lintels above windows are to be replaced with pre-cast concrete lintels
- Proposals for replacement of bressummers must be submitted for CC approval with Structural Engineer's calculations and method statement
- Remove bonding timbers from brickwork walls; replace in brickwork with brick reinforcement

C51 CLEANING AND REPAIRING JOINERY

C51/1 WINDOW REPAIRS GENERALLY:

- Repairs are to be carried out without dismantling the sashes where possible, and retaining the maximum amount of original timber

C51/2 EXISTING GLASS

- All panes of historic or crown glass are to be identified and labelled with a removable marker
- Protect glass with 6 mm hardboard, "Megafilm" translucent protection grade," fixed in accordance with the manufacturer's recommendations and with the special vacuum tape to protect the surface of the glass, 15 or 20 LS-FR dependant on size and position of glass to be protected, or "Twinwall" plastic sheeting or equivalent
- Indicate that there is glass behind the protection
- This will only offer a level of protection; make every effort to avoid damage especially at erection and striking of scaffolding.

C51/3 OVERHAUL SLIDING SASH WINDOW:

- Double hung vertically sliding sash windows
- Remove ironmongery and make good sashes and frame
- Carefully take off staff and parting beads, and remove sashes
- Set aside weights for re-use
- Make good sashes and box frame; scrape out localised pockets of decay and treat with preservative; piece in new timbers where necessary
- No hardboard is to be used at the back of the boxes
- Improve junction of timber cill and sub – cill where possible
- Clean ironmongery, pulleys etc. and replace with new where necessary
- Fix new sash cords
- Remove old draught seals; allow for specialist to fit draught stripping system
- Replace wagtails and pockets where necessary
- Replace staff and parting beads to profile of original
- Knot prime stop new and bare wood, bring forward, wax pulley stiles
- Re-hang sashes, ease and adjust; adjust weights
- Prepare timber for re-painting as M60, and redecorate
- Re-fix ironmongery; supply and fix security bolts, acorns
- Always use slotted tread screws for refixing historic ironmongery

C51/4 OVERHAUL CASEMENT WINDOW:

- Remove ironmongery and make good sashes and frame
- Carefully remove casement from the frame

- Make good casement and frame; scrape out localised pockets of decay and treat with preservative; piece in new timbers where necessary
- Improve junction of timber cill and sub – cill
- Clean ironmongery, test operation and replace with new where necessary
- remove old draught seals; supply and fix new draught stripping system
- Knot prime stop new and bare wood, bring forward
- Re-hang casements, ease and adjust
- Prepare timber for re-painting as NBS section M60, and redecorate.
- Re-fix ironmongery; supply and fix security locks
- Always use slotted tread screws for refixing historic ironmongery

C51/5 REPAIRS TO EXISTING DOORS:

- Carefully take off door to be repaired, and protect from damage, moisture and excessive heat
- Remove all ironmongery, including hinges and, if required, bag separately for re-use and tag with door identity. Refurbish ironmongery and re-fix to repaired door.
- Always use slotted tread screws for refixing historic ironmongery
- All plugging and piecing to be carried out with timber, matching species, direction of grain and profile.
- Glue, clamp, pin, joint or otherwise fix as directed.

C51/6 REPAIRS TO DOORS, ARCHITRAVES, LININGS ETC.

- Nail and Screw Holes:

  drill out and plug
- Arrisses:

  cut out damaged arris to a sound surface

  piece in a matching profile with splayed joints and matching grain

  Where the damage is severe, cut back to a sound surface and fit a matching edging strip, tongued, glued and pinned.
- Panels:

  Take out cracked panels, repair by gluing and cramping until secure

  replace, taking care to allow for some movement between the panel and the frame.

  Complete replacement panels are to match the existing in timber species, size and profile
- Mouldings :

  carefully cut out damaged section of moulding

  piece in a matching section, glue and pin in position

- Mitres:

  Re-make/re-assemble mitres that are opening or damaged

- Stiles:

  repair damaged stiles by piecing or fingering in as appropriate

  glue and cramp any joint, split or crack until secure

C51/7 UPGRADING FIRE RESISTANCE OF DOORS:

Follow the recommendations given by English Heritage in "Timber panelled doors and fire" and "The use of intumescent products in historic buildings" available from English Heritage, 23 Savile Row, London W1X 1AB

Agree proposals with CC before starting any work on the doors.

C52 FUNGUS/BEETLE ERADICATION

C52/1 HEALTH AND SAFETY:

- Comply with the Health and Safety Executive Guide, 'Remedial Timber Treatment in Buildings: A guide to good practice and the safe use of wood preservatives', current at the time of tendering.
- Preservatives to be approved and registered by the Health and Safety Executive (HSE) and listed in 'The Pesticides Register' or 'Reference Book 500' current at the time of tendering.
- Ensure that the pesticides to be used do not include Lindane

C52/2 HEALTH AND SAFETY:

Ensure that the works are carried out by a timber treatment specialist experienced in dealing with historic buildings.

C52/3 SURVEY AND REPORT:

- Survey the building to ascertain, so far as reasonably possible at that stage:

  The source(s) and extent of any dampness.

  The nature and extent of infestation/decay.

  Any site conditions and restrictions likely to affect the execution of the work.

- Submit a report to the CC, describing and giving quantities for:

  Proposed eradication treatment.

  The nature and extent of removal and/or replacement of building fabric which will be required.

C52/4 ADDITIONAL WORK: As work proceeds, agree with CC the nature and amount of additional work to be carried out.

C52/5 OPENING UP/CUTTING OUT: Take care to minimise damage to sound building fabric and ensure adequate propping and shoring.

C52/6 DRYING OUT: Ensure that effective measures to ventilate and dry out damp building fabric are commenced as soon as possible.

C52/7 DRY ROT:

- Do not disturb fruiting bodies. Spray with fungicide and after inspection by CA remove carefully and clean down.
- Ensure that the following areas, features, finishes, etc. are retained in situ for inspection by the CC:

  Decorative plasterwork

  Other areas as indicated in the Particular Specification/Schedule
- Cut out or strip off and remove all infected timber, plaster and other finishes to at least 300-450 mm beyond the furthest extent of attack, having first checked with the CC that this will not adversely affect the building fabric.
- Remove infected materials immediately in bags or as necessary to ensure that no other parts of the building become contaminated. Dispose of materials safely at a tip approved by a Waste Regulation Authority unless otherwise agreed.

C52/8 WET ROT: Cut out all rotten material until sound timber is reached, having first checked with the CC that this will not adversely affect the building fabric.

C52/9 INSECT INFESTATION:

- Probe timber, drilling if necessary, to determine extent of damage.
- Remove timber agreed with CC as being structurally unsound.
- Scrape and trim back all friable parts of otherwise sound timber.
- Remove infected material immediately from the building and dispose of safely at a tip approved by a Waste Regulation Authority.

C52/10 CLEANING: Thoroughly clean down all surfaces in affected areas. Remove all loose material, dust and debris and remove from site without delay.

C52/11 BRUSH/SPRAY APPLICATION:

- Apply preservative carefully to all surfaces requiring treatment to ensure adequate absorption, using a coarse, low pressure spray.

- Allow each coat to soak in but not to dry before applying further coats.
- Continue applying until the minimum average coverage of the preservative solution recommended by the manufacturer has been achieved.

C52/12 PASTE APPLICATION:

- Apply to the surface of timber using methods and quantities recommended by the manufacturer and as directed, ensuring full coverage.

C52/13 INJECTION OF INSECT FLIGHT HOLES: In addition to brushing/spraying surfaces, fill insect flight holes with preservative, repeating the operation until lack of absorption indicates saturation of timber.

C52/14 INJECTION OF TIMBER:

- Insert non-return valves at centres and depths necessary to effectively target areas to be treated.
- Inject preservatives using carefully controlled pressures and quantities recommended by the manufacturer to achieve adequate penetration and saturation of the timber. Avoid excessive leakage of preservative through cracks, flight holes etc.
- Valves to remain in position after treatment unless agreed otherwise with CC.

C52/15 INJECTION OF MASONRY TO PROTECT EMBEDDED TIMBER:

- Drill holes into wall at centres and to depths necessary to form an effective barrier of fungicide around timber.
- Inject fungicide using carefully controlled methods and quantities recommended by the manufacturer to achieve effective penetration and distribution within the wall.

C52/16 IRRIGATION OF MASONRY:

- Drill downward sloping holes to depths and at spacings recommended by the preservative manufacturer to suit wall thickness, construction and area to be treated.
- Inject fungicide using carefully controlled methods and quantities recommended by the manufacturer to achieve an even distribution within the wall. Allow walls to dry out and brush off any efflorescence.

C52/17 GUARANTEE: Provide an insurance backed guarantee, administered by an independent insurance protection company, for a period of not less than 20 years from Practical Completion.

C53 CLEANING AND REPAIRING FIREPLACES

C53/1 MARBLE FIREPLACES: the cleaning of marble fireplaces must be carried out by a specialist approved by the CC.

C53/2 MARBLE is a relatively soft material

- Do not scratch or abrade
- Take care not to stain
- Do not use acids
- Protect fireplace elements from dropping, chipping or cracking
- Do not soak with water
- Do not use paint strippers without prior consent of CC

C53/3 CLEANING

- Present proposals for specialist cleaning for approval by CC to include:
  - Analysis of type of soiling
  - Proposals for test cleaning samples
  - Health and Safety provisions
  - Water and residue collection methods
  - Protective measures
  - The degree of cleaning to be achieved
  - Schedule of areas for each type of cleaning proposed

C53/4 REPAIR

- Present proposals for specialist repair for approval by CC to include:
  - Identification of underlying cause of failure and proposed remedy
  - Proposed repairs method and materials
  - Schedule of repairs for each fireplace

C53/5 CAST IRON INSERTS AND GRATES

- carefully remove any rust spots with a wire brush
  - dust off with a stiff bristle brush
  - wipe over with white spirit, do not use water
  - coat with Zebrite 'black lead'
  - OR
  - if the fireplace will not be used, paint with a thin coat of Manders Black Ebony finish

Apply a thin coat of Renaissance Wax in accordance with the manufacturer's instructions.

EXCAVATIONS

D20 EXCAVATIONS AND FILLING

D20/1 GENERALLY/THE SITE

D20/1.1 SOILS AND STRATA: Site investigation information is not available. Make all necessary enquiries concerning the nature and location of soils and strata, including tests for landfill gases and ground contamination with heavy metals.

D20/1.2 GROUND WATER LEVEL on the site is not known. Make all necessary enquiries concerning ground water level and allow for variations from this level when working on any part of the site.

D20/1.3 SITE FEATURES TO BE RETAINED: Agree with the CC all site features which are to be retained.

D20/2 CLEARANCE/EXCAVATING

D20/2.1 SITE FEATURES: Before starting work verify with CC and MA which existing fences, gates, walls, roads, paved areas and other site features are to be removed. Materials arising are to be removed from site.

D20/2.2 PROTECTION OF TREES AND ROOTS: consult with The Royal Parks Agency, CEPC on the avoidance of damage to and protection of valuable plants and trees adjoining the site when excavating for removal or installation of services.

D20/2.3 REMOVING TREES, SHRUBS AND HEDGES:

- Before starting work verify with CC and MA which trees, shrubs and hedges are to be removed
- Check for below and above ground services in the vicinity. Inform CC if they may be affected and obtain instructions before proceeding
- Comply with Forestry and Arboriculture Safety and Training Council Safety Guides
- Cut down, grub up main roots and dispose of all wood

- Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.
- Tree stumps: method statement for removal to be agreed with CA, CC and CEPC, Royal Parks Agency where applicable

D20/2.4 SITE CLEARANCE:

- Clear site of rubbish and vegetation.
- Grub up and dispose of large roots without undue disturbance of soil and adjacent areas.
- Do not use herbicide without approval.

D20/2.5 CULTIVATED TURF: Before starting work verify which areas of turf are to be retained. At the Contractor's discretion, cost and/or profit, other turf may be either:

- Lifted and sold, or
- Left to be incorporated with the existing topsoil.

D20/2.6 MATERIALS ARISING from the excavations and surplus to requirements for filling are to remain the property of the Employer unless the Contractor:

- Is instructed to remove them from the site, or
- Purchases them at a price to be agreed

D20/2.7 STRIPPING TOPSOIL:

- Before beginning general excavation or filling, excavate topsoil from areas where there will be re-grading, buildings, pavings/roads and other areas where specified
- Remove to the full depth of topsoil
- Avoid compaction by plant and contamination by subsoil, stone, hardcore or rubbish
- At the time of excavation the topsoil must be reasonably dry and never wetter than the plastic limit
- Do not remove topsoil from below the spread of trees to be retained

D20/2.8 TOPSOIL: Not less than two weeks before excavating topsoil treat with a suitable herbicide.

D20/2.9 BENCHING: Surfaces of excavations with a gradient greater than 1 in 5 which are to receive filling must have horizontal benches cut to match the depths of compacted layers of filling.

D20/2.10 ADJACENT EXCAVATIONS: Where an excavation encroaches below a line drawn at an angle from the horizontal, determined using the guidelines in BS:8000: Part 1, table 1, from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.

D20/2.11 ACCURACY: Permissible deviations from formation levels:

- Beneath mass concrete foundations: +/-25 mm
- Beneath ground bearing slabs and r.c. foundations: +/-15 mm
- Embankments and cuttings: +/-50 mm
- Ground abutting external walls: +/-50 mm, but such as to ensure that finished level is not less than 150 mm below dpc

D20/2.12 FORMATIONS GENERALLY:

- Make advance arrangements with CC or SE for inspection of formations for the following:
- Foundations
- Services trenches
- Roads and Pavings
- Remove the last 150 mm of excavations just before inspection. Trim excavations to required profiles and levels, and remove all loose material
- Unless otherwise instructed seal formations within 4 hours of inspection with concrete or other specified fill

D20/2.13 TRENCH FILL FOUNDATIONS:

All proposals for excavation by machine, including the access routes, must be agreed with CC, CEPC and The Royal Parks Agency before commencing any works

- Excavate the whole depth of the trench down to formation by machine in one operation.
- Unless otherwise instructed place concrete immediately after excavation, approved by the CA.

D20/2.14 FOUNDATIONS IN MADE UP GROUND: Excavate down to a natural formation of undisturbed subsoil. Obtain instructions from SE if this is at a lesser depth than that shown on the drawings.

D20/2.15 UNSTABLE GROUND: If the instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

D20/2.16 UNRECORDED FEATURES: Where old foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses,

ditches, etc. are encountered, do not disturb or enter and inform the CC before instructing the contractor.

D20/3 DISPOSAL OF MATERIALS

D20/3.1 TOPSOIL: Agree arrangements for the stockpiling and disposal of excavated topsoil with CC and CEPC.

D20/3.2 SURPLUS SUBSOIL: Remove from site surplus excavated material not specified to be spread and levelled or stockpiled.

D20/3.3 WATER: Keep all excavations free from water until formations are covered and below ground constructions are completed.

D20/3.4 PUMPING:

- Do not disturb excavated faces or the stability of adjacent ground or structures
- Avoid flooding of the site, or adjoining property, by disposal of pumped water
- Construct sumps clear of the excavations and fill as specified on completion

20/4 FILLING

D20/4.1 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS:

- Do not import or use fill materials which would, either in themselves or in combination with other material or ground water, give rise to a health hazard, damage to building structures or instability in the filling.
- Soluble sulphate content (SO3) of imported materials for filling under concrete slabs or within 1 m of substructures must not exceed 1 g/litre when tested to 1377:Part 3, clause 5, using a 2:1 water-soil extract. Submit test reports from UKAS/NAMAS accredited laboratory demonstrating compliance of the proposed material(s) if required.

D20/4.2 PLACING FILL GENERALLY:

- Ensure that excavations and areas to be filled are free from loose soil, rubbish and standing water.
- Do not use frozen materials or materials containing ice. Do not place fill on frozen surfaces.
- Take all necessary precautions to ensure stability of adjacent structures. Place and compact fill against structures, membranes or buried services in a sequence and manner which will ensure stability and avoid damage.

- Plant employed for transporting, laying and compacting must be suited to the type of material.
- Lay differing materials separately so that only one type of material occurs in each layer.

D20/4.3 VENTING HARDCORE LAYER:

Submit proposals for dealing with landfill gases, if found, to CC for agreement.

D20/4.4 HARDCORE UNDER CONCRETE SLABS to be as clause 710 and not less than the depth shown on the Architect's drawings. Excavate extra material as necessary. Increase thickness of hardcore as necessary to make up levels from stripped site levels to underside of slabs.

BLINDING:

- Surfaces to receive sheet overlays or concrete to have sufficient sand, fine gravel, PFA or other approved fine material applied to fill interstices and provide a close smooth surface.
- Permissible deviations on surface level: +0 -25 mm.

D20/5 TOPSOIL AREAS

D20/5.1 GRADE SUBSOIL to smooth flowing contours and to achieve the specified finished levels of the topsoil. Excavate locally as necessary for areas of thicker topsoil. Small planting beds located in general landscape areas may be excavated separately at a later date. Loosen subsoil as required to Architect/Landscape Architect's requirements.

D20/5.2 UNDISTURBED TOPSOIL WHICH IS TO BE LANDSCAPED: Prepare as necessary to ensure that the topsoil is in a suitable state for the cultivation operations specified in sections Q30 and/or Q31. In particular:

- Avoid compaction of topsoil during the contract works caused by heavy site plant and machinery.
- Where the ground is hard, break up with a ripper operated in transverse directions, removing any roots and boulders.
- Where the ground is covered with turf or a thick sward plough or dig over to the full depth of the topsoil.
- After any such cultivation leave fallow for as long as possible. During this period treat with a suitable herbicide at appropriate times to prevent seeding of weeds.

D20/5.3 IMPORTED TOPSOIL FOR GARDENS

- Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- To BS 3882.
- Grade: Premium
- From an approved source.
- Provide a declaration of analysis including information detailing each of the relevant parameters given in BS 3882, clause 6 and table 2 for the grade of topsoil specified.
- Obtain approval of a sample load of not less than 5 cu m. Retain for comparison with subsequent loads.

D20/5.4 CONTAMINATION: Do not use topsoil contaminated with subsoil, rubbish, oil based products, or other materials toxic to plant life. Dispose of contaminated topsoil as instructed.

D20/5.5 SPREAD TOPSOIL over prepared subsoil in layers not exceeding 150 mm and firm each layer before spreading the next. At the time of laying, both the material and the weather must be reasonably dry. Overall minimum depths after firming and settlement to be included in the Particular Specification or shown on the drawings

D20/5.6 FINISHED LEVELS OF TOPSOIL after settlement, unless otherwise stated, to be:

- 30 mm above adjoining paving or kerbs,
- Unchanged where abutting existing trees,
- Not less than 150 mm below dpc of adjoining buildings,
- 30 mm higher for shrub areas than for adjoining grass areas,
- Married-in with adjoining soil areas.

CONCRETE

E05 IN SITU CONCRETE CONSTRUCTION GENERALLY

E05/1 ARRANGEMENT OF INFORMATION: The different parts of in situ concrete construction are specified in separate sections of the NBS as follows:

E10 In situ concrete mixes, casting and curing

E20 Formwork

E30 Reinforcement

E40 Designed joints

Clauses dealing with particular aspects of certain types of construction may thus be dispersed over several sections.

E10 IN SITU CONCRETE MIXES, CASTING AND CURING

E10/1 CONCRETE MIXES

E10/1.1 DESIGNATED AND DESIGNED MIXES FOR SPECIFIED SITUATIONS are to be designed by a qualified structural engineer

- Mixes are to be in accordance with BS 5328.

E10/1.2 CONCRETE FOR USE BELOW GROUND LEVEL

- Use sulphate resisting cement to BS 4027
- Consult latest recommendations of the Building Research Establishment regarding the choice of aggregate and cement

E10/1.3 SUBSTITUTION OF STANDARD FOR DESIGNATED MIXES:

- Where appropriate, Standard mix(es) to BS 5328:Part 2, Section 4 will be permitted in substitution for specified Designated mixes in accordance with BS 5328:Part 1, Table 13 and in each case subject to approval.
- If Standard mixes are made on site comply with BS 8000: Section 2.1, Subsections 2, 3 and 4.

E10/1.4 MIXES FOR SUNDRY TYPES OF IN SITU WORK are specified in other sections of the NBS as follows:

F30 Accessories/Sundry items for brick/block/stone walling

F31 Precast concrete sills/lintels/copings/features

Q10 Kerbs/edgings/channels

Q40 Fencing

Q50 Site/street furniture/equipment

R12 Drainage below ground

Mixes specified in this section which are equivalent to or better than the above may be used in lieu, subject to approval.

E10/2 MATERIALS, BATCHING AND MIXING

E10/2.1 READY-MIXED CONCRETE Must be obtained from a plant which holds current certification meeting the requirements of the NACCB, Category 2 for product conformity. Each mix must be obtained from only one source unless otherwise approved.

E10/2.2 CEMENTS:

- The following abbreviations apply:

  PC42.5 Portland cement, Class 42.5 (in lieu of OPC)

  PC52.5 Portland cement, Class 52.5 (in lieu of RHPC)

  SRPC Sulphate resisting Portland cement

  PBFC Portland blastfurnace cement

  HSBC High slag blastfurnace cement (in lieu of LHPBC)

  PPFAC Portland pulverised fuel ash cement

  ggbs Ground granulated blastfurnace slag

  pfa Pulverized fuel ash

- Cements, ggbs and pfa must comply with the relevant British Standards. Portland cements must have cement certification meeting the requirements of the NACCB, Category 2 for product conformity.

E10/2.3 NATURAL AGGREGATES FOR DESIGNED/PRESCRIBED MIXES: To give a drying shrinkage of concrete not exceeding 0.075% when tested to BS 812:Part 120.

E10/2.4 RISK OF ALKALI SILICA REACTION IN DESIGNED/PRESCRIBED MIXES: Take one of the precautions specified for Designated mixes in clause 17.7 of BS 5328: Part 2. Inform CC if this necessitates a change in specification. Submit evidence of compliance to CC before making concrete for use in the Works.

E10/2.5 ADMIXTURES FOR DESIGNED/PRESCRIBED MIXES:

- To BS 5075.
- Use only if specified or approved in writing, and then in accordance with their manufacturer's recommendations.
- Do not use admixtures containing calcium chloride.
- Ensure that admixtures are compatible with all other materials, including other admixtures.

E10/3 TESTING/CERTIFICATION

E10/3.1 COMPLETE CORRELATED RECORDS must be maintained for each Designed and Prescribed mix including:

- Information in accordance with BS 5328:Part 3, clauses 3.1 and 3.2.
- All sampling, site tests and identification numbers of all specimens tested in the laboratory.

- The location of the part(s) of the structure represented by each sample.
- The location in the structure of the batch from which each sample is taken.

E10/4 PLACING AND COMPACTING

E10/4.1 Comply with NBS clauses relating to the underlay, construction joints, cleaning, placement and compaction.

E10/5 CURING AND PROTECTION

E10/5.1 Comply with NBS clauses relating to curing.

E10/5.2 CURING PERIODS, not less than:

- Surfaces which in the finished building will be exposed to the elements, and wearing surfaces of floors and pavements, regardless of weather conditions 10 days
- Other structural concrete surfaces 5 days

E10/5.3 PROTECTION: Prevent damage to concrete, including:

- Surfaces generally: From rain, indentation and other physical damage.
- Surfaces to be exposed in the finished work: From dirt, staining, rust marks and other disfiguration.
- Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
- In cold weather: From entrapment of water in pockets, etc. and freezing expansion thereof.

E10/5.4 FINISH

- Leave exposed faces of precast concrete work fair and smooth
- Leave faces to receive plaster rough

E20 FORMWORK FOR IN SITU CONCRETE

E20/1 GENERALLY/PREPARATION

E20/1.1 Comply with NBS clauses relating to loadings and work below ground.

E20/1.2 SUBSTRUCTURE FORMWORK:

Specialist formwork to be included in the Particular specification for the project

E20/1.3 UNDERSLAB SHEET INSULATION:

Comply with NBS clauses relating to underslab sheet insulation.

E20/2 CONSTRUCTION

E20/2.1 Comply with NBS clauses relating to accuracy, joints in forms, inserts, holes and chases.

E20/3 STRIKING

E20/3.1 RESPONSIBILITY: Strike formwork without disturbing, damaging or overloading structure, and without disturbing props. Notwithstanding other clauses in this specification and any checking or approvals by the CA, the responsibility for safe removal of any part of the formwork and any supports without damaging the structure rests with the Contractor.

E20/3.2 MINIMUM PERIODS:

- The following periods (in days) for retaining formwork in position before striking apply to class 42.5 or sulfate-resisting Portland cement concrete with no cement replacement materials or admixtures:

Type of formwork	Average mean of daily minimum and maximum air temperatures during the period		
	16°C	7°C	3°C
Vertical formwork to columns, walls and beams	0.5	0.75	1
Soffit forms to slabs	4	6	8
Props to slabs and soffit forms to beams	10	15	20
Props to beams	14	21	28

- Submit details of proposed periods for mixes using admixtures or other types of cement.

E30 REINFORCEMENT FOR IN SITU CONCRETE

E30/1 REINFORCEMENT

E30/1.1 Reinforcement to be set out in Structural Engineer's schedule details, or schedule of work.

E30/1.2 PLAIN BAR REINFORCEMENT: To BS 4449, Grade 250.

E30/1.3 RIBBED BAR REINFORCEMENT: To BS 4449, Grade 460.

E30/1.4 FABRIC REINFORCEMENT: To BS 4483.

E30/2 CUTTING AND BENDING

E30/2.1 CUT AND BEND reinforcement to schedules and to BS 4466. Do not bend when below 5 degC without approval. Steel may be warmed to not more than 100 decC. Do not rebend bars without approval. Tag bundles of reinforcement with labels to BS 4466.

E30/2.2 CLEANLINESS: At time of placing concrete, reinforcement to be clean and free of corrosive pitting, loose millscale, loose rust, ice, oil and other substances which may adversely affect the reinforcement, concrete, or bond between the two.

E30/2.3 LAPS OR SPLICES: Obtain instructions if details are not shown on drawings.

E30/2.4 LAPS in nominal bar reinforcement to be not less than 300 mm.

E30/2.5 LAPS in fabric reinforcement, where not detailed, to be not less than 250 mm. Where necessary seek instructions to avoid a four layer build-up at corners.

E30/2.6 FIXING GENERALLY:

- Unless otherwise permitted fix reinforcement in position before placing concrete. In addition to any spacers and chairs shown on drawings or

schedules, provide adequate support, tie securely and maintain the specified cover. Comply generally with Concrete Society Report CS 101 'Spacers for reinforced concrete' 1989.

- Unless otherwise specified tie using 16 swg annealed tying wire. Ensure that tying wire does not intrude into the concrete cover. Do not tack weld unless authorised by the CA and recommended by the reinforcement manufacturer.
- Do not fix or place reinforcement in contact with nonferrous metals.

E30/2.7 GROUND BEARING SLABS: Where these are reinforced with a single layer of fabric in the upper part of the slab, the fabric may be placed in position on top of the first compacted layer of concrete, followed by the top layer of concrete, placed within two hours of the first layer.

MASONRY

F10 BRICK AND BLOCK WALLING

F10.1 TYPE(S) OF WALLING

F10/1.1 CLAY FACING BRICKWORK : for new external work and brickwork repairs, whether to be covered by stucco or not

- Bricks: To BS 3921 except for sizes and tolerances

  Manufacturer and reference: Smeed Dean London Stock Bricks
  Chelwood Bricks
  Adswood Road
  Cheadle Hulme
  Cheadle
  Cheshire SK8 5QY

  Special shapes: as required
- Mortar: As section Z21.

  Mix: to match existing

  Special colour: to match existing
- Bond: to match existing
- Joints: to match existing
- Features: imperial sizes to match existing bricks

F10/1.2 SECOND HAND FACING BRICKWORK for new external work and brickwork repairs, whether to be covered by stucco or not, as an alternative to

- Bricks: Second hand bricks free from deleterious matter such as mortar, plaster, paint, bituminous materials and organic growths. Bricks to be sound, clean and reasonably free from cracks and chipped arrisses.

Supplier/source:

- Mortar: As section Z21.

  Mix: to match existing

  Special colour: to match existing

- Bond: to match existing
- Joints: to match existing

  Features: imperial sizes to match existing bricks

F10/1.3 CLAY COMMON BRICKWORK:

No flettons are to be used in any situation.

ENGINEERING BRICKWORK

- as included in Particular Specification/Schedule
- Bricks: To BS 3921, Engineering Class _____
- Mortar: As section Z21.

F10/1.4 GAUGED BRICK ARCH SETS: to be supplied by a specialist to match the existing as closely as possible

F10/2 WORKMANSHIP GENERALLY

F10/2.1 Comply with NBS clauses regarding workmanship.

F10/2.2 HEIGHT OF LIFTS, LIME MORTAR:

- Allow for the longer set time of lime mortar in determining the maximum height of each lift.

JOINTS IN MASONRY TO BE PLASTERED OR RENDERED: Unless metal lathing is used, rake out joints as work proceeds, to a depth of approximately 15 mm.

F10/2.4 FIRE STOPPING: Fill joints around joist ends built into cavity walls with mortar to seal cavities from interior of building.

F10/3 ADDITIONAL REQUIREMENTS FOR FACEWORK

F10/3.1 REFERENCE PANEL(S): Prepare panel(s) and after drying out, obtain approval of appearance before proceeding from CC. Construct panels in an

approved location using randomly sampled bricks/blocks but rejecting any that are damaged.

Size of panel: at least 900 x 900 mm

F10/3.2 Comply with NBS clauses regarding colour mixing, appearance, ground level and toothed bond.

F10/3.3 BRICK SILLS/CAPPINGS: Bed solidly in mortar with vertical joints completely filled. Press mortar firmly into exposed joints and finish neatly.

F10/3.4 CLEANLINESS: Keep facework clean during construction and thereafter until Practical Completion. Turn back scaffold boards at night and during heavy rain. If, despite precautions, mortar marks are deposited on the face of masonry units, leave to dry then remove with a stiff brush. Rubbing to remove marks or stains will not be permitted.

F10/3.5 CRACKED BRICKS in existing facework to be cut out and replaced with matching bricks as clause C40/20.

F10/3.6 POINTING: See clauses

C40/26	Keyed Pointing
C40/27	Fine Pointing
C40/28	Re-pointing
C40/29	Tuck Pointing

F21 NATURAL STONE, ASHLAR WALLING AND DRESSINGS

F21/1 GENERAL REQUIREMENTS/PRODUCTION

F21/1.1 RELATED WORK is specified in the NBS sections:

F10 Brick/Block walling.

F30 Accessories/Sundry items for brick/block/stone walling.

F21/1.2 OPERATIVES: Cutting, dressing, laying and jointing of stone to be carried out by skilled masons. Provide evidence of previous experience and details of work previously carried out.

F21/1.3 PRODUCTION: Stone to be cut and dressed:

- After seasoning but before delivery to site, including shaping, finish(es) and all sinkings for fixing and lifting devices.

- So that exposed and joint surfaces are square, true planes free from hollow or rough areas.
- With minimal deviation from specified dimensions to ensure that specified joint widths are maintained.
- So that natural bed is horizontal in plain walling, vertical and at right angles to wall face in projecting stones and at right angles to line of thrust in arches.

F21/1.4 IDENTIFICATION: Mark each block/dressing clearly to indicate the natural bed and position in the finished work.

F21/2 LAYING AND JOINTING

F21/2.1 REFERENCE PANEL: Prepare a panel and obtain approval of appearance from the CC before proceeding.

F21/2.2 PROTECTION:

- Store dressed stone clear of the ground, separate with resilient spacers, protect from inclement weather and keep dry. Prevent soiling, chipping and contamination by salts and other deleterious substances.
- Prevent timber bearers, protective boards, etc. from staining facings in wet conditions by wrapping with polyethylene.
- Prevent damage and disfigurement to stonework during the course of the works. Ensure that arrisses and projecting features are protected using securely fixed slats, boards, etc. Remove at Practical Completion.

F21/2.3 Comply with NBS clauses regarding adverse weather, laying, ground level, one-piece thresholds, openings, joggle joints, jointing and pointing.

F21/2.4 HEIGHT OF LIFTS: Carry up work with no portion more than 1.2 m above another at any time, racking back between levels. Do not carry up work higher than 1.5 m in one day.

F21/2.5 PUTLOG SCAFFOLDING will not be permitted.

F21/2.6 SUPPORT OF EXISTING WORK: Where new lintels or walling are to support existing structure, completely fill top joint with semidry mortar, hard packed and well rammed to ensure full load transfer after removal of temporary supports.

F21/2.7 REPAIRS to damaged components must not be undertaken without approval of the CC. Such approval will not be given where components are badly damaged or where the proposed repair will impair appearance or performance.

F30 ACCESSORIES AND SUNDRY ITEMS FOR BRICK, BLOCK AND STONE WALLING

F30/1.1 AIR BRICKS:

- To BS 493, Class 1, built in as the work proceeds.

  Material/colour: terracotta, or cast iron.

F30/1.2 WALL TIES FOR tying brick skins together

Manufacturer and reference: to structural engineer's specification

Material/finish: Austenitic stainless steel, minimum 18/8 composition and excluding free machining specifications.

F30/1.3 WALL TIES FOR improving bond

Manufacturer and reference: to structural engineer's specification

Material/finish: Austenitic stainless steel, minimum 18/8 composition and excluding free machining specifications

F30/1.4 JOINT REINFORCEMENT FOR STITCHING ETC.

