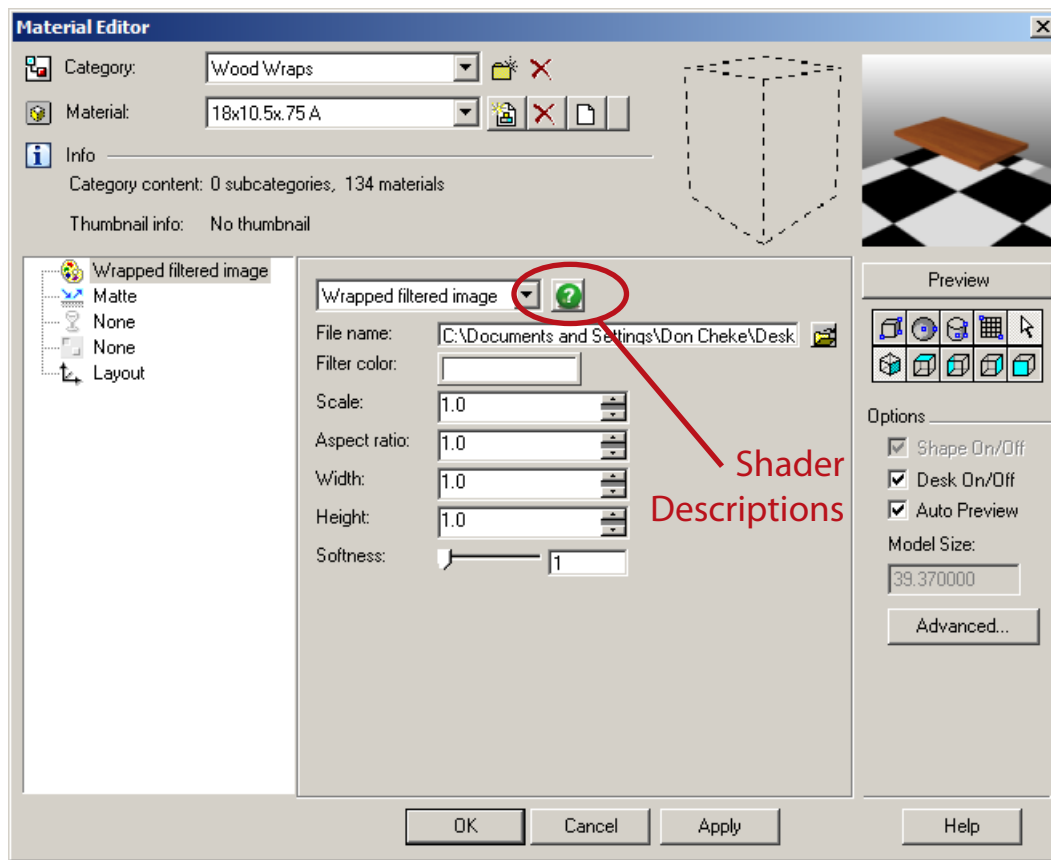


Do you ever look at the LightWorks help files when trying to figure out how to wrap a wood image to an object in TurboCAD and wonder why it has to be so complex?



- Uses Arbitrary Plane Wrapping
- ▲ Uses Local Auto Axis Wrapping
- Uses Layout Wrapping

Please note that the techniques and summations listed in this tip may not be what the developers of LightWorks had in mind when they created their wrapping techniques. However, if one goes with the old TurboCAD user adage "if it works, it must be right", then there should be nothing to worry about.



Although the techno-speak used in the LightWorks help files can be a little intimidating these help files can prove to be useful when one is taking time to experiment with a simple models and adjusting each function to see how it relates to the model on screen. Adjust one setting at a time and take note of what happens when changed.

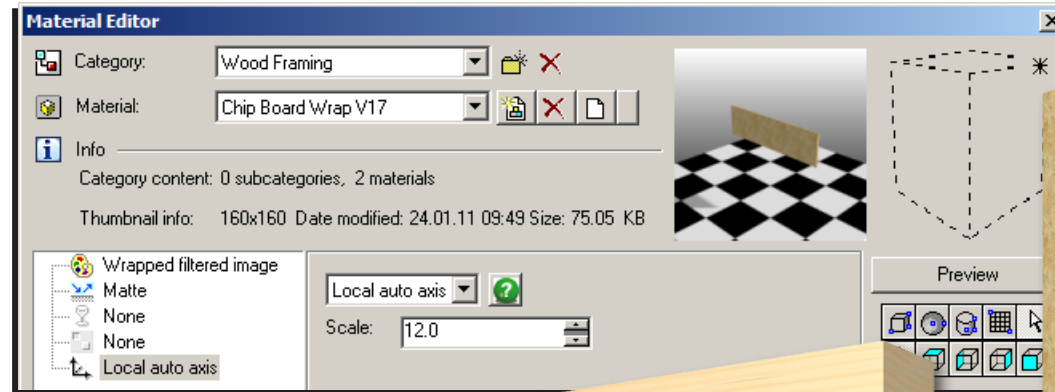
Since the arrival of TurboCAD version 16, it has been much easier to find LightWorks help with only a single click of the mouse.

