

FREDOGHOST

PROXY FRAMEWORK FOR SKETCHUP

GHOST METHODS

VERSION 1.2 – 03 JUN 2019

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The **Plugin page of FredoGhost** is hosted on the Sketchucation web site at:

<https://sketchucation.com/plugin/2191-FredoGhost>

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1. Ghost Methods

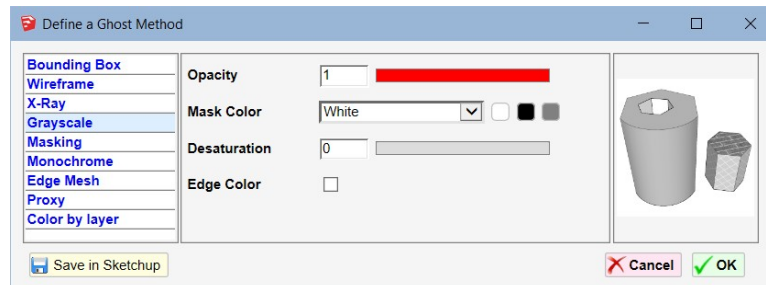
Ghost methods are based on a core algorithm, complemented by optional parameters (for instance, X-Ray has the choice of opacity and masking color). The combination of the algorithm and the parameters instantiates an **active ghost method**.

In a model, the list of active ghost methods is shown in the Ghost Studio dialog box, in the combo box, coming from 3 sources:

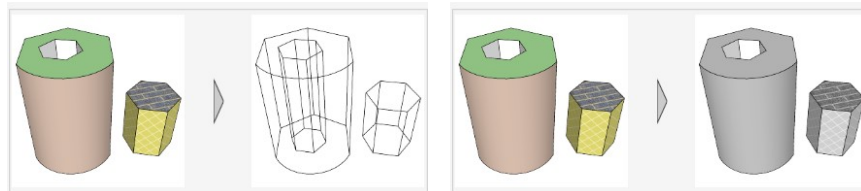
- Predefined methods (in blue)
- Methods used in the model and already assigned to some objects (in green) or defined in the current session.
- Methods saved at SketchUp level (in red).



Some methods do not have parameters, like *Clone Geometry* and *NO texture*. Others can be customized with parameters via the **Ghost Method Editor**.



FredoGhost illustrates the rendering for each method and parameters based on a **template shape**¹ shown in real version and in ghosted version. FredoGhost tries to simulate the rendering as accurately as possible, at least for SU2018+.



¹ Note that this template shape may change with future version of FredoGhost.

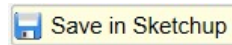
Specifying Edge Colors

Styling methods usually have a property Edge Color. The 3 buttons on the right are shortcuts to set the edge color to *Black*, *Gray* and *Blend*. There are 3 options:

Edge Color <input type="checkbox"/>	Edges are not painted
Edge Color <input checked="" type="checkbox"/> Orange	Edges are painted in the specified color
Edge Color <input checked="" type="checkbox"/> blend	Edges are painted with a blending of the colors of their bounding faces (for methods painting faces)

Saving a ghost method at SketchUp Level

- You can define as many methods as you like in the Ghost Method editor. However, they will be available in the SketchUp session only, unless they are used on objects in the model.
- You can however **save a method and parameters for all SketchUp sessions², regardless of the model**. Just press the Save button:



You will be prompted for a method nickname. By default, the name is the expanded list of properties of the method.



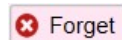
If you give it a nickname, say “My Method”....



...it will then appear in the main dropdown list of methods in ‘red’, with the method code and the nick name. The tooltip indicates the details of properties.

```
Masking => Desaturation = 0.30
Masking => Desaturation = 0.30 ; Edge Color = blend
Masking => Desaturation = 0.30 ; Mask Color = black
Masking => Desaturation = 0.75 ; Mask Color = black
Masking -> Face Color = white ; Desaturation = 0.30
Masking [My Method]
monochrome
Monochrome => Opacity = 0.25 ; Edge Color = blend ; Face Color = SandyBrown
Monochrome => Opacity = 0.50
```

- If ever you want to remove this method, select it in the main combo box of the Ghost Studio and then open the Ghost Method editor; you will see that the Save button is now changed to a **Forget** button:



² As well as all SketchUp versions, past and future

The following sections describe the methods available in the current version of FredoGhost.

