RISA-3D
Rapid Interactive Structural Analysis- 3 Dimensional

Wood Panel Feature: Introduction and Tutorial
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Introduction

This hands-on guide will help introduce you to the RISA Wood Wall Panel, and walk you through an start-to-finish example with helpful information along the way. This is intended for both experienced and first-time users of RISA-3D.

All the action items in this guide are indicated with bullets shown below:

- **Action Item**

This guide is intended to show you the basics of the wall panel feature. If you have further questions beyond this guide, please refer to the RISA-3D General Reference and the online help file.

Note: If you are not familiar with RISA-3D, you should also complete the tutorials in the RISA-3D User’s Guide available on the RISA web site at [www.risatech.com](http://www.risatech.com)

The RISA-3D Wood Panel Tutorial is compatible with RISA-3D 10 or higher.
Wood Codes & Materials

Let’s start by setting the design code:

- Click on the Global Parameters icon.
- Choose the Codes tab.
- Select the Wood code from the drop down list: AF & PA NDS-05/08: ASD.
- Click OK.

Let’s create the material for the wood wall:

- Click on the Materials button on the Data Entry Toolbar: (If you don’t see your Data Entry Toolbar, click on the Icon).
- Click on the Wood tab at the top of the dialog box.
- We’ll use DF/SPine.
- Click to close the spreadsheet.

Wood Design Codes available in RISA:

- NDS 2008: ASD
- NDS 2005: ASD
- NDS 2001: ASD
- NDS 1997: ASD

The wood species available can be found by clicking in the Species column, and clicking on the dropdown arrow. The list is organized with all the species available in the NDS first, and the Glulam types at the bottom. If you add your own Custom Material Species, you will find your new species name located between the NDS wood species and the glulam types.

You can create your own Custom Wood Species by going to the Spreadsheet Menu and selecting Custom Wood Species.

TIP: RISA-3D has a variety of default material properties available; you can save your own default materials available by pressing the default icon at the top of the screen when the Materials spreadsheet is open.

NOTE: If you don’t see the DF/SPine label in your Wood Materials spreadsheet, you may use the available wood species or go to Tools > Reset All Program Defaults to get all the wood species defaults for Version 10 or higher.
Creating Wall Geometry

Let's start by drawing the wall:

- Start by clicking on the icon on top of the Graphic Editing Toolbar. (If you don’t see this toolbar press the Icon or Ctrl-G).
- You should now see the dialog box **Draw Wall Panels**, which is shown here:

![Draw Wall Panels dialog box]

You can draw a wall by clicking on existing nodes or drawing the wall using a grid. We’ll draw a wall using the drawing grid.

Choose which type of wall:

- Click the **Wood** radio button.
- Select **Material Set: DF/SPine**
- Click on **Apply**. This mouse will appear and you are ready to start drawing.
Using the drawing grid to create a 10’ high rectangular wall:

- Click on the bottom left corner (0,0,0),
- Move your cursor to 10’ height and left click on (0,10,0),
- Move the cursor to the top right corner and left click on (16,10,0),
- Left click on the last point (16,0,0).
- Right-click the mouse or press Esc to stop drawing.

The wall panel will be created after the fourth click of the mouse and should look like the picture above.

Let’s change the Units to inches:

- Click on the Unit icon.
- Under Lengths, click on the dropdown menu and select inches.
- Click OK.
Let’s open the Wall Panel Editor:

- Double click on the Wall Panel to view the Wall Panel Editor:

Let’s change the drawing grid to locate the openings:

- In the Draw Toolbox, click in the box next to the Grid Increments H (Horizontal), clear the current entry and type 40, 32, 3@40.

- In the Draw Toolbox, click in the box next to the Grid Increments V (Vertical), clear the current entry and type 3@40.

- Press the Tab key.

The grid will automatically resize to adjust to the new scale. You can also toggle the grid display on and off by clicking the icon.

Note: In the Drawing Grid, you may use symbols such as:

“@” (to specify multiple, equally spaced increments).

“/” (to subdivide a larger increment into smaller increments).

“,” (to enter multiple increments in the increment field).

The drawing grid in the Wall Panel Editor is a tool that guides your placement of openings, holdowns, straps and boundary conditions. The grid is independent of your model, so you may change the grid as you build the model without changing any modeling.
Wall Panels can have rectangular openings. You can click on any location on the grid to create an opening.

Openings can be created anywhere on the wall panel except the upper and side edges.

