

DEM Design. Engineering. Manufacture.

“Supporting the Steel Framing Industry”

11 Storey Residential Case Study



Tel. +44 1423 889464
Stephen Napper
steve@mmcengineer.com



Tel. +44 1423888291
Deon Anderson
deon@howickltd.com



Tel. +44 1423500211
Gareth Collier
gareth.collier@vertex.fi

“Supporting the Steel Framing Industry”

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

Stephen Napper Associates

Stephen Napper Associates are 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, with the SCI, is already developing designs to the upcoming Eurocodes (EC3, due out in March 2010) to gain the most competitive advantage they can for you, our client.

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. By offering our knowledge in each of our specialist areas.

The three main Questions we do answer are.

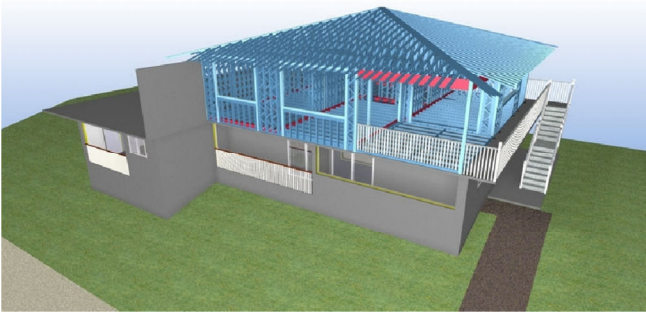
How do I take those initial plans from concept to production ready designs?

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?

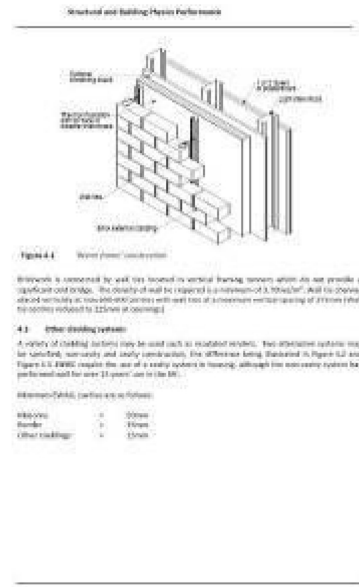
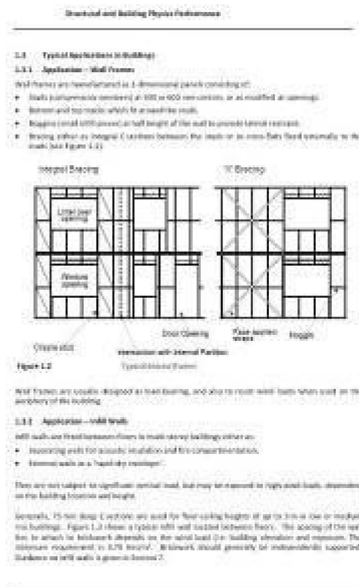
Typical offering from DEM

Vertex supply the software, Technical Support and Training for the use of their software package. As required additional customisation of the software is available for the optimisation of your system as it evolves.



Stephen Napper Associates supply technical manuals that include the standard details needed to correctly finish the structure to building standards such as NHBC Chapter 6.10 and SCI P301. (Sample Pages Below.)

As well as offering complete structural calculations for the project, including above and below ground works, thus offering a one stop solution for the whole project.



Howick supply the frame making machinery for producing walls floors and truss components. Along with the training and support needed to help companies new to the processes involved in producing their own framing components.



Stephen Napper Associates Ltd
 01423 889464
www.mmengineer.com
 Contact: Steve Napper

Howick Ltd
 01423 888291
www.howickltd.com
 Contact: Deon Anderson

Vertex UK
 01423 500211
<http://uk.vertex.fi>
 Contact: Gareth Collier

DEM

Design. Engineering. Manufacture.

