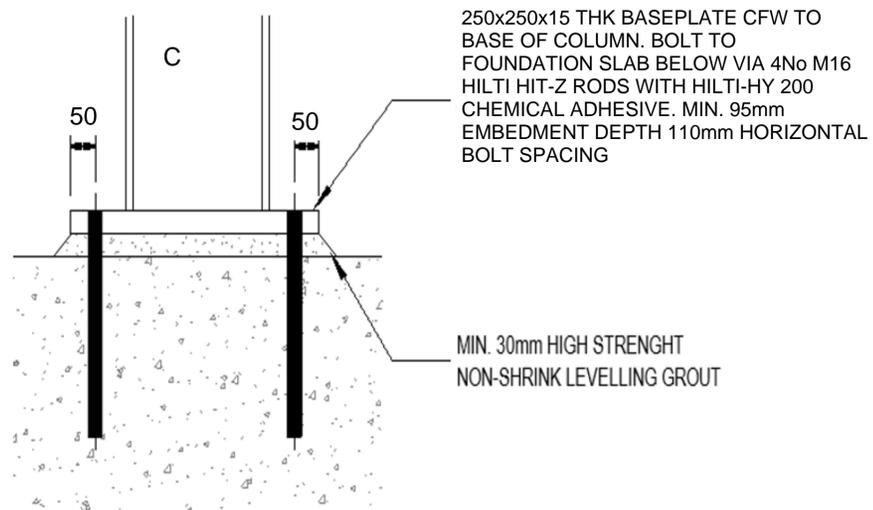
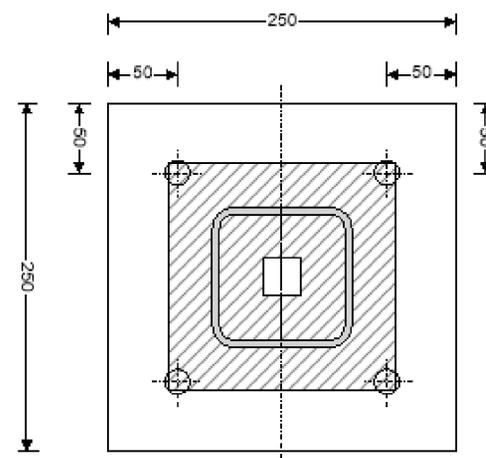