- Manufacturer and reference: to structural engineer's specification

  Material: Austenitic stainless steel, minimum 18/8 composition and excluding free machining specifications

  Width: Approximately 40-50 mm less in width than wall or leaf.

- Lay on an even bed of mortar in a continuous strip with 225 mm laps at joints and full laps at angles. Keep back 20 mm from face of external work, 12 mm back from face of internal work and finish mortar joint to normal thickness.

F30/1.5 DAMP PROOF COURSE:

Bitumen based to BS 6398 class E

Manufacturer and reference: Ledkore
Callenders Construction Products
Harvey Road
Burnt Mills Industrial Estate
Basildon, Essex SS13 1EJ

F30/2 INSTALLATION OF DPCs/CAVITY TRAYS

F30/2.1 COLD WEATHER WORKING: In cold weather warm dpc rolls before unrolling, to avoid cracking.

F30/2.2 MOVEMENT JOINTS: agree methods positions and procedures for providing movement joints with CA and CC before commencing any work.

F30/3 PROPRIETARY SILLS/LINTELS/COPINGS/DRESSINGS

F30/3.1 SILLS:

- To BS 5642:Part 1.

  Manufacturer and reference: natural stone to match existing

  Dimensions: as shown on drawing(s) to match existing

  Finish: to match existing

  Finish, colour to match existing and texture to match approved sample.

- Leave bed joints open under one piece sills except under end bearings. On completion point with mortar to match adjacent work.

F30/3.2 PRECAST CONCRETE LINTELS:

- To BS 5977:Part 2.

  Manufacturer and reference: as Particular Specification/Schedule

- Bed on mortar used for adjacent work with bearing of not less than 150 mm unless specified otherwise. Use slate packing pieces.

F30/3.3 PREFABRICATED STEEL LINTELS:

- Do not use.

F30/3.4 COPING UNITS:

- To BS 5642:Part 2.

  Manufacturer and reference: natural stone to match existing

  Dimensions: as shown on drawing(s) to match existing

  Finish: to match original

  Finish, colour and texture to match approved sample.

- Lay on a full bed of mortar, accurately to line and level, with all joints filled and neatly finished flush.

F30/4 MISCELLANEOUS ITEMS

F30/4.1 TEMPLATES: Where frames are not to be built in, form openings using rigid templates accurately fabricated to the required size.

F30/4.2 FLUE LINING SYSTEM:

- Linings: to suit appliance being installed.

F30/4.3 FIREPLACE COMPONENTS:

To BS 1251.

F30/4.4 CHIMNEY POTS:

- Manufacturer and reference: Square taper plain pot to match original
  Hanson Red Bank
  Measham , Swadlincote
  Derbys. DE12 7EL

  Material: buff, clay
- Bed solid in mortar specified for chimney stack.

STRUCTURAL FRAMING

G12 ISOLATED STRUCTURAL METAL MEMBERS

G12/1.1 FABRICATION OF MEMBERS:

- Steel sections: To BS 4:Part 1 or BS 4848 as appropriate, made from steel to BS EN 10025, grade S275.
- Do not use sections which are heavily pitted or rusted.
- Make cuts and holes neatly and accurately. Remove burrs, sharp edges and dross caused by flame cutting.
- Welding: Metal arc method to BS 5135 to form fully fused joints with mechanical properties not less than those of the parent metal. Do not weld on site.

G12/1.2 SHOP PRIMING FOR ISOLATED STEEL MEMBERS

- Cleaning: Chip, scrape, disc sand and grind surfaces to remove all fins, burrs, sharp edges, weld spatter, loose rust and loose scale. Clean out all crevices. Thoroughly degrease using emulsion cleaners followed by thorough rinsing with water. Apply primer when surface is dry and on the same day as cleaning.
- Primer: One full coat of zinc phosphate modified alkyd brush applied to all surfaces, free from runs and sags.

G12/1.3 STEEL MEMBERS

- Design in accordance with BS 5950, BS 4604.
- Other requirements: as included in Particular Specification/Schedule

G12/1.4 INSTALLATION:

- Position members accurately, using steel packs of adequate area as necessary to achieve a true line and level.
- Fix securely using washers under bolt heads and nuts.
- Use suitably tapered, correctly aligned washers under bolt heads and nuts which bear on sloping surfaces.
- Bolts: to structural engineer's specification
- Keep within accumulative tolerances of BS5606 Tables 2 & 3

G20 CARPENTRY/TIMBER FRAMING/ FIRST FIXING

G20/1 TYPE(S) OF TIMBER

G20/1.1 STRESS GRADING OF TIMBER:

- To be carried out by companies currently registered under a third party quality assurance scheme operated by any of the certification bodies approved by the UK Timber Grading Committee.
- Timber of a basic thickness less than 100 mm and not specified for wet exposure to be stress graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for wet exposure conditions to be clearly marked as 'WET' or GRN'.
- Structural timber members cut from large graded section to be regraded to approval and marked accordingly.

G20/1.2 GRADED SOFTWOOD FOR STRUCTURAL MEMBERS

- Stress graded to BS 4978 or other national equivalent and so marked.

  Strength class to BS 5268:Part 2: SC3 -SC7

  Surface finish: as included in the Particular Specification/Schedule
- Preservative treatment: As section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C ___

  Type/desired service life: to structural engineer's specification
- Moisture content at time of erection: As clause 450.

G20/1.3 UNGRADED SOFTWOOD

- Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: as included in Particular Specification/Schedule
- Preservative treatment: As section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C ___
- Type/desired service life: 60 years
- Moisture content at time of erection: As clause 450.

G20/1.4 WROT TIMBER

- Quality of timber and fixing: To BS 1186:Part 3.

  Moisture content at time of fixing: 13 to 19%.
- Preserving treatment: As section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C5.

  Type/desired service life: 60 years
- Method of fixing to each support:
- Other requirements: as included in Particular Specification/Schedule

G20/1.5 HARDWOODS:

- Do not use hardwoods from tropical rainforests
- Supply supporting documentation to indicate that each batch of hardwood comes from a renewable source managed in accordance with Forest Stewardship Council (FSC) standards or equivalent.
  UK contact address: FSC,
  11-13 Great Oak Street, Llanidloes, Powys, Wales, SY18 6BU
  Tel: 01686 413916.

G20/2 WORKMANSHIP GENERALLY

G20/2.1 REDUCTION TO FINISHED SIZES of planed/regularized timber to be to BS 4471 for softwoods and BS 5450 for hardwoods.

G20/2.2 Comply with NBS clauses regarding selection and use of timber, processing treated timber, moisture content and protection.

G20/2.3 SEAL exposed end grain of the following with preservative to the recommendations of the timber treatment company before delivery to site:

Preservative treated timbers to Z12

G20/2.4 PAINTED FINISHES: Structural timber which is to be painted to be primed as specified before delivery to site. CA is to be given due notice for inspection before treatment, and a certificate supplied that the correct grade of primer or sealer has been used. A copy of the certificate is to be forwarded to the CC

G20/2.5 CLEAR FINISHES: Structural timber which is to be clear finished to be kept clean and first coat of specified finish applied before delivery to site.

G20/2.6 EXPOSED TIMBER: Prevent damage to and marking of surfaces and arrisses of planed structural timber which will be exposed to view in completed work.

G20/3 JOINTING TIMBER

G20.31 Comply with NBS clauses regarding jointing, fixing generally, framing anchors and bolted joints.

G20/3.2 PELLETTING:

Countersink screw heads 6 mm below timber surface and glue in pellets not less than 6mm thick, matching as closely as possible in grain and timber species. Finish off flush with face.

G20.4 ERECTION AND INSTALLATION

G20/4.1 Comply with NBS clauses regarding additional supports, wall plates, installing joists generally, installing joists on hangers, joist hangers and trimming openings.

G20/4.2 VERTICAL RESTRAINT STRAPS:

- as included in the Particular Specification/Schedule to comply with the Building Regulations

  Material: stainless steel

G20/4.3 LATERAL RESTRAINT STRAPS:

- as included in the Particular Specification/Schedule to comply with the Building Regulations

  Material: stainless steel

G20/4.4 Comply with NBS Clauses regarding strutting, and eaves soffit ventilation.

G20/4.5 FASCIAS/BARGES/SOFFITS:

- To match existing.

CLADDING AND COVERING

H62 NATURAL SLATING

H62/1 TYPE(S) OF SLATING

H62/1.1 ROOF SLATING

details as included in the Particular Specification/Schedule

Pitch: as original

- Slates: To BS 680:Part 2.

  Supplier and reference: Blue Grey Welsh slates to match original

  Size: to match original

  Fixing: As clause 275, minimum end lap as Particular Specification/Schedule

H62/2 SLATING GENERALLY

H62/2.1 Comply with NBS Clauses regarding Basic Workmanship, Existing Natural Slating, Underlay, Battens/Counterbattens, Counterbattens On Riged Sarking, Battens On Timber Supports, Slate Fixing, Mortar Bedding/Pointing.

H62/3 ROOF SLATING EDGES/JUNCTIONS/FEATURES

Comply with NBS Clauses regarding Generally, Fire Separating Walls, Eaves, Mortar Bedded Verge With Beeded Undercloak, Mortar Bedded Verge With Nailed Undercloak.

H62/3.1 ROOF SLOPE VENTILATORS:

- Ventilator slates: Eternit In-line natural slate ventilator

  Manufacturer: Eternit Roofing Division
  Meldreth, Nr. Royston, Herts SG8 5RL

  or equivalent

- Fix with underlay seal to ventilate roof space, as included in Particular Specification/Schedule

H62/3.2 LEAD VALLEY:

- Ensure that valley board, plywood valley sheathing and tilting fillets provide full support for lead gutter (specified in another section).
- Cut underlay to rake and dress over tilting fillets to lap onto lead gutter. Ensure that underlay is not laid under lead.
- Cut extra wide slates neatly to form a gap ___ mm wide centred on gutter.

Comply with NBS Clauses regarding side abutment, top edge abutment, top edge ventilation abutment, roof slope ventilators.

H62/3.3 ROOF WINDOW:

- Turn underlay up against window surround and cover with integral flashings/soakers all round.
- Cut slates as necessary and fit closely both sides.

H62/3.4 JUNCTIONS: Fix a lead saddle (specified in another section) to provide a weathertight detail at each:

as included in Particular Specification/Schedule

H62/3.5 LEAD HIPS AND RIDGES
see section H71 for details of lead hips and ridges

H71 LEAD SHEET COVERINGS AND FLASHINGS

H71/1 TYPE(S) OF LEADWORK

H71/1.1 ROOFING AND GUTTER REPAIRS

- Substrate: Softwood boards as NBS clause H71/640

  Preparation: Existing bases: as clause H71/621
- Underlay: none
- Type of lead: Rolled/cast/machine cast as NBS clause H71/520

  Thickness: Code 7

  Pre-treatment: Anti-oxidising emulsion as NBS clause H71/652 and H71/653

  Longtidunal joints: Wood cored or hollow rolls to match existing

  Spacing: As clause H71/510

  Cross joints: Drips without splash laps as NBS clause H71/865

Spacing: As NBS clause H71/510

H71/1.2 LEAD ROOFING

- As included in Particular Specification/Schedule

  Preparation included in this section: make good as NBS clause 620
- Type of lead: milled or machine cast as NBS clause 550, code 7
- Other requirements: use existing lead re-cast where possible

H71/1.3 LEAD DORMERS: lead to be code 7

H71/1.4 LEAD GUTTER LINING: lead to be code 7

H71/1.5 LEAD GUTTER LINING WITH EXPANSION JOINTS:

- As included in Particular Specification/Schedule
- Type of lead: milled or machine cast as NBS clause 550, code 7
- Cross joints: Neoprene/terne coated stainless steel expansion joints:

  T-Pren, as supplied by: British Lead Mills,

  Peartree Lane, Welwyn Garden City, Herts AL7 3UB

  Weld expansion joints to lead gutter linings in accordance with joint manufacturer's recommendations.

H71/1.6 PITCHED LEAD VALLEY GUTTER LINING: to be lead code 6

H71/1.7 RIDGE/HIP ROLLS TO LEAD ROOFS:

- Drawing reference(s): as Particular Specification/Schedule
- Core: Rounded timber as NBS clause 650.
- Size: as Particular Specification/Schedule . Fix to ridge/hip board with brass or stainless steel screws at not more than 600 mm centres.
- Capping: Lead of the same code as the roof, in lengths. Intersections with rolls in the roofing to be leadwelded off site and bossed to fit
- Laps: Not less than 150 mm for ridges, 100 mm for hips.
- Cover: as Particular Specification/Schedule. Wings of capping to extend not less than 75 mm on to roof.
- Fixing: Nail each sheet at underlapping end and secure wings with one copper or stainless steel clip as clause 720 per roofing bay and at each lap.

H71/1.8 RIDGE/HIP ROLLS TO SLATE ROOFS:

- Drawing reference(s): as Particular Specification/Schedule

- Core: Rounded timber as NBS clause 650.

  Size: as Particular Specification/Schedule . Fix to ridge/hip board with brass or stainless steel screws at not more than 600 mm centres.

- Capping: Lead of code 7, in lengths not exceeding 2000 mm. for ridges, 1500 mm for hips.

  Laps: Not less than 150 mm for ridges and hips.

  Cover: Wings of capping to extend not less than 150 mm on to roof.

- Fixing: Nail each sheet at underlapping end and secure wings with one copper or stainless steel clip as NBS clause 720 at each lap and as recommended by the Lead Sheet Association.

H71/1.9 COVER FLASHINGS

- Drawing reference(s): as included in project drawings or Particular Specification/Schedule
- including cover flashings to blocking courses and cornices
- Lead: Code 5 in lengths not exceeding 2250 mm.
- End to end joints: Laps of not less than 100 mm.
- Cover: Overlap to upstand of not less than 75 mm.
- Fixing: as Particular Specification/Schedule

H71/1.10 SOAKERS AND STEP FLASHINGS

- Drawing reference(s): as Particular Specification/Schedule
- Soakers:

  Lead: Code 3 cut and dressed to shape for fixing by roofer.

  Dimensions:

  Length: Slate/tile gauge + lap + 25 mm.

  Upstand: Not less than 75 mm.

  Underlap: Not less than 100 mm.

- Step flashings:

  Lead: Code 5 in lengths not exceeding 2000 mm.

  End to end joints: Laps of not less than 100 mm.

  Cover : Overlap to soaker upstands of not less than 65 mm.

  Fixing: Lead wedges at every course.

H71/1.11 SINGLE STEP FLASHINGS for lead pitched roofs

- Drawing reference(s): as Particular Specification/Schedule
- Lead: Code 5 in lengths not exceeding 2000 mm.
- End to end joints: Laps of not less than 50 mm.

- Cover: Overlap to lead roof upstand of not less than 65 mm.
- Fixing: Lead wedges at every step.

H71/1.12 CHIMNEY FLASHINGS:

- Drawing reference(s): as Particular Specification/Schedule
- Front apron: Lead: Code 5

Length: Width of chimney plus not less than 150 mm underlap to each side flashing. Upstand: Not less than 75 mm. Cover to roof: to suit the pitch .

Fixing: Lead wedges into bed joint.

- Soakers:

  Lead: Code 4 cut and dressed to shape for fixing by roofer.

  Dimensions: Length: Slate/tile gauge + lap + 25 mm.

  Upstand: Not less than 75 mm. Underlap: Not less than 100 mm.

- Step flashings: Lead: Code 5 in lengths not exceeding 1500 mm.

End to end joints: Laps of not less than 100 mm. Front end: Turn 75 mm around chimney over apron. Cover: Overlap to soaker upstands of not less than 65 mm. Fixing: Lead wedges at every course.

- Back gutter: Lead: Code 6 Length: Width of chimney plus not less than 100 mm overlap to each side flashing. Upstand: Not less than 100 mm. Gutter sole: Not less than 150 mm. Cover up roof not less than 225 mm.
- Back gutter cover flashing: Lead: Code 5 . Length: Width of chimney plus not less than 100 mm overlap to each side flashing. Cover: Overlap to back gutter upstand of not less than 75 mm.

H71/1.13 LEAD SLATES:

- Lead: Code 4 cut and dressed to shape for fixing by roofer.
- Dimensions:

  Base: Not less than 400 x 400 mm

  Upstand: Not less than 150 mm, to fit pipe and at angle to suit roof pitch.

H71/2 GENERAL REQUIREMENTS/PREPARATORY WORK

H71/2.1 WORKMANSHIP GENERALLY:

- Standard: To BS 6915 and latest editions of 'The Lead sheet Manual' and Updated published by the Lead Sheet Association.
- Design, observe the recommendations included in 'The Lead Sheet Manual' for maximum lead sheet sizes, joint spacing, clip spacing laps, upstands and cover.
- Fabrication and fixing: To provide a secure, free draining and weathertight installation.

- Operatives: Trained in the application of lead coverings/flashings.
- Measuring, marking, cutting and forming: Prior to assembly wherever possible.

  Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.

  Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks

Sharp metal edges: Fold under and remove as work proceeds.

Finished work: Fully supported, adequately fixed to resist wind uplift but also to accommodate thermal movement without distortion or stress.

Protection: Prevent staining, discolouration and damage by subsequent works.

H71/2.2 LEADWELDING

IN SITU WELDING: Should be avoided where practical. Where ever possible lead details should be formed by bossing or prefabrication off site. Contractors should tender accordingly.

Only where off-site prefabrication is completely impractical – for example, jointing of sump outlet pipes – will on-site lead brining could be permitted; if implementation of a 'hot work permit' system monitored by the employer or their agent has been established and compliance with its requirements. Further advice can be obtained from the building insurers.

H71/2.3 LEAD SHEET

Production method:

Rolled, to BS EN 12588, or

Machine Cast, Agrement certified and to code thicknesses with a tolerance (by weight) of +_ 5%, or

Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of +_ 10%

Identification: Labelled to show thickness/code, eight and type.

H71/2.4 REPLACEMENT OF EXISTING LEAD must be carried out in small sections at a time to reduce the risk of weather damage to a minimum. Provide and maintain temporary waterproof coverings to ensure that there is no damage to the existing base and building.

H71/2.5 SUITABILITY OF SUBSTRATES

Condition: Dry and free of dust, debris, grease and other deleterious matter.

H71/2.6 PREPARATION OF EXISTING TIMBER SUBSTRATES

Remedial work: Adjust boards to level and securely fix. Punch in protruding fasteners and plane or sand to achieve an even surface.

Defective boards: Report to the employer or their agent who will issue instructions concerning repairs.

H71/2.7 TIMBER FOR USE WITH LEADWORK

Quality: Sawn and regularised, free from wane, pitch pockets, decay and insect attach (ambrosia beetle excepted).

Preservative treatment: organic solvent as section Z12 and British Wood Preserving and Damp Proofing Association Manual – Commodity Specification C8.

Allow to pre-treat (after fixing but before laying head) with anti-oxidising as clause 652 and 653.

CCA preservatives must not be used.

H71/2.8 PRE-PATINATION (PRIMING) UNDERSIDE OF LEAD COVERINGS:

Prior to laying lead roofing the following operations are to be undertaken.

- Pre-patination applied to the underside of the lead.

  Pre-patination material can be obtained from:

  Rowan Technologies Ltd (216 Church Street, Urmston, Manchester M41 9DX. Tel 0161 748 3644). Chalk emulsion, Colour Green, for application to the underside of the lead prior to laying.

  Other suppliers are available.

The underside of the sheets should be pre-cleaned using a wire wool or similar material to remove any corrosion products/deposits. Appropriate health and safety precautions must be adhered to. The emulsion should be applied to the underside of the lead so that the surface can no longer be seen.

The emulsion should be allowed to dry before laying the lead. Follow the manufacturers instructions concerning application.

H71/2.9 UNDERSIDE OF LEAD COVERINGS WHERE PRIMING IS TO BE OMITTED:

Chalk paste can draw in water by capillary action. Residues should therefore not be left on the matching lead to lead surfaces to the bottom 50mm of laps, or to the bottom 25mm vertical distance of rolls and steps.

H71/3 FIXING LEAD

H71/3.1 HEAD FIXING LEAD SHEET

Number position and spacing of fixings to be in accordance with the recommendations of 'The Lead Sheet Manual' and updates.

H71/3.2 FIXINGS

Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1-

Shank Type: Annual ringed, helical threaded or serrated.

Shank Diameter: Not less than 2.65mm for light duty or 3.5mm for heavy duty.

Length: Not less than 20mm or equal to substrate thickness.

Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 3.

Diameter: not less thjan 3.35mm.

Length: Not less than 19mm.

Washers and plastic plugs: Compatible with screws.

Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/supplier for clips.

H71/3.3 CLIPS

Material:

Lead clips: Cut from sheets of same thickness/code as sheet being secured.

Stainless steel clips: Cut from 0.38mm sheet to BS EN 10088, grade 1.4301 (304) terne coated if exposed to view.

Dimensions:

Width: As clause H71/510

Length: As clause H71/510

Fixing Positions: As clause H71/510

H71/3.4 WEDGE FIXING INTO JOINTS/CHASES

Joint/chase: As clause H71/510

Lead: Dress into joint/chase

Fixing: Lead wedges As clause H71/510

Sealant: (As section Z22): Where there is a risk of thermal movement.

Mortar pointing: to match adjoining work and tooled to a neat finish.

H71/3.5 SCREW FIXING INTO JOINTS/CHASES

Where joint fixings will strain finishes

Joint/chase: Rake out to a depth of not less than 25mm.

Lead: Dress into joint/chase and up back face.

Fixing: Into back face with stainless steel screws and washers and plastic plugs centres as H71/510.

Sealant: As section Z22: Where there is a risk of thermal movement

Mortar pointing; to match adjoining work and tooled to a neat finish.

H71/4 JOINTING LEAD

H71/4.1 FORMING DETAILS

Method: Bossing or leadwelding except where bossing is specifically required.

Leadwelded seams: Neatly and consistently formed.

Seams: Do not undercut or reduce sheet thickness.

Filler strips: Of the same composition as the sheets being joined.

Butt joints: Formed to a thickness one third more than the sheets being joined.

Lap joints: Formed with 25mm laps and two loadings to the edge of the overlap.

Bossing: Carried out without thinning, cutting or otherwise splitting the lead sheet.

Details where bossing must be used: Roll ends, roll junctions.

H71/4.2 DRIPS WITHOUT SPLASH LAPS

Underlap: Dress into rebate along top edge of drip.

Overlap: Dress over drip to just short of lower level.

WATERPROOFING

J21 MASTIC ASPHALT ROOFING/FINISHES

J21/1 TYPE(S) OF MASTIC ASPHALT ROOFING WORK

J21/1.1 ROOFING: Decks to be designed in accordance with Mastic Asphalt Council and Employers' Federation (MACEF) recommendations and BS 6229;

- adequate ventilation details and movement joints to be provided.

J21/2 GENERAL REQUIREMENTS

J21/2.1 ASPHALT ROOFS

- Generally asphalt roofs are not appropriate for the Regent's Park properties, and should be replaced by leadwork.
- Entirely modern roofs where the decks have been carefully designed to take into account all the recommendations for movement details and ventilation, may have the asphalt renewed with the written permission of the CC.

J21/2.2 ROOFING GENERALLY:

- Lay roof covering to provide a secure, free draining and completely weathertight roof.
- Ancillary products and accessories, where not specified, to be types recommended for the purpose by the asphalt manufacturer.
- Use operatives certified after four years training in a course recognised by the MACEF Submit evidence of training to CC on request.
- Maintain a minimum of 75 % fully trained operatives on site throughout the installation period.

J21/2.3 ADVERSE WEATHER:

- Provide temporary covers and drainage as required to keep unfinished areas of the roof dry.
- Protect daywork joints in warm deck roofs with a lapped and fully bonded strip of BS 747, Type 5B felt or equivalent.
- Protect edges of phased roofing with temporary asphalt kerbs, fully sealed to base.
- Suspend work in severe or continuously wet weather unless an effective temporary roof is provided over the working area.
- If unavoidable wetting of the construction does occur, take prompt action to minimise and make good any damage.

J21/2.4 PROTECTION: Until Practical completion, ensure that:

- The roof is not used as a working platform unless fully protected.
- No petroleum based solvents or other chemicals harmful to bitumen are allowed to come into contact with the roof surface.
- No building materials are stored on the roof.
- Finished roof areas are adequately protected from damage by subsequent building operations.

J21/2.5 PRIMER(S): Type(s) recommended for the purpose by the manufacturer of the material to be bonded. Apply by mopping, brushing or spraying to achieve an even and full cover of the surface. Allow to dry thoroughly before covering.

J21/2.6 BONDING COMPOUND(S):

- Unless specified otherwise oxidised bitumen to BS 3690:Part 2, grade as recommended by the manufacturer of the material to be bonded for the conditions and type of surface. Heat and lay at a temperature sufficient to ensure bonding over the whole surface. Do not overheat.
- For bonding of and to heat sensitive insulation materials use cold bonding bituminous adhesive recommended by the insulation manufacturer.

J21/2.7 USING BOILERS/CAULDRONS ON SITE:

- Comply with Information Sheet 18 'Code of practice for safe handling of hot bitumen for roofing purposes', in the FRCAB Handbook, produced by the Flat Roofing Contractors' Advisory Board and National Federation of Roofing Contractors.
- The boiler must be either thermostatically controlled or manually controlled using standard calibrated thermometers.
- Submit a 'Hot Work Permit' to the CA prior to commencing work, obtain agreement before proceeding and comply with its requirements.

J21/3 BASES

J21/3.1 SUITABILITY OF BASE: Before laying asphalt ensure that:

- The base is to even falls with no areas which will pond.
- Surfaces to be covered are firmly fixed, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- All preliminary work including formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints, etc. and fixing of battens, fillets, anchoring plugs/strips, flashings, copings, roof outlets, pipesleeves, ventilators, etc. is complete and satisfactory.

J21/3.2 RENEWING EXISTING ASPHALT:

- Agree with the CC the extent of the area(s) to be renewed.
- Remove, renew and waterproof each area on the same day, unless agreed otherwise with the CC.
- Adequately protect existing and new area(s) of roof against damage during the execution of the work.
- Where removal results in accidental damage to existing elements which are to remain, agree proposed repair or replacement with the CC.

J21/3.3 MAKING GOOD EXISTING ASPHALT:

- Remove existing chippings or tiles and clear roof of all dust, dirt, debris, moss and grease.
- Remove defective areas of asphalt where instructed. Use hot poultices to soften existing asphalt, cut at a shallow angle at edges and remove with a trowel. Do not use hammers, chisels, etc. to remove asphalt.
- Ensure base is dry and make good separating membrane. Patch repair level with existing surface with two coats of asphalt, the top coat being lapped not less than 75 mm on to existing asphalt and to half its depth.

J21/3.4 TIMBER FOR TRIMS, ETC. BY ROOFING SUBCONTRACTOR:

- Planed, free from wane, pitch pockets, decay and insect attack except pinhole borers.
- Moisture content: Not more than 22% at time of covering.
- Preservative treatment: CCA as section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C8.
- Fix with sherardized steel screws at not more than 600 mm centres.

J21/3.5 KEYING TO BRICKWORK/ BLOCKWORK:: Raking out joints of backing brickwork does not provide a suitable key for asphalt. Use methods recommended by the mastic asphalt manufacturer .

- Fully seal at penetrations using bonding or taping methods recommended by MACEF

J21/4 ASPHALT/ACCESSORIES

J21/4.1 SEPARATING LAYER: Black sheathing felt to BS 747, type 4A. Loose lay with 75 mm laps immediately prior to laying asphalt.

J21/4.2 APPLICATION OF ASPHALT:

- Ensure thorough mixing when remelting and do not heat to more than 230 degC. Do not use reheated asphalt.
- Apply each coat to even thickness using suitable gauges and float to a smooth surface free from imperfections and crazing. Apply successive coats without delay and within the same working period.
- Ensure complete fusion of asphalt at all joints to give a continuous watertight membrane. Clean and heat the edges of previously laid coats by poulticing with hot asphalt. Remove and discard poultice and cut away edge to remove sand rubbed material before jointing. Lay new asphalt whilst poulticed surface is still hot. Torching will not be permitted.
- Stagger junctions of bays in successive coats by not less than 150 mm.
- Pierce any blows and make good affected areas while asphalt is still at working temperature.

- Form solid fillets in all internal angles, fully fused to asphalt coating and not less than 40 mm wide on face and at an angle of approximately 45 deg to the horizontal.
- Maintain full thickness of asphalt around external angles.
- Turn asphalt into splayed chase at top edge of skirtings and vertical work. Finish top surface with a splay to shed water away from the wall, maintaining full thickness.
- Form watertight joints around pipes, gullies and other penetrations.
- Finish asphalt to a smooth flat surface, free from lipping, pitting, scars and other imperfections. Sand rub all horizontal surfaces while asphalt is still warm, using clean, coarse sand from natural deposits, passing a 600 micron sieve and retained on a 210 micron sieve.

J21/4.3 EDGE TRIMS:

- Manufacturer and reference: _____
- Separating layer: To be terminated at trim. Do not carry under or over trim.
- Attachment: Lengths of trim to be not more than 3 m. Set 3 mm clear from wall or fascia and fix to base using 50 mm stainless steel countersunk wood screws to BS 1210 set 30 mm from ends of trims and at not more than 300 mm centres.
- Jointing: Fit jointing sleeves fixed one side only.
- Corners: Use corner pieces made for the purpose: do not improvise.

J21/4.4 ROOF VENTILATORS:

- Manufacturer and reference: _____
- Position evenly over roof area at not more than ___ m centres and set in ___ m from roof edges.
- Cut neat holes in _____ to suit size of vents.
- Do not prime or apply bonding compound to base below vents.
- Prime skirt of vents before asphalting if recommended by manufacturer.

J21/5 SURFACE PROTECTION/FINISHES

J21/5.1 INVERTED ROOF INSULATION:

- Material: _____

  Thickness: _____
- Do not lay insulation until roof is clear of other subtrades.
- Clean off all dirt and debris from base.
- Set out to minimise cutting and avoid small cut pieces at perimeter and penetrations.

- Loose lay boards tightly butted and to brick pattern, cut cleanly to fit closely around projections, upstands, rainwater outlets, etc.
- On completion of laying ensure that boards are in good condition, with no springing, flexing or rocking. Secure boards against wind uplift as soon as practicable.

J21/5.2 STONE BALLAST:

- Washed, round aggregate graded 40 mm to 20 mm and free from fines.
- Ensure that gravel guards are fitted to all outlets.
- Spread evenly to a depth of _____

J21/5.3 PAVING SLABS:

- Precast concrete to BS 7263:Part 1, hydraulically pressed.
- Lay slabs with ___ mm open joints on 75 mm square dry felt pads, four per slab, thickness adjusted to prevent rocking.

J21/5.4 PAVING TILES:

- Manufacturer and reference: _____
- Where required by tile manufacturer prime contact surfaces and allow to dry.
- Apply sufficient bitumen bonding compound to fully bed the tiles but avoid excess compound being squeezed up over the face of the tiles.
- Lay the tiles with _____ joints, maintaining consistency of line. Where not specified otherwise, allow expansion gaps at 3 m intervals and 100 mm wide gaps for drainage where walkway crosses fall. Do not foul expansion or drainage gaps with bonding compound.
- Stop tiles _____ mm short of angle fillets at upstands and perimeters.

J21/5.5 CHIPPINGS:

- Pea gravel or crushed rock not less than 10 mm nominal size graded as 'Single sized aggregate for asphalt roofing', light coloured to approval.
- Ensure that gravel guards are fitted to all outlets and the roof is clear of other trades.
- Evenly pour a hot or cold application dressing compound to BS 3690:Part 1 at 1.5 kg/sq m and scatter chippings at approximately 16 kg/sq m.
- On completion remove loose chippings without exposing the asphalt.

J21/5.6 MINERAL/METAL FACED CAP SHEET

- Manufacturer and reference: _____
- Lay sheets neatly, with carefully formed junctions. Do not mark, crease or stain face of sheet.

- Avoid adhesion of excess bonding compound at laps and carefully remove any excess when set.

J21/5.7 COMPLETION: Ensure that:

- Roof areas are left clean with all outlets clear.
- All work by others necessary to provide a weathertight finish is satisfactorily completed.
- Defects are repaired without delay to minimise damage and nuisance.

WINDOWS, DOORS AND STAIRS

L10 TIMBER WINDOWS, ROOFLIGHTS, SCREENS AND LOUVRES

L10/1 PRELIMINARY INFORMATION/REQUIREMENTS

L10/1.1 GLAZING BARS

- All glazing bars in Regency houses are to have lamb's tongue profile glazing bars, no wider than 16 mm (5/8").
- Where historic glazing bars remain of a different pattern, agree the profile to be used with the CC before ordering manufacture.
- Provide a sample of the proposed glazing bar for agreement by the CC before manufacture.

L10/1.2 HORNS AND FRAMES:

- No sashes in the Regency houses are to have horns. The sizes of the frame members are to match the original exactly.

L10/1.3 HARDWOODS:

- Do not use hardwoods from tropical rainforests
- Supply supporting documentation to indicate that each batch of hardwood comes from a renewable source managed in accordance with Forest Stewardship Council (FSC) standards or equivalent.
  UK contact address: FSC UK,
  11-13 Great Oak Street, Llanidloes, Powys, Wales
  Tel: 01686 413916

L10/1.4 TIMBER GENERALLY: Ensure temperate, boreal and tropical forest softwoods and hardwoods comply with European Community Regulations 3626/86.

