Rhino Tools Manual
Version 2.2

Version	Date
2.0	08-06-2018
2.1	12-03-2018
2.2	06-21-2019

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General Requirements

• Always model in inches.

• Always update to the latest version of Rhino.

• Always keep the project near the Rhino origin point.

• Never overwrite the toolbar or template.

Template

PCPA reach

Template

Installation

1. From the PCPA Rhino Toolbar, click **PCPA > Standards > Set Template**

Further instructions can be found here.

*When you open a new Rhino file, the template will be the default.*

PCPA_Template.3dm   11/2/2018 4:35 PM   PCPA Template File
                                                  Version 2.1
                                                  2018-11-02

Template

Layers

Layers have been simplified for readability and speed of navigating.

All objects should fit within this hierarchy.

- Each root layer has a number in front for proper sorting.

- Root layers have been assigned unique colors.

Name	Current	On	Lock	
> **0_ARCHITECTURE**	✓			
> 1_SITE		♀	🔓	
> 2_ENTOURAGE		♀	🔓	
> 3_DESIGN OPTIONS		♀	🔓	
> 4_BLOCKS		♀	🔓	
> 5_ZONING		♀	🔓	
6_CAD IMPORT		♀	🔓	
> 7_PROGRAM		♀	🔓	
> 8_DRAWING		♀	🔓	
> 9_RENDER		♀	🔓	

PCPA reach

Template

Layers

Architecture
- For all objects describing the geometry of the building

∨ 0_ARCHITECTURE				
_Hidden				
_Lines				
Ceiling				INTERIOR_Ceiling_Generic
Door				INTERIOR_Doors_Generic
Facade_Generic				ARCHITECTURE_Facade_Generic
Floor				INTERIOR_Floor_Generic
Furniture				INTERIOR_Furniture_Generic
Glazing_Spandrel				ARCHITECTURE_Glazing_Spandre...
Glazing_Vision				ARCHITECTURE_Glazing_Vision_G...
Hardware				ARCHITECTURE_Hardware_Generic
Millwork				INTERIOR_Millwork_Generic
Mullions				ARCHITECTURE_Mullions_Generic
Railings				ARCHITECTURE_Railings_Generic
Ramp				INTERIOR_Floor_Generic
Roof				ARCHITECTURE_Roof
Stair				INTERIOR_Floor_Generic
Structure_Beam				ARCHITECTURE_Structure
Structure_Column				ARCHITECTURE_Structure
Structure_Slab				ARCHITECTURE_Structure
Wall_Generic				INTERIOR_Wall_Generic

PCPA reach
Template

Layers

Site
- For landscape and surrounding context

Entourage
- For people, plants, and vehicles (often blocks)

Design Options
- For the master blocks that contain all objects describing a design option

Blocks
- For the geometry of frequently used blocks, and their block instance.

Zoning
- Geometry describing the zoning requirements

Layer		
⌄ 1_SITE	💡 🔓 ▫	
Context Buildings_Generic	💡 🔓 ☐ ◯	SITE_Context Buildings_Generic
Ground_Curb Lines	💡 🔓 ☐ ◯	SITE_Ground_Curb Lines
Ground_Natural	💡 🔓 ▪ ●	SITE_Ground_Natural
Ground_Sidewalk	💡 🔓 ☐ ◯	SITE_Ground_Sidewalk
Ground_Soil	💡 🔓 ▪ ●	SITE_Ground_Soil
Ground_Street	💡 🔓 ▪ ●	SITE_Ground_Street
Water_Generic	💡 🔓 ☐ ◯	SITE_Water_Generic
⌄ 2_ENTOURAGE	💡 🔓 ▫	
_Hidden	💡 🔓 ☐	
> People	💡 🔓 ▪	
> Vegetation	💡 🔓 ▪	
Vehicles	💡 🔓 ▪	
⌄ 3_DESIGN OPTIONS	💡 🔓 ▪	
Option 01	💡 🔓 ▪	
⌄ 4_BLOCKS	💡 🔓 ▫	
_Hidden	💡 🔓 ☐	
Door_3'X8'	💡 🔓 ▪	
Window_3'X8'	💡 🔓 ▪	
Window_4'X8'	💡 🔓 ▪	
⌄ 5_ZONING	💡 🔓 ▫	
Property Line	💡 🔓 ▪	
Setbacks	💡 🔓 ▪	
Sky Exposure Plane	💡 🔓 ▪	

Layers

CAD Import
- For the layers of imported CAD drawings

Program
- Used for massing models

Layer					
6_CAD IMPORT	💡	🔓	🟩	⚪	
⌄ 7_PROGRAM	💡	🔓	🟦	⚪	
Commercial_Dark	💡	🔓	🟦	🔵	PCPA PROGRAM_Commercial_Da...
Commercial_Light	💡	🔓	🟦	🔵	PCPA PROGRAM_Commercial_Li...
Commercial_Medium	💡	🔓	🟦	🔵	PCPA PROGRAM_Commercial_M...
Landscape	💡	🔓	⬜	⚪	PCPA PROGRAM_Landscape
Parking	💡	🔓	⬛	⚫	PCPA PROGRAM_Parking
Program 01_Dark	💡	🔓	🟥	🔴	PCPA PROGRAM_Program 01_Dark
Program 01_Light	💡	🔓	🟥	🔴	PCPA PROGRAM_Program 01_Light
Program 01_Medium	💡	🔓	🟥	🔴	PCPA PROGRAM_Program 01_Me...
Program 02_Dark	💡	🔓	🟨	🟡	PCPA PROGRAM_Program 02_Dark
Program 02_Light	💡	🔓	🟨	🟡	PCPA PROGRAM_Program 02_Light
Program 02_Medium	💡	🔓	🟨	🟡	PCPA PROGRAM_Program 02_Me...
Program 03_Dark	💡	🔓	🟫	🟤	PCPA PROGRAM_Program 03_Dark
Program 03_Light	💡	🔓	🟫	🟤	PCPA PROGRAM_Program 03_Light
Program 03_Medium	💡	🔓	🟫	🟤	PCPA PROGRAM_Program 03_Me...
Public	💡	🔓	⬜	⚪	PCPA PROGRAM_Public
Residential_Dark	💡	🔓	🟪	🟣	PCPA PROGRAM_Residential_Dark
Residential_Light	💡	🔓	🟪	🟣	PCPA PROGRAM_Residential_Light
Residential_Medium	💡	🔓	🟪	🟣	PCPA PROGRAM_Residential_Me...
Retail_Dark	💡	🔓	🟧	🟠	PCPA PROGRAM_Retail_Dark
Retail_Medium	💡	🔓	🟧	🟠	PCPA PROGRAM_Retail_Medium
Roof	💡	🔓	⬜	⚪	PCPA PROGRAM_Roof
Service_Dark	💡	🔓	⬜	⚪	PCPA PROGRAM_Service_Dark
Service_Medium	💡	🔓	⬜	⚪	PCPA PROGRAM_Service_Medium
Soil	💡	🔓	⬛	⚫	PCPA PROGRAM_Soil
Terrace	💡	🔓	⬜	⚪	PCPA PROGRAM_Terrace
Trees	💡	🔓	🟩	⚪	PCPA PROGRAM_Trees
Water	💡	🔓	⬜	⚪	PCPA PROGRAM_Water

PCPA reach
Template

Layers

Drawing
- For geometry placed on the layouts, or printing from layouts

∨ 8_DRAWING	💡	🔓	🟦
_Hidden	💡	🔓	⬜
Clipping Plane	💡	🔓	🟧
Dimensions	💡	🔓	⬛
Hatch	💡	🔓	⬛
Layout	💡	🔓	⬛
Leaders	💡	🔓	⬛
PCP-01	💡	🔓	⬜
PCP-02	💡	🔓	🟪
PCP-03	💡	🔓	🟦
PCP-04	💡	🔓	🟦
PCP-05	💡	🔓	🟩
PCP-06	💡	🔓	🟨
PCP-07	💡	🔓	🟥
PCP-08	💡	🔓	⬛
PCP-09	💡	🔓	⬜
Symbol	💡	🔓	🟪
Text	💡	🔓	⬛
Viewport	💡	🔓	⬜

PCPA reach
Template

Layers

Render
- For objects necessary to render

> 9_RENDER
  _Hidden
  Camera Path
  Lights
  Target Path

Template

Layout

In the layout called PCPA_Layout, there are many paper space annotation objects to help in preparing your drawing.

1. Paper Space Annotation

5. Scale Bars and Scale Factors

2. Titleblock

3. North Arrows

4. Annotation Styles

Template

Annotation Styles

6 PCPA Annotation styles have been placed in the template file.

- PCPA_08
- PCPA_10
- PCPA_12
- PCPA_14
- PCPA_18
- PCPA_Precision

Model space scale has been set to 192 by default.

PCPA_Precision is for checking model geometry.

*Beware that model space scale does not affect printed text size.

Current	Annotation Styles
⦿	PCPA_08
○	PCPA_10
○	PCPA_12
○	PCPA_14
○	PCPA_18
○	PCPA_Precision

PCPA_08
PCPA_10
PCPA_12
PCPA_14
PCPA_18

Template

Linetypes

3 PCPA Linetypes have been placed in the template file.

- PCPA_DashDot
- PCPA_DashedMedium
- PCPA_DashedSmall

PCPA_DashDot	— · — · — · —
PCPA_DashedMedium	— — — —
PCPA_DashedSmall	— — — — — — —

Toolbar

Toolbar

Installation

Name	Date modified	Type	Size
📁 PCPA_Toolbar.rui	7/23/2018 1:47 PM	Rhino Toolbars	174 KB

1. Ensure only one instance of Rhino currently open.

2. Drag and drop **PCPA_Toolbar.rui** from the following folder into Rhino: Toolbar path

3. Close Rhino (this saves the toolbar to your Rhino settings).

PCPA Should appear at the top menu bar of Rhino

Toolbar

Installation

After installing the toolbar, if it does not display immediately, you can show it by right clicking anywhere on the toolbar, then choosing Show Toolbar, then scrolling down to the PCPA and checking that box.

(You do not need to check the other PCPA tabs)

Command:

Standard | CPlanes | Set View | Display | Select | Viewport Layout | Visibility | Transform | Curve Tools | Surface Tools | Solid Tools | Mesh Tools | Render Tools | Draftin

Show Toolbar ▶

New Button...

New Separator

Edit Button ▶

New Tab

Show or Hide Tabs ▶

Size to content

Properties...

Lock Docked Windows

Perspective |▾

- ☐ Viewport Layout
- ☐ Visibility
- ☐ VRay Compact
- ☐ VRay Lights
- ☐ VRay Proxy
- ☐ VRay Rendering
- ☐ VRay Utility
- ☐ WalkAbout
- ☐ Welding
- ☐ Worksession

PCPA_WIP
- ☐ Architecture
- ☐ Blocks
- ☐ Legacy
- ☐ PCPA (3 tabs)

VRayForRhino
- ☐ VRay All
- ☐ VRay Compact
- ☐ VRay Geometry
- ☐ VRay Lights
- ☐ VRay Proxy
- ☐ VRay Rendering
- ☐ VRay Utility

Viewport
- Title
- Width
- Height
- Projection

Camera
- Lens Length
- Rotation
- X Location
- Y Location
- Z Location
- Distance to
- Location

Target
- X Target
- Y Target
- Z Target
- Location

Wallpaper
- Filename
- Show
- Gray

Stair

| Architecture | Blocks | Drawing | Geometry | Le |

■ Stair   ■ Ramp - By Slope

Creates a stair to specified height, along a guide curve. Risers kept below 7", tread is result of the guide curve length.

*Curved geometry not currently supported.

INPUT
1. Select Guide Polyline
2. Width (inches)
3. Height (inches)

OUTPUT
• Stair

Guide Polyline

Stair
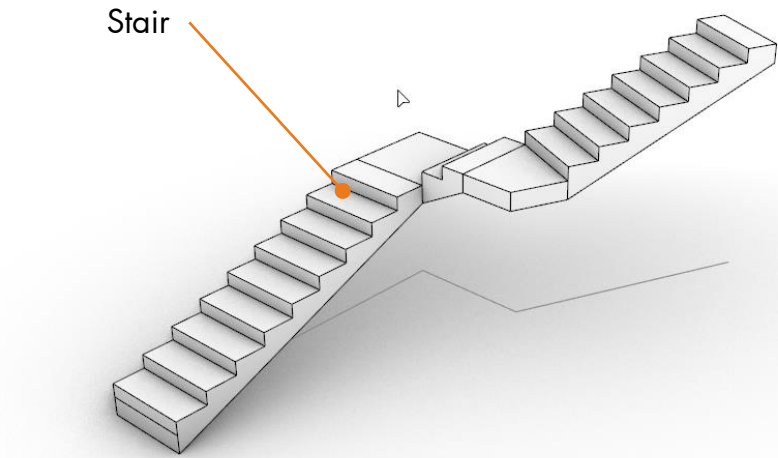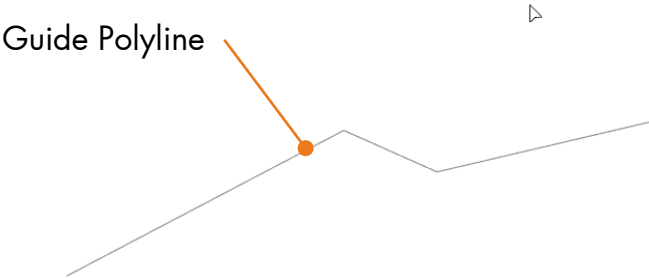
PCPA reach
Toolbar
Architecture

Ramp

| Architecture | Blocks | Drawing | Geometry | Leg |
| Stair | Ramp - By Slope |
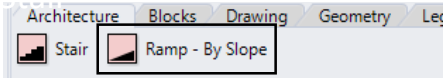
Creates a ramp at specified slope, along a guide curve.

Handrail inserted if slope > 5%

*Curved geometry not currently supported.
*Will currently only insert 1 landing per run.

INPUT
1. Select Guide Polyline
2. Width (inches)
3. Slope (%)

OUTPUT
• Ramp
• Handrail

INPUT   >   OUTPUT

Guide Polyline

Ramp

Handrail
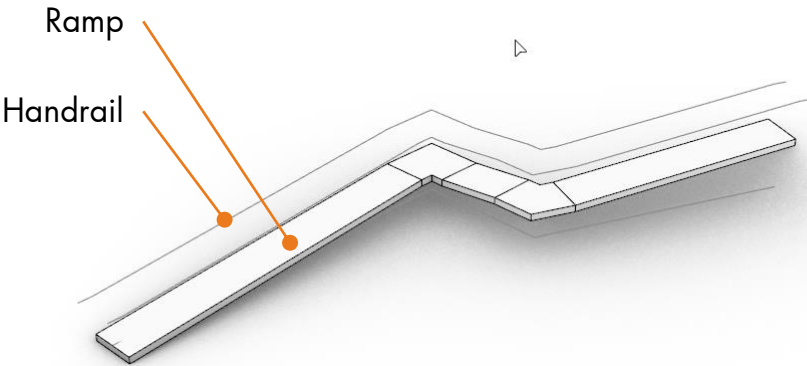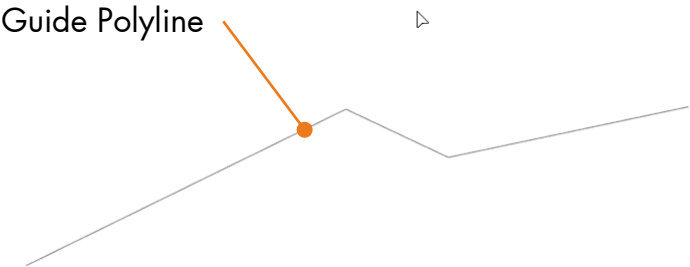
Create Design Option
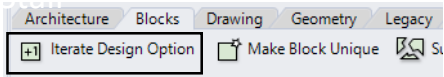
INPUT > OUTPUT

Selected objects will be converted into a block and placed in a new matching layer, under "3_DESIGN OPTIONS".

INPUT
1. Select Geometry
2. Input design option name

OUTPUT
- Block on layer under "3_DESIGN OPTIONS"

Design Option Layer

Design Option Block

New Design Option Layer

New Design Option Block

Toolbar

Blocks

INPUT > OUTPUT

Iterate Design Option

Architecture | Blocks | Drawing | Geometry | Legacy

+1 Iterate Design Option | Make Block Unique
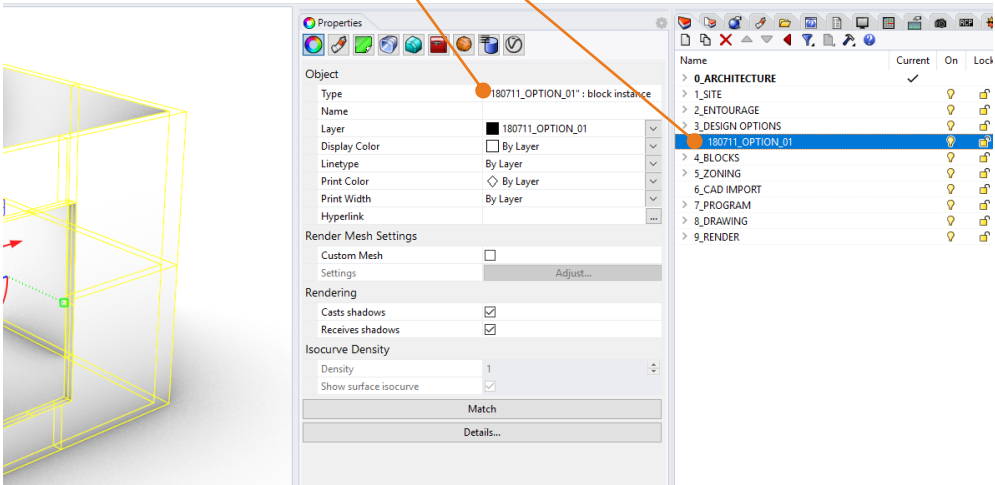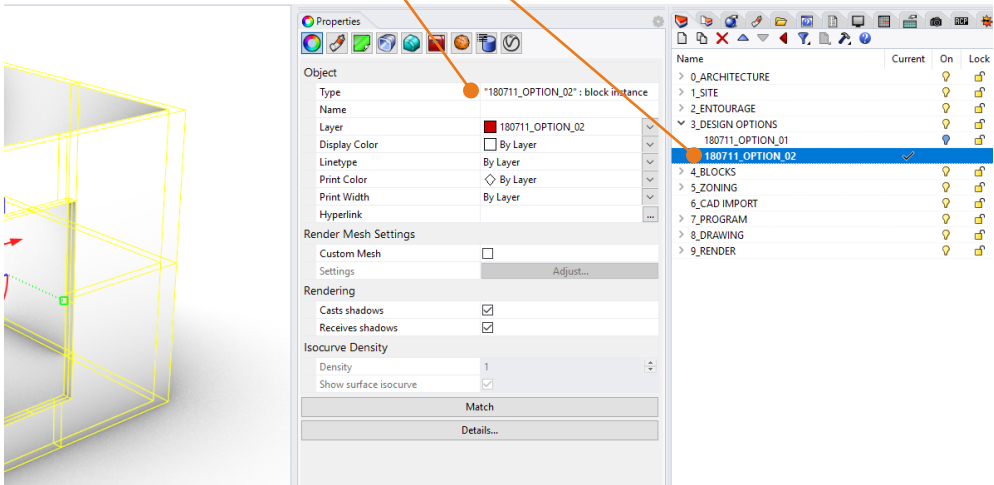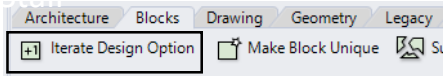
The selected block will be duplicated and renumbered with a new block name.

