

# Stone works Method Statements

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## Method Statement : Installation of Hand Set Natural Stone Cladding

1. The natural stone cladding will be installed in accordance with the approved "construction issue" drawings. The drawings will show all stones and their unique numbers. The fixings types and locations and the information to enable the cladding to be set out will also be shown.
2. The fixing details will show where appropriate the manufacturing and installation information including drill diameters, packing thickness, tightening torque figures.
3. All drawings and details together with the installation of the stone will be carried out in accordance with the relevant British Standard BS 8298 Design and Installation of natural stone cladding and the contract specification.
4. Prior to installation a survey of the structure by the Resident Engineer should be undertaken to ensure that the actual construction tolerances comply with the approved details and that the fixings as detailed will cope. If the tolerances of the structure are outside of those allowed for in the design this will be reported and if necessary new fixings ordered.
5. If required, the specified liquid damp proof membrane will be applied to the face of the structure and allowed to dry before installation of the stone work proceeds.
6. The stone cladding panels will be delivered to site on pallets, properly protected and in the correct construction sequence. Each pallet will be supported with tray schedules i.e. a schedule showing the number and location of each stone unit.
7. If the stone is to be held on site prior to installation, it will be stored off the ground and properly protected in a secure location.
8. The cladding will be erected using a full masons scaffold (BS 8298 clause 5.3). The scaffold, provided by others, must allow space for the safe erection of the cladding including the necessary loading out platforms and hoists and where required running beams with suitable block and tackle. Any diagonal braces must not prevent the safe movement of stone along scaffold runs. Any scaffold transoms that abut the stone face must be fitted with plastic end caps. A scaffold must be available at all times to carry out the necessary adaptations required to ensure safe and continuous installation of the stone work.
9. The stone panels will be distributed to the appropriate location on wheeled bogies any packing removed and the panels safely stored ready for erection.
10. The weight of the stone panels will be checked and will be handled accordingly using mechanical lifting equipment where appropriate.
11. Where required temporary head trees adequate to take the load will be used. They will be securely fixed when in use but be easily removable.
12. The erection of the cladding and installation of the fixings will be undertaken by qualified mason fixers.
13. The erection of the cladding and installation of the fixings will be carefully supervised at all times. Where any variations occur, adequate measures will be taken to ensure satisfactory fixing.
14. All cement and lime will be stored off the ground on a timber floor in a dry structure. The stone dust will be stored away from other materials to avoid any contamination. No stone dust will be used if frosted.
15. Any sealant will be stored in accordance with the manufacturer's instructions taking due note of any temperature constraints.
16. From the level and line set by the Resident Engineer mark the setting out points of the stone work and the level and location of the loadbearing fixings.
17. If the loadbearing fixings are to be secured using expansion anchors or resin bonded bolts select the correct drill bit, set the depth stop and drill the hole as square to the face in all planes.
18. Where appropriate evacuate all drilling dust and debris to create a clean hole.
19. Install the expansion anchor or resin bonded anchor in accordance with the manufacturer's instructions.
20. Fit the loadbearing fixing as noted on the drawing checking its location in relation to the appropriate level and line.
21. Check the position of the front edge of the loadbearing fixing and add packing shims as required, ensuring that the thickness of the packing does not exceed that specified.
22. Tighten the bolt fixing using a calibrated torque spanner to the specified tightening torque.
23. Where the loadbearing angle is fixed to a cast-in channel select the correct Tee bolt add the appropriate number of packing shims and tighten the bolt using a calibrated torque spanner.
24. Seat the stone panel on the loadbearing fixing and set on the required mortar bed. Where necessary provide temporary support using head trees until the mortar has set.
25. Fit temporary restraint fixing using a "Beton" anchor or similar until the permanent restrain fixings are secured in position.
26. From the details select the appropriate restraint fixing and bolt connection.
27. If required drill a hole or mortice in the stone panel of the appropriate diameter to suit the fixing dowel/cramp using non-percussive drilling equipment.
28. Secure the cramp in place using expansion anchors or resin bonded bolts selecting the correct drill bit, set the depth stop and drill the hole as square to the face in all planes.
29. Where appropriate evacuate all drilling depth and debris to create a clean hole.
30. Install the expansion anchor or resin bonded anchor in accordance with the manufacturer's instructions.
31. Fit the restraint fixing as noted on the drawing checking its location in relation to the appropriate level and line.
32. Check the position of the dowel and add packing shims as required, ensuring that the dimension does not exceed that specified.
33. Tighten the bolt fixing using a calibrated torque spanner to the specified tightening torque.
34. Place the next stone in place, forming a cramp hole/mortice to receive the fixing and fully bed on the mortar bed.
35. Fit temporary restraint fixing using a "Beton" anchor or similar until the next permanent restrain fixings are secured in position.
36. If any stones have to be cut on site this operation will be carried out in controlled conditions by a qualified stone mason using the appropriate equipment located off the scaffold. The equipment used will comply with the relevant Health and Safety requirements and will include dust extraction where appropriate.
37. If specified the stonework will be bedded and pointed in one operation using the approved pointing mix.
38. Once the stone are full bedded rake back the bedding to a depth equal to the approved pointing mix.
39. Install the dpc's and cavity trays in accordance with the drawings secured as specified. The dpc/cavity tray will be bedded on a mortar bed and left projecting 5mm from the face of the cladding unless otherwise specified.
40. Where cavity insulation is specified it will be installed and fixed as specified. Where fixings penetrate the insulation it will be replaced to ensure continuity.
41. Compression and movement joints will be formed in accordance with the approved drawings. The joint will be sealed with the appropriate sealant and backer rod ensuring that the remainder of the joint is clear of any debris and obstructions.
42. Where lead weatherings are required an approved LSA contractor will install these in accordance with the Lead Sheet Association details.
43. On completion the stone cladding will be cleaned down to remove all dust, adhering mortar and any cement slurry. It is preferable that this operation is carried out as the scaffold is struck. Particular attention will be paid to all horizontal surfaces including sills and tops of string and band courses.
44. The polished finish of marble, granite and hard limestone will be wiped down with a clean cloth or chamois leather. Toolled or textured surfaces will be brushed down with a bristle or nylon brush

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DATE: 20.11.13

SCALE: na

DRAWING TITLE:

Details in reference to  
condition 7

DRAWING NUMBER:

LB 07c 003