مؤسسة
المسار الرياضي
Sports Boulevard Foundation

Sports Boulevard
BIM Submission Guidelines

Purpose of this document

This guide is developed for applicants intending to use the provided BIM template for their design submissions to the Sports Boulevard Project. This comprehensive manual lays out step-by-step procedures, best practices, and essential tips for navigating the provided BIM template in Revit. Whether you are a seasoned architect or a newcomer in design, this guide is crafted to simplify your submission process, ensure compliance with our design codes, and expedite the review and approval of your design.

While we offer the Revit template as an option to streamline your submission process and ensure alignment with our design codes, we remind applicants that all submissions must be in a BIM model format, whether as IFC or other supported BIM systems.

What do you need for successful digital design submission?

For an effective digital design submission, it's pivotal to furnish a BIM model with specific, properly filled parameters. For those choosing to utilize the Revit template, these parameters are systematically organized under the data section. This guide provides a comprehensive walkthrough to assist in filling these parameters accurately. There are five parameters to be addressed for elements such as Windows, Doors, External walls, and External Curtain panels. Each section of this document offers a table-format description of these parameters.

Files Provided for applicant

① Revit 2023 template with kit of parts

AUTODESK REVIT

This template presents examples of system families with consistent naming, along with loadable families that can be adjusted to fit your specific geometry and requirements. Applicants have the flexibility to either duplicate existing elements or devise new ones based on their design intent.

② Shared parameters file

A TXT file titled Shared Parameters encompasses the parameters applicable both to this project and its corresponding families. Incorporating this file is essential for ensuring coherence across all SBF model files. More details on using shared parameters are available in the appendix.

Revit Usage

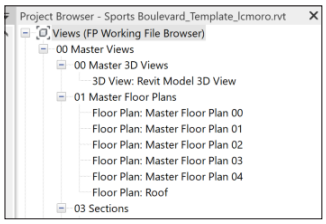
It's important to note that the choice of using Revit is up to each applicant. Our primary focus is to receive a compliant BIM model. The use of the provided template is intended to assist in achieving that goal in line with the guidelines of the Sports Boulevard Project. However, providing the Revit template does not grant you approval.

Revit Template File Content

Revit Template Content

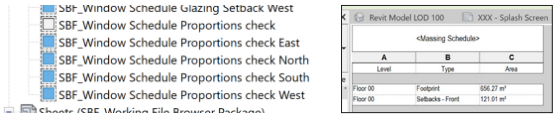
The template file is in shared coordinates which should be kept consistent across all SBF models. Additionally, it encompasses examples of geometry, property lines, levels, and various other elements that applicants can incorporate according to their design intent. Applicants are encouraged to fashion their own elements, guided by the provided examples and naming conventions.

① Set of Plans, Sections, Elevations and 3D Views



Set of plans with filters where applicant can check window proportion compliance, glazing setbacks, etc.

② Set of "Design Review" Schedules

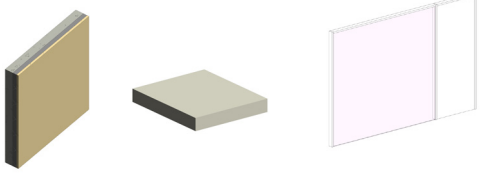


The Revit template file contains a set of predefined schedules and parameters to self-assess some elements for design code compliance.

③ Parametric Revit Families

System Families:

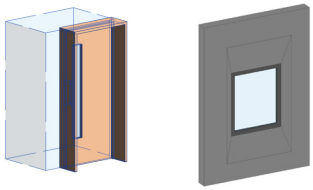
Walls Floors Curtain walls



With correct naming, build-ups and Materials assigned. These elements can be duplicated and modified according to the project needs

Loadable Families:

Doors Windows



And other elements, including recessed windows. These families can be used in the project or customized for your project needs

④ Set of Sheets for check

Revit model contains set of sheets for self assessment. The applicant can check your their and see where it is not compliant to the design code

- SBF000-Data check compliancy
- SBF001-Area Plans Check
- SBF002-Materiality check compliancy
- SBF003 Glazing setbacks compliancy check
- SBF004 Solid to glazed compliancy check
- SBF005 Windows proportions check
- SBF006-Ballustrade key plan
- SBF007-Hardscape-softscape check
- SBF008-Lot coverage check

⑤ Materials library

Revit template is populated with various materials with correct naming. Also, SBF project requires certain colour palette which is already created in the template with true RGB values

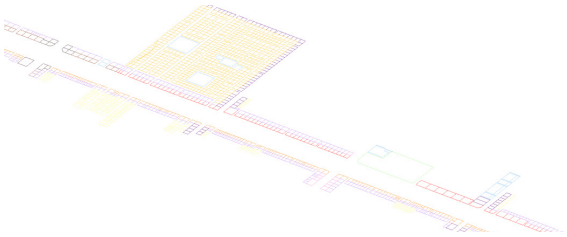
- ST_Limestone RAL 080 90 10
- ST_Limestone RAL 090 80 30
- ST_Limestone RAL 095 90 10
- ST_Limestone RAL 095 90 20
- ST_Limestone RAL 100 10 90

Getting Started

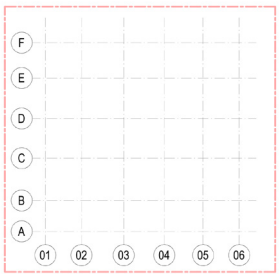
You will need Revit 2023. Open the file provided.

① Allocation of the project

Revit template file contains DWG file with plot boundaries of the project. Locate your project accordingly.

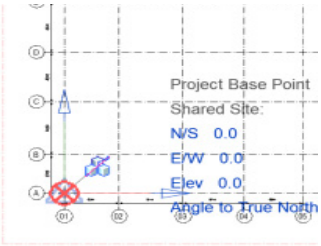


② Plot boundaries



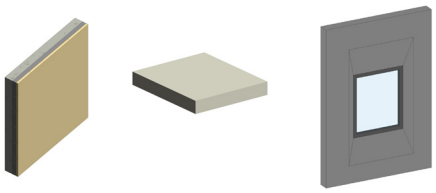
Each File should contain a plot boundary modeled

③ Geolocation



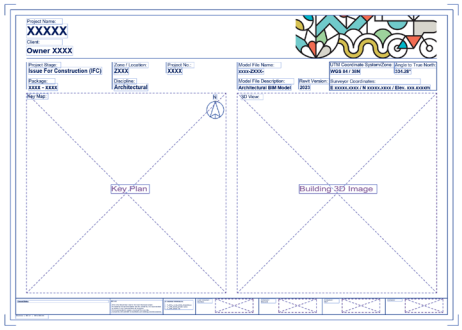
Project Base point must be clearly defined and visible on one of the administration views and positioned on the lower left grid intersection

