

Inventor 2013 Materials and Appearances

The use and control of materials and appearances with Inventor 2013

All users of Inventor 2013

Overview

The use and control of materials and appearances and been updated in Inventor 2013 to be more compliant with other Autodesk applications streamlining the workflows between products available within the Design Suites.

The old Styles control within the 3D modelling environment has been replaced with a larger extensive range of materials and colours shared between two libraries, namely 'Inventor Material Library' and the larger 'Autodesk Material Library', both of which provide the user access to 'locked' read-only set of styles which can be copied and modified.

The following information and images explain about the common shared material and appearances between Autodesk applications:

Multiple products now share the same material and appearance libraries. The use of a unified source of material and appearance definitions provides for greater consistency for visualization, material usage, analysis, and improves quality control. Each product determines the limits to which it uses the assets.

The following table illustrates how the same material might be used by multiple products.

AutoCAD, Showcase

Material: A36 Steel	
Properties	Asset
Metal-Steel-Satin	Appearance
ASTM A36	Physical
Metal-Steel	Thermal



Inventor

Material: A36 Steel	
Properties	Asset
Metal-Steel-Satin	Appearance
ASTM A36	Physical
Metal-Steel	Thermal



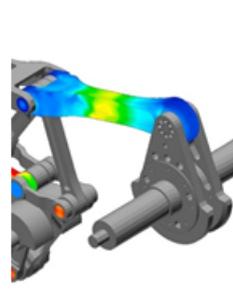
Revit

Material: A36 Steel	
Properties	Asset
Metal-Steel-Satin	Appearance
ASTM A36	Physical
Metal-Steel	Thermal



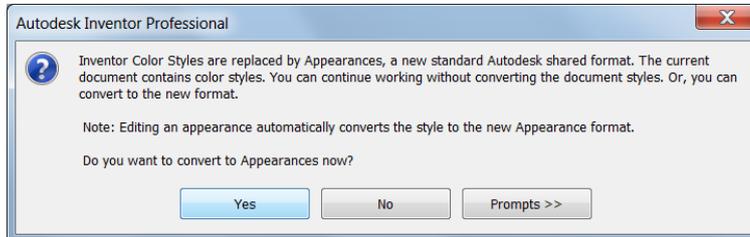
Analysis / Simulation

Material: A36 Steel	
Properties	Asset
Metal-Steel-Satin	Appearance
ASTM A36	Physical
Metal-Steel	Thermal

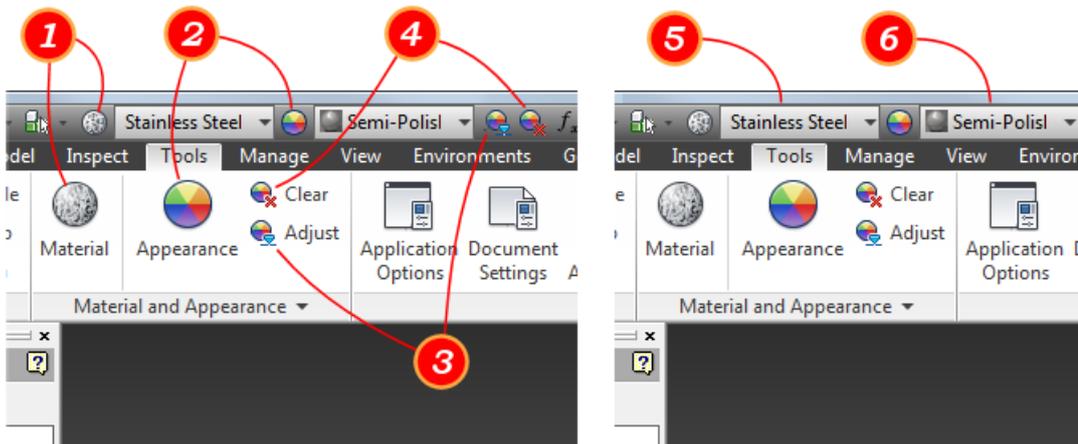


Legacy Data

When opening Inventor files from previous releases, a dialog inviting the user to convert the file to use the new 2013 control of materials and appearances. Users should note the options presented.



