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VectorMEP - MEP Engineering

The VectorMEP bundle is a Building Information Modeling (BIM) solution for mechanical, electrical, and plumbing engineers in Vectorworks. It also contains various utility plug-ins to increase the performance while using the Vectorworks software.

VectorMEP comes in two bundles:

VectorMEP Basic: Utilities bundle

VectorMEP Premium: Utilities + MEP engineering bundle



Utilities

VectorMEP contains the following utility plug-ins:

- [Array object](#)

The Array tool creates a linear array of selected elements.

- [Symbol Object](#)

The Symbol Object is an enhanced wrapper around a symbol with far more possibilities.

- [Guideline](#)

The Guideline tool creates axis based reference lines.

- [Class legend](#)

Create a legend of classes in your drawing.

- [Organisation - Objects](#)

An advanced object manager. Manages bulk data of objects and symbols.

- [Organisation - Records](#)

Manages automated record associations.

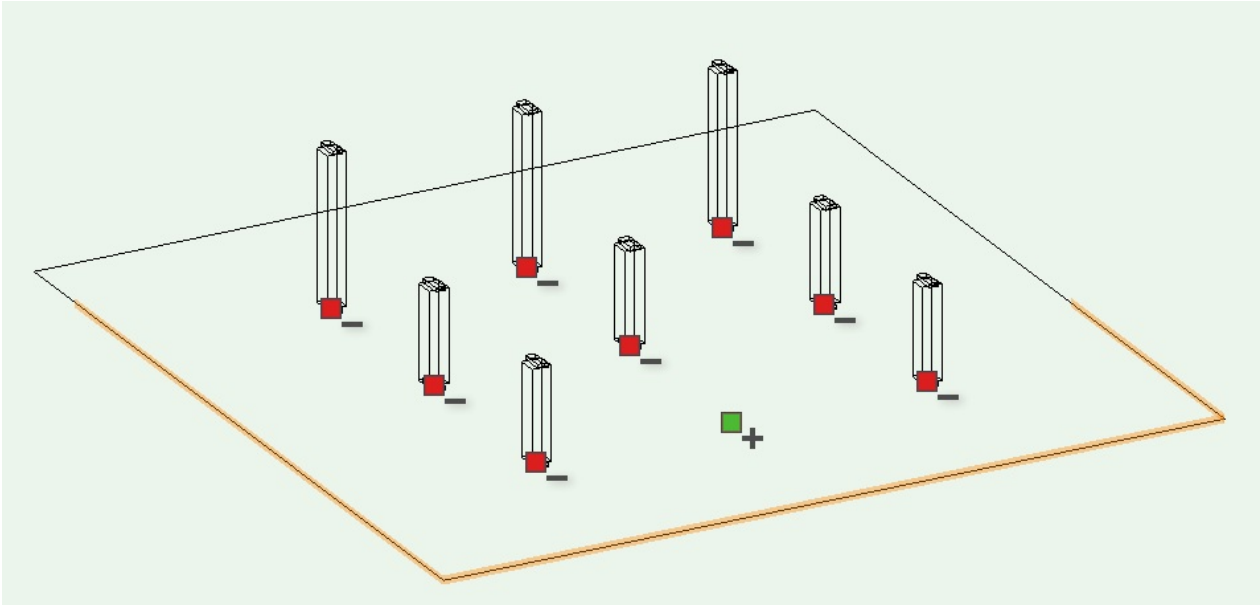
- [Organisation - Drawingborders](#)

An advanced manager for data associated with drawing borders. Manages issues and revisions.

Array object

Use the "**Convert to Array**" command to create several instances of one or more elements and manipulate them simultaneously.

The elements of an array follow a 3D matrix (a linear array).



Defining a linear array

When creating an array, you specify the distance between elements using either one of the following configurations:

- **By distribution:** The number of elements are evenly distributed within the frame.
- **By distance:** Specify the distance between elements. The frame is then sized based on the element distance and number of iterations.

Copy an Array

You can copy all elements in an array or just part of the array. You can also copy the array itself.

Base member

The array requires a base member in the profile group. When the array requires additional elements it will duplicate the base member into position.

Editing one of the array element's does not change the base element. Use the button "**Manage**" to manage the base element.

Delete Members from an Array

You can delete members of an array by clicking the corresponding control point. Each element had it's own control point used to show/hide the element.

Use the button "**Reset exceptions**" to reset the visibility for all elements.

Member control

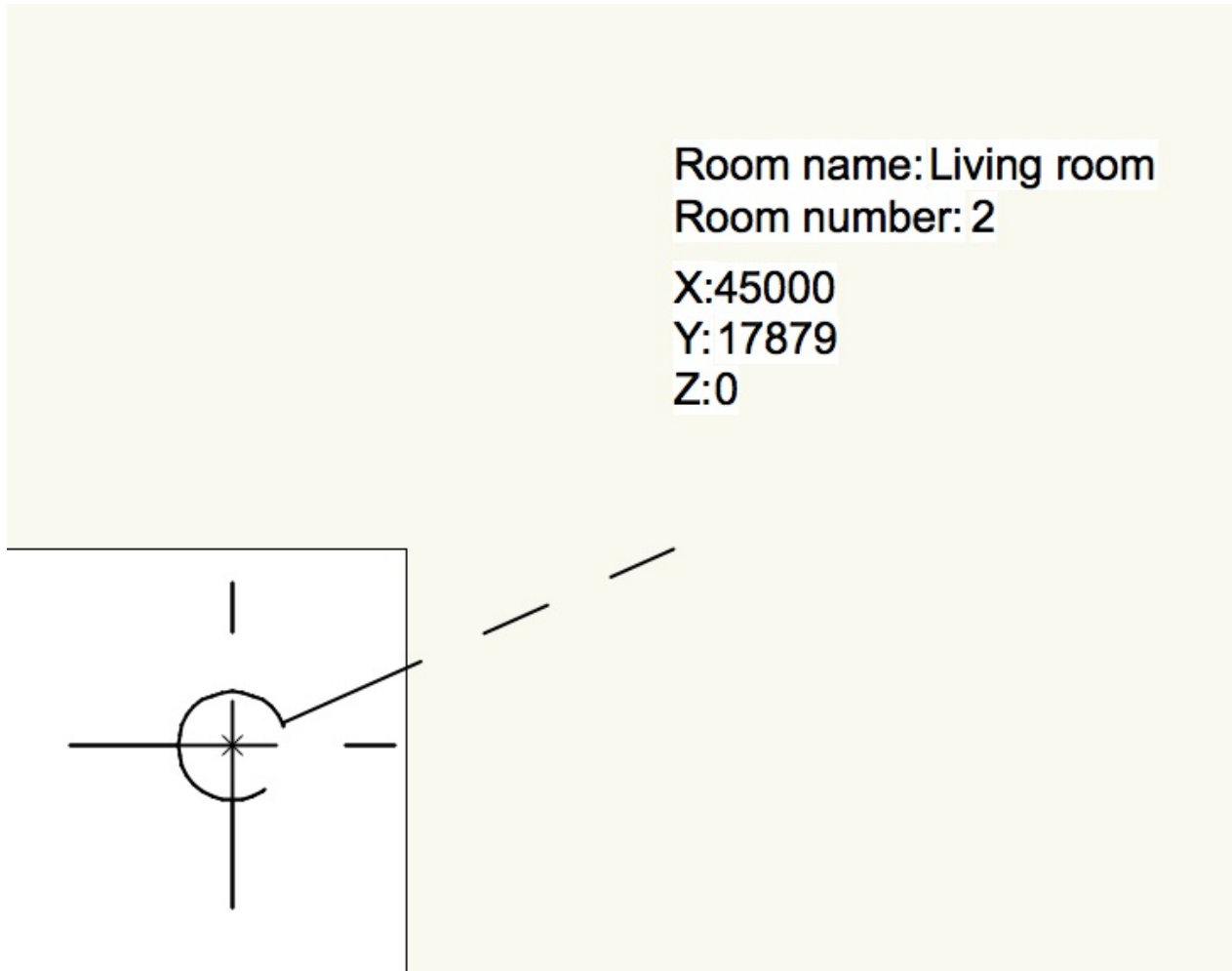
The array only controls the position of elements. You still have full control of the individual elements.

Use the button "**Reset object settings**" to reset the settings for all elements.

Symbol Object



Use the "**SymbolObject**" tool to create a parametric object of a symbol.



Functionality

The Symbol Object contains several features which you can use to:

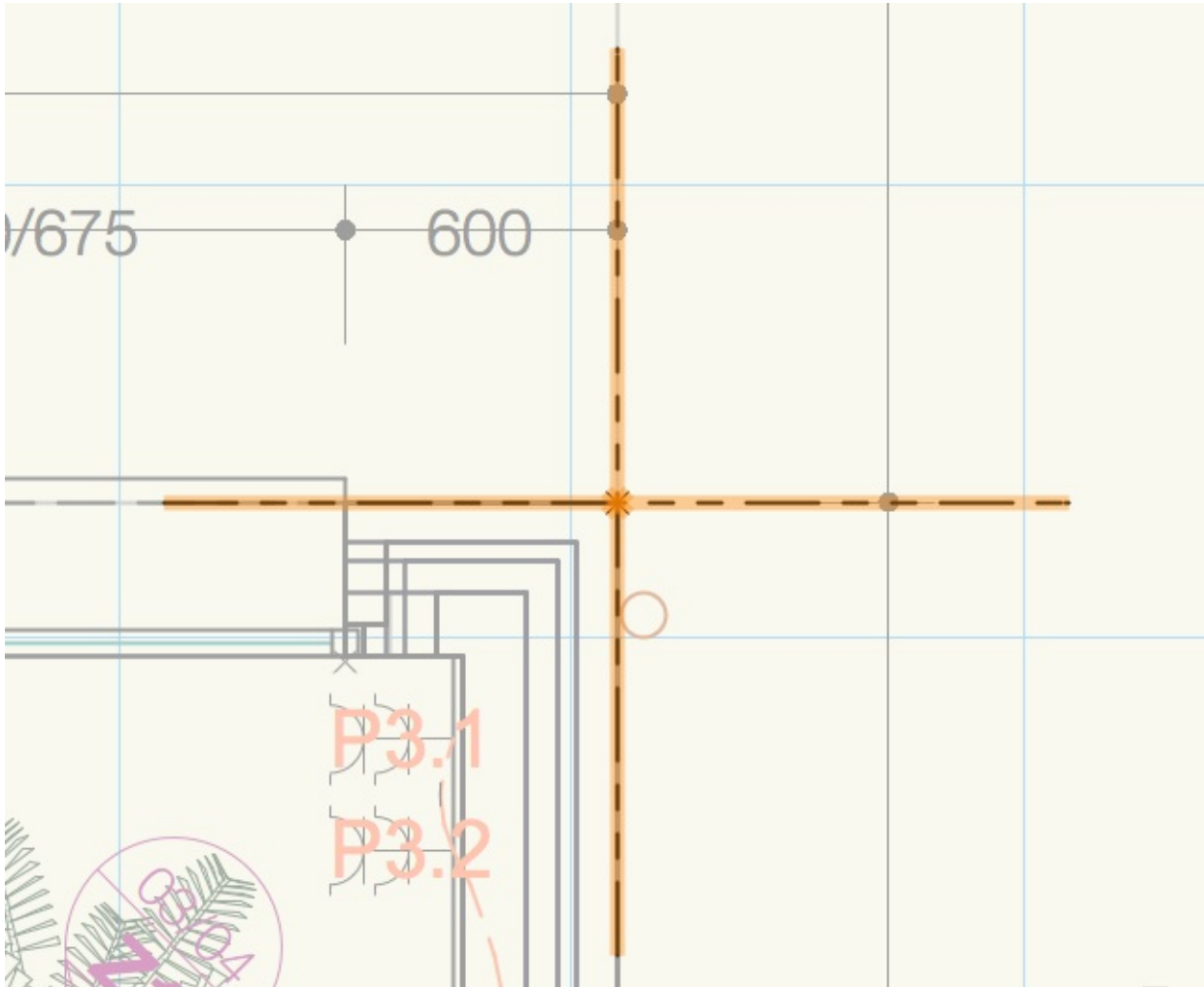
- Display the symbol on multiple layers at once.
- Attach a smart label with custom fields.
- Register relative and absolute position of the object.
- Find out in which space/polygon it is placed.