**Note:** If you make a mistake, you can delete an opening by using the Delete tool.

**We’ll create a window and a door opening:**

- Your mouse should automatically be changed. If not, click on the Create New Openings icon at the top left of the Wall Panel Editor to create an opening.

**Let’s create the door opening:**

- Using the coordinates at the bottom right corner, left click on the bottom left corner of the opening (40,0,0).
- Move the mouse to the top right corner (72,80,0) and left click on the grid intersection.

**Now let’s create a window opening:**

- Left click on the bottom left corner (112,40,0),
- Move the mouse to the top right corner (152,80,0) and left click on the grid intersection.
- Right click to escape.
Headers

Let's review the header design parameters:

- Double left click directly inside the window opening to view the header design parameters.
- If the headers do not show, use the toggle icon to turn them on.

Here we will walk through the different input options available for designing/analyzing headers.

Assign the header design parameters:

- Select Wall Design Rule: Typical.

The header selection is based off the rule assigned in the Wall Panel Design Rules or you can click the button to assign the Header size and Material directly.

- Click OK.

We will review the header Design Rule in the next session.
Assigning Design Parameter Regions

Let’s define Regions inside the wall for design/analysis of the wood shear wall:

- Select the Generate Wall Regions Automatically icon.

The wall drawing should now look like the picture above.

- Click OK to exit the Wall Panel Editor

Wall Panel View

You can use the Wood View Controls to Toggle the display of the Wall Studs, Chords, and Sill Plates after solution.
Wall Design Rules

Let’s review the Wall Panel parameters in the Design Rules spreadsheets.

- Open the Wall Design Rules spreadsheet from the Data Entry toolbar, and click on the Wood Wall (Studs) tab. (If you don’t see your Data Entry toolbar, click on the Icon).
- **Top Plate**: Select 2-2X6:
  - Click on the red arrow within the Top Plate column.
  - Select Thick/Diameter: 2
  - Select Width: 6
  - Select Multiple Plies: 2

- **Sill Plate**: Select 2X6
- **Studs**: Select 2X6
- **Min Stud Spacing**: 16
- **Max Stud Spacing**: 24
- **Green Lumber**: Unchecked
- **Header Size**: Select 2 - 2X6

Stud design is accomplished by taking the entire axial load in the wall and dividing it by the number of studs. The spacing is optimized based on the range in the Design Rules (Studs) spreadsheet.

Optimizing the Wall Panels
RISA will design and optimize the wall panels based on the criteria in the Wall Panel Design Rules. There is a setting in the Global Parameters Solution tab that will set the wall to optimize upon solution. If you want to check an existing wall, you can explicitly select the wall panel size and make sure to turn off the wall optimization.
The Wood Wall Panel Schedule and Hold Down Schedule are based on an XML file database.

The Wood Wall Panel Schedule database is specified by an XML file in the Shear Panels folder, a sub-directory of the RISA_Wood_Schedules folder located in the C:\RISA folder. (This defaults into the C:\RISA folder, but you can also find the directory location by going to Tools>Menu>Preferences>File Locations.)

Min Panel Spacing: Type 0.3125
Max Panel Spacing: Type 0.375
Double Sided Panel?: Select Optimum
Max. Nail Spacing: Select 6-in
Min. Nail Spacing: Select 3-in
HD Chords: Select 2-2x6
HD Chords Matl: Same as Wall
Hold Down: Select HDU_DF

Select Simpson_HDU from the Select Manufacturer dropdown

Select HDU_DF in the Available HD Series list and make sure Use Entire Series is selected.

Click OK.
You can modify these databases or create new databases. For more information on the formatting requirements, refer to the Appendix F Wood Shear Wall Files in the Help Menu of RISA-3D.

- Close the Design Rules spreadsheet.

To better view the wall, click on the Rendered Icon twice, and the Snap to Isometric view tool.

Note: To view the wall panel rendered to 100%, go to the Plot Options dialog, and click the Panels tab and select 100% using the drop-down menu.
Walls can be loaded with joint, surface loads, or distributed loads.

You must define the Category in order to use the Load Combination Generator.

Typing a -1 in the Y Gravity column creates a Basic Load Case which includes self-weight.

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Let's create the Basic Load Cases:

- Open the Basic Load Case spreadsheet on the Data Entry toolbar or press the icon.
- Type Dead Load on the first line under the BLC Description column.
- Select DL (Dead Load) from the Category drop-down menu.
- Type -1 into the Y Gravity column.

Let's add wind load case:

- Type Wind Load on the second line under the BLC Description column.
- Select WL (Wind Load) from the Category drop-down menu.

