cad how bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification

CBM-Attribute Manager-Compare

This is not about how to keep things tidy. This is about how to fix them when they are not.

CBM-Attribute Manager-Compare is an advanced Python/xml tool for the BIM manager that helps to find even the deepest differences between any number of xml Attribute files and can output a to-do list in Excel for the team to resolve them.

If you wish to learn more about the way Archicad manages attributes, you must watch this Archintensive Video, which, by the way, inspired me to write the present tool: The Dark Side of Attribute Chaos, 2023, by Scott J. Moore of Fulton Trotter. At minute 44:09 Scott shows us this diagram:

This complex attribute management means that keeping multi-file projects synchronised can be very difficult: Attributes tend to mismatch relentlessly at every point of contact with other files, hotlinks, etc., and you will have to search for and resolve discrepancies over and over again, or accept uncontrollable display and/or data problems.

The problem is, how do I detect these differences? Archicad has no built-in tool for this. The present tool helps you in this sense.

These are the possible mismatches:

- **Name mismatch:** Same attribute index in source and comparison file, but different name
- **Index mismatch:** Same attribute name in source and comparison file, but different index
- **Missing in source:** Both attribute name and index don't exist in the source file
- **Missing in file:** Both attribute name and index don't exist in the comparison file
- **Content mismatch:** Deep differences within associated attributes, such as thickness for individual composite skins, pens, offsets within vectorial fills and more.

***Note**: As of Archicad 27, it is not possible to solve mismatches programmatically using Python, the support is almost non-existent. The present tool is in fact an xml utility and not an Archicad utility and can only be used to compare xml files. At the moment, fixing attribute problems can only be done manually in Archicad.*

Installation

This tool doesn't need Archicad: It operates on the xml files generated by the Attribute Manager. I tested on files produced by Archicad 26 but I think it should work also on previous versions.

Warning! At the moment the downloaded app is a beta version with limited access to few testers. Request a beta version if you wish to partecipate to the development, send a mail at "info at cad-bim-manager.com"

Downloads	Under construction
0.0.5.x (beta)	mac intel only on demand!

- **Download the app** choosing the proper version.
- **Enter your access code** when prompted
- **Save it anywhere you wish and unzip it**, for the moment there is no installer

Usage

1 - Export the attribute files in a dedicated folder:

- **Create a dedicated folder** where to store all attribute files. The tool will parse all eligible xml files within, so make it really dedicated.
- **For each archicad file** to be compared, open the Attribute Manager from **Options > Element Attributes > Attribute Manager**
- Click on the **All** tab
- **Select** all attributes in the left list
- Click on **By Index**: the list appears on the right
- Click on the **Export** button (tiny page icon with exiting arrow)
- **Save** the xml file into the dedicated folder

2 - Start the tool choosing a source file:

The chosen source file resides in the dedicated folder and represents the correct attributes. The tool will compare all eligible xml files within the dedicated folder to the source file.

The tool can parse hundreds of megabytes in few seconds. In the lower status bar you can follow the performed actions.

Choose the source file

- Click the button **Choose source file...**:
  This file will be used as source for correct attributes: all other files in the dedicated folder will be compared against this file

- Click the checkbox **Cleaning up AddPars (optional)**:
  AddPars files ares automatically generated xml files describing singular materials and zone attributes. Every time that you save attribute files into the dedicated folder, Archicad will create "AddPars" files and put them into the AddPars folder. If equally named files exists already, Archicad will make a duplicate adding an 'X' to the name, not only in the file name, also for the attribute name. This will cause a huge lot of false issues: every material name will be unique across all files.

  During the process of finding and fixing attribute issues, you will want to re-export many times and restart the tool, to see the results of your changes. The AddPars folder will get rather large in a very short time. For example, in my test project I reach 25MB re-saving just 4 times the attribute files.

  You must activate this option every time you load a new set of attribute files in order to consolidate all AddPars duplicates.

Proliferation of AddPar files

Option to consolidate AddPar files

3 - Filter and sort the results:

Upon finishing, a list of attribute issues will appear and you can examine them one by one and decide how to resolve them. Again, the tool finds issues, but resolving them can only be done manually from within Archicad.

The list might be huge, it is not unfrequent that you'll see thousands of issues. In order to resolve them, you might want to filter them, hide some or mark them somehow as fixed.

You can **filter** and **sort** the results in many ways, both globally, by disabling entire attribute types, or singularly, by hiding singular items in the list.

Frighteningly large list attribute differences.

