ENDS 231. Assignment #5

Date: 2/19/08, due 2/26/08  Pass-fail work

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

(25%) 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 & load on the columns. (load tracing)

Partial answer to check with: $R_{B2} = 16706.25$ lb, $R_{G3@G1} = 10395$ lb, $R_{G1@C1} = 12529.7$ lb, $P_{oc2} = 20,822.8$ lb.

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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. (centroids)

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

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Use metric units, and a \textbf{W310x143.} (W310x129 is not listed.)

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

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