

# Color Scheme Editor



(Updated 2014-06-25 by Jinsol Kim)

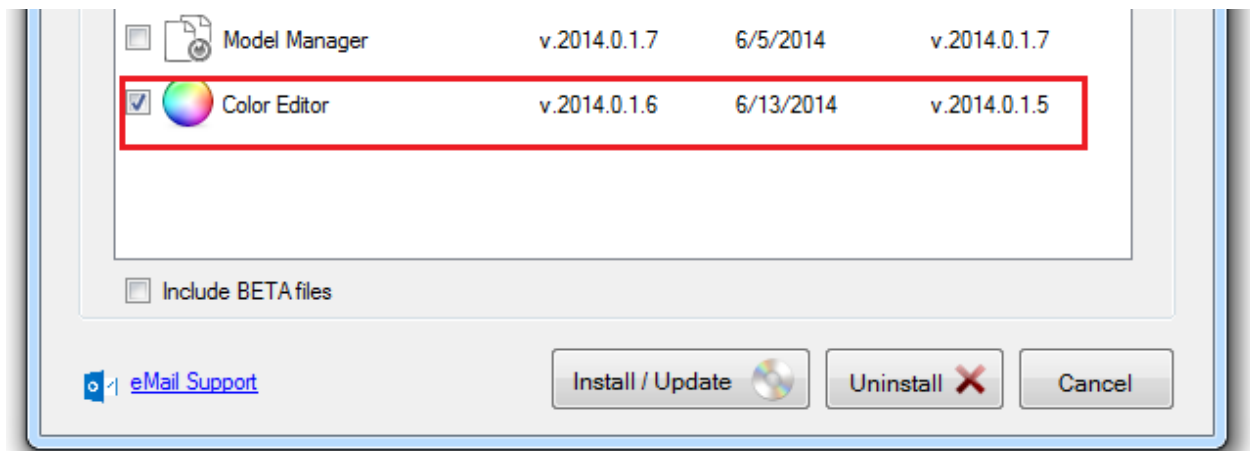
## Overview

The Color Scheme Editor will help override colors on Revit elements with predefined color schemes stored in BIM Collaboration Format (BCF) 2.0. This tool resembles the Revit built-in color scheme editor for spatial elements, but more extended groups of categories can be applied with filtering elements by parameter rules like the view filters in Visibility/Graphic Overrides option.

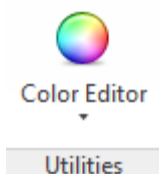
*\*By the limitation of Revit API, the Color Scheme Editor will be only available in 2014 and 2015 versions of Revit.*

## Installation

Select the target software as Revit\_2014 or Revit\_2015, and you will find the Color Editor in the list of tools.



The Color Editor button will appear in the list of drop-down buttons of Utilities panel in the HOK tab.

