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FAMILY LIBRARY INTERCHANGE PROGRAM

The FLIP Guidelines (Version 1.2)

Nov 2017

The FLIP Guidelines

Background

It has been a while that the Building Information Modeling (BIM) is used in the industry. BIM models are shared within project teams during the design and construction process. As-built BIM models are often required by building owners so that information about the building can be retrieved by the operators. To ensure the consistency flow of information, a well-organized set of information is needed so that everyone in the project team can understand and use the information in the BIM model efficiently. Most of the information (such as building components data, schedules and quantity) in the BIM model is generated from Families, therefore it is important to identify what information is needed in a Family and in which stage of the project.

Localized Data

The default Revit templates and Family library may not wholly tally with the local standards and practices. Our aim is to organize localized contents to reduce individual effort in the industry to repeat the localization process so as to adopt BIM in a more efficient way.

FLIP

Family Library Interchange Program (FLIP) is the collaboration between **Autodesk Far East Ltd** and local BIM Consultant **Advanced Consultation Information Development Ltd (A.C.I.D.)** and **Synnex Technology International (HK) Ltd**.

It is a well-organized web-based platform that standardized and localized Families are stored and categorized according to strict guidelines. Naming convention, styles, level of details and parametric properties are systematically organized according to local practices.

It is an interactive platform that facilitates and encourages Revit users to share and exchange organized families to enhance productivity as a whole. Users can download the guideline on how to build Families, assign Parameters and Level of Development (LOD).

This document is a guideline for users using and creating Family for the Family Library Interchange Program (F.L.I.P.). Most of the contents are reference from the *"Revit Model Content Style Guide (Ver.2.1)"* with modification for the use in local market.

The latest version of *"Revit Model Content Style Guide"* can be downloaded from:

http://revit.autodesk.com/Library/RMCSG/Revit_Model_Content_Style_Guide_v2_1.zip

For further information about creating Family, please refer to the link below:

http://knowledge.autodesk.com/support/revit-products/learn-explore/caas/CloudHelp/cloudhelp/2014/ENU/Revit/files/GUID-81A12807-A549-4722-BD14-FEE16DAA747E-htm.html

Developed by

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1 Recommended Family File Sizes

Efficient geometry creation, judicious use of parametric constraints, and carefully planned detail and visibility settings can reduce the performance impact a Family will have on the projects in which it is used.

For example, a window Family that is intended to be used hundreds of times in a large commercial project will have a smaller file size if it contains only basic schematic and design development representations. Impact on the project size will be as minimal as possible.

Conversely, a different window Family intended for use in a small residential project may contain a high quality rendering representation that will increase project file size when the Family is added, but because the windows it creates are added to the project only a few times, the increase in file size is manageable.

To provide content creators with a tangible guideline for Family file size, some common Family types and their recommended file sizes are listed below.

Architecture Family:

Simple Level:	200 – 300 KB
Complex Level:	500 – 600 KB

MEP Family:

Simple Level:	200 – 400 KB
Complex Level:	800 – 1000 KB

Structure Family:

Simple Level:	180 – 200 KB
Complex Level:	300 KB

IMPORTANT: *To help reduce the file size, in Revit, click* ***File→Purge Unused*** *to delete items that are not in use, click* ***File menu→Save As****, and verify that the Compact File option is selected when saving the file.*

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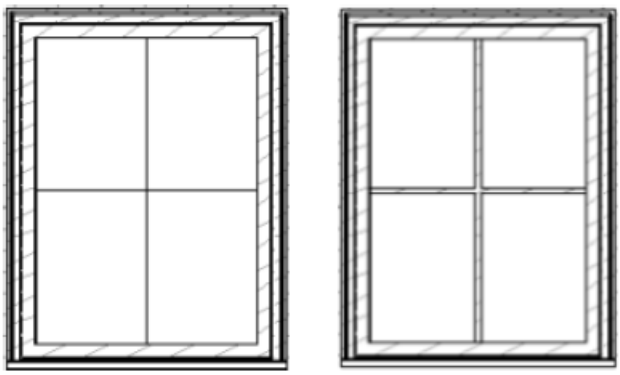
2 Level of Detail

Detail levels determine which pieces of Family geometry display in different types of project views. When a Revit element is created with a Family and added to a project view, the current detail level of the view (coarse, medium, or fine) displays the appropriate Family geometry.

A Window displayed in both Coarse and Fine detail



When deciding what level of detail should be shown, use the following:

- Don't model geometry that will not be visible when the Family is added to a building model. For example, for a table Family that includes a drawer, model the face only, not the entire drawer.
- Depending on the type of Family, use the following guideline when modeling geometry:

If the geometry is …	Set the detail level to …
Smaller than 300mm	Fine
300 to 1m	Medium
Larger than 1m	Coarse

- Do not duplicate geometry that can be used for different levels of detail.

IMPORTANT: *The intent is not to build each level of detail incrementally or additionally.*

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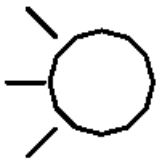
3 Element Visibility

Typically, the geometry of an element created by a Family will change depending on the current project view. The visibility settings of the Family determine in which project views elements created with the Family will display.

For instances, a flashing light has a symbolic 2D Annotation shown on Plan View for preparing construction drawing and it contains a 3D geometry shown on 3D View for rendering



Visibility on Plan View

Visibility on 3D View

In a plan view, you may want to see a 2D representation of the element. In a 3D or elevation view, you may want to display a fully detailed 3D representation of the element. In other views, you may want to hide the element. Limiting the visibility of highly detailed Family geometry to only certain views can improve project performance.

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4 Consideration for Nesting Family Content

A nested Family is one that has been loaded into another Family. In some cases, it can be convenient to represent parts of the nested Family separately from the main Family model. For example, you could create a windowsill Family and nest it in a window Family. This allows you to build upon previous work while creating Families suited to your needs.

Nesting Recommendations:

- Instead of nesting, consider creating all of the necessary geometry in the Family. Use reference lines and labels to lock geometry in place.

- Limit nesting to 2 levels - The deeper that Families are nested, the longer they take to update in the project file.

- Only nest high-value content that may be used in several different Families, such as a door handle.

IMPORTANT: *It is important to understand that nesting Families increases the file size and affects performance, specifically the regeneration process of the Family views.*

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5 Planning a Revit Model Family

Planning Families prior to creation can save time and prevent errors. The following questions should be considered while planning the Family.

- **Will the Family need to accommodate multiple sizes?**

  For a window that is available in several preset sizes, or a bookshelf that can be built in any length, create a standard component Family.

- **How should the Family display in different views?**

  The way the object should display in views determines the 3D and 2D geometry that you need to create, as well as how to define the visibility settings. Determine whether the object should display in a plan view, elevation view, and/or sectional views.

- **Does this Family require a host?**

  For objects typically hosted by other components, such as a window or light fixture, start with a host-based template. How the Family is hosted (or what it does or does not attach to) determines which template file should be used to create the Family.

- **How much detail should be modeled?**

  In some cases, you may not need 3D geometry. You may only need to sketch a 2D shape to represent your Family. Also, you may simplify the 3D geometry of your model to save time in creating the Family. For example, less detail is required for a wall outlet that will only be seen in interior elevations from a distance, than for a door with raised panels and a sidelight that will be seen in an interior rendering.

- **What is the insertion/origin point of this Family?**

  The insertion/origin point is the point at which you want to place the Family in a project (indicated by the cursor position). The insertion point may change based on use case. For example, the insertion point for windows and doors is the center of the geometry, so that the content parametrically expands from the center out. For a countertop, the insertion point is at a corner and the content expands with the instance length in one direction. Determining the appropriate insertion point will help users place the Family in a project.

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6 Workflow for Model Content Creation

To ensure that your content is created in the most efficient and least error-prone manner, review and use the best practice workflow below before you create a model Family.

1. Create a new Family file (.rfa) with the appropriate Family template.

2. Define subcategories for the Family to help control the visibility of the Family geometry.

3. Create the Family skeleton, or framework:
   - Define the origin (the insertion point) of the Family.
   - Lay out reference planes to snap to when you sketch component geometry.
   - Add dimensions to specify parametric relationships.
   - Label dimensions to create type or instance parameters or 2D representation.
   - Test, or flex, the skeleton.

