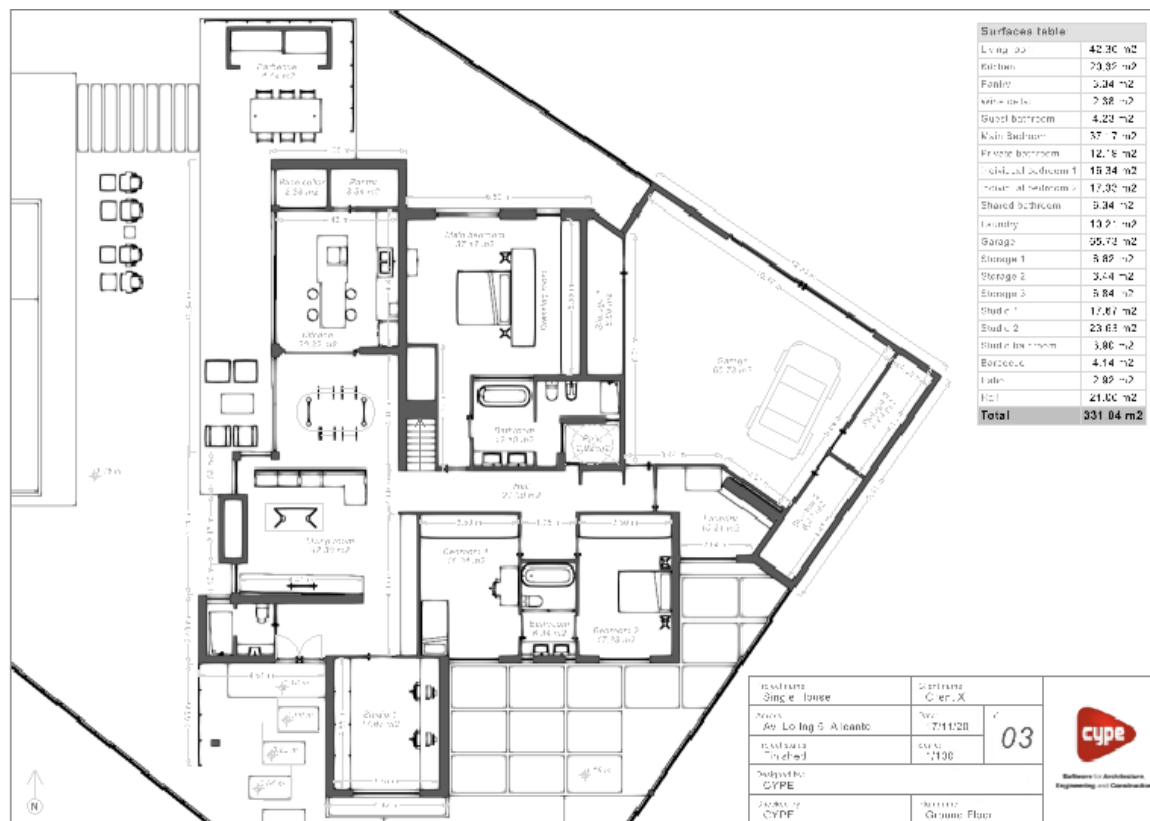


*Program for creating and printing drawings
from BIM models*

















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1 Main programme features

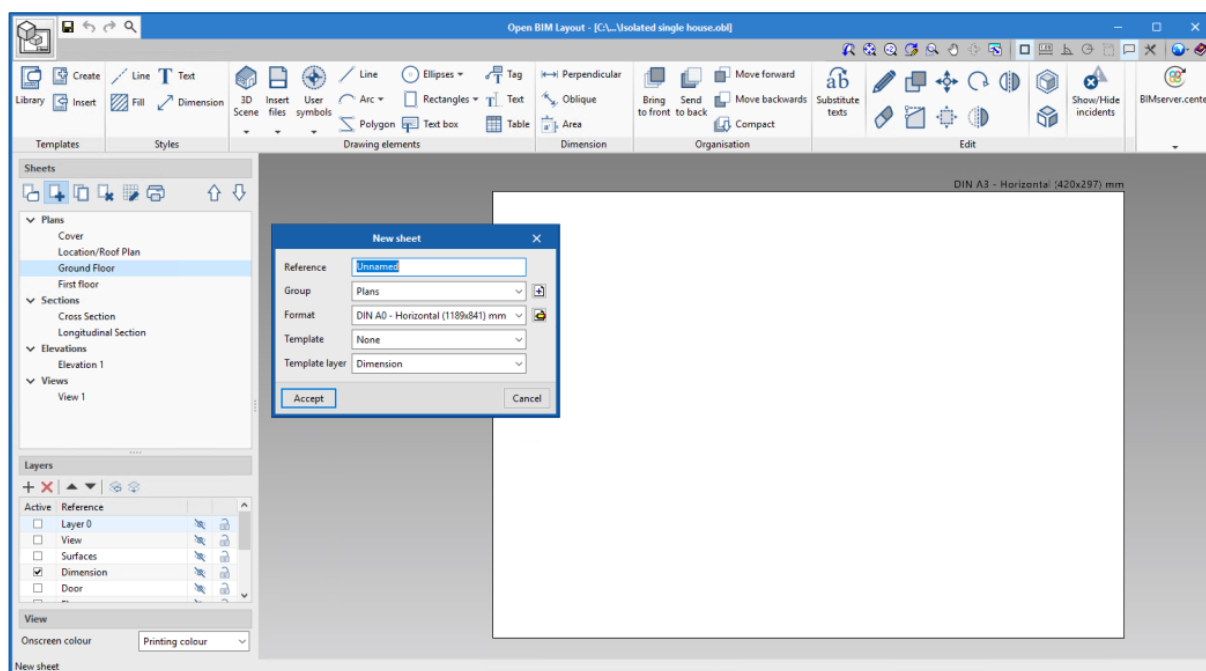
In order to start working with Open BIM Layout, it is important to be familiar with the following programme features:

Open BIM Layout **is a free tool designed to compose drawings from BIM models.** The programme is integrated in the Open BIM workflow, which allows you to import models from different disciplines and developers (Revit, ArchiCAD, Allplan, etc.) stored in the BIMserver.center platform.

	Sheets	<i>Allows creation of sheets where you can assemble the project.</i>
	Layers	<i>Allows organisation of programme elements.</i>
	Templates	<i>Allows loading of either user generated or example templates.</i>
	Drawing elements	<i>Allows adding of lines, arcs, dimensions, and tables, among other elements.</i>
	Styles	<i>Allows assigning of display and printing values to lines, texts, dimensions and fills.</i>
	3D Scene	<i>Allows insertion of project views stored on BIMserver.center.</i>
	Tag	<i>Allows extraction of information from the 3D Scene elements.</i>
	Dimension	<i>Allows dimensioning of lengths and areas of the 3D Scene.</i>
	Organisation	<i>Allows organisation of drawing elements for a correct screen view.</i>
	Insert file	<i>Allows insertion of images and CAD files, and the management of the line colour, type and thickness of the CAD layers.</i>
	User symbols	<i>Allows saving and loading of user created symbols to be reused later.</i>
	Substitute texts	<i>Allows substitution of keywords with specific project data.</i>
	Print	<i>Allows printing of sheets in PDF and via printing devices.</i>

2 Quick start

2.1 Working in the paper space: Creating sheets and loading templates



Open BIM Layout is a tool made to create project drawings, thus, the interface of the programme is centred on working with *Sheets*.

In order to start working in Open BIM Layout, the first step is to create a *New sheet* and choose the paper size format on which the plan will be depicted.

