NBS National BIM Library
BIM Object Guide

Permanently-fixed vertical ladder system

Version 1

29 July 2015

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1.0 Introduction

The BIM objects on the NBS National BIM Library for Surespan Ltd have been created to comply with the NBS BIM Object Standard .

The BIM objects created include data from the following sources:

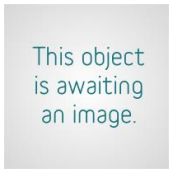
buildingSMART IFC2X3

NBS BIM Object Standard

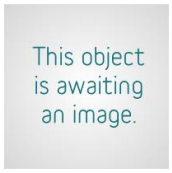
NBS BIM Toolkit (Level of information – Section 5)

1.1 Modelled Products

BIM objects represent the following construction products;



SL - Vertical Ladder



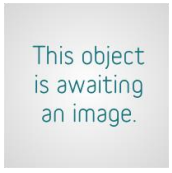
SL/PS - Vertical Ladder



SL/WT - Vertical Ladder



SLC - Vertical Ladder



SLC/WT - Vertical Ladder

2.0 Properties

2.1 IFC

Pset_StairCommon

www.buildingsmart-tech.org/ifc/IFC2x3/TC1/html/psd/IfcSharedBldgElements/Pset_StairCommon.xml

2.2 COBie

NBS BIM Object Standard refer to section 2.6

www.nationalbimlibrary.com/nbs-bim-object-standard/information

2.3 NBS_Data

Permanently-fixed vertical ladder systems

toolkit.thenbs.com/Definitions/Ss_35_10_30_62/

2.4 NBS_General

NBS BIM Object Standard refer to section 2.7

www.nationalbimlibrary.com/nbs-bim-object-standard/information

3.0 Loading BIM objects into Autodesk Revit

3.1 Component BIM objects

Component BIM objects typically represent a single construction product and its variations; components may also form part of an assembly when adjoined with other components; or systems when they are an element of an Autodesk Revit system.

Component BIM objects created in Autodesk Revit and hosted on the National BIM Library are intended to be added to construction projects that are authored in Autodesk Revit.

Component BIM objects are delivered as Revit Family files that represent either one or multiple products and can be delivered through various means:

Autodesk Revit Family RFA file with embedded Types.

- Can contain one or more Types representing one or more versions of a product.
- These BIM objects always include all the different Types available for a Family.
- This approach is used when a Family contains few Types as the low number of additional types does not significantly impact upon the Family's file size.

Autodesk Revit Family RFA file with an associated Type Catalogue file.

- The Revit file includes a single Type of the Family, and is accompanied by a Type Catalogue, which is a comma-delimited text file. On loading the Family into Autodesk Revit using either the NBS Plug-in for Autodesk Revit or Revit's Load Family tool a dialogue box appears prompting the designer to select which Types they would like to load into their project.
- This approach is used when a Family contains many types as including all the types within the RFA file may significantly impact upon the Family's file size and could be detrimental to Revit's performance.

3.2 Adding component BIM objects to a project

Designers are encouraged to use the NBS Plug-in for Autodesk Revit which is freely available from the NBS National BIM Library here. Once installed the NBS tab becomes available from the Revit Ribbon (Fig. 1); clicking the Download BIM Object tool opens a dialogue box. Designers search for a particular manufacturer or type of product, clicking on the Add to model button (Fig. 2) or click-dragging the BIM object's thumbnail into the viewport loads the component BIM object directly into the project currently active in Revit's viewport.

