

TMC
Winterschool



VNMG
2019



OpenBuildings Station Designer – adding value to transport projects

Ramão Netto
Bentley Systems



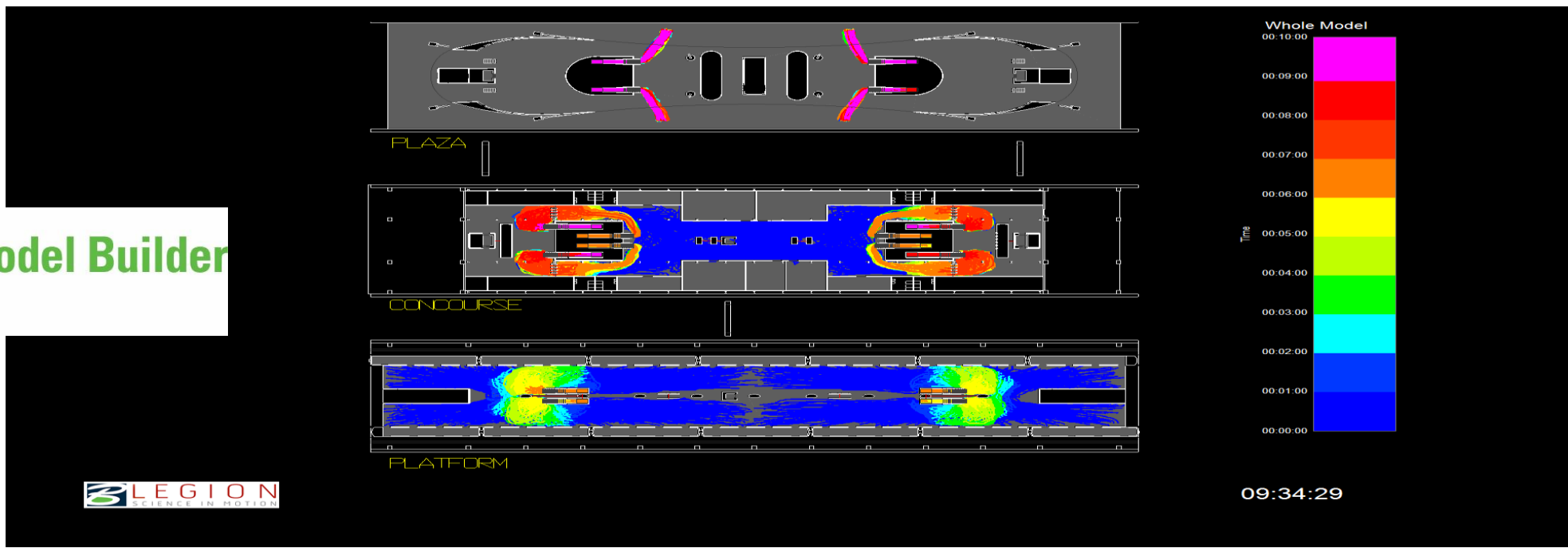


Agenda

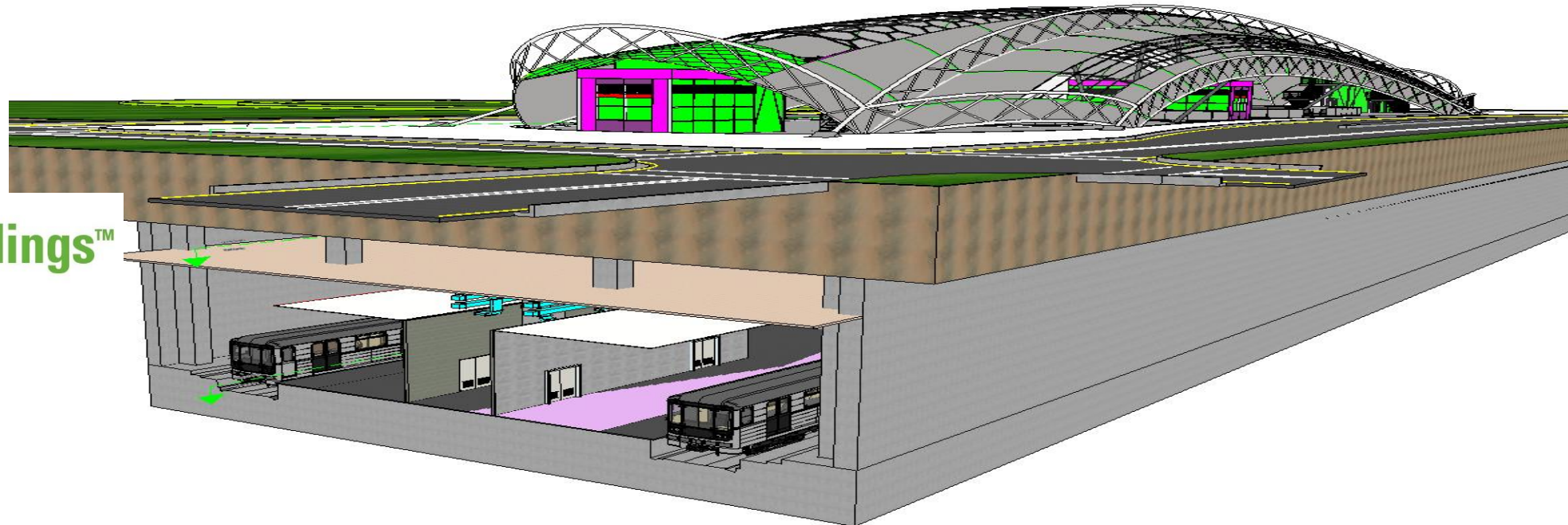
- What is OpenBuildings Station Designer (OBSD)
- OBSD Capabilities
- Bentley CONNECT Centre
- Case Studies



LEGION® Model Builder
CONNECT Edition



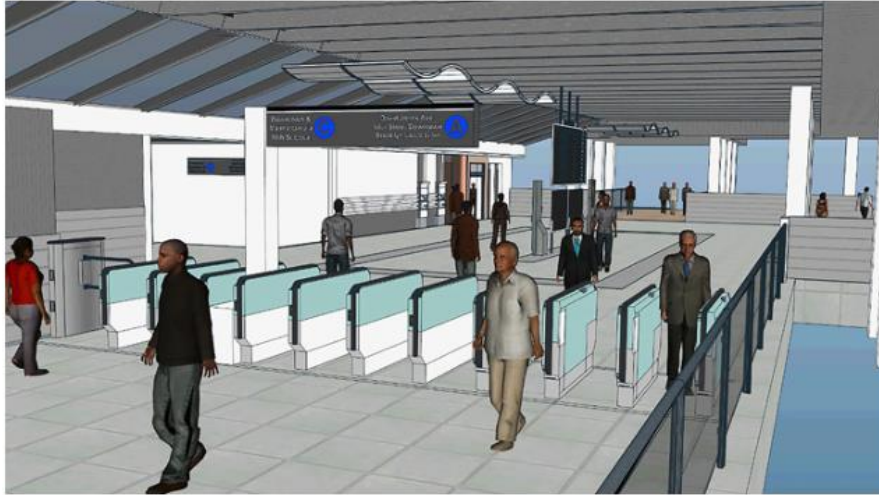
OpenBuildings™
CONNECT Edition



OpenBuildings: design and beyond

Written by Greg Corke
Published: 26 November 2018

Bentley Systems' new OpenBuildings platform is more than just AECOSim Building Designer rebranded. Greg Corke explores how Bentley intends to play to its strengths with focused, vertical design tools, cross disciplinary workflows and open data



Pedestrian simulation will play a key role in Bentley's new OpenBuildings design tools

With the arrival of OpenRoads and OpenRail for civils and rail design, and the much-needed simplification of the Bentley Systems product portfolio, an 'OpenBuildings' was inevitable. But the new Bentley Systems brand, announced in October, isn't just about giving AECOSim Building Designer a new name; it's about transforming the building design tool into an open platform that can be tightly integrated with tools for other disciplines; not just the road / rail design and simulation (structural, geotechnical, energy and pedestrian) applications from the Bentley stable but those from third parties as well.

Bentley is also looking to use OpenBuildings as a platform on which to build other vertical design tools, focused

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Find out how to increase design productivity by 30%

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CRRC ZHUZHOU TIMES ELECTRIC CO. LTD.

Technology

Bentley launches station design software with pedestrian modelling

BENTLEY Systems has announced the acquisition of pedestrian simulation software provider Legion, which will be integrated into its new OpenBuildings Station Designer software to enable designers to fully model pedestrian movements through stations.



Legion's pedestrian simulation application is capable of modelling interactions between people and physical obstacles, as well as activities including circulation and evacuations, within public spaces such as railway stations, airports, sports arenas, tall buildings and streets.

"Legion was the first machine learning developer because they worked from literally millions of hours of video of pedestrians moving and over decades have invented a tool that will actually help the simulation of that movement," Bentley Systems CEO, Mr Greg Bentley, told the Year in Infrastructure 2018 Conference in London on October 16 while announcing the launch and acquisition. "Whether you're traveling by train or via airports, pedestrian modelling is of the essence for accomplishing that functionality and