A new matching layer name with be created and the previous will be turned off.

Supports numbers and letter suffix, separated by "-" , "_", or " ".

INPUT
1. Select block
2. Input new blocks name

OUTPUT
- Duplicated block, renamed with suffix +1 or update date.
- Duplicated layer with same name

Design Option Layer

Design Option Block
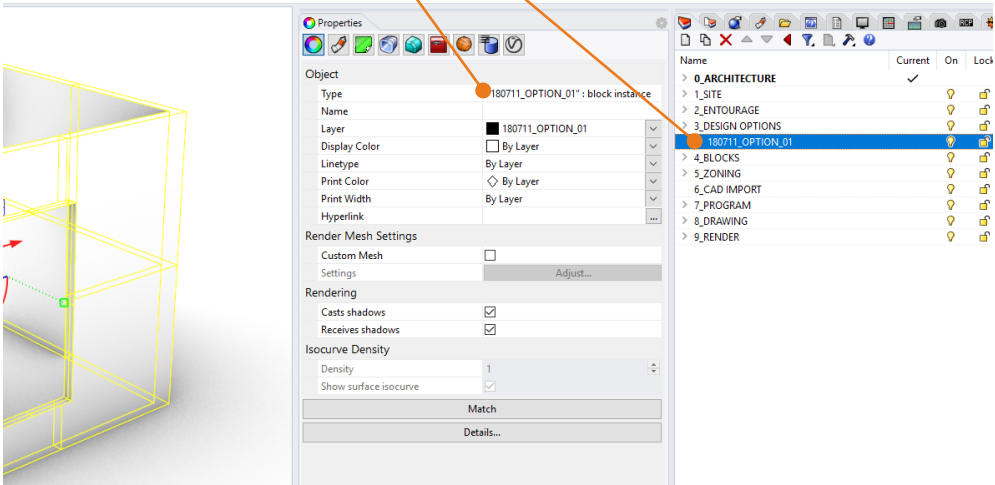
New Design Option Layer

New Design Option Block

Make Block Unique
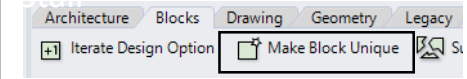
INPUT   >   OUTPUT

Creates a new block definition from an old block. (Keeps the old block in the file, but deletes the instance)

Default name will be either an update date, or the name +1 (if suffixed with a number)

INPUT
1. Select block
2. Input new blocks name

OUTPUT
- New Block with same geometry and origin pt.
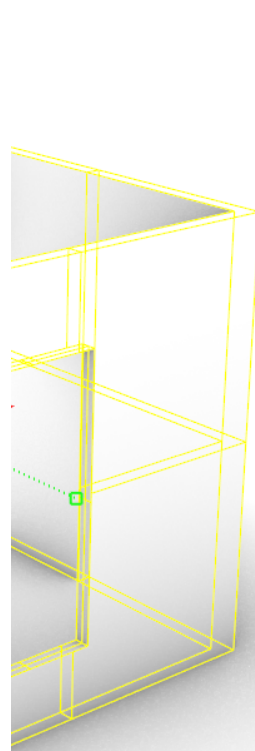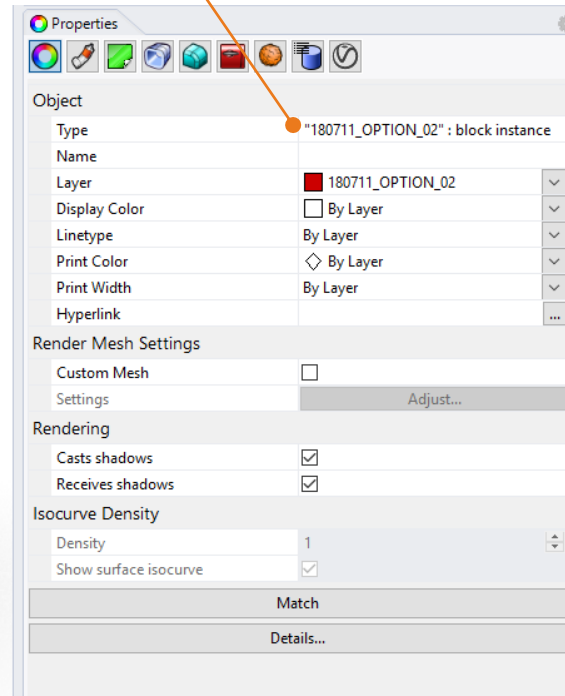
Block

New block (same geometry)
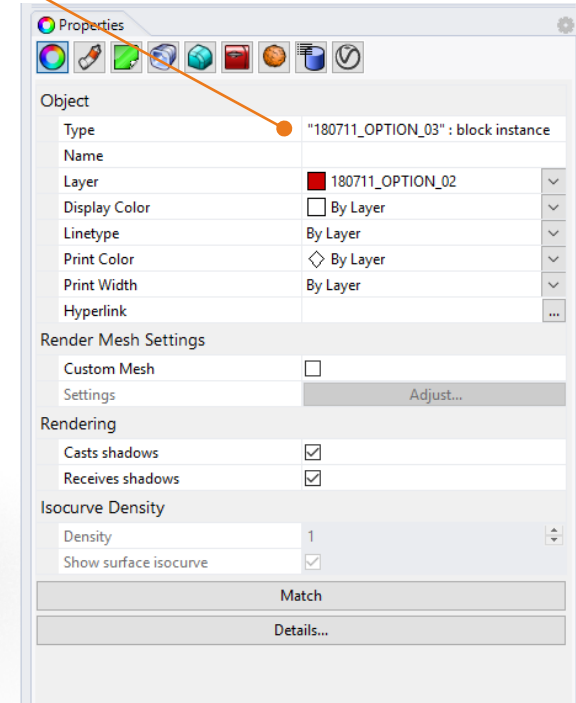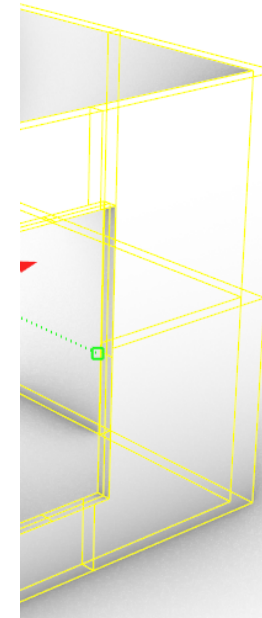
Super Explode
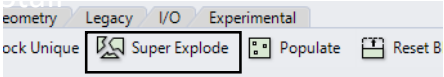
INPUT > OUTPUT

Explodes a block and all blocks within it.

Blocks inside a block

All blocks exploded

INPUT

1. Select block with blocks nested inside.

OUTPUT

- Geometry inside those blocks.

Populate

INPUT   >   OUTPUT

Populates a surface with selected population type.

Blocks are imported from the network and randomly placed across the surface.

INPUT
1. Select surface
2. Number of objects to place
3. Select Population Type

OUTPUT
- Blocks randomly placed on the surface.

Population Type

Surface to populate

Imported blocks randomly placed.

Placer

Select block type to populate

- 3D People
- 2D People
- 2D Trees
- Custom Block

OK   Cancel

Populate

eometry | Legacy | I/O | Experimental

ock Unique | Super Explode | Populate | Reset B

Populates a surface with selected population type.

Blocks are imported from the network and randomly placed across the surface.

INPUT
1. Select surface
2. Number of objects to place
3. Select Population Type

OUTPUT
• Blocks randomly placed on the surface.

INPUT > OUTPUT

Population Type

Surface to populate

Placer ✕

Select block type to populate

3D People
2D People
2D Trees
Custom Block

OK   Cancel

Imported blocks randomly placed.

Populate

INPUT > OUTPUT

Populates a surface with selected population type.

Blocks are imported from the network and randomly placed across the surface.

INPUT
1. Select surface
2. Number of objects to place
3. Select Population Type

OUTPUT
- Blocks randomly placed on the surface.

Population Type

Surface to populate

Imported blocks randomly placed.

Populate

eometry | Legacy | I/O | Experimental
ock Unique | Super Explode | Populate | Reset B

Populates a surface with selected population type.

Blocks are imported from the network and randomly placed across the surface.

INPUT
1. Select surface
2. Number of objects to place
3. Select Population Type
4. Select Existing Block

OUTPUT
• Blocks randomly placed on the surface.

INPUT   >   OUTPUT

Population Type

Placer   ×

Select block type to populate

3D People
2D People
2D Trees
Custom Block

OK   Cancel

Surface to populate

Existing Block

Existing blocks randomly placed.
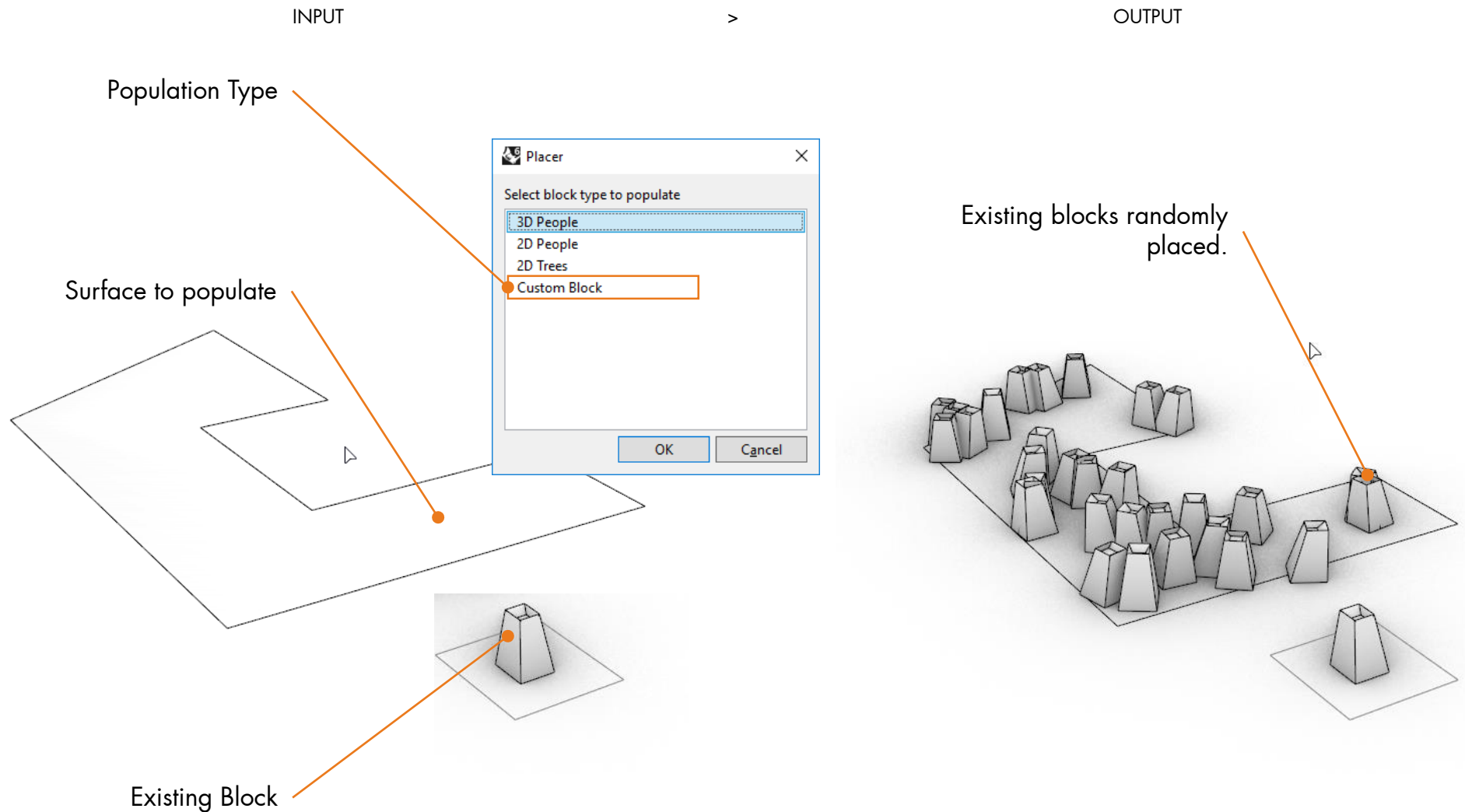
Reset Block Scale

| Reset Block Scale | Export and Link |
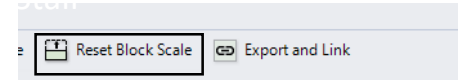
Returns a block to its original scale, while maintaining origin point.

INPUT

1. Select Scaled blocks

OUTPUT

• Blocks at original scale
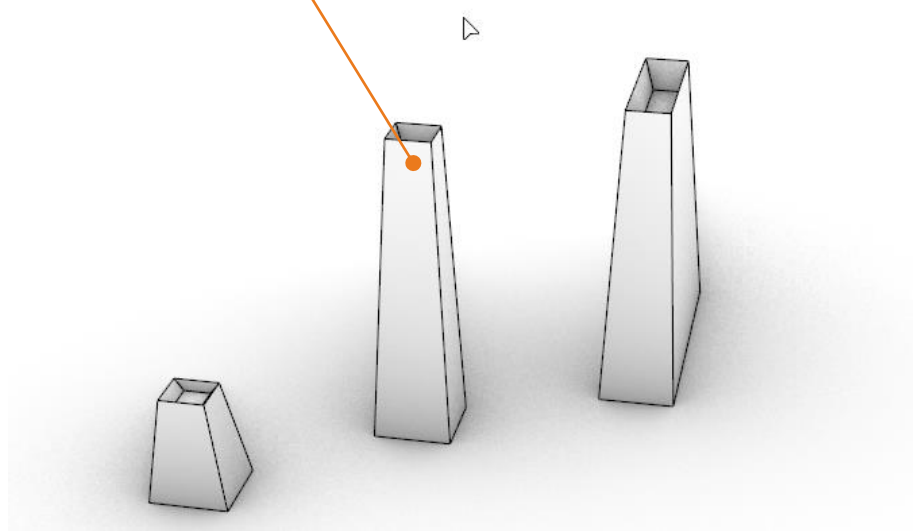
Scaled blocks

Scaled blocks

Export and Link
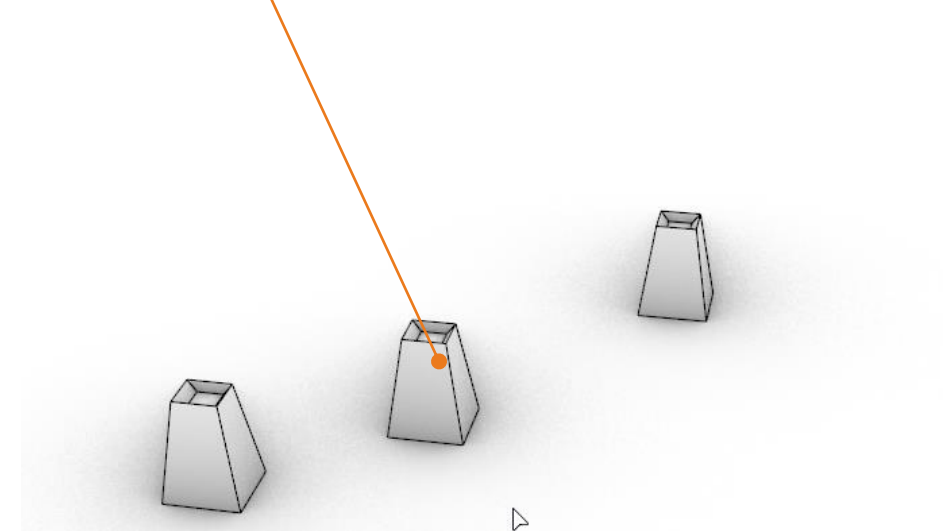
Reset Block Scale | Export and Link

Exports a block to another Rhino file, then links it back to the original block.

Useful when a block occurs multiple times in a file, and you want multiple people on this file.

INPUT
1. Select Block

OUTPUT
• Linked Block

INPUT > OUTPUT

Block within document
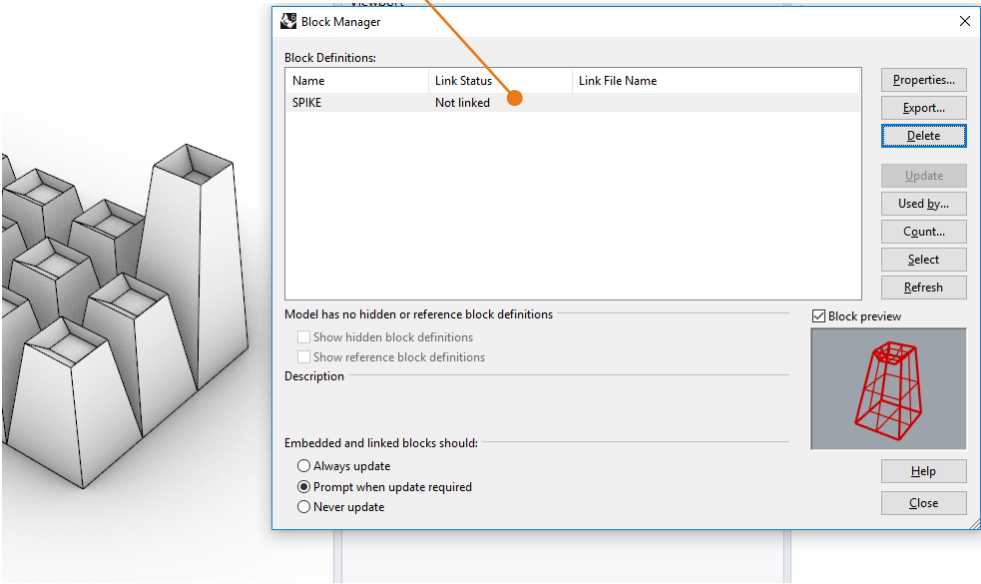
Block linked
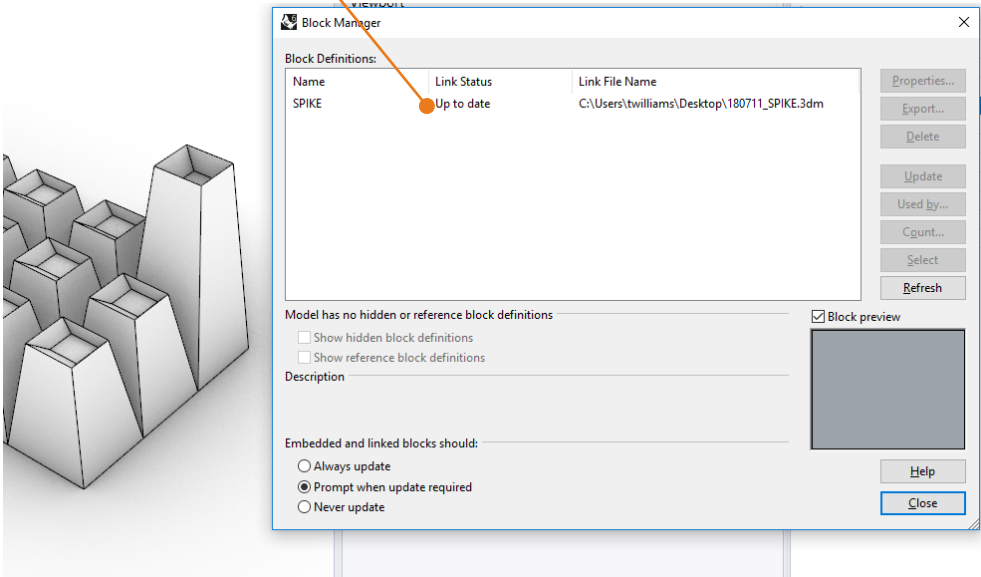
Toolbar

Drawing

Area Tag
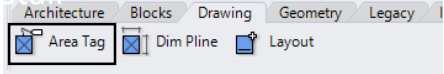
Adds a text object according to the bounding geometries area at the center of that object.

