The National BIM Library

User Guide: Window

Version 1.1

13th July 2012

www.nationalBIMlibrary.com

Table of Contents

1.0 Introduction 3

1.1 Window Naming 3

2.0 Parameters 4

2.1 National BIM Library Parameters 4

2.2 IFC Parameters 4

2.3 COBie Parameters 5

3.0 Abbreviations 7

4.0 Appendix 8

4.1 Autodesk Revit Architecture 8

4.1.1 Getting started 8

4.1.2 Flexible Window 8

4.1.3 Window Operation Styles 9

4.1.4 Creating the Project Specific Window Type 10

4.1.5 Yes/No parameters 10

4.1.6 Dimensions 11

4.1.7 Revit Specific IFC Parameters 13

4.1.8 Material Parameters 13

4.1.9 Detail Level 14

4.2 Bentley Architecture 15

4.3 Nemetschek Vectorworks 16

4.4 Graphisoft ArchiCAD 19

1.0 Introduction

This guide covers the parameters of the external window.

All window objects are available in 3D PDF, IFC and a number of BIM software formats. A 3D PDF allows interaction with the object and its parameters through Adobe Acrobat reader. IFC files can be viewed with free model viewing software such as Solibri Model Viewer, Tekla BIMsight, Nemetschek IFC Viewer and many more. BIM software formats can be viewed and used with the relevant software package.

1.1 Window Naming

National BIM Library windows are named to identify their type and configuration. Fields are segregated using an under bar (_) and information within each field is segregated using hyphens (-). Fields are abbreviated to reduce characters and capitals used at the start of each abbreviation to aid readability. Details of the abbreviations used can be found in section 3.0. A full expanded description, of the name is included under the parameter 'Description'.

nbl_Window_Sgl-Pnl

A window type name translates to;

Field1 *Author*_**Field2** *Category*_**Field3** *Differentiator*

Field1:

Field 1 identifies the author of the family which in this case is the National BIM Library (nbl).

Field2:

This field identifies the building element.

Field3:

This field identifies the type of window, its application and configuration.

In the example shown 'Sgl' refers to single unit/panel. This differentiator sorts building elements into their various types at base level, before further detail is defined.

2.0 Parameters

Parameters included in all National BIM Library windows are as follows.

2.1 National BIM Library Parameters

Parameters that control the geometry of the window are defined in the relevant Appendix for each software package.

NBL controlled identity parameters

Description	The full description of a window object.
Help	URL of a website where additional help notes are available.
IssueDate	The issue date of this object.
NBSDescription	NBS Uniclass title.
NBSReference	NBS Uniclass section/clause number.
Version	The version number of the object.

The following parameters are included within NBL window objects and can be used for scheduling purposes.

BurglarResistant
ComponentNumber
FrameMaterial
PoweredOperation
SafetyGlazing
WindowNumber

2.2 IFC Parameters

The window object is inserted as `a filler in an opening` (IfcOpeningElement) as defined by IFC. The actual parameter of the window as an occurrence is defined by IfcWindow. The parameters which define the shape of the IfcWindow are given in the IfcWindowStyle.

The properties of IfcWindowStyle include the OverallWidth and OverallHeight (StructuralOpeningWidth and StructuralOpeningHeight), the operation type, the particular attributes of the frame in the IfcWindowLiningProperties and the particular attributes of the window leaf in the IfcWindowPanelProperties.

The following IFC parameters are included within NBL window objects.

Note: IFC definitions have been obtained from BuildingSmart IFC2x3 website (http://buildingsmart-tech.org).

AcousticRating	Acoustic rating for this object. It is giving according to the national building code. It indicates the sound transmission resistance of this object by an index ration (instead of providing full sound absorption values).
FireRating	Fire rating for this object. It is given according to the national fire safety classification.
IsExternal	Indication whether the element is designed for use in the exterior (TRUE) or not (FALSE). If (TRUE) it is an external element and faces the outside of the building.
Reference	Reference ID for this specified type in this project (e.g. type 'A-1')
SecurityRating	Index based rating system indicating security level. It is giving according to the national building code.
SmokeControl (SmokeStop)	Indication whether the object is designed to provide a smoke stop (TRUE) or not (FALSE).
ThermalTransmittance	Thermal transmittance coefficient (U-Value) of a material. Here the total thermal transmittance coefficient through the wall (including all materials).

