

**DEM** Design. Engineering. Manufacture.

“Supporting the Steel Framing Industry”

[www.lightgaugesteel.co.uk](http://www.lightgaugesteel.co.uk)

# Light Gauge Steel Portal Frame Load Span Tables



Tel. +44 1423 889464  
Stephen Napper  
[steve@mmcengineer.com](mailto:steve@mmcengineer.com)

Tel. +44 1423888291  
Deon Anderson  
[deon@howickltd.com](mailto:deon@howickltd.com)

Tel. +44 1423500211  
Gareth Collier  
[gareth.collier@vertex.](mailto:gareth.collier@vertex.)



## Overview

Brief design appraisal has been carried out for a 2 storey residential building at a labour camp. "Light steel framing panel construction" is adopted for this design.

Panel construction: Wall panels, floor cassettes and roof trusses are prefabricated in a factory and later assembled on site.

Wall panels are assembled from cold formed lipped C-section studs spaced at 600mm centres (88.9x41.3x1.6 C-section at external wall and 88.9x41.3x1.2 C-section at internal wall). Floor to floor height to be 2.7 metres.

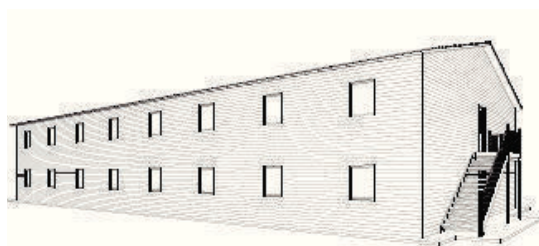
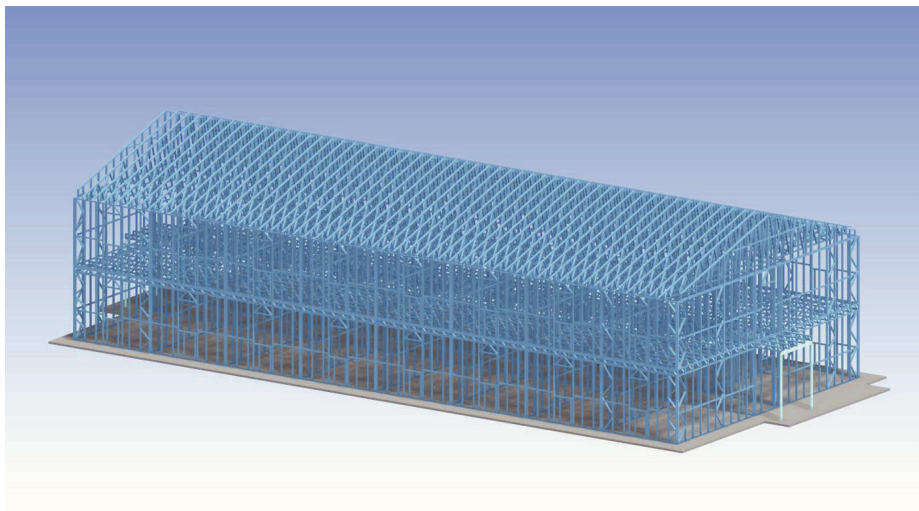
Floor cassettes consist of 200mm deep floor trusses spanning 4 metres at bedrooms and 2 metres at corridor. The floor truss is assembled from 88.9x41.3x1.2 C-section. The roof trusses consist of fink trusses assembled from similar C-section members. A chipboard floor and steel clad roof construction will be adopted.

