Project Name:	Job Number:
Description/Notes: Steel Beam	Date: 10/06/2013

Beam Details

Beam Span Length = 4m

Steel Beam Selected = 152 x 89 x 16 UB S275

Load Details

Distributed Loads:

UDL 1

Load 1: 'Flat roof, with no permanent access'

Variable: 0.75kN/m^2, Permanent: 1kN/m^2

Width of load perpendicular to beam, or height of load supported by beam: 2.5m

Safety factors, Deflection Limits & Restraints

Variable Load Safety Factor: 1.5

Permanent Load Safety Factor: 1.35

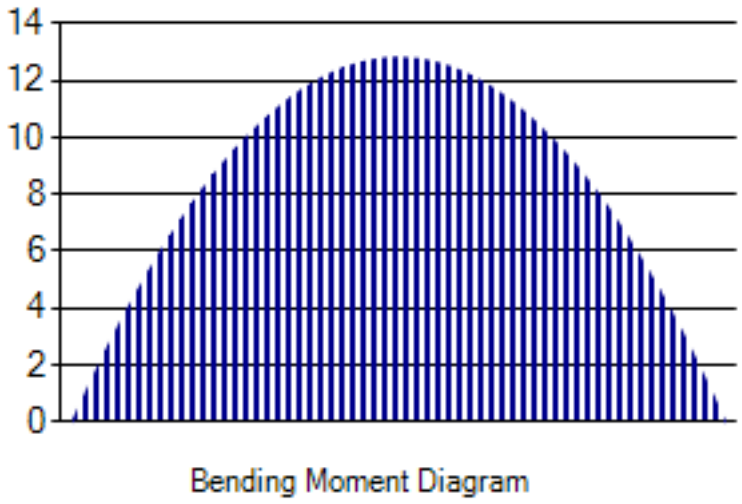
Length Between Lateral Restraints: 4m

Deflection Limit, Variable Load Only: Span/360

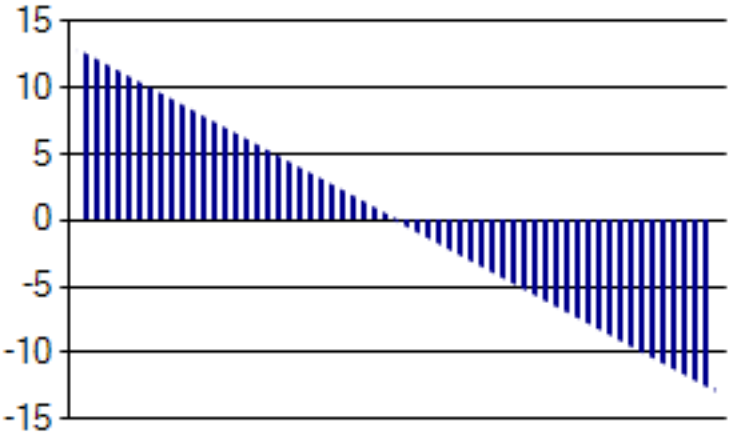
Deflection Limit, Total Variable & Permanent Load: Span/200

Project Name:	Job Number:
Description/Notes: Steel Beam	Date: 10/06/2013

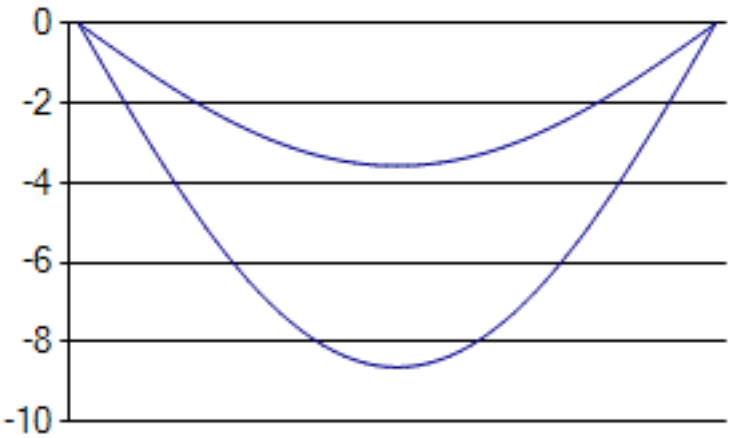
Diagrams



Bending Moment Diagram



Shear Force Diagram



Deflection Diagram

Project Name:	Job Number:
Description/Notes: Steel Beam	Date: 10/06/2013

Results Of Analysis

Mcy = 33.8kNm > 12.8kNm, Therefore OK

Mb = 17.8kNm > 12.8kNm, Therefore OK

Shear Capacity, Vc = 130kN x 0.5 = 65kN > 12.8kN, Therefore OK

Variable Load Deflection = 3.57mm < 11.11mm, Therefore OK

Total Load Deflection = 8.63mm < 20mm, Therefore OK

Notes

Mc,y value from Tata Steel 'blue book' to BS EN 1993-1-1.

Mb value interpolated from Tata Steel 'blue book' to BS EN 1993-1-1.

C1 value conservatively taken as 1.0.

Shear Capacity, Vc from Tata Steel 'blue book' to BS EN 1993-1-1.

Reduction of moment resistance by high coincident shear force has been avoided by checking that the shear force is not more than 50% of the shear resistance.

Ends of beam are to be laterally restrained. Ends of beams can be laterally restrained using one of the following methods;
1) End of beam built into a masonry wall.
2) End of beam fixed to a masonry wall.
3) End of beam fixed to a column or a beam.
The designer is to ensure that the proposed detail adequately ensures that the end of the beam is laterally restrained.

No allowance has been made for destabilising loads which are outside the scope of these calculations (Destabilising loads would not normally occur in a traditional masonry structure).