- **Attribute Types**:
  - Composites, Building Materials, Fills, etc.
- **Issue Types**:
  - **Name mismatch**:
    attribute index as in the source file, name different in the comparison file, there are two cases
    1. **without implicit duplication:**
       Example: {source file: index 1, name "A"} - {comparison file: index 1, name "B"}
       Name "A" does not exist elsewhere in the comparison file (no duplication).
       This happens upon renaming attributes in one file, while not re-introducing them somehow through hotlinks or else.
    2. **with implicit duplication:**
       Example: {source file: index 1, name "A"} - {comparison file: index 1, name "B"} - {comparison file: index 2, name "A"}
       Name "A" also exists in the comparison file under a different index (duplication).
       This happens if you hotlink the source file into the comparison file after renaming attributes only in the comparison file. The originally named attribute will sneak back into the first available index, because the original one is "busy" with the new name. For the sake of clarity, this type of problem won't show up in the list, as it will be caught elsewhere as an index problem.
  - **Index mismatch**:
    attribute name as in the source file, index different in the comparison file
    Example: {source file: index 1, name "A"} - {comparison file: index 2, name "A"}
  - **Missing in source**:
    Attribute name and index not present in the source file
    Example: {source file: index ?, name ?} - {comparison file: index 1, name "A"}
  - **Missing in file**:
    Attribute name and index present in source file, but not in the comparison file
    Example: {source file: index 1, name "A"} - {comparison file: index ?, name ?}
  - **Content mismatch**:
    Deep attribute mismatch such as attributes of skins/components: fill thickness, skin type, pen, etc.

    A note about Content mismatch: parsing precisely this kind of issues would be too time consuming. There is a simplified but very fast algorithm comparing nested attributes side by side. This might output senseless statements whenever differences are large, see image on the right.

    - **Ignoring** items:
      Helps degarbaging the results, which can otherwise output a huge number of irrelevant positives you are most likely not interested upon.
      - **energy data**:
        thermal conductivity, density, heat capacity, embodied carbon, embodied energy.
      - **technical Archicad things**:
        guid, time stamps, file and image data, etc.

        A note about guids: they change constantly every time the xml files are re-saved and don't seem to be applied by Archicad itself upon replacements using the built in Attribute Manager. They can thus be fully ignored.
- **Frequency**:
  - How often an issue description appears in the list. Click on the column header to sort by frequency

Filtering results.

Example: we chose as source file 'Attributes BT01'. We show only lines. This source file contains a line attribute named 'Volllinie'. This line attribute exists in file 'Attributes BT03" but has index 41, while it should be 46.

Content mismatch.

Example: a composite has the same name and index across source and comparison file, but shows a deep issue within its components, some don't have the same thickness. As a consequence, also the overall thickness mismatches.

Sorting results.

Example: sort by frequency clicking on the last column header. In the screenshot a layer index issue appears 76 times.

- **Right-clicking on a row** in the list of issues allows to perform some row commands, this simplify greatly resolving the issues:
  - **Mark as done/undone**: marks/unmarks the row in gray
  - **All Undone**: unmarks all rows restoring their color
  - **Show most frequent**: shows only the most frequent issue(s)

  Right-click a row and choose a command:
  - **Hide row[s]**: hide the selected row(s)
  - **Hide this file name**: hide all rows with the same file name
  - **Hide this attribute type**: hide all rows with the same attribute type
  - **Hide this attribute index**: hide all rows with the same attribute index
  - **Hide this attribute name**: hide all rows with the same attribute name
  - **Hide this description**: hide all rows with the same description

  - **Show all**: restore full row visibility
  - **Show only this file name**: show only rows with the same file name
  - **Show only this attribute type**: show only rows with the same attribute type
  - **Show only this attribute index**: show only rows with the same attribute index
  - **Show only this attribute name**: show only rows with the same attribute name
  - **Show only this description**: show only rows with the same description

  - **Copy**: save row data into the scrapbook
  - **Reload folder**: reloads all xml files in the dedicated folder. You can use this to reload changed xml files instead of re-launching the tool. This will preserve all markups.

Right-click commands: mark selected row as Done (grayed).

Right-click commands: show all issues with this description

4 - Optionally: Export as Excel:

You can save the results as Excel file and share it with the collaborators involved in resolving the issues.

- On the left, you see the list of attributes names according to the chosen source file.
- On the right, you see the list of files in the dedicated folder.
- Attributes that are in sync across the analysed files will show a gray **x**.
- If there is a difference, this will show with a red background.

Excel output.

- Click the button **Export as Excel**, save in a relevant place
- Open the Excel file, there is a sheet for every attribute set enabled in the dialog
- Eventually expand the columns by double-clicking on them

Example: we chose as source file 'Attributes BT01'. We show here the materials sheet. This source file contains a material attribute named 'A-Ausgleichdämmung'. This material attribute exists in file 'Attributes BT03" but is called 'A-Dämmung, Ausgleich'.

