CostX® 6.8 Release Notes

CostX® 6.8 is the latest release in the Exactal® range of world-class digital measurement and BIM-enabled estimating software. This release introduces a series of improvements and new features designed to make working with CostX® quicker and easier. Central to this new version is the enhanced support for advanced take-off, including support for a new Width field and Dimension Group Variables, as well as introducing hierarchical Code Libraries to better support multi-level cost breakdown structures in workbooks.

Headline Features

- It is now possible to create **Variables** for use in Dimension Group expressions. Variables are used in expressions where the values will change between dimensions in a Dimension Group, and can be dynamically assigned a value by the user during take-off. This allows the calculation of quantities to be based on the values the user specifies for the Variables.

- Dimensions now support a **Width** field which can be used in formulas for various quantity calculations.

- Code Libraries now support **unlimited levels of grouping hierarchy**, with each level supporting a code and description. This allows CostX® to support multi-level cost breakdown structures such as Uniformat, Masterformat, Uniclass, NRM1 and more in a much simpler way. With the introduction of hierarchical Code Libraries, you can now generate a workbook grouped by code with more than two levels of grouping based on a single code. This allows you to create more detailed workbook structures quickly and easily without having to associate multiple codes with each workbook line.

- Dimension Group and Standard Dimension Group imports via CSV now support Measured and BIM expressions.

- Constants set up in the CostX® System Administration database are now also available in the Dimension Group Expression Editor and BIM Mapping Definition Expression Editor, and can be quickly inserted into an expression with an easy drag-and-drop action.

- Added full support for Construction Process Integration (CPI) data format (.cpixml), which is a well-known exchange format for 3D BIM.

- System Administration reports and the built-in report used when printing drawings to report have been updated to a modern report style with a clearer, easier-to-read layout.

- The reporting engine for workbook reports has been upgraded to a newer version with many improvements and new enhancements.

Variables

You can now create Variables for use in Dimension Group expressions (formulas). Variables act as placeholders for values that might change from dimension to dimension. A Variable can be dynamically assigned a value by user input, which therefore allows the calculation of quantities to be based on the user's response to the question posed by the Variable.

Types of Variables

There are two types of Variables in CostX®: **Standard Variables** and **Dimension Group Variables**.

Standard Variables are available to all Dimension Groups and Standard Dimension Groups in CostX® (i.e. they can be reused across Buildings and Projects), while Dimension Group Variables are only available to the Dimension Groups in which they are defined. If a Standard Variable is referenced by any expression, a copy of the referenced Standard Variable is created and stored with the relevant Dimension Group. In other words, a Dimension Group Variable is automatically created based on the referenced Standard Variable. Although these two Variables share the same name, they are treated as different Variables. Editing the properties of one does not affect the other.

For both types of Variables, you must specify a default value and a data type for each Variable.

Setting a default value saves you from the need to specify Variable values for the most common cases.

The data type of a Variable determines the kind of data the Variable can hold. You can assign one of the following data types to the Variable.

Data Type	Description
Number	Allows users to assign a value to the Variable by entering a number.
Selection	Allows users to assign a value to the Variable by selecting the value from a list of pre-defined options.
Boolean	Allows users to assign a True or False value to the Variable by selecting it from a True/False dropdown.

## Using Variables in (Standard) Dimension Group Properties

When constructing expressions in Dimension Group or Standard Dimension Group Properties, you can set up both types of Variables directly from the Dimension Group Expression Editor. To create a new Variable, click the **Insert** button in the **Variables** tab of the Editor and insert the details in the **Variable Properties** dialog. If the **Add Standard Variable** checkbox at the bottom of the dialog is unchecked, the Variable will be created as a Dimension Group Variable. If the checkbox is checked, the Variable will be created both on the Dimension Group and as a Standard Variable.
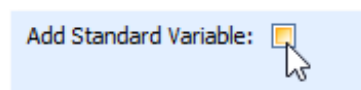
To reference a Variable within an expression, the XVAR() function is used. For example, to use the Variable "Excavation Depth" and the Area field to calculate the volume of excavated material, the expression would be *{Area}*XVAR("Excavation Depth")*.

It is possible to use an undefined Variable in the expression as you will be prompted to create it when you click the **Update** button in the **(Standard) Dimension Group Properties** dialog. However, the easiest way is to define the Variable first before referencing it. By doing this, you don't need to manually type in the Variable or worry about the syntax of the XVAR() function. Simply double-click the Variable or Variable value that you want to reference in the **Variables** tab, and the selected item will be inserted into the current expression with the correct syntax.

Once a Variable is referenced by any Dimension Group expression, it will appear in the **Variables** tab of Dimension Group and Dimension Properties, allowing the default value for the Variable to be overridden if needed on a per Dimension Group or Dimension basis.
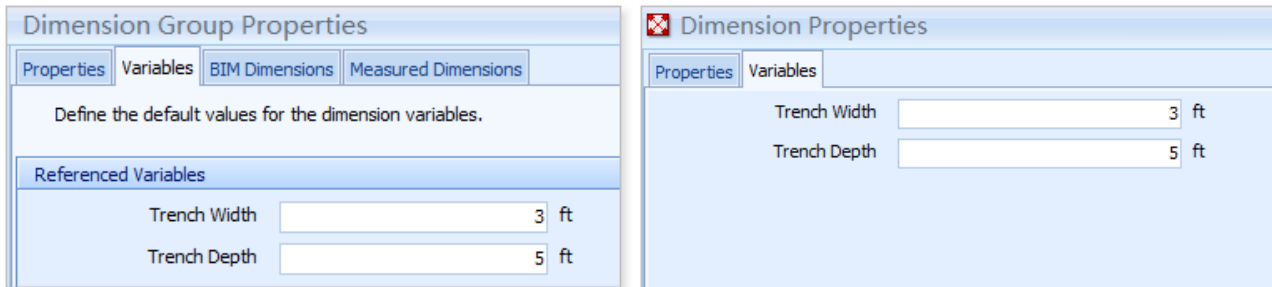
If values for the Dimension Variables are updated after take-off, the quantities will automatically be recalculated and updated.

