

AASHTOWare BrD/BrR 6.8

Reinforced Concrete Structure Tutorial

RC7 – Varied RC Tee Beam Section Properties Example

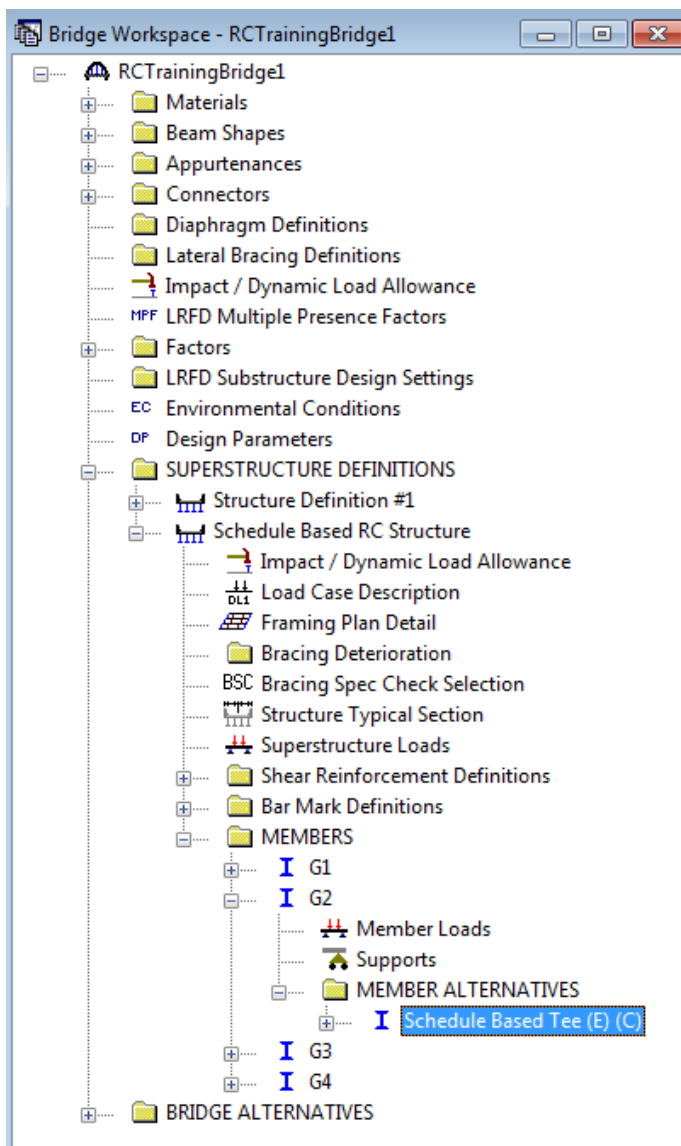
RC6 – Varied RC Tee Beam Section Properties

This example describes how to enter varied RC tee beam cross section properties. This feature is only available in schedule based tee beam cross sections. This example assumes you have access to RCTrainingBridge1 (BID11) in the teaching database from the installation.

