<changeLog id="e5c36d8f-9157-4461-b2fb-9e605d2d111c" changeDateTime="2021-06-04 16:04:12" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="e736ab04-66dc-4962-9876-a8aaad1190c5" changeDateTime="2021-06-04 16:05:52" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="3ce5d600-a41c-4a25-8927-b4f26709b5a3" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="a6c870a3-888e-426b-87d0-8189ec9965a9" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="934e341f-c951-43f0-b91c-d52f3ded1ac8" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="1f24153a-2be3-4a36-9c3d-1670f6ac615a" changeDateTime="2021-06-04 16:12:34" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="de1f77a0-74f3-447f-baf1-47318ff7c6e3" changeDateTime="2021-06-04 16:15:28" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="ConsStandard" changedFrom="" />
</changeLog>
<changeLog id="a209b8c6-ebea-4f58-9b9c-50450552fdd7" changeDateTime="2021-06-04 16:16:54" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="5232bde3-40d8-4564-98c8-2abdf979fbb3" changeDateTime="2021-06-04 16:16:59" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="ff354a14-7dba-49a2-9c5a-a37cad2b18f1" changeDateTime="2021-06-04 16:20:04" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="bebc7f8a-e634-4d6c-9489-bd4c1cab74b9" changeDateTime="2021-06-04 16:20:04" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="5cae67a3-4296-4b0c-9ba0-12ac16fa63c0" changeDateTime="2021-06-04 16:20:04" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="99ebf7c1-d24f-42dc-b3ea-39e501970ecc" changeDateTime="2021-06-04 16:22:38" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>

<changeLog id="293ed3e2-f8e1-4914-84e1-c9c0a9fbfa8e" changeDateTime="2021-06-04 16:24:25" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
    <change changedElement="ConsStandard" changedFrom="" />
</changeLog>
<changeLog id="efe1d1f3-e57c-46c3-a9b4-8ebc428fe0d1" changeDateTime="2021-06-04 15:50:12" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="82a94319-9cd1-4777-9044-3b64b094eb67" changeDateTime="2021-06-04 15:50:25" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="e6c05e93-66fe-44a4-9102-1e556b82b3c3" changeDateTime="2021-06-04 16:03:07" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="7255e0af-4139-439f-8d73-dff1c8d17fd3" changeDateTime="2021-06-04 16:03:45" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="73c5a550-7d39-4c71-b7d6-34de064b2e17" changeDateTime="2021-06-04 16:04:12" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="b8ea1280-061d-41f1-894f-0b1019f77eec" changeDateTime="2021-06-04 16:05:52" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="54d01e85-fd34-4f3a-9d99-c598ac6b9e" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
  <change changedElement="informationUnit" changedFrom="" />
</changeLog>
<changeLog id="5f4c74ea-d0b1-4eee-ad3f-7eafe564ba42" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="4f420e7f-5007-4c7f-8e96-faa9fac8c475" changeDateTime="2021-06-04 16:12:30" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="0d3ff0e1-1e88-4b13-8c19-02244399e5a2" changeDateTime="2021-06-04 16:12:34" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="719cebd3-11d1-411c-850b-16edc0d30652" changeDateTime="2021-06-04 16:15:28" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="ddc2ef7d-167c-4b6c-ba39-3f1914bb5bc4" changeDateTime="2021-06-04 16:16:54" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="b64c8643-ff7a-490d-bfc2-9023b7d770de" changeDateTime="2021-06-04 16:16:59" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>

<changeLog id="07b08ba8-bc19-41d3-abd2-7bfb438bdcd0" changeDateTime="2021-06-04 16:20:04" changeSummary="" changedBy="bd67776c-fb4f-460d-a074-735514bb1810">
   <change changedElement="informationUnit" changedFrom="" />
</changeLog>
The agreements listed below help ensure that every involved party will always be able to find and supply the right information in the right place.

- **file name**
  - Ensure that uniform and consistent naming is used for (discipline) models within the project.

