ENGINEER'S CONSTRUCTION NOTES

GENERAL
To be read in conjunction with all Engineers' drawings and method statement and with all architectural and services drawings and specifications. Seek instructions in the event of any conflict.
The structural designs shown are to be set out to suit the conditions of the site and existing works if any and the Architect's proposals.
Do not scale - please ask for information.
Some notes may not apply.

DEMOLITION AND TEMPORARY WORKS
Demolition to be carried out in accordance with BS 6187 and Health and Safety Executive Guidance Notes GS29/1, 3 and 4.
Openings in existing buildings to be formed according to the recommendations of BRE Good Building Guide no. 20 "Removing Internal Load Bearing Walls in Older Dwellings".
The Contractor is to be responsible for the stability and structural integrity of the Works. Design, supply and maintain during the execution of the Works all shoring, strutting, needling and other temporary works as may be necessary.

FOUNDATIONS
Concrete to foundations to be grade 30. Use sulphate resisting cement below d.p.c./d.p.m. if recommended by Building Control officer.
Excavation and filling to be in accordance with BS 8000:Part 1.

LINTELS
Lintels in external walls if not specified on the drawing to be Catnic or similar proprietary pressed steel lintels as recommended by their manufacturer for use in the particular situation and loading. Bearing as recommended by manufacturer (normally 150).
Internal lintels to be Supreme Concrete Ltd prestressed lintels with 150 minimum bearing.

MASONRY
Blocks: 3.5 N lightweight blocks unless noted otherwise, to conform with the insulation value specified by the Architect.
Facing bricks to be as specified by the Architect.
Common bricks to be clay flettton bricks with a compressive strength of 20 N/mm2 or more unless specified otherwise.
All new blocks and bricks to be manufactured under 'special' manufacturing control to BS 5628 : part 1 : 1992 clause 27.2.1.2.
Mortar generally to be one of the following:
1 : 1 : 5 to 6 cement : lime : sand, or
1 : 4 to 5 masonry cement : sand, or
1 : 5 to 6 cement : sand with plasticizer,
unless otherwise stated.
Close cavity with d.p.c. and ties at all openings in cavity walls.

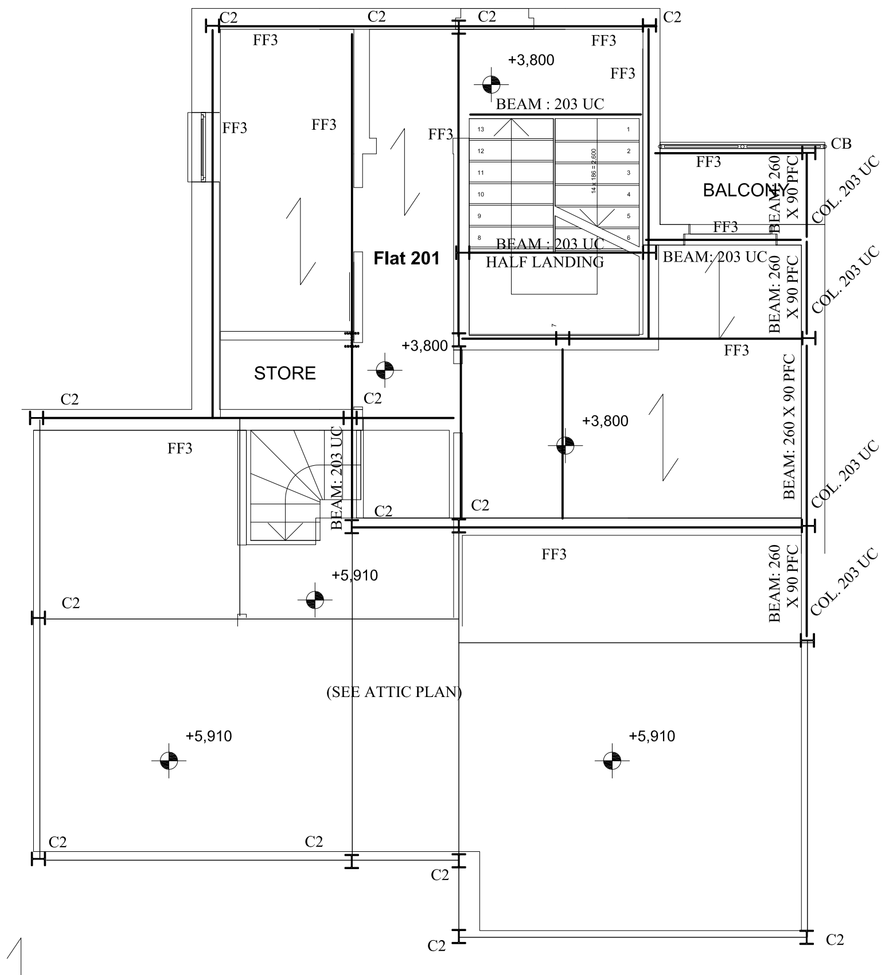
STEEL FINISHES
Galvanizing or other finishes specified to be in accordance with the NSSS section 10.

