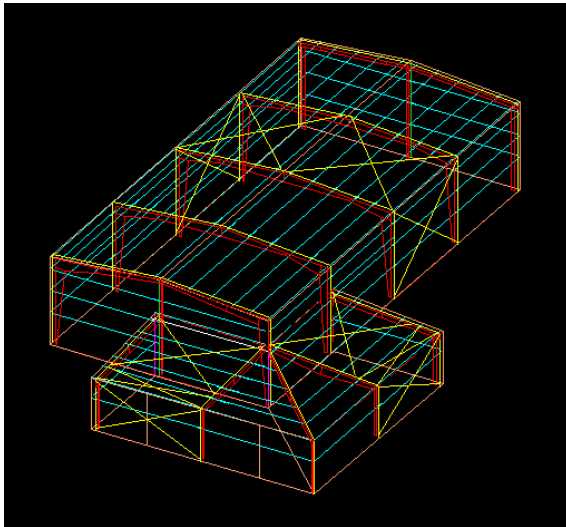


## The Focus of this Lesson is:

- Combining Multiple Shapes
- Input Special Angle (Non-Perpendicular) Frames

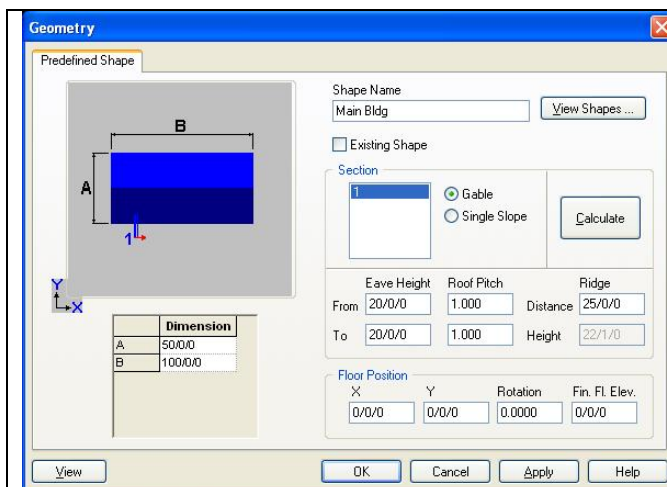
### Lesson Comments:

This lesson will discuss the procedure for adding special angled frames such as those at hips, valleys, and skewed walls as well as combining shapes to achieve your desired final result.