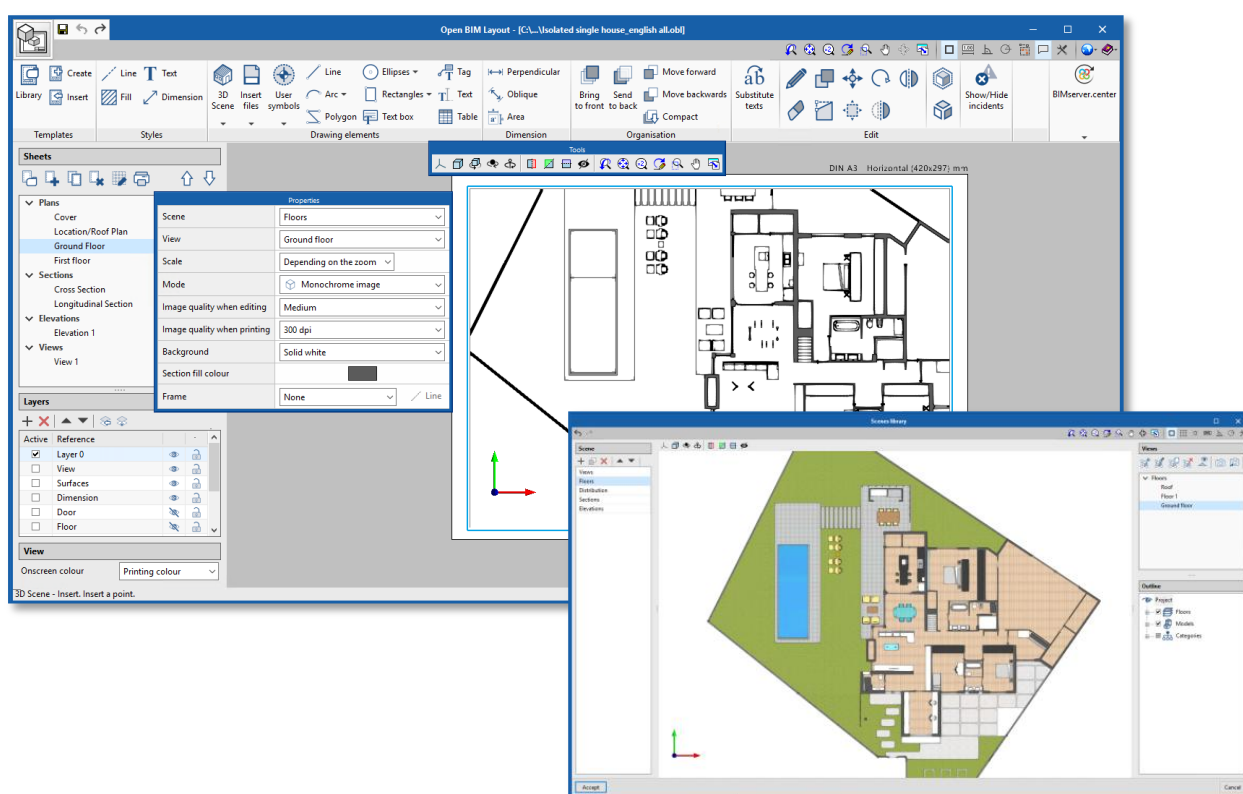
The sheet can be given a name and added to a group. The programme allows the loading of a template, for example, a haunch.

The sheet will be drawn on the interface and its size will be displayed in the upper right-hand part of the interface.

2.2 Inserting project models: 3D Scene

Once the sheet is created, the next step in setting up the drawing is to introduce the model. To do this, select the **Library** function found in the **3D Scene** button.

The library allows the creation of scenes which can later be inserted into the sheets. Every scene can contain different views and categories of elements. It is possible to choose which elements will be displayed in each sheet via the *Outline* panel.



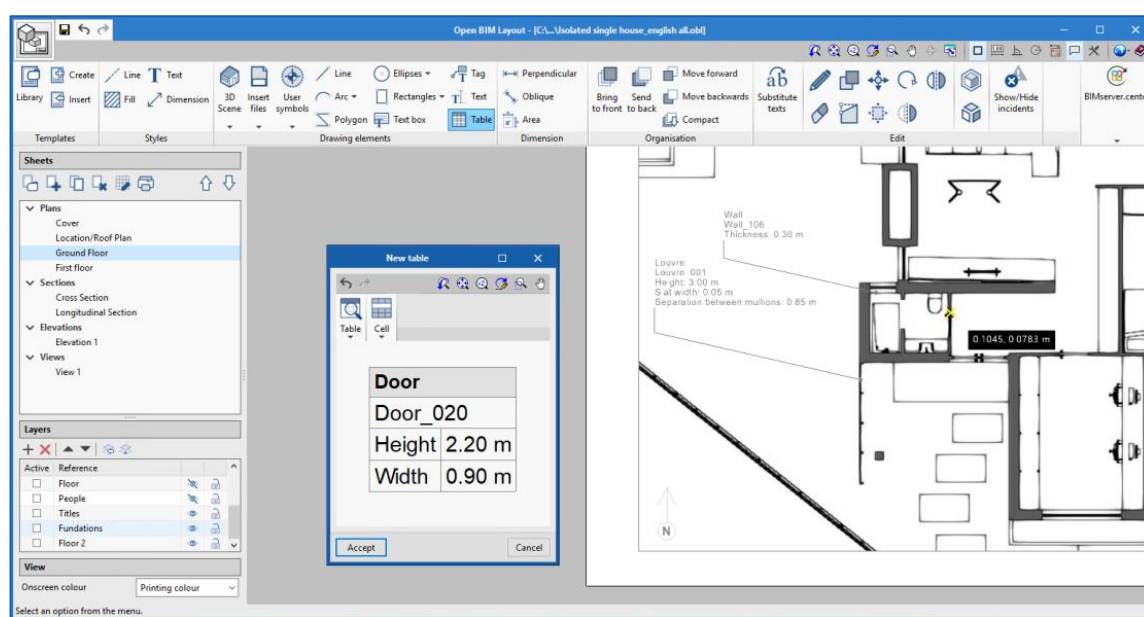
To insert a scene in the sheet, you must click **Insert** in **3D Scene** and draw a box where you want to insert the new scene.

Once the box is drawn, it is possible to choose the desired scene and view. In addition, you can choose between various additional options such as scale, editing and printing image quality, and colour or monochrome drawing modes, among others.

From this panel you can also choose a point of view, rotate the scene, and more.

2.3 How to extract information from the 3D Scene: Tags and Tables

The models stored on the BIMserver.center platform are not only graphical representations of a project, but also contain information. This information is accessible in Open BIM Layout via the **Tag** and **Table** functions.



Tag and **Table** allow us to extract the data associated with every element in the model. After clicking the **Tag** or **Table** buttons, and then clicking on a model element, its information will be displayed in text format.

2.4 How to draw on sheets: Layers, drawing elements and styles

By using the drawing elements of Open BIM Layout you can compose your project sheets.

All drawing elements contain line, text, fill and dimension styles, and will be associated with a given layer. The drawing elements can also be grouped. The programme allows us to create templates from the drawing elements.

The drawing elements are as follows:

- **Drawing.** Inserts lines, arcs, polygons, ellipses, and rectangles.

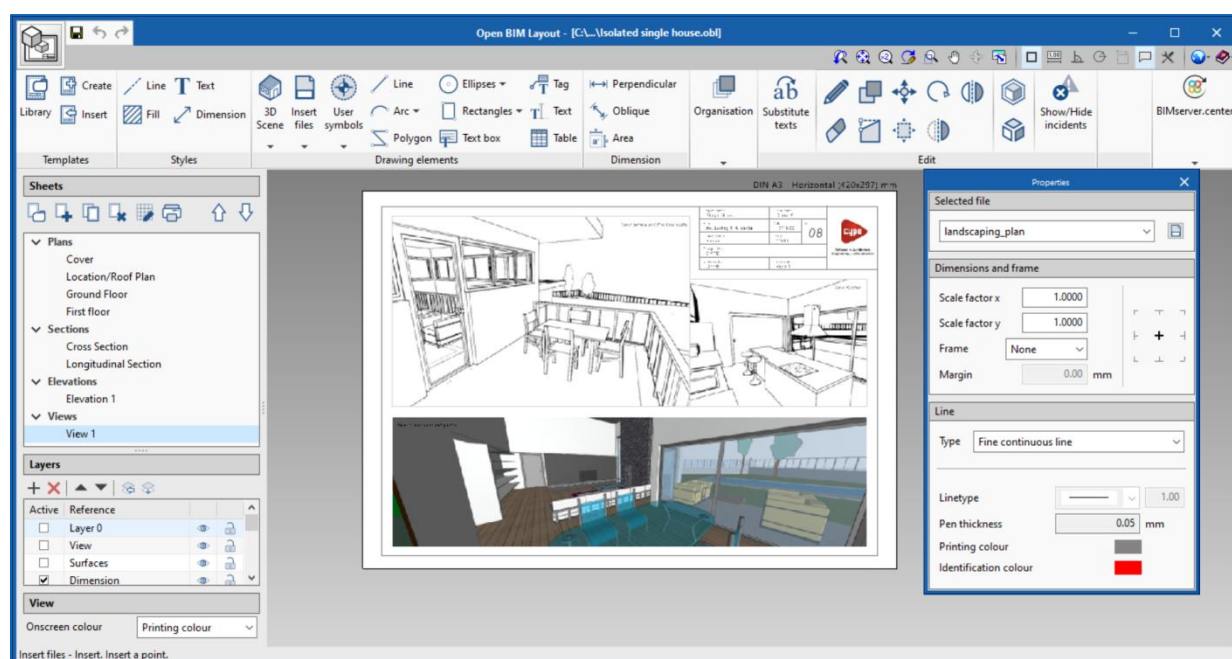
- **Dimension.** The dimensions snap onto the 3D scene of the sheet.
- **Tables.** Inserts personalised tables into the sheet.
- **Text.** Inserts text in the form of lines or boxes.