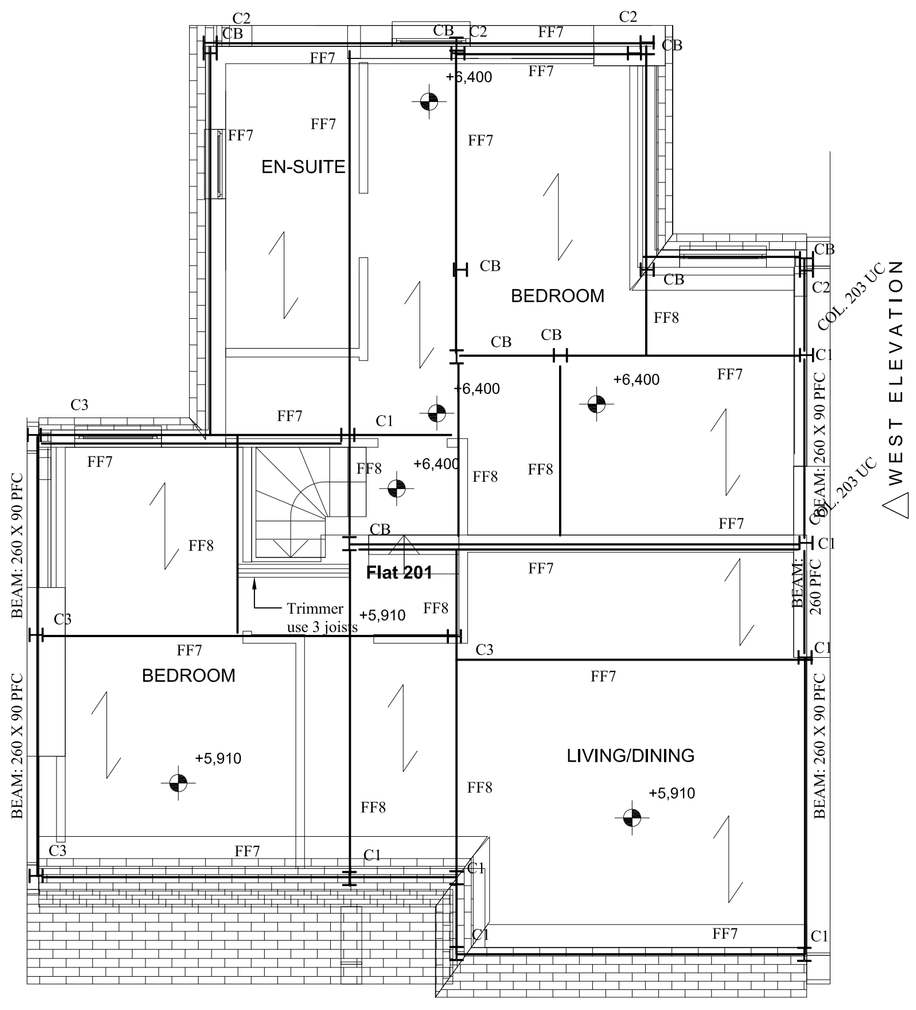
STRAPS
Walls to be strapped to floors using 30 x 5 galvanized mild steel straps at 2,000mm max. centres with noggins between joists if they run parallel to the wall, and packing between last joist and the wall. Strap to be hooked type, turned over a whole block.
All new wall plates at eaves to be strapped down to walls using 30 x 5 galvanized mild steel straps at 2,000mm max. centres screwed securely to masonry with four 50mm no. 10 screws, and fully nailed to timber.

