

openBIM Workflows mit Autodesk Produkten

May the Data be with you!

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Wer sind wir?

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Infrastruktur Enthusiast



Civil 3D



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Solutions Engineer, Architektin und
openBIM Expertin



Revit



AGENDA

Einführung openBIM

Aktueller Stand & Best Practices

Neueste Entwicklungen: IFC4.3

openBIM

Kollaborativer Prozess für den gesamten
Lebenszyklus von Bauwerken

offene und herstellerneutrale Standards
(IFC) BCF, COBie, CityGML, gbXML, ...)

The image features the letters 'IFC' in a bold, white, sans-serif font, centered on a dark, almost black background. The background is composed of several overlapping, angular planes that create a sense of depth and perspective. These planes are highlighted with bright, metallic-looking lines, possibly representing the edges of a futuristic device or a stylized architectural structure. The lighting is dramatic, with the highlights on the metallic surfaces contrasting sharply with the deep shadows of the dark planes.

IFC

IFC

= Industry Foundation Classes

Datenschema für semantischen
Datenaustausch im Bauwesen

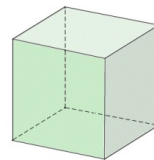
OBJEKTDEFINITION (KLASSE)

FUNKTIONALE
BESCHREIBUNG /
BEZIEHUNGEN



+

GEOMETRISCHE
BESCHREIBUNG

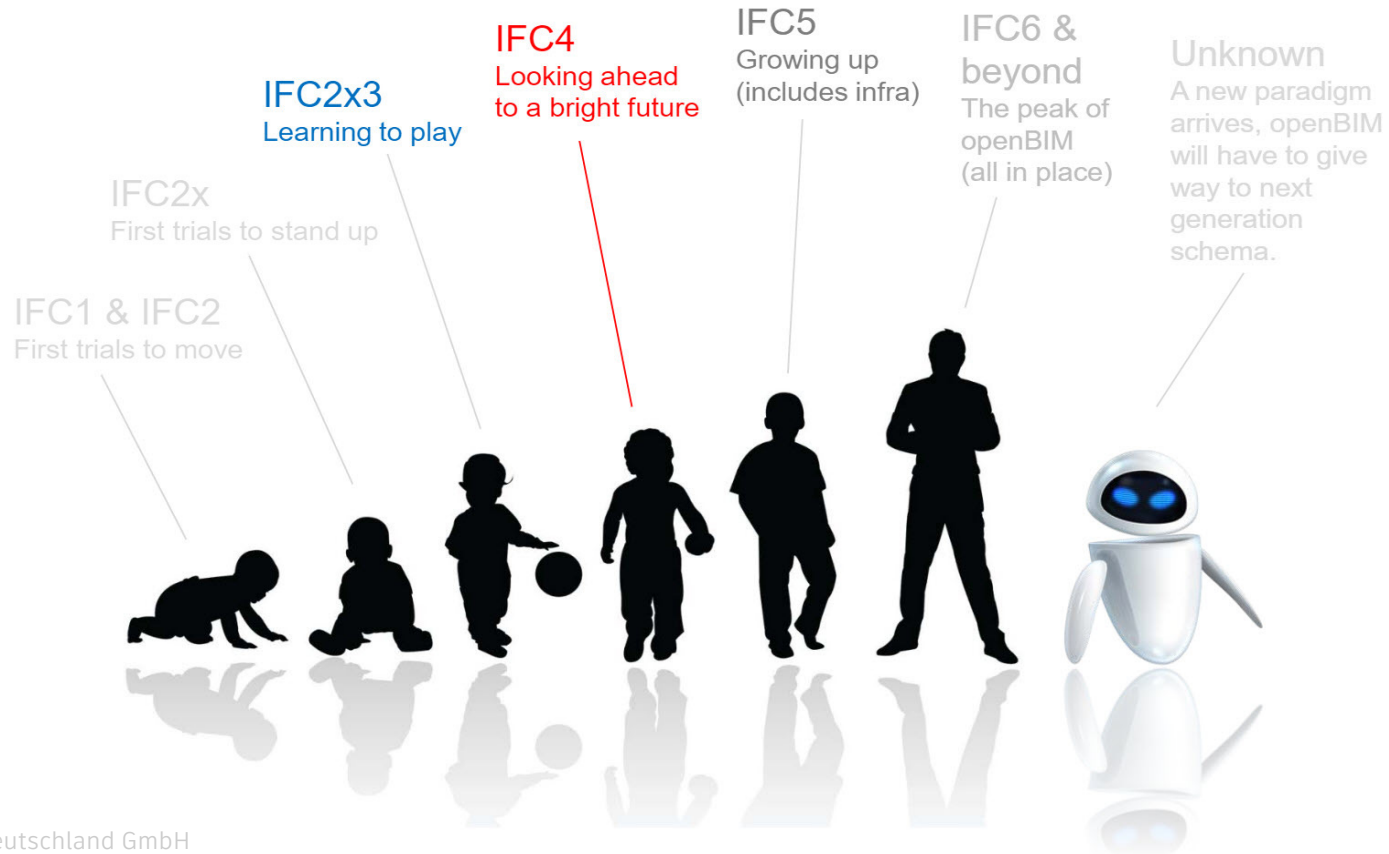


+

EIGENSCHAFTENSÄTZE
(PROPERTY SETS)



IFC Versionen

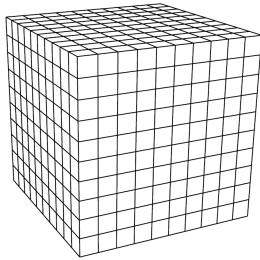


Model View Definition (MVD)

Modellansichtsdefinition, Teilmenge des IFC-Schemas, immer erforderlich

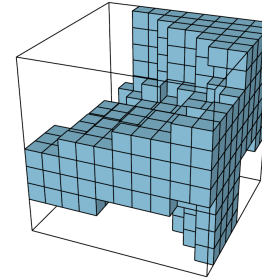
Offizielle MVDs von buildingSMART entwickelt, eigene MVDs können auch von Auftraggebern spezifiziert werden

IFC-SCHEMA



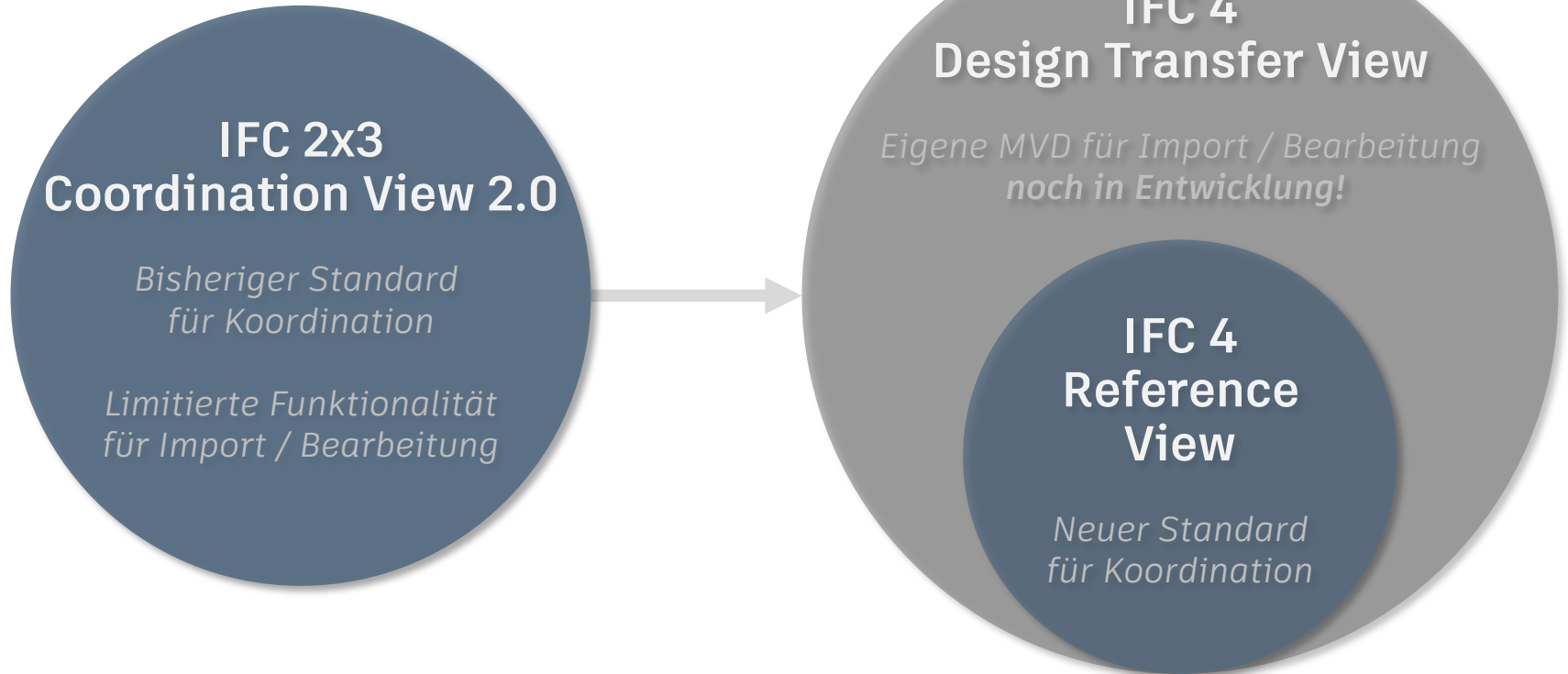
Enthält alle Definitionen und Beziehungen
für alle definierten Anwendungsfälle