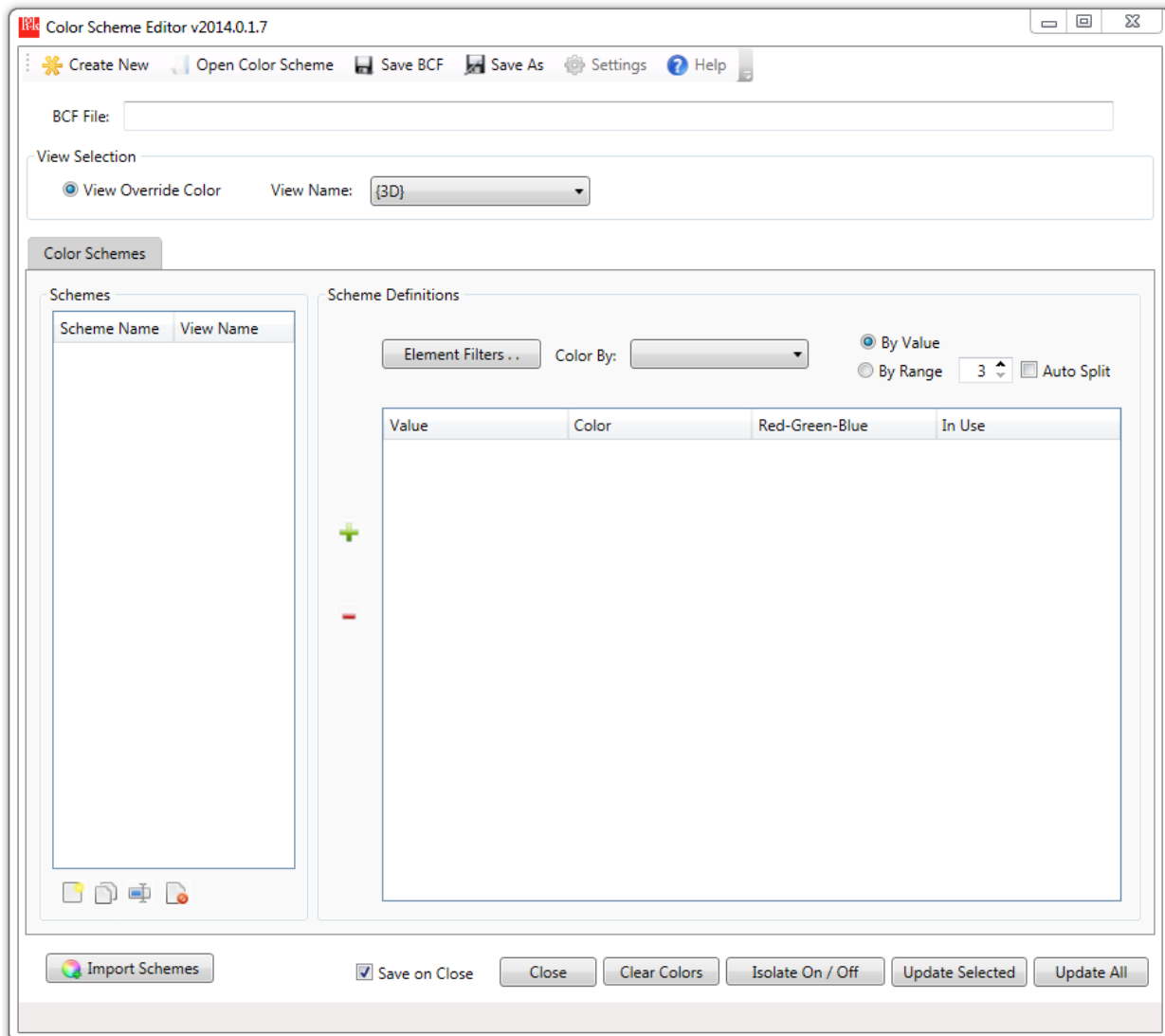




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## 1. Creating a Color Scheme



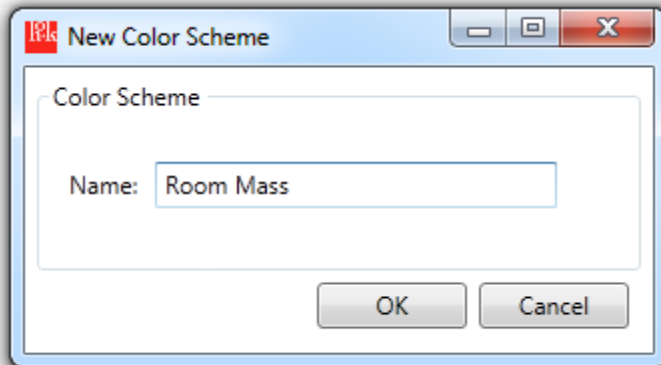
In order to start creating a new BCF file, click “Create New” button from the tool bar located on the top of the main window. This will initialize all the settings of the Color Scheme Editor.

**\*\* Note:** more information about the details of BCF file will be described in the later chapter.

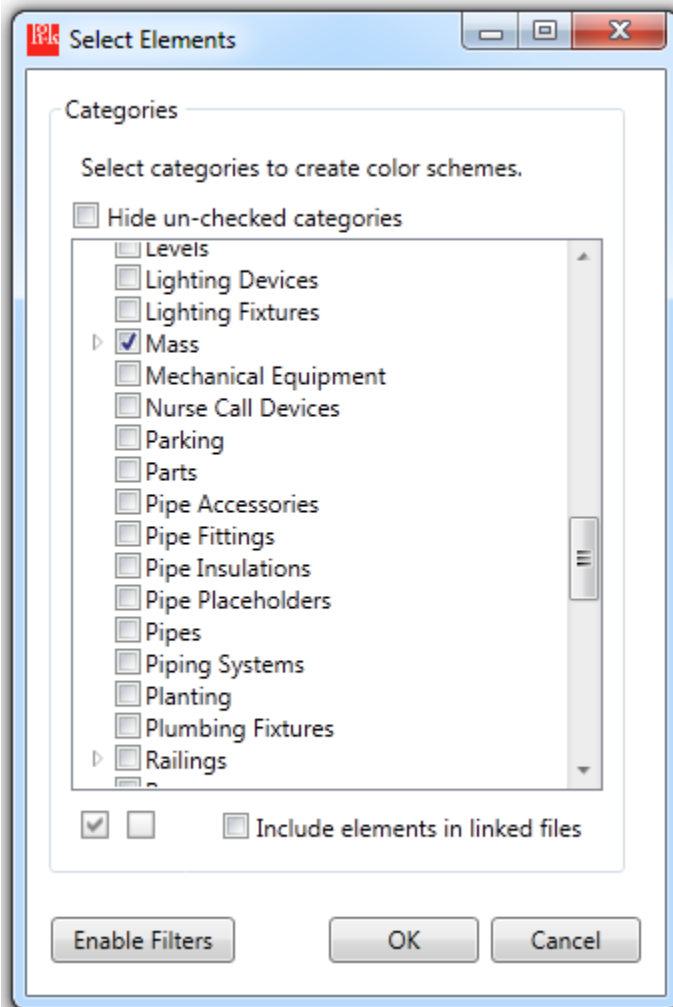
On the bottom left corner of the UI, you will find four buttons for managing color schemes such as

 creating a new scheme, 
  duplicating, 
  renaming, and 
  deleting from a selected scheme.