Styles allow for control of the display and printing properties of lines, texts, fills and dimensions, such as pen thickness and printing colour.

2.5 How to insert external files

The Open BIM Layout programme allows external files, such as images and DWG/DXF files to be inserted. To insert a file, go to the library and select the file you want to import.

If the imported file is CAD, the pen thickness, print colour, and identification colour can be edited via the button **Layers of inserted DXF or DWG files.**



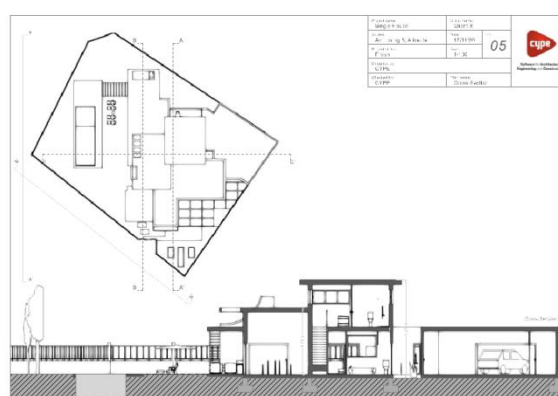
2.6 How to print project sheets

Once the project sheets are assembled, you can print in Open BIM Layout.

Click on the **Print** button and select the sheets and device through which you want to print the drawings. The programme will notify you in the Status column if any of the introduced elements are outside of the printing area.

The programme allows you to print in the following ways:

- **Local printer.** Use a printer or other local device in order to print your files.
- **PDF printing.** Export your files to PDF and add them to your prescriptive specifications.
- **Other printing options.** The programme allows users to print in partial vector DWG and DXF format.

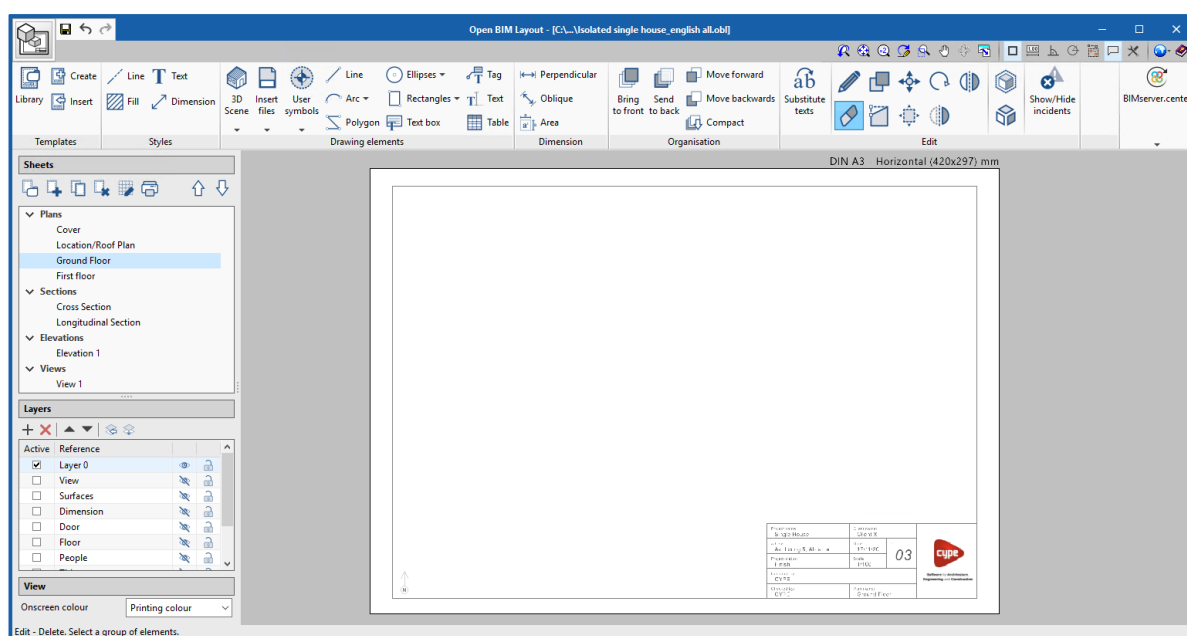


3 Step by step

3.1 Tour of the interface

The Open BIM Layout programme interface is divided into three parts: the upper toolbar, the panel on the left side of the screen, and the sheet in the centre.

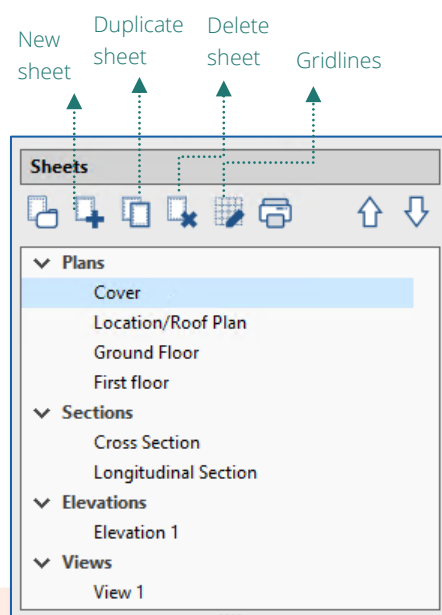
- **Toolbar.** From here you are able to create and load templates, edit printing styles, draw elements, insert 3D scenes, introduce images or .dwg files, dimension, and create and load symbols, among other functions.
- **Left-side panel.** Contains two main functions: create and manage the project sheets, and manage the drawing layers.
- **Sheet display.** The programme interface that is centred on the sheet of paper where the project is assembled.
- **Other bars.** There is an additional small bar at the very top of the programme, and another on the bottom. Both bars are found in all CYPE programmes and contain functions such as screen capture, dimensioning upon the introduction of an element, description of the next steps to follow, and more.



3.2 Sheets

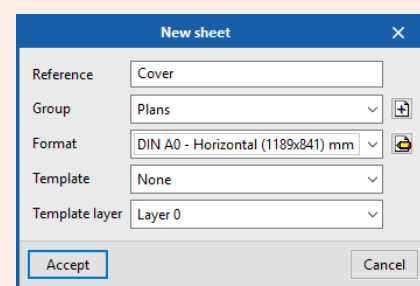
The Open BIM interface is designed to facilitate the composition of sheets for the completion of your project, where all of the assembly is done on the sheet of paper.

The sheets are managed via the upper part of the left-side panel of the interface. From the *Sheets* section, you can edit, create, copy and delete sheets. It is also possible to activate or deactivate the gridlines and print the templates in different formats (See section 3.10 *Printing*).



Steps to create a new sheet:

1. Click the **New sheet** button.
2. Write a reference or name for the sheet.
3. Add the sheet to a group if you wish.
4. Choose between standard DIN and ANSI formats or choose the sheet size manually.
5. Lastly, you can load a template and select its template layer.