L10/1.5 TIMBER CERTIFICATION: Requirements for all timbers and timber based products.

Ensure all supplies of timber and timber based products (including those used for temporary works) conform to the specified certification standard listed below:

a) FSC (refer to NBS clause 123) – All tropical hardwoods, all non-European sourced temperate hardwoods (e.g. North American sourced oak and walnut), all non-European sourced softwoods (e.g. North American sourced Western Red Cedar), Plywood (except where formed from Birch or Douglas Fir).

b) PEFC (refer to NBS clause 124) – All European sourced softwoods (White Wood, Deal, Douglas Fir, Larch, Yew, etc.), European sourced hardwoods not listed under D (European), Birch, Maple, etc.

c) Provide evidence to the CC to review on request.

L10/1.6 WOODEN WINDOW COMPONENTS

Timber generally: To BS EN 942 and NBS clauses L10/121 to 124.

Appearance class: J10 for glazed beading, drip mouldings and the like. J40 or better for all other members.

Preservative treatment: As Z12, hazard class 3.

L10/2 COMPONENTS

L10/2.1 TIMBER WINDOWS:

- To match original
- To BS 644:Part 1.
- Exposure category (Design wind pressure): 1600 (Pa)
- Timber species: hardwood glazing bead, cills etc, softwood frames

  Class 1 for glazing beads, drip mouldings and the like.

  Class 2 for all other members.

  Preservative treatment: Organic solvent as section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C5.

  Desired service life: 60 years
- Moisture content on delivery: 16% +/- 3
- Glazing: as L40/9
- Ironmongery/accessories: original repaired if possible, or to match
- Finish as delivered: as Particular Specification/Schedule
- Fixing: as original

L10/2.2 TIMBER SUBFRAMES:

- Timber: To BS 1186:Part 1.
- Cills and sub-cills to be hardwood as L10/1.3
- Preservative treatment: Organic solvent as section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C5.

  Desired service life: 60 years
- Joinery workmanship: As NBS section Z10.

  Moisture content on delivery: 16% +/- 3

L10/2.3 ROOF LIGHTS:

- Type: to match original, or as agreed with CC, generally to be conservation rooflight by the Rooflight Company or similar approved.
- Glazing details: to comply with the recommendations of the Glass and Glazing Federation for overhead glazing.

  Colour: dark grey to match slates. BS 00A13
- Retain sections of existing framing and glazing beads or rooflights to be replaced, carefully remove paint and record profiles. Match new profiles and timber sizes to the original.

L10/2.4 TIMBER SHUTTERS TO WINDOWS:

- Materials generally: To BS 1186:Part 1.
- Joinery workmanship: As section Z10.

  Moisture content of timber on delivery: 8 - 12 %
- Accuracy: Permissible deviations:

  Height and width: +/- 2 mm.

  Straightness of members measured in the plane of the shutters or at right angles:

  Up to 1200 mm long: 3 mm

  Up to 2400 mm long: 5 mm

  Difference in length of diagonals when frame length plus height is:

  Up to 1800 mm: 3 mm

  Over 1800 mm up to 3000 mm: 5 mm

  Over 3000 mm: 10 mm
- Special features: carefully remove and refurbish existing ironmongery; replace missing items to match original
- Finish as delivered: as Particular Specification/Schedule
- Fixing: to be screw fixed

L10/3 INSTALLATION

L10/3.1 MOISTURE CONTENT OF TIMBER COMPONENTS: During delivery, storage, fixing and thereafter to Practical Completion maintain conditions of temperature and humidity to suit specified moisture content(s) of components. When instructed by CC, test components with an approved electrical moisture meter used in accordance with manufacturer's recommendations.

L10/3.2 PRIMING/SEALING: Before fixing components ensure that surfaces of timber which will be inaccessible after installation are primed or sealed as specified.

L10/3.3 CORROSION PROTECTION: Before fixing, apply two coats of bitumen solution to BS 6949 or an approved mastic impregnated tape, to surfaces of components listed in Particular Specification/Schedule which will come into contact with metals where electrolytic action may take place, or timbers where chemical reactions may take place

L10/3.4 WALLS TREATED FOR DRY ROT:

- Separate new joinery from walls with material as recommended by timber treatment specialist

L10/3.5 BUILDING IN will not be permitted except where specifically stated on the drawings.

L10/3.6 WINDOW INSTALLATION:

- Install windows into prepared openings, ensuring that the amount of window exposed on the face matches the original.
- Install windows without twist or diagonal racking.

L10/3.7 FIXING OF TIMBER FRAMES:

- As NBS section Z20
- When not predrilled or specified otherwise, position fixings not more than 150 mm from each end of jamb, adjacent to each hanging point of opening lights, and at maximum 450 mm centres.

L10/3.8 FIRE RESISTING FRAMES: Completely fill gap between frame and surrounding construction with intumescent material.

L10/3.9 IRONMONGERY: Assemble and fix carefully and accurately using fastenings with matching finish supplied by ironmongery manufacturer. Prevent damage

to ironmongery and adjacent surfaces. At completion check, adjust and lubricate as necessary to ensure correct functioning.

- Window ironmongery is to be appropriate to the style and age of the building, and of approved quality.

L20 TIMBER DOORS AND HATCHES

L20/1 PRELIMINARY INFORMATION/REQUIREMENTS

L20/1.1 EVIDENCE OF PERFORMANCE: Provide independently certified evidence that all specified variants of components comply with specified performance requirements.

L20/1.2 FIRE RESISTING DOORS/DOOR SETS/ASSEMBLIES:

Evidence of fire performance: Provide certified evidence in the form of a product conformity certificate, directly relevant fire test report or engineering assessment that each door/doorset/assembly supplied will comply with the specified requirements for fire resistance if tested to BS 476-22, BS EN 1634-1 or BS EN 1634-3. Such certificate must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.

L20/1.3 SITE DIMENSIONS must be taken and recorded on shop drawings before starting to make any doors, shutters and hatches to fit existing openings and to ensure accurate fabrication..

L20/1.4 HARDWOOD: as L10/1.3

L20/2 COMPONENTS

L20/2.1 INTERNAL AND EXTERNAL TIMBER PANELLED DOORS:

- Retain sections of existing doors beyond repair; strip off paint; match new profiles to original
- New timber to match original in species and direction of grain

L20/2.2 TIMBER DOOR FRAMES:

- Timber to BS1186:Part1
- Timber species: Softwood as Appendix B
- Cills and sub-cills, where required, to be hardwood

- Preservative treatment: Organic solvent as section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C5
- Desired service life: 60 years
- Joinery workmanship: As NBS section Z10
- Moisture content on delivery: 8 -12 %

L20/2.3 SLIDING FOLDING EXTERNAL DOOR(S):

- Location: Mews garage doors
- To match original framed ledged and braced doors with glazed panels

L20/2.4 HATCH(ES):

- Roof hatches to be insulated to comply with the latest Building Regulations

L20/2.5 DOOR KNOB FURNITURE:

- Reeded brass knob furniture is an appropriate pattern for internal door furniture.
- Mortise locks generally are inappropriate for Regency buildings.

L20/2.6 EXTERNAL DOOR FURNITURE

- Door furniture is to be cast iron painted black, including letter plates and lock escutcheons
- Pattern of ironmongery is to match original/adjacent in the Terrace
- Where there is more than one lock, they are to be positioned in a neat line, with the lock cases adjusted to suit as required.

L20/3 INSTALLATION

L20/3.1 PROTECTION OF COMPONENTS: Do not deliver to site components which cannot be put immediately into suitable dry, floored and covered storage. Stack on bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

L20/3.2 MOISTURE CONTENT: During delivery, storage, fixing and thereafter to Practical Completion maintain conditions of temperature and humidity to suit specified moisture content(s) of timber components. When instructed by CC, test components with an approved electrical moisture meter used in accordance with manufacturer's recommendations.

L20/3.3 PRIMING/SEALING: Before fixing components ensure that surfaces of timber which will be inaccessible after installation are primed or sealed as specified.

L20/3.4 CORROSION PROTECTION:

- As clause L10/3.3

L20/3.5 WALLS TREATED FOR DRY ROT:

- Separate new joinery from walls with materials as recommended by timber treatment specialists

L20/3.6 BUILDING IN will not be permitted except where specifically approved.

L20/3.7 BUILDING IN TIMBER FRAMES: Fix DPCs with galvanized clout nails to backs of frames which are to be built into external openings.

L20/3.8 FIXING CENTRES FOR TIMBER FRAMES: When not predrilled or specified otherwise, position fixings 150 mm from each end of jamb, adjacent to each hanging point and at 600 mm maximum centres.

L20/3.9 FIRE RESISTING FRAMES: Completely fill gap between frames and existing construction with intumescent material

L20/3.10 IRONMONGERY: Assemble and fix carefully and accurately using fastenings with matching finish supplied by ironmongery manufacturer. Prevent damage to ironmongery and adjacent surfaces. At completion check, adjust and lubricate as necessary to ensure correct functioning.

- to be of a design appropriate to the style and age of the building, and of approved quality.

L30 STAIRS/LADDERS/WALKWAYS/HANDRAILS/BALUSTRADES

L30/1 PRELIMINARY INFORMATION/REQUIREMENTS

L30/1.1 BASIS OF DESIGN:

- Unless stated otherwise, design stairs, galleries and balustrades to BS 5395 where applicable.
- The supplier/subcontractor must complete the design and detailing to ensure compliance with the structural and safety requirements of BS 5395.
- Occupancy class for dead and imposed loadings on stairs and landings to comply with BS 6399.

L30/1.2 SITE DIMENSIONS must be taken and recorded on shop drawings before starting to make staircases, handrails, balusters etc to ensure accurate fabrication.

L30/1.3 TIMBER STAIRCASES TO AREAS are to be replaced with metal stairs to match the original pattern as closely as can be ascertained, and to comply with the present day safety standards.

L30/2 COMPONENTS

L30/2.1 STAIRS

Moisture content of timber on delivery: 8 - 12%

- Workmanship:

  Joinery: As NBS section Z10.

  Metalwork: As NBS section Z11.
- Other requirements: to match original or to be of appropriate pattern.

L30/2.2 LOFT LADDER(S):

To BS 7553, Class G

L30/2.3 BALUSTRADE(S) AND HANDRAIL(S)

- To match original
- Grade(s) of material(s) and finish as delivered:
- Handrail to be as near a match to mahogany as possible in appearance.
- Moisture content of timber on delivery: 8 - 12 %
- Workmanship:
- Joinery: As NBS section Z10.
- Metalwork: As NBS section Z11. New balusters to match originals; casts to be taken from an existing example from which the paint has been carefully stripped.
- Other requirements: to match original where possible

L30/3 INSTALLATION

L30/3.1 MOISTURE CONTENT: During delivery, storage, fixing and thereafter to Practical Completion maintain conditions of temperature and humidity to suit specified moisture content(s) of timber components. When instructed by CC, test components with an approved moisture meter to manufacturer's recommendations.

L30/3.2 CORROSION PROTECTION:

As clause L10/3.3

L30/3.3 FIXING GENERALLY:

- Methods of fixing and fastenings to be as section Z20 unless specified otherwise.
- Do not modify, cut, notch or make holes in structural members except as shown on drawings or as approved.
- Do not use stairs, walkways, balustrades, etc. as temporary support or strutting for other work.

L32 STONE STAIRS

L32/1 STONE STAIRS: match profile and material of existing steps. No repairs that involve the removal of steps in an open well stair are to be undertaken without an assessment and approved method statement by a structural engineer experienced in works on this type of stair.

L40 GENERAL GLAZING

L40/1 PROTECTION:

Protect existing glass from impact during the works, take particular care of historic Crown Glass.

L40/2 PREGLAZING:

Preglazing of components: not permitted.

L40/3 REMOVAL OF GLAZING FOR REUSE:

- The original crown glass is now irreplaceable and special care must be taken to avoid damaging it.
- Carefully remove existing glazing and glazing compound, beads, etc., avoiding damage to the frame, to leave clean smooth rebates free from obstructions and debris.
- Report to CA any signs of deterioration of the surround revealed by removal of glazing, compounds, etc.
- Do not reglaze affected surrounds until instructed.
- REUSEABLE MATERIALS - Clean glazing, beads and other components that are to be reused.

Note that historic crown or cylinder glass should always be reused where casement repairs have been undertaken.

L40/4 DEGLAZING – EXISTING OPENINGS:

Temporary blocking to opening whilst glass is removed: Sterling board (12mm minimum thickness) neatly scribed to outer surface of the opening.

Provide 75 x 50mm softwood bracing internally. Bolt bracing and board together with threaded rod, nuts and washers.

Protect internal finishes and surfaces.

Internal dust sheeting: provide polythene sheeting internally where required by Schedule of Works.

Existing frames/casements:

Preparation: clean out glazing rebate and leave ready for glass.

L40/5 MATERIAL SAMPLES – REPLACEMENT FOR DAMAGED EXISTING GLASS

- Representative samples of Crown or cylinder glass: Submit before cutting panes.
- Sample size (minimum): 150mm square.
- There should not be excessive distortion in the glass.

L40/6 WORKMANSHIP GENERALLY:

- Glazing generally: to BS 6262.
- The glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
- Panes/sheets to be accurately sized, with clean, undisfigured surfaces and undamaged edges.
- Avoid contact between glazing panes/units and alkaline materials such as cement and lime.
- Keep materials dry until fixed. Keep insulating glass units and plastics glazing sheets protected from the sun and away from heat sources.
- Compatibility: Glass, surround materials, sealers, primers and paints/clear finishes to be used together to be compatible. Avoid contact between glazing panes/units and alkaline materials such as cement and lime.

L40/7 PREPARATION: Clean surrounds, rebates, grooves and beads, and prepare as specified before installing glazing.

L40/8 GLASS: Generally to BS 952 and the relevant part(s) of BS EN 572, free from scratches, bubbles, cracks, rippling, dimples and other defects.

- Clear or patterned glass must not be replaced with tinted or obscured glass
- Requirements for safety glazing must be discussed with the Crown Estate.

L40/9 CROWN GLASS:

- Crown glass is to be used for windows, and generally elsewhere, except where specifically noted otherwise.

  Crown glass German Cylinder Blown Sheet NR, manufactured by

  The London Crown Glass Company
  21 Harpsden Road , Henley-on-Thames
  Oxfordshire RG9 1RJ

  Tel: 01491 413 227 Fax: 01491 413 228

  There should not be excessive distortion in the glass.

L40/10 SOLAR REFLECTIVE FILMS

- Solar reflective or tinted films are not to be applied to any window glass.

L40/11 SAFETY

- Comply with the latest Building Regulations for safety of glazing.
- Generally use 4mm toughened glass where safety glazing is required
- Written permission will be required from CC where the use of laminated glass is proposed. Note that laminated glass cannot be used with putty glazing.

L40/12 THERMAL INSULATION

- Double glazing is not suitable for windows on the Regent's Park Estate, for reasons of construction and appearance. The most cost effective treatments for existing windows are

  a) Weather-stripping: Ventrolla or equivalent

  b) Use of existing timber shutters

  c) Use of heavy curtains with thermal interlinings

  Carry out checks to ensure that ventilation requirements for open flame gas fires and the like are met when installing draught proofing.

  Note that by special dispensation 'conservation double glazing' is allowed on the rear elevation of Chester Terrace.

L40/13 SECONDARY GLAZING

- Internal secondary glazing may be installed subject to installation and removal without damaging the fabric of the building or reveal linings and shutters.
- The design of the internal glazing must not conflict with the view of the sash windows from the street.

L40/14 HEAT TOUGHENED GLASS to be fixed in the following locations must be subjected to a heat soaking regime. All panes must be heat soaked. Provide certified evidence of treatment.

Location(s): rooflights and overhead glazing

L40/15 BEAD FIXING WITH PINS: Space pins evenly at not more that 150 mm centres, and within 50 mm of each corner. Punch pins just below the timber surface.

L40/16 BEAD FIXING WITH SCREWS: Space screws evenly at not more that 225 mm centres, and within 75 mm of each corner.

L40/17 HISTORIC CROWN GLASS REPAIRS

Crown and cylinder glass was used to glaze the windows of Crown Estate properties when they were built. The glass has a distinctive texture and its appearance is part of the character of the property.

Cracked Crown and cylinder glass should not be replaced with modern plain glass.

Glass with a similar texture to Crown or cylinder glass can be obtained and should be used where repairs are required to 19th century glazing.

The Crown Estate does not require the use of a particular supplier but the following suppliers of glass which has a suitable appearance are included for information:

The London Crown Glass Company, Henley on Thames TG9 1EE. Tel: 01491 413227.

Tatra Glass (UK) Loughborough LG11 1ED. Tel: 01509 235387.

There should not be excessive distortion in the glass.

TYPES OF GLAZING

L40/18 PUTTY FRONTED SINGLE GLAZING TO WINDOWS

- Pane material: L40/8
- Surround: Primed as M60
- Type of putty: Linseed oil putty to BS 544
- Apply sufficient putty to produce not less than 1.5 mm finished thickness of back bedding after inserting glazing.
- Locate glazing centrally in surround using setting and location blocks, and secure with glazing sprigs/cleats/clips at 300 mm centres.

- Apply front putty and finish to a neat triangular profile stopping 2 mm short of sight line. Lightly brush surface to seal putty to glass and leave smooth with no brush marks.
- Seal putty as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
- The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
- Two coats of oil based primer applied locally to the compound, to be followed nearer Practical Completion with the full specified finish.
- Keep opening lights in closed position until putty has set sufficiently to prevent displacement of glazing.

SURFACE FINISHES

M10 CEMENT:SAND, CONCRETE SCREEDS AND TOPPINGS

M10/1 TYPE(S) OF SCREED/TOPPING

M10/1.1 CEMENT:SAND SCREEDS as Particular Specification/Schedule

Cement: Portland to BS 12 or Portland blastfurnace to BS 146, class 42.5.

Sand: To BS 882, grading limit M, but with not more than 10% passing sieve size 150 micrometres.

M10/2 GENERALLY/PREPARATION

M10/2.1 GENERALLY comply with the BS 8204: screeds, bases and insitu floorings.

M10/2.2 SUITABILITY OF BASES: Before starting work ensure that:

- Bases are such as to permit specified levels and flatness/regularity of finished surfaces, bearing in mind the permissible minimum and maximum thicknesses of the screed/topping.
- Bases are sound and free from significant cracks and gaps.
- Bases are clean and free from plaster, dirt, dust and oil.
- Concrete slabs to receive fully or partially bonded construction have been allowed to dry out by exposure to the air for not less than 6 weeks.

M10/2.3 CONDUITS which are to be cast into or under screeds:

- Overlay with 500 mm wide strip of steel fabric to BS 4483, reference D49, or

- Welded mesh manufactured in rolls from mild steel wire not less than 1.5 mm diameter to BS 1052, mesh size 50 x 50 mm.
- Place the reinforcement at mid depth between the top of the conduit and the screed surface.

M10/2.4 CONDUITS UNDER FLOATING SCREEDS: Haunch up in 1:4 cement:sand on both sides of conduits before laying insulation for floating screeds.

M10/3 BATCHING/MIXING/LAYING

M10/3.1 BATCHING: Proportions of mixes made with dense aggregates are specified by weight and, where practicable, should be batched by weight. Volume batching will be permitted on the basis of the previously established weight:volume relationship(s) of the particular materials and using accurate gauge boxes. Allow for bulking of damp sand.

M10/3.2 BATCHING: Proportions of mixes made with lightweight aggregates are specified by volume and should be batched using accurate gauge boxes.

M10/3.3 MIXING:

- Do not use admixtures containing calcium chloride.
- Water content of mixes to be the minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to the surface during compaction.
- Mix materials thoroughly to a uniform consistence. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall type (drum) mixer.
- Use while sufficiently plastic for full compaction.
- Use ready-mixed retarded screed mortar within the working time and site temperatures recommended by the manufacturer. Do not retemper.

M10/3.4 ADVERSE WEATHER:

- Do not lay screeds/toppings unless their surface temperature can be maintained above 5 degC for not less than 4 days thereafter.
- In hot weather reduce the time between operations or use other measures to prevent premature setting or drying out.

M10/3.5 LEVELS OF FLOOR SCREEDS/TOPPINGS: Permissible deviation in level of surface of screeds (allowing for thickness of coverings) and toppings from datum: +/- 10 mm.

M10/3.6 FLATNESS/REGULARITY OF FLOOR SCREEDS: Sudden irregularities are not permitted. When measured with a slip gauge to BS 8204:Part 1, Figure 3 or equivalent, the variation in gap under a straightedge (with feet) placed anywhere on the surface to be not more than the following:

5 mm under a 3 m straightedge

2 mm under a 1 m straightedge

M10/3.7 JOINTS IN SCREEDS: Unless otherwise specified:

- Cast screeds continuously, as far as possible without defined joints, using 'wet screeds' between strips or bays. Obtain approval for positions of bay joints.
- Form day joints with a vertical edge.

M10/3/8 JOINTS IN TOPPINGS:

- Unless otherwise specified, bay sizes to be, ratio of length to breadth not more than 3:2, a joint occurring over every construction joint in the base slab.
- Where location of bay joints is not shown on drawings obtain approval before starting work.
- Forms to be square edged with steel top surfaces, securely fixed. Compact thoroughly at edges to give level, closely abutted joints with no lipping.
- Alternatively, toppings may be cast continuously, bay joints being formed with approved plastics or metal dividing strips.

M10/3.9 COMPACTION OF SCREEDS: Compact proprietary screeds using methods recommended by the manufacturer. Compact other screeds as follows:

- Compact screed layer(s) thoroughly by mechanical means (e.g. plate vibrator) or, where this is not practicable, by hand using a handrammer or weighted roller.
- Lay screeds over 50 mm thick in two layers of approximately equal thickness. Roughen the surface of the compacted lower layer and immediately lay the upper layer.

M10/3.10 CRACK CONTROL REINFORCEMENT:

- Type: to BS 4483, as included in Particular Specification/Schedule.
- Place between the two layers of screed, lap edges not less than 100 mm and tie securely with steel wire. Ensure continuity through daywork joints.
- Where necessary arrange reinforcement to avoid a four layer build up at corners.

M10/3.11 STRIP MOVEMENT JOINTS

- Manufacturer and reference: as included in Particular Specification/Schedule
- Set joints securely into screed/topping to exact finished level of floor. Ensure that joints extend through to the base.

M10/4 FINISHING/CURING

M10/4.1 TIMING: Carry out all finishing operations at optimum times in relation to the setting and hardening of the material. Do not wet surfaces to assist surface working. Do not sprinkle cement onto surface.

M10/4.2 CURING: Unless otherwise specified:

- Immediately after laying, protect surface from wind, draughts and strong sunlight.
- As soon as screed/topping has set, closely cover with polyethylene sheeting and keep in position for not less than 7 days.
- Do not heat screeds/toppings or the building artificially during first 4 to 6 weeks after laying, thereafter raise temperature slowly.

M10/4.3 PROTECTION: Adequately protect screeds/toppings from damage and contamination by subsequent building operations.

M20 PLASTERED AND RENDERED COATINGS

M20/1 TYPE(S) OF COATING

M20/1.1 REPAIR RENDERS

- See Section C44 " Repairing Render"

M20/1.2 ACCESSORIES FOR USE WITH EXTERNAL RENDER

- stainless steel bell mouth stop and angel beads.

M20/1.3 WATERPROOF RENDER:

- Location: As recommended by damp proofing specialist.
- Proposals to be agreed with CA and the Crown Estate before carrying out any work

M20/1.4 RENOVATING PLASTER:

- Location: masonry walls in basements and internal faces of external walls
- Background: brickwork
- Preparation: as clause C44/6
- Undercoat: Premixed lightweight cementitious plaster
- Proprietary reference: Limelite Renovating Plaster
- Manufacturer: Tilcon Special Products Division
(Limelite Lightweight Products)
Harrogate House, Parliament Street, Harrogate,
North Yorkshire HG1 2RF
Tel: 0143 568092
- Thickness (excluding dubbing out): 11 mm
- Final coat: Premixed finishing plaster
- Proprietary reference: Limelite High Impact Finishing Plaster
- Thickness: 1.5 mm
- Finish: smooth
- Accessories: stainless steel lathing and angle beads

M20/1.5 BONDING ADDITIVE:

- Manufacturer: Tilcon Special Products Division
- Proprietary reference: Limelite Easy Bond

M20/1.6 REPAIR PLASTERS

- See Section C47

M20/1.7 LIGHTWEIGHT GYPSUM PLASTER ON METAL LATH

- Location: as included in Particular Specification/Schedule
- Background: Stainless steel lath fixed as M30/1
Preparation: as clause C47
- Undercoats(s):
Premixed lightweight cement:lime based plaster
Proprietary reference: Limelite Cement Browning
Thickness (excluding dubbing out): as included in Particular Specification/Schedule
- Final coat:
Premixed lightweight finish plaster to BS 1191:Part 2.
Proprietary reference: Tilcon High Impact Finishing Plaster
Thickness: 2 mm
Finish: Smooth

M20/1.8 LIME HAIR PLASTER ON TIMBER LATH

- Location: stud partitions and ceilings.
- Background: timber lath as clause M30/1.2
- Preparation: clean down and wet up the lath background
- Render coat

  Lime putty: as clause M20/2.5 or L20/2.12

  Sand: sharp sand; colour and source to approval, 1-6 mm. See also Z21

  Mix proportions: 1:3 lime sand

  Fibre reinforcement: hair as clause M20/20/5

  Thickness (excluding dubbing out): 8-10mm
- Floating coat

  Lime putty: as for render coat

  Sand: as for render coat but 1-3 mm.

  Mix proportions: as for render coat

  Fibre reinforcement: hair as clause M20/2.15, but at a lower density

  Thickness: as render coat
- Setting coat

  Lime putty: as for render coat

  Sand: as for render coat but 0.5 – 1.5 mm.

  Mix proportions: 3:2 lime:sand with no hair

  Thickness: 3 mm

  Finish: smooth finish with steel trowel.

M20/2 GENERAL REQUIREMENTS FOR WORKMANSHIP

M20/2.1 BASIC WORKMANSHIP: Comply with the clauses of BS 8000:Part 10 which are relevant to this section.

M20/2.2 FOLLOW THE MANUFACTURER'S/SUPPLIER'S INSTRUCTIONS when using repair renders and plasters.

M20/2.3 SAMPLES

General: Provide representative samples of the new render prepared to receive the paint finish for the approval of The Crown Estate Monitoring representative.

M20/2.4 UNIFORMITY OF COLOUR AND TEXTURE

General: Maintain consistent colour and texture. Obtain materials from one source. Mix different loads if necessary.

M20/2.5 SITE PREPARED LIME:SAND FOR CEMENT GUAGED RENDER MORTARS

Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.

Lime: Hydrated nonhydraulic lime to BS 890.

Mixing: Thoroughly mixed. Allow to stand, without drying out, for at least 16 hours before using.

M20/2.6 CEMENT: As specified in the type of coating clause(s).

- Where Portland cement is specified Portland blastfurnace cement or Portland pulverized-fuel ash cement may be used as an alternative.
- Where Portland cement, Portland blastfurnace cement, Portland pulverized-fuel ash cement or Sulfate-resisting Portland cement is specified use Class 42.5 or 52.5 material as defined by the appropriate British Standard.
- All cements must comply with the appropriate British Standard and be licensed under the BSI Kitemark scheme for cement.

M20/2.7 MIXING

- Render mortars (site prepared):
- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mix proportions: based on damp sand. Adjust for dry sands.
- Mixes: Of uniform consistency and free from lumps. Do not retemper or reconstitute mixes.
- Contamination: Prevent. Keep plant and banker boards clean.
- Do not use air entraining or other admixtures.

M20/2.8 SCAFFOLDING

General: Prevent putlog holes and other breaks in coatings.

M20/2.9 COLD WEATHER

General: Do not use frozen materials or apply coatings to frozen or frost bound backgrounds.

External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising. Maintain temperature of work above freezing until coatings have fully hardened.

Internal work: Take all necessary precautions to enable internal coating work to proceed without damage when air temperature ius below 3°C.

M20/2.10 ADMIXTURES: Do not use, other than air-entraining and water- retaining admixtures, unless specified or approved.

M20/2.11 MIXING:

- Proportions of specified mixes are by volume and for damp sand. Adjust proportions if dry or saturated sand is used

M20/2.12 READY PREPARED LIME PUTTY

- Use lime putty slaked directly from CL90 (high calcium) quicklime to BS 890, using an excess of water and matured in pits/containers that allow excess water to drain away.
- Density of matured lime putty: 1.3 to 1.4 kg/litre.
- Maturity of lime putty before use: not less than 90 days after slaking.
- Prevent lime putty from drying out and protect from frost.

M20/2.13 MIXING PLASTER

- Do not use Limelite Renovating plaster and gypsum based plasters in the same mix when gauging.

M20/2.14 SITE PREPARED NONHYDRAULIC LIME :SAND MORTAR

- Lime putty : As clause 486
- Thoroughly mix lime putty with sand (or knock up previously prepared mortar) either mechanically or manually. Add only sufficient water to produce a workable mix.

M20/2.15 HAIR REINFORCEMENT:

- Type: Goat hair

  Proportions: add at approximately 5kg/m3 of lime:sand or as specified
- Hair to be clean and free from grease and other impurities. Length of chopped fibres: 30-50 mm and well teased before adding to the mix.
- Mix thoroughly into lime:sand mortar during final mixing stage or knocking up stage as appropriate for the type of lime. Ensure that hair is well distributed throughout the mix without balling into lumps. Do not add hair to lime:sand mortar which is to be stored for more than 4 weeks.

M20/2.16 CEMENT BASED UNDERCOATS: allow to dry out thoroughly, but not too rapidly, to ensure that drying shrinkage is substantially complete before applying next coat.

M20/2.17 SMOOTH FINISH: trowel or float to produce a tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Do not use waterbrush and avoid excessive trowelling and over polishing.

M20/3 PREPARING BACKGROUNDS

M20/3.1 KEYING/BONDING: Prepare backgrounds as specified for the type of coating to be applied. Where not specified, comply with BS 8000:Part 10, clause 2.2.2.2. Methods other than those specified may be submitted for approval.

M20/3.2 EXISTING BACKGROUNDS Prepare existing backgrounds as included in Section C44, C45 above.

M20/3.3 RAKING OUT FOR KEY

Soft joints in masonry: Rake out to a depth of 136mm (minimum).

Dust and debris: Remove from joints.

M20/3.4 EXISTING WALLS TO BE PLASTERED:

- Scrape off all old plaster and loose friable material
- Remove salts by brushing with a stiff bristle brush
- Use water to wash down very wet walls to ensure removal of soluble salts
- Completely remove all paint OR fix expanded metal lathing and apply plasters as M30/1
- Rake the joints on backgrounds of dense or hard bricks
- Leave walls to dry off before plastering

M20/3.5 ROUGHENING FOR KEY

Backgrounds: Roughen thoroughly and evenly.

Depth of surface removal: Minimum necessary to provide an effective key.

M20/3.6 EXISTING PLASTER / RENDER

Location and extent of renewal: Agree, at least on a provisional basis, before work commences with CC.

Removal of existing coatings: Use methods that minimise the amount of removal and renewal.

M20/3.7 REMOVING DEFECTIVE EXISTING RENDER

Render for removal: Loose, hollow, soft, friable, badly cracked, affected by efflorescence or otherwise damaged.

Patches: Cut out rectangular areas with straight edges.

Horizontal and vertical edges: Square cut or slightly undercut.

Bottom edges to external render: Do not undercut.

Render with imitation joints: Cut back to joint lines.

Cracks (other than hairline cracks): Cut out to a width of 75mm (minimum).

M20/3.8 EXISTING DAMP AFFECTED PLASTER / RENDER

Plaster affected by rising damp: Remove to a height of 300mm above highest point reached by damp or 1m above dpc, whichever is higher.

Perished and salt contaminated masonry:

Mortar joints: Rake out

Masonry units: Seek instructions.

Faults in background (structural deficiencies, additional sources of damp, etc.): Seek instructions.

Drying out backgrounds: Established drying conditions. Leave walls to dry for as long as possible before plastering.

Dust and loos material: Remove from exposed backgrounds and edges.

M20/4 BACKINGS/BEADS/JOINTS/FEATURES

M20/4.1 BEADS/STOPS GENERALLY:

- Provide beads/stops at all external angles and stop ends except where specified otherwise.
- Cut neatly, form mitres at return angles and remove sharp edges, swarf and other potentially dangerous projections.
- Fix securely, using the longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with background. Use mechanical fixings for external beads/stops.
- After coatings have been applied, remove coating material while still wet from surfaces of beads/stops which are to be exposed to view.

M20/4.2 BEADS/STOPS FOR PLASTER:

Do not fix angles/beads with gypsum materials where Limelite Renovating Plaster is being used, use Limelite Easy-Bond

M20/4.3 DISSIMILAR SOLID BACKGROUNDS: Where not shown otherwise on drawings, continue coatings without break across joints between dissimilar solid backgrounds which are in the same plane, reinforcing with lathing as BS 8000: Part 10, clause 2.2.2.3.

M20/4.4 CONDUITS bedded in undercoat to be covered with 90 mm wide jute scrim bedded in finishing coat mix, pressed flat and trowelled in. Do not lap ends of scrim.