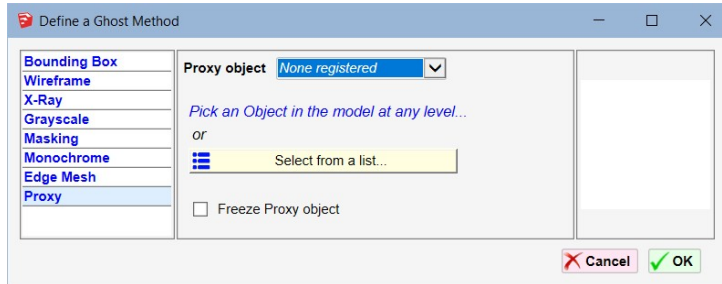
<i>Ghost method</i>	<i>Simplifying</i>	<i>Styling</i>
Proxy Object: <i>substitution by an arbitrary object</i>		
Clone Geometry: <i>make a strict copy of the real object</i>		
No Texture: <i>replace all textures by flat average colors</i>		
X-Ray: <i>change the opacity of faces, with optionally assigning a color to faces and edges</i>		
Masking: <i>apply a color mask to the faces, to make them desaturated, i.e. lighter or darker or water-colored.</i>		
Grayscale: <i>paint the faces in their grayscale color. Optionally, you can apply a mask to lighten or darken the grayscale.</i>		
Color by Layer: <i>paint the objects with their layer color</i>		
Monochrome: <i>paint the objects with a single color</i>		
Bounding Box: <i>replace objects by their bounding box</i>		
Edge Mesh: <i>replace objects by their edge skeleton</i>		
Wireframe: <i>replace objects by their simple wireframe as in SU</i>		

1) Method: *PROXY Object*

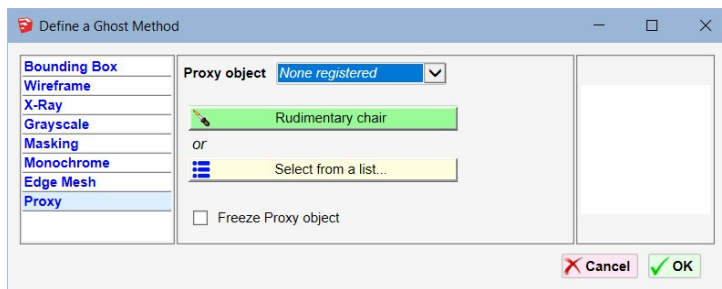
This method allows the creation of ghosts from an **arbitrary object taken in the model**.

This object is called a **Proxy Object**. Actually, FredoGhost will use its definition, whether a component instance or a group.

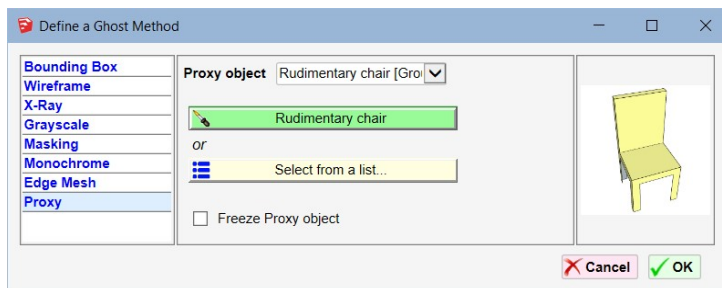
In the Method Editor, the Proxy panel will look like this when you open it for the first time:



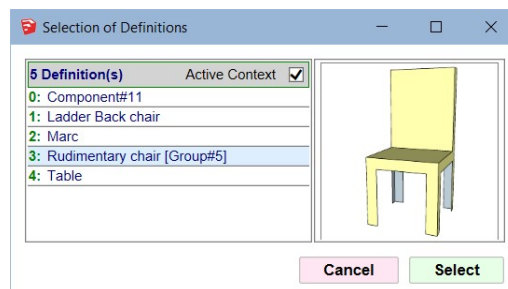
The quickest method is to pick the **proxy** object in the model, using the native Selector tool. When one valid proxy object is selected, it will appear in the dialog box as a **green colored** button.