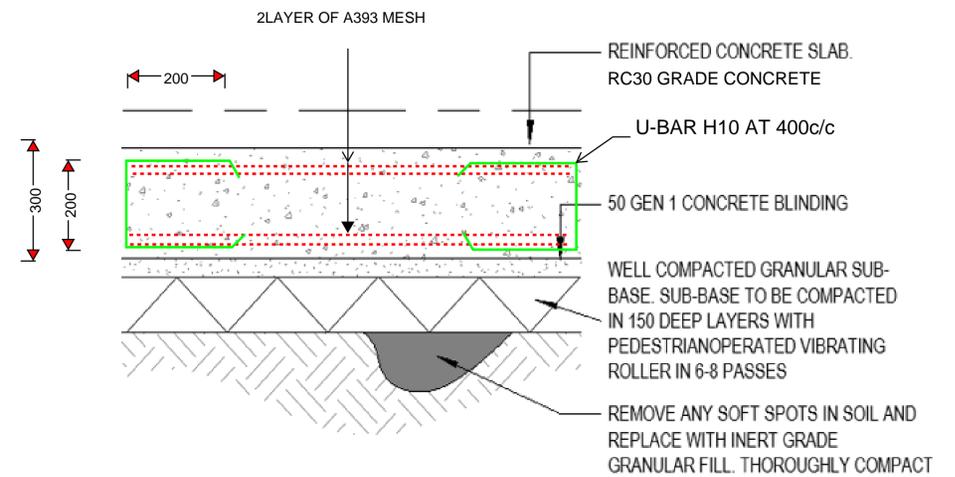
**GROUND FLOOR STRUTURAL PLAN**



**COLUMNE TO SLAB DETAIL**

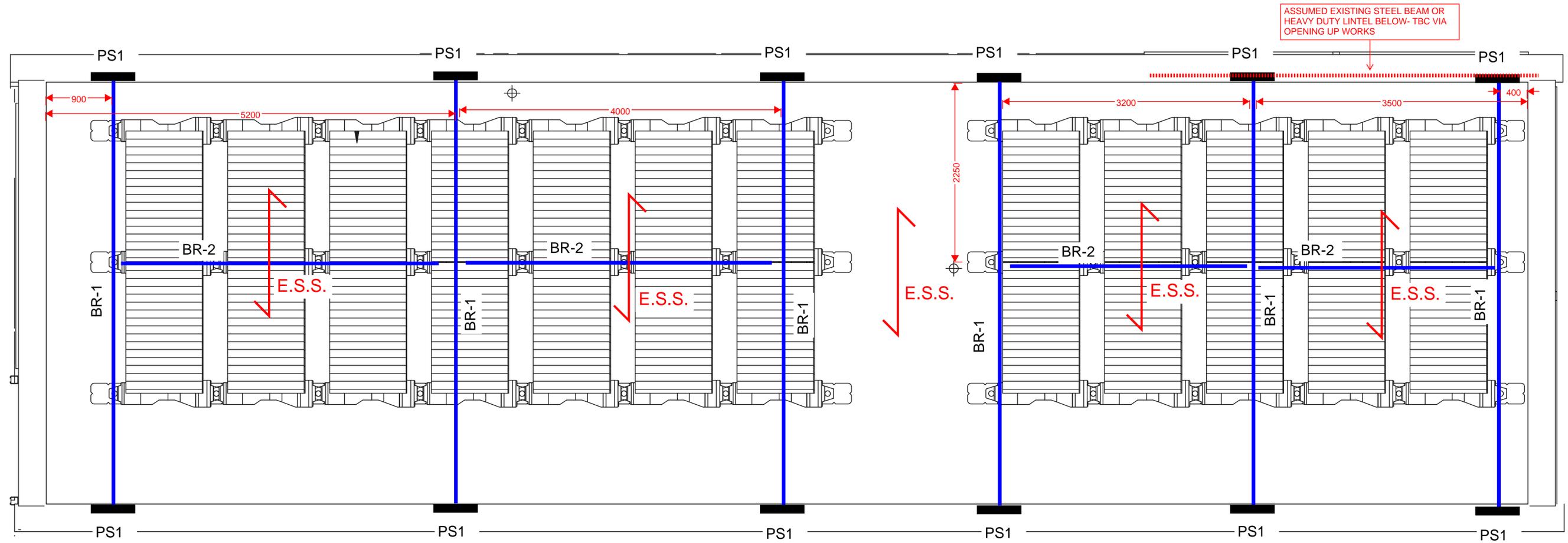


**TYPICAL BASE PLATE DETAIL**



**SLAB BASE DETAIL**





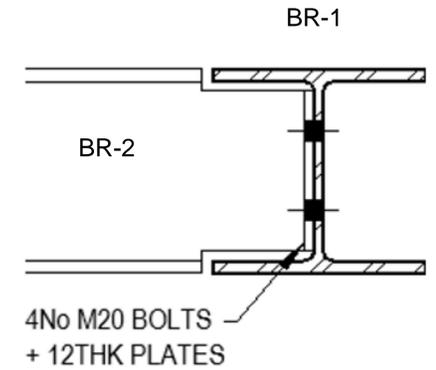
BR-1- 203x203x71UC S355  
 BR-2- 152x152x37UC S355  
 PS1 - 440x215x100 30N STRENGTH PADSTONE  
 E.S.S.- EXISTING SLAB SPAN (100mm THICK)