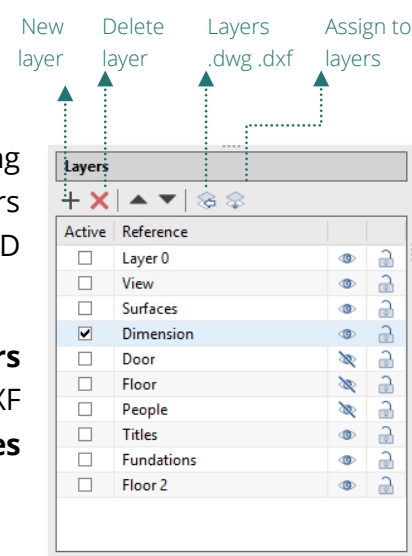


These steps will add the new sheet to the list of sheets on the left-side panel. From here, you can move between the sheets and assemble your project.

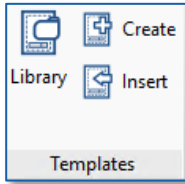
3.3 Layers

Open BIM Layout operates with a system of layers allowing the user to organise the drawing as they wish. The layers contain the following drawing elements: lines, text, 3D scenes, and external files, among others.

The layer objects can be changed via the **Assign to layers** button. It is also possible to manage imported DWG/DXF object layers via the **Layers of inserted DWG or DXF files** button.



3.4 Templates



The Open BIM Layout programme allows the user to create or import templates for use in their sheets, which saves time drawing by letting the user reuse their templates in future projects. The included example templates can also be used.

3.4.1 *Creating templates*

A template is made up of drawing elements: lines, texts, images, etc. Templates are created from a layer in the *Layers* section of the side panel. To create a template you must insert all of the drawing elements into the same layer.

Steps to **create a new template**:

1. Create a new layer where the template will be drawn.
2. Draw the template with the drawing elements.
3. Click on the **Create** button.
4. Chose a reference name for the template and the object layer where the template was drawn in order to load it.

These steps will add the template to the Open BIM Layout template library which is found by clicking on the **Library** button. These templates can be later loaded into other sheets and projects.

3.4.2 *Inserting templates*

From the **Insert** button, templates previously created and saved in the Open BIM Layout project can be loaded. Different methods exist to load a template. It is important to remember that templates are normally designed for a specific paper size.

- **Load a template into a new sheet.** When creating a new sheet, you can directly load one of the templates available in the programme into the sheet.

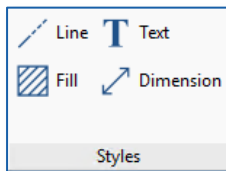
- **Load the template into an already created sheet.** If you have previously created a sheet and now want to insert a template, click on the **Import** button and select the template.
- **Load a template into another project.** If you want to load the project template into a different project, you must first export the template from the template library. By doing this you can locally save the templates you create in order to be reused in other projects.

3.4.3 *Template library*

From the template library it is possible to view and manage the project templates. In this section you can save the templates created locally using the Export the element to a file button to be able to use it later in other projects.

With the **Import elements saved in the drive to the project** button, a template that has been saved locally is loaded.

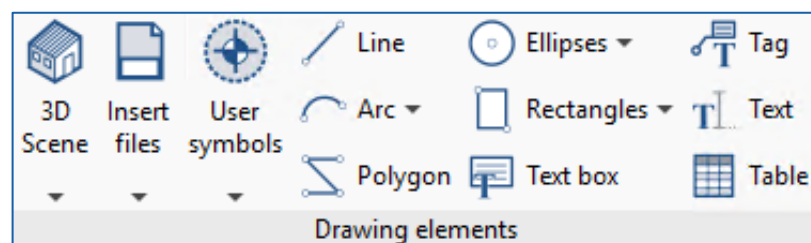
3.5 Styles



Styles allow you to define display and printing values of drawing elements for a correct visual representation. It is possible to edit line, text, dimension and fill styles; and to create custom styles, save them and use them later for other projects.

1. **Line.** Line type, scale factor, pen thickness, printing colour, and identification colour.
2. **Text.** Font, size, style, and printing colour.
3. **Fill.** Type, hatch spacing, pen thickness, printing colour, and identification colour.
4. **Dimension.** Initial and final symbol, symbol size, origin offset, text with units, font, and print colour.

3.6 Drawing elements



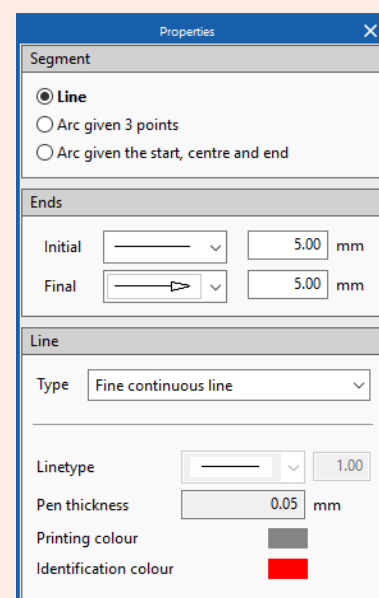
The drawing elements section allows the insertion of a wide variety of drawing elements on the sheet such as a line or 3D scene, or even tags, texts and tables. Below, the main drawing elements are described.

3.6.1 *Lines, arcs, rectangles, ellipses and polygons*

Lines, arcs, rectangles, ellipses and polygons allow you to draw in the sheet space, for example, title blocks and symbols, among other elements. In this way, the programme allows you to draw the elements necessary for the composition of the sheets.

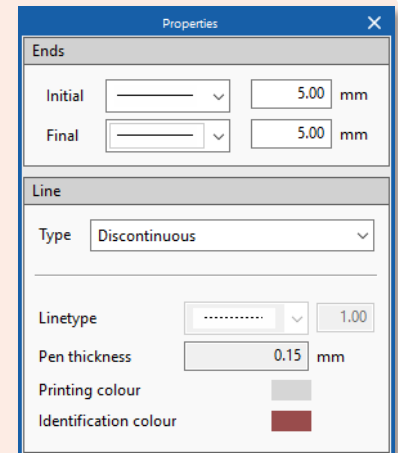
Steps to **draw lines**:

1. Click the **Line** button.
2. Choose the type of segment you want to create: line, arc given three points, or arc given start, centre and end.
3. Choose a symbol for the ends of the line: such as a circle, square, or arrow.
4. Choose the line type that you wish to introduce from the styles library.
5. Click on the template to introduce the first point of the line.
6. Click on the second point to introduce a line.
7. Consecutive lines can be introduced by clicking on a third point.
8. Different types of segments can be connected together.
9. To finish introducing lines, click the right mouse button.



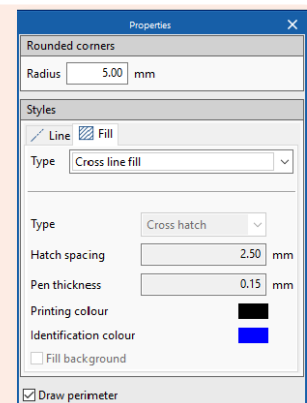
Steps to **draw arcs**:

1. Click the **Arc** button.
2. You can choose to introduce a three point arc or an arc with a given centre, start and end.
3. Choose a symbol for the ends of the line: such as a circle, square, or arrow.
4. Choose a line type that you wish to introduce from the styles library.
5. Click on three points on the screen to introduce the arc.
6. Click on the second point of the arc.
7. Finally, click on the third point of the arc.



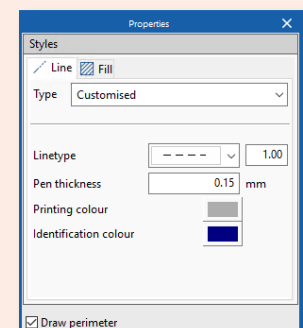
Steps to **draw rectangles**:

1. Click the **Rectangles** button.
2. You can choose to introduce a "straight corners" rectangle or a "rounded corners" rectangle.
3. Choose the line and fill type that you wish to use from the styles library.
4. If you have chosen "rounded corners", enter the radius of the corners.
5. Click on two points on the screen to insert the rectangle.



