Cost-It Manual

Presto Plugin for Revit

Cost-It, the Presto plugin for Revit, within other Presto options, can generate the Bill of Quantities or the bid documentation from a Revit model, keeping the model and the estimate synchronized.

The required files are in www.rib-software.es, you can download them from the customer area. If you do not have Presto's "Revit" module, you can request a demo version from "+INFO / DEMOS". After setup, close and open Revit and a new "Cost-It" option will appear on your ribbon.

> *If you are using Cost-It with Presto Demo, the result of the export to Presto option cannot be saved, and associate and import options cannot are not operational, as they would modify the Revit file.*

The plugin contains three options that can be used in different order, according to the user's process:

Associate

Assigns a unit code from Presto to the elements in the model.

Export

Presto generates the Bill of Quantities or bid documentation from the existing information in the model.

Import

Inserts information from Presto into the model.

> *To use Cost-It you need to know the overall organization of a Revit model: type and family properties affecting costs, how to navigate the model, select, filter and isolate categories and elements selected in Presto.*

Export

The "Export" option generates a Presto project with all the information contained in the model which is relevant for preparing the bidding or the estimate, organized as a WBS.

> *If the icon is visible but it cannot be enabled, ensure that the display is not a perspective 3D view.*

Exporting can be done before or after assigning work units to families and types, as described below in "Work item identification".

Export filter

If there is a selection when exporting, only these elements will be exported. Otherwise, the ones that match the following conditions:

- Elements that belong to categories in the model (even views or plans) but not to notes or analytics (such as dimensions or structural loads).
- Elements with active "Visibility".

  Categories and visibility are in "View: Visibility / Graphics."

- Subprojects elements that are linked.

The Export dialog box displays the total number of elements and materials to be measured, indicating those with text in "Key note" and "Assembly code". In this last case, listed and not listed elements in the active catalogue at that time will be disaggregated.

Graphic documentation

The Presto project can contain all the information needed to prepare the bid or the estimate in case the model is not going to be given.

Views
Plan views
DWFx
IFC

These options associate views and plans that are defined in the model to the root concept, such as image files, views, plans or the full model in IFC or DWFx formats.

> *Autodesk provides a free viewer for DWF and DWFx files.*

The IFC model can be opened with many viewers; with some of them, you can locate the elements using the same Revit code, as we describe below.

Work item identification

You can export a model with no cost data or previously associate work item codes and data for a more automatic result.

Include elements without work item code assigned

Cost-it exports measurable elements that have not work item code assigned. Revit internal codes highlighted in red are used instead for easy identification.

Copy the code of the work item from

If work items codes are associated to element types, this is where the code will come from:

Key note
Assembly code for elements and Keynote for materials
Revit code

Work Breakdown Structure (WBS)

The generated Work Packages contain the elements of the Revit categories organized in the most probable execution order.

All existing rooms, with its surfaces, usable area, and other associated information will appear in a special Work Package.

If the works units codes belong to any classification system commonly used in Spain or internationally, there is a Presto plugin available that regroups the work units following that structure, creating the necessary work packages and deleting those without content.

Create chapter of materials

Revit types are broken down into one or more materials, which may be a more accurate take-off than the general of the element, as in the types that are divided in layers.

The measurements by materials can be used as a substitute or complement of measurements by elements of the remaining chapters, using the Presto usual resources. This option does not change the way the rest of the chapters is exported, unlike the following, and is usually turned off to speed up the export.

The materials do not have assembly code, so that they can only associate the work item code in the "Keynote" field.

Explode elements in parts and materials

This option replaces the take-off of each element by their component materials. It also generates a chapter with measurements of parts, if they exist in the model.

In this case, each type results in a subchapter and each material to a work item, with their take-off lines.

Only with layers

This variation of the previous option broken down into materials only the types containing layers, such as walls, floors and roofs.

Work items

Work items that appears associated to the types used in the model are generated.

If multiple types listed associated to the same work item, all elements will be associated with her and their common properties, such as the measurement criteria, shall be those of the first type found. The take-off lines of each element keep the information from the original type.

Unit of measure

The work items of each category are measured in the measure unit more suitable for valuating in reality, taking into account the characteristics of each type.

For example, walls of parallel faces are measured by area, ducts by length, structural elements by volume and sanitary appliances by number of items.

The data exported in the take-off lines allow the user to modify this criteria, as we will see below.

Price

The unit price of the work item is taken from:

- The "Cost" field

- The "Key Note" field

- The current catalogue for the "Assembly code".

If there is no unit cost, it may be entered in Presto.

Other properties of the work item

In addition to the above values, the work items have the following identification data.

Field	Content
Description	If it is not assigned with the code, name of the family and type
Code2	Numerical code to family and type
FamilyBIM	Family Name
TypeBIM	Type name
GuidBIM	Family and type unique ID

Family and type thumbnails

It generates an associated image to the types that have this information in Revit. In materials the image used to choose the color and texture is exported.

Family and type parameters

It adds to each work item, such as associated keywords, all type parameters and their values.

Each parameter results in a variable of the "Variables" table, visible in the "Common variables" window, which contains the same properties as in Revit.

Field	Content
Variable	Parameter name

Field	Content
DisplayUnitType	Unit of measure
UnitType	Type of the measuring unit
ParameterGroup	Parameter Group
ParameterType	Parameter Type
Shared	Shared parameter
StorageType	Storage type
ReadOnly	The value can be changed in Revit from Presto

To add a column of this table to the keywords window, use an expression like:

Variables[Variable==Keywords.Keyword].DisplayUnitType

Replace "DisplayUnitType" for the desired field.

Elements information

Cost-It includes in the estimate all the information that can be extracted from Revit and is useful for identifying elements, assign their prices and writing the specifications.

Element parameters

It exports all parameters of each element, the same way as for types. Each parameter is associated to the element number in the "Element" field.

Take-off lines

It generates a take-off line for each element, with the information described below.

Dimensions

The partial quantity of each line is supplied by Revit for the measuring unit of the type.

Cost-It also populates the dimension fields of the take-off line with the values of each element that are more useful to calculate this partial quantity or for complete its information.

If these values are among those that give rise to the partial quantity, with a tolerance of 2%, is left in its normal state. Otherwise, left cancelled.

Other data that are not directly involved in the calculation but can be useful are also added:

- For testing, as the thickness of the wall
- To change the take-off criterion, for example, activating the edge of the slab to measure the volume.
- To use as a reference for other work items, such as calculating the painting of the doors using their dimensions, even when doors are quantified by number of items.

If you want Presto to receive different values to those calculated automatically, the user may create shared parameters using the following names:

Field	Content	Type
Presto.N	Number of units	Number
Presto.Length	Length	Number
Presto.Width	Width	Number
Presto.Height	Height	Number
Presto.Formula	Measuring formula	Text
Presto.Quantity	Take-off line quantity	Number

If any of these parameters exist, Presto takes its value for the corresponding field and applies the calculating rules of the type. If the quantity is set, the other values remain cancelled.

Export holes and deduct under ... m2

This option generates one take-off line for each closed hole contained in a wall element.

- If the area is less than the indicated value, it adds to the estimate, as the wall area is net, and will appear in green.
- If the area is larger, the "Est" field is left off and the line shown in gray.
  Because of this, these lines are only seen in the take-off window layouts including non-estimate lines, such as "All".

If the hole is orthogonal, its length and its height also appear in the take-off line, but cannot guarantee the exact order.

Location

The level name at which is located the element is inserted into the "Plant" field and the height in centimeters in the "Level" field.

The take-off lines of each level are associated to an activity whose name is formed with the high point plus the name.

This association allows use of all Presto resources available for activities.

The "Zone" field contains the name of the "Rooms" entity, it belongs to the element.

Traceability

The "Element" field contains a unique number that lets identify in Revit. You can use for the option "Copy to Revit" described in the "Tracking" section.

Each element maintain the information that lets identify their original values in the Revit model.

Field	Content	Property of
Workset	WorkSet to which the element belongs	Type
File	Filename or sub-project	Type
BIMFamily	Family to which the element belongs	Type
BIMType	Type at which the element belongs	Element
BIMCode	Family code and type	Element
BIMGuid	Element unique ID	Element

The comment of a take-off line consists of the form:

Plant + Zone + BIMType

The "Origin" field of the exported take-off lines by Cost-It contains the "Revit" value.

Design options

If the element belongs to a design option, the name appears in the "Option" field and the variation in the "Variation" field.

> *If the design option is not the primary, the "Est" field is disabled, so that take-off lines are not duplicated, and the line is only seen in the layouts containing non-estimate lines such as "All".*

Presto resources enable or disable the layout options as desired.

Stages

Stage number assigned to the element in Revit. The stage name is inserted in the "Description" field of the date.

If the stage number is modified can be again inserted in Revit using the "Import" option.
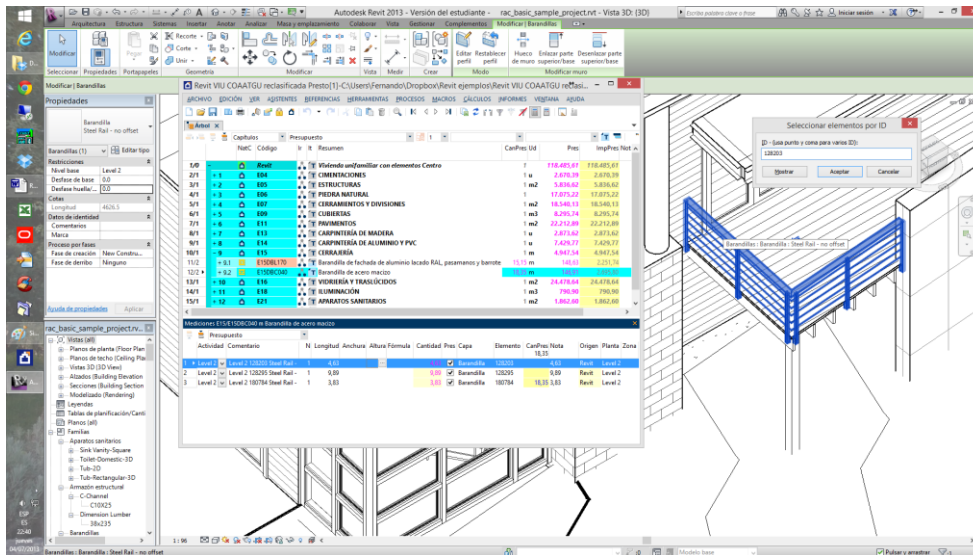

Traceability (Presto)

Copy for Revit

This Presto option searches for and identifies in Revit the elements of the estimate:

- The elements of the selected take-off lines, if used in a take-off lines window.

- All elements of a work item, if used in the estimate window.

Select the desired line or lines, select the option and move the mouse over the Revit window.

> *The current view must be appropriate for the selected objects. Use the options in Revit for identify and isolate the selected objects and their categories.*

Identification in Revit of the estimate elements

The element IDs are also copied to the clipboard, allowing to locate them also manually with the appropriate Revit option or in other visualization software.

Assign the work item

To get a valued estimate from the beginning the unit cost can be entered in the "Cost" filed or a code may associated to each model type.

This code allows to add descriptions texts, prices, decompositions and other data to each concept from a prices database or estimate that contains this information.

> *The association can be done directly in the Revit model, as indicated in this section, or later in the estimate. In this case, the codes can be inserted back into the model using the "Import" option, described below.*

The work item is associated to the type, except the special cases described above, in which the same type results in several work items.

The work item code can be entered in two fields of Revit:

- The use of "Key Note" field is recommended, available for types and materials.
- If this field is used for other purposes, the "Assembly code" may be used, only for types.

In types, both fields are editable with "Edit type".

In materials, the "Key Note" field appears in the material properties dialogue box, which is accessed in different ways, depending on the type of element. For walls, it appears while editing the layer structure.

The information in the work item is stored in the format:

CODE | UNIT | DESCRIPTION | PRICE

The fields behind the code are optional.

For example:

E12AB010ac | m2 | Fabric exposed brick | 122,35

The association can be done in several ways from Revit:

- Selecting the work item in a Presto project
- Selecting the work item in a Revit catalogue
- Manually filling the field "Key Note"

These procedures are described below.
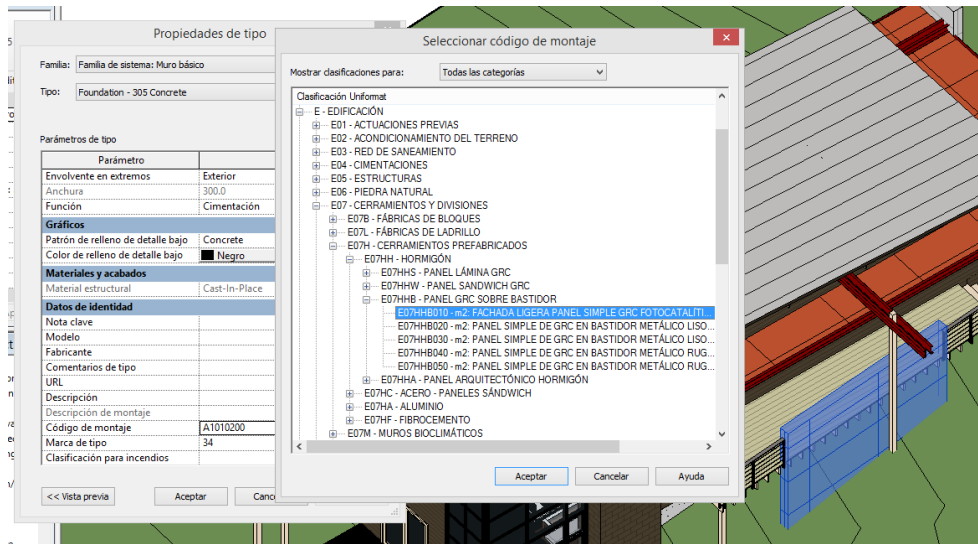
Direct association

The plugin "Associate" option lets open a prices database or Presto estimate from Revit and associate the chosen work item to the model selected elements.

In addition to the fields "Key note" and "Assembly code", the "Description" and "Cost" fields are filled.

Selection in catalogues

In the "Key Note" field the work item code may be entered directly; however, it is convenient to select them in a predefined catalogue.

In the "Assembly Code" field the use of a catalogue is required.

Allocation of work items

A catalogue can be a complete price database or a selection of work items prepared for a specific project.

The catalogues can be generated by Presto with "FILE: Export: Revit catalogue" option.

> *If the price table contains parametric concepts and you wish it contains the derivatives, is necessary to generate the variants previously.*

Key note

The catalogue for this field can have any name and reside in any directory. Families directory may be used, such as:

C:\ProgramData\Autodesk\RVT 2015\Libraries\Spain

The catalogue is selected in "Annotate: Tag: keynoting settings" and can be replaced by another at any time.

> *The descriptions of all concepts must be different and one concept may appear only under one group. If needed, Revit warns with the message "Duplicate key value".*

Assembly codes

Before Revit 2015, the catalogue must be called "UniformatClassifications.TXT" and reside in the directory:

C:\Users\[USER]\AppData\Roaming\Autodesk\Revit\<name and version>

If there is already a catalogue with that name, Presto renames it with ".BAK" extension and it assigns a numerical suffix. You can also make this substitution manually, from the operating system.

> *In order to Revit recognizing the change of the catalogue, close and restart it.*

After Revit 2015 there is no restriction on the name and location of the assembly codes catalogue.

Codes assigned to types are exported even if they are not present in the current catalogue, but the description and the price will not be defined. In this case, the description contains the name of the family and type.

Use of the generated project

The generated project can be used in different ways:

- As model total estimate or as a base to complete it, adding work items and chapters from other sources or modifying existing ones.
- To insert in a more complete estimate or generated in previous versions of the model.
- To export to a spreadsheet, a planning program or any other format supported by Presto.

If the work item is no longer associated in the model, can be associated in the estimate:

- Dragging from a reference on the desired concept in the "Estimate" window with the [Shift] key pressed.
- Typing the code on the "Code" field and then updating.

In the first case, the BIM model identification fields are lost.

To keep this data while updating, use the procedure in www.rib-software.es page, paragraph "USE OF PRESTO: Technical questions"

When concepts have the final code, the generated estimate may be reclassified into chapters using a specific Presto plugin.

If in the generated project the codes are entered or existing ones are modified, you can export again as a catalogue of assembly codes or key notes, so that its content be progressively more specific for the project and more complete.

Integrate the project in the estimate

As in any Presto project, you can drag isolated work items or complete chapters of the generated estimate to an earlier or more complete estimate, if necessary removing the previously inserted.

If the complexity of the changes entered in the model or in the estimate after the last export prevents do this integration manually, the "PROCESSES: Import take-off lines" option can be used. This option, described in the Presto manual, inserts the take-off lines in a testing window, which has a "Revit fields" layout, where you can display the information as it will be inserted and editing at the moment.

By integrating the take-off lines that come from another project takes into account the following features, in addition to those common to all processes of take-off lines importing.

- If the work item associated to a take-off line does not exist in the destination project, but it exist some take-off line with the same value of the "Element" field, is assigned to the same work item.

- If not, it searches in the target project any work item with the same "Code2", which represents the family and type.

This capability allows the association of work items in the estimate, not in the Revit model, enlisting work items required and adding in the "Code2" field the family code and type. Imported lines are automatically associated with the work item of the type.

When files from the same model are imported, the "Check take-off lines" option displays in the intermediate window exclusively the new lines, the deleted and modified, providing a simple way to evaluate the impact of each change.

The manually inserted lines have the "Presto" origin, so they does not interfere those coming from Revit project.

You can also delete all take-off lines coming from Revit from the "Take-off lines" window, in "Revit" layout and reinsert the generated project again.

Import to Revit from Presto

This option inserts in the Revit model information that comes from the estimate, as the work item assigned to each type or the planning and certification stage of each element.

If there is a selection or filter, it applies only to the types that correspond to visible elements, as in export.

Adding the assigned work item to each family and type

It assigns to each model type the work item code, the measure unit, the description and the cost it has on the chosen project.

The identification of the type can be:

- By the identifier, contained in the "GuidBIM" field
- By the names of family and type, contained in the "BIMFamiliy" and "BIMType" fields.

These fields are automatically populated during export.

Include materials

It also inserts the data of the materials.

Cost

It fills the "Cost" field with the unit price.

Key note | Assembly code | Description

The chosen field is filled with the same format used to assign the work item and needed for the export option. In the "Description" field, code is not included.

Fill only empty or null values

It does not alter the fields that have content previously in the model.

Assign to each element its estimate stage

From planning | From certification

This option replaces the stage to which belongs each element of the model by the planning or certification stage allocated in the estimate.

To import a stage is necessary previously create in the model with the same name that have in the "Description" field of the stage, visible in the "Dates" window.

In Revit an element can only belong to one stage. If you wish to certify an element that is already planned in a stage:

- Rename the stage "Description" field to create a different stage to planning stage.

- Give to the element the certification stage.

- When importing to Revit, the element will change from the planned stage to the certified one.

The stages can be activated and deactivated with the Revit corresponding options, allowing sequentially display the construction by stages, or until a certain stage.

The phase defined or modified in Revit is exported with the element, allowing to certify in Revit and get the result in Presto.