The three methods that Don Cheke has found most useful when it comes to getting wood grain images wrapped to TurboCAD objects is Local Auto Axis, ST Layout (or Layout) and Arbitrary Wrap. They will be reviewed in the pages to follow.

The simplest method is to use Local Auto Axis, but this method usually requires a quality seamless image.

A user can occasionally find good seamless wood images on the Internet, but most that exist for free are not seamless, or if they are said to be seamless, are not really that great. The most common issues for these not so great seamless images is that they have easily identifiable objects within or they are not uniformly lit which then exhibits a light/dark tiling effect.

The difference between Auto Axis and Local Auto Axis is that the materials will rotate with the object if it is wrapped with Local Auto Axis and will not with Auto Axis.



← Image used to wrap is 400 x 400 pixels

Adequate on smaller objects, but tiling is quite obvious on larger objects, such as the 4 x 8 sheet to the right.

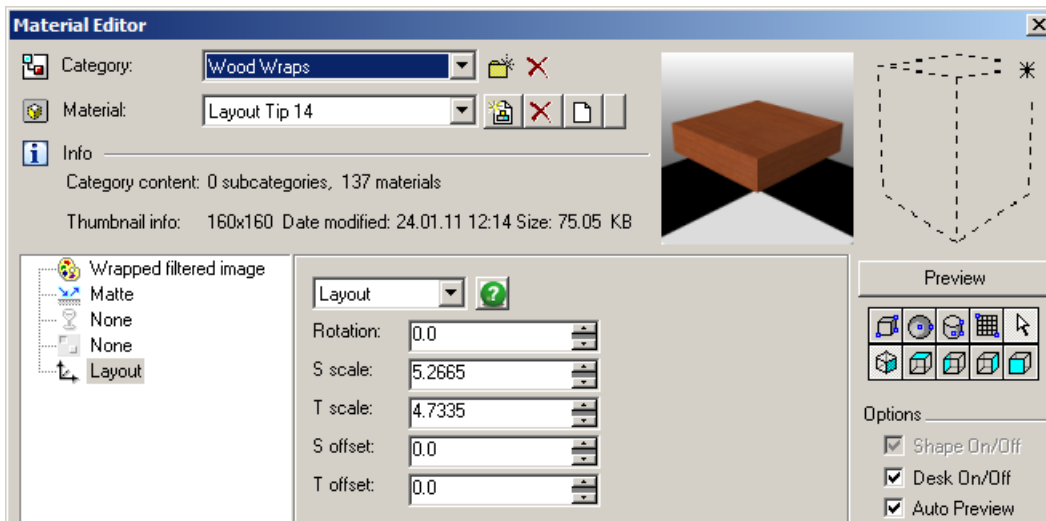
Layout or ST Layout are two great options for wrapping images to sheet type boards. ST Layout offers additional parameters that allow for more versatility.

The dimensions of the image to be wrapped are the crucial factors that are required to wrap effectively. Two formulas can be used that help determine the required input.

S Scale travels along the X axis and T Scale along the Y axis.

$$\text{Image width} \div 2 + 50 \div 10 = \text{S Scale}$$

$$\text{Image width} \div 2 = N; 50 - N \div 10 = \text{T Scale}$$



In this case, the image to be wrapped is 512 x 512 pixels or 5.33 x 5.33 inches.

