FT

FURNITURE TOOLS / SKETCHUP

Furniture Tools handbook

From your first frame to production preparation. Step-by-step furniture design guides for SketchUp.

Save this file to your computer for offline use. Use the contents and bookmarks to navigate between chapters.

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Video tutorials will be added to the website later.

FURNITURE TOOLS / 01

Getting started

> **Start with the logic.** A frame defines outer space, dividers define areas and physical parts occupy space inside. The opening is the remaining space for inserts. Read the cabinet example, then complete the practice task.

Workflow: room → furniture → materials and banding → parts check → cutting → estimate. If room dimensions are unnecessary, start in Builder.

FT philosophy and shared Move · Scale · Delete tools

Your first project step by step

1. Save the SketchUp model as a separate project file. FT dimensions use millimetres and angles use degrees.
2. In Room draw the outline and build walls. This is needed to position furniture relative to walls, doors and windows.
3. Open Builder, set outer dimensions and add a frame. Place cabinet parts, then shelves, partitions, drawers and fronts.
4. Check materials in Materials. New parts have Cabinet material, Front material and Back panel material.
5. Assign edge banding to the required edges. Place hardwareif it must appear in the model and parts list.
6. In Reports check names, dimensions, quantities, materials and banding. Fix geometry in the model, then refresh the report.
7. In Cutting configure sheets, kerf, trim and rotation. Calculate each material, edit layouts if needed, then export or print.
8. In Estimate enter prices and expenses. Save both the estimate and SketchUp file.

Selecting and finishing actions

To edit a finished part, activate normal SketchUp selection with `Space` and click the part. The editor name must match it. During placement, mouse actions belong to the active tool; finish it first as directed in the status bar.

`Enter` may confirm a dimension, insert a set of parts or finish placement; follow the specific tool's instructions. Do not treat `Esc` as a universal Delete command: cancellation differs by tool. Use normal SketchUp Undo for completed construction mistakes.

Visibility: tags (layers)

New objects receive tags FT - Корпус, FT - Фасады, FT - Фурнитура, FT - Комната and FT - Стены. Frames use FT - Рамки. Toggle visibility in SketchUp's standard Tags panel. Hiding a tag does not delete parts or exclude them from Reports.

For previously built objects, use **Extensions → Furniture Tools - organise by tags**. One Undo reverses this action. FT - Комната hides the entire room; FT - Стены hides only walls.

When results differ from expectations

1. Check the active tool and the SketchUp status-bar prompt.
2. Check the selected part and working frame: dimensions belong to a particular module.
3. Check tags and hidden objects if geometry disappears.
4. After changing the model, refresh dependent Reports, Cutting and Estimate data.
5. After installing a Ruby-code update, fully restart SketchUp. Closing a plugin window alone does not reload Ruby.

FURNITURE TOOLS / 02

FT logic and shared tools

From workshop logic to a 3D model.

A plugin built around the cabinetmaker's way of working.

The program builds the way a cabinetmaker thinks

We build this tool for people who know the smell of sawdust and the weight of an MDF sheet.

Furniture Tools grew from the desire to bring familiar furniture-making logic into modelling. A maker understands a product through its parts, joints and assembly order. That is the logic behind FT.

It speaks workshop language: side panel, bottom, front, edge banding, hardware. Assemble a virtual cabinet as you would plan it at the bench: set dimensions, place parts, choose overlay or inset positions, and define gaps.

Think it, draw it, build it. FT helps with calculations and keeps parts linked; construction decisions remain with the maker.

1. Think in parts, not meshes

A furniture part has thickness, material, dimensions and purpose. Grain direction and edge banding matter. These are the properties you work with in FT.

The frame defines overall outer dimensions. Successive parts refine the available space while retaining individual settings: edit one side, set different offsets or build an asymmetric cabinet.

2. Workshop logic

The model supports parts lists, estimates and cutting layouts. Materials, banding and hardware connect the on-screen model with the real product.

After construction changes, refresh Reports and Estimate and recalculate Cutting. Before manufacturing, check dimensions, quantities, materials, banding and grain direction.

Save proven designs in Library for later orders. Your workshop experience becomes a collection of reusable modules.

3. Clarity and accessibility

The tool should help you earn a living. We aim to make it understandable and affordable for individual makers and small workshops.

The intended payment approach avoids rigid contracts and charges for the days you need to design. This is a development direction; active tariffs and day-based payment arrangements are not yet announced.

Move · Scale · Rotate · Delete

These commands are on the shared toolbar **Furniture Tools**. You can close Builder. The icon **FT** opens this page.

1. Finish active placement. Use normal SketchUp selection to select a frame or part of the required module. Multiple parts can be selected if they belong to one module.
2. **Move:** click the four-arrow icon, choose a grab point and then the destination. Follow the active tool's confirmation prompt. The entire module and its parts move.
3. **Scale:** click the diagonal-arrow icon. Drag a frame-side handle; use inference and dimension input. Finish according to the tool prompt.
4. **Rotate:** each click rotates the selected module or universal panel 90° around the vertical axis. Enter a precise universal-panel angle in Free design.
5. **Delete:** click the bin. The confirmation explains that it deletes **the entire module**, including its frame and linked parts. Cancel if you intended to delete just one part; use normal SketchUp deletion for that.

If a **universal panel**is selected, these four commands affect only that panel. Empty selection, mixed modules or unrelated objects require a clearer selection. Unlock locked objects first.

Clicking the active Move or Scale command again switches it off. Use normal SketchUp Undo for completed changes.

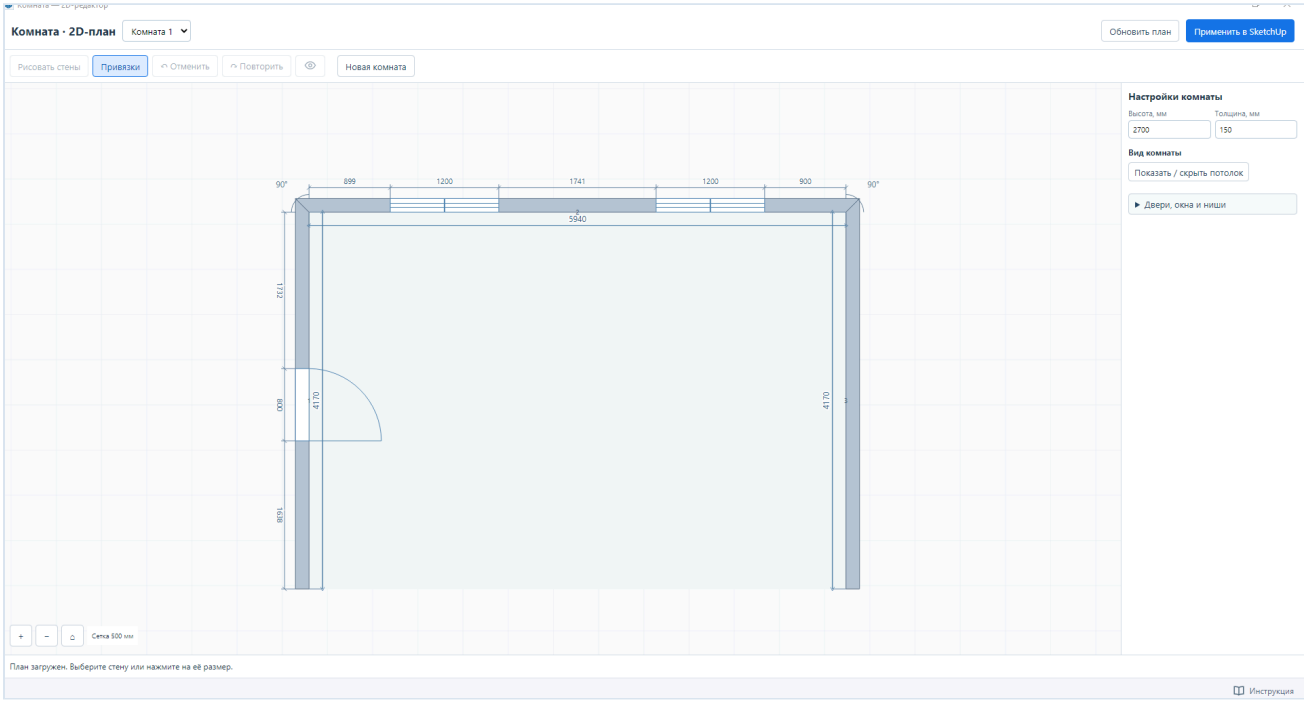
Quick 90° rotation

Rotate 90° is available on the shared FT toolbar and beside Editor in Quick settings. On the toolbar, select a frame, module part or one universal panel; Quick settings uses the current module. Each click adds 90° around the vertical axis through the insertion point. Four clicks restore the original orientation. Parts and linked hardware rebuild together. One Undo reverses each rotation.

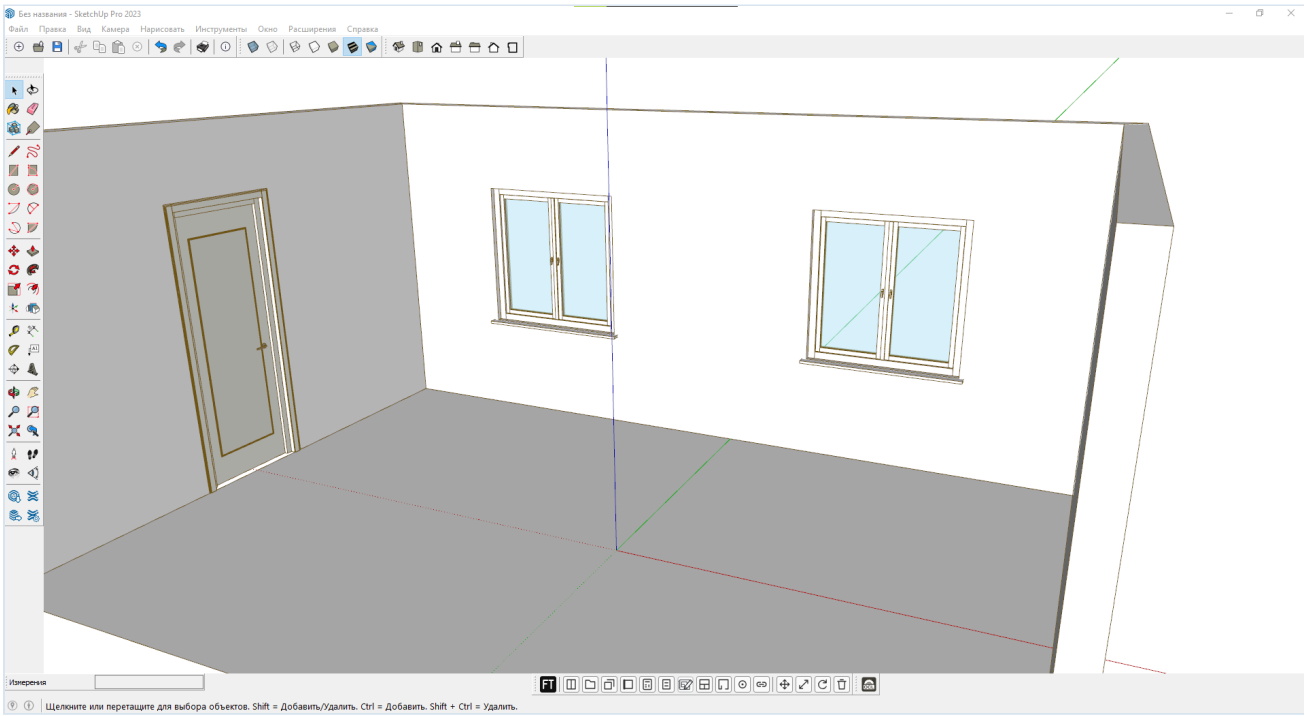
FURNITURE TOOLS / 03

Room and openings

Define the flat wall outline first, then create the volume. Place doors, windows and recesses on existing walls.



