DERBYSHIRE County Council Improving life for local people Derbyshire County Council County Property Division, Chatsworth hall, Chesterfield Road, Matlock, Derbyshire, DE4 3FW	Project 9 Grampian Way, Long Eaton			Job Ref. 907310	
	Section NEW LINTEL TO SUPPORT CEILING TRACK HOIST			Sheet No. 1	
	Calc. by ML	Date 7/8/2017	Chc'd by	Date	App'd by	Date

New lintel to support ceiling track hoist above doorway in proposed extension.

Span of roof between walls = 4500mm, Pitch = 23°

Door opening = 1000mm, Door height = 2100mm, Ceiling height = 2400mm

1.1 x 1000 = 1100mm

Outer leaf loads

Brickwork, 0.3 x 0.1 x 20kN/m³ = 0.6kN/m Total = 0.6kN/m

Inner leaf loads

Blockwork, 0.3x0.1x18kN/m³ = 0.54kN/m

Roof load, 0.6kN/m² x 4.5/2 = 1.35kN/m

Tiles, 0.5kN/m² x (4.5/2)/cos 23° = 1.22kN/m

Battens, 0.03kN/m² x " = 0.073kN/m

Felt, 0.015 kN/m² x " = 0.037kN/m

Trusses Rafters, C24 Grade = 0.25kN/m

Imposed ceiling load, 0.25kN/m² x 4.5/2 = 0.56kN/m

Insulation, 0.03kN/m² x 4.5/2 = 0.068kN/m

Ceiling (Plaster + Skim), 0.19kN/m² x 4.5/2 = 0.43kN/m Total = 4.53kN/m

Hoist loads

Hoist SWL = 138kg
Unit + Sling = 25kg
Rail = 5kg/m

Increase hoist loads by 25% to account for any dynamic effects.

1.25 x (138 + 25) = 204 kg

Rail, 5kg/m x 4.5/2 = 11.3kg

Total point load on lintel = (204 + 11.3) x 9.81/1000 = 2.11kN

Signed: Date

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Lintel Loads.

Outer leaf = 1.1 x 0.6 = 0.66kN

Inner leaf = (4.53 x 1.1) + 2.11 = 7.1kN Total = 7.76kN

Ratio of loading = 7.1/0.66 = 10.8. ∴ 11:1 on inner leaf blockwork

IG L1/S 100. 1350mm in length

For a load ratio of 19:1, Total UDL = 13kN

$M_{MAX} = \frac{WL}{8} = \frac{13 \times 1}{8} = 1.625kNm$

W = 4.53 x 1.1 + 0.6 x 1.1 = 5.64kN

$\frac{1.233}{1.625} = 0.76$ Ok ✓

$M_{Ed} = \frac{WL}{8} + \frac{PL}{4} = \frac{5.64 \times 1}{8} + \frac{2.11 \times 1}{4} = 1.233kNm$

An IG L1/S 100 Lintel is adequate to support the ceiling track hoist.

Signed: Date

Cavity Wall

Available for cavity widths from **50mm to 165mm**

OUTER LEAF	INNER LEAF
102mm	100mm

L1/S

Blockwork built tight against inner face of the lintel. Place mortar bed on top of blockwork before floor units are laid to provide even distribution of load. Lintels may be propped to facilitate speed of construction. See Lintel Installation on page 6.

DAMP PROOFING
Provide a damp proof course over all lintels. For more guidance please see our on-line brochures or contact our technical team.

Standard Load

L1/S 100	For cavity widths 90-105mm									
Manufactured length 150mm increments	600-1200	1350-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3000	3150-3600	3750-4050	4200-4800
Height 'h'	88	88	107	125	150	162	171	200	200	200
Thickness	1.6	2.0	2.0	2.0	2.0	2.6	2.6	3.2	3.2	3.4
Total UDL kN 3:1	12	16	19	21	23	27	27	27	26	27
Total UDL kN 19:1	10	13	16	17	18	22	20	20	19	22

90-105mm cavity

L1/S 110	For cavity widths 110-125mm					
Manufactured length 150mm increments	600-1500	1650-1800	1950-2100	2250-3000	3150-4050	4200-4800
Height 'h'	95	121	145	195	195	195
Thickness	2.0	2.0	2.6	2.9	3.2	3.4
Total UDL kN 3:1	16	22	24	27	26	25
Total UDL kN 19:1	13	18	18	22	19	20

110-125mm cavity

L1/S 150	For cavity widths 150-165mm					
Manufactured length 150mm increments	600-1500	1650-1800	1950-2100	2250-3000	3150-4050	4200-4800
Height 'h'	100	125	180	180	180	180
Thickness	2.0	2.0	2.6	2.9	3.2	3.4
Total UDL kN 3:1	16	22	24	27	26	25
Total UDL kN 19:1	13	18	18	22	19	20

150-165mm cavity

Please note other cavity widths and loading conditions are available.