Oct 17, 2018
Written by
David Burroughs



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Apr 23, 2019 | Fleet

Yekaterinburg receives new metro cars
Apr 22, 2019 |

Planning contract awarded for Budapest

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Get the latest

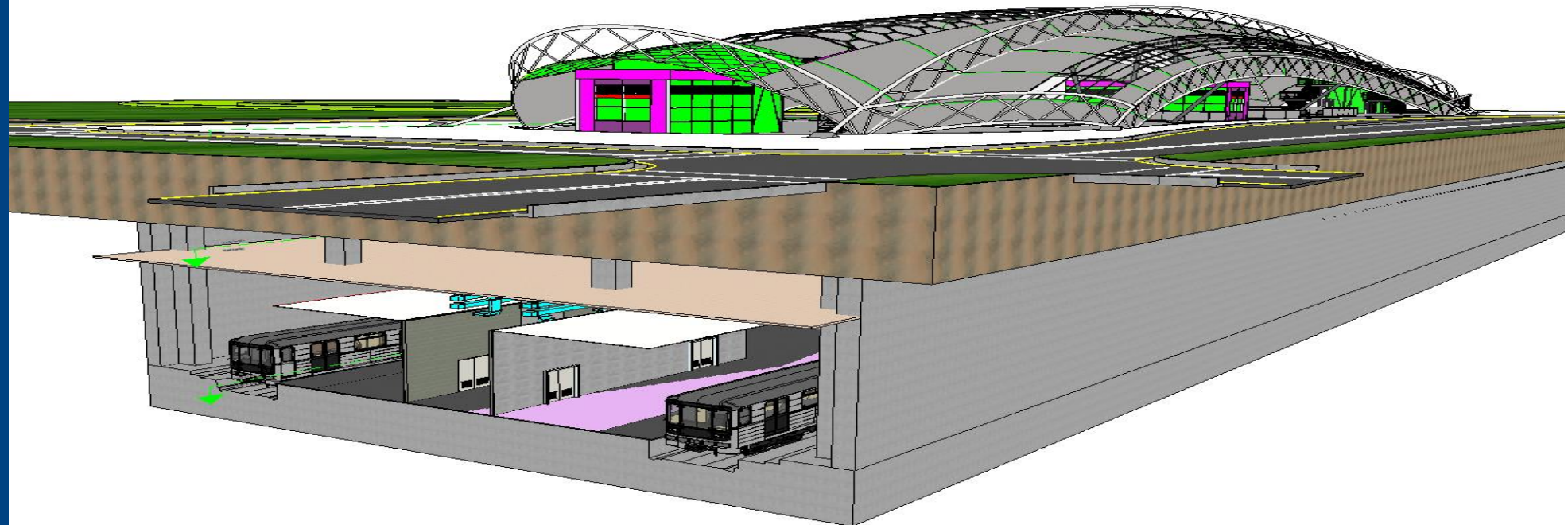
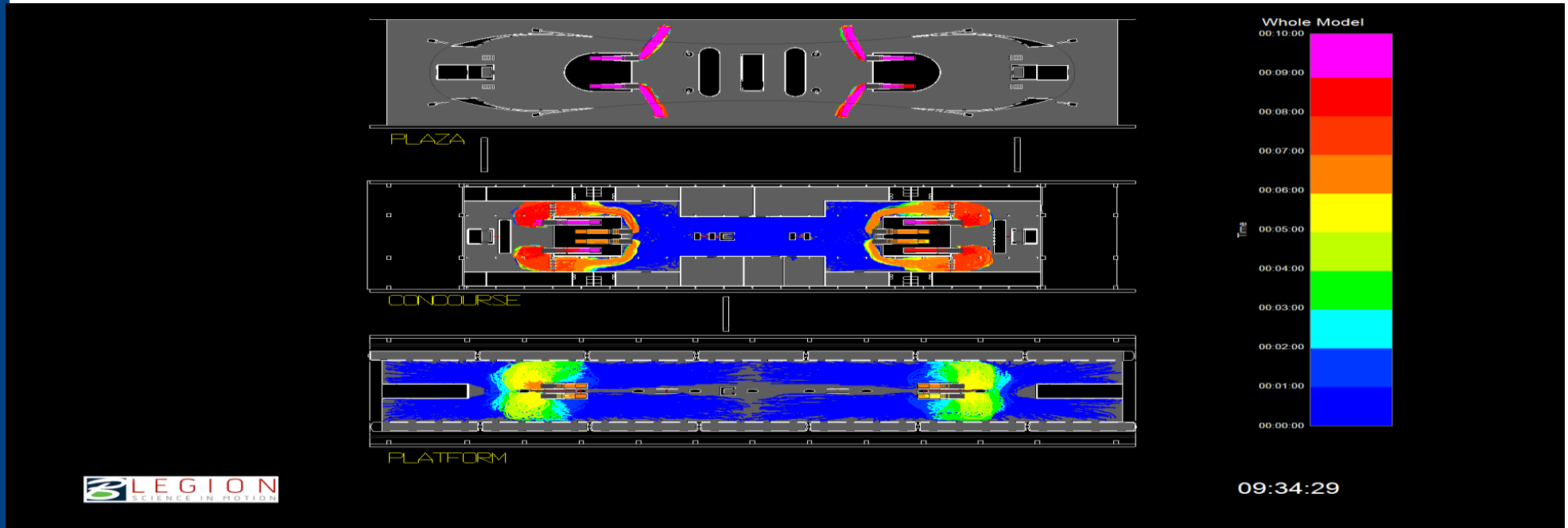
Enter Your

Submit

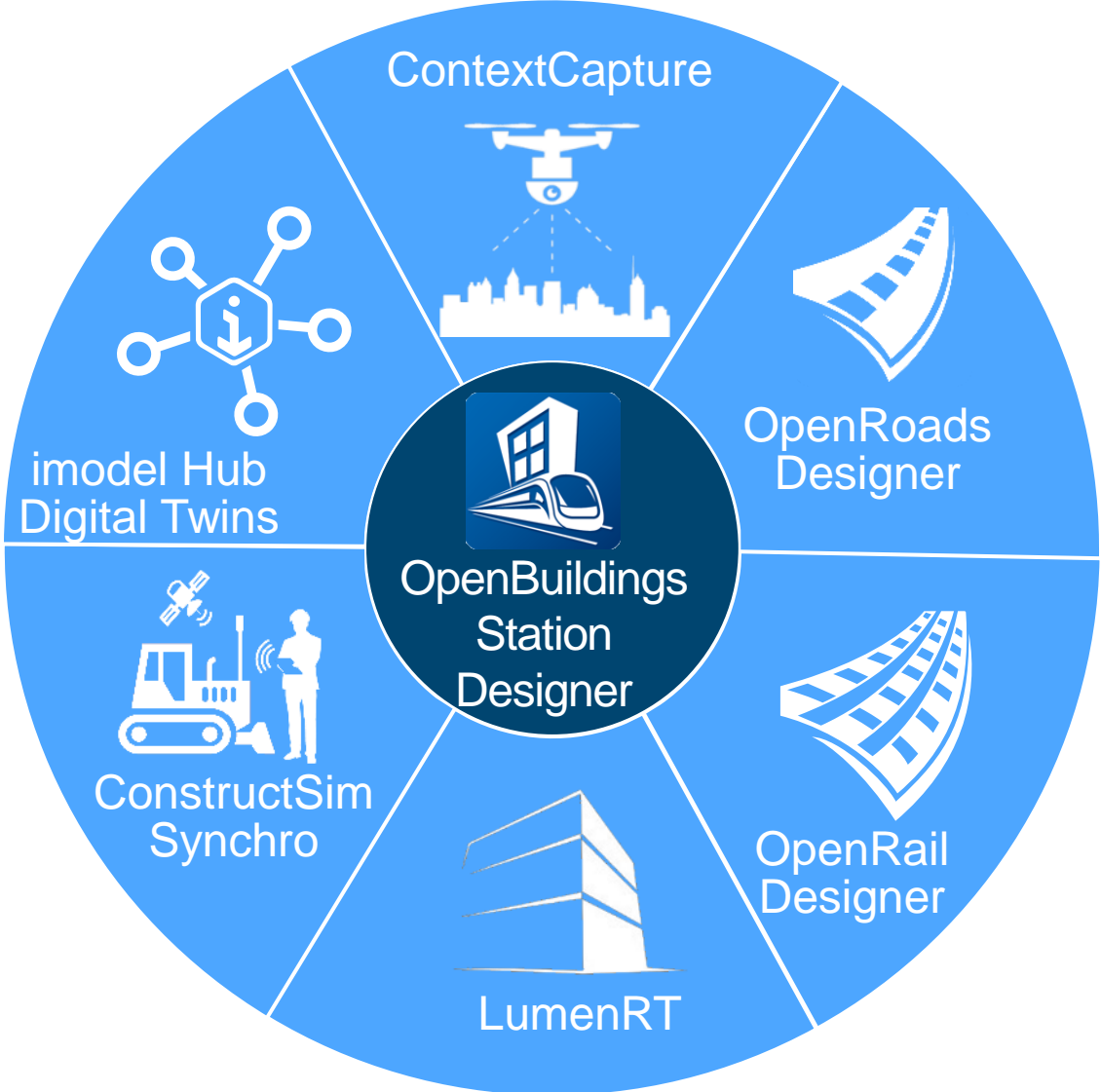
IRJ
PRO



OpenBuildings Station Designer



Solution playbook for multidisciplinary team



Out of the BOX!



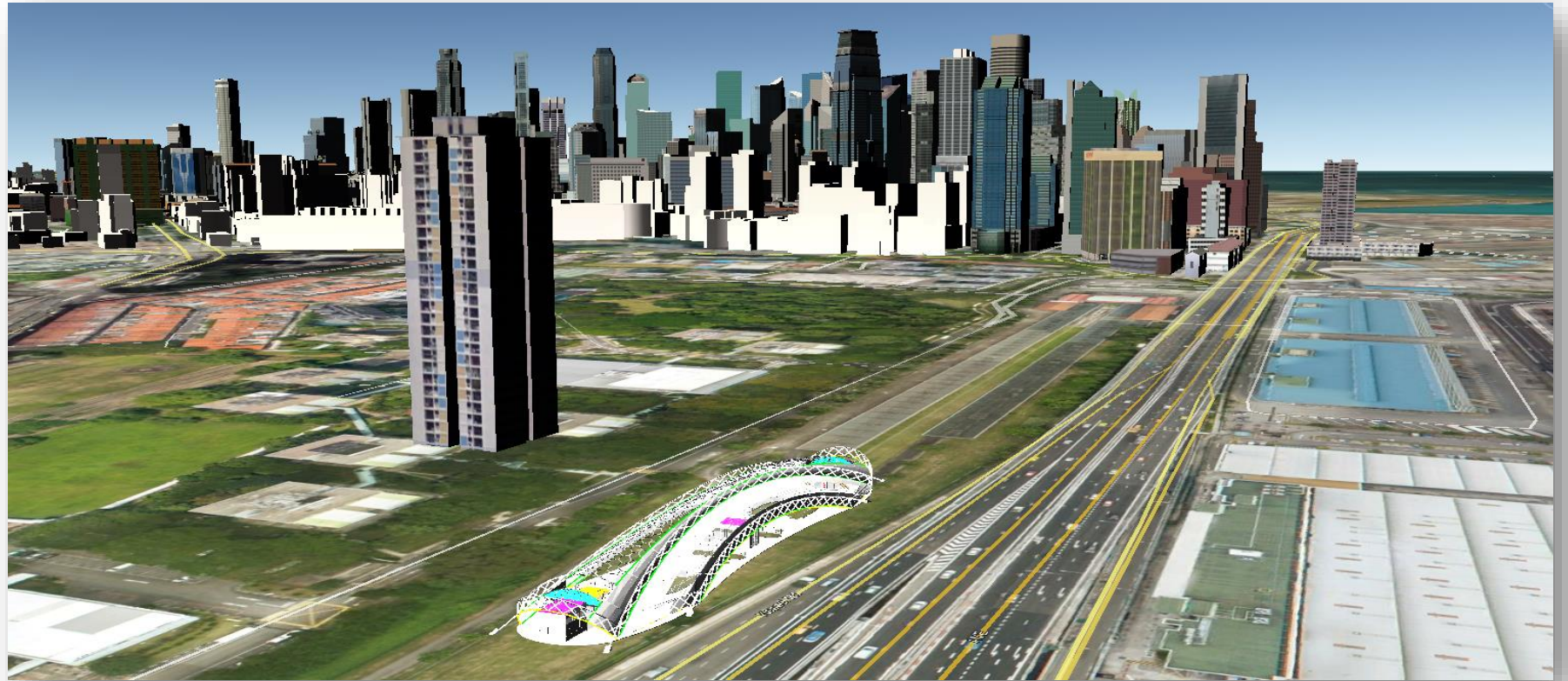
OpenBuildings
Station
Designer

- Multidisciplinary **Coordination**
- **OpenBuildings Designer** Functionality
- Functional **Space Layout** for Stations
- Station Furniture, Fixtures and **Equipment**
- **Computational Design** Templates
- Digital Construction with **Synchro**
- Pedestrian Simulation with **LEGION**