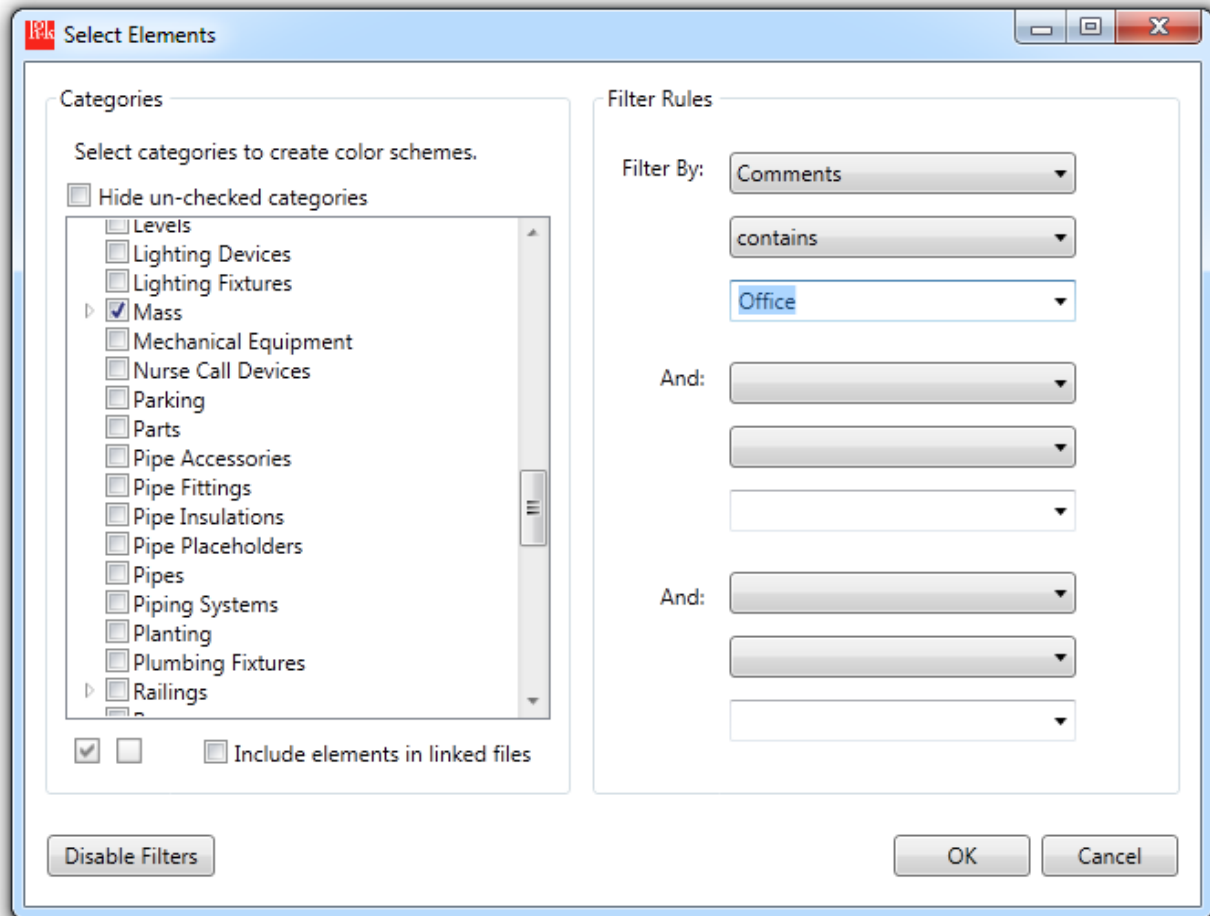
Click the create button, and enter a new name for the color scheme and hit Enter key or click OK.



This will direct you to the selection window to make a group of categories to be applied and parameter filter rules to confine Revit elements.



After making selections of categories, click **Enable Filters** button to expand more options for the parameter filter rules.




Up to three filter rules can be specified by selecting a parameter name, a criteria string, and a parameter value. The more categories you select, the less filterable parameters will be displayed in the dropdown box.

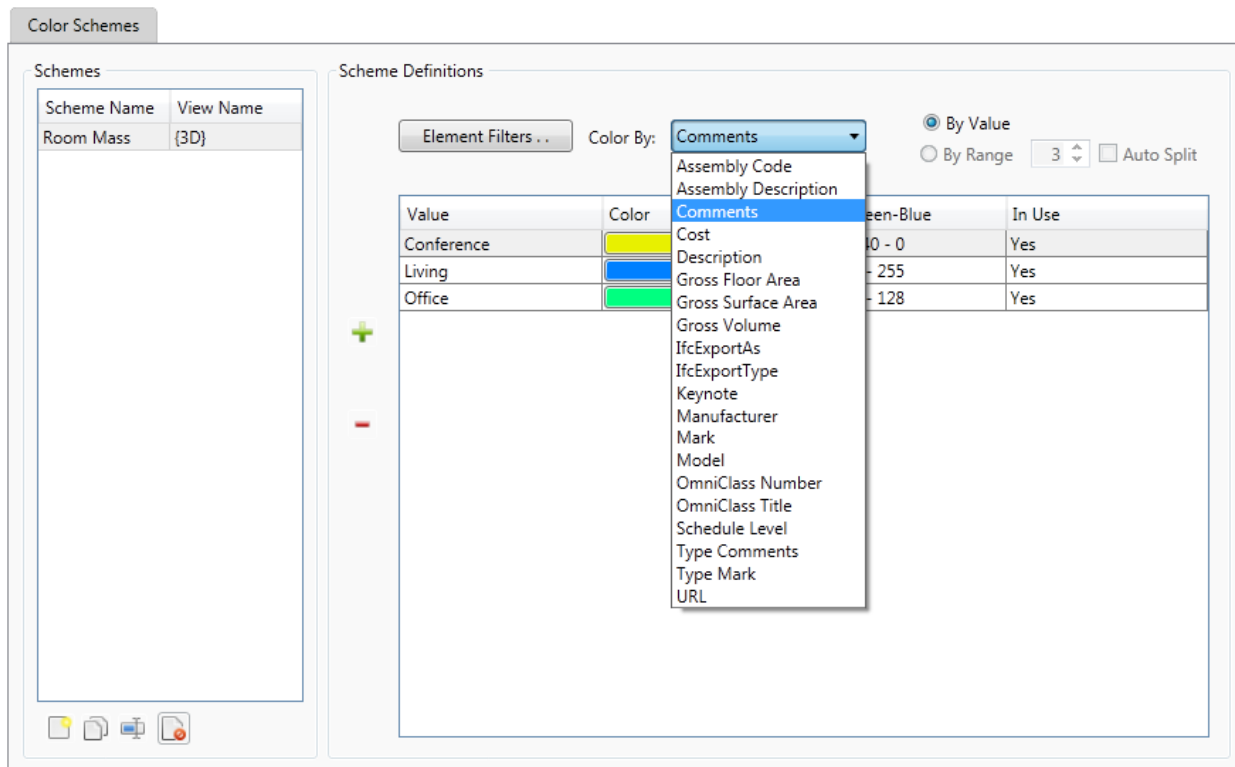
Click **Disable Filters** not to apply filter rules.