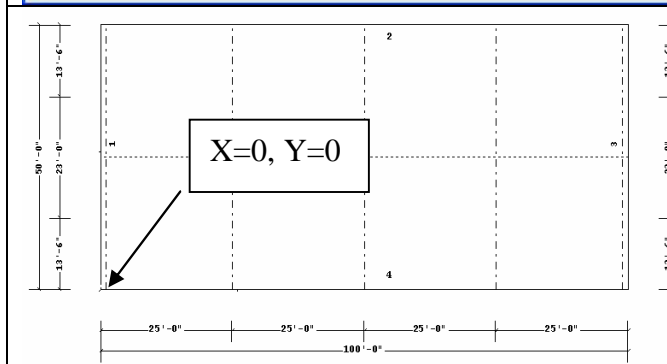


### Building Information

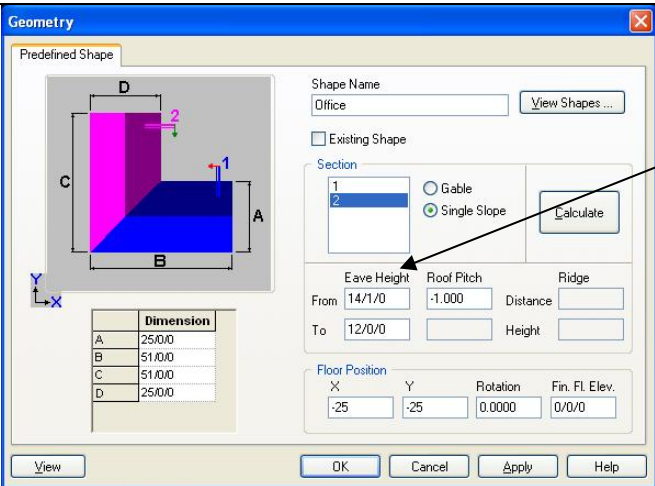
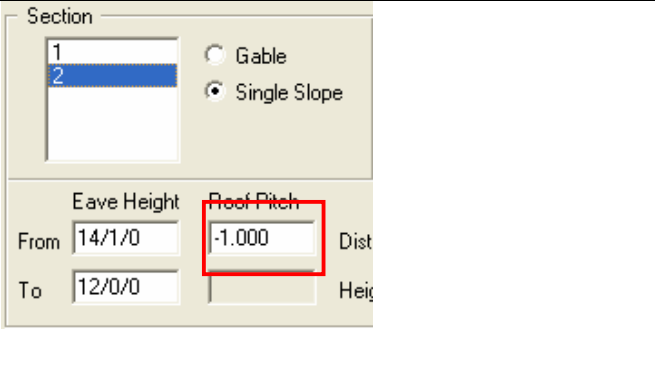
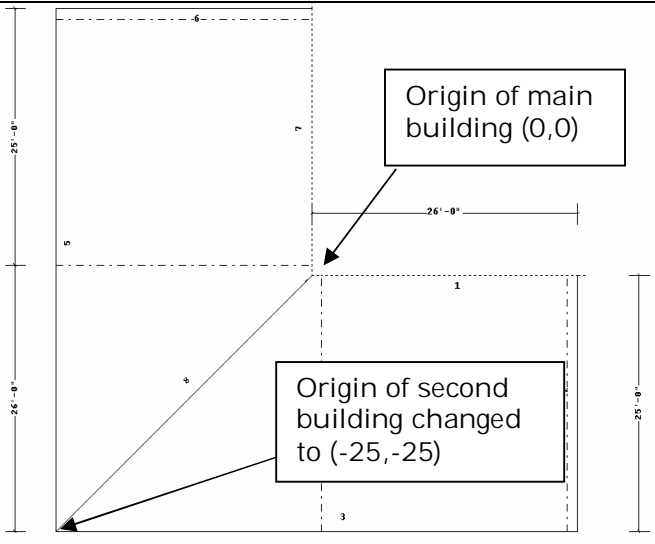
- Use any Default Project
- Main Building: 50' W x 100' L x 20' EH, 1:12 roof pitch, 25' bays
- Hip/Lean-To: 25' W endwalls x 51' L sidewalls x 12' low EH, 1:12 roof pitch

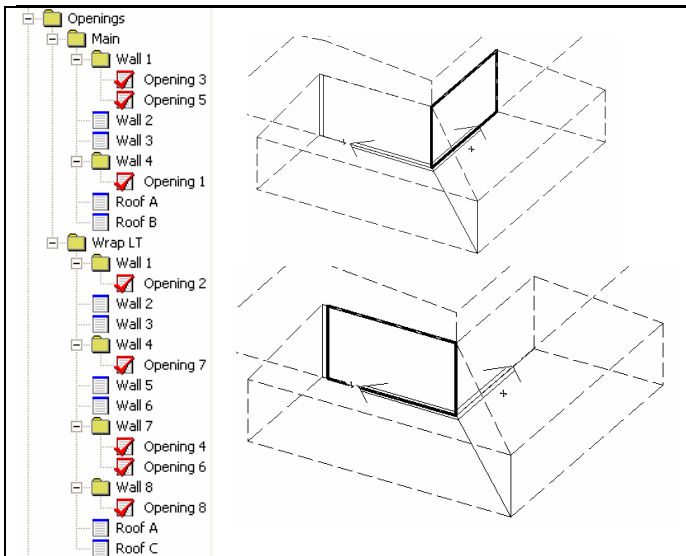


- 1) Start VPC Building Editor:
  - Start a New Project and select desired Default
- 2) Insert a new Pre-Defined shape
  - Rectangular Building 50 x 100 x 20, 1:12 roof pitch

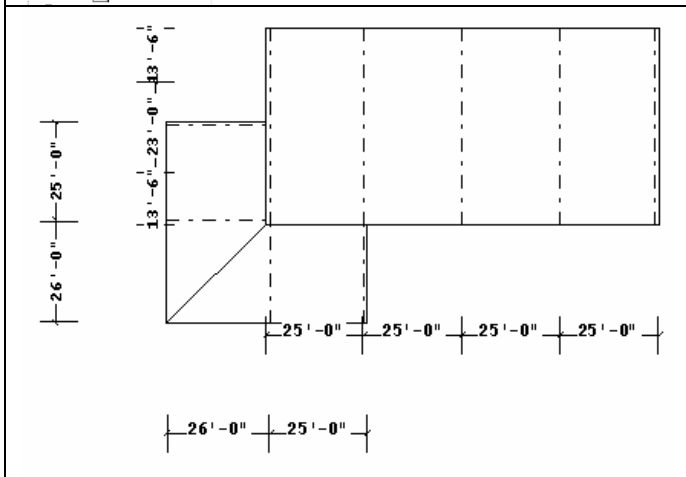


- 3) The first building Shape you input will become the *point of reference* for all additional shapes.
  - As you look at the first pre-defined shape (the 50x100 rectangle), the coordinates of the lower left corner are  $X=0, Y=0$ .