MODEL VIEW DEFINITION



Teilmenge des IFC Schemas
für einen bestimmten Anwendungsfall,
z.B. Koordination, Mengenermittlung, Simulation

Meist genutzte MVDs



Autodesk IFC Support



NEU: IFC 4.3



buildingSMART zertifizierte Autodesk Produkte



Reference View export: Architecture/Structure/MEP
Reference View 1.21.2 import: Architecture



Coordination View 2.0 export: Architecture/Structure/MEP
Coordination View 2.0 import



Autodesk IFC Vision



Autodesk Mitglied seit 2020



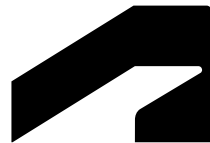
Early adoption of ODA SDK

Short Term



ODA IFC Cross Product Framework

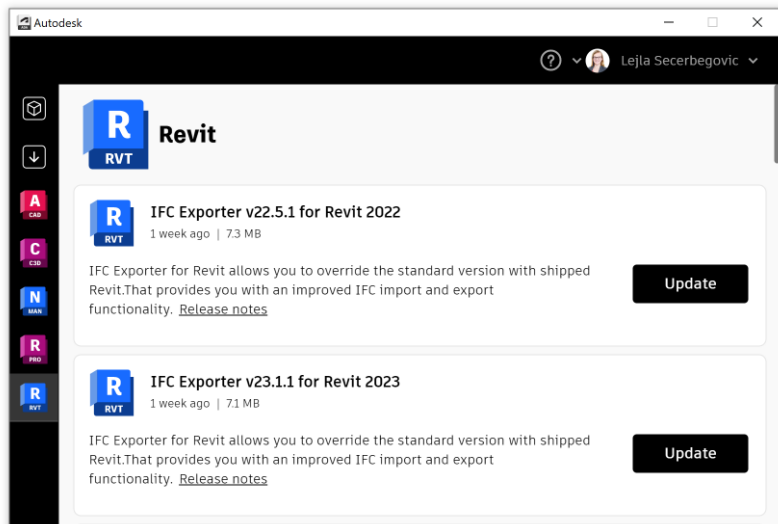
Longer Term

A close-up, low-angle shot of a metallic, reflective structure on the left side of the page. The structure is composed of several interconnected, polished metal beams that create a complex, geometric framework. The lighting is dramatic, highlighting the sharp edges and the highly reflective surfaces of the metal, which catch the light and create bright highlights and deep shadows. The background is a plain, light color, making the metallic structure stand out prominently.

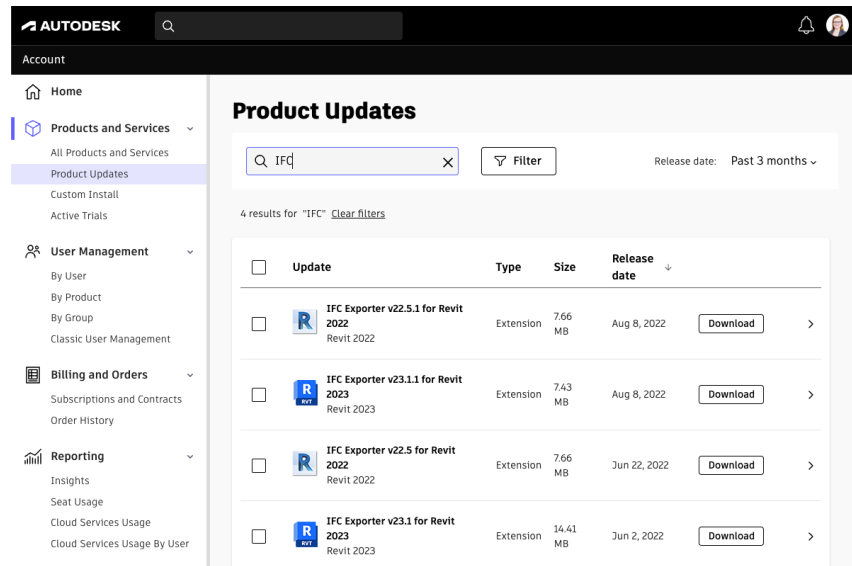
Aktuelle Entwicklungen und Neuerungen

Revit IFC Updates ab Revit 2022

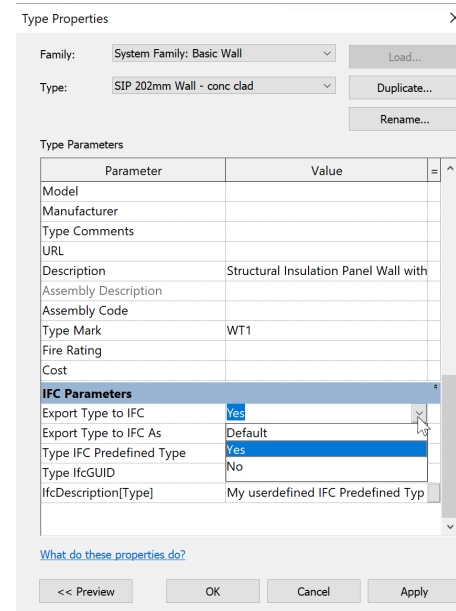
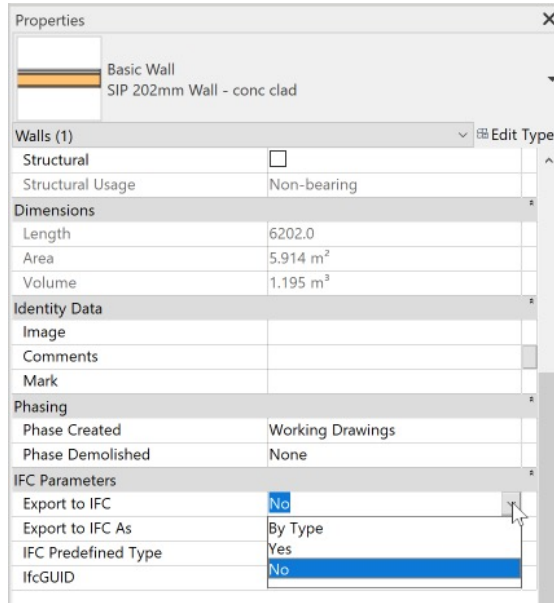
Autodesk Desktop App