User Interface Access to Material and Appearances Controls



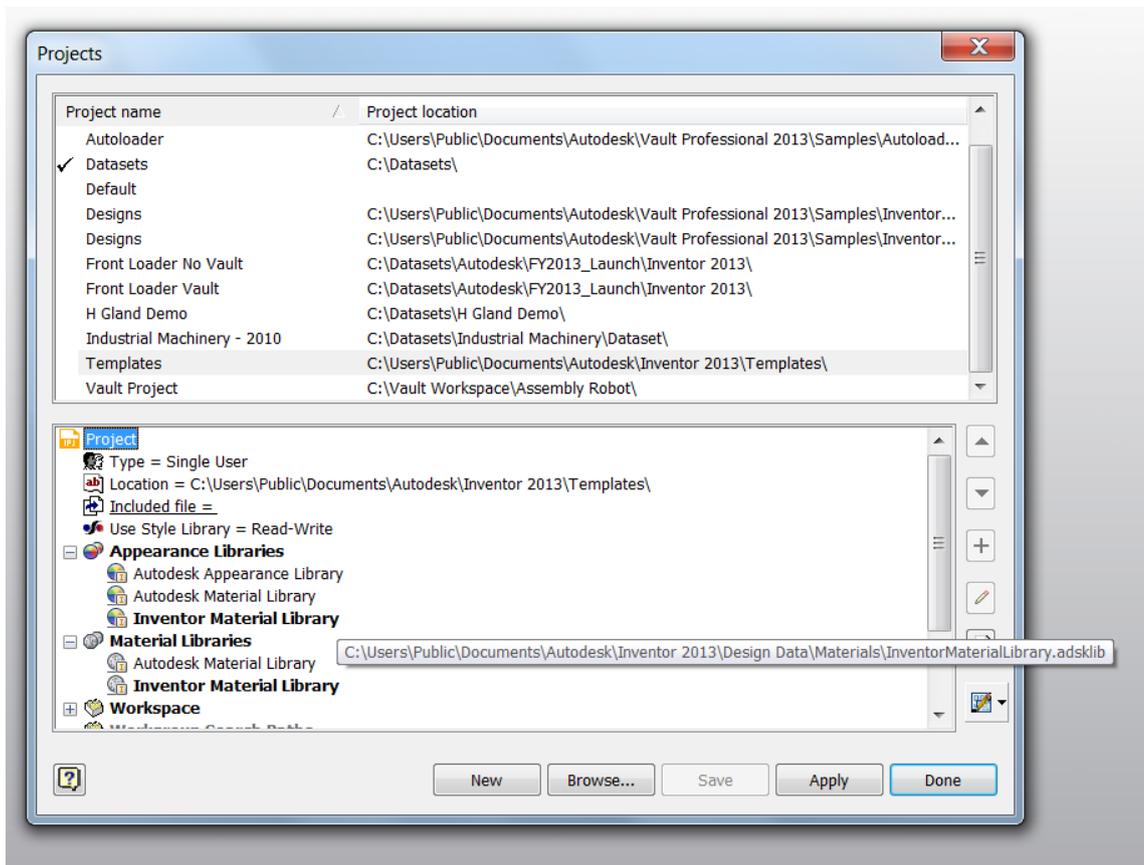
Key

There are multiple access points for tools to work with materials and appearances.

1. **Material Browser** Use for creating and modifying materials.
2. **Appearance Browser** Use for creating and modifying appearances.
3. **Adjust command** Use for modifying assigned appearances.
4. **Clear Overrides command** Use for removing appearance overrides.
5. **Material list** Assigns the specified material to the selection set.
6. **Appearance list** Assigns the specified appearance to the selection set.