M20/4.5 FIBROUS PLASTER MOULDINGS

- Type: as Particular Specification
- Fixing: as Particular Specification
- Ensure that noggings, bearers, etc. required to support mouldings are
- accurately positioned and securely fixed.
- Fix securely, true to line and level. Bed direct fixed mouldings solid.
- Reinforce framing, fixing points and joints with wads.
- Fill all joints and holes and finish flush and smooth to correct profile.

M20/4.6 SOLID CAST PLASTER MOULDINGS

- Type: as Particular Specification
- Fixing: as Particular Specification
- Fix securely and accurately. Fill all joints and finish flush and smooth to correct profile.

M20/4.7 RUN PROFILES IN LIME PLASTER

- Plaster: As clause 215
- Preparation: for small profiles build up the work on the plain render coat. For larger profiles build up a base profile of lathing on bracketing.
- Run profiles using a zinc or tin template, padded out for the under coats.
- Finish: 3 mm finishing coat, smooth finish.
- Enrichments: score the finishing coat before setting to ensure a good key where enrichments are to be fixed to the moulding.

M20/5 PLASTERING

M20/5.1 APPLICATION GENERALLY:

- Apply each coating firmly to achieve good adhesion and in one continuous operation between angles and joints.

- All coatings to be not less than the thickness specified, firmly bonded, of even and consistent appearance, free from rippling, hollows, ridges, cracks and crazing.
- Finish surfaces to a true plane, to correct line and level, with all angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
- Prevent excessively rapid or localised drying out.

M20/5.2 DUBBING OUT: If necessary to correct inaccuracies, dub out in thicknesses of not more than 10 mm in same mix as first coat. Allow each coat to set before the next is applied. Cross scratch surface of each dubbing out coat immediately after set.

M20/5.3 DISSIMILAR BACKGROUNDS: Where scrim or lathing or beads are not specified, cut through plaster with a fine blade in a neat, straight line at junctions of:

- Dissimilar solid backgrounds.

M20/5.4 SMOOTH FINISH: Trowel or float to produce a tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Do not use water brush and avoid excessive trowelling and over polishing.

M20/6 RENDERING

M20/6.1 APPLICATION GENERALLY:

- Apply each coating firmly to achieve good adhesion and in one continuous operation between angles and joints.
- All coatings to be not less than the thickness specified, firmly bonded, of even and consistent appearance, free from rippling, hollows and ridges.
- Finish surfaces to a true plane, to correct line and level, with all angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.
- Prevent excessively rapid or localised drying out.

M20/6.2 DUBBING OUT FOR RENDERING

General: To correct background inaccuracies.

Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Comb surface of each coat.

M20/6.3 UNDERCOAT GENERALLY

General: Rule to an even surface. Comb to provide a key for the next coat. Do not penetrate the coat.

M20/6.4 FINAL COAT – PLAIN FLOATED FINISH

Finish: An even, open texture free from laitance.

M20/6.5 KEYING as specified in BS 8000:Part 10, clause 3.3.2.4 is to be carried out with a suitable comb to produce evenly spaced wavy horizontal lines, approximately 20 mm apart and 5 mm deep to provide a key for following coat. Do not penetrate through the coat. Do not use cross scratching.

M20/6.6 CURING AND DRYING

General: Prevent premature setting and uneven drying of each coat.

Curing coatings: Keep each coat damp by covering with polyethylene sheet and / or spraying with water.

Final coat: Hang sheeting clear of final coat.

Drying: Allow each coat to dry thoroughly, with drying shrinkage substantially complete before applying each coat.

Protection: Protect from frost and rain.

M20/6.7 DRYING: Keep each undercoat and final coat damp for the first 3 days by covering with polyethylene sheet and/or spraying with water. Thereafter prevent from drying out too rapidly. Work in shade whenever possible. Allow each coat to dry out thoroughly to ensure that drying shrinkage is substantially complete before applying next coat.

M20/6.8 PROTECTION: Adequately protect newly applied external coatings against frost and rain for the first 48 hours using polyethylene sheet hung clear of the face, or other approved method.

M20/7 WATERPROOF RENDERING

M20/7.1 BACKGROUND to be soaked thoroughly immediately before applying coatings. Remove puddles and other standing water.

M20/7.2 LEAKS: Cut out cracks, porous patches and other defective areas in backgrounds subject to water pressure and liable to admit water. Fill cracks, holes and hollows using materials and methods recommended by waterproofing compound manufacturer to stop all leaks.

M20/7.3 FIXING POINTS: Holes for fastenings to be formed and sealed in accordance with waterproofing compound manufacturers'

recommendations before coatings are applied. Do not make any holes after coatings have been applied.

M20/7.4 COATINGS:

- Prepare and apply in accordance with waterproofing compound manufacturer's recommendations.
- Apply each coat in one continuous operation wherever possible to avoid joints. Where joints cannot be avoided agree positions with CA before starting work.
- Ensure that joints in successive coats do not occur at angles, and are staggered by at least 100 mm. Splay the edges and overlap adjacent coatings by at least 100 mm.
- Check each coating for continuity. Patch pinholes, other breaks and thin areas before applying next coat.
- Do not cross scratch coatings to form a key.

M20/7.5 INTERNAL ANGLES: Form fillets of waterproof coating mix after first coat has been applied. Form smooth round coves after final coat has been applied.

M20/7.6 FINISH with a wood or other suitably faced float to give an even texture. Do not apply water to final coat while working up. Do not draw excessive laitance to surface (either by overworking or by use of steel trowel).

M30 METAL MESH LATHING ETC. FOR PLASTERED COATINGS

M30/1 TYPE(S) OF LATHING/REINFORCEMENT

M30/1.1 LATHING FOR RENDERED AND PLASTERED COATINGS

- Material: stainless steel expanded metal to BS 1369

M30/1.2 TIMBER LATHING FOR PLASTERED COATINGS

- Type: Riven or sawn laths to match original
- Timber: oak or sweet chestnut
- Size: 25 x 6 mm

M30/2 INSTALLATION

M30/2.1 FURRINGS: Timber supports more than 75 mm wide to have 22 x 6 mm hardwood firrings fixed before fixing plain expanded metal lathing.

M30/2.2 BUILDING PAPER:

- Water resistant breather type to BS 4016.
- Starting from the bottom, fix with clout nails or staples in horizontal lengths, with 100 mm laps.

M30/2.3 PLAIN EXPANDED METAL LATHING:

- Stretch lathing and fix securely as specified to give a taut, firm base for plaster/rendering.
- Fix with the long way of the mesh at right angles to supports and with all strands sloping in the same direction.
- Fix vertical lathing with strands sloping downwards away from outer face.
- Lap side edges not less than 25 mm. Lap ends 50 mm at supports and 75 mm between supports. Laps must not occur within 100 mm of angles or bends.
- Tie all edges and ends together with 1.2 mm wire ties at not more than 150 mm centres.

M30/2.4 RIBBED LATHING:

- Fix securely as specified to give a taut, firm base for plaster/ rendering.
- Fix with all strands sloping in the same direction, with ribs at right angles to supports and apexes bearing on the supports.
- Lap side ribs of adjacent sheets, press well together and secure with 1.2 mm wire ties or punch fix together at not more than 150 mm centres.
- Lap ends of sheets at supports wherever possible and not less than 50 mm. Where unavoidable between supports, lap ends 100 mm. Laps must not occur within 100 mm of angles or bends.
- Tie all edges and ends together with 1.2 mm wire ties at not more than 150 mm centres along edges and at each rib along ends. Tie end laps between supports with two rows of ties at not more than 100 mm centres.

M30/2.5 LATHING ON SOLID BACKINGS: Fix securely as specified, with increased length and frequency of fastenings as necessary in weak areas. Inform CA before applying plaster/rendering.

M30/2.6 FIXING TIMBER LATHING

- Fixings: stainless steel clout head nails

- Installing: use laths from the same bundle.

  Lay with butt ends approximately 3 mm apart to allow for the wood to swell. Lay in bays with staggered joints.

M40 STONE QUARRY CERAMIC TILING AND SHEETING

M40/1 GENERALLY

M40/1.1 SUITABILITY OF BACKGROUNDS/BASES: Before starting work ensure that backgrounds/bases:

- Are such as to permit specified flatness/regularity of finished surfaces, bearing in mind the permissible minimum and maximum thicknesses of the bedding material.
- Have been allowed to dry out by exposure to the air for not less than the following:

  Concrete slabs: 6 weeks.

  Concrete walls: 6 weeks.

  Brick/block walls: 6 weeks.

  Cement:sand screeds: 3 weeks.

  Rendering: 2 weeks.

  Gypsum plaster: 4 weeks.

M40/1.2 FALLS IN THE BASE: Before starting work, check that where required, falls have been provided in the base. Inform the CA if the falls are inadequate. Do not attempt to provide falls by increasing or decreasing the specified thickness of the bedding material.

M40/1.3 STANDARDS:

- Comply with BS 8000 Part 11, and BS 5385

M40/2 PREPARATION

M40/2.1 EXISTING BACKGROUNDS/BASES GENERALLY:

- Remove efflorescence, laitance, dirt and other loose material by thoroughly dry brushing.
- Remove deposits of oil, grease and other materials incompatible with the bedding using a suitable emulsion cleaner then washing with clean water.
- Clean down all tile, paint and other nonporous surfaces by washing with water containing detergent then with clean water.

- Allow backgrounds/bases to dry before fixing tiles.

M40/2.2 EXISTING CONCRETE/SCREEDS: Cut out all loose or hollow portions and remove dust and debris.

M40/2.3 EXISTING PLASTER: Remove plaster which is loose, soft, friable, badly cracked or affected by efflorescence. Cut back to straight horizontal and vertical edges. Thoroughly dry brush the background and edges to remove dust, loose materials and efflorescence. Make good with plaster or non shrinking filler.

M40/2.4 NEW PLASTER: Ensure plaster is dry, solidly bedded, free from dust and friable matter. Apply plaster primer recommended by the adhesive manufacturer and allow to dry before tiling.

M40/3 FIXING

M40/3.1 FIXING GENERALLY:

- Check that there are no unintended colour/shade variations within the tiles for use in each area/room. Thoroughly mix variegated tiles.
- Check that adhesive is compatible with background/base. Use a primer where recommended by the adhesive manufacturer.
- Cut tiles neatly and accurately.
- Unless specified otherwise fix tiles so that there is adhesion over the whole of the background/base and tile backs.
- Before bedding material sets make adjustments necessary to give true, regular appearance to tiles and joints when viewed under final lighting conditions.
- Clean surplus bedding material from joints and face of tiles without disturbing tiles.

M40/3.2 SETTING OUT:

- Joints to be true to line, continuous and without steps.
- Joints on walls to be truly horizontal, vertical and in alignment round corners.
- Joints in floors to be parallel to the main axis of the space or specified features.
- Cut tiles/slabs to be kept to the minimum, as large as possible and in unobtrusive locations.
- Joints in walls and floors to be in alignment.
- Where positions of movement joints are not specified they are to be agreed with the CA.

- Before laying tiles obtain approval of setting out from CA

M40/3.3 FLATNESS/REGULARITY OF TILING: Sudden irregularities not permitted. When checked with a 2 m straight edge with 3 mm feet at each end, placed anywhere on the surface, the straightedge should not be obstructed by the tiles and no gap should be greater than 6 mm.

M40/3.4 LEVEL OF TILING ACROSS JOINTS:

Maximum deviation between tile or slab surfaces either side of a joint, including movement joints to be:

1 mm for joints less than 6 mm wide.

2 mm for joints 6 mm or greater in width.

M40/3.5 MORTAR/ADHESIVE:

- Method of fixing tiles to walls and floors above basement level to be agreed before commencing fixing.

M40/3.6 WATERPROOF UNDERLAYER

- The method of ensuring that water from bathroom or kitchen areas above ground does not enter the fabric of the building must be agreed with CC before commencing any work

M40/4 MOVEMENT JOINTS/GROUTING/COMPLETION

M40/4.1 SEALANT MOVEMENT JOINTS

- Install movement joints in accordance with BS 5385

M40/4.2 GROUTING:

- Grout tiles as soon as possible after bedding has set sufficiently to prevent disturbance of tiles.
- Ensure that joints are 6 mm deep (or the depth of the tile if less), and are free from dust and debris.
- Fill joints completely, tool to an approved profile, clean off surface and leave free from blemishes.
- Polish wall tiling with a dry cloth when joints are hard.

M40/4.3 COLOURED GROUT: Check the potential risk of staining by applying the grout to a few tiles in a small trial area. If discoloration occurs apply a protective sealer to the tiles and repeat the trial.

M40/4.4 PROTECTION GENERALLY: Adequately protect and keep clean all completed areas. Clean off any droppings immediately.

M51 EDGE FIXED CARPETING

M51/1 TYPE(S) OF CARPETING

M51/1.1 CARPETING as included in Particular Specification/Schedule

M51/2 GENERALLY/PREPARATION

M51/2.1 TILE/SHEET/BLOCK/SCREED FLOORING which is to be retained:

- Agree method of levelling treatment with the CA and CC before commencing laying.

M51/3 LAYING CARPETING

M51/3.1 CARPET STRIPS: Do not screw or nail fix carpet edge strips to stone, fine timber or ceramic tiled floors without the express permission of CC.

M51/3.2 CARPET ADHESIVE: Ensure that any carpet adhesive used will not damage the historic substrate. Do not use adhesive directly on historic fabric.

M51/3.3 STAIR RODS

Stair rods may be installed as agreed with the CC.

M52 DECORATIVE PAPERS AND FABRICS

M52/1 WORKMANSHIP GENERALLY: Comply with BS 8000: Part 12, Sections 2 and 3.1.

M52/2 EXISTING VINYL COVERINGS: Where these are to be stripped, the paper backing may be retained as a lining if in good condition and firmly adhering. Stick down any lifting edges and corners.

M52/3 JOINTS formed by overlapping and cutting:

- Cut with a straightedge and proprietary cutter (where recommended by covering manufacturer). Ensure background is not damaged by cutting.

- Overlap and cut stable coverings as the work proceeds.
- Where coverings are liable to shrink, peel back overlap, allow adhesive to dry and all shrinkage to take place before cutting in and bonding joints.

M60 PAINTING AND CLEAR FINISHING

M60/1 COATING SYSTEMS

M60/1.1 PAINT SYSTEMS

- All paints to be part of the same manufacturer's system and applied as the manufacturer's recommendations, to give a total of three coats after priming. The number of undercoats to top coats is to be as the manufacturer's system.
- Water-based paints are to be used in preference to solvent-based where possible.

Note: for work in Regents Park only ICI Dulux "Regents Park Cream" is to be used.

M60/1.2 MICROPOROUS PAINT

- Manufacturer: Akzo Nobel Decorative Coatings/ICI Dulux Munsell Reference 10 YR 9/2
- Surface(s): external render, downpipes, statues, reliefs and coloured backgrounds and the like.

  Preparation: As set out in clauses below

  Apply stabilising solution as required to manufacturer's recommendations

  Bring forward recessed areas of surface or those with non-matching texture with top coat to even out final surface texture as necessary
- Initial coat: Patch prime with M60/6.1 as necessary
- Top coats : 2 coats
- Colours: see clauses M60/6

M60/1.3 GLOSS PAINT

- Manufacturer: as clause M60/2
- Surface(s): for exterior and interior woodwork

  Preparation: As clause M60/3

Rub down existing paintwork, prime bare patches knot stop and prime new wood with paint system recommended primer.

- Initial coat(s): 1 undercoats
- Finishing coats: 2 coats gloss finish
- COLOURS: See clauses M60/6.2 and M60/6.3

M60/1.4 GLOSS PAINT

- Manufacturer: as clause M60/2
- Surface(s): for exterior metalwork, railings

  Preparation: As clause M60/3

  Prime bare areas with one coat of Zinc Phosphate based primer
- Initial coat(s): 1 undercoat
- Finishing coats: 2 coats gloss finish
- COLOURS: See clauses M60/810 and M60/820

M60/1.5 WATER SOLUBLE DISTEMPERS

- Manufacturer: as clause M60/2
- Surface(s): existing moulded interior plasterwork

  Preparation: As clause M60/3 and to manufacturer's recommendations
- Initial coat(s): 2 coats distemper
- Finishing coats: 1 coat distemper

M60/1.6 OTHER PAINTS

All surfaces to have at least three coats of paint, not including any primer or sealer.

M60/1.7 VARNISH

Manufacturer: as clause M60/2

- Surfaces: external entrance doors

  Preparation: as clause M60/3

  Prime bare and new wood with recommended basecoat
- Finish with 2 coats exterior varnish
- Woodstains are not to be used except for touching up surfaces to colour match surrounding areas before applying varnish.

M60/2 GENERALLY

M60/2.1 COATING MATERIALS for external stucco (render) painting excluding Regents Park to be obtained from

Akzo Nobel Decorative Coatings plc

136 Milton Park, Abingdon

Oxon, OX14 4SB

Tel: 01235 862226

M60/2.2 COATING MATERIALS for external stucco (render) in Regents Park to be obtained only from

ICI Paints

Dulux Trade Business

Wexham Road

Slough

Berkshire SL2 5DS

Tel: 0870 241 0889

M60/2.3 COATING MATERIALS for all painting, except for stucco painting, to be obtained from one only of the following manufacturers unless specified otherwise: Inform CA and the Crown Estate of selected manufacturer at an early date.

Akzo Nobel Decorative Coatings Ltd

Dacrylate Ltd

ICI Paints plc

Johnstone's/Manders

M60/2.4 WATER SOLUBLE DISTEMPERS to be obtained from one only of the following manufacturers unless specified otherwise: Inform CC of selected manufacturer at an early date.

- Papers and Paints
  4 Park Walk
  London, SW10 0AD Tel: 0207 352 8626
- Potmolen Paints
  27 Woodcock Industrial Estate
  Warminster
  Wiltshire Tel: 01985 213960
- Farrow and Ball
  Uddens Estate
  Wimborne
  Dorset BH21 7NL Tel: 01202 876141
- Hirst Conservation Materials Ltd
  Laughton

Sleaford
Lincolnshire NG34 0HE Tel: 01529 497517

- Rose of Jericho at St Blaise
  Westhill Barn
  Evershot
  Dorchester
  Dorset DT2 0LD Tel: 01935 83676

M60/2.5 FILLER

Use filler recommended by the manufacturer of the paint selected. Filler to be used as the manufacturer's instructions and recommendations.

M60/2.6 FILLER

Toupree Murex filler is part of the ICI recommended paint system for Regent's Park and is to be used as the manufacturers instruction and recommendations.

M60/2.7 QUINQUENNIAL PAINTING:

- The painting to be executed under the covenants of the Crown Leases comprises all external stucco (render), woodwork and ironwork, including any stucco on flank walls above adjacent roofs, parapets, chimney stacks etc.

M60/2.8 EXTERNAL SURFACES NOT TO BE COATED:

- DO NOT paint any surfaces which have not been painted previously, except for chimney stacks
- DO NOT paint lead fanlights
- DO NOT paint chimney pots; carefully clean paint off pots already painted
- DO NOT paint plinths to external railings; carefully clean off existing paint

M60/2.9 INTERNAL SURFACES NOT TO BE COATED:

Radiator valves, stop valves etc.

M60/2.10 MEWS COTTAGES

- DO NOT PAINT BRICKWORK TO MEWS COTTAGES, EVEN IF ALREADY PAINTED.
- EXISTING PAINT to brickwork is to be carefully removed using methods agreed with The Crown Estate.

M60/2.11 SURFACES TO BE CLEANED BUT NOT COATED:

Brickwork or stonework to be cleaned - see section C40/6.7

M60/3 PREPARATION

M60/3.1 EXTERNAL PREPARATION

It is of the utmost importance to follow the directions for preparation and application of the external paintwork given in this specification to avoid paint failures.

M60/3.2 PREPARATION GENERALLY:

- Comply with BS 6150 and additional requirements in this specification.
- When removing or partially removing coatings, use methods which will not damage the substrate or adjacent surfaces or adversely affect subsequent coatings.
- Materials used in preparation to be types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Apply oil based stoppers/fillers after priming. Apply water based stoppers/fillers before priming unless recommended otherwise by manufacturer. Patch prime water based stoppers/fillers when applied after priming.
- Apply all stoppers/fillers strictly according to manufacturer's recommendations: note particularly the recommendations for use with Classic Stone Gloss on external render.
- Ensure that doors and opening windows, etc., are 'eased' as necessary before coating. Prepare and prime any resulting bare areas.

M60/3.3 REMOVAL OF PAINT

- Removed loose and flaking paint prior to painting.
- Thick layers of paint on the external stucco (render), particularly on mouldings, can often be easily removed by sliding a scraper behind or gently tapping with a small hammer.
- Leave well adhering paint in situ, unless complete stripping is considered.

M60/3.4 PAINT STRIPPING

- Complete paint removal may require Listed Building Consent.
- Take paint scrapes and samples for analysis to record original/previous painting regimes
- Prepare test areas for approval by CC before any system of paint removal is adopted.

M60/3.5 BURNING OFF

- Burning off existing paint layers is prohibited for health and safety reasons, and because of the fire risk to historic buildings.

M60/3.6 CHEMICAL STRIPPING

- Identify the type of paint on each layer and the correct chemical for its removal
- Agree proposals for stripping with CC.
- Follow the manufacturer's recommendations for use of each type of chemical and health and safety procedures.
- Neutralise the surface thoroughly after stripping to avoid paint failure.

M60/3.7 ABRASIVE BLASTING

- Specific authorisation for the use of any abrasive blasting system, including those using very low pressures, for paint removal must be obtained in writing from the CC. Full details of the proposed specialist contractor and methods are to be submitted to the CC before works commence.

M60/3.8 WASHING DOWN:

- Take particular care to wash down the stucco(render) using clean water with a little detergent added, rinse with clean water and leave to dry before decoration.

M60/3.9 LEAD BASED PAINTS:

- Comply with all relevant Health and Safety requirements when removing lead based paints, including
- The Control of Lead At Work regulations 1980
- Personal Protective Equipment at Work Regulations 1992
- The Health and Safety at Work, etc. Act 1974
- The Construction (Health, Safety and Welfare) Regulations 1996
- The Factories Act 19961
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
- Note that the external render was regularly painted with lead-based paints until recent years.

M60/3.10 SUITABILITY OF SURFACES AND CONDITIONS: Application of coatings will be taken as joint acceptance by the Main Contractor and Subcontractor of the suitability of surfaces and conditions within any given area to receive the specified coatings.

- No paint is to be applied when the ambient temperature is less than 8°
- The paint specified for the exterior can be applied in wet weather during the painting season, but not to wet surfaces. Condensation can also affect the drying time and consistency of the paint on cold nights.
- No paint is to be applied to surfaces structurally or superficially damp and all surfaces must be free from condensation, dirt etc. before the application of each coat.
- No paint is to be applied to any surface where the moisture content exceeds 18%. Contact the CC or Quinquennial Painting monitoring architects in such a situation.
- No painting is to be commenced until 48 hours have elapsed after stopping and facing up
- Consult the manufacturers for their latest recommendations on the use of their products.

M60/3.11 PROGRAMME

- External painting must be carried out during the summer months of May to September.
- No painting is to be carried out under adverse weather conditions, such as extremes of temperature, during rain or fog and the like.

M60/3.12 FIXTURES: Before commencing work, remove the following fixtures and fittings, set aside and replace on completion:

Bells, 'entryphones' and the like.

M60/3.13 IRONMONGERY: Remove all old paint and varnish marks from existing ironmongery. Thoroughly clean and polish before re-fixing.

M60/3.14 STEEL - MANUAL CLEANING: In addition to general preparation and at an appropriate stage, remove residual rust with suitable chemical treatment, applying a zinc phosphate primer or patch primer as soon as it has cured.

M60/3.15 IRONWORK PREPARATION

As clause C46/170.TCE Cleaning Metal Surfaces - cast iron and steel work.

M60/3.16 GALVANIZED SURFACES to receive lead free primer: Pre-treat with mordant solution. Retreat non-blackened areas to achieve blackening of whole of surface.

M60/3.17 LEADWORK

- Prime with zinc phosphate primer

- Paint visible edges of lead cappings to blocking courses, copings and cornices, and downpipes with two coats Classic Stone Gloss to match the render.
- Take care not to seal over the joints between the sheets of lead with paint, ensure the sheets can accommodate thermal movement.

M60/3.18 ALKALI AFFECTED COATINGS: Completely remove from affected surfaces. The extent of such treatment to be as instructed or approved.

M60/3.19 EXISTING PAINTED WINDOWS:

- Prepare previously painted surfaces as M60/3.2.
- Thoroughly clean junctions between previously painted surfaces and glass.
- Remove old paint splashes and old paint encroaching beyond the sight line.
- Remove loose and defective putty
- When dry, patch prime, re-putty and paint as soon as sufficiently hard.

M60/3.20 POINTING TO EXISTING FRAMES:

- Surface mastic pointing to existing frames is not acceptable. Details of any proposals for recessed mastic pointing to be agreed with the CC beforehand
- remove any defective pointing around frames; thoroughly clean the joint recess, remove all dust.
- Insert an inert backing strip to reduce the depth of the joint to half its width if necessary
- Point with lime mortar

M60/3.21 EXISTING GUTTERS: Clean all dirt and debris from inside of gutters before preparing and painting. Clean out defective joints and seal with approved jointing material.

M60/3.22 EXISTING GUTTERS: Clean all dirt and debris from inside of all gutters (even though not to be painted). Clean out defective joints and seal with approved jointing material.

M60/3.33 MOULD AND ALGAE

- Remove any traces of mould, algae growth or fungus from rendered surfaces with a dry stiff bristle brush and treat with Sandtex Fungicide to the manufacturer's recommendations.
- Do not face fill scars or large surface areas in the paintwork.

M60/3.34 CRACKS IN EXISTING PAINT to stucco (render)

- Fill cracks no greater than 5 mm in the existing paint film only, with firm edges, with Permoglaze Filler Stopper in accordance with the manufacturer's recommendations

M60/3.35 MINOR CRACKS IN STUCCO (RENDER)

- Rake out cracks less than 5 mm in stucco to a square edge, dampen the edges with water and fill with Permoglaze Filler Stopper.
- Do not extend filler over the face of the stucco either side
- Do not fill fine hair cracks.
- For larger cracks see Section C 44 RENDER REPAIRS

M60/3.36 NEW RENDER

- Delay painting of new rendering to allow for any shrinkage cracks at the junctions of old and new work to develop and be filled with Stopper, and for moisture level to reach acceptable standard.

M60/3.37 STABILISING

- Apply Sandtex Stabilising Solution to all new rendered surfaces and render stripped of paint to manufacturer's recommendations
- Do not apply Stabilising Solution over bitumen treated surfaces
- Note that Permoglaze Filler/Stopper must be applied after stabilisation, and before application of Classic Stone Gloss.

M60/4 APPLICATION

M60/4.1 PAINTING GENERALLY: Comply with BS 8000:Part 12, Section 3.2 and additional requirements in this specification. Ensure that a copy of BS 8000: Part 12 is kept on site throughout the term of the contract.

All painting is to be undertaken in accordance with BS 6150:1991, and the additional requirements included in this specification.

M60/4.2 SPRAY PAINTING

- Spray painting is not permitted externally
- Specialist needle spray painting for fine cornices may be carried out with prior written permission of the Crown Estate.

M60/4.3 APPLICATION

- Priming coats are to be applied by brush.

- Ensure that cutting in is carried out by brush when using rollers
- Ensure that film thickness meets manufacturer's recommendations. Note that Classic Stone Gloss should not be worked in the same way as traditional solvent-borne paints.

M60/4.4 DELAYS IN OVERPAINTING

- Do not allow primed or undercoated surfaces to deteriorate by being left in an exposed or unsuitable situation before completing the painting process.

M60/4.5 INSPECTION

- Ensure that the surface of each coat of paint is inspected by CA, or where applicable, the CC before application of the next coat.

M60/4.6 CONCEALED JOINERY SURFACES:

- After priming, apply one undercoat to all concealed surfaces of joinery components before fixing.
- Where one or more additional coats are specified to be applied in the factory, they must be applied to all surfaces, including those which will be concealed when incorporated into the building.

M60/4.7 CONCEALED METAL SURFACES: Apply one undercoat to all concealed surfaces of scheduled components before fixing.

M60/4.8 PAINTING PREVIOUSLY UNPAINTED STUCCO (RENDER)

- After preparation, prime all areas of new stucco with two full-bodied coats of Gloss Paint.
- Allow 6 hours drying time between coats minimum.

M60/4.9 PAINTING PREVIOUSLY PAINTED STUCCO (RENDER)

- Patch prime areas where existing stucco has had the previous paint system removed with one full bodied coat of Gloss Paint or as many as necessary to bring forward
- Allow 6 hours drying time between coats minimum.

M60/4.10 FINAL COATS TO PAINTING STUCCO (RENDER)

- After initial coats as M60/4.8, 4.9 above, decorate all areas with two full-bodied coats of Gloss Paint.
- Generally, the colour is to be as M60/6.

M60/4.11 PAINTING STONE BALCONIES

- Prepare and decorate the soffits and edges only to the stone balconies as for stuccoed areas. Agree the method of any repairs with the CC before commencing any work, including cutting away.

M60/4.12 HOUSE NUMBERS

- House numbers are to be sign written by a specialist in black Classic Stone Gloss on the stucco adjacent to the entrance doors, to match the existing
- Street names painted on piers are also to be re-painted

M60/4.13 STATUES AND EMBELLISHMENTS

- The existing painted statues are to be carefully prepared as M60/3.2
- Paint as for stucco M60/4.9, 4.10.
- Agree details of any repairs, including the specialist contractor, with the Crown Estate.

M60/4.14 LEAD CAPPINGS

- Decorate lead cappings to coping and cornices only on the visible front edge.

  Do not allow paint film to cover joints completely; ensure that the sheets of lead can move independently.
- After preparation, decorate with two coats Gloss Paint, colour as M60/6

M60/4.15 VARNISHING: Thin first coat with white spirit in accordance with manufacturer's recommendations. Brush well in avoiding aeration and lay off. Apply further coats of varnish, rubbing down lightly between coats along the grain.

M60/4.16 EXTERNAL DOORS: Prime and paint bottom edges before hanging.

M60/4.17 BEAD GLAZING: Joinery which is to be varnished must have the first two coats of varnish applied to rebates and beads before glazing.

- Joinery which is to be painted must have the primer and one undercoat applied to rebates and beads before glazing.

M60/4.18 PUTTY GLAZING: Allow putty to set for 7 days then, within a further 14 days, seal with an oil based primer. Ensure that putty is fully protected by coating system as soon as it is sufficiently hard.

- If using water-borne exterior coatings, note the requirement for the putty to fully cure before decorating.

M60/4.19 COMPLETION: Ensure that opening lights and other moving parts move freely. Remove all masking tape and temporary coverings.

M60/5 COLOURS

M60/5.1 STUCCO (RENDER) COLOUR

- The paint for the stucco, including downpipes and the like, for Regents' Park to be Dulux Regents Park Cream Gloss, Munsell reference 10 YR 9/2.
- For the other estates it is to be either Dulux Regents Park Cream Gloss, Munsell reference 10 YR 9/2 or Sandtex Classic Stone Gloss, 1990 Crown Cream, Munsell reference 10 YR 9/2.
- Patch priming to be "Magnolia" colour
- The paint and colour specified must be used in order to preserve the uniformity of colour throughout the Terraces and Park Villas.
- Deviation from the approved paint and colour will incur a liability to repaint.

M60/5.2 WINDOW JOINERY

- External window joinery to be painted white to BS 00E55
- "Ultra" or "Brilliant" whites are not to be used.
- Dormer windows and skylights are to be painted dark grey BS 00A13 to match the roof slating.

M60/5.3 EXTERNAL DOORS

- Black is the preferred colour for front entrance doors and their frames, but the final choice is at the discretion of the Lessee. The CC is to be informed of intended colour.
- Polished mahogany or graining to simulate it is also an appropriate treatment for entrance doors.
- To maintain uniformity in the Mews, doors to garages and cottages and their frames are to be black or a very dark colour.

M60/5.4 DUMMY WINDOWS

- Take a careful record before stripping any paint
- Paint the "glazing" of dummy windows with Top Coat Gloss - black to simulate the appearance of glass, and with white bars, frames etc. to match the joinery.
- Lines to simulate frames and bars must be accurately painted on ruled lines.

M60/5.5 IRONWORK

- Ironwork including railings is to be painted black
- Pipework to external walls, against stuccoed surfaces, are to be painted to match the stucco.

M60/5.6 EXTERNAL STATUES AND EMBELLISHMENTS

- Statues are to be painted with Top Coat Gloss white BS 00E55 to match the existing
- Backgrounds are to be painted with Top Coat Gloss colour to match the existing.

FURNITURE AND EQUIPMENT

N10 GENERAL FIXTURES, FURNISHINGS AND EQUIPMENT

N10/1 COMPONENTS

N10/1.1 MATWELL FRAME(S):

- Do not cut matwells into historic floor finishes.

N10/1.2 ROOM HEATER(S):

- To be to the relevant BS, and installed by a registered installer.
- Where an existing flue is to used, ensure that the correct liner is installed.

N13 SANITARY APPLIANCES AND FITTINGS

N13/1 TYPE(S) OF APPLIANCE/FITTING

N13/1.1 SANITARYWARE

- It is important that sanitaryware is of good durable quality in order to protect the fabric of the building and fine plasterwork from the disastrous effects of a flood.
- WC Cisterns are to be ceramic
- Cast iron baths are preferred to pressed steel or plastics baths
- Ceramic shower trays are preferred to plastics.

