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code checker

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BIM Modelling Guide for Accessibility

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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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Scope Details

How to Use This Guide

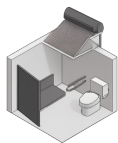
This guide is designed to support BIM modelers and coordinators in correctly defining and exporting Autodesk Revit elements to IFC. Follow the steps outlined below to ensure consistency, compliance, and high-quality IFC deliverables:

1. Start by running the Interoperability Tool at the beginning of your modelling phase. Use the link below to download the latest version of the Shared Parameter Tool provided by **Corenet X**.
<https://info.corenet.gov.sg/ifc-sg/templates--apps-and-more/bim-software-resources>
2. Read the **Description** section to understand what IFC Entity represents.
3. Refer to the **Revit Elements** for the appropriate designation of each element.
4. Refer to the **Hosting and Placement** for correct placement of each element.
5. Use the correct naming specified in the **Naming Conventions**.
6. Configure the IFC Entity and IFC Sub Type as specified in the **Revit IFC Export Setup**.
7. Fill in the required IFC parameters listed in the **Information Requirements**.
8. Refer to **Modelling Notes** for additional information and requirements.
9. Use the **Checklist** for QA.
10. Export to IFC format using the specified setup in the **IFC Export Format**.

Legend: Information Requirements

BCA	
NEA	
SCDF	

Modelling Requirements



IfcSpace
Room

☐ **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.

☐ **REVIT ELEMENTS**

Use System family Room instead of Area.

☐ **HOSTING AND PLACEMENT**

Ensure that room is placed on the exact level/floor.

☐ **NAMING CONVENTIONS**

Name the Room consistently for clear identification.

☐ **REVIT IFC EXPORT SETUP**

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

☒ **INFORMATION REQUIREMENTS**

- ☐ BarrierFreeAccessibility
- ☐ Retrofit
- ☐ SpaceName



☐ **MODELLING NOTES**

- Before creating rooms, ensure that the walls are room bounding.
- Enable `BarrierFreeAccessibility` for rooms or spaces intended for wheelchair users.
Example:
 - Accessible Individual Washroom
 - Accessible Changing Room
 - Accessible Shower Facility
 - Individual Accessible Family Washroom
- Enable `Retrofit` for rooms or spaces intended for renovation.

4. Ensure that the `spacename` follows the Industry Mapping Table.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcDoor
Door

☐ 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.

☐ REVIT ELEMENTS

Use Loadable family Door instead of Generic Model.

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name Doors consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcDoor`
2. `IFC Predefined Type = NOTDEFINED`

☐ INFORMATION REQUIREMENTS

- ☐ ClearWidth
- ☐ MainEntrance
- ☐ OperationType



☐ MODELLING NOTES

1. Ensure flush embedding in walls, with correct void cuts
2. If a door is modelled in different Family Category change the category to Doors.
3. Enable `MainEntrance` for main entrance door.
4. Specify `ClearWidth` for doors.
 - a. Single Leaf Door - measured from the face of the door panel to the doorstop
 - b. Double Leaf Door - length is equal to the larger panel
5. Specify `OperationType` of each door. Refer to the link below for the standard operation type.
<https://standards.buildingsmart.org/IFC/RELEASE/IFC4/ADD1/HTML/schema/ifcsharedbldgelements/lexical/ifcdoortypeoperationenum.htm>

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcBuildingElementProxy Parking

☐ 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)

☐ REVIT ELEMENTS

Use Loadable family Parking instead of Generic Model or Model In-Place.

☐ HOSTING AND PLACEMENT

Parking must be hosted on architectural floor.

☐ NAMING CONVENTIONS

Name Parking consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `IfcExportAs = IfcBuildingElementProxy`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = CARLOT`

☐ INFORMATION REQUIREMENTS

- ☐ BarrierFreeAccessibility
- ☐ FamilyLot
- ☐ Length
- ☐ Width



☐ MODELLING NOTES

1. Model as individual parking bay families. Avoid using only 2D symbols.
2. Enable `BarrierFreeAccessibility` for Accessible Vehicle Parking Lot
3. Enable `FamilyLot` for Family Car Parking Lot
4. Specify the `Length` and `Width` of the Parking Lot

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcRailing
Railing

☐ 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.

☐ REVIT ELEMENTS

Use System family Railing instead of Model In-Place.

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name Railing consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `IfcExportAs = IfcRailing`
2. `IFC Predefined Type = GUARDRAIL`

☐ INFORMATION REQUIREMENTS

☐ Height

☐ MODELLING NOTES

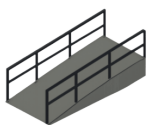
1. Specify `Height` of the railing in millimeters measured from the host to the top of the handrail.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcRamp
Ramp

☐ 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.

☐ REVIT ELEMENTS

Use System family Ramp or Architectural Floor.

☐ HOSTING AND PLACEMENT

Ramp must be placed on top of architectural floor.