Text object with appear on layer: "8_DRAWING::Text"

INPUT
1. Select closed planar curves, surfaces, or hatches
2. Number of decimal places
   -1 = X,XX0
   0 = X,XXX
   1 = X,XXX.X
   2 = X,XXX.XX

OUTPUT
• Text object at center of polyline

INPUT > OUTPUT

Closed Polylines, Hatches, or Surfaces

Text object with Area

116.61 sf
794.88 sf
1703.51 sf
459.19 sf
871.16 sf
871.16 sf
572.11 sf

PCPA reach

Dimension Polyline

INPUT > OUTPUT

| Architecture | Blocks | Drawing | Geometry | Legacy |
| Area Tag | Dim Pline | Layout |
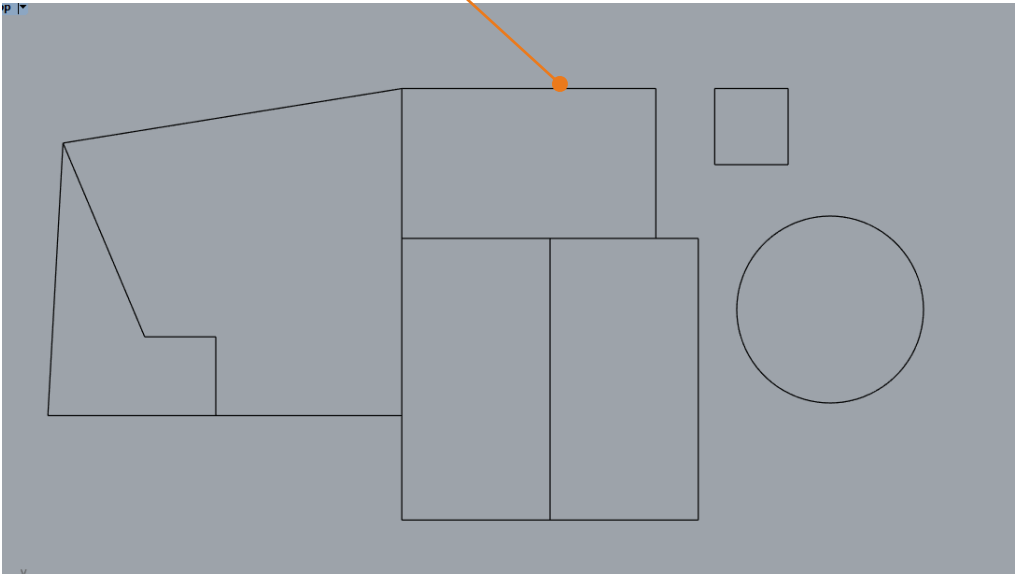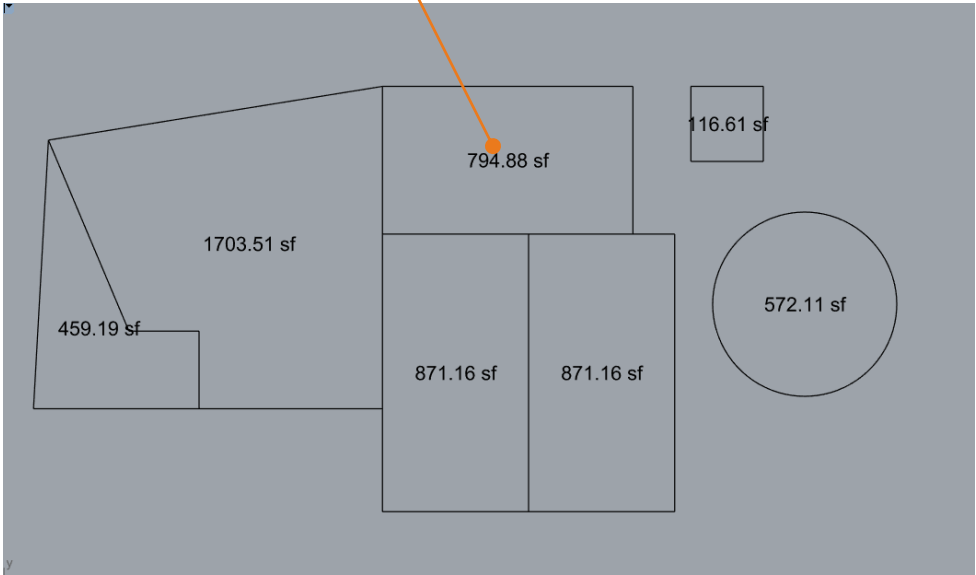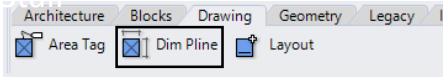
Automatically dimensions polyline segments.

Will not dimension arcs or NURBs curves.

Dimensions with appear on layer: "8_DRAWING::Dimensions"

INPUT
1. Select Polylines
2. Offset Dimension (inches)

OUTPUT
• Dimensioned Segments

Polylines

Dimensioned Segments

Layout

INPUT > OUTPUT
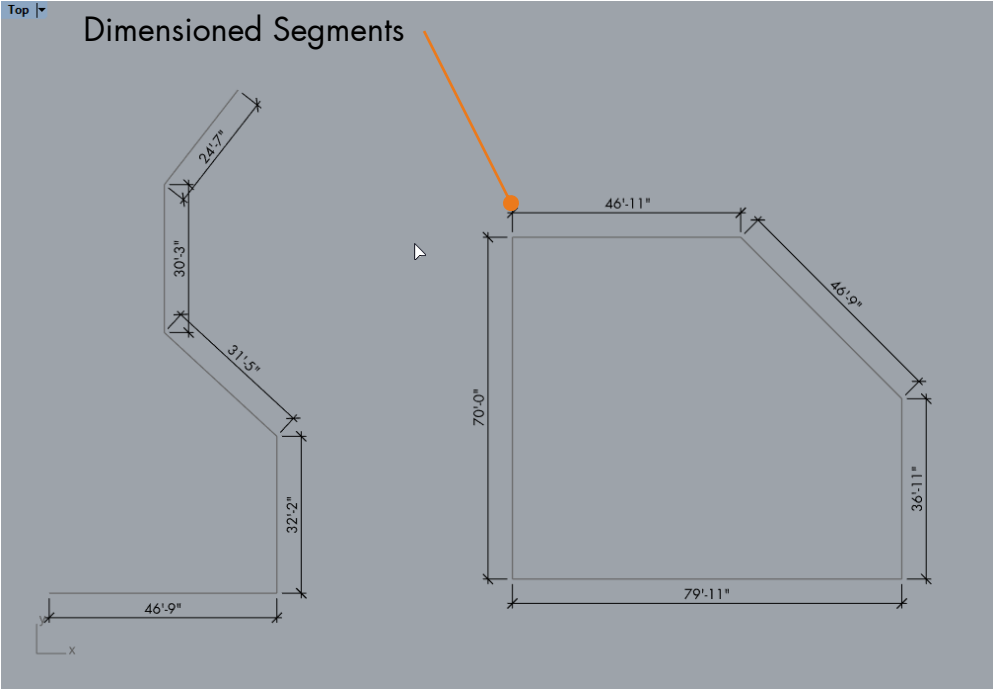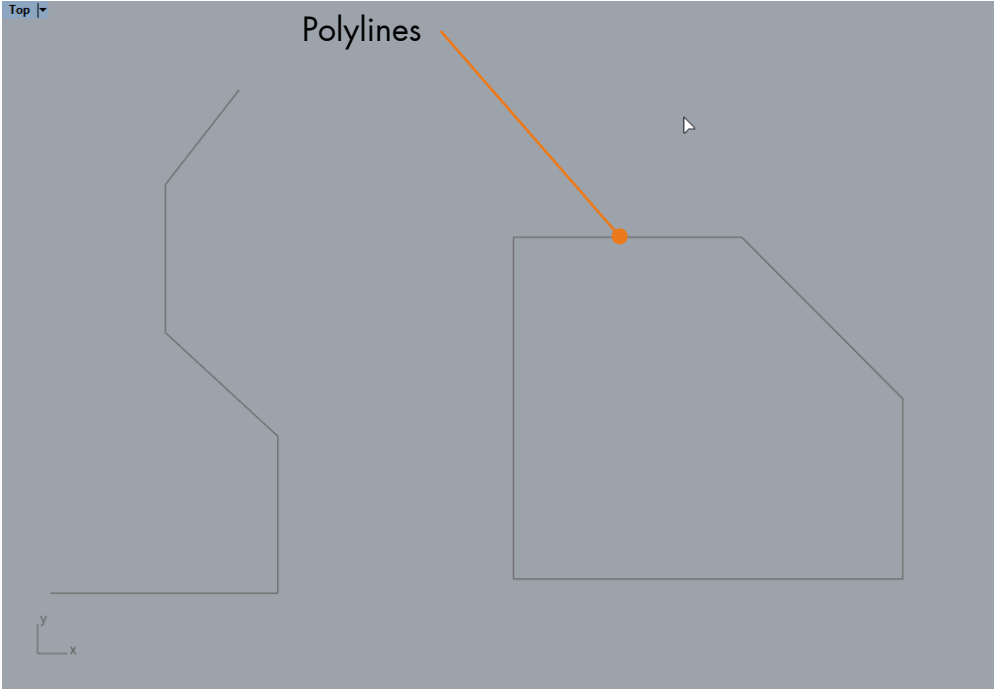
Architecture | Blocks | Drawing | Geometry | Legacy
Area Tag | Dim Pline | Layout
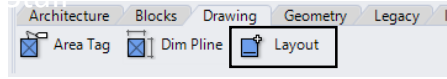
Adds a new layout to selected standard paper size with a PCPA Presentation Template.

Date is a text field and will update to the current date.

Project Title and Client Name can be parametrically changed through Rhino's 'Document Data' tab.

INPUT
1. User Selected Layout Size

OUTPUT
• New Layout with titleblock

Add Layout

Select layout to add

8.5x11 Landscape
11x17 Landscape
18x24 Landscape

OK   Cancel

Selected Layout

11x17

PROJECT TITLE
Client Name

Title

July 20, 2018

Pelli Clarke Pelli Architects

Presentation Titleblock

New Layout

Contour at Point

Architecture | Blocks | Drawing | Geometry | Legacy | I/O
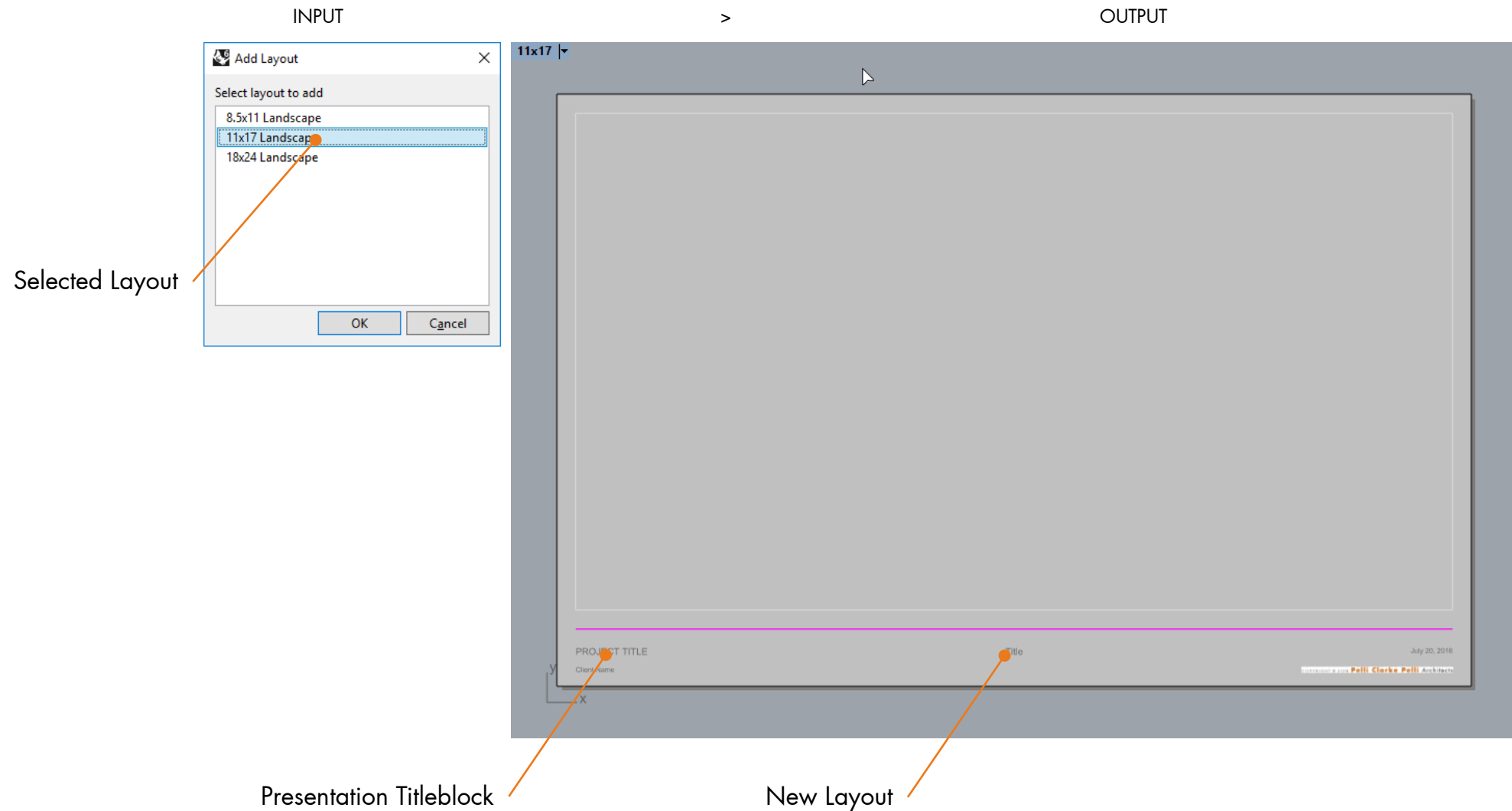
Contour At Pt | Color-Random Range | Color-Gradient
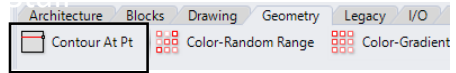
Cuts input geometry at a designated elevation.

Useful for extracting floor plan cut lines.

INPUT

1. Select objects
2. Get point to cut contour at

OUTPUT

- Curves joined and on each original objects layer

INPUT > OUTPUT

Input Objects

Point to cut contour

Resulting contour
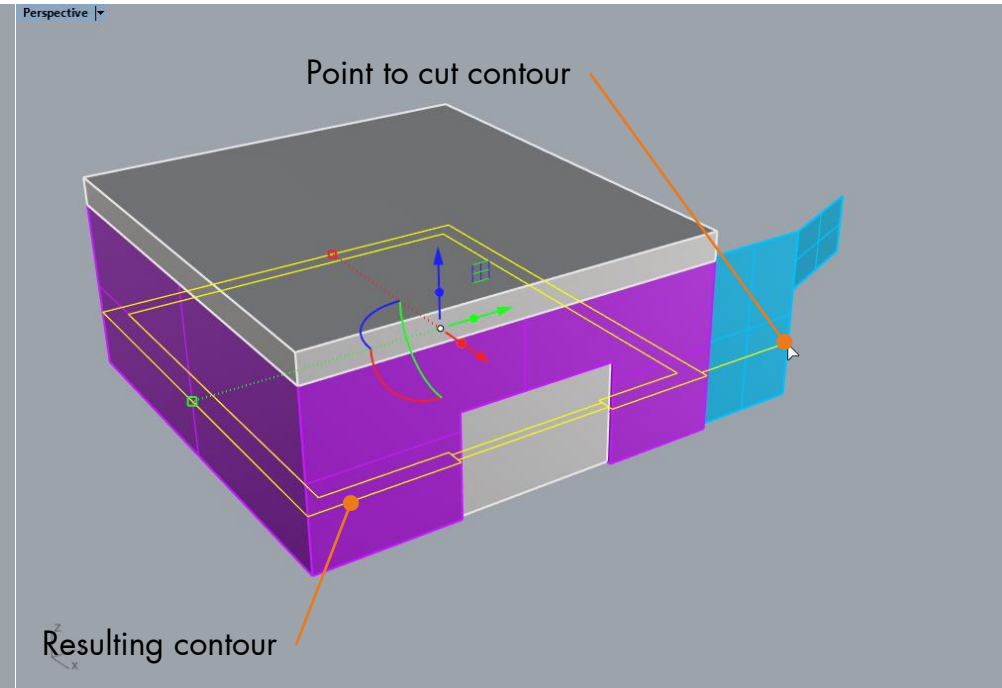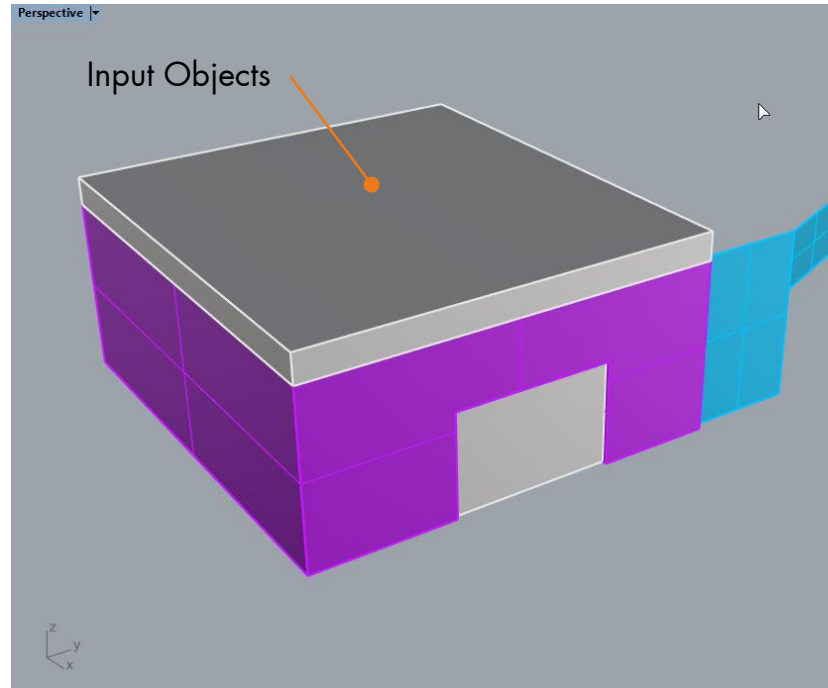
Color – Random Range
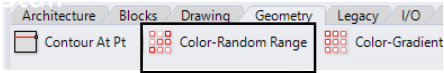
Randomly assigns object colors within a specified range.