Just click on the button to load it:

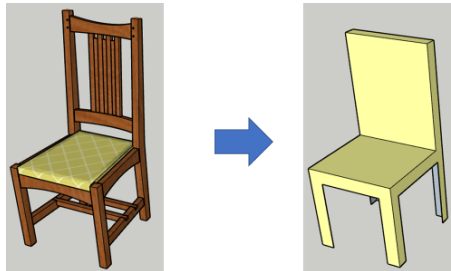


Alternatively, you can select the proxy object in a list



When the object is chosen, FredoGhost will make:

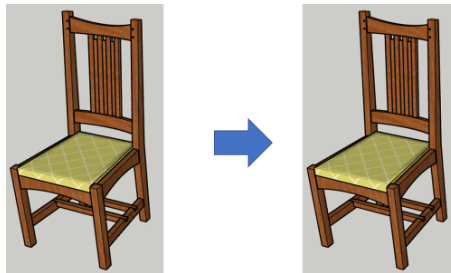
- a unique copy of the Proxy object if it is a Group or if the *Freeze Proxy object* option is turned on. The definition of the proxy object is therefore frozen.
- an instance copy if the Proxy object is a Component instance and the *Freeze Proxy object* option is turned off. The definition of the proxy object will therefore be automatically updated whenever changes are made to its original definition.



2) Method: Clone Geometry

This method makes an **exact copy of the object**, transferring all geometry, materials and textures.

The method has **NO parameters**.



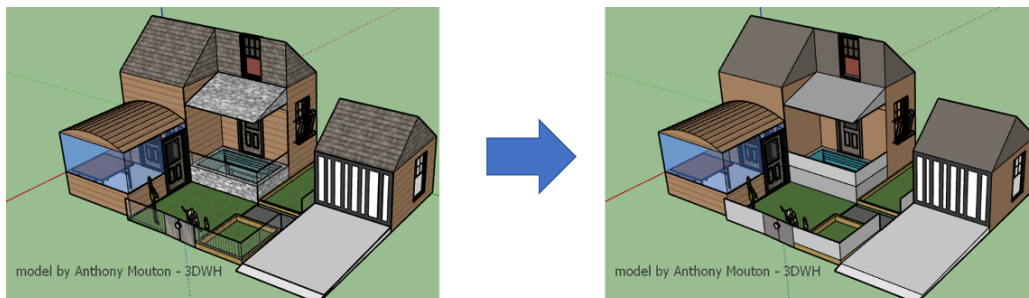
The Clone Geometry method can be useful in several cases:

- Freezing the state of an object at the time of ghost creation, along with the option *Freeze Ghost*.
- Customizing some sub-objects with other methods, while keeping the other sub-objects in their original shape and style.

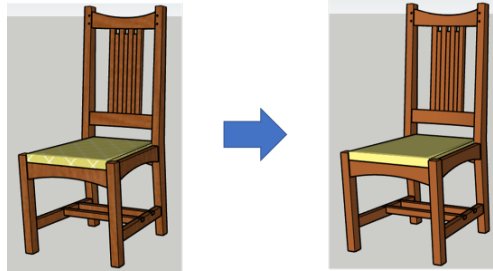
3) Method: No Texture

This method repaints all textured faces with a material colored by the average color of the textures.

The method has **NO parameters**.



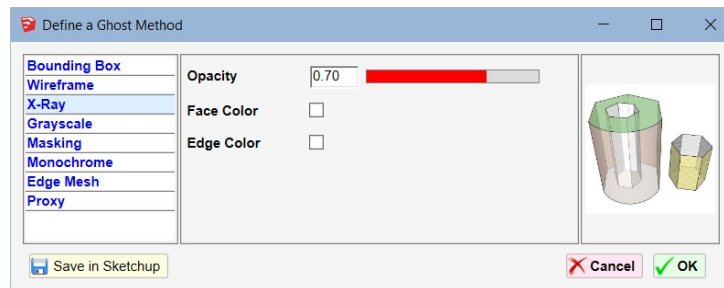
The purpose of this method is to make the active model lighter by removing textures, in particular when textures are based on heavy images.