2.3 COBie Parameters

The following COBie parameters have been included within each window object and can be used to prepare COBie data schedules.

AssetIdentifier	The asset identifier assigned to an occurrence of a product (prior to handover).
BarCode	The identity of the bar code (or rfid) given to an occurrence of the product.
Colour	Characteristic or primary colour of product.
Constituents	Optional constituent features, parts or finishes.
Features	Other important characteristics or features relevant to product specification.
Finish	Characteristic or primary finish of product.
Grade	Standard grading which the product corresponds.
InstallationDate	The date that the manufactured item was installed.
Material	Characteristic or primary material of product.
NominalHeight	Typically the vertical or secondary characteristic dimension.
NominalLength	Typically the larger or primary horizontal dimension.
NominalWidth	Typically the characteristic or secondary horizontal or characteristic dimension.
ProductionYear	The year of production of the manufactured item.
ReplacementCost	An indicative cost for unit replacement.
SerialNumber	The serial number assigned to an occurrence of a product by the manufacturer.
ServiceLifeDuration	The service life that an artefact is expected to have under current operating conditions.
Shape	Characteristic shape of product.
Size	Characteristic size of product.
TagNumber	The tag number assigned to an occurrence of a product (by the

	occupier).
WarrantyDescription	Description of the warranty.
WarrantyDurationLabour	Duration of labour warranty (years).
WarrantyDurationParts	Duration of parts warranty (years).
WarrantyGuarantorLabour	Organization acting as guarantor of labour warranty.
WarrantyGuarantorParts	Organization acting as guarantor of parts warranty.
WarrantyStartDate	The date on which the warranty commences.

3.0 Abbreviations

The following list outlines all abbreviations used in the naming of National BIM Library window objects.

Sgl=single panel/unit window

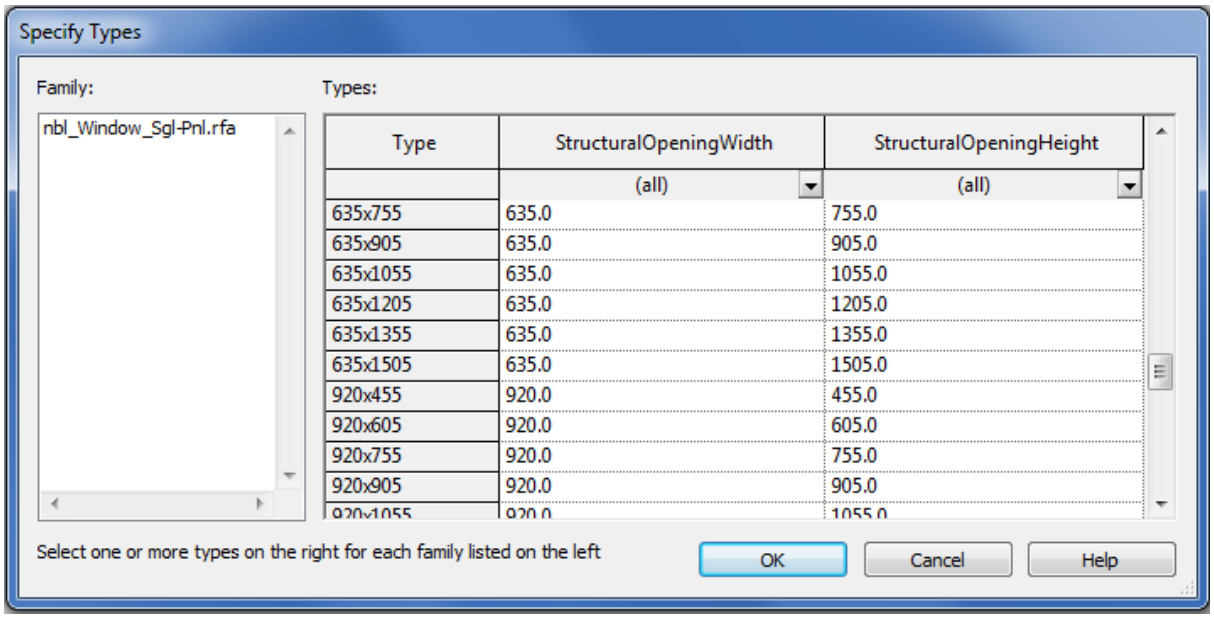
Pnl= window panel

4.0 Appendix

4.1 Autodesk Revit Architecture

4.1.1 Getting started

There are 2 window families. Nbl_Window_Sgl-Pnl window family contains a selection of standard structural opening dimensions which are attached to the family in the .txt file. These dimensions are displayed as a catalogue of window types when a family is loaded into a project. It is essential that the .txt and .rvt file are saved in the same folder for the Catalogue to work. The structural opening dimensions are based upon common metric sizes.



