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STRUCTURAL ENGINEERS

SPECIFICATION

FOR

BUILDING REGULATIONS

11 GROVE ROAD

WREXHAM

Eaton Richards

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Mold
CH7 5PG

Project No: 2128E

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STRUCTURAL ENGINEERS SPECIFICATION

General Notes

The contractor is to perform work in such a manner as to ensure the safety of all operatives and the public and to cause as little disturbance as possible.

The contractor is to be responsible for the design and supply of all temporary propping, shoring and tying in of the works. If the contractor is in any way uncertain as to the extent of temporary works required, seek advice from the engineers. Any advice will not relieve the contractor from ultimate responsibility for the temporary works.

All works to be undertaken to the satisfaction of Building Control or an Approved Officer.

Eaton Richards have designed only those items specified in this document.

Steelwork

All steelwork is to be grade FE43 to BS 4360 and BSEN 10 025 uno. All steel dimensions to be checked by the steel fabricator / contractor. Connections to be designed by fabricator uno. Dimensional accuracy, conformity with engineers and architects drawings, compliance with the specification, setting out, connection design and temporary erection requirements are the responsibility of the contractor.

All damaged steelwork coatings to be touched up on site on completion of erection. All new steelwork is to be provided with the relevant fire protection in accordance with the architects details.

All necessary walls and floors are to be needled and propped prior to demolition of supporting elements and props should only be taken off structural elements capable of supporting the prop loadings. Installation of temporary concrete pads below ground floor joists may be required. Prop loadings as below.

Walls and floors to be packed tight off new supporting beam top flange.

All bolts to be grade 8.8 uno and all welds to be continuous 6 mm fw uno or designed by the steel fabricator.

Paired beams do not require bolting together unless indicated on drawings or below.

Beams are indicated on drawing 2128E/01.



Steel Treatment

Interior steelwork requires no special corrosion protection, however shop applied primers may be required for aesthetic purposes. If used, high solid Epoxy Phosphate Primer to be applied to the cleaned surfaces to a thickness of 80 microns, shop applied.

Masonry

All blockwork is to be 7 N to BS5628 uno.
All brickwork is to be 20 N to BS5628 uno.

New walls are to be fixed to existing walls with crocodile ties at 450 c/c.

Wall ties to be in accordance with BS5628 at 450 mm centres vertically and 900 mm centres horizontally for cavities up to 75 mm and 450 mm centres vertically and 750 mm centres horizontally for cavities up to 100 mm wide.

Brickwork movement joints are to be at 12 m min c/c full height of walls. Blockwork movement joints are to be at 6 m min c/c full height of walls including below dpc. All joints to be taken through finishes.

Horizontal restraint straps to be installed to all internal and external walls at floor level as follows: horizontal galv. m.s. straps 30 x 5 th 1500 lg with 150 leg fixed between walls and all floors, at min 1800 c/c with min 6 number 10 screws to timber and 3 number 50 mm long masonry screws in leg.

Vertical restraint straps to be installed to all internal and external walls at roof level as follows: Vertical galv. m.s. straps 30 x 5 th to wall plate 1500 lg with 150 leg, at min 1800 c/c screwed to wall with min 6 number 10 masonry screws to timber and 3 number 50 mm long masonry screws in leg.

Padstones

ER should be contacted if there is insufficient bearing for any padstones. Padstones should be GEN 3 concrete and must not be loaded for 7 days to allow for curing.

Timber

New timber to be grade C16 to BS5268 uno. All new timber to be provided with relevant fire protection in accordance with architects details. All timber used in the roof is to be double vacuum treated with organic solvent preservative type F/N in accordance with BS 5707. Minimum treatment V/1. All bolts in connections are to be grade 8.8 uno.

Rafters to be C16 38 x 150 dp minimum at 450 centres, max span 3.23 metres. Rafters are to be doubled up either side of roof lights. Rafters to be birds-mouthed as



appropriate and securely fixed to ridge and hip beams with proprietary clips or 50 mm screws.

Ridge and hip beams are indicated on drawing 2128E/01.

Foundations

The existing foundations have not been inspected however they are likely to be suitable if 600 mm wide and bearing onto ground of 110 kN/m² minimum. Ground conditions and existing foundations to be investigated at the commencement of works.

Strip foundations to new external walls to be 600 mm x 200 mm dp minimum 900 mm below existing ground level u.n.o. Strip foundations to loadbearing internal walls to be 450 mm x 200 dp. a minimum of 900 mm below existing ground level, designated mix Gen3.

Bearing pressure has been assumed to be 100kN/m².

Walls to be central about foundations. ER must be notified if there is variation in assumed bearing pressure or ground conditions. Any soft spots in formation should be removed and replaced with a suitably compacted granular fill. A layer of lean mix should be placed on the excavation for protection prior to casting. The foundation type should remain constant and be completed in one pour to prevent differential settlement, or adjacent pours tied with a A393 mesh strips lapped 300 mm into each pour, at 500mm vertical centers.

Existing drainage is to be diverted as necessary. If foundations span over drains pc lintels or reinforced concrete foundation strip to be employed. Consult ER for sizes.

Shoring of existing foundations may be required whilst new excavations are undertaken. Do not excavate within a 30 degree line on the horizontal of an existing or new foundation without temporary shoring.

Foundations may be stepped: steps should not be greater in height than the thickness of the foundation and should overlap by twice the height of the step or 300 mm (min).

Appropriate precautions should be adopted to prevent the disturbance of foundations and services by roots. Roots should be removed from foundation excavations, but it is important that the amount of root removal does not harm the tree. Reference should be made to BS 5837:1980 – Code of Practice for trees in relation to construction.

Root barrier should be installed to the outside edge of foundations wherever trees or large hedges/shrubs are within 3 metres of a foundation, or the canopy of a tree is close to overhanging the edge of the foundation. The root barrier should be Terram Root Guard or similar.



Concrete

All concrete is to be in accordance with BS8110, BS5328 and BRE publication No.250. Concrete is to be dense, fully compacted with aggregate meeting the requirement of BS882 or BS1047.

Final profiles are to be agreed with the Engineers or Building Control on site as necessary. All pipework is to be set before concrete is poured to the satisfaction of Building control or the Engineers.

Concrete blinding is to be mix designation GEN 2.

Concrete to unreinforced foundations is to be mix designation GEN 3.

Concrete to padstones is to be mix designation GEN 3.

Loadings and design forces

Roof Dead loads in addition to self weight: Tiles/Slates 0.6 kN/m^2 .

Roof Super imposed loads: Roof 0.6 kN/m^2 , Ceiling 0.25 kN/m^2

Floor Dead loads in addition to self weight: Deck 0.15 kN/m^2 , Ceiling 0.25 kN/m^2 .

Floor Super imposed loads: Domestic 1.5 kN/m^2 .

Masonry: Brickwork 20 kN/m^3 ; Blockwork 18 kN/m^3 ;

Concrete: Un-reinforced 24 kN/m^3 .

Wind forces assessed in accordance with BS6399 for the specific site location and orientation.