- **Building**
  - **Discipline**
  - **Component**

**IfcProfileDef**
- IfcProfileDef is the supertype of all definitions of standard and arbitrary profiles within IFC. It is used to define a standard set of commonly used section profiles by their parameters or by their explicit curve geometry. Parameterized profiles are 2D primitives, which are used within the industry to describe cross sections by a description of its parameters. Arbitrary profiles are cross sections defined by an outer boundary as bounded curve, which may also include holes, defined by inner boundaries. Derived profiles, based on a transformation of a parent profile, are also part of the profile definitions available. In addition composite profiles can be defined, which include two or more profile definitions to define the resulting profile. HISTORY New entity in IFC1.5, the capabilities have been extended in IFC2x. Profiles can now support swept surfaces and swept area...
solids with inner boundaries. It had been renamed from IfcAttDrivenProfileDef. Change Ifc2x4 IFC4

CHANGE Changed from ABSTRACT to non abstract for uses which do not require an explicitly defined geometry. Added inverse attributes HasProperties and HasExternalReference. Use in material association Beams, columns, and similarly shaped building elements and their type objects may be associated with a section profile definition, combined with material definition, by means of IfcRelAssociatesMaterial together with IfcMaterialProfileSet and IfcMaterialProfileSetUsage. This way, building elements and element types with same section and material can share a common section profile definition and association. The profile definition in material association is required to be consistent with shape representations of the respective building elements. A higher level description of spatial alignment of the section profile of a member such as centered, bottom left, in the geometric centroid, and more can be provided within IfcMaterialProfileSetUsage by means of a cardinal point reference. This can be used redundant to geometric data in order to convey design intent. Use in shape models Profile definitions are used within the geometry and geometric model resource to create either swept surfaces, swept area solids, or sectioned spines. The purpose of the profile definition within the swept surfaces or swept area solids is to define a uniform cross section being swept along a line extrusion using IfcSurfaceOfLinearExtrusion or IfcExtrudedAreaSolid along a circular arc revolution using IfcSurfaceOfRevolution or IfcRevolvedAreaSolid along a directrix lying on a reference surface using IfcSurfaceCurveSweptAreaSolid. The purpose of the profile definition within the sectioned spine is to define a varying cross sections at several positions along a spine curve. The subtype IfcDerivedProfileDef is particularly suited to provide the consecutive profiles to be based on transformations of the start profile and thus maintaining the identity of vertices and edges. NOTE Subtypes of the IfcProfileDef contain parameterized profiles as subtypes of IfcParameterizedProfileDef which establish their own 2D position coordinate system, profiles given by explicit curve geometry either open or closed profiles and two special types for composite profiles and derived profiles, based on a 2D Cartesian transformation. An IfcProfileDef is treated as bounded area if it is used within swept area solids. In this case, the inside of the profile is part of the profile. The attribute ProfileType is set to AREA. An IfcProfileDef is treated as a curve if it is used within swept surfaces. In this case, the inside of the profile if the curve is closed is not part of the profile. The attribute ProfileType is set to CURVE. Figure 1 illustrates use of parameterized profiles within a swept area solid. Position The IfcProfileDef is defined within the underlying coordinate system which is defined by the swept surface or swept area solid that uses the profile definition. It is the xy plane of IfcSweptSurface.Position or of IfcSweptAreaSolid.Position or of each list member of IfcSectionedSpine.CrossSectionPositions. In the figure to the left, the z axis of the position coordinate system points outwards of the drawing plane. Note The subtype IfcParameterizedProfileDef optionally provides an additional 2D position coordinate system relative to the underlying coordinate system of the IfcProfileDef. Sweeping In the later use of the IfcProfileDef
within the swept surface or swept area solid, e.g. the IfcExtrudedAreaSolid here used as an example, the profile boundaries here based on the 2D position coordinate system of IfcParameterizedProfileDef are placed within the xy plane of the 3D position coordinate system of the swept surface or swept area solid. The profile is inserted into the underlying coordinate system either directly in case of using IfcArbitraryClosedProfileDef and IfcArbitraryOpenProfileDef, through an intermediate position coordinate system in case of using IfcParameterizedProfileDef, through an 2D Cartesian transformation operator applied directly to the curve position when using arbitrary profile definitions, or applied to the position coordinate system when using parameterized profile definitions in case of using IfcDerivedProfileDef. when using IfcCompositeProfileDef the insertion depends on the subtype of the included sub profiles. Figure 1 Profile sweeping Profile types Results of the different usage of the ProfileType attribute are demonstrated here. The ProfileType defines whether the inside the bounded area is part of the profile definition Area or not Curve. Figure 2 illustrates the resulting area or curve depending on ProfileType. ProfileType AREA ProfileType CURVE Figure 2 Profile types Profile specification by external reference If the profile is standardized by a norm or a catalogue, a reference to this norm or catalogue should be provided by means of HasExternalReference. This inverse relationship is used to associate an IfcExternalReference notably IfcClassificationReference or IfcLibraryReference with the profile. IfcClassificationReference is used to refer to a profile norm a common standard or manufacturer s standard. In this case, IfcClassificationReference.ItemReference contains the formal profile designation from the norm. On the other hand, IfcProfileDef.ProfileName contains a displayable name which may not necessarily be the same as the formal designation. IfcClassificationReference.Name carries the short name of the profile norm. Optionally, the norm can be further described by IfcClassificationReference.ReferencedSource. IfcLibraryReference is used to refer to a library which contains profile definitions. In this case, IfcLibraryReference.ItemReference contains the identifier of the profile within the library and is meant to be machine readable in contrast to IfcProfileDef.ProfileName which should be human readable. IfcLibraryReference.Location and . Name or . ReferencedLibrary further describe the library. If an external reference is provided, sending systems shall ensure that the shape of the profile definition object agrees with the definitions in the referenced classification or library. Direct instances of IfcProfileDef Usually, only subtypes of IfcProfileDef should be instantiated. In some special cases, e.g. if the profile object is used for purposes other than geometric models e.g. for structural analysis models, it may be possible to directly instantiate IfcProfileDef and further specify the profile only by external reference or by profile properties. The latter are tracked by the inverse attribute HasProperties. bSI Documentation"/>
and orientation" dataType="coordinate" isMandatory="true" definition="The local position of the building is coordinated and close to the origin. Tip: use a physical object as point of origin, positioned at 0.0.0, and also export this to IFC">

