HARKNESS SCREENS™

Harkness Screens - Revit Content User Guide

Date: 23/03/2017
Version Number: 1.0

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1 VERSION CONTROL

Version	Authored	Date	Approved	Date
1.0	Luke Davenport	21st March 2017	Graham Mansfield	23rd March 2017
1.1				
1.2				

2 RFA Files Overview

The Harkness cinema screen models are intended to be used by experienced Autodesk Revit users. They contain many parameter options to allow the user to configure the screen as desired.

2.1 Families

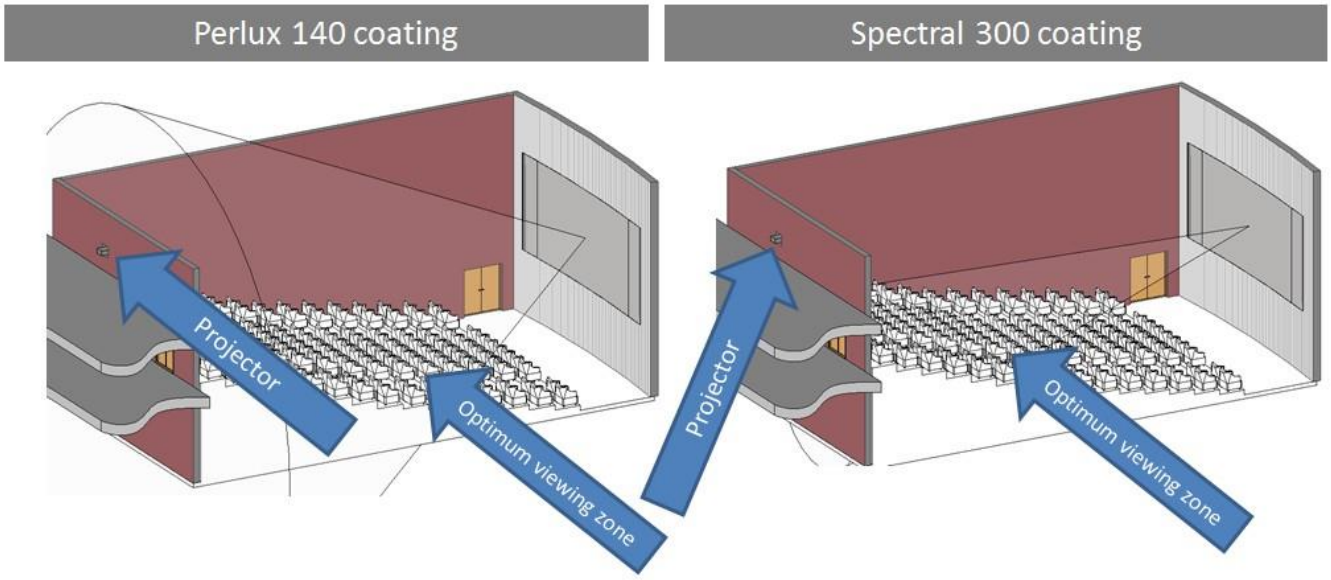
The Harkness screen range is available in 3 multi-type Revit families (RFA files):

1) Flat – *1.85:1 ratio screen*
2) Scope – *2.39:1 ratio screen*
3) Custom – *User can specify a custom ratio for the screen*

2.2 Family Types

Each family contains several types, relating to different coatings for the screen. The screen coating affects the reflected cone of light, determining how many seats in the cinema auditorium will enjoy a good viewing experience. To assist the Revit user in visualising this - the Harkness families include a switchable cone volume showing the area of reflected light that is at least 50% of peak brightness. Any cinema seats that fall outside the 50% brightness cone will not receive an optimum viewing experience.

An example of this is shown below.



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3 Loading RFA Files into a Revit Project

3.1 If You Have Downloaded a Zip Folder

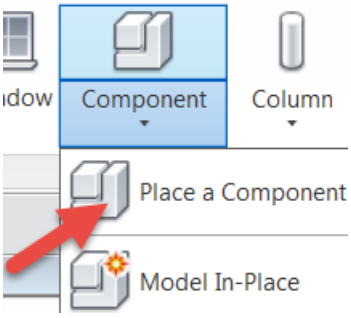
Use these instructions if you have downloaded a zip folder of the content.