📝 **TIP**: Use the 'Properties on Add' option if you wish to be prompted to provide values for Variables as you complete your take-off.

Using Variables in Model Maps

Before you can reference any Variables in a Model Map expression, you must first set up the Variables you intend to use as Standard Variables. You can set up your Standard Variables in System Administration or directly from the BIM Mapping Definition Expression Editor.

When a Dimension Group is generated using the Model Map, the Standard Variables referenced in the Model Map will be copied to the generated Dimension Group as Dimension Group Variables. If needed, you can modify the values of the Variables using the **Variables** tab in Dimension Group or Dimension Properties.

Multi-level Code Libraries

In previous versions, CostX® Code Libraries only supported one level of codes with an optional group name. Now, codes can be nested to an infinite number of levels, meaning that child-level codes can be converted to parent-level codes, and further child codes can be added, as illustrated below.

Code	Description
⊟ **A**	**Substructure**
⊟ **A10**	**Foundations**
A1010	Standard Foundations
A1020	Special Foundations
A1030	Slab on Grade
⊟ **A20**	**Basement Construction**
A2010	Basement Excavation
A2020	Basement Walls

With the support for multi-level Code Libraries, the **Code Group** field found in previous versions changes to become a parent level within the hierarchy. Code Libraries set up in earlier versions of CostX® using Code Groups will automatically be converted to a 2-level Code Library after upgrade.

The CSV import format for codes has also been updated to support unlimited levels. To create a CSV multi-level Code Library, use column A to enter the codes (limited to 50 characters), column B to enter the description for level 1, column C to enter the description for level 2, column D to enter the description for Level 3, etc. The Description field is mandatory. An example is shown below.

| A	B	C	D
A	Substructure		
A10		Foundations	
A1010			Standard Foundations
A1020			Special Foundations
A1030			Slab on Grade
A20		Basement Construction	
A2010			Basement Excavation
A2020			Basement Walls

When generating a workbook grouped by code, you now need to additionally specify the Code Library Level to be used for the generation of each workbook level. If many levels of codes in the same Code Library need to be used, you can use the **Autofill** button to pre-populate the following table and then adjust as needed.

Workbook Level	Code Library	Code Library Level	Code Column	
Level 1	Resource Codes	Level 2 ▾	A: Code	Autofill
Level 2		Level 1		
Level 3		Level 2		Clear
Level 4				
Level 5				
Level 6				
Level 7				
Level 8				

Dimension Groups and Take-off

Dimension widths

A new **Width** field has been added to Dimension Group and Dimension Properties, allowing the Default Width for a Dimension Group to be set, and overridden if needed on a per Dimension basis. The **Width** field can be used in formulas for various quantity calculations. For example, it can be used to calculate the Volume of concrete footings by measuring lengths on the plan and automatically calculating the Volume from the measured length multiplied by the Width and Height values.
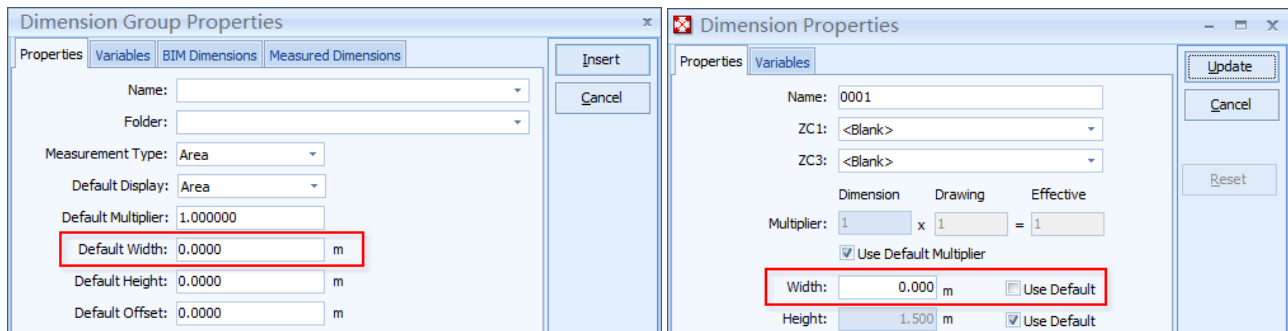
You can use the new XGETWIDTH function in workbooks to return the Default Width of a Dimension Group. For detailed information about this function, refer to the XGETWIDTH topic in CostX Help.

Dimension Group and Standard Dimension Group imports via CSV now need to include a field for Default Width in column F. For more details, refer to the two template files listed in the Dimension Groups import from CSV section.

Dimension Groups import from CSV

Dimension Groups import from CSV now supports Measured and BIM expressions and with the new Width field included too. The required CSV format for import has changed. For detailed information on the new format including how to add expressions to the CSV file, refer to the following two templates, which are provided in the `C:\ProgramData\Exactal\CostX\Samples\DimensionGroups` folder.

- Import Dimension Groups from CSV Template
- Import Standard Dimension Groups from CSV Template

> **NOTE**: The `ProgramData` folder is hidden by default in Windows Explorer. To show the folder, ensure you've enabled the "Show hidden files, folders, and drives" option in Control Panel.