4) Method: X-Ray

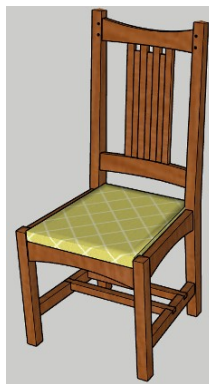
This method allows specifying an opacity (alpha), an optional masking color for all faces and an optional color for all edges. Textures are preserved.

In the Method Editor, the X-Ray panel parameters are:

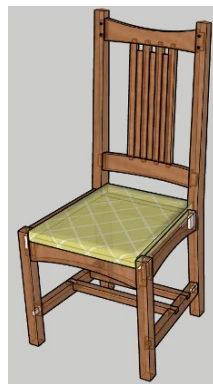


The *opacity* (alpha) is specified between **0.0** (fully transparent) and **1.0** (fully opaque). Note that values are rounded at 0.05.

If the *Face Color* and *Edge Color* are not checked, the method just performs an X-Ray of the object with the specified opacity:



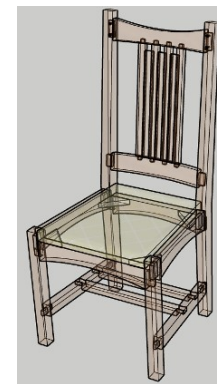
Original object



X-Ray - opacity = 0.80

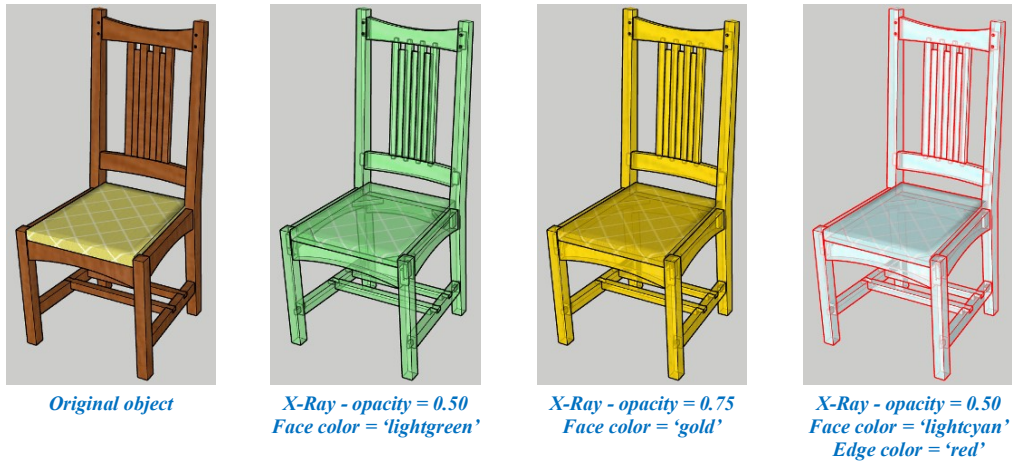


X-Ray - opacity = 0.50



X-Ray - opacity = 0.20

To specify a *Face Color* and/or an *Edge color*, click on the checkbox, and select the color in the dropdown list. If you specify an *edge color*, then it will be used. Otherwise, the edges will be colored with the x-rayed average color of their bounding faces.

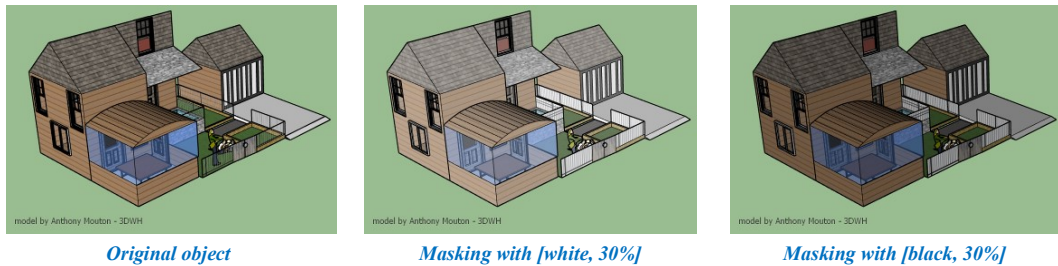


REMINDER: in Sketchup, materials with an opacity less than 0.70 do NOT cast shadows.

