


Rotate Tool

Perform the rotation or spin of selected objects

► Overview and Basic Principles

The Rotate tool works as the SketchUp Rotate tool with additional features

- **Step 1: Selection**
 - **With Preselection:** You can go directly to Step2 or optionally modify the preselection
 - **Implicit Selection:** With no active selection, a click will select the hovered object and start the transformation
 - **Interactive Multiple Selection:** Select one or several objects and/or vertices (see sections below)
- **Step 2: Set the Rotation Plane**
 - **The rotation plane** is displayed as a small **protractor**
 - By default, the rotation plane is taken from hovered faces
 - You can modify it via arrows (axes), or borrow it from elements of the model (see below)
 - You can also set the rotation plane manually by **Click-Drag-Release**
- **Step 3: Set the Rotation Origin**
 - **ClickRelease** in the model - The protractor origin is locked
- **Step 4: Set the Rotation Base Line**
 - **ClickRelease** to set the **Base Line** and start point of rotation - the protractor is locked
 - Optionally, you can create an **Offset Line** via **Click-Drag-Release** (see below)
- **Step 5: Rotation of the selection**
 - **Move the mouse** to rotate the selection and **Click** to finish
 - Maintain **Alt Down** to temporarily disable inferencing
 - When the mouse is close to the protractor, the angle is set by increment of 1 degrees, and closer, 5 degrees
- **Step 5: Adjustment after rotation (when picture  is displayed)**
 - **VCB** to modify the angle, multiple and divide
 - **Ctrl** to toggle **copy mode**
 - **Note:** these inputs can be used during the rotation

► Object Selection

Interactive selection and Preselection are supported

- **Shift** (no click): **Add / Remove** object to the permanent selection
- **Shift-Click-Drag**: **Rectangle** selection for objects
- **Click-Drag** with starting point in the **void space**: **Rectangle** selection for objects
- **Toggle Ctrl-Shift**: to extend selection when hovering an entity
 - over an **edge**: extend the edge by continuity
 - over an **face**: extend to all connected faces and edges
 - over an **component**: extend to all other instances in the current context
- **Contextual menu**: for advanced options to extend selection



- **Esc**: **Clear** the selection or preselection

- **Shift-Esc**: Restore the selection after clear or transformation

► Vertex Selection

Select Vertices (Interactive selection only)

- **Shift**: Add / Remove vertex to Permanent selection
- **Ctrl-Click-Drag**: Rectangle selection for Vertices
- **Alt-Click-Drag**: Lasso selection for Vertices

► Force Rotation Plane

By default, the Rotation Plane is taken from the entity hovered - You can also constrain the rotation plane along a specified normal

- **Arrows** for forcing normal along Axes (repeat for local axes)
- **CtrlDown** to Lock the current normal while moving the protractor
- **Alt-Click** or **Enter** on edge, guidelines, face to borrow normal
- **Click-Drag-Release** to specify a custom direction

► Rotation with Offset

Specify an offset line parallel to the base direction. This allows aligning particular line via inferences in the model

- When clicking to set the base direction of the protractor, keep the **mouse down and drag** to set the offset line
- The offset line will be shown in **orange**: -----
- The offset line is the one used for rotation and subject to **inferencing**

► Rotation Angle

Angle is specified in degree

- **VCB**: angle in degree (ex: 90) - Formula accepted
- **VCB**: angle with suffix: r (radians), g (grade), % (slope) (ex: 0.3r, 100g, 45%)

► Copy mode - Multiple - Divide

Can be used during selection and during / after Translation

- **Toggle Ctrl**: Enable / Disable Copy mode
- **VCB Multiple**: nx or xn or $*n$ [ex: 3x or x3 or *3 or 3*]
- **VCB Divide**: $n/$ or $/n$ [ex: 3/ or /3]
- **VCB Single Copy**: 1x
- **Note**: Copies are selected when finishing the transformation or exiting the tool

