RCA STRUCTURES
STRUCTURAL ENGINEERING AND DESIGN

ISO 9001 REGISTERED FIRM

The Institution of Structural Engineers

2nd Floor, Unit 1, Birchanger Industrial Estate,
Stansted Road, Bishops Stortford, Herts, CM23 2TH

Telephone:(01279) 506721

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Structural Calculations

Project:- Derby Lodge, Wicklow Street, London

Design:- Support landing structure whilst investigative works are carried out.

Job No:- 25536 *Date:-* Dec-23

Prepared By:- C. Seaman (Bsc Hons)

Checked By:- I. Devonshire (Bsc Hons)

Basis Of Design:-

BS EN 1990	Basis of Structural Design
BS EN 1990 NA	UK National Annex for Basis of Structural Design
BS EN 1991	Actions on Structures
BS EN 1991 NA	UK National Annex for Actions on Structures

Balustrade load =

Notes:-

1. *Full building regulations and checking engineer approval must be obtained prior to installation or fabrication.*
2. *Installation to be in accordance with current codes and standards.*
3. *All lengths and dimensions in these calculations are for design purposes only and should not be used for setting out on site. Contractor/Builder must measure up lengths/heights for setting out before ordering of any materials.*
4. *All loadings to existing structures have been calculated following a visual inspection on site and further investigative works may be required to verify the type of construction.*
5. *All construction work to comply with the Construction Design & Management (CDM) Regulations 2015.*
6. *All planning and other elements of Building Regulations by others.*

Revisions:-

Rev	*Date*	*Revision*

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Title of Scheme *Derby Lodge, Wicklow Street, London*

Job No. *25536*

DESIGN BRIEF/SPECIFICATION

Drawings used:-	Drawings provided by client

Scope of required design works:-

1 *Investigative works to be carried to confirm the condition of the existing steel beams which support the existing landings.*

Brickwork to be removed to expose the beams where they bear into the pier to establish if they are corroded / adequatly supported.

Brickwork below the beams will not be removed. However, the landings will be propped with Acrow props as a precaution. Props cannot be placed directly under the beams due to the existing balustrade.

N.B. Only one side will be exposed at any time and one floor. Props will be installed top to bottom. Works to be carried out from the top down the structure.

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Landing Loads.

	Permanent G_k (kN/m^2)	Variable Q_k (kN/m^2)
Landing slab		
Up to 150mm deep concrete landing	3.60	
Finishes	0.50	
Variable Action - Communal landing		3.00
	4.10	3.00

Balustrade load : 0.40 kN/m

Prop Height = 2.70 m

Proposed Prop centres = 1.00 m

Width of landing loading props = $\frac{1.00\ m}{2}$ = 0.5 m

Load applied to each prop =

Load from landing = 7.10 kN/m2 x 0.5 m = 3.55 kN/m

Balustrade load = 0.40 kN/m

3.95 kN/m

Load per prop = =

3.95 kN/m x 1 m = 3.95 kN

Type 2, acrow prop capacity = 26 kN Therefore:- O.K.

(see design table on the next page)

450mm long Scaffold boards to be placed at the top and bottom of the props.

Props to line up throught the structure.

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Prop Capacity Tables

Home About Scaffold Fo

One of the most searched for items on our website was Prop Capacity Tables.

There's obviously a lot of health and safety conscious people out there wanting to double check their mathematics!

We've created a page specifically for this – and also for your viewing pleasure, all is revealed below ...

SAFE LOAD CAPACITY kN

Prop height m	No. 0	No. 1	No. 2	No. 3	No. 4
1.05	31				
1.22	31				
1.52	31				
1.65	29.3	31			
1.83	28.4	31			
1.98		31	31		
2.13		31	31		
2.44		29	31		
2.59		23	28.9	31	
2.74		21	28	31	

Capacity = 26kN

REFER TO RCA DRAWING 25536/02