Multidisciplinary Coordination



OpenBuildings
Station
Designer



Accelerate Station Design

Real Context and Geographic Coordination

- Work in real context of project site and surrounding information
- Geo-coordinated multi-discipline model federation
- Interact with information rich 3D models
 - (Design + Simulation + Visualization)
- Enhanced decision making during critical design development

Seamless immersive visualization



Accelerate Station Design

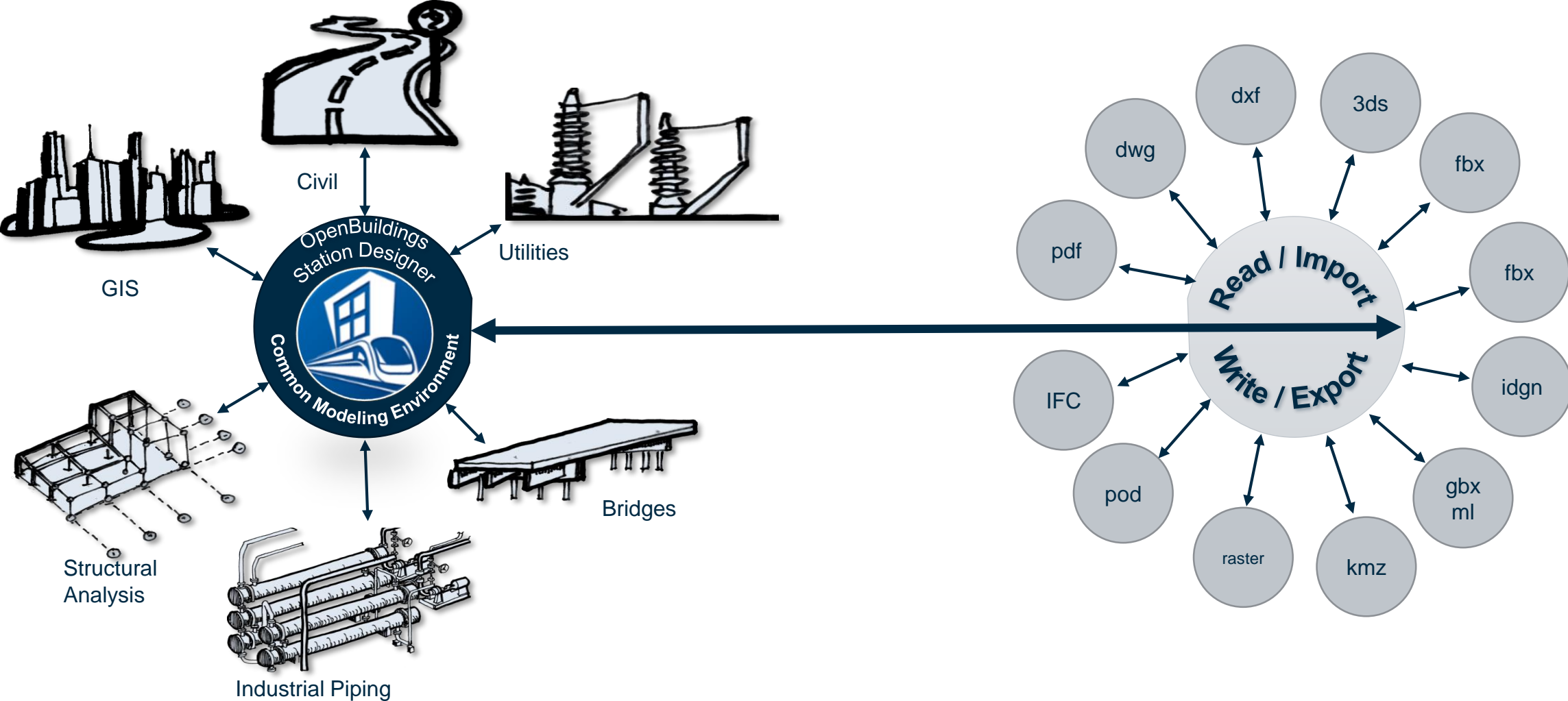
Interoperability and multidiscipline integration

- Coordinate with other disciplines in native 3D dgn
 - Support for reading /referencing more than 15+ native file formats
- Exchange information in industry standard file formats such as IFC
- Avoid costly conversion time and errors

Interoperability and multidiscipline integration and

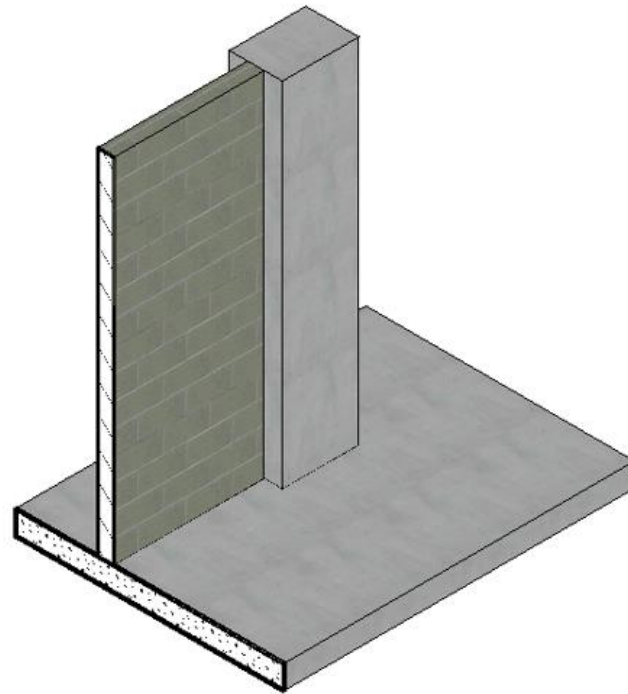


Interoperability and multidiscipline integration



OpenBuildings Designer

Parts and Families - Symbology



Datagroup System - Information Properties

Wall Dimensions		
Height		3000.0000
Width		140.0000
IFC Override		
✓	IFC 2x3 Entity/Type Override	
	IFC 2x3 Entities Description	
Acoustical Parameters		
✓	Acoustic Rating (STC)	
✓	Acoustic Test Reference No.	
✓	Acoustic Test Reference URL	
Classification		
✓	MasterFormat	12 32 16
	MasterFormat Description	Manufactured Plastic-Laminate-Clad ...
✓	OmniClass	22-12 30 00
	Omniclass Description	Casework
✓	UniFormat	E2010
	UniFormat Description	
✓	NARSPEC	05 510
	NATSPEC Description	Joinery
✓	CBI 2011	5721
	CBI2011 Description	Furniture and fittings
Fire Resistance		
✓	Fire I Rating	
✓	Fire I Test Reference No.	
✓	Fire I Test Reference URL	
✓	Fire I IsCombustible	false
✓	Fire I Compartmentation	false
✓	Fire I Surface Spread of Flame	
Identification		
✓	ID I Type ID	
✓	ID I Number	
✓	ID I Name (Alternate)	
✓	ID I Description	Block Wall 140mm
✓	ID I Keynote	

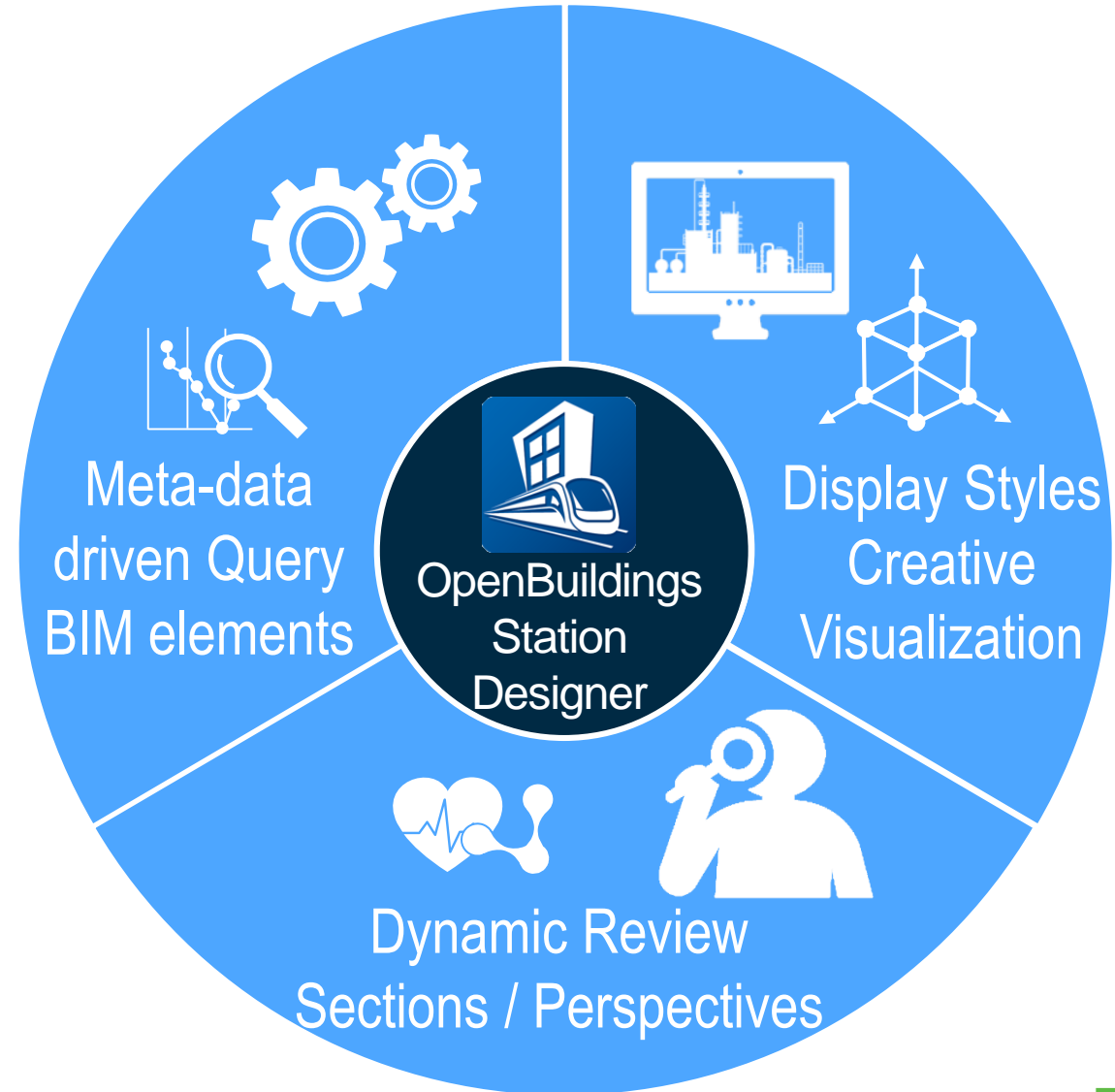
All the OpenBuildings capabilities plus the data engine is included in Station Designer



OpenBuildings
Station
Designer

Accelerate Station Design

3D modeling productivity gains



Building Design

RJ_StationMasterModel.dgn [3D - V8 DGN] - OpenBuildings Station Designer

File Architectural Structural Mechanical Electrical Data/Reporting Attach Drawing Production View Analysis Drawing Aids CONNECT Services Modify

