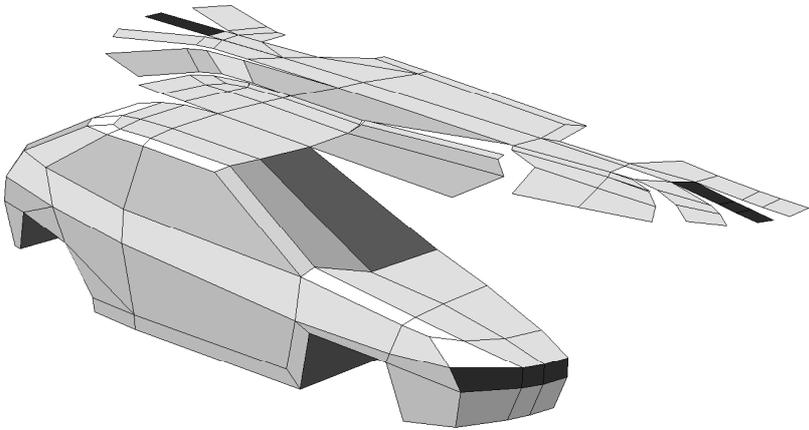


# TouchCAD

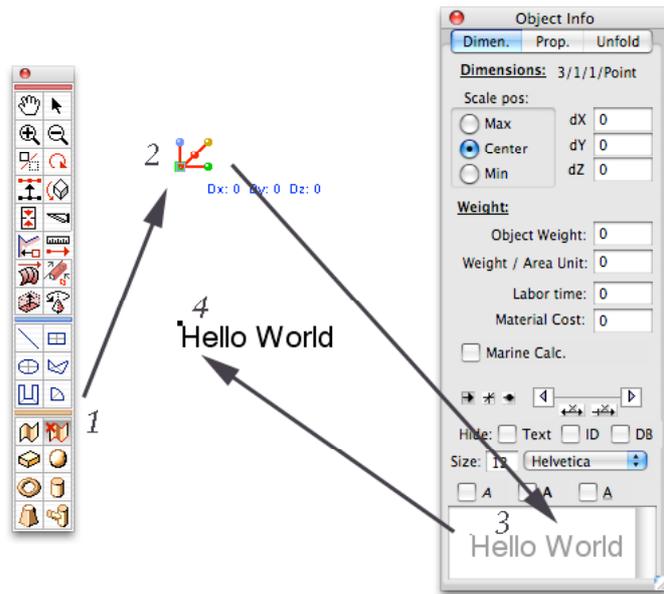


New in 3.6

# General improvements

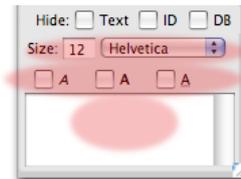
## Texts

A text string can be associated with objects such as points, lines, polygons or surfaces, via the Object Info palette. To create a text object, select the Point tool in the Tool palette (1) and click in the drawing area where the text is to be located (2). While still being selected, write the desired text in the Object Info palette (3). Press Enter or TAB to transfer the written text to the object (4).



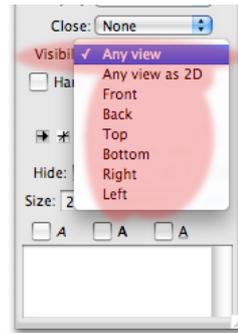
Texts are displayed close to the green Starting Point dot, but can be moved by the Flip Index Direction commands in the Edit menu.

The text editing features are available both under the Dimension and Properties tabs in the Object Info palette, with identical functions. Each text can use its own font, size and style settings, for example **Bold**, *Italic* or Underline.



Texts have individual options to be visible in the drawing area, and/or in the object spreadsheet. The setting is controlled in the Object Info palette using the Hide checkboxes. The Text box is used for hiding texts in the drawing area, the ID box for hiding object ID's in the drawing area irrelevant for material specifications, and the DB box is used for excluding the item concerned from the object spreadsheet. Un-checking Show 3D Object ID and/or Show Texts can exclude texts and IDs from the drawing area in the View menu. Texts can also be seen in the Unfold view close to the starting point, and in combination with the Object IDs, by checking the option in the View menu -> Show In Unfold -> Text Database.