ALL STEEL BEAMS TO HAVE 3:1 DRY MIX BETWEEN EXISTING SLAB TO PROVIDE FULL SUPPORT

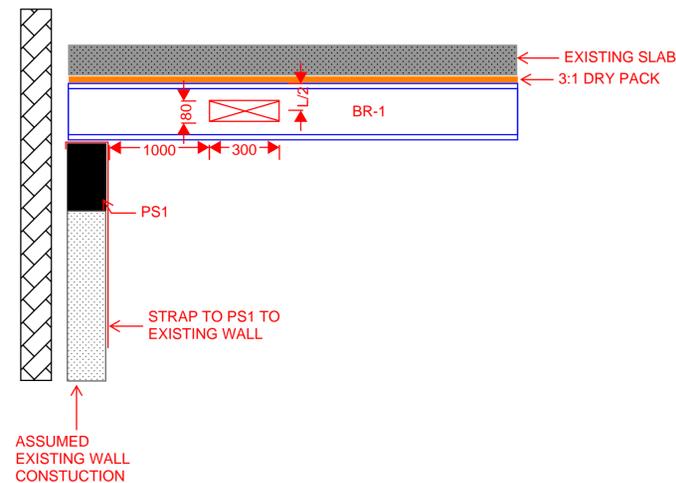
STEEL HAVE BEEN DESIGN TO SUPPORT EXISTING SLAB AND PROPOSED PV PANELS. PV PANELS WEIGHT PER PANEL 100KG INCLUDING BIG FOOT SUPPORT

ANY WEB OPENING WITHIN THE STEEL OF BR-1 HAS BEEN ALLOWED. MAX SIZE ALLOWED IS 80mm (H)X300mm(L) AND TO BE 1M AWAY FROM SUPPORT/PADSTONE

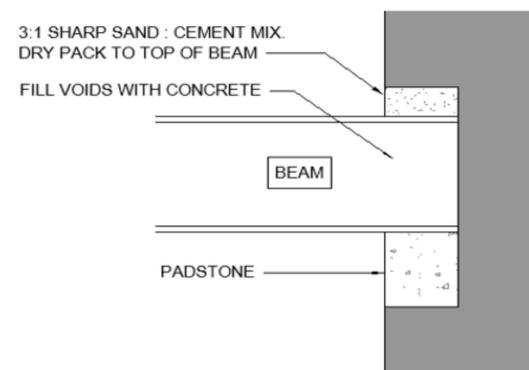
**ROOF STRUTURAL PLAN**



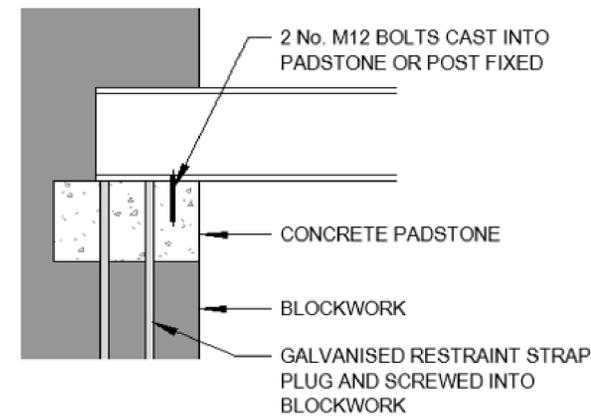
STEEL TO STEEL CONNECTION DETAIL



STEEL BEAM WEB OPENING AND DRY PACK DETAIL



PADSTONE TO WALL DETAIL



PADSTONE TO WALL STRAP DETAIL



## **STRUCTURAL STEELWORK NOTES**

ALL MATERIALS, FABRICATION, WORKMANSHIP AND ERECTION OF STEELWORK SHALL BE IN ACCORDANCE WITH THE NATIONAL STEELWORK SPECIFICATION FOR BUILDING CONSTRUCTION, 5TH EDITION AS PUBLISHED BY THE BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION.

STEELWORK CONNECTIONS SHALL COMPRISE NOT LESS THAN 4 NO. M12 DIA. GR. 8.8 BOLTS FOR ALL OTHER MEMBERS, EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS. WHERE CONNECTION LOADS ARE PROVIDED BY THE ENGINEER, THE STEELWORK CONTRACTOR SHALL DESIGN CONNECTIONS WHICH WILL BE SUBJECT TO COMMENT BY THE ENGINEER.

STEEL BEAMS SHALL AT LEAST HAVE THE MINIMUM BEARINGS ON MASONRY WALLS AS SHOWN ON THE DRAWINGS. WHERE NO DETAILS OF BEARINGS ARE SHOWN PROVIDE BEARINGS TO THE FULL WIDTH OF THE SUPPORTING LEAF, PADSTONE OR 150MM WHICHEVER IS GREATER.