N13/2 WORKMANSHIP

N13/2.1 INSTALLATION GENERALLY:

- Assemble and fix appliances and accessories so that surfaces designed to falls, drain as intended.
- Use non-ferrous or stainless steel fastenings unless specified otherwise.
- When not specified otherwise, use jointing and bedding compounds recommended by the manufacturers of the appliances, accessories and pipes being jointed or bedded.
- Prevent use of appliances for any purpose until Practical Completion.
- On completion, check for damage and defects and test for satisfactory operation. Replace damaged or defective components and accessories. Clean thoroughly.

N13/2.2 NOGGINGS/BEARERS: Ensure that noggings, bearers, etc. required to support sanitary appliances and fittings are accurately positioned and securely fixed.

N13/2.3 TILED BACKGROUNDS (other than splashbacks): Ensure that:

- Tiling is complete before fixing appliances.
- Fixings do not overstress tiles.

N13/2.4 CISTERNS:

- Unless specified otherwise obtain cistern operating components from cistern manufacturer. Ensure that ball valve matches pressure of water supply.
- Fix at the height recommended by manufacturer unless otherwise specified or shown on drawings.
- Ensure that overflow pipe is fixed to falls, and located to give visible warning of discharge. Agree position with CA where not shown on drawings.

N13/2.5 TAPS: Fix securely, making a watertight seal with the appliance. Place hot tap to left of cold tap as viewed by user of appliance.

N13/2.6 WASTES/OVERFLOWS: Bed in waterproof jointing compound and fix with resilient washer between appliance and backnut.

N13/2.7 SEALANT POINTING:

- Sealant: silicone based to BS 5889, Type B with fungicide.

  Colour: to match sanitaryware or tiling

- Application: As section Z22.

N13/2.8 LEAD TRAY

- To protect the building from flooding, install a lead tray under built in showers and baths connected to a warning overflow system.
- The Crown Estate recommends the use of building monitoring systems with moisture warning systems.

BUILDING FABRIC SUNDRIES

P10 SUNDRY INSULATION, PROOFING WORKS AND FIRE STOPS

P10/1 EAVES ROOF VENTILATORS FOR EXISTING ROOFS:

- Fix at eaves between all rafters to ensure free air space not less than required by building regulations for ventilation of roof space after installation of insulation.

P10/2 FIBRE INSULATION LAID BETWEEN OR ACROSS CEILING TIES/JOISTS:

- Mineral fibre mats to BS 5803:Part 1, Kitemark certified and installed to BS 5803: Part 5.
- Before laying, ensure that holes in the ceiling for pipes, lighting drops, etc. are sealed and all debris has been removed.
- Fit tightly with closely butted joints, leaving no gaps and extending over wall plates.
- Ensure that eaves ventilation is unobstructed and electric cables are not covered (unless they have been sized accordingly).
- Do not lay insulation below water cistern platform(s).

P10/3 LOFT ACCESS HATCH(ES):

- Insulate with mineral fibre mat, the same thickness as the loft insulation, neatly cut to fit with no gaps and securely fixed.
- Seal edges of hatch with an approved compressible draught excluder.

P10/4 FIBRE INSULATION TO WATER CISTERN(S) ON CEILING PLATFORM(S):

- Mineral fibre mat to BS 5803:Part 1, Kitemark certified.
- Cover sides and top of cistern with insulation, ensuring continuity with roof insulation and leaving no gaps. Securely fix to prevent slumping but without undue compression.

- Where cisterns are at high level, ensure that the undersides are insulated

P10/5 FIBRE INSULATION:

- Lay insulation to manufacturer's recommendations and thicknesses as scheduled.

P10/6 HEAVY PUGGING:

Do not install without the express permission of the CC.

P10/7 VAPOUR CHECK MEMBRANE FIXED TO STUDS/JOISTS/ FRAMING:

- Before fixing vapour check ensure that moisture content of timber is below 20%.
- Fix carefully and neatly to provide a fully sealed barrier free from tears, punctures and sagging.
- Fix with staples at not more than 250 mm centres along all supports. Lap sheets only at supports and not less than 100 mm. Lap over and fix to reveals of openings.
- Seal all joints and edges with adhesive tape as recommended by sheet manufacturer, including around pipes, ducts, etc.
- Immediately before covering over, check membrane for perforations and seal them with tape.

P10/8 BREATHER MEMBRANE:

- Fix carefully and neatly to provide a complete barrier to water, snow and wind blown dust.
- Fix with galvanized, sherardized or stainless steel large head nails or stainless steel staples.
- Horizontal laps to be 100 mm, vertical laps 150 mm and staggered, to shed water away from substrate and structure.
- Ensure that membrane extends below lowest timber member and into reveals of openings.

P10/9 CAVITY BARRIERS:

- Ensure that cavities and voids in the construction are stopped in accordance with the building regulations
- Cut to fit tightly, fix securely as detailed along all edges and wire or staple together all joints to provide a complete barrier to smoke and flame.
- Fill any gaps at the perimeter with cavity barrier material tightly fitted.

P10/10 FIRE STOPPING: Ensure that any imperfections of fit between building elements which are required to have fire resistance and/or resist the passage of smoke, are completely sealed. Where not specified otherwise, tightly pack gaps with mineral fibre.

P20 UNFRAMED ISOLATED TRIMS, SKIRTINGS AND SUNDRY ITEMS

P20/1 EXISTING SKIRTINGS, ARCHITRAVES ETC.

Retain sections of existing skirting and architraves etc. to be replaced, carefully remove paint and record profiles. Match new profiles and timber sizes to the original

- Quality of timber and fixing: To BS 1186:Part 3.

  Moisture content at time of fixing: 8 to 12 %

- Preservative treatment: Organic solvent as section Z12 and British Wood Preservation and Damp-proofing Commodity Specification C5.

  Desired service life 60 years.

- The tall plain elements of skirtings may be formed from MDF to BS 1142, and prEN622, of the appropriate grade:

- Caberwood Low Emission

  CSC Forest Products Ltd, Station Road, Cowie, Stirling FK7 7BQ

  or equivalent

P20/2 INSTALLATION GENERALLY:

- Joinery workmanship to be as NBS section Z10 unless specified otherwise.
- Methods of fixing and fastenings to be as section Z20 unless specified otherwise.
- Straight runs to be formed in single lengths wherever possible. Location and method of forming running joints to be approved by the CA where not detailed.
- All joints at angles to be mitred unless specified otherwise.
- Moisture content of timber and wood based boards to be maintained during storage and installation within the range specified for the component.

P21 IRONMONGERY

P21/1 GENERALLY

P21/1.1 GENERAL REQUIREMENTS:

Fixing is specified in section L1.

P21/1.2 IRONMONGERY RANGES:

- Unless specified otherwise, select ironmongery from one co-ordinated range so far as possible. Where particular items are unavailable within the range, alternatives compatible in performance, design, style, material, colour and finish may be submitted for approval.
- Inform CA and CC of selected range, manufacturer and/or supplier.
- Principal material/finish: to match original

P21/1.3 IRONMONGERY FOR FIRE DOORS: Unless specified otherwise, select ironmongery to comply with the recommendations of the Association of Builders' Hardware Manufacturers Code of practice 'Hardware essential to the optimum performance of fire resisting doorsets'.

P21/1.4 DURABILITY: Unless specified otherwise, select ironmongery components to suit Medium duty level of use (as defined in BS 7352).

P21/2 HANGING DEVICES

P21/2.1 HINGES:

- To BS 7352 and marked accordingly. Unless specified otherwise, select strength class to suit door weight, duty, number of hinges and other factors as recommended in BS 7352, Appendix C.
- Corrosion protection: Unless specified otherwise:

  CP 24 for internal use

  CP 48 for damp internal and unpolluted external use

  CP 96 for polluted atmospheres.

P21/2.2 NUMBER OF HINGES: Provide three butt hinges to fire doors, external doors and doors with closers, unless specified otherwise.

P21/2.3 TRACK AND RUNNING GEAR FOR GARAGE DOORS

Designed to operate smoothly, quietly and safely. Door(s) must not be able to come off track when in use.

- Manufacturer and reference: as Particular Specification/Schedule

P21/3 OPERATING DEVICES

P21/3.1 OVERHEAD CLOSERS GENERALLY:

- To BS 6459:Part 1, Class C
- Manufacturer and reference: as Particular Specification/Schedule
- Proposals for exposed and concealed door closers to be agreed by the CC before any doors are cut away.
- Closers must be matched to the sizes and weights of doors, override latches and/or door seals when fitted and hold unlatched doors shut under normal working conditions.

P21/3.2 OVERHEAD CLOSERS FOR FIRE DOORS: In addition to the general requirements for closers, overhead closers for fire resisting doors must:

- Be types included in successful tests to BS 476:Part 22 of door assemblies similar to those for which the closers are proposed. Submit evidence of testing by an approved laboratory.
- Be fixed on the opening face of the door unless specified otherwise.
- Have no mechanical hold open facility.
- Close positively against smoke seals where fitted.
- Have arms of iron, steel or other metal with melting point not less than 800 degC.

P21/3.3 FLOOR SPRINGS GENERALLY:

- Floor springs are not to be used in original floors without the prior agreement of CC

P21/3.4 MIDDLE RAIL CLOSERS must:

- Suit the size and weight of doors to which they are fitted.
- Hold unlatched doors closed under normal conditions.
- Have a check action.

P21/4 SECURING DEVICES AND FURNITURE

P21/4.1 LOCKS to external doors to be to BS 3621 and Kitemarked, or better

P21/4.2 LOCKS to internal doors to be to BS 5872

P21/4.3 EXISTING LOCKS

The removal of any lock is to be agreed with CC before any work commences.

- Handmade locks must always be returned to the doors from which they came

- Original patent locks are to be specially protected, and recorded. They must be repaired only by a specialist locksmith.

P21/4.4 LATCHES: to be to BS 5872.

- Latch springs must be strong enough to prevent unsprung lever handles drooping.

P21/4.5 LOCKS/LATCHES FOR FIRE RESISTING DOORS:

- Must not compromise the fire performance of the door and must be approved for the purpose by the door leaf manufacturer.
- Components critical to the retention of the door in a closed position must not have a melting point lower than 800 degC.

P21/4.6 ESCAPE LOCKS: Locks specified for security purposes on escape routes must be fitted with a means of withdrawing the bolt without use of a key.

P21/4.7 BOLTS GENERALLY: Unless specified otherwise, provide bolts:

- To match door furniture and sized to suit height, weight and function of door.
- To secure the first closing leaf on double doors.

P21/4.8 PRIVACY BOLTS must incorporate an external emergency release facility.

P21/4.9 KNOBSETS: To the performance requirements of BS 4951 and BS 5872.

P21/4.10 IRONMONGERY

- The full ironmongery schedule must be agreed with the CC before cutting any mortises, rebates etc. to doors

P21/4.11 STOPS: Unless specified otherwise, are required for doors opening against walls other than those fitted with closers with a back check facility.

P31 HOLES/CHASES/COVERS/SUPPORTS FOR SERVICES

P31/1 HOLES AND CHASES IN INSITU CONCRETE to be cast in. Do not cut hardened concrete or drill holes larger than 10 mm diameter without permission.

P31/2 HOLES IN STRUCTURAL STEELWORK: Do not cut or drill structural steelwork without permission.

P31/3 HOLES, RECESSES AND CHASES IN MASONRY:

- Holes, recesses and chases to be in locations which will least affect the strength, stability and sound resistance of the construction, and to be of the smallest practicable size.
- Holes must not exceed 300 mm square.
- Do not cut chases in walls of hollow or cellular blocks without approval.
- In walls of other materials:
- Vertical chases must be not deeper than one third of the single leaf thickness.
- Horizontal or raking chases must be not longer than 1 m and not deeper than one sixth of the single leaf thickness.
- Do not set chases or recesses back to back; offset by a clear distance not less than the wall thickness. Where sockets, etc. are shown on drawings as nominally back to back, obtain instructions.
- Do not cut until mortar is fully set. Cut carefully and neatly, avoiding spalling, cracking or other damage to surrounding structure. Do not cut chases with mechanical or hand impact tools.

P31/4 Chases in Existing or Historic Masonry

Vertical chases shall be no deeper than 25mm into the masonry or a maximum of 30mm from the face of the plaster and no wider than 150mm.

Horizontal chases shall not be permitted without the approval of the CC.

P31/5 NOTCHES AND HOLES IN STRUCTURAL TIMBER:

- To be avoided wherever possible and to be the minimum sizes needed to accommodate services.
- Do not position near knots or other defects in the same cross section which would significantly affect strength of timber.
- Notches and holes in the same joist to be at least 100 mm apart horizontally.
- Notches in joists to be at the top, located between 0.07 and 0.25 of span from support, not deeper than 0.125 x depth of joist and to be formed by sawing down to a drilled hole.
- Holes in joists to be on the neutral axis, with diameter not more than 0.25 x depth of joist, spaced at centres not less than 3 x diameter of largest hole and located between 0.25 and 0.4 of span from support.
- Notches in roof rafters, struts and columns will not be permitted.
- Holes in struts and columns to be on the neutral axis, with diameters not exceeding 0.25 x minimum width of member, located between 0.25 and 0.4 of length from end and spaced at centres not less than 3 x diameter of largest hole.

PAVING, PLANTING, FENCING AND SITE FURNITURE

Q20 GRANULAR SUB-BASES TO PAVINGS

Q20/1 Comply with NBS clauses relating to granular sub-bases.

Q25 SLAB, BRICK, BLOCK AND COBBLE PAVINGS

Q25/1 GENERALLY

Q25/1.1 LAYING PAVINGS:

- Cut paving units neatly and accurately with a masonry saw to give neat junctions with edgings and adjoining finishes.
- Lines and levels of finished surface to be smooth and even with regular falls to prevent ponding.
- Bed paving units firmly so that rocking does not occur or develop.
- Lay paving units upwards from the bottom of slopes where creep may occur.
- Finished paving to have an even overall appearance with even joint widths and free of mortar and sand stains.

Q25/1.2 LEVELS OF PAVING: Permissible deviation from specified levels to be +/- 6 mm generally. Paving to be set 6 mm above drainage outlets and 3 mm above kerbs to allow for settlement.

Q25/1.3 PROTECTION FROM TRAFFIC:

- Pavings bedded on mortar must be kept free from pedestrian traffic for 4 days and vehicular traffic for 10 days after laying.
- Restrict access to paved areas as necessary to prevent damage from site traffic and plant.

Q25/2 SLAB PAVING

Q25/2.1 STONE SLAB PAVING

- Stone/finish: Portland Stone or York stone, as appropriate to match sizes appropriate to the location and historic character.

  Granular sub-base: As NBS section Q20, thickness: nom. 200 mm

  Bedding: Full mortar bed as clause Q20/2.3

Nominal thickness: 50 mm.

- Joints: to match original

Q25/2.2 SAND FOR BEDDING:

- Naturally occurring clean sharp sand or crushed rock.
- Graded as for laying course sand in BS 6717: Part 3, Table 2.
- Clay, silt and fine dust content not more than 3% by mass.
- Free from deleterious salts, contaminants and cement.
- Moisture content to be between 3% and 7% and maintained reasonably constant during any laying period.
- Obtain from only one source and ensure that all sand supplied has consistent grading.

Q25/2.3 FULL MORTAR BEDDING:

- Mortar: As Section Z21.

  Mix: 1:3-4 lime:sand, or 1:4-5 cement:sand.

  Sand: To BS 882, grading limit M or F.
- Spread and level mortar to give the specified average nominal thickness after bedding of slabs.
- Lay slabs on a full mortar bed and bed down to line and level with a maul.

Q25/2.4 DRY MORTAR JOINTS:

- Mortar mix: 1:3 cement and slightly damp sand to BS 1200, 100% passing a 1.18 mm sieve.
- When the paving is dry and rain is not expected, brush dry mortar into joints, knock down by beating the slabs with a maul, then repeat the operation until the joints are filled solid and flush. Brush off all residue without delay.
- Do not wet the paving: allow the joints to hydrate naturally. Immediately after filling joints, cover paving with polyethylene sheeting for three days to protect from rain.

Q25/2.5 MORTAR POINTED JOINTS:

- Mortar mix: 1:5 semidry cement:sand to BS 882, grading limit M.
- When the surface of the paving is dry and rain is not expected, carefully and thoroughly fill joints using a proper pointing tool and slotted masking shield. Tool to a bucket handle profile 2-3 mm below the slab surface. Clean any mortar from face of slabs before it sets.
- Immediately after completing joints, cover paving with polyethylene sheeting for not less than three days.

Q25/3 BRICK PAVING

Q25/3.1 BRICK PAVING TO VAULTS ETC.

- Bricks: to match original as closely as possible

  Size(s): to match original
- Granular sub-base: As Q20, thickness: nom. 200 mm.
- Concrete base: Mix E10 C20
- Bedding and jointing: As clause Q25/3.2

  Nominal thickness of bed: 200 mm

  Mortar mix: 1:¼:4½

  Joint profile: Flush

Q25/3.2 MORTAR BEDDING AND JOINTING:

- Before laying paving ensure that the base has been cured for not less than 28 days.
- Set out carefully and adjust joint widths to reduce cutting to a minimum.
- Bedding and jointing mortar mix: Cement:lime:sand, proportions as specified, of a stiff plastic consistency, using sand to BS 882, grading limit M.
- Apply a thin slurry (1-3 mm) of neat cement or 1:1 cement:soft sand over the freshly laid mortar bed immediately prior to laying the bricks.
- Wet bricks as necessary (but do not soak), butter the joint faces and press down firmly to give a level surface with 10 mm regular joints.
- Tool joints to the specified profile and clean mortar from brick face without delay.
- Immediately after laying, cover paving with polyethylene sheeting for not less than three days.

Q25/4 STONE SETT PAVING

Q25/4.1 STONE SETT PAVING

- Setts: to BS 435
- To match original

Q25/4.2 STONE SETTS: Lay so that natural bed is vertical.

Q25/4.3 MORTAR BEDDING AND JOINTING:

- Spread and level a bed of dry 1:3 cement:sand mortar.
- Individually lay and hammer down the setts so that tops are level, leaving joints open.
- Mortar for jointing: 1:1/4:3 cement:lime:sand to BS 882, grading limit M, of a stiff plastic consistency.
- Carefully and thoroughly fill joints to within 6 mm of surface of setts and finish neatly. Clean any mortar from face of setts before it sets.

Q25/4.4 MORTAR BEDDING AND SEALANT JOINTING:

- Spread and level a bed of dry 1:3 cement:sand mortar.
- Individually lay and hammer down the setts to the required level, with tops level, leaving joints open.
- Brush dry 1:3 mortar into joints to within approximately 20 mm of surface of setts. Pour hot sealant into joints to within 3-6 mm of surface of setts.

  Sealant: as Particular Specification/Schedule

Q25/5 OTHER PAVINGS

Q25/5.1 LOOSE GRAVEL

- Ensure that gravel does not spread onto CEPC pavings or gardens, or neighbouring properties.

DISPOSAL SYSTEMS

R10 RAINWATER PIPEWORK AND GUTTERS

R10/1 TYPE(S) OF PIPEWORK/GUTTER

R10/1.1 CAST IRON PIPEWORK FOR EXTERNAL USE:

- Pipes, fittings and accessories: To BS 460.
- To match original where possible

  Finish/Colour: to be painted as M60

R10/1.2 CAST IRON GUTTERS:

- Gutters and fittings: To BS 460.

  Profile and size: to match original

  Finish/Colour: Painted as M60

R10/1.3 ALUMINIUM PIPEWORK AND GUTTERS FOR EXTERNAL USE:

- Pipes, fittings and accessories: To BS 2997.
- Written permission from the CC is required for the use of aluminium rainwater goods.

R10/1.4 PVC-U PIPEWORK FOR EXTERNAL USE: must not be used

R10/2 INSTALLATION

R10/2.1 BEFORE COMMENCING WORK specified in this section, ensure that:

- Below ground drainage is ready to receive rainwater or that the discharge can be dispersed by approved means to prevent damage or disfigurement of the building fabric.
- Any specified painting of surfaces which will be concealed or inaccessible is completed.

R10/2.2 INSTALLATION GENERALLY:

- Install pipework/gutters to ensure the complete discharge of rainwater from the building without leaking.
- Obtain all components for each type of pipework/guttering from the same manufacturer unless specified otherwise.
- Provide access fittings and rodding eyes as necessary in convenient locations to permit adequate cleaning and testing of pipework.
- Avoid contact between dissimilar metals and other materials which would result in electrolytic corrosion.
- Do not bend galvanized steel pipes.
- Adequately protect pipework/gutters from damage and distortion during construction. Fit purpose made temporary caps to prevent ingress of debris. Fit all access covers, cleaning eyes and blanking plates as the work proceeds.
- Where not specified otherwise use plated, sherardized, galvanized or non-ferrous fastenings, suitable for the purpose and background, and compatible with the material being fixed.

R10/2.3 FIXING GUTTERS:

- Set out to a true line and even gradient to ensure no ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
- Position outlets to align with connections to below ground drainage, unless shown otherwise on drawings.
- Provide for thermal and building movement when fixing and jointing, and ensure that clearances are not reduced as fixing proceeds.

- Seal as specified to make watertight.
- Ensure that roofing underlay is dressed into gutter.

R10/2.4 RAINWATER OUTLETS: Ensure that:

- Outlets are securely fixed before connecting pipework.
- Junctions between outlets and pipework can accommodate all movement in the structure and pipework.

R10/2.5 FIXING PIPEWORK:

- Fix securely at specified centres plumb and/or true to line.
- Make changes in direction of pipe runs only where shown on drawings unless otherwise approved.
- Fix branches and low gradient sections with uniform and adequate falls to drain efficiently.
- Fix externally socketed pipes/fittings with sockets facing upstream.
- Provide additional supports as necessary to support junctions and changes in direction.
- Fix every length of pipe at or close below the socket collar or coupling.
- Provide a load bearing support for vertical pipes at not less than every storey level. Tighten fixings as the work proceeds so that every storey is self supporting and undue weight is not imposed on fixings at the base of the pipe.
- Isolate from structure where passing through walls or floors and sleeve pipes as specified in Section P31.
- Provide for thermal and building movement when fixing and jointing, and ensure that clearances are not reduced as fixing proceeds.
- Fix expansion joint pipe sockets rigidly to the building and elsewhere use fixings that allow the pipe to slide.

R10/2.6 JOINTING PIPEWORK/GUTTERS:

- Joint using materials, fittings and techniques which will make effective and durable connections.
- Joint differing pipework/gutter systems with adaptors recommended by manufacturer(s).
- Cut ends of pipes to be clean and square with burrs and swarf removed. Chamfer pipe ends before inserting into ring seal sockets.
- Ensure that jointing or mating surfaces are clean, and where necessary lubricated, immediately before assembly.
- Form junctions using fittings intended for the purpose ensuring that jointing material does not project into bore of pipes, fittings and appliances.
- Remove surplus flux/solvent/cement/sealant from joints.

R10/2.7 ELECTRICAL CONTINUITY: Use clips or suitable standard couplings supplied for the purpose by pipework manufacturer to ensure electrical continuity at all joints in metal pipes with flexible couplings and which are to be earth bonded.

R10/2.8 INTERNAL PIPEWORK TEST:

- Temporarily seal open ends of pipework with plugs.
- Connect a U tube water gauge and air pump to the pipework via a plug.
- Pump air into pipework until gauge registers 50 mm.
- Allow a period for temperature stabilization, after which the pressure of 50 mm is to be maintained without loss for not less than 5 minutes.
- Please note that this test is to a higher standard than that set in the Building Regulations, to protect the historic fabric.

R10/2.9 GUTTER TEST: Block all outlets, fill gutters to overflow level and after 5 minutes closely inspect for leakage.

R10/2.10 RAINWATER PIPEWORK RUNNING IN INTERNAL DUCTS

- to have sealed joints.
- provide means of early indications of leaks and/or overflows.

R11 FOUL DRAINAGE ABOVE GROUND

R11/1 TYPE(S) OF PIPEWORK

R11/1.1 CAST IRON PIPEWORK FOR REPAIR OF EXISTING INSTALLATIONS

- Pipes and fittings: To BS 416:Part 1 with sockets.
- Method of jointing: pack with jute yarn and caulk with cold caulking compound.

R11/1.2 CAST IRON PIPEWORK FOR NEW INSTALLATIONS

- Pipes, fittings and accessories: To ISO 6594 with flexible joint couplings, Agrément certified.
- Ensign system, by Sinclair Foundry Products,

  Sinclair Works, P O Box 3, Ketley, Telford, Shropshire TF1 4AD

R11/1.3 COPPER PIPEWORK FOR NEW INSTALLATIONS

- Pipes: Copper tube to BS 2871: Part 1, table X, Kitemark certified
- Sizes and Accessories: as Particular Specification/Schedule
- Method of jointing: copper or copper alloy fittings to BS 864: Part 2, Kitemark certified.
- Method of fixing: Two piece spacing clips in exposed positions, saddle bands in concealed positions

R11/1.4 FITTINGS FOR PIPEWORK

Capillary and compression fittings: to BS 864: Part 2: 1983.

Materials: Non-zincifiable.

Solder: tin/silver solder only. Lead based solder is not to be used.

R11/1.5 TRAPS TO SANITARY FITMENTS

Traps to be of gunmetal, brass or copper to BS 1184

- Method of jointing: union inlet and compression outlets to facilitate removal for maintenance
- Method of fixing: in accordance with the manufacturer's specification
- Finish: to be chrome plated where exposed

R11/1.6 REFER also to section S12 for further details of pipework and fittings:

R11/2 INSTALLATION

R11/2.1 INSTALLATION GENERALLY:

- Before commencing work specified in this section, ensure that any specified painting of surfaces which will be concealed or inaccessible is completed.
- Install pipes, fittings and accessories in accordance with BS 5572.
- Obtain all components for each type of pipework from the same manufacturer unless specified otherwise.
- Provide access fittings and rodding eyes as necessary in convenient locations to permit adequate cleaning and testing of pipework.
- Avoid contact between dissimilar metals and other materials which would result in electrolytic corrosion.
- Do not bend plastics or galvanized steel pipes.
- Adequately protect pipework from damage and distortion during construction. Fit purpose made temporary caps to prevent ingress of debris. Fit all access covers, cleaning eyes and blanking plates as the work proceeds.

- Where not specified otherwise use plated, sherardized, galvanized or non-ferrous fastenings, suitable for the purpose and background, and compatible with the material being fixed.

R11/2.2 HOT WORK

- Follow procedures set out in A34/2.5 for HOT WORK, when carrying out all jointing operations using capillary and brazing fittings

R11/2.3 BUILDERS WORK: Restrictions on the cutting of holes, chases, notches, etc., installation of pipe sleeves and stopping are specified in section P31.

R11/2.4 PIPE ROUTES to be the shortest practical, with as few bends as possible and no bends in wet portion of soil stacks, unless specified otherwise. Pipe routes not shown on drawings to be approved before commencing work.

R11/2.5 FIXING PIPEWORK:

- Fix securely at specified centres plumb and/or true to line.
- Make changes in direction of pipe runs only where shown on drawings unless otherwise approved.
- Fix branches and low gradient sections with uniform and adequate falls to drain efficiently.
- Fix externally socketed pipes/fittings with sockets facing upstream.
- Provide additional supports as necessary to support junctions and changes in direction.
- Fix every length of pipe at or close below the socket collar or coupling.
- Provide a load bearing support for vertical pipes at not less than every storey level. Tighten fixings as the work proceeds so that every storey is self supporting and undue weight is not imposed on fixings at the base of the pipe.
- Isolate from structure where passing through walls or floors and sleeve pipes as specified in section P31.
- Provide for thermal and building movement when fixing and jointing, and ensure that clearances are not reduced as fixing proceeds.
- Fix expansion joint pipe sockets rigidly to the building; elsewhere use fixings that allow the pipe to slide.

R11/2.6 JOINTING PIPEWORK:

- Joint using materials, fittings and techniques that will make effective and durable connections.
- Joint differing pipework systems with adaptors recommended by manufacturer(s).

- Cut ends of pipes to be clean and square with burrs and swarf removed. Chamfer pipe ends before inserting into ring seal sockets.
- Ensure that jointing or mating surfaces are clean, and where necessary lubricated, immediately before assembly.
- Form junctions using fittings intended for the purpose ensuring that jointing material does not project into bore of pipes, fittings and appliances.
- Remove surplus flux/solvent/cement/sealant from joints.

R11/2.7 ELECTRICAL CONTINUITY: Use clips supplied for the purpose by pipework manufacturer to ensure electrical continuity at all joints in metal pipes with flexible couplings and which are to be earth bonded.

R11/2.8 AIR ADMITTANCE VALVES: Agrément certified.

- Install in a vertical position, above the flood level of the highest appliance served, and so that insulation materials (other than the manufacturers insulating cover) are kept clear of the valve body.
- Fit using a ring seal connection, or in such a way that the valve can easily be removed to allow the discharge stack to be rodded.
- Fit the manufacturers insulating cover in roof spaces and other unheated locations.

R11/2.9 PIPEWORK TEST:

- Temporarily seal open ends of pipework with plugs.
- Connect a U tube water gauge and air pump to the pipework via a plug or through the trap of an appliance.
- Pump air into pipework until gauge registers 38 mm.
- Allow a period for temperature stabilisation, after which the pressure of 38 mm is to be maintained without loss for not less than 3 minutes.

R12 DRAINAGE BELOW GROUND

R12/1 GENERALLY

R12/1.1 EXISTING DRAINS:

- Before starting work, check invert levels and positions of existing drains, sewers, inspection chambers and manholes against information shown on drawings and report any discrepancies to CC.
- Adequately protect existing drains and maintain normal operation during construction.

R12/1.2 IN SITU CONCRETE:

- Unless specified otherwise, in situ concrete for use in drainage below ground to be to BS 5328, mix GEN3 ST4

  or an equivalent or better mix, sulfate resisting if required, subject to approval.

- Different mixes may be used for different parts of the drainage work.

R12/2 TYPE(S) OF PIPELINE

R12/2.1 CLAY PIPELINES FOR REPAIRS TO EXISTING PIPELINES.

- Pipes, bends and junctions: Vitrified clay to BS EN 2951, with flexible joints, Kitemark certified.

R12/2.2 GREY IRON PIPELINES

- Pipes, bends and junctions: grey iron to BS 437, with flexible joints to BS 6087

R12/2.3 DUCTILE IRON PIPELINES

- Pipes, bends and junctions: Ductile iron to BS EN 598, Kitemark certified, with flexible joints

R12/2.4 PLASTICS PIPELINES must not to be used

R12/3 EXCAVATING/BACKFILLING

R12/3.1 EXCAVATED MATERIAL: Unless otherwise specified, set aside turf, topsoil, hardcore, etc. for use in reinstatement.

R12/3.2 LOWER PART OF TRENCH: From bottom up to 300 mm above crown of pipe the trench must have vertical sides and be of a width as small as practicable but not less than external diameter of pipe plus 300 mm or larger dimension if specified.

R12/3.3 ASSUMED TYPE OF SUBSOIL: Where the type of subsoil at the level of the crown of the pipe differs from that stated for the type of pipeline, obtain instructions before proceeding.

R12/3.4 FORMATION FOR BEDS GENERALLY:

- Excavate to formation immediately before laying beds or pipes.

- Remove mud, rock projections, boulders and hard spots and replace with consolidated bedding material.
- Harden local soft spots by tamping in bedding material.
- Inform CC in advance to give him reasonable opportunity to inspect excavated formation for each section of the work.

R12/3.5 BACKFILLING TO PIPELINES GENERALLY: Unless specified otherwise, backfill from top of specified surround or protective cushion with material excavated from the trench, compacted in layers not exceeding 300 mm thick. Do not use heavy compactors before there is 600 mm of material over pipes.

R12/3.6 BACKFILLING UNDER ROADS AND PAVINGS: Backfill from top of specified surround or protective cushion up to formation level with Granular Sub-base Material Type 1 to DOT Specification for Highway Works, Clause 803, laid and compacted in 150 mm layers.

R12/3.7 WARNING MARKER TAPES:

- Lay during backfilling in a continuous line over pipelines, 300 to 400 mm below the level of the finished surface.
- For pipelines at a depth greater than 2m lay an additional marker 600 mm above the top of the pipeline.

R12/4 BEDDING/JOINTING

R12/4.1 INSTALLATION GENERALLY:

- Obtain pipes and fittings for each pipeline from the same manufacturer unless otherwise specified. Joint differing pipes and fittings with adaptors recommended by pipe manufacturer.
- Lay pipes to true line and regular gradient on an even bed for the full length of the barrel with sockets (if any) facing up the gradient.
- Joint using recommended lubricants, leaving recommended gaps at ends of spigots to allow for movement.
- Adequately protect pipelines from damage and ingress of debris. Seal all exposed ends during construction.
- Arrange the work to minimise time between laying and testing. Backfill after successful testing.

R12/4.2 Comply with NBS clauses relating to Class D (Natural Bed), Class F (Granular Bed) Class (As-Dug material Bed), Class X (Granular Surround for Ground Water), Class Y (Concrete Surrounds for Shallow Pipes Under Buildings) and Class Z (Concrete Surround)

R12/4.3 TRENCHES LESS THAN ONE METRE FROM FOUNDATIONS: Where bottom of trench is lower than bottom of foundation, use Class Z concrete surround. Top of concrete to be not lower than bottom of foundation.