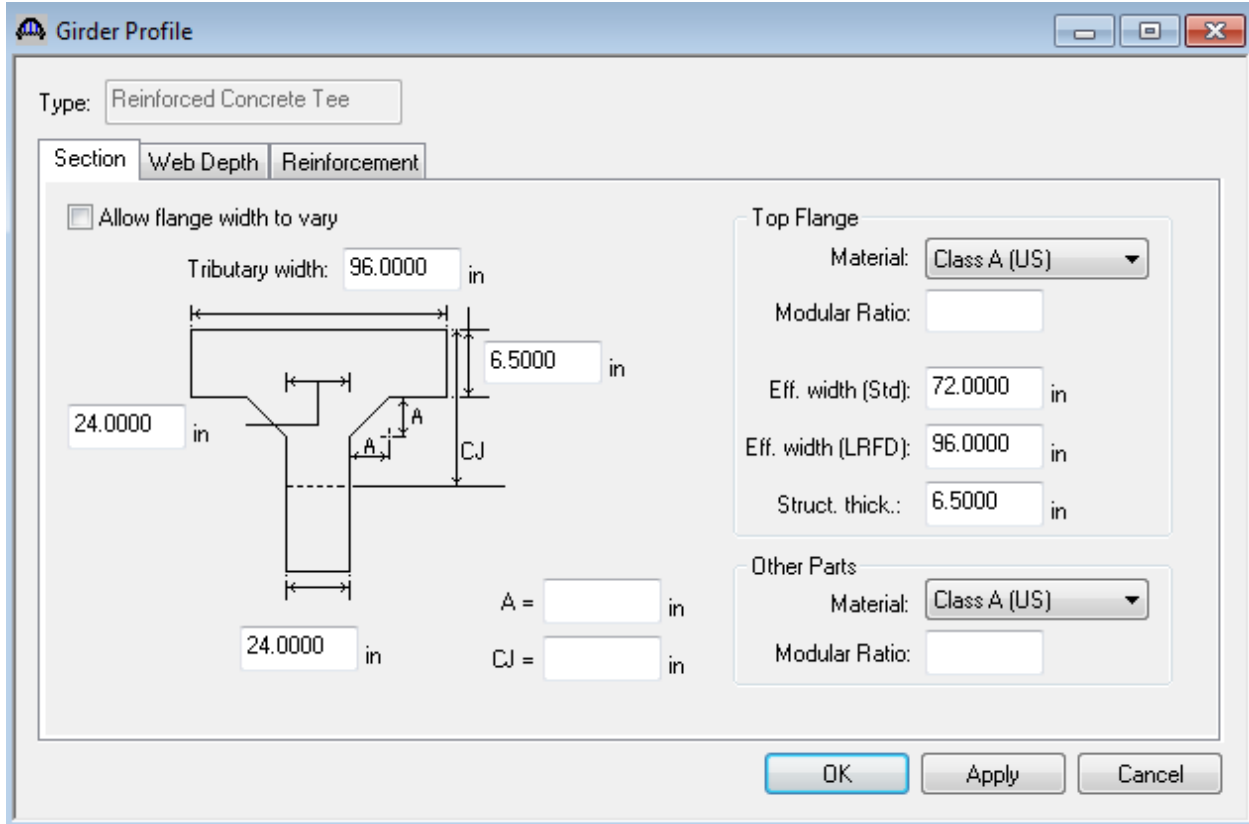
Topics Covered

- Enter varied RC tee beam section properties
- Compare spec check details at different locations

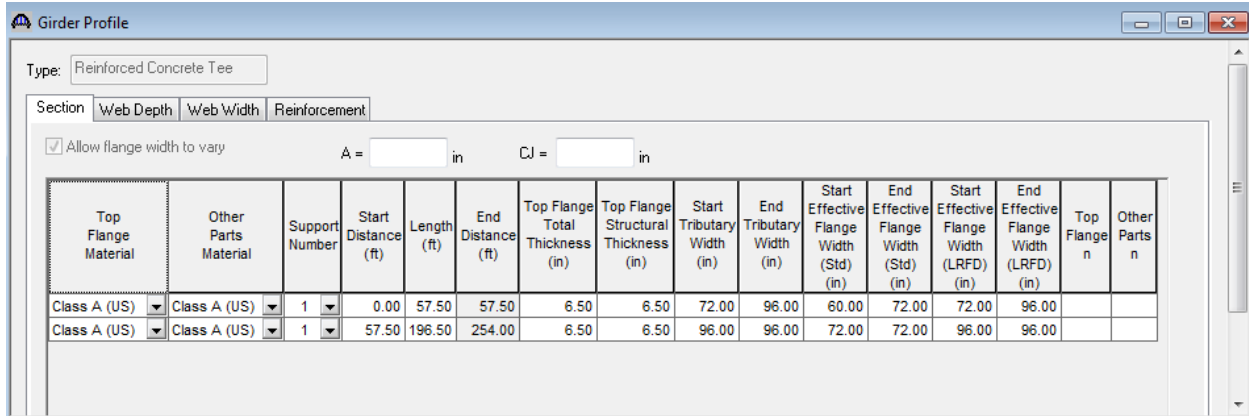
Open RCTrainingBridge1, open “Schedule Based Tee” Girder Profile window shown as below.