INPUT

1. Select objects to color
2. Pick color 1
3. Pick color 2

OUTPUT

- Colored objects

Input Objects

Color – Gradient
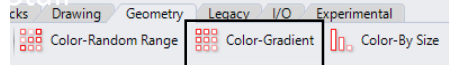
Assigns a gradient of colors to objects based on their distance from two input points and two input colors.

INPUT

1. Select objects to color
2. Pick point 1
3. Pick color 1
4. Pick point 2
5. Pick color 2

OUTPUT

• Colored objects

INPUT   >   OUTPUT
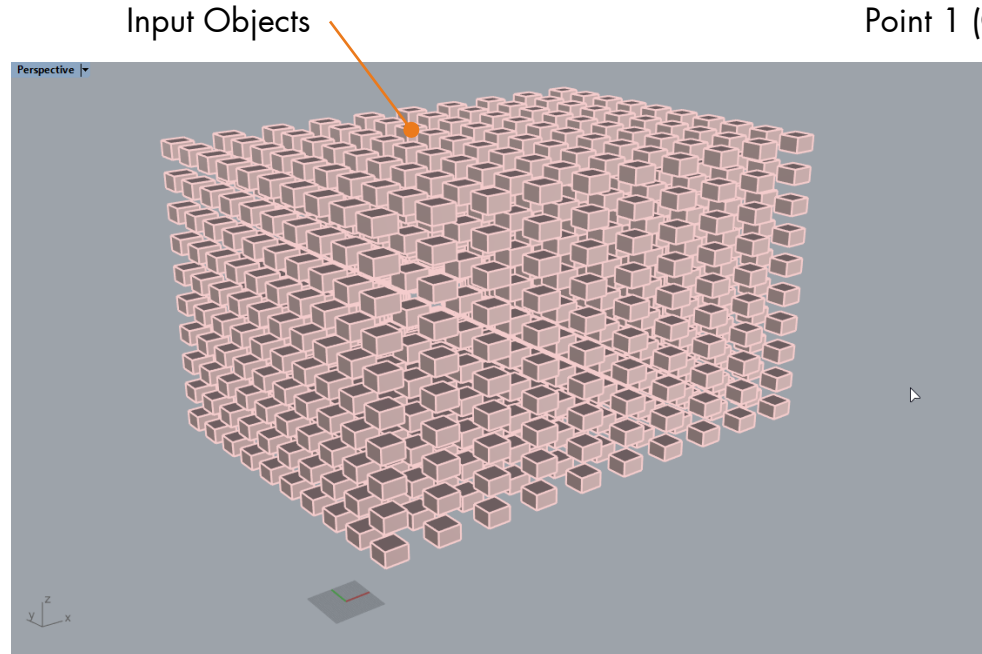
Input Objects

Point 1 (Green)

Point 2 (Yellow)
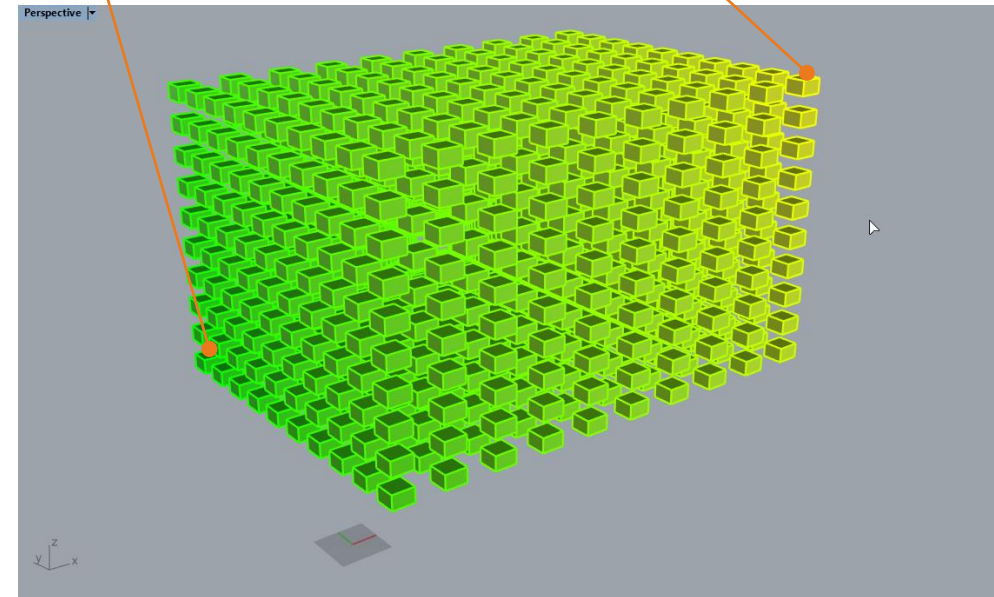
Color – By Size

INPUT   >   OUTPUT
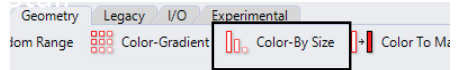
Assigns a gradient of colors to objects based on their length, area, or volume (depending on what type of objects are input).

Accepts curves, surface, hatches, polysurfaces and closed breps.

INPUT
1. Select objects to color
2. Pick color 1 (Smallest)
3. Pick color 2 (Largest)

OUTPUT
• Colored objects

Color to Material

legacy I/O Experimental
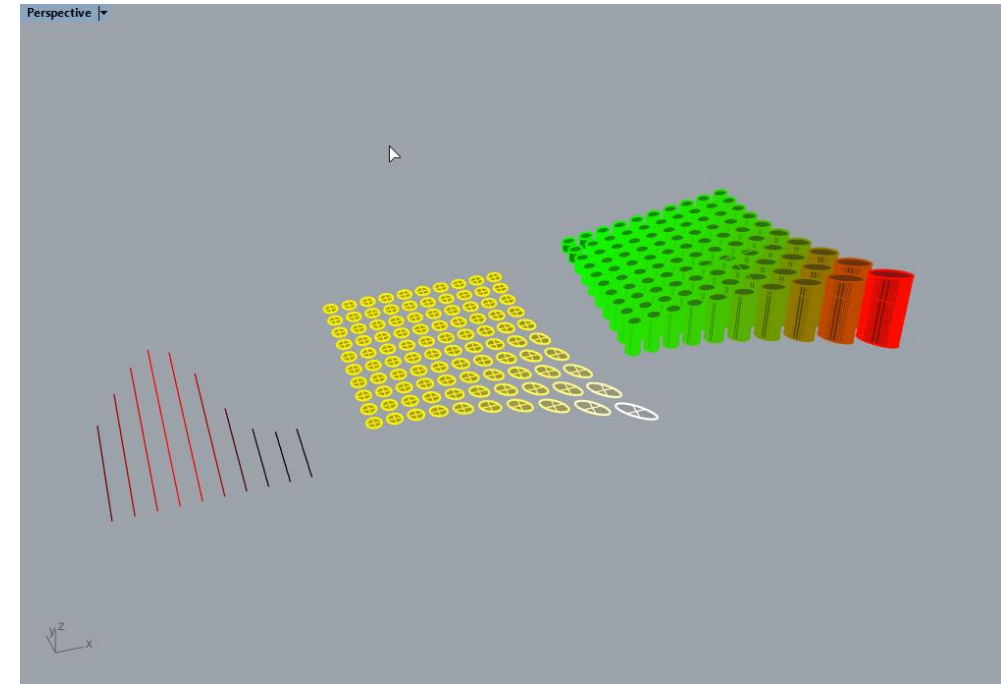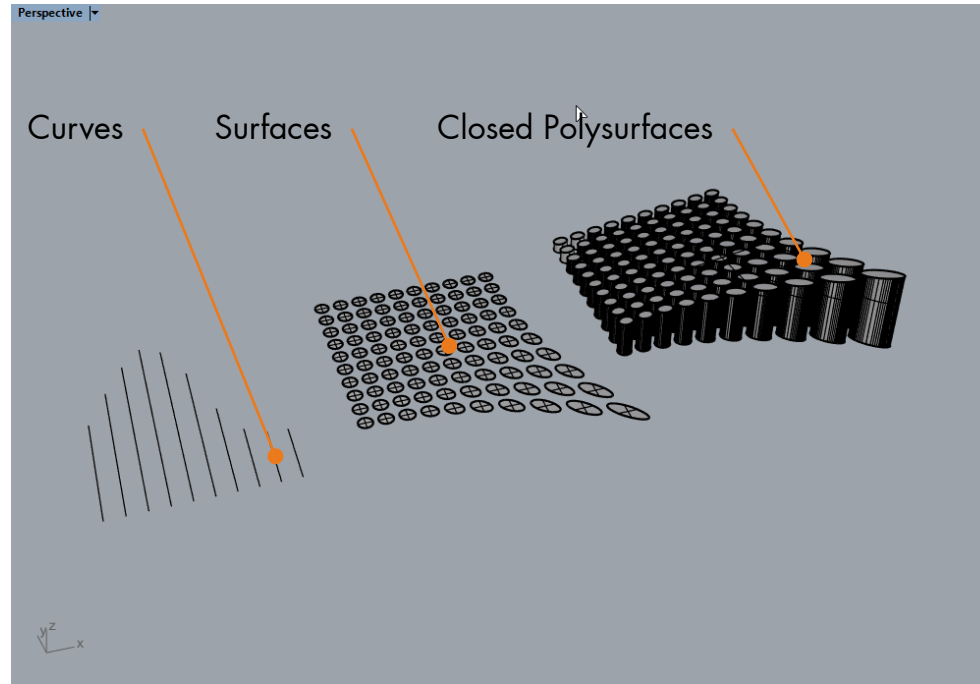
Color-Gradient Color-By Size Color To Material
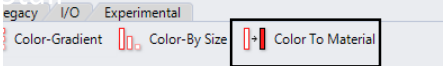
Sets an objects material to its display color. Creates a new material if one does not already exists.

INPUT

1. Select objects

OUTPUT

- Objects with colored material

INPUT > OUTPUT

Colored objects
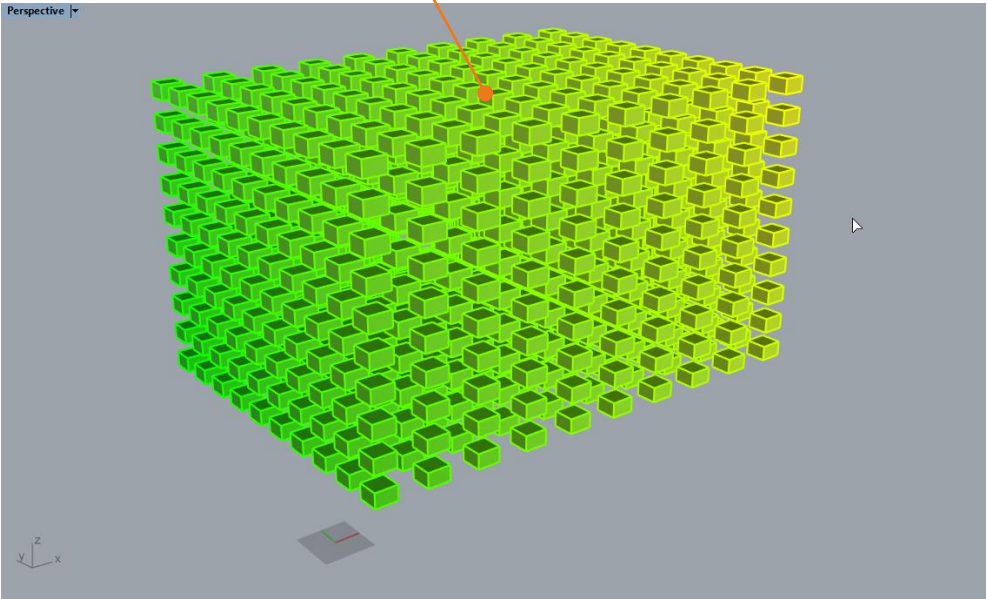
Material matching display color

Perspective

Perspective

Toolbar

Legacy

INPUT	>	OUTPUT
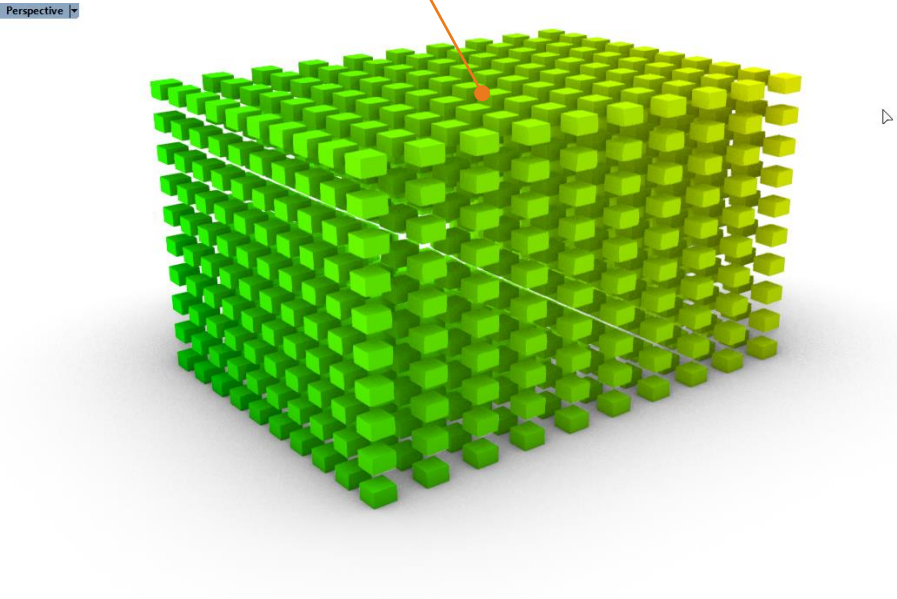
Buttons from the first PCPA Toolbar.

Random Unselect
- Randomly unselects a percentage of selected objects

Clean Boolean
- Macro: Boolean union + Merge all faces

Curve Boolean + Planar
- Macro: Curveboolean + Planar Srf

Various PCPA Display Modes
- Changes display mode to one of the standard PCPA displays

Toolbar
I/O (Input/Output)

Capture Display Modes
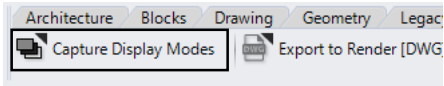
Exports a PNG from the active view with the user selected display modes.

PNG name with be appended with the display mode name.

Display modes with PCPA at the front are defaults.
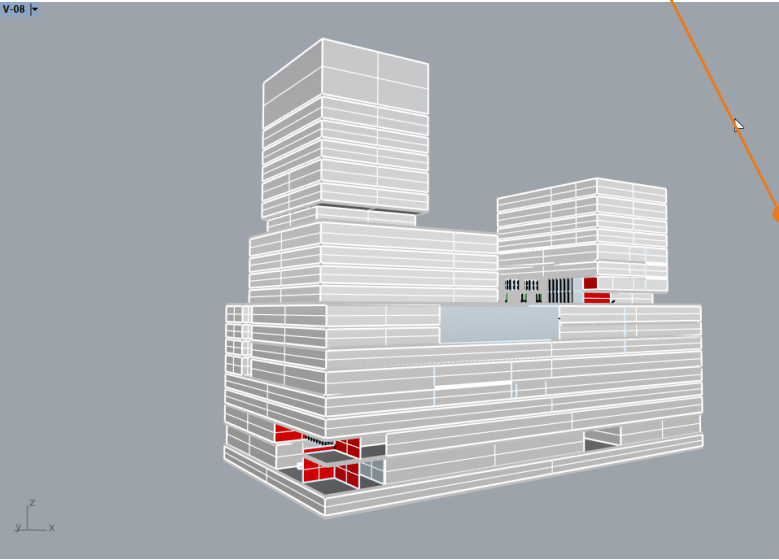
INPUT
1. Select display modes
2. Output path
3. Image Height (pixels)
4. Image Width (pixels)

OUTPUT
- PNG for each display mode selected.