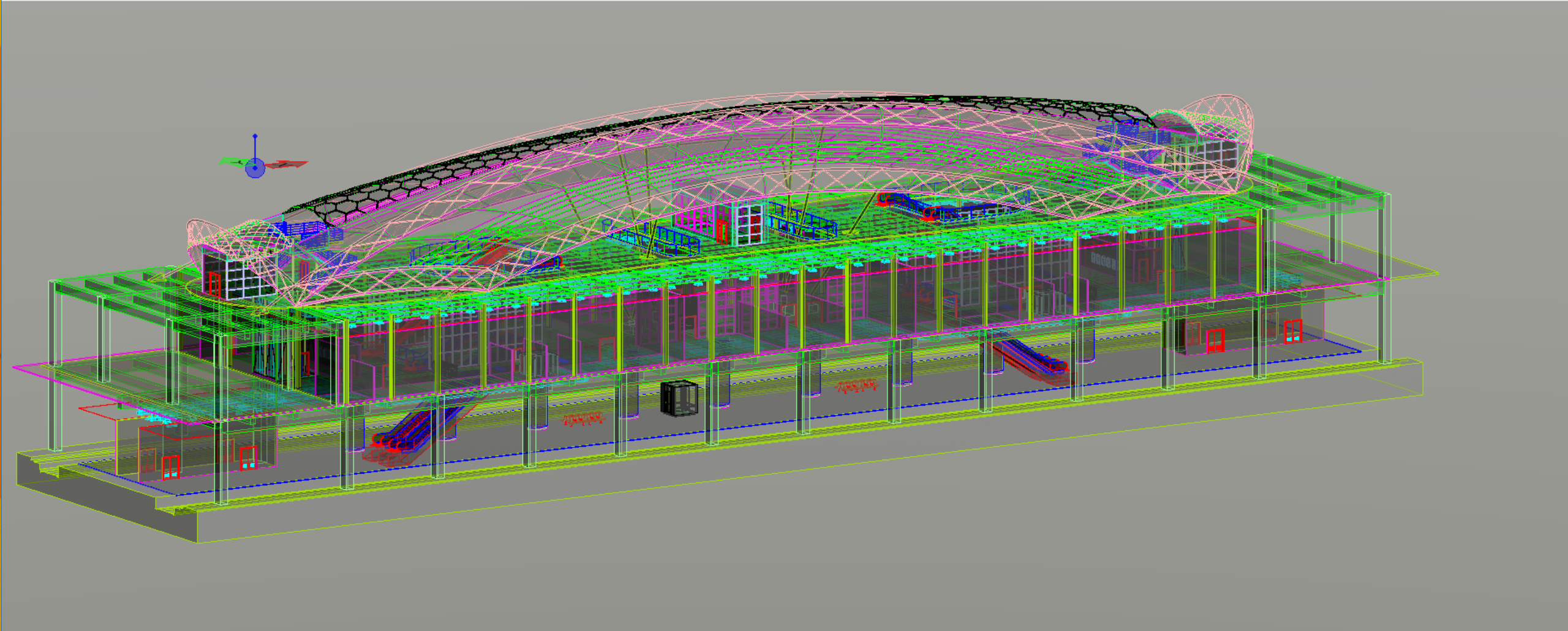
Selection Move Copy Paste Delete Attach Detach Pick List Import/Export Place Table

Common Tools Reports Data Catalogs Item Types Tables

Compound Part Level Part Color Part Style Part Weight

View 1, Design Model

Applying Display Rules



Design Model

1 2 3 4 5 6 7 8

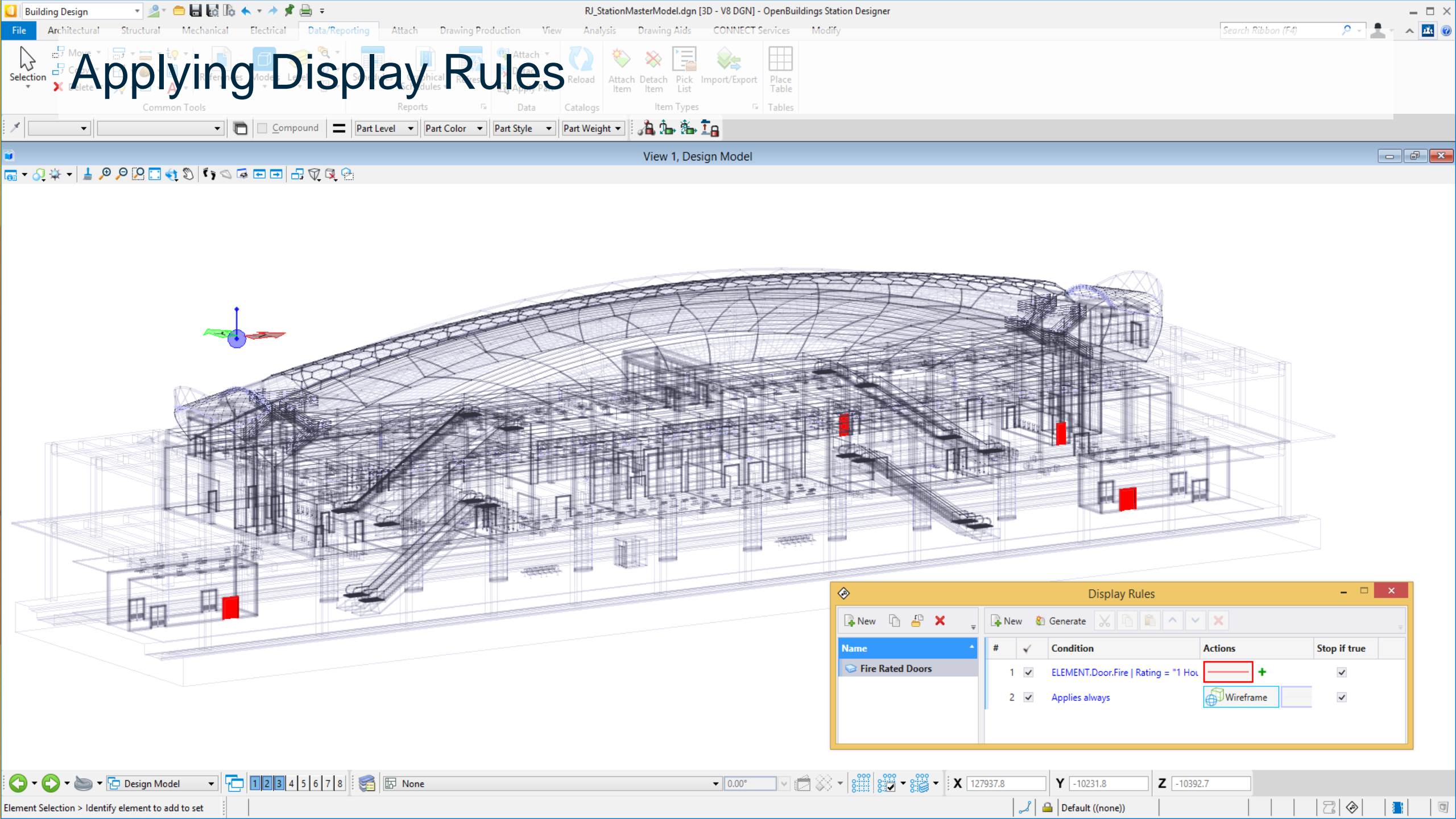
None

0.00°

X 11097.1 Y 50604.7 Z -32251.7

Element Selection > Identify element to add to set

Default ((none))



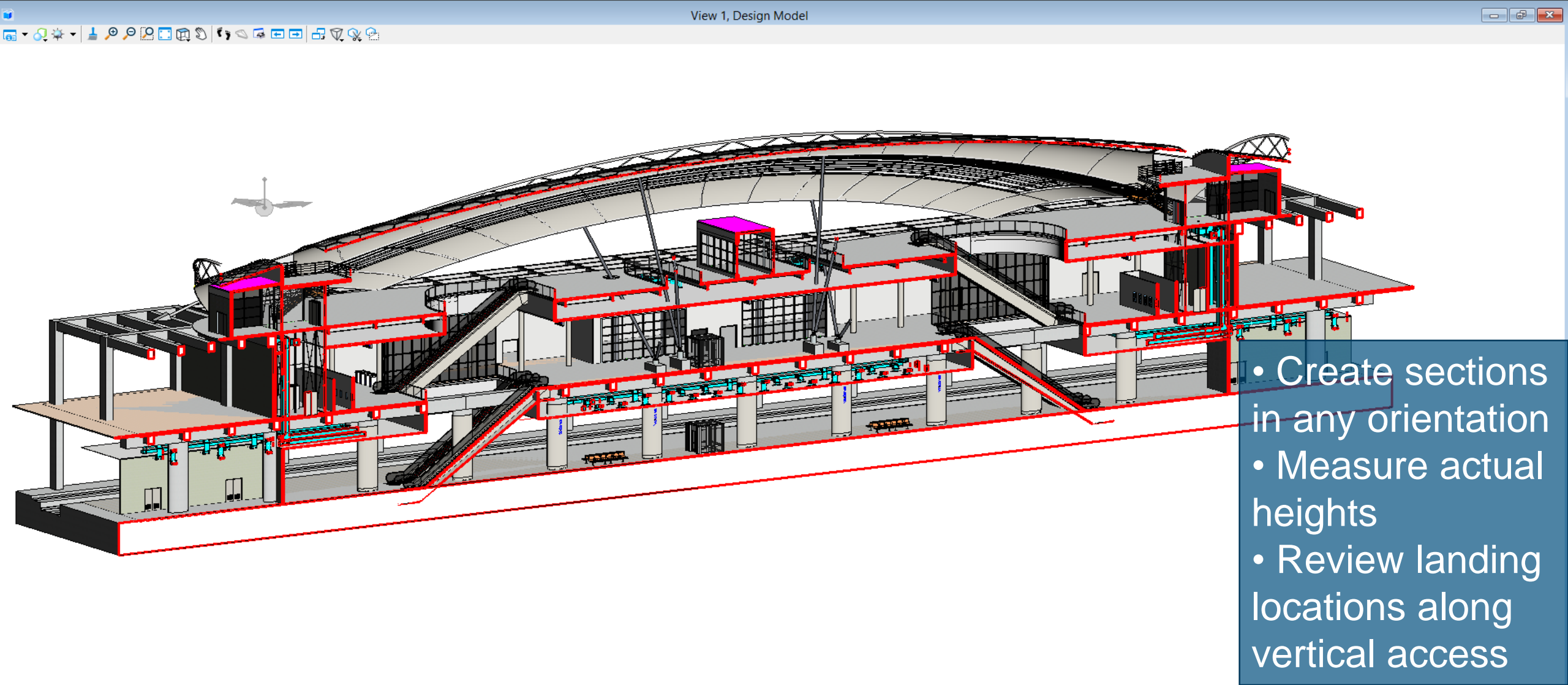
Applying Display Rules

Display Rules

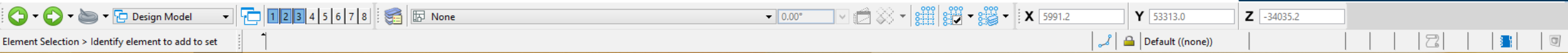
Name	#	Condition	Actions	Stop if true
Fire Rated Doors	1	ELEMENT.Door.Fire Rating = "1 Hour"		<input checked="" type="checkbox"/>
	2	Applies always		<input checked="" type="checkbox"/>