Type	StructuralOpeningWidth	StructuralOpeningHeight
	(all)	(all)
635x755	635.0	755.0
635x905	635.0	905.0
635x1055	635.0	1055.0
635x1205	635.0	1205.0
635x1355	635.0	1355.0
635x1505	635.0	1505.0
920x455	920.0	455.0
920x605	920.0	605.0
920x755	920.0	755.0
920x905	920.0	905.0
920x1055	920.0	1055.0

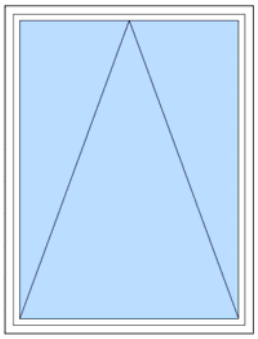
A master shared parameters file (nbl_MasterSharedParameters.txt) is included with the window object, this can be linked with a project to attach COBie, NBL and IFC parameters to non-nbl windows.

4.1.2 Flexible Window

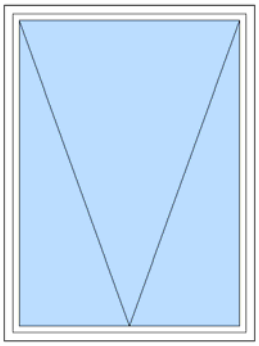
There is one flexible window family available. This object offers more flexibility for varying window sizes useful for projects such as refurbishment. StructuralOpeningWidth and StructuralOpeningHeight parameters are set as instances so that each window can be unique. All standard NBL parameters are applicable.

4.1.3 Window Operation Styles

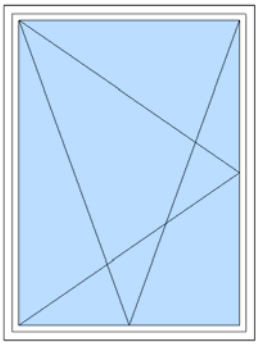
Window operation styles according to BS 8541-2:2001 are as follows:



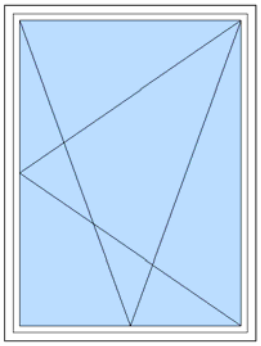
TopHung



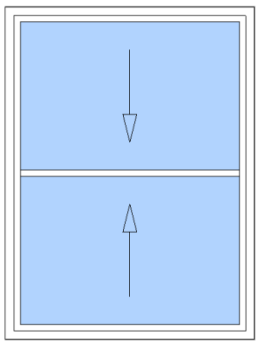
BottomHung



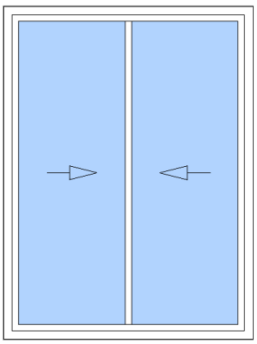
TiltAndTurnRightHand



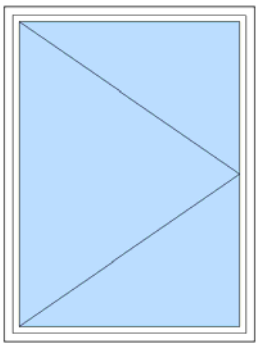
TiltAndTurnLeftHand



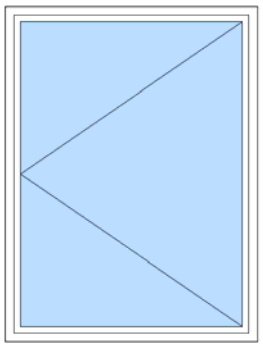
SlidingVertical



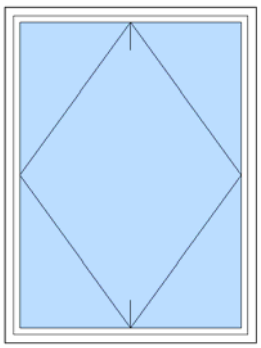
SlidingHorizontal



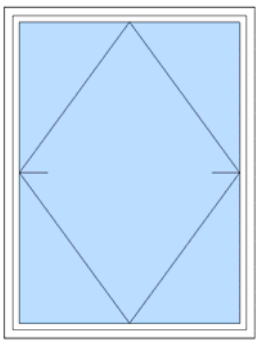
SideHungRightHand



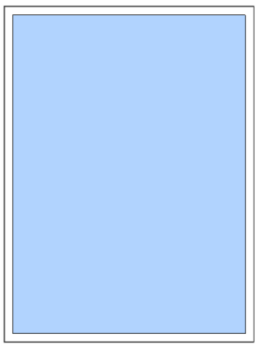
SideHungLeftHand



PivotVertical



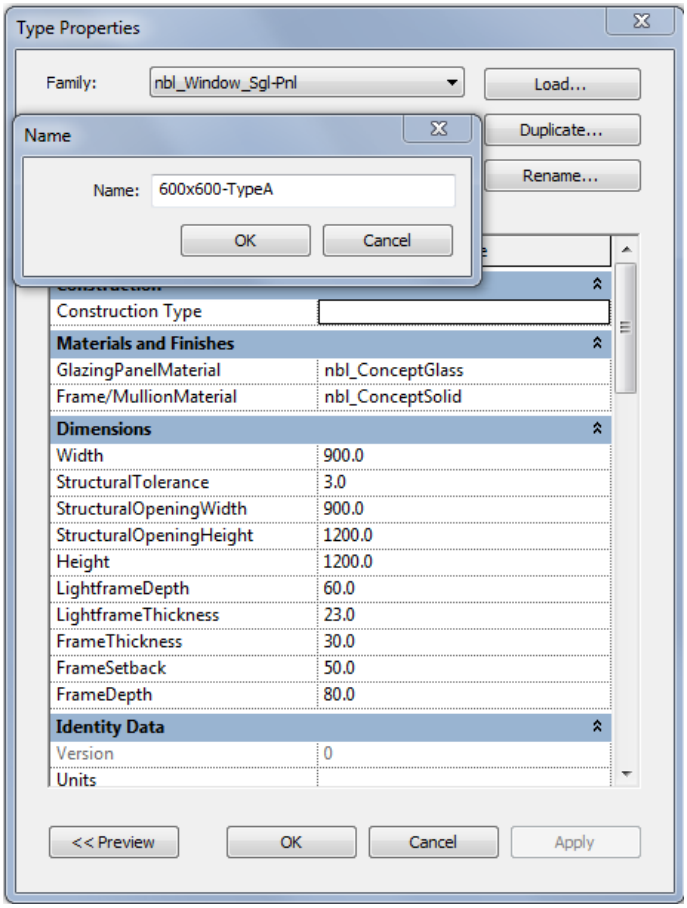
PivotHorizontal



FixedLight

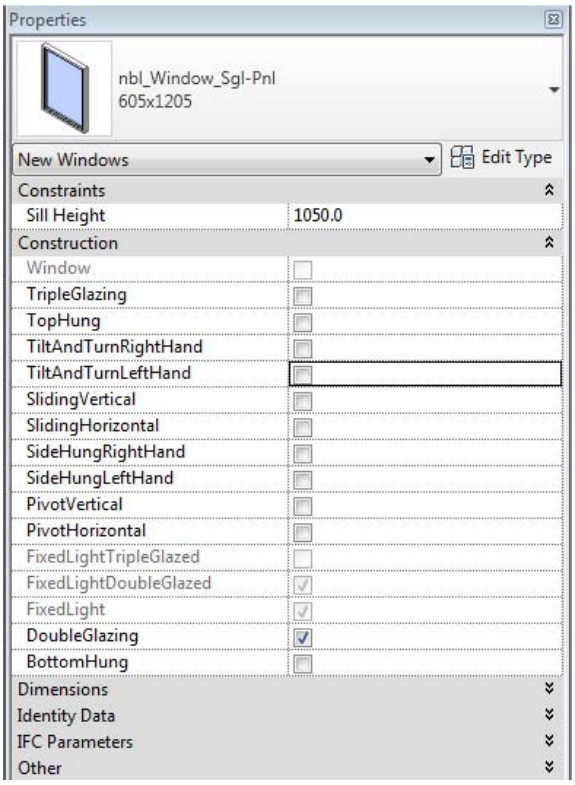
4.1.4 Creating the Project Specific Window Type

