

NBS National BIM Library BIM Object Guide

Access Systems

Version 1

14 April 2016

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1.0 Introduction

The BIM objects on the [NBS National BIM Library](#) for Jet Cox 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

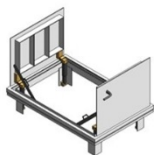
BIM objects represent the following construction products;



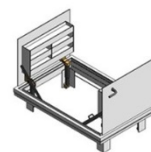
Drainage Doors J-AL H20 Single Leaf - J H20



Drainage Doors J-AL Single Leaf - J



Drainage Doors JD-AL Double Leaf - JD



Drainage Doors JD-AL H20 Double Leaf - JD H20



Ladders BL-A – Fixed vertical ladder



Ladders BL-A-WG – Fixed Vertical ladder with safety cage and guardrail



Ladders BL-COMPA - Companionway (Ships Stair) ladder



Ladders BL-COMPS - Companionway (Ships Stair)



Ladders BL-S - Fixed vertical ladder



Ladders BL-S-WG - Ladder with safety cage and guardrail



Ladders BL-S-WH - Fixed vertical ladder with safety cage



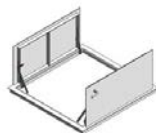
Ladders BL-Z - Retractable ladder



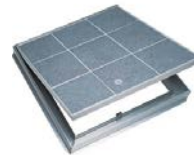
Ladders BL-ZBOX - Retractable Ladder with insulated trapdoor



Non Drainage Doors Type K Single Leaf



Non Drainage Doors Type KD Double Leaf - KD



Non Drainage Doors Type TER Single Leaf - TER



Non Drainage Doors Type TRD Double Leaf - TRD



Roof Hatches - Companionway Access CS-50TB



Roof Hatches - Ladder Access E-50TB - Roof access hatch



Roof Hatches - Ladder Access GS-50TB - Roof access hatch



Roof Hatches - Ladder Access S-50TB - Roof access hatch



Roof Hatches - Plant Access D-50T - Roof access hatch



**Roof Hatches - Plant Access F-50TB -
Roof access hatch**



**Roof Hatches - Service Stair Access L-
50TB - Roof access hatch**



**Roof Hatches - Service Stair Access SSY-
50TB - Roof access hatch**



**Smoke Vents - Double Leaf (NSHEV)
UDF-50REM - Smoke and Heat Exhaust
Ventilator**



**Smoke Vents - Stairwell (NSHEV) ESW-
50REM - Smoke and heat exhaust
ventilator**

Roof Hatches - Plant Access SS-50TB

2.0 Properties

2.1 IFC

Pset_WindowCommon

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

Pset_DoorWindowGlazingType

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

Pset_DoorCommon

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

Pset_DoorWindowGlazingType.

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

Framed rooflights

toolkit.thenbs.com/Definitions/Pr_30_59_72_31

Roof hatches

toolkit.thenbs.com/Definitions/Pr_30_59_36_74

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.

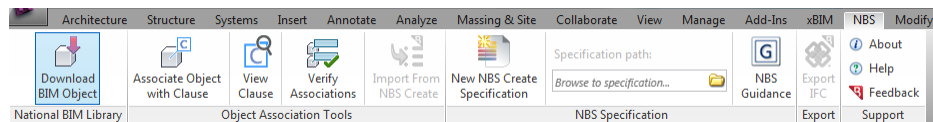


Fig. 1

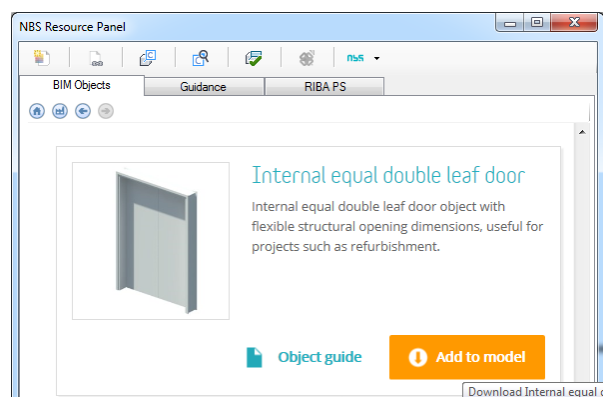


Fig. 2

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).