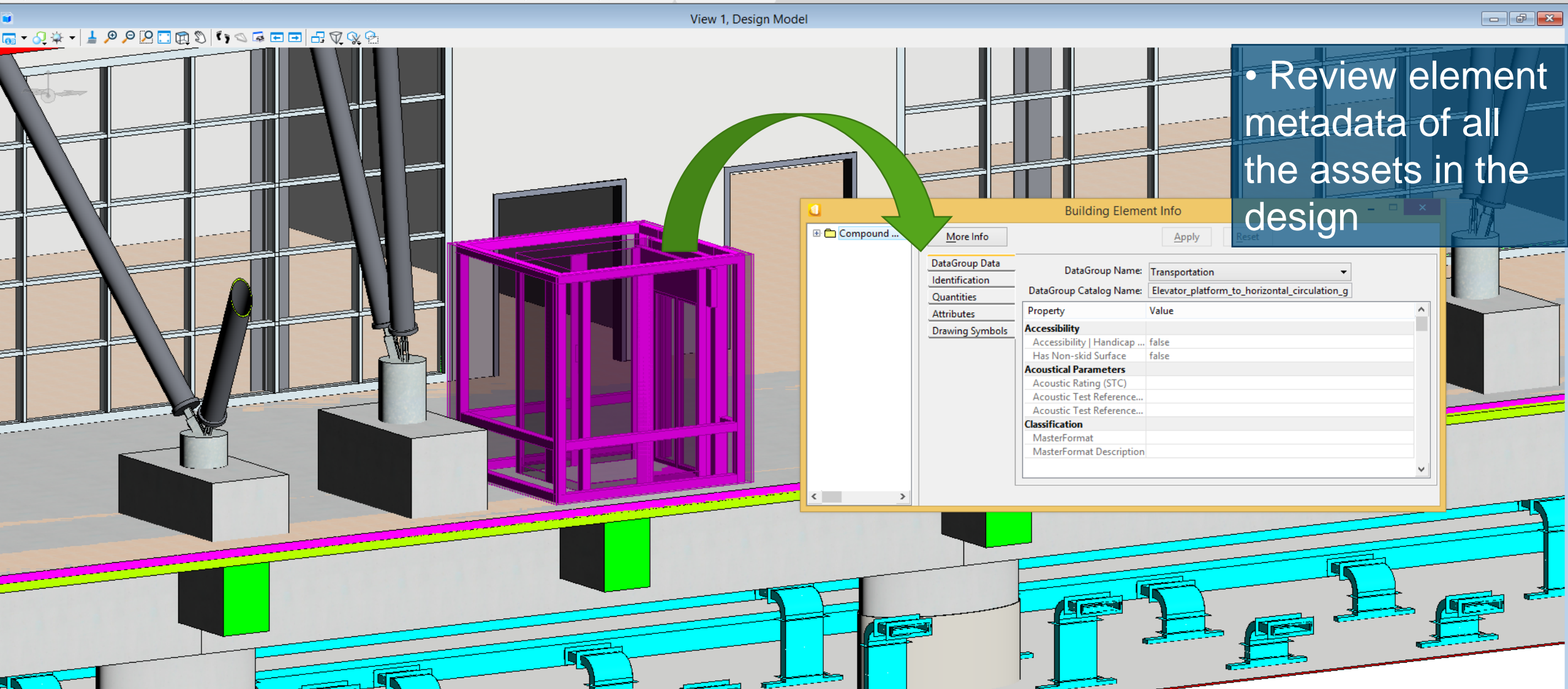
Create dynamic sections to review design



- Create sections in any orientation
- Measure actual heights
- Review landing locations along vertical access