INPUT   >   OUTPUT
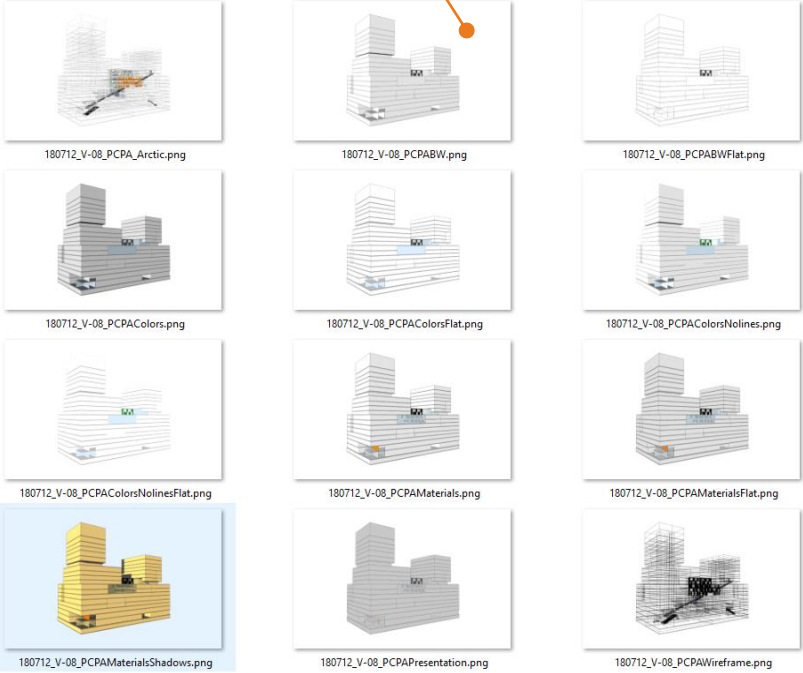
Select Display Modes to Capture

Each display mode exported to PNG file
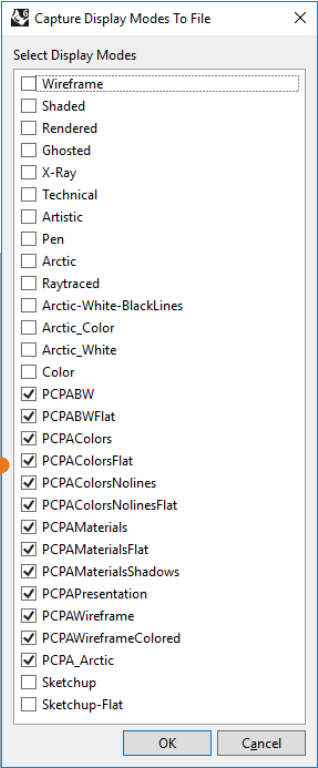
Export to Render [DWG]

Exports selected objects to DWG format with the layer names prefixed with the date and option name.

DWG settings automatically applied.

INPUT
1. Select objects
2. Choose file path

OUTPUT
• DWG file

INPUT > OUTPUT

Geometry to Export

Exported File

Name	Date modified	Type	Size
180720_TestFile.dwg	7/20/2018 6:21 PM	DWG File	45 KB

Export to Render [SKP]
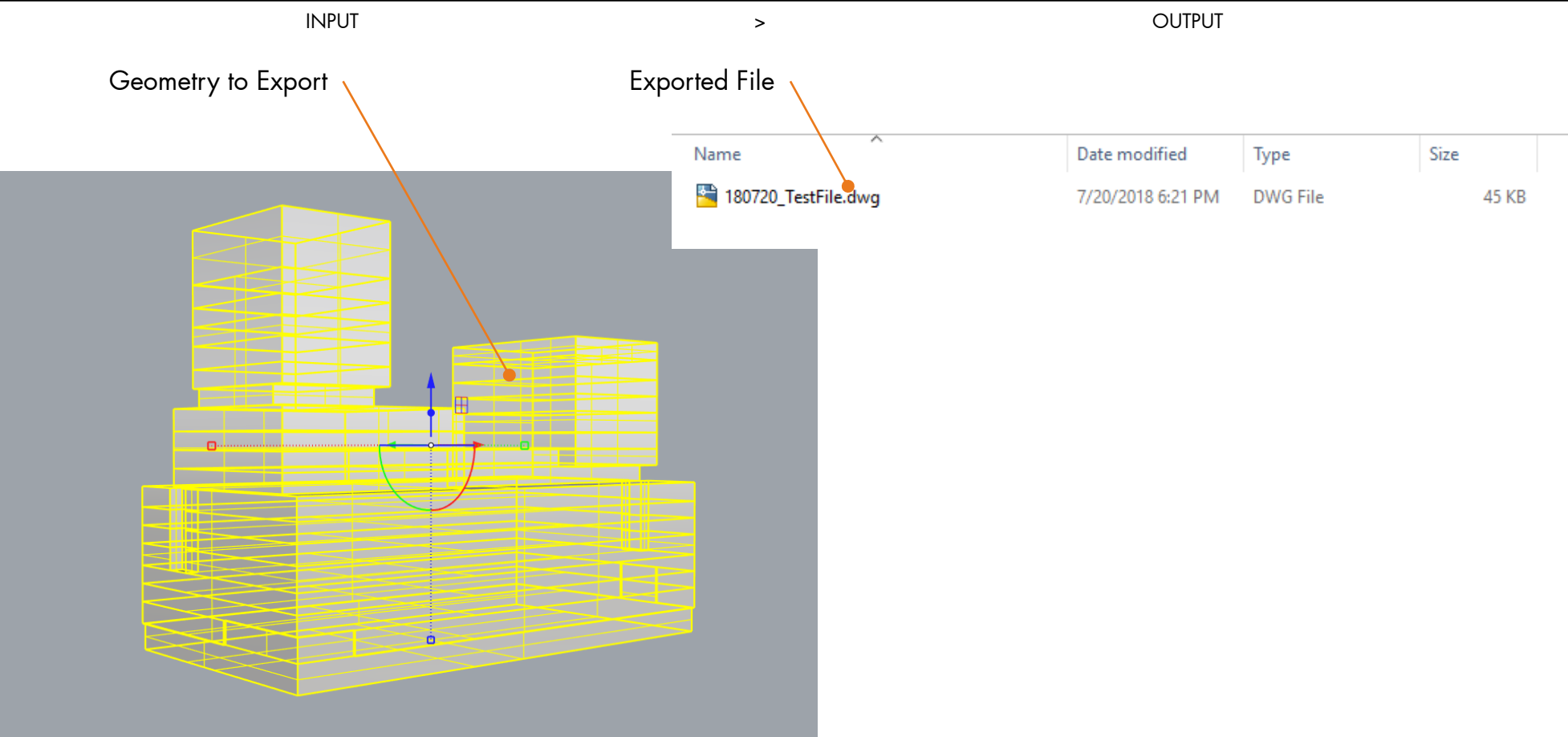
rawing 〉 Geometry 〉 Legacy 〉 I/O 〉 Experimental
Export to Render [DWG]   Export to Render [SKP]
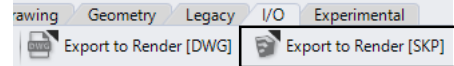
Exports selected objects to SKP format with the layer names prefixed with the date and option name.

SKP Files are preferred because they maintain materials, layer names, and proper geometry.

*If mesh settings not ideal, mesh before export.

INPUT
1. Select objects
2. Choose file path

OUTPUT
• DWG file

INPUT   >   OUTPUT

Geometry to export from Rhino

Model in 3ds Max

180725_OPTION_01 > 0_ARCHITECTURE > Roof
180725_OPTION_01 > 0_ARCHITECTURE > Glazing_Vision
180725_OPTION_01 > 0_ARCHITECTURE > Glazing_Spandrel
180725_OPTION_01 > 0_ARCHITECTURE > Floor
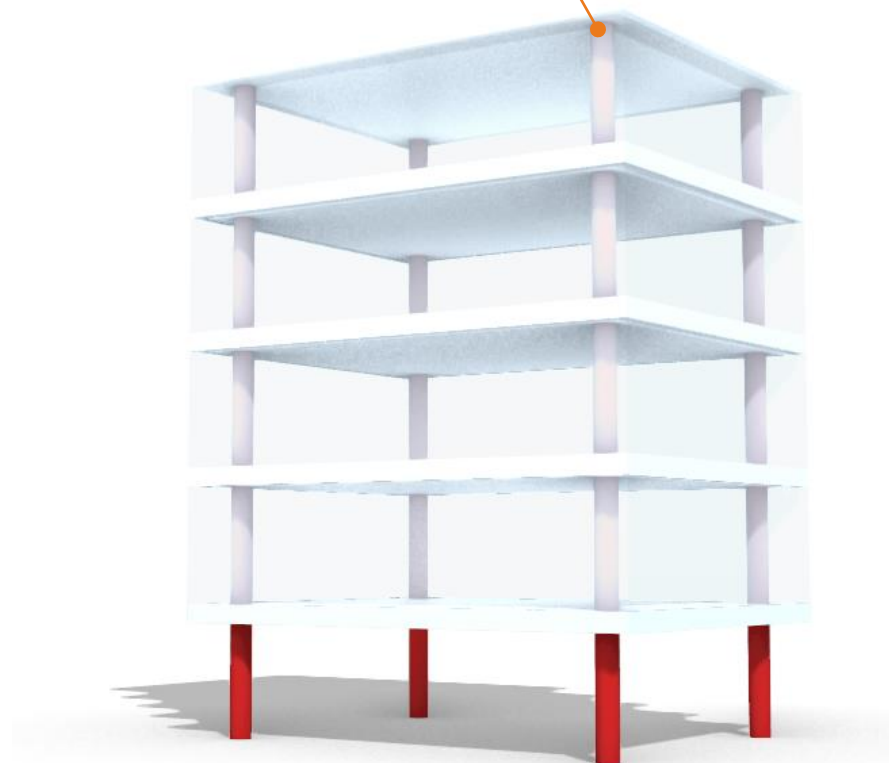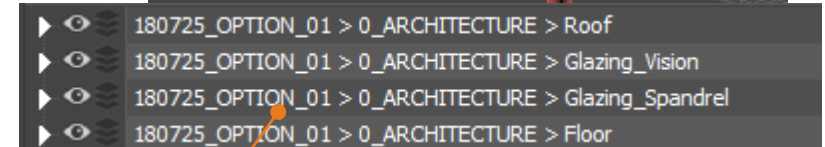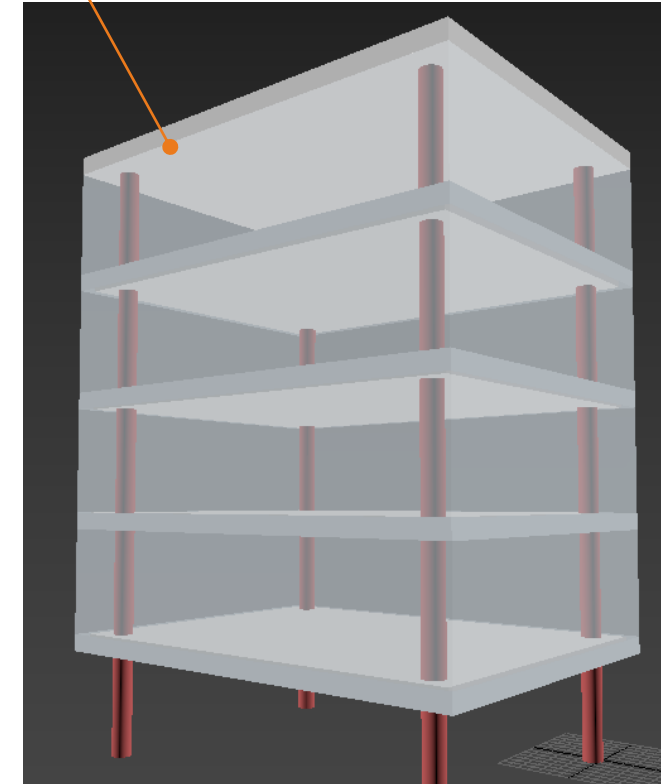
Properly formatted layer names in 3ds Max
'Filename > Rhino Layer Names'

PCPA reach

Toolbar
I/O (Input/Output)

Import CAD

Imports DWG file and nests its layers under a parent layer, named "Date_Filename_##"

Empty layers are removed.

All imported blocks come in exploded.
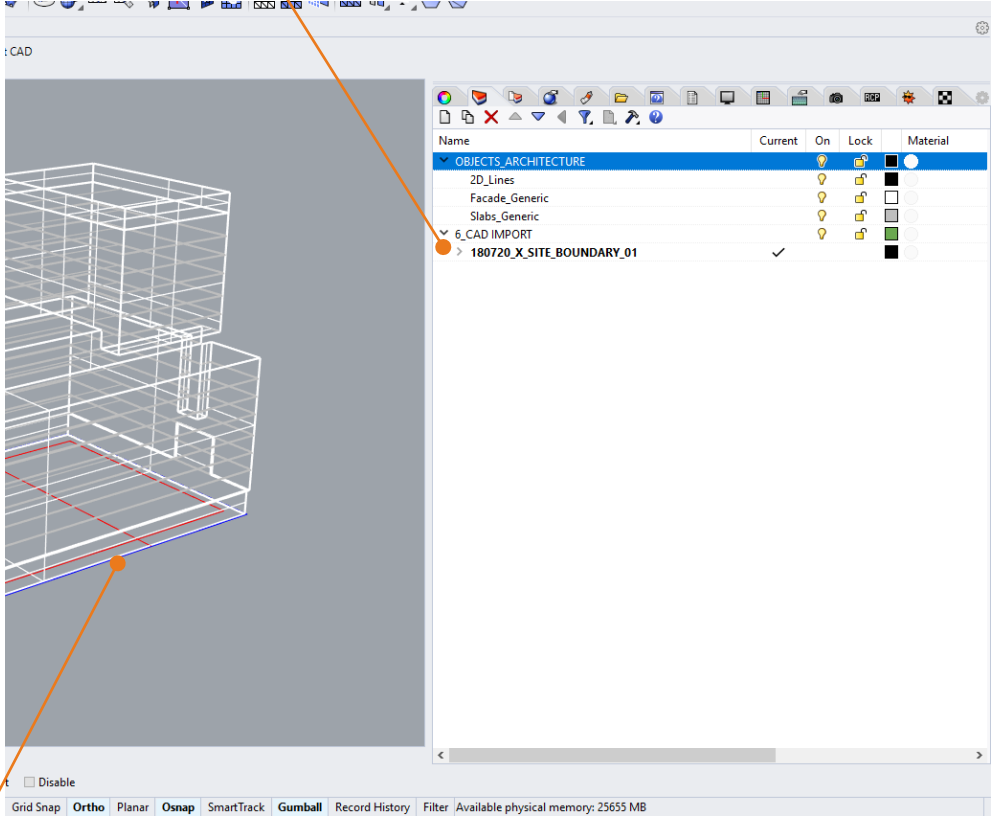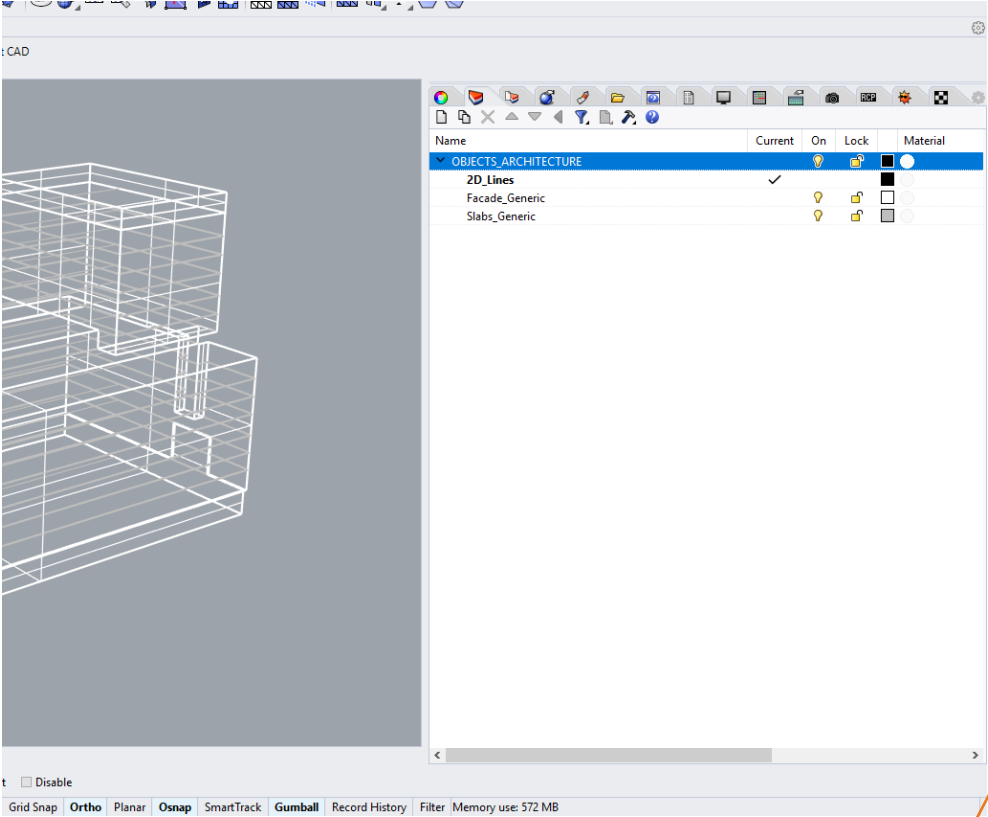
INPUT
1. Select DWG file

OUTPUT
• Generated parent layers

INPUT > OUTPUT

Automatically generated parent layer names

Imported Lines

Toolbar
Experimental

Unfillet

INPUT   >   OUTPUT

| Architecture | Blocks | Drawing | Geometry | Legacy | I/O | Experimental |

Unfillet   Rectify   Cut Model

Will remove all arcs from a polyline.

INPUT
1. Select polyline

OUTPUT
• Polyline

Fillet corners

Arcs removed and lines extended

Rectify
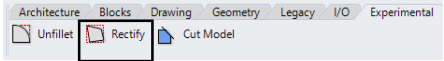
Rebuilds a polyline according to specified angle and length multiples.

If 0 is input for the multiples, the original angle or length is used.

*Curves not currently supported.