Resolve Attribute Issues in Archicad:

As mentioned above, the tool helps to find the problems, however, they can only be solved in Archicad. Since complex attributes - such as composites - are associated with primitive ones - such as pens and lines - it is essential to resolve the latter first.

The main bulk of the issues are Content issues. These are hidden problems in deep parts, such as mismatches in composite skins. If there is a mismatch in a line, it will cause an issue in any skin or profile that uses it, not just the line itself.

Attribute issues must thus be resolved in this sequence:

1. **Pens**:
   Used by almost everything
2. **Lines, Fills**:
   Used by Materials, Composites and Profiles
   So once the pens, lines and fills have been resolved, a huge number of dependent mismatches will also be resolved. You will then want to save all the attribute files again and restart the tool cleaning up AddPars, see what is left.
3. **Surfaces:**
   Used by Building Materials and Profiles (when the option *Override Surface* is on)
4. **Building Materials:**
   Used by Composites
5. **Profiles and Composites:**
   Use all attributes listed above

Within the singular attribute types, you will want to follow this sequence:

1. **Unused:**
   Remove any attributes that are unused and certainly incorrect before saving the attribute files. If necessary, an attribute file can be loaded from your main template to track the overall deviation from normal standards.
2. **Name mismatch with implicit duplication:**
   Example: {source file: index 1, name "A"} - {comparison file: index 1, name "B"} - {comparison file: index 2, name "A"}
   Resolving this, resolves also many index issues. The best way to resolve this type of mismatch is as follows:
   1. **Delete:**
      In the attribute manager, find the duplicated attribute, it will be the one with the same name as in the source file, but different index. Click on "delete"
   2. **Replace:**
      Replace with the attribute with the same index as in the source file, but different name
   3. **Rename:**
      Now you can rename the attribute to match the source file.
3. **Index mismatch:** resolving this resolves lots of following name issues. Resolve all index issues, then re-save the attribute files and re-launch the tool cleaning up AddPars. You can either restart the tool or right-click on the table and choose *Reload folder*.
4. **Name mismatch without implicit duplication:**
   Example: {source file: index 1, name "A"} - {comparison file: index 1, name "B"} Resolving this, resolves a large part of content mismatch.
5. **Content mismatch:**
   Not all of it is relevant, evaluate

Associated attributes.

Example: this composite contains materials, surfaces, fills, lines, etc. It will always show problems as long as one or more of the associated attributes are different from the source file..

cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification

CBM-Room Manager: Units' Areas

CBM-Room Manager is a simple utility for the BIM author to perform batch actions around Rooms. For the moment there is only a Unit area tool, but I will add functionality as I need it.

In Archicad there is no simple tool to display the sum of areas per unit on drawing. The German AC version contains a complex construct, but it works with the singular GDL parameters and is rather cumbersome to use in practice. One wishes to simply use labels displaying a user-defined property, such as the items in red in the screenshot below:

1. Create a property of type **Area**.
2. For each Zone, write in it the **sum** of the Unit's areas [--> using CBM-Room Manager].
3. Display the property in a **label** attached to any room.

Prepare a property of type Area where to store the Unit's areas.

In red labels displaying the sum of areas per unit using the prepared property.

In order for a label workflow to work, one needs to write the Area sum per Unit in each room and there is no automatic way in Archicad to do it. So this tool does just that: write the Unit's area sum to a property of your choice. Then you can simply use labels like that:

Installation

Warning! At the moment the app is still on development."

- **Download the app** choosing the proper version.
- **Enter your access code** when prompted
- **Save it anywhere you wish and unzip it**, for the moment there is no installer

Downloads	Under construction
0.0.0.x (alpha)	mac intel only on demand!

Usage (see movie):

1 - Filter the room selection

- **Selected only:** Restrict the operations to the selected items.
- **Element Type:** Choose the element type whose areas are to be summed. Every type might have different properties attached, so changing the type will force a regen of the properties in the other fields.
  - **Zone (Room)**
  - **Slab**
  - **Morph**
- **Renovation filter is:** Enable/disable filtering by Renovation Filter
- **Layer is:** Enable/disable filtering by layer
- **Zone Category is:** Enable/disable filtering by Zone Category
- **Classification is:** Enable/disable filtering by Classification

2 - Tabl Unit's Areas:

The building name/number (optional) and unit name/number data properties must be correctly filled in for each Zone before running this application: they are used as filters to sort and calculate the sum of areas.