$$5.33 \div 2 + 50 \div 10 = 5.2665 [S]$$

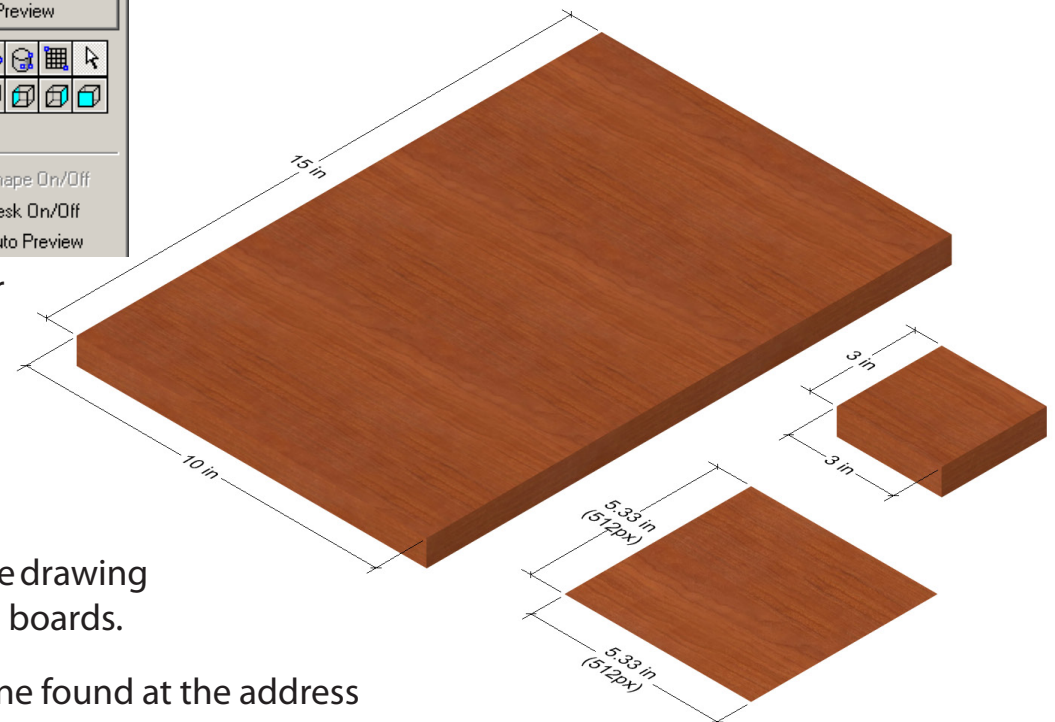
$$5.33 \div 2 = 2.665; 50 - 2.665 \div 10 = 4.73335 [T]$$

For pre V16 versions, skip the  $\div 10$  portion of the equations.

The actual image used for wrapping has been inserted into the drawing to the right to show how it compares in size to the wrapped boards.

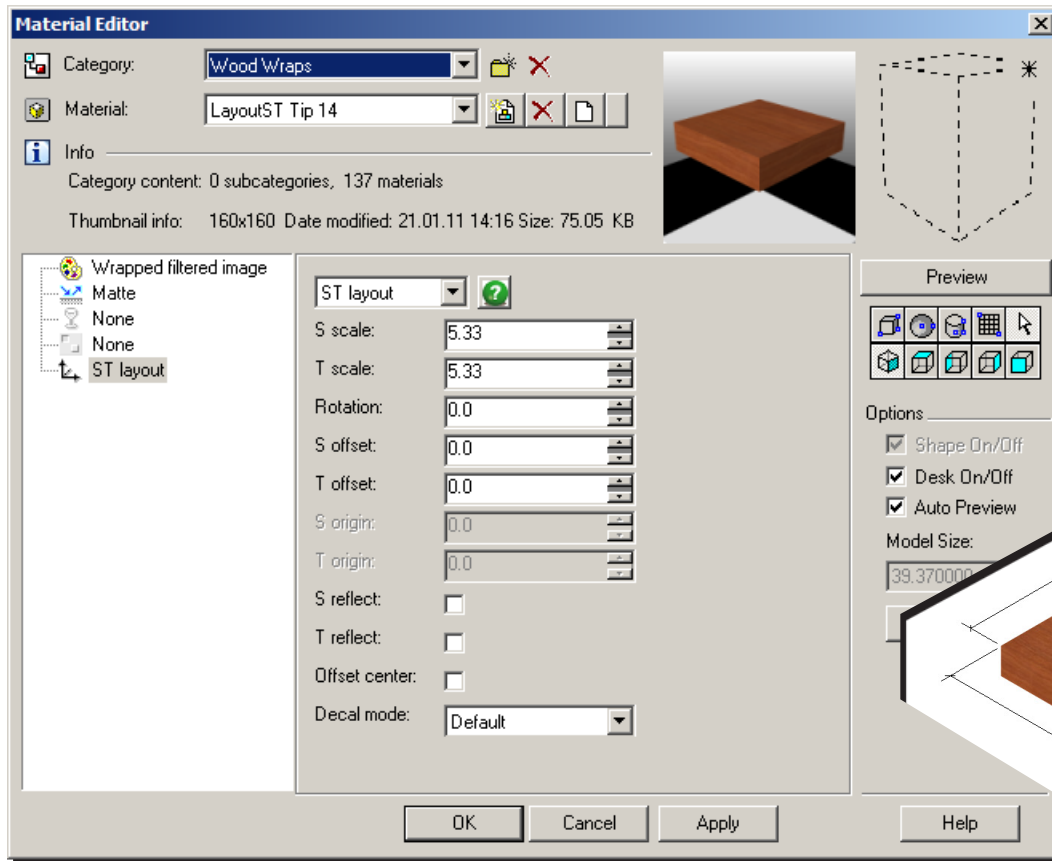
A pixel to inch converter can prove to be quite handy. The one found at the address below has been available for a number of years.