Guideline



Use the "**Guideline**" tool to create a guideline instance.

Set up the class and distance for each axis you would like to display.



ClassLegend



Use the "**Classlegend**" tool to create a legend of classes in your drawing.

Choose between displaying the class name or the class description.

52 Drainage-BWA	
52 Drainage-BWA-3D	
52 Drainage-GWA	
56 Heat distribution	
Data	
Lighting	
Power	

Dimensions

Manage the dimensions using the control points or by using the available fields in the [OIP](#).

Showing classes

Use the "**Manage classes**" button to toggle which classes should be displayed.

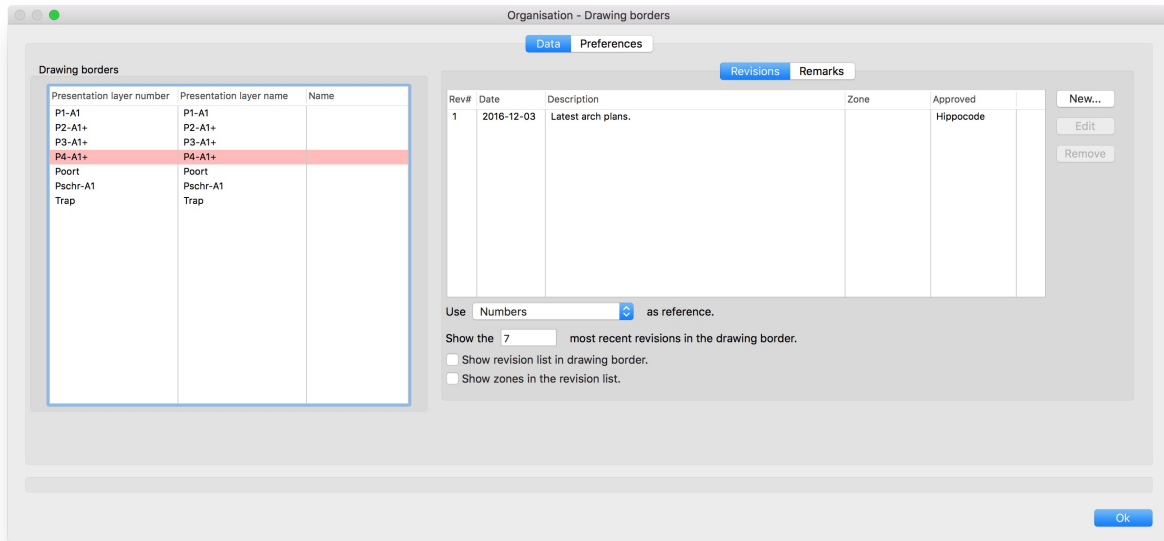
Cleaning up classes

Use filters to clean up large class names. Each filter string is cut from all class names if present.

Organisation - Drawing borders

This function is **deprecated** in Vectorworks 2018.

Use the "**Organisation - Drawing borders**" command to manage bulk data of drawing borders.

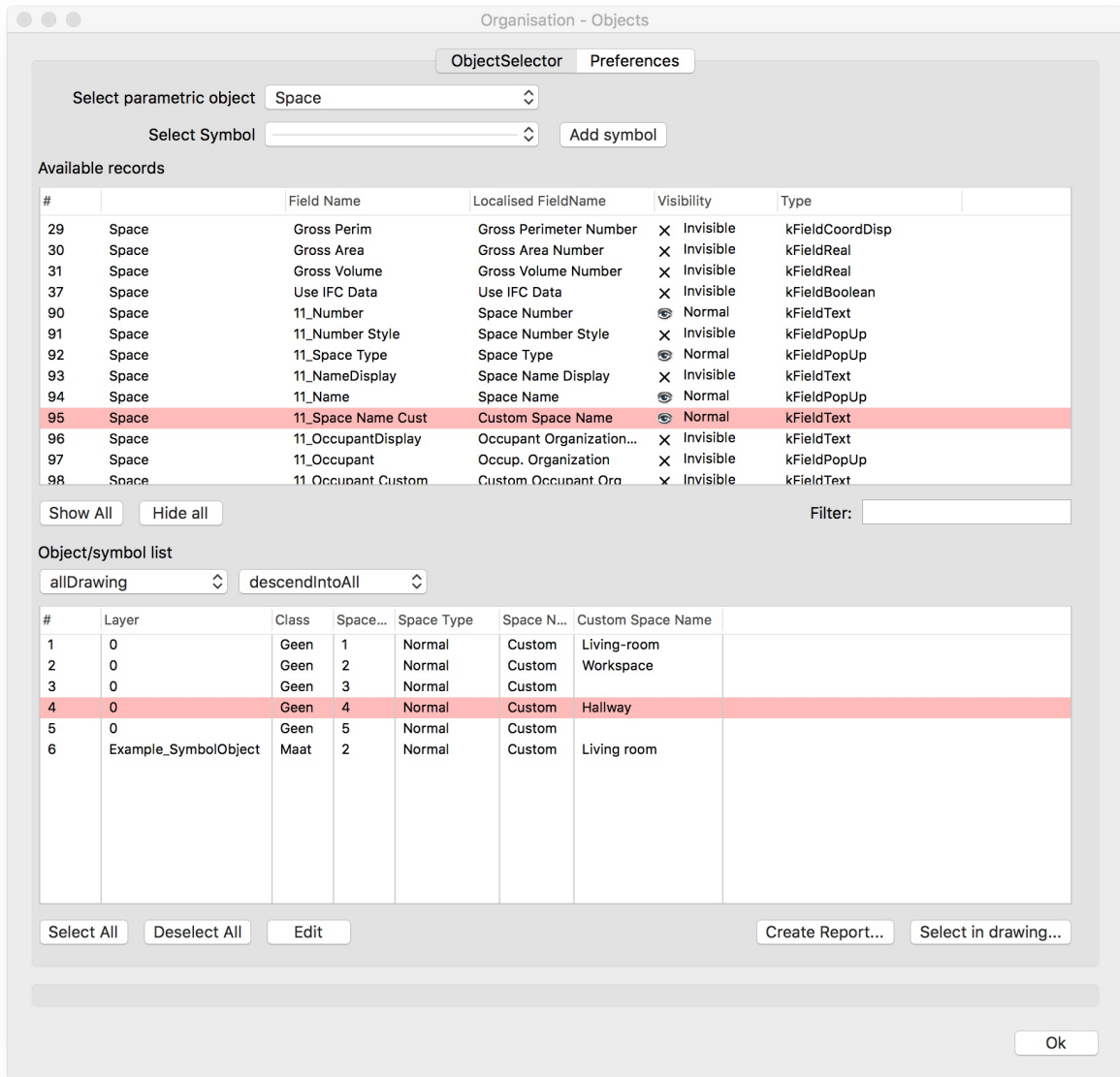


Edit multiple sheets at once.

By selecting multiple sheets in the left list browser you can manage issues and revisions at once.

Organisation - Objects

Use the "Organisation - Objects" command to manage bulk data of objects and symbols.



Viewing record field values.

Once a parametric object or symbol is selected, the top list browser displays all available fields. Remember that the settings tab has influence on this display.

Toggle the display of these fields to show the actual values in the bottom list browser.

Editing objects

Select the objects in the bottom list browser and use the button "**edit**" button to manage the displayed data.

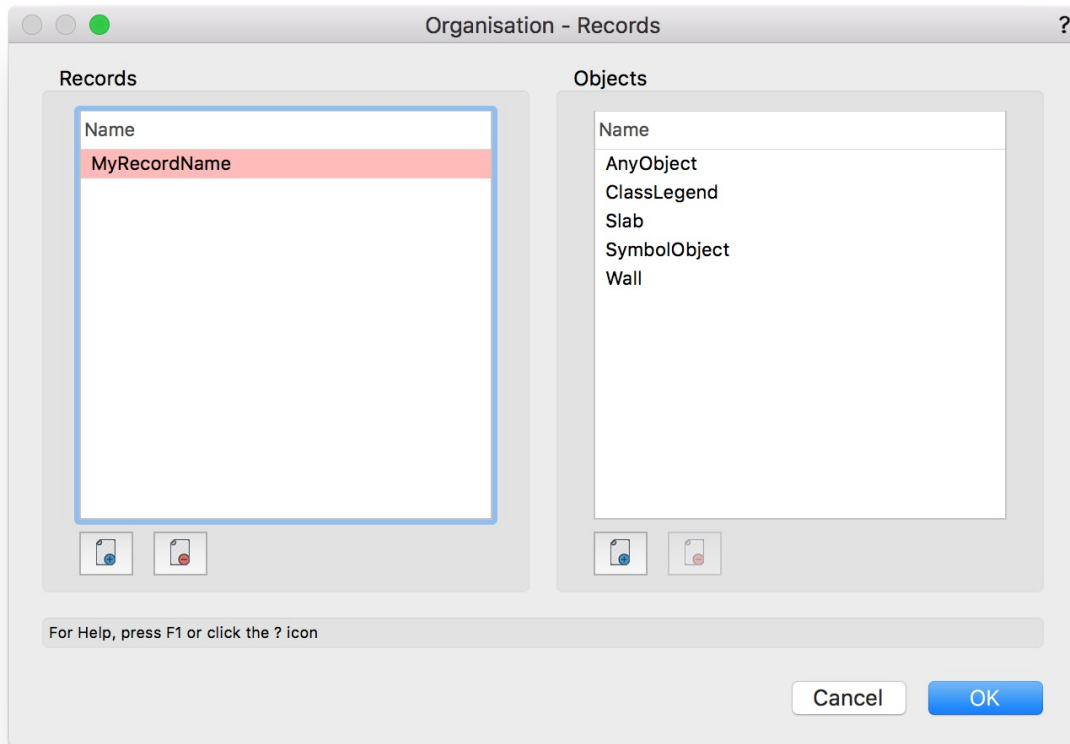
Note that some fields can not be edited.