4. Define Family type variations by specifying different parameters.
5. Add a single level of geometry in solids and voids, and constrain the geometry to reference planes.
6. Flex the new model (types and hosts) to verify correct component behavior.
7. Repeat previous steps until the Family geometry is complete.
8. Specify 2D and 3D geometry display characteristics with subcategory and entity visibility settings.
9. Save the Family, and then test it.
10. For large Families that include many types, create a type catalog.

TIP: *For more information on the steps in this workflow, download the Revit® Architecture 2009 Families Guide (www.autodesk.com/revitarchitecture-documentation), and see the Creating Standard Component Families topic.*

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7 Family Units

Although Families can be created as unit-specific (imperial or metric), Revit software stores all coordinates in universal units and displays specific units according to user preference. This means that:

- Units can be set to display as necessary for a target audience (i.e., display as decimal units for a civil engineering drawing or fractional units for an architectural drawing).
- Families created in imperial units may be loaded into and used in metric projects and vice versa.

For information on changing the display of units, see **"Project Units"** in the Revit Help.

To use an imperial or metric family in a project with different base units, use one of the following options:

- Load the family in the project where it will use the current project units. However, any imperial- or metric-specific text in the family name, type names, and parameter names will still display as metric unless explicitly changed. Standards sizes may also need to be adjusted.
- Duplicate the types within a metric or imperial family to create both imperial and metric types within the family.
- Open the family, save it as a new family, and change the units.

Note: The units of all Family found in FLIP are metric according to local practices.

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8 Family Naming Conventions

Family naming conventions ensure that Families can be identified in FLIP and the Revit software by the real-world items that they create. The naming conventions include short forms of category, functional type, originator and descriptors that allow the user to search for Families by element, by manufacturer, and/or base units.

Guidelines:

- Create a unique name for each Family. For example, a fixed window Family and a fixed door Family cannot share the same name.
- Use 'title casing' (as with the title of a book) for Family names, as they are case sensitive.
- Keep file names as short as possible. Family names must display in dialogues and in the Type Selector.
- When adding optional descriptors to Family file names, consider the order in which the descriptors are listed to ensure that the Family files display in the Project Browser in the most logical and intuitive order.
- Do not use spaces between words in file names. To separate words within a syntax element (e.g., Manufacturer or Descriptor), use the underscore character (_).
- If a hyphen (-) is used to include a performance range, enclose the range in parentheses, for example, (230-250_Ton).
- If a type catalog is to be used with a Family, name the type catalog (.txt file) with the same name as the Family.

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Format

<Category> - < Functional Type > - <Originator> - <Descriptor 1> - <Descriptor 2>

Family Name	DOR – SGL – AEC – Wood – w_Louver .rfa	Descriptions
Category*	**DOR** – SGL – AEC – Wood – w_Louver .rfa	A Door, DOR is the short form of the category **"door"**
Functional Type *	DOR – **SGL** – AEC – Wood – w_Louver .rfa	A Single Door, SGL is the short form of the functional type **"single"**
Originator	DOR – SGL – **AEC** – Wood – w_Louver .rfa	AEC is the short form of the default **Architecture - Engineering -Construction Industry**. It can be replaced by the name of the creator in short form of three characters. (e.g. ASD, BD, CLP, DSD, EMD)
Descriptor 1	DOR – SGL – AEC – **Wood** – w_Louver .rfa	A door is made of **Wood**. An optional descriptive text.
Descriptor 2	DOR – SGL – AEC – Wood – **w_Louver** .rfa	A door is built **with Louver** This text further describes the Family
File Extension	DOR – SGL – AEC – Wood – w_Louver **.rfa**	**R**evit **Fa**mily File Extension

**** Note:*** *Refer to the FLIP Master Type List for information on approved Category and Function Type. In the library webpage of FLIP, a user can look for a Family by searching the keyword appears on any field of the Family file name or by filtering the Category and Function Type of the Family.*

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9 Type Naming Conventions

All Families must include one predefined type. Unless they represent nominal sizes, type names should include units or capacity, and include a unit indicator.

When naming a Family type, use the format and rules below:

Guidelines

- Do not include the Family name or category in the type name.
- Type names should mirror actual usage.
- Type names should indicate the key differences between types (size, count, material) and, when applicable, reflect standard sizes. In some cases, you may base names on size difference, but use common terms rather than numbers.
- When types are named by size, use dimensions only. Avoid the use of characters or words. (h, w, d, or height, width, depth).
- Type names should include units or capacity and a unit indicator, unless they represent nominal sizes.
- Metric types should reflect the local unit standard, unless the types are intended to be generic.
- Keep type names as short as possible. Type names must display in dialogs and in the Type Selector.

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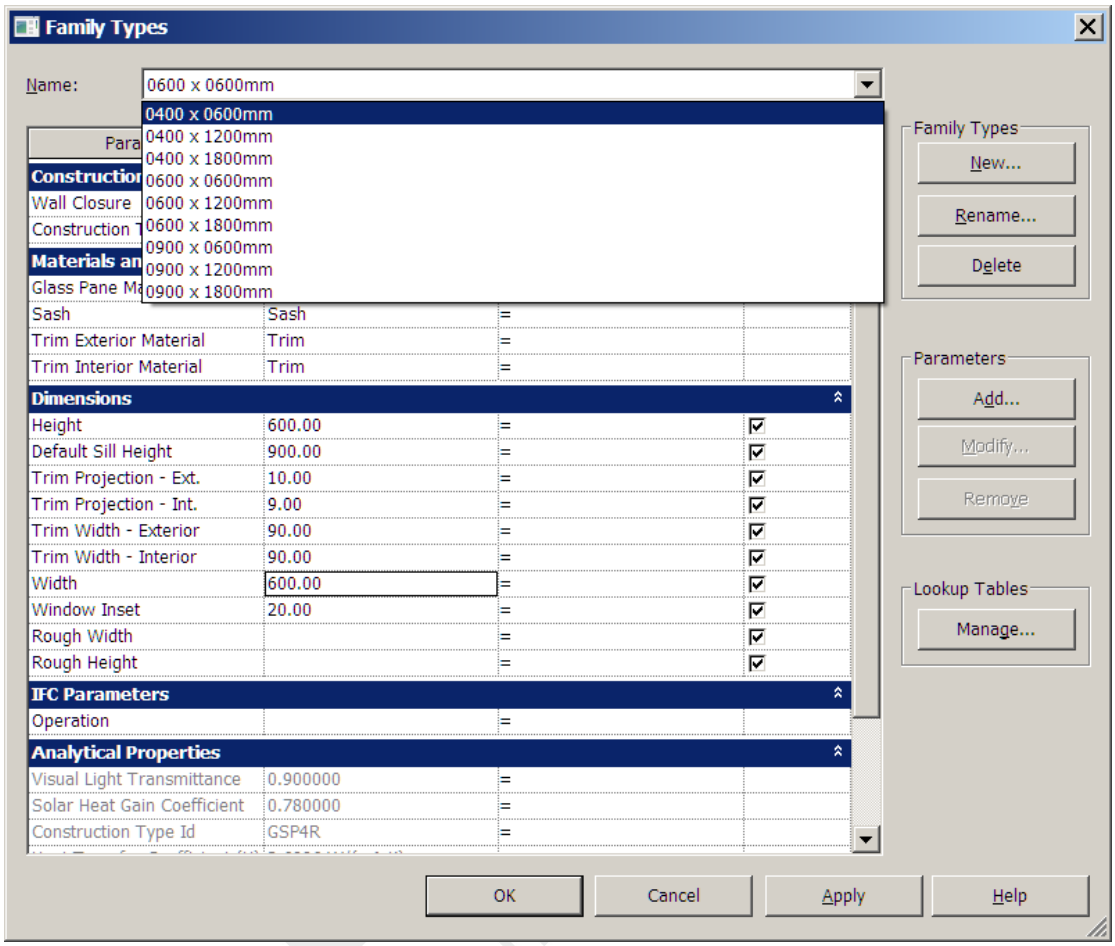
Format

Unless there is a market-specific reason to do otherwise, use the following general order in type names:

For doors and windows: **<width> x <height>**

For casework and furniture: **<width> x <depth> x <height>**

Below is an example of a Window Family with different Family Types



For families that feature nominal sizes or industry-standard terms:

In type names, drop the dimension indicators (mm) and/or use industry-standard naming conventions.