Access intelligent model information in a snap

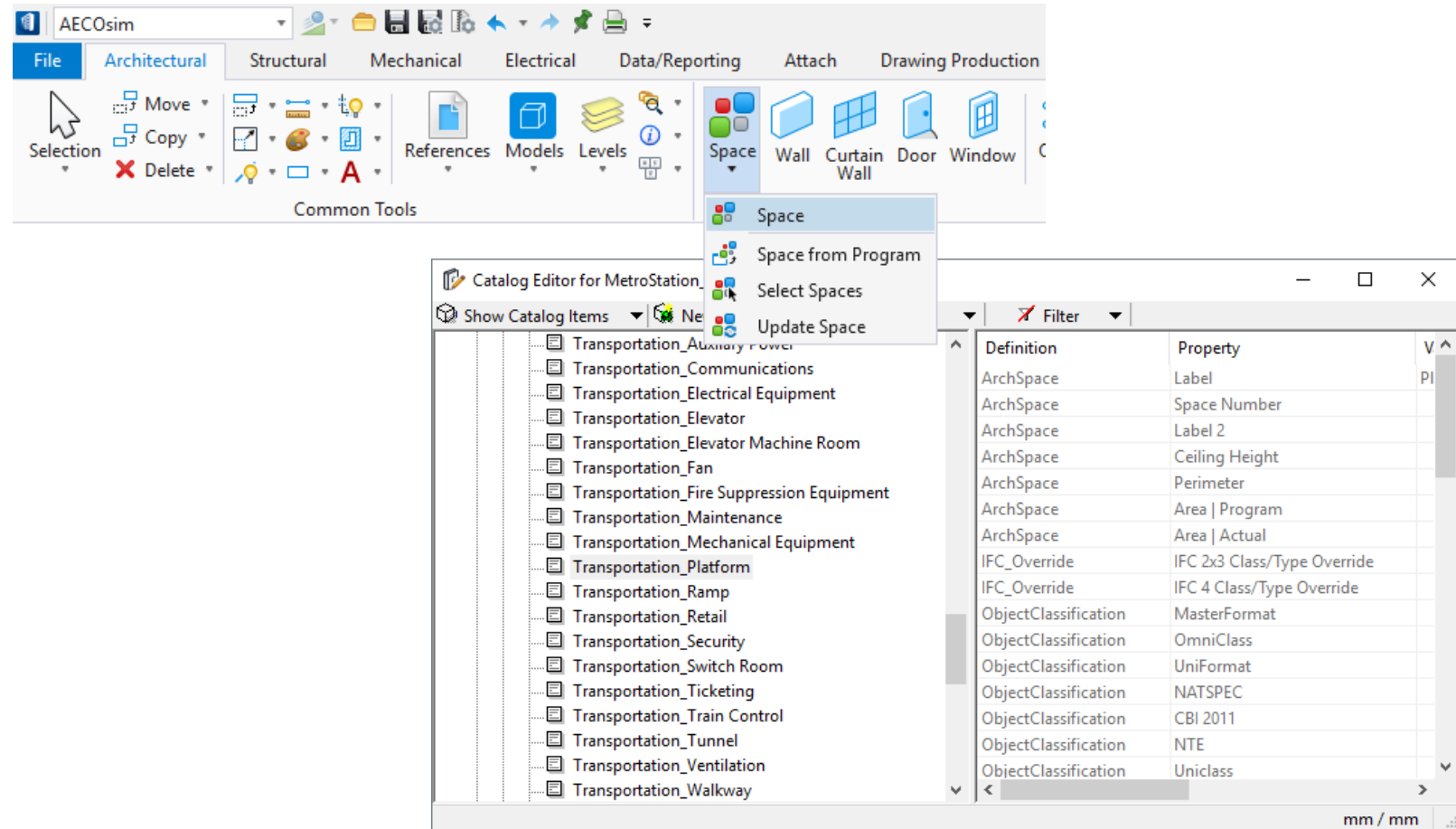


- Review element metadata of all the assets in the design

Functional Space Layout

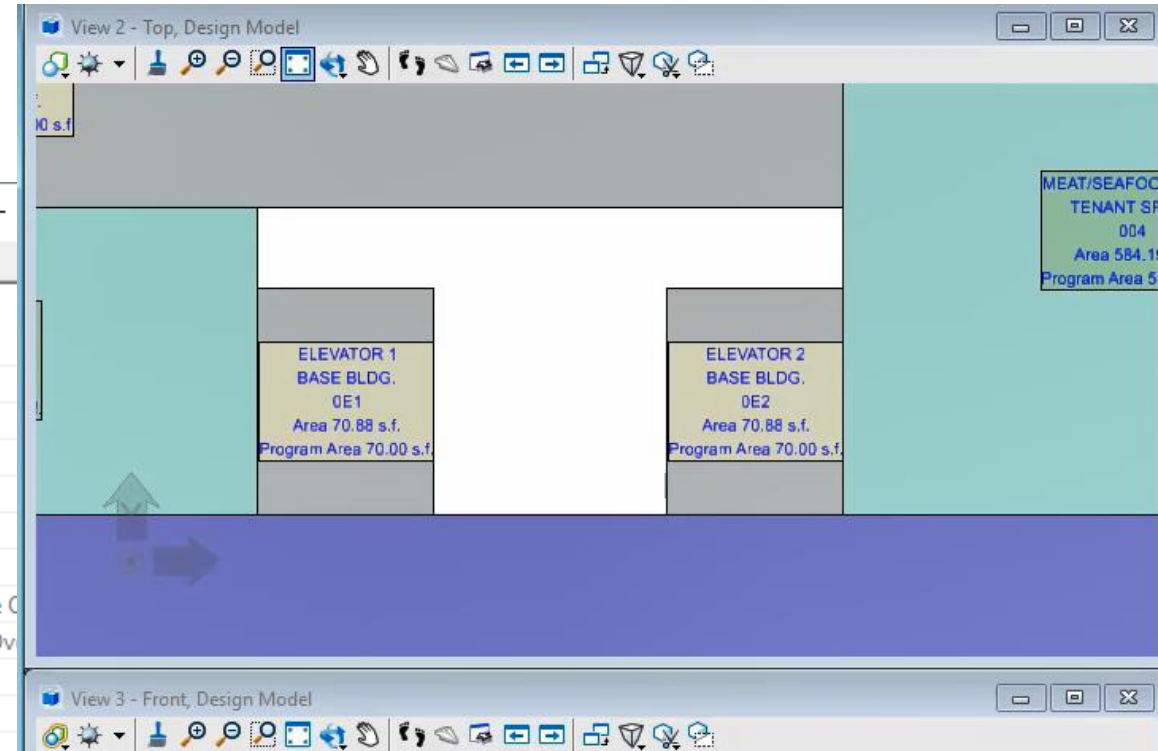
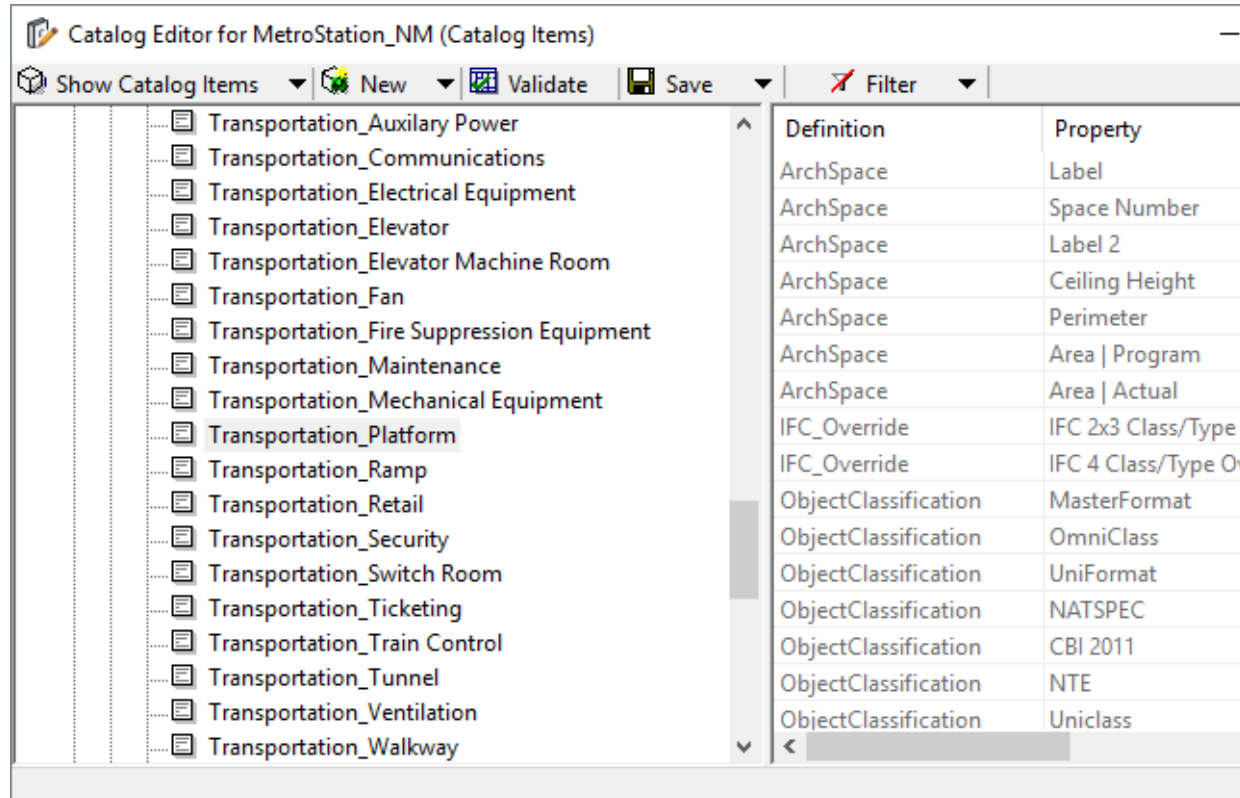
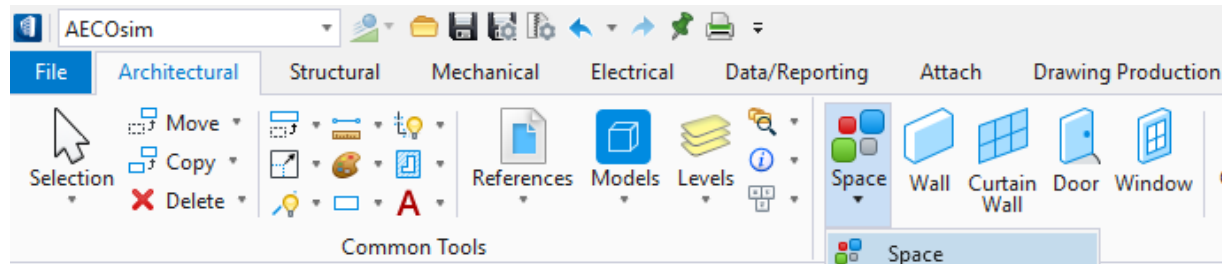


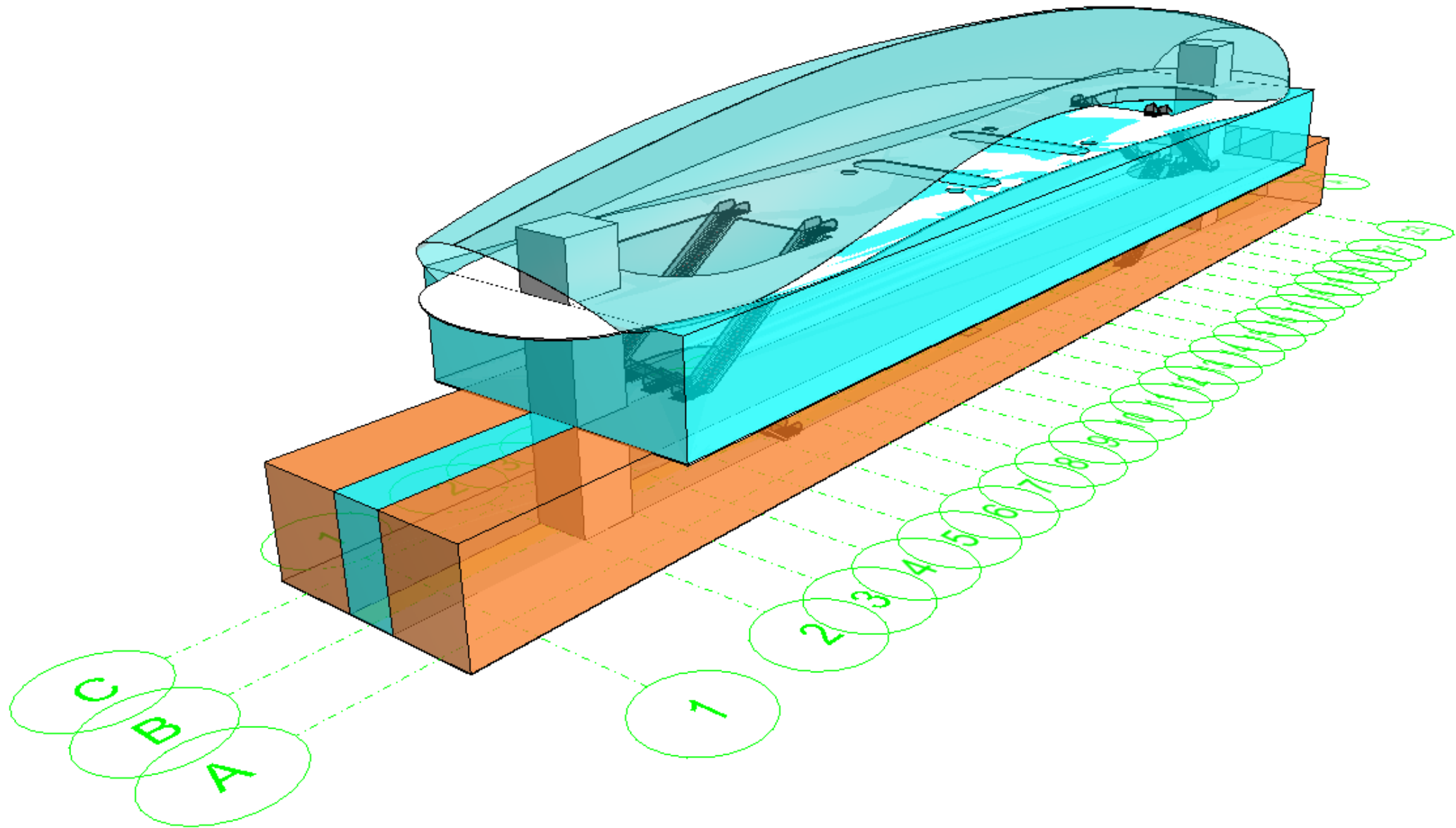
OpenBuildings
Station
Designer



- A ready to use catalog of functional space types specific to stations for layout and reporting.

Space types

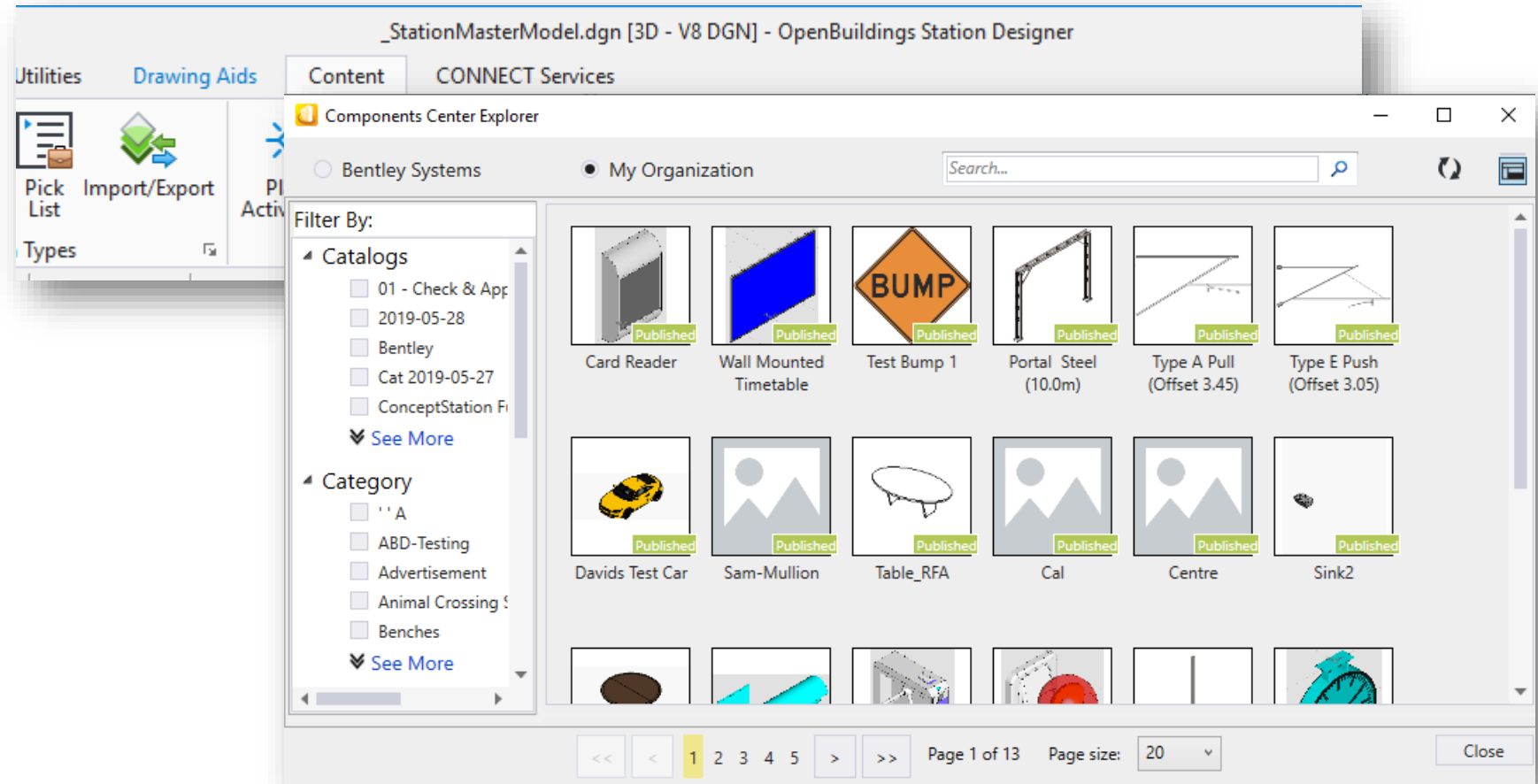




Station Content, Catalogs & Fixtures



OpenBuildings
Station
Designer



- A ready to use catalog of equipment (e.g. ticket kiosks, gate turnstiles, passenger information displays) for space planning.