INPUT
1. Select polyline
2. Input angle multiples
3. Input length multiples

OUTPUT
• Polyline

INPUT   >   OUTPUT
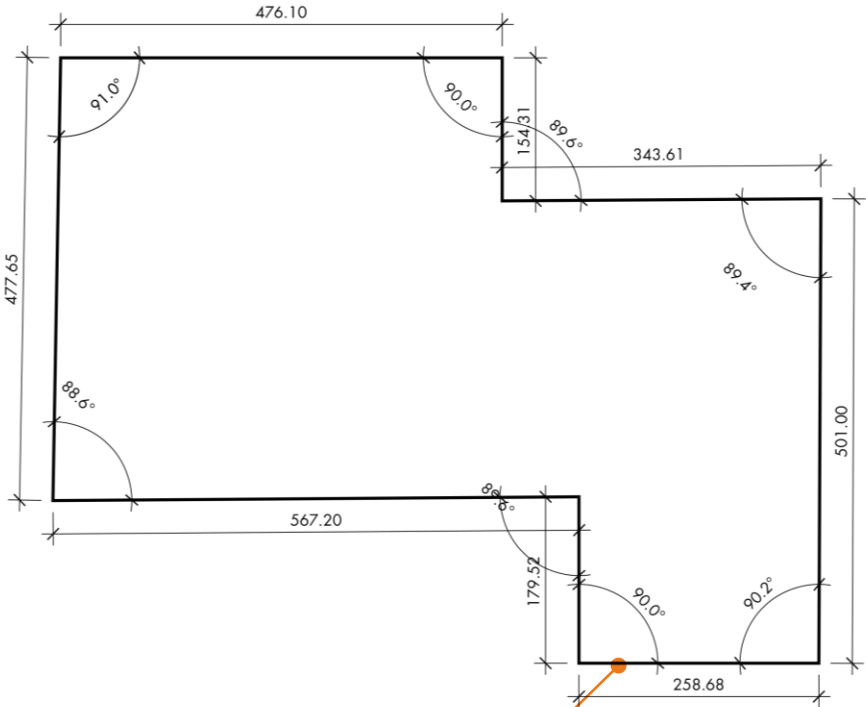
Polyline with irregular lengths and angles
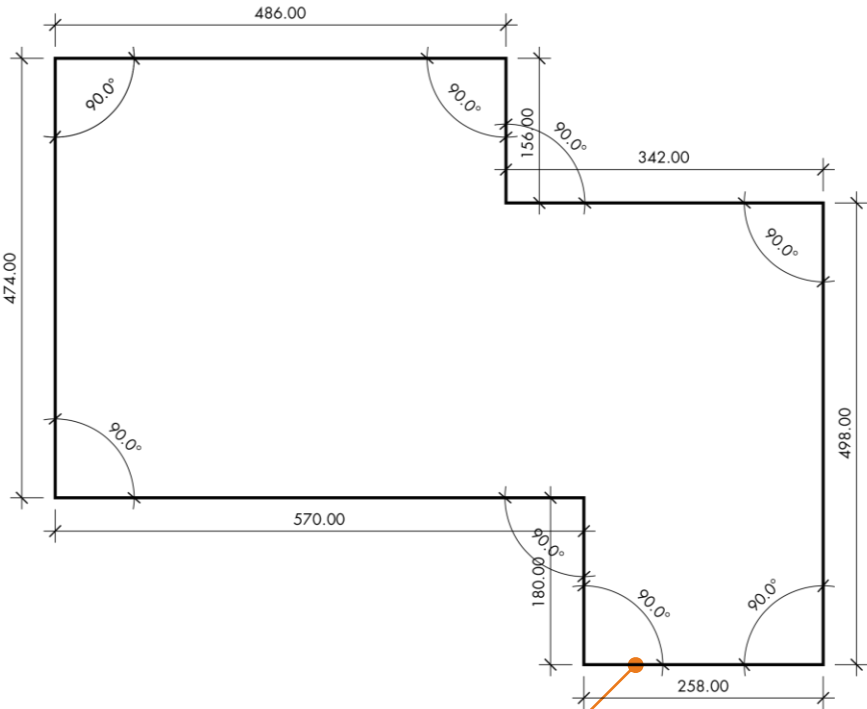
Lengths and angles rounded.
In this case 90 degrees and 6 inches.

Cut Model
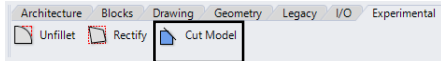
Trims a model with a surface. Duplicates and hides original geometry.

Creates two groups, one with the remaining geometry, the other with section surfaces created when cutting through solid objects.

Useful for rendering or make2d exports.

INPUT

1. Select objects to trim
2. Select surface to trim with

OUTPUT

• Duplicated geometry trimmed by surface plane.

INPUT   >   OUTPUT

Objects to trim

Trimmed objects duplicated and grouped

Surface to trim with
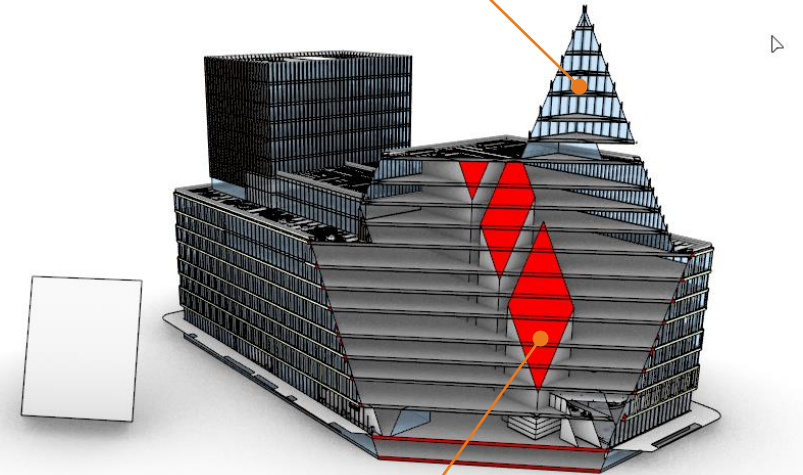
Solid objects will be given a surface at the trim location.

Toolbar

Dropdown

Layers

PCPA Standard layers can be added to a drawing by choosing either **Add All Layers** to load all layers, or choosing one of the Root Layers to add just that Root.

This will also import and assign PCPA materials if not already in the document.

Project Levels
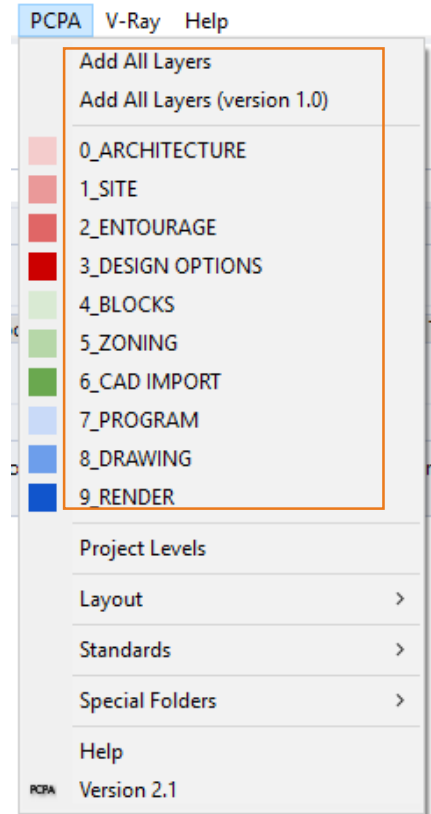
Stores level data within the rhino file. Heights and FTF are formulas, responding to changes.
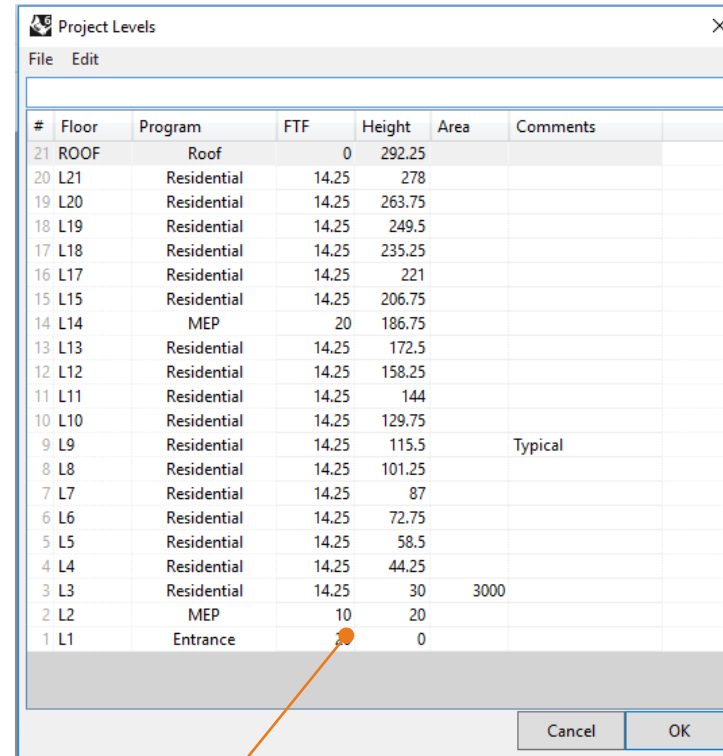
Can enter feet, inches, or decimal.

Can copy paste data to Excel (Edit > Copy)

Can import levels from another Rhino file.
(File > Import from 3dm)

Can read level data into Grasshopper.

*This is still experimental and may have errors.

Data can be read in Grasshopper
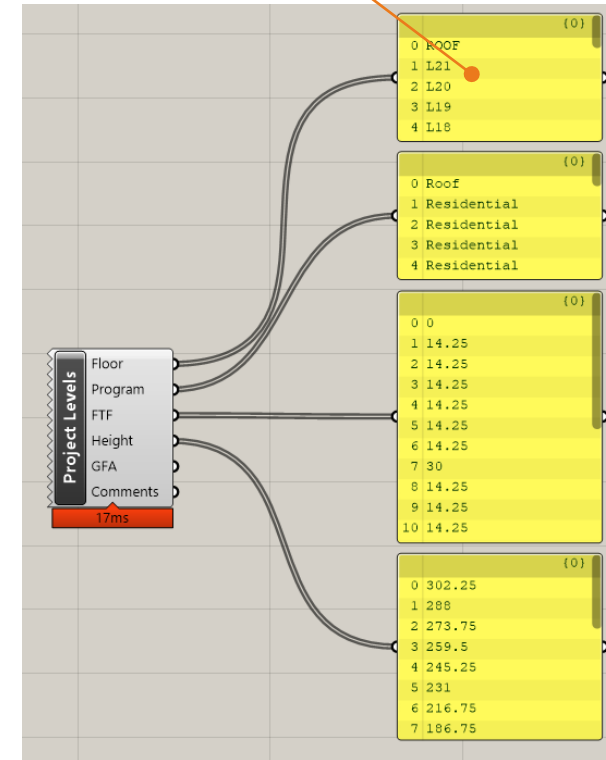
Excel-like interface inside of Rhino
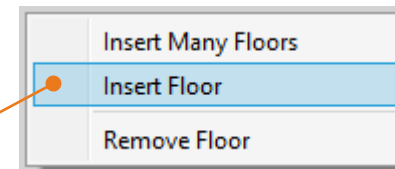
Right click to open the context menu

Toolbar

Dropdown

Layout

Adds layout to current file.

Project Name and Client Name reads from Document Data.

Date is text field of the current date and will automatically update.
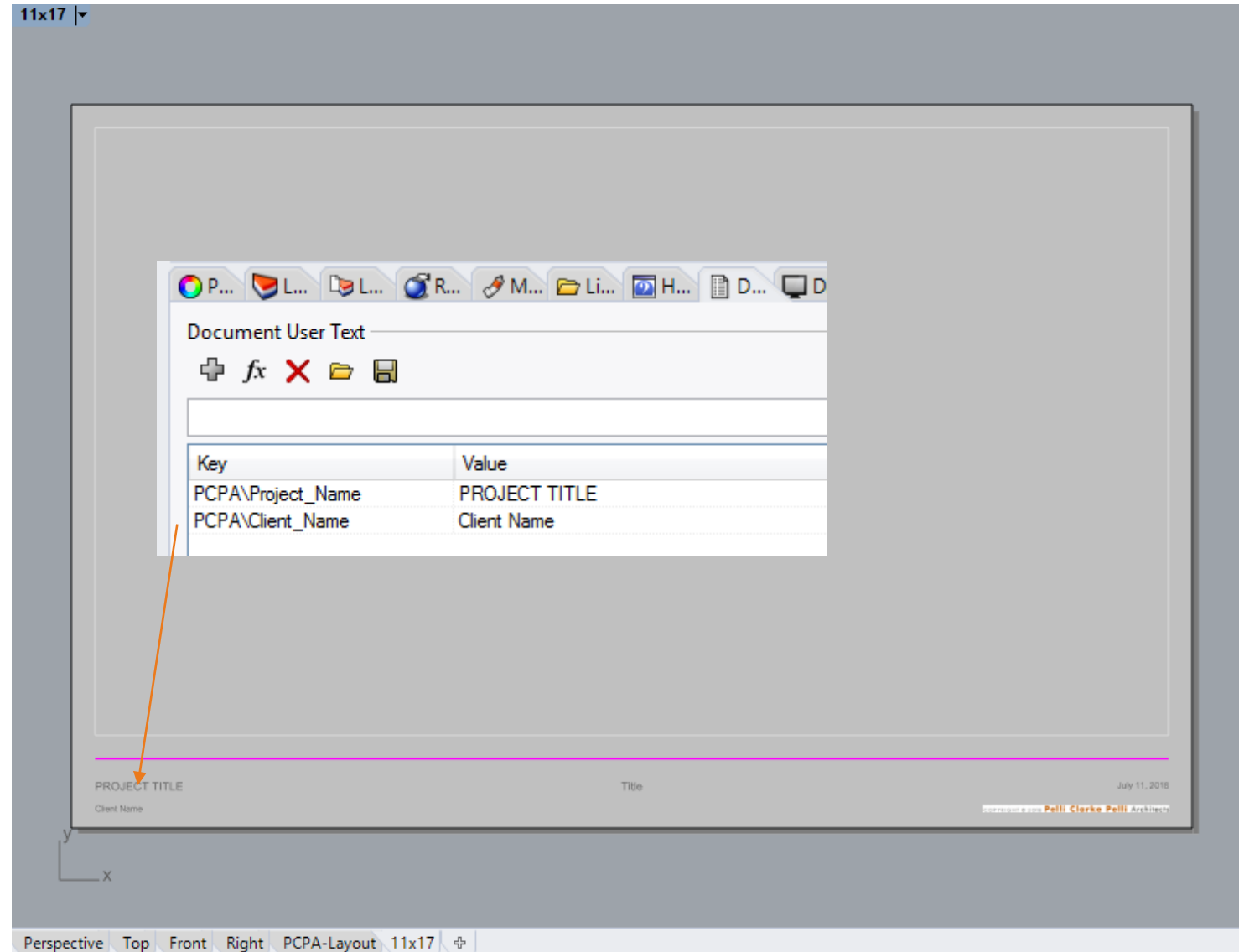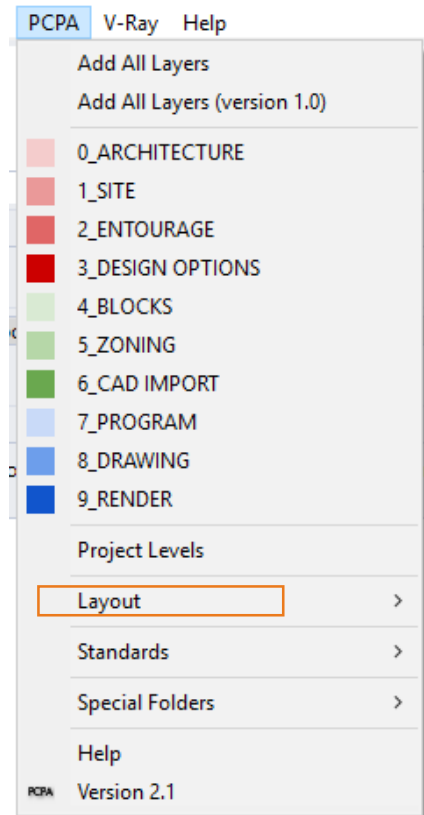
Load GH Components

Loads all PCPA GH Components and PCPA Standard Set (curated collection of useful GH Plugins)

1. Close all Rhino Sessions.
2. Reopen Rhino
3. From the PCPA Dropdown menu, choose **Load GH Components**
4. Many things will then be imported. Some things may fail or say "Broken". Stay calm.
5. Open Grasshopper

*Warnings may appear (depends on how many grasshopper plugins you have already installed). This should only happen the first time you run **Load GH Components**

Check out the GH Installation Troubleshooting if problems persist
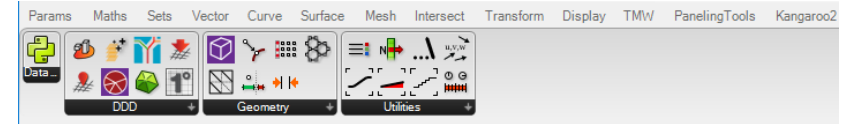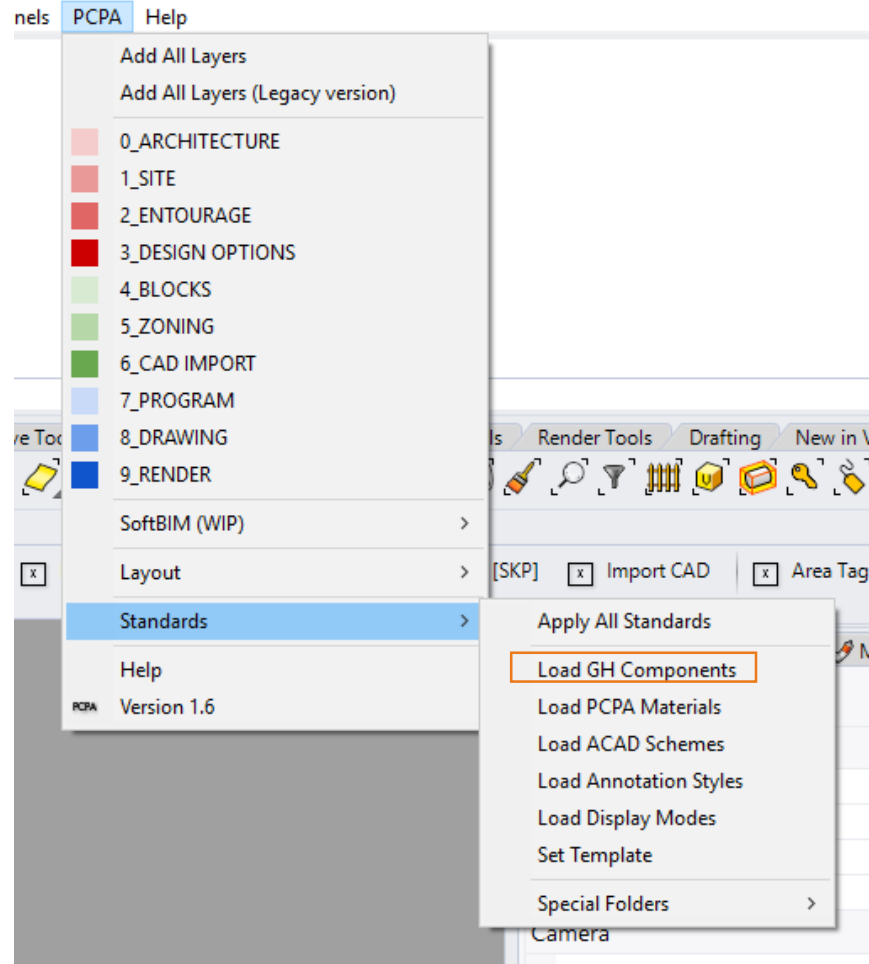
Load PCPA Materials