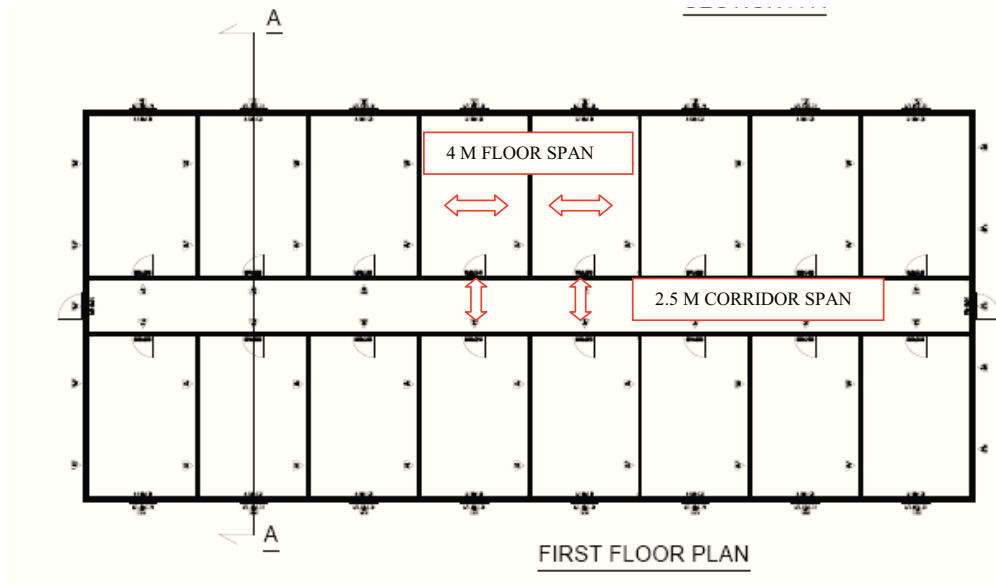
Some of the finishing materials may be applied in the factory, to speed on-site construction. Panels can comprise the steel elements alone or the facing materials and insulation can be applied in the factory. The panels are connected on site using conventional techniques (bolts or self drilling screws).

The main advantages of panel or sub-frame construction are:

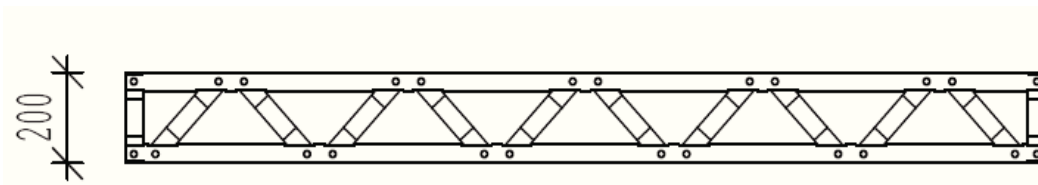
Speed of erection of the panels or sub-frames  
Quality control in production, Reduced site labour costs  
Scope for automation in factory production.

The geometrical accuracy and reliability of the panels and other components is better than with stick-build construction because panels are prefabricated in a factory environment. The accurate setting out and installation of foundations is a key factor to achieve rapid assembly of the panels and to obtain the maximum efficiency of the construction process.