Create worksheet

Use the "**Create report**" button to create a database worksheet with your current settings.

Organisation - Records

Use the "**Organisation - Records**" command to manage custom record associations. An association automates attaching a record to a specific object type.



Scope

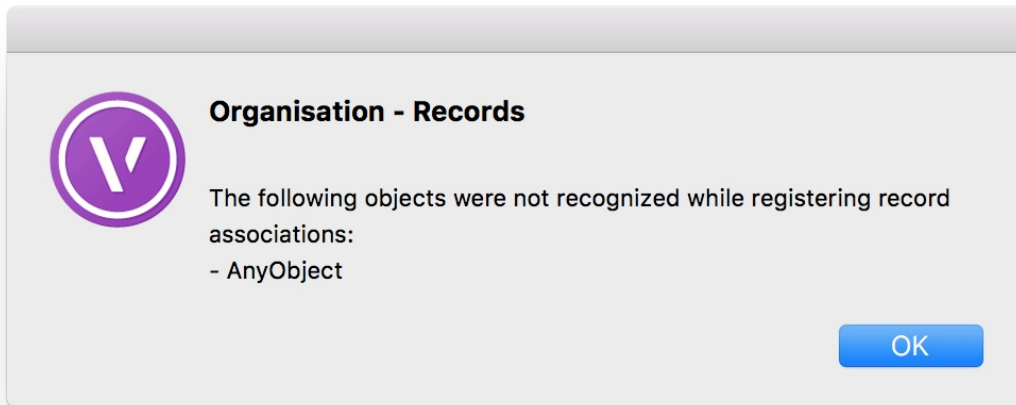
Associations are installed globally, not on a per document basis. The mapping is saved in an XML file in your settings folder.

Selecting records

Use the dropdown to select from a predefined list of available records (from the active document). If the record is not present you can always provide a custom name.

Parametric and hidden records can not be used.

Warnings on startup



If any warning is presented, the list of given object types could not be found in your installation. Make sure the name matches the exact name of the object.

MEP engineering

IFC Comptability

All the available MEP components are able to be exported to the by Vectorworks supported IFC formats.

Additionally, clients can alter the parameters of the attached IFC records. Some parameters will be overwritten by the object itself.

Contact us directly if you would like to have additional information transferred to the IFC tags by default.

IFC is an open standard, developed and maintained by buildingSMART International, for building data that permits information to be shared and maintained throughout the life cycle of the construction project: design, analysis, specification, fabrication, construction, and occupancy.

Global Settings

Using the "//MEP DISCIPLINE// - Settings" menu command, a dialog appears to manage global settings for that specific discipline.

Available disciplines:

- **Electrical**
- **Piping**
- **Ducting**

Most settings are saved into the active drawing. If you are familiar with Vectorworks templates this is ideal to setup defaults for future projects.

General

Depending on the category, different common settings will be available.

Classification

Manage the classification system, create predefined family types to categorize and personalize your components.

Calculation

An overview of the available sizing and calculation methods. These methods can be extended by anyone using the SDK.

Materials

Manage available materials and dimensions. Dimensions are shown based on the active document unit settings.

Once a dimension is added to a material you can set it to be used as width and/or height by clicking the icons in the list browser.

Material settings are managed outside the document and are not part of a template.

Angles

Manage the available angles while using the MEP component tools.

Units

For some of our parameters, custom unit implementations are available. Our custom unit parameters fully support worksheets and the irrigation tag, translating the saved value to be displayed in the unit settings of your choice.

Both the Imperial and Metric unit system are supported.

Symbols

MEP components have an optional hybrid/2D view. These symbols will be displayed for each component type to indicate special cases in 2D plan view. (E.g drop, rise...)

Optional, you can set the symbol to rotate and scale:

- **Rotating:** This will rotate the symbol into the direction on the XY plane.
- **Scaling:** This will scale the symbol to match the component size. The scale will be calculated based on the pipe size versus the width of an 360° arc in the symbol definition. For best performance reasons you should put all the symbol contents into a group, except for the arc. The arc can be given an invisible pen and fill if you'd like to hide it.

Insulation

Manage insulation and lining predefined types.

Performance

Manage various settings with influence on performance:

- **Performance mode** toggles the automatically recalculation of MEP system networks.
- **Support IFC export**
- **Extrude 3D content**
- **Segmentise "Straight Group Segments"**

Straight Segment Groups will internally split into multiple Straight Segments based on the material settings.

Assuming a Straight Segment Group with length 14 meter and a material dimension with a max. length of 3 meter.
Internally there will be 5 segments.

Discipline specific settings

Fluids

Manage fluids by temperature, viscosity and density to be used when predefining family types.

Underfloor heating

Manage reducing factors to be used with the underfloor heating object.

Load calculations

Manage common settings for electrical engineering, regarding power loads.

Classification

VectorMEP provides a classification system to categories MEP components.

Each discipline provides several hard-coded Families as base categories. However, for each family available, it's possible to create unlimited family types, which are derived from the parent family.

If your family type does not belong to any of the provided families, you can always use the family "Other" to assign this custom family type.

Depending on the discipline and family, different settings appear while creating or editing a family type.

Creating a family type

Family types can be managed in the Classification tab of the MEP settings dialog.

- Piping

New family type

Family	Hydronic supply
Name	Hydronic supply
System abbreviation	
Class	Maat
Calculation method	None

Fluid

Type	Water
Temperature	70 °C
Degree of filling (%)	100

- Electrical

New family type

Family	Power
Name	Power
System abbreviation	Pow
Class	Circuit_Power
Calculation method	None

Circuit

Circuit prefix	P
Circuit separator	.
Circuit type	Curved
Max. components	8
	<input checked="" type="checkbox"/> Display circuits
	<input type="checkbox"/> Align tags Alignment

Circuit breaker

Max. circuits per Circuit breaker	1
Min. Circuit breaker size (A)	20
Circuit breaker spare factor	0

- Ducting

The image shows a dialog box titled "New family type" with the following fields and values:

Field	Value
Family	Supply air
Name	Supply air
System abbreviation	SA
Class	Supply air
Calculation method	None

Assigning a family type

Each MEP component can be directly assigned to a family type, taking over the predefined settings.

Connectors

Connectors are logical entities that are the missing link between a symbol/object and a MEP component.

A connector is only valuable as part of an object.

We provide several fixtures for each discipline, that require the combination of connectors and symbols to create smart responsive objects participating in MEP networks.

Choosing the right Connector

Different type of connectors are available depending on the discipline:

- **Pipe connectors** are used for piping, pipe fittings, and other components that are meant for transmitting fluids.
- **Duct connectors** are associated with ductwork, duct fittings, and other elements that are part of the air handling systems.
- **Electrical connectors** are used for any type of electrical connection, including power, telephone, fire alarm systems, and others.
- **CableCarrier connectors** are used for any type of cablecarrier connection, including power, telephone, fire alarm systems, and others.

Selecting the correct discipline is critical to the content working correctly. After this selection is made, it cannot be changed without first deleting the connector and adding it again with the correct discipline.

Choosing a family for a Connector

The base family type assigned to a connector determines the types of systems with which it can interact and how it interacts with other system components.

Depending the discipline, different families are available as explained in the classification article.

Adding connectors

You can add connectors using the following methods:

- Using the **Insert MEP connector** menu command.

This command requires an active selection of fixtures.

- Using the corresponding connector tool.

Connectors should only be added while being in the Connector group. Each fixture has a button on the OIP to enter this group.

Connector orientation

While selecting a connector, the direction is highlighted. The connector should always point outside of the fixture.

Pipe connectors



Pipe connectors are used for piping, pipe fittings, and other components that are meant for transmitting fluids.

The following list shows the different connector parameters, by property group and a brief description of their functionality.

- Preferences
 - Class
 - Description
 - Primary
 - Min. flow
 - Max. flow
- Classification
 - Family
- Mechanical
 - Flow configuration
 - Flow direction
 - Loss method
 - Loss coefficient
 - Pressure drop
 - Flow
- Dimensions
 - Shape
 - Radius
 - Width
 - Height
 - Extrusion height

Duct connectors



Duct connectors are associated with ductwork, duct fittings, and other elements that are part of the air handling systems.

Duct connectors contain the following parameters:

- Preferences
 - Class
 - Description
 - Primary
 - Min. flow
 - Max. flow
- Classification
 - Family
- Mechanical
 - Flow configuration
 - Flow direction
 - Loss method
 - Loss coefficient
 - Pressure drop
 - Flow
- Dimensions
 - Shape
 - Radius
 - Width
 - Height
 - Extrusion height

Electrical connectors



Electrical connectors are used for any type of electrical connection, including power, telephone, fire alarm systems, and others.

Electrical connectors contain the following parameters:

- Preferences
 - Class
 - Description
 - Primary
- Classification
 - Family
- Electrical
 - Apparent load ballance
 - Apparent load phase 1
 - Apparent load phase 2
 - Apparent load phase 3
 - Load category
 - Number of poles
 - Power factor
 - Voltage
 - Power factor state
- Dimensions
 - Shape
 - Radius
 - Width
 - Height
 - Extrusion height

CableCarrier connectors



CableCarrier connectors are associated with CableCarriers, CableCarriers fittings, and other elements that are part of CableCarrier systems.

CableCarriers connectors contain the following parameters:

- Preferences
 - Class
 - Description
 - Primary
- Classification
 - Family
- Dimensions
 - Shape
 - Radius
 - Width
 - Height
 - Extrusion height

Managing systems

Use of systems

When fixtures have connectors assigned, it is possible to create logic groups of fixtures by connecting the connectors.