R12/4.4 TRENCHES MORE THAN ONE METRE FROM FOUNDATIONS:

- Where bottom of drainage trench is below a critical level, (defined below) Class Z concrete surround is to be used, the top of the concrete being not lower than the critical level.
- For the purpose of this clause the critical level is D mm lower than level of foundation bottom, D mm being equal to the horizontal distance of the near side of the trench from the foundation, minus 150 mm.

R12/4.5 PIPELINES PASSING THROUGH STRUCTURES:

- Where pipelines must be cast in or fixed to structures (including manholes, catchpits and inspection chambers) provide short length or rocker pipes near each external face, with flexible joint at each end:

Pipe size (DN)	Distance to first joint from structure (mm)	Short length (mm)
100 & 150	150	600
225	225	600

- Where pipelines need not be cast in or fixed to structures (e.g. walls to footings) provide either:
- short length or rocker pipes as specified above, or
- openings in the structures to give 50 mm minimum clearance around the pipeline and closely fit a rigid sheet to each side of opening to prevent ingress of fill or vermin.

R12/4.6 BENDS AT BASE OF SOIL STACKS:

- Unless specified otherwise, form with two 45 degrees bends of medium radius to the centreline of the pipe.
- Invert of horizontal drain at base of stack to be not less than 750 mm below centreline of lowest branch pipe.
- Stabilize bend(s) by bedding in concrete without impairing the flexibility of couplings.

R12/4.7 DIRECT CONNECTION OF GROUND FLOOR WCs TO DRAINS:

- Drop from crown of WC trap to invert of drain must not exceed 1.5 m.
- Horizontal distance from the drop to a ventilated drain must not exceed 6 m.

R12/4.8 RIGID BACKDROP PIPES outside the manhole wall: Encase with not less than 150 mm of concrete as specified under Generally. All excavation beneath the backdrop pipe and its surround must be replaced with concrete.

R12/4.9 FLEXIBLE COUPLINGS FOR REPAIR OF EXISTING PIPELINES

- To BS EN 295-4, WIS 4-41-01, or Agrément certified.
- Ensure that the ends of pipes to be joined are cleanly cut and square.
- Ensure that outer surfaces of pipes to be joined are clean and smooth. Where necessary, e.g. on concrete or iron pipes, smooth out mould lines and/or apply a cement grout over the sealing area.

R12/5 TERMINAL/ACCESS FITTINGS

R12/5.1 MANUFACTURE: Obtain each complete assembly of fittings, traps, etc., including appropriate couplings, from the same manufacturer, and check compatibility of components with each other and with the pipe system.

R12/5.2 INSTALLATION OF FITTINGS:

- Set fittings square with and tightly jointed to adjacent construction as appropriate. If open to doubt obtain instructions.
- Bed and surround fittings, traps, etc. in concrete, 150 mm thick, mix as specified under Generally.
- Permissible deviation in level of gully gratings to be +0 to - 10 mm,
- Fit purpose made temporary caps over exposed openings in fittings and protect

R12/6 MANHOLES/CHAMBERS/SOAKAWAYS/TANKS

R12/6.1 BRICK MANHOLES/INSPECTION CHAMBERS:

- Bases: 150 mm thick plain concrete, mix as specified under Generally.
- Brickwork: NBSType F10/ 380 with frogs facing upwards.
- Steps: galvanised ferrous to BS 1247.

  Bed in joints to all chambers over 900 mm deep at 300 mm vertical centres staggered 300 mm horizontally, with lowest step not more than 300 mm above benching and top step not more than 450 mm below top of cover.
- Channels, branches and benching: conventional as clause 6.3
- Cover slabs: thickness as Particular Specification/Schedule , precast or in situ concrete at Contractors discretion. If precast, bed solid in 1:3 cement:sand mortar to brickwork.

Openings to suit required access covers.

Concrete mix as specified under Generally.

Reinforcement: Steel fabric to BS 4483, reference as Particular Specification/Schedule

- Access covers and seating: cast iron as clause R12/6.5

R12/6.2 PLASTICS INSPECTION CHAMBERS not to be used

R12/6.3 CONVENTIONAL CHANNEL(S), BRANCHES AND BENCHING:

- Bed main channel solid in 1:3 cement:sand mortar. Connect branches to channel, preferably at half pipe level, so that discharge flows smoothly in direction of main flow. Connect branches greater than nominal size 150 mm with the soffit level with that of the main drain. Where the connecting angle is more than 45 degrees to direction of flow use three-quarter section channel bends.
- Use clips or ensure adequate mechanical key when bedding plastics channels on to mortar.
- Form benching in concrete, mix as specified under Generally, to rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls. Within 3 hours float with coat of 1:3 cement:sand mortar and finish smooth with steel trowel.

R12/6.4 SEALED ACCESS FITTING(S), BRANCHES AND BENCHING:

- Sealed access fitting(s): for internal manholes with single seal covers

  Manufacturer and reference: as Particular Specification/Schedule

  Sizes and integral branches to suit each manhole.
- Make pipework connections and fit caps to unused branches. Lay component on base and bed in 1:3 cement:sand mortar. Form concrete benching, mix as specified under Generally, with 10% fall from manhole walls to component rim. Within 3 hours float with coat of 1:3 cement:sand mortar and finish smooth with steel trowel.
- Access covers and seating: as Particular Specification/Schedule

R12/6.5 CAST IRON ACCESS COVERS AND SEATING:

- Covers: Grey iron or ductile iron to BS EN 124.

  Manufacturer and type: as Particular Specification/Schedule
- Seating: Make up in engineering bricks to BS 3921,

  Class B, laid in 1:3 cement:sand mortar, or precast concrete cover frame units, Type 1 or Type 2 to suit cover shape.
- Bed and haunch frame solidly in 1:3 cement:sand mortar over its whole area, centrally over opening, top level and square with joints in

surrounding finishes. Cut back top of haunching to 30 mm below top of surface material.

R12/6.6 CONNECTIONS TO SEWERS: Connect new pipework to existing adopted sewer(s) to the requirements of the Sewerage Authority or its agent.

R12/7 CLEANING/TESTING/INSPECTION

R12/7.1 CLEANING:

- Flush out the whole of the installation with water to remove all silt and debris before final testing, before and any detritus without discharging them into sewers or watercourses. CCTV inspection if specified and immediately before handover.
- Safely dispose of washings

R12/7.2 TESTING/INSPECTION GENERALLY:

- Give CC advance notice to allow the opportunity to attend all tests and inspections.
- Give the Statutory Authority appropriate notice to enable pipelines to be inspected and tested as required.
- Provide water, assistance and apparatus as required.
- All lengths of drain, manholes and inspection chambers must pass the tests specified. If permitted test loss or infiltration is exceeded, remedy defect(s) before retesting after an appropriate period.

R12/7.3 WATER/AIR TESTING OF GRAVITY DRAINS AND PRIVATE SEWERS UP TO DN 300:

- To ensure that pipelines are sound and properly installed, air test short lengths to BS 8301, paragraph 25.6.3 immediately after completion of bedding/surround.
- For final checking and statutory authority approval, water test to BS 8301, paragraph 25.6.2 all lengths of pipeline from terminals and connections to manholes/chambers and between manholes/chambers.

R12/7.4 WATER TESTING OF MANHOLES/INSPECTION CHAMBERS: Before backfilling test each manhole or chamber in accordance with BS 8301, paragraph 25.7 for:

- Exfiltration: Drop in water level to be not more than relevant dimension in Table 9.
- Infiltration: Inflow to be not more than 5 litres per hour per manhole.

PIPED SERVICES

S12 HOT AND COLD WATER

S12/1 GENERAL INFORMATION/REQUIREMENTS

S12/1.1 ELECTRICAL WORK in connection with the installation must be in accordance with BS 7671 'Requirements for Electrical Installations' (The IEE Wiring Regulations).

S12/2 GENERAL TECHNICAL REQUIREMENTS

S12/2.1 INSTALLATION GENERALLY:

- Install, test and commission the hot and cold water systems so that they comply with BS 6700, water supply byelaws, and the requirements of this section to provide a system free from leaks and the audible effects of expansion, vibration and water hammer.
- All installation work to be carried out by qualified operatives.
- Store all equipment, pipework components and accessories in original packaging in dry conditions. Protect plastics pipework from prolonged exposure to sunlight. Wherever practicable retain protective wrappings until Practical Completion.
- Securely fix equipment, components and accessories in specified/approved locations, parallel or perpendicular to the structure of the building unless specified otherwise, using fixing brackets/mountings, etc. recommended for the purpose by the equipment manufacturer.
- 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.
- All equipment, pipework, components, valves, etc. forming the installation to be fully accessible for maintenance, repair or replacement unless specified or shown otherwise.
- Installation to be fitted with vents at high points and draining taps at low points to facilitate purging and draining.

S12/2.2 BUILDER'S WORK: Comply with restrictions on the cutting of holes, chases, notches, etc. and methods of attachment to the building fabric specified in section P31.

S12/2.3 DEZINCIFICATION: All brass fittings used below ground to be DZR alloy CZ 132 and so marked, or gunmetal.

S12/181 DEZINCIFICATION: All brass fittings which are in contact with water to be DZR alloy CZ 132 and so marked, or gunmetal.

S12/3 EQUIPMENT

S12/3.1 FLUE PIPE:

- Double wall steel, size to suit appliance, with all fittings necessary to provide a complete installation.

  Manufacturer and reference: selected from the British Gas approved list of approved manufacturers of flues and terminals

  Finish/Colour: Flues appearing above the roof must be stove-enamelled dark grey BS 00 A 13. The position of any flue must be agreed with the CC before commencing any work.

  Fittings: as Particular Specification/Schedule

- Set out with the minimum number of joints and bends and a slope not more than 30 degrees from the vertical. Do not locate joints within the depth of floors.
- Install with sockets uppermost, fully supported and fixed securely with brackets supplied for the purpose at locations and centres recommended by pipe manufacturer.
- Seal joints, completely filling with approved jointing materials, to give a gas tight installation.
- Ensure that joints and supports adequately accommodate thermal movement.
- Ensure that flue pipe is not less than the required minimum distance from combustible materials.
- Fit terminal and flashings, collars, etc. to weatherproof junction at roof.

S12/3.2 BALANCED FLUE TERMINAL: Agree position with CC before forming any openings in any external wall. Written permission from the CC will be required before any balanced flue is installed.

S12/3.3 AIR SUPPLY TO APPLIANCE: Inform CC of air supply requirements and agree/confirm size(s) and location(s) of vent(s).

S12/3.4 COLD WATER STORAGE

- As Particular Specification/Schedule
- To be to BS 4213
- Valve: Float operated diaphragm type to BS 1212 with plastics float to BS 2456, size to suit water pressure.
- Lowest point of outlet(s) to be not less than 30 mm above bottom of cistern.

S12/3.5 WATER SOFTENER:

- Provide unsoftened supply to drinking water points.
- Fit bypass pipe and stop valves to ensure continuity of water supply if softener is inoperable or removed.
- Connect overflow/drain line(s) to trap and waste specified in section R11.
- Ensure that there is provision to prevent back siphonage of brine during regeneration process.

S12/4 PIPELINES

S12/4.1 COPPER PIPELINES FOR use underground

- Tube: To BS 2871:Part 1, table Y, Kitemark certified.
- Jointing generally: Integral lead free solder ring capillary fittings to BS 864:Part 2, Kitemark certified.
- Connections to equipment and fittings: Compression fittings to BS 864:Part 2, Kitemark certified.
- Supports: Two-piece spacing clips in exposed positions, saddle bands in concealed positions

  Centres as specified in clause S12/4.7.

S12/4.2 COPPER PIPELINES FOR use above ground

- Tube: To BS 2871:Part 1, table X, Kitemark certified.
- Jointing generally: Integral lead free solder ring capillary fittings to BS 864:Part 2, Kitemark certified.
- Connections to equipment and fittings: Compression fittings to BS 864:Part 2, Kitemark certified.
- Supports: as S12/4.7.

  Centres as specified in clause S12/4.7.

S12/4.3 PLASTICS COATED COPPER PIPELINES FOR tubes buried in screed

- Tube: To BS 2871:Part 1, table X or Y, Kitemark certified, with seamless polyethylene coating to BS 3412.

  Manufacturer and reference: as Particular Specification/Schedule
- Jointing generally: Integral lead free solder ring capillary fittings to BS 864:Part 2, Kitemark certified.
- Connections to equipment and fittings: Compression fittings to BS 864:Part 2, Kitemark certified.
- Supports: as S12/4.1

Centres as specified in clause S12/4.7.

S12/4.4 POLYETHYLENE PIPELINES FOR USE BELOW GROUND: for cold water services

- Tube: Blue polyethylene to BS 6572, Kitemark certified.
- Jointing: Compression fittings to BS 864:Part 5, Kitemark certified.

S12/4.5 PIPE RUNS:

- Where not shown accurately on drawings, obtain approval of routes before commencing work.
- Runs to be straight and parallel or perpendicular to walls, floors, ceilings, etc. as appropriate.
- Locate runs to facilitate installation of equipment, accessories and insulation and allow access for maintenance.
- Run hot pipes above cold where routed together horizontally; space well away from pipes containing drinking water.
- Do not run pipes through electrical enclosures or above switch gear distribution boards or the like.
- Allow sufficient space around pipes to fit insulation without compression.

S12/4.6 PIPE FIXING:

- Fix pipes securely and neatly with the minimum number of joints, bends and offsets.
- Allow for thermal movement of pipelines and isolate from structure where necessary to prevent noise or abrasion of pipe caused by movement. Pipes passing through walls to be sleeved as specified in section P31.
- Temporarily seal open ends of pipes with purpose made plugs or blanking caps to prevent ingress of dirt during installation.
- Completed pipelines to be of smooth, consistent bore, clean and free from external scratching, toolmarks, distortion, wrinkling, cracks, and other defects.

S12/4.7 SUPPORTS FOR COPPER/STAINLESS STEEL PIPELINES: Fix securely and true to line at not more than the following centres:

Pipe o.d. (mm)	Horizontal (mm)	Vertical (mm)
15 and 22	1200	1800
28 and 35	1800	2400
42 and 54	2400	3000

Provide additional supports as necessary within 150 mm of connections, junctions and changes of direction.

S12/4.8 PIPE SPACING: Minimum clearance 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

S12/4.9 JOINTS IN COPPER/STAINLESS STEEL PIPELINES:

- Cut pipes square using a wheel cutter, remove burrs and make neat, clean, fully sealed joints, ensuring that pipe ends enter joint fittings to full depth.
- Do not use formed bends on exposed pipework except for small offsets. Form changes of direction with radius fittings unless otherwise approved.
- Use purpose designed adaptors for connecting dissimilar materials: do not improvise.
- Protect background and plastics pipes and fittings from heat damage when forming soldered joints. Clean off all flux residue. Do not use 'self-cleaning' fluxes.

S12/4.10 CAPILLARY JOINTS IN PLASTICS COATED PIPES: Follow manufacturer's recommendations to avoid damage to plastics coating from direct or indirect heat. Wrap completed joint when cool with PVC tape of matching colour, half lapped.

S12/4.11 GAS PIPELINES:

- Install in accordance with BS 6891 and the requirements of British Gas.
- Ensure that gas supply meter and distribution pipelines are adequate for the maximum anticipated demand.
- Fit service cocks to permit removal of appliances.

S12/4.12 WARNING PIPES TO CISTERNS:

Bore to be twice that of inlet pipe but not less than 32 mm.

- Difference between normal water level and overflow level to be:

  For cold water storage cisterns - not less than 32 mm or equal to the bore of the warning pipe if greater.

  For feed and expansion cisterns - sufficient to allow 20% increase in the volume of water in the tank plus 25 mm.

- Vertical distance of water supply inlet above overflow level to be not less than the bore of the warning pipe.
- Fall to be not less than 1 in 10 with sufficient supports to prevent sagging, discharging separately in approved prominent positions with turned down ends.
- Turn down within the cistern, terminating 50 mm below normal water level.
- Fit with insulation within the building where the pipe is in an uninsulated space and subject to freezing.

S12/4.13 VENT PIPES to be open with no restrictions or valves and to rise continuously from system connection to discharge over cistern. Internal diameter not less than 20 mm.

S12/4.14 PIPELINES ENTERING BUILDINGS:

- To be laid not less than 750 mm below finished ground level.
- If rising into building within 750 mm of the external face of the external wall or if passing through a ventilated void below floor level, fit insulation extending from finished floor level to 600 mm beyond external face of building.
- Seal both ends of pipe ducts with an approved non-hardening, non-cracking, water resistant compound to a depth of not less than 150 mm.

S12/4.15 EXTERNAL SUPPLY PIPELINES to be insulated where exposed to air and where less than 750 mm below ground level.

S12/4.16 INSULATION TO PIPELINES:

- Material: Preformed flexible closed cell or mineral fibre split tube with thermal conductivity not exceeding 0.045 W/mK.

  Thicknesses:

  Hot water pipelines: Equal to the outside diameter of the pipe up to a maximum of 40 mm.

  Cold water pipelines:

  Internal: 25 mm

  Roof space: 32 mm

  External: 38 mm.

  Fire performance: Class 1 spread of flame when tested to BS 476: Part 7.

- Fit insulation to cold water pipelines in un-insulated spaces.

- Notwithstanding the requirements of BS 6700, clause 2.3, fit insulation to hot water pipelines in all locations other than short lengths in prominent positions adjacent to appliances.
- Fix securely and neatly in accordance with manufacturer's recommendations, ensuring continuity over fittings and at supports, leaving no gaps and with the split on 'blind' side of pipeline.
- Do not fit insulation until completion of testing.

S12/5 CONTROLS

S12/5.1 VALVES GENERALLY:

- Types approved for the purpose by the local water company and of the appropriate pressure/temperature ratings.
- Provided for isolation and regulation of all equipment and sub-circuits.
- Located where they can be readily operated and maintained and adjacent to equipment which is to be isolated.
- Fitted with joints to suit the pipe material.
- Fitted with handwheels where required for control purposes and lockshields where required for isolation or regulation of circuits or equipment.

S12/5.2 STOP VALVES AND DRAW-OFF TAPS for above ground use:

Copper alloy to BS 1010:Part 2, Kitemark certified.

S12/5.3 STOP VALVES for below ground use:

DZR Copper alloy CZ 132 to BS 5433.

S12/5.4 GATE VALVES:

Copper alloy to BS 5154, Series B, Kitemark certified.

S12/5.5 DOUBLE CHECK VALVE ASSEMBLIES:

Copper alloy check valves to BS 6282:Part 1 with intervening test cock to BS 2879.

S12/5.6 FLOW REDUCING VALVES:

Ball type, screw operated.

S12/5.7 DRAINING TAPS:

Copper alloy to BS 2879, Type 1, hose connection pattern, Kitemark certified.

S12/5.8 GAS PLUG COCK(S):

To BS 1552 and Gas Company approval.

S12/6 COMPLETION

S12/6.1 TESTING:

- Carry out before fixing pipework insulation. Ensure that all pipework and equipment is secure and clean and cistern/ tank covers are fitted.
- Thoroughly flush out all parts of the system, fill with water, remove all air and check for leaks.
- 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 three hours. At both hot and cold conditions all joints, fittings and components must be free from leaks and signs of physical distress when tested for at least one hour as follows:

  Systems fed directly from the mains - Apply a test pressure equal to either the full mains water pressure or, where fitted, the pressure control valve setting.

  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.

  If leaks are evident, repair and repeat test.
- Check and adjust operation of all equipment, controls and safety devices.
- Check operation of all outlets for satisfactory rate of flow and temperature.

S12/6.2 TESTING SERVICE PIPELINE: Disconnect from the mains, fill with potable water, excluding all air, and test by applying at least twice the working pressure for one hour, during which there must be no leakage.

S12/6.3 DISINFECTION:

- Disinfect the installation within the building after completion of testing for leaks and after ensuring that the mains water system has been cleaned and disinfected.
- Fill water storage cistern(s), tank(s) and pipework with clean fresh water and thoroughly flush out. Refill and close off supply.

- Add sodium hypochlorite to cistern(s) to give a free residual chlorine content of 50 mg/litre.
- Leave for one hour, then open each outlet in sequence commencing with the closest to the cistern(s). Close each outlet as soon as the run off smells of chlorine. Do not allow the cistern to empty; top up and rechlorinate as necessary.
- Leave system charged for at least one hour, then test for residual chlorine. If less than 30 mg/litre, repeat disinfection.
- Leave the installation charged with chlorinated water for at least 16 hours, then drain and thoroughly flush out before final filling.

S12/6.4 GAS SUPPLY PIPELINES: Test and purge to BS 6891 and the requirements of the gas suppliers.

S12/6.5 LABEL all isolating and regulating valves on primary circuits, stating their function.

T32 LOW TEMPERATURE HOT WATER HEATING

T32/1 GENERAL INFORMATION/REQUIREMENTS

T32/1.1 ELECTRICAL WORK in connection with the installation must be in accordance with BS 7671 Requirements for Electrical Installations (The IEE Wiring Regulations).

T32/2 GENERAL TECHNICAL REQUIREMENTS

T32/2.1 INSTALLATION GENERALLY:

Install, balance, test and commission the heating system so that it complies with water supply byelaws and the requirements of this section and is safe, efficient, free from leaks and the audible effects of expansion, vibration and water hammer.

All installation work to be carried out by qualified operatives.

Store all equipment, pipework components and accessories in original packaging in dry conditions. Protect plastics pipework from prolonged exposure to sunlight. Wherever practicable retain protective wrappings until Practical Completion.

Securely fix equipment, components and accessories in specified/approved locations, parallel or perpendicular to the structure of the building unless specified otherwise, using fixings/brackets/mountings, etc. recommended for the purpose by the equipment manufacturer.

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.

All equipment, pipework, components, valves etc. forming the installation to be fully accessible for maintenance, repair or replacement unless specified or shown otherwise.

Installation to be fitted with vents at high points and draining taps at low points to facilitate purging and draining.

T32/2.2 BUILDERS WORK: Comply with restrictions on the cutting of holes, chases, notches, etc. and methods of attachment to the building fabric specified in section P31.

T32/2.3 DECORATION: Drop radiators when required to permit decoration and other work.

T32/3 EQUIPMENT

T32/3.1 CENTRAL HEATING BOILER:

- Detailed proposals for the use of oil-fired boilers must be submitted to the CC at an early stage in the design process, to ensure feasibility and agreement of siting of fuel tanks and access for tankers.

T32/3.2 FLUE PIPE: As 12/3.1

T32/3.3 FLUE LINER:

Flexible, spirally wound, austenitic stainless steel tube, size to suit boiler, with all fittings necessary to provide a complete installation.

Ensure that flue is unobstructed and clean. Install liner in one piece, fixing securely at top of stack and to boiler with clamps supplied for the purpose by liner manufacturer.

Seal joint at boiler, completely filling with approved jointing material, to give a gas tight installation.

T32/3.4 FLUE LINING SYSTEM: Cast in situ lightweight insulating concrete installed by manufacturer or an approved installer.

T32/3.5 EXISTING CHIMNEY: Thoroughly clean and check to ensure that there are no obstructions or blockages. Carry out a core ball test and smoke test and report the results to the CC. If any obstructions or leaks are revealed, submit proposals for making good and obtain approval.

T32/3.6 BALANCED FLUE TERMINAL: Agree position with CC before forming any openings in external wall. Written permission from the CC will be required before any balanced flue is installed.

T32/3.7 AIR SUPPLY TO APPLIANCE: Inform CC of air supply requirements and agree/confirm size(s) and location(s) of vent(s).

T32/3.8 FEED AND EXPANSION CISTERN:

Moulded plastics to BS 4213, Kitemark certified with removable cover.

Size: As Particular Specification/Schedule

Valve: Float operated diaphragm type to BS 1212 with plastics float to BS 2456, size to suit water pressure.

Insulation and thickness: As Particular Specification/Schedule

Fix securely to sides and top of cistern using tape/ adhesive recommended by the insulation manufacturer, leaving no gaps but allowing removal of access cover with minimum disturbance to insulation. Insulate underside of cistern where exposed in unheated spaces.

T32/3.9 FEED AND EXPANSION CISTERN: Included in combination unit specified in section S12.

T32/3.10 CIRCULATING PUMP(S):

To BS 1394:Part 2, Kitemark certified.

Adjustable to give the required temperature differential between flow and return and with a facility for venting.

Duty sufficient to circulate maximum boiler output against the system resistance and to meet the heating requirements.

Install in readily accessible position(s) and in the manner recommended by the pump manufacturer with isolating valves to allow removal without draining the system.

T32/3.11 RADIATORS:

To BS 3528.

Manufacturer and reference: cast iron columnar, cast aluminium columnar,

Hudevad panel radiators or equivalent

T32/3.12 FIXING OF RADIATORS

- Radiators are not to be fixed to timber panelling under windows, but must be free standing. Local strengthening may be required to the timber floor.

T32/3.13 TOWEL WARMER RADIATORS:

Install on primary hot water circuit.

T32/3.14 REFLECTIVE ALUMINIUM FOIL:

Cut neatly to size 25 mm smaller than radiator dimensions and fix in accordance with foil manufacturers recommendations behind radiators on external walls.

T32/3.15 UNDERFLOOR HEATING SYSTEM For Lower Ground Floors only

Installation: In accordance with the manufacturers recommendations by an installer approved by the manufacturer.

-Underfloor heating systems must have leak detection systems installed.

T32/4 PIPELINES

T32/4.1 COPPER PIPELINES

- As clauses S12

T32/4.2 WARNING PIPE TO FEED AND EXPANSION CISTERN:

As clause S12/4.12

T32/4.3 VENT PIPES to be open with no restrictions or valves and to rise continuously from system connection to discharge over feed and expansion cistern. Internal diameter not less than 20 mm.

T32/4.4 INSULATION TO PIPELINES:

Material: Preformed flexible closed cell or mineral fibre split tube with thermal conductivity not exceeding 0.045 W/mK.

Heating and primary pipelines: equal to the outside diameter of the pipe up to a maximum of 40 mm.

Cold water pipelines:

Internal: 25 mm

Roof Space: 32 mm

External: 38 mm

Fire performance: Class 1 spread of flame when tested to BS 476:Part 7.

Fit insulation to heating pipelines in all locations other than short lengths in prominent positions adjacent to equipment.

Fit insulation to cold water pipelines in uninsulated spaces.

Fix securely and neatly in accordance with manufacturers recommendations, ensuring continuity over fittings and at supports, leaving no gaps and with the split on blind side of pipeline.

Do not fit insulation until completion of testing.

T32/5 CONTROLS

T32/5.1 PROGRAMMER:

To the relevant parts of BS 3955, BS EN 60730 and BS EN 61058, BEAB approved.

T32/5.2 TIMER:

To the relevant parts of BS 3955, BS EN 60730 and BS EN 61058, BEAB approved.

T32/5.3 THERMOSTAT(S):

To the relevant parts of BS 3955, BS EN 60730 and BS EN 61058, BEAB approved.

Type(s) recommended for the purpose.

T32/5.4 VALVES GENERALLY:

Types approved for the purpose by the local water company and of the appropriate pressure/temperature ratings.

Provided for isolation and regulation of all equipment, heat emitters and sub-circuits.

Located where they can be readily operated and maintained and adjacent to equipment which is to be isolated.

Fitted with joints to suit the pipe material.

Fitted with handwheels where required for control purposes and lockshields where required for isolation, balancing, or regulation of circuits or equipment.

T32/5.5 STOP VALVES:

Copper alloy to BS 1010:Part 2, Kitemark certified.

T32/5.6 GATE VALVES:

Copper alloy to BS 5154, Series B, Kitemark certified.

T32/5.7 DRAINING TAPS:

Copper alloy to BS 2879, Type 1, hose connection pattern, Kitemark certified.

T32/5.8 MOTORIZED VALVES:

To the relevant parts of BS 3955, BS EN 60730 and BS EN 61058, BEAB Approved.

T32/5.9 MANUAL RADIATOR VALVES:

Copper alloy to BS 2767.

Fit handwheel on flow side of radiator and lockshield on return side.

T32/5.10 THERMOSTATIC RADIATOR VALVES:

To BS EN 215-1 and capable of providing isolation.

Fit lockshield valve to BS 2767 with matching finish to return side of radiator.

T32/5.11 GAS PLUG COCK(S) FOR ISOLATION OF APPLIANCES

To BS 1552 and Gas Company approval.

T32/6 COMPLETION

T32/6.1 TESTING AND BALANCING:

Carry out all pressure testing before fixing pipework insulation.

Thoroughly flush out all parts of the system without contaminating circulating pump. Remove pump if necessary.

Completely fill system, remove all air and check for leaks.

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 three hours. At both hot and cold conditions all joints, fittings and components must be free from leaks and signs of physical distress when tested for at lest one hour as follows:

Systems fed directly from the mains - Apply a test pressure equal to either the full mains water pressure or, where fitted, the pressure control valve setting.

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 working pressure.

If leaks are evident, repair and repeat tests.

When boiler is operating check and adjust operation of all equipment, controls and safety devices. Balance system to achieve satisfactory temperature at each heat emitter and in the domestic hot water system.

T32/6.2 GAS SUPPLY PIPELINES: Test and purge to BS 6891 and the requirements of British Gas.

T32/6.3 LABEL all isolating and regulating valves on primary circuits, stating their function.

V90 GENERAL POWER AND LIGHTING

V90/1 GENERAL INFORMATION/REQUIREMENTS

V90/1.1 REGULATIONS: Comply with:

- BS 7671 'Requirements for Electrical Installations', (The IEE Wiring Regulations).
- Requirements of the Electricity Supply Company.

V90/1.2 ELECTRICITY SUPPLY:

Liaise with the Electricity Supply Company as necessary to confirm or determine:

- The maximum demand of the installation.
- The nature of the supply, its suitability for the installation and the type of earthing arrangement
- The location of the incoming supply.
- Space requirements for the Company's switches, fuses and meters.
- A provisional sum for connection of a supply and earthing by the Electricity Supply Company is included elsewhere. Make all necessary arrangements at the earliest opportunity to ensure connection when required.

V90/1.3 ARRANGEMENT OF CIRCUITS: Divide the installation into separately controlled circuits, further subdividing where necessary to ensure compliance with BS 7671 (The IEE Wiring Regulations).

V90/1.4 EQUIPOTENTIAL BONDING: Install main and supplementary bonding conductors in accordance with the requirements of BS 7671 (The IEE Wiring Regulations).

V90/1.5 INSTALLATION GENERALLY:

- Install, test and commission the electrical work in accordance with BS 7671 (The IEE Wiring Regulations), ensuring compliance with design and performance requirements, to provide a safe, well insulated, earth protected system capable of supplying the anticipated maximum demand.
- Installation work to be carried out by qualified electricians fully conversant with BS 7671 (The IEE Wiring Regulations).
- Fastenings, bushes, glands, terminals, connectors, clips, clamps and all other minor accessories necessary to complete the installation to be types recommended for the purpose by relevant equipment, accessories, etc. manufacturer.
- In locations where moisture is present or may occur, use corrosion resisting fastenings and avoid contact between dissimilar metals.

V90/1.6 BUILDER'S WORK: Comply with restrictions on the cutting of holes, chases, notches, etc. and methods of attachment to the building fabric specified in section P31.

V90/2 CONDUIT/TRUNKING/DUCTING

V90/2.1 STEEL CONDUIT AND FITTINGS:

- To BS 4568:Parts 1 and 2.
- Type: Seam welded with plain threadable ends.
- Size: In accordance with BS 7671 (The IEE Wiring Regulations).
- Protection class/finish: 2
- Use maximum practical lengths to minimise number of joints. Form bends by machine and remove burrs from cut ends.
- Use bends and/or junction boxes at changes of direction. Do not use elbows or tees of any sort without approval.
- Fix securely with boxes fixed independently of conduit.
- Tightly screw all joints to ensure electrical continuity, with no thread showing. Use expansion couplings where conduit crosses movement joints in structure.
- Make secure connections to boxes, trunking, etc. with screwed couplings and provide rubber bushes at open ends.

V90/2.2 INSTALLING CONDUIT IN CONCRETE: Fix securely to reinforcement and fix boxes to formwork to prevent displacement. Depth of concrete cover to be not less than specified for reinforcement.

V90/2.3 DRAINAGE OF CONDUIT: Provide drainage outlets at lowest points in conduit installed externally and in locations where condensation may occur.

90/2.4 FIRE STOPPING OF TRUNKING/DUCTING: Seal internally with firmly packed rock fibre or proprietary intumescent materials where they pass through fire resisting floors, ceilings, cavity barriers and the like.

V90/3 CABLING

V90/3.1 CABLES to be BASEC certified. Select types and sizes to suit operating conditions, ensuring compliance with BS 7671 (The IEE Wiring Regulations).

V90/3.2 CABLE ROUTES to be:

- Straight, vertical or horizontal and parallel to walls unless shown otherwise.
- In approved locations where exposed to view. When not specified otherwise, conceal cables wherever possible.
- Positioned at least 150 mm clear of other services. Cables running parallel and adjacent to heating pipes to be located below the pipes.
- Concealed horizontal runs in walls, if unavoidable, to be located within 150 mm of ceiling or between 150 and 300 mm of floor.
- Concealed cable runs to wall switches and outlets to be vertically in line with the accessory.
- Chases in existing or historic masonry to be no deeper than 24mm or 50mm from the face of the plaster, and no more than 150mm wide.