<table>
<thead>
<tr>
<th>Basic Load Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLC Description</td>
</tr>
<tr>
<td>DL</td>
</tr>
<tr>
<td>Wind Load</td>
</tr>
</tbody>
</table>

- Exit BLC Spreadsheet by clicking the on the top right corner.

Add a distributed load to the wood wall:

- Click on Distributed Load icon.
- Select Y for Direction in the drop-down menu.
- Type -0.10 as the Start Magnitude; End Magnitude will automatically fill in.
- Select Basic Load Case 1: Dead Load.
- Click Apply Load by Clicking Members/Wall Panel Edges Individually.
- Press Apply.
- Click on the top of the wall.
- Right click to escape.
Let’s add a point load of wind load to this wall:

- Click on Joint Load icon.
- Select This is a Load.
- Select Direction: X from the dropdown list.
- Type Magnitude: 2.
- Select Basic Load Case 2: Wind Load.
- Select Apply Load by Clicking/Boxing Joints.
- Click Apply.
- Click or box Node N2.
Let’s create the load combinations using the LC Generator:

- Open the Load Combination spreadsheet by selecting the LC Icon at the top of the screen.
- Select LC Generator.
- Select United States for the LC Region.
- Select 2009 IBC ASD for the LC Code.
- Uncheck RLL, SL, RL.
- Click Generate.

- Click on Wind tab.
• Click the **2D Only** button under **Wind Load Options**.

• Check the **Reversible** option.

• Click **Generate**.

The Load Combination spreadsheet will automatically generate all the load combinations from the IBC 2009 and should look like the picture below:

![Load Combination Generator - Wind](image)

• Click **Close**.

To display loads, we will work with the loading display toolbar at the top of the screen.

Let’s review the loads as they are applied to the wall:

• Toggle the loads display to On by clicking the ![toggle icon](image) if they’re not already turned on.

• The load display control panel is on the top of the screen.

• Click on the toggle icon ![toggle icon](image) to switch to the Load Combinations LC.

• Select the **LC4** in the drop-down dialog.
You should now see the **Load Combination 4: IBC 16-12 (a) (a)** displayed on your screen as below.

With all the loads applied, let’s run the analysis:

- Click the **Analysis and Design** Icon.
- Select the **Batch Solution of Marked Combinations** radio button.
- Click **Solve**.

A **Single** solution will only solve the selected load combination. An **Envelope** solution will solve multiple load combinations and the results will show only the maximum and minimum. The **Batch** solution will solve multiple combinations and the results will be retained for every solution.

The Detail Report is only available for Single Combination solutions or Batch solutions.
Segmented Results

Reviewing results:

- Select the Wall Panel Design spreadsheet from the Results toolbar. (If you don’t see your Results toolbar, click the icon).

- To view the different results for wall panels click on the tabs at the top: Wood Wall Axial, Wood Wall In-Plane

The Wood Wall Axial results provide the code checks relevant to Axial loads of the wall.

The Wall Panel Label and Region correspond to the wall panel labels and regions defined in the Wall Panel Editor.

The Stud Size and Stud Spacing correspond to the studs selected and spacing range in the Design Rules.

The Axial Check is a code check ratio between the member load and the member capacity. A value greater 1.0 for either of these values indicates failure. The Gov LC shows the load combination that governed for the code check.

The Chord Size corresponds to the chord selected and spacing range in the Design Rules. Note that the chords are the vertical hold down members/posts at both ends of every Region.

The Chord Axial Check is a code check ratio between the member load and the member capacity. A value greater 1.0 for either of these values indicates failure. The Gov LC shows the load combination that governed for the ratio mentioned above.

Note: The chords are the vertical hold down members/posts at both ends of every Region.
The **In-Plane** results provide the code checks for the shear wall behavior of the wall.

The **Shear Panel Label** describes the shear panels selected for the wall.

The **Shear Check** is a code check ratio between the panel shear load and the panel shear capacity. A value greater 1.0 for either of these values indicates failure. The **Gov LC** shows the load combination that governed for the code check.

The **Hold-Down Label** describes the hold down size selected for the wall.

The **Tension Check** is a code check ratio between the tension load and the hold down provided capacity. A value greater 1.0 for either of these values indicates failure. The **Gov LC** shows the load combination that governed for the ratio mentioned above.

- Close the **Wall Panel Design** spreadsheet.

**Let’s take a closer look at the wall by viewing the Detail Report:**

- Left click the **Detail** button on the left hand side of the screen.