RC7 - Varied RC Tee Beam Section Properties

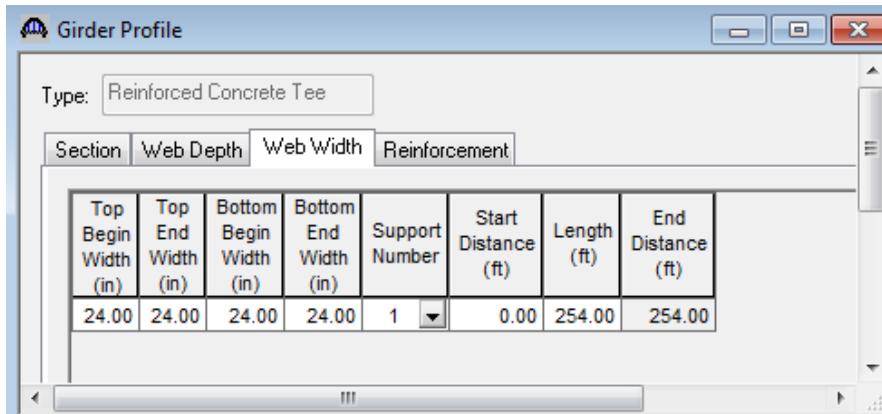


Check “Allow flange width to vary” check box, enter data as shown below.



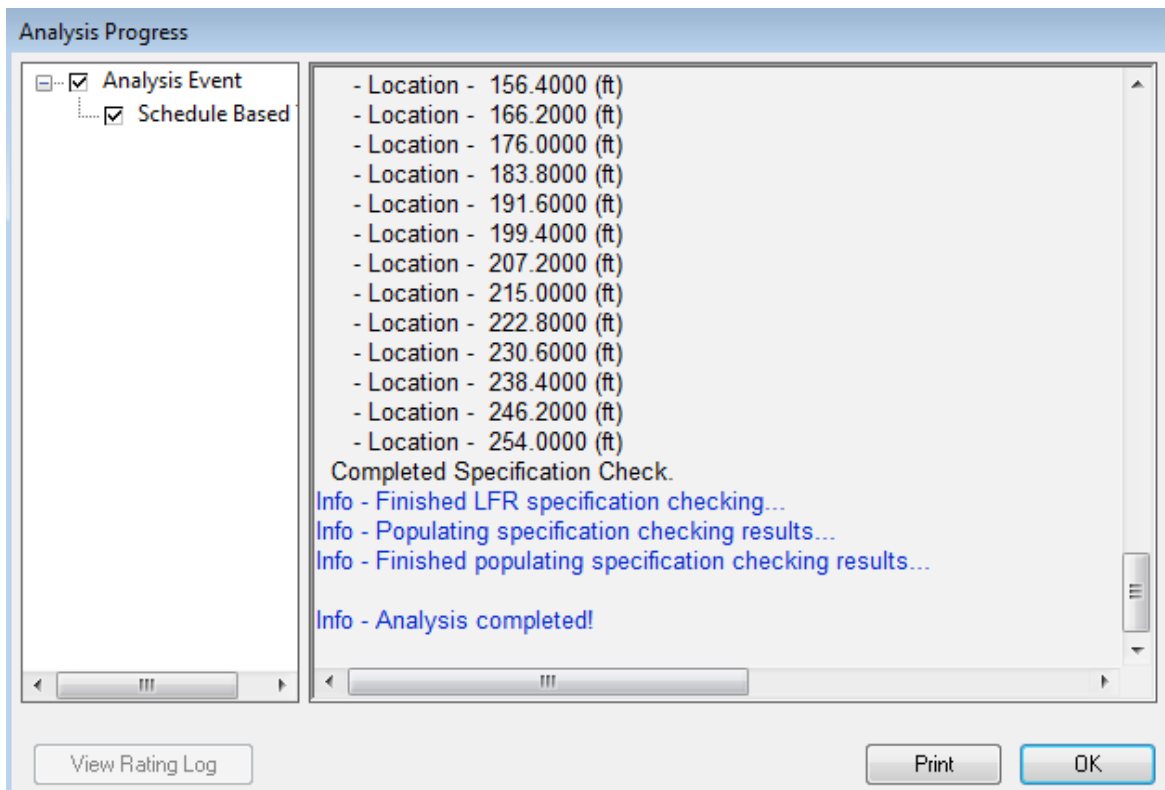
RC7 - Varied RC Tee Beam Section Properties

Select “Web Width” tab and enter constant web width as shown below.