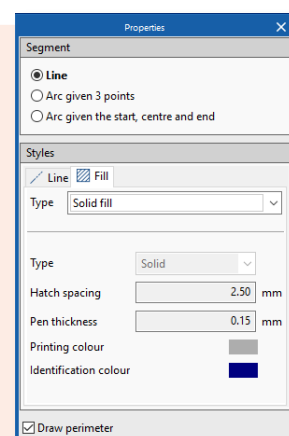
Steps to **draw ellipses**:

1. Click the **Ellipses** button.
2. You can choose to introduce a "circle" or an "ellipse".
3. Choose the line and fill type that you wish to use from the styles library.
4. If "circle" is selected, draw the radius of the circle on the screen.
5. If "ellipse" is selected, draw the rectangle on the screen into which the ellipse is inscribed.



Steps to **draw polygons**:

1. Click the **Polygon** button.
2. Select the segment type you wish to create: line, arc given three points or arc given start, center and end.
3. Choose the line and fill type that you wish to use from the styles library.
4. Draw the perimeter of the polygon on the screen while making as many clicks as necessary.
5. To close the polygon, click with the right mouse button.

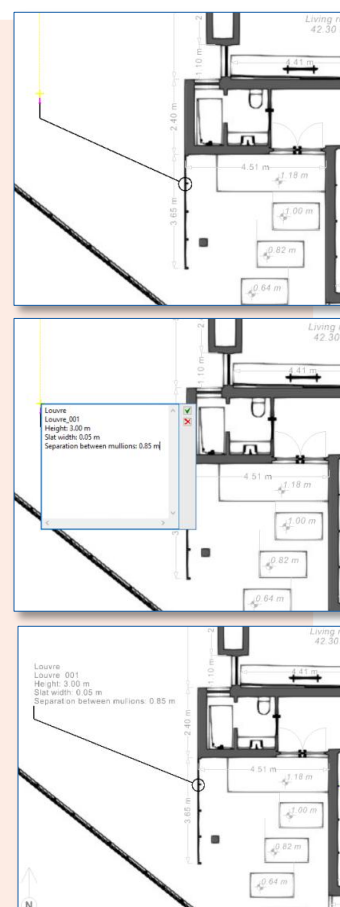


3.6.2 Tags

Open BIM Layout *"tags"* allow you to extract information from the BIM model. When you click on an element of the previously inserted *"3D Scene"*, the tag will automatically detect the element and extract the data associated with it. You can also create a tag without associating it to any element and enter the text manually.

Steps to **insert tags**:

1. To insert a tag and extract information you must have previously inserted a *3D Scene* from the *Drawing elements* group.
2. Click on the **Tag** button.
3. Choose a symbol for the ends of the *"tag"*: such as a circle, square, or arrow.
4. Choose if you want to draw the frame of the tag and the tag positioning with respect to the insertion line.
5. Choose the line and fill style you want to use from the style library.
6. Click on an element in the 3D scene. As you can see, the scene elements are now able to snap.
7. Click to enter the first section of the tag line.
8. Click to enter the second section of the tag line. Now you will see that a panel appears with the characteristics of the element that you have just clicked on.
9. You can edit the tag text at this time.
10. Click **Accept** in the text pane to insert the tag.

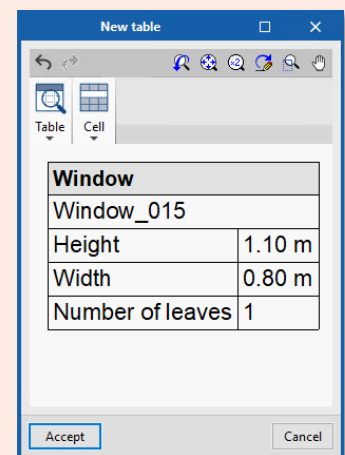


3.6.3 Tables

The Open BIM Layout programme allows for the creation of tables from scratch, and also the extraction of information from the *3D Scene* in the form of a table. From the *Table* panel you can manage texts, lines and fills, as well as the rows and columns of the table.

Steps to **create a "table" with information from the "3D Scene"**:

1. Click the **Table** button.
2. Click on an element of the 3D scene, as you can see the elements in the scene are now able to snap.
3. A panel will open automatically with a new table that contains the available information about the element.
4. The table and its data can be changed from this panel.
5. Click **Accept** on the panel. The table will be inserted onto the sheet.
6. Now you can move the table and arrange it on the sheet by clicking and dragging any of the green points on the perimeter.



3.6.4 3D Scene

3D scenes are one of the most important drawing elements in Open BIM Layout. This function allows you to insert views of 3D models hosted on the BIMserver.center platform thanks to the Open BIM workflow.

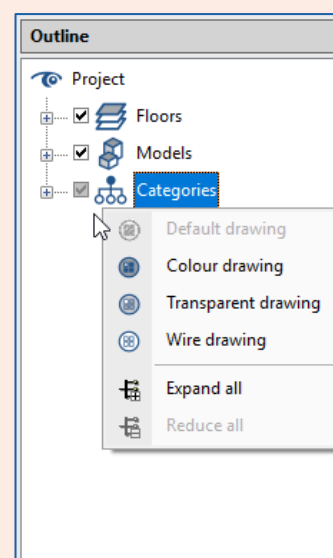
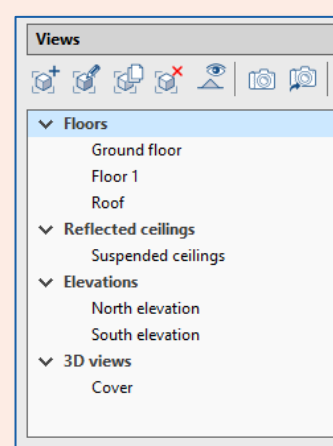
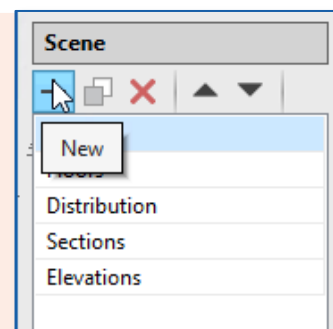
3D Scenes library:

From here you can create and manage scenes, create views, and choose the model elements to be displayed in each scene. Scenes can be viewed in conic or axonometric perspective.



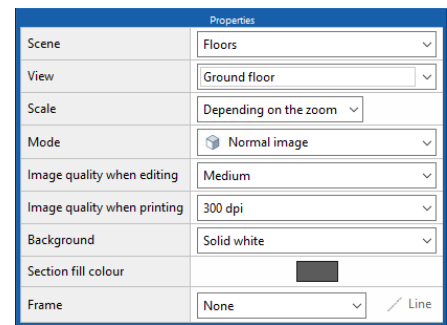
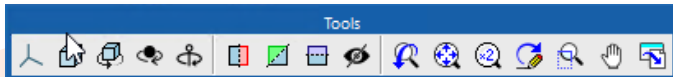
Steps to **create 3D scenes**:

1. Access the **Library** of **3D Scene**.
2. Click the **New** button in the upper-left part of the window.
A new scene consisting of the building floors and a 3D view will be automatically created.
3. You can change the name of the scene by double clicking on it.
4. The "Views" panel located on the right side of the window allows you to create, edit, and delete views.
5. Create a new view using the **Create** button on the **Views** panel. Choose the type of view you wish to create from those available in the list.
 - a. If you have chosen *Floor* or *Reflected ceiling*, select the point on the screen where you want the view to be situated. This will automatically create a new view at the selected elevation.
 - b. If you have chosen *Section* or *Elevation*, first choose the section plane and then the view direction.
6. To change the display range of the newly created view, you must double click on the name of the view.
7. You can edit the visibility of the view elements from the **Outline** panel. From this panel you can view and hide floors, different models stored on BIMserver.center, or the various element categories.
8. You can make the **Outline** section elements display as transparent or as wire drawings by right-clicking on them.
9. To finish editing the scenes **Library**, click **Accept** in the lower-left of the window.



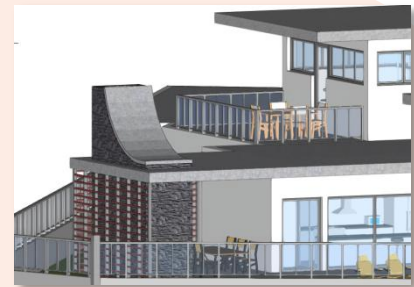
Inserting 3D scenes:

Once the scenes are created, it is time to insert them into the sheet. The **Insert** option in *3D Scenes* allows you to choose the scene, the scale, the colour or the printing image quality, among others options.