Autodesk Account at manage.autodesk.com

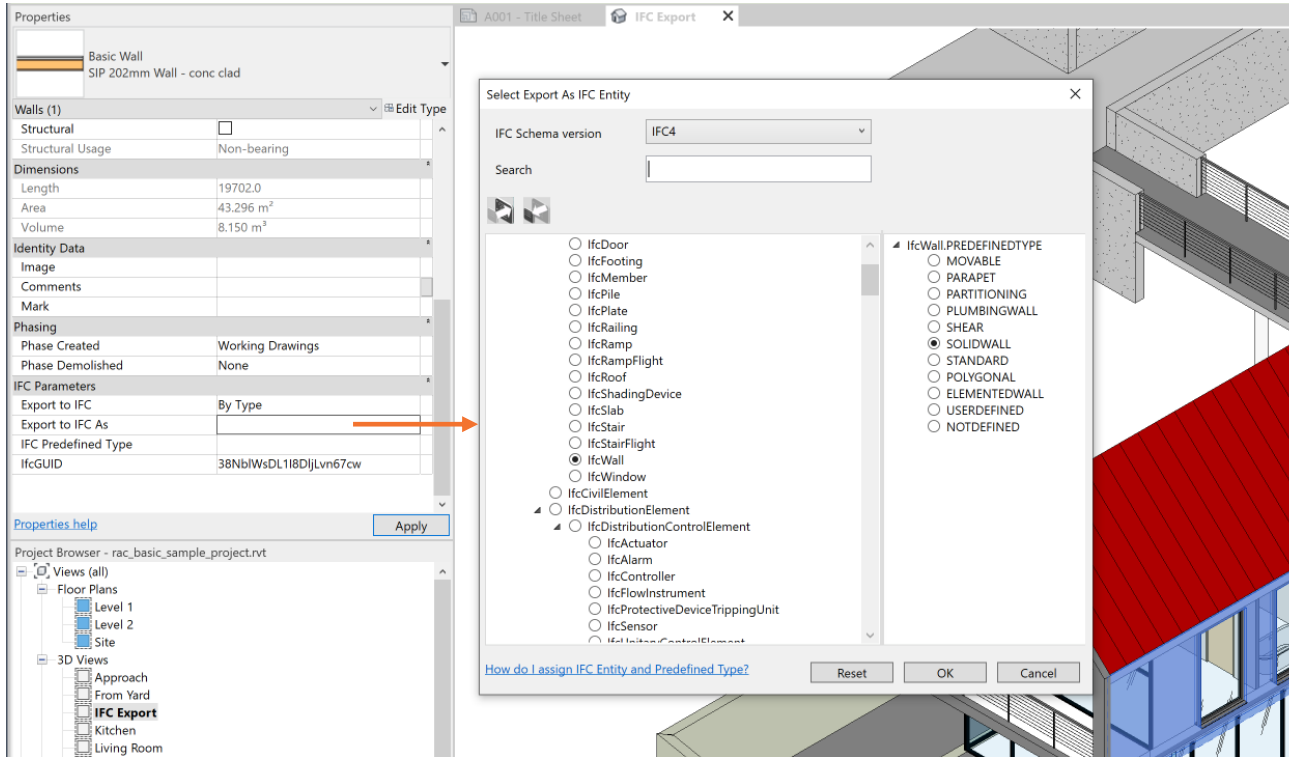


Neu in Revit 2023: Export to IFC



Neue Parameter auf Instanz bzw. Typ
(Instanz überschreibt Typ)

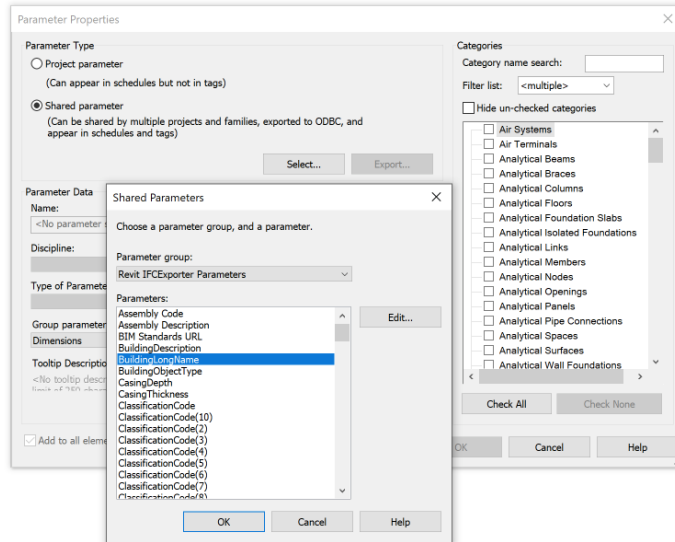
Neu in Revit 2023: Export to IFC As



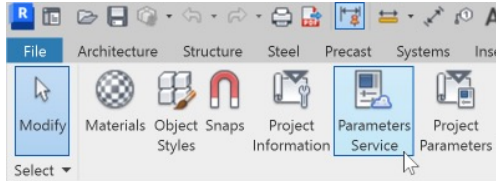
New in Revit 2023: Überarbeitete Parameter

C:\ProgramData\Autodesk\ApplicationPlugins\IFC 2023.bundle\Contents\2023

- IFC Shared Parameters-RevitIFCBuiltIn_ALL.txt
- IFC Shared Parameters-RevitIFCBuiltIn-Type_ALL.txt



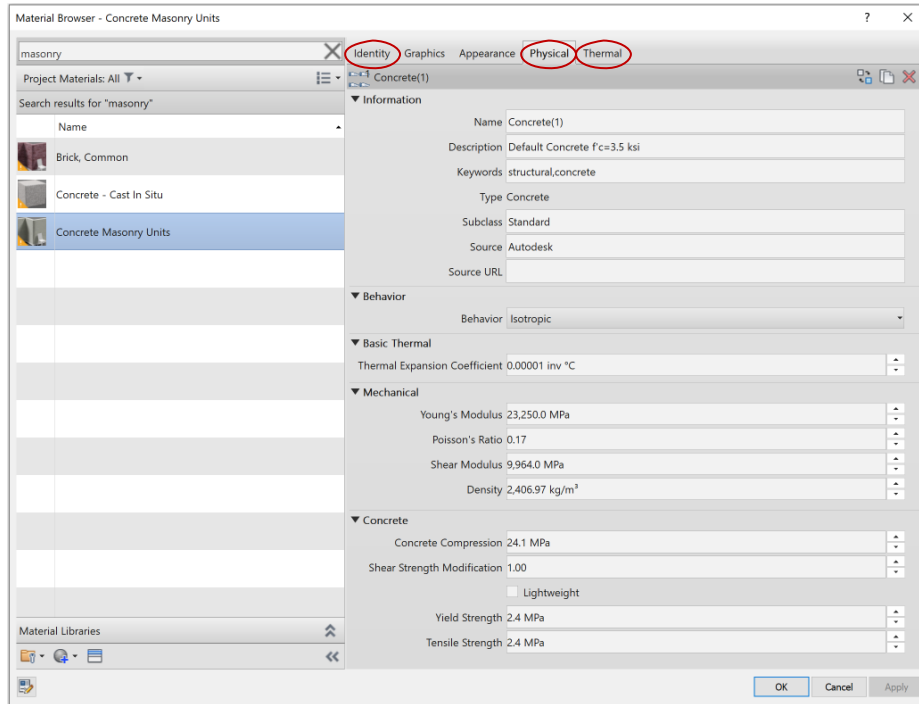
Neu in Revit 2023: Parameters Service



The screenshot shows the 'Parameters Service (Tech Preview)' window. At the top, there is a search bar with the text 'Wall' and a filter icon showing '1' result. Below the search bar, a table lists parameters with columns for 'Parameter Name', 'Data Type', 'Status', and 'Category'. The table contains 10 rows of data. At the bottom of the window, there is a 'Close' button and a small text prompt: 'How do I use the Parameters Service (Tech Preview)?'.