- Click anywhere on the wall panel. The **Detail Report** will open.

The top of the Detail Report will control the view.

You can toggle the **Opening, Region, or Wall** display by clicking in the drop down box at the top of the screen.

You can also choose which region or opening you would like to review by clicking in the left side drop-down box shown below.
**Wall Summary Detail Report**

**General/Geometry/Materials**

The top section of the detail report echoes the entire user defined input also summarizing the selections. The shear panel selected is shown as well as the Maximum H/W ratio for all the regions.

**Wall Region Drawing**

This drawing shows the regions and openings with hold-down locations for your reference.

**Design Details**

The Enveloped Results will display the controlling region, with the maximum Unity checks for Shear, Hold-down, and Studs. The Region Information will show the unity checks for all the regions. The openings are not design for Segmented walls. The deflection results are shown for the FEA solution as well as the NDS calculation method.
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To navigate the Detail Report, you will need to select Region, Wall or Opening at the top of the screen.

- Select the **Region** report by clicking on the button on the left.

- You can also navigate to other Regions by clicking on the button.
Regions In-Plane Detail Report

Criteria/Materials/Geometry
The top section of the detail report echoes the entire user defined input.

Envelope Diagrams
The next section will display the envelope axial, shear and moment diagrams.

Design Summary
This section provides the capacity and strength values at the section in the wall where the combined check is maximum, as well as governing load combinations.

The shear capacity is taken from the allowable shear value from the Table 2306.4.1 of the IBC 06. The shear provided is adjusted by the 2w/h if the H/W ratio exceeds 2:1 per NDS/2008 Special Provisions for Wind and Seismic 4.3.4.1.

The Deflection listed is based on the NDS/2008 Special Provisions for Wind and Seismic Eq. 4.3-1.

Note: This is the theoretical deflection of the wall and may differ from the deflection found from the FEA within RISA.
• Click ✗ to close the Detail Report.
• Right-click to escape from the Detail selection.

Let’s review the results graphically:

• Double click on the wall to open the Wall Panel Editor and you’ll see the designed wall detailed with the chords, studs and shear panel information.

Let’s take a minute to review all the different components that make up the wall element:
Designing the Wall: Perforated Design Method

Let’s change the Design Method to Perforated:

- We’ll now switch the Design Method to Perforated shown on the Wall Panel Editor.

**Note:** Select Yes when asked to clear the current results.

- Click on the OK to exit the Wall Panel Editor.

The loads are still applied, let’s run the analysis:

- Click the Analysis and Design Icon.

- Select the Batch Solution of Marked Combinations radio button.

- Click Solve.
Perforated Results

Reviewing Results:

- Select the Wall Panel Design spreadsheet from the Results toolbar (If you don’t see your Results toolbar, click the icon).

To view the different results for wall panels click on the tabs at the top: Wood Wall Axial, Wood Wall In-Plane.

The Wood Wall Axial results provide the code checks relevant to axial loads of the wall. Here we see similar information that was provided for the Segmented design described above.

The In-Plane results provide the code checks for the shear wall behavior of the wall.

The Shear Panel Label describes the shear panels selected for the wall. The designation N/A is shown for the regions because Perforated design is based on the entire wall rather than regions.

- Close the Wall Panel Design spreadsheet.

Let’s take a closer look at the wall by viewing the Detail Report:

- Left click the Detail button on the left hand side of the screen.
- Click anywhere on the wall panel.

The Detail Report will open.

Perforated design uses the entire wall panel, rather than the regions so the results will be per wall panel therefore N/A is displayed in the Region column.

Note: The chords are the vertical hold down members/posts at both ends of every wall for Perforated design method.
Perforated Wall Summary Detail Report

General/Geometry/Materials

The top section of the detail report echoes the entire user defined input. The Wall H/W Ratio is checked against the aspect ratio limits given in Table 4.3.4 of the NDS 2008 Special Design Provisions for Wind & Seismic (SDPWS). The opening height information is given in order to calculate the Co.

Design Details

This section displays the selected shear panel and hold downs. The maximum unit shear is also shown.

The shear stiffness adjustment factor for wall panels is intended to allow the user to adjust the stiffness of his walls so that they match the APA deflection calculations. This adjustment affects the stiffness of the entire wall.

You can modify this adjustment factor in the Wall Panel spreadsheet.
To navigate the Opening Detail Report, you will need to select Opening at the top of the screen.

- Select the Opening report by clicking on the button on the left.
Perforated Header Detail Report

Criteria/Materials/Geometry
The top section of the detail report echoes the entire user defined input from the Wall Panel Editor.