A new scheme with the name entered from the previous step will appear in the list of the schemes.

Schemes	
Scheme Name	View Name
Room Mass	{3D}

If you want to modify the selection of categories and filter rules, click  button to go back to the Select Elements window.


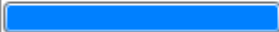

## 2. Creating Color Definitions



Pull down the **Color By** option, and specify a name of a parameter to programmatically generate a series of color definitions based on all possible parameter values from the selected elements.



**\*\*Note:** when you make changes on the **Color By** value, the user-defined color scheme entries can be lost if the storage types are different.

### 2.1 Editing Color Values

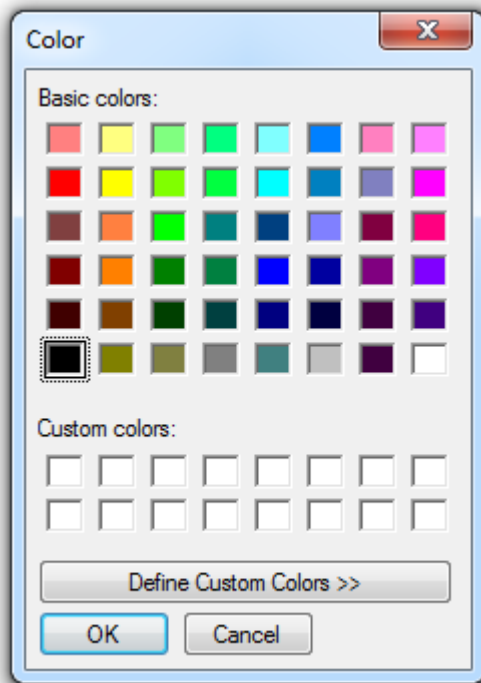
Value	Color	Red-Green-Blue	In Use
Conference		232 - 240 - 0	Yes
Living		0 - 128 - 255	Yes
Office		0 - 255 - 128	Yes

In order to specify a color other than the predefined one, click a color filled button in the **Color** column to enter to the Windows color dialog.



RGB values will be updated accordingly by the selected color.

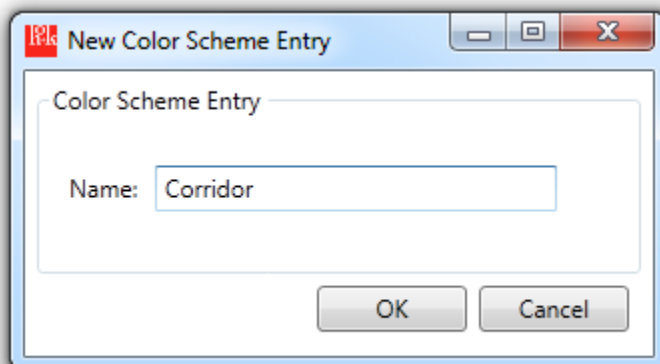
Value	Color	Red-Green-Blue	In Use
<empty value>		197 - 237 - 44	Yes
Office		0 - 128 - 255	Yes

If some of filtered elements doesn't have any parameter values, a color definition entry for empty value will be created.







## 2.2 Adding a Custom Value Definition

In addition to the existing color definitions, user-defined custom definitions can be inserted in the set of the color definition. Only those custom definitions can be inserted by the  **Add** button, or either deleted by the  **Delete** button.



Click **Add** button and enter a new name for the color scheme entry.

Value	Color	Red-Green-Blue	In Use
Conference		232 - 240 - 0	Yes
Living		0 - 128 - 255	Yes
Office		0 - 255 - 128	Yes
Corridor		6 - 146 - 96	No

A new row will be created on the bottom of the list with the **In Use** value as No, which means the value, "Corridor", cannot be found from any of the selected elements.




Select a row and click **Delete** button to delete the custom definition.

## 2.3 Creating Definitions by Range

If the storage type of the selected parameter is number, the radio button, **By Range**, will become enabled with **Auto Split** option.

Element Filters . .
Color By: Gross Volume

☐ By Value
☒ By Range
3
☐ Auto Split







Value	Color	Red-Green-Blue	In Use
value <= 3987		21 - 176 - 139	Yes
3987 <= value < 16312		188 - 25 - 108	Yes
16312 < value		190 - 159 - 168	Yes

By specifying the number of the color definition with enabling the **Auto Split** option, color definitions will be programmatically generated with evenly divided ranges from minimum to maximum values.