Room 2D plan: walls, dimensions, a door and windows.



The room generated from the plan in SketchUp.

Screenshots show the Russian interface of FT.

1. Draw the outline in 2D

Room opens in **Room · 2D plan**. Sketch an approximate outline first, then refine wall lengths and angles. You need not enter every exact value immediately.

1. Set wall height and thickness in millimetres in the right panel.
2. Click **Draw walls**.
3. Click to start the first wall. Move the cursor and click its end.
4. Each following wall starts at the previous wall's end. Add the remaining segments in sequence.
5. Click the first point to close the room. Press `Enter` or **Finish contour**to stop drawing.

This creates the plan. After checking dimensions, create 3D walls with **Build in SketchUp**.

2. Edit walls and build the room

1. Click a wall dimension line and enter the exact **internal length**.
2. Choose the fixed end: **blue stays fixed**, **orange moves**.
3. Confirm with `Enter` or the button ✓.
4. To change an angle, click its value between walls and enter the required angle.
5. Set height and thickness in the right panel.
6. Check the plan and click **Build in SketchUp**to apply it to the model.

Changes are made on the plan first. Zoom with the wheel and pan with the middle or right mouse button.

3. Wall and ceiling visibility

To keep walls out of the way while placing furniture:

1. Select the required walls on the 2D plan using ordinary clicks.
2. Click the **eye button**to hide selected walls.
3. Click it again to show them.

The button **Show / hide ceiling** is on the right in **Room view**.

Hiding does not delete walls or ceiling; it helps you see the furniture inside.

4. Doors, windows and recesses

Build the room in SketchUp first, then expand **Doors, windows and recesses**.

1. Choose a type: **Door**, **Window** or **Recess**.
2. Set width and height. For a window or recess, set **height above floor**; for a recess, also set depth.
3. Click **Add opening** and hover over the required wall on the plan.
4. Check the position: **green** preview means the opening fits; **red** means it exceeds the permitted boundaries.
5. Click to place or press `Enter`.

After placement, click an opening to edit its settings. Dimension lines let you refine width and distances to neighbouring boundaries.

When an opening cannot be placed

- Check that the wall was made by FT rather than being an arbitrary imported face.
- Make sure the wall volume is selected and not hidden by a tag.
- Reduce size or offset if the rectangle extends outside the wall.
- For the wrong wall, cancel the preview and restart placement.

When the room is ready, continue to building furniture or inserting library modules.

Room settings

Personal settings include **default wall height and thickness**. They are used for new rooms in the 2D editor. Existing walls and an already open plan are unchanged.

Enter dimensions in millimetres and click **Save**.

FURNITURE TOOLS / 04

Builder

Frame types

Standard frame

For a straight furniture module. Set its width, depth and height.

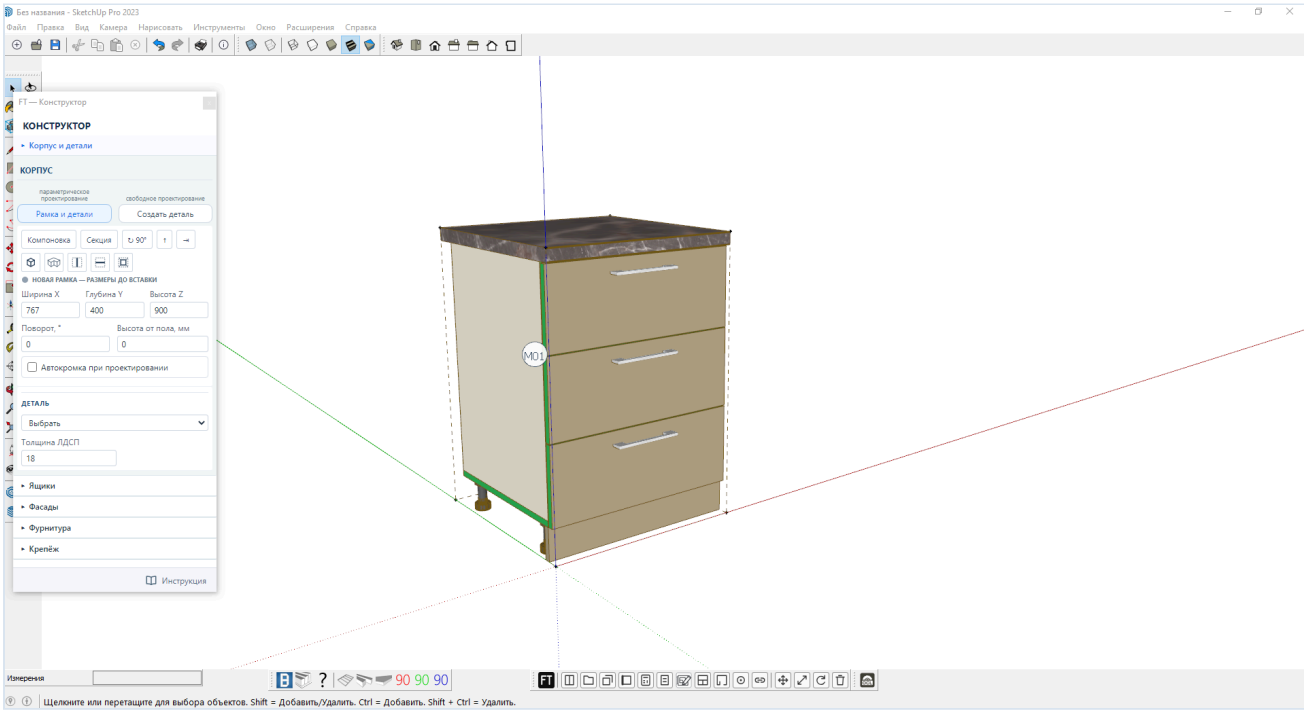
L-shaped frame

For a corner furniture module with two arms.

The construction logic stays the same: the order of placement determines the joints, and subsequent parts fit around those already placed.

What the frame is for

The frame is the basis of a furniture module and defines its outer dimensions. Build the module inside it by placing sides, a bottom, a top and other parts.



Builder: frame, parameters and a completed three-drawer unit.

Screenshots show the Russian interface of FT.

The frame is parametric: changing its dimensions rebuilds the parts inside it according to their settings.

Getting started: insert the required frame into the model and set its dimensions in the editor.

Part construction logic

Placement order determines the cabinet construction. Start with the part that must overlap the ends of subsequent parts. Other parts fit around those already placed.

- If you place the bottom first, the sides stand on it.
- If you place the sides first, the bottom fits between them.

If the first part needs offsets, set them during placement. Subsequent parts use the resulting boundaries, so you do not need to repeat the same offsets.

Select any placed part to change its settings and offsets individually in the part editor.

Worktop and cover panel

The worktop and separate cover panel take priority. You can place them at the start or end of construction: the cabinet fits below their lower face.

The separate **Cover panel** and the regular **Top** are different elements. The regular top follows the placement order of cabinet parts.

Notes on frames and parts

- **The frame does not create a cabinet by itself.** It defines the space for the future module. You decide which parts to build inside it.
- **Module dimensions and part dimensions differ.** For example, a bottom between two sides is shorter than the frame width by the thickness of both sides. FT accounts for this during construction.
- **Change the frame to resize the whole module.** Select the frame and enter its new dimensions in the editor.
- **Change an individual part through its editor.** Select the part to edit its offsets and other available settings.

Saving a module to the library

You can save a module built in Builder to the Library and reuse it in other projects.

Select the frame or a part of the finished module and open Library. The saving procedure is described in the Library guide.

Module layout

A layout is a shared frame for several modules. Dividers split it into sections. Insert a frame into a section and build an individual module using the same construction logic.

- **Layout** - sets the overall dimensions of a group of modules.
- **Vertical divider** - divides the space across its width.
- **Horizontal divider** - divides the space across its height.
- **Depth plane** - defines a depth boundary.
- **Cell** - selects a module within the layout.
- ↑ - selects the overall layout frame.
- ⇥ - detaches a module from its section.

Shelves and partitions

Follow the same construction logic: they fit within the boundaries of existing parts. Change their settings and offsets in the part editor when needed.

Drawers and fronts

Drawers and fronts are placed in a selected **opening** - the space inside the cabinet. Its boundaries determine the width, height and placement. Without them, FT cannot tell which part of the cabinet you want to fill.

Drawer and front types

- **Standard drawer** - a standard pull-out drawer.
- **Concealed mounting** - a drawer with concealed runners.
- **With filler** - drawers with an additional side filler; set its width and side.

Drawer fronts are configured in **Drawers**. Separate doors are created in **Fronts**:

- **Vertical** - several fronts side by side across the width.
- **Horizontal** - several fronts stacked vertically.

Overlay the front overlaps the cabinet edges; an **inset front** fits inside the opening. Quantity determines how many drawers or fronts to place in the selected space. Gaps define the spacing between fronts and along the edges.

Why select boundaries

For example, drawers may be needed only below a shelf in one cabinet compartment. Select the partition that bounds that compartment on the side and the shelf above the drawers. Mark the opposite side and bottom if necessary. FT builds the drawers in that opening.

Select the parts that actually bound the required space. For fronts, unselected sides are derived from the frame: selecting one shelf alone does not make FT account for every neighbouring compartment.

Placement using selected parts

1. Finish the current tool with `Esc`. In Builder, open **Drawers** or **Fronts**.
2. In **Drawer type** or **Front type** choose the required type. Selecting a type activates the placement tool; expanding a section alone creates nothing.
3. Choose overlay or inset placement, then set the quantity and gaps. For drawers, also check the depth and runner settings.
4. Move the cursor into the model window. To select boundaries manually, hold `Shift` and click the front edge of a part bounding the required opening. Mark the other required edges. This selects boundaries with the active FT tool, rather than using SketchUp's normal Select arrow.
5. The edge under the cursor is highlighted **green**. After clicking, the selected part is highlighted **blue**. Click a selected part again to unmark it. The SketchUp status bar shows the number of marked boundaries.
6. Check that the marked boundaries belong to the intended opening. Press `Enter` in the model window to insert the drawers or fronts.
7. After insertion, press `Enter` again to finish placement. Until insertion is finished, `Esc` cancels it. To edit later, select the finished part and use the editor.