When creating a project specific window type, a duplicate is made of an existing window and an additional description added to the name to act as an identifier. To follow NBS specification standard the suggested suffix identifier is Type-A, B, C.



4.1.5 Yes/No parameters

Yes/No parameters allow items to be switched on and off. Nbl_Window panel opening style (illustrated in section 4.1.3) is controlled with the following parameters: **BottomHung, TopHung, TiltAndTurnRightHand, TiltAndTurnLeftHand, SlidingVertical, SlidingHorizontal, SideHungLeftHand, SideHungRightHand, PivotVertical** and **PivotHorizontal**.



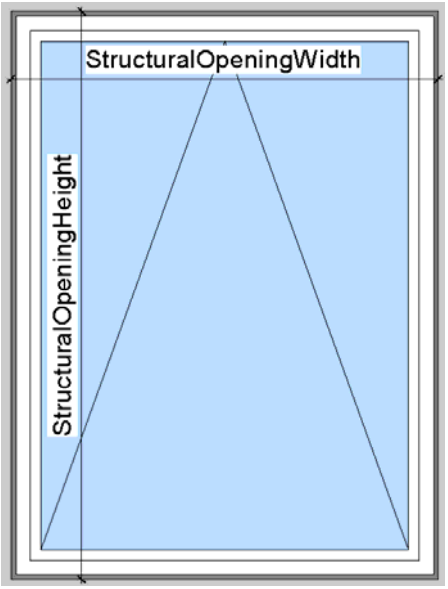
Opening style graphics are visible only in elevation view. Unselecting all of the panel operation styles listed above will highlight the **FixedLight** (window which cannot be opened).

4.1.6 Dimensions

Note: Certain parameter values are set by formulas and cannot be altered.

StructuralOpeningWidth = Opening of the wall including the frame (Framethickness and LightframeThickness) with tolerances (StructuralTolerance) and the glazing panel width within it.

StructuralOpeningHeight = Opening of the wall including the frame (FrameThickness and LightframeThickness) with tolerances (StructuralTolerance) and the glazing panel height within it.

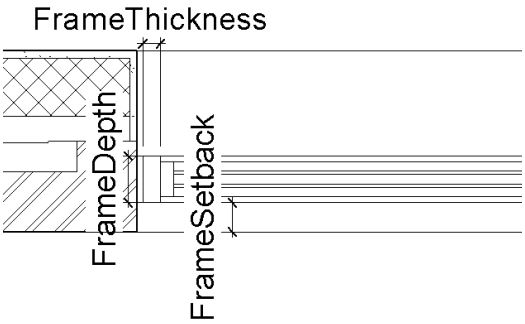


StructuralTolerance = Tolerance between the structural opening of the window and the window frame.

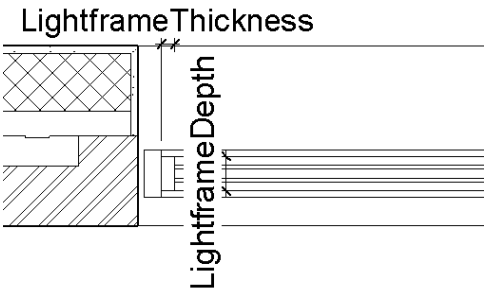
FrameThickness = Thickness of the window frame (left/right wall) which can be adjusted manually.

FrameDepth = Width of the window frame (front/ back wall) which can be altered manually.

FrameSetback = Setback of the window frame from the front of the wall to the front of the frame.



LightframeDepth = Width of the light frame surrounding the glazing panel (front/back wall).