<correspondingExternalElement basis="bSDD" name="IfcReferent" bsdd="" comments="IfcReferent defines a position at a particular offset along an alignment curve. Referents may be used for several scenarios positioning physical elements at common locations along an alignment curve e.g. bridge piers indicating transitions for cross sections e.g. beginning of curvature where road is relatively flat, maximum curvature having super elevated cross slope to accommodate design speed indicating broken chainage where distance measurements reset or reverse directions indicating domain specific design parameters via property sets at locations along an alignment curve bSI Documentation" />

<informationUnit id="6ce1d21f-40a9-48a5-b33c-1a9f83daea8" name="building storeys and naming" dataType="string" isMandatory="true" definition="Name Building Storeys only as IfcBuildingStorey-Name. Allocate all objects to the correct level. Within a project, ensure that all involved parties consistently use exactly the same naming, that can be numerically sorted with a textual description.">

<correspondingExternalElement basis="" name="" bsdd="" comments="" />

</informationUnit>

<informationUnit id="b525434c-e0b6-4ea5-1f58edba738" name="correct use of entities" dataType="string" isMandatory="true" definition="Use the most appropriate type of BIM entity, both in the source application and the IFC entity.">

<textualExample description=" slab = ifcSlab, wall = ifcWall, beam = ifcBeam, column = ifcColumn, stair = ifcStair, door = ifcDoor etc." />

<correspondingExternalElement basis="bSDD" name="IfcStair" bsdd="" comments="A stair is a vertical passageway allowing occupants to walk step from one floor level to another floor level at a different elevation. It may include a landing as an intermediate floor slab. NOTE Definition according to ISO 6707 1 Construction comprising a succession of horizontal stages steps or landings that make it possible to pass on foot to other levels. The IfcStair shall either be represented as a stair assembly entity that aggregates all parts stair flight, landing, etc. with own representations, or" 

<graphicalExample filePath="" description="" />

</correspondingExternalElement>

</informationUnit>
as a single stair entity without decomposition including all representation directly at the stair entity. 