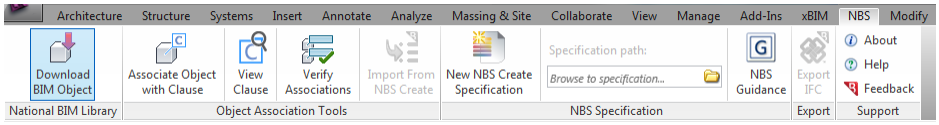


Fig. 1

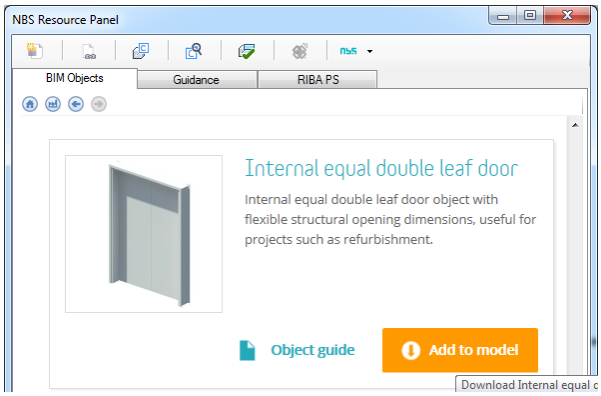


Fig. 2

Alternatively, designers can download BIM objects directly from the NBS National BIM Library website, this delivers a zip file that contains all the files required to use the BIM objects in Revit (Fig. 3).

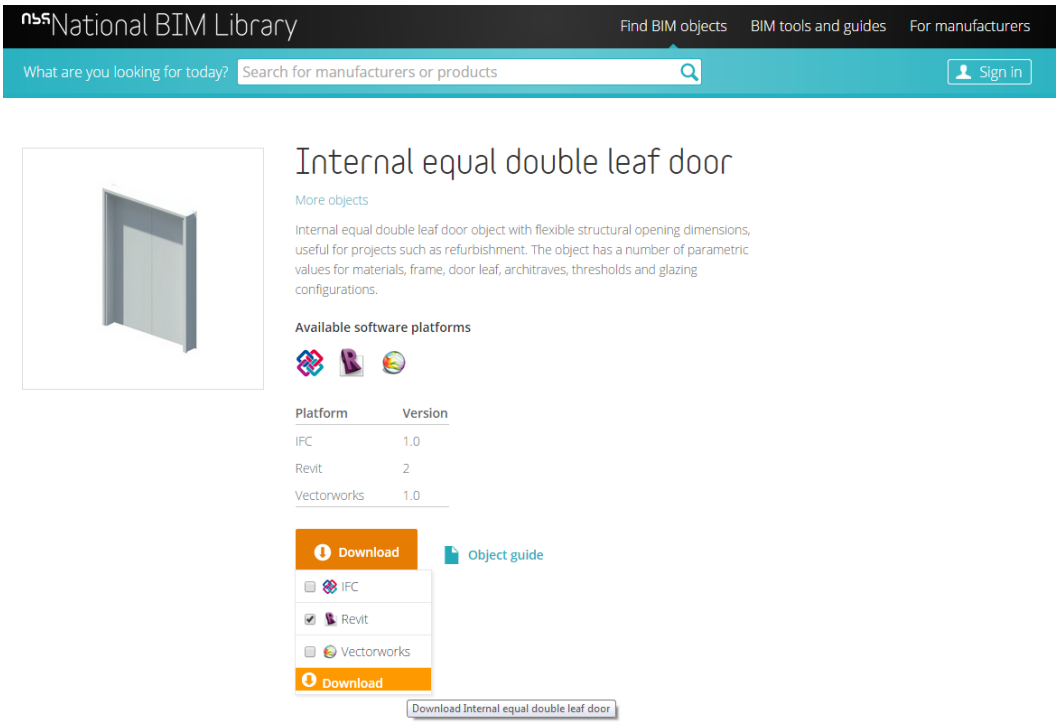


Fig. 3

3.3 Relationship to other BIM objects

Revit Families can be authored to be hosted to other BIM objects; doors are authored to be hosted to walls for example. The preference is for component BIM objects available from the NBS National BIM Library to be authored as face-based BIM objects; component BIM objects should be authored as hosted BIM objects only when absolutely necessary.