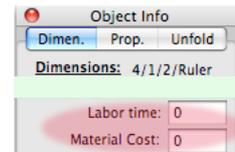
Each object and consequently text can be displayed in 3D and hereby follow the view and object location when rotated in space. A text can also be associated with a fixed view such as Front, Top or Side and only be shown in the given view. The text can also be treated as a strict 2D object regardless of view but where editing and selection of objects are restricted to the Front fixed view only.



Texts can also be seen and edited in the Spreadsheet in menu -> Tool -> Surface Properties -> List All Objects. To edit the text in the spreadsheet, click on the relevant text field and enter the new text in the entering field. The updated text is automatically transferred back to the drawing and updates it.

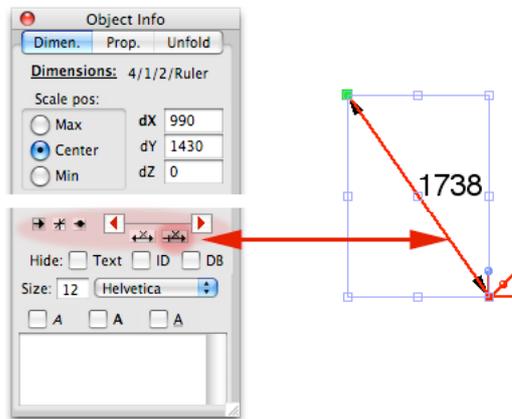
### Material and labor costs

Material and labor time/costs can now be specified in the Object Info palette. Such data are then compiled and summed in the database spreadsheet (menu->Tool->List All Objects).



### Measurements

Measurements can be added as an associated part of a line or polygon object. It can either be done using the Measure tool, with the Dimension Line option checked in the Mode bar, or by simply clicking on either of the two dimension buttons in the Object Info palette. These two buttons control if the measurements is to be displayed as an accumulated polygon length or as a chain measurement with measurements for each segment.



Measurements are always three-dimensional in method and by stated dimensional values. Measurements has the same view settings as texts and objects, meaning it can be viewed in full 3D, be associated with a given view, or be strictly two dimensional displayed from any view.

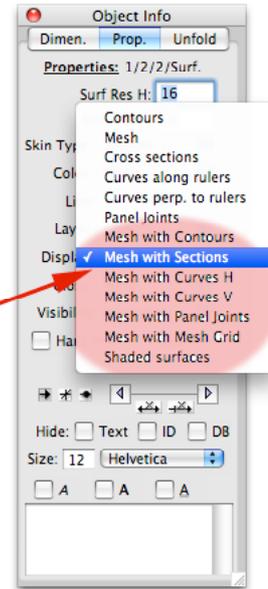
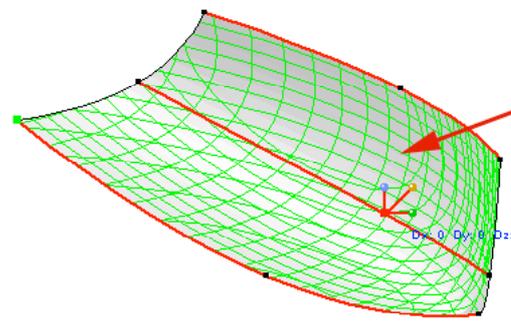
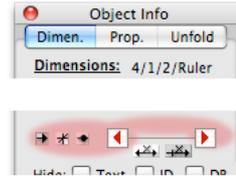
Measurements can be displayed individually using arrowheads, cross lines or by dots. The settings are located in the Object Info palette.

Measurements can now also be displayed as coordinate measurements in 3D, similar to what was previously available in the Unfold view. In 3D though, such measurements are clicked out manually using the Measure tool and selecting the Coordinate mode in the Mode bar. When this tool setup is activated, it is recommended that you first position a local origin point, click out the relevant measurement lines, and then reset

the origin. In such a way, it is possible to add measurements for several objects in the same drawing area, and using local coordinate systems for each object.