Inventor Project File

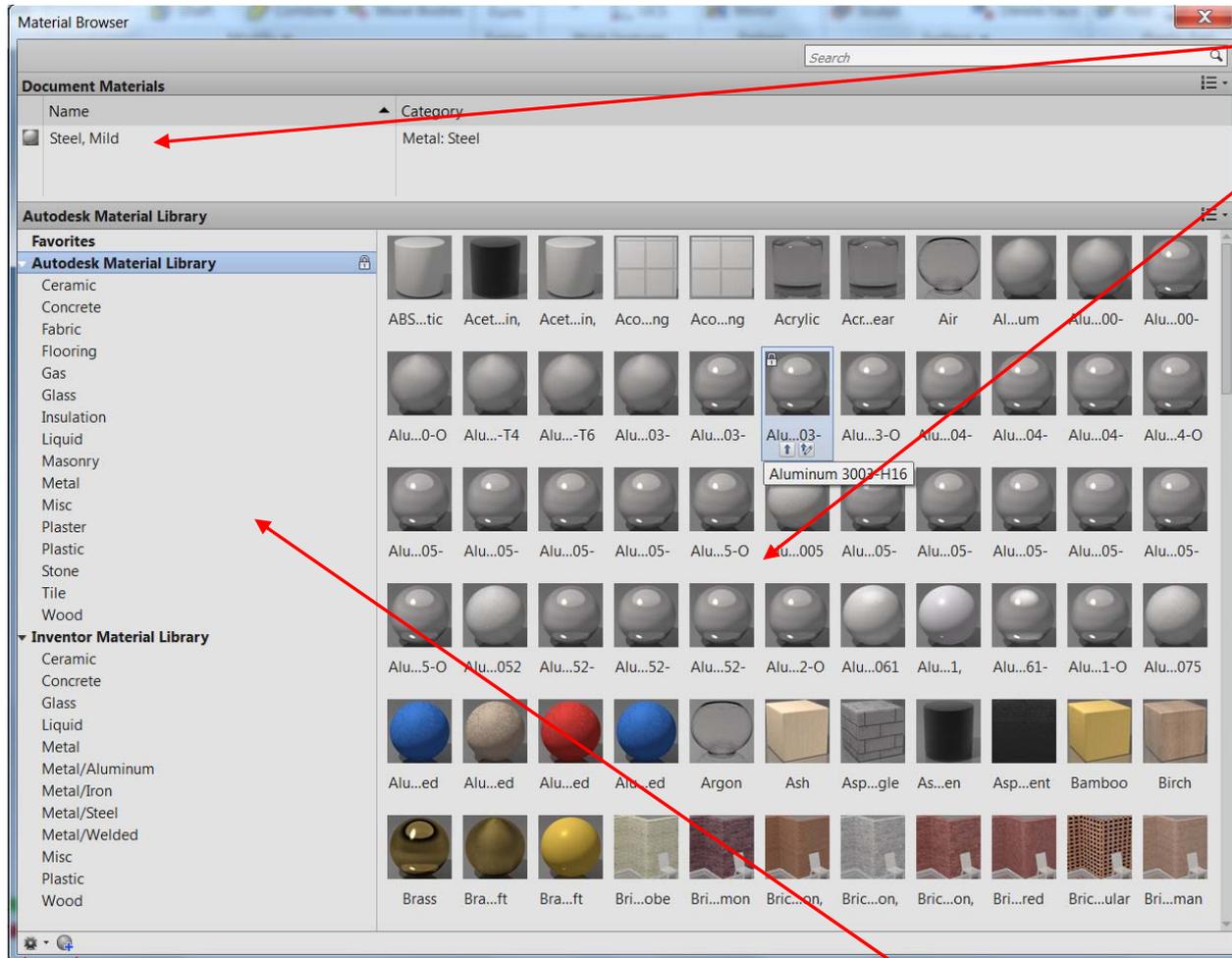
The Inventor Project control for 2013 allows the users access and control to both the Appearance Libraries and the Material Libraries. On the creation of a new Inventor 2013 project, the standard default libraries available are selected; hovering the cursor over the library reveals the location and path set:



Materials Browser



Material

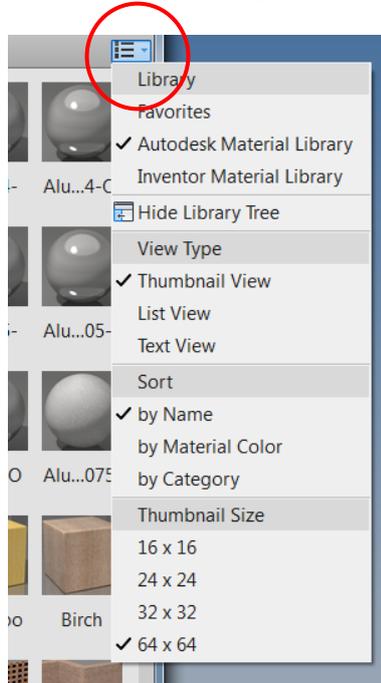


Browser Key

1. Current document material(s) available and in use.
2. Material display preview area. (see note-1 below)
3. Expandable material category listings.
4. Settings Button to access to open, create and migrate libraries. (see note-2 below)
5. Add Button to access to adding additional materials.