Unpacking the RFA files

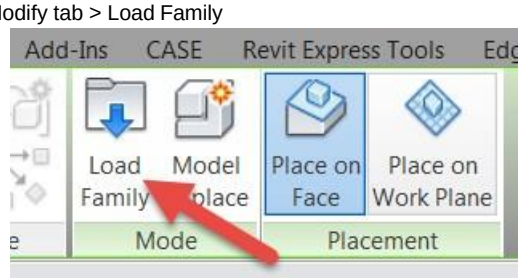
Use a program like Winzip or Alzip to open the downloaded .ZIP compressed file.
Extract the RFA file(s) to your content library. We suggest not extracting the files to the Metric Libraries that come with Revit as these can be manipulated during installs, repairs and service packing of your Revit software.

Loading the RFA files

Open the Autodesk Revit project or template file that you wish to load the content into
Go to the Home tab > Component > Place a Component

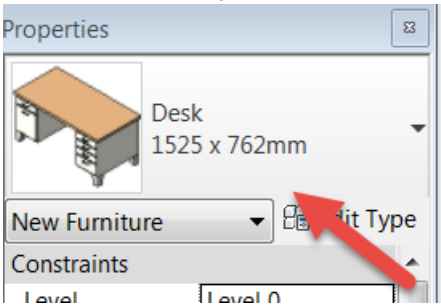


On the Modify tab > Load Family



Navigate to the folder you extracted your RFA into > Select the file >Open

Ensure you have the correct component selected in the Type selector (type “PP” if you can’t see the properties tab)



Now place your component in the drawing view.

It is recommended that the cinema screens are placed while in a Revit plan view for convenience.

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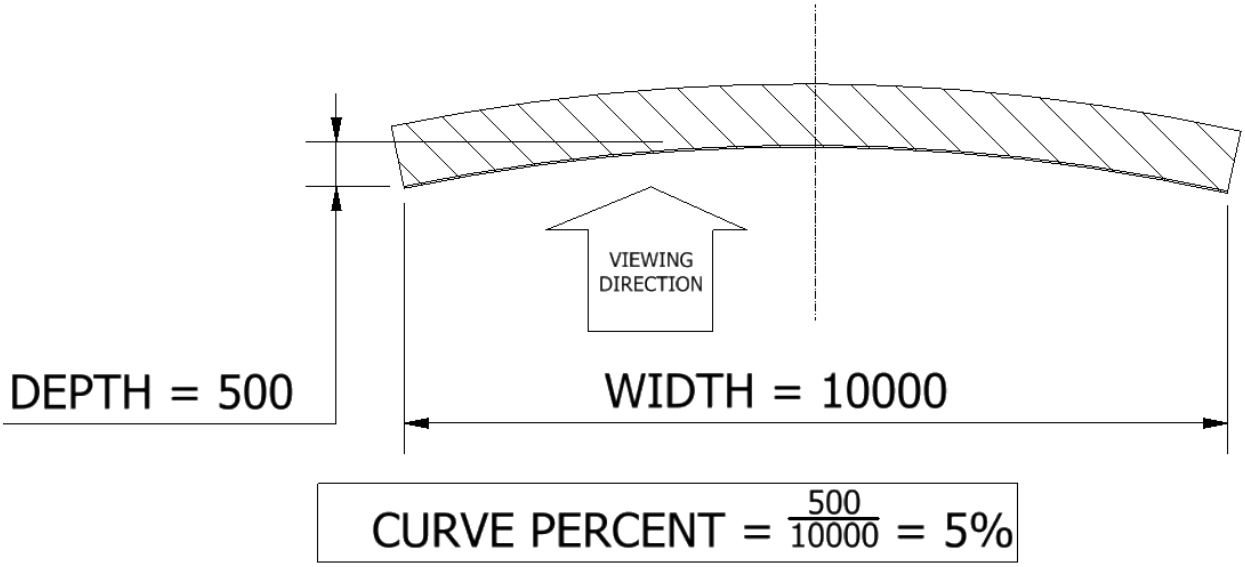
4 Configuring RFA Files after Placement

Once the desired type of screen has been placed into your Revit project, there are several configurable options (parameters) as below:

4.1.1 Numeric Parameters

1) **Offset:** Controls the height of the screen from the floor (on the level it is placed at).
2) **ScreenHeight:** Controls the height of the screen itself. *This will also control the width of the screen based on the ratio.*
3) **ScreenWidth:** Controls the width of the screen *(Note this is only editable if you are using the 'Custom' RFA file)*
4) **ProjectorOffset:** Controls the horizontal offset of the projector from the centreline of the screen.
5) **ProjectorHeight:** Controls the vertical height offset of the projector from the centreline of the screen.
6) **ProjectorDistance:** Controls the distance of the projector from the centre point of the surface of the screen (perpendicular to the plane of the screen).
7) **CurvePercent:** Sets the curve of screen in percent. *This can vary from 0% to 5% See example below for a 5% curved screen.*



8) **CurvePercentMin:** This is an editable parameter that specifies the lowest curve percent that is permitted. The family may error if a CurvePercent value of less than 0.5 is entered – This is a Revit geometry limitation.
9) **CurvePercentMax:** This editable parameter specifies the highest curve percent that is permitted. If wishing to specify a curve of greater than 5%, please contact Harkness for assistance.