### Instructional arrows

Line and polygon objects can also have arrow / cross / dot elements at each respective end. Clicking on the respective start and end buttons in the Object Info palette activates the feature. The marker type is also selected in the Object info palette.



### Shaded surfaces

Surface objects can be displayed with a shaded surface based on the fill color. Such a setting is individual for each object as it is primarily intended as a drawing aid and not as a supplement to the Rendering mode. The shading is displayed on objects with Display mode set to “Mesh with...” in the Object Info palette, Properties tab, Display Mode pop-up.

The shading can be controlled further using the Surface Shading options in the View menu. The Wireframe option turns off the shading altogether. Fast Shading skips component sorting, and therefore works quicker. Flat Colors use the exact color as defined in the Color palette, without compensating the color for light effects. Dynamic Shading recalculates the shading dynamically when rotating view or deforming the model, which may be slow on more complex models but gives a more dynamic impression of how the model would look like.

# Tool palette

Improvements in the Tool palette:

## Rotate tool, twist.

The Rotate tool works as before, except for the Twist mode available in the Model bar. When using the Twist mode, the model is twisted based on the location away towards you in the used view. The lower coordinate value, the lower degree of twist.

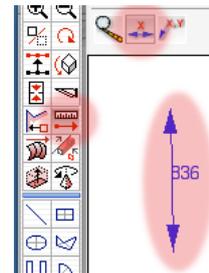
## Measure tool, Tape Measure

Besides the Tape measure mode, which works as before, the Mode bar now contains modes for drawing measurement lines and coordinate measurements.



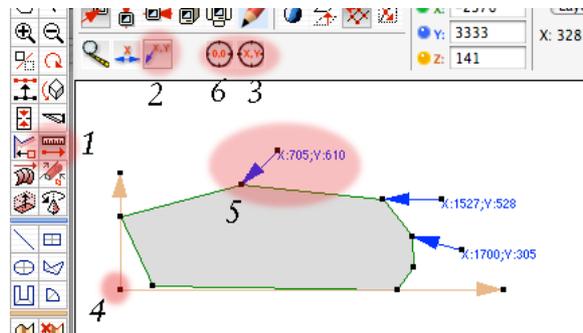
## Measure tool, Measurement lines

The Mode bar for the Measurement tool also contains a mode for drawing measurement lines. It basically works like the Polygon line, but also adds measurements by default.



## Measure tool, Coordinate Measurements

The Mode bar for the Measurement tool also contains a mode for drawing coordinate measurements. Select the Measure tool (1), Coordinate mode in the Mode Bar (2). When using the Coordinate Measurement mode, two additional buttons occur for setting and resetting the drawing origin. With Set Origin (3), you click on a given location to set the origin (4). With Reset Origin (6), you simply click on the button to reset the origin to the default location. Once the origin has been set, click on a given location (5) and drag the text to a suitable location and click again.



### Line tool.

The Line tool now always generates a control ruler.

### Rectangle tool.

The Rectangle tool provides two basic modes, Rectangle and Rounded Rectangle, which adds a radius to each corner when drawn. When Rounded Rectangle mode is activated, an additional button is displayed, which when clicked on, displays a dialog used for entering a radius.



Each of these object types can be generated either as a single control ruler, or as a surface defined by two connected rulers.

### Circle / Ellipse tool.

The Circle / Ellipse tool can be generated either as a single control ruler, or as a surface defined by two connected rulers. Three different drawing methods are available in the Mode bar, circle by three points, by diameter, or by radius.



### Polygon tool.

The Polygon tool generates control ruler either defined as a polygon, with straight lines between the control points, or as a smooth curve. The options are located in the Mode bar.



### Arc tool.

The Arc tool can either generate a single control ruler or a surface defined by two connected rulers. Two different drawing methods are available in the Mode bar, by radius, or by three points.