STRUCTURAL STEELWORK
All steelwork to be in accordance with BS 5950 and the National Structural Steelwork Specification.
Grade S275 structural steel to be BS EN 10025 S275 JR.
Grade S355 structural steel to be BS EN 10025 S355 J0.
All members to be grade S275 unless noted otherwise, except for structural hollow sections which are generally to be hot formed BS EN 10210 S355 J2H or 'Celcius'. Cold formed hollow sections not permitted unless specified as such on the drawings.
Connections: All bolts to be grade 8.8, minimum 16mm diameter, in holes 2mm bigger than nominal bolt size, unless otherwise stated.
Welds to be minimum 4mm fillet welds around the full perimeter of the parts to be connected. All welds to be shop welds, but site welds may be used with prior agreement of the Engineer and Building Control Officer and may be subject to testing at Contractor's expense.
Double beams to be bolted together using M16 bolts at 1,500mm max centres with steel tube spacers.
Padstones to be grade 30 concrete. At Contactor's option and with the approval of the CA and Building Control officer padstones may be constructed from 35N/mm2 engineering bricks and 1:3 mortar, in which case the height of the padstone is to be made at least 50% more than that specified. Alternatively padstones may be cut carefully using an angle grinder from precast lintels of appropriate size.
Beam bearings on padstones to be full width of padstone if up to 150mm, or at least 2/3 of the length of the padstone in the direction of the beam span if greater than 150mm, unless otherwise specified on the drawings.
Fire protection All steel to be protected from fire to 30 minute standard or as specified elsewhere to the satisfaction of the CA and Building Control.

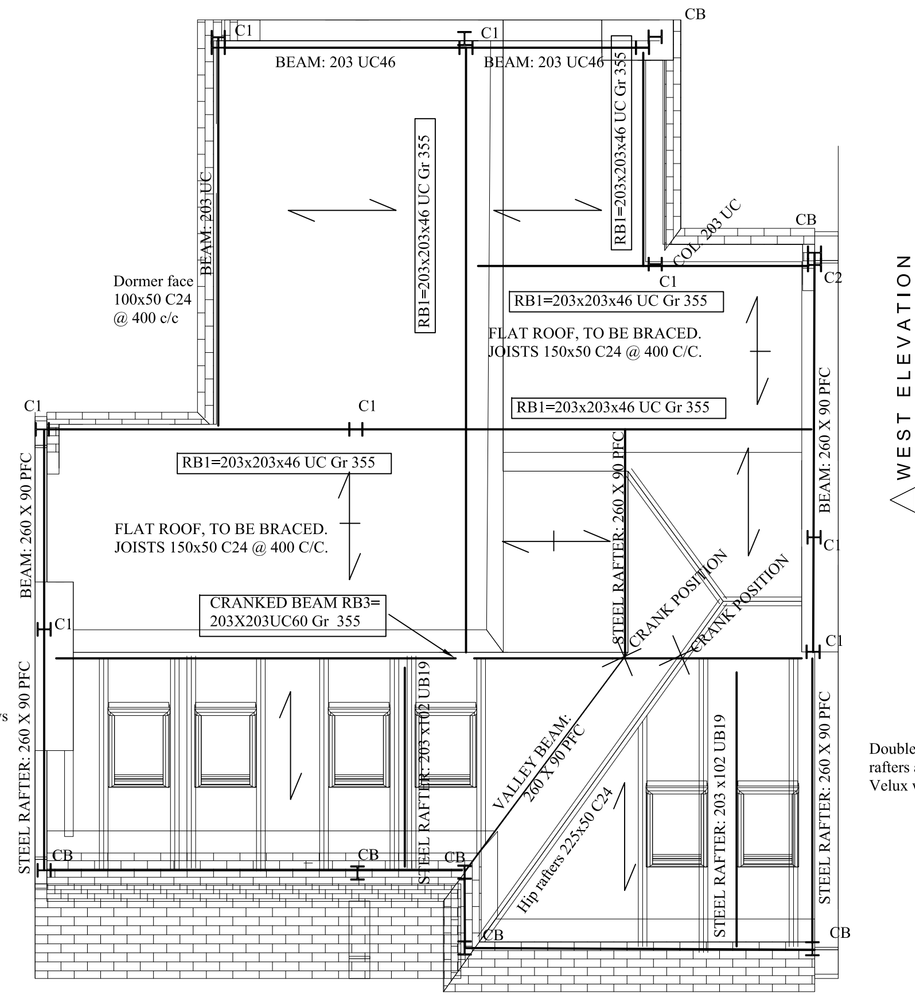
STRUCTURAL TIMBER
All timber grade C16 unless otherwise stated.
Multiple members to be bolted together using M12 bolts at 800 max centres, 50 alternately from top and bottom, with 50mm plate washers both sides.
Joists may be notched over bearing, maximum depth of notch 1/3 joist depth unless otherwise specified on the drawing.
Provide solid blocking to joists at bearings unless built in to masonry, and one row at mid span for spans between 2,500mm and 4,500mm, or two rows equally spaced for spans greater than 4,500mm. Blocking to be 50mm x min. 3/4 joist depth or use an approved purpose made proprietory bracing system.
Notches in joists to be no deeper than 1/8 joist depth, and should not be closer to the support than 0.07 of the span, nor further away than 0.25 of the span.
Holes in joists should be no greater in diameter than 1/4 the depth of the joist, should be drilled at the middle of the joist depth, and should be at least 3 diameters (centre to centre) apart, and should only be located between 1/4 and 2/5 of the span from the support.
Joist hangers for masonry support should be of the hooked restraint type (or provide separate straps as specified) and of the correct size. Timber to timber connections to be made using correct size steel hangers. All steel connectors must be fully nailed in all available holes using the manufacturer's recommended nails e.g. 30mm square twisted sherardized nails.
Studs in load bearing studwork to be 100 x 50 C16 studs at 400 max centres, 50 x 100 C16 head and foot plates and noggins at max 1200 vertical centres to suit plasterboard size.