Notes on Browser

1. The display area has selectable viewing options via drop-down:



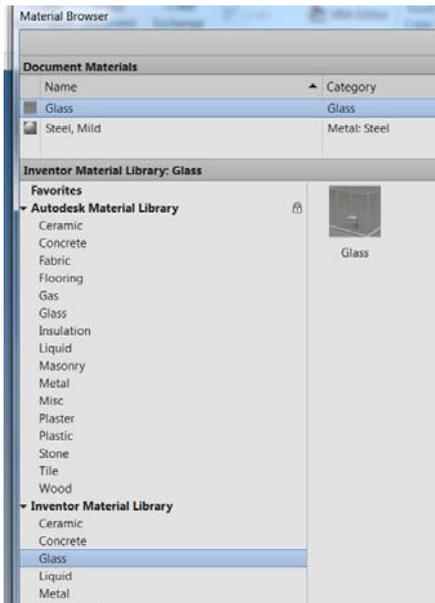
2. Drop-down button for Library controls, including access to Legacy Style Migration:



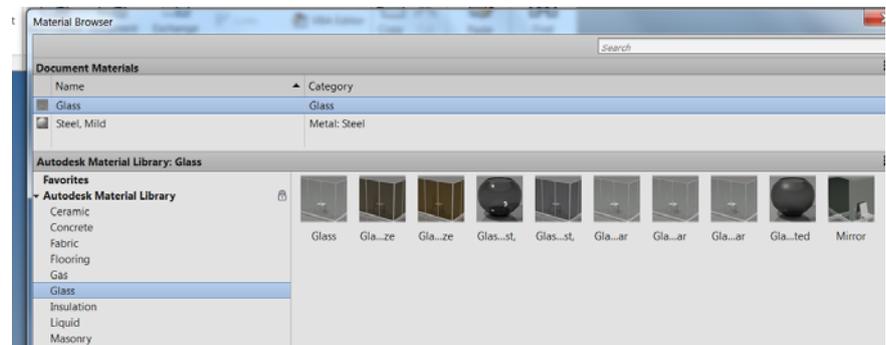
Materials and Controls

Materials from either the Inventor Material Library or the Autodesk Material Library can be copied, renamed edited, added to Favourites and the Current Documents.

Comparing the two libraries, the user will find a more comprehensive listing for Autodesk Material Library compared with the consolidated listings available in the Inventor Library. The images below compare the categories for each library for 'Glass':

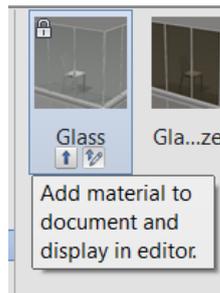
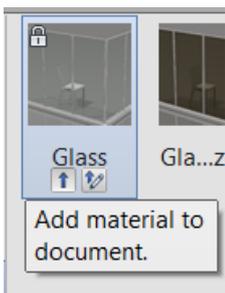