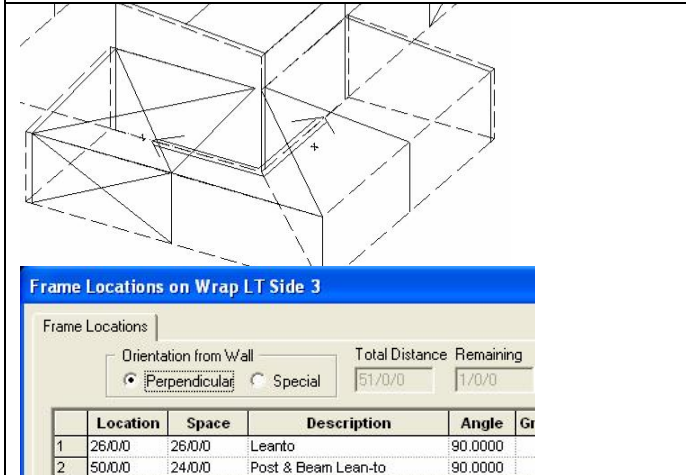
	<p>4) Insert a <i>second</i> new Pre-Defined shape</p> <ul style="list-style-type: none"> <li>• Select "L-Shape 2"</li> <li>• <i>Section 1</i> is defined as shown here.</li> <li>• The <i>lower left corner</i> of this shape is the origin (<math>X=0, Y=0</math>).</li> <li>• We can locate this point in reference to the origin of the first shape input.</li> <li>• Input <i>X and Y floor position</i> coordinates both as negative 25'-0" to position the inside corner of the second shape at the lower left hand corner of the main building.</li> </ul>
	<p>5) Complete <i>section 2</i> as shown here.</p> <ul style="list-style-type: none"> <li>• Notice the <i>From and To</i> for the section are at opposite sides compared to section 1.</li> <li>• This requires that <i>section 2</i> has the pitch reversed to change the direction of the roof slope.</li> <li>• We can use a <i>negative pitch</i> to accomplish this.</li> </ul>
	<p>6) This drawing shows the <i>relationship</i> between the origin of the first and second buildings located.</p> <ul style="list-style-type: none"> <li>• Note: Buildings <i>cannot overlap</i> or be contained within one another.</li> <li>• If your building floor locations are such that there is an <i>overlap</i> you will receive the following message:</li> </ul>



- 7) After any shapes are connected, "Openings" are automatically created where the walls share a common plane.
- Remember you can delete these opening to "close" the common wall areas.



- 8) *Locating Frames:*
- Locate frames in the main building using 25 foot bays with an outset girt condition
  - Use a *Rigid Frame with Endposts* at frame line one adjusting endposts to connect with lean-to frames from lower building.



- 9) *Locate lean-to frames* at lower shape to coincide with 25 foot bays of high building *perpendicular* to the low sidewalls
- 10) Insert lean-to frames perpendicular to main building *endwall*.
- Make sure that the lean-to frame at the endwall of the low building lines up with the endpost on the main building endwall.