For electrical engineering, systems can be seen as circuits, connecting devices together. For mechanical engineering, systems are logic groups of components.

Creating systems

There are two ways of managing systems, by using the tools or menu available menu commands.

When adding a device to a system, VectorMEP will search for a free connector matching the family type of the system you are about to create. If it can't find a viable connector, a dialog pops up to choose another specific connector.

Additionally, when using the menu command to create a new system, a checkbox can be used to activate the system manager tool as well.

Creating electrical systems



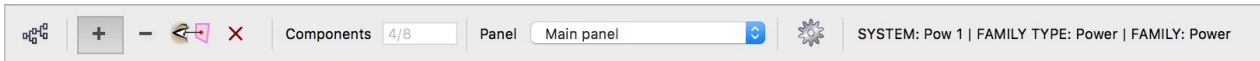
Creating piping systems



Creating ducting systems



Using the system manager tool



When using the system manager tool, you can select an existing system, or start with a new one.

When a system is active, the containing objects are selected and highlighted in the drawing. Use the specific mode bar option to add/remove elements to the active system.

When hovering objects, the highlighted color determines them being eligible.

Electrical systems can also be assigned to a panel directly using the tool.

Managing Insulation

MEP components can have insulation or lining attached.

Managing the addition or removal is done by the specific menu commands under the VectorMEP ribbon.

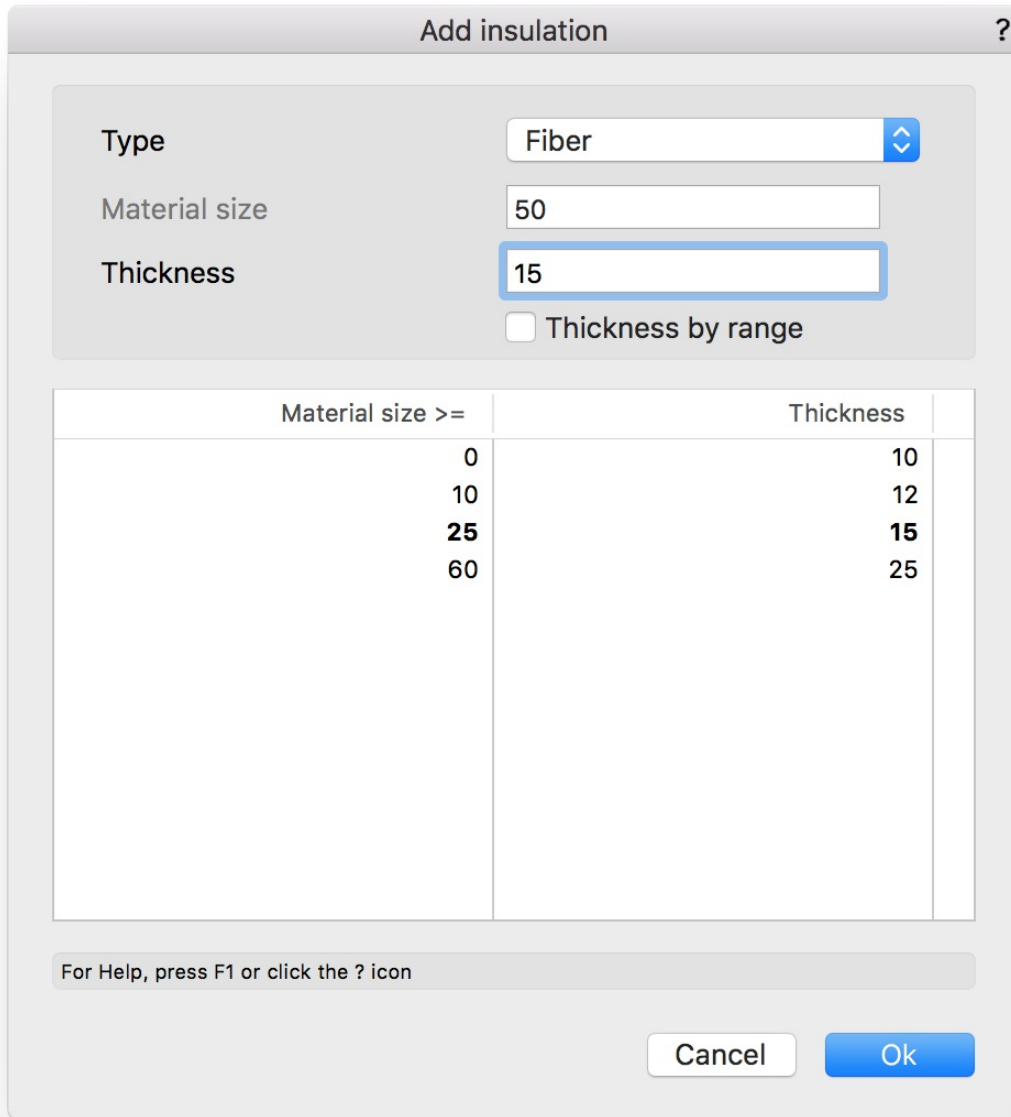
Insulation ranges

When creating insulation/lining materials in the MEP settings dialogs, predefined ranges can be supplied to set up default insulation sizes associated with MEP sizes.

In any MEP component, you can opt in for the dynamic insulation sizing based on the material ranges. On any dimension change of the MEP component, the insulation thickness will be verified based on the available ranges. If needed, the insulation thickness will be updated accordingly.

Adding insulation/Lining

The dialog will suggest a thickness based on the available ranges. The specific range will be highlighted in the listbrowser below.



The dialog box is titled "Add insulation" and features a help icon in the top right corner. It contains three input fields: "Type" with a dropdown menu set to "Fiber", "Material size" with a text box containing "50", and "Thickness" with a text box containing "15". Below these fields is a checkbox labeled "Thickness by range" which is currently unchecked. A table below the checkbox lists material sizes and their corresponding thicknesses. The table has two columns: "Material size >=" and "Thickness". The values are: 0 (10), 10 (12), 25 (15), and 60 (25). The row for material size 25 and thickness 15 is highlighted. At the bottom of the dialog, there is a help message: "For Help, press F1 or click the ? icon", and two buttons: "Cancel" and "Ok".

Material size >=	Thickness
0	10
10	12
25	15
60	25

Sizing and Calculation Methods

The "**MEP Component sizing**" menu command allows sizing of MEP components by predefined methods.

Both these methods can be restricted for use with specific disciplines and/or families.

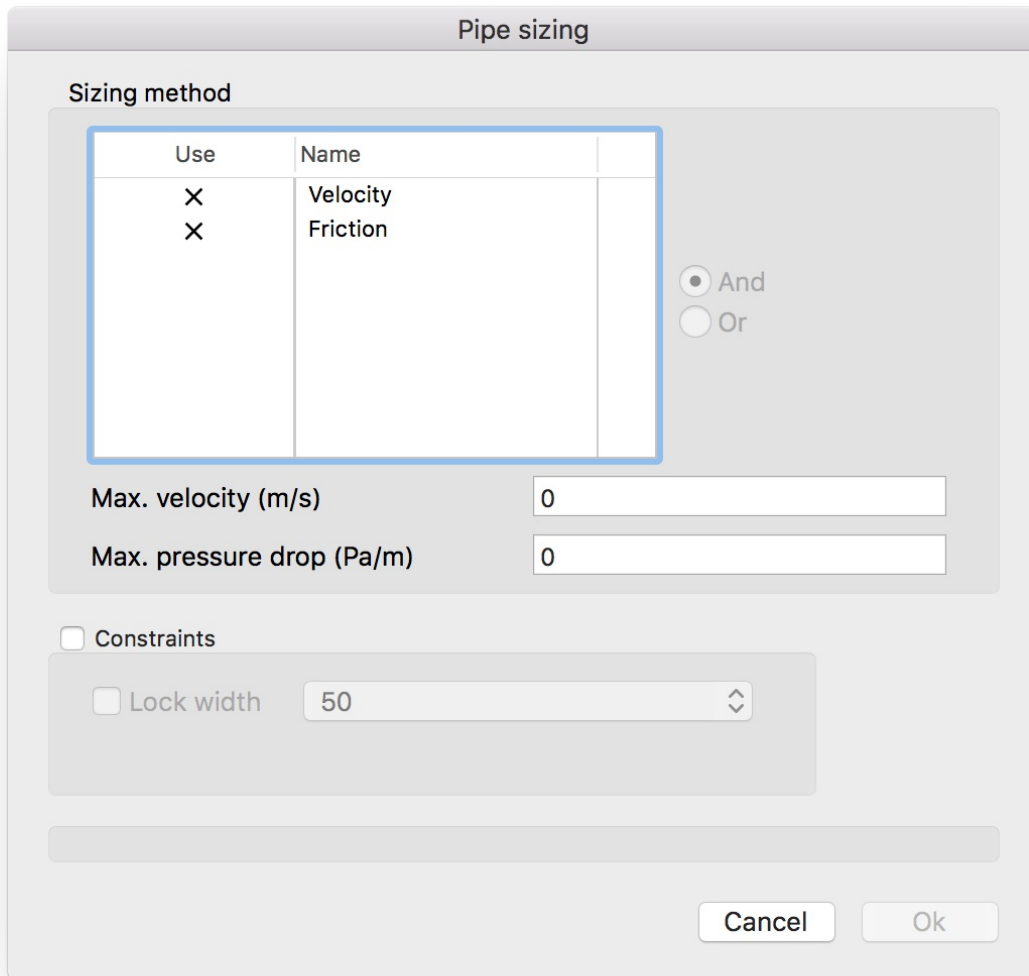
Calculation methods

Calculation methods calculate various factors, including the flow, velocity and pressure loss.

Calculation methods need be assigned to specific family types in order for them to be used. Components based on a family type without a calculation method assigned will not make any calculation.

Sizing methods

Sizing methods size MEP components based on the results of a calculation method, within user defined boundaries.



The image shows a 'Pipe sizing' dialog box with the following elements:

- Sizing method** section containing a table with columns 'Use' and 'Name':

Use	Name
X	Velocity
X	Friction
- Radio buttons for 'And' (selected) and 'Or'.
- Input fields for 'Max. velocity (m/s)' and 'Max. pressure drop (Pa/m)', both set to 0.
- A 'Constraints' section with a checkbox and a 'Lock width' dropdown menu set to 50.
- 'Cancel' and 'Ok' buttons at the bottom right.

If multiple sizing methods are available, and selected for use, it's possible to choose between an AND or OR combination.

Depending on the discipline and family type, specific fluid settings are used in the calculation.