Inventor Material Library

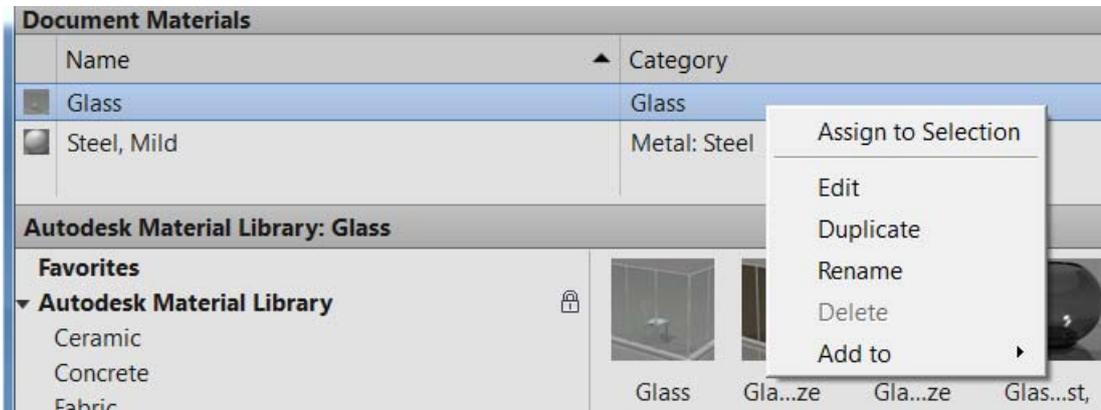


Autodesk Material Library

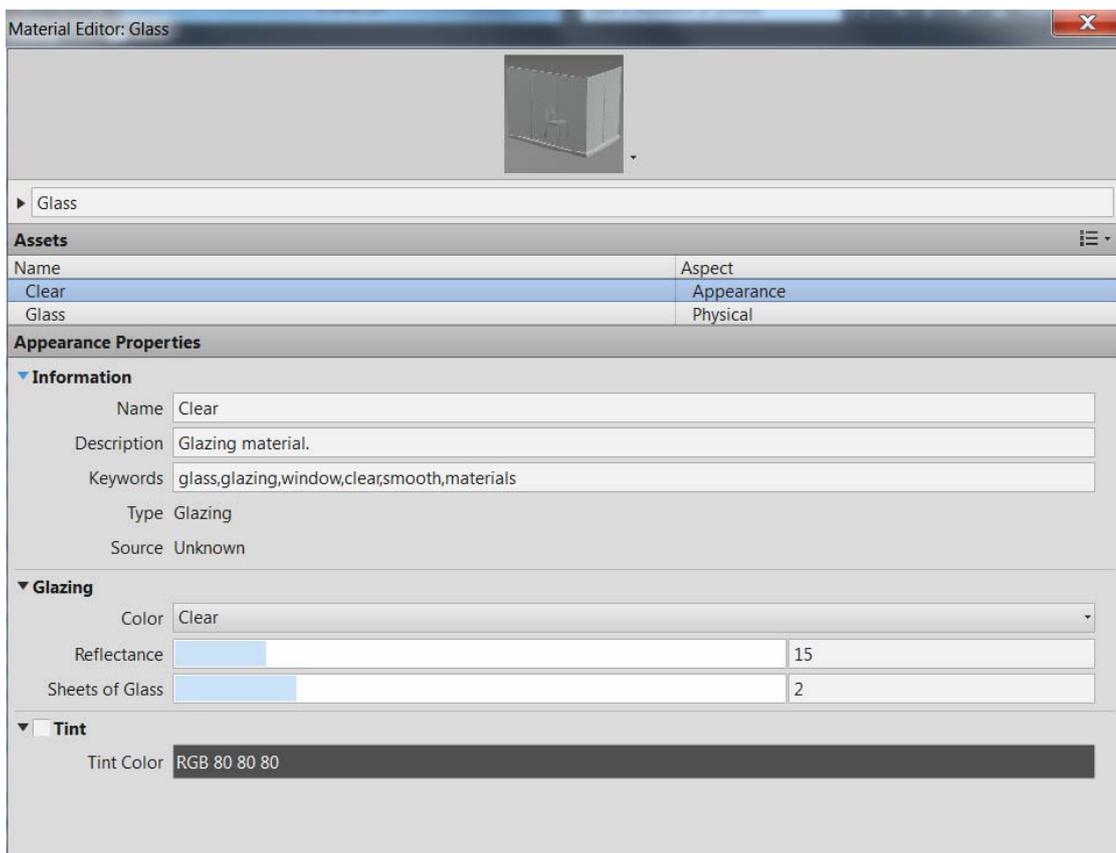
Hovering over each material reveals two 'arrow options' to either add to the current document, or add and edit the material.



A right-click of materials added to the current document reveals a context menu:

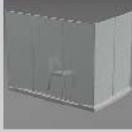


Editing the material reveals settings for both appearance and physical properties:



Appearance Properties

Material Editor: Glass



▸ Glass

Assets	
Name	Aspect
Clear	Appearance
Glass	Physical

Physical Properties

▼ Information

Name: Glass

Description: Soda Lime Glass

Keywords: Glazing, structural, generic

Type: Generic

Subclass: Glass

Source: Autodesk

Source URL:

▼ Basic Thermal

Thermal Conductivity: 1.380 W/(m·K)

Specific Heat: 0.750 J/(g·°C)

Thermal Expansion Coefficient: 7.500 μm/(m·°C)