<http://www.classical-webdesigns.co.uk/resources/pixelinchconvert.html>

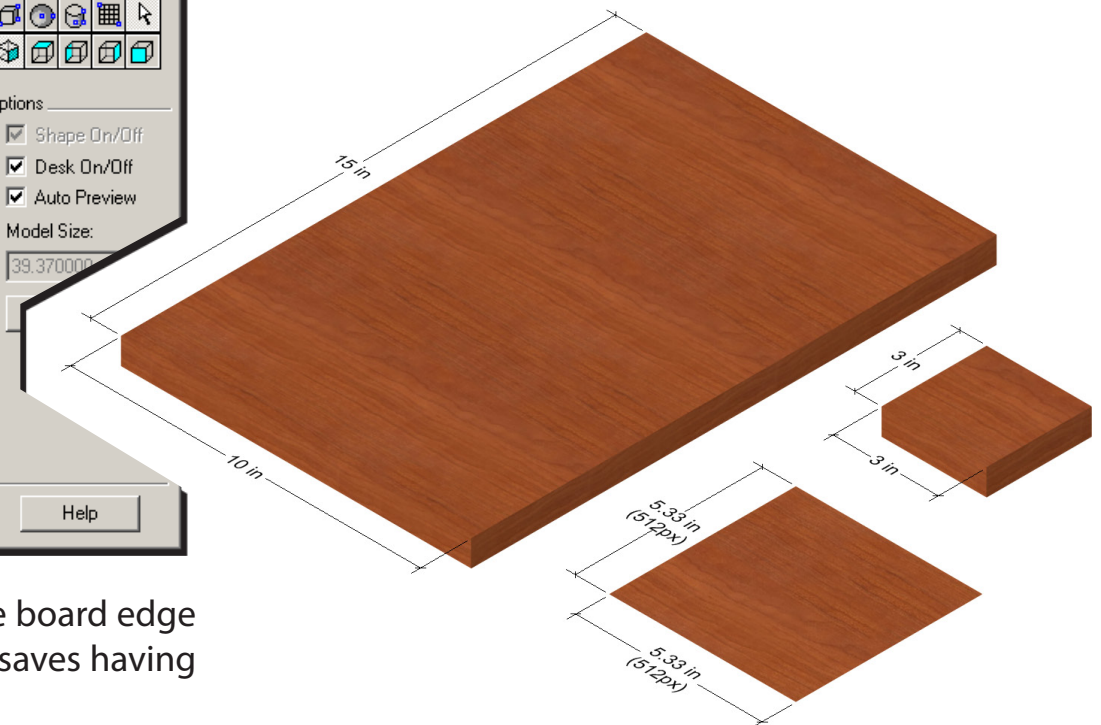


A user may find that simply inputting the dimensions of the image into the S Scale & T Scale fields adequate, as in the example on this page. If compared to the results of the equations on the previous page it can be seen that they are quite close.

For pre V16 versions, multiply the dimensions by 10.