Explorer

File

Search

- Facade 1dgn.dgn
 - Detailing Symbol Styles
 - Dimension Styles
 - Display Styles
 - Element Templates
 - Environment Setups
 - Item Type Libraries
 - Line Styles
 - Multi-Line Styles
 - Parametric Cell Definitions
 - Point Cloud Styles
 - Print Styles
 - Render Setups
 - Report Definitions
 - Tag Sets
 - Text Styles
 - Shared Cells
 - Views
 - Levels
 - Models

Items


Resources

Sheet Index

Links

View 1, 3D Metric Design

Element Selection



The main workspace shows a 3D view of a window with horizontal blinds. The window is a rectangular frame with many thin horizontal slats. It is placed on a grey grid floor. A mouse cursor is visible on the grid. The background is a plain white wall and a grey floor.

Properties

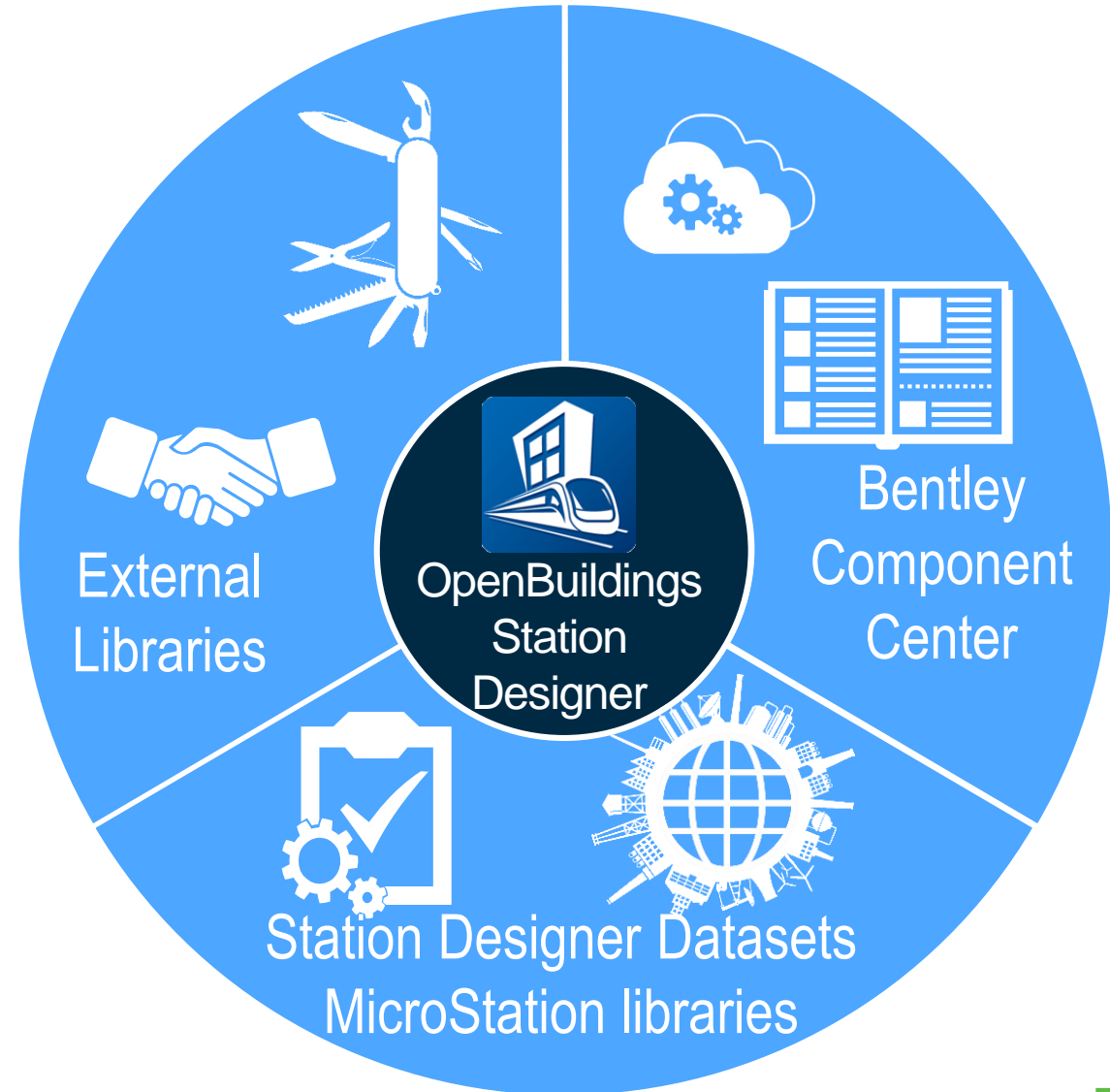
To see properties something must be selected.

Properties Level Display - View 1

Parametric Content

Accelerate Station Design

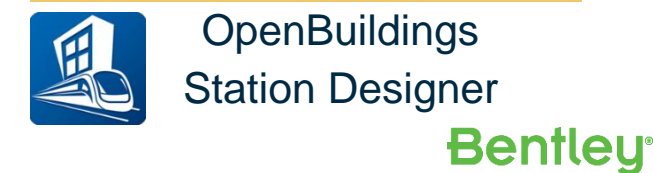
3D component libraries



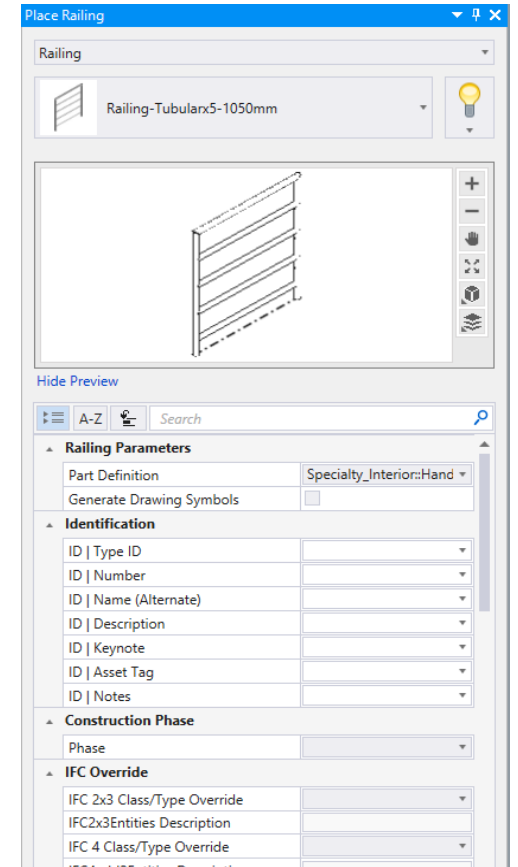
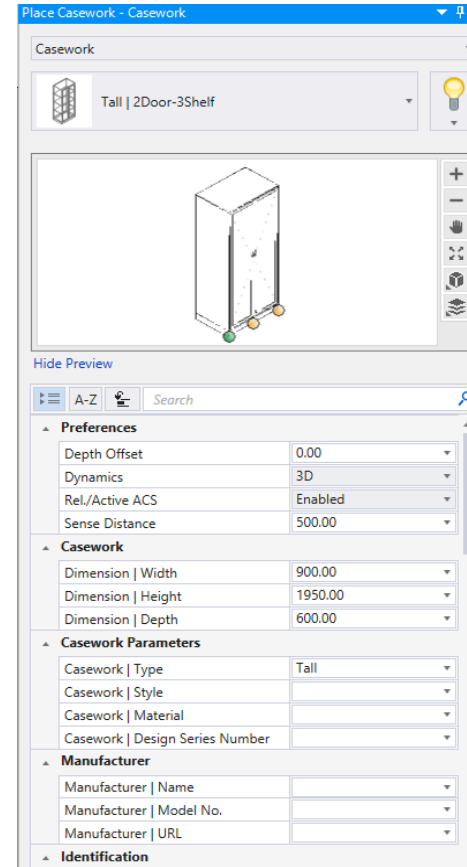
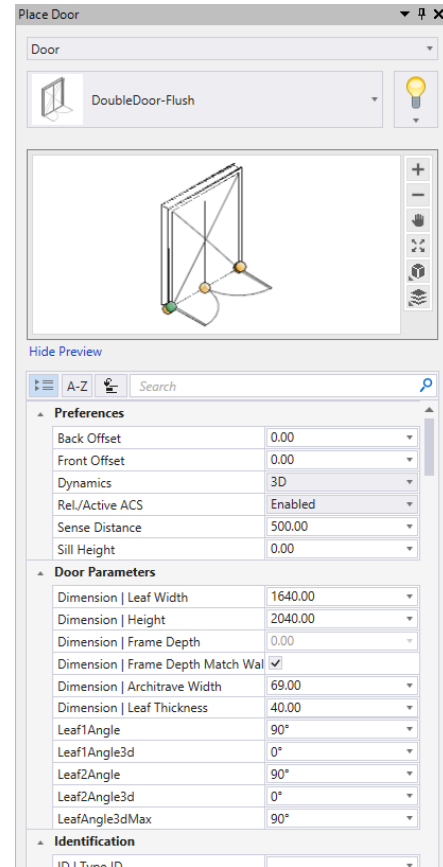
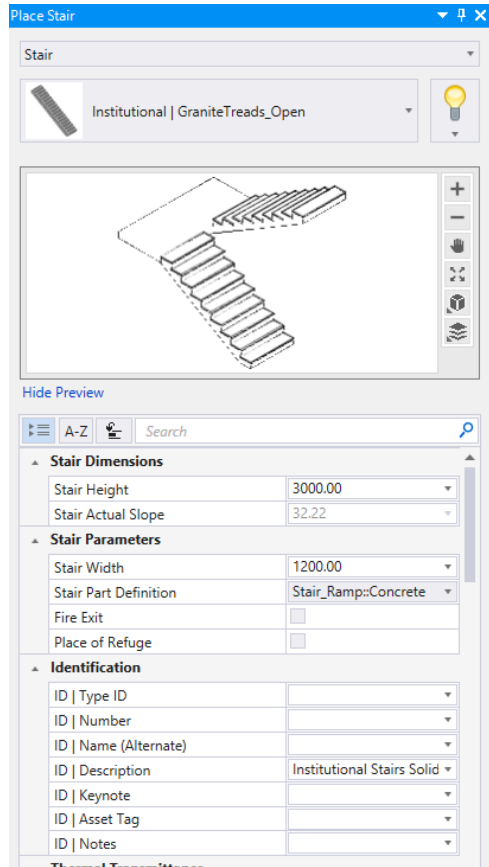
Incorporating 3D Libraries - Bentley Component Center

The screenshot shows the Bentley Component Center Library Management interface. At the top, there are navigation tabs for Home, Bentley Systems Inc, Assets, and Projects. The main header is 'Components Center'. Below this, the 'Library Management' section includes a search bar and a left-hand navigation pane with categories like 'Catalog', '01 - Check & Approval', '2019-05-28', 'AECOSim Building Designer', 'Bentley', 'Cat 2019-05-27', and 'see more'. The main area displays a grid of 3D models, each with a thumbnail, name, and status (e.g., Published, Approved, Draft). A green arrow points from the 'Platform Number Sign' model to the 'Place User Defined Type' dialog box on the right.