NOTE In case of an IfcStair being the aggregate of all parts of the stair the aggregation is handled by the IfcRelAggregates relationship, relating an IfcStair with the related IfcStairFlight and landings, IfcSlab with PredefinedType LANDING. IfcRailing s belonging to the stair may also be included into the aggregation. NOTE Model View Definitions and implementer agreements may restrict the IfcStair being an assembly to not have an independent shape representation, but to always require that the decomposed parts have a shape representation. In this case, at least the Body geometric representations shall not be provided directly at IfcStair if it is an assembly. The Body geometric representation of the IfcStair is then the sum of the Body shape representation of the parts within the decomposition structure. HISTORY New entity in IFC2.0. bSI Documentation" />

</informationUnit>

<informationUnit id="d6deb59f-ae2f-442a-ac97-6ba796b29816" name="structure and naming" dataType="string" isMandatory="true" definition="Consistently structure and name objects.&lt;br/&gt; Correctly enter the object TYPE (ifcType,&lt;br/&gt;ifcObjectType or ifcObjectTypeOverride),&lt;br/&gt; Where applicable, also correctly enter the&lt;br/&gt;Name (ifcName or NameOverride)."/>

<textualExample description=" roof insulation, type: glass fibre" />

<graphicalExample filePath="" description="" />

<correspondingExternalElement basis="bSDD" name="IfcTypeObject" bsdd="" comments="The object type defines the specific information about a type, being common to all occurrences of this type. It refers to the specific level of the well recognized generic specific occurrence modeling paradigm. The IfcTypeObject gets assigned to the individual object instances the occurrences via the IfcRelDefinesByType relationship. NOTE The terms Type and Style are often used interchangeably. The object type is represented by a set of property set definitions. The attached property sets describe the available alpha numeric information about the object type. and are used to define all common properties that apply to all object occurrences of that type. NOTE If a property having the same name is used within the IfcPropertySet assigned to an IfcTypeObject and subtypes and to an occurrence of that type, then the occurrence property overrides the type property. See IfcRelDefinesByType for an explanatory figure. Object types may be exchanged without being already assigned to objects. An object type may have an indication of the library or catalogue from which its definition originates. This association is handled by the inherited HasAssociations relationship pointing to IfcRelAssociatesLibrary . HISTORY New entity in IFC2x .change ifc2x3 IFC2x3 CHANGE The IfcTypeObject is now subtyped from the new supertype IfcObjectDefinition , and the attribute HasPropertySets has been changed from a LIST into a"/>
The entity IfcTypeObject shall be instantiated from Ifc2x4 onwards. It will be changed into an ABSTRACT supertype in future releases of IFC. The inverse attribute Types has been renamed from ObjectTypeOf.

Apply the existing classification system used in the relevant country. Allocate to each object an element code.

Allocate objects with a material description (IfcMaterial).

IfcMaterial is a homogeneous or inhomogeneous substance that can be used to form elements, physical products, or their components. IfcMaterial is the basic entity for material designation and definition. This includes identification by name and classification via reference to an external classification, as well as association of material properties isotropic or anisotropic defined by subtypes of IfcMaterialProperties. An instance of IfcMaterial may be associated to an element or element type using the IfcRelAssociatesMaterial relationship. The assignment might either be direct as a single material information, or via a material layer set a material profile set a material constituent set. An IfcMaterial may also have presentation information associated. Such presentation information is provided by IfcMaterialDefinitionRepresentation, associating curve styles, hatching definitions, or surface colouring rendering information to a material. HISTORY S New entity in Ifc2x4 CHANGE S The attributes Description and Category have been added.
There are no duplicates or intersections permitted. Make sure this is checked in IFC.

When naming objects, consider whether the name meets the following criteria. Double-check this, and know what information you are sharing.

Object information is secured in the correct properties and property sets as defined in IFC.

Allocate objects, when applicable, with the property LoadBearing.

[True/False]
A bearing which carries vertical load by compression of an elastomeric disc confined in a steel cylinder and which accommodates rotations by deformations of the disc.

Allocate objects, when applicable, with the property IsExternal.

Allocate objects, when applicable, with the property FireRating.

Define which IFC properties you are using for each specific project.
for beams, the properties FireRating, LoadBearing and IsExternal are part of the Pset_BeamCommon.