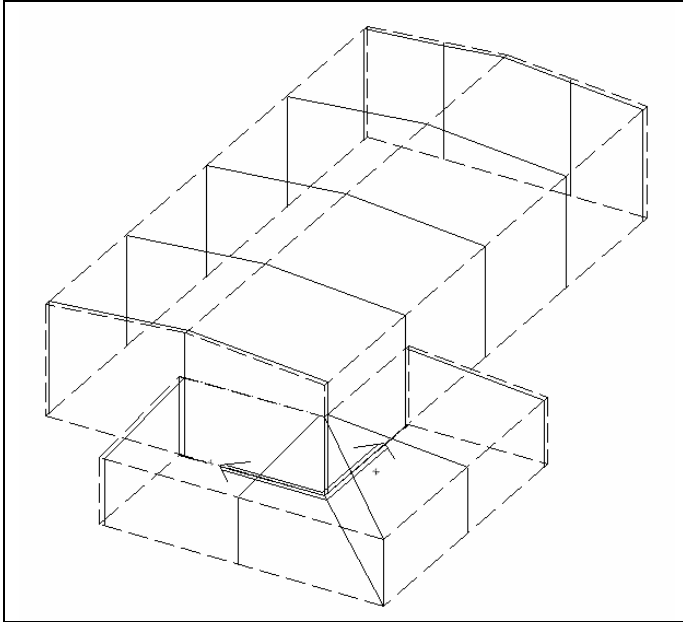


## Lesson 9



<p><b>Frame Locations on Wrap LT Side 5</b></p> <p>Frame Locations</p> <p>Orientation from Wall: <input checked="" type="radio"/> Perpendicular <input type="radio"/> Special</p> <p>Total Distance: 51'0"/0 Remaining: 25'0"/0</p> <table border="1"> <thead> <tr> <th></th> <th>Location</th> <th>Space</th> <th>Description</th> <th>Angle</th> <th>Gr</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1'0"/0</td> <td>1'0"/0</td> <td>Post &amp; Beam Lean-to</td> <td>90.0000</td> <td></td> </tr> <tr> <td>2</td> <td>25'0"/0</td> <td>24'0"/0</td> <td>Leanto</td> <td>90.0000</td> <td></td> </tr> </tbody> </table>		Location	Space	Description	Angle	Gr	1	1'0"/0	1'0"/0	Post & Beam Lean-to	90.0000		2	25'0"/0	24'0"/0	Leanto	90.0000		
	Location	Space	Description	Angle	Gr														
1	1'0"/0	1'0"/0	Post & Beam Lean-to	90.0000															
2	25'0"/0	24'0"/0	Leanto	90.0000															
<p><b>Frame Locations on Wrap LT Side 3</b></p> <p>Frame Locations</p> <p>Orientation from Wall: <input type="radio"/> Perpendicular <input checked="" type="radio"/> Special</p> <p>Total Distance: 51'0"/0 Remaining: 51'0"/0 Left Angle: 45.0000 Right Angle: 90.0000</p> <table border="1"> <thead> <tr> <th></th> <th>Location</th> <th>Space</th> <th>Description</th> <th>Angle</th> <th>Group</th> <th>Trib. Override</th> <th>Design Status</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0'0"/0</td> <td>0'0"/0</td> <td>Leanto</td> <td>45.0000</td> <td></td> <td></td> <td>Automatic Design</td> </tr> </tbody> </table> <p>Type: <input type="text"/></p> <p><input type="checkbox"/> Spaces At: <input type="text"/> Angle: <input type="text"/> <input type="button" value="Delete"/></p> <p>Or Location At: <input type="text"/> <input type="button" value="Insert"/> <input type="button" value="Delete All"/></p> <p><input type="button" value="View"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Apply"/> <input type="button" value="Help"/></p>		Location	Space	Description	Angle	Group	Trib. Override	Design Status	1	0'0"/0	0'0"/0	Leanto	45.0000			Automatic Design	<p>11) Locate a <i>lean-to frame</i> using the Special angle "Orientation from Wall" option.</p> <ul style="list-style-type: none"> <li>• Insert the frame using the "Location At" field (not the "Spaces At" field).</li> <li>• When locating the diagonal frame in this example, <i>Wall 3</i> was selected as the "Along" wall, therefore the input location is <i>zero</i> to place frame in the corner.</li> <li>• Note that the "Left" angle (45.000) is the angle you locate this frame at.</li> <li>• Remember that you locate frames <i>left-to-right</i> as you are facing that wall from outside your building shape.</li> </ul>		
	Location	Space	Description	Angle	Group	Trib. Override	Design Status												
1	0'0"/0	0'0"/0	Leanto	45.0000			Automatic Design												
<p>12) <i>Note on Lean-to frames:</i> The Lean-to Frame Type you should input at the Frame / Locations window is as follows:</p> <ul style="list-style-type: none"> <li>• If the span (width) of the lean-to frame is less than or equal to 50 ft, and/or does not frame into a rafter section then use a type of "Leanto". This frame type already exists in your <i>Frames / Schedule</i>.</li> <li>• If the span (width) of the lean-to frame is greater than 50 ft, and/or frames into rafter section, then you should create a frame in the schedule using a type of "<i>Cont. Beam Lean-to (Rigid Knee)</i>"</li> </ul>																			
	<p>13) The lean-to frame lines that meet at the <i>corner column</i> of the endwall frame must not be located on a building line.</p> <ul style="list-style-type: none"> <li>• Make sure you maintain the <i>1'-0"</i> offset required.</li> </ul>																		

## Lesson 9



14) *Adjust Bracing as desired.*

- You can modify any of the other conditions as desired.
- Run and check Input Report.
- Do a Run after verifying Input is correct.
- Run a Pricing and Edit Check Report.
- Address any unpriced items.