

BEAM CALCULATIONS (B1/B2) AS DETAIL (A)

Beam (B2)

Floor loads $2 \text{ kN/m}^2 \times 2.4 \times (3.4 \div 2) = \frac{8.16}{4.08} \text{ kN}$

$-1- \quad 2 \text{ kN/m}^2 \times 2.4 \times (1.7 \div 2) = \frac{4.08}{12.24 \text{ kN}}$

total (B2) = $\frac{12.24 \text{ kN}}{\text{KN}}$

* 1/178x102x19 kg LST for use as (B2)

Beam (B1) length of beam = 4.5m (W) = 1000mm

(inner skin - worst case for load purposes) KN

- Reinforcement: $2.25 \text{ kN/m}^2 \times 4.5 \times (6.4 \div 2) = \frac{32.40}{23.40}$
- Masonry: $2 \text{ kN/m}^2 \times 4.5 \times 2.4 = \frac{21.60}{6.12}$
- Floor loads: $50\% \text{ (B2) Beam} = \frac{2.25}{2.25}$
- Self wt of steel: $0.4 \text{ kN/m} \times 4.5 = \frac{1.80}{64.17 \text{ kN}}$

total (B1) = $\frac{64.17 \text{ kN}}{\text{KN}}$

BENDING MOMENT BM

$= \frac{(L \times W)}{8} = \frac{4.5 \times 64.17}{8} = 36.10 \text{ kNm}$

Zxx REEF = $\frac{\text{BM} \times 10^3}{180} \quad \text{Select} = \frac{203 \times 133 \times 30 \text{ kN}}{279.3 \text{ cm}^3}$

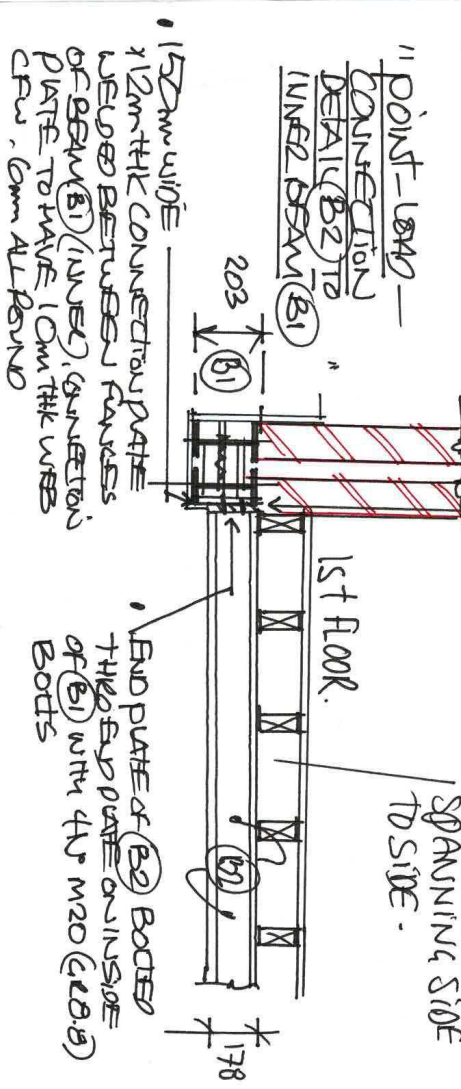
$= \frac{36.10 \times 10^3}{180} = 200.53 \text{ cm}^3$

FIX REEF = $\frac{(L \times W) \times 2.02}{180} = \frac{4.5 \times 64.17 \times 2.02}{180} = 2625 \text{ cm}^4$

Beam/s (B1) 2/203x133x30 kg UB's Bolted together

at bases using m/c of bolts & channel spacers and set onto 300x300x25 DP RCC padstons each and onto rebuilt masonry knibbs in dense heavy duty concrete blockwork and/or class B eng brick up of adequate foundation - pad bases to LBC approvals.

1. On the support we need to see of beam (B2) (178x102) from all round



BEAM/S (B1) 2/203x133x30 kg UB's Bolted together & used using m/c bolts & channel spacers DETAIL (A)

BEAM (B2) 1/178x102x19 kg SAT onto original c/f. FLOOR WALL AND BOLTED TO INSIDE OF INNER BEAM (B1) AS ABOVE POINT (B1) CONNECTION DETAIL USING 4/M20 (G.R.B.) BOLTS TIED 12mm thick 10mm thick plate to ends of (B1) & (B2) RESPECTIVELY FACTOR USED 10mm from used ALL ROUND

REQUIRED KNEES & EXPOSED 300x300mm IN 7m CASE CONCRETE BUTTRESS AND/OR CLASS B ENG BRICK BUILD UP OFF ABOVE THE PAD-BASE FOUNDATIONS AS APPROVED BY LBC FROM END AND TIED TO ORIGINAL MASONRY WITH 300x300x25 DP RCC PADSTONES BEDDED ONTO MORTAR LAYER OF REBUILT KNEES FOR MIN 200mm END BEARINGS

SUBS ALL ELEMENTS OF STRUCTURE ARE USED ENCASED IN PAUK - 1/2 m depth of concrete base as DET B1, B2 etc

DONOT SCALE ANY PLANS AND/OR SECTIONS !! ALWAYS SITE MEASURE - ON SITE - IN SITE OR PERIODIC ORIGINALLY ANY ELEMENTS OF STRUCTURE AND/OR REPAIRS AFTER THEM IN UNITS/S/STAIRS/DORS & WINDOWS etc ...