> **Example:** to place three drawers below a shelf to the right of a partition, choose Drawers, set quantity to 3, and mark the partition, right side, bottom and upper shelf edges. Blue boundaries show the selected opening. Press Enter to insert.

When the required boundary parts do not exist yet

You can define the space with **dividers**. They create virtual boundaries without adding physical furniture shelves or partitions.

1. Open **Cabinet** → **Frame and parts**. Click the required icon in the frame toolbar:
   -  **Vertical divider** - a width boundary, for example beside the drawers.
   - **Horizontal divider** - a height boundary, for example above the drawers.
2. Choose **Free**. Hover inside the required frame or section, click to lock the position, enter a distance in millimetres and press `Enter`. Follow the on-screen dimension: a vertical divider is measured from a side boundary, a horizontal divider from the bottom or top.
3. Add a second divider if needed. Press `Esc` to finish placing dividers.

4. Select the required drawer or front type again. Hover **inside the resulting section**: its boundaries are used automatically. You do not need to click the dividers as though they were furniture parts.
5. Check the preview and click to place in the section. If the tool first locks the position, confirm insertion with `Enter`.

Divider planes appear translucent light blue with a dashed outline. They are helper boundaries; their colour does not indicate a manually selected furniture part.

Gola profile

Gola provides a grip space for handleless fronts. It works with drawers and regular fronts.

- **Gola L** - at the top, below a worktop or cover panel.
- **Gola C** - between fronts.
- **Auto L / C** - chooses the profile type according to the placement.

When to place it

Build the cabinet first, then place Gola, followed by fronts or drawers. FT accounts for existing profiles when placing them.

Placement

In **Hardware** → **Gola profile** choose the mode:

- **Manual** - select the type, position it in the opening, click to lock and confirm with `Enter`.
- **Automatic** - set the drawer quantity and select the opening. FT places L at the top and C between the required fronts.

On a corner module

For an L-shaped frame, place the profile from the main arm in the opening that crosses the corner. FT continues it onto the second arm with a 90° turn.

For a blind-corner cabinet, create the corner elements first, then place Gola so the profile accounts for their positions.

Quantity and height

Set the drawer quantity in Drawers or Gola automatic mode; the fields are linked. Set the number of regular fronts separately in Fronts.

After placement, change an individual drawer-front height in the editor; the other fronts share the remaining space equally.

Hinges

Configured in **Fronts** → **Hinges**. Overlay, half-overlay, inset and corner hinges are available.

Type, side and quantity can be determined automatically or set manually. For a front without hinges, choose **No hinges**.

Fasteners and their editor

Add fasteners after building the module and before preparing drawings.

1. Select the frame or a part of the required module.
2. In Fasteners, choose Confirmat, cam connector, dowel, or cam connector with dowel.
3. Configure the arrangement and mark the required joints.
4. Click **Calculate / update**.

Markers show drilling positions and directions. Recalculate fasteners after changing the construction.

Fastener editor: select an installed fastener in the model. Change its type in the editor and click **Apply type**.

Hardware from the library

1. In **Hardware** → **Library** select a model and start insertion.
2. Click the part surface on which to install the hardware.
3. In Mounting points, choose sides, quantity and offsets.
4. Check the preview and click **Place**.

For your own hardware model, set its mounting marker first, then save it to the library.

Preparing a model and its mounting marker

Where to obtain hardware models

You can use a ready-made SketchUp model from **3D Warehouse** - available via a button in FT Library - download one from the manufacturer's website, or draw your own in SketchUp.

Check the actual dimensions. Combine the geometry of one handle, leg or other item into a separate **group or component**. Select the entire model, not individual faces.

What the mounting marker is for



It defines the point and side by which the hardware attaches to a furniture part.

1. Select the prepared hardware model.
2. On the FT toolbar, click **Mounting marker**.
3. Place markers on the surface that must touch the furniture part. **For a handle with two attachments, place two markers at the centres of its front-mounting holes** - on the back of the handle. For a model with one attachment, place a marker at that point.
4. Click `Enter` to save the markers.

With multiple markers, their common centre becomes the placement anchor. Set markers on the source model before saving it to the library.

Saving to the library

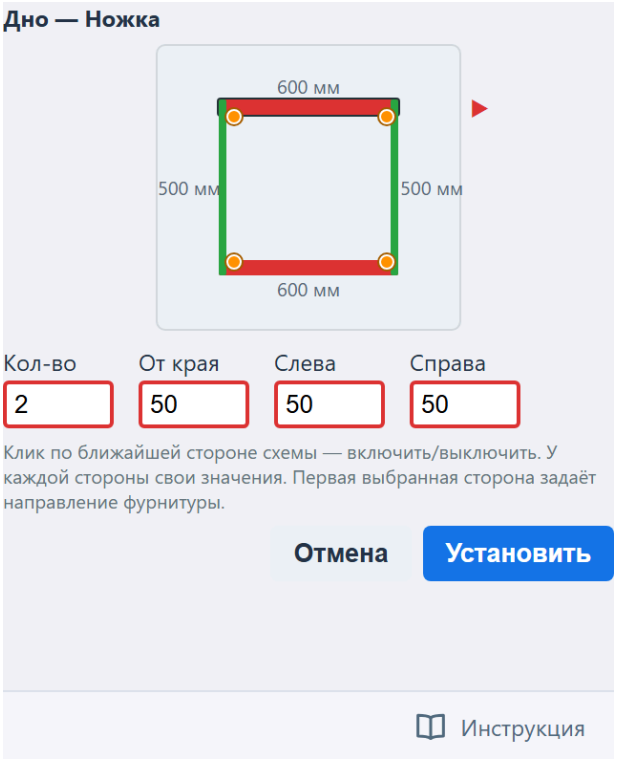
1. Keep the prepared model selected and open **Library**.
2. Enter a name and click **Save**.
3. In the folder chooser, open **Hardware**. For a handle, select its **Handles**subfolder; create it if necessary.
4. Optionally set the unit to pcs or set and enter a price. Click **Save here**.

> **Save handles under Hardware → Handles.** Hardware enables mounting placement, while Handles lets FT recognise a handle and open its editor when clicked.

If the handle is already saved, save it again to the same folder and replace the entry after changing its markers. Then use the prepared card to insert it onto a front.

Mounting map

Example: placing four legs on a module bottom:



Each selected side has its own quantity and offsets.

- Click a side in the diagram to enable or disable it.
- Set the **quantity**, **edge offset** and **end offsets**.
- Orange points show attachment positions.
- The first selected side determines hardware orientation.

Check the arrangement and click **Place**.

Practice: an 800 × 600 × 820 mm cabinet

Goal: understand the difference between outer dimensions, part thickness and the internal opening. Use a separate practice model.

1. **Set up the frame.** Enter 800 × 600 × 820 mm and place a standard frame. The result should be a bounding outline without boards.
2. **Build the cabinet.** Set thickness to 18 mm. Place two sides, then the bottom and top, choosing the required joint method in advance. After each step, inspect the panel position and remaining opening.
3. **Fill the opening.** Place one shelf in Auto mode. Check that it fits the internal opening rather than dividing the outer height without accounting for the bottom and top.
4. **Test editing.** Finish placement, select the shelf with the normal arrow and change an available offset. Compare the field with the side of the part that moved.
5. **Add fronts.** Choose the type and quantity. Mark the parts bounding the opening, verify the marks and press Enter. Check dimensions and gaps before finishing placement.

6. **Assign material and edge banding.** Follow the relevant guides. Part thickness, material and edge banding are separate properties; none replaces another.
7. **Check the parts list.** Open Reports and compare every row with the model: name, dimensions, quantity, material and banding.
8. **Save the practice model.** After checking, save the SketchUp file.

Check your understanding

- Why is the internal width less than 800 mm? The sides occupy part of the outer width.
- Does a divider create a board? No, it only defines a boundary.
- Why did the front span the whole cabinet? Check the boundaries you marked and the opening you selected.
- Where should an incorrect report dimension be fixed? Find its cause in the part geometry and settings, then refresh the report.

FURNITURE TOOLS / 05

Module layout

1. In Builder, set the overall dimensions and click **Layout**. Place the outer frame in the model. The shared outline is grey; the selected section is blue.
2. Select this frame and add vertical and horizontal dividers with normal FT tools. Sections can be side by side or stacked.
3. Click the normal Add frame button or select a cabinet in Library. Hover over an empty section to preview its dimensions. Click to create an independent module linked only to that section.
4. To build manually, insert an empty frame into the section first. Then add sides, bottom, top, shelves, fronts, drawers and hardware with normal FT tools.
5. Select the overall frame and click **Cell**. Hover inside the target area: it highlights green. Click to select the section and its module; the fill turns blue. Empty sections also highlight; insert a frame or cabinet before creating parts. `Esc` clears section selection and exits the tool, `Enter` exits while keeping the section selected for editing. Clicking empty space in selection mode also clears selection. The button ↑ selects the overall frame. Changing its dimensions or divider positions rebuilds linked modules.
6. The button ⇥ detaches the selected module. Dimensions and parts remain, and future editing is independent.

Selected section dimensions in the frame editor

At the top of the editor is **Modules · front view**. Hover over a rectangle to highlight its module in the model; click to select it and open its settings. Numbers distinguish modules; labels show names and dimensions. `Tab` cycles through diagram modules, `Enter` selects, `Esc` clears selection. Selecting a part directly in the model works normally. A standalone module is shown as one rectangle.

1. Click **Cell** and click the required area, or select its linked module. The regular fields **Width X**, **Depth Y** and **Height Z** show this section's dimensions. No separate window is needed.
2. Enter dimensions and press `Enter`. Changing width moves the shared vertical boundary; changing height moves the horizontal one. For example, 500 + 500 becomes 600 + 400 when the first section is widened to 600. Editing the second preserves the outer right or top boundary.
3. If no shared boundary exists, reducing width or height adds a divider inside the selected area. A width of 500 in a 1000 area creates two 500 sections. Other rows and columns are not subdivided again.
4. Depth changes only the selected section and module; overall depth stays unchanged. Reducing depth keeps the back against the wall and moves the front towards it. After `Enter` the preview shows the front and back planes, connecting edges and numeric depth. The reduced depth is preserved when the layout grows later. For an older section with previous alignment, reapply its current depth using `Enter`. Entering the full available depth restores use of the whole section space.

5. A neighbouring section cannot shrink below 10 mm, or violate an installed cabinet's constraints. If a cabinet, cut-out or hardware cannot fit, the whole operation and shared-boundary movement are cancelled.
6. Click ↑to return to overall-frame dimensions, rotation and installation height. Rotation and height are unavailable while editing a section to avoid moving the whole layout.

Rotating a layout

During frame selection, the module under the cursor takes priority over the overall frame. Plinth placement also targets that module and its front plane; an empty overall frame is not a plinth target. For explicit section selection, use **Cell**; for the overall frame, use ↑.