Steps to insert a 3D scene:

1. To insert a scene, click on the **Insert** button within the *3D Scene* section.
2. Double-clicking on the screen introduces a box which contains the scene inside of the sheet space.
3. Upon the second click, two panels open automatically, with *Properties* on the right and *Tools* above.
4. In the *Properties* panel:
 - a. Choose the scene that you wish to insert from the drop-down menu *Scene*.
 - b. Select the scene view that you wish to insert from the drop-down menu *View*.
 - c. Choose a scale for your model: depending on zoom, scale divider, or predefined from a list.
 - d. Next choose if you want to view the document in *Normal* or *Monochrome* mode, from the drop-down menu *Mode*.
 - e. Choose the editing and printing image quality of the document.
 - f. Select the section fill colour.
 - g. Apply a frame to the scene if you wish.
5. If desired, the tool panel can be used to:
 - a. Change the projection type, rotate, and section the model without having to go to the library.
 - b. Print the current scene individually at the resolution chosen by the user.



Once the scene has been inserted, it is fixed on the sheet as an image. From the *Insert scenes* panel, both the display quality within the programme and the print quality can be chosen. The display quality and the print quality may not correspond on screen, as print quality is always higher than display quality.

3.6.5 Inserting external files

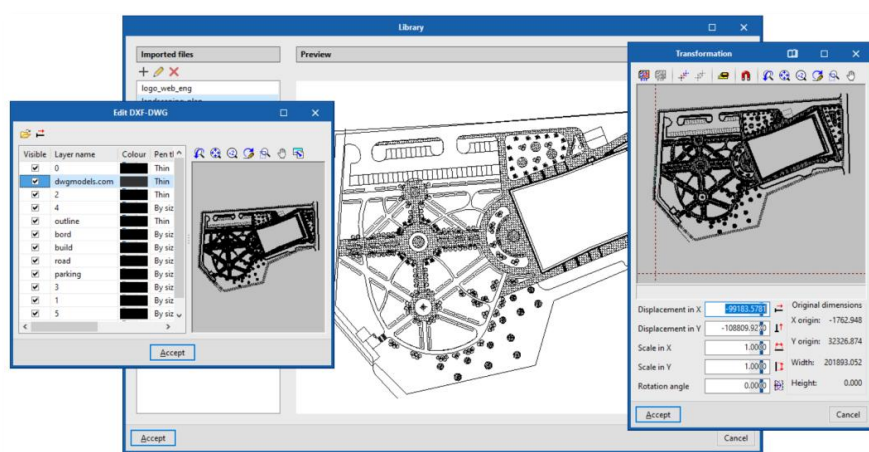
Open BIM Layout allows the insertion of external files, such as images and vector drawings, in order to complete the project information. The programme imports the following formats: dxf, .dwg, .dwt, .jpeg, .jpg, .bmp, .wmf, .emf, .pcx.

It is important to know that .dxf/.dwt also import layers. From the **Layers of inserted DXF or DWG files** option in the section "Layers", the programme allows you to modify the thickness and colour of a layer's lines while using this file type.

The **Insert files** button is divided into two functions: the **Library** of external files, from where the files are imported into the programme, and the **Insert** option, for choosing the size and position of the element being inserted.

Steps to import files into the "Library"

1. Enter the *Library* from the **Insert files** button.
2. Click the **Add** button found in the upper-left part of the window.
3. A panel will automatically open where you can select the file stored on your computer that you wish to import.
4. Click the **Open** button.
5. If you have inserted a .dxf or .dwg file, you can edit the layers that you wish to import, the scale, and the rotation of the file.



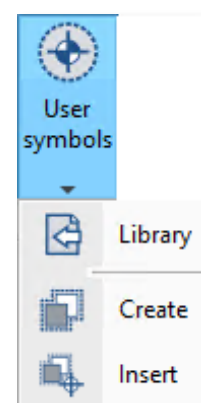
Steps to **insert "External files"**:

1. Press **Insert** from the button **Insert files**.
2. From the *Properties* panel, choose the file you wish to insert.
3. The scale can be changed from *Dimensions and frame*.
4. You can choose different insertion points of the file.
5. If you wish, you can include a frame and choose its line type.

3.6.6 *User symbols*

User symbols are created from *Drawing elements* and can be, for example, people, trees, geographic north, title blocks, and more. It is possible to create a *User symbol* by using lines, arcs, polygons, texts, and tables.

Within the **User symbols** button three options exist: **Library**, **Create** and **Insert**. The "user symbols" can be saved locally in order to be used later in other *sheets* or projects via the **Library** option.

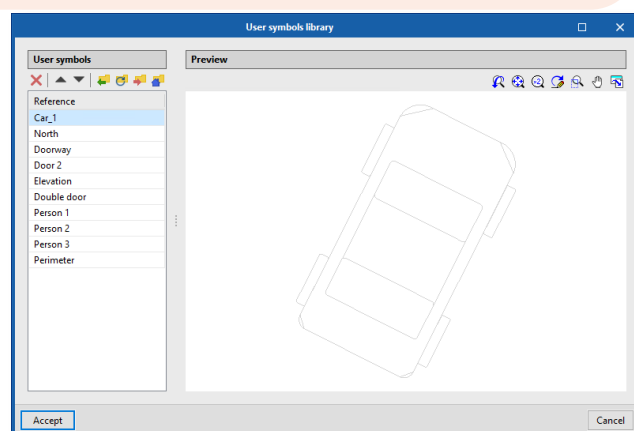


Steps to **create "User symbols"**:

1. From the **User symbols** button, choose the **Create** option.
2. Select the drawing elements on the screen that will make up the symbol.
Select a *group of drawing elements*, or select the drawing elements by clicking and dragging a box around them.
3. Enter the reference for the symbol and press accept.
4. The new user symbol will be added to the *library* automatically.

From the **Library** of user symbols it is possible to see the symbols that are loaded into the project, as well as import and export the user symbols to be reused in other projects.

Once the drawing elements that make up a *user symbol* are introduced, they can be edited individually. For example, it is possible to edit the style of a line or a text.

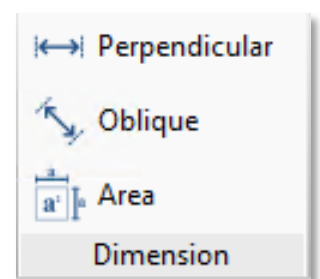


Steps to **Insert "user symbols"**:

1. To be able to load a *user symbol*, you must have already created one, or loaded one from the "library".
2. Click on the **User symbols** button and choose the **Insert** option.
3. From the *Reference* section of the panel, choose the symbol that you wish to insert from the drop-down list.
4. You can see the user symbol that will be inserted in the lower part of the panel.
5. You can insert the symbol with an angle, as well as choose from which point you want to insert it.
6. To insert the symbol, click on the screen.
7. You can insert the symbol as many times as you want.
8. To stop inserting *user symbols*, click the right mouse button.

3.7 Dimensioning

Open BIM Layout allows you to dimension the scenes of your project to generate all of the necessary information in your drawings. Remember that you can modify the dimension styles from the *dimensions* section within the *styles* group: start and end symbol, symbol size, origin offset, units, font, print colour, and line type.



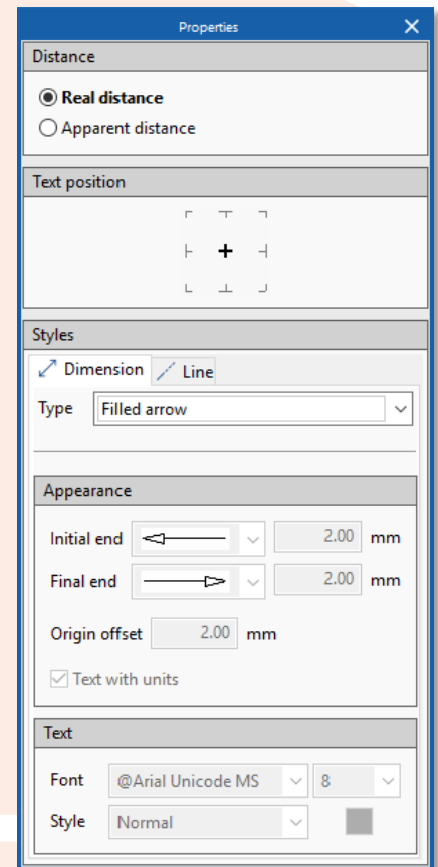
3.7.1 *Perpendicular and oblique dimension*

Two types of dimensions exist in Open BIM Layout, perpendicular and oblique. The main difference between the two is that the oblique dimension allows you to choose the direction in which you want to draw the dimension.