LightframeThickness = Thickness of the light frame surrounding the glazing panel.

DoubleGlazing= Double glazed insulated unit is selected and displayed.

DoubleGlazing	☑

TripleGlazing=Triple glazed insulated unit is selected and displayed.

TripleGlazing	☑

4.1.7 Revit Specific IFC Parameters

IfcExportAs Specifies the desired IFC class (IfcWindow) for IFC export.

IfcExportType Specifies the desired IFC type (IfcWindowStyle) for IFC export.

4.1.8 Material Parameters

The following parameters are used to control the visual appearance and rendering outcome of a window. For each parameter a separate material can be defined from the material library.

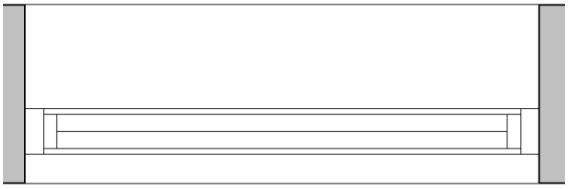
Frame/MullionMaterial = linked to window frame, light frame, mullions and transoms

GlazingPanelMaterial = linked to window glazing unit

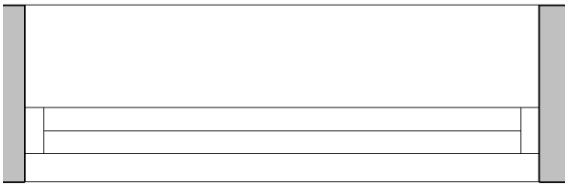
The window materials are preset to nbl_ConceptSolid and nbl_ConceptGlass.

4.1.9 Detail Level

Coarse = In the coarse level of detail the thickness of the glazing panel is visible as a solid line in plan and section view. Structural tolerance is not visible.

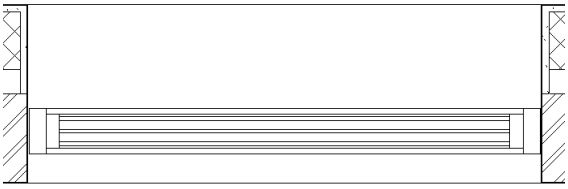


FixedWindow

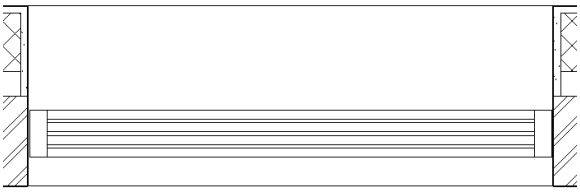


FixedLight

Medium = In medium level of detail view all drawn details are visible (thickness of the glazing panel and structural tolerance) in plan and section view.



FixedWindow



FixedLight

4.2 Bentley Architecture

The National BIM Library content for Bentley Architecture has been created by Bentley Systems (UK) Ltd from the source IFC data.