Loads all standard PCPA Materials into the current file, if they are not already there.
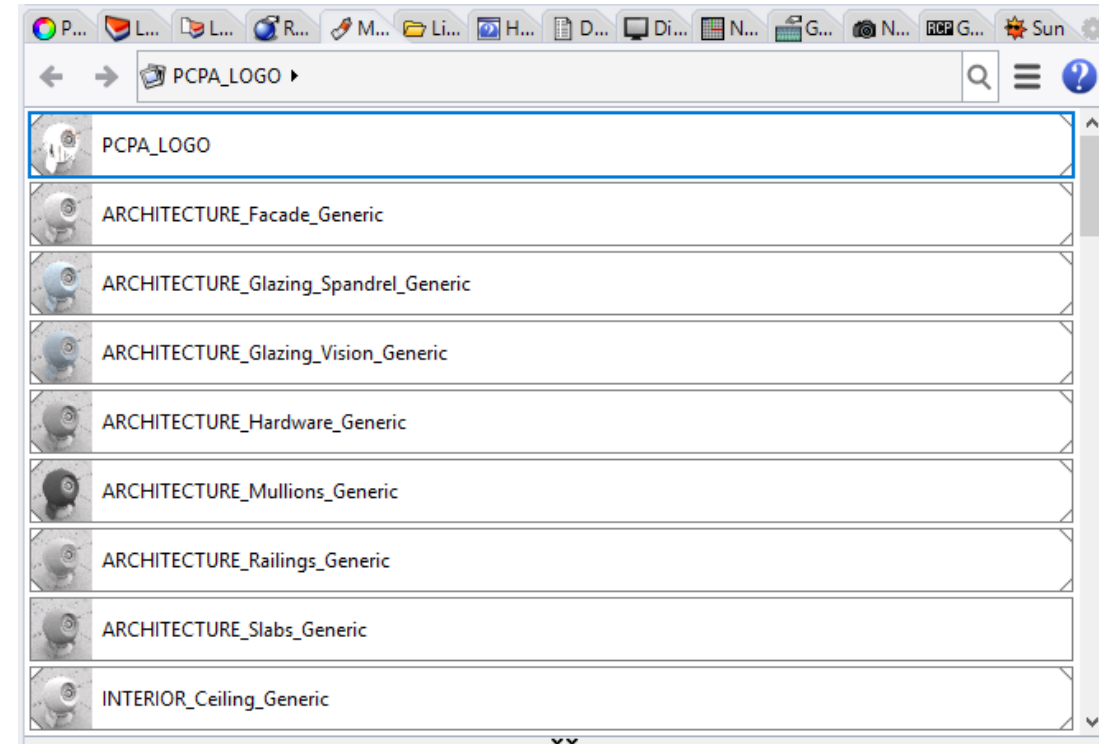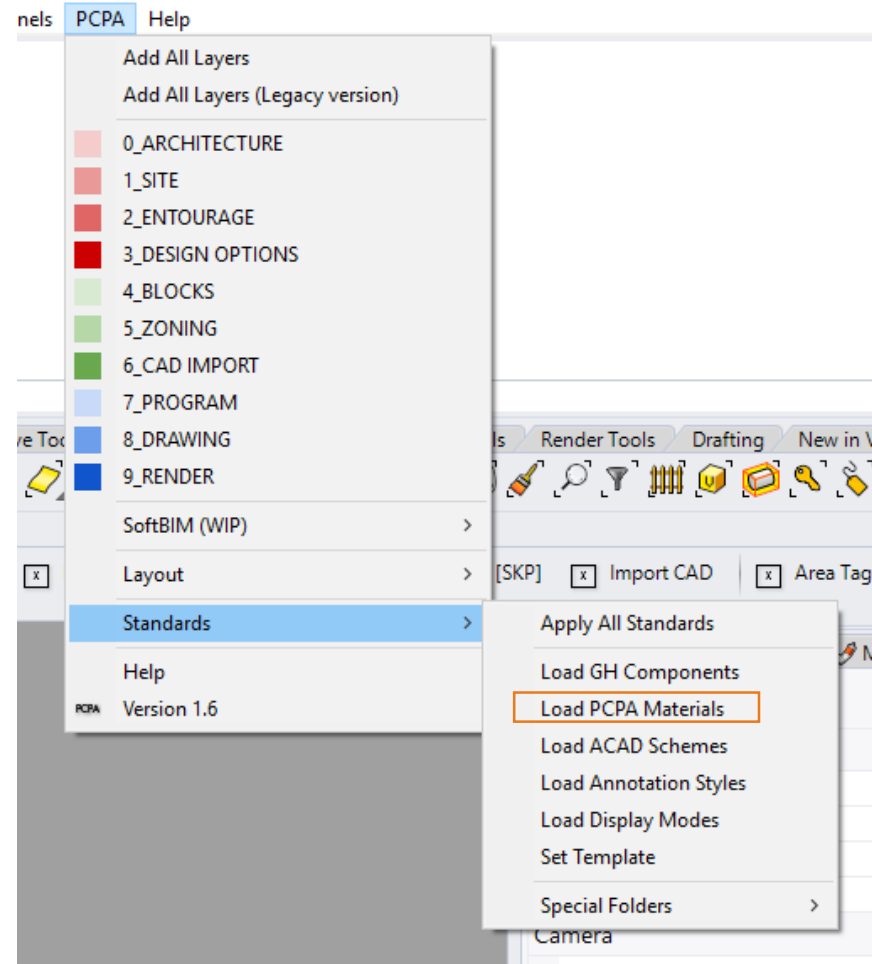
Load ACAD Schemes

Loads all ACAD Schemes (used when exporting to DWG).
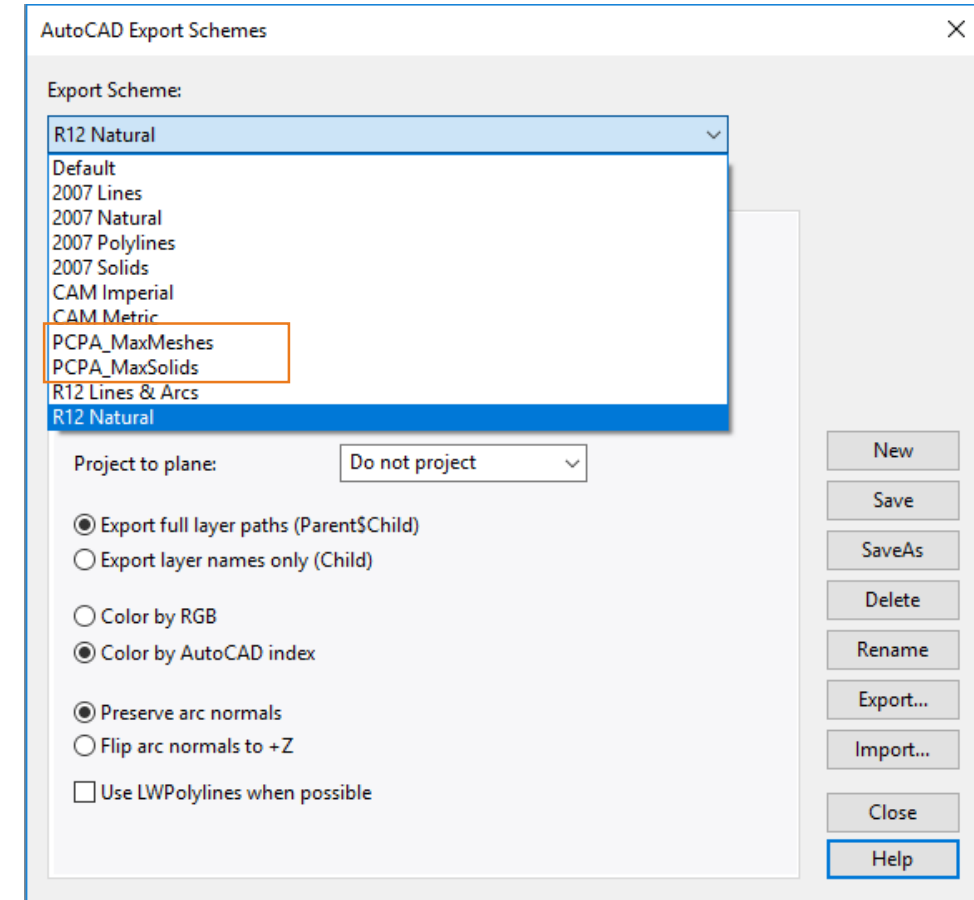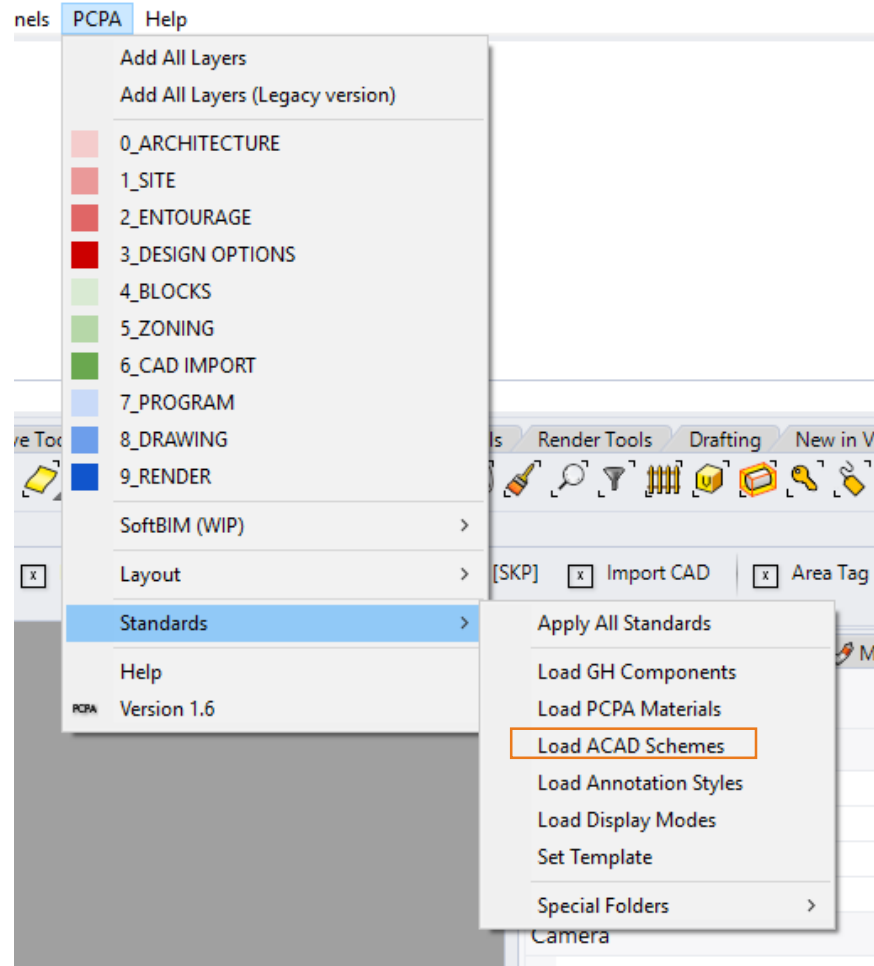
Load Annotation Styles

Loads all standard PCPA
Annotation Styles into the
current file, if they are not
already there.
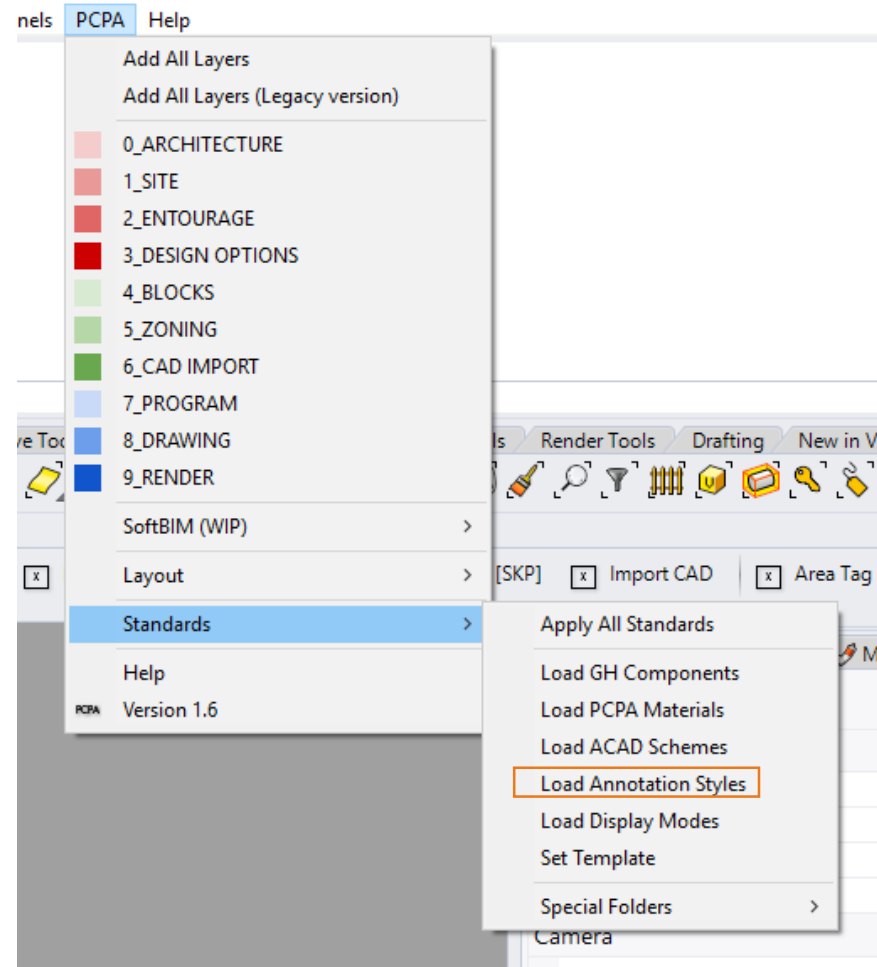
Load Display Modes

Loads all standard PCPA
Display Modes into the current
file, if they are not already
there.
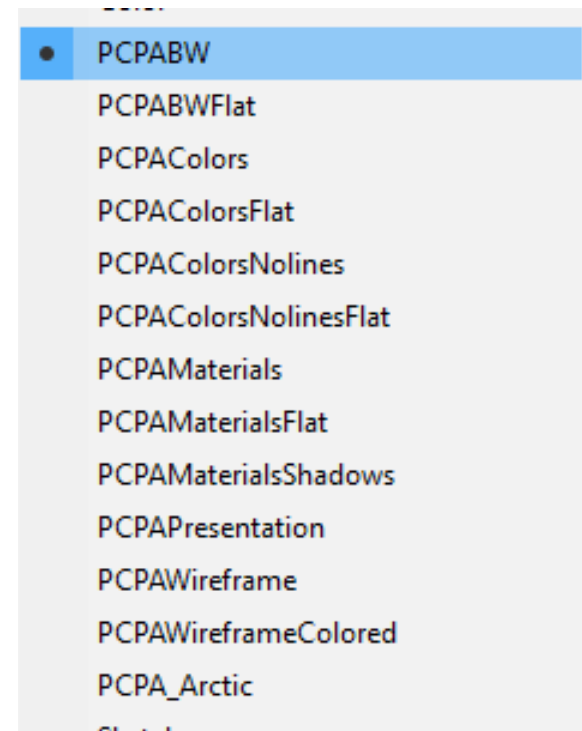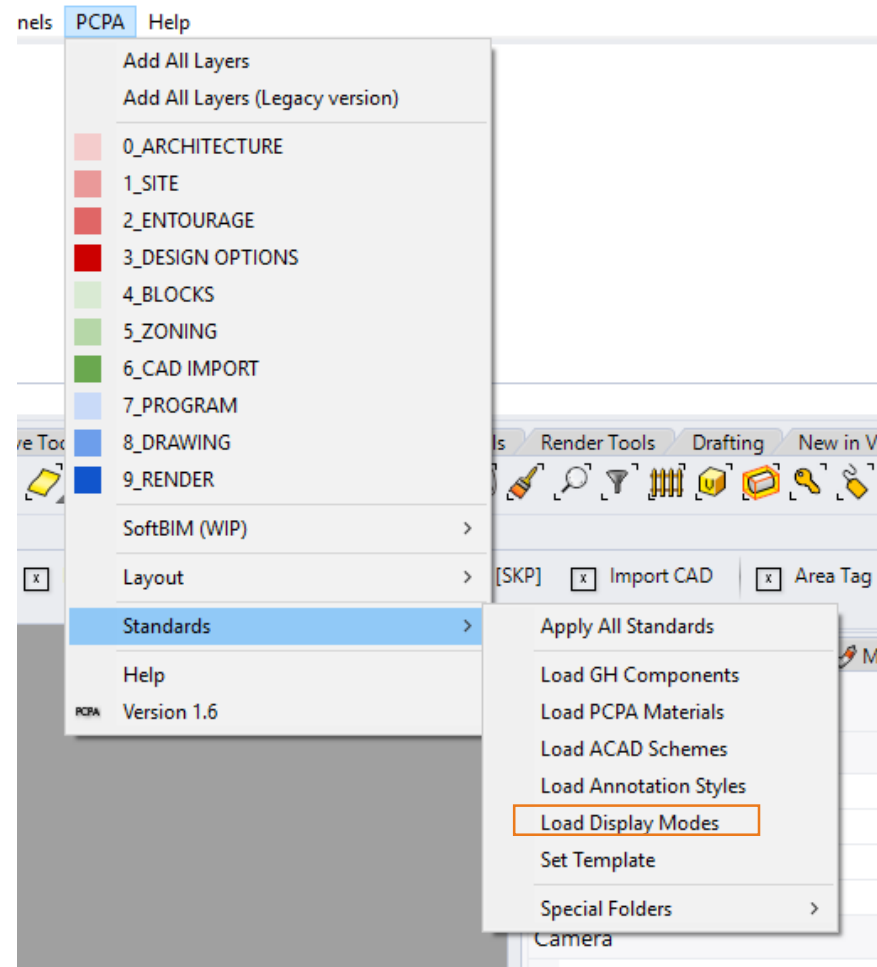
Set Template

Will set the default template file and folder.

Typically only needs to be run once.