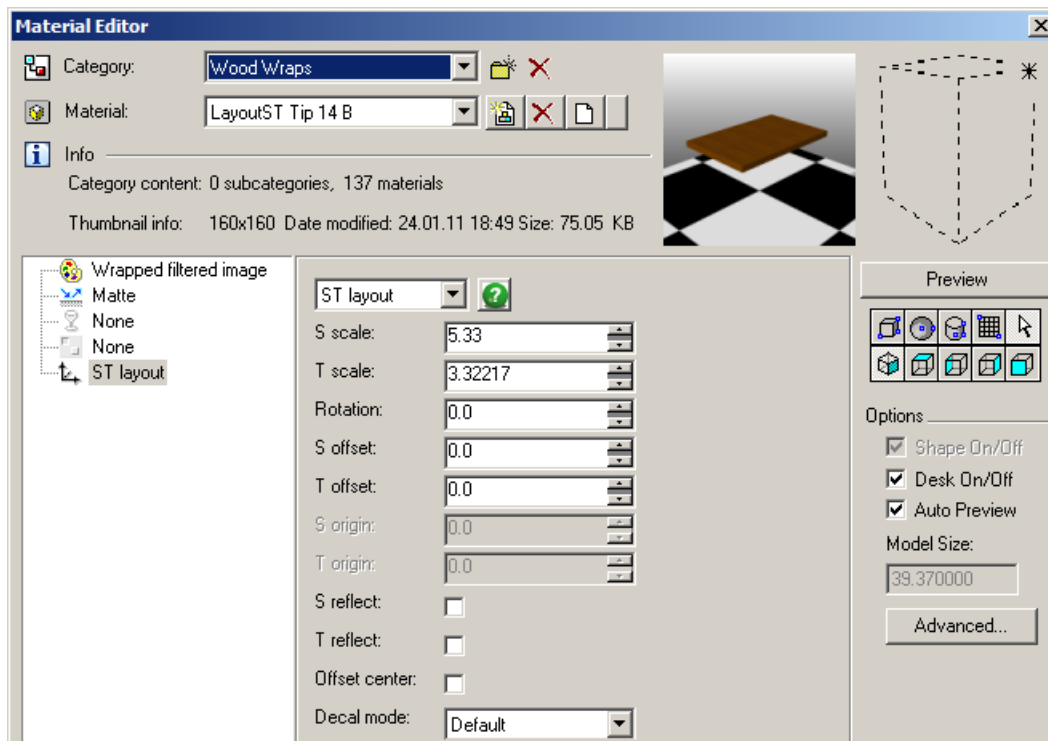
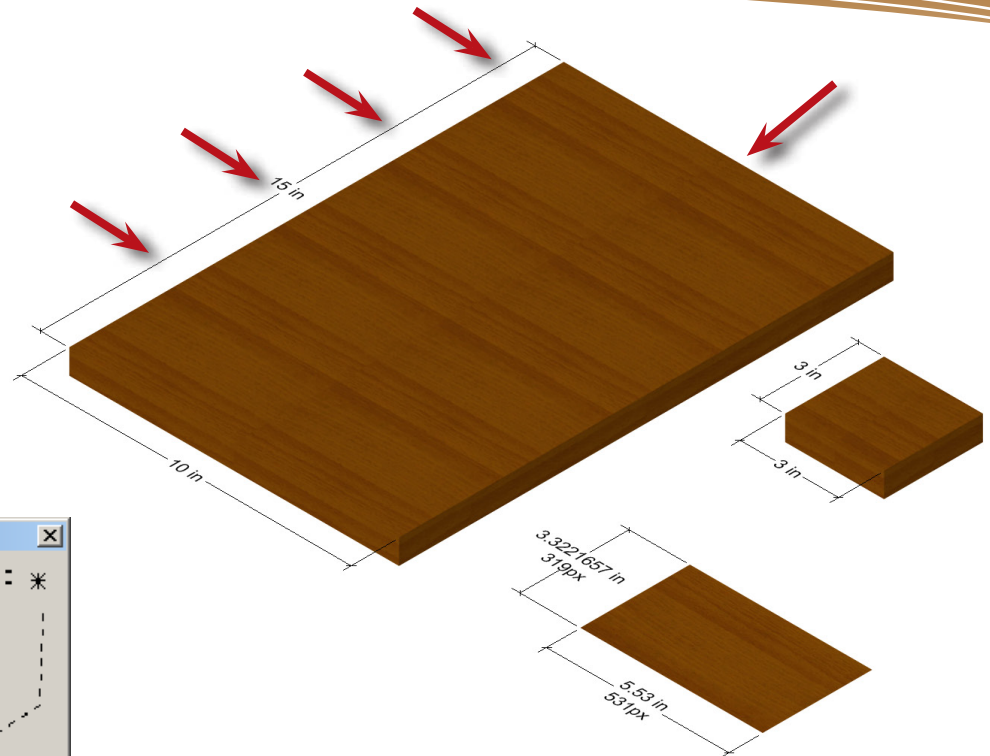


The nice part about using Layout or ST Layout is that the board edge is often quite acceptable (similar to edge banding). This saves having to create a separate materials for the edges.



Although non-square images are acceptable for Layout & ST Layout wrapped objects, the square ones do seem to work better overall.

Note the obvious vertical seam. The horizontal ones could pass if need be.