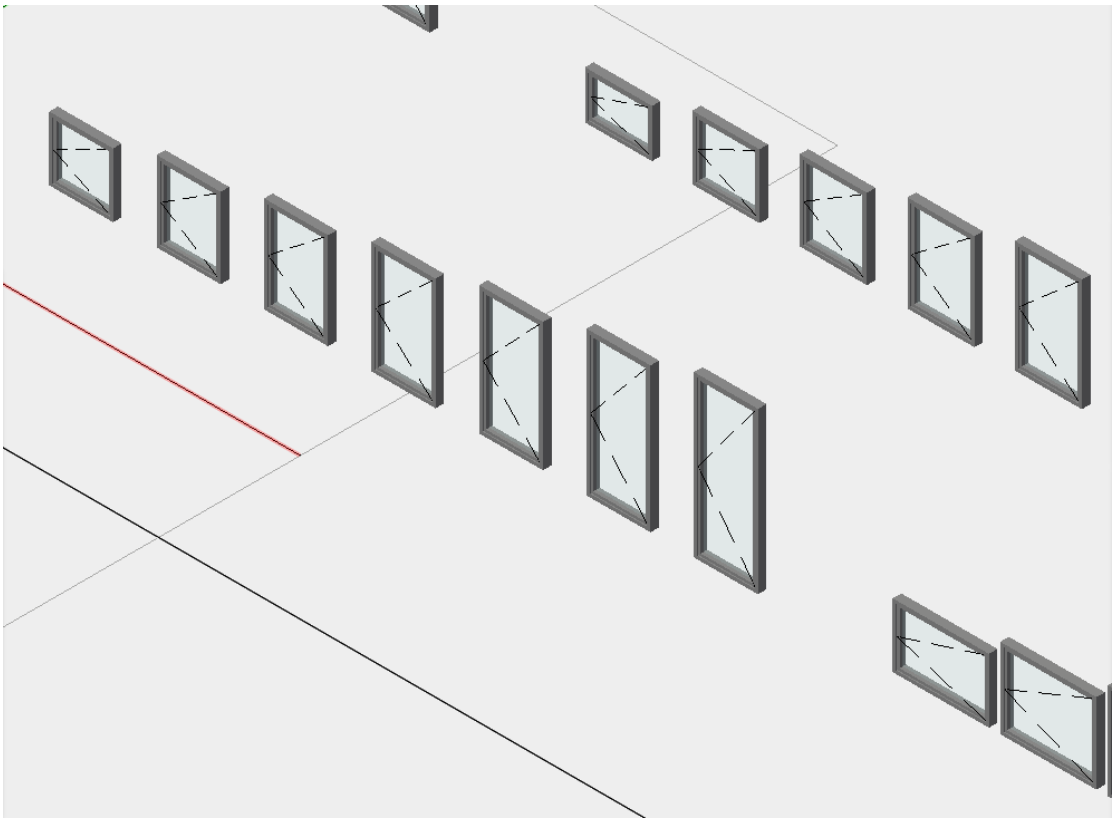
Please visit www.nationalBIMlibrary.com to see the latest content available in native Bentley Architecture format.

4.3 Nemetschek Vectorworks

The National BIM Library content for Vectorworks has been created by Vectorworks UK Ltd from the source IFC data.

Please visit www.nationalBIMlibrary.com to see the latest content available in native Vectorworks format.

This Window library has been created using size and material data supplied by NBS for their National BIM library initiative. Nemetschek Vectorworks are active partners in the National BIM Library initiative currently being undertaken by NBS RIBA Enterprises.



