ENG 7704 Design of Steel Structures

Assignment 2

Note: You must indicate all the code clauses and Steel Handbook References at the appropriate places. You must also use the proper units at all times.

Q1. A double channel C100X11 is carrying a tension force. The webs are attached to a ¾”x6” single gusset plate. Find the maximum possible tension capacity and design the corresponding bolted connection using ¾” A325 bolts. Do not use more bolts (or spacing, etc.) than necessary.

Q2. Repeat the same as above using welded connection. Do not use more weld size or length than necessary. Is there is difference in the capacity or the length of the connection? If so explain why.

Q3. A bolted connection is made of two vertical lines of 5-7/8” A325 bolts each. The spacing between the bolt lines is 100mm. Bolt pitch in each row is 60 mm. A shearing force is applied on the connection with an eccentricity of 150mm. Find the maximum force that can be applied.