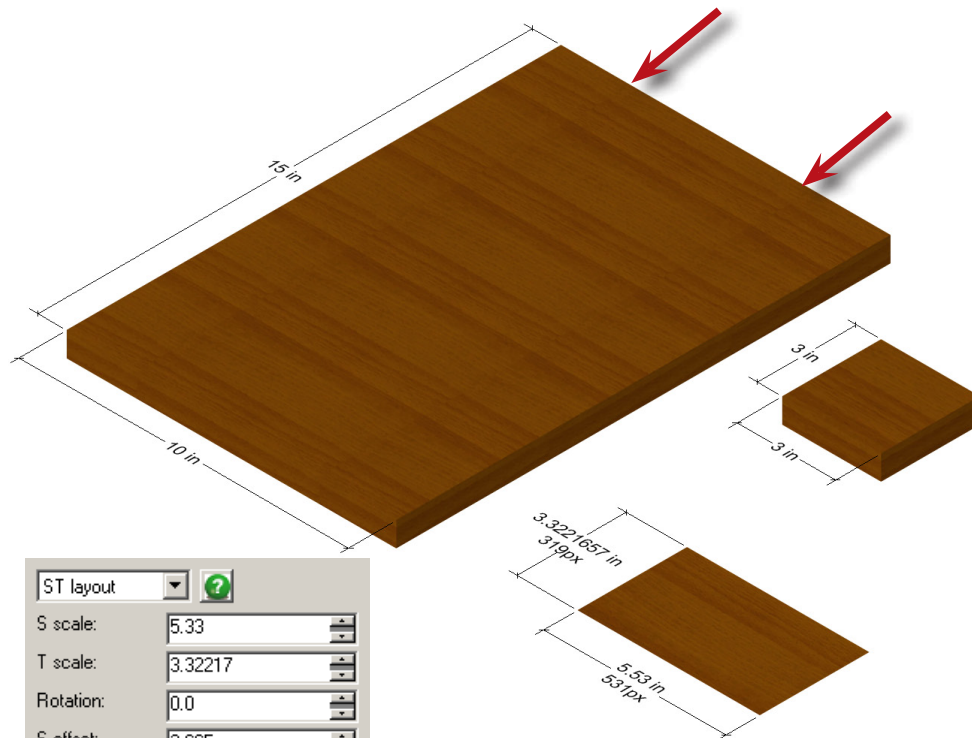


To use a non-square image, or an image that is not seamless, the same procedure as before is used, but the user will likely need to use the offset fields to address the seam positions.

A user may also find that the image may need to be scaled up to compensate for the size of the board that the image is being applied to. The example on this page uses the exact sizes without offsets and the seams are obvious.

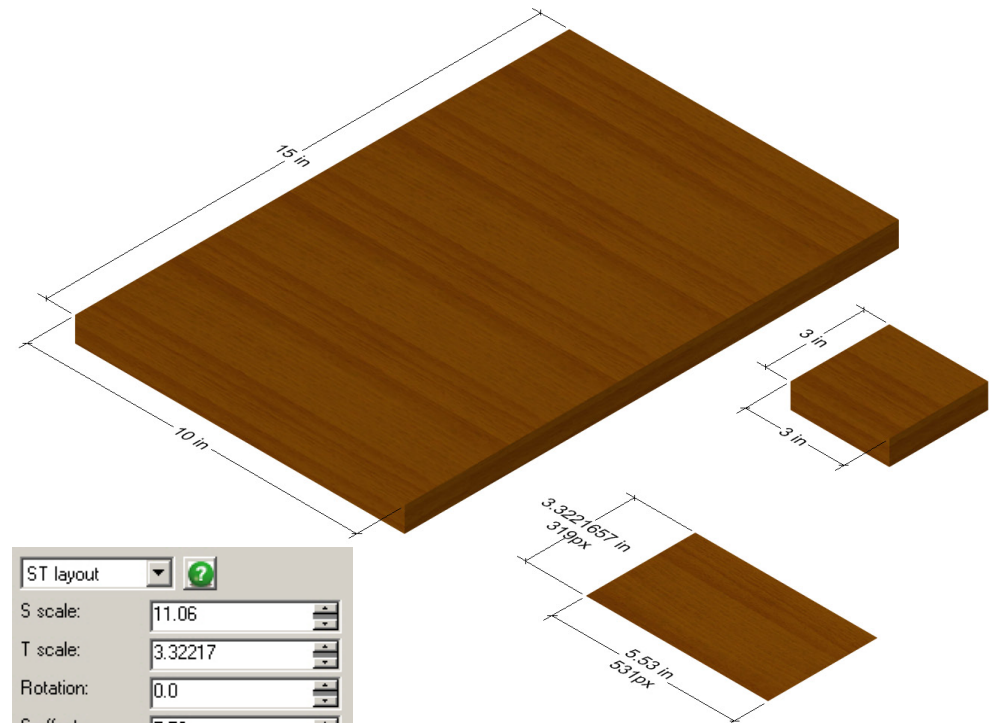
Normally a user would scale by half the distance to hide the seam, but in this case the image is not wide enough to hide it. To remedy this, in this example, the S Scale is doubled and the S Offset is adjusted to half the new size.

Sizes are not limited to halves or doubles. A user can experiment with sizes to find one that works best.



|                |                          |
|----------------|--------------------------|
| ST layout      |                          |
| S scale:       | 5.33                     |
| T scale:       | 3.32217                  |
| Rotation:      | 0.0                      |
| S offset:      | 2.665                    |
| T offset:      | 0.0                      |
| S origin:      | 0.0                      |
| T origin:      | 0.0                      |
| S reflect:     | <input type="checkbox"/> |
| T reflect:     | <input type="checkbox"/> |
| Offset center: | <input type="checkbox"/> |
| Decal mode:    | Default                  |