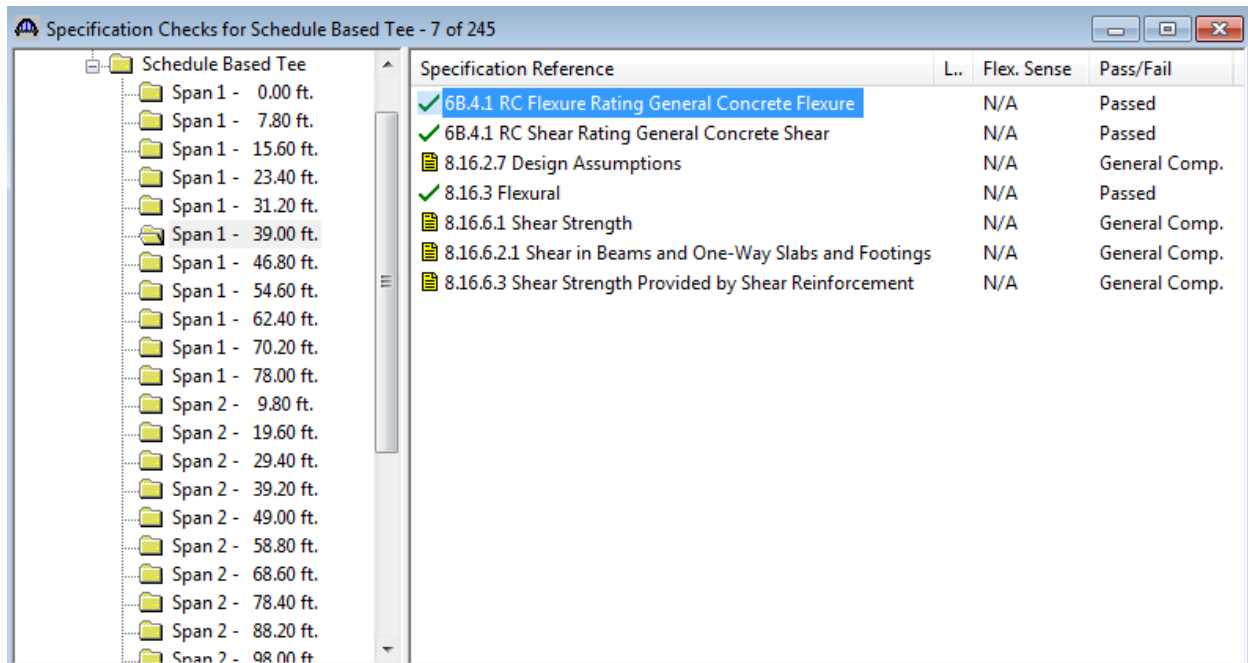
Click OK button to save the change to memory and close the window.

Do LFD rating with HS20. Click OK in analysis progress window when analysis is complete.