# Menus

Improvements in the menu commands are as follows:

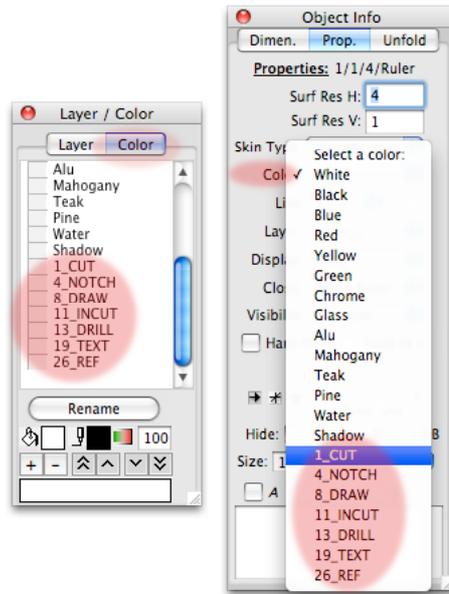
## File menu.

### Save Selection as...

The Save Selection As command saves selected objects in a new separate file for later use. Such files can for example be imported and reused as components in other models using the Load Into command.

### Export as DXF...

Unfolded panels can now contain the object database texts next to the object ID text. The support for the AAMA standard used in the textile industry has been improved. The AAMA support includes exporting from the 3D view as a 2D projection, using special color names that are exported as AAMA layers. These are 1\_Cut, 4\_Notch, 8\_Draw, 11\_Incut, 13\_Drill, 19\_Text, and 26\_Ref. When exporting as AAMA in 3D, all other colors are ignored. Also worth noting is that selected parts can be re-exported from the Unfold view back to 3D for after processing, using the contextual menu (in the Unfold view, right-click and selecting Unfold to 3D).



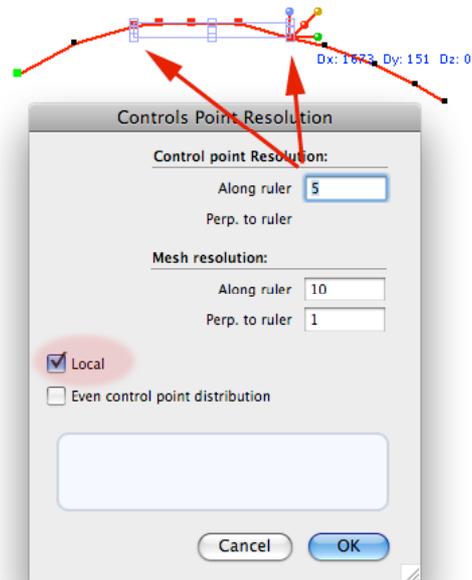
### Export as STL...

The Export as STL command has been updated. Note that normals (menu -> View -> Show Normals) can now be displayed to indicate the inner and outer side of a given panel.

## Edit menu.

### Control Point Resolution.

The Control Point Resolution now supports a local mode, where the distribution only takes place in the control ruler being in possession of the Intersection Point symbol, and in between the lowest and highest indexed ones of selected points. If, for example points number #3 & 7 are fixed points that should remain at its original location, you can select points 3-7 and then redistribute them internally, without affecting the points with indexes below #3 and above #7.



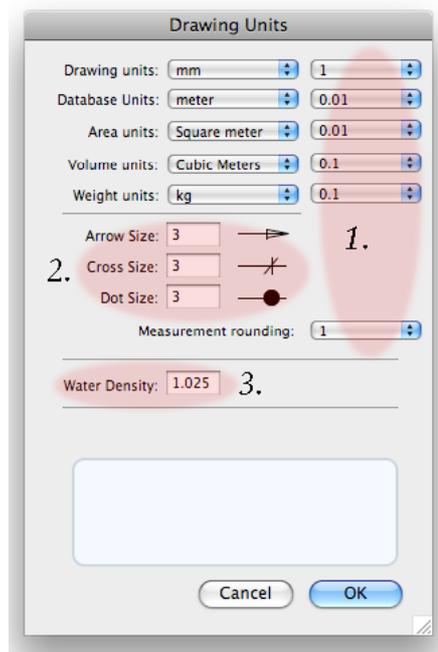
## Page menu.