STEEL COLUMNS SHALL BE RAISED OR LOWERED TO THE CORRECT LEVELS OFF FOUNDATIONS/MASONRY SUPPORTS USING SAWN STEEL PACKS NOT LESS THAN 75MM SQUARE. ALLOWANCE SHALL BE MADE FOR NOMINAL 25MM THICKNESS OF GROUT BETWEEN COLUMN BASEPLATES AND FOUNDATIONS/MASONRY SUPPORTS. GROUT SHALL TAKE THE FORM OF NEAT CEMENT SLURRY WITH A NON SHRINK ADDITIVE AND SHOULD BE JUST FLUID ENOUGH TO POUR.

SITE MODIFICATIONS TO STRUCTURAL STEELWORK SHALL NOT BE CARRIED OUT UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER ALL STRUCTURAL STEELWORK SHALL BE BLAST CLEANED TO B.S.7079 : PART A1, PREPARATION GRADE SA21/2 AND, EXCEPT WHERE SPECIFIED AS GALVANISED, SHALL BE PAINTED WITH A SUITABLE GOOD QUALITY HIGH BUILD EPOXY ZINC PHOSPHATE PRIMER TO PROVIDE A DRY FILM THICKNESS OF NOT LESS THAN 75 MICRONS. A PRE-FABRICATION PRIMER MAY BE USED AT THE FABRICATORS DISCRETION. THE CONTRACTOR SHALL ENSURE THAT THE PRIMER USED IS COMPATIBLE WITH SUBSEQUENT COATINGS SPECIFIED BY OTHERS. (E.G. INTUMESCENT PAINT).

STEELWORK SPECIFIED AS GALVANISED SHALL BE BLAST CLEANED AS ABOVE & HOT DIP GALVANISED TO B.S.729 MINIMUM COATING THICKNESS 85 MICRONS.

ALL STEELWORK BELOW DPC LEVEL OR BUILT WITHIN THE MASONRY WALL CAVITY SHALL BE SITE PAINTED WITH A COMPATIBLE HIGH BUILD EPOXY ZINC PHOSPHATE PRIMER TO PROVIDE A DRY FILM THICKNESS OF NOT LESS THAN 125 MICRONS, TO ACHIEVE AN OVERALL PRIMER COATING OF 200 MICRONS. I.E. LEIGHS PAINTS EPIGRIP C400 ZINC PHOSPHATE PRIMER/BUILD COAT OR EQUAL. STEELWORK BELOW DPC SHALL ALSO BE ENCASED IN NOT LESS THAN 100MM OF CONCRETE NOT WEAKER THAN SPECIFIED ON THE DRAWINGS.

STEELWORK CONTRACTOR TO CO-ORDINATE WITH MAIN CONTRACTOR AND CLADDING CONTRACTOR TO PROVIDE ALL NECESSARY SECONDARY STEELWORK, TRIMMING ETC. AS REQUIRED AROUND ALL DOORS, WINDOWS AND THE LIKE.

STEELWORK CONTRACTOR TO CO-ORDINATE WITH MAIN CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY BRACING DURING THE SEQUENCE OF ERECTION.

## **TIMBER FLOOR CONSTRUCTION NOTES**

ALL STRUCTURAL TIMBER FLOOR MEMBERS TO BE OF MINIMUM SIZE AS SHOWN ON THE DETAIL DRAWINGS. SIZES SHOWN ARE NOMINAL TIMBER SIZES EXCEPT AS NOTED ON THE DRAWINGS AND WILL BE SUBJECT TO REDUCTIONS IN FINISHED SIZE TO B.S.4471

TIMBER FLOOR JOIST SHALL HAVE MINIMUM BEARINGS OF 100MM ON MASONRY AND 75MM ON STEEL BEAMS OR TIMBER PLATES EXCEPT AS NOTED ON THE DRAWINGS. TIMBER FLOOR JOISTS SHALL NOT BE BUILT INTO PARTY WALL CONSTRUCTIONS BUT SHALL BE SUPPORTED ON PROPRIETARY JOIST HANGERS AT SUCH LOCATIONS. RESTRAINT TYPE JOIST HANGERS CAPABLE OF RESISTING TENSILE FORCES, IN ACCORDANCE WITH BS 5628-1 APPENDIX C TO BE USED. ALTERNATIVELY, PROVIDE RESTRAINT STRAPS AT NOT MORE THAN 2.0M CENTRES USING 30MM X 5MM GALVANISED STRAPS WITH A TURN DOWN LENGTH OF 100MM AND STRAIGHT LENGTH OF 600MM. STRAPS FIXED TO FLOOR JOISTS WITH 50MM, NO.10 SCREWS AT NOT MORE THAN 110MM CENTRES AND A MINIMUM OF 4 FIXINGS.