- **Summarize rooms by:**
  - **Building Name / Nr property:** (Optional) Needed in projects with more than one buildings.
  - **Unit Name / Nr property:** The areas of Zones with the same Unit will be added together.
- **Using areas from property:** The Area property that you want to sum up by unit. You can use built-in properties or custom properties. The built-in properties are described in detail in the Archicad help, below just a brief description:
  Warning: the properties listed depend on the selected element type. If you miss a property, it may be because the type doesn't support it.
  - **Area:** *General Parameters - Area* corresponds to Measured Area as far as I can see. I keep them distinguished anyway, should some hidden deviation be there nevertheless.
  - **Calculated Area:** Construction method inner edge (not gross)
    - Proj. Prefs Wall & Column subtraction ON: Always removes the area of columns or walls, if these are not set to "no effect on zones"
    - Proj. Prefs Wall & Column subtraction OFF: Only removes the area of columns or walls, if these are set to "zone boundary"!
  - **Measured Area:** Visible area of the Zone polygon.
    - Proj. Prefs Wall & Column subtraction ON or OFF: Only removes the area of columns or walls, if these are set to "zone boundary"!
  - **Measured Area Net Area:** Same as Measured Area, but only net part, when the option is "gross"
  - **Reduced Area:** Affected by the option "area reduction under low ceiling": Warning, this just means that if the zone item is lower than the limit in the project preferences, the area will be reduced accordingly. It is NOT really related to roofs or ceilings.
  - **choose custom property:** user defined area property
- **Write the sum into property:** Property where the sum of the unit's areas will be stored. Create one, if missing, and attach it to the Element Type you plan to use. The Units' areas must be stored in every room to be readable consistently by a Label. This can be done manually using properly prepared schedules returning areas by Unit and copy-pasting the displayed value into the chosen field. It is time consuming, error prone and must be redone at every change of the rooms. This tools minimizes effort and errors.

3 - Perform the batch actions

All rooms will be batch edited according to the settings. A progress line appears on the bottom left corner.

- **Help:** Click on Help to read more about the different area types for rooms
- **ESC:** Click on ESC to exit without doing anything
- **OK:** Click on OK to perform the batch actions, this will also save the preferences.

Knowledge

About zone parameters

Zones are rather complex as to what is calculated and when. The results depend on project, zone and adjacent elements' (wall, columns etc.) settings:

- **Options > Project Preferences > Zones:** Affect the overall calculations for the whole file. If and how elements will be deducted is deeply set.
  Warning: the singular Zones won't change automatically, a regen is required! Use *Design > Update Zones*

Project Preferences: Wall and columns subtracted

Project Preferences: Wall and columns not subtracted

- **Zone settings:** parameter "Geometry method"
  Describes the zone behaviour related to the wall edges. Note that the "Measured Area" always corresponds to the visible 2D polygon and that "General Parameters - Area" is always the same as "Measured Area".

  Facit: use *General Parameters - Area.*

Zone Settings: Geometry method

- **Column settings:** parameter "Relation to Zones"
  Note when the zone polygons (active selection) actually subtract the column, depending on the "Relation to zone" and the "Extracted column area" property (in blue).

  Facit: use *General Parameters - Area.*

Column Settings: Relation to zone

Project Preferences: Wall and columns subtracted

Project Preferences: Wall and columns not subtracted

- **Wall settings:** parameter "Relation to Zones"
  Note when the zone polygons (active selection) actually subtract the column, depending on the "Relation to zone" and the "Extracted wall area" property (in blue).

Wall Settings: Relation to zone

Project Preferences: Wall and columns subtracted

Project Preferences: Wall and columns not subtracted

cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification

CBM-Window

Draws: window, window-door and opening objects. Straight and round, with optional reveals, sills, sun shading. Supports corner windows, custom part textures, plug-in styles, catalogs on demand, automaps its own IFC export.

Outputs: 2D, 3D, IfcWindow, IfcDoor, IfcOpening, DIN 276 Classification

Configurations: - = fixed, P = panel, > = left casement, < = right casement,) = bipart uneven left, (= bipart uneven right, B = bipart even, / = bottom hung, \ = top hung, x = pivot horizontal, k = pivot vertical, ? = empty

Options: \ = hopper bottom hinged, / = awning top hinged, k = pivot vertical, d = door swing, dashed as override to the chosen class, O = door towards outside, D = door swing

Parameters:

General

Minimal interface, round walls support upon insertion

Three 2D detail levels

Code-style configuration:
direct modifiers, no interface

Control-point driven Elements:
direct editing, no interface

Sculptural wall cuts through 2D control points, no interface:

Wall hole

How the window element cuts into a wall, round wall infos and control

Round Wall support

Round or straight window with radial or straight sides

Wall hole to carrying slab independent from window element's height, optional threshold

Calculated equal element width, option for max element width

Position

In-Wall Placement with Wall Components, detailed wrapping controls

Full styleable, Component wrapping and positioning

Corner windows

Freemodeling of components in plan through control points: direct edit, no interface

Transom

Window parts above

Transom with muntins

Jamb and Sash

Profiles settings

Full control on Jamb and Sash offsets

Sills and Drainage

Outer and inner Sills, option for Drainage

Metal, concrete, plank, brick sills and drainage, optional insulation

Reveals

Reveals outside and inside

Control-point driven Reveal construction

Sun Shading

External Sun Shading

Window Awning, Roller Shutter and Venetian Blinds, round and rectangular, optional insulation

Glas and Bead

Glas settings and bead option

Glas and Beads for woodden windows

Appearance

Appearance in 2D, 3D and section

Custom texture parts

Data

Semantic, physical Data and Norms

IFC automapping

Product

Product attributes

IFC classification

cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification

CBM-Door

Draws: door and opening objects. For insertion in straight and round walls, with optional reveals, sills, sun shading. Supports custom profiles, part textures, plug-in styles, catalogs on demand, automaps its own IFC export.

Outputs: 2D, 3D, IfcDoor, IfcOpening, DIN 276 Classification

Configurations: - = fixed, > = left casement or slider, < = right casement or slider, B = bipart even, = = double sliding, V = folding, W = double folding, ? = empty

Parameters:

General

Minimal interface

Displays three 2D detail levels

Code-style configuration:
direct modifiers, no interface

Control-point driven custom door parts:
direct editing, no interface

Round Walls: Radial or straight sides

Wall Hole

How the door element cuts into a wall, round wall infos and control

Wall clipping or adding (shadow gap, plaster decors)

Wall hole to carrying slab for correct wall quantities, optional Threshold

Position

In-Wall Placement with Wall Components, wrapping controls

Full styleable, Component wrapping and positioning

Separate Insertion component wrapping

Transom

Door parts above

Transom without muntins

Unlimited custom profiles

Frame

Block settings

Casing settings

Frame and leaf

Leaf edge flush or rebated

Leaf 2D display symbolic or realistic

Leaf

Leaf settings

Leaf with panels

Reveals

External and internal Reveals

Sides with optional top part (disabling top part allows seemless stacking across multiple floors)

Sun Shading

External Sun Shading

Cover shapes: round, rectangular and edged

Sills and Drainage

Insulated external sills, option for Drainage

Metal, concrete, plank, brick sills and drainage, with or without insulation

Appearance

Appearance in 2D, 3D and section

Custom texture parts

Data

Semantic, physical Data and Norms

IFC automapping

Product

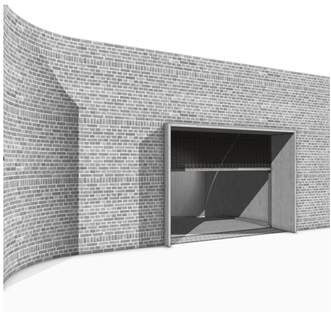
Product attributes

IFC classification DIN 276

cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification



CBM-Industrial / Garage Door

Draws: schematic industrial/garage door. For insertion in straight walls, with variable track angle for sectional doors, optional reveals, drainage, different cover types. Supports custom profiles, part textures, plug-in styles, catalogs on demand, automaps its own IFC export.

Configurations: rolling up, sectional up

Outputs: 2D, 3D, IfcDoor, IfcOpening, DIN 276 Classification

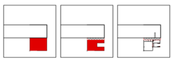
Parameters:

General

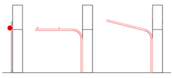
Minimal interface



Displays three 2D detail levels



Configurations: Rolling up and Sectional up with variable angle

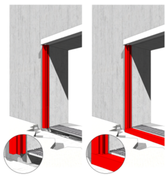


Wall Hole

How the door element cuts into walls



Wall hole to carrying slab, optional constructive threshold



Position

Position relatively to wall components

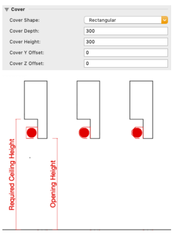


Full styleable insertion, optional component wrapping



Cover

Cover shapes: round, rectangular and edged





Frame

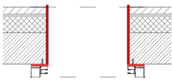
Configurations: block, tracks and custom profile