“Supporting the Steel Framing Industry”

DEM Package 1 (Low Rise)

- 2 Seats Vertex BD FRAMER.
- Vertex Training (3 days), Technical Support and 1st years maintenance.*
- SCI Technical manual.
- Standard Details Documentation.
- 75 Hours of Engineering consultancy from Stephen Napper Associates including 1 UK Site visit / attendance of a design meeting.
- Indicative design cost estimation documents.
- Howick 89mm or 100mm H500 Framing machine and Decoiler installed and operator training provided.
- 2 additional visits to your site by a Howick technician for additional training and maintenance.**

DEM Package 2 (Medium Rise)

- 2 Seats Vertex BD Pro.
- Vertex Training (4 Days), Technical Support and 1st years maintenance.*
- SCI Technical manual.
- Standard Details Documentation.
- Indicative design cost estimation documents.
- 110 Hours of Engineering consultancy Stephen Napper Associates including 1 European Site visit / attendance of a design meeting.
- Howick 89mm or 100mm H500 Framing Machine and Decoiler installed and operator training provided.
- Howick 150mm H500 Framing Machine and Decoiler installed and operator training provided.
- 2 additional visits to your site by a Howick technician for additional training and maintenance.**

DEM Package 3 (Medium Rise)

- 2 Seats Vertex BD Pro Including G4 add on.
- Vertex Training (4 + 2 Days), Technical Support and 1st years maintenance.*
- SCI Technical manual including Floor Joist.
- Standard Details Documentation.
- Indicative design cost estimation documents.
- 110 Hours of Engineering consultancy from Stephen Napper Associates including 2 European Site visits / attendance of design meetings.
- Howick 70 or 150mm H500 Framing machine and Decoiler installed and operator training provided.
- Howick 89mm or 100mm H500 Framing machine and Decoiler installed and operator training provided.
- Howick 250mm H600 Floor Cassette Machine and Decoiler installed and operator training provided.
- 2 additional visits to your site by a Howick technician for additional training and maintenance.**

Additional Options

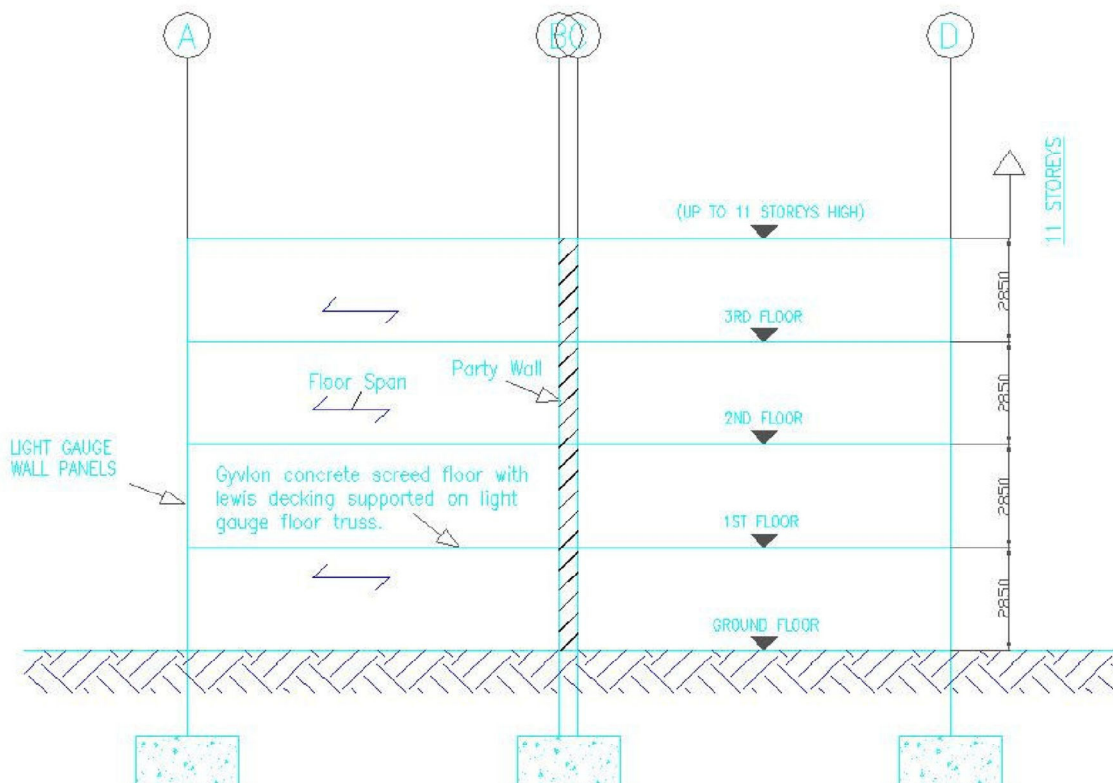
- Vertex G4 package.
- Contract vertex design service.
- Additional Engineering Consultancy hours from Hill Cannon (UK) LLP.
- Howick maintenance contract.
- Additional Howick Machine tooling customisation.