V90/3.3 INSTALLING CABLES GENERALLY:

- Do not commence internal cabling until the building is sufficiently enclosed to ensure permanently dry conditions.
- Install cables neatly and securely, adequately protected against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
- Install cables without joints other than at equipment and terminal fittings. Do not use junction boxes without approval.
- Sleeve cables passing through masonry walls with conduit bushed at both ends.
- Do not run cables in spaces where they will be surrounded or covered by insulation. Where this is not practical, size cables accordingly and inform CA.

V90/3.4 PROTECTIVE CONDUCTORS: Use cable conductors throughout; do not use conduit or trunking as protective conductors.

V90/3.5 ARMOURED CABLE:

- Handle and install carefully to prevent damage to sheath and armouring.
- Do not install if cable and ambient temperature are, or have been for the previous 24 hours, below 0 deg C.
- Fit galvanized steel guards where cables are liable to mechanical damage.
- Bond armour to equipment and main earthing system.
- Make moisture proof connections to apparatus using sealed glands and PVC shrouds.

V90/3.6 PVC SHEATHED CABLES must not be used

V90/3.7 NON-PVC SHEATHED CABLES :

- Do not install cables when the temperature is near or below freezing.
- Do not install in cavities of external walls.
- Fit insulating cable glands at entries to equipment.
- Terminate cable sheaths within boxes.

V90/3.8 MICC CABLES:

- Neatly and carefully dress cable into position using tools recommended by cable manufacturer. Avoid corrugating sheath when bending.
- Connect to equipment and boxes with PVC shrouded glands.
- Fix cables with clips recommended by manufacturer ensuring that cable is fixed within 150 mm of bends and connections.
- As soon as a length of cable has been installed, fit permanent seals and immediately carry out an insulation test between conductors or between any conductor and cable sheath. Repeat test between 24 and 48 hours later. Only infinity readings will be accepted. Replace any cable which fails and repeat tests.

V90/3.9 CABLES LAID DIRECTLY IN THE GROUND:

- Before laying cables, ensure that bottom of trench is even and free from sharp stones, roots, etc.
- Lay cables on a 75 mm bed of sand.
- Where two or more cables are laid in the same trench, set 150 mm apart.
- Cover each cable with 75 mm of sand overlaid with cable covers to BS 2484.
- Mark each change in direction of cables with a precast concrete slab, size 300 x 300 x 150 mm thick, impressed with 'LV CABLE' and laid level with finished ground level.

V90/3.10 CABLES ENTERING BUILDING(S) FROM BELOW GROUND: Seal both ends of pipe duct to a depth of not less than 150 mm, with an approved non-hardening, non-cracking, water resistant compound. Alternatively, fit a proprietary moulded pipe duct seal.

V90/3.11 CABLES IN PLASTER: Cover with galvanized steel channel nailed to background.

V90/2.12 CABLES IN VERTICAL TRUNKING/DUCTS:

- Support with pin racks or cleats at each floor level or at 5 m vertical centres, whichever is less.
- Provide and fix heat barriers at not more than 5 m centres where fire resisting barriers are not specified.

V90/3.13 CABLES IN ACCESSIBLE ROOF SPACES: Cables running across ceiling joists to be fixed to timber battens nailed to joists.

V90/4 EQUIPMENT/ACCESSORIES

V90/4.1 CONSUMER CONTROL UNIT(S): To BS 5486:Part 13

Rating: To suit maximum demand.

Each way to be permanently labelled to identify circuit and rating.

- Circuit protection:

  Miniature circuit breakers to BS EN 60898.

  ___ mA RCCB to BS 4293 to protect _____

V90/4.2 DISTRIBUTION BOARDS: To BS 5486:Part 12.

Rating: To suit maximum demand.

Each way to be permanently labelled to identify circuit and rating.

- Circuit protection:

  Miniature circuit breakers to BS EN 60898.

  ___ mA RCCB to BS 4293 to protect _____

V90/4.3 ALL FITTINGS AND APPLIANCES To be in accordance with the relevant BS

V90/4.4 VENTILATING FAN(S):

To BS 3456:Part 102:Section 102.342. BEAB approved.

Electrical extract fans for bathrooms, kitchens etc.

- No outlets are to be positioned on the face of the building or in the windows

V90/4.5 FIXING ELECTRICAL ACCESSORIES/EQUIPMENT:

- Position accurately and square to vertical and horizontal axes.
- Where not shown otherwise, align adjacent accessories on the same vertical or horizontal axis as appropriate.
- Where not shown otherwise, fix accessories/equipment at the following heights above finished floor level:

  Socket outlets 400 mm above FFL, except

  Underside of the cover plate 30 mm above the top of skirtings over 200 mm tall

V90/4.6 MULTIGANG SWITCHES: Connect switches so that there is a logical relationship with luminaires. Fit blanks to unused switch spaces.

V90/5 SPECIAL SYSTEMS

V90/5.1 EMERGENCY LIGHTING SYSTEM: To BS 5266:Part 1.

V90/5.2 FIRE DETECTION AND ALARM SYSTEM: To BS 5839.

V90/5.3 SMOKE ALARMS:

Self-contained type to BS 5446:Part 1, Kitemark certified.

Operation: Mains with D.C. battery back-up.

V90/5.4 DOOR CONTROL SYSTEM:

Entrance door panel and speaker unit to be sited in the reveal of the door opening, and finished in brass.

V90/5.5 TRACE HEATING SYSTEM:

- Location(s): in lead gutters with shallow falls or where snow may back up under flashings.

V90/6 COMPLETION

V90/6.1 INSPECTION AND TESTING:

- To BS 7671 (The IEE Wiring Regulations:Part 7).

- Give not less than 24 hours notice before commencing tests.
- In addition to items required to be inspected or tested, ensure that labels and signs required by the Regulations are securely fixed in the correct locations.

V90/6.2 INSPECTION AND TESTING OF EMERGENCY LIGHTING SYSTEM:

- To BS 5266:Part 1.
- After satisfactory completion of tests submit two copies of certificate to CA. Certificate to be as BS 5266: Part 1, Appendix B.

V90/6.3 INSPECTION, INITIAL TESTING, COMMISSIONING AND CERTIFICATION OF FIRE ALARM SYSTEM:

- To BS 5839:Part 1, clause 26.
- After satisfactory completion of tests submit two copies of certificates to CA. Certificates to be as BS 5839:Part 1, Appendices B and C.

V90/6.4 DOCUMENTATION: Hand over to the CA at Practical Completion:

- Copies of manufacturers' operating and maintenance instructions for all fittings and apparatus.
- As-installed drawings showing all circuits and their ratings and the locations of all fittings and apparatus.

Hand copies of all these documents to CC

BUILDING FABRIC REFERENCE SPECIFICATION

Z10 PURPOSE MADE JOINERY

Z10/1 FABRICATION GENERALLY:

- Fabricate joinery components to BS 1186:Part 2.
- Form sections out of the solid when not specified otherwise. Carefully machine timber to accurate lengths and profiles, free from twist and bowing. After machining, surfaces to be smooth and free from tearing, wooliness, chip bruising and other machining defects.
- Assemble with tight, close fitting joints to produce rigid components free from distortion.
- Screw heads to be countersunk not less than 2 mm below timber surfaces which will be visible in completed work. All screws to have

clearance holes. Screws of 8 gauge or more and all screws into hardwood to have pilot holes.

Z10/2 CROSS SECTION DIMENSIONS of timber shown on drawings are nominal sizes unless stated otherwise. Reduction to finished sizes to be to BS 4471 for softwoods and BS 5450 for hardwoods. Deviation from the stated sizes will not be permitted unless prior approval is given.

Z10/3 PRESERVATIVE TREATED TIMBER:

- Carry out as much cutting and machining as possible before treatment.
- Retreat all timber which is sawn along the length, ploughed, thicknessed, planed or otherwise extensively processed.
- Treat surfaces exposed by minor cutting and drilling with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

Z10/4 MOISTURE CONTENT of timber and wood based sheets to be maintained during manufacture and storage, within the range specified for the component.

Z10/5 FINISHING AND PROTECTING:

- Sand all joinery to give smooth, flat surfaces suitable to receive specified finishes. Arrises to be eased unless specified otherwise.
- Before assembly, seal all end grains for external components with primer or sealer as specified in section M60 and allow to dry.
- Protect completed joinery against damage, dirt, moisture and other deleterious substances.

Z11 PURPOSES MADE METALWORK

Z11/1 MATERIALS GENERALLY:

- Grades of metals, section dimensions and properties to be to the appropriate British Standard. When not specified, select grades and sections appropriate for the purpose.
- Prefinished metal may be used if methods of fabrication do not damage or alter appearance of finish and finish is adequately protected.
- Fastenings to be to the appropriate British Standard and, unless specified otherwise, to be of the same metal as the component, with matching coating or finish.

Z11/2 FABRICATION GENERALLY:

- Fabricate components carefully and accurately to ensure compliance with design and performance requirements.
- Do not permit contact between dissimilar metals in components which are to be fixed where moisture may be present or occur.
- Finished components to be rigid and free from distortion, cracks, burrs and sharp arrises. Moving parts must move freely and without binding.
- Unless specified otherwise, mitre corner junctions of identical sections.

Z11/3 COLD FORMED WORK: Use brake presses or cold rolling to produce accurate profiles with straight arrises.

Z11/4 WELDING/BRAZING GENERALLY:

- Thoroughly clean surfaces to be joined.
- Ensure accurate fit using clamps and jigs where practicable. Use tack welds only for temporary attachment.
- Make joints with parent and filler metal fully bonded throughout with no inclusions, holes, porosity or cracks.
- Prevent weld spatter falling on surfaces of materials which will be self-finished and visible in completed work.
- Remove all traces of flux residue, slag and weld spatter.

Z11/5 SITE WELDING/BRAZING:

All welding or brazing must take place off the site. In exceptional circumstances, the CC must give written permission for site welding or brazing, and the HOT WORK permit must be followed.

Z11/6 WELDING OF STEEL: Metal arc welding to BS 5135, or other methods subject to approval.

Z11/7 FINISHING WELDED/BRAZED JOINTS:

- Butt joints which will be visible in completed work to be smooth, flush with adjacent surfaces.
- Fillet joints which will be visible in completed work to be executed neatly. Grind smooth where specified.

Z11/8 APPLYING COATINGS:

- Apply after fabrication is complete and all fixing holes have been drilled, unless otherwise specified.
- Before applying coating remove all paint, grease, flux, rust, burrs and sharp arrises.

- Make good all defects which would show after application of coating and finish surfaces smooth.

Z12 PRESERVATIVE/FIRE RETARDANT TREATMENT

Z12/1 GENERALLY:

- Application to be carried out after cutting and machining, but before assembly, by a processor licensed by the treatment solution manufacturer for the specified treatment.
- For each batch of timber, provide a certificate of assurance that treatment has been carried out as specified.
- Hand the certificate to the CA for inclusion in the Building Maintenance manual

Z12/2 BWPDA COMMODITY SPECIFICATIONS, where specified, are those defined in the latest edition of the British Wood Preserving and Damp-proofing Association Manual. Solution strengths and treatment cycles to be selected to achieve the service life (if specified) and to suit timber treatability.

Z12/3 CUTTING PRESERVATIVE TREATED TIMBER:

- Treat all timber surfaces exposed by boring, cross-cutting etc. subsequent to preservative treatment with two liberal brush or spray applications of the preservative used ion the initial treatment of the timber, or
- with a solution recommended by the manufacturer.

Z12/4 ORGANIC SOLVENT PRESERVATIVE TREATMENT:

- Moisture content of timber at time of treatment to be as specified for the component at time of delivery. After treatment, timber to be surface dry before use.
- Application: Double vacuum/low pressure in compliance with the principles of Bs 5707: Part 3, to the pressures and periods given for performance category A in Table 5 of BS 5589.
- Preservative solution manufacturer and reference: to be class F/N solution to BS 5707, Part 1 and manufactured by a BSI registered firm

  Preservative must not contain TBTO or Lindane

Z12/5 DRYING OUT:

- Allow preservative to dry out to avoid damage to subsequently applied coatings, sealants, adhesives etc.

- Ensure drying out period is of adequate duration to allow for the evaporation of solvents before the timber is installed, especially in roofing applications.
- Store treated heavy sections and thick boards in separate well ventilated areas for the drying out period.

Z20 FIXINGS, ADHESIVES

Z20/1 FIXING GENERALLY: Use fixing and jointing methods and types, sizes, quantities and spacings of fastenings which are suitable having regard to:

- Nature of and compatibility with product/material being fixed and fixed to,
- Recommendations of manufacturers of fastenings and manufacturers of components, products or materials being fixed and fixed to,
- Materials and loads to be supported,
- Conditions expected in use,
- Appearance, this being subject to approval.

Z20/2 FASTENINGS for materials and components forming part of external construction to be of corrosion resistant material or have a corrosion resistant finish.

Z20/3 FASTENINGS for materials and components:

- Forming part of external construction but not directly exposed to the weather to be of corrosion resistant material or have a corrosion resistant finish.
- Directly exposed to the weather to be of corrosion resistant material.

Z20/4 FIXING THROUGH FINISHES: Ensure that fastenings and plugs (if used) have ample penetration into the backing.

Z20/5 CRAMP FIXING:

- Fix with stainless or galvanized steel strip cramps as BS 1243 vertical twist ties except with no twist, split one end only and once bent.
- Position cramps 150 mm from each end of jambs and at 600 mm maximum centres.
- Secure cramps to frames with two sherardized screws and fully bed in mortar.

Z20/6 PELLETING: Countersink screw heads 6 mm below timber surface and glue in grain-matched pellets not less than 6 mm thick, cut from matching timber. Finish off flush with face.

Z20/7 ADHESIVES:

- Adhesive types: As specified in the relevant section.
- Surfaces to receive adhesive to be sound, unfrozen, free from dust, grease and any other contamination likely to affect bond. Where necessary, clean surfaces using methods and materials recommended by adhesive manufacturer.
- Surfaces to be of sufficient smoothness and evenness to suit gap filling and bonding characteristics of adhesive. Adjust as necessary.
- Ensure that operatives observe manufacturer's and statutory requirements for storage and safe usage of adhesives.
- Do not use adhesives in unsuitable environmental conditions or beyond the manufacturer's recommended time period.
- Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over full area of contact surfaces to ensure full bonding.
- Remove surplus adhesive using methods and materials recommended by adhesive manufacturer and without damage to affected surfaces.

Z21 MORTARS

Z21/1 CEMENT GAUGED MORTARS

Z21/1.1 MORTAR MIX PROPORTIONS and other particular requirements are specified elsewhere, and are subject to planning permissions/listed building consents

- see contract administrator for advice on these matters.

Z21/1.2 READY MIXED LIME:SAND FOR CEMENT GAUGED MORTARS:

- Generally not recommended for conservation work because hydrated lime is often used.
- To be used only when required by planning/listed building consent.

Z21/1.3 CEMENT FOR MORTAR:

- Generally not recommended for conservation work.
- To be used only when required by planning/listed building consent

- When not specified otherwise, to be Portland cement or Portland blastfurnace cement, to class 42.5 or 52.5, manufactured and supplied under the BSI Kitemark scheme for cement. All cements must comply with the appropriate British Standard.

Z21/1.4 ADMIXTURES: Do not use in mortar unless specified or approved. Do not use calcium chloride or any admixtures containing calcium chloride. Admixtures, if specified, to be to BS 4887.

Z21/1.5 SITE STORAGE OF CEMENT GAUGED MORTAR MATERIALS

- Store different sands and aggregates in different stockpiles on hard clean bases which allow free drainage.
- Store factory produced premixed lime:sand for mortars and ready-to-use retarded mortars in covered containers to prevent excessive drying out or wetting.
- Store bags of cement and hydrated lime in dry conditions, raised off the ground and not touching damp surfaces. Do not use cement or hydrated lime affected by damp.
- Avoid intermixing and contamination between stored materials and other building materials, debris or other deleterious matter.

Z21/1.6 MAKING CEMENT GAUGED MORTAR:

- Keep plant and banker boards clean at all times.
- Measure materials accurately by volume using clean gauge boxes. Proportions of mixes are for dry sand; allow for bulking if sand is damp.
- Mix ingredients thoroughly to a consistence suitable for the work and free from lumps. Mortars containing air entraining admixtures must be mixed by machine, but do not over mix.
- Do not mix mortar when the air temperature is at or below 3 degC and falling or below 1degC and rising.
- Use mortar within about two hours of mixing at normal temperatures. Use retarded mortar within the time and site temperatures recommended by the manufacturer. Mortar may be retempered to restore workability, but only within these time limits.

Z21/2 LIME:SAND MORTARS

Z21/2.1 MORTAR MIX PROPORTIONS and other particular requirements are specified elsewhere, and are subject to planning permissions/listed building consents

- See contract administrator for advice on these matters.

Z21/2.2 SAND FOR LIME:SAND MORTARS:

- Sharp, well-graded and conforming to the methods of sampling and testing and quality requirements of BS 882 or BS 1200 unless specified otherwise.
- Source(s)/type(s) of sand are specified elsewhere.
- Type: to be determined by specialist analysis

  To be sharp, well graded, well washed, with no silt or salt contamination.

Z21/2.3 READY PREPARED LIME PUTTY:

- Use lime putty slaked directly from CL 90 (high calcium) quicklime to BS 890, using an excess of water and matured in pits/containers that allow excess water to drain away.
- Density of matured lime putty: 1.3 to 1.4 kg/litre
- Maturity of lime putty before use: not less than 30 days after slaking.

Z21/2.4 READY PREPARED LIME PUTTY:

- Ready slaked lime putty as supplied by
- Bleaklow Industries Ltd
- Hassop Avenue, Hassop, Bakewell, Derbyshire DE45 1NS
- or
- Rose of Jericho at St Blaise Ltdl Westhill Barn, Evershot, Dorchester, Dorset DT2 0LD
- or equivalent
- Maturity of lime putty before use: not less than 30 days

Z21/2.5 POZZOLANIC ADMIXTURES FOR NONHYDRAULIC LIME:SAND MORTARS

- Type: as Particular specification, and as recommended by the lime manufacturer, who should be consulted for advice
- Proportions: as Particular specification
- Mix thoroughly into lime:sand mortar during knocking up stage.

Z21/2.6 SITE STORAGE OF LIME:SAND MORTAR MATERIALS

- Store different sands and aggregates in different stockpiles on hard clean bases which allow free drainage.
- Store bags of hydrated lime in dry conditions, raised off the ground and not touching damp surfaces. Do not use hydrated lime affected by damp.
- Store ready prepared nonhydraulic lime:sand mortar either on clean bases or in clean containers that allow free drainage. Keep covered to prevent drying out or wetting and protect from frost.

- Avoid intermixing and contamination between stored materials and other building materials, debris and other deleterious matter.

Z21/2.7 MAKING LIME:SAND MORTARS GENERALLY:

- Use operatives who are skilled and experienced in the making and use of lime:sand mortars. Provide evidence of the their experience to the CC on request.
- Keep plant and banker boards clean at all times. Avoid contamination of lime:sand mortar by other materials or by any set material (including Portland cement).
- Measure materials accurately by volume using clean gauge boxes or clean undamaged buckets.
- Do not mix mortar when the air temperature is at or below 5°C and falling or below 3°C and rising.
- Site slaking of lime is not recommended.

Z21/2.8 SITE PREPARATION OF NONHYDRAULIC LIME:SAND MORTAR:

- Lime putty: As clause 330 or 335
- Thoroughly mix lime putty and sand together by compressing beating and chopping using a roller pan mixer, or other approved mixing method. Do not add water.

  Store mortar in conditions that prevent drying out or wetting
- Allow to mature for not less than 90 days.

Z21/2.9 READY MIXED NONHYDRAULIC LIME:SAND MORTAR

- Manufacturer and reference: To be supplied ready mixed by Bleaklow Industries or Rose of Jericho or equivalent .
- ready mixed mortar to comprise:
- Lime putty slaked directly from quicklime to BS 890 and sand, or
- Quicklime to BS 890 slaked directly with sand.
- Do not use hydrated nonhydraulic lime powder.
- Maturity of mortar before use to be not less that 90 days.
- Provide evidence of maturity, for each batch of mortar at time of delivery to site, to the CC on request.
- Store mortar in conditions that prevent drying out or wetting.

Z21/2.10 KNOCKING UP NONHYDRAULIC LIME:SAND MORTAR:

When required for use, thoroughly knock up mortar to a workable consistency by compressing, beating and chopping using a roller pan mixer, or other approved mixing method. Do not add water.

- During use, prevent drying out or wetting. Retain workability by chopping and beating.

Z21/2.11 SITE PREPARATION OF HYDRAULIC LIME:SAND MORTAR:

- Thoroughly mix eminently hydraulic hydrated lime powder with sand, first in the dry state and then with water. Follow the lime manufacturer's recommendations for each stage of the mix. Add only sufficient water to produce a workable mix.
- Use mortar within the time limits recommended by the lime manufacturer. Do not use mortar that has begun to stiffen.

Z22 SEALANTS

Z22/1 SEALANT TYPES: As specified in the relevant section.

Z22/2 SUITABILITY OF JOINTS: Before commencing, check that:

- Joint dimensions are within limits specified for the sealant.
- Surfaces are smooth and undamaged.
- Preparatory work which must be done before assembly of the joint has been carried out

  Inform CC if joints are not suitable to receive sealant and submit proposals for rectification

Z22/3 PREPARING JOINTS:

- Clean surfaces to which sealant must adhere using methods and materials recommended by sealant manufacturer.
- Remove all temporary coatings, tapes, loosely adhering material, dust, oil, grease and other contaminants which may affect bond.
- Keep joints clean and protect from damage until sealant is applied.
- Backing strip, bond breaker, primer: Types recommended for the purpose by sealant manufacturer.
- Insert backing strips and/or bond breaker tape into joint leaving no gaps.
- Cover adjacent surfaces with masking tape to prevent staining and protect surfaces which would be difficult to clean if smeared with primer or sealant.

Z22/4 APPLYING SEALANTS:

- Ensure that operatives observe manufacturer's and statutory requirements for storage and safe usage of sealants.

- Use equipment and methods recommended by sealant manufacturer and apply within the recommended application life of primer and sealant, and the recommended air and substrate temperature ranges.
- Do not apply to damp surfaces (unless recommended otherwise), to surfaces affected by ice or snow or during inclement weather. Do not heat joints to dry them or raise the temperature.
- Fill joints completely, leaving no gaps, excluding all air and ensuring firm adhesion of sealant to required joint surfaces. Tool the sealant to a neat, slightly concave profile unless specified otherwise.
- Protect until cured.

APPENDIX A - RESPONSIBLE PROCUREMENT POLICY

Ethical supply chain policy

The Crown Estate is one of the largest property portfolios in the United Kingdom set up by statute to manage its property holdings across the urban, rural and marine environments. These include office, retail and industrial premises; housing; farmland, forestry and minerals; parkland; and over half the foreshore and almost all the seabed around the United Kingdom.

This policy is part of the suite of policies covered by The Crown Estate's Code of Business Ethics.

Human rights and The Crown Estate

In accordance with The Crown Estate Act 1961, we operate solely within the United Kingdom. Therefore all of our directly managed activities are undertaken within the UK and all of our employees work in the UK. We adhere to all applicable laws in the UK including those related to human rights and employment. We operate a number of policies in support of this, including those on equal opportunities, harassment and bullying and diversity.

The majority of our procurement activity relates to services we procure and materials for our property developments and refurbishments. In some cases the materials we source are from outside the UK. These materials are mainly sourced on our behalf by our contactors and business partners who are obliged under contract to comply with our relevant policies.

Our approach to human rights in our supply chain beyond the UK is guided by the Universal Declaration of Human Rights (UDHR), the International Labour Organisation (ILO) Core Conventions and the Guiding Principles on Business and Human Rights endorsed by the United Nations Human Rights Council.

A wide range of activities is undertaken on our estate by our customers that we do not directly control – from farming to offshore renewable energy generation. Nevertheless, we do communicate and discuss our policies and practices with our customers, as appropriate, in order to help influence the approaches they adopt.

Our commitment

We are committed to adhering to all applicable laws in the UK including those related to human rights and employment such as the Human Rights Act 1998. For our supply chain beyond the UK, we are committed to operating in accordance with the UDHR and the ILO Core Conventions.

Where we, or our contractors and business partners on our behalf, procure materials directly from countries outside the OECD and World Bank High Income Countries, our contractors will undertake an assessment of the potential risks of breaches to human rights and labour

conventions before proceeding with the purchase[1]. Our risk assessment criteria are based on Social Accountability International's SA8000 Standard, including the following:

- The use of child labour.
- The use of forced labour.
- Workplace health and safety risks.
- Discrimination risks.
- Excessive working hours.
- Insufficient compensation for workers to meet their basic needs.

Where potential risks of breaches to human rights and labour conventions are identified, we will work with the supplier to mitigate the risks appropriately and the effectiveness of the mitigation actions monitored, including, where appropriate, auditing of suppliers. Where the risks cannot be adequately mitigated to our satisfaction, or there is a clear breach of human rights we will not proceed with the purchase.
We also commit to report on the activities we undertake to assess, mitigate and monitor human rights risks within our annual sustainability report.

The Crown Estate, October 2011

[1] We have adopted this approach to be consistent with Business in the Community's Corporate Responsibility Index and FTSE4Good supply chain criteria.

APPENDIX B - UK GOVERNMENT TIMBER PROCUREMENT POLICY

cpet Central Point of Expertise on Timber

UK Government Timber Procurement Policy

Timber Procurement Advice Note

Fifth Edition

June 2013

defra
Department for Environment Food and Rural Affairs

Table of Contents

1. Introduction

1.1 Purpose

This '*Timber Procurement Advice Note,* 5th ed. June 2013' (referred to hereafter as the Note) informs central government departments in England, the wider public sector and also suppliers about the requirements of the UK government's Timber Procurement Policy (TPP). Devolved administrations in Scotland, Wales and Northern Ireland have issued their own policies and guidance.

This Note sets out what the TPP means for each stage of the public procurement process when purchasing timber and wood-derived products, explains the types of evidence which demonstrate compliance with the *'UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement'*, 5th ed. 2013, referred to here after as '*Definition of Legal and Sustainable')* and provides model text which can be used in technical specifications, invitations to tender ('ITTs') and contract clauses.

Detailed advice on how to gather and assess evidence is provided in four separate practical guidance documents listed below and is also available through TPP Implementation Workshops:

- '*Category A Practical Guide to Checking Certificates*' (for Contracting Authorities and suppliers),

and for suppliers who are not supplying Category A evidence:

- *'Category B Framework for Evaluating Category B Evidence'*
- '*Category B Practical Guide to Supply Chain Information*'
- '*Category B Practical Guide to Forest Source Information'*

1.2 Changes to the Timber Procurement Advice Note – 5th edition

This Note has been restructured for ease of use and has been updated to reflect the revised Definition of Legal and Sustainable, which is available on the CPET website here[1]).

The changes in the Definition of Legal and Sustainable have been necessary to ensure that the UK TPP is in line with the *'EU Timber Regulation'*[2] (EUTR, available on the EUR-Lex website here[3]) which came into force on 3rd March 2013 and which prohibits the placement of illegally harvested timber and timber products on the EU market. The definition of 'legal' has been amended in the 5th edition to reflect the exact definition of 'legally

[1] www.cpet.org.uk/uk-government-timber-procurement-policy/definitions/defining-legality-and-sustainability

[2] Regulation (EU) No. 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market.

[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010R0995:EN:NOT

harvested' set out in the EUTR. Further information can be found under EUTR on the CPET website.

1.3. Practical support for implementation - CPET

The Central Point of Expertise on Timber (CPET) is Defra's technical advisory body. It was set up with Ministerial support in 2005 in response to an Environment Audit Committee report.

CPET provides free information and advice to public sector buyers and their suppliers on procuring timber and wood-derived products which meet the requirements of the TPP, supporting through the different stages of the procurement process.

A helpline is available Monday to Friday, free of charge. For further details visit www.cpet.org.uk; phone (+44) 01305 236 100, or email cpet@efeca.com.

2. Timber Procurement Policy (TPP)

2.1. The UK Government TPP requires that

Only timber and wood-derived products originating from an independently verifiable Legal and Sustainable source (which can include from a licensed Forest Law Enforcement, Governance and Trade (FLEGT) partner) will be demanded for use on the government estate – appropriate documentation will be required to prove it[4].

By licensed 'FLEGT partner' is meant a timber-producing country that has signed up to a bilateral Voluntary Partnership Agreement with the European Union concerning the EU's Forest Law Enforcement, Governance and Trade licensing scheme and whose timber and wood-derived products have been licensed under that scheme for export by that country's government (please see section 4.2 below for further information).

Application of the TPP includes certain social criteria in contract conditions, as detailed in Annex D (Model Contract Condition) of this Note.

Suppliers are required to comply with all applicable legislation, including where appropriate the EUTR.

2.2 Scope of application of the policy

The TPP is mandatory for all central government departments, executive agencies and non-departmental public bodies (NDPBs) in England (referred to in this Note as 'Contracting Authorities').

The policy applies to all virgin timber and wood-derived products[5] used on the government estate including temporary site works and material supplied by suppliers.

As an alternative to demanding timber and wood-derived products from a Legal and Sustainable source, Contracting Authorities can demand 'recycled timber'[6]. Documentary evidence and independent verification will also apply to recycled timber and recycled wood-derived products but will focus on the use to which the timber was previously put rather than the forest source

Short-rotation coppice is exempt from the requirements of the TPP and falls under agricultural regulation and supervision rather than forestry.

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[4] The TPAN April 2010 (4th edition) stated that "from 1 April 2015 only legal and sustainable timber would be demanded", with the intent that timber and wood-derived products originating from a licensed FLEGT partner would not be accepted after this date. This deadline is under review, in light of the current progress of FLEGT Voluntary Partner Agreements.

[5] 'Wood-derived products' applies to both the direct purchases of goods (supply contracts) and relevant works/services contracts such as office management, facilities management and catering that involve, for example, construction materials, furniture, stationery, horticultural products and catering consumables.

[6] See Annex A – Definitions for a detailed explanation of the term recycled.

2.3 Definition of legal and sustainable

2.3.1 UK Government TPP

A definition of what 'legal' and 'sustainable' are for the purpose of the TPP is set out in Definition of Legal and Sustainable (on the CPET website here[7]).

As the EUTR came into force on 3rd March 2013, the definition of 'legal', has been amended to reflect the exact definition of 'legally harvested' set out in the EUTR, to ensure consistency of approach.

2.3.2 EUTR and Public Procurement

Where timber and wood-derived products are covered by the EUTR suppliers and Contracting Authorities must ensure that the obligations of due diligence (where either are 'operators' on the market) and traceability (where either are 'traders' on the market) are met[8].

The EUTR covers a broad range of timber products. Not included are recycled products. Whilst the product scope omits several other products, it is likely to be extended in 2015.

CPET does not provide advice on compliance with the EUTR. The UK enforcement authority, the National Measurement Office (NMO) can be contacted for further information (visit the NMO website here[9]).

[7] www.cpet.org.uk/uk-government-timber-procurement-policy/definitions/defining-legality-and-sustainability
[8] The terms 'operators' and 'traders' are defined within the EUTR.
[9] www.bis.gov.uk/nmo/enforcement/EU-Timber-Regulation%20

3. Stages of the Procurement Process

This flow chart provides an overview of how the TPP can be implemented during the procurement process. A detailed explanation can be found on the following pages.

CPET tools & support.

1. Identification of need
Ensure TPP embedded within relevant procurement strategies.

2. Specification of requirements
Demand timber and wood-derived products originating from an independently verifiable Legal and Sustainable source (which can include from a FLEGT partner or equivalent), using the model specification.

Model specification
text from *Annex B* can be copied into your specification.

3. Prequalification of suppliers
Where prequalification questionnaires are applied, notify suppliers that their record in supplying timber and wood-derived products that meet the TPP will be assessed & used to help select those suppliers invited to tender.

CPET guidance & support
can help you assess supplier's records of supplying legal & sustainable products.

4. Invitation to tender (ITT)
Covering letters and ITT specifications should include wording to draw attention to the TPP.

Model ITT letter
text from *Annex C* can be copied into your ITT letter.

5. Evaluation of tenders and Contract award
Choose the most economically advantageous tender, taking into account all pre-set award criteria.

CPET guidance & support
can help you evaluate the evidence.

6. Contract management
Include the model contract condition in your contract. Request independent verification of timber and wood-derived products sourced from higher risk areas.

Model contract clauses
from *Annex D* can be copied into your contracts

Stage One: Identification of need

Before a Contracting Authority begins the procurement process, it should consider the need for a particular product or service. This will involve working with internal stakeholders/customers to explore what the business need is and whether it can be met without a procurement taking place. If it can, that's the most sustainable option of all.

Stage Two: Specification of requirements

The Contracting Authority may wish to explore whether it can use an existing framework, such as those available from the Government Procurement Service (GPS, visit their website for more information here[10]). In using such frameworks, procurers will still need to ensure the requirements of the TPP are specified in the contract and that the product delivered is compliant.

Where a requirement is for construction, furniture or paper, procurers should also consider using the broader Government Buying Standards in their tenders. These set clear sustainability standards for the public procurement of a range of goods and services, covering a range of issues including the TPP. They are mandatory, as set out in the Greening Government Commitments for all central government departments, executive agencies and non-departmental public bodies (NDPBs) and non-Ministerial Departments in England. More information is available on the Defra website here[11].