RC7 - Varied RC Tee Beam Section Properties

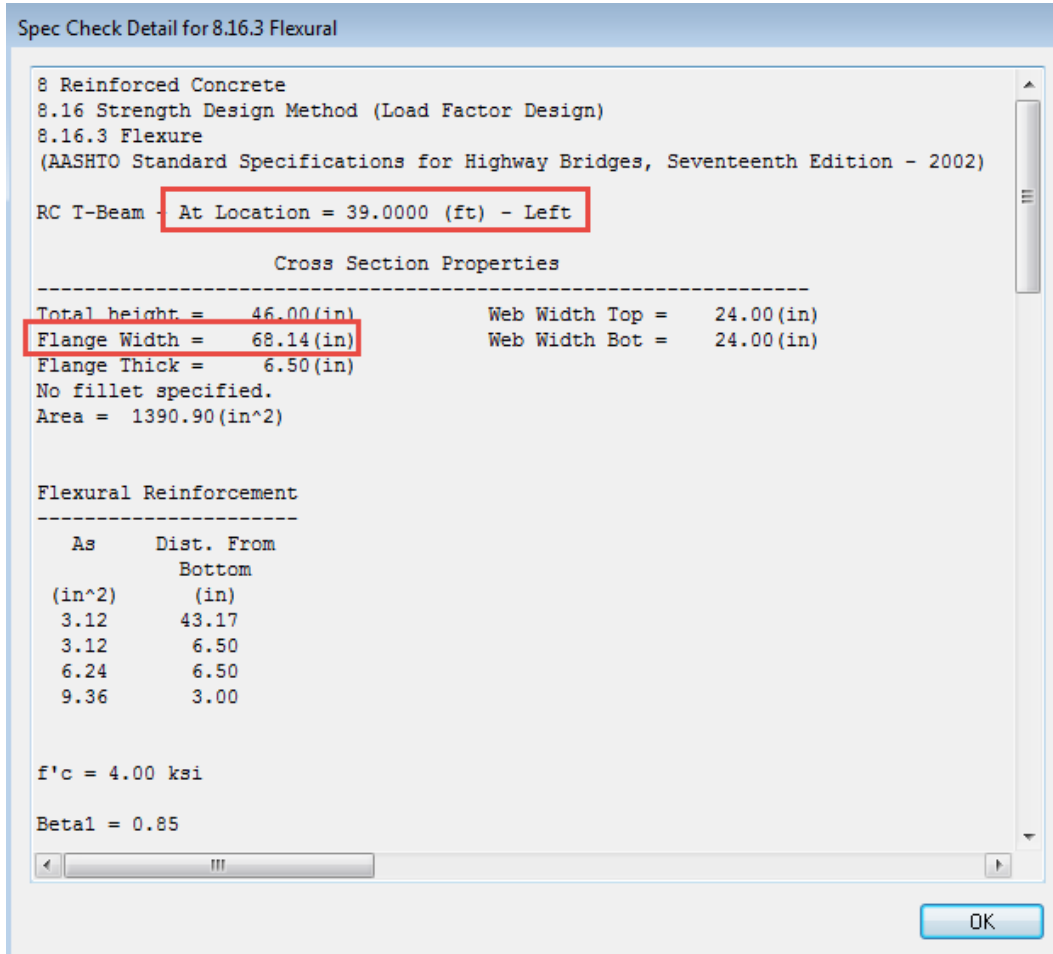
Click “View Spec Check”  button to view article list.



| Specification Reference | L. | Flex. Sense | Pass/Fail |
|--|----|-------------|---------------|
| ✓ 6B.4.1 RC Flexure Rating General Concrete Flexure | | N/A | Passed |
| ✓ 6B.4.1 RC Shear Rating General Concrete Shear | | N/A | Passed |
| 8.16.2.7 Design Assumptions | | N/A | General Comp. |
| ✓ 8.16.3 Flexural | | N/A | Passed |
| 8.16.6.1 Shear Strength | | N/A | General Comp. |
| 8.16.6.2.1 Shear in Beams and One-Way Slabs and Footings | | N/A | General Comp. |
| 8.16.6.3 Shear Strength Provided by Shear Reinforcement | | N/A | General Comp. |

RC7 - Varied RC Tee Beam Section Properties

Compare article "8.16.3 Flexural" at different locations, different flange widths are used for analysis.



RC7 - Varied RC Tee Beam Section Properties

Spec Check Detail for 8.16.3 Flexural

8 Reinforced Concrete
8.16 Strength Design Method (Load Factor Design)
8.16.3 Flexure
(AASHTO Standard Specifications for Highway Bridges, Seventeenth Edition - 2002)

RC T-Beam - At Location = 78.0000 (ft) - Left

Cross Section Properties

| | | | |
|----------------|------------|-----------------|------------|
| Total height = | 78.00 (in) | Web Width Top = | 24.00 (in) |
| Flange Width = | 72.00 (in) | Web Width Bot = | 24.00 (in) |
| Flange Thick = | 6.50 (in) | | |

No fillet specified.
Area = 2184.00 (in²)

Flexural Reinforcement

| As (in ²) | Dist. From Bottom (in) |
|--------------------------|------------------------------|
| 3.12 | 75.17 |
| 4.68 | 75.17 |
| 6.24 | 75.17 |
| 3.12 | 75.17 |
| 9.36 | 75.17 |
| 3.12 | 6.50 |
| 9.36 | 3.00 |

OK