☐ NAMING CONVENTIONS

Name Ramp consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcRamp`
2. `IFC Predefined Type = STRAIGHT\_RUN\_RAMP`

☐ INFORMATION REQUIREMENTS

☐ Width

☐ MODELLING NOTES

1. Specify `Width` of the ramp in millimeters.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcRamp

Flared Kerb Ramp

☐ DESCRIPTION

A Kerb ramp, also known as a curb ramp, is an inclined surface that provides an accessible transition between a sidewalk and a street, or other level changes at pedestrian crossings. It is designed to accommodate pedestrians, including wheelchair users, stroller users, and those with mobility challenges, ensuring safe and barrier-free access. Kerb ramps must comply with requirements for slope, width, tactile paving for accessibility, and alignment with crosswalks to facilitate smooth navigation in public spaces.

☐ REVIT ELEMENTS

Use System family Ramp or Architectural Floor.

☐ HOSTING AND PLACEMENT

Kerb Ramp must be placed on an architectural floor.

☐ NAMING CONVENTIONS

Name Kerb Ramp for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcRamp`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = FLAREDKERBRAMP`

☐ INFORMATION REQUIREMENTS

☐ Width

☐ MODELLING NOTES

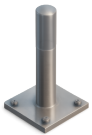
1. Specify `Width` of the ramp in millimeters.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcRailing
Bollard

☐ 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.

☐ REVIT ELEMENTS

Use Loadable Railing family instead of Generic Model.

☐ HOSTING AND PLACEMENT

Bollard must be placed on the architectural floor.

☐ NAMING CONVENTIONS

Name Bollards consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

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.
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.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcSanitaryTerminal
Urinal

☐ 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.

☐ REVIT ELEMENTS

Use Loadable Plumbing Fixture instead of Generic Model.

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name urinals consistently for clear identification

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = URINAL`

☒ INFORMATION REQUIREMENTS

☐ ChildrenFriendly

☐ MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family.
2. Flush control for urinals must not be a nested family and should be modelled separately.
3. Enable `ChildrenFriendly` for urinals designed specifically for child users.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcTransportElement
Lift

☐ DESCRIPTION

A lift is a transport element that represents a vertical transportation system within a building, typically consisting of a lift car that moves within a shaft to provide access between different floors. It is usually enclosed by structural and architectural elements such as walls, doors, and lift lobbies, and may include parameters defining its capacity, speed, and accessibility features.

☐ REVIT ELEMENTS

Use Loadable Specialty Equipment family instead of Generic Model

☐ HOSTING AND PLACEMENT

Place lifts in their correct vertical shaft aligned across all levels.

☐ NAMING CONVENTIONS

Name lift consistently for clear identification

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcTransportElement`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = LIFT`

☐ INFORMATION REQUIREMENTS

☐ BarrierFreeAccessibility

☐ MODELLING NOTES

1. Enable `BarrierFreeAccessibility` for lifts that are designated for wheelchair users.
2. Ensure that the base of the lift is aligned with the FFL.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcSanitaryTerminal Water Closet

☐ 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.

☐ REVIT ELEMENTS

Use Loadable Plumbing Fixture family instead of Generic Model

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name water closet consistently for clear identification

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Predefined Type = USERDEFINED`
3. `IfcObjectType = WATERCLOSET`

☐ INFORMATION REQUIREMENTS

- ☐ BarrierFreeAccessibility
- ☐ ChildrenFriendly



☐ MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family.
2. Flush control for watercloset must not be a nested family and should be modelled separately.
3. Enable `ChildrenFriendly` for watercloset designed specifically for child users.
4. Enable `BarrierFreeAccessibility` for watercloset designed specifically for wheelchair users.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcSanitaryTerminal
Wash Basin

☐ 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.

☐ REVIT ELEMENTS

Use Loadable Plumbing Fixture family instead of Generic Model.

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name wash basin consistently for clear identification.

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Redefined Type = WASHHANDBASIN`

☒ INFORMATION REQUIREMENTS

☐ ChildrenFriendly

☐ MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family.
2. Regulatory tap for wash basin must not be a nested family and should be modelled separately.
3. Enable `ChildrenFriendly` for wash basin designed specifically for child users.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`



IfcSanitaryTerminal Shower

☐ DESCRIPTION

A shower is a sanitary fixture designed to allow users to bathe by directing a spray of water over the body. It is commonly installed in bathrooms and can be wall-mounted, ceiling-mounted, or enclosed within a shower stall. Showers must be positioned and equipped to provide safe, comfortable use with proper drainage, slip resistance, and compliance with accessibility standards.

☐ REVIT ELEMENTS

Use Loadable Plumbing Fixture family instead of Generic Model

☐ HOSTING AND PLACEMENT

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

☐ NAMING CONVENTIONS

Name shower consistently for clear identification

☐ REVIT IFC EXPORT SETUP

Set the following parameters:

1. `Export to IFC As = IfcSanitaryTerminal`
2. `IFC Redefined Type = SHOWER`,

☐ MODELLING NOTES

1. Ensure that the model is clean, no unnecessary extrusions or nested family.

☒ CHECKLIST

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

☐ IFC EXPORT FORMAT

Export to `IFC-SG Regulatory Requirements View`