

Gusset Plate Partial Shear Planes

Applies to the following products:

- BrDR, versions prior to 7.7
- BrR, versions prior to 7.7

Description

Prior to version 7.7, the input tab for gusset plate partial shear planes was misunderstood by some engineers, resulting in incorrect data entry. This tab contained shear plane directions that were either horizontal or vertical, and the F1 Help noted that horizontal corresponded with the smaller angle to the adjacent member and vertical corresponded with the other angle. To avoid confusion, descriptions in both the input tab and F1 Help will use the same terminology.

The shear plane directions now are referred to as Smaller Angle Partial Plane and Larger Angle Partial Plane. Smaller Angle Partial Plane should be selected for the plane that forms the smallest angle with the selected compression member and Larger Angle Partial Plane should be selected for the other plane adjacent to the selected compression member.

Refer to the following pages for details.

Input window prior to version 7.7:

Gusset Plate Definition

Name: L1 GP (L2 Mathcad)

Description: Plate compression - partial shear

Panel point: Chord splice

Fasteners: Plate tension

Plate tension: Plate compression - whitmore section

Plate compression - whitmore section: Plate shear

Plate shear: Load transfer

Load transfer: Plate compression - basic corner check

Plate compression - basic corner check: Control options

Left plate partial shear planes

Member	Shear plane direction	Length (in)	Thickness (in)	Advanc optio
Member 8	Horizontal	10.500		
Member 8	Vertical	10.625		
Member 2	Horizontal	12.000		
Member 2	Vertical	10.625		

Right plate partial shear planes

☒ Same as left plate

Member	Shear plane direction	Length (in)	Thickness (in)	Advanced options	Overri Angl (Degre
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Help window prior to version 7.7:

AASHTOWare BrDR - Help

Show Back Print Options

Gusset Plate Definition: Plate compression - partial shear

This window allows you to define the plate compression partial shear details for the gusset plate definition. Enter the required information and click another tab or the OK button.

[Engine Related Help](#)

Members

Select the compression member for which the defined shear plane should be checked.

Shear Plane Direction

Select the shear plane direction as vertical or horizontal. The plane along an adjacent member that forms the lowest angle with the selected compression member is considered as the horizontal plane. The plane along the other adjacent member is considered as the vertical plane. The horizontal and vertical direction here do not mean true horizontal and true vertical respectively. As per the above description, the controlling partial plane (shown below) is the horizontal plane and the other partial plane is the vertical plane.

Input window in version 7.7:

Gusset Plate Definition

Name: L1 GP (L2 Mathcad)

Description: Plate compression - partial shear

Panel point: Chord splice

Fasteners: Plate tension

Plate compression - whitmore section: Plate shear

Plate compression - basic corner check: Load transfer

Control options

☒ Shear planes have been validated as per [TN-0085](#)

Left plate partial shear planes

Member	Shear plane	Length (in)	Thickness (in)
Member 8	Smaller Angle Partial Plane	10.500	
Member 8	Larger Angle Partial Plane	10.625	
Member 2	Smaller Angle Partial Plane	12.000	
Member 2	Larger Angle Partial Plane	10.625	

Right plate partial shear planes

☒ Same as left plate

Member	Shear plane	Length (in)	Thickness (in)	Advanced options

Help window in version 7.7:

AASHTOWare BrDR - Help

Show Back Print Options

Gusset Plate Definition: Plate compression - partial shear

This window allows you to define the plate compression partial shear details for the gusset plate definition. Enter the required information and click another tab or the OK button.

[Engine Related Help](#)

Shear planes have been validated per TN-0085
 This checkbox is to alert users to a technical note regarding gusset plate partial shear input, and should be checked once the partial shear plane data on this tab has been reviewed and validated per TN-0085. Analysis will not run if this checkbox is unchecked.

Click the link [TN-0085](#) in this tab to view the technical note.

Members
 Select the compression member for which the defined shear plane should be checked.

Shear Plane
 Select Smaller Angle Partial Plane or Larger Angle Partial Plane. Smaller Angle Partial Plane should be selected for the plane that forms the smallest angle between the selected compression member and an adjacent member. Larger Angle Partial Plane should be selected for the other plane adjacent to the selected compression member.

The software associates the Smaller Angle Partial Plane with the plane that forms the smallest angle with the selected compression member, however either partial plane may control the rating depending on details of the connection. Information for both planes should be entered so that the controlling partial plane is sure to be evaluated.

Workaround

There is no workaround to this issue. Users must verify that entered data is correct and check the box “Shear planes have been validated as per TN-0085” confirming that the entered data has been validated. The analysis will not run if this checkbox is not checked.

Long-term Resolution

The data inputs and help window have been revised to use consistent terminology.