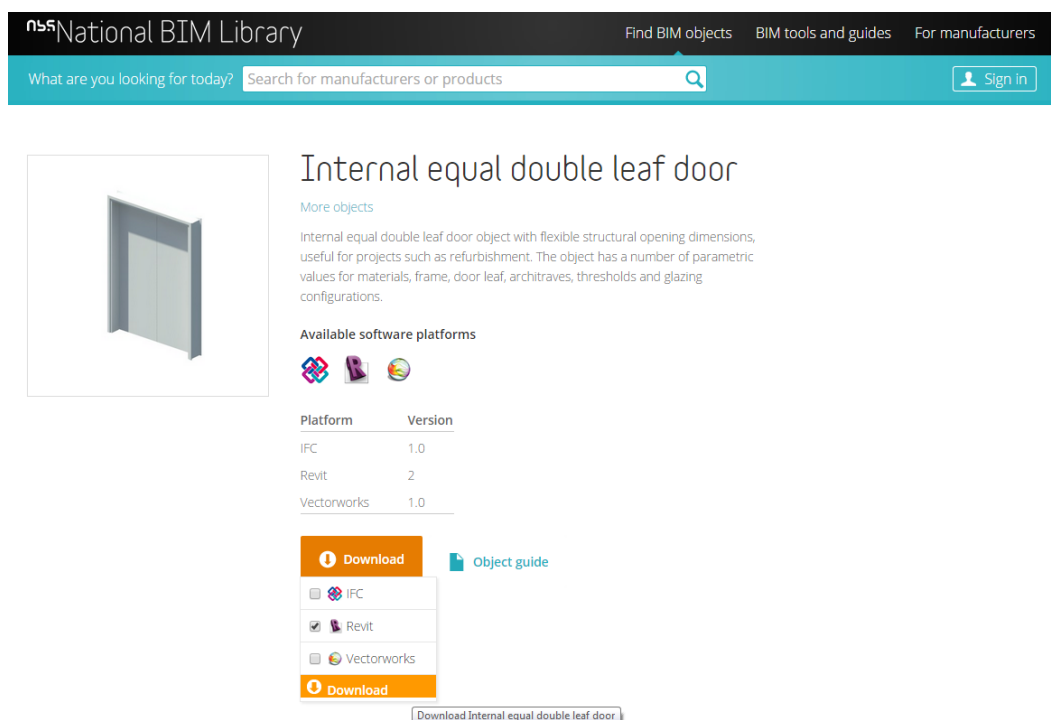


Fig. 3

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.

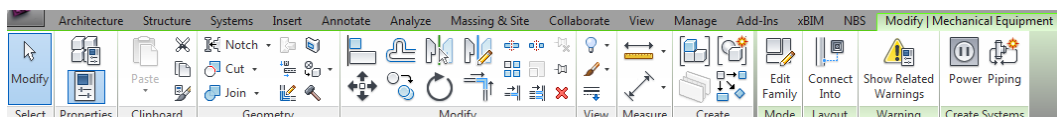


Fig. 4

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).

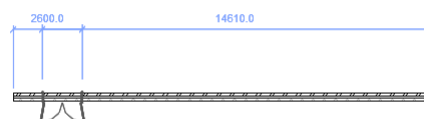


Fig. 5

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

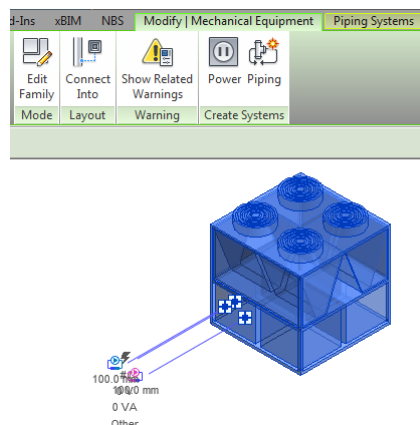


Fig. 6

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.