Parameter Name	Data Type	Status	Category
Pset_WallCommon.Com...	Yes/No	🔧	Walls
Pset_WallCommon.Load...	Yes/No	🔧	Walls
Pset_WallCommon.Exte...	Yes/No	🔧	Walls
Pset_ReinforcementBar...	Length	🔧	Walls
Qto_WallBaseQuantitie...	Area	🔧	--
IfcQtyNetWallArea	Area	🔧	--
Pset_WallCommon.IsEx...	Yes/No	🔧	Walls
Pset_WallCommon.Ther...	Number	🔧	--
Pset_ReinforcementBar...	Length	🔧	Walls
Qto_WallBaseQuantitie...	Area	🔧	--
Qto_WallBaseQuantitie...	Area	🔧	--

Neu in Revit 2023: Materialeigenschaften



The screenshot shows the 'Element Properties' dialog box for 'Concrete Masonry Units'. The 'Material' group is expanded, showing the following properties:

- Material: Concrete Masonry Units
- MaterialProperties
 - Identity (circled in red)
 - Category: Masonry
 - Class: Masonry
 - Cost: 0.00
 - Description: Concrete masonry units
 - Name: Concrete Masonry Units
- Structural (circled in red)
 - Behavior: Isotropic
 - ConcreteCompr...: 24132998.01
 - Density: 2407.31172
 - Description: Default Concrete f'c=3.5 ksi
 - Keywords: structural;concrete
 - Name: Concrete(1)
 - PoissonRatio: 0.167
 - ShearModulus: 9964000000.
 - ShearStrengthM...: 1.
 - Source: Autodesk
 - SubClass: Standard
 - TensileStrength: 2413299.8
 - ThermalExpansi...: 1.E-5
 - ThermallyTreated: FALSE
 - Type: Concrete
 - YieldStress: 2413299.8
 - YoungModulus: 23250000000.
- Thermal (circled in red)

Und vieles mehr..

Combined the Export to IFC As and IFC Predefined Type built-in parameters into one dialog and made them read-only.
Improved the position of certain beams when exporting to IFC.
Added time zone information to the header of exported IFC files, that can be seen in IFC viewers.
Removed restrictions of file size when importing and export IFC files.
Corrected the IFC GUID parameter value on export if the value used was different than the value set for the element.
Improved performance when opening some IFC files that have many grouped elements.
Added the ability to override the names of schedules when using them to create IFC property sets. Removed hidden fields when exporting schedules to IFC property sets.
Improved round-trip of IFC files from Revit that are intended for use in Solibri.
Preserved color when exporting some walls to IFC4 Reference View.
Provided basic support for linking IFC 4.X files, covering the geometries that Revit natively supports.
Improved creation of stable IFC GUIDs for IFC common property sets on export.
Improved IFC export of Revit properties that reference named Revit elements, so that the value shown in the UI is always used.
Added support for exporting combined parameters to IFC when the Export Schedules as Property Sets option is enabled.
Improved saving of options in IFC export configurations.
Improved support for linking in IFC 4 files using the IFCIndexedPolyCurve entity.
Improved some volume calculations when exporting quantities to IFC, and improved storage of some IFC GUIDs when exporting to IFC using the option to store GUIDs on export.
Improved stability while exporting to IFC.
Added support for importing and exporting IFC files of any size.
Added partial support for linking IFC4.X files.
Fixed an issue where floors with split faces didn't include material information when exporting to IFC.
Corrected the value of some element-based parameters on export to IFC to reflect the value seen in the Properties palette for the element.
Improved the export of walls with extensions cut by wall sweeps to IFC.
Improved relative positioning of exported IFC files when using the "Export Linked Files as Separate IFCs" option.
Improved the export of some structural foundation slabs with sketch openings to IFC.

Fixed units of Temperature properties exported to IFC.
Added support for fillets in IFCRoundedRectangleProfileDef, including when the filleting creates a circular profile.
Exported valid IFC files when the Revit model contained family types with invalid characters in their name.
Allowed setting the IFC GUID parameter correctly when an element in a group is copied.
Improved export of common property sets when creating IFC4 Reference View files.
Improved export of walls that are cut by floors to IFC.
Fixed export of thermal transmittance parameters to IFC.
Corrected the export of some proxy elements to IFC 2x3 with a user defined type. Corrected the export of some elements split into parts to IFC.
Improved export of openings in slanted floors to IFC.
Fixed export of door operation information to IFC4.
Improved localization of some IFC export dialog options.
Corrected export of Revit walls with openings and connections to IFC when the wall is set to export as an IFCSite (or other non-IFCElement subtype).
Corrected the export of some roofs modified by sub-elements to IFC4 using metric units.
Restored Exchange Requirements drop down in IFC Export modify config for IFC2x3.
Improved the export of openings in some floors to IFC.
Improved export of walls with connected openings to IFC.
Improved support for IFC4 Reference View geometries with IFCIndexedPolygonalFaces with arc segments.
Improved localization of the current selected setup dropdown in the IFC export dialog box.
Improved export of some walls that have different join conditions at the top and bottom of the wall.
Improved IFC2x3 export of some structural columns.
Improved export of some clipped structural beams to IFC.

Corrected units for some properties of rooms and spaces in schedules exported to IFC as property sets.
Fixed material export in cases when body exported as Brep.
Improved linking of IFC files that contain entities with tiny axes.
Fixed the center line location of beams with trimmed ends exported to IFC 2x3.
Added support for Sound power units on IFC export.
Improved the display of parts in linked IFC files where the top-level component had openings.
Improved linking of IFC files that contained swept disk solids far from the origin.
Improved export of some fabrications elements to IFC4 Reference View.
Improved localization of certain IFC dialogs.
Removed truncated strings from some localized IFC dialogs.
Corrected the export of several MEP properties to IFC.
Improved linking in IFC files with geometry created by cutting the geometry with slightly misaligned voids.
Improved export of some walls to IFC that have different geometric representations in different phases.
Improved support for some revolved area solids when opening some IFC files.
Improved linking of IFC files very far from the origin.
Supported the export of some time based units to IFC.
Improved reloading of IFC links when mapped items were updated.
Improved export of some walls to IFC whose end is cut by an In-place void.
Improved exporting of color for some MEP elements to IFC whose color is defined by their containing system.
Improved support for linking some IFC files with syntax errors.
Allowed linking of some IFC files with footprint representations.
Improved the ability to create holes in some linked IFC data when the base solid had some gaps in its boundary and improved visibility control for some linked IFC spaces defined by meshes.
Fixed the classification of structural columns converted into in-place families when opening IFC files.

Improved performance when exporting elements with complex geometries to IFC4 Reference View.
Improved the location of IFC content when linking in files with multiple sites or sites far from the origin.
Fixed an issue that could cause unexpected hiding of some imported elements.
Fixed rotation of linked IFC files brought into Revit host files with a rotated project north.
Significantly improved performance linking in IFC files containing many type entities with duplicate names.
Corrected placement of rebars exported to IFC as proxy elements (IFCBuildingElementProxy).
Improved IFC export of some slanted walls.
Improved linking of IFC files with incorrectly closed profiles curves for extruded data.
Corrected GUIDs when exporting to IFC if an invalid value was set by the user.
Stabilized GUID on IFC export of some doors hosted in in-place walls.
Improved linking of IFC files containing faceted geometric data that is slightly non-planar according to Revit.
Fixed the IFC export of some files containing zone classification codes as shared parameters in rooms.
Allowed the creation of custom property sets for some topological surfaces exported to IFC.
Improved export of slanted walls to IFC.
Improved linking of some IFC files created by Rhinoceros 3D.
Fixed the ability to export IFC files when Revit is installed to a path that includes special characters.
Improved the creation of openings for some walls export to IFC with the option to split walls by level selected.
Improved the positioning of nested openings inside of door and window families when exporting to IFC.
Improved support for opening some IFC files that contain geometry with non-uniform scaling.
Allowed linking of IFC files where the site's local placement is relative to the building, instead of the reverse, which is standard.
Included wall in linking of IFC walls when they contained excluded doors and windows.
Fixed the export to IFC of some slanted extruded geometry.
Improved export of walls containing adjacent openings to IFC.

Enhancements | Revit 2023

Issues Resolved | Revit 2023

Revit IFC Roadmap

<https://trello.com/b/ldRXK9Gw/revit-public-roadmap>



The screenshot shows a Trello board titled "Revit Public Roadmap" with a "Board" view. The board is organized into columns representing different Revit categories, and each column contains cards for specific features or updates. The "For IFC" column is highlighted with a red border.

