automated code checker made easy

BIM Modelling Guide for Accessibility

01/

Aligned with IFC+SG, built for the Accessibility Code Checker to streamline digital validation

Prepare your BIM models with confidence using standards that ensure accuracy and compliance.

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Structure

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Solibri

SOL

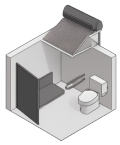
2 - Scope Details

Milestone: Internal - Model Requirements

Modelling Requirements

Room

IfcSpace



DESCRIPTION

A room is a spatial element that represents a physical area within a building, typically enclosed by bounding elements such as walls, floors, ceilings, or room separation lines.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type
- [ ] Populate all necessary IFC parameters
- [ ] Ensure spacename follows Industry Mapping Table

INFORMATION REQUIREMENTS

- [ ] BarrierFreeAccessibility
- [ ] SpaceName

NAMING CONVENTIONS

Name the Room consistently for identification and QA

REVIT ELEMENTS

Use standardized Room instead of Space

HOSTING AND PLACEMENT

Ensure that the lower limit is attached to the hosted level and the upper limit of the room is below the floor of the level above

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcSpace`
2. `IFC Predefined Type`

For IfcSpace designated as accessible route use:
1. `IFC Predefined Type = USERDEFINED`
2. `IfcObjectType = ACCESSIBLEROUTE`

MODELLING NOTES

1. The `spacename` is provided in the Industry Mapping Table.
2. When modelling rooms ensure first that the walls are room bounding.
3. For Accessible Changing Room, use the `spacename = changing room` and enable the `BarrierFreeAccessibility`.

4. For Accessible Shower Facility, use the `spacename = shower room` and enable the `BarrierFreeAccessibility`.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Door

IfcDoor

DESCRIPTION

A door is a building component that provides controlled access between rooms or spaces. It is typically hosted in walls and includes properties such as width, height, fire rating, and swing direction.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type
- ☐ Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- ☐ ClearWidth
- ☐ MainEntrance
- ☐ OperationType
- ☐ PanelWidth
- ☐ PowerOperated
- ☐ SelfClosing
- ☐ VisionPanel

NAMING CONVENTIONS

Name Doors consistently for identification and QA

REVIT ELEMENTS

Use standardized Door family instead of Generic Model

HOSTING AND PLACEMENT

Doors must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcDoor`
2. `IFC Predefined Type = <refer to IMT>`
3. `IfcObjectType = <refer to IMT>`

MODELLING NOTES

1. Ensure flush embedding in walls, with correct void cuts
2. Only use Door rft; this category ensures IFC mapping to `IfcDoor`.
3. For Single Leaf Door, use the formula for `ClearWidth = Width - <Panel Thickness>`
Where: Width = Wall Opening - 2 * Door Frame Thickness

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Parking

IfcBuildingElementProxy

DESCRIPTION

Parking refers to designated spaces within a building or site for vehicle storage. These spaces must be clearly defined with boundaries and dimensions, and categorized by type (FamilyLot, BarrierFreeAccessibility, etc)

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type
- [ ] Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- [ ] BarrierFreeAccessibility
- [ ] FamilyLot
- [ ] Length
- [ ] Width

NAMING CONVENTIONS

Each bay or space should have a unique Mark or Number

REVIT ELEMENTS

Use standardized parking family category instead of Generic Model or Model In-Place

HOSTING AND PLACEMENT

Parking must be hosted on architectural floor

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `IfcExportAs = IfcBuildingElementProxy`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = CARLOT`

MODELLING NOTES

1. Model as individual parking bay families. Avoid using only 2D symbols; use 3D objects for visibility in Solibri.
2. Enable `BarrierFreeAccessibility` property for accessible parking spaces
3. Enable `FamilyLot` property for family parking spaces
4. Include Width, Length, ParkingUse properties
5. Avoid using only 2D symbols; use 3D objects for visibility in Solibri

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Stair

IfcStair

DESCRIPTION

A stair is a building element that provides vertical circulation between different levels. It consists of components such as flights, landings, and railings, and must meet design criteria for width, rise, run, and headroom.