Precise Frame and Track positioning

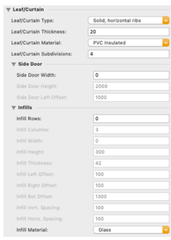


Precise detailing with custom profiles

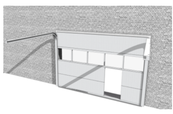


Leaf/Curtain

Leaf settings



Leaf with Side Door



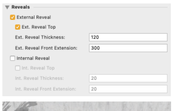






Reveals

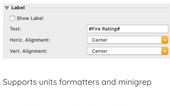
External and internal Reveals





Label

Parameter-parsing label on drawing



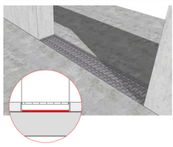
Supports units formatters and minigrep



Drainage

Drainage with optional insulation



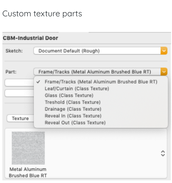


Appearance

Appearance in 2D, 3D and section



Custom texture parts



Data

Semantic, physical Data and Norms



IFC automapping



Product

Product attributes



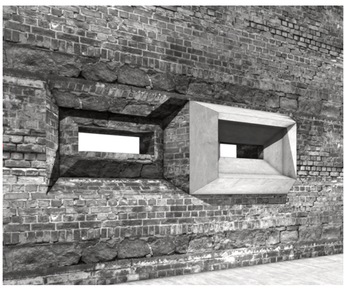
IFC classification DIN 276



cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification



CBM-Wall Hole

Draws: advanced parametric 3D wall hole with (yet) minimal 2D support. It's a tool developed around the needs of existing buildings. It can be used as allrounder for cutting holes of any kind, for balconies or openings. The tool allows to split Window and Door elements from their wall hole, which can, under circumstances, be extremely complex.

For insertion in straight walls, including frame, side elements such as pilasters or columns, center columns, sills with any shape. Supports custom profiles, part textures, plug-in styles, catalogs on demand, automaps its own IFC export.

Configurations: Squared, round and segment top shape

Outputs: basic 2D, 3D, IfcOpening

Notes: this tool is one of my sandboxes for exploring the limits of wall insertion. Ideally, it would work with other objects, such as Windows, Doors or similar, through associations: every tool in a network, but with distinct functionality. Waiting for this concept to become possible...

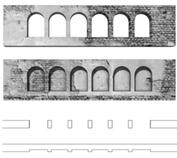
Parameters:

General

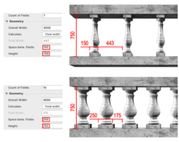
Minimal interface



Configurations: Opening or Recess

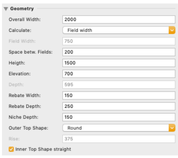


1 Wall + 1 3D Shape + 1 CBM-Wall Hole
CBM-Wall Hole cuts the hole in the wall and fits the chosen shape parametrically, scaling it and repeating it a chosen number of times

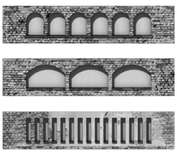


Geometry

Granular geometry control on the wall hole



Outer Top shape: Round, Segment, Rectangular



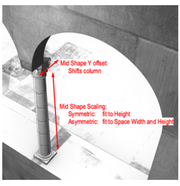
Option: Subtract or Add to wall



Outer Top shape Round with option Inner Top Shape Straight



Mid Shape operations



Internal Sill

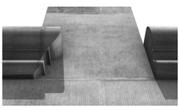
With room for inserting separate window



The optional hole between internal sill and rebate allows to place a window element



Option: Wrap custom profiles' edges



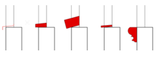
Option: One Frame for each field or unified



External Sill



Options: Metal, concrete, brick, plank, custom profile



Option: One sill for each field or unified

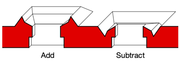


Ornaments

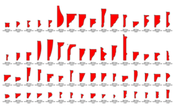
Additional architectonical elements



In-Wall Behaviour: Add to wall, subtract from wall



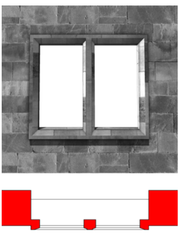
Frames and Sills: use any 2D symbol



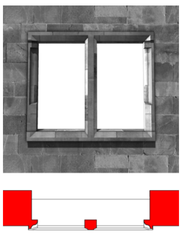
Sides and Midparts: use any 2D/3D symbol