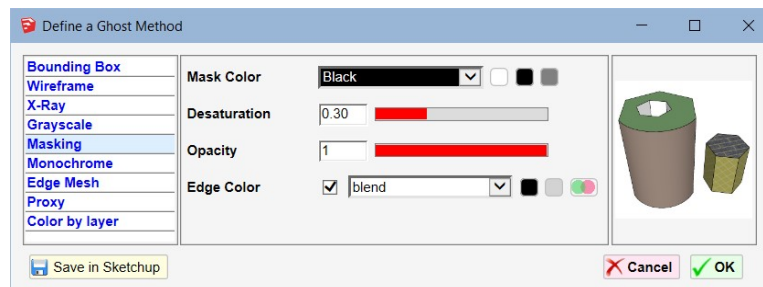
5) Method: Masking

Masking is a way to soften the colors; it applies a color masking to the object, which is defined by 2 parameters:

- **Masking color:** *white* for lighter, *black* or *gray* for darker. You can use another color.
- **Desaturation:** from 0 (no change) to 1 (fully desaturated)



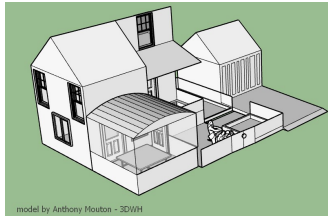
In the Method Editor, the Masking panel parameters are:



The *opacity* (alpha) is specified between **0.0** (fully transparent) and **1.0** (fully opaque). Note that values are rounded at 0.05.

If you specify an *edge color*, then it will be used. With the *Blend* mode, the edges will be colored with the average of the masking colors of their bounding faces.

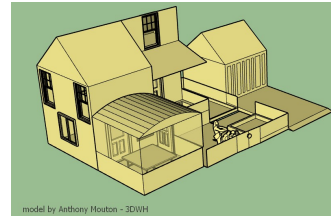
Note that if the desaturation is at 100%, you get a full coloring of the object with the specified color.



Masking with [white, 100%]



Masking with [gray, 100%]



Masking with [khaki, 100%]

6) Method: Grayscale

This method replaces all face colors by their grayscale color. Textures are preserved. Grayscale colors are computed based on luminance of the color, which is in general better suited than a simple average.



Original object



Grayscale

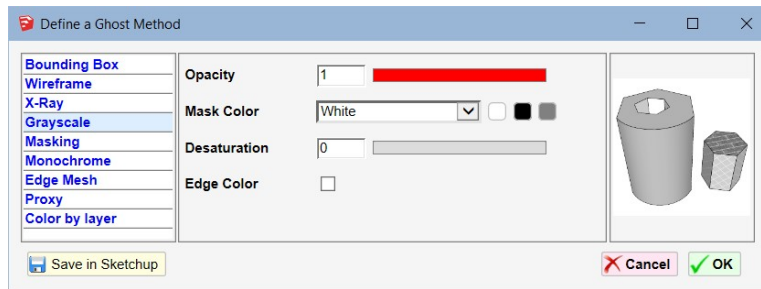


Original object



Grayscale

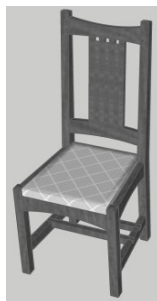
In the Method Editor, the Grayscale panel parameters are:



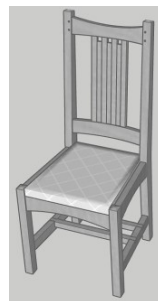
You can therefore make the ghost lighter or darker using the masking parameters:



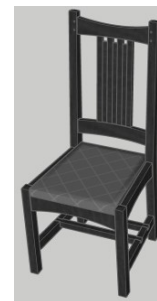
Original object



Grayscale with NO masking



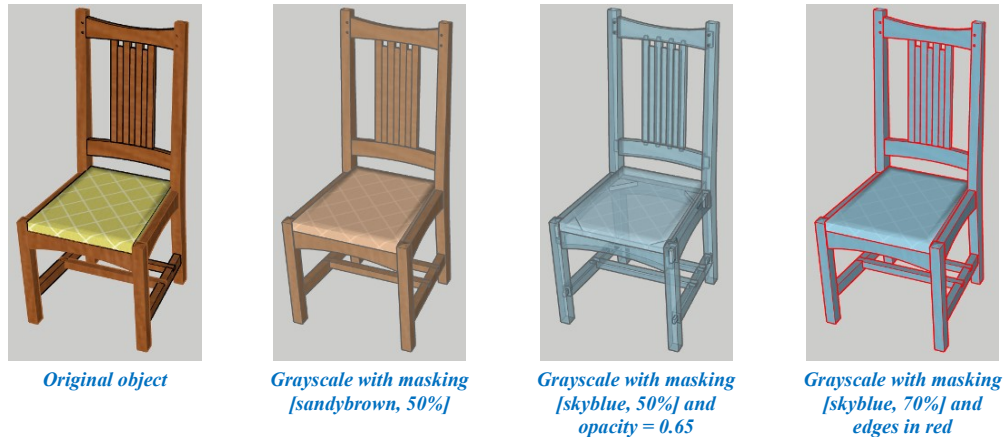
Grayscale with masking [white, 50%]



Grayscale with masking [black, 50%]

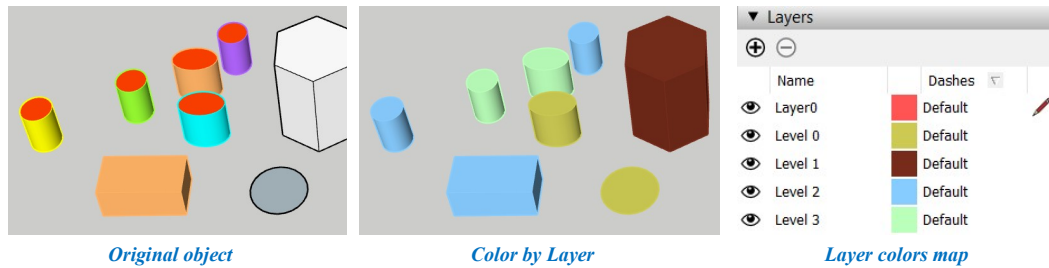
The *opacity* (alpha) is specified between **0.0** (fully transparent) and **1.0** (fully opaque). Note that values are rounded at 0.05.

If you specify an *edge color*, then it will be used. With the *Blend* mode, the edges will be colored with the average of the grayscale colors of their bounding faces.

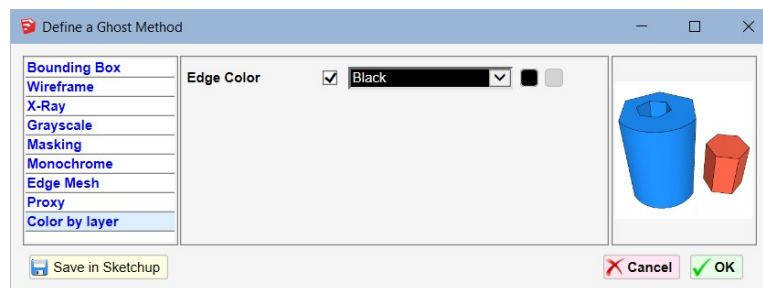


7) Method: Color by Layer

This method is similar to the native Color by Layer feature of Sketchup, but it applies only to selected objects.



In the Method Editor, the Color by Layer panel has options to choose a color for the edges: specified color or colored by layer otherwise.



8) Method: *Monochrome*

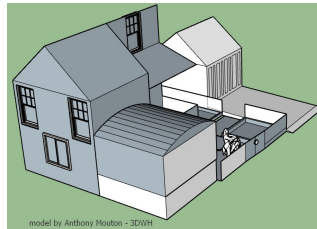
This method assigns a single color to ALL faces in the selected objects, *white* by default. Textures are removed.