- Ground Rules**
 - Revit Product Roadmap Announcement - check out our New Public Roadmap! <https://blogs.autodesk.com/revit/roadmap/> (5 likes)
 - This roadmap may make statements regarding future events and development efforts for our products and services. These statements reflect our current expectations based on what we know today. Our plans are not intended to be a promise or guarantee of future delivery of products, services or features and purchasing decisions should not be made based upon these statements. We do not assume any responsibility to update this roadmap to reflect events that occur or circumstances that exist after the publish date of this roadmap. (8 likes)
 - Track Ideas**
 - Look for the Revit Idea label to find roadmap items which originate from Revit Ideas. (1 like)
 - New**
 - Easily identify items that are new to the roadmap. (1 like)
 - Vote**
 - Vote for the roadmap items you find most important. (8 likes)
- Released in Revit 2023.1**
 - Office 095 (1 like)
 - Automatic Leaders for Room, Space, and Area Tags (90 likes)
 - Auto detect Units from Survey Feet based DWG files (24 likes)
 - Analytical to physical model creation and update automation (24 likes)
 - Enhanced physical/analytical objects associations (35 likes)
- For Everyone**
 - Dark Theme (268 likes)
 - Schedule Revision Clouds (121 likes)
 - Sort Project Parameters (148 likes)
 - Provide unit symbol options for Fractional Inches unit type. (16 likes)
 - Modernize Data Referencing (108 likes)
 - Forge: Design Automation API Edit Cloud Models (57 likes)
 - Forge: Design Automation API Edit Cloud Models (57 likes)
 - Content Management and Delivery (205 likes)
 - Loadable Generic Modeling for System Families (1 like)
- For Architecture**
 - Consistent Colors with Textures (143 likes)
 - Smarter annotations (248 likes)
 - Next Generation Insight Energy Analysis and Sustainability Service (67 likes)
 - Real 3D Wall Layers (385 likes)
 - Real 3D Topography (410 likes)
 - Appearance Asset Overrides (131 likes)
- For Systems Engineering**
 - Energy & Mechanical Systems Analysis - Analytical Model Improvements (13 likes)
 - Energy and Mechanical Systems Analysis - Easier Analytical Model Workflow Navigation (38 likes)
 - Energy and Mechanical Systems Analysis in the Cloud (Next Gen Insight) (44 likes)
 - Mechanical Design to Fabrication Integration (e.g. Flow on Fab Parts) (12 likes)
 - MEP Fabrication Data Quality: Straight Adjusts (7 likes)
 - MEP Fabrication Data Quality: Seams (5 likes)
 - MEP Fabrication Data Quality: Notches (1 like)
- For Working Together**
 - ISO 19650 Compliance Support (164 likes)
 - Cloud Worksharing: Initiate/Link API (41 likes)
 - Cloud Worksharing: Publish Nested Links (97 likes)
 - Cloud Worksharing: Manage Cache Size + Location (105 likes)
 - Cloud Worksharing: FedRAMP Support (27 likes)
- For IFC**
 - Consistent GUIDs on IFC Export** (45 likes)
 - Options for Federated IFC Export** (50 likes)
 - Category Mapping Improvements** (39 likes)
 - IFC Performance Enhancements** (38 likes)
- For Structural Engineering**
 - Structural loads enhancements (39 likes)
 - Structural loads combinations automation (30 likes)
 - Analytical panels modeling through extrusions (25 likes)
 - Bending Details in Rebar Schedules (128 likes)
 - Bar Bending Details for Reinforcement Drawings (123 likes)
 - Partial Openings in Area Reinforcement (69 likes)
- For Generative & Computational Design**
 - Trust Warnings for Dynamo and Player (14 likes)
 - More File Locations stored in settings. (18 likes)
 - Settings: Deployment
 - Deployable DynamoSettings.xml (10 likes)
 - Dynamo Graph Node Manager



IFC 4.3

Aktueller Stand IFC 4.3 Standardisierung

<https://technical.buildingsmart.org/standards/ifc/ifc-schema-specifications/>



Home

Standards ▾

Services ▾

Resources ▾



IFC Specifications Database

Official releases of the IFC specification are listed here, as well as their components including HTML, EXPRESS, XSD/XML, and OWL documentation and formats.

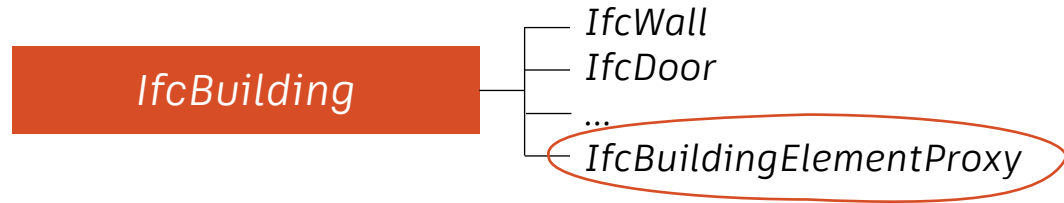
Release Notes and Errata for all versions can be found [here](#).

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Search:

Version	Name (HTML Documentation)	ISO publication	Published (yyyy-mm)	Current Status	HTML	EXPRESS	XSD	pSet XSD	OWL HTML	RDF	TTL
4.3.1.0	IFC4.3 ADD1 (zip)	Under ISO DIS Voting		under ISO DIS Voting	HTML						
4.0.2.1	IFC4 ADD2 TC1	ISO 16739-1:2018	2017-10	Official	ZIP	EXP	IFC4.xsd	-	ifcOWL IFC4 ADD2 TC1	RDF	TTL

IFC 2x3 / IFC 4



Das Problem mit *IfcBuildingElementProxy*...

A large, dense pile of multi-colored LEGO bricks, including various shapes and sizes like 1x2, 1x3, and 1x4 bricks, in colors such as red, blue, yellow, green, and white. The bricks are scattered and overlapping, creating a textured, chaotic background.

IFC 4.3

IfcBuilding

IfcBridge

IfcRailway

IfcRoad

IfcMarineFacility

IfcTunnel (IFC 4.4)



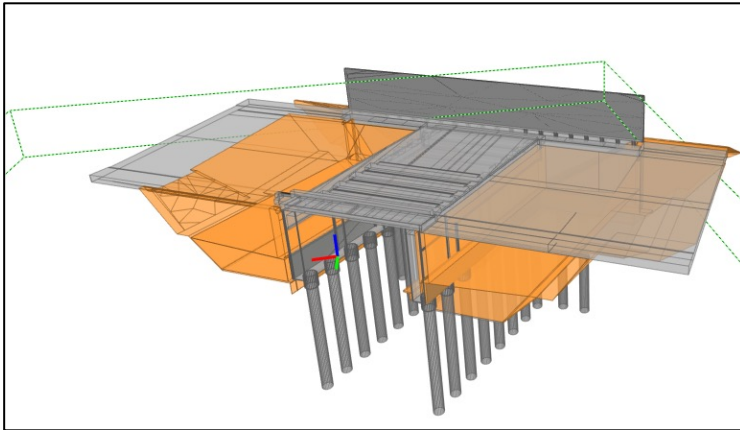
Infrastructure Model View Definitions

→ werden aktuell von der buildingSMART entwickelt

Coordination / Reference View

Component placement in project coordinate system (XYZ)

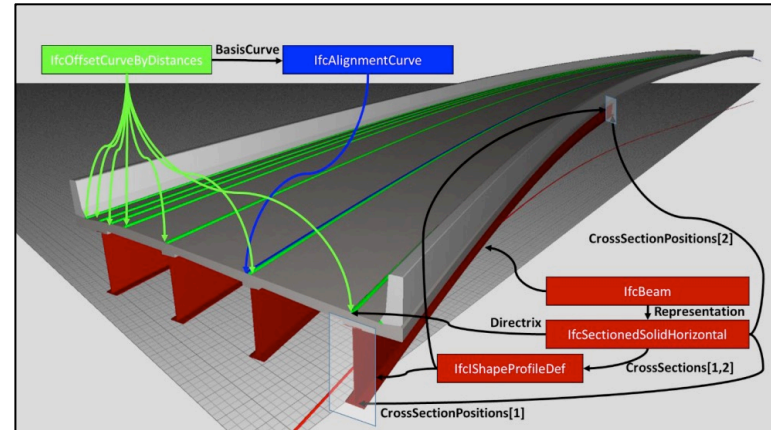
→ *coordinate-based approach*



Alignment-based Reference View

Component Placement relative to a given *IfcAlignment* curve

→ *alignment-based approach*



Source: Sebastian Esser TUM

Aktuelle IFC 4.3 Unterstützung



Civil 3D
2022.2



Revit
2023.1



AUTODESK
Docs



IFC 4x3 Extension for Autodesk® Civil 3D® 2022

1 week ago | 4.6 MB

The IFC 4x3 Extension for Civil 3D adds commands to configure, import and export IFC files in Civil 3D. The extension allows creation of IFC 4, IFC4x3 RC4 and IFC4x3 export files and will import all IFC formats up to IFC 4x3. [Release notes](#)

