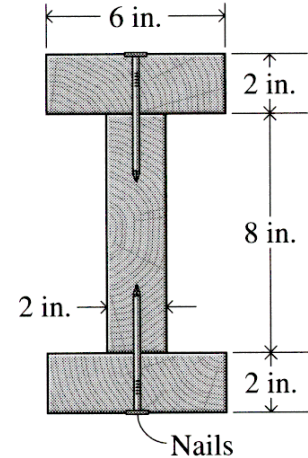
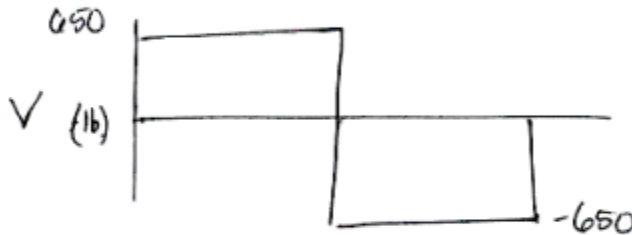
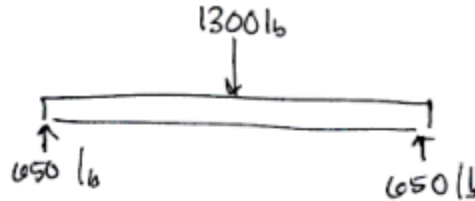


A timber beam is fabricated from one 2 X 8-in. and two 2 X 6-in. pieces of lumber to form the cross section shown. The flanges of the beam are fastened to the web with nails that can safely transmit a shear force of 100 lb. If the beam is simply supported and carries a 1300-lb load at the center of the 12-ft span, determine **the spacing required for the nails**.

Show all steps clearly.

Write your answer in the box at the bottom of the page.



$$q = \frac{650(5)(6)(2)}{\frac{2(8^3)}{12} + 2\left[\frac{6(2^3)}{12} + 5^2(6)(2)\right]} = \frac{1(100)}{5}$$

$$s = 1.778 \text{ in.}$$