▼ Mechanical

Behavior: Isotropic

Young's Modulus: 68.000 GPa

Poisson's Ratio: 0.19

Shear Modulus: 28500.000 MPa

Density: 2.180 g/cm³

▼ Strength

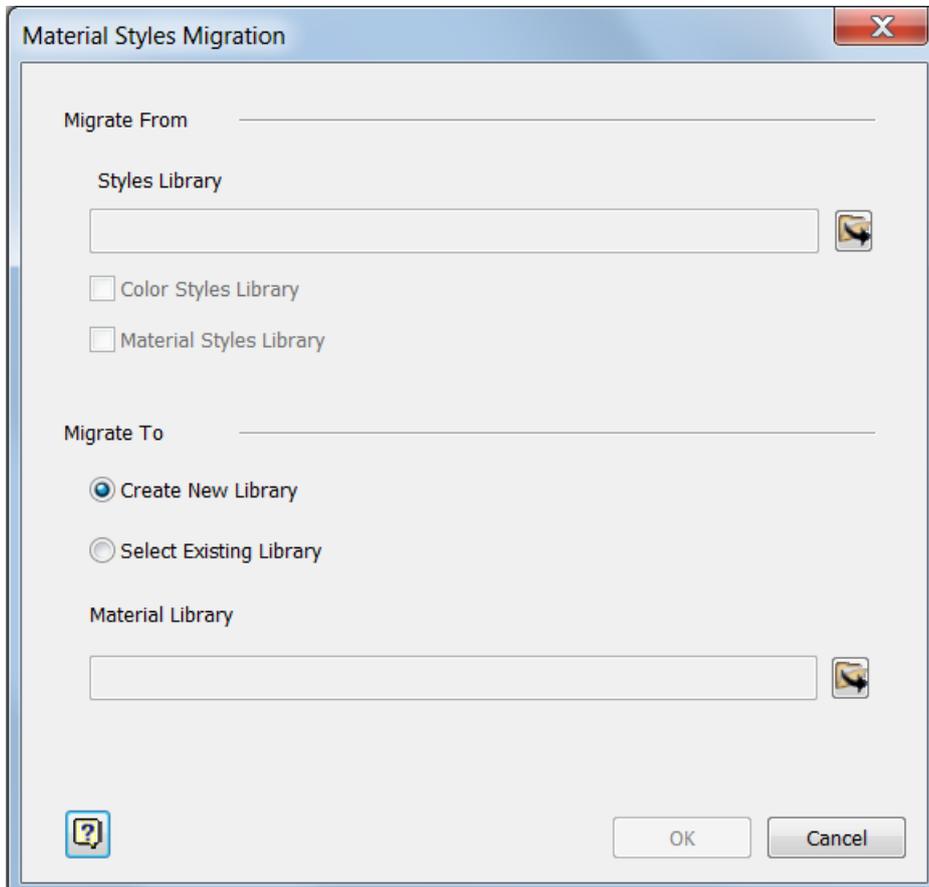
Yield Strength: 33.000 MPa

Tensile Strength: 33.000 MPa

Physical Properties

Legacy Style Migration

Legacy Styles can be migrated from previous Inventor versions to the new 2013 material controls via the Settings Button.