DOUBLE JOISTS SHALL BE PROVIDED UNDER NON-LOAD BEARING STUDWORK PARTITIONS RUNNING PARALLEL WITH JOIST SPANS, UNDER BATHS AND UNDER AIRING CUPBOARD.

ALL MEMBERS SUPPORTED ON PROPRIETARY HANGERS SHALL BE ACCURATELY CUT TO PROVIDE A FULL CONTACT WITH THE BASE OF THE HANGER AND SHALL BE FIXED IN ACCORDANCE WITH THE HANGER MANUFACTURER'S INSTRUCTIONS. JOISTS SHALL BE REBATED TO LIE FLUSH WITH UNDERSIDE OF HANGERS.

ALL MEMBERS FITTED INTO STEEL BEAMS SHALL PROVIDE A GOOD FIT TO THE WEB OF THE BEAM AND SHALL BE NOTCHED THE MINIMUM AMOUNT REQUIRED TO CLEAR THE BEAM FLANGES. WHERE STEEL BEAMS ARE SPECIFIED WITHIN THE FLOOR DEPTH, THE UNDERSIDE OF JOISTS SHALL BE 5MM BELOW THE UNDERSIDE OF THE BEAMS.

EXTERNAL AND PARTY WALLS PARALLEL WITH JOISTS SPANS SHALL BE RESTRAINED AT TOP OF FLOOR JOIST LEVEL AT NOT MORE THAN 2.0M CENTRES WITH GALVANISED 30 X 5.0MM STRAPS EXTENDING OVER A MINIMUM OF 3 JOISTS. NOGGINS NOT LESS THEN 75% OF JOIST DEPTH AND TIMBER BLOCKING ADJACENT TO WALLS SHALL BE FIXED BETWEEN JOISTS AT ALL STRAP LOCATIONS. STRAPS SHALL BE FIXED TO MEMBERS/NOGGINS WITH NOT LESS THAN 4 NO. 32 X 3.5MM GALVANISED OR SHERARDISED SQUARE TWISTED NAILS.

END JOISTS SHALL BE POSITIONED APPROXIMATELY 50MM FROM MASONRY WALLS. JOIST CENTRES GENERALLY SHALL BE EQUAL AND SHALL NOT EXCEED THE DESIGN CENTRES SHOWN ON THE DRAWING. MULTIPLE JOISTS, WHERE SHOWN ON THE DRAWINGS SHALL BE SECURELY NAILED TOGETHER AT NOT MORE THAN 600MM CENTRES. UNLESS SPECIFIED OTHERWISE, SECURELY FIX STRUTTING BETWEEN JOISTS AT CENTRES AS FOLLOWS:  
JOIST SPAN OF 2.5M TO 4.5M: - ONE ROW AT CENTRE OF SPAN.  
JOIST SPAN OVER 4.5M: - TWO ROWS EQUALLY SPACED

STRUTTING SHALL TAKE THE FORM OF ONE OF THE FOLLOWING.  
38mm X 38mm SOFTWOOD HERRINGBONE STRUTTING LOCATED BETWEEN 5 & 25MM CLEAR OF TOP AND BOTTOM EDGES OF JOIST.  
PROPRIETARY GALVANISED METAL STRUTTING FIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.  
SOLID SOFTWOOD STRUTTING NOT LESS THAN 38MM THICK AT LEAST THREE QUARTERS OF THE DEPTH OF THE JOIST.