- Brick (industry-standard naming): **Common, Norman, CSR, Metric Modular**
- Lumber (nominal sizes): **2x4**
- Structure (industry-standard naming): **W12 x 204**

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10 Category and Sub-category Standards and Usage

All families, including generic families, must be assigned to appropriate categories and subcategories. When a family is created, it is assigned a category. The category defines its top level of identification (for example, Door, Window, or Casework) within the project environment. When the family is used in a project, the family can be located in the Project Browser under its category, and elements created by the family types will schedule by its category. The line weight, line color, line pattern, and material assignment of the family geometry can also be assigned to by category.

To display different line weights, line colors, line patterns, and material assignments for different geometric components of the family (for example, the frame, sash, mullions, and glass that comprise a window), the components can be assigned to subcategories within the family category.

Categories are predefined in Revit software and cannot be created or changed by the user. Subcategories are predefined in some families (See Revit Master Subcategory List) , but other subcategories can be created in families as needed.

Sub-category Naming Conventions

- Create unique names for each subcategory.
- Use natural language to name the subcategory. The subcategory name should describe how the subcategory is identified in the real world (i.e., in catalogs, by manufacturer, etc.)
- Do not include the family category in the subcategory.
- Keep subcategory names as short as possible.
- Capitalize the leading letters of the words that form the subcategory name.

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11 Approved Parameter Usage

Families contain parameters that not only create the family geometry, but identify or classify the elements that are created by the family. All families have predefined parameters that you assign values or data to, but you can add parameters that are not predefined in Revit software (that are not system parameters).

IMPORTANT: *If you want to display the names and values of custom parameters in a schedule, they must be defined as* ***shared parameters*** *in a text file that is independent of family and project files.*

REQUIREMENT: *To promote consistency in model content (particularly for manufacturer content that is shared on FLIP), use parameters as they are explicitly defined in the approved shared parameters file. If a required parameter is not in the file, add it to your content as necessary. It is also recommended to include the shared parameter file containing the additional parameters with your content package. When creating custom parameters, refer to the next chapter* ***12 Parameter Naming Conventions****.*

Refer to the master shared parameters file (Revit Master Shared Parameters) for the list of Autodesk-approved shared parameters. This file contains most of the shared parameters that you will need to add to your families. A spreadsheet (Revit Master Parameter List.xls) that lists these parameters by family category, along with applicable predefined system parameters is also available for your reference.

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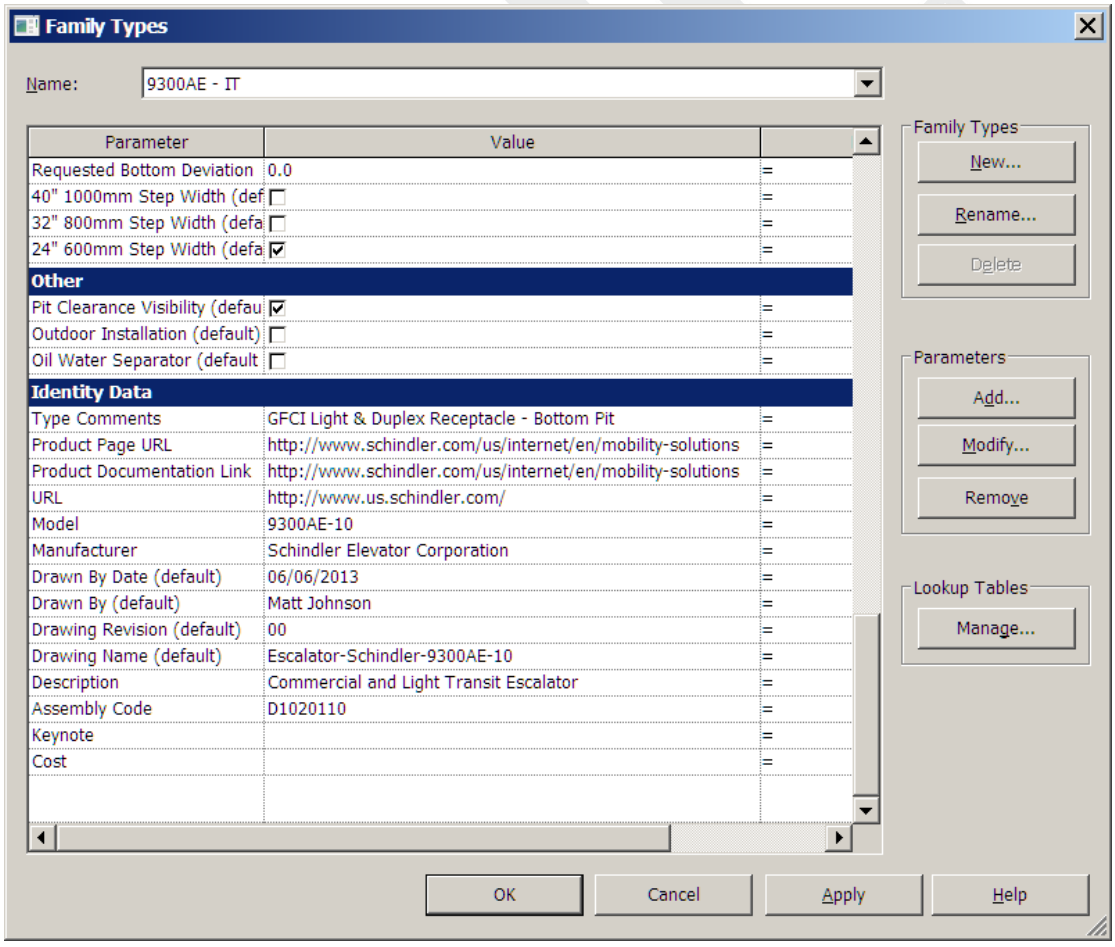
12 Adding Manufacturer Data to Families

Identity Data parameters in families can include manufacturer data, including information such as the model, description, assembly code, cost, and manufacturer URL. When elements are created with the family in a project, the parameters and associated values can be included in schedules.

Typical manufacturer data in Family

Parameter Name	Description	Type of Parameter
Manufacturer	Manufacturer name	System
Model	Model name or number	System
Product Page URL	URL to product page	Shared (see shared parameter list)
Product Documentation Link	URL to product	Shared (see shared parameter list)
URL	URL to manufacturers web site	System

Identity data parameters for an Escalator that include values for manufacturer data.



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13 Parameter Naming Conventions

Consistent parameter naming enables easier and more comprehensive parametric searching in FLIP. Create parameters only when variation creates meaningfully differentiated types that represent real-world possibilities.