► Rotation Spread

Spread the original and copies over the circle or a given angle

- **VCB** [n]s (ex: 3s): spread n units over the circle (360°)
- **VCB** [n]s[angle] (ex: 4s180): spread n units over the given angle in degree

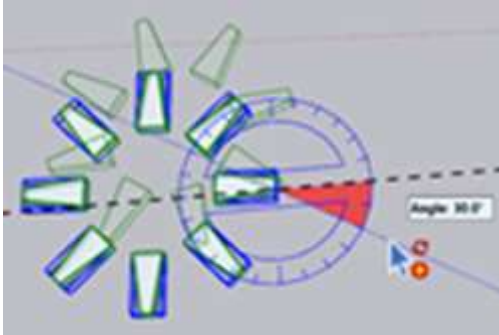
► Wireframe and XRay during Interactive Transformation

Wireframe and XRay help catch inferences in the model which would be otherwise hidden by the objects while transformed

- **TAB** or **Contextual menu** to toggle the **Wireframe mode**
 - This can be activated during Selection and Transformation
 - A small wireframed cube is shown next to the cursor



- The rotation is simulated with a wireframe instead of rotating objects

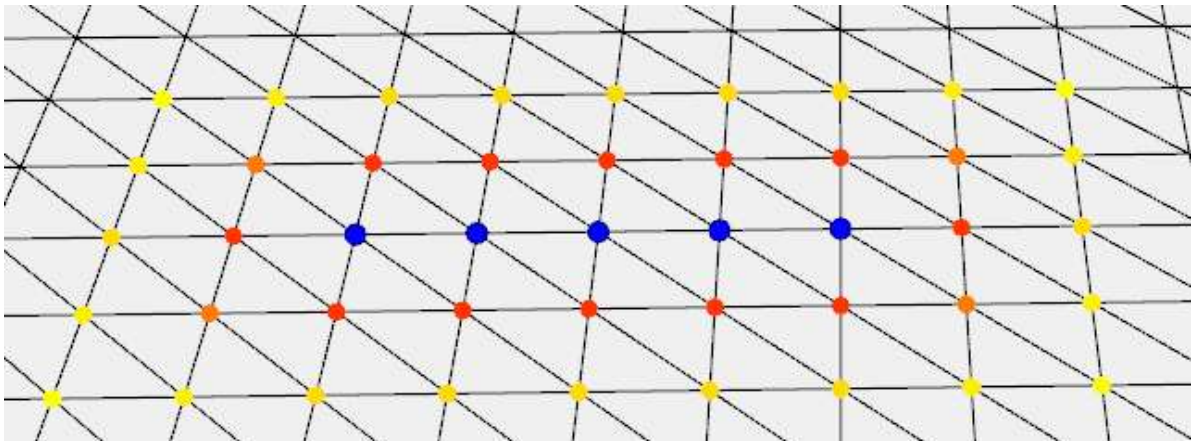


- The wireframe state is saved across Sketchup sessions
- **Shift-TAB** or **Contextual menu** to toggle **Xray mode**
 - By default, the Xray mode is activated *automatically* when you start the transformation
 - This behavior can be changed in the **Default Parameters**

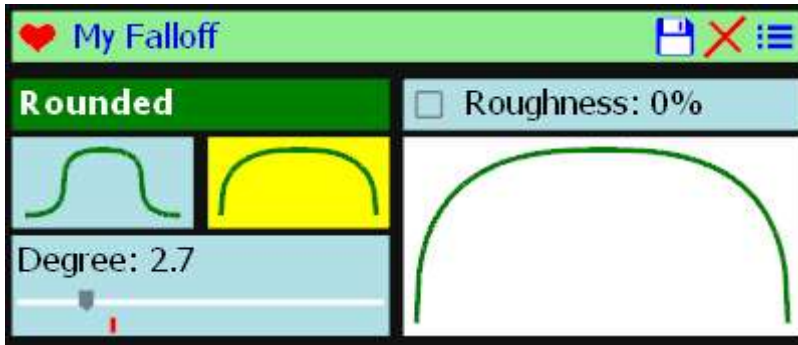
► Smoove Vertices

Move vertices and their neighbours within a radius with interpolation

- **Ctrl+MouseWheel** to start smoooving and set the radius
- **Neighbour vertices** are shown in red to yellow around the selected vertex or vertices