### Set Grid.

The Set Grid command has been integrated into the Units dialog.

### Units...

The Units dialog has been extended with separate units and rounding settings for database lengths (edge lengths), drawing units (used to be Set Grid), area units, volume units, weight units, and measurement units (used in measurement texts) (1). An edit field for water density has been added with a default value for salt water (3). Settings for arrowhead dot and cross line sizes have been added (2).



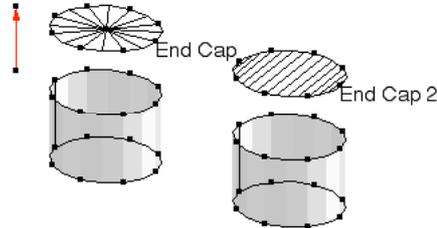
## Sectioning Settings.

In the Sectioning Settings dialog, it is now possible to set the set the general background color for the drawing area.

## Tool menu.

### Add End Cap2.

Add End Cap2 is an alternative method to Add End Cap, which divides the edge into two control rulers that are connected. Add End Cap takes the entire edge length and connects it to a midpoint control ruler. Which of these two methods that works best on a given situation depends on what the goal of the new surface is.



1.	2.	3.	4.	5.	6.	7.	8.	9.	10.				
ID	Text	Area	Weight	Weight/A	Co.g.-X	Co.g.-Y	Co.g.-Z	Layer	Color	Cut L.	Edge L.	Material	Labor
1-S	Cylinder1	2.951	10	0	-3546	2132	-832	Layer_1	White	33.25	8.89	100	1.5
2-S	Cylinder2	2.951	5	0	-1293	2132	-832	Layer_1	White	8.89	8.89	100	1.2
3-S	End Cap	1.031	3.094	3	-3543	3305	-832	Layer_1	Blue	22.26	4.87	20	0.8
4-S	End Cap 2	1.055	3.164	3	-1293	3305	-832	Layer_1	Yellow	5.66	3.66	20	0.8
5-R	Arrow ruler	0	0	0	-4636	2922	-832	Layer_1	Red	0	1.13	0	0.3
6-R	Arrow ruler2	0	0	0	590	2922	-832	Layer_1	Red	0	1.13	0	0.3
11.		7.988	21.259		-2680	2477	-832			68.06	28.58	240	4.9

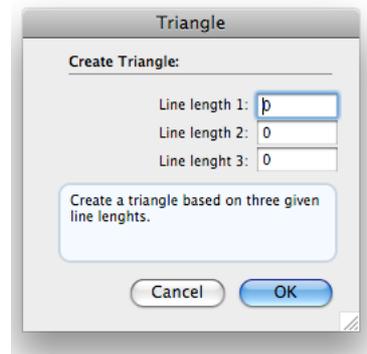
12. [Input field] 13. [Color dropdown: Yellow] 14. [Update] [Select] 15. [Buttons: Hide, Copy List, Save List..., Print List..., Done]

### Surface Properties -> List All Objects.

The List All Objects dialog has been extended substantially and now contains the database information of the objects in the drawing area. Specifications include data type (1), index number (1), text (2), weight and weight per area units data (3), surface area, center of gravity (4), layer (5) and color identities (6), 3D edge (8) and unfolded panel edge lengths (7), and estimated labor time (10) and material costs (9). Many of these settings are double acting (text, weights, center of gravity, layer, color, labor time and material costs), and can therefore be changed (12/13) and be updated (14) either in the drawing area / Object Info palette, or in the List All Objects dialog. Objects can also be selected (15) from the List All Objects dialog, and if needed, be removed from the database (16) (e.g. measurement lines and drawing head labels, which are not strictly parts of the physical project).

### Triangle...

The Triangle dialog creates a triangle based on three given lengths.



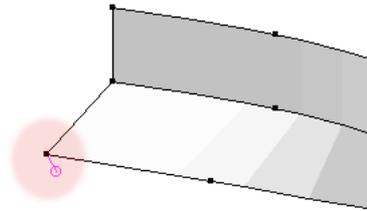
### View menu.