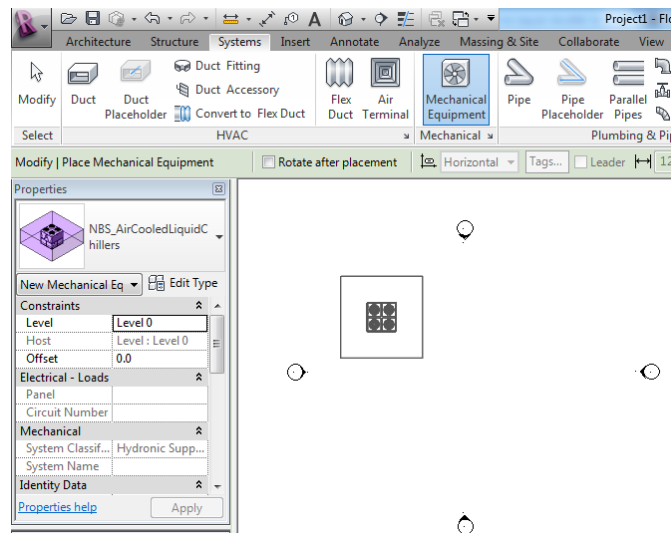


Fig. 7

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).

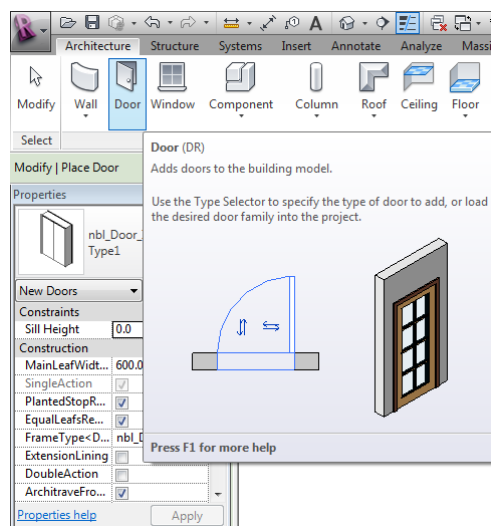


Fig. 8

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 be accessed by clicking on the BIM object, the clicking on the Edit Type button in the Properties panel (Fig. 9).

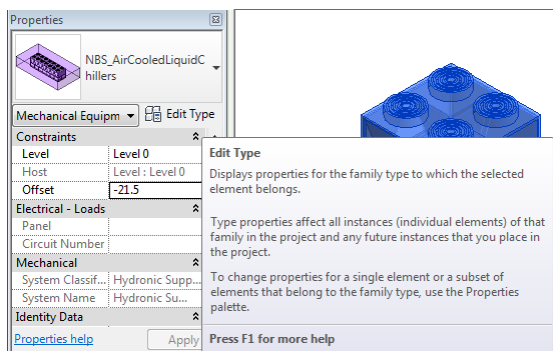


Fig. 9

- 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).

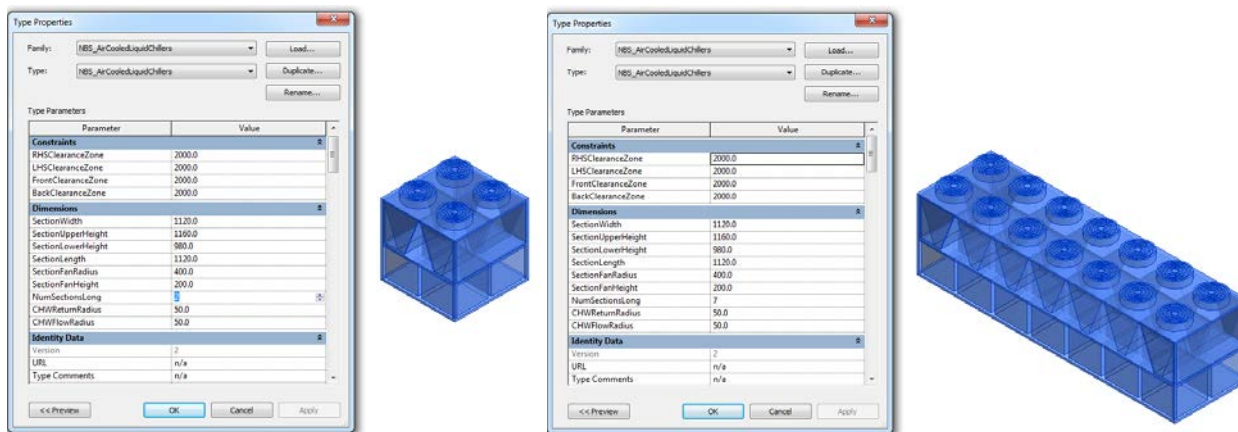


Fig. 10

4 Abbreviations

COBie	Construction Operations Building Information Exchange
FrmdRflghts	Framed Rooflights
IFC	Industry Foundation Classes
NBS	National Building Specification
RfHtchs	Roof Hatches