Please take note of the following changes to the CSV file format requirements:

- To ensure that your data is mapped to the appropriate Dimension Group fields in CostX®, you now need to arrange the fields in the CSV file in a different order. Some existing fields, such as the Default Height field and Custom fields, have been moved to a different position. Also note the required positions of the new fields that have been added for the new features.

- The CSV file for importing Dimension Groups into the current building now include two unused fields before the Custom fields, making it compatible with the Standard Dimension Group CSVs, in which these two fields are used as the "Include by Default" and "Notes" fields respectively.

Filtering Dimension Groups by folder

The **Folder** field in the Dimension Groups List window now supports **find-as-you-type** functionality – as you enter text in the field, the first matched item in the drop-down list is automatically highlighted.
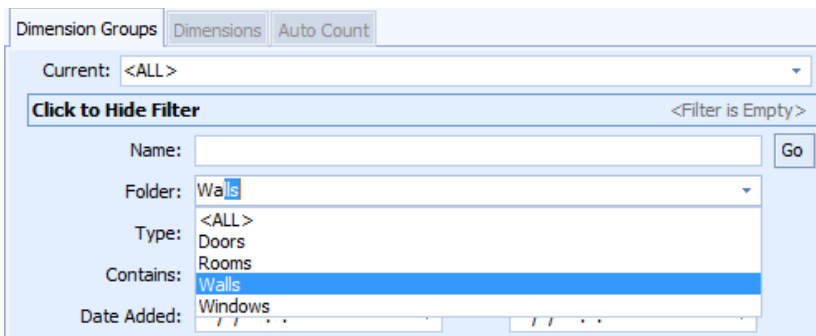

When entering text in the **Folder** field, you can also use wildcards to represent unknown characters if you can't remember the exact folder name or want to search for a set of similar folder names. The asterisk (*) wildcard represents a single character and the question mark (?) represents one or more characters. After the required text is entered, click the **Go** button to filter the Dimension Groups by folder.

NOTE: This item was released under CostX® 6.7 R1.

Dimension Group Expression Editor

- A new **Constants** tab and a new **Variables** tab have been added to the Dimension Group Expression Editor. The Constants provided here come from the Constants list in System Administration. The Variables tab contains both Dimension-Group-specific Variables and Standard Variables. To insert a Constant or Variable into the expression, simply double-click it or drag it to the expression box.
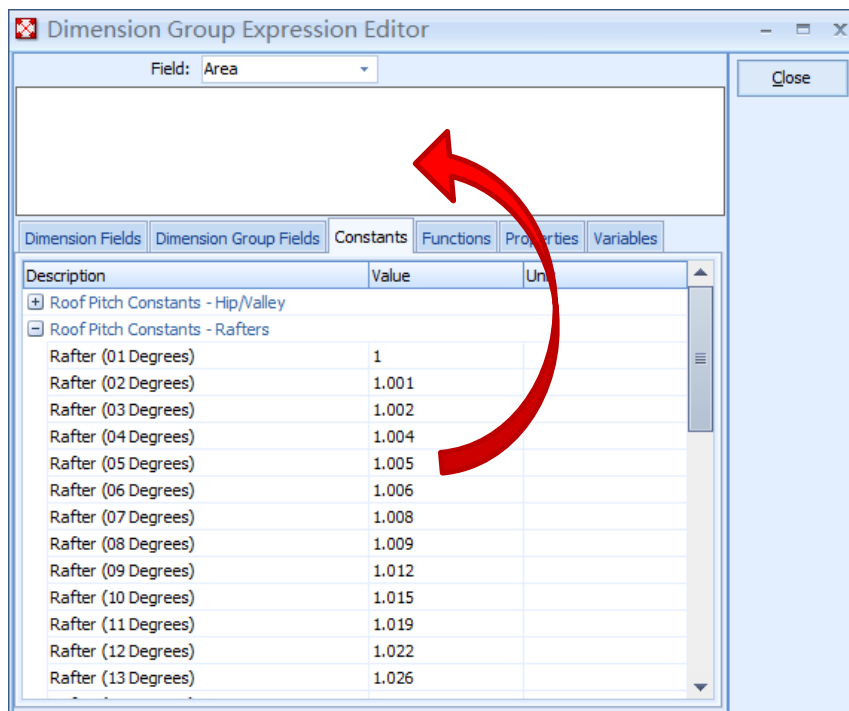
- Various usability enhancements to the Dimension Group Expression Editor.

- The ROUND function can now be used in Dimension Group expressions.

Other new features and improvements

- On the **Dimensions** ribbon, there is a new **Edit Zones** button which allows direct access to the Project Zones list for easy management.
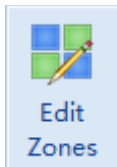
- The **Properties on Add** option is now available in the **Show** group of the **Dimensions** ribbon, in addition to being available in CostX Options.
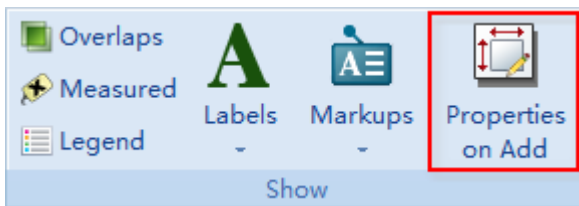
- Improved speed of BIM Imports, particularly on slower network connections. BIM imports will now take approximately half as long to complete.

  NOTE: This item was released under CostX® 6.7 R2.

- Auto Count now supports recognition of text characters in search patterns, which provides significantly improved accuracy for symbols that are the same or very similar except with different letters.

  NOTE: This item was released under CostX® 6.7 R3.

- Several Auto Count search speed and accuracy improvements.