- **Selected entities** (vertices, faces, edges,) will move by the **full specified distance**
- **Neighbours** will move along the same direction but with an **interpolated distance**
- The **falloff method** can be set via the Falloff Editor displayed as a palette

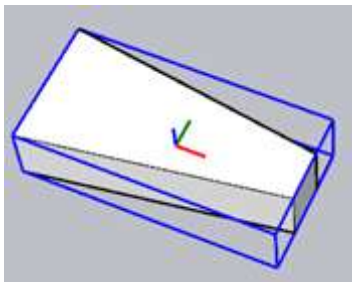


- The **falloff method family** can be set by **MouseWheel** or **Click** in the field
- Some method families have a **parameter** which can be varied (**MouseWheel** or **Click**)
- You can optionally choose a falloff **at the top and bottom** of the smoothed shape
- **Roughness** creates random variations around the general shape (**MouseWheel**)
- **Favorites** can be created for easier recall. Favorites are preserved across Sketchup sessions
- When smoothing is active, press **Esc** to **exit the Smoove mode**

► Individual Rotation (Spin)

Each object will rotate along its local axes

- **Toggle Alt** or **Contextual menu**: Toggle Individual mode
- The local axes are displayed for each object



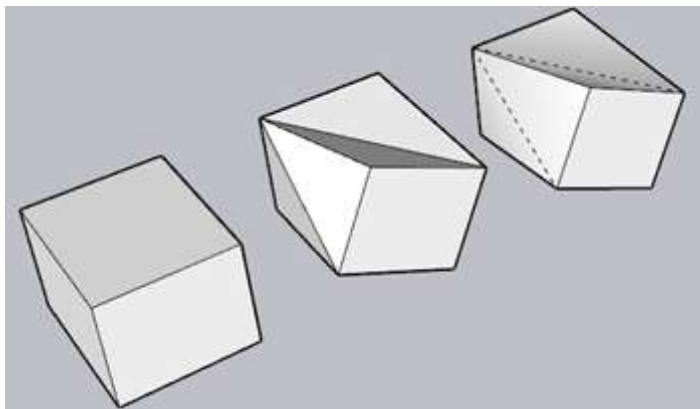
- VCB inputs for distance and multiple are supported in Individual mode

► Autosmooth edges created by Autofold

This option can be enabled / disabled via the context menu

*The transformation of vertices, edges and faces can create **new edges by autofold***

*Autosmooth applies to edges which would **split existing faces***



*Those edges will be set to **Soft, Smooth** and **No Cast Shadows** (convention for quad diagonals)*

► Double-Click, Undo/Redo and other actions

Relevant actions are accessible from the contextual menu - Some have a shortcut

- **Double-Click** shortcuts
 - **Double-Click** on entity to **Repeat** the last transformation on the current selection
 - **Double-Click** in void space to **Exit tool** (if Alt is down, then it is repeat)
 - **Ctrl+Double-Click**: **Go inside one level** when hovering a group or component; **Close Active** otherwise
 - **Alt+Double-Click**: **Go inside deep level** when hovering a group or component; **Close All Active** otherwise
- **Undo** and **Redo** are supported from within the tool
- **Backspace** to remove inference marks and bounding boxes

▶ Shortcut to Launch the Tool (optional)

You can launch a FredoSketch tool by calling twice the SketchUp equivalent tool

When the SketchUp tool is active, launch it again to start the FredoSketch equivalent tool

This behavior can be enabled / disabled in the Default Parameters

Launch FredoSketch tool when calling twice the Sketchup equivalent tool

- Typing **Q** twice or **Double-Click** on the SketchUp Rotate tool icon  will launch FredoSketch::Rotate

▶ Cursor symbols

Symbols next to the cursor indicate the state of the tool