Update

IFC 4.3 Plugin für Civil 3D



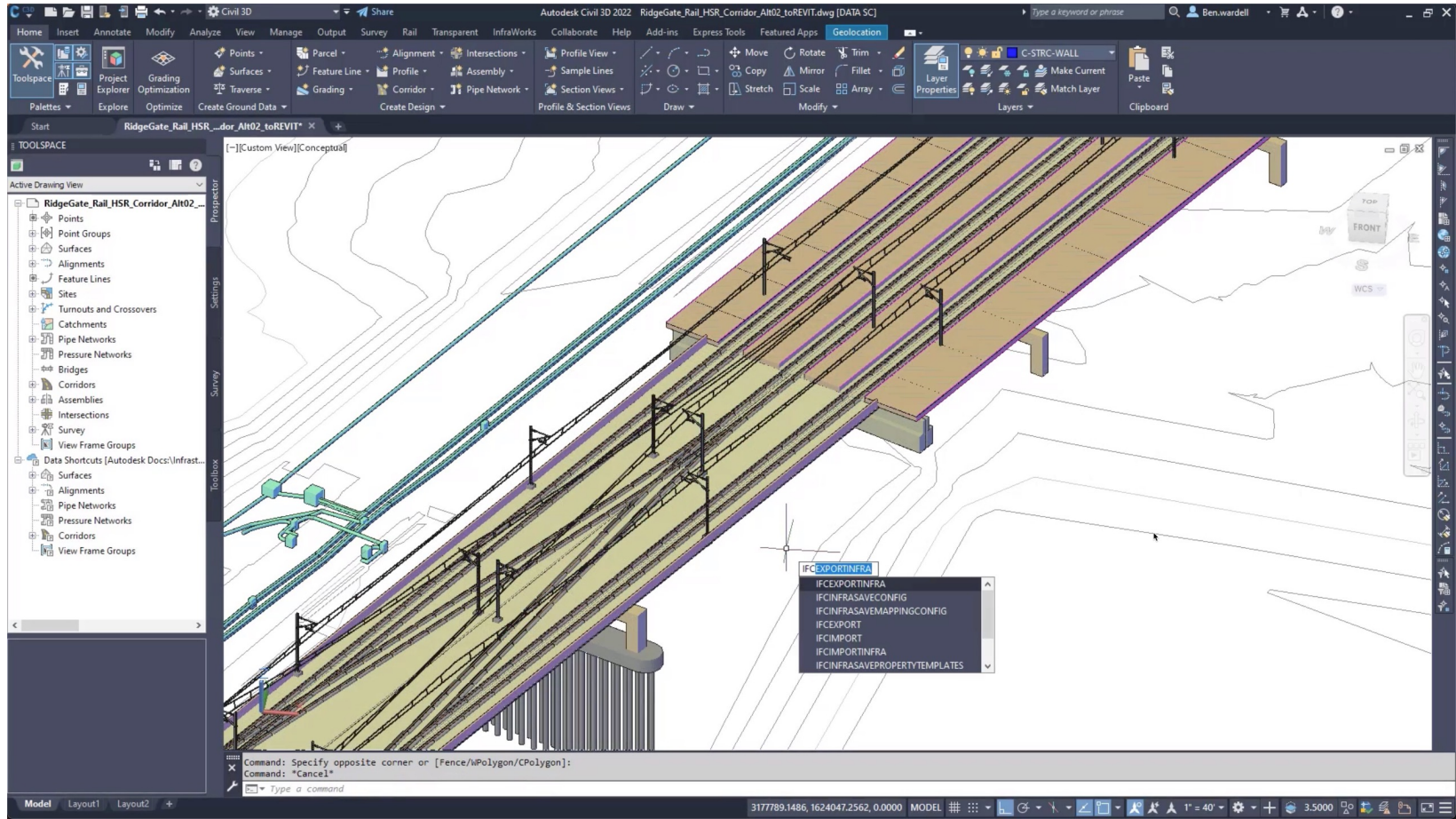
- Unterstützt neben Solids, 3D Polylinien, Punkten und Blöcken auch **Vermessungspunkte, Trassendaten, Elementkanten, Profilkörper (+Volumenkörper der Profilkörper), DGMs und weitere Dreiecksvermaschungen, Schicht-Körper, Kanal- und Druckleitungsnetze**
- Mapping von Objekttypen auf **IFC Klasse / Typ**
- Mapping von Eigenschaften auf **IFC PropertySets**
- **Lokales Koordinatensystem**

Zu beachten:

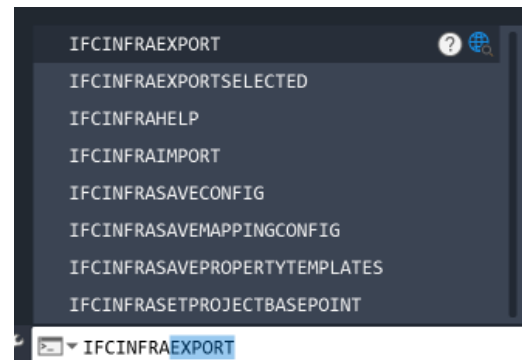


- Keine Unterstützung für 2D Objekte (Linien, Text, Beschriftungen, Pläne etc.)
- Keine Roundtrips (Datenübergabe zwecks Nachbearbeitung)
- Parametrische oder berechnete Geometrie wird als 3D Objekt aufgelöst
- Achsen und Profile werden in Kurven und Tangenten umgewandelt

Export aus Civil 3D



Civil 3D IFC: IFCINFRA...



Befehl	Beschreibung
IFCInfraExport	Exportiert das aktuelle Projekt in eine IFC-Datei.
IFCInfraExportSelected	Exportiert die Objekte aus einem ausgewählten Satz in eine IFC-Datei.
IFCInfraSavePropertyTemplates	Exportiert die IFC-Parameterdefinitionsdatei und eine zugehörige Civil 3D-Parameterzuordnung.
IFCInfraHelp	Zeigt die Online-Dokumentation und andere hilfreiche Ressourcen an.
IFCInfraImport	Importiert eine IFC-Datei in Civil 3D.
IFCInfraSaveConfig	Erstellt eine Konfigurationsdatei im aktuellen Zeichnungsordner.
IFCInfraSaveMappingConfig	Erstellt eine Zuordnungskonfigurationsdatei im aktuellen Zeichnungsordner.
IFCInfraSetProjectBasePoint	Legt einen Basispunkt für das Projekt fest.

IFCInfraSaveConfig

→ generiert *IfcInfraConfiguration.json* im selben Ordner

- Änderung des IFC Mappings bei bedarf
- Ausschließen bestimmter C3D Objekte

```
{
  "Export": {
    "DefaultIfcZip": false,
    "FacetDistanceToleranceMetric": 0.002,
    "FacetDistanceToleranceImperial": 0.006,
    "AbortIfOutOfDate": false,
    "AutomaticSaveDocument": false,
    "ExportPropertiesFromCivilEntityProperties": true,
    "ExportMaterials": true,
    "ExportAlignments": true,
    "ExportCorridors": true,
    "ExportCorridorFeatureLines": false,
    "ExportBridges": true,
    "ExportCogoPoints": true,
    "ExportFeatureLines": true,
    "ExportSurfaces": true,
    "ExportBlockReferences": true,
    "ExportSolids": true,
    "ExportPoints": true,
    "ExportPolylines": true,
    "ExportPolyFaceMesh": true,
    "CorridorSectionedSurfaceCodes": [
      "Top",
      "Datum"
    ],
    "ExportCorridorShapesAsFallbackGeometry": true,
    "ExportCorridorShapesAsSweptGeometry": true,
    "VisibleLayersOnly": false,
    "ExportListPropertiesAsEnumeration": true,
    "ExportNonEPSGProjectedCoordinateSystem": true,
    "ProjectBasePointOnRootPlacement": false,
    "ModelViewDefinition": "Ifc4X3NotAssigned",
    "ModelViewDefinitionsCurrentlySupported": [
      "Ifc4X3NotAssigned",
      "Ifc4Reference"
    ]
  }
}
```