#### Surface shading.

The shading can be controlled further using the Surface Shading options in the View menu. The Wireframe option turns off the shading altogether. Fast Shading skips component sorting, and therefore works quicker. Flat Colors use the exact color as defined in the Color palette, without compensating the color for light effects. Dynamic Shading dynamically recalculates the shading when rotating view or deforming the model, which may be slow on more complex models but gives a more dynamic view of how the model looks.

#### Show Normals.

The Show Normals option displays a small line and ring away from the starting point of a surface, and facing the outer side. This feature is important when exporting .STL files, which must contain closed shapes with normals facing outwards. If a given surface is faced wrong side out, it can be corrected using the Flip Index Direction commands in the Edit menu.



#### Zoom Line Thickness.

With the Zoom Line Thickness option checked, TouchCAD displays the line thicknesses in the drawing area. Note that the line thickness can be set individually in the Object info palette, Properties tab, Line (thickness) pop-up.

#### Show Texts.

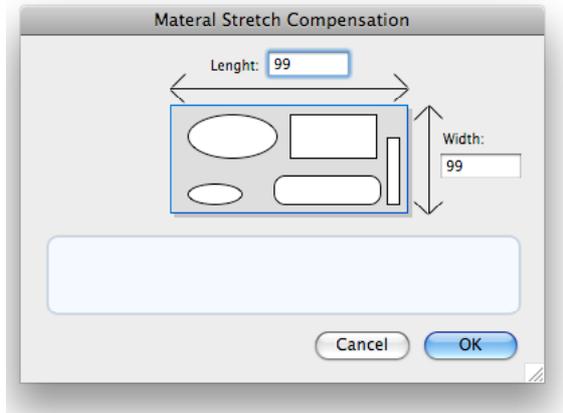
With the Show Texts option checked, database texts are being displayed in the drawing area.

#### Show in Unfold -> Database Texts.

With the Database Texts option checked, database texts are being displayed in the drawing area when the Unfold view is selected. The texts occur after the object ID's.

**Show in Unfold -> Material Stretch Compensation.**

In the Material Stretch Compensation dialog, compensation factors can be added to the unfolded parts. If the know stretching is 1% along the material direction, you simply compensate this direction by entering a factor of 99%. Compensation can be set individually along the material direction as well as sideways.



# Contextual menus

The number contextual menus have been increased to speed up various processes and in order to reduce the number of tool changes. Note that the menu features vary in occurrence and location in the menus depending upon if something is selected or not, and whether the cursor snaps to a control point or not. Contextual menus, if any, appear when right clicking on the relevant object, or by pressing the Control key and left clicking.

## **Drawing area 3D**

### **Select All.**

Selects all objects being accessible due to layer settings.

### **Deselect All.**

Deselects all objects being selected.

### **Undo.**

Reverts the last action.

### **Redo.**

Reverts the last undo action.

### **Render Model.**

Turns on the Render mode.

### **Fit to Window.**

Changes the degree of zoom and pan to make the paper size fit into the screen.

### **Drawing scale.**

Changes drawing scale to make a model fit into the drawing area. Note that TouchCAD models are always defined in full-scale measurements, and the drawing scale adapts it to the paper area used.

### **Rotate.**

Changes the tool setting to Rotate temporarily, allowing a rotation sequence and then returns to the previously selected tool. The command is only displayed when an object is selected.

### **Mirror and Mirror and Duplicate.**

Changes the tool setting to Mirror / Mirror and Duplicate temporarily allowing a mirror sequence, and then returns to the previously selected tool. This command when only displayed if an object is selected.

### Select...

Select -, Object, -Points along Ruler, -Points Perpendicular to Ruler, -Edge Points all behave as the equivalent means in the Edit menu. The commands are only displayed if an object is selected or if a point snap instance has occurred.

### Combine Into Curve.

Combines selected points into a curve, starting from the point owning the Intersection Point symbol. The command behaves in the same way as the equivalent command in the Tool menu. The command is only displayed when an object or some control points are selected.