Envelope Diagrams (Header)
The next section will display the envelope axial, shear and moment diagrams.

Design Summary
This section provides the bending and shear code checks as well as governing location and code equation combinations. The code design factors are also displayed.

Note: In the Help file within RISA-3D and the RISA-3D General Reference both provide explicit descriptions of nearly all of the values in the report.

Click ☒ to close the Detail Report.

Right-click to escape from the Detail selection.
Designing the Wall: Force Transfer Design Method

Let's modify the wall and change the Design Method to Force Transfer Around Openings:

- Double click on the wall panel to open the Wall Panel Editor.
- We'll now switch the Design Method to Force Transfer shown on the Wall Panel Editor.

Note: Select Yes when asked to clear the current results.

Let's change the drawing grid to locate the openings:

- In the Draw Toolbox, click in the box next to the Grid Increments H (Horizontal), clear the current entry and type 36,40,36
- In the Draw Toolbox, click in the box next to the Grid Increments V (Vertical), clear the current entry and type 3@40.
- Press the Tab key.
- Toggle the grid display on and off by clicking the icon.

We'll need to delete the door opening and delete all the regions.

- Click on the Delete button and click on ALL the regions.
- Click on the door opening.
- Right click to escape.

Note: The Force Transfer Around Openings method relies on reinforcement or straps, which is limited to windows only.

Thus, to use this method you cannot have a door opening.
Now let's create a window opening:

- Click on the Create New Openings icon at the top left of the Wall Panel Editor to create an opening.
- Left click on the bottom left corner (36,40,0),
- Move the mouse to the top right corner (76,80,0) and left click on the grid intersection.
- Right click to escape.

Let's define the regions for the wall:

- To define Regions inside the wall for design/analysis of the wood shear wall: Select the Generate Wall Regions Automatically icon.
Click on the OK to exit the Wall Panel Editor.

The loads are still applied, let’s run the analysis:

- Click the Analysis and Design Icon.
- Select the Batch Solution of Marked Combinations radio button.
- Click Solve.

Designing for the Batch results allows us to see the Detail Report as well as design for every load combination.
Force Transfer Results

Reviewing Results:

- Select the Wall Panel Design spreadsheet from the Results toolbar. (If you don’t see your Results toolbar, click the icon).

- To view the different results for wall panels click on the tabs at the top: Wood Wall Axial, Wood Wall In-Plane.

The Wood Wall Axial results provide the code checks relevant to axial loads of the wall. Here we see similar information that was provided for the Segmented design described above.

The In-Plane results provide the code checks for the shear wall behavior of the wall.

The Shear Panel Label describes the Shear Panels selected for the wall. The designation N/A is shown for the regions because Force Transfer Around Openings design is based on the entire wall rather than regions.

- Close the Wall Panel Design spreadsheet.

Let’s take a closer look at the wall by viewing the Detail Report:

- Left click the Detail button on the left hand side of the screen.
- Click anywhere on the wall panel.
**General/Geometry/Materials**

The top section of the detail report echoes the entire user defined input.

**Design Details**

The shear stiffness adjustment factor for wall panels is intended to allow the user to adjust the stiffness of his walls so that they match the APA deflection calculations. This adjustment affects the stiffness of the entire wall. You can modify this adjustment factor in the Wall Panel spreadsheet.

This section displays the selected shear panel and hold downs. The maximum unit shear is also shown is comes from the maximum block unit shear in the Opening report.

**Cross Section Detailing**

The last section will provide a cross sectional drawing of the entire wall with all of the wall elements shown graphically. The Chord forces and Hold Down Forces are the maximum values with the LC that governed.
To navigate the Opening Detail Report, you will need to select Opening at the top of the screen.

- Select the Opening report by clicking on the button on the left.
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### Force Transfer Header Detail Report

**Criteria/Materials/Geometry**

The top section of the detail report echoes the entire user defined input.

**Envelope Diagrams (Header)**

The next section will display the envelope shear and moment diagrams.

**FTAO & Opening Straps**

These sections map out the openings, and the strap forces Required Capacity. The sheathing resists the shear forces. The average shear force in each block of the wall (numbered 1–8 as shown in the image above) is used as the controlling shear force in that location. The maximum shear in each of these locations will control the design of the wall and will be displayed in the Wall Summary Detail report. The program uses an area weighted average of the Fxy plate forces to determine the average shear for each block.