+ Frames



+ Frames + Sides



+ Frames + Sides + Midparts + Sill

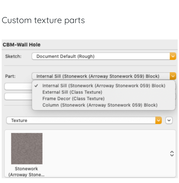


Appearance

Appearance in 2D, 3D and section



Custom texture parts



Data

Semantic, physical Data and Norms



IFC

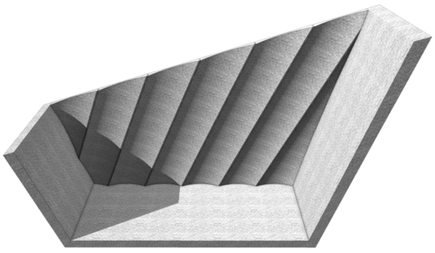
Automapping



cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification



CBM-Vault Capped

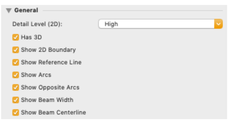
Draws: cap ceiling for existing buildings. Storey bound, supports custom profiles, part textures, plug-in styles, catalogs on demand, automaps its own IFC export. This plug-in is still in progress.

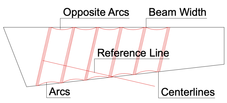
Outputs: 2D, 3D, IfcSlab, DIN 276 Classification

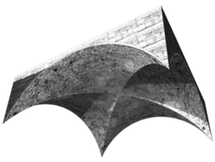
Parameters:

General

Extensive 2D options

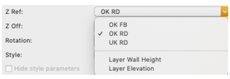


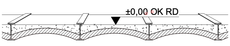


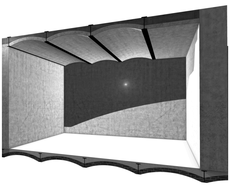


Storey and Style

Responds to storey levels, styleable



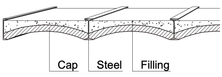




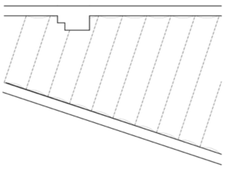
Vault Geometry

Supports 3 components: cap, fill and steel shape



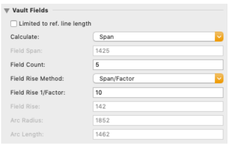


Supports any polygonal geometry, align vault caps to a chosen side.

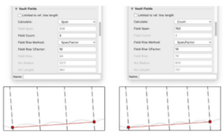


Vault Fields

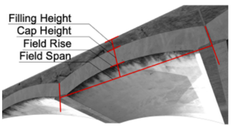
Control-point driven field geometry, no dialogs



The reference line length/field count determines the span. Option to use it as limit.



The field rise can be entered manually or calculated by factor (around 1/10 of the span).

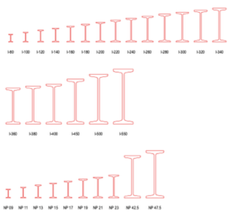


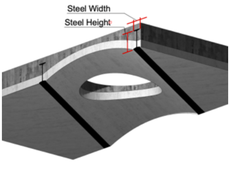
Steel Shape

Optional Steel shape, extra historical sizes



Symbol-based steel shape geometry, fully customizable.



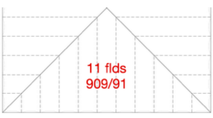


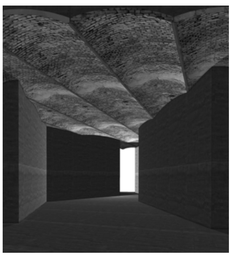
Label

Parameter-parsing label on drawing



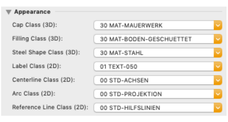
Supports units formatters and minigrep



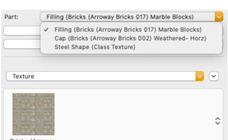


Appearance

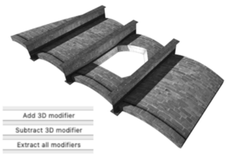
Appearance in 2D, 3D and section



Custom Texture Parts

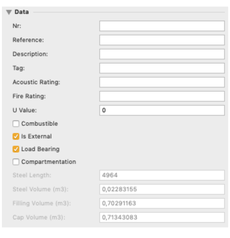


Add, subtract 3D modifiers of any kind. Option to extract them for easier edit (avoid edits in Profile group)