For **an overlay back panel** helper dividers limit only height. Width follows the outer edges of installed sides; the bottom, top and offsets retain their constraints. Preview and insertion use the same calculation.

1. Select the overall frame or any linked module. The button ↻ **90°** rotates the entire layout around the overall-frame origin. For another angle, select the overall frame and use the regular **Rotation, °**.

Linked module dimensions come from the section. You cannot delete a used boundary or divide occupied space while the module remains linked. If construction, cut-outs or hardware cannot fit, FT explains why and cancels the operation without partially saving it.

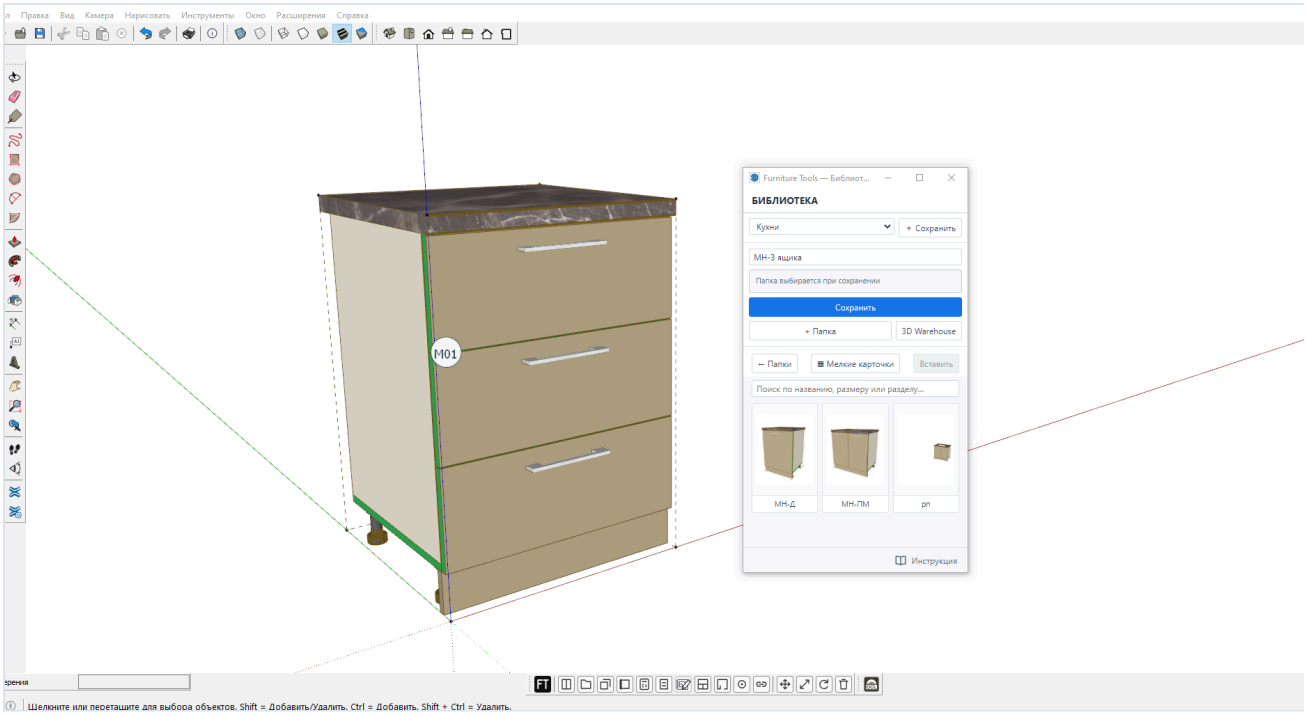
Save the selected cabinet from a section to Library. Reinserted copies do not retain links to the old overall frame. Save the overall layout in the SketchUp file; library saving and copying of a whole layout tree are not yet available.

For a first test, create a new layout in free space. Start with four empty sections, then test inserting one library cabinet. `Esc` finishes the tool.

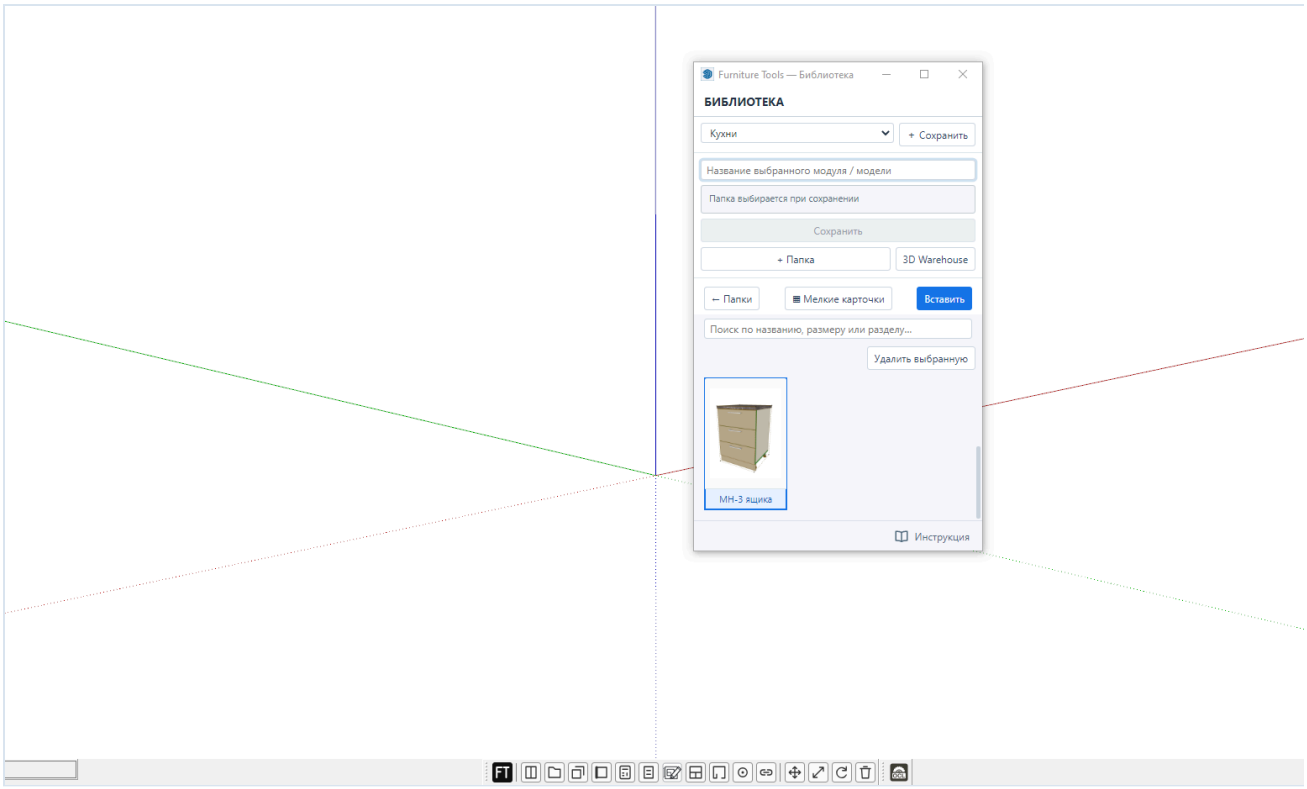
FURNITURE TOOLS / 06

Library

You can save a module built in Builder to the Library and reuse it in other projects.



Before saving: enter the module name in the library.



After saving: the module is available as a card for reuse.

Screenshots show the Russian interface of FT.

Library stores finished modules, individual models and hardware for reuse. Saving to Library does not replace saving the SketchUp project file.

Save your module

1. Finish construction and check parts and materials. Select the frame or a part using normal selection so FT identifies the intended module.
2. Open Library, click + Save and enter a descriptive name such as Cabinet 800 - 3 drawers. Save is disabled until a name is entered.
3. Click **Save**. Choose the destination folder in the window that opens.
4. Click **Save here**. If asked to replace an entry with the same name, check that replacement is intended.
5. Find the new card in the chosen folder. Insert a test copy in free space and verify its contents.

Saving a module records its construction and initial cabinet-depth settings. For an imported model, select the group or component rather than internal faces.

Find and insert a model

1. Select a folder on the left or All models. Search using part of the name.

2. Choose a card size in View. A single click selects a card and displays available actions.
3. Click **Insert/Insert into model**. Double-clicking a card also starts insertion. In a narrow window, use the top Insert button.
4. For a furniture module, hover the preview over the target position. Before locking, `Tab` cycles through available mounting corners.
5. Click to lock position. For an exact distance, click a dimension and enter a number; `Tab` switches fields. `Enter` confirms placement.
6. After insertion, check position, dimensions and materials. In Quick settings, change width, depth and height, rotate the module, or click Editor for detailed Builder settings.

A regular imported model does not automatically become an FT parametric module. Its editing capabilities differ from saved furniture modules. Hardware uses a separate mounting workflow.

Dimension lines appear when placing a module in a room. Click a dimension, enter the exact distance and confirm with `Enter`. The key `Tab` switches dimension fields.

Folders and card actions

- **+ Folder:** creates a custom folder with the entered name. Choose the destination explicitly when saving.
- **Rename:** changes the library entry name.
- **Move:** moves the entry to another library folder, not the object in the current scene.
- **Star:** adds or removes a favourite.
- **Delete:** removes the library entry after confirmation. Save another copy before deleting a template you may need.
- **3D Warehouse:** opens external model search. Check scale, axes and grouping after download before saving to your library.

Save and place hardware

Prepare a group/component and mounting marker. Enter a pcs/set unit and price when available for hardware. During insertion, select the furniture surface, then configure quantity and offsets in the shared diagram. See the full hardware placement guide.

Troubleshooting

- **Insert is disabled:** select a card first.
- **Entry not visible:** clear search, open All models, and check the folder and favourites.
- **Wrong module saved:** close the save dialog, select the intended frame or part and retry.

- **Hardware faces the wrong way:** check source-model axes and mounting markers, correct them and resave the entry.
- **Old card did not update after editing the project:** the library holds the saved version. Save the module again to update the template.

Library settings

The field **Library folder** sets the location of your library on this computer.

- **Browse...** - connects another existing folder.
- **Use default folder** - restores the standard FT storage location.
- **Save** - applies the chosen path.

Changing folders does not move existing models automatically. Select the old folder to see the previous library again.

FURNITURE TOOLS / 07

Quick settings

This small window changes the selected module's three outer dimensions. Use Builder for gaps, offsets and individual-part settings.

Change dimensions

1. Finish the active tool and switch to normal SketchUp selection.
2. Select the frame or a part of an FT module. The fields should become enabled and show its outer dimensions.
3. Change Width X, Depth Y or Height Z in millimetres.
4. Finish editing the field: press `Tab` or move to another field. The change applies when editing finishes; there is no separate dimension Save button.
5. Check the rebuilt module in the model. Correct the value or use SketchUp Undo if necessary.

For example, changing width from 600 to 800 resizes the whole module; it does not directly set a selected shelf's width.