### Add Control Point.

Add Control Point adds a control point along a control ruler and in a direction away from the green starting point dot. The command behaves in the same way as the equivalent command in the Tool menu. The command is only displayed when at least one control point is selected.

### Add Control Ruler.

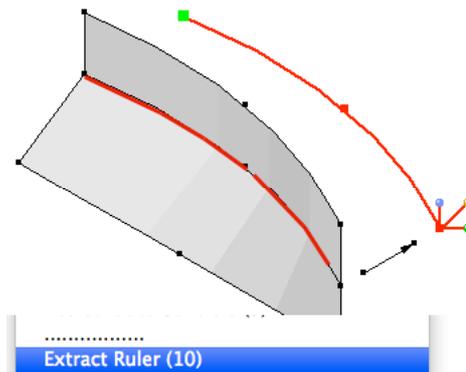
Add Control Ruler adds a control ruler, and in a direction away from the green starting point dot. The command behaves in the same way as the equivalent command in the Tool menu. The command is only displayed when at least one control point is selected.

### Extract Ruler.

Extract Ruler extracts a copy of control ruler from a surface object. The command is only displayed when at least one control point is selected.

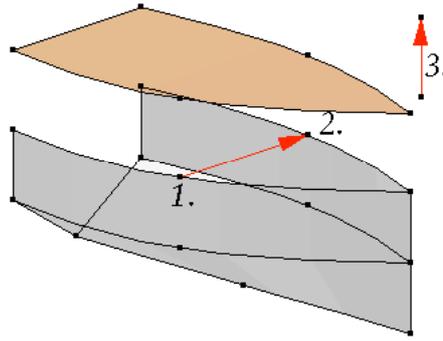
### Extract Cross Curve.

Extract Cross Curve extracts a copy of cross curve from a surface object. The command is only displayed when at least one control point is selected.



### **Connect Rulers with Surface.**

Connects two rulers in for example two different surfaces with an intermediate surface. Works on edges as well as intermediate objects to create a bulkhead. The command requires snap clicking on a control point in each ruler.



### **Connect Cross Curves with Surface.**

Connects two cross curves in for example two different surfaces with an intermediate surface. Works on edges as well as on intermediate objects to create a bulkhead. The command requires snap clicking on a control point in each ruler.

### **Add Guide Line.**

Add Guide Line adds a guideline away from for example a measurement line to the actual measuring point. The command requires snap clicking on a control point as a first sequence step.

### **Control Point resolution.**

Works exactly as the Control Point Resolution command in the Edit menu, but can be activated on non-selected objects if the cursor shows a point snap indication.

### **Redistribute Controls.**

Works exactly as the Redistribute Controls command in the Edit menu, but can be activated on non-selected objects if the cursor shows a point snap indication.

### **Duplicate.**

Works exactly as the Duplicate command in the Edit menu, but can be activated on non-selected objects if the cursor shows a point snap indication.

### **Extrude.**

Works exactly as the Extrude tool in the Tool palette. However note that the Extrude tool is only activated temporarily, and is reset to the original tool when the sequence is completed.

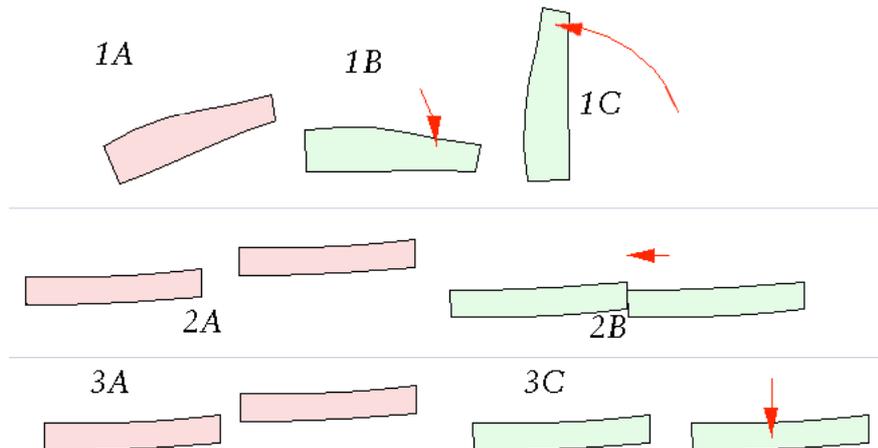
## Drawing area, unfold view

### Rotate.

The Rotate tool is chosen in the Tool palette, performs the rotation sequence and then returns to the original mode automatically. The method provides a more precise and controllable rotation than when using the scale box rotation.