It is important to know that the dimensions can measure either the *real distance* or *apparent distance* of the inserted 3D scene. For example, if there is a roof 2m in length with a 30% slope, the *real distance* would be 2m and the *apparent distance* would be 1.92m. The *apparent distance* is, thus, the projection of the *real distance* on the plane of a given view.

Steps to **create "perpendicular dimensions"**:

1. Click on **Perpendicular dimension** in the *Dimension* group.
2. You can choose *real distance* or *apparent distance* in the scene.
3. Choose the *text position* of the dimension with respect to its line.
4. Choose the *styles* of the dimension and line.
5. Click to make the first point of the dimension.
6. Click to make the second point of the dimension.
7. Extend the dimension laterally to set a distance from the origin of the insertion.



Steps to **create "oblique dimensions"**:

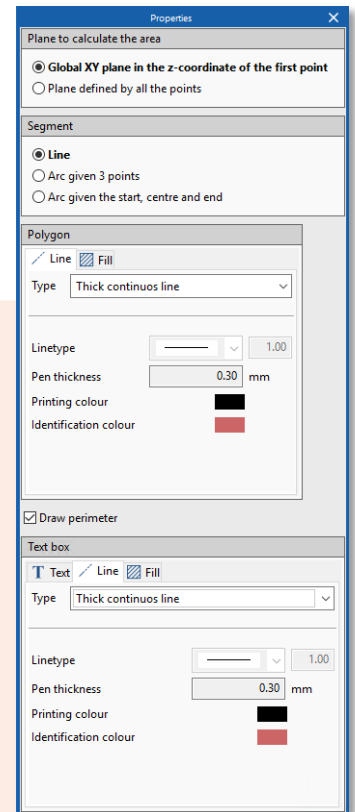
1. Click on **Oblique dimension** in the *Dimension* group.
2. You can choose *real distance* or *apparent distance* in the scene.
Normally, it is dimensioned with the *real distance* unless it is intended to dimension a sloping element such as a roof where the *apparent distance* will be used.
3. Choose the *text position* of the dimension with respect to its line.
4. Choose the *styles* of the dimension and dimension lines.
5. Click to make the first point of the dimension.
6. Click to make the second point of the dimension.
7. Click on the first point to set the direction the dimension will extend to.
8. Then, click on the second point to set the direction the dimension will extend to.
9. Extend the dimension laterally to set a distance from the origin of the insertion.

3.7.2 Area

The **Area** function can be found within the dimension group of the toolbar. With this feature it is possible to measure surfaces in the 3D Scene and output their area in text format.

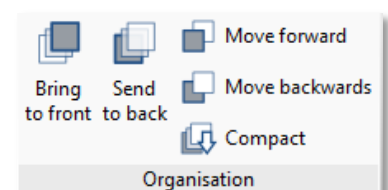
Steps to **dimension "Areas"**:

1. To measure an area you must draw the polygon that contains it by clicking on the elements of the 3D scene on the screen.
2. While introducing, and using the **Edit** button, you can choose the styles of the line and fill for both the text box as well as the polygon that defines the surface.
3. One by one, click the points that define the surface that you wish to extract the area measurement from.
Once the surface is closed, choose where to insert the text with the area measurement.
4. Add a text manually if you wish, this text will be accompanied by the area measurement.
5. Click **Accept** on the panel, and the measurement with the text and the polygon containing the surface will appear drawn on the sheet.



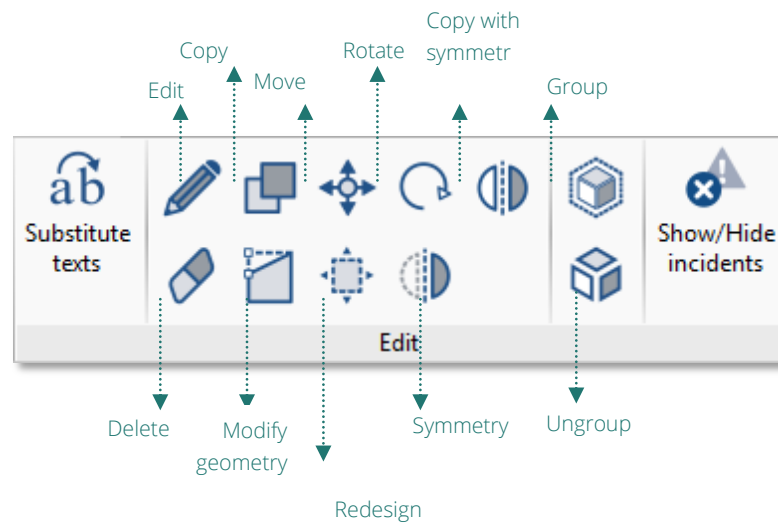
3.8 Organising

The *Organisation* group contains the necessary tools to control the order of overlapping drawing elements. In the *Organisation* group there are five functions: bring to front, send to back, move forward, move backwards, and compact.



- **Bring to front.** Puts the selected element in the front-most position among all other overlapping elements.
- **Send to back.** Puts the selected element in the last-most position among all other overlapping elements.
- **Move forward.** Moves the selected element one place forward among all other overlapping elements.
- **Move backwards.** Moves the selected element one place backwards among all other overlapping elements.
- **Compact.** Reduces the space between the drawing elements as much as possible while maintaining the relative order between them.

3.9 Editing



- **Edit.** From the **Edit** button you can modify the characteristics of the drawing elements and 3D scenes. When you click on the **Edit** button and then click on a drawing element, the different editing options will appear. Click **Accept** on the panel and the element will be modified.
- **Copy.** You can copy one or more objects at the same time with the **Copy** button. First select the objects you want to copy, either one by one or by dragging a box around them. Click the right mouse button and choose the point from where you want to copy the elements. Press the right mouse button and choose where you want to copy the objects to. Remember that you can use the **Allows for dimensions to be defined upon introducing each element** button to copy them a certain distance.
- **Move.** You can move one or more objects at the same time with the **Move** button. First select the objects you want to move, either one by one or by dragging a box around them. Click the right mouse button and choose the point from where you want to move the elements. Click the right mouse button and choose where you want to move the objects to. Remember that you can use the **Allows for dimensions to be defined upon introducing each element** button to move them a certain distance.
- **Rotate.** You can rotate one or more objects at the same time with the **Rotate** button. Select the objects you want to rotate, either one by one or by dragging a box around them. Click the right mouse button and choose the point from where you will rotate the elements. Choose the rotation angle. Remember that you can use **Allows for dimensions to be defined upon introducing each element** button to rotate a given angle.
- **Symmetry.** You can create a mirror image of one or more objects at the same time with the **Symmetry** button. Select the objects on which you want to mirror, either one by one or by dragging a box around them. Press the right mouse button and draw the

line of symmetry on the screen. This will draw the mirror image of the elements and erase the original ones.

- **Copy with symmetry.** You can create a mirror image of one or more objects at the same time with the **Copy with Symmetry** button. First select the objects which you want to mirror, either one by one or by dragging a box around them. Press the right mouse button and draw the line of symmetry on the screen. This will draw the mirror image of the elements without deleting the original ones.
- **Delete.** You can delete one or more objects at the same time with the **Delete** button. Select the objects you want to delete, either one by one or by dragging a box around them.
- **Modify geometry.** You can modify the geometry of one element at a time by moving its end points. After selecting the element that you want to modify, its yellow end points will appear from which it is possible to modify the geometry. Click on a point and move it wherever you want.
- **Resize.** Allows the resizing of drawing elements either individually or as a group. Select the elements you want to resize and a frame of green dots will surround it. Select one of the points and resize the frame, thus resizing the drawing elements that it contains.
- **Show/ hide incidents.** Shows and hides possible printing incidents, for example elements that are located outside of the sheet.

