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BEAM FLOORING TO EC2

Version 14.28

Job title : New House, Chadlington

By : PTC

Job ref : 68361

Calc ref : 6

Date: 26/04/18

Floor system : Beam & Block , Floor case : IJ1

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 = 525 mm. ==l==

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

Type of floor loading = Domestic.

Effective span = 3.400 m. Clear span = 3.300 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	1.86	x	0.53	=	0.98	x	1.35	1.32	x	1.25	1.22
Self weight of structural topping	0.00	x	0.53	=	0.00	x	1.35	0.00	x	1.25	0.00
Finishes other than structural topping	2.70	x	0.53	=	1.42	x	1.35	1.91	x	1.25	1.77
Partitions (allow)	0.00	x	0.53	=	0.00	x	1.35	0.00	x	1.25	0.00
Superimposed live	1.50	x	0.53	=	0.79	x	1.05	0.83	x	1.50	1.18
Total	6.06				3.18			4.06			4.17

RESULTS	M service	M ultimate	LHS shear	RHS shear	Max V_{Ed} / V_{Rd}	Total Deflection	Movement
	(kNm)	(kNm)	(kN)	(kN)	(ratio)	(mm)	(mm)
Actual	4.60	6.02	7.09	7.09	0.33	4.8	1.0
Limit	5.99	8.44	20.29	20.29	1	13.6*	9.7**

Flexurally cracked shear occurs at x = 1.088 and 2.312 m from LHS

*span/250

**span/350

** Finishes = Non-brittle finishes

Shear force

PASS

Alternative point load

PASS

Natural frequency = 8.9 (Hz) Minimum value = 4.0 (Hz)

PASS

Crack width = 0.000 (mm) Limiting value = 0.2 mm

PASS

Service moment

PASS

Ultimate moment

PASS

Deflection

PASS

Curltailment length

*** Design satisfactory *** (max. ratio actual / limit = 0.86)