Once a BIM object is loaded into their projects designers can place any number of occurrences of the BIM object anywhere in their project. Designers should use Revit's Modify tools (Fig. 4) to alter the location of the BIM object within their projects.



Fig. 4

BIM objects that have been authored to be hosted to other objects require the hosting object to be placed in the project beforehand; a wall will have to be drawn before a door can be added to the project for example (Fig. 5).

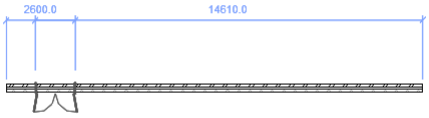


Fig. 5

BIM objects that include Revit system connectors should be connected to related components within the same system using Revit's system tools (Fig. 6).

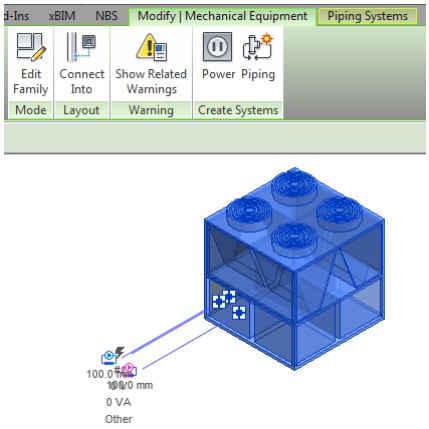


Fig. 6

3.4 Using a component BIM object within a project

Upon loading a component BIM object into Revit the BIM object should appear as a wireframe attached to the cursor when the mouse pointer is over the viewport (Fig. 7). If the BIM object is not visible as a wireframe and a stop symbol can be seen instead it is likely that the BIM object needs to be hosted to a specific BIM object type and the wireframe will appear when the mouse is over a suitable type; a door BIM object will appear as a wireframe when the mouse is over a wall for example.

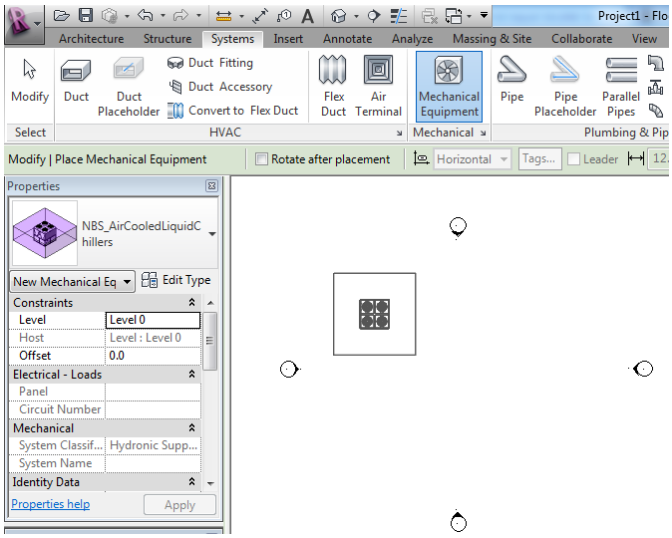


Fig. 7

To load additional occurrences of a BIM object that is already loaded into a project the relevant Revit tool should be used, then the Family and Type of the BIM object should be selected from Revit's Properties panel and placed in the correct location within the project. The Architecture -> Build -> Door tool should be used to place doors for example (Fig. 8).

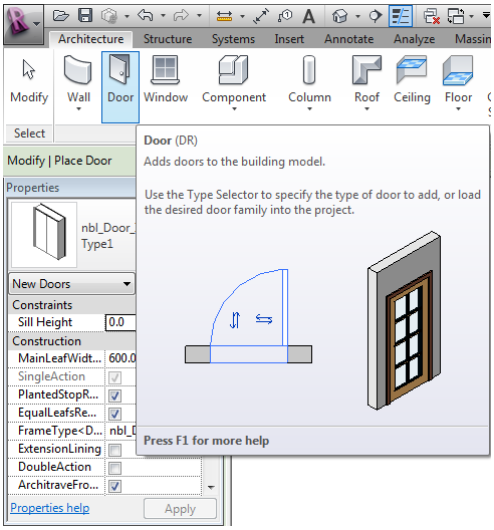


Fig. 8

Component BIM objects may include parameters that allow designers to alter the objects within their projects. These parameters are either Type or Instance parameters

- Type Parameters are applied to all instances of a Family:Type BIM object within a project, these can accessed by clicking on the BIM object, the clicking on the Edit Type button in the Properties panel (Fig. 9).

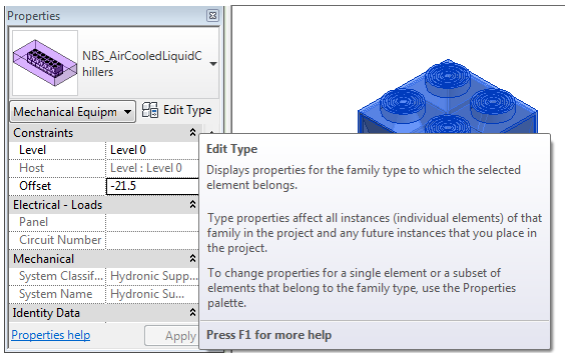


Fig. 9

- Instance Parameters are applied individually to each instance of a BIM object within a project, these properties can be accessed directly in the Properties panel when the BIM object is selected.

Complex component BIM objects may contain numerous parameters. Designers are encouraged to improve their understanding of the functionality of the BIM object prior to using the BIM object within a live project environment by loading the BIM object into a blank project and experimenting with the parameters (Fig. 10).

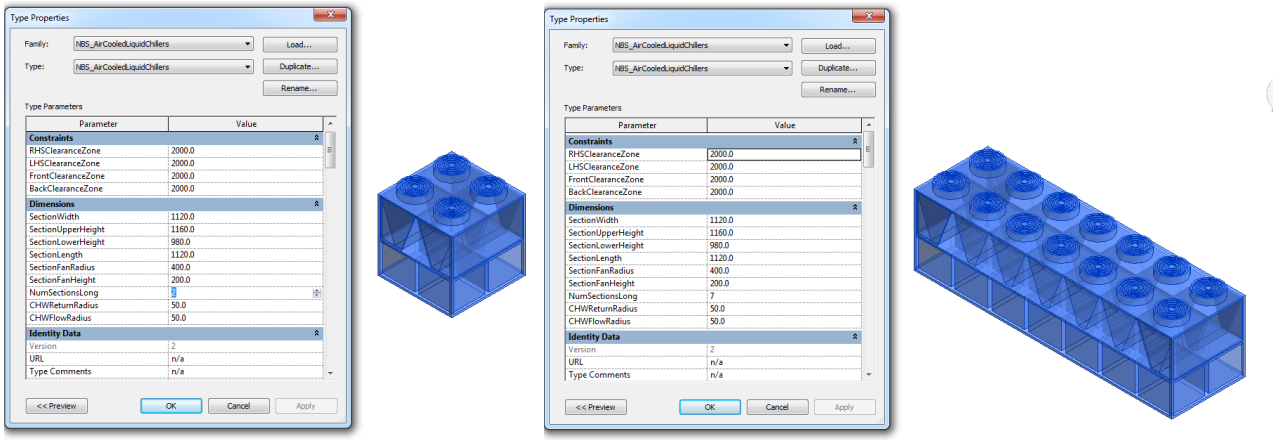


Fig. 10

4 Abbreviations

COBie	Construction Operations Building Information Exchange
IFC	Industry Foundation Classes
Lddr	ladder
NBS	National Building Specification
Perm-fix	Permanently-fixed
Sym	systems
Vert	vertical