**\*\* Note:** default unit is feet decimal. The unit suffix will be supported at the future development.

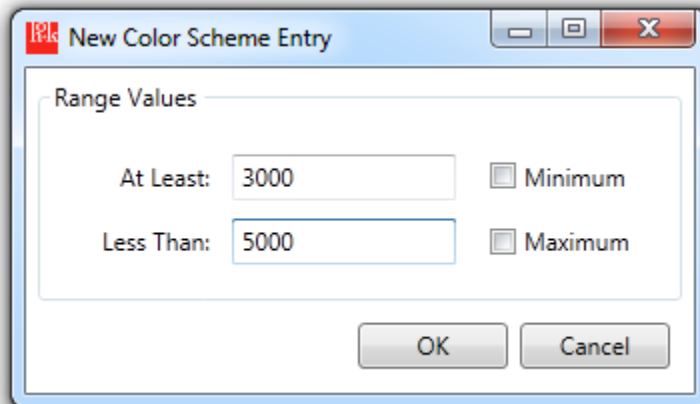
Element Filters . .
Color By: Gross Volume

☐ By Value
☒ By Range
6
☒ Auto Split


Value	Color	Red-Green-Blue	In Use
value <= 3987		21 - 176 - 139	Yes
3987 <= value < 7068		18 - 115 - 200	Yes
7068 <= value < 10149		118 - 180 - 145	Yes
10149 <= value < 13230		106 - 170 - 214	Yes
13230 <= value < 16312		58 - 127 - 166	Yes
16312 < value		190 - 159 - 168	Yes










## 2.4 Adding a Custom Range Definition



The dialog box titled "New Color Scheme Entry" contains a section labeled "Range Values". Inside this section, there are two rows of input fields. The first row has "At Least:" followed by a text box containing "3000" and a checkbox labeled "Minimum". The second row has "Less Than:" followed by a text box containing "5000" and a checkbox labeled "Maximum". At the bottom of the dialog are "OK" and "Cancel" buttons.

Click  **Add** button and enter a starting value and an ending value to define a range of values.

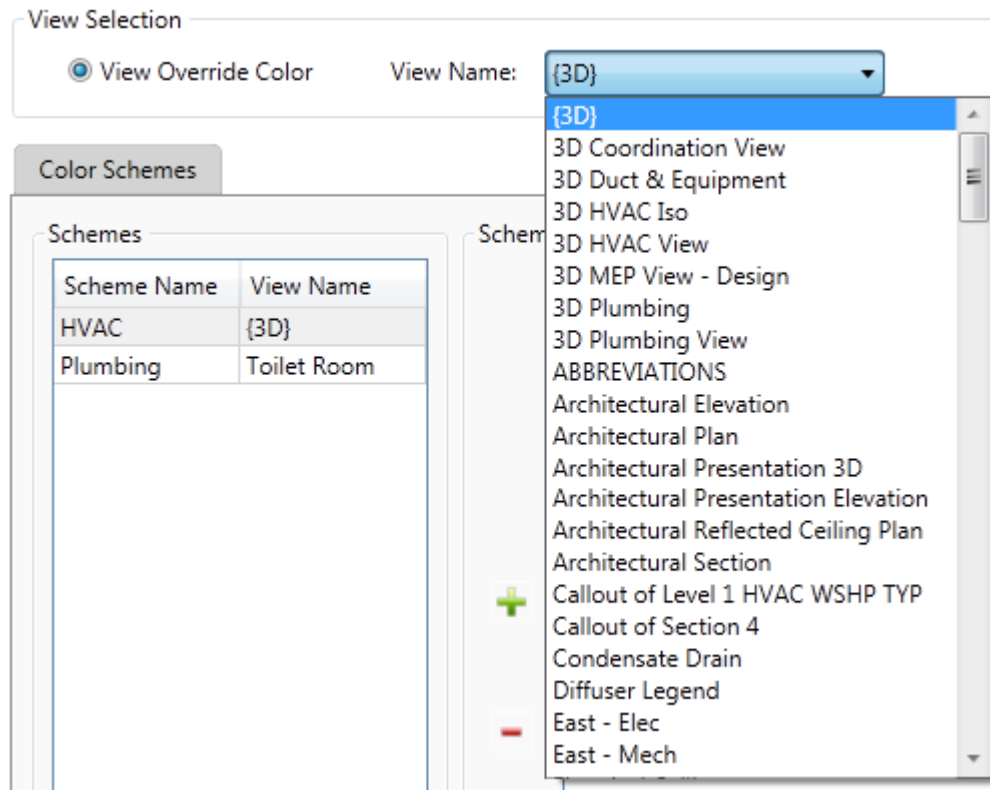
You can set those values as either **Minimum**, which will be displayed at the first row, or **Maximum**, which will be displayed at the last row, for the entire range sets.

Value	Color	Red-Green-Blue	In Use
value <= 3000		103 - 29 - 52	Yes
3000 <= value < 5000		212 - 1 - 189	Yes
5000 <= value < 7068		159 - 67 - 33	Yes
7068 <= value < 10149		118 - 180 - 145	Yes
10149 <= value < 13230		106 - 170 - 214	Yes
13230 <= value < 16312		58 - 127 - 166	Yes
16312 < value		190 - 159 - 168	Yes

