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BEAM FLOORING TO EC2

Version 14.28

Job title : New House, Chadlington

By : PTC

Job ref : 68361

Calc ref : 5

Date: 26/04/18

Floor system : Beam & Block , Floor case : IJ2

Beam ref : BT02. 125 mm wide (73 mm at top) x 150 mm deep. 4 no. wires. No. of beams = 1.

Block type : Aggregate infill block 440 mm wide. Density = 1500 kg/cu.m.

Floor case width = 413 mm. ==|=

Exposure type XC1 for EC2 category : ' Inside enclosed buildings ' gives design class with permissible tension.

Type of floor loading = Domestic.

Effective span = 3.950 m. Clear span = 3.850 m.

Alternative point load checked : 2 kN at mid span

<u>LOADING</u>	kN/m ²		Width (m)	Service (kN/m)	Use maximum of EC1 equation 6.10(a) or (b)						
					Ultimate 6.10(a) (kN/m)			Ultimate 6.10(b) (kN/m)			
Self weight of beam, block and infill	1.96	x	0.41	=	0.81	x	1.35	1.09	x	1.25	1.01
Self weight of structural topping	0.00	x	0.41	=	0.00	x	1.35	0.00	x	1.25	0.00
Finishes other than structural topping	2.70	x	0.41	=	1.11	x	1.35	1.50	x	1.25	1.39
Partitions (allow)	0.00	x	0.41	=	0.00	x	1.35	0.00	x	1.25	0.00
Superimposed live	1.50	x	0.41	=	0.62	x	1.05	0.65	x	1.50	0.93
Total	6.16				2.54		3.25			3.33	

RESULTS	M service (kNm)	M ultimate (kNm)	LHS shear (kN)	RHS shear (kN)	Max V_{Ed} / V_{Rd} (ratio)	Total Deflection (mm)	Movement (mm)
Actual	4.96	6.49	6.58	6.58	0.31	8.1	1.5
Limit	5.99	8.44	20.29	20.29	1	15.8*	11.3**

Flexurally cracked shear occurs at x = 1.106 and 2.844 m from LHS

Shear force **PASS**Alternative point load **PASS**

Natural frequency = 7.3 (Hz) Minimum value = 4.0 (Hz)

PASS

Crack width = 0.002 (mm) Limiting value = 0.2 mm

PASSService moment **PASS**Ultimate moment **PASS**Deflection **PASS**

Curltailment length

*** Design satisfactory *** (max. ratio actual / limit = 0.96)

*span/250

**span/350

** Finishes = Non-brittle finishes