CHECKLIST

- [ ] Ensure that naming convention is followed
- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type
- [ ] Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- [ ] NosingLength

NAMING CONVENTIONS

Follow this naming convention for Stair Type and Run Type:
Name of stair/run_<Type of Riser>
Use Type of Riser: "Vertical Riser" or "Splay Riser"
(e.g.: Monolithic Stair School_Vertical Riser)

REVIT ELEMENTS

Use standardized Stair system family instead of Model In-Place

HOSTING AND PLACEMENT

Stairs must be placed on an architectural floor

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `IfcExportAs = IfcStairFlight`
2. `IFC Predefined Type = NOTDEFINED`

MODELLING NOTES

1. Ensure the following are properly configured:
   Run Type
   Landing type
   Supports
   Width
   Maximum Riser Height
   Minimum Run Width
2. Ensure that stairs do not overlap with adjacent walls and other components

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Railing

IfcRailing

DESCRIPTION

A railing is a safety and support element installed along stairs, ramps, balconies, or edges of elevated surfaces. It typically includes handrails, guardrails, and balusters. Railings must comply with height, spacing, and strength requirements to ensure user safety and accessibility.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type
- [ ] Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- [ ] Height
- [ ] SafetyBarrier

NAMING CONVENTIONS

Name Railing consistently for identification and QA

REVIT ELEMENTS

Use standardized Railing system family instead of Model In-Place

HOSTING AND PLACEMENT

Ensure that the railing is hosted to an architectural floor/stair/ramp

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `IfcExportAs = IfcRailing`
2. `IFC Predefined Type = GUARDRAIL`

MODELLING NOTES

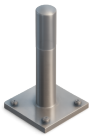
1. Ensure the following are properly configured:
   Rail Structure
   Baluster Placement
   Top Rail
   Handrail 1
   Handrail 2
   Supports
   Handrail Extension
2. Specify the IFC parameter `Height` according to specification.
3. For railings that is placed on stairs, ramps, balcony and other areas requiring fall protection., enable the `SafetyBarrier`.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

BOLLARD Bollard

IfcRailing



DESCRIPTION

A bollard is a short, vertical post used to control or restrict vehicle access and protect pedestrians or structures. It can be fixed or removable and is typically placed at entrances, pathways, or parking areas. Bollards must be accurately positioned and dimensioned to meet safety and accessibility requirements.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type

INFORMATION REQUIREMENTS

- ☐ ObjectTypeOverride

NAMING CONVENTIONS

Name bollards consistently for identification and QA

REVIT ELEMENTS

Use standardized Railing family category instead of the Railing system family

HOSTING AND PLACEMENT

Bollard must be placed on the architectural floor

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcRailing`

2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = BOLLARD`

MODELLING NOTES

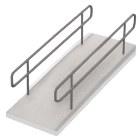
1. Ensure that the model is clean, no unnecessary extrusions or nested family
and avoid duplicate model.
2. If a bollard is modelled using Generic Model or any family category, it should be reassigned to Railing family category.
3. Avoid floating bollards.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Ramp

IfcRamp



DESCRIPTION

A ramp is an inclined surface that provides an accessible route between different levels. It is designed for use by pedestrians, including wheelchair users, and must comply with requirements for slope, width, landings, and handrails. Ramps are essential for barrier-free access in buildings and public spaces.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type
- ☐ Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- ☐ BarrierFreeAccessibility
- ☐ Gradient
- ☐ Width

NAMING CONVENTIONS

Name Ramp consistently for identification and QA

REVIT ELEMENTS

Use standardized Ramp system family instead of floor or Model In-Place

HOSTING AND PLACEMENT

Ramp must be placed on an architectural floor

REVIT IFC EXPORT SETTINGS

Set the following parameters:

1. `Export to IFC As = IfcRamp`,
2. `IFC Predefined Type = <refer to IMT>`
3. `IfcObjectType = <refer to IMT>`

MODELLING NOTES

1. Ensure the following are properly configured:
   Width
   Maximum Inclined Length
   Ramp max slope
2. When modelling handrails, ensure that they are offset outside the ramp surface.
3. Clearly define the ramp direction using slope arrow.
4. Enable `BarrierFreeAccessibility`
5. For `Gradient`, specify value using the format 1:X (e.g. 1:12)
6. For `Width`, specify value according to specification and only use millimeter values.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Urinal

IfcSanitaryTerminal

DESCRIPTION

A urinal is a wall-mounted sanitary fixture designed for standing users to urinate. It is typically installed in male restrooms and must be positioned at appropriate heights with adequate clearance and accessibility standards.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type
- ☐ Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- ☐ ChildrenFriendly