④ Use families which are already in the project



⑤ Project Information

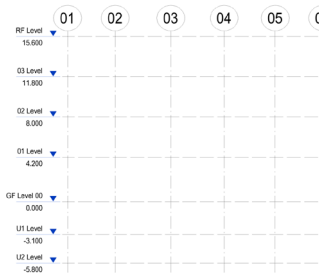
Project information in the starting view shall be filled in completely



Modelling Levels

① Levels

Levels should be named consistently and indicate FFL of the building



Level GF - Ground Floor
Level 01 – First Floor
Level U1 – Underground Floor 01
Level U2 – Underground Floor 02
Level RF – Roof Level

Filling in Project information

For successful digital submission you need to fill in parameters below. You can find them under project information,

Fill in your company details and organization name. You can find these parameters in project information groped under Identity data

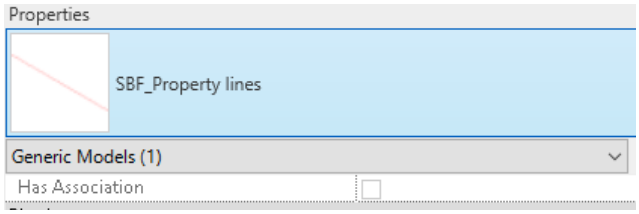
Identity Data	
Organization Name	AAA-Architects
Organization Descripti	Architecture specialists
Building Name	
Author	John Smith
Workset	Project Info

Fill in your project number, Transect zone, Building use, Consolidation Status, Plans for development, address here. These parameters can be found in project information grouped under Data

Data	
Transect Zone	5.3
Building Use	Mixed-Use
SBF_Plans for develop	Development
SBF_Consoludation	yes

Modelling plot boundaries

Each File should contain a plot boundary modeled as property line. Additionally to this requirement there should be property line modeled as Generic models Line-based families which can be found in Kit of part or created as a component

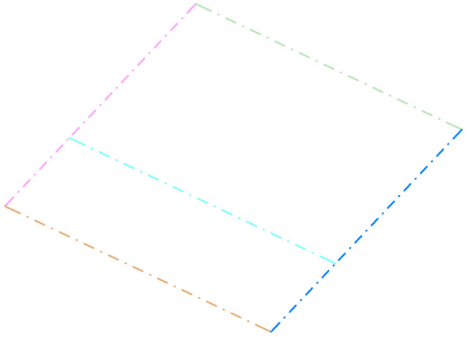


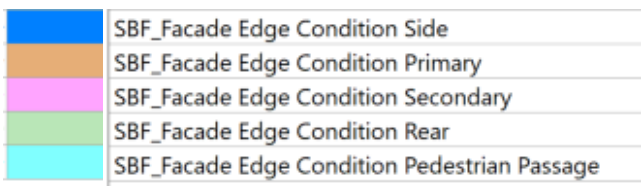
Each line contains a parameter SBF_Edge condition which should be filled respectively. You can find this parameter grouped under Data

Data	
SBF_Edge Condition	

Parameter name	Values	How to fill in these values
SBF_Edge Condition	Primary, Secondary, Side, Rear	Fill in for all property lines in the project respectively to their Edge condition

The result of filled Parameters is visualized below

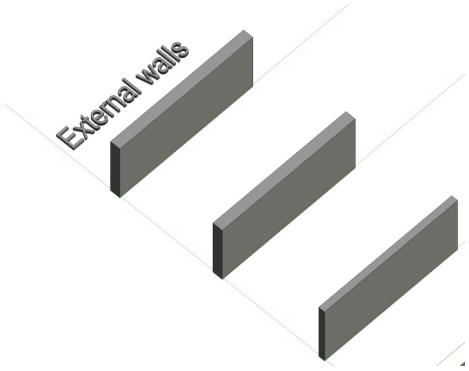




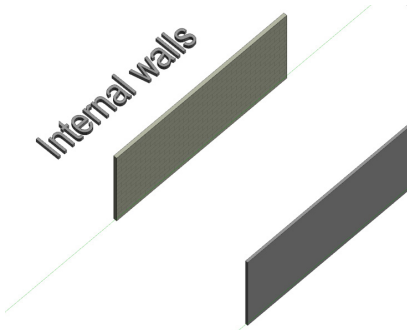
Modelling Walls

① Use or modify walls from the template

Revit template already contains predefined wall types: External and internal ones



Applicants can use per-defined walls, modify them and create their own ones depending on their design intent



General requirements

① Wall Materials

Facade walls are required to feature a facade finishing material with a name that includes an RAL colour reference. For materials governed by the SBF Design code, the Revit template includes a material library comprising all RAL colors approved for use according to the code's regulations.

EXTERIOR SIDE	
Material	Thickness
Limestone RAL 1000	50.0
Insulation	100.0
Layers Above Wrap	**0.0**
Concrete Cast in Place Grey	200.0
Layers Below Wrap	**0.0**

② Wall Naming

Wall name start with prefix
A_ - for architecture
L_ - for Landscape
S_ - for structure

and follows with suffix
Ext_ - for Exterior
Int_ - for Interior

Filling in wall parameters

External walls are integral to several calculations, such as the solid-to-glazed ratio and material compliance assessments. As a result, completing the wall parameters is imperative to ensure adherence to the code requirements. These parameters are conveniently located on the Property Palette, categorized under Data. Properly populating these parameters is crucial for a successful digital submission.

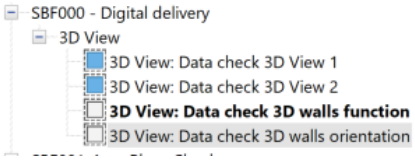
Data	
SBF_Edge Condition	
SBF_Orientation	
SBF_Area_Solid/Glazed_Ratio	
SBF_Glazed Area	
SBF_Wall Function	

Data	
SBF_Edge Condition	Primary
SBF_Orientation	South
SBF_Area_Solid/Glazed_Ratio	58.075 m²
SBF_Glazed Area	65.209 m²
SBF_Wall Function	Facade

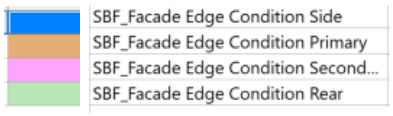
SBF_Edge Condition - Filed in with edge condition. This parameter is used for Solid to Glazed ratio calculations and Materiality checks
SBF_Orientation - filled with Orientation
SBF_Area_Solid/Glazed_Ratio - filled with solid area for solid walls and glazed area for glazed elements. This parameter is used to calculate proportions ratio
SBF_Glazed Area - filled with glazed area
SBF_Wall Function - Filled in with Function. This parameter is used to exclude parapets and underground walls from solid to glazed ratio calculations

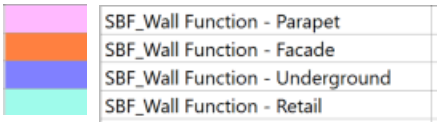
Parameter name	Values	How to fill in these values
SBF_Edge Condition	Primary, Secondary, Side, Rear	Fill in for all walls in the project respectively to their Edge condition
SBF_Orientation	North, West, South, East	Fill in for all walls in the project respectively to their orientation
SBF_Wall Function	Facade, Parapet, Underground, Retail	“Facade” - fill in for facade walls which should be included to Solid to glazed ratio Calculations only. “Parapet” - fill in for parapets only(to be excluded from solid to glazed calculations). “Underground” - fill in for Underground walls to be excluded from solid to glazed calculations. “Retail” - fill in for Retail(ground floor) walls to be excluded from solid to glazed calculations. “Passage” - fill in for pedestrian passage
SBF_Area_Solid/ Glazed_ratio	Area values	Fill in wall area for solid walls.

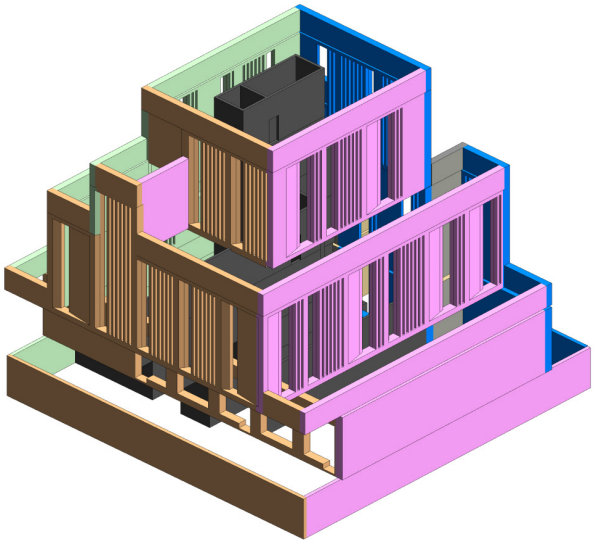
Once you have filled in these parameters, you can review your data using these views.

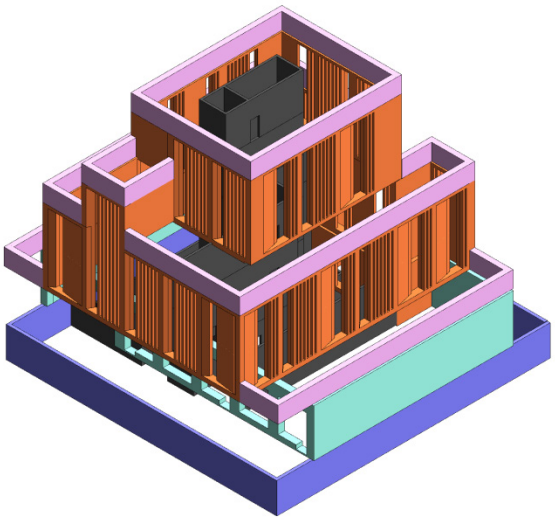


The result of filled Parameters is visualized below









Check-list for Walls:

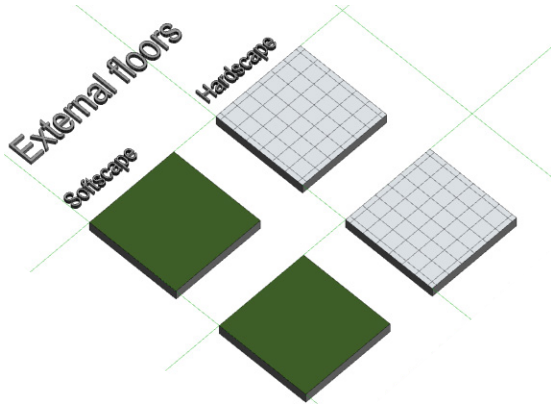
1.Finishing Material for external walls contains RAL colour number in the name

2.Walls Parameters are filled in and Data is correct

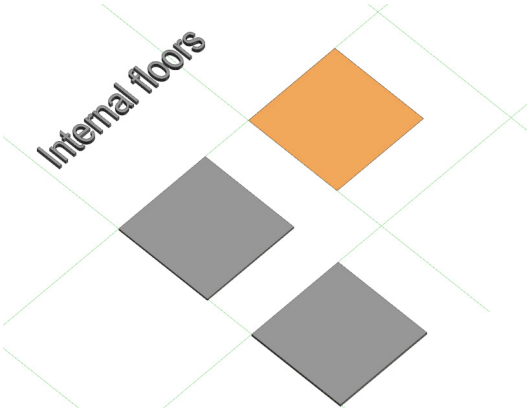
Modelling Floors Workflow

① Use or modify floors from the template

Revit template already contains predefined floor types: External and internal ones



Applicants have the option to utilize predefined floors, make modifications to them, and even generate new ones based on their design intent.



Filling in floor parameters

Floors are included in Hardscape to Softscape calculation.

SBF_Landscape funcftion - Type parameter, fill in with its function. You can find it in type properties

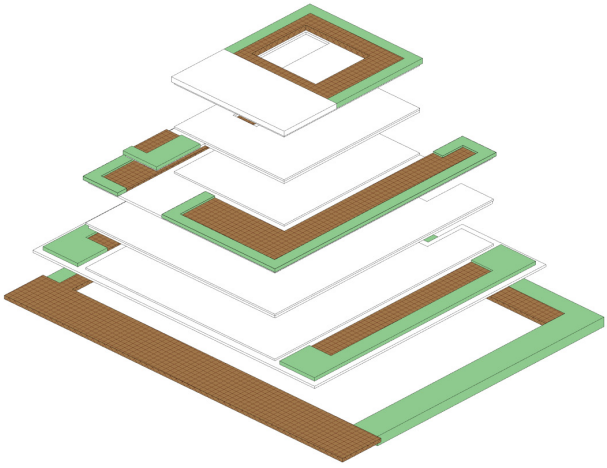
Data
SBF_Landscape_Function

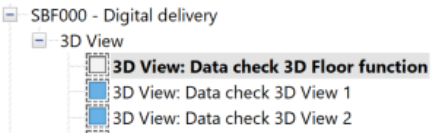
→

Data	
SBF_Landscape_Function	Softscape

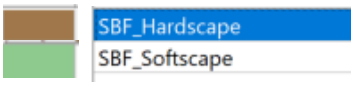
Parameter name	Values	How to fill in these values
SBF_Landscape Function	Hardscape, Softscape	“Hardscape” - fill in for external Hardscape floors “Softscape” - fill in for external floors which belongs to Softscape

Once these parameters are filled in, you can review data using these views.





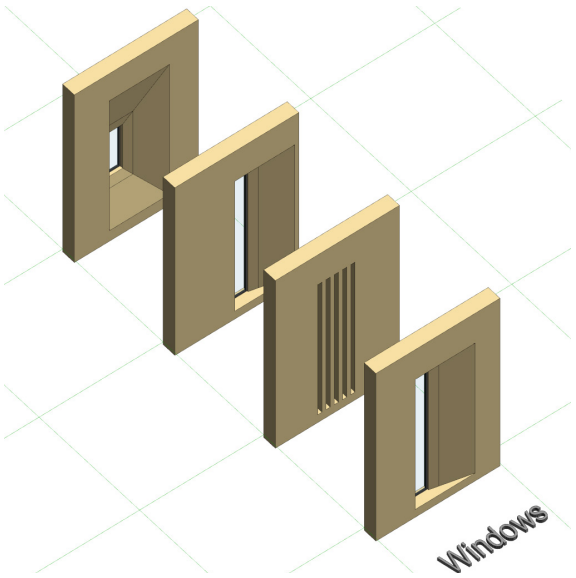
The result of filled Parameters is visualized on the image on the left



Check-list for Floors:

1. Floor parameter SBF_Landscape function is filled in

Modelling Windows Workflow



The Revit template incorporates various predesigned window families that can be readily used. Applicants have the flexibility to either modify these existing families or generate their own, following these instructions.

Filling in window parameters

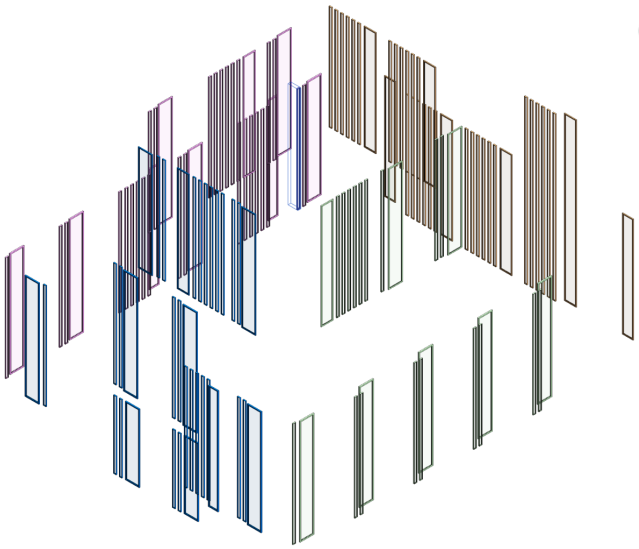
Window proportions, glazing setbacks, and the solid-to-glazed ratio are factors subject to compliance regulations. Completing window parameters is crucial for code compliance checks. You can locate these parameters on the Property Palette, categorized under Data. Ensuring the proper completion of these parameters is essential for a successful digital submission.

Data	
SBF_Edge Condition	
SBF_Orientation	
SBF_Area_Solid/Glazed_Ratio	

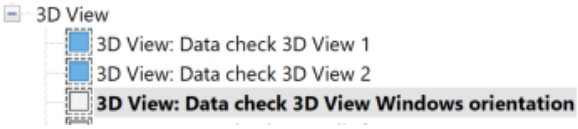
→

Data	
SBF_Edge Condition	Rear
SBF_Orientation	North
SBF_Area_Solid/Glazed_Ratio	7.400 m²

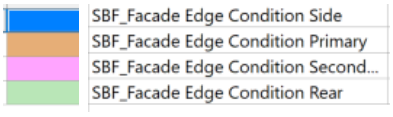
Parameter name	Values	How to fill in these values
SBF_Edge Condition	Primary, Secondary, Side, Rear	Fill in for all windows in the project respectively to their Edge condition
SBF_Orientation	North, West, South, East	Fill in for all windows in the project respectively to their orientation
SBF_Area_Solid/ Glazed_ratio	Area values	Fill in with window area



Once you have filled in these parameters, you can review your data using this view.



The result of filled Parameters is visualized on the image on the left



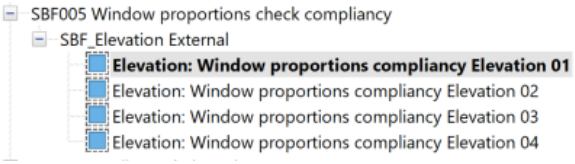
Regarding modeling custom window families you can refer to Appendix B of this document

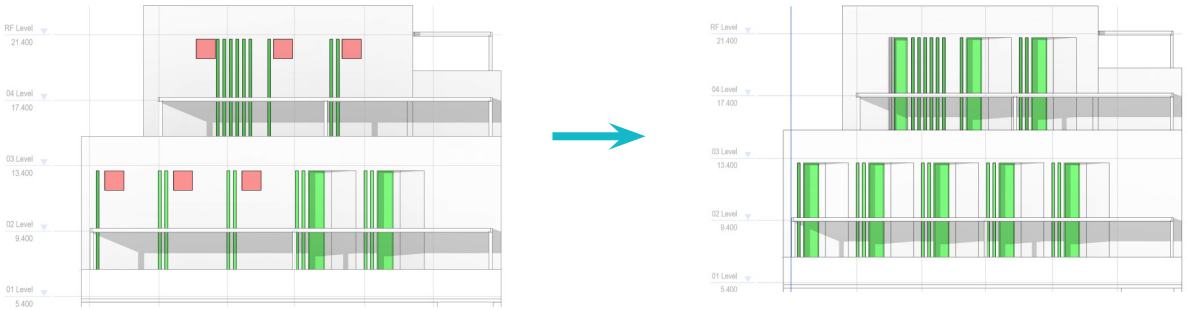
Self checking your design after modelling windows

If all these instructions are followed you can see if you design is compliant

① Window proportions check

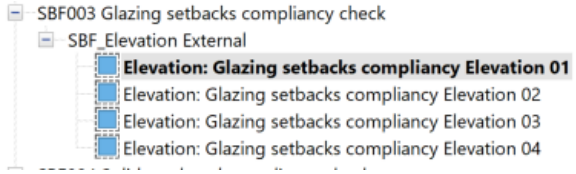
Refer to these views below to see if your window proportions are compliant. Windows in green are compliant, windows in red are not

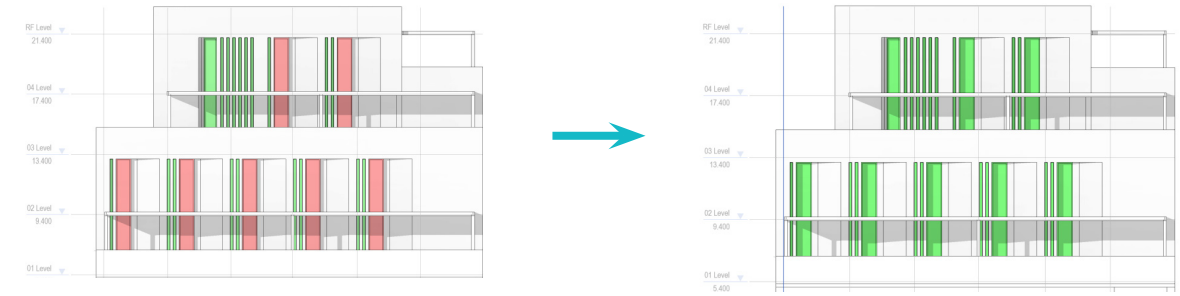




② Glazing setbacks check

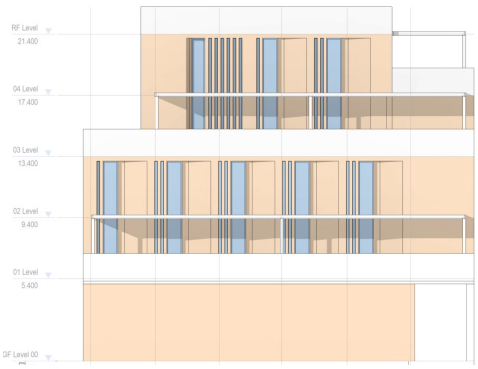
Refer to these views below to see if your glazing setbacks are compliant. Windows in green are compliant, windows in red are not

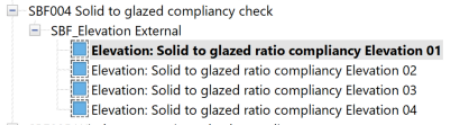




③ Solid to glazed ratio check

For this calculation windows and walls parameters must be filled in. Refer to these view to see if you have all information filled beige colour would reflect solid walls which are included in the calculation, blue color- glazed elements. the results are reflected in the schedule below





<SBF_Solid to Glaze Ratio Check>

A	B	C	D	E	F
Category	SBF_Orientation	SBF_Edge Condition	SBF_Glazed Area	SBF_Area_Solid/Glaze	Ratio
East					
Walls	East	Secondary	<varies>	349.29 m²	77%
Windows	East	Side 2	<varies>	103.97 m²	23%
North					
Walls	North	Side	<varies>	332.60 m²	77%
Windows	North	Rear	<varies>	101.87 m²	23%
South					
Walls	South	Primary	<varies>	325.48 m²	77%
Windows	South	Primary	<varies>	95.55 m²	23%
West					
Walls	West	Rear	<varies>	370.95 m²	81%
Windows	West	Side 1	<varies>	84.73 m²	19%

Modelling Materials

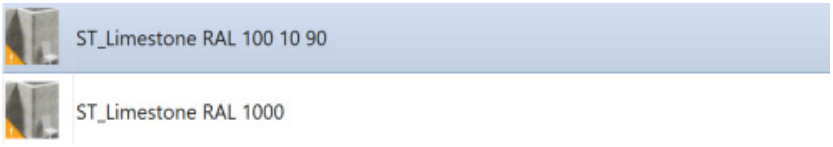
① Naming

All Materials used in the project should be named consistently. Material name should start with Prefix and short description, for example

ST - Stone
GL - glass and glazing elements, frosted glass
BR - brick
INS - insulation material
WD - wood
MT - Metal

② Naming Materials for facade finishings

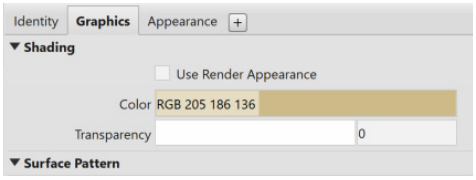
Facade finishing materials' names should encompass both a material description and an RAL color.
For instance,



③ Material library

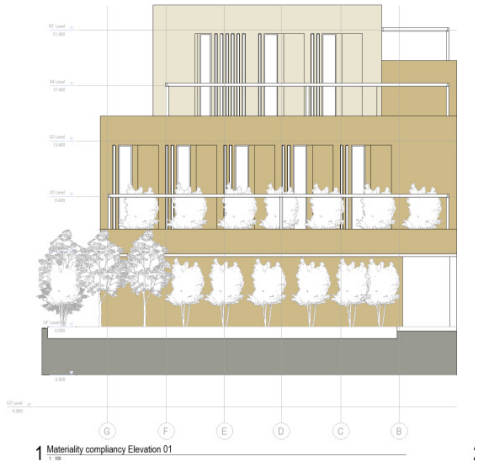
Facade materials regulated by the SBF design code must incorporate the accurate RGB value corresponding to the RAL color assigned in the shading

The Revit template already encompasses all materials featuring RAL colors specified in the design code. Applicants can readily employ these provided materials.

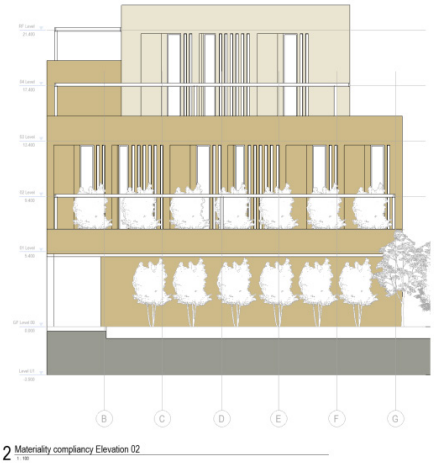


④ Check your design

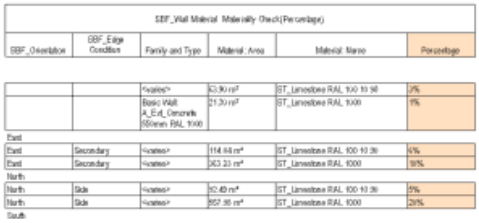
To check your design refer to materiality compliance check sheet and schedule.



1 Materiality compliancy Elevation 01



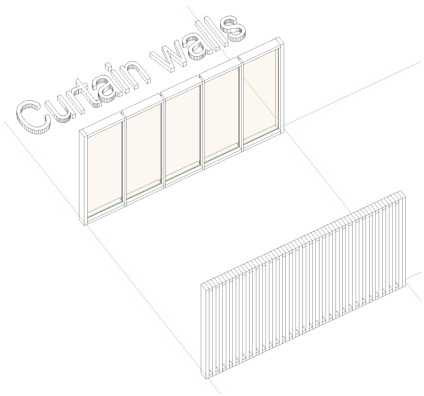
2 Materiality compliancy Elevation 02



Modelling Curtain Walls

① **Use or modify curtain Panels from the template**

Revit template already contains perdefined Curtain walls and panel types.



Filling in Curtain panels parameters

Curtain panels are used in Solid to glazed ratio calculation

SBF_Edge Condition	
SBF_Orientation	
SBF_Area_Solid/Glazed_Ratio	

→

SBF_Edge Condition	Primary
SBF_Orientation	South
SBF_Area_Solid/Glazed_Ratio	3.752 m²

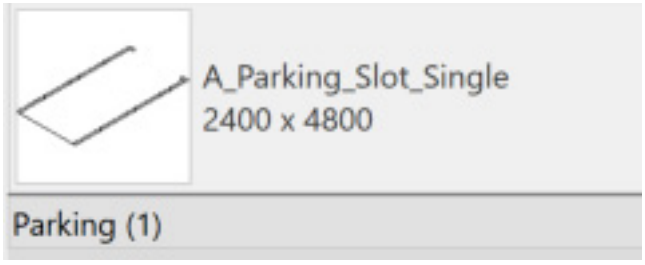
Parameter name	Values	How to fill in these values
SBF_Edge Condition	Primary, Secondary, Side, Rear	Fill in for all curtain panels in the project respectively to their Edge condition
SBF_Orientation	North, West, South, East	Fill in for all curtain panels in the project respectively to their orientation
SBF_Glazed/Solid	Glazed, Solid	Fill In for all curtain panels depending on if they are glazed or solid
SBF_Area_Solid/ Glazed_ratio	Area values	Fill in with curtain panel area

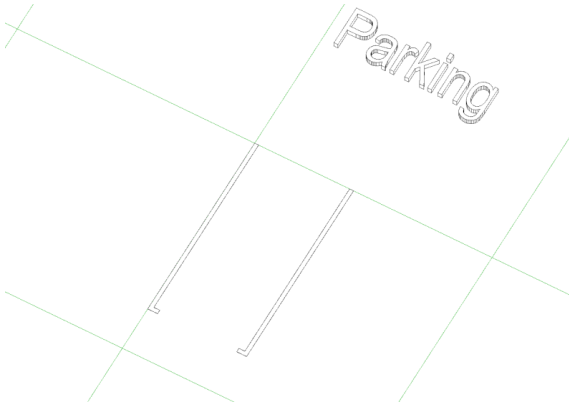
Modelling Parking

① **Use family from template**

Each parking family needs to be modeled as a parking category, featuring distinctly defined geometric dimensions and a specified number of parking space

the template contains parking family ready to use.

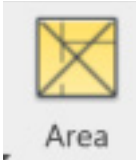




Modelling Areas

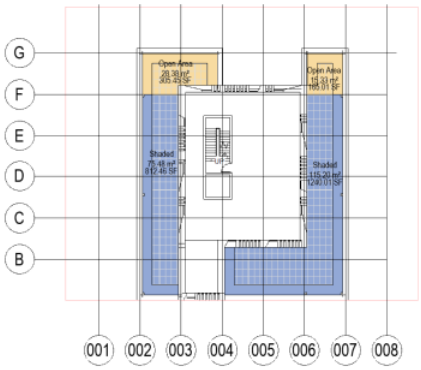
① Creating

Area plans serve as a tool for verifying the Open to Shaded ratio and Lot coverage. The Revit template includes predesigned area plans tailored for these assessments. If your building has more floor levels compared to the template, you can generate additional ones using the Architecture Tab.



② Modelling Areas

Each floor should have a dedicated area plan with clearly indicated shaded and non-shaded areas



③ Checking

In the end the results are reflected in the Area schedule with proportions rate

SBF_Area Schedule (Shaded Area)

Area Type	Name	Area	Shaded to Open Ratio Check
Building Common Area	Open Area	321.82 m²	45%
Building Common Area	Shaded	388.95 m²	55%

Areas

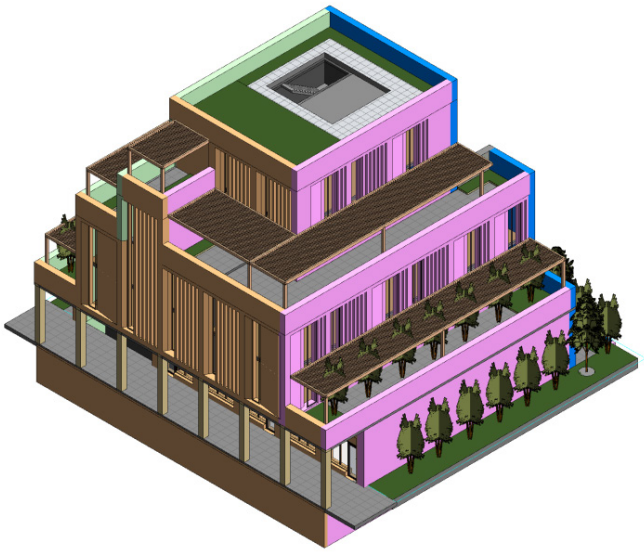
An applicant should provide the following area calculations:

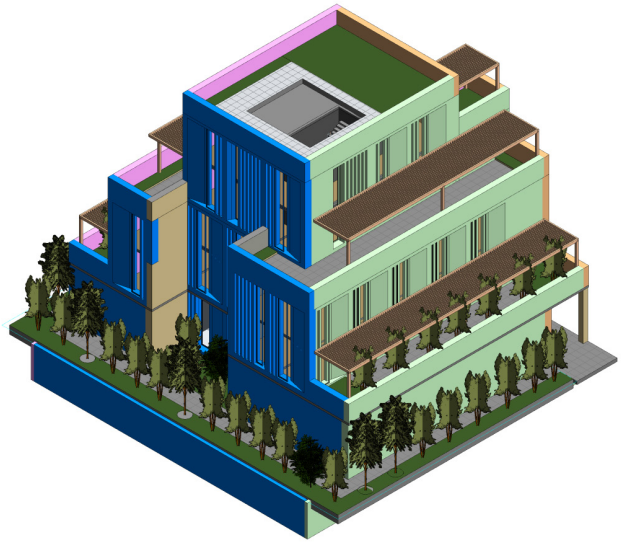
	Name	Description
1	GIA	Measuring Gross Internal Area including Seperating Walls and Common
2	Gross Building	Total Constructed Area of a Building
3	Lot Coverage	Lot coverage
4	Rentable	Area Measurements Based on the Standard Method for Measuring Floor
5	Shaded Area	Shaded Area Calculation
6	Zoning Plan	Zoning - Urban Planing

All these area schemes can be fond in the template

Result

The applicant has the option to verify the completeness of their provided information using the subsequent views. The outcome of your design should bear resemblance to the illustration provided below. Moreover, a series of sheets are available for the applicant to review their design compliance.





Checklist

Aspect	Status
• The project is located correctly	
• Project information	
• Project information is filled in fully and correctly	
• “Transect Zone” parameter is filled in	
• “Building use” parameter is filled in	
• “SBF_Plans for development” parameter is filled in	
• “SBF_Consolidation” parameter is filled in	
• Plot boundaries	
• Plot boundaries are created	
• Plot boundary parameter “SBF_Edge Condition” is filled in	
• Walls	
• External walls parameter “SBF_Edge condition” is filled in	
• External wall parameter “SBF Orientation” is filled in	
• External wall parameter “SBF Wall Function” is filled in	
• External walls finished have a finishing material which has RAL colour in the name and	
• Floors	
• Floor parameter “SBF_Landscape Function” is filled in	
• Window	
• Window parameter “SBF_Edge condition” is filled in	
• Window parameter “SBF_Orientation” is filled in	
• Built-in Parameters Height and Width are used in all window families	
• Every Window Family Has Parameter “SBF_Glazing Setback”	
• Materials	
• Facade finishing materials contain RAL colour in their name and have an accurate RGB value	
• Curtain Panels	
• Curtain Panels parameter SBF_Edge condition is filled in	
• Curtain Panels parameter SBF_Orientation is filled in	
• Curtain Panels parameter SBF_Solid/Glazed is filled in	
• Areas	
• Area plans are created and open and shaded areas are placed	
• Applicant provided following area calculations along with plans: GIA, Lot Coverage, Rentable area(if applicable), Shaded Area, Zoning Plan, Lot Coverage	

Appendix A

THIS SECTION PROVIDES A GENERAL RE-QUIREMENTS FOR MODELLING

Shared Parameters

Shared parameters explained

Shared parameters are parameters created for specific project from a TXT file.

In this project we have few parameters we will use for later checks. They must be created from the TXT file provided along with Revit template.

Parameters needed for model will be already populated in Revit template.
Parameters for loadable families should be created from the same Shared parameter file.

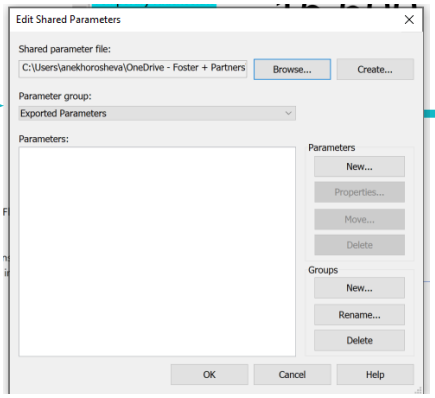
These parameters are essential for scheduling.

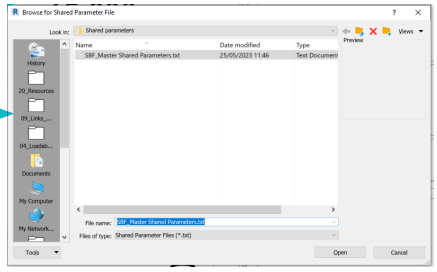
How to add Shared Parameters file?

① Adding Shared parameter file.

Find a shared parameter button on Manage tab.

Click on"Browse" in the Dialog window.





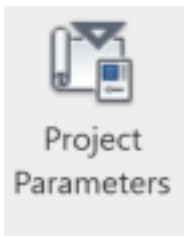
Choose a TXT file.

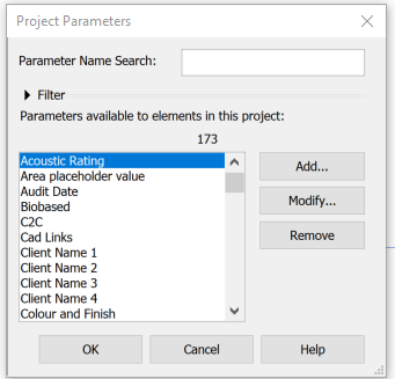
How to add Shared Parameters to a Project or a Family?

① Adding shared Parameter from Shared parameter file

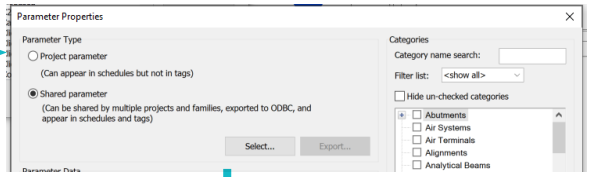
Find a project parameter button on Manage tab.

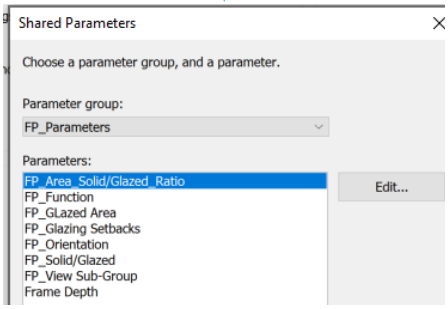
Click on"Add" in the Dialog window.





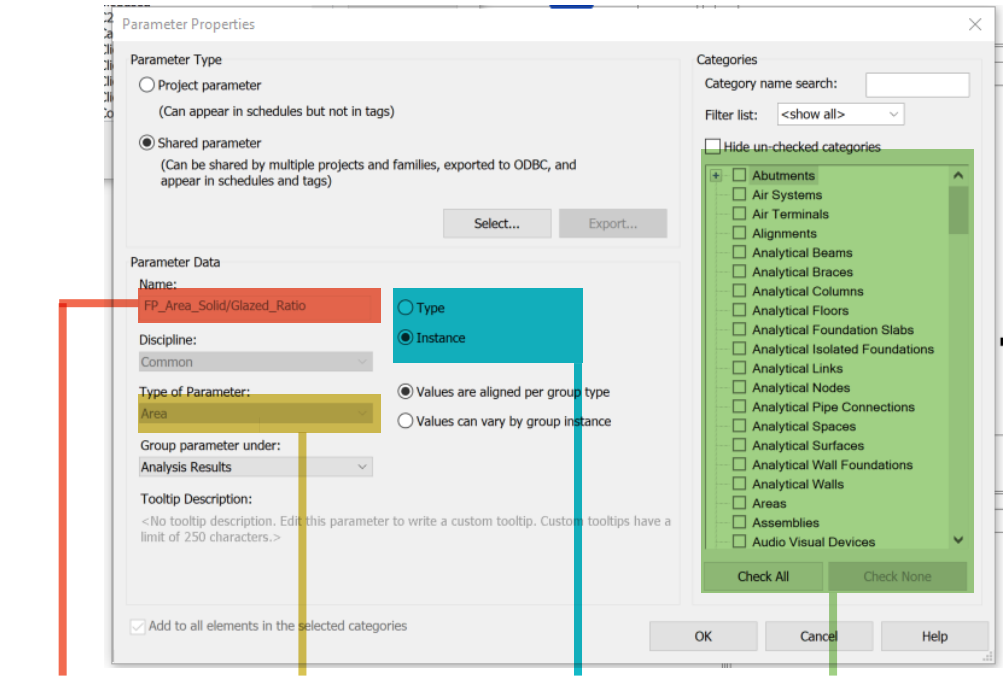
In "Parameter Properties" choose Shared Parameters and click "Select"





Choose a parameter from a drop-down list and click "Ok"

② Parameter Properties set up



This is parameter name which was chosen from Shared parameters file

Type of Parameter is already per-defined in TXT file

whether parameter should be Type or Instance is Indicated here

which categories to tick is indicated here

These are values to fill in

Parameter name	Type of Parameter	Type/Instance	Revit Categories	Comments
SBF_Orientation	Text	Instance	Doors, Windows, Walls, Curtain Panels	“North”, “South”, “East” “West” to fill in Manually
SBF_Glazed Area	Area	Instance	Doors, Windows, Walls, Curtain Panels	
SBF_LanFunction	Text	Instance	Floors	“Hardscape” or “Softs-cape” to fill in Manually

These 3 parameters should be added to the project and filled in for digital submission.

③ Families Parameters

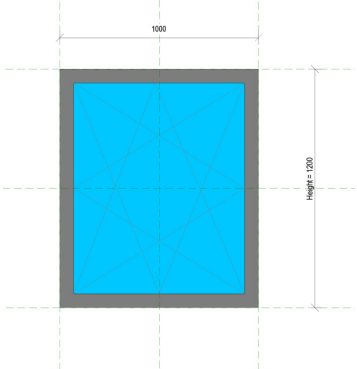
These 4 Parameters should be used for modeling loadable families like Windows, Doors and Curtain Panels

Parameter name	Type of Parameter	Type/Instance	Revit Categories	Comments
Width	Length	Instance(Built-in)	Doors, Windows, Curtain Panels	
Height	Length	Instance(Built-in)	Doors, Windows, Curtain Panels	
SBF_Glazed Area	Area	Instance	Doors, Windows, Curtain Panels	Define it with the formula to
SBF_Glazing Setbacks	Length	Instance	Windows,Curtain Panels	Use a shared parameter for and Shared parameter TXT file provided

Modelling window families

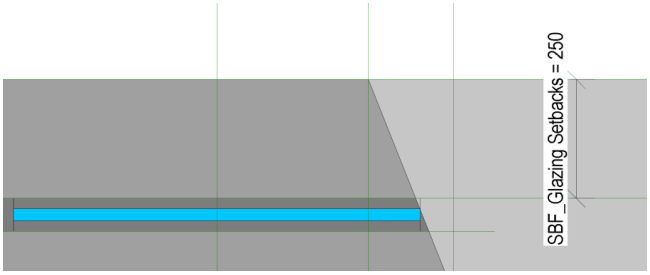
Revit template contains several ready to use window families. The applicant can modify or create their own families folloing these instructions.

① Family Built-in Parameters



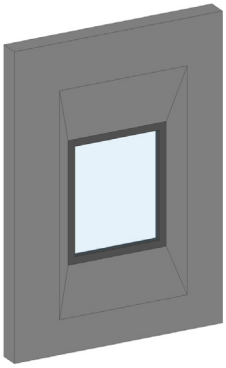
When modeling window and door families Built-in Parameters “Width” and “Height” should be used.

② Family Shared Parameters - Setbacks



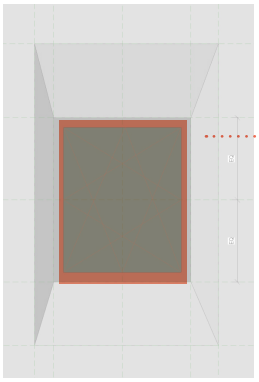
Use Parameter “SBF_Glazing Setbacks” from shared parameter list for glazing offset from the Exterior side of the wall

③ Windows modelling



Recessed elements can be included in window families as Voids.

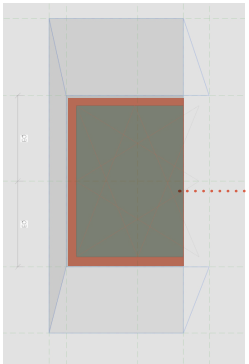
④ Glazing Area Calculation



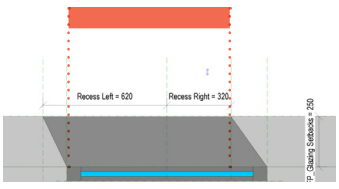
Create parameter “SBF_Glazing Area” from shared parameter list to calculate Area

Glazed Area

⑤ Glazing Area Calculation in partially visible windows



Glazed Area



In window families where the opening is obstructed in elevation view, the visible projection shall be calculated as glazing area.

An example on this family is included in the Revit template. You can use same method in modeling custom families.

Check-list for Windows:

1. “Width” and “Height” used as structural opening
2. “SBF_Glazed Area” parameter is created and information is calculated correctly
3. “SBF_Glazing Setbacks” paramter is created and used for setbacks

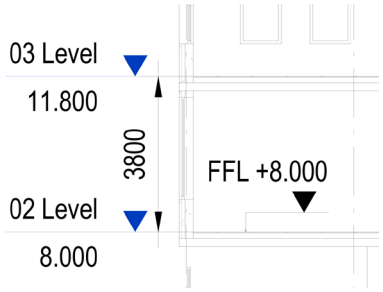
Modelling Floors Workflow

① Floor Build-ups

Floors are modeled with build ups and with real dimensions

③ Floors modelling

Floor finishes hosted by the level without any offsets.

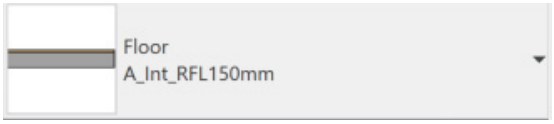


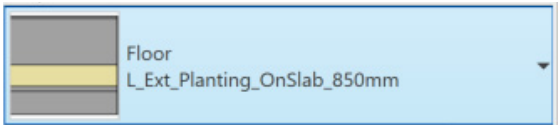
Important note: Floor to floor height will be calculated from FFL level to FFL Level, so no floor offsets will be taken in consideration!

② Floor naming

Floor name start with prefix
A_ - for architecture
L_ - for Landscape
S_ - for structure

and follows with suffix
Ext_ - for Exterior
Int_ - for Interior





④ Floor parameters

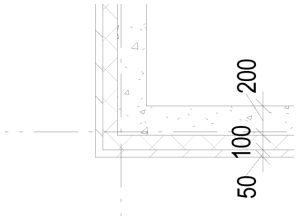
Use Parameter “FP_Function” from Shared parameter list and File it in with values”Softscape” or Hardscape” for Landscape elements.

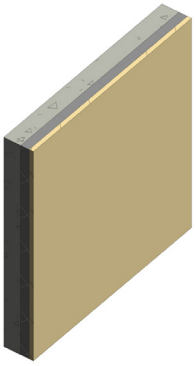
Check-list for Floors:
1. Floors types are named correctly
2. Floors are modelled on FFL level
3. Parameter FP_Function is filled in

Modelling Walls

① Wall Build-ups

Walls are modelled with build ups and with real dimentions





② Wall Materials

Each wall layer has material assigned

EXTERIOR SIDE	
Material	Thickness
Limestone RAL 1000	50.0
Insulation	100.0
Layers Above Wrap	**0.0**
Concrete Cast in Place Grey	200.0
Layers Below Wrap	**0.0**

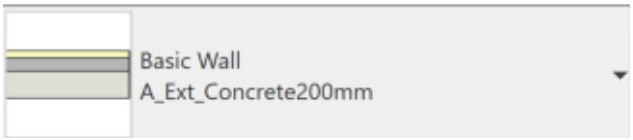
③ Wall Modelling

Walls are modelled as native Revit elements and in line with how they are typically constructed e.g. walls span from structural floor to structural soffit and curtain walling is assigned to the ground floor level spanning multiple floors unless modular construction applies

⑤ Wall Naming

Wall name start with prefix
A_ - for architecture
L_ - for Landscape
S_ - for structure

and follows with suffix
Ext_ - for Exterior
Int_ - for Interior



المسار الرياضي
Sports Boulevard