Guidelines

- Use standard approved parameter names when available. (see Revit Master Shared Parameters)
- Keep parameter names as short as possible.
- Avoid abbreviation and truncation, when possible.
- Use 'title casing' (as with the title of a book) for parameter names, as they are case sensitive (e.g., Coefficient of Performance; Point of Shipment; High and Low Pressure Gas Connection Diameter).
- Parameters must display in dialogs.
- Do not change label names provided by the Revit family templates.
- Parameter names that you reuse to create equalities should be carefully checked for name coherence.
- Use the most common descriptor for a group of parameters as the first part of the name so that the parameters sort logically (e.g., Filter Face Area; Filter Efficiency).
- Parameters for subsequent items should include a number in the name before the final part of the description, but do not include a number in the name for the first item (e.g., Actual Hot Gas Flow; Actual Hot Gas 2 Flow).
- Avoid using symbols in parameter names, including: + - / \ * ( ) " ' < > | ^ $ { } [ ].
- Do not include units in the name of a parameter (e.g., Supply Air Flow CFM).
- Using the terms Actual or Design:
  - **Actual** – describes the actual value the system definition requires. "Actual" parameters are linked to connectors and are often used for parameters that define flow rates, for example, Actual Supply Air Flow; Actual Chilled Water Flow.
  - **Design** – describes what the product is designed to do, for example, Design Ventilation Air Flow; Design Return Air Flow.
- Name **Yes/No** parameters so they imply that they return a Yes/No value, for example:
  - Has Handle
  - Is Energy Efficient
  - Show Hoods

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A. Parameters that apply to the entire Family

Format:

<Type of measurement/ Descriptor>

Examples:

Casement Window:

- Height
- Default Sill Height
- Width

Engineering Equipment:

- Actual Heater Gas Flow
- Full Load Current
- Compressor Type

B. Parameters that describe a measurement value of a sub-component

Format:

<Function/Object> <Type of measurement/ Descriptor>

Examples:

- Heat Pump Coil Face Area
- Exhaust Fan Blade Speed
- Exhaust Fan Drive

C. Parameters that describe the Linear Dimension of a sub-component (Connector)

Format:

<Function/Object> Connection <Type of measurement/ Descriptor>

Examples:

- Hot Gas Bypass Connection Diameter
- Condenser Water Connection Diameter
- Supply Air Connection Width

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14 Material Naming Conventions

Finish material naming conventions organize the material by manufacturer, and general description to more specific description. Depending on the type of material, a finish material name may include a color, code, finish type, or identification number.

Guidelines

- Finish names should indicate the key differences between materials (manufacturer, type, color, finish) and, when applicable, reflect standard sizes. In some cases, you may base names on size difference, but use common terms rather than numbers.
- Metric finish names should reflect the local unit standard, unless the materials are intended to be generic.
- Keep finish names as short as possible.

RECOMMENDATION: *To optimize the file size for families with a large number of available materials, provide only the most common materials in the family, and provide the remaining materials in a separate finish library. See the Finishes part type guide for more information.*

A. Individual Finish Materials (Stored Inside Projects)

Format:

<Finish Type> - <Manufacturer> - <Code> - <Descriptor>

Examples:

- Paint – AEC Paint – AC440 – Vintage Brown Matte
- Glass – AEC Glazing – Series 1205 – Clear
- Aluminum – AEC Metal – AC120 – Anodized (Clear)
- Fabric – AEC Fabrics – AC F820 – Hounds tooth – Black/White

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B. Individual Finish Materials Using an External Image File

Materials requiring external images, bump maps and cutout should be stored in a location that can be shared by multiple Revit Product installs.

For Windows XP:

C:\Documents and Settings\All Users\Application Data\Revit Manufacturer Library\Materials\<MFG>

For Windows Vista and Windows 7:

C:\ProgramData\All Users\Application Data\Revit Manufacturer Library\Materials\<MFG>

Guidelines:

- Create unique names for each unique material image.
- Capitalize the leading letters in each portion of the family name.
- Do not use spaces between words in file names. Use the underscore character (_).
- Acceptable file formats for material images include: **bmp, jpg, jpeg and png.**
- Provide a readme to describe where the image files must be located and how to map Revit to the **"Revit Manufacturer Library"** folder in the Rendering Options dialog.

C. Individual Finish Materials Images

Format:

Material Image:

<Finish Type>-<Manufacturer>-<Code>-<Descriptor> + file extension

Bump maps:

<Finish Type>-<Manufacturer>-<Code>-<Descriptor>-bump + file extension

Cutouts:

<Finish Type>-<Manufacturer>-<Code>-<Descriptor>-cutout + file extension

Examples:

- Satin–AEC_Windows–Natural_Wood_Finish.jpg
- Satin–AEC_Windows–Natural_Wood_Finish**–bump**.jpg
- Aluminum–AEC_Fencing–AC120–Anodized**–cutout**.jpg

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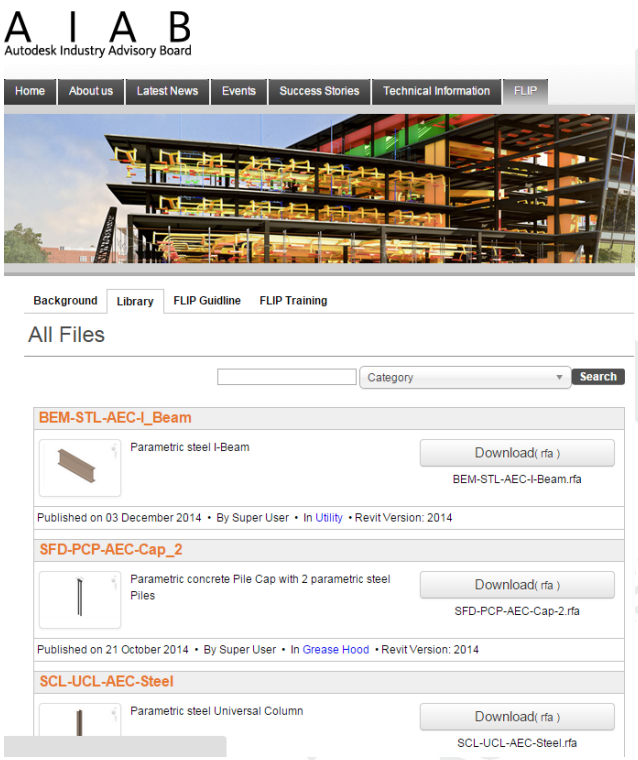
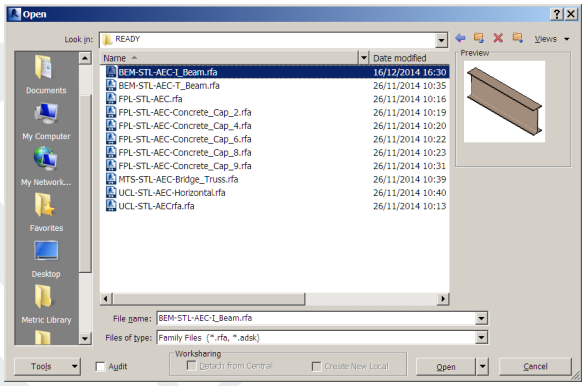
15 Preview Image Standards

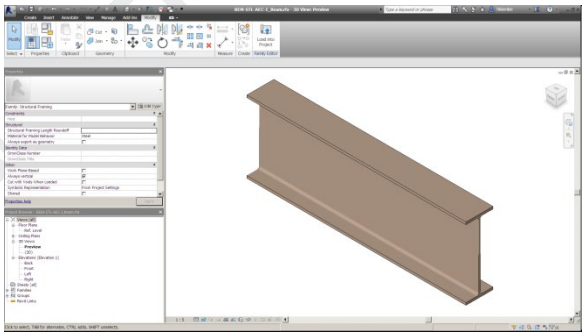
A Family preview image is a reduced thumbnail image of a 2D or 3D Family view that graphically identifies a Family before it is downloaded or opened. Preview images display in:

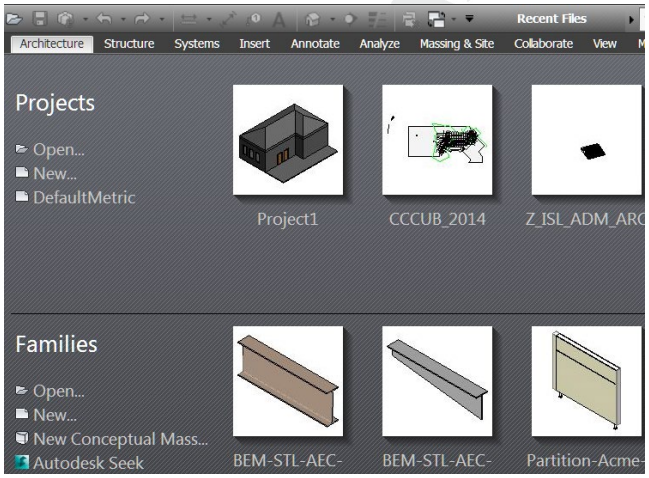
- Thumbnails view in Microsoft® Windows Explorer
- FLIP search results
- The Preview window in Revit Open and Load Family dialogs when a Family is selected

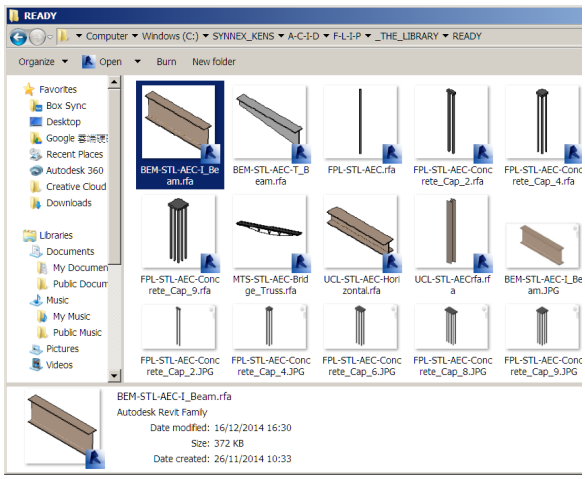
By creating preview images that adhere to Autodesk standards, users can view consistent previews across Families, ensuring a consistent user experience both in FLIP and in Revit software.