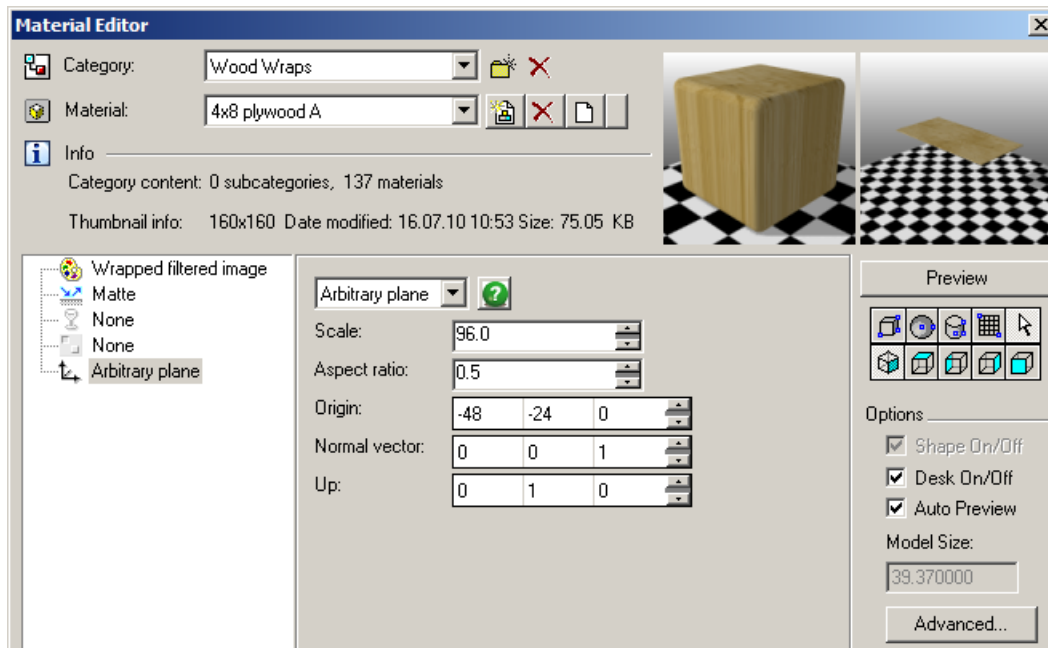
In this example, full size is used and offset by half the S Scale. Two seams are now visible because the image is not wide enough.



|                |                          |
|----------------|--------------------------|
| ST layout      |                          |
| S scale:       | 11.06                    |
| T scale:       | 3.32217                  |
| Rotation:      | 0.0                      |
| S offset:      | 5.53                     |
| T offset:      | 0.0                      |
| S origin:      | 0.0                      |
| T origin:      | 0.0                      |
| S reflect:     | <input type="checkbox"/> |
| T reflect:     | <input type="checkbox"/> |
| Offset center: | <input type="checkbox"/> |
| Decal mode:    | Default                  |

In this example, double size is used in the S Scale field and is then offset by half in the S Offset. Seams are no longer visible.

Arbitrary Plane wrapping is great for wrapping flat boards, although the edges will usually need to be addressed with a second material application.



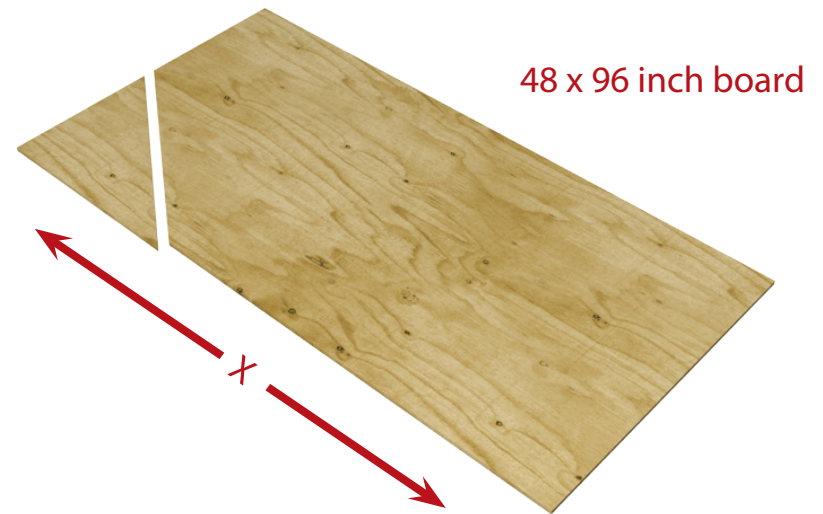
Scale = width of board

Aspect Ratio = Height ÷ Width ( $48 \div 96 = 0.5$ )  
(x 100 in pre version 16)

Origin = negative of half the X, Y and Z sizes, although Z (thickness in this case) is not important in this instance and can remain 0

Normal Vector specifies which direction the image sits

Up specifies the orientation of the image

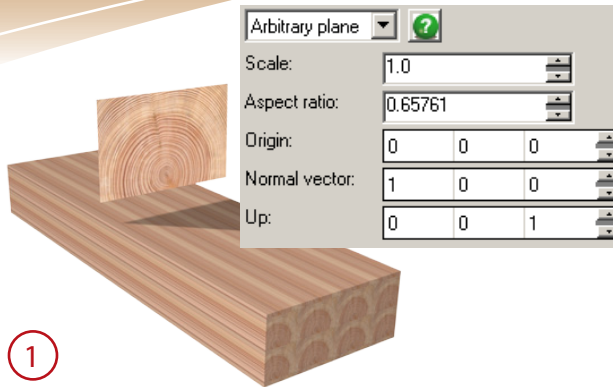


Once wrapped the object can be sliced and the original material retains its position (Solid Objects Only)