For timber and wood-derived products it is preferable to specify requirements in performance output terms rather than demanding a particular species of timber unless this is unavoidable. This will give suppliers more flexibility in finding well-managed forests for their sources of timber and wood-derived products.

If a Contracting Authority is advised that only a particular species will meet the technical specification then it should obtain confirmation from experts that no other species would be technically acceptable. If the species in question is unlikely to be grown in a well-managed forest this may raise concerns over a Contractor's ability to comply with the contract condition to supply TPP-compliant timber and wood-derived products, and to prove it. Where it is not feasible to specify the requirements in performance output terms, then those responsible for writing the technical specifications should be asked to consider lesser-known species/timbers in addition to more well-known species/timber.

The OJEU contract notice (if required), accompanying technical specification and ITT covering letter should clearly identify the requirement for the

[10] http://gps.cabinetoffice.gov.uk
[11] http://sd.defra.gov.uk/advice/public/buying/

Contractor to supply from a 'TPP-compliant' source, as set out in further detail below.

Exceptions to Requirement for Sustainable[12] Source
There may occasionally be situations where a particular type of product or timber species is needed (e.g. for use in marine defences or refurbishment of an historic building) and where no Sustainable source (including a FLEGT-licensed or equivalent source) is available. In this case, Contracting Authorities must:

- ensure that they have in place a documented justification setting out why no alternative product or timber species can be used;
- require from suppliers evidence that timber was legally harvested. Where timber and wood-derived products are covered by the EUTR, which will be the vast majority of cases, suppliers and Contracting Authorities must ensure that the obligations of due diligence (where they are 'operators' on the market) and traceability (where they are 'traders' on the market) are met; and
- give preference to timber and wood-derived products from sources that are demonstrably in an active programme to improve and certify forest management.

Further information is set out in the document entitled Framework for Evaluating Category B evidence which is available from the CPET website here[13].

Model specification text and reference to model contract conditions (for use at Stage Six)
The model specification text is set out at Annex B. The model specification text should be included in specifications for all contracts and funding mechanisms involving the supply of timber and wood-derived products. Procurers should note that there are additional criteria for inclusion in contract conditions, at stage 6.

Stage Three: Pre-qualification of suppliers

Where prequalification questions are applied as part of the technical capability criteria, Contracting Authorities can notify suppliers that their record in supplying timber from TPP-compliant sources will be assessed and used to help select those suppliers that will be invited to tender. Suppliers should not be excluded from being invited to tender simply because they have no record of supplying from a TPP-compliant source, but marks can be awarded to suppliers with a proven track record.

[12] There cannot, of course, be any exceptions to the requirement that Legal timber and wood-derived products are purchased.
[13] www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/other-evidence-as-assurance/category-b-evidence

For goods and service contracts, the Contracting Authority can consider track record over the last three years but cannot go beyond that and must restrict consideration to the supply of goods and services of a similar type. The time limit for works contracts is five years. Evidence of failure to supply TPP-compliant timber and wood-derived products where there was a promise to do so can be taken into consideration when assessing how well suppliers meet the selection criteria.

Contracting Authorities can ask at this stage for evidence (including independent verification) of systems employed to implement sourcing policy and to ensure chain of custody control throughout the supply chain.

A supplier *must* be rejected if it has been convicted of certain criminal offences, and *may* be rejected on other grounds such as being convicted of a criminal offence relating to the conduct of their business[14]. Illegal conduct in this context could include non-compliance with the requirements of the EUTR. Under the EUTR, from 3rd March 2013, placing illegally harvested timber and wood products on the market is prohibited.

A Contracting Authority's reaction to any such *alleged* misdemeanour must be proportionate and any attempt to subsequently rectify an alleged offence by a supplier must be taken into account.

Stage Four: Invitation to Tender (ITT).

The ITT covering letter and ITT specification should clearly identify the requirement for the Contractor to supply timber and wood-derived products originating from a TPP-compliant source, and to arrange and pay for independent verification if requested. A model paragraph for inclusion in the ITT covering letter is at Annex C.

Stage Five: Evaluation of Tenders and Contract Award

Bidders shall be required to indicate their acceptance of the contract conditions to supply TPP-compliant timber and wood-derived products, and to prove it as a requirement of submitting a compliant bid. This can be achieved by bidders signing a statement to this effect as part of their ITT response. If they do not agree to abide by the contract conditions, their bid can be marked as non-compliant.

As outlined in section 4 below, evidence of compliance can be provided by a recognised certification scheme (Category A evidence) or through other acceptable evidence (Category B evidence or FLEGT-licence or equivalent evidence).

Even though a Contracting Authority may have doubts as to a tenderer's ability to obtain independent verification, a Contracting Authority must

[14] See the Public Contracts Regulations 2006 for further details.

consider a tenderer's offer to supply properly verified timber and wood-derived products as a legitimate promise. However, as part of the contract award stage of a procurement procedure, tenderers can be reminded of the condition obliging them to obtain independent verification if requested post-award and the implications of failure to comply with the conditions of the contract.

When a Contractor indicates that they cannot provide TPP-compliant timber and wood-derived products, then that bid should not be considered further.

In a procurement regulated by the EU public procurement rules, in the event of no tender offering fully compliant bids under the open or restricted procedures, then a Contracting Authority needs to assess whether to reject all bids and re-tender (with all the consequent time and cost implications) or to move to a negotiated procedure.

Stage Six: Contract Management

As mentioned at Stage Two above, model contract condition text is included at Annex D. This should be used as a supplementary condition to general conditions of contract for all contracts and funding mechanisms including the supply of timber and wood-derived products.

The model contract condition includes the model specification text and also includes social criteria which must be complied with in the performance of the contract. Public Procurement law does not permit contracting authorities to include social criteria at the specification stage of a procurement unless these are, amongst other things, related to the subject matter of the contract. The social criteria are demonstrably linked to the performance of contracts and there is therefore scope to include them in contract conditions, hence they are set out here in Stage Six and in Annex D.

Once the contract has been entered, Contracting Authorities may request documentary evidence of compliance with the contract specification before the timber and wood-derived products are delivered. This may present difficulties for the Contractor but, where reputations are at risk, it is in both parties' interests to clarify the source of the timber and wood-derived products before a Contracting Authority has to resort to rejecting deliveries.

There will be occasions where suppliers use their best endeavours to ensure that their supply chain provides TPP-compliant timber and wood-derived products but are unable to provide credible evidence. Where timber and wood-derived products are covered by the EUTR, suppliers and Contracting Authorities must ensure that the obligations set out in 2.3.2 are met. Contracting Authorities will need to consider whether there has been a clear breach of compliance with the contract specification and, if so to consider notifying other Contracting Authorities who in turn may be able to take non-performance into account when selecting suppliers to invite to bid for future

contracts. Where a decision is made to take no action in the event of a Contractor being unable to demonstrate contract compliance, an audit trail leading to such decision should be stored on the file.

4. Types of Evidence

4.1 Evidence of legal and sustainable origin

If requested by Contracting Authorities, suppliers are required to provide evidence that their timber and wood-derived products comply with the TPP requirements laid out in the technical specifications (see Stage Two in Section 3 above). Where a Contracting Authority has doubts as to the credibility of the evidence, it may request that the Contractor has the evidence independently verified. In order to demonstrate that timber and wood-derived products are from a Legal and Sustainable source (note that FLEGT-licensed or equivalent sources are dealt with in section 4.2 below) it is necessary to prove:

- **The source of the timber (traceability):** In general, timber and wood-derived products go through a number of stages between the forest and the final product. Since the policy applies to legality and sustainability in the forest, it is necessary to know the area of the forest the timber originated from.
- **That the forest source was legally and sustainably managed**: Once the source of the timber is known, then it is necessary to show that the forest was managed legally and sustainably (see Definition of Legal and Sustainable on the CPET website here[15] for further details).

Therefore, evidence related to both management of the forest and the chain of custody is required. Two types of evidence are accepted:

4.1.1 Category A evidence

Category A evidence is independent certification under a scheme recognised by the UK government as meeting the criteria set out in the document entitled '*UK Government Timber Procurement Policy: Criteria for Evaluating Certification Schemes (Category A Evidence)*' (available from Contracting Authorities on request and the CPET website here[16]).

A list of assessed certification schemes that currently meet the government's requirements can also be found on the CPET website here[17]. Certification schemes include both forest management certification and chain of custody certification.

4.1.2 Category B evidence

Category B evidence is documentary evidence (other than Category A evidence) that provides assurance that the source is TPP-compliant.

Further information on collecting and evaluating Category B evidence is set out in the UK Government Timber Procurement Policy: Framework for

[15] www.cpet.org.uk/uk-government-timber-procurement-policy/definitions/defining-legality-and-sustainability
[16] www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/cpet-s-assessment-of-evidence/assessment-of-certification-schemes-category-a
[17] www.cpet.org.uk/evidence-of-compliance/category-a-evidence/approved-schemes

Evaluating Category B Evidence (available from Contracting Authorities on request and the CPET website here[18]).

Category B evidence can be combined with Category A evidence (for example a certified forest of origin combined with non-certified evidence of chain of custody). UK government-defined standards for 'legal and sustainable' may be acceptable as part of Category B evidence; the definition of 'sustainable' requires that a local definition is developed through an inclusive, multi-stakeholder process. Standards defined by governments or other groups constituting a single stakeholder group (e.g. an industry standard or an NGO standard) do not meet this requirement. However, if a single-stakeholder standard can be evaluated against a relevant multi-stakeholder standard which does meet the UK government requirements and which has been developed for the same geographical area, and can be shown to be broadly equivalent in terms of outputs, then it may be acceptable. Contact CPET for further details on this.

4.2. Evidence of FLEGT-licensed origin or equivalent

The Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan is the foundation of the European Union's efforts to support improvements to forest governance around the world. A key part of the FLEGT Action Plan is the negotiation of bilateral Voluntary Partnership Agreements (VPAs) between the European Union and timber-producing countries. Under the terms of a VPA a country agrees with the EU to implement a timber licensing system. From that country, the EU will only accept licensed products, and unlicensed products will be refused customs clearance with the aim of preventing illegal products from entering the EU market.

4.2.1. FLEGT-licensed timber: Once a licensing scheme has been established in a VPA partner country, licensed timber and wood-derived products arriving in the EU from that country should be accompanied by appropriate licence documentation (the FLEGT-licence) which will be checked at import. It will then be necessary to have adequate supply chain controls in place from the point of import to the point of delivery to Contracting Authorities to demonstrate that the material being delivered was FLEGT-licensed. This is exactly the same as for any Category B-based evidence and could take the form of:

- A certified generic chain of custody system; or
- Adequate documented evidence of supply chain control.

Once a FLEGT-licensing system is fully operational the FLEGT-licence will apply to relevant products[19] from the partner country.

[18] www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/other-evidence-as-assurance/category-b-evidence

[19] Each VPA will specify which categories of product will be included in the scope of the licensing scheme. This will always include logs, sawn timber and plywood, but may not always apply to processed products such as mouldings, furniture or paper.

Currently there are no FLEGT-licensed timber and wood-derived products available in the market and therefore further detailed guidance from CPET will follow as FLEGT-licensed timber and wood-derived products become available. The CPET website here[20] will contain up-to-date links to information on which countries have signed VPAs, whether the licensing scheme in each country is operational, and what products are included in the scope of the scheme. Other information such as what licences look like in practice will also be provided.

4.2.2. Where a VPA between the EU and a timber-producing country has been entered into but the licensing system is not yet in operation, timber and wood-derived products harvested from that country may be accepted, **where they demonstrate compliance with the Definition of Legal and Sustainable (where equivalent to FLEGT-licensed can be evidence of meeting the definition of 'sustainable')**. After a VPA has been entered into, it is expected that there will be an interim period before a licensing system becomes fully functional. However, an individual timber producer in a country that has entered into a VPA may have put in place all the requirements for the licensing system prior to its official implementation (which would then make the licensing applicable to all exporters to the EU). In such cases, timber and wood-derived products exported by that individual timber producer will be considered to meet the requirements of the UK government's TPP where it meets all of the FLEGT requirements, provided that they **demonstrate compliance with the TPP definition of 'legal'**.

The timber must also meet requirements for independently-verified compliance and supply chain controls that would apply if the licensing system were in place. **In respect of timber from a particular origin, this option will be applicable only for an agreed period, reflecting the timetable agreed between the EU and the timber-producing country**. Further advice on this is available from CPET.

4.2.3. Timber and wood-derived products deriving from a FLEGT partner country which have been processed in a third country may also be acceptable, provided that they demonstrate compliance with the Definition of Legal and Sustainable (where equivalent to FLEGT-licensed can be evidence of meeting the definition of 'sustainable'). Where timber and wood-derived products are exported from a country that has entered into a VPA to a country outside the EU for further processing prior to import into the EU, there must be adequate chain of custody controls in place to ensure that the material used in a product meet FLEGT licensing conditions immediately prior to processing, and that no other timber and wood-derived products other than TPP-compliant timber and wood-derived products were used in the product. Further advice on this is available from CPET.

[20] www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/flegt

4.2.4. Equivalent evidence from countries that have not entered into a VPA and which demonstrates compliance with the Definition of Legal and Sustainable **(where equivalent to FLEGT-licensed can be evidence of meeting the definition of 'sustainable') will be acceptable (as with all Category B evidence).** The guidance on equivalence to FLEGT requirements will be refined as VPAs are developed and signed. All queries concerning FLEGT equivalence should be referred to CPET.

4.3 Evaluating evidence

Requesting copies of evidence: It is recommended that evidence of compliance should be requested using a risk-based approach. Thus, where timber and wood-derived products are from a high-risk source, that is, where the record of forest governance is poor and forest management not always responsible, then proof should be routinely requested and, if found to be inadequate, independent verification required. Further information on risk assessment of sources is available from CPET.

Independent verification: The model contract condition at Annex D reserves the right for a Contracting Authority to require independent verification of the evidence that their timber or wood-derived products comply with the contract specification. Such independent verification must be provided and paid for by the supplier and must result in a report that (a) verifies the forest source of the timber or wood-derived product and (b) assesses whether the source meets the criteria for being TPP-compliant.

Annex A Glossary of Terms

The terms defined in Annex A are for use in this Note and, where appropriate, they should accompany the model specification in Annex B and contract condition in Annex D.

1. Definitions

1.1 Timber and wood-derived products: means any product that contains wood or wood fibre, with the exception of 'recycled' materials (see below). Such products range from solid wood to those where the manufacturing processes obscure the wood element (e.g. paper).

Timber and wood-derived products supplied or used in performance of the contract that have been recycled or reclaimed are referred to as 'recycled' timber, which is defined below.

Timber and wood-derived products supplied or used in performance of the contract that are not recycled are referred to as 'virgin' timber when the distinction needs to be made for clarity.

Short-rotation coppice is exempt from the requirements for timber and wood-derived products and falls under agricultural regulation and supervision rather than forestry.

1.2 Legal and Sustainable: means production and process methods, also referred to as timber production standards, and in the context of social criteria, contract performance conditions (only), as defined by the document titled *'UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement'*, (available from the Contracting Authority on request and from the CPET website www.cpet.org.uk/uk-government-timber-procurement-policy/definitions/defining-legality-and-sustainability). The edition current on the day the contract is awarded shall apply.

1.3 FLEGT: means Forest Law Enforcement, Governance and Trade, and is a reference to the EU FLEGT Action Plan, which aims to help tackle the urgent issue of illegal logging and associated trade.

1.4 FLEGT-licensed: means production and process methods, also referred to as timber production standards, and in the context of social criteria, contract performance conditions (only), as defined by a bilateral Voluntary Partnership Agreement (VPA) between the European Union and a timber-producing country under the FLEGT scheme, where both parties have agreed to establish a system under which timber that has been produced in accordance with the relevant laws of the producing country, and other criteria stipulated by the VPA, are licensed for export by the producing country government.

1.5 Recycled: means recovered wood that prior to being supplied to the Contracting Authority had an end use as a standalone object or as part of a structure and which has completed its lifecycle and would otherwise be disposed of as waste. The term 'recycled' is used to cover the following categories: pre-consumer recycled wood and wood fibre or industrial by products but excluding sawmill co-products (sawmill co-products are deemed to fall within the category of virgin timber), post-consumer recycled wood and wood fibre, and drift wood. It also covers reclaimed timber which was abandoned or confiscated at least ten years previously. Documentary evidence and independent verification also apply to recycled materials, but will focus on the use to which the timber was previously put rather than the forest source.

1.6 Short-rotation coppice: means a specific management regime whereby the poles of trees are cut every one to two years and which is aimed at producing biomass for energy. It is exempt from the UK government TPP requirements and falls under agricultural regulation and supervision rather than forestry. The exemption only refers to short-rotation coppice, and not 'conventional' coppice which is forest management and therefore subject to the UK government TPP.

1.7 CPET: means the UK government's Central Point of Expertise on Timber, which provides a free telephone helpline and website to support implementation of the UK government Timber Procurement Policy.

CPET contact details:

Phone: 01305 236 100, Email: cpet@efeca.com, Website: www.cpet.org.uk.

Annex B Model Specification Text

1. Requirements for Timber

1.1 All Timber and wood-derived products for supply or use in performance of the contract must be independently verifiable and come from:

1.1.1 a Legal source; and

1.1.2 a Sustainable source, which can include a FLEGT-licensed or equivalent source.

2. Requirements for proof of Timber Origin

2.1 Management of the forest or plantation shall be audited at intervals confirming ongoing good forest management and by organisations with appropriate forest management experience that are independent of the organisation that holds timber harvest and/or management rights for that forest.

2.2 The Contracting Authority will accept evidence from any of the following four categories:

2.2.1 Category A evidence: Certification under a scheme recognised by the UK government as meeting the criteria set out in the document entitled '*UK Government Timber Procurement Policy: Criteria for Evaluating Certification Schemes (Category A Evidence)*' (available from the Contracting Authority on request and on the CPET website www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/cpet-s-assessment-of-evidence/assessment-of-certification-schemes-category-a), which reflects the criteria for legal and sustainable set out in the document entitled *UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement'* (available on the CPET website www.cpet.org.uk/uk-government-timber-procurement-policy/definitions/defining-legality-and-sustainability). The edition current on the day the contract is awarded shall apply. A list of assessed certification schemes that currently meet the government's requirements can be found on the CPET website www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/category-a-evidence/approved-schemes. Acceptable schemes must ensure that at least 70% (by volume or weight) is from a Legal and Sustainable source with the balance from a legal source.

2.2.2 Category B evidence: Documentary evidence, other than Category A evidence and FLEGT (or equivalent) evidence, that provides assurance that the source meets the criteria set out in the document entitled '*UK Government Timber Procurement Policy: Framework for Evaluating Category B Evidence*' (available from the Contracting Authority on request and on the CPET website www.cpet.org.uk/uk-government-timber-procurement-policy/evidence-of-compliance/other-evidence-as-assurance/category-b-

evidence), which reflects the criteria for legal and sustainable set out in *'UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement'*. The edition current on the day the contract is awarded shall apply. Such Category B evidence may include, for example, independent audits and declarations by the Contractor or his suppliers.

Where Category B evidence is to be relied on, the Contractor is required to notify the Contracting Authority of the source or sources of all virgin Timber and wood-derived products supplied. Source in this context means the forest or plantation where the trees were grown and all subsequent places of delivery through the supply chain prior to receipt of the Timber and wood-derived product by the Contracting Authority. The Contractor shall separately identify virgin Timber and wood-derived products supplied from forests and plantations that are claimed to be subject to sustainable timber production and shall submit to the Contracting Authority documentation in respect of such wood to confirm that the criteria for sustainable production set out in this specification have been met. If mixing is unavoidable within the supply chain then sources can still be accepted provided that there are adequate controls in place and at least 70% (by volume or weight) is from a Legal and Sustainable source with the balance from a legal source.

2.2.3 FLEGT evidence:

- Evidence of Timber and wood-derived products being exported from a timber-producing country that has signed a bilateral Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) with the European Union and which have been licensed for export by the producing country's government. Evidence of equivalence to FLEGT-licensed (for the purposes of the definition of Sustainable) may include Timber and wood-derived products that have been independently verified as meeting all the producing country's requirements for a FLEGT licence (in due course), where a VPA has been entered into but the FLEGT licensing system is not fully operational, or
- Evidence from a country that has not entered into a VPA which demonstrates that all of the requirements equivalent to FLEGT-licensed timber have been met.

FLEGT-licensed Timber and wood-derived products which have been processed in a third country may also be acceptable, provided that they demonstrate compliance with the TPP definition of Legal and Sustainable (where equivalent to FLEGT-licensed can be evidence of meeting the definition of Sustainable).

Annex C Model paragraph for inclusion in ITT covering letter

The tenderer's attention is drawn to the contract requirements governing the supply and use of Timber and wood-derived products in performing the contract. It is UK government policy to require that all Timber and wood-derived products originate from an independently verifiable Legal and Sustainable (which can include from a licensed Forest Law Enforcement, Governance and Trade (FLEGT) partner or equivalent) source. Timber and wood-derived products in the context of this contract include any product that contains wood or wood fibre supplied to the Contracting Authority or used by the Contractor or his agents and sub-contractors in performance of the contract.

The contract conditions require that:

1.1 all Timber and wood-derived products for supply or use in performance of the contract must be independently verifiable and come from:

1.1.1 a Legal source; and

1.1.2 a Sustainable source, which can include a FLEGT-licensed or equivalent source;

as set out in the specification. The Contracting Authority may reject any bid that cannot offer to provide independent verification that all Timber and wood-derived products used in the contract meets this requirement.

Annex D Model Contract Condition - Timber and wood-derived products

Please note that terms in square brackets will need to be defined according to the relevant contract in which the model contract condition is used.

1. Requirements for Timber

1.1 All Timber and wood-derived products supplied or used by [the Contractor] in performance of [the Contract] (including all Timber and wood-derived products supplied or used by sub-contractors) shall comply with [the Contract Specification].

1.2 In addition to the requirements of clause 1.1 above, all Timber and wood-derived products supplied or used by [the Contractor] in performance of [the Contract] (including all Timber and wood-derived products supplied or used by sub-contractors) shall originate from a forest source where management of the forest has full regard for:

- Identification, documentation and respect of legal, customary and traditional tenure and use rights related to the forest;
- Mechanisms for resolving grievances and disputes including those relating to tenure and use rights, to forest management practices and to work conditions; and
- Safeguarding the basic labour rights and health and safety of forest workers.

2. Requirements for Proof of Timber Origin

2.1 If requested by [the Contracting Authority], and not already provided at the tender evaluation stage, [the Contractor] shall provide to [the Contracting Authority] evidence that the Timber and wood-derived products supplied or used in the performance of [the Contract] complies with the requirements of [the Contract Specification]. If requested by [the Contracting Authority] [the Contractor] shall provide to [the Contracting Authority] evidence that the Timber and wood-derived products supplied or used in the performance of [the Contract] complies with the requirements of the social criteria defined in section 1.2 above.

2.2 [The Contracting Authority] reserves the right at any time during the execution of [the Contract] and for a period of 6 years from final delivery under [the Contract] to require [the Contractor] to produce the evidence required for [the Contracting Authority's] inspection within 14 days of [the Contracting Authority's] written request.

2.3 [The Contractor] shall maintain records of all Timber and wood-derived products delivered to and accepted by [the Contracting Authority]. Such information shall be made available to [the Contracting Authority] if requested, for a period of 6 years from final delivery under [the Contract].

3. Independent Verification

3.1 [The Contracting Authority] reserves the right to decide whether the evidence submitted to it demonstrates that the Timber and wood-derived products comply with [the Contract Specification]. [The Contracting Authority] reserves the right to decide whether the evidence submitted to it is adequate to satisfy [the Contracting Authority] that the Timber and wood-derived products comply with the requirements of the social criteria defined in section 1.2 above.

In the event that [the Contracting Authority] is not satisfied, [the Contractor] shall commission and meet the costs of an 'independent verification' and resulting report that will (a) verify the forest source of the Timber and wood-derived products and (b) assess whether the source meets the relevant criteria.

3.2 In [this Contract], 'Independent Verification' means that an evaluation is undertaken and reported by an individual or body whose organisation, systems and procedures conform to ISO Guide 65:1996 (EN 45011:1998) General requirements for bodies operating product certification systems or equivalent, and who is accredited to audit against forest management standards by a body whose organisation, systems and procedures conform to ISO 17011: 2004 General Requirements for Providing Assessment and Accreditation of Conformity Assessment Bodies or equivalent.

4. [Contracting Authority's] Right to Reject Timber

4.1 [The Contracting Authority] reserves the right to reject any Timber and wood-derived products that do not comply with [the Contract Specification]. [The Contracting Authority] reserves the right to reject any Timber and wood-derived products that do not comply with the requirements of the social criteria defined in section 1.2 above.

Where the [Contracting Authority] exercises its right to reject any Timber and wood-derived products, [the Contractor] shall supply alternative Timber and wood-derived products, which do so comply, at no additional cost to [the Contracting Authority] and without causing delay to [the Contract] completion period.

Signed Name in Capitals (as in tender)

For and on behalf of Date

APPENDIX C :

THE CROWN ESTATE - KENSINGTON PALACE GARDENS / PALACE GREEN

SITE WORKING GUIDANCE NOTES

A. The lessee is responsible for obtaining all by-law planning and other consents (if any) required by law, including all statutory requirements in the execution of the works.

B. The lessee is to inform the insurance company with whom the premises are insured of details of the works. The lessee must comply with any requirements made by the insurers.

C. The works are to be carried out in accordance with the approved drawings which shall be detailed within the licence documentation. The works are not to commence until such time as a formal licence has been completed, consultation with neighbouring residents undertaken (Savills will advise of the required process) and 28 days prior notice provided to Savills.

D. The works are to be monitored at all times by Purcell and The Crown Estate appointed agents, who will also undertake a final inspection to approve all the works that have taken place and to ensure the works are in accordance with the licence.

E. All works to be carried out in accordance with The Crown Estate's Guidelines to Architects and Standard Specification Seventh Edition.

F. Your chosen architect will have previously been approved by Purcell, who will be ARB and AABC accredited and have demonstrated their experience of dealing with properties of this nature.

G. The lessee must appoint one individual for Purcell and other appointed agents to liaise with who will oversee the works. It is preferable this is the lessee's architect.

H. All works are to be carried out during Monday to Friday only within the hours of 9.00am and 5.00pm. Work which may involve mechanical hammering or drilling or other noisy operation (defined as noise exceeding 80 decibels) can only be carried out between the hours of 10.00am and 2pm, Monday to Friday only. No work is permitted on Saturdays, Sundays or Bank Holidays.

I. All builders' rubble and materials are to be removed from the exterior of the premises daily and on completion of the works.

J. The lessee or their appointed architect, must liaise with The Estate Manager at Kensington Palace Gardens in order to obtain site access and comply with these regulations. The Estate Manager, Mr Williams can be contacted on 020 7229 6835.

K. No posters or advertisements may be affixed to any hoard or scaffolding that may be set up for the purpose of carrying out the works.

L. Where contractors have to access your property through areas used by other tenants and occupiers, suitable and adequate provision must be made to provide dustsheets, to keep the areas as clean as is reasonably practicable and take every reasonable precaution to avoid any damage being caused. You will have to indemnify The Crown Estate against the cost of making good any damage and for the cost of any extra cleaning works that may be required as a result of the works.

M. You will at all times keep The Crown Estate indemnified against claims and demands by third parties however arising because of your carrying out the works or as a result of the works having been carried out.

N. All covenants in your lease, particularly those prohibiting causing any nuisance or annoyance to adjoining occupiers must be strictly observed and if anyone complains that these covenants are not being observed you must deal with such complaints direct immediately and take all steps to prevent the nuisance continuing. In addition, all covenants in the lease relating to noise and nuisance must be strictly complied with and noise from radios, building equipment, mobile phones etc must be kept to a minimum.

O. Where scaffolding is to be erected, or hoarding set up, this must first be approved by Purcell and The Crown Estate appointed agents and arranged via the KPG Estate Manager.

P. All site security, access and site working arrangements to be agreed with The Estate Manager prior to commencement of the works. This includes all vehicular deliveries and limits on weekly lorry movements. At no time are any deliveries or lorries to wait or turn on the KPG roadway. Furthermore, no vehicular access or parking will be provided at KPG for site construction employees.

APPENDIX D :

THE CROWN ESTATE - REGENT'S PARK
CEPC WORKING GUIDANCE NOTES

CROWN ESTATE PAVING COMMISSION
12 Park Square East, Regent's Park, London NW1 4LH
e: info@cepc.org.uk
p: 020 7935 8049
www.cepc.org.uk

NOTES FOR THE GUIDANCE OF EMPLOYERS, CONTRACTORS, SUB-CONTRACTORS AND ALL OTHERS ENGAGED IN WORKS WITHIN REGENT'S PARK, LONDON NW1

The Crown Estate Paving Commission (CEPC) has statutory duties and powers to maintain footways, paving, street furniture, gardens, etc. at Regent's Park.

Any person proposing to carry out building works that may result in any encroachment onto the paving, footways or terrace roadways must first obtain approval in writing from the CEPC or its appointed Surveyor. Such approval may be granted by licence, subject to conditions and a charge. Application for a licence should normally be made either to the CEPC at its offices or to their appointed Surveyor (Paul Gardner FRICS, 8 Rose Hill, Dorking, Surrey RH4 2EG, phone 07788 144849, paulgardnersurveyor@gmail.com).

Where no temporary encroachment is proposed, the following regulations are to be followed in all cases:

1 No commercial vehicle or contractor's car will be permitted to park on the Estate roads without prior approval by the Inspector of Pavements acting on behalf of the CEPC. Prior notice must be given in writing (with vehicle registration numbers, names and addresses) to The Inspector, 12 Park Square East, London, NW1 4LH. Any permission granted may be withdrawn at any time by the CEPC.

2 No vehicle whatsoever will be permitted to park on or overrun any footway. Any vehicle found parked on a pavement will be seized by wheel clamp, removable only on payment of a fee.

3 Any damage to kerbstones, paving, coal-cellar covers, lamp posts, street furniture or boundary railings will be claimed for in full against the employer and/or contractor.

4 Paving, kerbs and coal-cellar covers should be protected against damage with substantial timber board during the course of loading, unloading, access or any other activity other than normal pedestrian use.

5 No mixing of cement, concrete or plaster, asphalt-boiling or similar work or storage will be permitted on CEPC footways or roads. Should such trespass occur, the full cost of reinstating the marked or damaged paving or other surfaces will be charged against the employers and/or contractors.

6 Protection against damage should be provided to lamp posts by the use of substantial timber boarding.

7 Protection against damage should be provided to coal-cellar covers.

8 Special protection against damage should be provided to all iron railings.

9 The use of skips will only be permitted subject to notice being given in writing to the Inspector. Skips must be covered by tarpaulin outside working hours, and be well lit during the hours of darkness by appropriate lighting.

10 Skip licences can be obtained upon application to the CEPC and upon payment of the appropriate fee. Special fees and restrictions apply to roads refurbished within the previous seven years.

11 No debris, builder's rubbish or materials will be permitted on CEPC roads and paving, either as temporary storage or deposited to await collection.

12 No scaffolding, hoarding or any plant or equipment will be permitted to be used or to encroach onto CEPC roads or footways other than by a licence previously sought and obtained on payment of the appropriate fee.

13 Drainage channels, gutters etc. must not be blocked or impeded by any action of the contractor, and damage caused by failure to keep drainage runs clear of builder's materials etc. will result in a claim against the employer and/or contractor.

14 Name-boards, advertisements or any other notices are not to be fixed to railings, hoardings, scaffolding or any part of CEPC property.

15 The employer and/or contractor must indemnify the CEPC against any claim arising from the works being carried out and requiring access over CEPC property. Protection by way of temporary lighting, temporary walkways etc. will be required for anything that might otherwise constitute a hazard to the public. In particular, the paving protection is to be suitably ramped and free from hazard.

16 All paving, kerbs, railings, surfaces, planting, street furniture etc. are the property of CEPC and may not be removed without CEPC consent. Surplus granite setts, York stone, street furniture etc. whether damaged or not, must be returned to CEPC yard in Park Square West and at no charge to CEPC.

17 Upon completion of all works, the Inspector must be notified and any damage caused to CEPC property made good immediately to the satisfaction of the CEPC. Failure to make good any damage will result in a claim being legally enforced against the employer and/or contractor.

18 The route into and out of the Park for all vehicles, (commercial or goods) with an unladen weight of more than half-tonne, is to be agreed in advance by the CEPC acting in co-operation with the Royal Parks.

19 Special licence will be required for any vehicle weighing more than 28 tons.

20 Special licences will be required for a crane of any weight.

21 Employers and/or contractors should note that the Regent's Park is not open to any works vehicles between midnight and 7.00 am.

22 No works are to be undertaken

- before 8.00 am or after 5.00 pm on weekdays;
- after noon on Saturdays;
- at any time on Sundays or on public holidays.

23 At all times, nuisance by noise or otherwise is to be abated. Failure to comply with this condition will result in parking facilities being rescinded and a report being made to The Crown Estate.

24 In no circumstances may any contractor's staff enter any CEPC garden without specific permission.

25 The CEPC and its appointed officers wish to co-operate at all times and in all respects with the employer and/or contractor to ensure that works are carried out in a proper and orderly manner without damage to CEPC property or disturbance to residents.