### 3. Overriding Colors

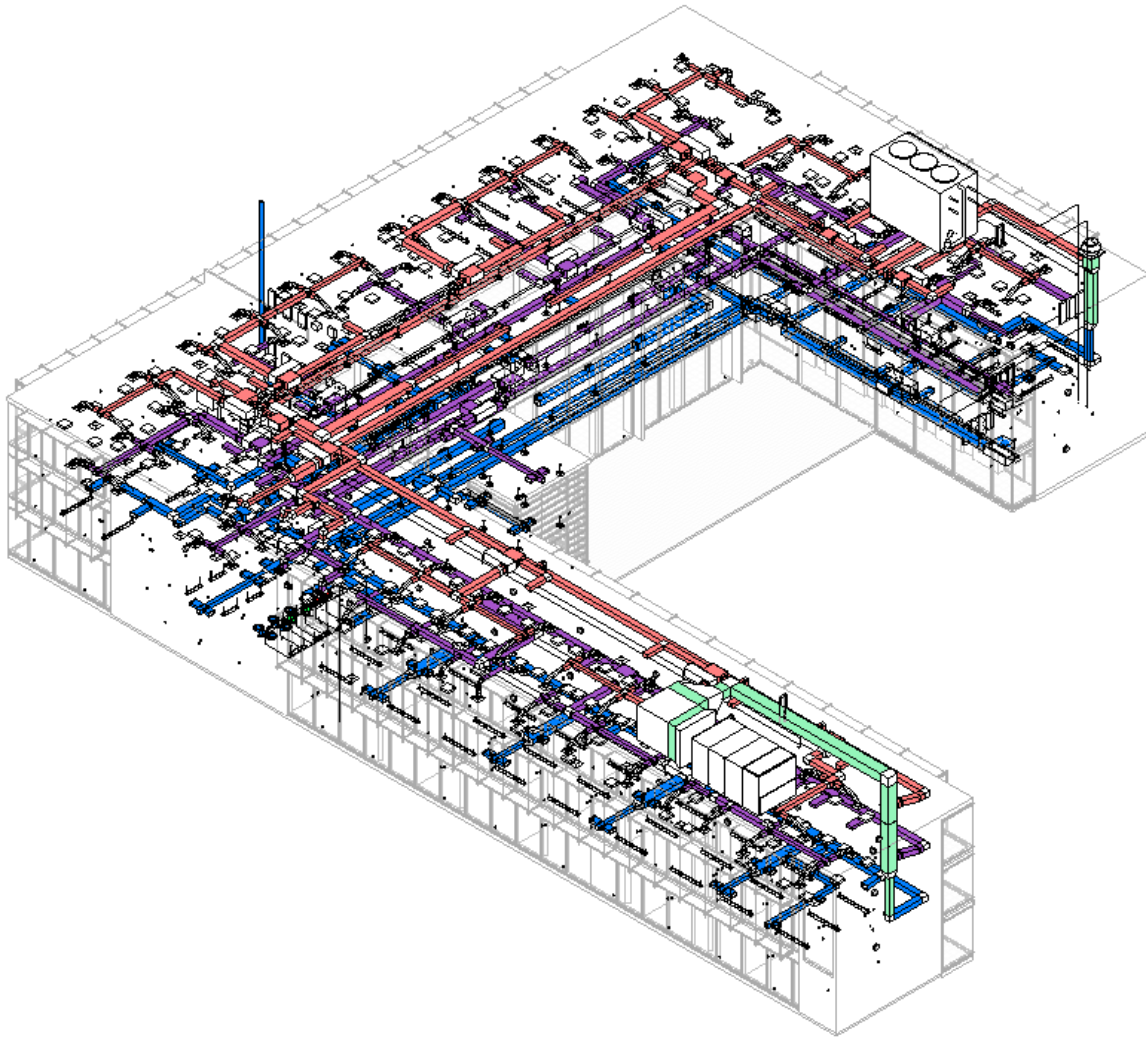
#### 3.1 Applying Overriding Colors

Before applying the override colors, make sure each scheme has mapped to an existing view that will be graphically illustrated by the scheme. Select a scheme and specify a view name from the drop down box.



Click **Update Selected** button to override colors only by the selected scheme in the UI, or **Update All** button applying colors by all color schemes at once.