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Creating FLIP Standard Family Preview Images

To create a preview image, begin by creating a family view to use exclusively for the preview image. Although you can save any family view as the preview image view, the best practice is to create a view that can be set to consistently display as is required for the preview image.

After you create the view, set FLIP standard graphic controls in the preview image view to ensure visual consistency with the preview images of other Revit families. Different graphic standards exist for the following types of family preview images:

- Detail component and annotation families
- Hosted model component families
- Non-hosted model component families

NOTE: *Although annotation families are not covered in this guide, similar standards for annotation preview images exist.*

IMPORTANT: *When modifications to the preview image view are complete, save the view and set the family to use the current view as the preview image. Each time you save and close the family, you must ensure that the preview image view is the active (open) view so it will display as the preview image.*

A To Create a Detail Component Preview Image:

Create a view to use as the family preview image

1. If necessary, open the detail component family for which you want to create a preview image.

Turn off visibility of dimensions and reference planes/lines

2. Click **View menu** →**Visibility/Graphics**.
3. In the **Visibility/Graphic Overrides** dialog, click the **Annotation Categories** tab.
4. Under **Visibility**, clear **Dimensions, Levels, Reference Lines, and Reference Planes**.
5. Click **OK**.

Set standard view controls in the Preview view

6. On the View Control Bar:
   - Click the current view scale, and depending on the family units, click **1:5**.
   - Click **Detail Level,** and click **Fine**.
   - Click **Model Graphics Style**, and click **Wireframe**.
7. Click **Save**.

B To Create a Model Component Preview Image:

Create a view to use as the preview image

1. If necessary, open the family for which you want to create a preview image.
2. In the Project Browser, select a view of the family that you want to use:
   - For a door or window family, select an elevation view (preferably front).
   - For other model component families, select a 3D view.
3. Right-click the view name, and click Duplicate View→ Duplicate.
4. Rename the duplicate view:
   - In the Project Browser, right-click the view name, and click Rename.
   - Type Preview and click OK.
   - Click No to retain the names of corresponding views and levels.
5. If necessary, open the view.

Set a standard preview image view orientation

6. Depending on the type of component that you are creating, set the view orientation:
   - For a door or window family in an elevation view, on the View Cube, click 
   - For other families that display in a 3D view, on the View Cube, click  to set a southeast orientation, right-click, and click Set Current View as Home.

Turn off visibility of dimensions and reference planes/lines and if necessary, set the host visibility

7. Click View menu→ Visibility/Graphics.
8. In the Visibility/Graphic Overrides dialog, click the Annotation Categories tab.
9. Under Visibility, clear Dimensions, Levels, Reference Lines, and Reference Planes.
10. If you are creating a preview for a host-based family, set the host visibility:
    - For family previews in which the host should not display, such as doors and windows, clear all host categories.
    - For family previews in which the host should display, select all host categories.

11 Click OK.

Set standard view controls in the Preview view

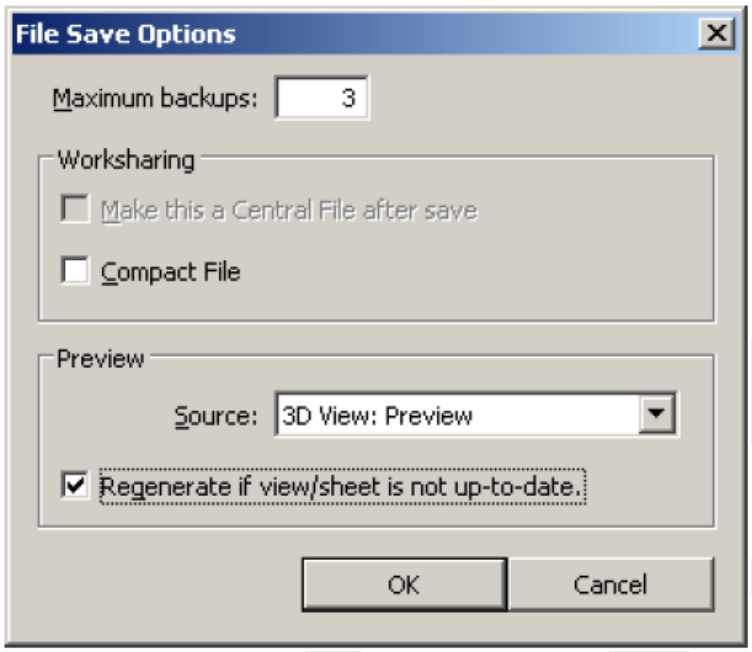
12 On the View Control Bar:
   - Click the current view scale, and depending on the family units, click 1 1/2" = 1' - 0" or 1:5.
   - Click Detail Level, and click Fine.
   - Click Model Graphics Style, and click Shading with Edges.

Set the preview image to display the current view

13 Click File menu → Save As.

14 In the Save As dialog, in the lower-right corner, click Options.

15 In the File Save Options dialog, under Preview, for Source, select “3D View: Preview”, then select “Regenerate if view/sheet is not up-to-date”.



IMPORTANT: *This setting displays the selected view as the preview image. It is also recommended that the active view when you save the file is the same as the selected preview view.*

TIP: *Select the Compact File option to help reduce the file size.*

16 Click OK.

17 Click Save.

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16 Type Catalog Standards and Usage

A type catalog is comma-delimited TXT file that, when placed in the same directory as a family, displays a list of family types before the family is loaded into a project. You can select and load only the family types that the current project requires, avoiding an unnecessary increase in project size from unused types and a long list of types in the Type Selector. The type catalog also provides an external means of editing the family, as you can remove and add parameters and types in the catalog file (TXT).

Type Catalog Standards

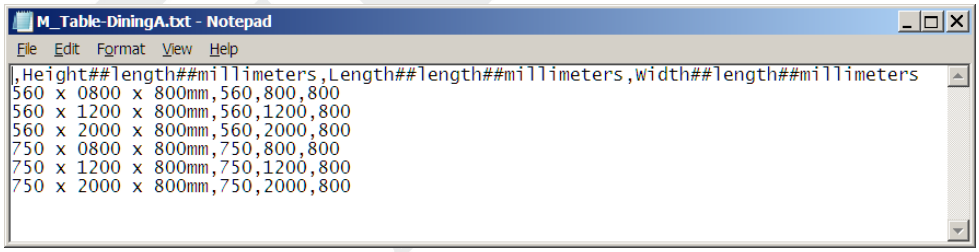
Use the following standards when creating type catalogs:

- Use any text editor to create type catalogs.
- Create type catalogs for families that contain six or more types.
- Name a type catalog file (.txt) with the same name as the family file (.rfa) that it supports.
- Ensure that parameters in type catalogs are test loaded by the family for which you create the type catalog. If the parameters are not used, the family will not load.