If NO face color is specified, the method gives the same result as the native Monochrome style in Sketchup, showing the front faces and back faces.

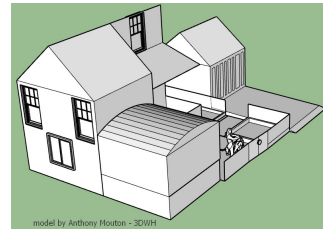
If a face color is specified, then the front and back faces are equally painted with the specified color.



Original object

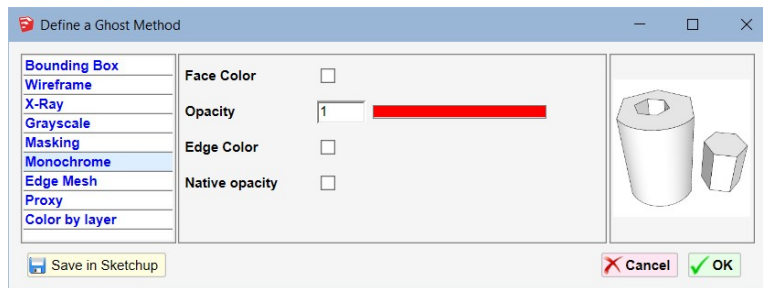


*Monochrome – NO face color
Front and Back faces receive each
the default material*



*Monochrome – face color = white
ALL faces are painted in white*

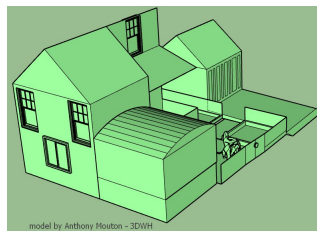
In the Method Editor, the Monochrome panel has options to choose the Face color, the opacity and a color for the edge.



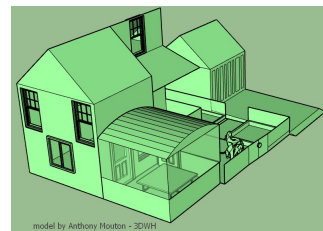
The 4th option, *native opacity*, allows to preserve the original opacity of faces in the object. This is effective only if there is no global opacity set.



Original object



*Monochrome – face color = palegreen
Native opacity = false*



*Monochrome – face color = palegreen
Native opacity = true*

9) Method: *Bounding Box*

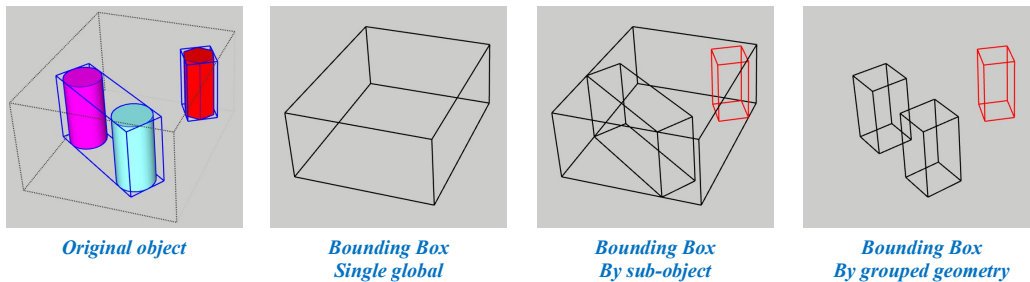
This method replaces objects and their sub-objects by their respective bounding box.

Boxes are created as wireframes by default, with a specified edge color, or *black* by default. You can optionally specify a face color and opacity to have plain boxes.