NAMING CONVENTIONS

Name urinals consistently for identification and QA

REVIT ELEMENTS

Use standardized Plumbing Fixture family category instead of Generic Model

HOSTING AND PLACEMENT

Urinals must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = URINAL`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested familiy
and avoid duplicating geometry.
2. Flush control for urinals must not be a nested family and should be modelled
separately.
3. If a urinal is modelled using Generic Model or any family category, it should be reassigned to Plumbing Fixture family category.
4. For urinal within accessible space, enable `BarrierFreeAccessibility` in the IFC parameters
5. For child-sized urinal, enable `ChildrenFriendly` in the IFC parameters

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Water Closet

IfcSanitaryTerminal

DESCRIPTION

A water closet (WC) is a sanitary fixture designed for seated toilet use. It includes a toilet bowl connected to a drainage system and is typically enclosed within a cubicle or room. Water closets must be correctly placed with sufficient clearances and dimensions to meet accessibility requirements.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type
- ☐ Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- ☐ BarrierFreeAccessibility
- ☐ ChildrenFriendly

NAMING CONVENTIONS

Name water closet consistently for identification and QA

REVIT ELEMENTS

Use standardized Plumbing Fixture family category instead of Generic

Model

HOSTING AND PLACEMENT

Water closet must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = WATERCLOSET`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family
and avoid duplicating geometry.
2. Flush control for water closets must not be a nested family and should be modelled
separately.
3. If a water closet is modelled using Generic Model or any family category, it should be reassigned to Plumbing Fixture family category.
4. For water closet within accessible space, enable `BarrierFreeAccessibility` in the IFC parameters
5. For child-sized water closet, enable `ChildrenFriendly` in the IFC parameters

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Wash Basin

IfcSanitaryTerminal

DESCRIPTION

A wash basin is a sanitary fixture used for handwashing, typically installed in restrooms or pantries. It includes a bowl, tap fittings, and drainage. Wash basins must be placed at appropriate heights with sufficient clearance to meet accessibility standards.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type
- [ ] Populate all necessary IFC parameters

INFORMATION REQUIREMENTS

- [ ] ChildrenFriendly

NAMING CONVENTIONS

Name wash basin consistently for identification and QA

REVIT ELEMENTS

Use standardized Plumbing Fixture family category instead of Generic Model

HOSTING AND PLACEMENT

Wash basin must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parameters:
1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = WASHHANDBASIN`,

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family
and avoid duplicating geometry.
2. Lavatory Tap must not be a nested family and should be modelled separately.
3. If a wash basin is modelled using Generic Model or any family category, it should be reassigned to Plumbing Fixture family category.
4. For child-sized wash basin or wash basin within children toilet, enable `ChildrenFriendly` in the IFC parameters.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Child Protection Seat

IfcFurniture

DESCRIPTION

A child protection seat is a wall-mounted fixture typically installed in restrooms or nursing rooms to safely secure a small child while a caregiver uses the facility. It must be mounted at an accessible height with proper safety restraints and comply with standards for accessibility, load bearing, and user safety.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type

INFORMATION REQUIREMENTS

- [ ] ObjectTypeOverride

NAMING CONVENTIONS

Name child protection seat consistently for identification and QA

REVIT ELEMENTS

Use standardized Furniture family category instead of Generic Model

HOSTING AND PLACEMENT

Child protection seats must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parrameters:
1. `Export to IFC As = IfcFurniture`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = CHILDPROTECTIONSEAT`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions and avoid duplicate geometry
2. Ensure that there is no unnecessary nested family
3. If a child protection seat is modelled using Generic Model or any family category, it should be reassigned to Furniture family category.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Diaper Changing Table

IfcFurniture

DATES: None

DESCRIPTION

A diaper changing table is a fixture provided in restrooms or nursing rooms for safely changing infants' diapers. It should be mounted at an accessible height with adequate clear space around it.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type

INFORMATION REQUIREMENTS

- [ ] ObjectTypeOverride

NAMING CONVENTIONS

Name diaper changing table consistently for identification and QA

REVIT ELEMENTS

Use standardized Furniture family category instead of Generic Model

HOSTING AND PLACEMENT

Diaper changing table must be hosted on architectural walls/floor

REVIT IFC EXPORT SETTINGS

Set the following parrameters:
1. `Export to IFC As = IfcFurniture`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = DIAPERCHANGINGTABLE`