Special Folders
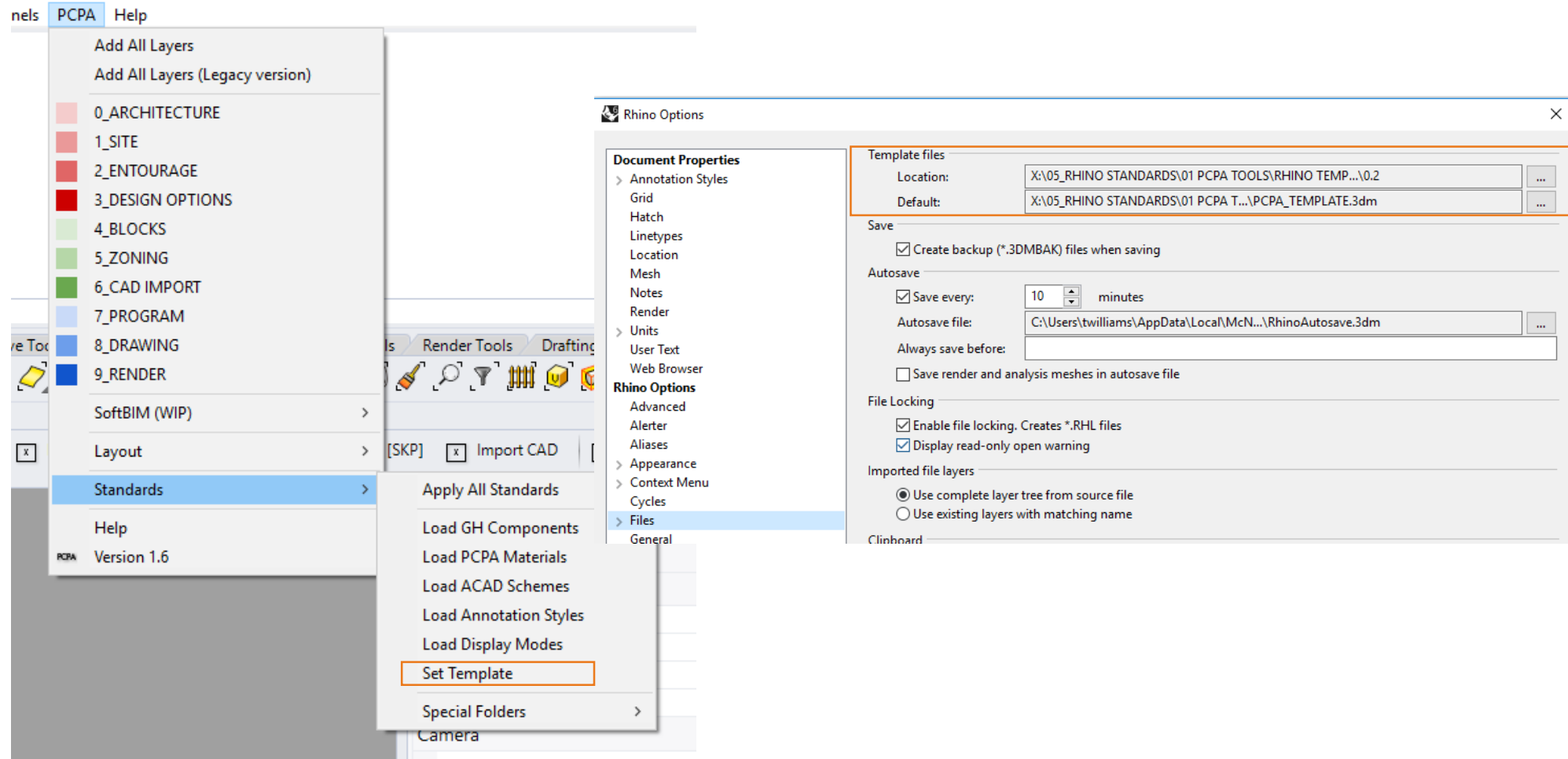
Will launch the folders containing the relative PCPA standard.
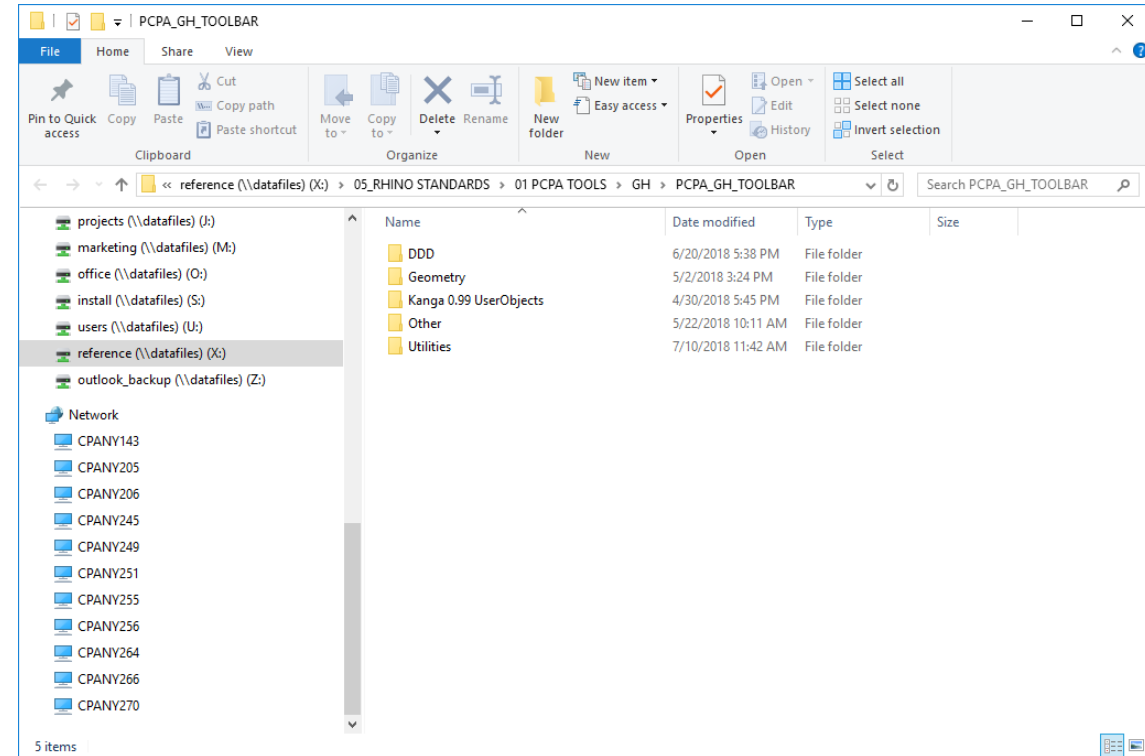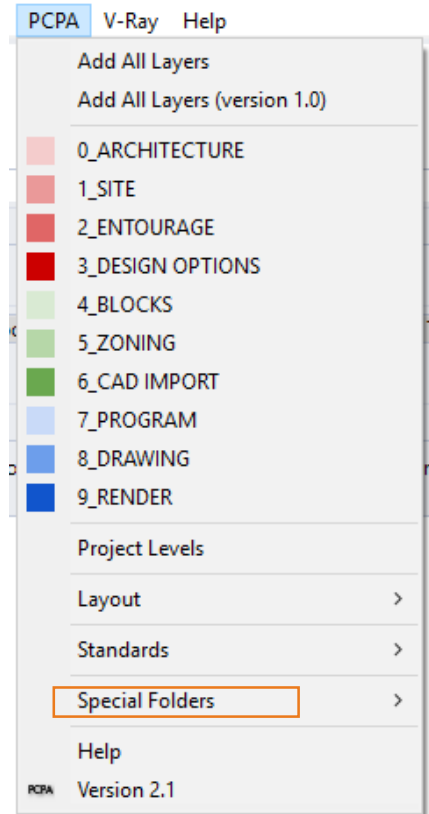
Toolbar

Dropdown

Help

Launches this Rhino Manual in a pdf viewer.

Rhino Tools Manual
Version 2.2
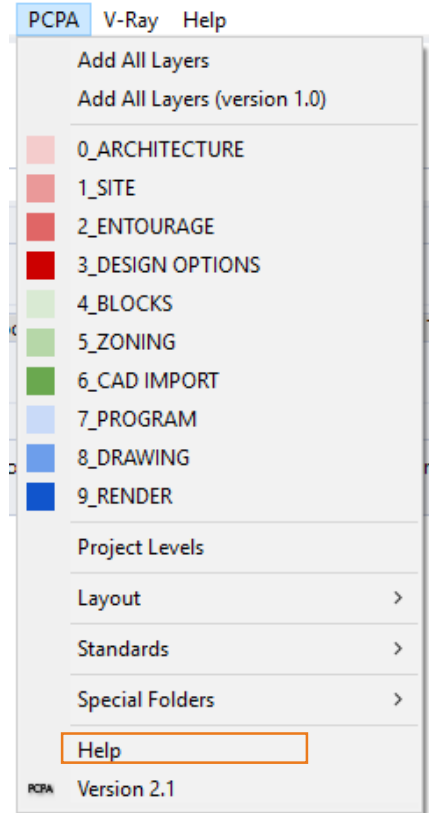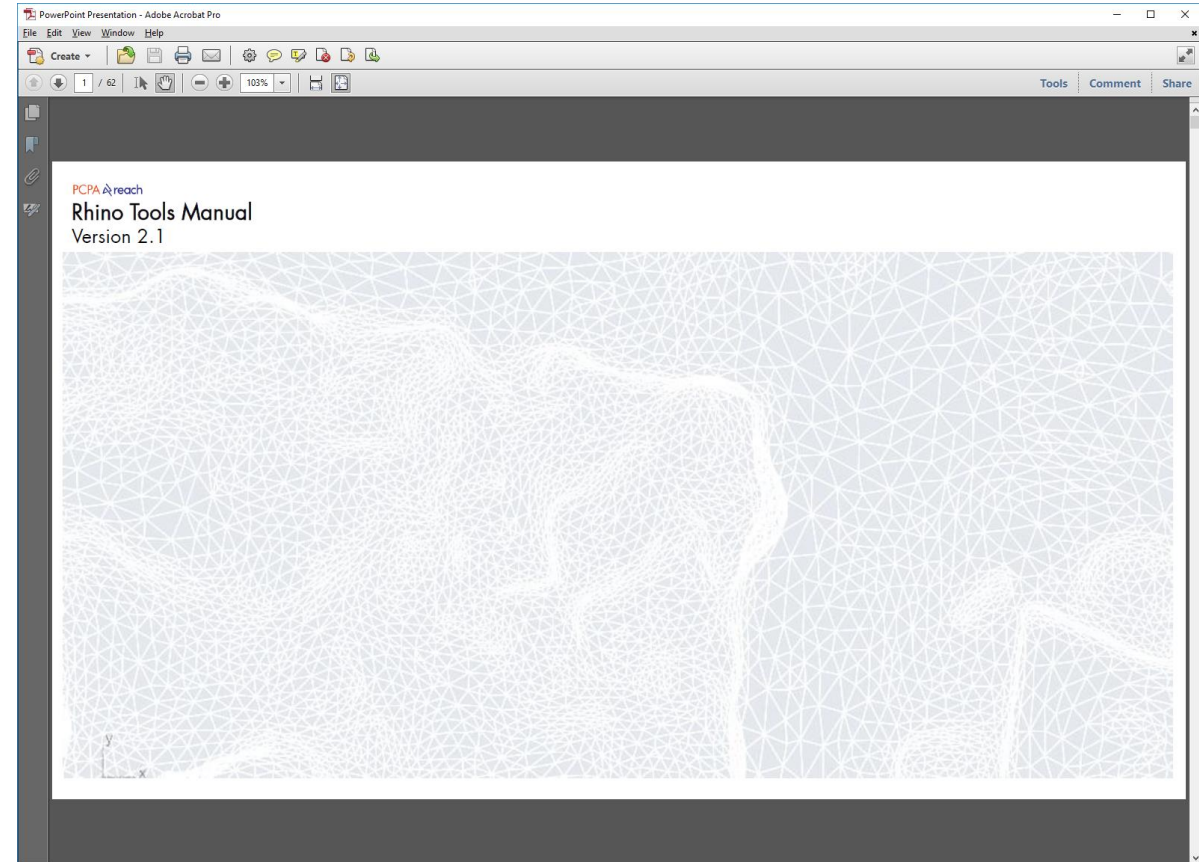
In order to improve the functionality of the toolbar, user input in these functions is dynamically stored in a file on the network.

Analytics should help us learn:
  Which scripts aren't working
  Which are popular
  Which are unpopular
  Which settings should change

Usernames are encrypted for anonymity.

Architecture-Stair					
Date	User	Width	Height	Path	Result
2018-08-03_18:33:46.12	wanrsqjwdptgkljcpwqu	42	120	[(84.098803252888047, 508.17035247603781,	TRUE

Grasshopper

Future Release
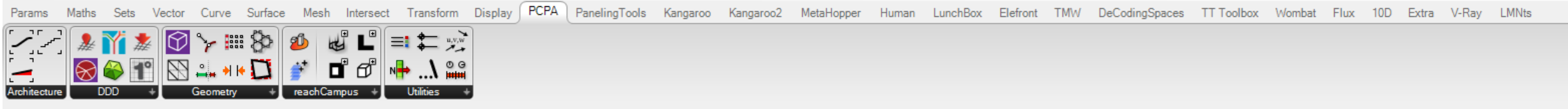
Current release contains
- Stair
- Ramp
- Escalator
- Get PCPA Layers
- Get Project Levels
- Rectify
- Unit Check
- reachCampus
- Topography and Site Generator
- Frit Pattern
- And many others…
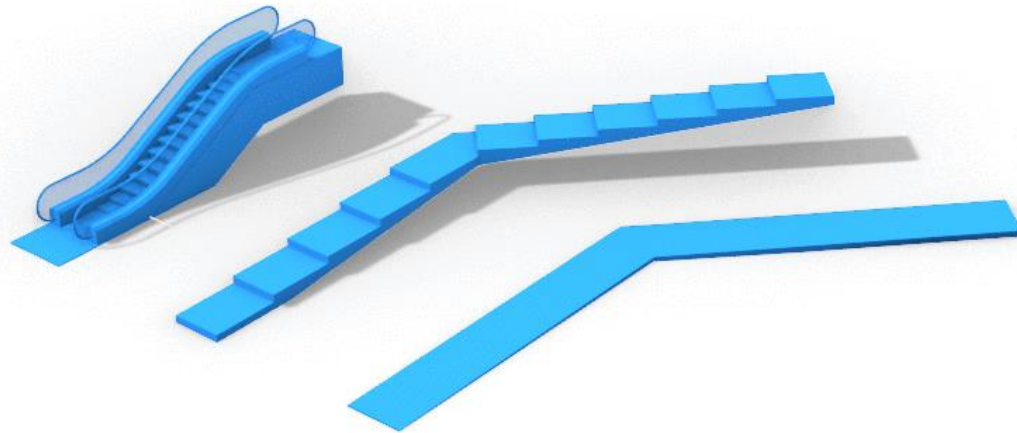
ERROR: "FAIL---Could not copy…" Warning

SOLUTION: Close all Rhino sessions and follow the [GH installation](#) **steps again.**

```
Loaded PCPA DDD GH Components
Loaded PCPA Geometry GH Components
Loaded PCPA Kanga 0.99 UserObjects GH Components
Loaded PCPA Utilities GH Components
Loaded PCPA Other GH Components
Loaded PCPA Database GH Components
FAIL-----Could not copy dependencies. You must have grasshopper open. Close and reopen Rhino, then run this again.
```

ERROR: "File Conflict Warning " Warning

SOLUTION: Choose the **Delete** button on the left. For each pop-up

ERROR: "Component ID conflict" Warning

SOLUTION: Choose the **Replace All** button.

If this continues to come up when opening Grasshopper,
paste **%appdata%\Grasshopper\Libraries** into windows explorer. Then delete
the conflicting file (**00_PCPA Standard Set** should not be deleted).

ERROR: "RUI File Error" Warning when Rhino Starts

SOLUTION: Drag and drop the toolbar to install again: Toolbar path

This usually happens when your computer temporarily loses connection to the network when opening Rhino.

ERROR: "Method Not Found " Warning

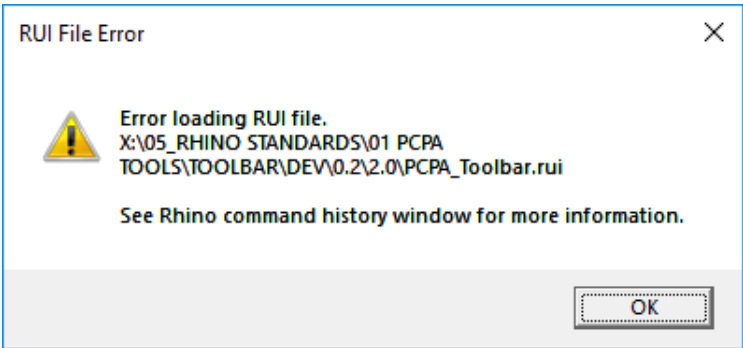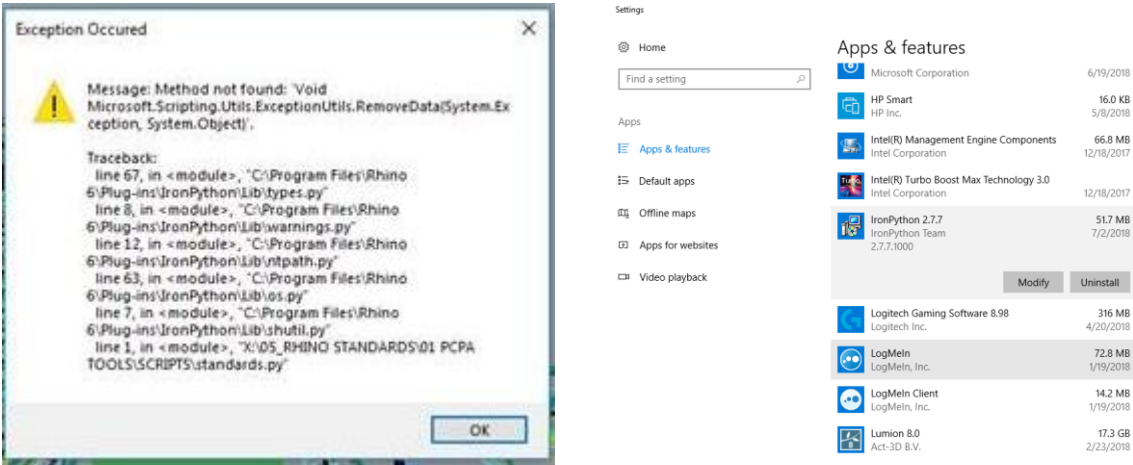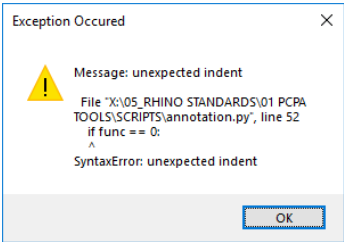**SOLUTION:** Go to the "Add & Remove Programs page" in Windows Settings. Scroll down and Uninstall "IronPython 2.7.3" . Close and reopen Rhino.

*This is a conflict caused when Dynamo has been installed. (Latest versions of Dynamo do not need this to run).

ERROR: "Exception Occured" Warning

SOLUTION: There is a bug in the script. Please send screenshot and description to Tim.

ERROR: "NVIDIA OpenGL Driver: A TDR has been detected"

SOLUTION: Graphics card cannot process such a large image. Either export as a smaller image or change your NVIDIA settings from default to Dynamic Streaming (as seen [here](#))