

Steel Frame Design Exercise 11.4

The city of Des Moines, Iowa has contracted with you for the design of a covered marketplace. This will be a roofed space without walls, 100' x 120' (30 x 37 m) in plan, in which stalls will be set up on weekends to sell fresh vegetables and fruits, eggs, crafts, and antiques. The city asks that your design be light and airy, and that it have daylighting throughout. The city engineer suggests that to save construction time, your design should use only wide-flange shapes, open-web steel joists, and steel decking, which require little fabrication.


1. Draw a freehand perspective showing the character of the interior of the marketplace you have designed.

Name: _____ Not To Scale

2. Draw a framing plan of your marketplace design, giving approximate sizes of all members, in the space indicated below.



3. On the ground line below, draw either a cross section or a longitudinal section to show the shape of the roof and to indicate how it is braced against wind loads.

Grade 

Scale: $1'' = 20'$ (1:240)
 $1 \text{ square} = 5'$ (1.5 m)

4. On this page and the following page, draw the principal connections for the frame you have designed. If your design relies on AISC Type I connections for lateral stability, this should be reflected in these details.

Scale: $1\frac{1}{2}'' = 1'$ (1:8)
 $1\text{ square} = 2''$ (50 mm)

