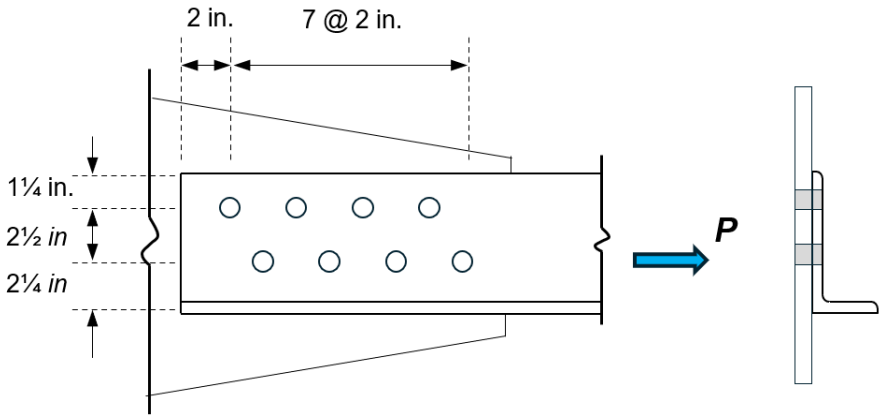
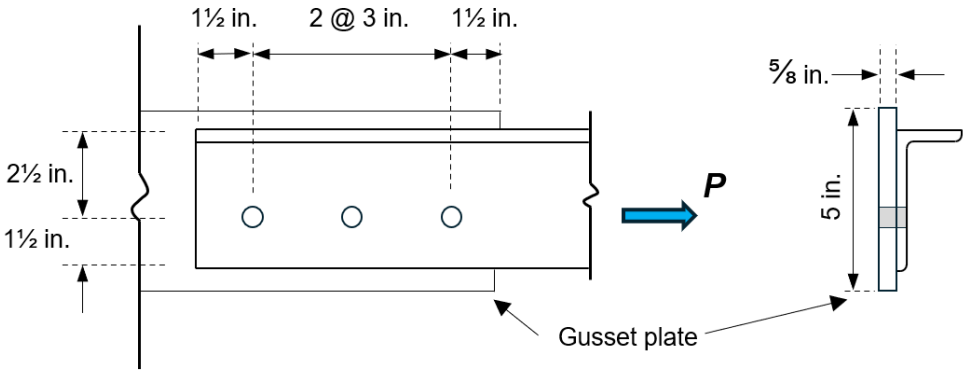
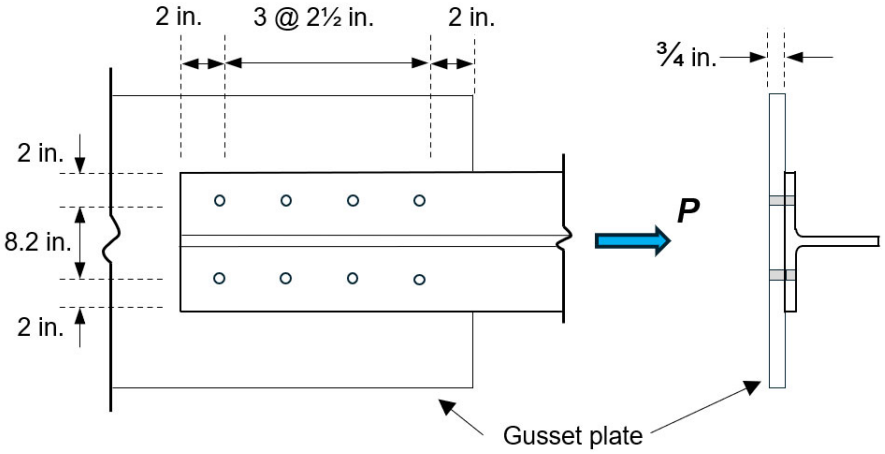
**<u>Classroom Problem 3.5-1</u>:** Compute the maximum acceptable tensile service load on a single angle **L6 x 4 x ½** of **A572 Grade 50** steel (***$F_y$*** = 50 *ksi*, ***$F_u$*** = 65 *ksi*). The 6-in. leg contains a double-gage line of staggered ⅞-in.-diameter bolts. The live load is three times the dead load.



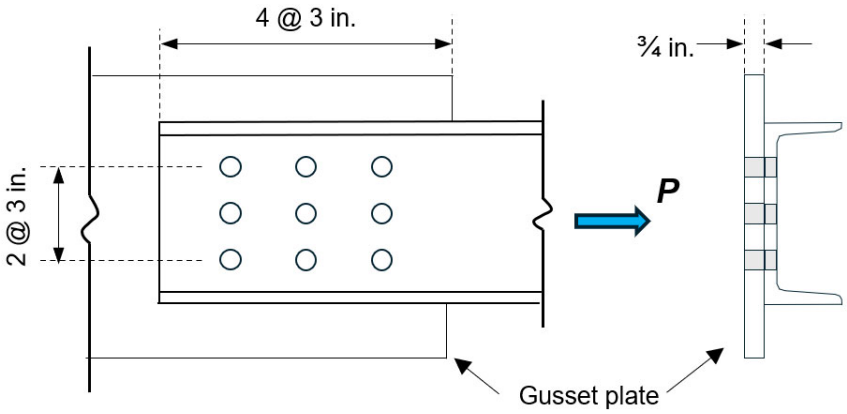
**<u>Classroom Problem 3.5-2</u>**: An angle **L4 × 3 × ⅜** tension member is connected to a gusset plate by three ⅞-in.-diameter bolts in the standard holes. **A572 Grade 50** steel (***$F_y$*** = 50 *ksi*, ***$F_u$*** = 65 *ksi*) is used. Compute the design strength.



**<u>Classroom Problem 3.5-3</u>:** Compute the design strength for **WT6 x 53** bolted to a **PL24 x ¾** gusset plate with eight ⅞-in. diameter bolts. **A572 Grade 50** steel ($F_y$ = 50 *ksi*, $F_u$ = 65 *ksi*) is used for the WT shape.



**Classroom Problem 3.5-4:** The structural member consists of channel **C15 × 40** and a plate with 20 in. width and ¾ in. thickness. All three limit states in both the channel and the gusset plate need to be considered. The ¾-in.-diameter bolts are installed in standard holes, and **A572 Grade 50** steel ($F_y$ = 50 *ksi*, $F_u$ = 65 *ksi*) is used for both the channel and the plate. The tension force $T$ is due to 70% dead load and 30% live load. Assume $A_e = 0.85A_n$. Determine the maximum tension force on the tension member/connection.



**<u>Classroom Problem 3.5-5</u>:** Compute the design strength for **PL12 x ¾** plate connected to a 1-in. thick gusset plate with nine ⅞-in. diameter bolts. **A572 Grade 50** steel ($F_y$ = 50 *ksi*, $F_u$ = 65 *ksi*) is used for both plates. Assume $U$ = 1.0. The tension force is 40% dead load and 60% live load.