### **HOUSE LONGHORN BEETLE**

2B2 IN THE GEOGRAPHICAL AREAS SPECIFIED IN TABLE 1, SOFTWOOD TIMBER FOR ROOF CONSTRUCTION OR FIXED IN THE ROOF SPACE, INCLUDING CEILING JOISTS WITHIN THE VOID SPACES OF THE ROOF, SHOULD BE ADEQUATELY TREATED TO PREVENT INFESTATION BY THE HOUSE LONGHORN BEETLE (HYLOTRUPES BAJULUS L.). GUIDANCE ON SUITABLE PRESERVATIVE TREATMENTS IS GIVEN WITHIN THE WOOD PROTECTION ASSOCIATION'S MANUAL 'INDUSTRIAL WOOD PRESERVATION: SPECIFICATION AND PRACTICE' (2012), AVAILABLE FROM 5C FLEMMING COURT, CASTLEFORD, WEST YORKSHIRE, WF105HW.

## **STRUCTURAL MASONRY NOTES**

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR MASONRY REQUIREMENTS IN RESPECT OF ACOUSTIC, THERMAL INSULATION AND DURABILITY REQUIREMENTS. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IF THIS CONFLICTS WITH STRUCTURAL REQUIREMENTS.

BLOCKWORK TO HAVE A MINIMUM COMPRESSIVE STRENGTH AS SPECIFIED ON THE DRAWINGS. ALL BLOCKWORK TO BE SOLID UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS AND IS TO COMPLY WITH BS5628, TABLE 4, REQUIREMENTS FOR SPECIAL CATEGORY OF MANUFACTURE. THE MAXIMUM WEIGHT OF AN INDIVIDUAL MASONRY UNIT MUST NOT EXCEED 20KG. BLOCKWORK SHOULD BE ADEQUATELY PROTECTED ON SITE TO AVOID SATURATION AND POSSIBLE INCREASE IN LIFTING WEIGHT. REFERENCE SHALL BE MADE TO THE PROJECT ARCHITECT/ACOUSTIC CONSULTANT FOR COMPLIANCE WITH PART E OF THE BUILDING REGULATION - SOUND TRANSMISSION.

BLOCKWORK BELOW DPC TO BE OF FOUNDATION QUALITY (REFER TO MANUFACTURERS GUIDELINES) AND TO BE OF AT LEAST EQUAL MINIMUM COMPRESSIVE STRENGTH TO THAT INDICATED BETWEEN GROUND AND FIRST FLOOR AND IN NO CASE LESS THAN 7N/MM<sup>2</sup>. BRICKWORK TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20N/MM<sup>2</sup> AND IS TO COMPLY WITH BS5628 REQUIREMENTS FOR SPECIAL CATEGORY OF MANUFACTURE. MORTAR DESIGNATION AS FOLLOWS:

ABOVE DPC MORTAR DESIGNATION III  
BELOW DPC MORTAR DESIGNATION II

REFER TO THE ARCHITECTS DRAWINGS FOR DETAILS OF DPC'S, DPM'S, WATERPROOFING AND INSULATION. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE WORKS DURING CONSTRUCTION.

### **LINTELS**

EXTERNAL WALLS: PROVIDE PROPRIETARY LINTELS AS SPECIFIED ON THE DRAWINGS OR EQUIVALENT APPROVED BY ALTERNATIVE MANUFACTURER. INTERNAL WALLS: PROVIDE PROPRIETARY IG BOX LINTELS TO LOADBEARING INTERNAL WALLS AS SPECIFIED ON THE DRAWINGS OR EQUIVALENT APPROVED BY ALTERNATIVE MANUFACTURER.

PROVIDE PROPRIETARY IG INTERNAL LINTEL TO SMALL OPENINGS IN NON LOADBEARING BLOCKWORK WALLS OR EQUIVALENT APPROVED BY ALTERNATIVE MANUFACTURER. ALL STEEL LINTELS TO BE FULLY GALVANISED AND HAVE A MINIMUM 150MM BEARING TO EACH END UNLESS NOTED OTHERWISE.