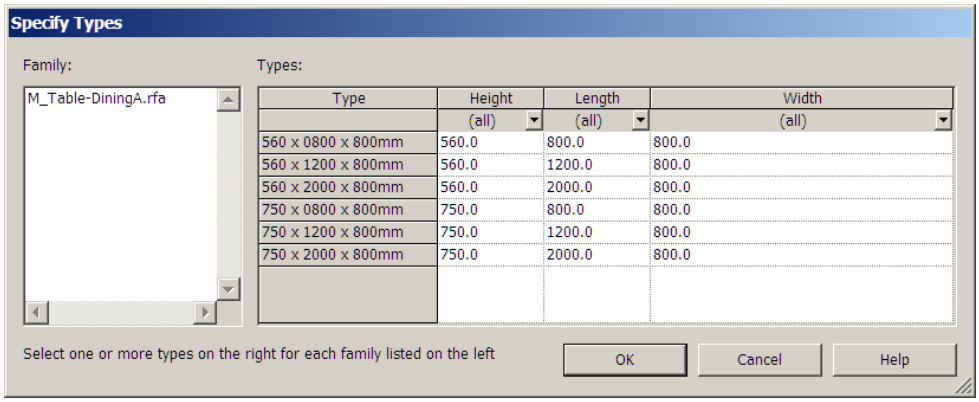
For more information about creating a type catalog, please refer to the Revit Help below:
http://help.autodesk.com/view/RVT/2014/ENU/?guid=GUID-FFA71D72-D4C5-416D-BF65-1757657C3CE9

Example

A type catalog (TXT file) for a table Family



Dialog displayed by the type catalog when the door family is loaded



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17 Best Practices for Adding Connectors in Revit MEP Families

In Revit MEP, the connector connects the single family component with other components to create MEP systems. Without a connector, an RME family would just be a static placeholder.

In Revit MEP, there are 3 kinds of connectors:

- Electrical Connector
- Duct Connector
- Pipe Connector

Adding a connector

1. Click the tool for the connector you wish to add (Electrical Connector, Duct Connector, or Pipe Connector).
2. Click to place the connector in the drawing area.
   RME provides two ways to place the connector, placing it on a face or on a work plane. If you select the Place on Face option, the connector is automatically added to the center of the face of the geometry and moves with the face. If the geometry is deleted, the connector is also deleted.

BEST PRACTICE: *Place connectors on a face rather than on a work plane.*

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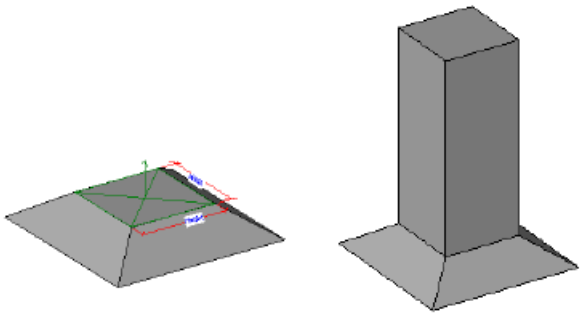
System Types

	System Type	Application Scenario	Example
Pipe Connector	*Hydronic Supply*	Families in closed water circulation systems	Boiler, Chiller, Cooling Tower
	Hydronic Return		
	Sanitary	Plumbing fixtures	Lavatories, Water Closets.
	Domestic Hot Water		
	Domestic Cold Water		
	Fire Protection Wet	The three systems are matching the three sprinkler systems, sprinkler-wet, sprinkler-dry, sprinkler-pre-action.	Sprinkler, Dry Valve
	Fire Protection Dry		
	Fire Protection Pre-Action		
	Fire Protection Other	Other fire protection systems except the three above, such as standpipe	Cabinet, Hose Connection
	Fitting	Pipe Fittings	Elbow, Tee
	Global	Families that will be in multiple systems	Pump, Valve
	Other	Families in gas, refrigerant systems, Place holder for pipe systems not included	Gas connector of Water heater
	Unsupported	Strom Drainage , Sanitary Ventilation	
Duct Connector	*Supply Air*	HVAC Air delivery systems	Air Conditioner, Dust Collector
	Return Air		
	Exhaust Air		
	Other Air	Place holder for air systems not included	
	Fitting	Duct Fittings	Elbow, Tee
	Global	Families that will be in multiple systems	Fan
	Unsupported	Fresh Air	
Electrical Connector	*Data*	Automatically or manually control the transmitting, receive or sending of data/voice signals.	Data Outlet
	Power – Balanced	Equipment, device or fixture operates in power supply/distribution systems.	Generator
	Power – Unbalanced		Panel Board
	Telephone	Telecommunication devices used to transmit and receive sound.	Telephone outlet
	Security	Be armed and detect security/access problem	Smoke Detector
	Fire Alarm	Alarm-initiating devices operate to control alarm signals	Water Flow Indicator
	Nurse Call	Key component in addressing patient care needs.	Call Point
	Controls	Normally used for remote control in some special circumstances	Control Valve
	Communication	Devices in communication system in building, used to transmitting, receive or send communication signals	Speaker

Connector Direction

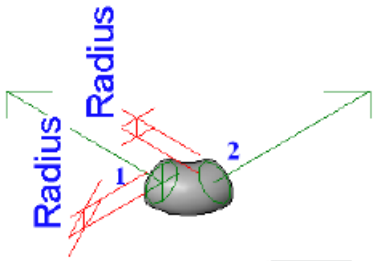
For duct/pipe connectors, an arrow, perpendicular to the surface, displays. The direction that the arrow is pointing is also the direction in which the connecting duct/pipe will be drawn. As the picture shows, vertical duct can be drawn from an up connector in an air terminal.

NOTE: *The arrow does not represent the flow direction.*

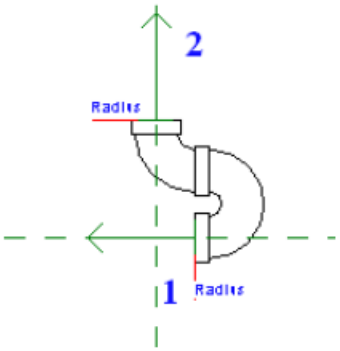


Primary Connector

By default, the first connector in each domain is assigned as the primary connector. In the following image, you can easily identify the primary connector (connector 1) by the cross symbol. The Re-assign Primary tool allows you to reassign the primary connector, as required.



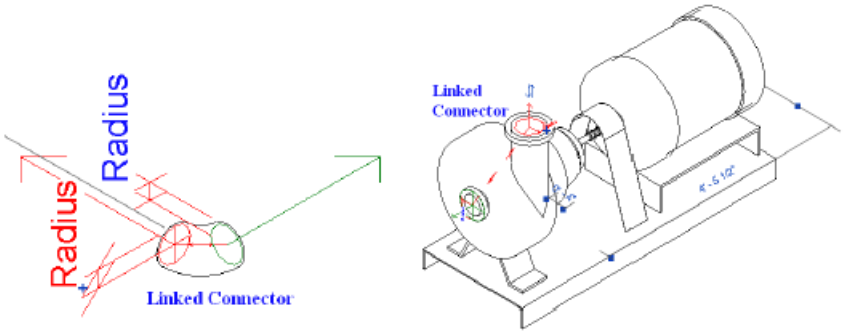
The primary connector of pipe and duct fittings should be located at coordinates (-1, 0, 0). In the following image of the plan view of a P-Trap, connector 1 is the primary connector.



For other families, the location of the primary connector is not important.

Linking Connector

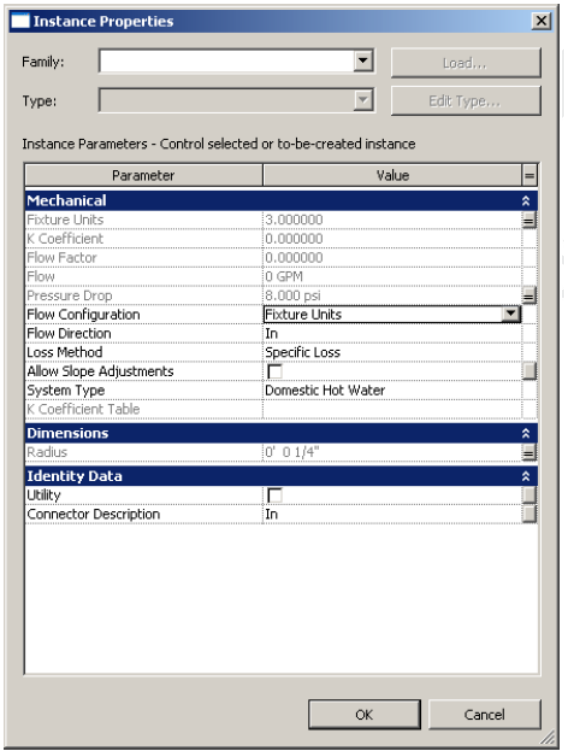
When there are more than one pipe/duct connectors, there is a choice for linking connectors.