4.1.2 Text Parameters

PerforationType: This parameter is for information only, to provide guidelines about the different screen perforation types that are available. See the adjacent PerforationGuidelines parameter for more information.

4.1.3 Visibility Parameters

There are different visibility parameters available, depending on the RFA file. See table below.

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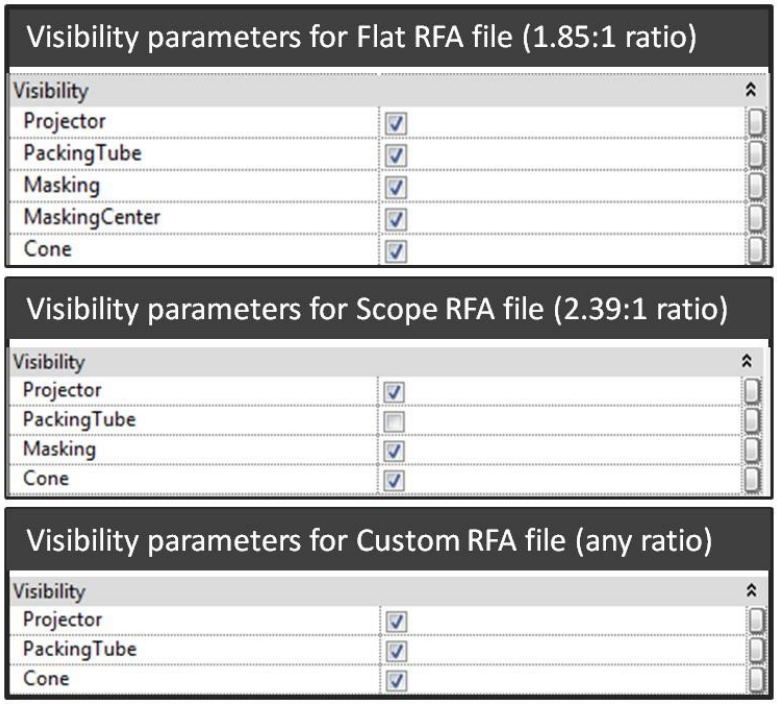
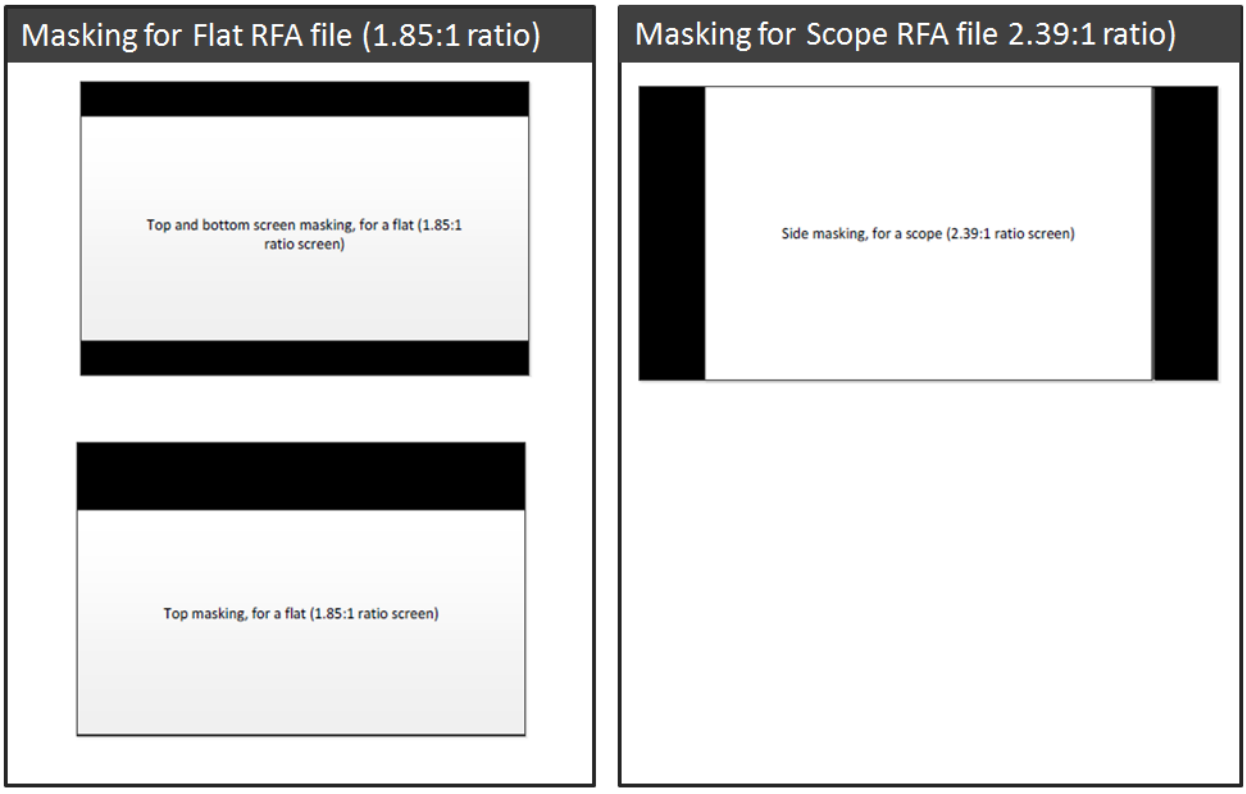