## **CONCRETE**

ALL CONCRETE TO BE NORMAL WEIGHT, STRENGTH GRADE C28/35 TO PROVIDE A MINIMUM CUBE COMPRESSIVE STRENGTH OF 35N/mm<sup>2</sup> AT 28 DAYS. ALL CONCRETE BELOW GROUND LEVEL (SLABS, WALLS & FOUNDATIONS) TO BE DESIGNED FOR A DESIGN SULPHATE CLASS OF DS-2. UNDER NO CIRCUMSTANCES IS CONCRETE TO BE POURED IF EXPECTED TEMPERATURE WITHIN THE FOLLOWING 24 HOUR PERIOD IS EXPECTED TO BE 5° C OR LESS. NO ADMIXTURES OF ANY FORM TO BE ADDED TO THE CONCRETE WITHOUT THE WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER. IT IS STRICTLY FORBIDDEN TO ADD WATER TO CONCRETE ON SITE.

## **'CDM 2015 DESIGNER RESIDUAL RISKS'**

- RISK\_01 - CONTRACTOR TO ENSURE TEMPORARY NEEDLE AND PROPPING IS Laterally braced via scaffold tubes O.S.A. PRIOR TO DEMOLITION OF MASONRY SHEAR WALL. TEMPORARY STABILITY TO CONTRACTORS SPECIFICATION.
- RISK\_02 - CONTRACTOR TO ENSURE TEMPORARY LATERAL BRACING UTILISED PRIOR TO DEMOLITION OF EXISTING FLOOR STRUCTURE, TO AVOID UNRESTRAINED SECTIONS OF MASONRY WALLS.
- RISK\_03 - CONTRACTOR TO ENSURE EXCAVATIONS ARE ADEQUATELY SHORED AND DRY PRIOR TO POURING CONCRETE. DEWATERING METHOD TO CONTRACTORS SPEC.
- RISK\_04 - DO NOT EXCAVATE WITHIN A 45 DEGREE LINE BELOW EXISTING ADJACENT FOUNDATIONS. ALTERNATIVE SOLUTION TO BE AGREED (SUCH AS HIT & MISS SEQUENCING ETC.), TO CONTRACTORS SPECIFICATION.
- RISK\_05 - COMPLY WITH ALL REQUIREMENTS OUTLINED WITHIN THE SITE INVESTIGATION REPORT FOR SOIL STABILITY AND CONTAMINATION ISSUES.
- RISK\_06 - IDENTIFY ANY EXISTING BURIED SERVICES ON SITE WHICH MAY BE AFFECTED.
- RISK\_07 - DO NOT CONSTRUCT OVER A SHARED SEWER RUN WITHOUT FIRST OBTAINING A BUILD-OVER AGREEMENT.
- RISK\_08 - SUPPORT OR BATTER BACK SOIL AS NECESSARY IN UNSTABLE CONDITIONS.
- RISK\_09 - CONTRACTOR TO MAIN STABILITY OF EXISTING AND PROPOSED STRUCTURE AT ALL TIMES.
- RISK\_10 - CONTRACTOR TO ENSURE SUITABLE PPE GEAR IS WORN APPROPRIATE FOR THE TASK AT HAND.
- RISK\_11 - CONTRACTOR TO MANAGE SAFE HANDLING OF HEAVY UNITS (140 WIDE BLOCKS, BEAM & BLOCK PRECAST UNITS ETC.)
- RISK\_12 - JOIST HANGERS/ CAVITY WALL TIES TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- RISK\_13 - ENSURE HAND RAILS/ EDGE PROTECTION IS INSTALLED AROUND OPEN EXCAVATIONS/ FALLS FROM HEIGHTS.
- RISK\_14 - ALLOW FOR POSSIBILITY OF OCCUPANTS TO BE WITHIN THE BUILDINGS IN ALL PLANNING OF TASKS AND TIMING.

NOTE: THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING STABILITY OF ALL EXISTING AND PROPOSED STRUCTURES AT ALL STAGES OF CONSTRUCTION.

NOTE: THIS THE ABOVE LIST OF RESIDUAL RISKS ARE FOR NON-STANDARD HAZARDS. IT IS ASSUMED THAT A COMPETENT CONTRACTOR FAMILIAR WITH THE CONSTRUCTION OF THIS TYPE OF WORK WILL BE APPOINTED WHO WILL BE AWARE OF THE STANDARD HAZARDS.

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CENTRE-DSK-ST-SK-2025.05.09