Open detailed settings

Click **Editor**. Builder opens with the selected part or frame. Check its name at the top before editing. Thicknesses, offsets, front and drawer settings are available there.

When fields are disabled or dimensions do not apply

1. Select an FT module object rather than an individual face of a regular model.
2. Finish placement or movement, then reselect the module.
3. Enter a positive dimension and finish editing the field.
4. If the construction cannot fit, check thicknesses, offsets and linked parts in Builder.

This window does not create modules. Use Add new frame in Builder.

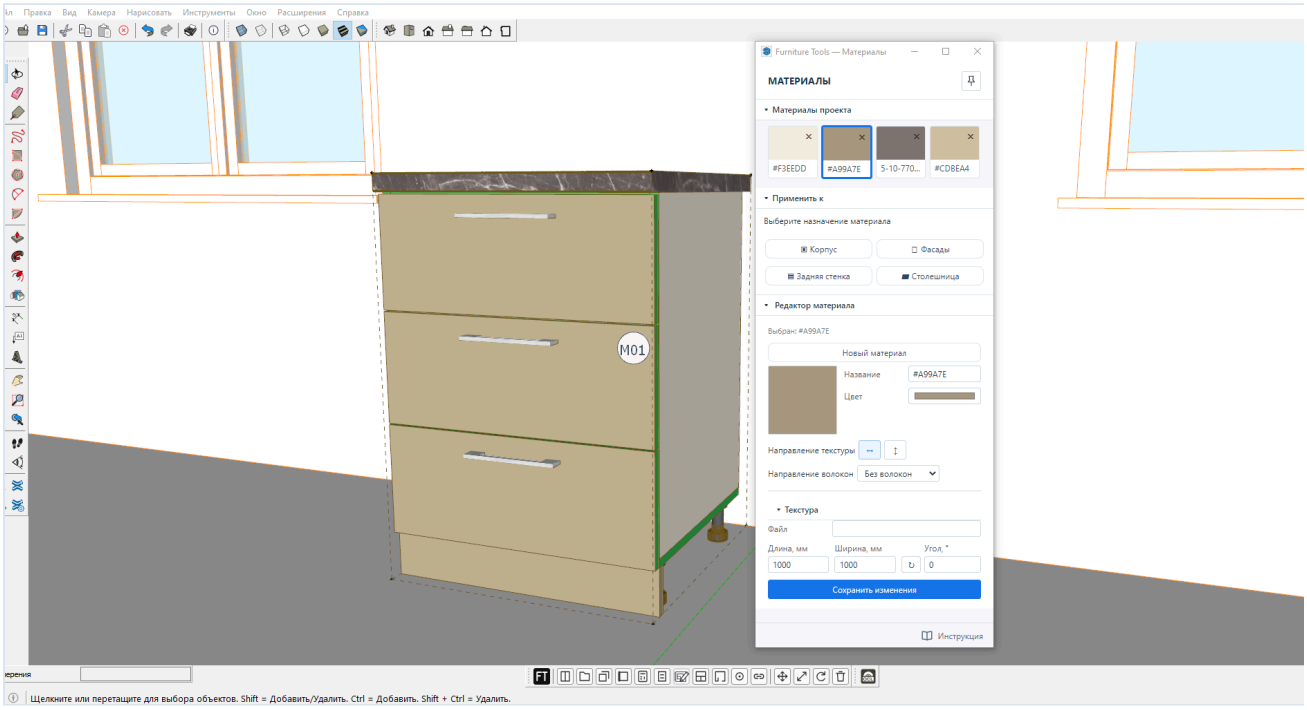
Quick 90° rotation

Rotate 90° is available on the shared FT toolbar and beside Editor in Quick settings. Select a frame or part of one module on the toolbar; Quick settings uses the current module. Each click adds 90° around the vertical axis through the frame origin. Four clicks restore the original orientation. Parts and linked hardware rebuild together. One Undo reverses each rotation.

FURNITURE TOOLS / 08

Materials

This section changes a material's appearance or assigns another material to selected parts. Editing affects every object using that material; assignment affects the selected target.



Project materials: colour, texture and grain direction.

Screenshots show the Russian interface of FT.

Material editor

Choose a project material and expand Material editor. Change its name, colour, texture and physical pattern size. After editing, click **Save changes**.

To create a separate material, click **New material**, set its properties and choose **Create and apply**.

Editing an existing material affects all parts using it. For a different colour on selected parts, create a separate material and assign it to them.

What is assigned automatically

New modules receive standard cabinet, front and back-panel materials. They display their current colour codes: cabinet #F0F0F0, fronts #D9D9D9, back #CDBEA4. New parts use their category material. If another material is assigned to a module, subsequent parts inherit it. Older models are not recoloured automatically.

Change a standard material's colour

1. In Project materials, select a card, for example #D9D9D9 for the default front material.
2. Expand Material editor. Check the name and assignment so you do not edit the cabinet instead of the fronts.
3. Set the colour and optionally a descriptive name.
4. Click **Save changes**. Check the model appearance.

All parts using that material change together. To change only one module or part, select a different material and assign it to that target.

Assignment buttons can be combined with ordinary clicks, for example Cabinet + Fronts. Clicking again disables a group if another stays active. Material applies to all enabled groups. With a material already selected, clicking Cabinet, Fronts, Back panel or Worktop immediately assigns it to that group in the selected module. Save a new material or image first.

Assign another material to cabinet or fronts

1. Select the target module's frame or a part in the model.
2. In Apply to, choose Cabinet, Fronts, Back panel or Worktop. Check the highlighted button and assignment line.
3. Click a project-material card to apply it immediately to the selected target.
4. For a new colour, click New material, enter a name and colour, then Create and apply. A texture image is optional.

Project materials lists assigned materials, including cabinet defaults. Created and assigned materials appear here for reuse. Separate materials with the same colour can be created for independent rendering settings. Individual part assignments remain exceptions when the overall cabinet material changes.

Assign material to one or more parts

1. Select the required furniture parts using normal SketchUp selection.
2. Check the Selected parts line.
3. Click a project-material card to apply it to all selected parts at once.
4. Selecting parts automatically targets them; no extra button is required. Click the material card. One Ctrl+Z undoes the group assignment.

Add a texture and set its size

1. Choose the assignment target or select individual parts first.

2. To use your image, click the material sample in the editor and choose a file. Save it using Save changes or Create and apply. Texture files can be stored in convenient local folders.
3. Expand Texture. Width and height define the physical pattern size, not furniture-part dimensions.
4. Click Save changes to save material properties.

Solid-colour materials are sufficient for design and transfer to rendering software. Textures help show the overall appearance directly in SketchUp.

Texture rotation and scale apply to the chosen target or selected parts. The small ↻ button rotates 90°; exact angles and sizes apply with Enter. Rotating front textures does not change the cabinet, even with a shared material.

When a material does not appear on a part

1. Check the model selection and assignment line.
2. With a material already selected, an assignment button applies it immediately to that group. Click another material card to assign a different material.
3. Check individual part overrides: the overall cabinet material does not replace them. Select the part itself to change its material.
4. Change edge banding separately in the banding window.

Changing an existing material's properties affects every part using it.

Texture rotation and direction

- ↻ - rotates texture by 90°. You can also enter an exact angle.
- ↔ **/** ↕ - specifies grain direction in the source image.
- **No grain / Along grain** - determines whether cutting must respect grain direction.

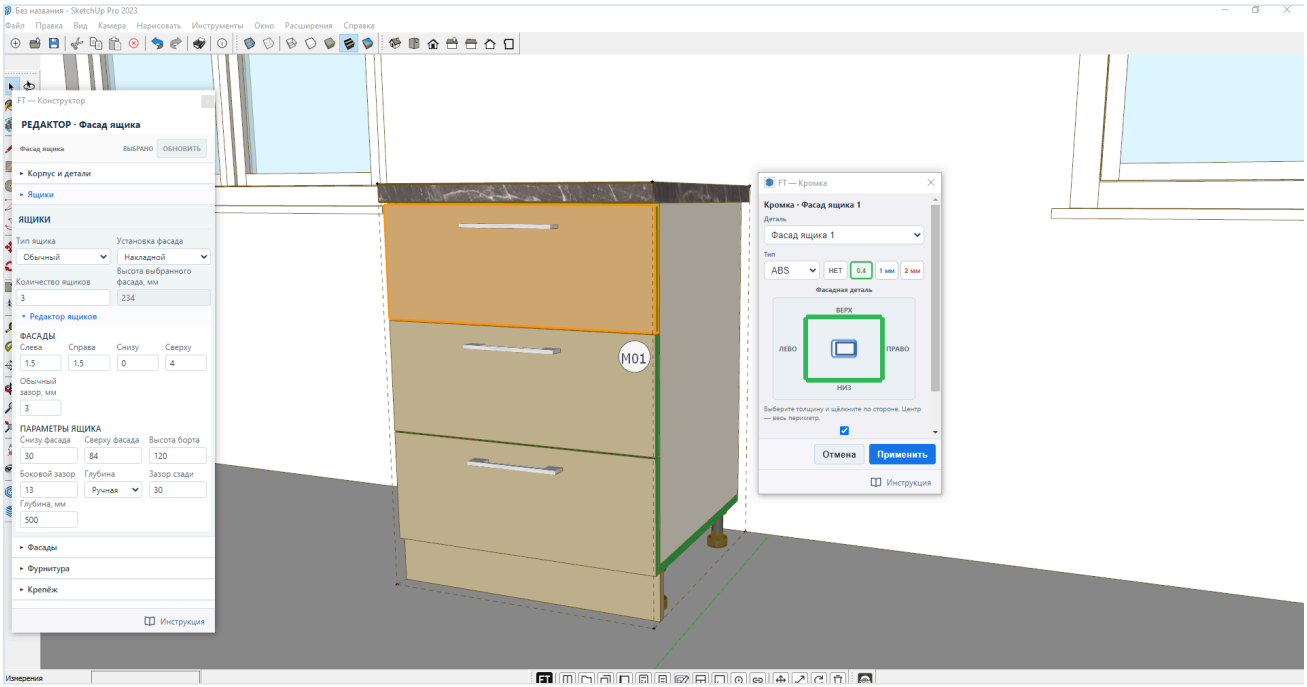
Rotation applies to the chosen target or selected parts. Grain direction and texture rotation are used in cutting.

Use ↔ or ↕ on the material sample to indicate grain direction; the image is not analysed. Save before assigning. A part's 90° texture rotation is accounted for in cutting; grain aligns with sheet length. Arrows define source-image direction only. No grain imposes no pattern restriction; Along grain respects the arrow and part rotation. Rotated parts have a ↻ icon in Cutting.

FURNITURE TOOLS / 09

Edge banding

Banding is assigned to the four sides of a selected part. Select it in the model, then set thickness and sides on the diagram. The diagram follows the actual furniture orientation: top, bottom, front, back, left and right. Select each physical drawer part separately, even behind a front.



Edge banding editor: selected part, type, thickness and edges.

Screenshots show the Russian interface of FT.