1) **Projector:** A cuboid representing the projector can be switched on or off.
2) **PackingTube:** A cylinder representing the approximate size of the shipping container for the current screen size can be switched on or off. This is designed to assist with logistics for renovations to existing auditoriums, or where access may be an issue.
3) **Masking:** For the Flat and the Scope RFA files (not the Custom RFA file), there is the option to show screen masking (to convert between screen ratios). There are two options for the Flat screen, and one option for the Scope screen as shown below.



4) **Cone:** All families have a cone volume that can be switched on and off to represent the 50% brightness zone of reflected light from the screen. See Section 3.2 Family Types above.

   Note the angle of the cone is determined by the family type that has been selected (e.g. Matt Plus). Note that the cone is smaller for screens with higher gain values (reflectance). This cone always projects from the centre of the screen so it is not affected by the curve of the screen. It will however adjust to the position of the projector relative to the screen.

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5 Included Data (Product Information)

The RFA files contain the following information:

5.1.1 Default Revit Parameters

Parameter Name	Description	Revit Units
Description	Product marketing description	Text
Manufacturer	Manufacturer of the content	Text
Name (Type)	Full product name	Text
Type (Material)	Autodesk material designations, i.e. Plastic	Text

5.1.2 COBie Parameters

COBie is the information exchange specification specified by a number of clients, including those utilising the processes included in BSi PAS1192-2/3/4. It is part of the Government Construction Strategy published May 2011 which called for implementation in 2016.
For further information on COBie and for an example COBie spreadsheet, please visit the HM Government BIM Task Groups website - http://www.bimtaskgroup.org/cobie-uk-2012/. The BuildingSMART alliance also has information including instructional videos online at http://www.nibs.org/?page=bsa_cobie
The following parameters follow the guidance as issued in the NBS BIM Object Standard v1.1

The following COBie Parameters are utilised:

Parameter Name	Description	Revit Units
Author	Name of the person or organisation that authored the object (in this case Excitech Ltd)	Text
ProductInformation	URL to further product information available on the manufacturers website	URL
ManufacturerURL	Manufacturers main website URL	URL
NBS Description	Alphanumeric value of the appropriate NBS clause title from http://www.nationalbimlibrary.com/api/	Text
NBSReference	Alphanumeric value of the appropriate NBS clause reference from http://www.nationalbimlibrary.com/api/.	Text
Uniclass2	Value of the appropriate Uniclass2 classification code and description. Uniclass can be found at http://www.cpic.org.uk/uniclass2/	Text
Version	Property completed with a numerical value, stated as a whole number, representing the sequence of the object publication	Text

5.1.3 Uniclass Classification

The Uniclass2 parameter has been included.

For further information on Uniclass 2, please visit the HM Government's BIM Task Group website - http://www.bimtaskgroup.org/uniclass2/

5.1.4 Industry Foundation Class (IFC)

The IFC file type is a platform neutral, open file format specification that is not controlled by a single vendor or group of vendors. It is an object-based file format with a data model developed by BuildingSMART to facilitate interoperability in the architecture, engineering and construction (AEC) industry. It is a commonly used collaboration format in Building information modelling (BIM) based projects. The IFC model specification is open and available. In theory, it should enable you to use data in other BIM packages such as Graphisoft ArchiCAD.

