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White Paper

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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 Inventor Revit Analysis / Simulation Material: A36 Steel Material: A36 Steel Material: A36 Steel Properties Asset Properties Asset Properties Asset Metal-Steel-Satin Appearance Metal-Steel-Satin Appearance Metal-Steel-Satin Appearance ASTM A36 Physical ASTM A36 Physical ASTM A36 Physical Metal-Steel Thermal Metal, Steel Thermal 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:

	Project location	
Autoloader	C:\Users\Public\Documents\Autodesk\Vault Professional 2013\Samples\Autoload	
7 Datasets	C:\Datasets\	
Default		
Designs	C:\Users\Public\Documents\Autodesk\Vault Professional 2013\Samples\Inventor	
Designs	C:\Users\Public\Documents\Autodesk\Vault Professional 2013\Samples\Inventor	
Front Loader No Vault	C:\Datasets\Autodesk\FY2013_Launch\Inventor 2013\	
Front Loader Vault	C:\Datasets\Autodesk\FY2013_Launch\Inventor 2013\	
H Gland Demo	C:\Datasets\H Gland Demo\	
Industrial Machinery - 2010	C:\Datasets\Industrial Machinery\Dataset\	
Templates	C:\Users\Public\Documents\Autodesk\Inventor 2013\Templates\	
Vault Project	C:\Vault Workspace\Assembly Robot\	
Included file =		1
 Use Style Library = Read-Write Appearance Libraries Autodesk Appearance Library Autodesk Material Library Inventor Material Library Autodesk Material Library Autodesk Material Library Inventor Material Library Inventor Material Library Inventor Material Library 	C:\Users\Public\Documents\Autodesk\Inventor 2013\Design Data\Materials\InventorMaterials] alLibrary.ad
 Use Style Library = Read-Write Appearance Libraries Autodesk Appearance Library Autodesk Material Library Material Libraries Autodesk Material Library Inventor Material Library Inventor Material Library Inventor Material Library Inventor Material Library Workspace 	C:\Users\Public\Documents\Autodesk\Inventor 2013\Design Data\Materials\InventorMaterials] alLibrary.ad





Materials Browser

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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 Legay 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



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:

Do	cument Materials				
	Name 🔺		Category		
	Glass		Glass		L
Steel, Mild			Metal: Steel	Assign to Selection	
				Edit	
Autodesk Material Library: Glass			Duplicate		
Fa	avorites	1		Rename	
▼ A	utodesk Material Library	8	See 1	Delete	,
	Ceramic			Add to	• 🔣
	Concrete Fabric		Glass Gla	ze Glaze	Glasst,

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

Material Editor: Glass				
	-			
▶ Glass				
Assets			l≡ •	
Name		Aspect		
Clear		Appearance		
Glass		Physical		
Appearance Proper	ties			
▼ Information Name	Clear			
Description	Glazing material.			
Keywords	glass, glazing, window, clear, smooth, materials			
Type Source	Glazing Unknown			
▼ Glazing				
Color	Clear		-	
Reflectance		15		
Sheets of Glass		2		
▼ Tint Tint Color	RGB 80 80 80		_	

Appearance Properties



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Material Editor: Glass				
Glass				
Accesto			i= .	
Name		Aspect	1	
Clear		Appearance		
Glass		Physical		
* Information	Class			
Name	Gidss			
Description	Soda Lime Glass			
Keywords	Glazing,structural,generic			
Туре	Generic			
Subclass	Glass			
Source	Autodesk			
Source URL				
▼ Basic Thermal				
Thermal Conductivity	1.380 W/(m·°K)			
Specific Heat	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		A	
Shear Modulus	28500.000 MPa			
Density	2.180 g/cm ³			
▼ Strength				
Yield Strength	33.000 MPa			
Tensile Strength	33.000 MPa			

Physical Properties



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Legacy Style Migration

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

Material Styles Migration	X
Miarata From	
Migrate From	
Styles Library	
Color Styles Library	
Material Styles Library	
Migrate To	
Create New Library	
Select Existing Library	
Material Library	
0	OK Cancel

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 and existing library; select OK to complete the migration.





Appearance Browser



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.

Appearance Brows	er			
				Search
Document Appe	arances			
0	+			
Chred	Clear	Generic	Steel	
Favorites				
Favorites Autodesk Mate Autodesk Mate Autodesk Apper Inventor Mater Ceramic/Porce Ceramic/Tile Concrete Concrete/Cast- Default Fabric Flooring/Carpe Flooring/Wood Glass Glass/Glazing Liquid Masonry/Brick Masonry/CMU Metal	e rial Library earance Library ial Library lain -In-Place		Satin	





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

Glass 🗸 🕒 🖼 *Chrome - 🗸 😪 🖓 f_ 🕂 🔽	Appearance Editor: Clea	r - Light	X
Material Appearance Quit Get Started Online Quit Appearance Quit Get Started Online Quit Quit Get Started Online Quit Get Started Online Quit Quit Quit Quit Quit Quit Quit Quit Quit			
Appearance Browser	Clear - Light		î
	▼ Generic		
Document Appearances	Color	RGB 230 230 230	•
	Image		
		(no image selected)	
	Image Fade	0	
Chred Clear Cleght Gener	Glossiness	50	
Inventor Material Library: Glass	Highlights	Non-Metallic	
► Autodesk Material Library	▼ ✓ Reflectivity		
Autodesk Appearance Library	Direct	0	
Ceramic/Porcelain Clelue	Oblique	20	
Ceramic/Tile			
Concrete	Amount	100	
Concrete/Cast-In-Place	Image		
Fabric	inage		
Flooring/Carpet	Tura en Falla	(no image selected)	
Flooring/Wood	Image Fade	0	
Glass/Glazing	Iranslucency	0	
Liquid	Refraction	Glass • 1.52	
Masonry/Brick Masonrv/CMU	Cutouts		
Metal	Image		_
Metal/Aluminum Metal/Cabricated		(no image selected)	
Metal/Fabilicated Metal/Steel	Self Illumination		
Metallic Paint	Filter Color	RGB 255 255 255	•
Mirror	Luminance	Custom • 0.00	
Paint	Color Temperature	Custom • 6,500.00	
Plastic	▼ Bump		
Sitework	Image		-
₩ · Q ·		(no image selected)	
V	Amount	20	The second secon
×	▼ Tint		
	Q+ •	OK Cancel	Apply



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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