You can apply constraints to limit the maximum height and width for the sections being sized. When both the size constraints and the flow constraints cannot be matched, the size constraints take priority, and an alert is displayed, indicating that not all of the sizing parameters could be satisfied.

Custom methods

Both the sizing and calculation methods can be customized by adding additional implementations using our API.

Working with MEP components

Each discipline contains two tools to create rigid and flexible MEP components.

When using the rigid tool, fittings are automatically created depending on the situation you create. This includes elbows, transitions and junctions.

Both the tools allow components to be drawn in all directions, including sloped parts.

Pipe Component tool



The "Pipe Component" tool draws pipework in a project.

Duct Component tool



The "Duct Component" tool draws ductwork in a project.

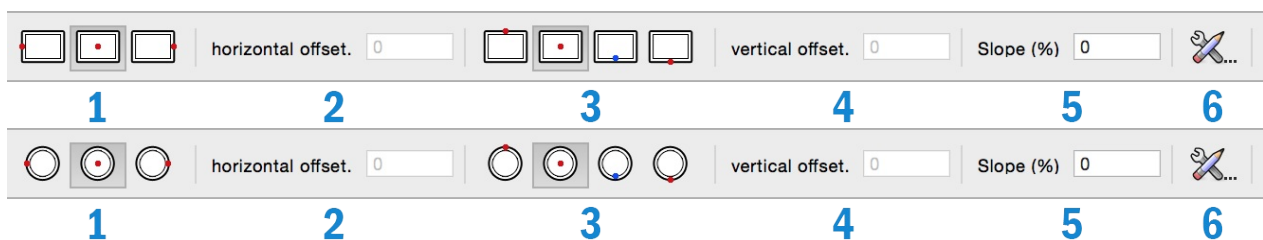
Cable Carrier Component



The "Cable Carrier Component" tool draws cable carries in a project.

Creating MEP components

Tool Modebar



1. Horizontal outline. (left, center, right)
2. Additional horizontal offset.
3. Vertical outline. (top, center, invert, bottom)
4. Additional vertical offset.
5. Slope.
6. Object properties.

Contextual menu

The right click contextual menu contains the following custom actions:

- **Select upwards:** Selects the connected chain in upwards direction.
- **Select downwards:** Selects the connected chain in downwards direction.
- **Reverse direction:** Reverses the direction of the active component.
- **Divide slope:** Evenly distribute the slope based on the first and last vertex height.
- **Apply slope:** Applies a given slope.

OIP

- Display
 - Class
 - UID
 - Profile rotation
 - Has cover
 - Attach tag
- Constraints
 - Start offset
 - End offset
 - Slope
 - Top elevation
 - Bottom elevation
- Classification
 - Type
 - Family
 - Family type
 - Section
 - Area
- Dimensions
 - Material

- Shape
- Size
- Nominal width
 - Lock width
- Nominal Height
 - Lock height

Working with MEP Placeholders

Each discipline contains a tool to create placeholders. These are a simplified variation of regular MEP components.

Placeholders do not contain any fittings and can be used to sketch a layout much more quickly.

Pipe Placeholder tool



The "Pipe Component" tool draws pipework in a project.

Duct Placeholder tool



The "Duct Component" tool draws ductwork in a project.

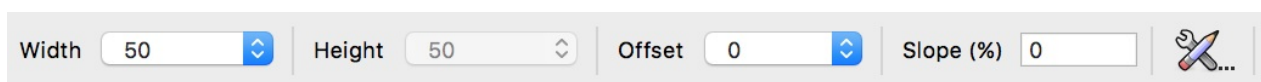
Cable Carrier Placeholder



The "Cable Carrier Component" tool draws cable carries in a project.

Creating MEP Placeholders

Tool Modebar



1. Width/Diameter
2. Height
3. Vertical offset (used in 2D sketching)
4. Slope.
5. Object properties.

Contextual menu

The right click contextual menu contains the following custom actions:

- **Select upwards:** Selects the connected chain in upwards direction.
- **Select downwards:** Selects the connected chain in downwards direction.
- **Reverse direction:** Reverses the direction of the active component.
- **Divide slope:** Evenly distribute the slope based on the first and last vertex height.
- **Apply slope:** Applies a given slope.

OIP

- Display
 - Class
 - UID
 - Profile rotation
 - Has cover
 - Attach tag
- Constraints
 - Start offset
 - End offset
 - Slope
 - Top elevation
 - Bottom elevation
- Classification
 - Type
 - Family
 - Family type
 - Section
 - Area
- Dimensions
 - Material
 - Shape

- Size
- Nominal width
 - Lock width
- Nominal Height
 - Lock height

Remodelling components

Existing MEP components can be remodeled in various ways.

All conduit/duct/pipe based components are path based. With the native reshape tool you can modify the vertexes of the path. While we don't disable this we do discourage this for any component besides the Straight Segment (Group) and the Transition Segment.

Straight Segment (Group)

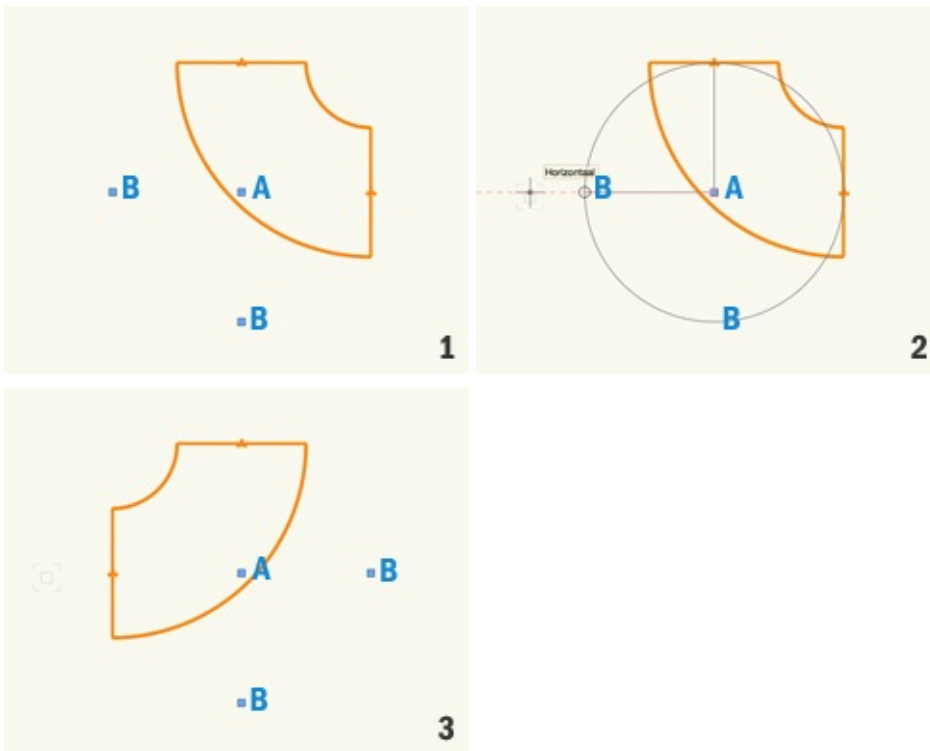
The [OIP](#) holds a parameter "Length". On setting a new value the segment will use the new provided length.

Elbow Segments

The [OIP](#) holds a parameter "Radius". On setting a new value the segment will use the new provided radius. The radius is the length of the first leg.

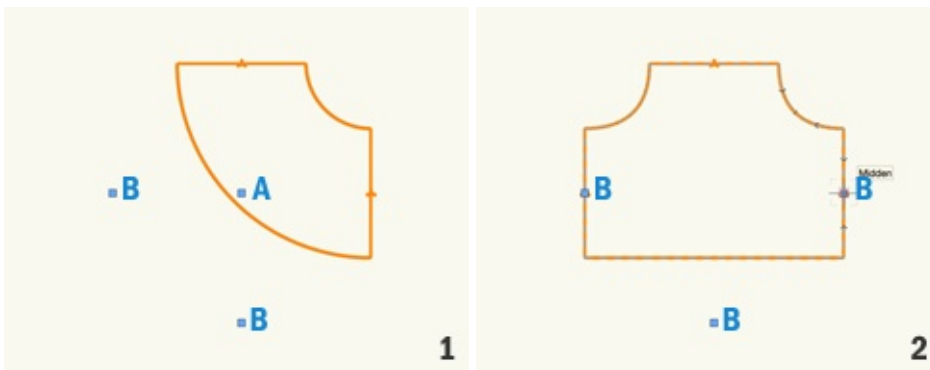
If the Object has adjacent connecting objects, this will only succeed if those objects can be modified as well to match the new situation.

Modifying the angle



1. Select an elbow, click on the center CP (A).
2. Rotate the mouse to the desired angle. The toolbar displays the angle between the legs.
3. Click to verify the new position.

Converting into a junction



1. Select an elbow, click on any outer CP (B).
2. Click on any outer CP (B) to switch between enabling legs.

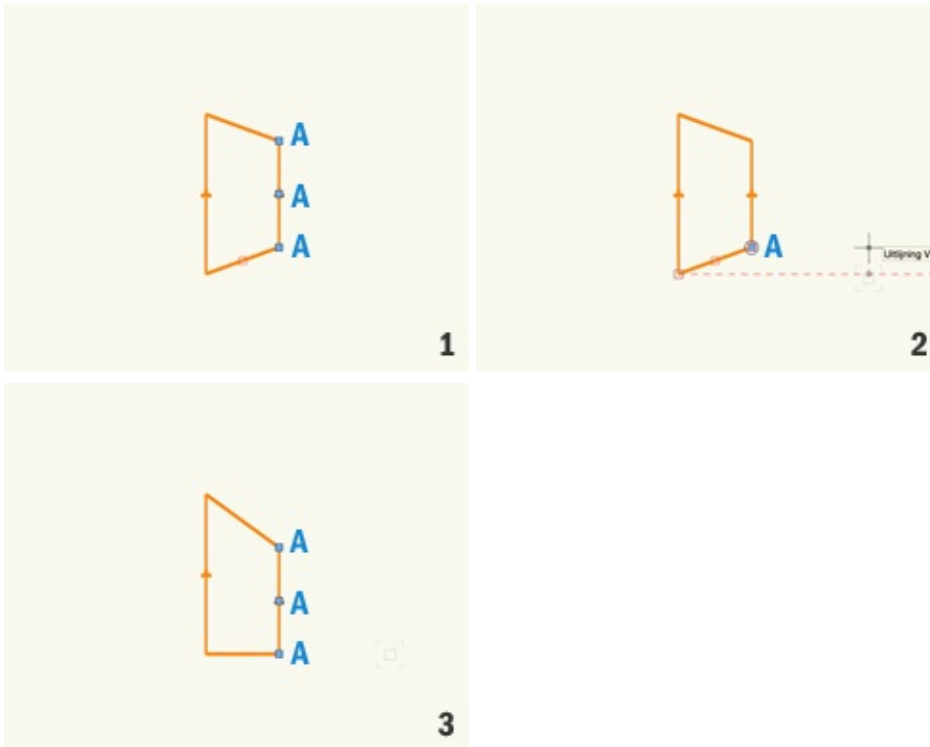
Transition Segments

The OIP holds a parameter "Taper angle" and "Taper length". On setting a new value the segment will use the new provided angle or length.