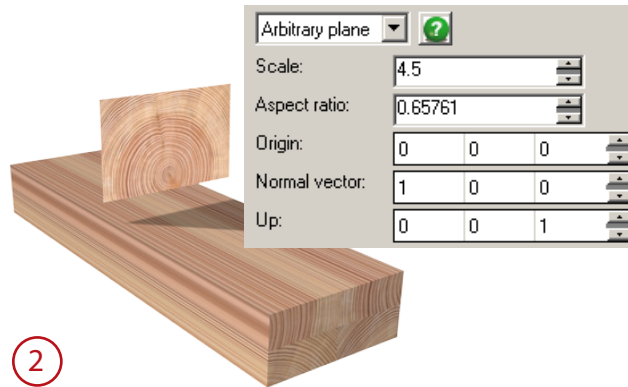
Edging can be addressed by attaching separate edge wrapped objects or by applying edge wrapped materials to the edge facets of the board itself.

Arbitrary Plane is also great for creating timber-like grain on dimensional lumber type objects.



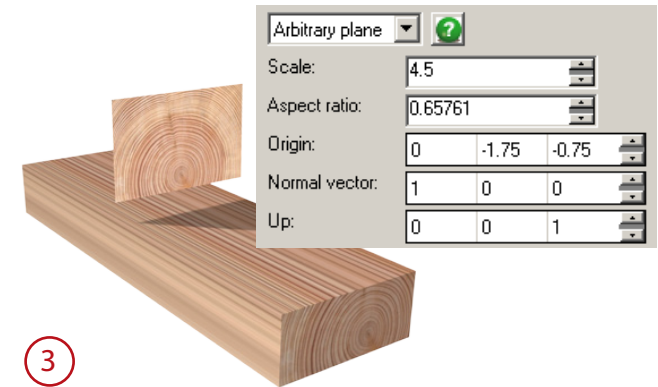
①

- Scale = 1, Aspect Ratio is set
- Grain is too straight
- Size (on end) is too small by ~ 4



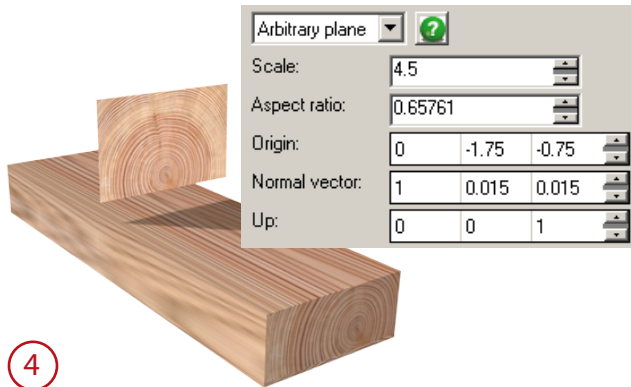
②

- Scale increased to 4.5
- Grain still straight
- Seams visible - Origin needs fixing



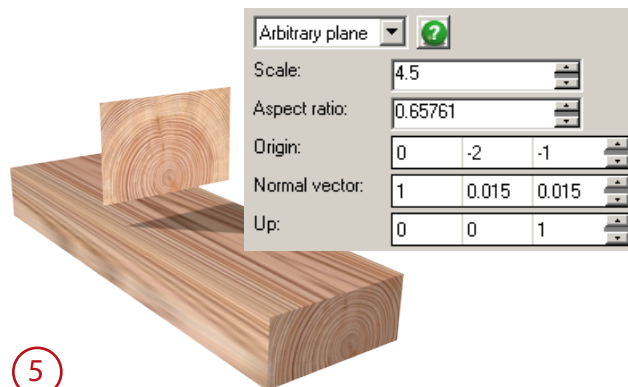
③

- Origin offset by negative of half Y & Z
- Grain still straight



④

- Grain angled by Normal Vector change in Y & Z
- Seams visible due to angle shift



⑤

- Origin offset a bit more in each direction to remedy visible seams

Timber is 1.5 x 3.5 x 12 inches

Image Size is 353px x 232px (3.68" x 2.42")  
(image shown in drawing above the timber)

Aspect Ratio = 0.65761  
(2.42 ÷ 3.68 = 0.65761)

The idea here is to have the image aligned (via material wrapping parameters) to the end of the timber and adjust size and angle of the image to create a believable wood grain. Tree rings images work best for these.

If you found this TurboCAD tip helpful, please consider purchasing a full Textual Creations TurboCAD project tutorial that will lead you through an entire project, keystroke by keystroke. You won't be disappointed! Visit the [Textual Creations Shopping Page](#)