Assign edge banding step by step

1. Finish active placement, press Space and select one furniture part.
2. Click **Edge banding** on the FT toolbar. Check the selected part name in the window.
3. Choose ABS, PVC or melamine banding.
4. Choose 0.4, 1 or 2 mm thickness.
5. Click the required side in the diagram; repeat for additional sides. Clicking the centre applies the current choice around the perimeter.
6. Check the highlighted edges in the model and click **Apply**.
7. The window stays open. Select the next part with the normal arrow to update the diagram.

Finish the current part before applying to the next. The diagram is fixed relative to the furniture: rotating the SketchUp camera does not change the labels.

The orientation appears below the name. For vertical parts, labels are **TOP / BOTTOM / FRONT / BACK**; for horizontal parts, **LEFT / RIGHT / FRONT / BACK**; for fronts and back panels, **TOP / BOTTOM / LEFT / RIGHT**. These labels relate to the furniture and remain unchanged when the camera rotates.

Automatic edge banding

Automatically assigns banding to exposed edges according to how parts meet.

1. Select the frame or a part of the required module.
2. In Builder, below rotation and height-above-floor fields, enable **Automatic edge banding**.
3. Choose banding type and thickness.

While enabled, banding updates as you build or edit a module. Manual edge changes are preserved.

Check and correct the result on the banding diagram. Disabling automatic banding removes automatic assignments and preserves manual ones.

Change or remove banding

Select a module frame and open Edge banding to list its parts. Select a row and configure its edges. An empty frame has no banding diagram. Selecting a different frame switches the list to that module.

For a drawer front or entire drawer block, the top list shows physical parts: fronts, left and right sides, front and rear rails. Select a row, assign its edges and click **Apply**. Then move to the next row without hiding fronts or opening the group manually.

For fully identical parts with matching material, size, thickness, role and orientation, the window offers to apply the scheme to the entire group. This is enabled by default. Left and right drawer sides form a matching pair; front and rear rails remain distinct.

To change thickness, select it and mark the relevant sides again. **NONE** clears all four diagram sides; click Apply to save. Cancel closes without applying current unsaved settings. It does not undo earlier Apply operations; use SketchUp Undo for those.

Banding in reports and cutting

The Reports row editor uses the same orientation as the separate banding window. For a physical drawer part, Reports passes its own key, so banding is saved on the actual side or rail rather than the whole drawer block.

Reports shows banded sides and total banding length. In Cutting, Subtract thickness reduces the blank size by banding on marked sides. Finished and cut sizes may therefore differ. Check both columns before export.

Do not band all hidden edges automatically: mark only sides that will actually be processed. This affects blank size and cost.

Check the result

1. Reselect the processed part and check that the diagram shows its saved sides.
2. Open Reports and check the banding entry.
3. If no part is selected, finish placement and select a furniture part or a frame containing finished parts. An individual face is not suitable.

Edge banding settings

Personal defaults include: **banding type** (ABS, PVC or melamine), **thickness** (0.4, 1 or 2 mm) and **subtracting thickness when cutting**.

Type and thickness initialise parts without banding and automatic banding. Subtraction sets the initial cutting mode for new projects. Existing banding, current cutting settings and finished layouts are unchanged.

FURNITURE TOOLS / 10

Hardware and mounting points

Legs, handles and other library hardware use a shared surface-placement diagram. The mounting marker defines the point where the hardware touches the furniture part.

Prepare your hardware model

Obtain a model through the 3D Warehouse button in FT Library, download from the manufacturer or create it in SketchUp. Check real-world dimensions.

1. Make the hardware a group or component and verify its actual size.
2. Select this model and launch **Mounting marker** from the FT toolbar or Extensions menu.
3. Hover over the mounting surface. Use SketchUp inference to a vertex, edge midpoint or other reference point.
4. Click to add a marker. For a two-fixing handle, mark both attachment centres on its back face. For one fixing, mark its centre. Multiple markers use their common centre as the mounting anchor.
5. `Backspace` removes the last marker, `Enter` saves, `Esc` cancels unfinished marking.
6. Save the model to Library: enter a name, click Save, select a folder under Hardware and click Save here. Save handles under Hardware → Handles; create Handles if missing. Optionally enter the estimate unit and price.

Hardware enables mounting placement. Handles enables handle recognition and click-to-edit. After changing markers, replace the saved library entry. Without a prepared anchor, positioning may depend on the component's origin.

Choose a placement surface

1. Choose the hardware in Library and start insertion.
2. Hover over a front, side, shelf or bottom face. Check the surface highlight.
3. Click the required plane. This opens **FT - Mounting points**.
4. Check the part and surface. If incorrect, cancel and select the surface again.

Arrange using the diagram

1. Click a side line in the diagram to enable it; click again to disable.
2. The first selected side determines the main hardware direction. Line colours help relate the diagram to the part's local axes.

3. For the active side, set **Qty**, **From edge** and end offsets. Each selected side has independent values.
4. Check the model preview: instance count, end positions and orientation.
5. To place along another side, enable it and configure its settings separately.
6. Click **Place**. Cancel discards the current setup.

Leg example: select the front side, set 2 instances and end offsets. Select the rear side and set another 2. Check that four legs appear in preview before confirming. Quantity creates instances, not just a report number.

Check after placement

Rotate the view and check that hardware touches the correct surface without being buried or inverted. Check quantity under Hardware in Reports. Placed models receive the FT - Hardware tag.

For an incorrect position, undo placement and check markers and axes. For a wrong quantity, check enabled diagram sides and the quantity on each.

What is not created automatically

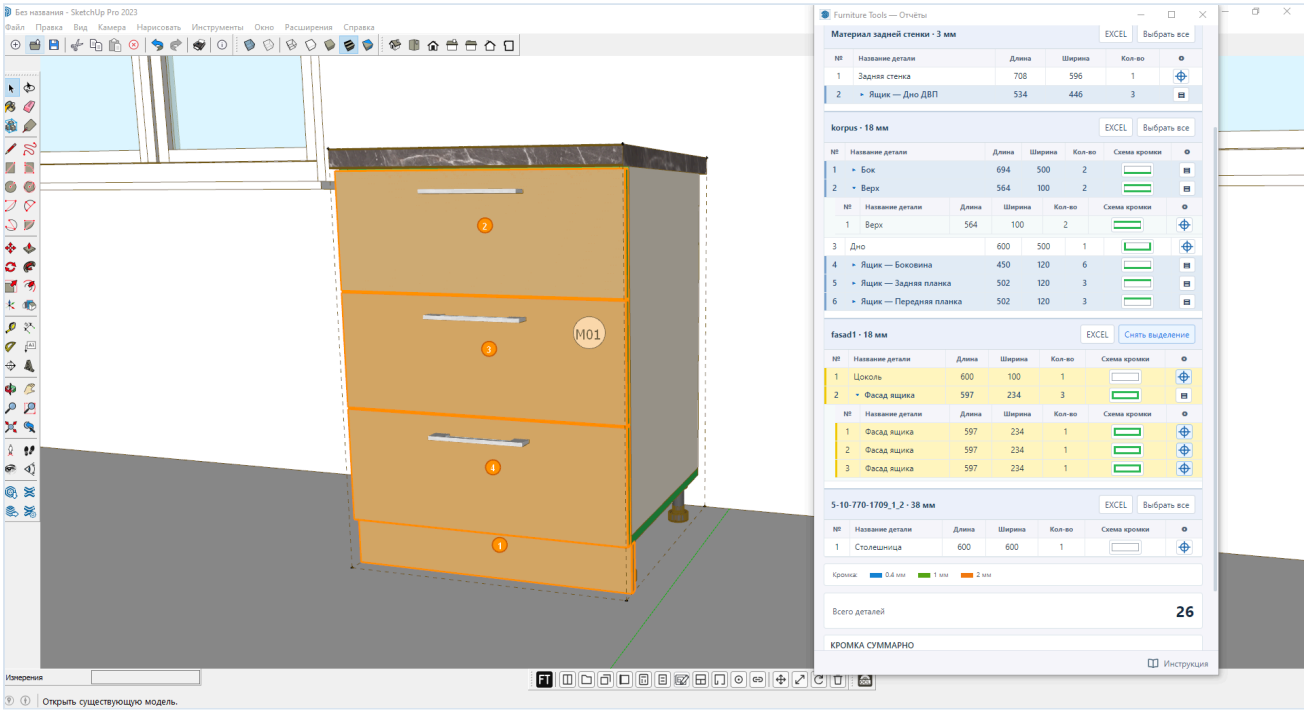
Shelf-support and runner settings are used in calculations and lists; they do not promise a detailed 3D model for each item. A mounting marker does not drill holes. Hardware being in position does not mean drilling has been created.

For Gola profiles, use the relevant Buildersection instead of the library leg/handle diagram.

FURNITURE TOOLS / 11

Reports

Reports generates parts lists from the model. Check material, dimensions, quantities, banding and hardware here before cutting and workshop export.



Reports: part dimensions, quantities, materials and edge banding diagrams.

Screenshots show the Russian interface of FT.

Generate a parts list

1. Finish modelling and material/banding assignments.
2. Open Reports and click **Refresh**.
3. In Sheet materials, check Cabinet, Fronts, Back panels (hardboard) and Worktops in turn.
4. Compare dimensions and quantities with the construction. Identical parts may share one row with a combined quantity.
5. Open Hardware and check units and quantities.

Identical internal parts from different drawers combine when source name, dimensions, material, thickness and banding match. Different edge processing or dimensions keep rows separate; that is not necessarily an error.

Find a part and correct material or banding

1. Select the required row and use its find/select-in-model action.
2. Open the part editor from the row. Check the name and size before changing data.
3. Choose a material or enable **Restore module material**.
4. For banding, choose thickness and the required diagram sides.
5. If the change should affect the entire combined row, enable **Apply to all identical parts in this row**. Without it, do not assume every copy changed.
6. Click Apply, then refresh and recheck the list.

To change geometry, select the part in the model and use Builder. Renaming a display term does not change dimensions or construction type.

Use your workshop's terminology

1. Click **Names** at the top.
2. Find the standard term and enter your workshop's name on the right.
3. Leave the field blank to use the standard name.
4. Click Save. New names appear in Reports, Cutting and Excel.

The dictionary is stored on this computer and applies to all projects. Restore defaults resets it. Different source parts do not merge merely because they share the same display name.

Export to Excel

1. Refresh the report and check the data.
2. For the whole list, click the top button **«EXCEL»**. This produces one file with category and banding sheets.
3. For one list, click EXCEL in the Cabinet, Fronts, Back panels, Worktops or Hardware heading.
4. Choose a folder and filename in the save dialog and confirm.
5. Open the XLSX and check dimensions, quantities and materials before sending.

When the list seems incorrect

- **Expected part missing:** check that it is a recognised FT part, not regular imported geometry.
- **Several similar rows:** compare dimensions, thickness, material and every banded side.