2D and 3D/BIM Drawings

Support for a new drawing format – CPIXML

CostX® 6.8 includes full support for Construction Process Integration (CPI) data format (.cpixml), which is a well-known exchange format for 3D BIM. CPIXML files can be exported either natively or via a plugin from various design packages including Tekla Structures, Revit, ArchiCAD, Allplan, STRAKON from DiCAD, Bentley AECOsim Building Designer, Nemetschek Planbar, iTWO Civil and more.

The introduction of CPIXML support expands the range of drawing types that can be used for BIM takeoff and provides new options for BIM take-off from various design packages which were previously unsupported. One example is Bentley DGN files, which have always been possible to load and view in CostX® but couldn't be used for BIM take-off. Now, using a plugin to Bentley AECOsim, DGN files can be converted to CPIXML files, which can then be added to CostX® and used for take-off and measurement using standard CostX® 3D BIM tools.

For further information about the plugin that can be used to export Bentley DGN files to CPIXML files, please contact Exactal Support.

Support for new cloud storage providers

In addition to the existing supported cloud storage providers Amazon AWS S3, Google Drive, and Microsoft OneDrive, three additional providers are now supported, including **Microsoft OneDrive for Business**, **Dropbox** and **Box**. As before, you can set up your credentials for the cloud storage service you intend to use in the Cloud section of CostX Options.

NOTE: This item was released under CostX® 6.7 R3.

www.exactal.com

New option to turn line weights on or off

In the **Drawings** section of **CostX Options**, there is a new option that allows you to set whether vector PDF or 2D DWF drawings are loaded with line weights turned on by default. Turning off line weights can improve the performance of drawings and also help to make the drawings clearer when thick lines overlap each other. This option applies as a global default for all newly added drawings.
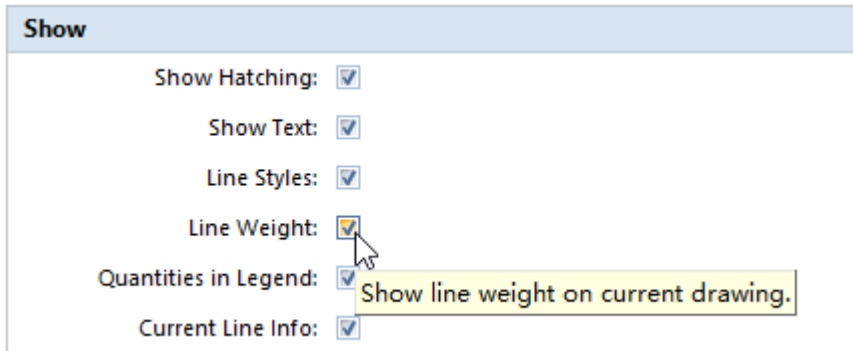
After the drawing is loaded, whether or not to show line weights can be specified and saved on a per drawing basis using the **Line Weight** button on the **Drawings** ribbon. When this button is off, all lines are displayed without any thickness.
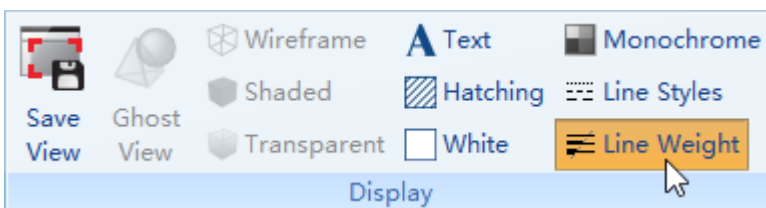
Drawing exports to PDF and DWF will also obey the line weight setting.

NOTE: This item was released under CostX® 6.7 R3.

Other new features and improvements

- The built-in report used when printing drawings to report has been updated to a modern report style with a clearer, easier-to-read layout. An example of the new layout is shown below.
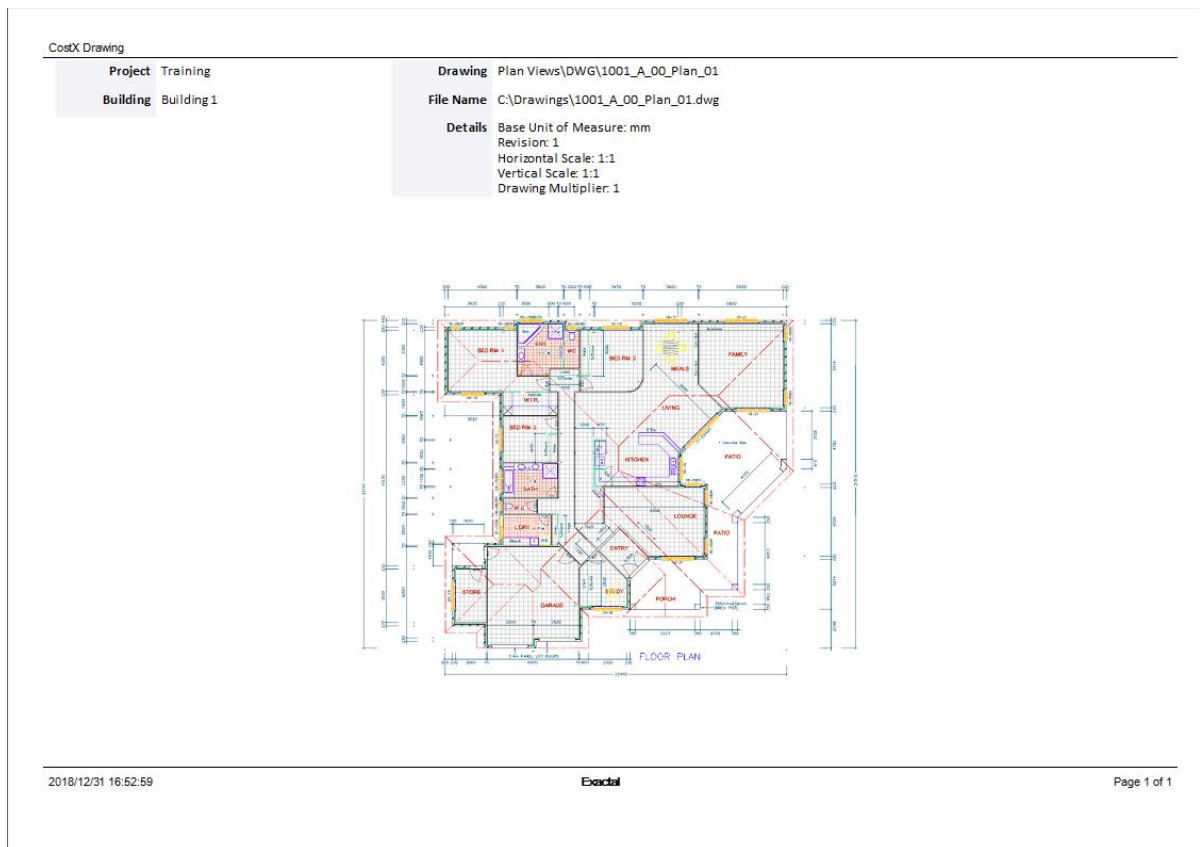
- Support for Sketchup 2017 and 2018 file formats.