- Linked connectors only have an effect when the system type is set to global for equipment or fitting.
- Linking connectors on equipment makes it possible to propagate engineering data, allowing you to use equipment as an inline component in a system.
- Linking connectors on fittings should include the primary connector.

Connector Mapping

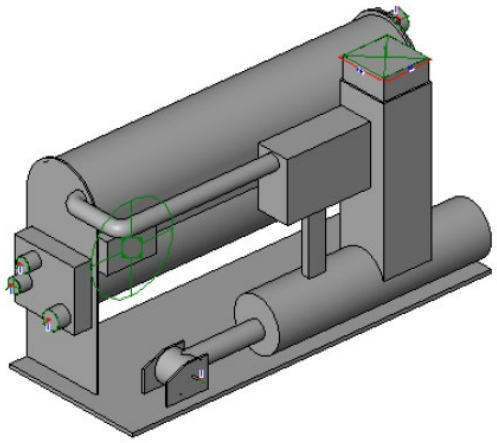
Edit Element Properties for the connector to define parameters for the connector.



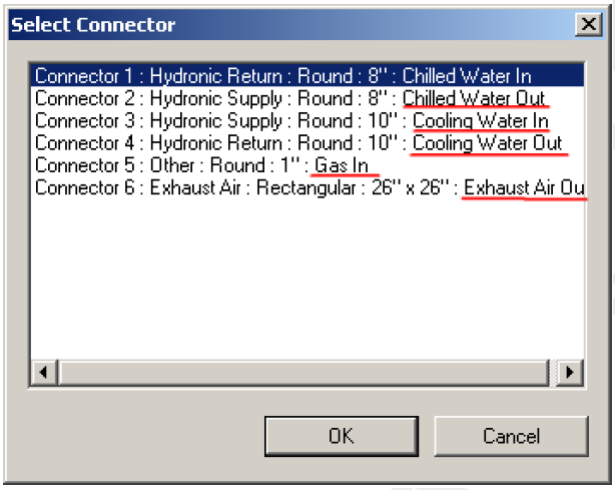
For part parameters, clicking a browse button displays a dialog that makes it easy to map connector parameters to family parameters with the same units. Connector mapping makes the connector parametric with the family.

Connector Descriptions

In the following example of complex equipment, it would be difficult to determine the function of each connector.



To make it easier to identify the function of connectors in the family, add connector descriptions. These descriptions display in the Select Connector dialog. In the following image, descriptions are underlined in red for illustration purposes.



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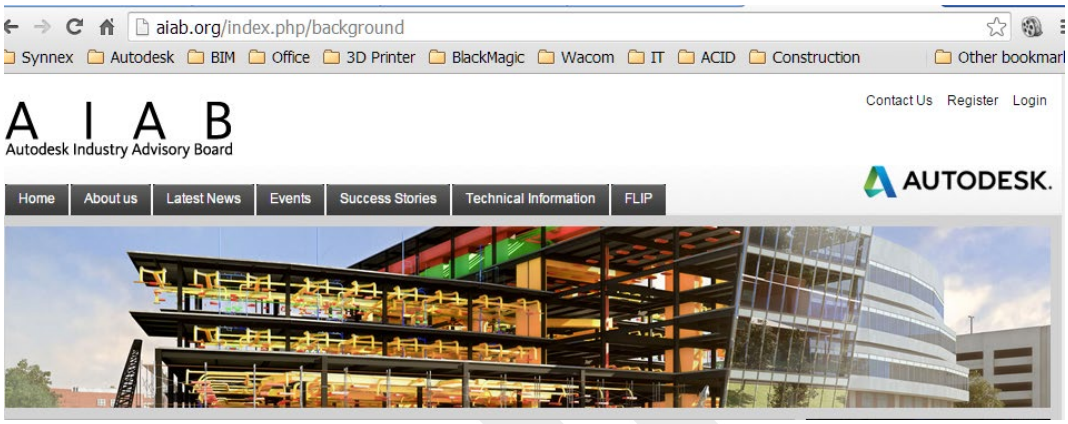
18 Exchange the Family files in FLIP

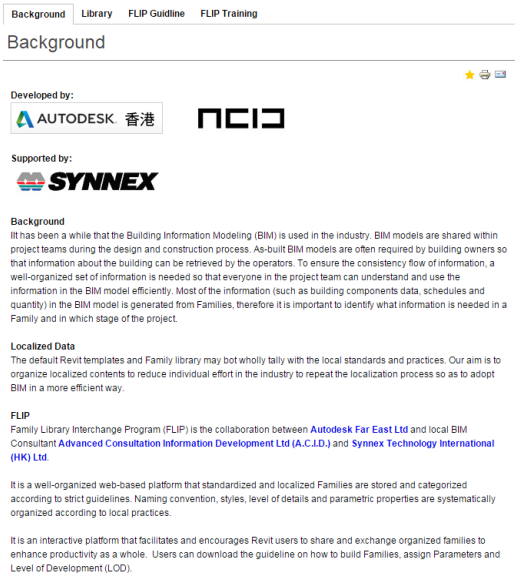
FLIP is an interactive platform that facilitates and encourages Revit users to share and exchange organized families to enhance productivity as a whole. To gain access to FLIP, refer to the webpage of Autodesk Industry Advisory Board (AIAB): http://aiab.org/index.php/background

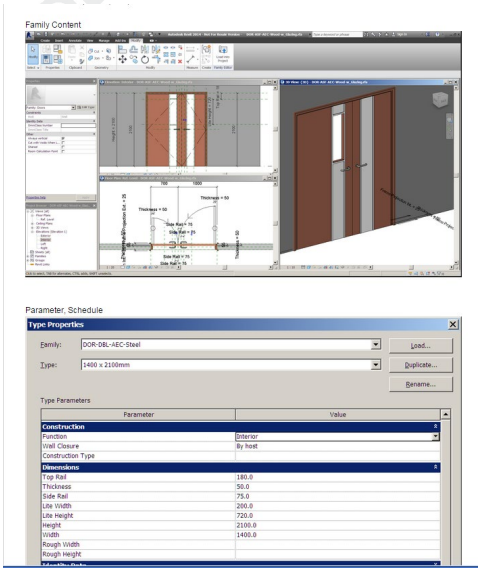


There are four sections in the FLIP webpage

A Background

Users can find the background information and the purpose of developing the FLIP project.





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B Library

This is the place where users can download the family library in FRA format according to FLIP standard. Before downloading or uploading a family, a user has to be a registered member of AIAB.

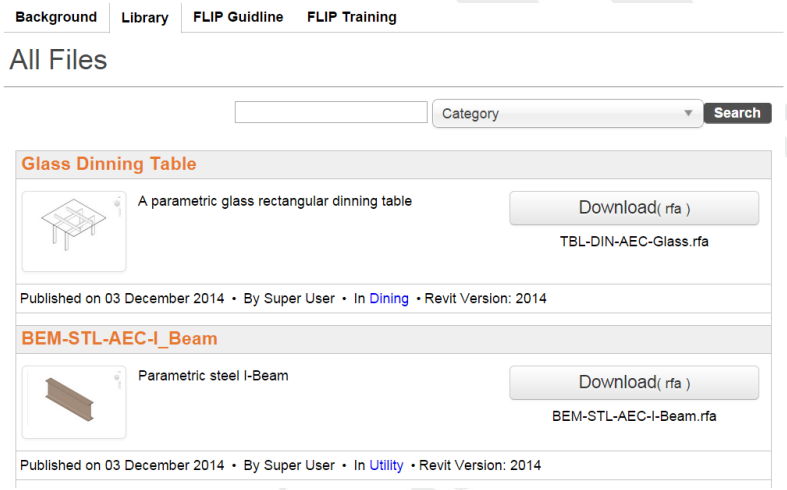
- **The Credit Pont Mechanism**

By default, each AIAB member has been allocated with 10 credit points. 1 credit point will be deduced for each download of a family package which may include a Revit Family File and Supporting Files (such as reference drawings, type catalogues, shared-parameter files and material files etc.). The user will gain 10 credit points by uploading a family package.