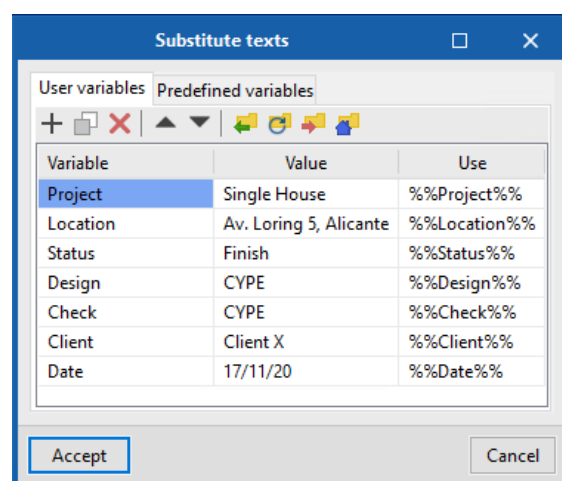
3.9.1 *Substitute texts*

The substitute texts function allows the user to replace generic texts that are repeated in all projects or in all sheets, such as the names of projects, sheets, businesses, architects, engineers, or the address.

The substitute texts function is very useful when combined with the templates function, since it permits the substitution of texts between templates of different projects.

Substitute texts is performed using a variable that will always be shown in the following way: %%text%%. Two types of *Substitute texts* variables exist:

- **Predefined variables.** Predefined variables are able to read programme data and insert it as text inside the sheets. Three predefined variables exist:



- Sheet reference: (%%shname%%) This variable will be replaced by the reference of the sheet on which you are working, from the *Sheets* section. For example, in the sheet *Location/Roof Plan* this text will appear replacing the variable.
 - Sheet number: (%%schno%%) This variable will be replaced by a number that corresponds to the position of the sheet in the *Sheets* section. This variable has two variants: with two digits (%%schno00%%) and with three digits (%%shno000%%).
 - Dimension: This variable allows you to recover the original value of a distance or surface dimension whose value has been modified manually. It is possible to recover the calculated distance (%%lmvalue%%) or the calculated surface (%%smvalue%%).
- **User variables.** The user variables allow you to create personalised variables that can be reused in other sheets or projects, such as the name of the project, the address, the architect and engineer in charge. The user variables can be saved locally and loaded later into other projects via the **Import** button.

Project name: Single House		Client name: Client X		 Software for Architecture, Engineering and Construction
Adress: Av. Loring 5, Alicante		Date: 17/11/20	nº: 03	
Project status: Finished		Scale: 1/100		
Designed by: CYPE				
Checked by: CYPE		Plan name: Ground Floor		

Project name: %%Project%%		Client name: %%Client%%		 Software for Architecture, Engineering and Construction
Adress: %%Location%%		Date: %%Date%%	nº: %%shno%%	
Project status: %%Status%%		Scale: 1/100		
Designed by: %%Design%%				
Checked by: %%Check%%		Plan name: Ground Floor		

Steps to **create a “user variable”**:

1. In the *Edit* group, click on **Substitute texts**.
2. In the *User variables* tab, click on **Add** and a new variable will be created in the variable table.
3. In the *Variable* column, choose a generic name for the variable, for example *Project*, which will be used by the programme to generate a new variable in the *Project name* cell.
4. In the *Value* column, write the text with which you want to replace the variable inserted in the sheets, for example the variable *Project* can be given the value *Single house*.

Steps to **insert a “user variable”**:

1. Variables are inserted via *Text* and *Text box*. Choose one of these two options in the *Drawing elements* group.
2. In the newly created text box, write the text of the variable that was previously created, for example, %%Project%%.
3. Click **Accept** on the text box and you will see how the variable is automatically replaced by the *Value*, in this case *Single house*.

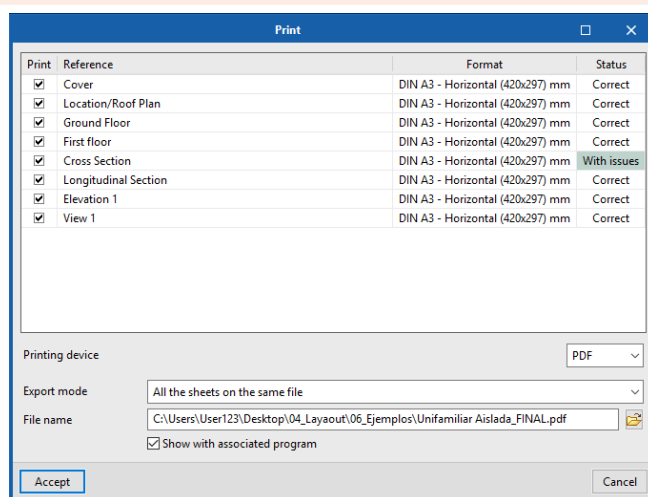
3.10 Printing

The objective of Open BIM Layout is to collect the information generate by the different programmes in the Open BIM workflow and BIMserver.center platform in order to arrange them in sheets for the official delivery of the project. Open BIM Layout allows the sheets to be printed via a local printer as well as in PDF and DWG format.

- **Local printer.** Print files directly to the printer or other local device.
- **PDF printing.** Print your files in PDF format and add them to your prescriptive specifications.
- **Other printing options.** Allows you to print in partial vector DWG and DXF format. The 3D scenes are embedded images, while any element drawn with the drawing tools will be completely vector.

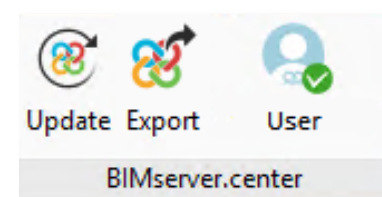
Steps to "print" via a local printer:

1. Click the **Print** button available on the left-side panel of the *Sheets* section.
2. A panel will then appear with different printing options and a table where the sheets that you wish to print can be selected using the checkboxes on the left.
3. Choose the local printing device.
4. Chose if you wish to print in black and white or in color.



Steps to "print" in PDF, DWG/DXF:

1. Click the **Print** button available on the left-side panel of the *Sheets* section.
2. A panel will then appear with different printing options and a table where the sheets that you wish to print can be selected using the checkboxes.
3. Choose the printing device: PDF, DWG/DXF. The printing options for these devices are the same.
4. Set the printing mode: you can print all of the sheets onto the same document, or create a document for each sheet.
5. Select the folder where you want to save the files.
6. After printing, you can choose to automatically open the documents with their default viewer if you choose the **Show with associated programme** option.



3.11 BIMserver.center

Once you have finished assembling your project in Open BIM Layout, you can save it and share it with other collaborators via the BIMserver.center collaborative platform. The BIMserver.center platform is an archive for your projects where you can share them and have them accessible from any device at any time. The *BIMserver.center* section is located on the right side of the toolbar.

3.11.1 *Export to BIMserver.center*

Exporting the results from Open BIM Layout to the BIMserver.center collaborative platform is very simple. Choose the **Export** option, found on the right side of the toolbar within the **BIMserver.center** button.

The programme will export the drawings to the BIMserver.center platform in PDF format as well as DWG/DXF formats.

(Spain only) **The drawings exported to the BIMserver.center platform can be loaded in the Open BIM Memorias CTE programme thus completing the II Planos section.**

3.11.2 *Update BIMserver.center files*

If during your work in Open BIM Layout, one of your partners changes their part or includes a new part in the project, the **Update** button in the BIMserver.center section will blink, indicating that there are new files or changed.

You can load the new files by clicking on the **Update** button and choosing the files that you want to download. In the *Changes* column, you can see if the files are in use, if there are changes, or if there are new files.

3.11.3 *Viewing the results on BIMserver.center*

BIMserver.center allows you to view drawings from any mobile device, tablet or computer. In this way you do not only have your drawings available in printed form, but also easily accessible at any time from your devices.

In addition to the drawings generated with Open BIM Layout, from BIMserver.center you can also access all of the information generated by the different Open BIM workflow tools.