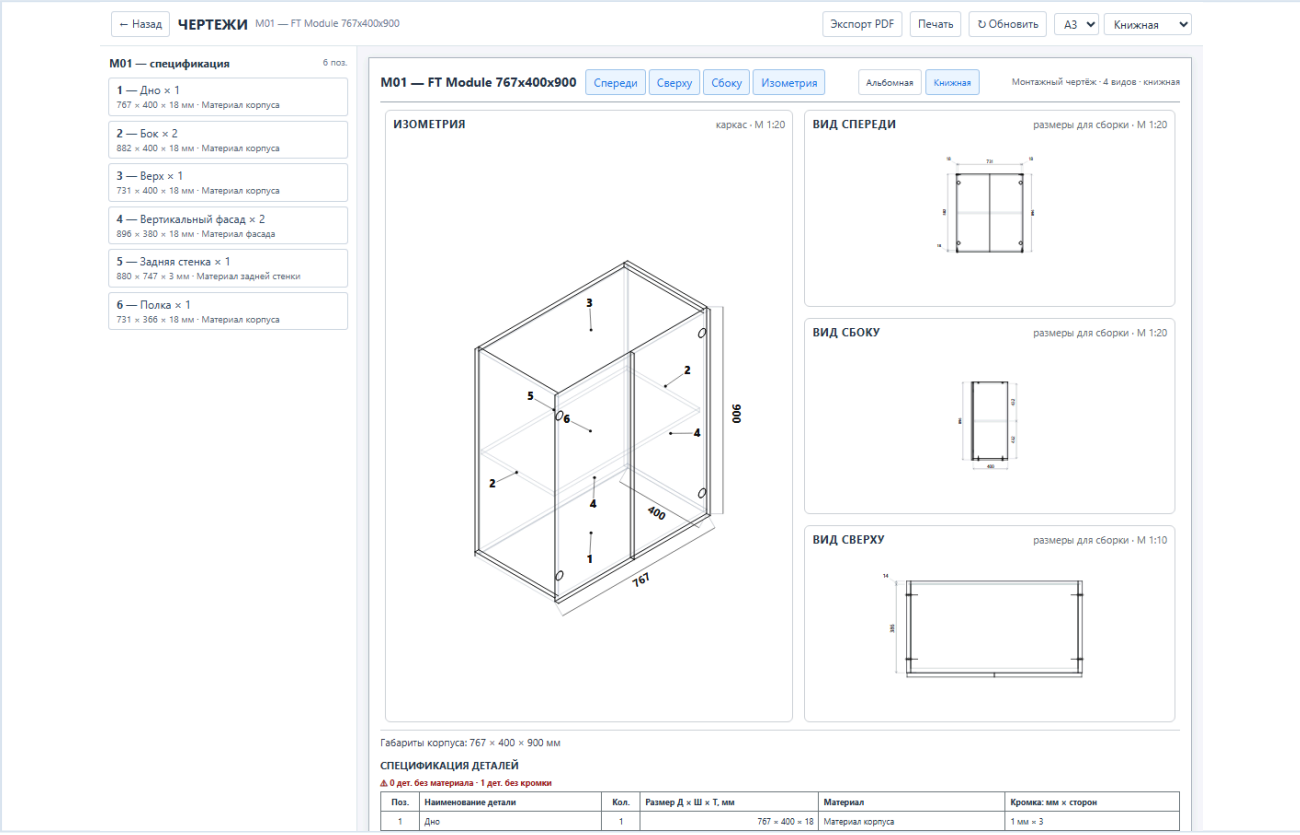
- **Excess quantity:** check duplicates and hidden parts in the model. Hiding by tag does not remove an object from the project.
- **Outdated data:** finish editing in Builder and click Refresh.

After checking, continue to Cutting. Refresh its parts list before calculation as well.

FURNITURE TOOLS / 12

Drawings

From the overall furniture arrangement to a cabinet, individual part and its machining.



Drawings: module views and dimensions for checking the design.

Screenshots show the Russian interface of FT.

What drawings are for

The model shows the 3D construction. Drawings communicate dimensions, composition and machining positions. Work from general to specific: project → module → part. Drawings use existing geometry and drilling data; opening the window does not create missing parts or holes.

1. Prepare the model

1. Check cabinet dimensions and positions in Builder.
2. Assign materials and edge banding. The specification warns about missing properties.

3. If automatic-fastener drilling is needed, configure and calculate fasteners in Builder. Check hinges and other operations separately.
4. Open Drawings from the FT working toolbar. The button in the start guide opens these instructions.

2. Read the whole project

Project views include Album, Plan, Elevations and Isometric. Use Plan to check placement, Elevations for positions along walls, and Isometric for an overview. The left list shows module names and dimensions. Match each entry to the correct cabinet and position in the model.

3. Open a cabinet

1. Click the required module in the left list.
2. Check its views, outer dimensions and parts specification.
3. Match drawing positions to names and quantities in the table. Individual part dimensions need not match the cabinet's outer dimensions.
4. A banding warning indicates missing data; it does not decide whether that part actually requires banding.

4. Check an individual part

1. Select a part in the module list. Check its name, material, length, width and thickness.
2. Study the views and machining symbols. Distinguish the broad face from the edge: holes are drilled from different directions.
3. Check drilling dimensions against the indicated reference edges, not just the apparent position of a point.
4. If expected machining is missing, check fastener or hinge settings in the model, then refresh drawings.

← Back returns from a part to its module, then from the module to the project.

5. Make corrections

Fix incorrect geometry in Builder. Change material or banding in the relevant section, then click ↻ Refresh in Drawings and recheck the same module and part. Correct the source → refresh the view → verify the result.

6. Printing and PDF

1. Open the required level: project, module or part.
2. Click Print to print. For a PDF, use Export PDF and select Save as PDF in the print dialog.
3. Check preview, paper size, orientation and page count before saving. On-screen zoom does not imply a 1:1 print scale.
4. Open the saved PDF and check that dimensions, symbols and tables are readable.

Practice task

Use the cabinet from the practice example. Find it in the project, open its module and then a side panel. Explain why the cabinet and part dimensions differ. Change a setting in the model, refresh drawings and find the corresponding change. Then save a PDF of one part.

Drawing settings

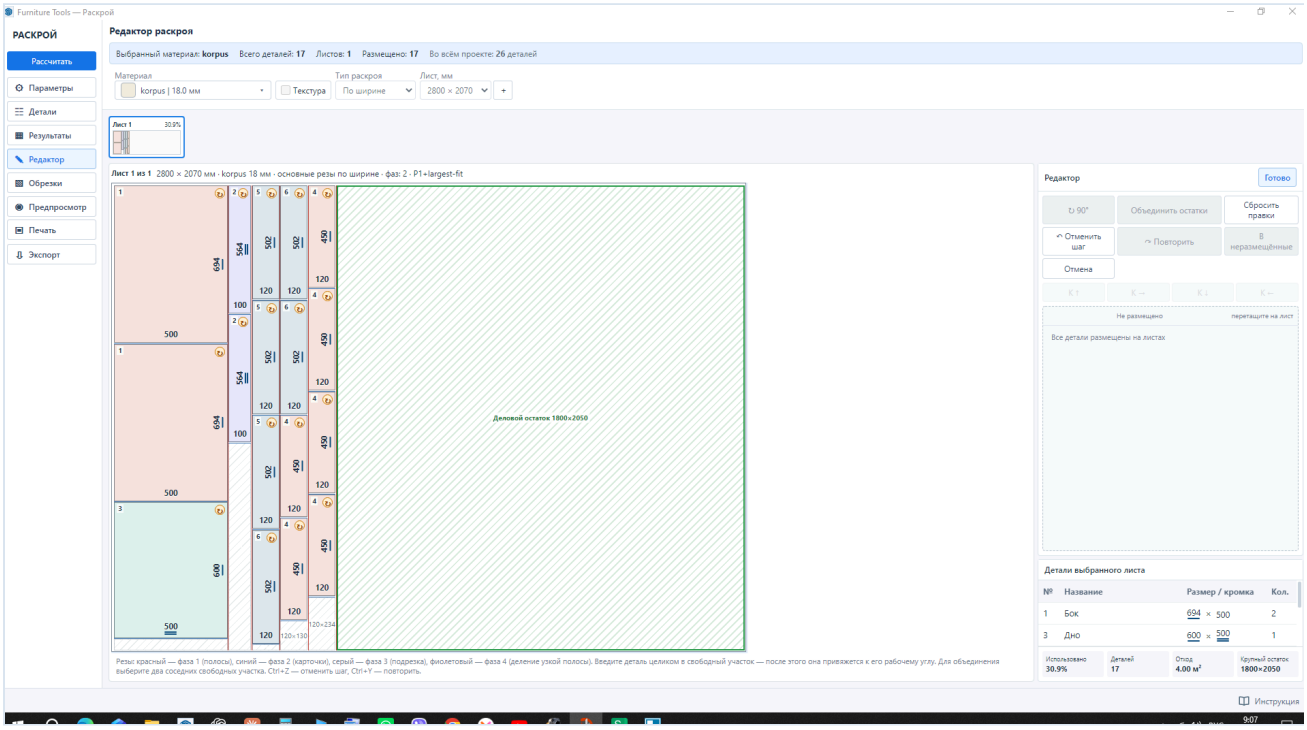
Personal settings include **A4 or A3 paper size** and **portrait or landscape orientation**. They are applied when Drawings opens. Change size and orientation in the working window's top toolbar before printing if needed.

Scale is fitted automatically. Check paper and preview in the print dialog.

FURNITURE TOOLS / 13

Cutting

This section nests the parts of a selected material on sheets. Check the source list first, then the manufacturing settings, then calculate and edit the layout.



Cutting: part placement on a sheet and a reusable offcut.

Screenshots show the Russian interface of FT.

1. Prepare the list

1. Finish editing the model, materials and edge banding. Open Cutting.
2. Click **Refresh parts**.
3. Select a material from the top list. Different materials and thicknesses form separate batches; one material can include parts from different categories.
4. Check **Part size**, **Cut size**, quantity and edge banding. Part numbers link rows to shapes on the layout.

Part size refers to the finished part. Cut size refers to the blank, with the selected banding allowance. If the list is wrong, fix the model or report first instead of compensating through manual placement.

2. Sheet, kerf and trim

1. Select a format in Sheet, mm. The + button opens settings where you can add a custom size.
2. In **Kerf** enter the actual saw cut width: the material lost between adjacent blanks.
3. In **Trim** sets the allowance on each sheet edge. The working rectangle shrinks on both sides.
4. Enable Subtract thickness if blank dimensions should account for banding. Check or change individual rows in Include.

Example: a 2800 × 2070 mm sheet with 10 mm trim has a 2780 × 2050 mm working area. Parts must fit this working area.

3. Texture and rotation

If grain direction matters, enable **Texture**. Rotation is restricted by material direction. For material without that restriction, Auto-rotate sets the rule for all parts and the row icon controls an individual item.

If a part fits only after a prohibited rotation, FT may offer an exception. Accept only if this orientation is valid for the real part. If neither orientation fits, use a different sheet format or correct the dimensions.