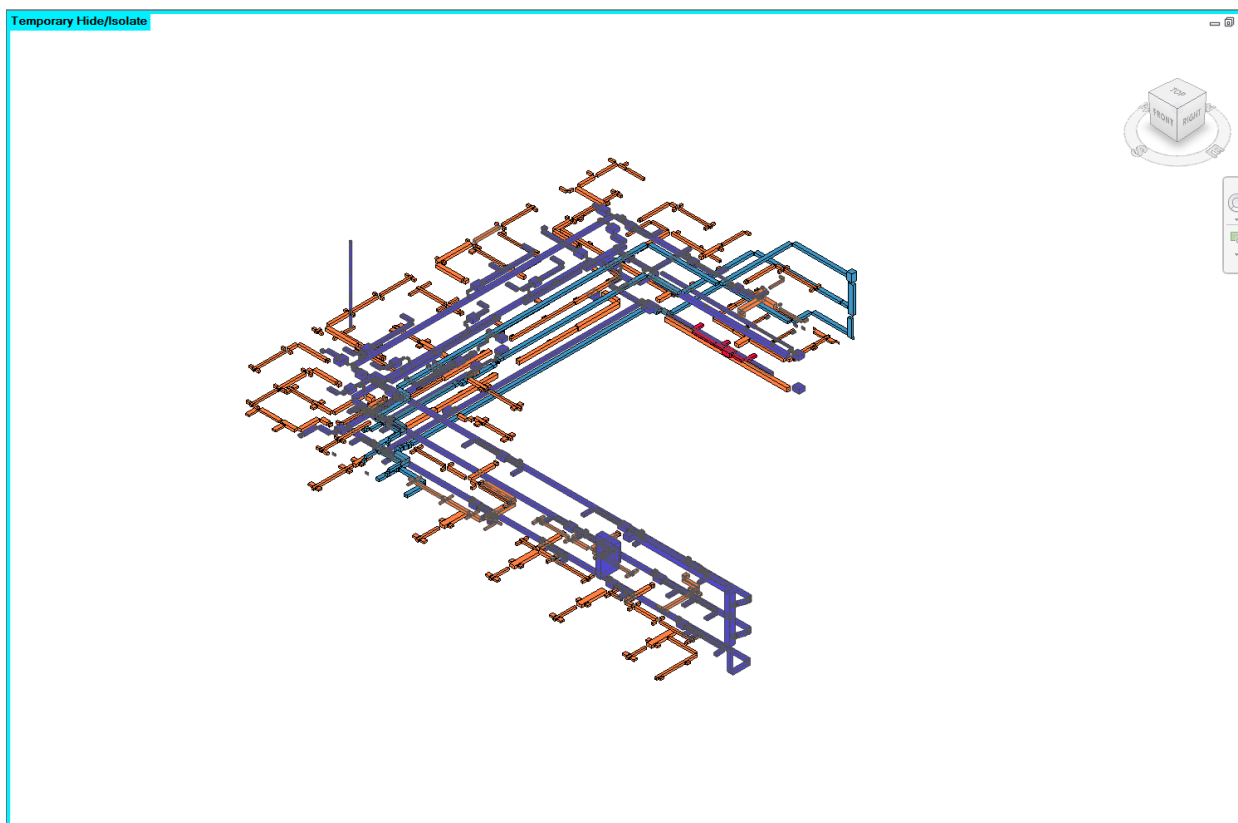


### 3.2 Isolating Elements in a Temporary View

If you want to create an isolated view with filtered elements colored by the selected color scheme, click **Isolate On / Off** button. This will update the elements with overriding colors in the selected view, and create a temporary isolated view by the elements.

If the selected view is already isolated by the Color Editor, it will reset the temporary isolated view to origin, remaining the overriding colors.

Value	Color	Red-Green-Blue	In Use
Exhaust Air		64 - 151 - 197	Yes
Return Air		252 - 9 - 71	Yes
Supply Air		255 - 128 - 64	Yes
Undefined		81 - 71 - 211	Yes

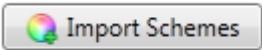


### 3.3 Clearing Colors

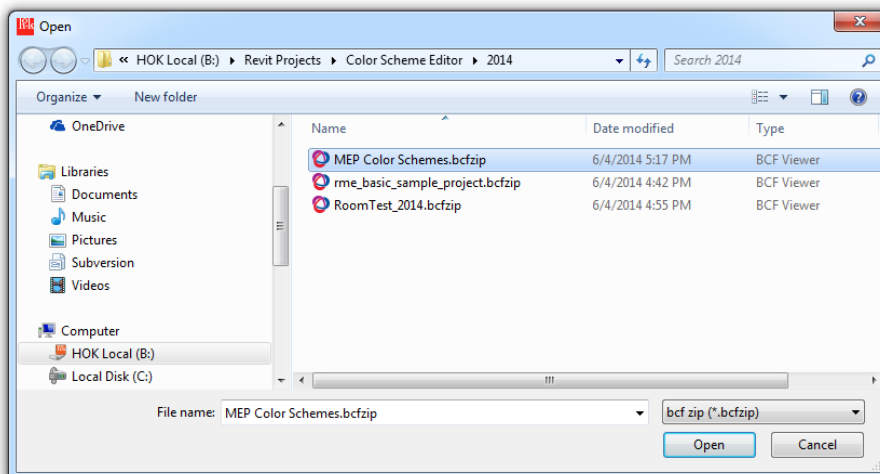
Select a color scheme that has already applied color overriding, and click the **Clear Colors** button to restore the graphical settings back to the initial state of the model color.

**\*\*Note:** Isolating views and clearing colors commands will be enabled only in case the active view in the background Revit is same as the currently selected view.

## 4. Importing Schemes

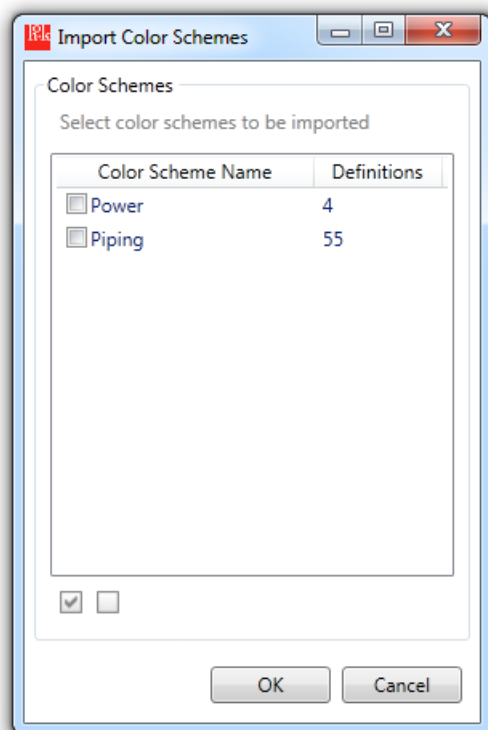
Click  **Import Schemes** button on the left bottom corner to merge imported color schemes into the active BCF file.

In the Open dialog, select a BCF zip file that contains color schemes to be imported.



Select color schemes to be imported and click **OK** from the Import Color Schemes dialog.





Imported color schemes will be inserted into the list of color schemes.