If the Object has adjacent connecting objects, this will only succeed if those objects can be modified as well.

Horizontal shift

Each transition has 3 controlpoints to control a horizontal shift. From the [OIP](#) you can set an additional vertical shift as well.

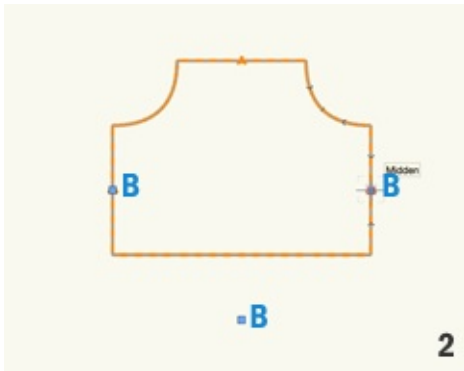


1. Select a transition, click on any CP (A).
2. Move the mouse to the desired location.
3. Click to verify the new position.

Junction Segments

The [OIP](#) holds a parameter "Radius". On setting a new value the segment will use the new provided radius.

Removing junction legs



1. Select a junction.
2. Click on any outer CP (B) to remove and existing leg.

Adding junction legs

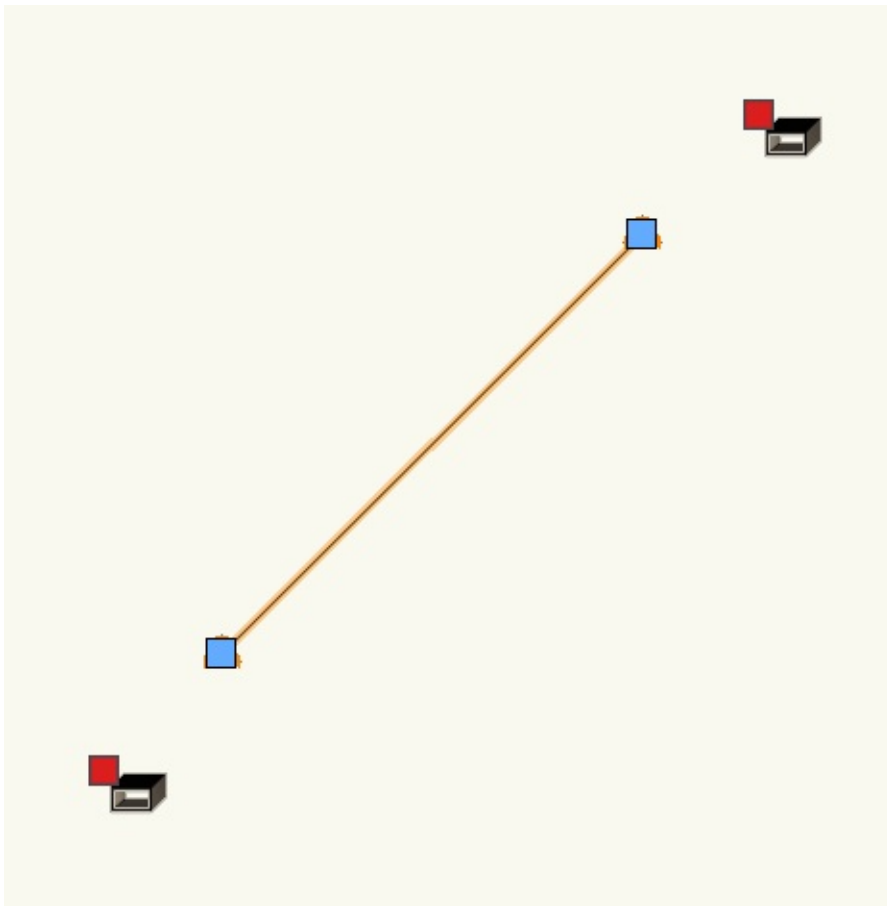
You can add infinite legs to a junction. Each time you draw a segment starting/ending on a junction object, a new leg is being added.

Remodelling Placeholders

Existing MEP Placeholders can be remodeled in various ways.

All conduit/duct/pipe based components are path based. With the native reshape tool you can modify the vertexes of the path.

Control points



Each placeholder contains exact 4 controlpoints. Two blue dots at the beginning and endpoint of the segment, two additional controlpoints at distance from these points.

The blue controlpoints can be used to quickly reshape the placeholders.

The other controlpoints function likewise to the "create similar" command. The big difference is that the tool will actually launch at the exact connectionspot, using it as a startpoint. This makes drawing much faster and ensures a correct connection.

On default, these additional controlpoints have a red dot. Once they have a valid connection to another Placeholder, the dot will be indicated green.

Working with fixtures

VectorMEP provides several fixtures for each discipline. While some fixtures have unique capabilities, they all work following the same logic.

Fixtures require connectors in order to take part in MEP networks. Without any connectors, a fixture is nothing more than a symbol.

The following fixtures are available:

- Piping engineering
 - Pipe accessory
 - Plumbing fixture
 - Mechanical equipment
- Ducting engineering
 - Duct accessory
 - Air terminal
 - Mechanical equipment
- Electrical engineering
 - Power fixtures
 - Electrical fixture
 - Electrical device
 - Lighting fixture
 - Electrical switch
 - Junction box
 - Data fixtures
 - Data device
 - Telephone device
 - Communication device
 - Security device
 - Fire alarm device
 - Nurse call device
 - Switch
 - Panel boards
 - Branch panel
 - Switch board
 - Data panel

Customizing the symbol

Each fixture has at least one parameter controlling the used symbol.

Electrical fixtures have a primary and secondary symbol for a specific purpose:

The secondary symbol can have a horizontal shift and rotation versus the insertion point. This can be of use when electrical fixtures are stacked on top of each other, but need to be displayed separately on a 2D-plan view.

Reference levels

The electrical settings menu command offers custom story-alike settings named reference levels, which are predefined relative heights.

When vertically aligning fixtures, it's common to have default installation heights of components. Reference levels can be applied to add a relative height to an object, no matter the layer it is on.

Electrical panels

Panel fixture types allow connections of circuits. The panel fixture itself can also be part of a circuit, connected to another panel.

Panels require a valid distribution system before they can be used with circuits.

The **Organisation - Electrical panels** menu command manages the relations between all available circuits and panels in one overview.

Load Classifications

You can classify each type of electrical load connected to a panel. These classifications are called load classification types.

Demand factors

You use demand factors to adjust the rating of the main service for a building based on the expectation that at any given time, not all of the electrical equipment will be drawing at the full rated load.

MEP Labeling



The MEP Label tool is capable of labeling/tagging all available MEP components. The object is symbol based and uses a predefined record to transfer data into the symbol. Clients can [customize this symbol](#) and choose which fields to show.

The MEP Label will automatically position itself vertically on top of the bounding cube. This ensures it is always visible from the top view.

If you have the Vectorworks designer of landmark installed, the tag label from the irrigation tool set can also be used for tagging, which is far more superior.

Tool Modebar



1 2

1. Select component mode.
2. Object properties.

OIP

- **Class**
- **Dimension text:** Switches between the nominal size and the size based on the document settings.
- **Show leader:** Shows a leader line to the middle of the referenced object.
- **Overwrite defaults:** Leave blank to use defaults.
 - **Prefix**
 - **Separator**
 - **Suffix**
- **Label symbol**
 - **Symbol**
 - **Scale**
 - **Select symbol**
 - **Edit symbol**

Customizing the MEP Label symbol

Clients can customize the MEP Label symbol.

Best practice is to duplicate one of the default symbols and to modify it to your needs. Each MEP Label can select a different symbol for different situations.

If the custom symbols are added to the [MEP Label symbol library](#) they will become available in all your drawings, when the "Select Symbol" dialog is present.

Attached record with data

Make sure the record "MEPLabel_Fields" is attached to the symbol. For those fields you would like to display, link the appropriate record field to a text field inside the symbol.

This makes sure the data is correctly transferred.

The size fields can hold the nominal material size OR the size based on the document unit settings.

Provision for Voids

The following articles give an in dept description how to work with Voids.

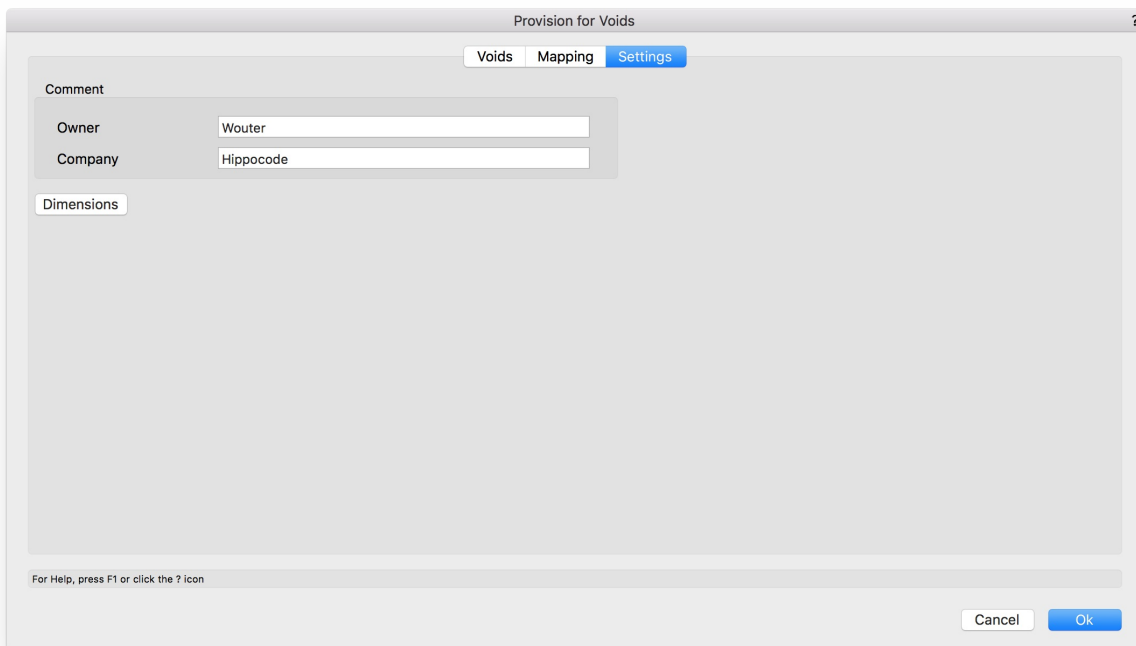
- [Managing Void settings](#)
Setup global settings prior to generating Voids.
- [Creating Voids](#)
Start clashing objects and generate void geometry.
- [Managing Voids](#)
Manage Void data and acceptance status.
- [Collaboration](#)
Collaborate with team members.
- [IFC Support](#)
About IFC data.
- [Break support](#)
Openings in hosting objects.
- [Accepted objects and geometry](#)

Managing Void settings

Navigate to: "VectorMEP::Manage Voids" and open the "Settings" tab.

