Oasys

Oasys GSA

IFC Reference

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Oasys GSA

Contents

GSA to IFC

Nodes

Materials

- IfcSchema::IfcMaterial, IfcSchema::IfcRelAssociatesMaterial

Colors

- IfcSchema::IfcPresentationStyleAssignment, IfcSchema::IfcStyledItem

Sections

- IfcSchema::IfcProfileDef
- IfcSchema::IfcCircleHollowProfileDef
- IfcSchema::IfcRectangleHollowProfileDef
- IfcSchema::IfcCircleProfileDef
- IfcSchema::IfcEllipseProfileDef
- IfcSchema::IfcRectangleProfileDef
- IfcSchema::IfcAsymmetricIShapeProfileDef
- IfcSchema::IfcIShapeProfileDef
- IfcSchema::IfcUShapeProfileDef
- IfcSchema::IfcTShapeProfileDef
- IfcSchema::IfcLShapeProfileDef
- IfcSchema::IfcTrapeziumProfileDef
- IfcSchema::IfcCShapeProfileDef

The above are standard sections. They can be disabled at the time of export and then arbitrary sections (by perimeter) are written:

- IfcSchema::IfcCompositeProfileDef containing instances of IfcSchema::IfcArbitraryClosedProfileDef

Analytic layer: elements

Beam types of elements are exported as

- IfcSchema::IfcProductDefinitionShape.

Tri/quad elements can be exported in three ways (option exists in export UI):

1. IfcSchema::IfcFace,
2. IfcSchema::IfcFaceBasedSurfaceModel,
3. IfcSchema::IfcExtrudedAreaSolid.

Brick element are exported as

- IfcSchema::IfcClosedShell in IfcSchema::IfcFacetedBrep.

Design layer: members, regions

Members are exported similarly to 1D elements + `IfcSchema::IfcRevolvedAreaSolid` is used to export arc beams.

Regions use IFC slab:

- IfcSchema::IfcSlab containing IfcSchema::IfcSlab (SweptSolid, CSG)

Grid lines

- IfcSchema::IfcGrid, IfcSchema::IfcGridAxis

Material assignments

- IfcSchema::IfcRelAssociatesMaterial

IFC to GSA

Materials

- IfcSchema::IfcRelAssociatesMaterial

Grids

- IfcSchema::IfcGrid

Building elements

Used to import beams/arcs, columns, braces into GSA as members. The following IFC elements are read

- IfcSchema::IfcBeam
- IfcSchema::IfcColumn
- IfcSchema::IfcDiscreteAccessory

- IfcSchema::IfcMember

Areas and their voids are read from these:

- IfcSchema::IfcPlate
- IfcSchema::IfcOpeningElement
- IfcSchema::IfcSlab
- IfcSchema::IfcWall
- IfcSchema::IfcWallStandardCase
- IfcSchema::IfcBuildingElementProxy

The above IFC elements contain number of encapsulated elements and combinations. Not all are supported since that would be expensive to implement. The support can be improved later. For the time being these encapsulated elements are recognized and supported to some degree:

- IfcSchema::IfcSweptAreaSolid
- IfcSchema::IfcRevolvedAreaSolid
- IfcSchema::IfcShellBasedSurfaceModel
- IfcSchema::IfcMappedItem
- IfcSchema::IfcPolyline
- IfcSchema::IfcBooleanResult
- IfcSchema::IfcBooleanClippingResult
- IfcSchema::IfcLShapeProfileDef, IfcSchema::IfcAsymmetricIShapeProfileDef, IfcSchema::IfcUShapeProfileDef, IfcSchema::IfcTShapeProfileDef, IfcSchema::IfcCShapeProfileDef, IfcSchema::IfcTrapeziumProfileDef

Other notes

The implementation is focused on Tekla. It might be useful for Revit as well, but it is primarily Revit plugin what is supposed to be used between Revit and GSA. Known issue is reference point for beams and slabs. The reference point might not appear as expected since it was not known how Tekla deals with the reference point. This issue should be fixed in GSA. Also section conversion table between Tekla and GSA should be implemented.