A 1870/03





WEST ELEVATION



WEST ELEVATION

Double up rafters around Velux windows

Double up rafters around Velux windows

SECOND FLOOR PLAN
SCALE 1:50

ROOF PLAN
SCALE 1:50

COMFLOOR 80 1.2 THICK WITH 130MM THICK SLAB, WITH A252 MESH AND CONCRETE C30.

STEEL FRAME TO BE CONSTRUCTED AT AN EARLY STAGE TO ACT AS TEMPORARY SUPPORT TO PARTY-WALL AND EXISTING WALLS TO BE RETAINED. FOUNDATION PADS TO BE CONSTRUCTED BELOW FORMATION LEVEL TO ALLOW STEEL COLUMNS TO BE INSTALLED AND STEEL FRAME ERECTED PRIOR TO COMMENCEMENT OF GENERAL CONSTRUCTION

KEY

Timber floor, Joists 50x200 @ 400 c/e, C24, estimated load 2.32kN/m².

COMFLOOR 80 1.2 THICK WITH 130MM THICK SLAB, WITH A252 MESH AND CONCRETE C30.

STEEL BEAM SCHEDULE				
REF.	SIZE	COMMENTS	U Shear	Moment M
FF1	200x100x10 RHS +	Plate underneath	85 kN	
FF2	203x133UB 30 Gr 355	Plate underneath	40 kN	
FF3	203x203UC 71 Gr 355	Plate underneath	100 kN	
FF4	203x203UC 46 Gr 355	Plate underneath	75 kN	M1=37kNm
FF5 FF6	203x203UC 52 Gr 355	Plate underneath	105 kN	
FF7	203x203UC 46 Gr 355			
FF8	203x133UB 30 Gr 355			

STEEL CONECTIONS BY STEEL CONTRACTOR
RP DESIGNS TO SEE DETAILS BEFORE MANUFACTURING

R= 60kN Ultimate shear reaction BS unless otherwise stated

Timber stud 100x50 C16 @ 400 c/c double up joists underneath or Metsec steel studwall

FOR WALL POSITION PLEASE REFER TO ARCHITECT DRAWINGS
( ) -BEAMS TO HAVE A MOMENT CONNECTION 1SNM.

NEW RAFTERS 150x50 C24 @ 400 c/c

FOR WALL POSITION PLEASE REFER TO ARCHITECT DRAWINGS
( ) -BEAMS TO HAVE A MOMENT CONNECTION 2SNm.

COLUMN	DESCRIPTION
C1	203x203x71 UC
C2	203x203x46 UC
C3	152x152x37 UC
C4	100x100x6.3 SHS
CB	COLUMN BELOW

PRELIMINARY

Rev	Date	By	Details

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Wembley
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SITE	163 SUMATRA ROAD LONDON NW6 1PN
PROJECT	NEW REBUILT HOUSE
TITLE	SECOND FLOOR, ATTIC AND ROOF PLAN
SCALE ON A1	1:50
BY	JB
Chkd by	
DATE	22/07/2019
DRWG No.	1817-S02
REV	- A