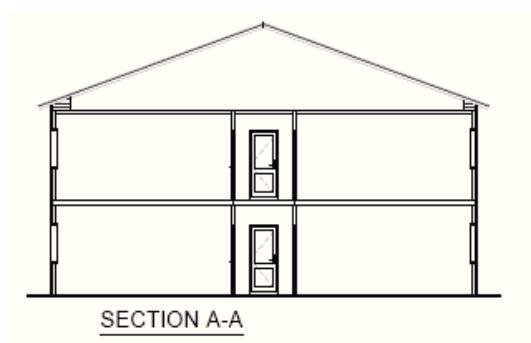




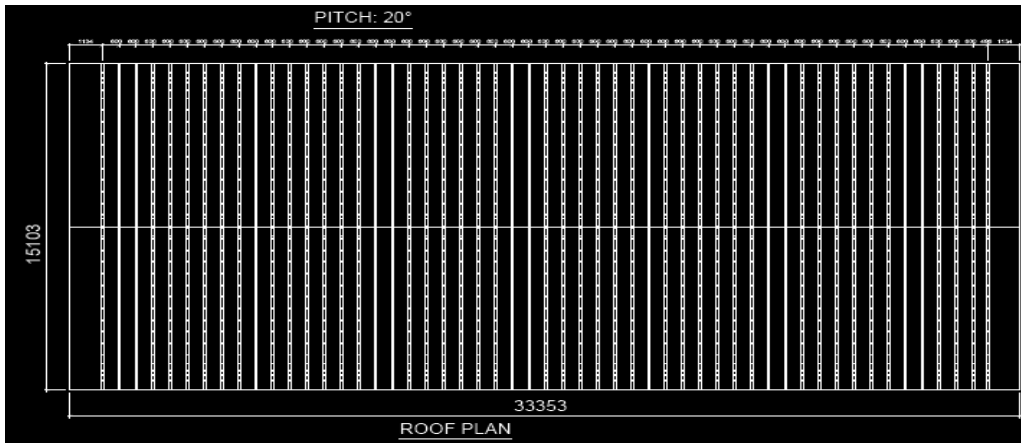
**TYPICAL FLOOR LAYOUT**



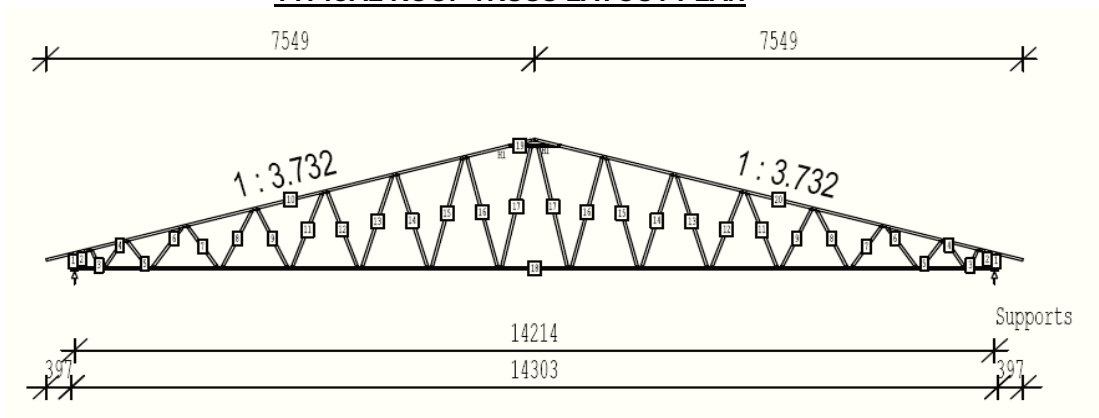
**TYPICAL 200 DEEP FLOOR TRUSS ASSEMBLED FROM 88.9x41.3x1.2 C-SECTION**