User settings

When modifying any state or comment, the comment has an owner defaulting to the active serial number. You can localise this by providing a company and user name instead. This makes your data much more readable.



Void dimensions

Push the "Dimensions" button to setup default sizing methods regarding spare room for voids. Voids will be defined a category based on their cutting object which can result in different settings.

This feature is not yet enabled.

Provision for Voids ?

Offsets

	Mechanical	Plumbing	Electrical	Other
Around rectangular	50	50	50	50
Above rectangular	50	50	50	50
Around circular	50	50	50	50

Limits

Min. distance between voids	100
Circ. void max. diameter	0
Circ. void max. diameter	1000
Rounding step	25

For Help, press F1 or click the ? icon

Cancel Ok

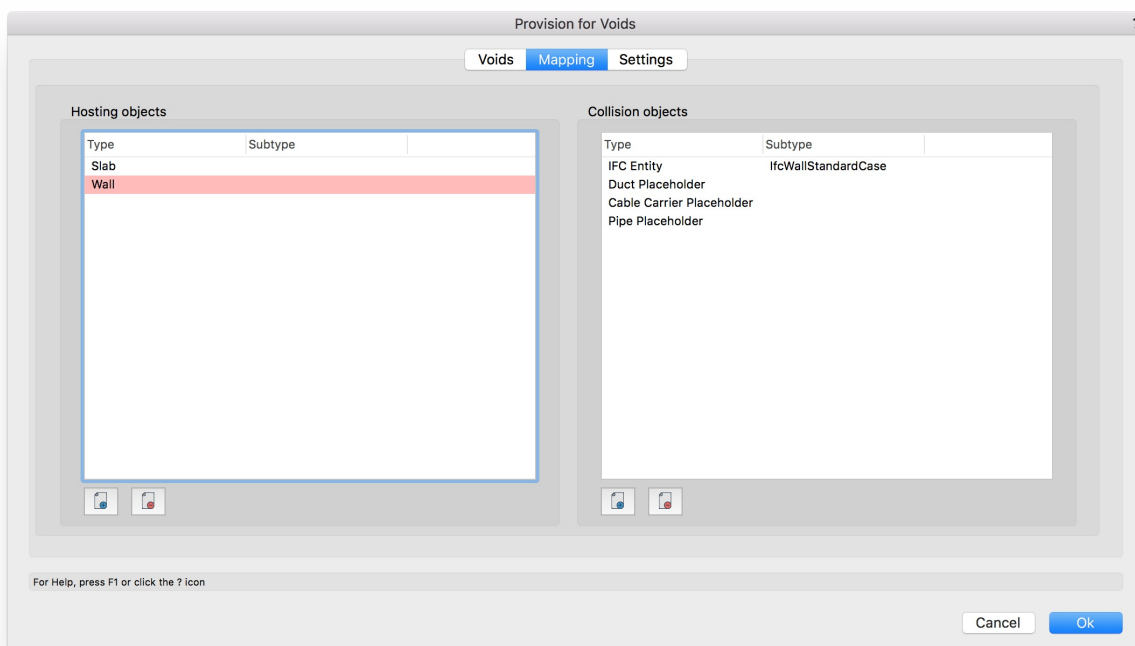
Creating Voids

Setup Void mappings

Navigate to: "VectorMEP::Manage Voids" and open the "Mapping" tab.

Here you can create predefined collision sets between objects. You can even filter based on a specific parameter value, which also enables you to identify different IFC entities.

These settings are saved within the document.



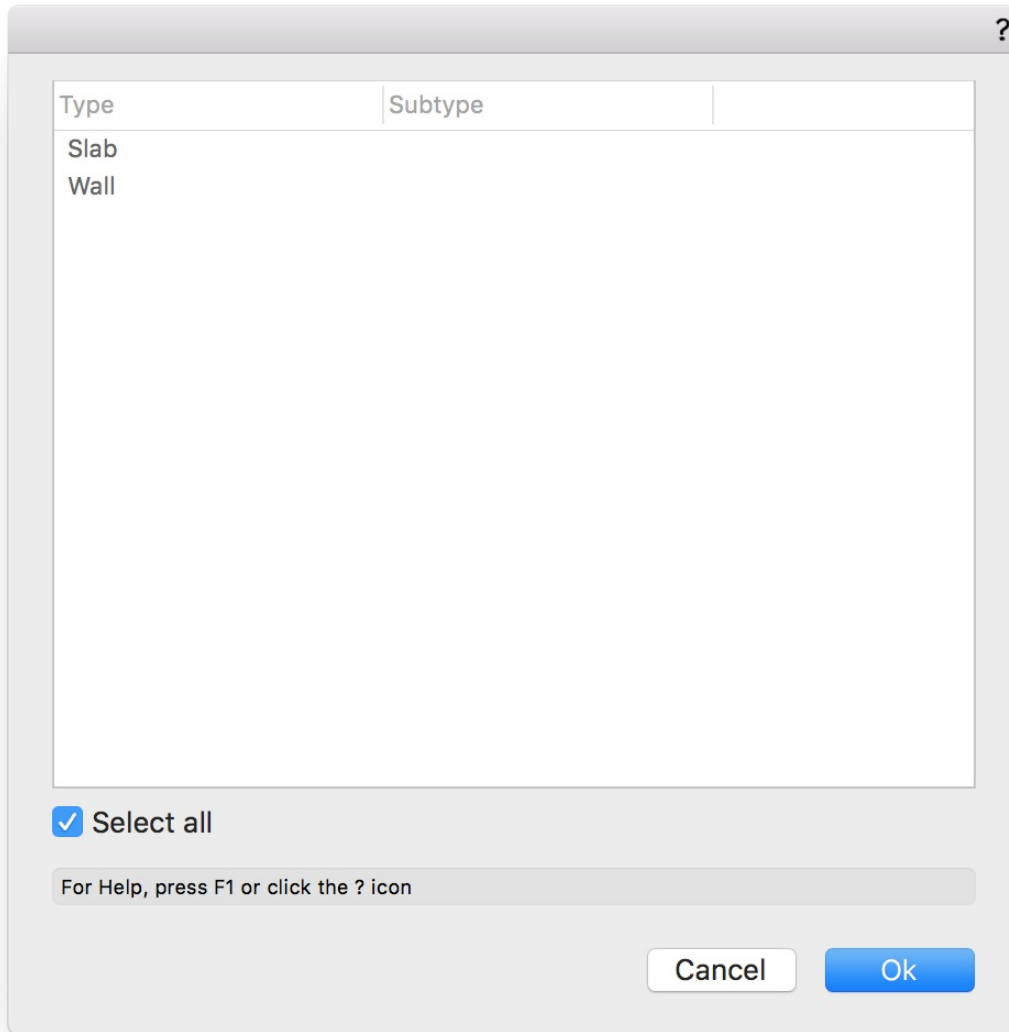
Note that when creating a filter, the list of objects will only show objects that have been defined in your drawing. If an object is missing you can always choose "custom" and provide the name yourself, or create such an object, delete it and relaunch the dialog for it to appear.

The same logic works for object record field names.

Creating Voids

Navigate to: "VectorMEP::Create Voids" to launch the following dialog.

Prior to generating voids you can select for which mappings you would like to create Voids. You can also use the checkbox below to use all mappings at once.



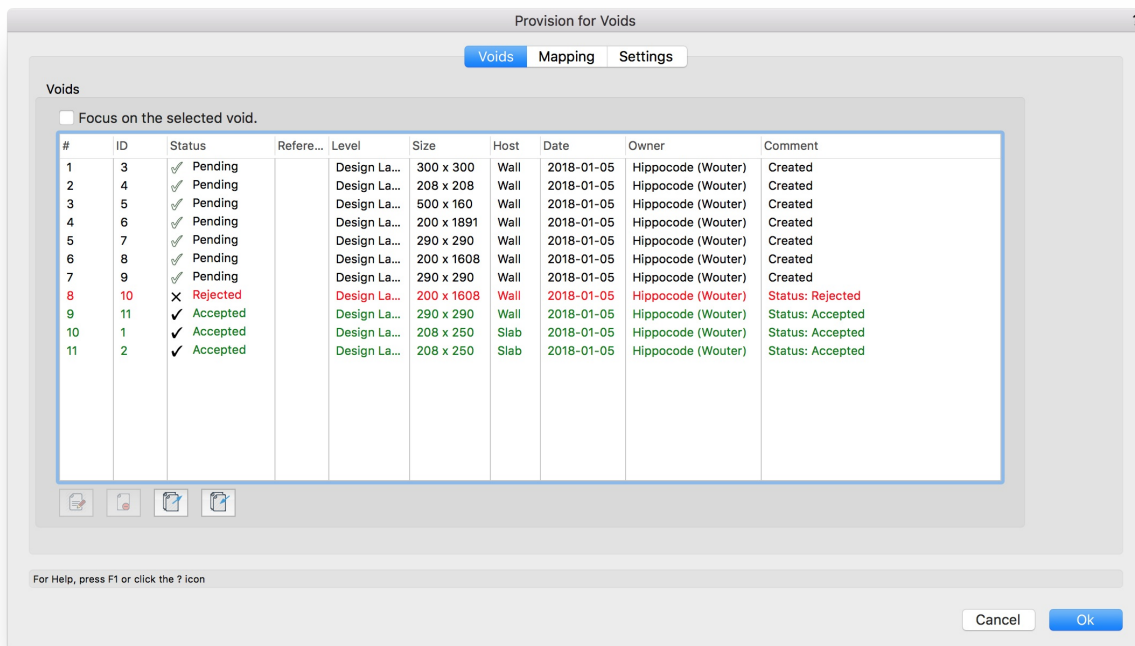
Managing Voids

Using the manager

Navigate to: "VectorMEP::Manage Voids".