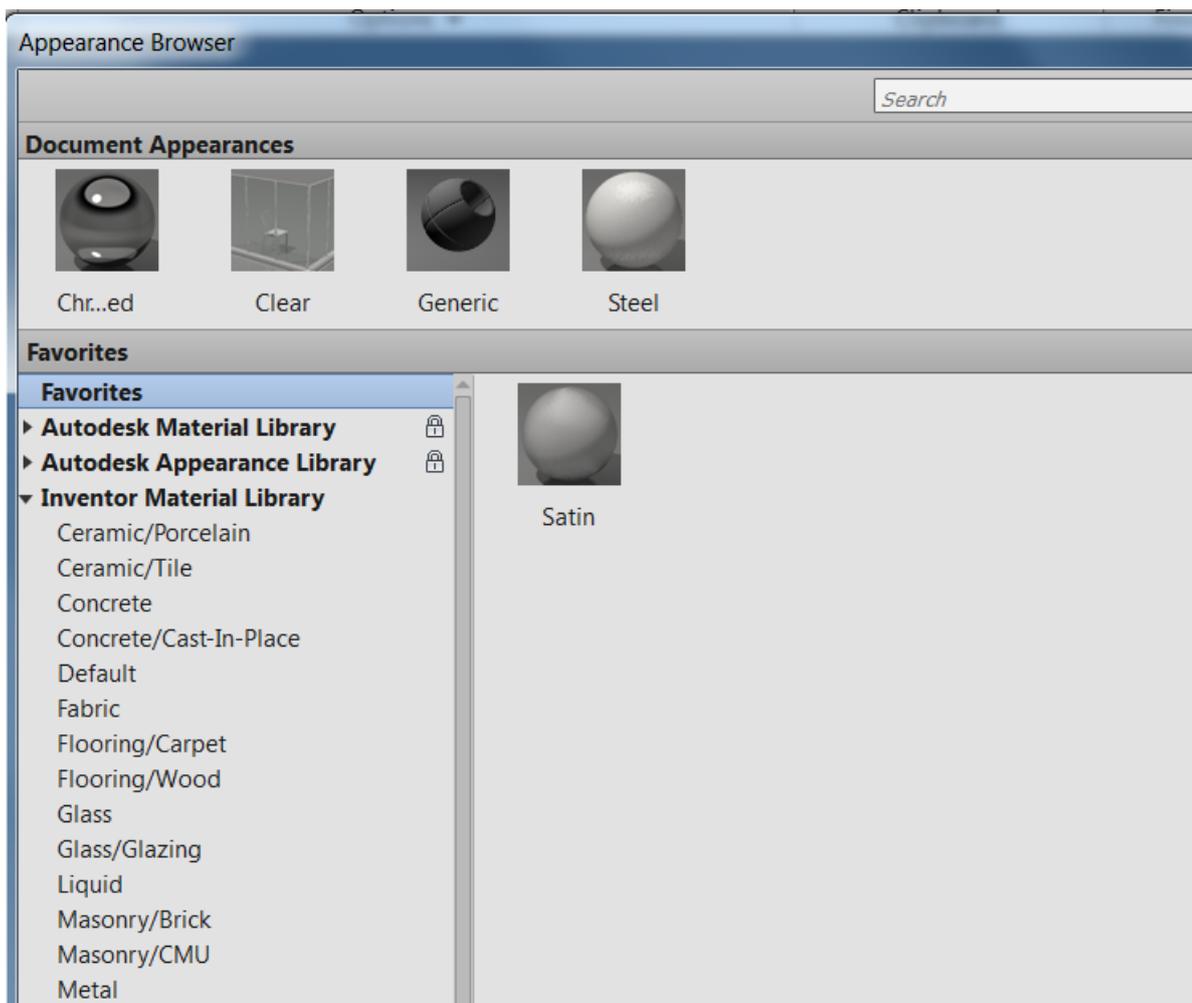
From the 'Migrate From' category select either a legacy Colors.xml file or Material.xml file, then use the category browse button to locate the file. Next, from the 'Migrate To' category, select either to create a new library (format <name>.asklib) or choose an existing library; select OK to complete the migration.