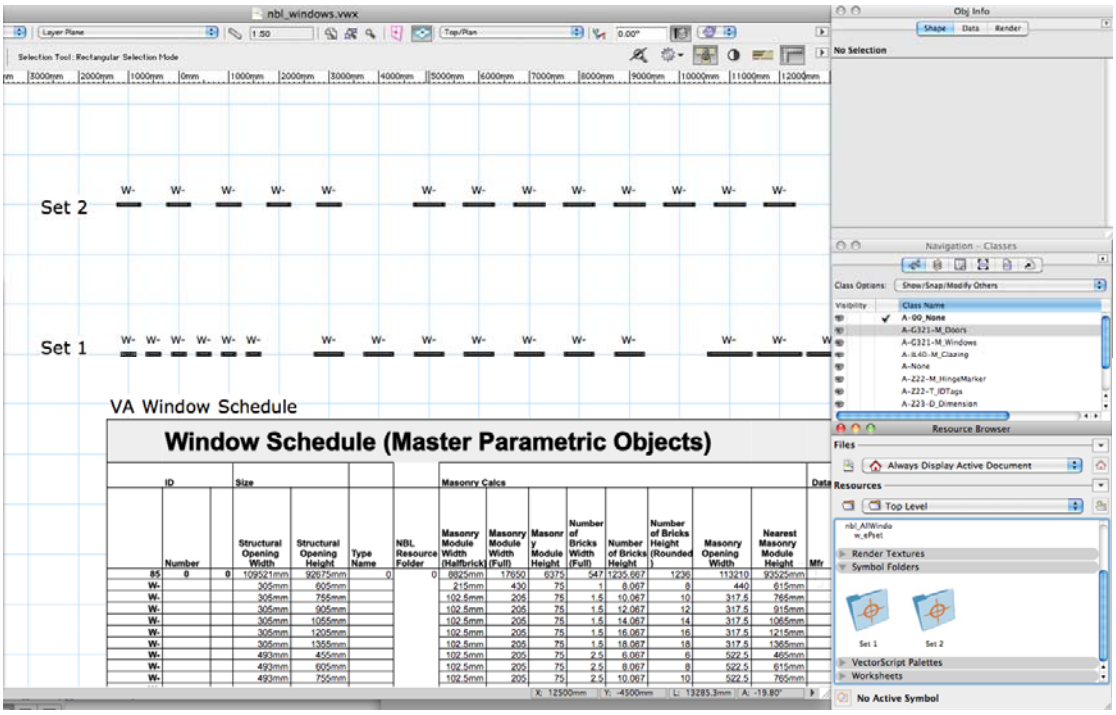
Instructions

The windows have been created using the window tool (Building Shell toolset > Window) and saved as symbols. They should be accessed from the Resources Browser.

This file uses class names based on AEC UK standard which in turn is based on BS1192 and Uniclass. As Uniclass is due to be revised in 2012, to take into account

developments in BIM, these may change in the future (this is unlikely to happen prior to 2013).

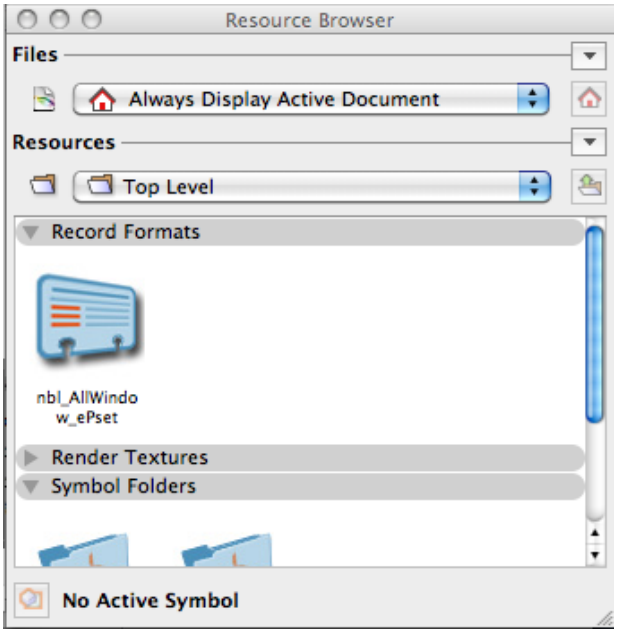
To gain access to these windows from your project files, you are advised to add this file to your symbols content folder (User Folder > Libraries > Objects-Building Architecture & Interior) and then add them it as a Resource Favorite through the Resource Browser.



Embedded Data and Schedules

As these windows have been created using the in-built Vectorworks parametric window tool, they automatically carry a certain amount of embedded data. As a result, schedules can be created easily and efficiently and we have included some sample schedules in this file.

To use these schedules in your own file, either copy and paste the samples that you see here in the drawing window into your desired file, or alternatively, use the Resource Browser to import the schedule worksheets. In both cases, the schedule worksheet will be automatically copied into your project file Resource Browser > Worksheet folder and will automatically regenerate to display any windows in your project file.



Note that these National BIM Library windows also include a second, auxiliary set of data. This is attached to the windows via a 'record' called NBS_AllWindow_ePset. The record can be viewed in the Resource Browser > Records tab. There is no need to copy this record into your project files - it will be brought through automatically when the window symbol is inserted. This second data set contains information considered useful by NBS and also contains COBie information fields.

Record Management

The NBS_AllWindow_ePset record is attached at the Symbol Type level (ie to the symbol in the Resource Browser and also to the original window object that the symbol was created from. This allows the flexibility for inserting the symbol as a symbol or to convert in back to the original window object (ie insert as plug-in object).

Feedback

The National BIM Library is an ongoing initiative and we welcome any feedback and suggestions. Please feel free to email me at designteam@unlimited.com

Kind regards,

Martyn Horne

Product Development Manager - Vectorworks UK

4.4 Graphisoft ArchiCAD

The National BIM Library content for ArchiCAD has been created by Graphisoft Technical Services from the source IFC data.

Please visit www.nationalBIMlibrary.com to see the latest content available in native ArchiCAD format.

The National BIM Library

www.nationalBIMLibrary.com

Tel: 0845 456 9594

NBS,
The Old Post Office,
St Nicholas Street
Newcastle upon Tyne
NE1 1RH

© NBS a part of RIBA Enterprises.