MODELLING NOTES

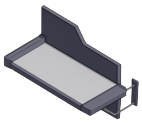
1. Ensure that the model is clean, no unnecessary extrusions and avoid duplicate geometry
2. Ensure that there is no unnecessary nested family
3. If a diaper changing table is modelled using Generic Model or any family category, it should be reassigned to Furniture family category.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Changing Bed

IfcFurniture



DESCRIPTION

A changing bed is a horizontal surface designed for assisted changing of persons with limited mobility. Commonly installed in accessible restrooms or nursing rooms, it must provide adequate size, support, and clearance. The bed should comply with accessibility, and safety standards, including height, reach range, and load capacity requirements.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type

INFORMATION REQUIREMENTS

- [ ] ObjectTypeOverride

NAMING CONVENTIONS

Name changing bed consistently for identification and QA

REVIT ELEMENTS

Use standardized Furniture family category instead of Generic Model

HOSTING AND PLACEMENT

Changing Bed must be hosted on architectural floor

REVIT IFC EXPORT SETTINGS

Set the following parrameters:
1. `Export to IFC As = IfcFurniture`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = CHANGINGBED`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions and avoid duplicate components
2. Ensure that there is no unnecessary nested family
3. If a changing bed is modelled using Generic Model or any family category, it should be reassigned to Furniture family category.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Bidet

IfcSanitaryTerminal

DESCRIPTION

A bidet is a plumbing fixture used for personal hygiene, typically installed beside a water closet. Bidets must be properly connected to water supply and drainage systems and positioned to meet plumbing and accessibility standards.

CHECKLIST

- [ ] Specify correct IFC Entity
- [ ] Define IFC Sub Type

INFORMATION REQUIREMENTS

- [ ] IfcExportPredefinedtype

NAMING CONVENTIONS

Name bidet consistently for identification and QA

REVIT ELEMENTS

Use standardized Plumbing Fixture family category instead of Generic Model

HOSTING AND PLACEMENT

Bidet must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parrameters:
1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = BIDET`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions and avoid duplicate geometry
2. Ensure that there is no unnecessary nested family
3. If a bidet is modelled using Generic Model or any family category, it should be reassigned to Plumbing Fixture family category.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Flush Control Panel

IfcUnitaryControlElement

DATES: None

DESCRIPTION

A flush panel is a wall-mounted control plate used to activate the flushing mechanism of a concealed cistern in water closets or urinals. It must be positioned at an accessible height and location and comply with design standards for accessibility.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type

INFORMATION REQUIREMENTS

- ☐ IfcExportPredefinedtype

NAMING CONVENTIONS

Name flush control panel consistently for identification and QA

REVIT ELEMENTS

Use standardized Electric Equipment family category instead of Generic Model

HOSTING AND PLACEMENT

Flush control panel must be hosted on architectural walls/non-load bearing walls

REVIT IFC EXPORT SETTINGS

Set the following parrameters;
1. `Export to IFC As = IfcUnitaryControlElement`
2. `IFC Predefined Type = CONTROLPANEL`

MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions and avoid duplicate geometry
2. Ensure that there is no unnecessary nested family

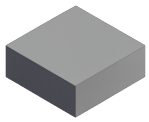
3. If a flush panel is modelled using Generic Model or any family category, it should be reassigned to Electric Equipment family category.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`

Floor

IfcSlab



DESCRIPTION

A floor is a horizontal building element that provides structural support and defines usable levels within a building. Floors must be modelled using standardized system families, with accurate thickness, materials, and level association. Proper floor modelling ensures correct hosting, alignment, and integration with walls, columns, and openings.

CHECKLIST

- ☐ Specify correct IFC Entity
- ☐ Define IFC Sub Type

INFORMATION REQUIREMENTS

- ☐ IfcExportPredefinedtype

NAMING CONVENTIONS

Name floor consistently for identification and QA

REVIT ELEMENTS

Use standardized architectural Floor system family instead of Model In-Place

HOSTING AND PLACEMENT

Floors should be aligned with levels

REVIT IFC EXPORT SETTINGS

Set the following parrameters;
1. `Export to IFC As = IfcSlab`
2. `IFC Predefined Type = NOTDEFINED`

MODELLING NOTES

1. Floors must not overlap with another floor.
2. Ensure floor boundaries are clean.

IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`