Steel Bridge Beam Design Calculation (“BRIJBEAM”)

Description: BRIJBEAM ("Bridge beam") designs steel plate girders and wide flange beams for typical multibeam highway bridges using the AASHTO specifications. Either service load design, load factor design options or LRFD can be used. Beams and girders can be non-composite or composite in the positive moment regions only. The program will calculate stud spacing for composite girders and stiffener spacing, if required. Detailed calculations at points of maximum positive and negative moments and at ends are printed.

BRIJBEAM is to be used in conjunction with another program, "CBRIDGE". The sequence of input is shown in the flowchart illustration. This program is in quite involved and the user will need to become familiarize with its operation. Once the sequence of operations are learned, a design can be accomplished quite efficiently. It is advised that the designer follow the flowchart closely when learning this program. You must carefully keep track of files, using the correct files between BRIJBEAM and CBRIDGE as you go along, therefore the potential for error is greater than most of the other programs in the DCALC library. Again, realizing the safety, the cost and the importance of the structures you will be designing with this program, we emphasize the need to check the calculations.

Program Limitations:

1. This program does not check for constructability. The designer must check for top flange buckling during the deck pour. This is especially a concern when load factor design is used.

2. This program does not calculate the additional studs required at the dead load contraflexure points.

3. This program does not compute bearing stiffener requirements.

4. Only studs are allowed for shear connectors.

5. The program assumes the top flange of the beam will be sufficiently braced by the concrete deck in the positive moment regions.