ENDS 231. Assignment #5

**Date:** 2/20/07, *due 2/27/07*   *Pass-fail work*

Problems: from all but 5A from Onouye, Chapter 4.
*Note: Problems marked with a * have been altered with respect to the problem stated in the text.*

5A)   The floor framing plan is subject to uniform distributed loads of: dead load = 45 psf,
             live load = 120 psf. Determine the resulting reactions by the beams & on the
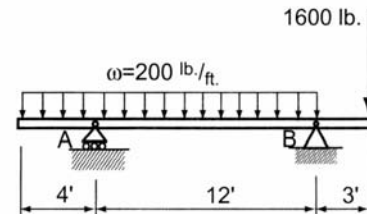   columns.

Partial answer to check with: R_{B1} = 8415 lb, R_{B2} = 22,275 lb, R_{B3} =13,860 lb, C_1 = 22,275 lb.
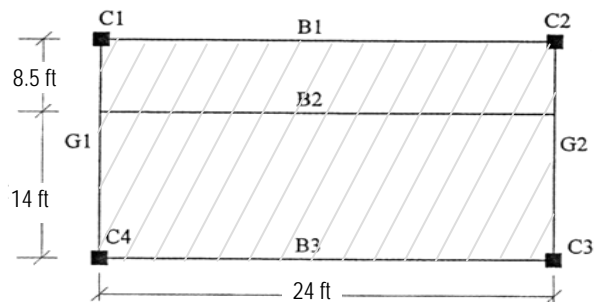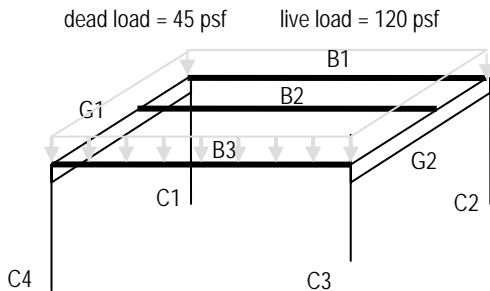
Construct FBDs and solve for the support reactions in each problem.

3.3.1   A double overhang beam is loaded as shown. Solve for the reactions at *A* and *B*.
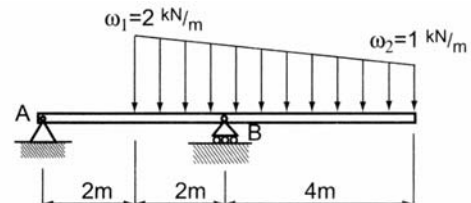
   *Partial answers to check with: A_y = +1,733 lb.,
        B_x = 0, B_y = +3,067 lb.*

Problem 3.3.1

3.3.5   Determine the support reactions at *A* and *B* for the overhang beam shown.

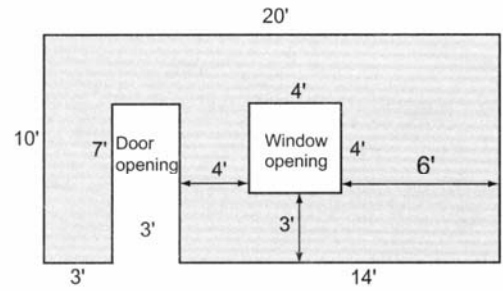   *Partial answers to check with: A_x = 0,
        A_y = -1.5 kN, B_y = +10.5 kN*

Problem 3.3.5

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7.1.4 A precast concrete wall panel with dimensions shown is to be hoisted into position at a building site. In hoisting the wall panel, it might be useful to know the location of its centroid. Determine the centroidal x and y axes referenced from the lower left corner.
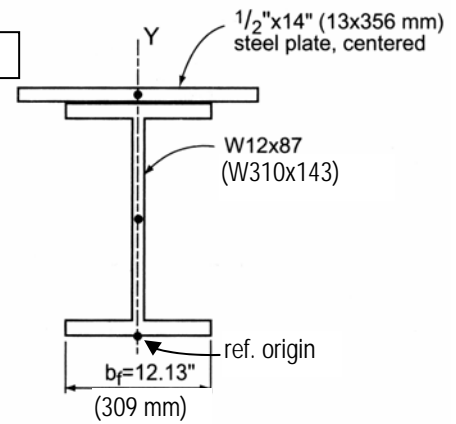

Problem 7.1.4

Partial answers to check with: $\hat{x} = 10.5'$, $\hat{y} = 5.2'$

*Use metric units, and a <u>W310x143</u>. (W310x129 is not listed.)

7.1.6 Find the centroid of the built-up steel section composed of a W12 × 87 (wide flange) with a $\frac{1}{2}$" × 14" cover plate welded to the top flange. See the steel table in the Appendix for information about the wide-flange section.

Partial answers to check with: $\hat{x} = 0$, $\hat{y} = 196\ mm$

Problem 7.1.6

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