FORTERRA

Tel: 01636 832000

BEAM FLOORING TO EC2

Version 14.28

Job title : New House, Chadlington | **By : PTC**

Job ref : 68361 | **Calc ref : 2** | **Date: 26/04/18**

Floor system : Beam & Block , Floor case : RDJ Special
Beam ref : RD09. 215 mm wide (165 mm at top) x 150 mm deep. 9 no. wires. No. of beams = 3.
Block type : Aggregate infill block 440 mm wide. Density = 1500 kg/cu.m.
Floor case width = 724 mm. =III

Exposure type XC1 for EC2 category : ' Inside enclosed buildings ' gives design class with permissible tension.
Type of floor loading = Domestic.
Effective span = 5.700 m. Clear span = 5.600 m.

Alternative point load checked : 2 kN at mid span

LOADING	kN/m^2		Width (m)		Service (kN/m)		Ultimate 6.10(a) (kN/m)			Use maximum of EC1 equation 6.10(a) or (b) Ultimate 6.10(b) (kN/m)
Self weight of beam, block and infil	3.26	x	0.72	=	2.36	x 1.35	3.19	x 1.25		2.95
Self weight of structural topping	0.00	x	0.72	=	0.00	x 1.35	0.00	x 1.25		0.00
Finishes other than structural topping	3.60	x	0.72	=	2.60	x 1.35	3.52	x 1.25		3.25
Partitions (allow)	0.00	x	0.72	=	0.00	x 1.35	0.00	x 1.25		0.00
Superimposed live	1.50	x	0.72	=	1.09	x 1.05	1.14	x 1.50		1.63
Total	**8.36**				**6.05**		**7.84**			**7.83**

POINT, CROSS WALL & LINE LOADS

Cross Wall Dead load = 7.50 kN/m at x = 5.450 m LHS x width = 0.724 m.

Line Dead load = 2.51 kN/m from x = 0.000 to 5.700 m LHS.

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	35.44	46.52	32.33	39.01	0.31	17.3	5.3
Limit	37.35	60.90	123.87	123.87	1	22.8*	16.3**

*span/250 **span/350

** Finishes = Non-brittle finishes

Flexurally cracked shear occurs at x = 1.140 and 4.674 m from LHS

Shear force **PASS**
Alternative point load **PASS**
Natural frequency = 5.3 (Hz) Minimum value = 4.0 (Hz) **PASS**
Crack width = 0.015 (mm) Limiting value = 0.2 mm **PASS**
Service moment **PASS**
Ultimate moment **PASS**
Deflection **PASS**
Curltailment length

*** * * Design satisfactory * * * (max. ratio actual / limit = 0.95)**