4. Choose a mode and calculate

- **Along length:** main cuts along sheet length, followed by cutting the resulting strips. With equal sheet counts, this order takes priority over a larger offcut.
- **Across width:** for a vertical panel saw: main cuts across sheet width first, then cut the resulting strips. With equal sheet counts, this order takes priority over a larger offcut.
- **Optimal:** compares layouts, including areas with different cut directions. It aims for fewer sheets and useful offcuts; a mathematically perfect result is not guaranteed.

1. In Settings, choose Fast, Normal or Deep search. Deep compares more options and takes longer.
2. Save the settings and click **Calculate** on the left.
3. In Results, choose a sheet using the thumbnails above. Check the sheet count and any unplaced parts.
4. To compare modes, return to Parts, change the mode and recalculate. This creates a new automatic layout; finish or cancel manual editing first.

The direction names are not machine types. Choose according to the cuts your actual equipment allows.

5. Read the layout

Numbered rectangles are blanks; side dimensions follow their current orientation. Hatched areas are offcuts. Red lines indicate stage 1 cuts, blue stage 2, grey stage 3 and purple stage 4. The layout heading shows the stage count.

The right-hand list shows parts on the selected sheet. It differs from Unplaced: the sheet list shows placed quantities, while the editor list shows how many still need to be returned to layouts.

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6. Move a part manually

1. Open Editor or click **Edit**. The button changes to Done.
2. Drag a blank into a free rectangular area. Your grab point is preserved.
3. Move the entire blank into the area. Once fully inside, it snaps to the working corner. A small screen tolerance is allowed when one side matches exactly.
4. Check the Can place preview and release the mouse. FT checks overlaps, kerf and whether through-cuts are possible.
5. If placement is rejected, choose another area or free adjacent space. Visible empty space is insufficient if valid cuts cannot reach it.

Edge banding on the cutting layout

1. Enable **Edit** and select a blank on the sheet.
2. Use **Edge ↑, Edge →, Edge ↓, Edge ←** to mark the required sides.
3. Click again to remove a mark.
4. Click **Done**.

These are banding indications on the layout. Set the actual part banding type and thickness in Edge banding or Reports.

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7. Remove, return and rotate a group

1. Select a part on the sheet and click **Move to unplaced** or drag it outside the layout.
2. Find the row by number and name on the right. It shows the size of one part, a shape thumbnail and **Remaining: N pcs**. When banding thickness is subtracted, the blank size is shown separately.
3. Drag the row back onto a sheet: a regular row places one copy. The remaining counter decreases.
4. To rotate, select the row and click **90° · all N**: all remaining copies in the group rotate. Grain restrictions still apply.
5. To move to another sheet, first remove the part to the list, select another sheet thumbnail, then drag the part from the list.

A grain-matched block is a linked group. It moves and rotates as a whole while preserving the relative arrangement. Its counter shows the number of parts within it.

8. Offcuts and undo

To merge offcuts, select two adjacent free areas and click **Merge offcuts**. They must form a rectangle and support a valid cut pattern without moving other parts. An arbitrary L-shaped space is not a single usable rectangular offcut.

- **Undo / Ctrl+Z:** undoes the last manual-editor action.
- **Redo / Ctrl+Y:** restores an undone action.
- **Reset edits:** restores the start of the current editing session; resetting can also be undone.
- **Cancel:** discards the whole current session across all sheets and the removed-parts list.
- **Done:** finishes editing after checking the part inventory and layout validity. Do not issue layouts with unplaced parts.

On Offcuts, check reusable-offcut sizes and available save controls. Set Minimum reusable offcut in Settings. Saving an offcut record does not mean it has already replaced a new sheet.

9. Printing and Excel

1. Finish editing and check that no parts remain unplaced.
2. Select the required sheet and open **Preview**. Check the layout and parts list; enter the date and phone number if needed.
3. Click Print / PDF and choose a printer or Save as PDF in the system dialog.
4. For Excel, use **Export**. The export content depends on the current screen: the parts list and cutting results are different datasets.
5. Repeat the check for other materials and sheets. Keep finished exports with the project file.

Layouts and manual edits are stored in project data. They are restored on reopening if the source parts and cutting settings match. Source changes or recalculation can replace the previous layout. Save the SketchUp file and export workshop layouts as PDF or another available format.

Personal cutting settings

Set defaults for new projects here: sheet length and width, kerf, edge trim, cutting mode and search depth.

Click **Save**to use them as defaults. Current cutting and manual layout edits are unchanged; set current project parameters in the Cutting working window.

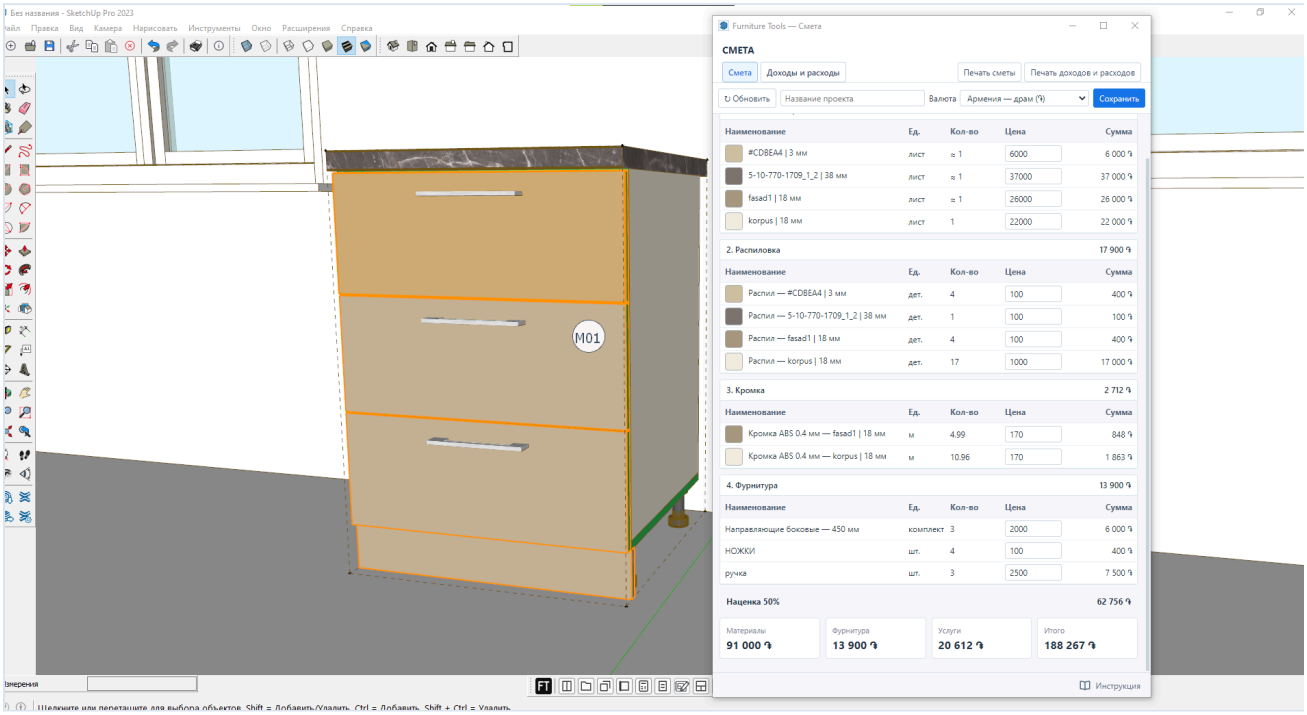
Automatic calculation compares layouts by sheet count and reusable offcut. For small sets, it also searches for a more compact occupied area while preserving first-cut direction and rotation restrictions.

For multi-sheet jobs, FT also tries moving and exchanging parts between sheets, then compacts the layouts. Optimal mode compares improved results in both directions. This may take several seconds.

FURNITURE TOOLS / 14

Estimate

Estimate takes project quantities and multiplies them by the prices you enter. Check Reports and Cutting before calculation, and click Save after entering prices.



Estimate: materials, services, hardware, markup and project total. Prices shown are examples.

Screenshots show the Russian interface of FT.

Prepare and fill in the estimate

1. Finish the model and check materials, banding and hardware in Reports.
2. Open Estimate, enter the project name and click **Refresh**.
3. In Sheet materials, enter the price per sheet for each item.
4. In Sawing, enter a price per part: the row unit is parts, not metres of cut.
5. In Edge banding, enter the price per metre for the corresponding thickness.
6. In Hardware, check units (piece/set), quantity and price.
7. Check section subtotals and the overall total, then click **Save**.

Understanding sheet quantities

> **Note.** Quantities come from the project. The symbol ≈ beside the sheet count indicates an area-based preliminary estimate. An exact count requires completed cutting for that material.

Banding and hardware quantities come from report data. To change quantities, correct construction or assignments in the model and refresh the estimate. Price fields do not edit quantities.

Record actual purchases

1. Find the item in Shopping list / actual.
2. Enter Unit price or Total paid. In Purchased quantity, enter the actual amount bought. The other monetary field recalculates from that quantity; estimated quantity is shown separately. Changing quantity keeps unit price and recalculates total. Only the total enters expenses, and only when Purchased is checked.
3. Check **Purchased**. Only checked purchases contribute to actual expenses in this table.
4. Check the Actual expenses total.

> **Note.** Only the total paid for checked purchases is included in actual expenses. Estimated and purchased quantities are shown separately.

Income, expenses and balance

1. Complete the estimate and set the contract price in Income and expenses.
2. Record customer payments separately: deposit, interim and final payments. Enter a date and amount for each.
3. Enter the total paid for each purchase or service and mark paid items. Add extra costs such as delivery separately; do not duplicate checked purchases.
4. Record each actual employee payment: advance or salary. Salary here means the remaining amount paid after an advance, not the full accrued salary entered again.
5. Check the totals: cash balance is receipts minus actual expenses and employee payments. Customer debt is contract price minus money received; a negative amount means overpayment.

Markup applies to estimated cost to calculate the estimate price. Discount applies only to the calculated estimate. Contract price is the final agreed amount; discount is not subtracted again. The old Receipts field is migrated as one Previously received entry without an invented date. Entries are saved with the estimate and SketchUp model.

> **Note.** Do not count an expense twice. If an advance is already recorded, enter only the remaining final payment.

Cash balance = receipts − actual expenses − employee payments.

Saving and common mistakes

- **Save:** writes estimate data and saves the existing SketchUp file. For an unnamed file, finish Save As. Closing Estimate also writes its data; save the SketchUp file itself to retain an unnamed project.
- **Refresh:** rereads project composition and quantities. Afterwards check prices, actual purchases and financial entries, then save.
- **Zero total:** check the entered unit price, even if hardware displayed a reference price from the library.
- **Price too high:** check the unit. Per sheet, per square metre and per part are different rates.
- **Expense missing from actuals:** check Purchased or the Actual column of a manual row.

Estimate settings

Default currency is set in Settings → Estimate and used for new estimates. Changing it does not convert existing amounts.