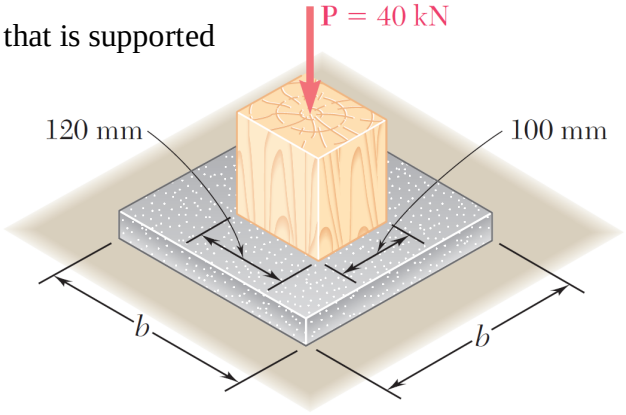
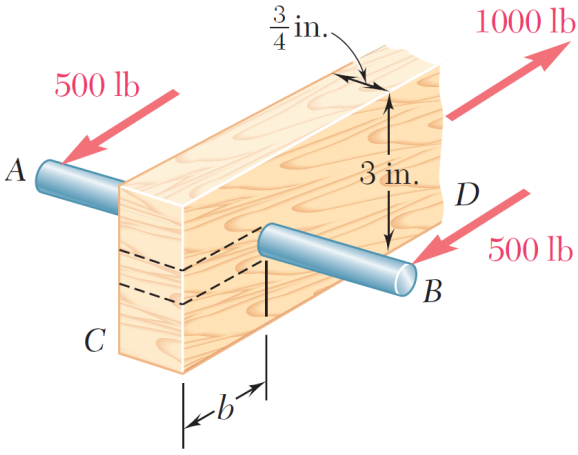
1) GIVEN: A 40-kN axial load is applied to a short wooden post that is supported by a concrete footing resting on undisturbed soil.
REQ'D: (a) Maximum bearing stress on concrete footing,
(b) Size of footing for average bearing stress in soil of 145 kPa.

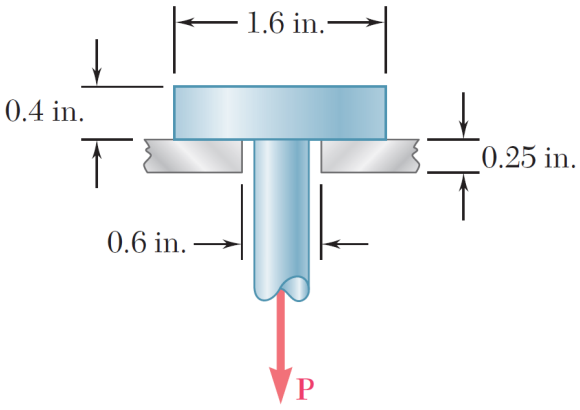


2) GIVEN: A ∅ 1/2" steel rod is fitted to a round hole near end of the wooden member.
REQ'D: (a) Maximum average normal stress in the wood
(b) Distance b for shearing stress of 90 psi
(c) Average bearing stress on the wood



3) GIVEN: Load P is applied to a steel rod supported by an aluminum plate in which a ∅0.6" hole has been drilled. Shearing stress must not exceed 18 ksi in the steel rod and 10 ksi in the aluminum plate.

REQ'D: Largest load P that can be applied to the rod.



4) GIVEN: Steel bar caries a series of loads as shown.

REQ'D: Axial load, axial stress and axial strain in each of the segments.