Scheme Name	View Name
HVAC	{3D}
Piping	Plumbing Sectio
Plumbing	Toilet Room
Power	Main Electrical E

## 5. BCF File

BCF zip file can be extracted by changing the file extension as “.zip”. Once the zip file extracted, in the root folder there will be sub-folders named with GUID of Topics. Each GUID folder will consists of four files with prefixed names, colorscheme.xml, markup.bcf, snapshot.png, and viewpoint.bcfv.

 colorscheme.xml	6/4/2014 5:27 PM	XML Document	22 KB
 markup.bcf	6/4/2014 5:27 PM	BCF File	1 KB
 snapshot.png	6/4/2014 5:27 PM	PNG image	27 KB
 viewpoint.bcfv	6/4/2014 5:27 PM	BCFV File	141 KB

### 5.1 Color Scheme Information

The color scheme file, colorscheme.xml, is the most important file that contains the information of color schemes and color definitions to directly communicate with the Color Scheme Editor. The colorscheme.xml will be created by storing user's inputs into the following data structure.

```
<?xml version="1.0" encoding="UTF-8"?>
- <ColorSchemeInfo xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  - <ColorSchemes>
    - <ColorScheme IncludeLinks="false" ViewName="Toilet Room" NumberOfRange="3" PresetRange="false" DefinitionBy="ByValue"
      SchemeId="52df4fc4-49c4-4ec0-adce-9b65c59f7f90">
      <SchemeName>Plumbing</SchemeName>
      - <Categories>
        <Category>Plumbing Fixtures</Category>
      </Categories>
      <ParameterName>System Classification</ParameterName>
      - <ColorDefinitions>
        - <ColorDefinition>
          <ParameterValue>Domestic Cold Water,Domestic Hot Water,Sanitary</ParameterValue>
          <MinimumValue>-1.7976931348623157E+308</MinimumValue>
          <MaximumValue>1.7976931348623157E+308</MaximumValue>
          <Color>FF0000</Color>
        </ColorDefinition>
        - <ColorDefinition>
          <ParameterValue>Domestic Cold Water,Sanitary</ParameterValue>
          <MinimumValue>-1.7976931348623157E+308</MinimumValue>
          <MaximumValue>1.7976931348623157E+308</MaximumValue>
          <Color>0080FF</Color>
        </ColorDefinition>
        - <ColorDefinition>
          <ParameterValue>Sanitary,Domestic Cold Water</ParameterValue>
          <MinimumValue>-1.7976931348623157E+308</MinimumValue>
          <MaximumValue>1.7976931348623157E+308</MaximumValue>
          <Color>00FF40</Color>
        </ColorDefinition>
      </ColorDefinitions>
      <FilterRules>
      </FilterRules>
    </ColorScheme>
    + <ColorScheme IncludeLinks="false" ViewName="Main Electrical Equipment Room" NumberOfRange="3" PresetRange="false"
      DefinitionBy="ByValue" SchemeId="bb8be702-b0d9-42cf-ac2a-1fd008cd81c5">
    + <ColorScheme IncludeLinks="false" ViewName="Plumbing Section" NumberOfRange="3" PresetRange="false" DefinitionBy="ByValue"
      SchemeId="ca15c405-5160-4cff-ad08-c5908528b4d6">
    + <ColorScheme IncludeLinks="false" ViewName="{3D}" NumberOfRange="3" PresetRange="false" DefinitionBy="ByValue"
      SchemeId="94ff988d-a14a-4d92-b4c9-4d55b05e0ce5">
  </ColorSchemes>
</ColorSchemeInfo>
```



## ColorScheme Class

Properties	Sub-Properties	Description
SchemeName		A name of the color scheme
Categories	Category	Names of the selected categories
ParameterName		A Name of the parameter to determine color values
ColorDefinition	ParameterValue	The value of the selected parameter
	MinimumValue	Starting value (default: minimum of double type)
	MaximumValue	Ending value (default: maximum of double type)
FilterRule	ParameterId	Element Id of the Parameter
	CriteriaName	Criteria strings to filter by the parameter
	RuleValue	Values that will be compared
	ParameterStorageType	Storage type of the parameter

Attributes	Description
IncludeLinks	To determine whether including elements from linked files or not
ViewName	A name of 3D or plan view in which the override colors will be visualized
NumberOfRange	The number of ranges if the color definition was generated by ranges
PresetRange	Enabling or disabling the auto split function
DefinitionBy	Color definitions by parameter values or by value ranges
Schemeld	ID of scheme as GUID

## 5.2 Markup and Visualization Information

**markup.bcf:** the markup file will have consistent values generated by the Color Scheme Editor.

```
<Topic Guid="78ef5c87-8048-4b4c-87fc-ffdfacdfbd77">
  <Title>Color Schemes Editor</Title>
  <BimSnippet>
    <Reference>colorscheme.xml</Reference>
    <ReferenceSchema>C:\Users\Jinsol.Kim\Documents\01. RevitAPI\_Revit
Versions\HOK.ColorSchemeEditor\HOK.ColorSchemeEditor\bin\2014\Resources\colorscheme.xsd</Refe
renceSchema>
  </BimSnippet>
</Topic>
```

**viewpoint.bcfv:** this will contains the information of all elements colored by the Color Scheme Editor including the angle of the view point of those elements. (Under development)

```
<Component IfcGuid="2t0Vf4T_18Q8GXNYAAo8JX" Color="87B9F6">  
  <OriginatingSystem>Autodesk Revit 2014</OriginatingSystem>  
  <AuthoringToolId>305091</AuthoringToolId>  
</Component>
```

**snapshot.png:** a screen captured image of the bounding box created by all colored elements. (Under development)