IFCInfraSavePropertyTemplates

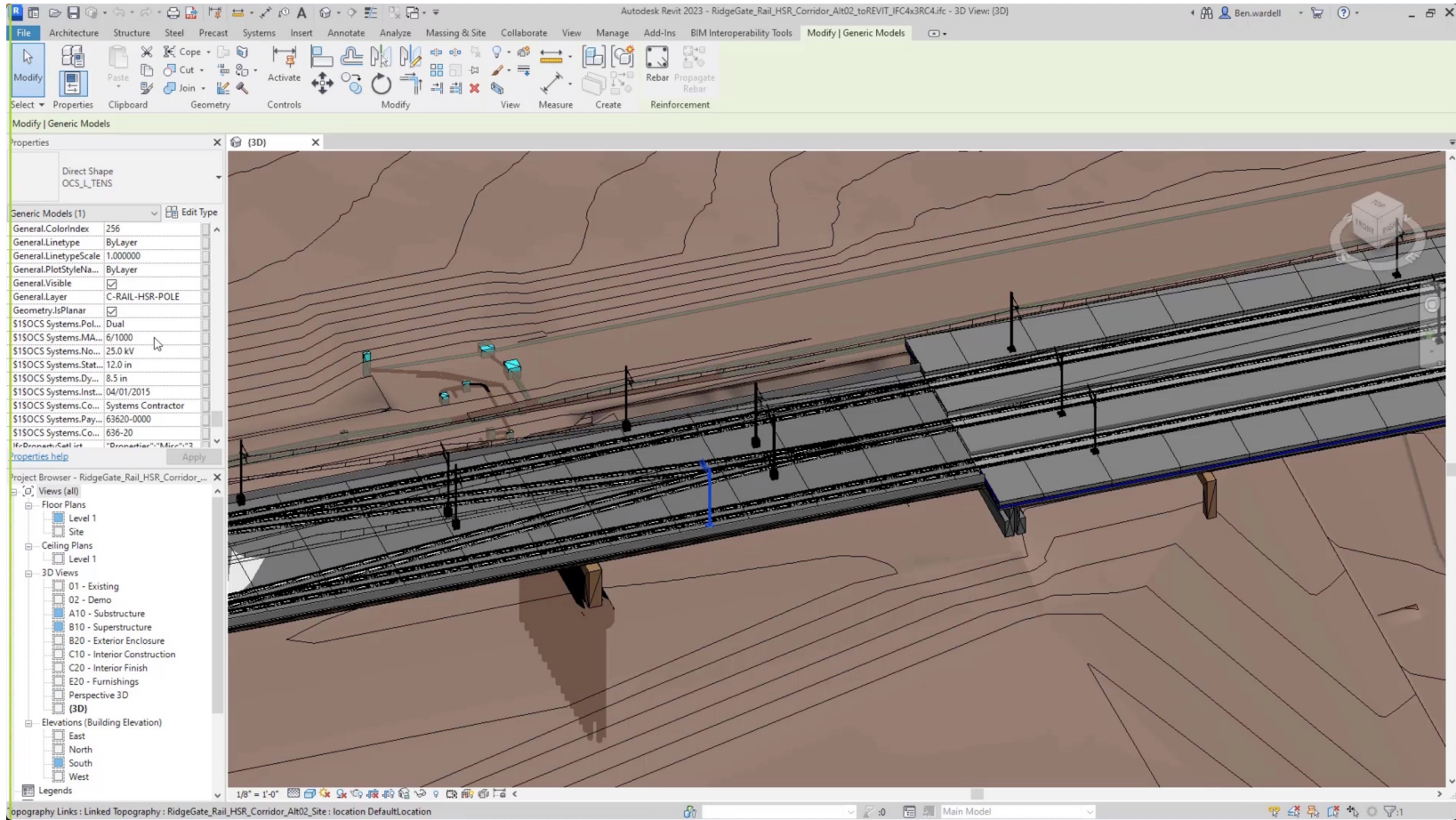
→ generiert *IfcInfraExportPropertyMapping.json* file + *.csv

- Definition von eigenen PSets
- Ausschließen von Eigenschaften

```
{
  "PropertySetTemplates": [
    {
      "Name": "Properties",
      "Description": "",
      "TemplateType": "NOTDEFINED",
      "ApplicableEntities": "IfcElement",
      "PropertyTemplates": [
        {
          "Name": "Convergence",
          "Description": "",
          "PrimaryMeasureType": "IfcReal"
        },
        {
          "Name": "DescriptionFormat",
          "Description": "",
          "PrimaryMeasureType": "IfcLabel"
        },
        {
          "Name": "Easting",
          "Description": "",
          "PrimaryMeasureType": "IfcReal"
        },
        {
          "Name": "Elevation",
          "Description": "",
          "PrimaryMeasureType": "IfcReal"
        },
        {
          "Name": "ElevationOverride",
          "Description": "",
          "PrimaryMeasureType": "IfcReal"
        },
        {
          "Name": "FullDescription",
          "Description": "",
          "PrimaryMeasureType": "IfcLabel"
        },
        {
          "Name": "FullDescriptionOverride",
          "Description": "",
          "PrimaryMeasureType": "IfcLabel"
        }
      ]
    }
  ]
}
```

	A	B	C	D	E	F
1	IfcPropertySet Name	IfcProperty Name	Active Source	Group	Civil 3D Name	
2	Properties	Convergence	TRUE	General	Properties	Convergence
3	Properties	DescriptionFormat	TRUE	General	Properties	DescriptionFormat
4	Properties	Easting	TRUE	General	Properties	Easting
5	Properties	Elevation	TRUE	General	Properties	Elevation
6	Properties	ElevationOverride	TRUE	General	Properties	ElevationOverride
7	Properties	FullDescription	TRUE	General	Properties	FullDescription
8	Properties	FullDescriptionOverride	TRUE	General	Properties	FullDescriptionOverride
9	Properties	GridEasting	TRUE	General	Properties	GridEasting
10	Properties	GridNorthing	TRUE	General	Properties	GridNorthing
11	Properties	IsCheckedOut	TRUE	General	Properties	IsCheckedOut
12	Properties	IsLabelDragged	TRUE	General	Properties	IsLabelDragged
13	Properties	IsLabelPinned	TRUE	General	Properties	IsLabelPinned
14	Properties	IsLabelVisible	TRUE	General	Properties	IsLabelVisible
15	Properties	IsLocked	TRUE	General	Properties	IsLocked
16	Properties	IsMovable	TRUE	General	Properties	IsMovable
17	Properties	IsProjectPoint	TRUE	General	Properties	IsProjectPoint
18	Properties	IsSurveyPoint	TRUE	General	Properties	IsSurveyPoint
19	Properties	LabelRotation	TRUE	General	Properties	LabelRotation
20	Properties	Latitude	TRUE	General	Properties	Latitude
21	Properties	Longitude	TRUE	General	Properties	Longitude
22	Properties	MarkerRotation	TRUE	General	Properties	MarkerRotation
23	Properties	Northing	TRUE	General	Properties	Northing
24	Properties	PointName	TRUE	General	Properties	PointName
25	Properties	PointNumber	TRUE	General	Properties	PointNumber
26	Properties	RawDescription	TRUE	General	Properties	RawDescription
27	Properties	RawDescriptionOverride	TRUE	General	Properties	RawDescriptionOverride
28	Properties	Scale	TRUE	General	Properties	Scale
29	Properties	ScaleXY	TRUE	General	Properties	ScaleXY
30	Properties	ScaleZ	TRUE	General	Properties	ScaleZ
31	Properties	ShowTailTip	TRUE	General	Properties	ShowTailTip
32	Properties	CloneMeForDragging	TRUE	General	Properties	CloneMeForDragging
33	Properties	ForceAnnoAllVisible	TRUE	General	Properties	ForceAnnoAllVisible
34	Properties	HasSaveVersionOverride	TRUE	General	Properties	HasSaveVersionOverride
35	Properties	IsCancelling	TRUE	General	Properties	IsCancelling
36	Properties	IsErased	TRUE	General	Properties	IsErased
37	Properties	IsErasedStatusToggled	TRUE	General	Properties	IsErasedStatusToggled
38	Properties	IsModified	TRUE	General	Properties	IsModified
39	Properties	IsModifiedGraphics	TRUE	General	Properties	IsModifiedGraphics
40	Properties	IsModifiedXData	TRUE	General	Properties	IsModifiedXData
41	Properties	IsNewObject	TRUE	General	Properties	IsNewObject
42	Properties	IsNotifyEnabled	TRUE	General	Properties	IsNotifyEnabled
43	Properties	IsNotifying	TRUE	General	Properties	IsNotifying