Note: *In order to encourage users using the FLIP system, downloading families will not deduct credit points during the promotion period.*

- **Downloading a Family**

A user can download a family either by searching the keywords of the name or descriptions of the family or by filtering with category. Family name, descriptions, a thumbnail, published date, author name Category and Revit Version will be shown in the searching or filtering results.

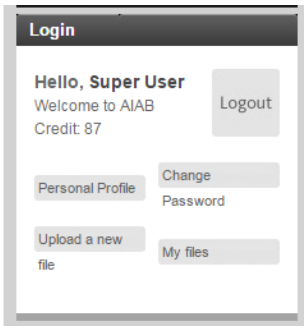


- **Making Comments**

In order to encourage users share their ideas and to make a better family in the FLIP system, other users can add comments to the Family listed on FLIP. The user name for the commenter and the author will be shown.

- **Uploading a Family**

Only registered AIAB member can upload files to the FLIP system



A user can upload a family package to the FLIP system by filling a form providing the following information:

- **Family Name**

  This is a name for other user to search for the family package, not the family name itself.

- **Category**

  User should specify the category of the family according to **FLIP Master Type List**.

- **Functional Type**

  User should specify the Type of the family according to **FLIP Master Type List**.

- **Family File**

  A pop-up window will be launched as the user click the box. User can upload the Family file to be shared. Only RFA file is accepted.

- **Thumbnail**

  A pop-up window will be launched as the user click the box. User can upload the Thumbnail image to be displayed in the FLIP system. Only JPG, GIF, PNG and BMP files are accepted.

- **Revit Version**

  Revit is not upward compatible. (i.e. Revit 2013 cannot open files created by Revit 2014 or later.) Indicating the Revit version of the family created is essential.

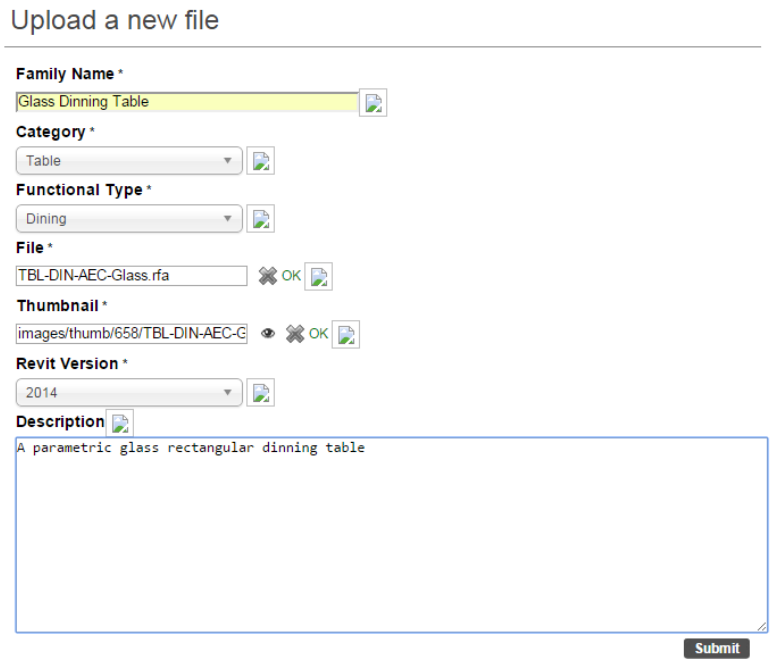
- **Description (Optional)**

  This is a description for other user to search for the family package.

  e.g. Parametric concrete pile cap with 2 parametric steel piles. Manufactured by ABC Company with Model No. PC202.

- **Other supporting files (Optional)**

  User can provide other supporting file such as reference drawings (DWG files), type catalogues (TXT files), shared-parameter files (TXT files) and material files and texture files (JPG, GIF, PNG and BMP files) etc.



Click **Submit** to confirm upload

Note: *Users can no longer make any changes once the family has been submitted. They are advised to check carefully of what to be uploaded.*

C FLIP Guidelines

Users can download the latest technical documents of how to make use of the FLIP system

- **The FLIP Guideline**

  A guideline description the framework of the FLIP system

- **FLIP Master Type List**

  Suggested Family Type for use with the FLIP system based on FLIP-specific naming convention system and technical consideration for the local market

- **Finishes Part Type Guide**

  Suggested Finishes Part Type for use with the FLIP system based on FLIP-specific naming convention system and technical consideration for the local market

- **Revit Master Parameters List**

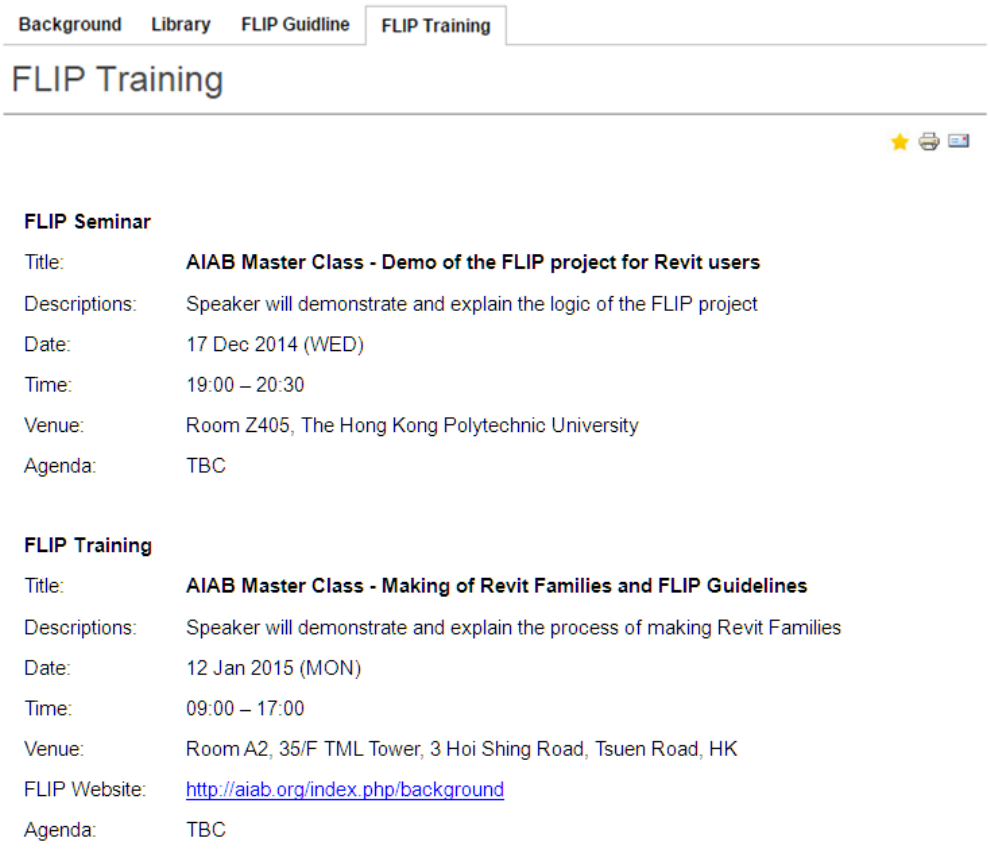
  Parameters suggested by Autodesk for use with Revit with modification for local use.

- **Revit Master Shared Parameters**

  Shared parameters suggested by Autodesk for use with Revit with modification for local use.

D FLIP Training

Users can find the latest information about the FLIP demonstration of incorporating FLI P into Revit Projects and procedures of making Families for FLIP.



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- End of Guidelines –

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