Appearance Browser

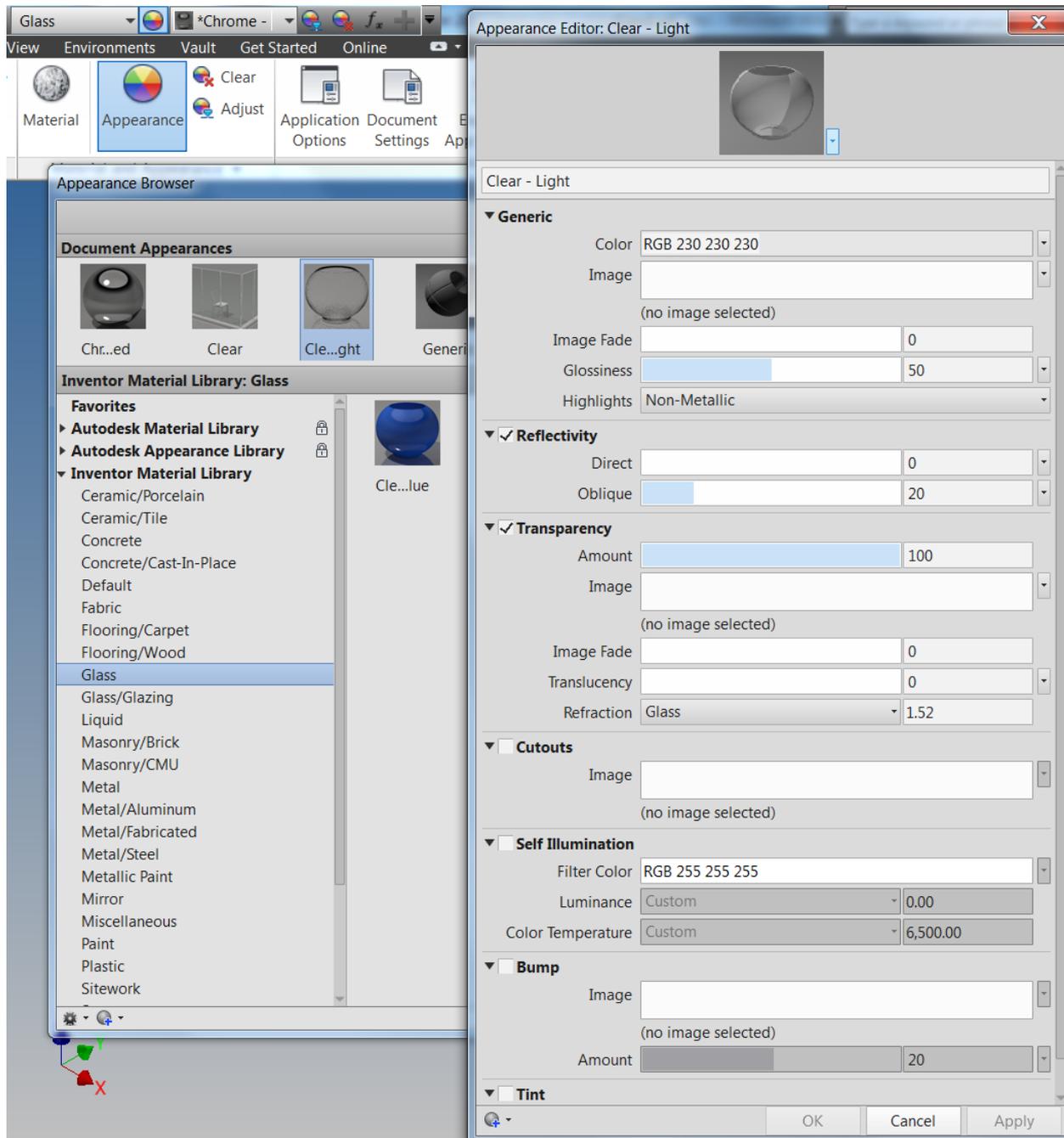


Appearance

The Appearance Browser works in a similar way to that of the Material Browser and accesses 'Autodesk Material Library', 'Autodesk Appearance Library' and 'Inventor Material Library', from which controls for colour, texture, transparency etc. can be accessed.

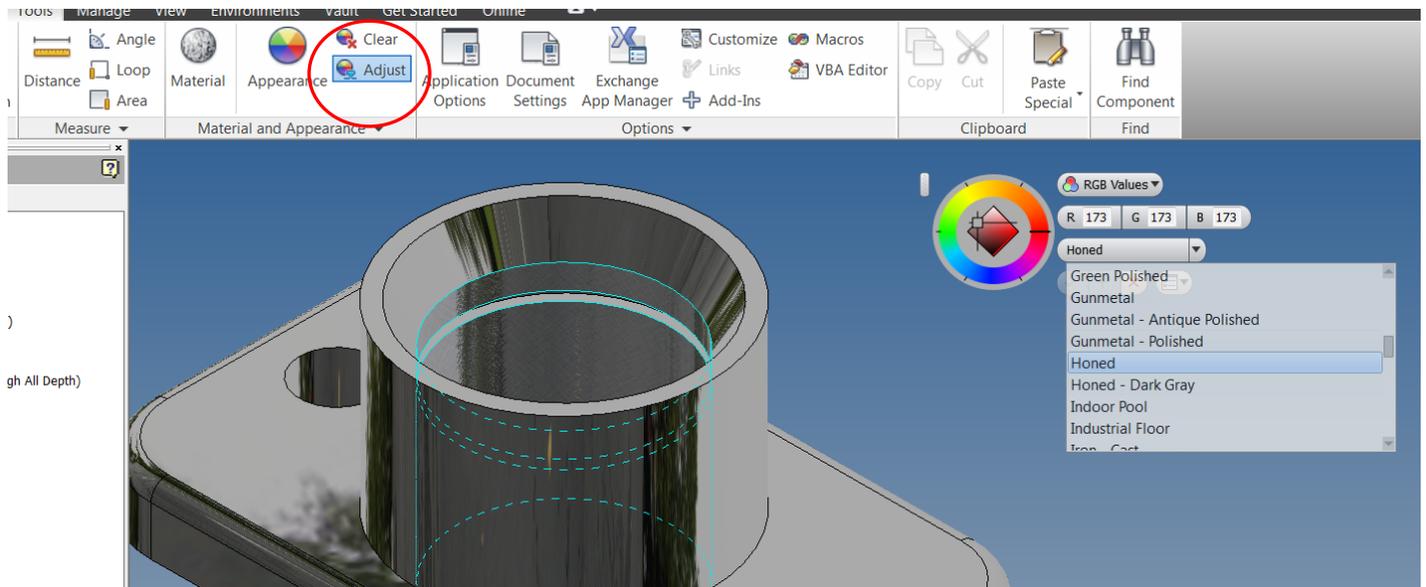


Editing of the settings can be accessed via a right-click context menu or by double-clicking the appearance style:



Face Appearance Adjustments

Individual face adjustments can be made via the 'Adjust' button, colour, hue and texture styles can be selected and individual adjustments applied:



Further information is available via the Autodesk Wikihelp site via the following link:

<http://wikihelp.autodesk.com/Inventor/enu/2013/Help/1310-Autodesk1310/1364-Fundamen1364/1443-Material1443>