  📖 **NOTE**: Sketchup no longer supports 32-bit and therefore SKP files are now only supported in 64-bit versions of CostX®.

- Updated support for IFC to include changes in IFC 4 Addendum 1 and 2.

  📖 **NOTE**: In drawing files using IFC4 or earlier versions of the IFC schema, the IfcStairFlight objects contain a property called 'NumberOfRiser'. This property has been renamed to 'NumberOfRisers' since IFC4 Addendum 1. Model maps that use this property will need to be updated.

- Printing the drawing window to PDF now fully supports international characters from any language.

  NOTE: This item was released under CostX® 6.7 R3.

- Improvements to rendering of line styles in supported formats.

- Speed improvements loading IFC files.

- Various bug fixes, stability and speed improvements.

Workbooks

Dragging codes into workbooks

Drag and drop of codes to a workbook now supports selecting multiple codes and dropping to a single cell. To do this, hold down the **Ctrl** key and click each of the codes you want to select, then drag the codes to the desired cell.

📝 **TIP**: This can be used for headings that need to be duplicated in different groups after generating a workbook grouped by code.

It is now also possible to append the selected code(s) to the existing codes in a cell. To do this, hold down the **Alt** key and drag the selected codes to the desired cell. Duplicates will be automatically removed when appending additional codes.
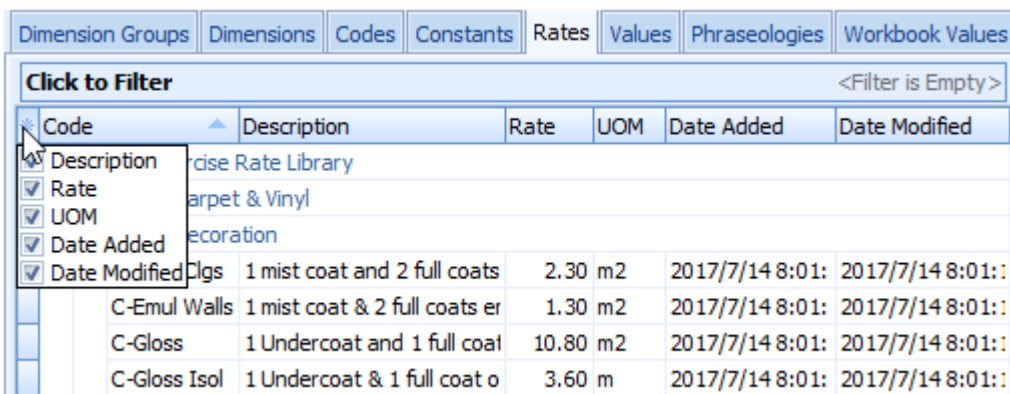
As before, existing codes in the cell will be replaced if the codes are dragged to the workbook without holding down the **Alt** key.

NOTE: This item was released under CostX® 6.7 R2.

Rates list window

Date Added and **Date Modified** columns are now available in the Rates list window, allowing you to easily see how long since a rate has been updated, and therefore make an informed choice about whether to use that rate in your estimate.

The columns displayed in the Rates list window can now be customised by using the ⊞ (Customise Columns) button located on the left of the headings bar.

Generating standard workbook from subcontractor comparison

A new **Show Preferred Name** option is now available when generating a standard workbook from a subcontractor comparison workbook, allowing you to select whether to write the preferred subcontractor name to the rightmost column or not.
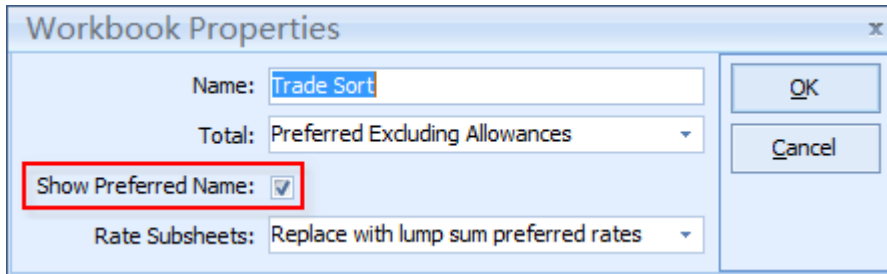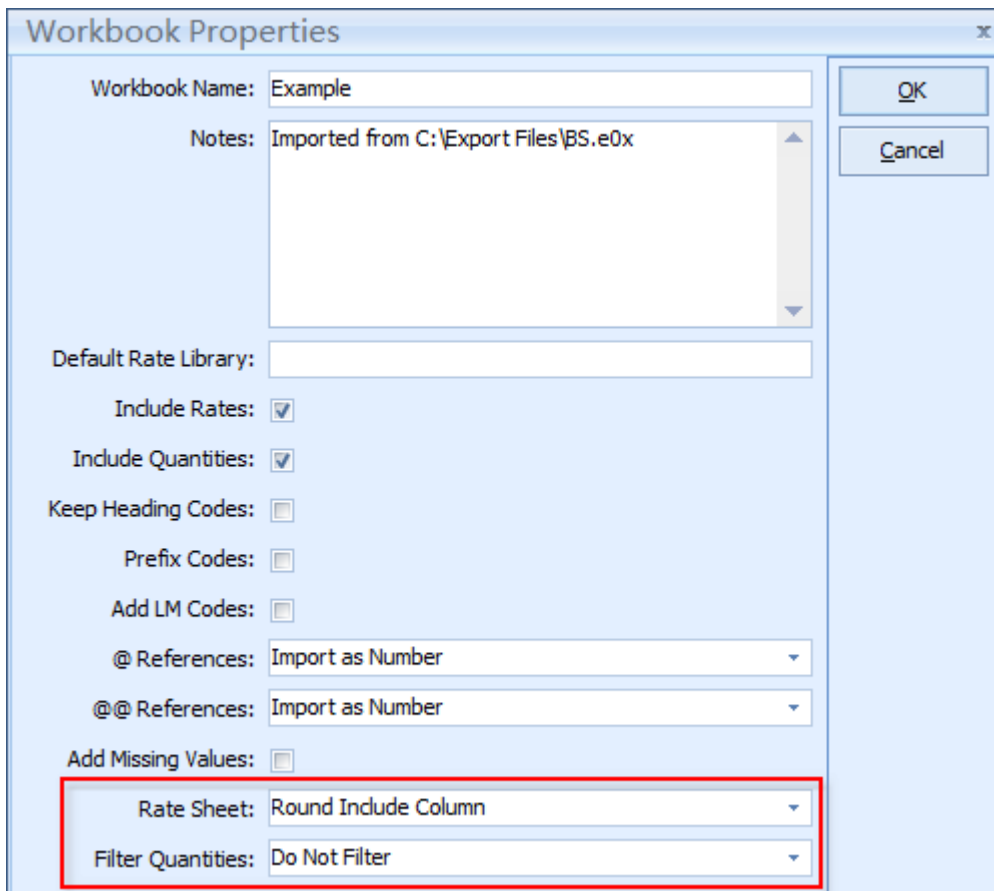

NOTE: This item was released under CostX® 6.7 R2.

New options in Buildsoft Import

There are two new options in the **Workbook Properties** dialog when importing data from a Buildsoft Backup file (.e0x).

- **Rate Sheet** - controls whether to round the value in the Include column of a rate sheet.

- **Filter Quantities** - controls whether to import quantities for items where the UOM is "Note" or "Item".

NOTE: This item was released under CostX® 6.7 R2.

System Administration

- The previous **Project** category in System Administration has been renamed to **General**, and the Constants list has been moved from the **Costing** category to the new **General** category, which now contains Projects, Locations and Constants.
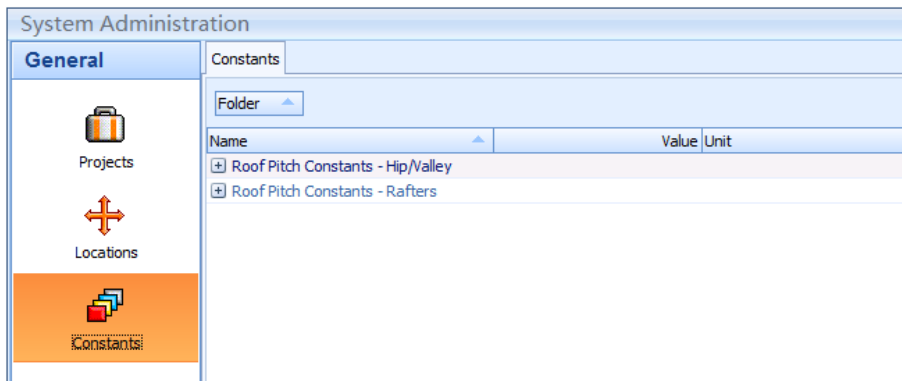
- **Date Added** and **Date Modified** columns are now shown in the list of rates in Rate Library Properties. Estimators in charge of keeping rates up to date can now sort by Date Modified to quickly find rates that haven't been updated for a long time.
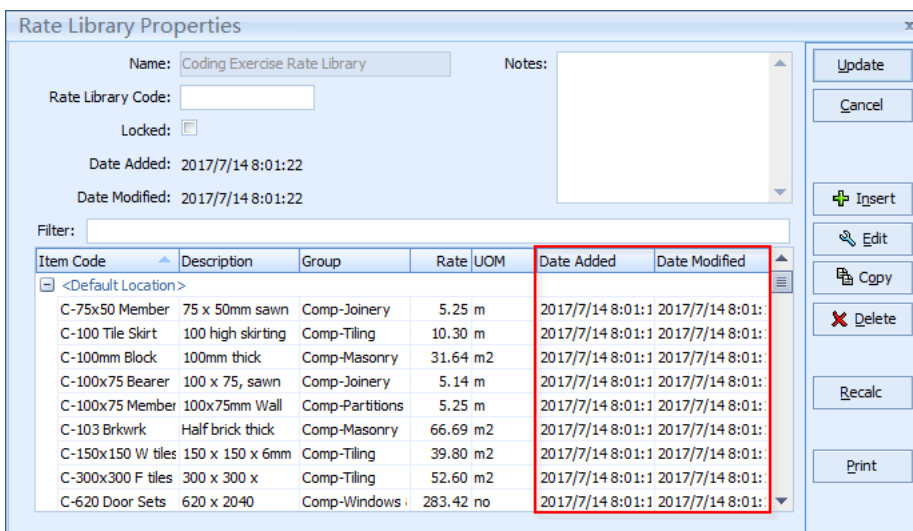
- The suite of standard pre-installed System Administration reports has been updated to a modern report style with a clearer, easier-to-read layout. An example of the new layout is shown below.

Reports

Updated reporting engine

The underlying report builder engine for workbook reports has been updated from FastReport VCL 4 to FastReport VCL 6.2.2. The new report engine brings an abundance of new features and improvements, including but not limited to the following:

- Improved appearance of the Data tree in Custom Report Designer including new icons for different field types.

CostX® 6.8
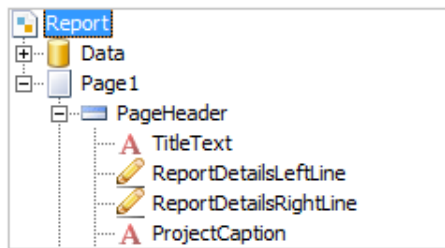
CostX® 6.7
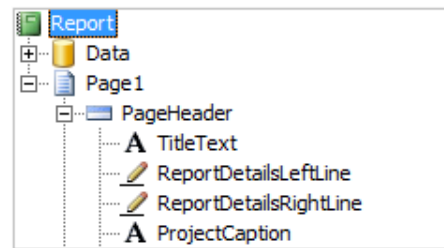
- Added Frame property for bands allowing more control of formatting.

- Added filtering capability to data bands allowing data rows to be filtered without using a script. By clicking the square button to the right of the **Filter** field in the **Select DataSet** dialog, you can open the **Expression Editor** and define a filter expression. For example, if the expression *<Workbook Level 1."Total (as Number)">>1000* is used, the workbook level 1 data rows will be filtered to show only rows whose total is greater than 1000.
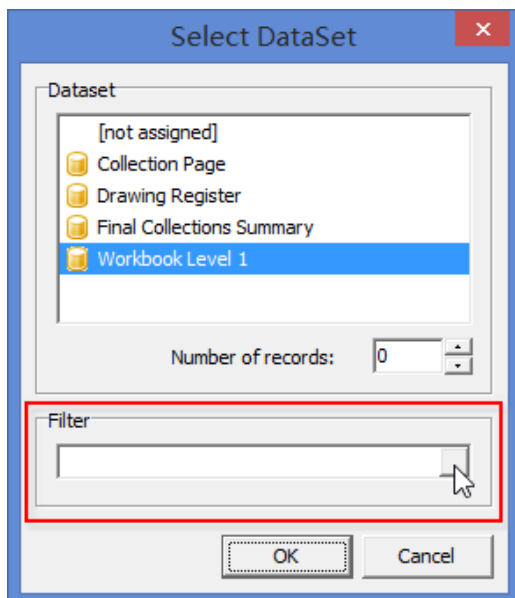

- New export file formats: HTML Layered, Microsoft Word 2007 XML (DOCX), Microsoft Excel 2007 XML (XLSX), and Microsoft PowerPoint 2007 XML (PPTX).

- Improvements in RTF, XLS, XML, HTML, ODF exports including support of different frame lines in a single Memo object.

- Improved font embedding in the PDF export: font subset is embedded instead of the full font. This will significantly reduce the file size.

- Fixed WordWrap exporting to XLSX.

- Memo objects now have new fill types available: gradient and glass.

- Memo objects can now have several highlight conditions, instead of only one previously. Simply click the **Add** button in the **Highlight** tab of the **Memo** dialog to add conditional expressions.

  The highlighting style for each condition can be customised using the following settings: frame, font, fill, and object visibility. You may turn on and off each setting.
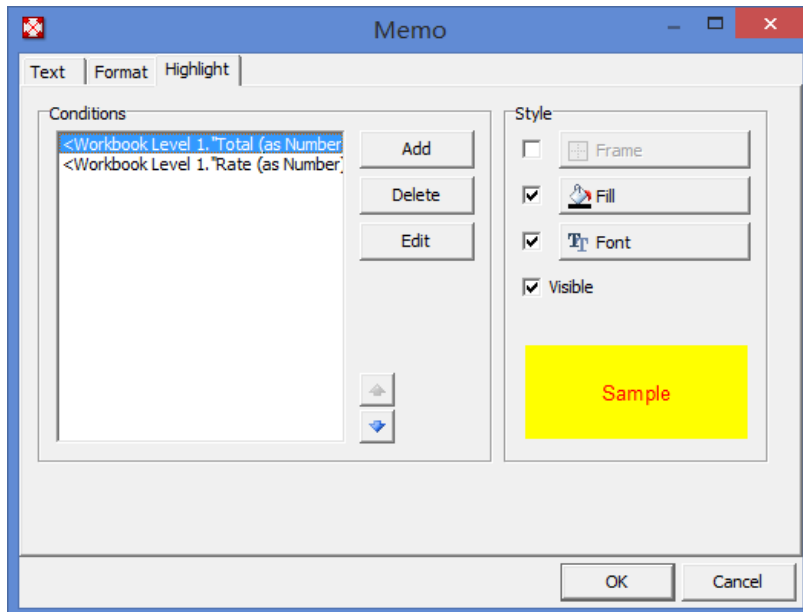
- Memo objects can now have several format settings, instead of only one previously. When a Memo object contains multiple expressions, you can select the required expression from the **Expression** drop-down menu in the **Format** tab and specify a format for each expression.
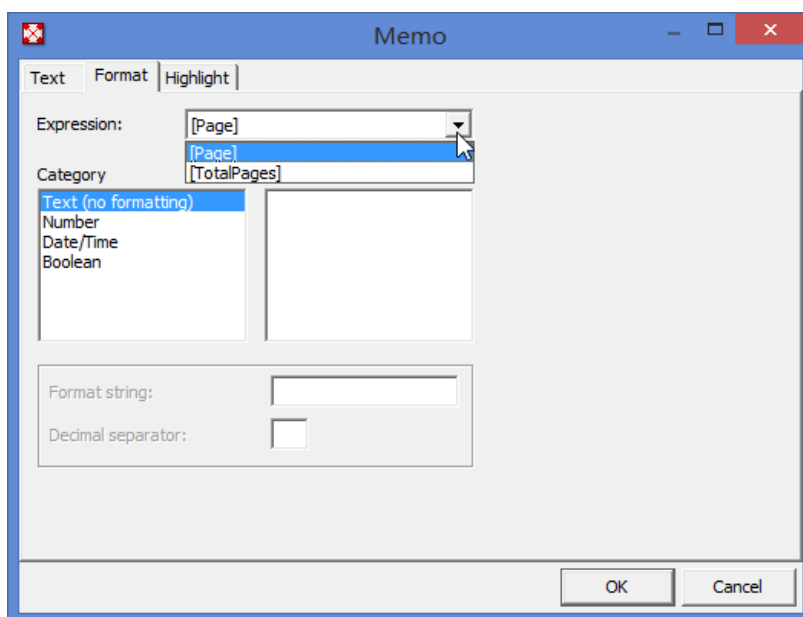
- Fixed 'Reprint On New Page' and group keeping bugs.

Result of an undefined division displayed differently in Custom reports

In earlier versions of CostX®, if any field was used in a division expression as the denominator but did not have a value in the workbook, the relevant Memo object would return "INF" (infinite) in the output report. Now, the value "NAN" (Not a Number) will be returned instead.

You can use the **IIF** function to define a different output value if desired. For example, to return a blank value when a value is not specified for the denominator in the expression *[<Workbook Level 1."Quantity (as Number)"> / <Workbook Level 1."Rate (as Number)">]*, use the function as follows:

[IIF(<Workbook Level 1."Rate (as Number)"> <> 0, <Workbook Level 1."Quantity (as Number)"> / <Workbook Level 1."Rate (as Number)">, '')]

Other improvements

- Significantly improved **Custom Reports Guide** to be more comprehensive and easier to follow. Additional relevant information about using the report engine is provided as well as a simple to understand scripting introduction. The guide can be used as a guide for beginners wanting to learn custom reports, and it can also be used as a reference for advanced users wanting to look up detailed information about specific topics.

- Several other bug fixes for Custom and Standard workbook reports.

- Many additional minor improvements.

Other

- CostXL now supports Excel 2019.

- The system requirements have changed. Please review the CostX® and CostX® Server System Requirements documents for full details, and take note of the following in particular:

  - Several changes to the supported versions of the Windows operating system including removal of support for some older versions, and requirement to update to the latest service pack for more recent versions. To ensure compatibility and security, it is recommended that customers upgrade to the latest Windows Service Pack and all Windows Updates are installed.

  - The required runtime libraries have changed. Microsoft Visual C++ 2015 Redistributable Update 3 64-bit runtime libraries are now required for both CostX® and CostX® Server. To load CPI drawings (.CPIXML files) (supported in the 64-bit version of CostX® only), Microsoft .Net Framework 4.5 is also required.

  - The minimum and recommended RAM for CostX® Server has increased.

- Installation now includes additional checks on the hardware resources available on the computer and optimises the database configuration file for better performance.

The CostX® Range of Estimating Solutions

Our range of CostX® products recognise that different companies' estimating requirements are not all the same. CostX® is now in wide-spread use amongst commercial and residential builders, large and small sized quantity surveying firms, subcontractors in all trades and government departments. The product range available allows each customer to choose a cost-effective estimating solution to suit their needs now and in the future. Our innovative CostX® product range includes:

FEATURE	CostX®	CostX® 2D	CostX® Takeoff	CostX® Takeoff 2D
BIM models / 3D drawings	●		●	
2D drawings (incl. PDFs)	●	●	●	●
Auto-Revisioning	●		●	
Workbooks	●	●		
Subcontractor Comparison	●	●		

CostXL

CostXL allows you to link CostX® data directly into your Excel® spreadsheets.

CostX® Viewer

CostX® Viewer makes it easy to freely share your CostX® projects with anyone.

Contact Us

Exactal welcomes your feedback on this document. If you have any queries, comments or suggestions please use one of the contacts below in your local region.

INTERNATIONAL | www.exactal.com | sales@exactal.com

Australia BRISBANE/SYDNEY +61 7 3300 6222	Hong Kong +852 5804 4622	New Zealand AUCKLAND +64 9 309 2026	Malaysia KUALA LUMPUR +60 3 4065 7060
Singapore +65 3159 0466	United Kingdom LONDON +44 203 597 7566	United Arab Emirates DUBAI +971 4 550 9358	United States AUSTIN +1 (512) 768 8111