Link in Revit (inkl. Eigenschaften)



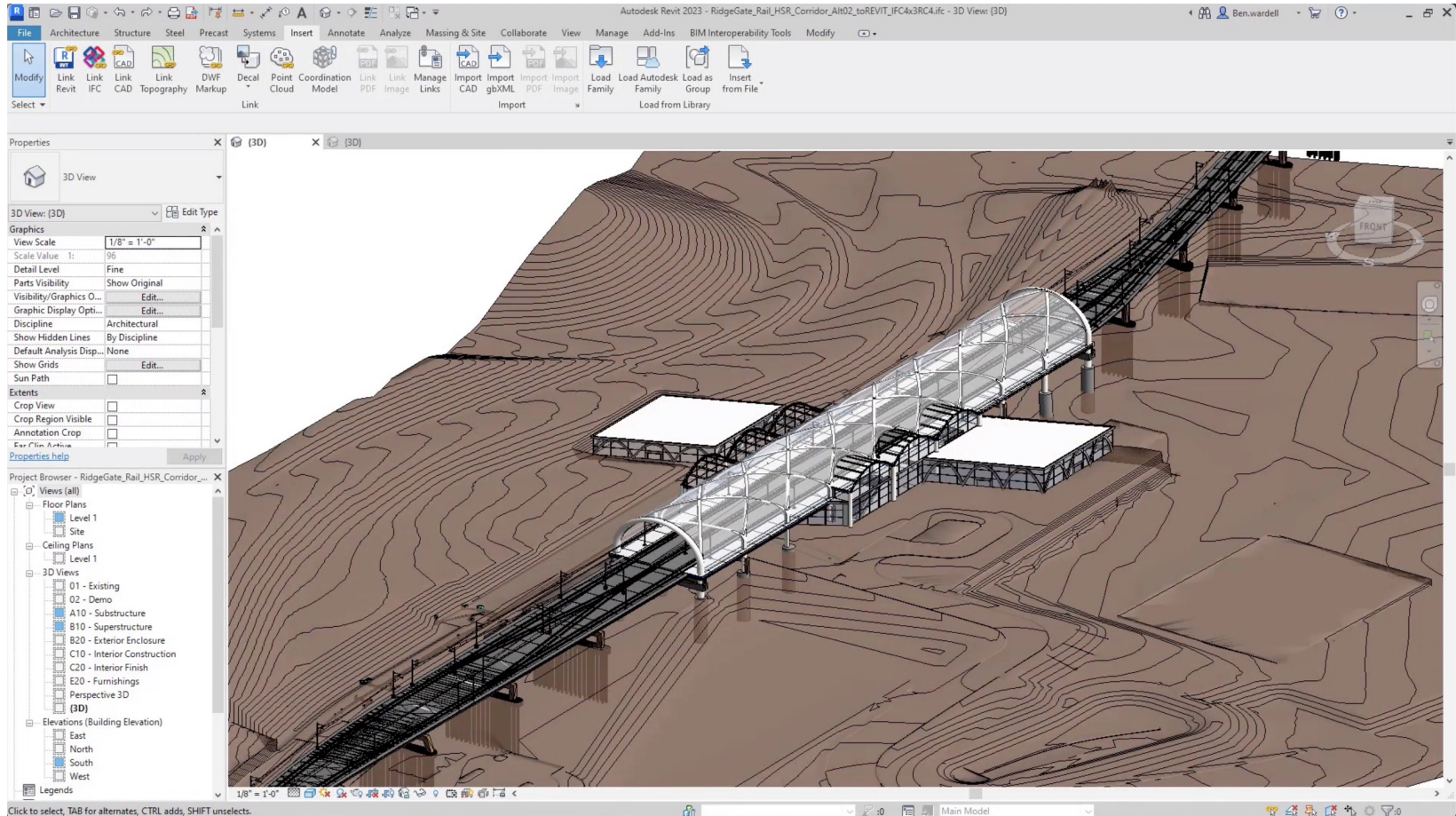
2D Ansichten und intelligente Beschriftung

The screenshot displays the Autodesk Revit 2023 interface for a rail corridor project. The main view is a 2D section of a bridge structure, showing the substructure (piles) and superstructure (girders and tracks). The drawing includes intelligent annotations for poles and tracks, such as:

- POLE ID: 30044
- POLE TYPE: 2048
- NORMAL VOLTAGE: 25.0 kV
- MAX FREQ NUMBER: 60000000
- SPECIFICATION NUMBER: 636.20
- POLE ID: 30050
- POLE TYPE: 2048
- NORMAL VOLTAGE: 25.0 kV
- INSTALL DATE: 04/12/2014
- MAX FREQ NUMBER: 60000000
- SPECIFICATION NUMBER: 636.20

The Properties panel on the left shows the 'Section: Section 1' settings, including a scale of 1" = 10'-0" and a display model of 'Normal'. The Project Browser on the left shows the hierarchy of views, including '3D Views' and 'Elevations (Building Elevation)'. The status bar at the bottom indicates the current view is 'Workset1: Generic Models: Direct Shape: *U751'.

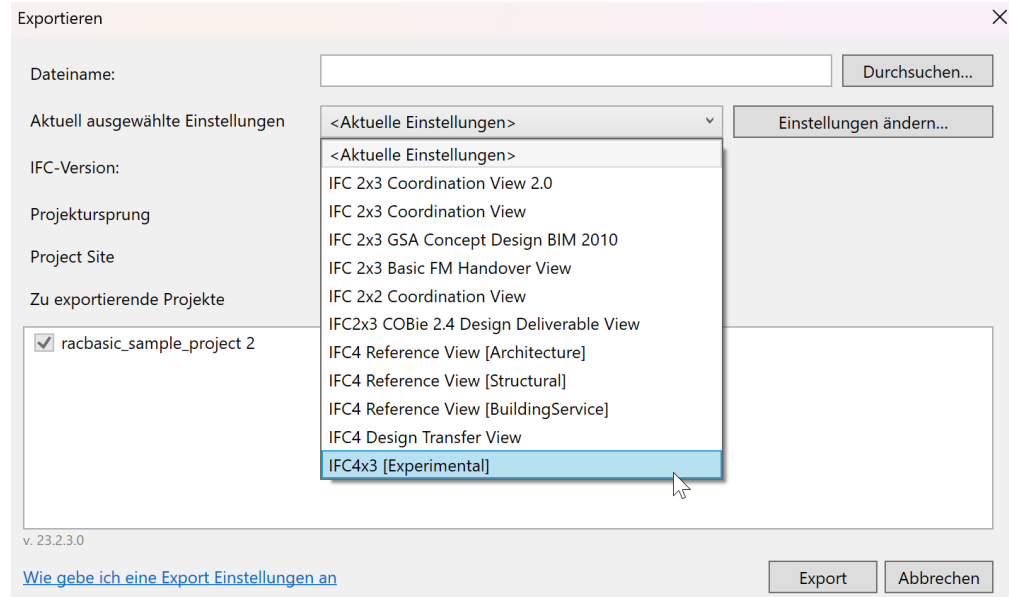
Gebäudebauteile in Revit



Revit Unterstützung

- **IFC LINK:** IFC4.3 automatisch bei der Referenzierung erkannt

- **IFC EXPORT:** "Experimental"
 - IFC 4.3 ist noch kein offiziell verabschiedeter ISO Standard
 - Es gibt noch keine offiziellen MVDs für IFC 4.3



Unterstützte Workflows



Civil 3D Objekte:
Vermessungspunkte, Elementkanten,
DGMs, Schichtkörper Profilkörper,
Brücken, Grundstücke, Kanal- und
Druckleitungsnetze

AutoCAD Objekte:
3D Polylinien, Solids & Blöcke



Weitergabe von Brücken, Bewehrung,
Gebäude (bzw. Gebäudesohlen) sowie
Rohrleitungsnetzen nach C3D

Weiterführendes Material

<https://blogs.autodesk.com/bimblog/openbim/>



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