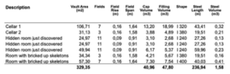


Data

Semantic, physical Data and Norms



Ready for quantity take offs



Description	Vault Area [m2]	Fields	Field Rise [cm]	Field Span [cm]	Cap Volume [m3]	Filling Volume [m3]	Shape	Beam Length [m]	Steel Volume [m3]
Cellar 1	106,71	7	0,18	1,64	13,20	18,99	I 320	43,41	0,32
Cellar 2	31,13	3	0,16	1,58	3,88	4,69	I 300	19,51	0,21
Hidden room just discovered	24,97	11	0,09	0,91	3,10	2,68	I 240	27,26	0,13
Hidden room just discovered	26,94	11	0,09	0,91	3,35	2,89	I 240	29,41	0,13
Hidden room just discovered	49,94	11	0,09	0,91	6,17	5,37	I 240	55,06	0,25
Room with bricked-up skeletons	34,34	3	0,16	1,58	4,21	5,67	I 300	19,51	0,14
Room with bricked-up skeletons	57,30	7	0,16	1,64	7,30	7,54	I 400	40,65	0,41
	329,35				40,96	47,80		236,94	1,58

Product

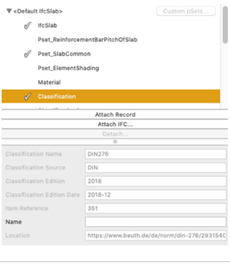
Product attributes for compatibility reasons with new slabs. Capped ceiling are seldom built new, they are existing, need thus no product specification



IFC automapping



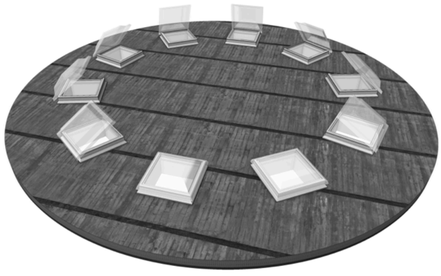
IFC classification DIN 276



cad how
bim

BIM Consulting | BIM Solutions > Focus on HOW

BIM-Professional (Technical University of Munich, Germany)
buildingSMART International Qualification



CBM-Flat Roof Window (THIS PAGE IS UNDER CONSTRUCTION)

Draws: flat roof window. Supports, auto-placement on slab components, custom part textures, plug-in styles, catalogs on demand, automaps its own IFC export.

Outputs: 2D, 3D, IfcWindow, DIN 276 Classification

Configurations: flat glass, curved glass, dome glass

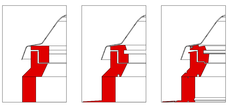
Parameters:

General

Minimal interface



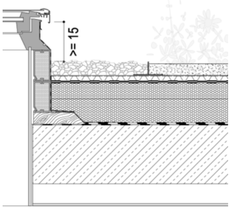
Three 2D detail levels



Option: separate 2D display for cover and structural hole



Apt for high level of detail



Geometry

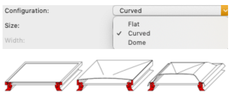
Configurations



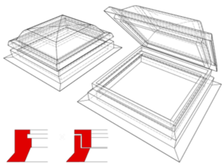
Size configurations: custom and predefined



Glas shape configuration: flat, curved and dome



Option: fixed and vented

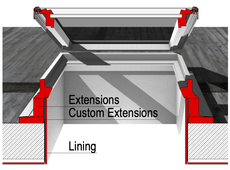


Insertion

Manages up to three slab objects: Covering, Insertion and Ceiling slab (movie).





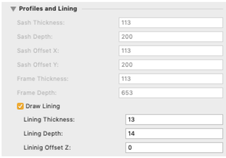


Automatic placement on chosen component



Profiles and Lining

Calculated profile sizes (for IFC export)

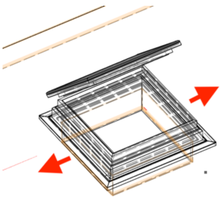


Option: lining

Join to chosen slab

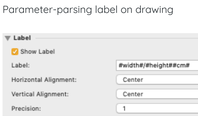


Manages slab modifiers automatically: creation, deletion, move and rotate

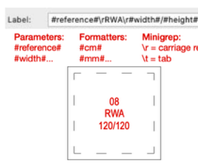


Label

Parameter-parsing label on drawing

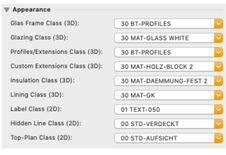


Supports units formatters and minigrep

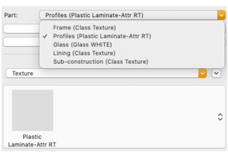


Appearance

Appearance in 2D, 3D and section

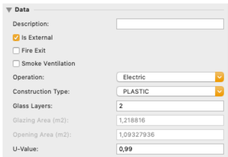


Custom texture parts

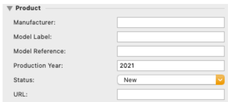


Data

Semantic, physical Data and Norms



Product



IFC

IFC automapping



IFC classification