Autodesk Revit allows for IFC export using an in-built exporter. IFC is a rapidly developing schema and several new releases of the IFC exporter are often developed within a single Revit software release cycle. If you are required to export to IFC we recommend you update the IFC exporter included in Revit to the latest addition. These tools can be found on the Autodesk Exchange Store - http://apps.exchange.autodesk.com/RVT/en/Home/Index and also http://sourceforge.net/projects/ifcexporter/
The content is supplied with parameters which are aligned to the IFC Property Sets (PSETS) required within the schema. These differ between types of elements, so a light fixture is required to have different properties in IFC schema to a plug socket. Below we list the common property sets, which includes the IFCExportAs, which is the IFC category. A full description of PSETs go to, http://www.buildingsmart-tech.org/ifc/IFC2x3/TC1/html/index.htm and then > Property Sets > PSD Alphabetical Index > then click on the individual PSET.

Please note that for the IFC2x3 schema (as supported by Revit 2014-2017) does not contain a relevant property set for cinema screens, therefore the fields have been left 'n/a'. This can be populated at a future date, when the IFC4 schema is fully supported in Revit.

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Parameter Name	Description	Revit Units
IfcExportType	IfcExportType to define the PredefinedType of the specific IFC type	Text
IfcExportAs	IfcExportAs for the specific IFC Entity or type to be assigned to	Text

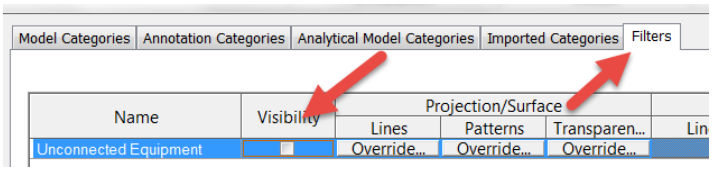
6 Common placement issues

If you are unable to see the content after placement, the below checklist should prove useful,

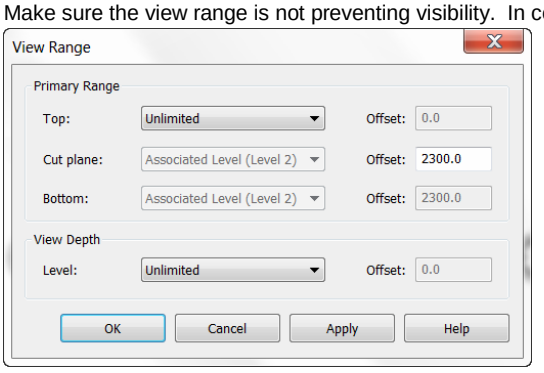
1. Check the 'Generic' category is visually switched on in the selected view (Visual Graphics settings – use 'VG' keyboard shortcut for this).

2. Ensure other categories that could be preventing the viewing of the content are switched off.

3. Make sure no visual filters are affecting visibility

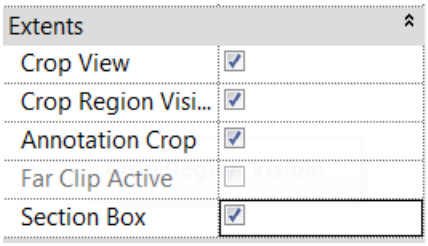


4. Make sure the view range is not preventing visibility. In ceiling plans, the cut plane should be under the ceiling level.

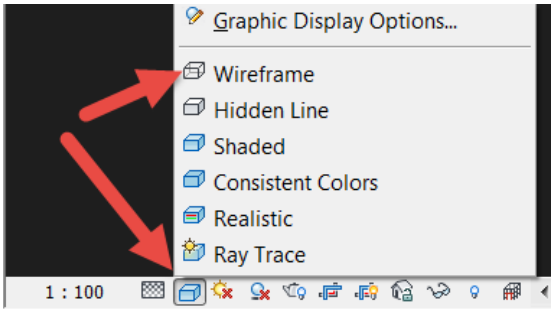


5. Ensure the crop is not preventing the visibility.

6. In a 3D view, check that the section box is activated. Note that section boxes can be hidden both by Element and Category



7. Check that there is not an obstacle in the way. Switch to Wireframe to remove all surfaces and ensure you can see the content. If you can, then you need to hide the object that is causing the obstruction before switching back to a Hidden Line, Shaded or Rendered View



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7 Further Information

Please refer to the instruction video for the RFA files, also available from Harkness.

8 Contact Information

Please review contact information as included in the Revit Content.

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