Create custom sections using polygonal shapes

<table>
<thead>
<tr>
<th>Tutorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Description:</td>
</tr>
<tr>
<td>Program:</td>
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<tr>
<td>Version:</td>
</tr>
<tr>
<td>Model ID:</td>
</tr>
</tbody>
</table>

**Custom cross sections** may be created in the **Section Designer** by using **polygonal shapes**. **Interactive database editing** then enables the efficient modification of section geometry. To demonstrate, this tutorial provides guidelines for using the Section Designer to model an AASHTO I-Beam Type I section.

The **modeling** process is as follows:

- Create a new section by selecting **Define > Section Properties > Frame Sections > Add New Property**.
- Select **Frame Section Property Type > Other**; then, click on **Section Designer** to open **SD Section Data**.
- Select **Section Designer** to launch the **Section Designer**.
- Initialize 1in grid spacing to draw the section. Select **Options > Preferences**, then set the **Background Guideline Spacing** to 12in and the **Fine Grids between Guidelines** to 11, as shown in Figure 1:
* Select Draw > Draw Poly Shape, then draw the section by snapping on intersecting grid lines, as shown in Figures 2 and 3:
Save the model, then switch to reshape mode by selecting Draw > Reshape Mode. Any section point may now be repositioned within the cross section by clicking on the section, then by clicking on the black square and holding the button down while dragging to the new position, as shown in Figure 4:
Additional points may be added along the cross-section boundary by using interactive database editing.

For example, a slab may be adjoined above the girder through the following process:

- Open interactive database editing by selecting Edit > Interactive Database Editing.
- Select the three tables under Model Definition > Property Definitions > Section Designer Properties, then select OK, as shown in Figure 5:
Figure 5 - Interactive database editing

- Select To Excel, as shown in Figure 6, to export this data to Excel.
In Excel, add another four points to represent the perimeter of the slab, then select From Excel. These points are then within the section definition, as shown in Figure 7:

Open the section within the **Section Designer** to display the final cross section, as shown in Figure 8:
Figure 8 - Final section