You can use this overview to manage all voids in your drawing by:

- Adding comments
- Modifying the acceptance state
- Export/Import data which is covered under the topic [Collaboration](#).
- Focus on the selected void in the drawing by checking the above checkbox.



Using the Void objects

Using the [OIP](#) you can modify any void related setting, including modifying the status and any comments.

Collaboration

Important notice regarding licenses

Only the client(s) in need of creating the Voids require a VectorMEP Premium license. Once created, the Voids can be edited and managed by anyone, with or without a license.

This ensures proper collaboration within and beyond your team using Vectorworks.

Collaboration within the same document

Assuming colleagues have access to the same base file containing the voids, they can open it and make any modification. Modifying comments and statuses are logged based on their serial number.

Collaboration beyond the scope of the document

In case other team members do not have access to modify the base file containing the voids the following workflow should be maintained:

1. The client creating the voids must send a **copy** of his file.
2. The other party has to **reference** this file, specifically the layers containing the voids.
3. Once referenced, the other party can **make modifications** in his document.
4. Once completed making changes, the other party needs to use the **export** function.
5. The creator of the voids can now use the **import** function to **receive the modifications** by the other party.
6. After importing, a new copy can be sent to the other party who needs to update his reference.

Exporting and importing can be done using the Manage Voids dialog.

IFC support

Only the **accepted** and **pending** voids are eligible for IFC export.

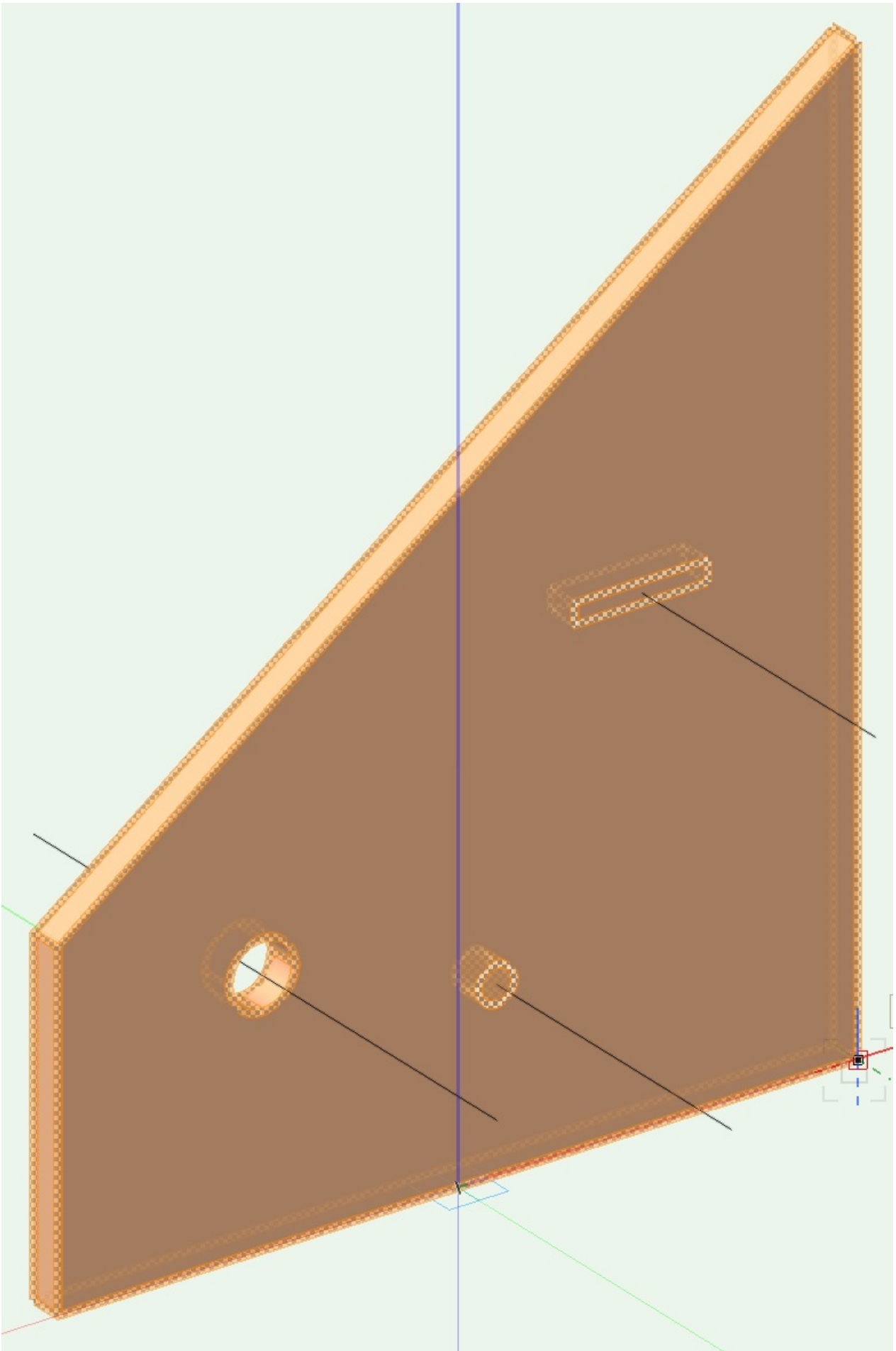
Rejected voids do not have IFC data associated with them.

Break support

Voids created with Walls and Slabs as host will automatically cut the host if the void is accepted.

In case of a wall, the wall break is always added but will still fill up the wall with solid geometry, until accepted.

The following image shows 3 voids in a wall. While this wall contains 3 Voids as breaks only the left Void is accepted.



Accepted objects and geometry

Object requirements

In theory all objects, including custom parametric objects, are eligible to be used when creating voids.

All objects must match the geometry requirements for them to be valid.

Geometry requirements

When creating voids, the following order is used to determine if the object has valid geometry:

1. Custom geometry (see below)
2. Normal solid geometry (object solid geometry as is)
3. Bounding box as solid geometry. (in case the object is not a solid)

If none of the above return a solid, the object can not be used to clash and create voids.

About defining custom geometry

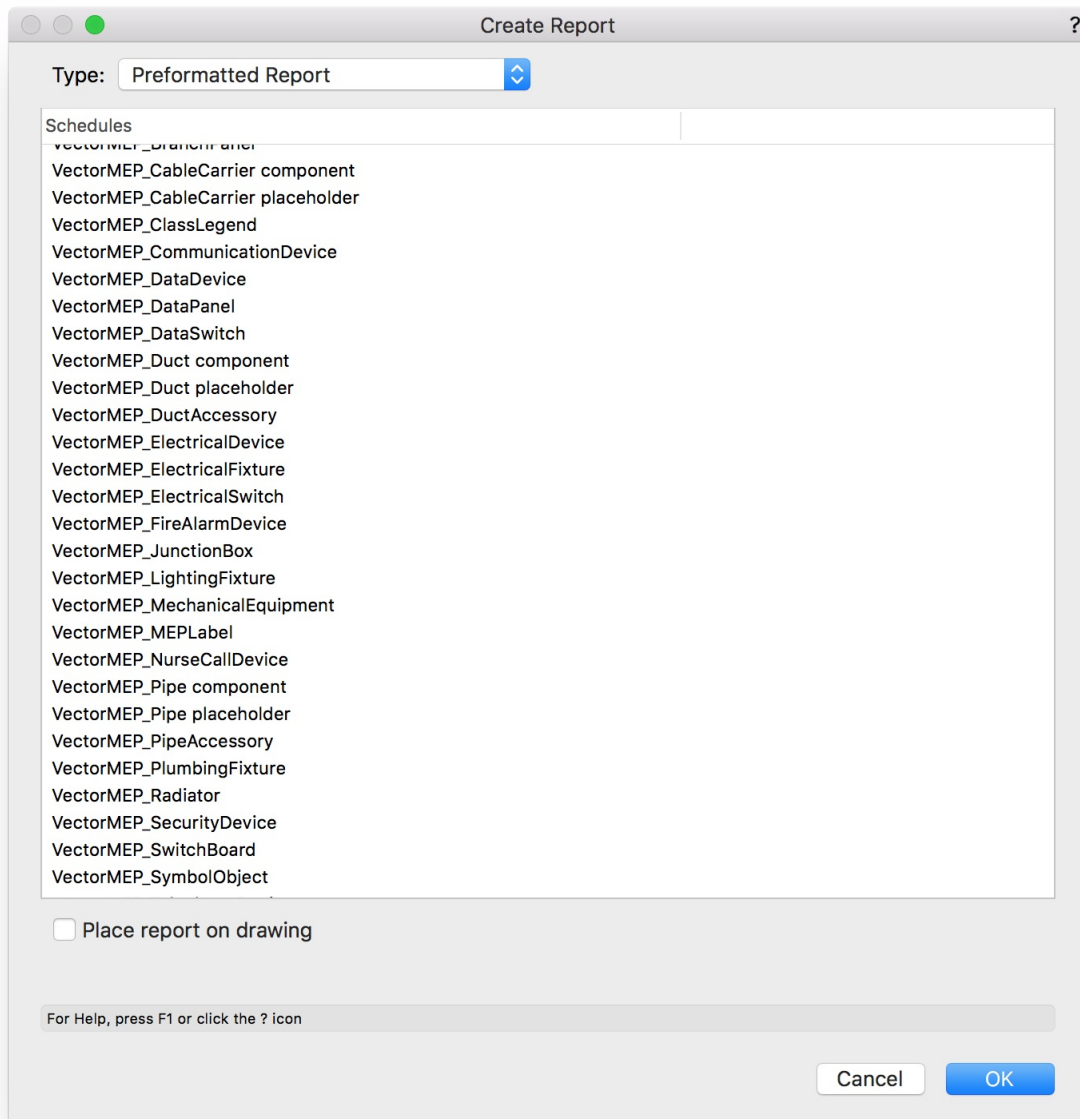
We have provided an SDK interface that can overwrite some settings, including:

- Custom solid geometry.
- Forced category for void creation.

Reports for scheduling

Starting from Vectorworks 2018, we have provided default reports you can use for scheduling. They contain the most important fields available for all our objects.

When creating a new report, select a default template from the available resources:



Customizing the library

Please backup the library before making any changes. Breaking some specific file structures could break our plug-ins and result in unexpected behavior.

Restart Vectorworks when you are done making changes to make sure your changes are being applied.

The library is available under "USER_LIBRARY/DEFAULTS/VectorMEP/"

The exact path can differ depending on your localization.