ENDS 231: Practice Quiz 4

Clearly show your work and answer.

Given the beam with the following loading and support reactions and cross section geometry:

a) Complete the shear and bending moment diagrams on the axes provided, and clearly identify and locate the maximum shear and maximum bending moment.

b) Find the maximum bending stress for the section.

c) Find the maximum shear stress for the section.

d) Find the minimum nail capacity required for the bottom 2x4 if the pitch spacing is 2.25 in.

e) [some short question from the text material]

Answers:

a) plotted answers are in these shapes: $V_{\text{max}} = -34.61 \text{ k at } D, M_{\text{max}} = 45.7 \text{ k-ft at } 0.86 \text{ ft to right of } C$

b) $f_b = 11.1 \text{ ksi ($f_{b\text{-top}} = 10.8 \text{ ksi}$)}$

c) $f_v = 2.25 \text{ ksi}$

d) $F = 3.3 \text{ k}$