### Rotate Left / Right 90 degrees.

Rotates selected panels 90 degree to the left or right.



### Rotate min Height/Width.

The Rotate min Height (1B / Width (1C) command locates the lowest possible height / width by rotating the panel. Useful when doing panel nesting work in order to prepare the panels for cutting.

### Stack Horizontal/Vertical.

Stacks selected panels horizontally or vertically based on the boundary box of each object, and make a good base for more detailed panel nesting (2B).

### Align Top/Bottom/Left/Right.

Aligns selected object sides with the selected side (3C).

### Unfold to 3D.

The Unfold to 3D command makes a copy of the unfolded panel cut and joining panels, object ID's and text and move them back to the 3D Front view. The primary use for the feature is to allow after processing of unfolded panels, for example additional markings, on-surface holes or markings, etc.

## **Rendering area**

### **Wireframe.**

Brings back the normal drawing area.

### **Standard views.**

Displays a chosen standard view in rendering mode.

### **Rendering to Background Image.**

Makes a screen dump of the rendered view as seen on the screen and transfers it to a chosen background image location. The displayed dialog allows you to choose a view location, and also indicates if the spot is used (red dot) or not (green). The purpose of the command is primarily to add an illustration to the drawing in order to clarify a given shape. Worth noting is that the version 3.6 prints background images as a part of the drawing.

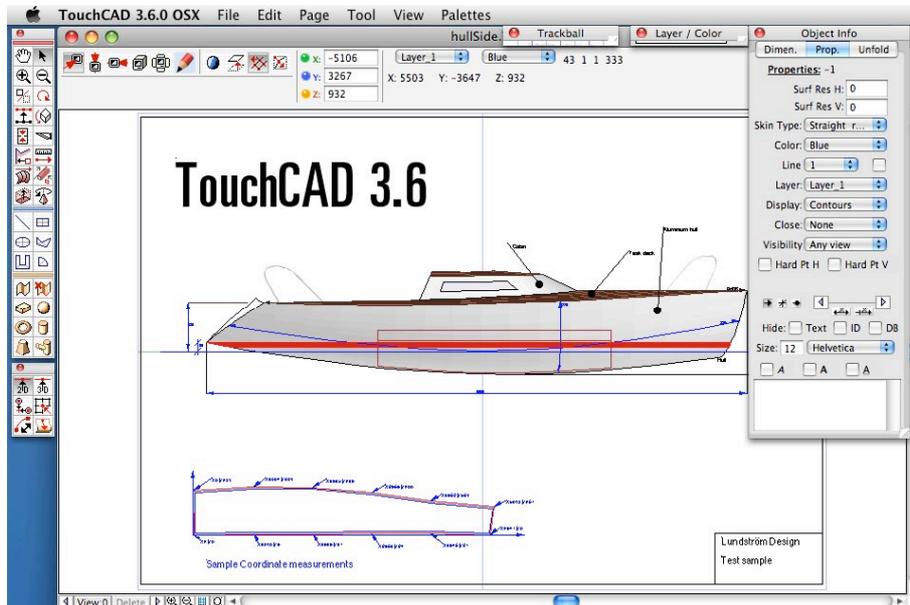
## Languages

TouchCAD is now available in English, French, Italian, Spanish and Swedish.



## Technical data

TouchCAD needs Mac (OSX 10.3–), or Windows (XP / Vista). 1 G RAM, 1 GHz processor or better. QuickTime and OpenGL installed. USB port. Tutorial movies are included on the program CD.



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