*Training at Vertex’s offices, training available onsite with Travel Costs additional. **Travel and Parts additional.

DESIGN PHILOSOPHY

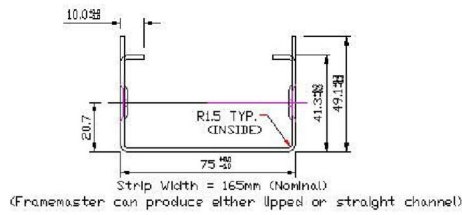
1.0 11-Storey Light Steel Frame Building

- 1.1 Brief design has been carried out to determine the max possible floor span for an eleven-storey residential light steel frame building. Design is carried out using 75,100 and 150 section profiles. The maximum allowable floor span is estimated based on the stud's critical capacity at ground floor. The studs are assumed to be space at 200c/c (400c/c back to back sections).
- 1.2 The max axial load and moment acting on the studs is calculated. Hence the maximum floor span can be determined at each storey. Three different section profiles are used for this exercise that consists of 75x41.3x1.6, 100x41.3x1.6 and 150x45x1.6.
- 1.3 Wall panels are assumed to be board/rendered finish for design. Design assumes party walls (twin skin construction) between adjacent apartments/accommodation.
- 1.4 The floor will be Lewis decking with 50 mm Gyvlon concrete screed. Floor to floor height to be 2.85 metres. Domestic loading is assumed for design.

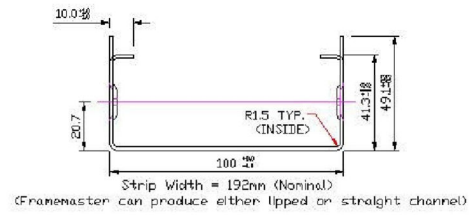


Typical Light Steel Frame Layout

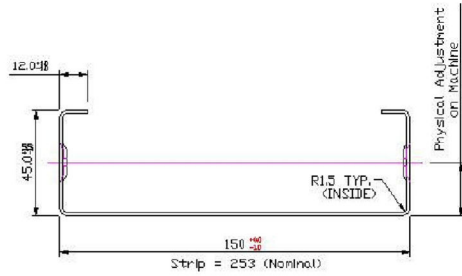
11-STOREY RESIDENTIAL LIGHT STEEL FRAME BUILDING.



75mm Section



100mm Section



150mm Section

Typical Section Profiles

TYPICAL MAXIMUM FLOOR SPAN FOR WALL PANEL SECTIONS SPACED AT 200 c/c/ 400c/c BACK TO BACK SECTIONS.

<u>TYPICAL WALL SECTIONS</u>	<u>MAX FLOOR SPAN</u>
75x41.3x1.6 @200c/c	6.3 metres
100x41.3x1.6 @200c/c	6.9 metres
150x45x1.6 @200c/c	8.1 metres