### Design Details

This section provides the bending and shear code checks as well as governing location and code equation combinations. The code design factors are also displayed.

**Note:** In the Help file within RISA-3D and the RISA-3D General Reference both provide explicit descriptions of nearly all of the values in the report.

---

### Criteria/Materials/Geometry

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Geometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code: AF&amp;PA NDS-05/08: ASD</td>
<td>Opening Height: 40 in</td>
</tr>
<tr>
<td>Wall Type: FTAO</td>
<td>Opening Width: 40 in</td>
</tr>
<tr>
<td>h/w ratio: 1</td>
<td></td>
</tr>
</tbody>
</table>

### Materials

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Header</td>
<td>DF/Spine</td>
<td>2X2X6</td>
</tr>
<tr>
<td>Sill</td>
<td>DF/Spine</td>
<td>2X6</td>
</tr>
<tr>
<td>Trimmer</td>
<td>DF/Spine</td>
<td>6x6</td>
</tr>
</tbody>
</table>

---

### Envelope Diagrams (Header)

- **Max:** 1636 at 0 in
- **Min:** -1597 at 480 in
- **Min:** 0 at 480 in
- **Max:** 0.0689 at 240 in

Note: axial forces are not considered in the design of the member.

### Design Details

#### Openings Straps

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Direction</th>
<th>Req'd Cap (k)</th>
<th>Gov LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Bottom, Left</td>
<td>Horizontal</td>
<td>-0.1</td>
<td>5</td>
</tr>
<tr>
<td>S2</td>
<td>Upper, Left</td>
<td>Horizontal</td>
<td>-0.3</td>
<td>4</td>
</tr>
<tr>
<td>S3</td>
<td>Upper, Right</td>
<td>Horizontal</td>
<td>-0.2</td>
<td>5</td>
</tr>
<tr>
<td>S4</td>
<td>Bottom, Right</td>
<td>Horizontal</td>
<td>-0.2</td>
<td>4</td>
</tr>
<tr>
<td>S5</td>
<td>Bottom, Left</td>
<td>Vertical</td>
<td>-0.5</td>
<td>5</td>
</tr>
<tr>
<td>S6</td>
<td>Upper, Left</td>
<td>Vertical</td>
<td>-0.3</td>
<td>4</td>
</tr>
<tr>
<td>S7</td>
<td>Upper, Right</td>
<td>Vertical</td>
<td>0.0</td>
<td>5</td>
</tr>
<tr>
<td>S8</td>
<td>Bottom, Right</td>
<td>Vertical</td>
<td>0.7</td>
<td>5</td>
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</table>

### Analysis Summary

<table>
<thead>
<tr>
<th>Block #</th>
<th>Unit Shear (k/ft)</th>
<th>h/w Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.120</td>
<td>1.111</td>
</tr>
<tr>
<td>2</td>
<td>-0.244</td>
<td>1.111</td>
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<tr>
<td>3</td>
<td>-0.101</td>
<td>1.111</td>
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<td>4</td>
<td>-0.161</td>
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<tr>
<td>5</td>
<td>-0.007</td>
<td>1.000</td>
</tr>
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<td>6</td>
<td>-0.199</td>
<td>1.000</td>
</tr>
<tr>
<td>7</td>
<td>-0.117</td>
<td>1.000</td>
</tr>
<tr>
<td>8</td>
<td>-0.148</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### Header

- **Max Bending Check:** 0.047
- **Max Shear Check:** 0.094 (y)
- **Location:** 20 in
- **Location:** 0 in
- **Equation:** 3.9-3
- **Gov LC:** 1

### Axial Force

<table>
<thead>
<tr>
<th>Name</th>
<th>(ksi)</th>
<th>Cm</th>
<th>Ct</th>
<th>CF</th>
<th>Le-Bending</th>
<th>40 in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fb</td>
<td>1.17</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>FY</td>
<td>0.1575</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.3</td>
<td>40 in</td>
</tr>
</tbody>
</table>

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### Note:

- In the Help file within RISA-3D and the RISA-3D General Reference both provide explicit descriptions of nearly all of the values in the report.
Conclusion

If you have completed the tutorial you should now be familiar with the wood wall panel in RISA-3D. RISA-3D has wall panels in Masonry, Wood, Concrete and General materials. To learn more about the other materials or if you wish to know more about specific features, you can refer to the RISA-3D General Reference or the Help from within RISA-3D.

If you have any questions, comments or suggestions feel free to email us at support@risatech.com, call us at 949-951-5815, or FAX 949-951-5848.

Thank you for choosing RISA!