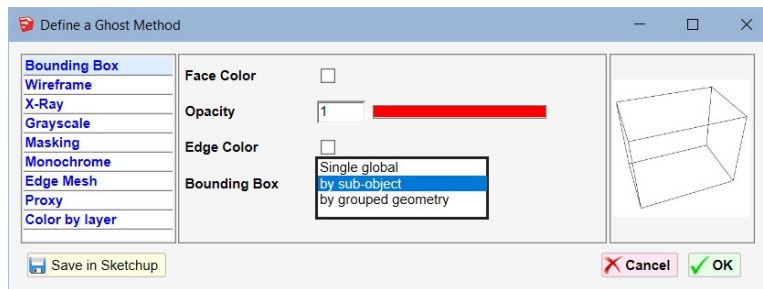
There are 3 options to specify the bounding boxes:

- **Single global:** create a single bounding box for the topmost object
- **By sub-object:** create a bounding box for the object and all its sub-object at any nested level
- **By grouped geometry:** create an individual bounding box for each separate piece of geometry (i.e. connected faces and edges), within each nested sub-object. No bounding box is created when there is no loose geometry in an object (i.e. faces and edges).

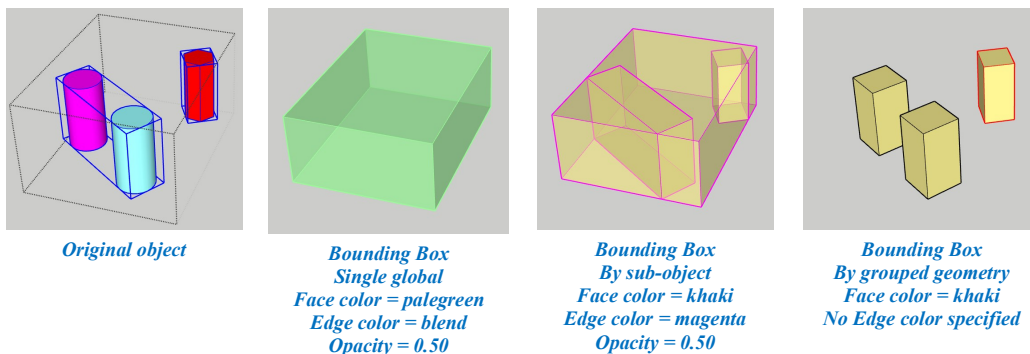
In the following example, the original object contains a group of two cylinders and another group for the red hexagonal tube. The top group does not contain flat geometry itself.



In the Method Editor, the Bounding Box panel offers the option to choose the Face color, the opacity and a color for the edge.



If you select a face color, the bounding boxes will be created as true blocks with faces.

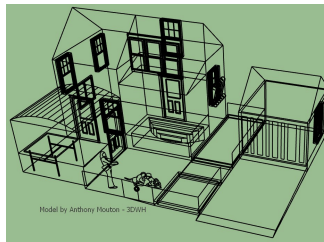


10) Method: Edge Mesh

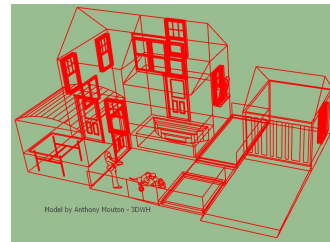
This method generates a ghost with ALL edges of the objects, including hidden edges. An optional color can be applied to edges.



Original object



Edge Mesh – NO edge color



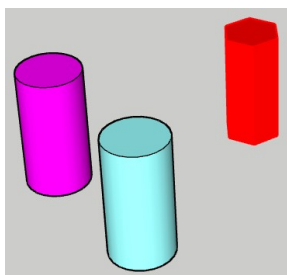
Edge Mesh – edge color = red

In the Method Editor, the Edge Mesh panel offers the option to choose the Edge color.

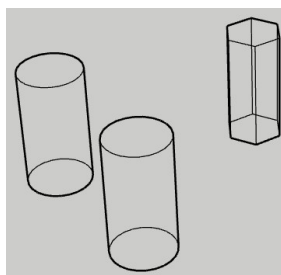


11) Method: Wireframe

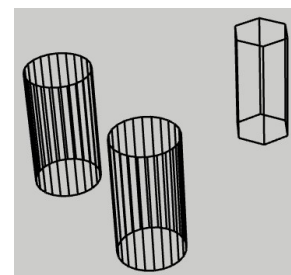
This method is analog to the SketchUp wireframe style. It creates only hard edges, unlike Edge Mesh which creates all edges. Hidden edges will not display.



Original object



Wireframe



Edge Mesh

In the Method Editor, the Wireframe panel parameters for Edge colors are:

