

Architecture Ruleset

Discipline: Architecture

Organization: ifc-checker.com

Information: bimspot Architecture Ruleset.

Basic architecture rulesets ensure minimum standard of architecture models.

Ruleset:

Formal Basics

Formal requirements are checked, which must be correct in any case.

Rule	Description
IFC Structure Check	This rule checks the correct ifc structure.
Floor Check	This rule checks if the model contains a building and floors. It is also checked whether all components are contained in floors, whether there are empty floors, if several floors have the same insertion height and if there are the same names on floors.
Door/Window Location Check	This rule checks if windows and doors are assigned to the same floor as the walls or roofs in which they are located.
Unique GUID Check	This rule checks if GUIDs are unique.
Minimum Content Check	This rule verifies that the model has walls, slabs, columns, rooms, and doors.
Door/Window Host Check	This rule checks if doors and windows are in walls or facades.

Ruleset:

Geometry Basics

Geometry requirements are checked, which must be correct in any case.

Rule	Description
Double Elements Check	The ruleset checks for double elements.
Double Walls	The rule checks for double walls.
Double Doors	The rule checks for double walls.
Double Slabs	The rule checks for double slabs.
Double Columns	The rule checks for double columns.
Double Ceilings	The rule checks for double ceilings.

Double Stairs	The rule checks for double stairs.
Double Beams	The rule checks for double beams.
Double Roofs	The rule checks for double roofs.
Double Windows	The rule checks for double windows.
Double Facades	The rule checks for double facades.
Double Coverings	The rule checks for double coverings.
Double Railings	The rule checks for double railings.
Double Furnitures	The rule checks for double furnitures.
Double Lights	The rule checks for double lights.
Double Proxy Elements	The rule checks for double proxy elements.
Double Ramps	The rule checks for double ramps.
Double Transportation Elements	The rule checks for double transportation elements.
Double Openings	The rule checks basic room usage.
Lower Room Boundary	The rule checks if there is a lower room boundary like a slab or another room.
Top Room Boundary	The rule checks if there is an upper room boundary like a slab, a roof or another room.
Unused Area	This rule checks for unused area in the building.
Overlapping Room	This rule checks if spaces have overlaps with inadmissible components, like walls, slabs, columns, ceilings, facades, beams, rooms or roofs.
Element Size Check	The ruleset checks for proper measurements of several elements.
Wall Measurement Check	The ruleset checks for proper wall measurements.
Wall Height	The rule checks proper wall height (<400mm).
Wall Thickness	The rule checks proper wall thickness (>800mm).
Wall Length	The rule checks proper wall length (<200mm).
Door/Window Measurement Check	The ruleset checks for proper door/window measurements.
Window Width	The rule checks for proper window width (>300mm).
Window Height	The rule checks for proper window height (>300mm).
Door Width	The rule checks for proper door width (>700mm).
Door Height	The rule checks for proper door height (>2000mm).

Slab Measurement Check	The ruleset checks for proper slab measurements.
Slab Area	The rule checks for proper slab area (>1m ²).
Slab Thickness	The rule checks for proper slab thickness (<800mm).
Roof Measurement Check	The ruleset checks for proper roof measurements.
Roof Area	The rule checks for proper roof area (>1m ²).
Roof Thickness	The rule checks for proper roof thickness (>20mm; <1000mm).
Column Measurement Check	The ruleset checks for proper column measurements.
Column Size	The rule checks for proper column profile (>70mm/70mm or > dm 70mm)
Column Length	The rule checks for proper column length (>500mm; <12.000mm).
Beam Measurement Check	The ruleset checks for proper beam measurements.
Beam Size	The rule checks for proper beam profile (>70mm/70mm)
Beam Length	The rule checks for proper beam length (>200mm; <20.000mm).
Structure Check	The ruleset checks for connected load bearing elements.
Load Bearing Walls Top Connection	This rule checks if load-bearing walls touch load-bearing walls or slabs on their top.
Load Bearing Walls Lower Connection	This rule checks if load-bearing walls touch load-bearing walls or slabs or footings on their bottom.
Load Bearing Columns Top Connection	This rule checks if load-bearing columns touch load-bearing walls, slabs, columns, beams or stairs on their top.
Load Bearing Columns Lower Connection	This rule checks if load-bearing columns touch load-bearing walls, slabs, columns, beams, stairs or footings on their bottom.
Load Bearing Beam Lower Connection	This rule checks if load-bearing beams touch load-bearing walls, slabs, columns on their bottom.

Ruleset:

Information Basics

Information requirements are checked, which must be correct in any case.

Rule	Description
Basic Wall/Column/Beam/Slab Properties	This rule checks if there are load bearing values to slabs, beams, and columns.

Basic Wall Properties

This rule checks if there are following properties to
walls:Pset_WallCommon.LoadBearing Pset_WallCommon.IsExternal
Pset_WallCommon.FireRating