**SECTION A-A**

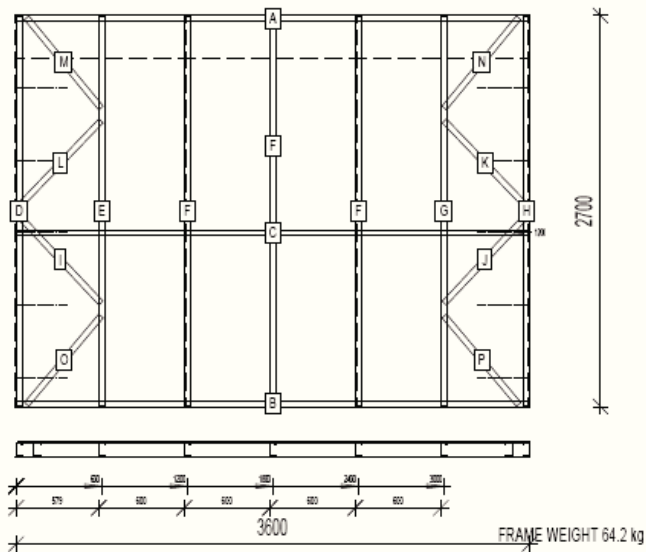


**TYPICAL ROOF TRUSS LAYOUT PLAN**

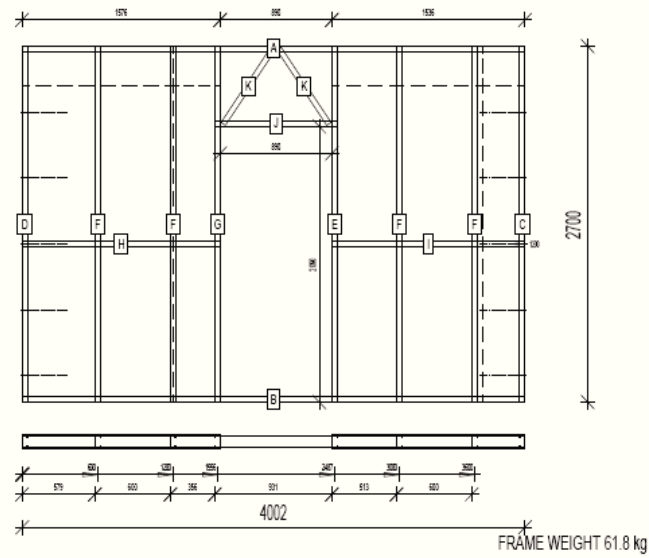


**TYPICAL FINK TRUSS ASSEMBLED FROM C SECTION**

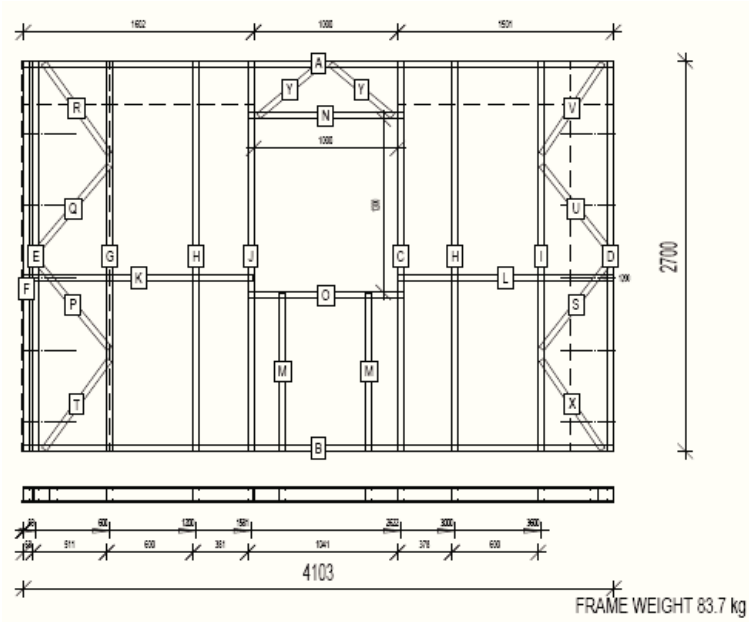
**TYPICAL WALL PANEL TYPES:**



**1.0 TYPICAL BRACED WALL PANEL (88.9x41.3x1.2 STUDS SPACED @ 600C/C)**



### 1.1 TYPICAL WALL PANEL WITH DOOR OPENING



### 1.2 TYPICAL WALL PANEL WITH WINDOW OPENINGS

**DEM is the combination of the knowledge of three well established companies that are working together to make the transition to Light Gauge Steel Construction easier to handle.**

### Stephen Napper Associates Ltd

Stephen Napper Associates Ltd is a leading Structural and Civil Engineering Consultancy with a speciality in light gauge steel. The practice is at the cutting edge of Light Steel Framing design, with over ten years experience in the area, as well as other MMC methods. Stephen Napper Associates Ltd, with the SCI, has developed designs to the new Eurocodes (EC3, came into effect March 2010) to gain the most competitive advantage they can for you, our client. They are also working with the SCI on CE Marking for our clients – a legal requirement in October 2013.

### Howick Ltd.

Howick have been building rollforming equipment for over 30 Years. Their focused Framing Machines are designed to quickly produce accurate load bearing frames that allow the production of multi storey structures. Howick offer customised tooling to suit your specific needs where required.

### Vertex

Vertex is the leading building design software company that allows full design of all components from the foundation to the walls, floors and roof design. Design is made easy with various automated features as well as a library of building components that allow the designer a high degree of flexibility to take both the exterior and interior to a fully finished state including furnishings. Vertex then has an automated and custom link to the Howick Rollforming machine to turn accurate building design into accurate production.



## What can DEM do for you?

We don't propose we do all the work for you but we do make three of the largest components of your business easier. We do this by offering our knowledge in each of our specialist areas.

The three main Questions we do answer are.

How do I take those initial plans from concept to production ready designs?

How do I make sure the designs meet the required standards and codes?

How do I produce the framing components and what equipment do I need?



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