The 'Place User Defined Type - Equipment' dialog box is shown on the right. It features a dropdown menu for 'Equipment | Station' and a list of categories including 'Equipment | Security Screening', 'Equipment | Station', 'Equipment | Ticketing and Fare Control', 'Equipment | Track and Tunnel', 'Escalators', 'Furniture', 'Interior Specialty', 'Fixture', and 'Order'. Below the list is a preview window showing a 3D model of a platform number sign. The dialog also includes a 'Hide Preview' button, a search bar, and sections for 'Preferences' (Depth Offset, Dynamics, Rel./Active ACS, Sense Distance) and 'Identification' (ID | Type ID, ID | Number, ID | Name (Alternate), ID | Description).



Incorporating 3D Libraries – Delivered Datasets



- Imperial and metric datasets
- MicroStation cells / parametric cell libraries

Incorporating 3D Libraries – rfa files and other formats



Browse BIM objects

Solutions

News

About us

Manufacturers

1,234 product families 134 brands 1,105,853 downloads

Search: station ✕ Reset filters

S9610 - Station, Utility / Rack
SEPS2BIM

♥ Add

NOTIFIER
NBG-12LX
Addressable
Manual Pull Station
NOTIFIER by Honeywell

♥ Add

AGA
Manifold MQ
Station
AGA gas AB Linde
healthcare

♥ Add

M1802 - Work
Station, Computer,
Retractable, Wall
SEPS2BIM

♥ Add

G1026 - Exercise
Apparatus, Weight
Training, Multi-
SEPS2BIM

♥ Add

KIDDE
Manual Pull
Stations
Kidde-Fenwal

♥ Add

EDWARDS
Manual Pull
Stations
Edwards UTC

♥ Add

Place User Defined Type - Equi...

Equipment | Station

Equipment | Security Screening

Equipment | Station

Equipment | Ticketing and Fare Control

Equipment | Track and Tunnel

Full

Inter

Kitchen

Ladder

Hide Preview

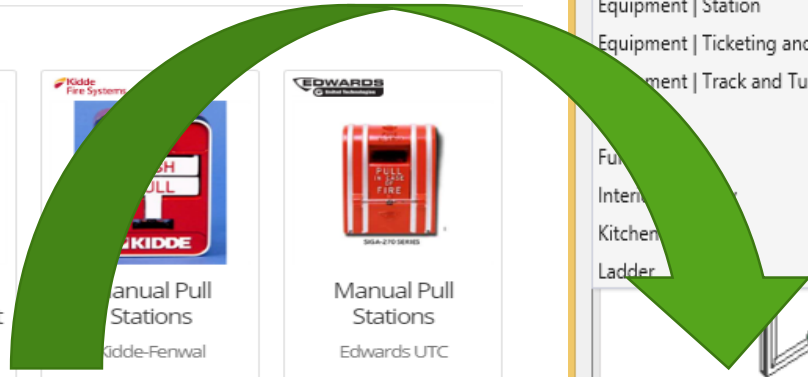
A-Z 🔍 Search

Preferences

Depth Offset	0.0
Dynamics	3D
Rel./Active ACS	Enabled
Sense Distance	500.0

Identification

ID Type ID	
ID Number	
ID Name (Alternate)	
ID Description	



All public seating for a range of environments

CATEGORY

Showing results from all categories (127 items found)

Category
All

MODELS COLLECTIONS CATALOGS

Relevance

Subcategory

Forms+Surfaces® Tecno ...

✓ Forms+Surfaces 649

Forms+Surfaces® Tecno ...

✓ Forms+Surfaces 1K

Forms+Surfaces® Tecno ...

✓ Forms+Surfaces 356

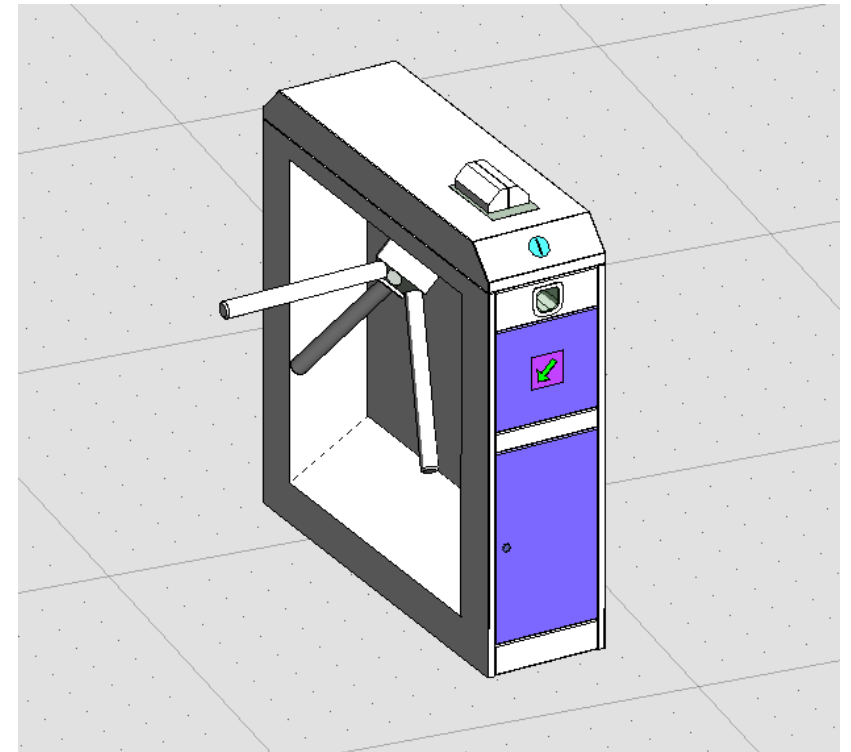
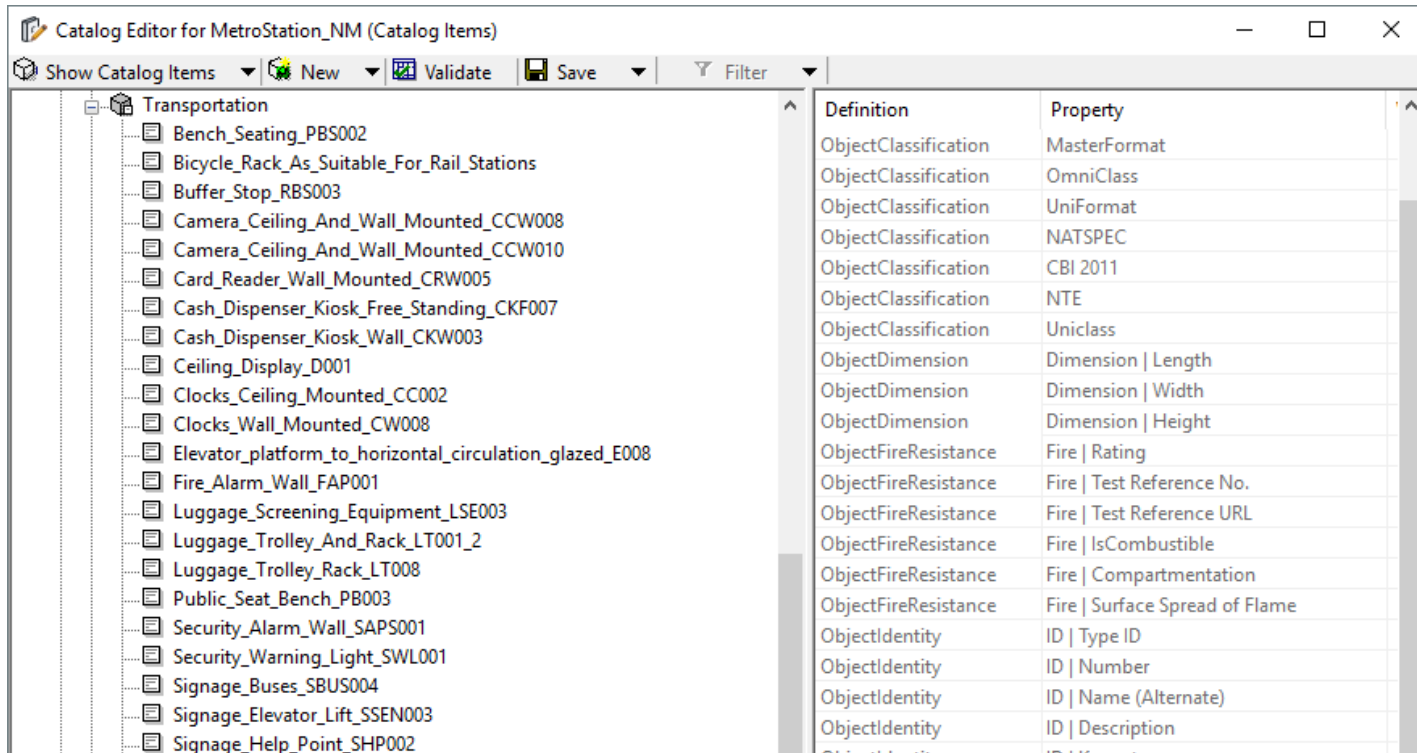
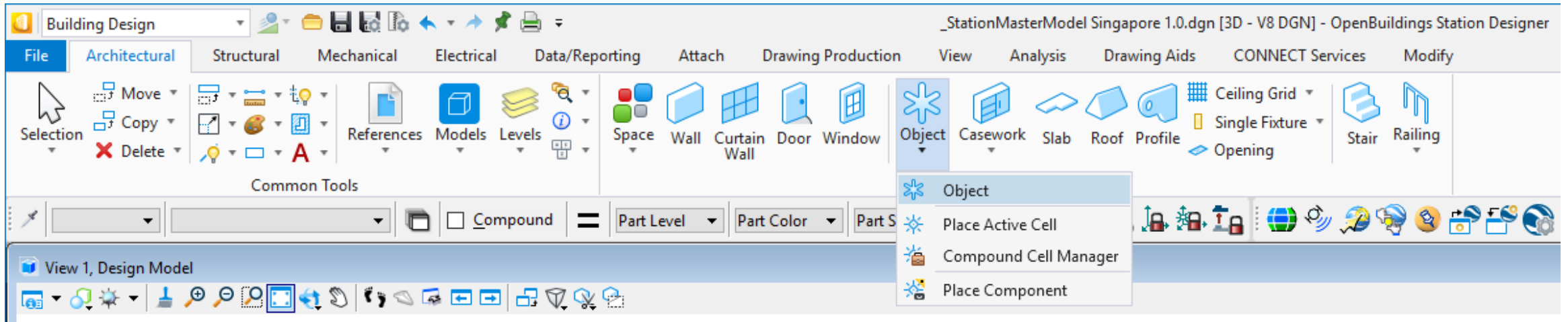
Forms+Surfaces® Tecno ...

✓ Forms+Surfaces 2K

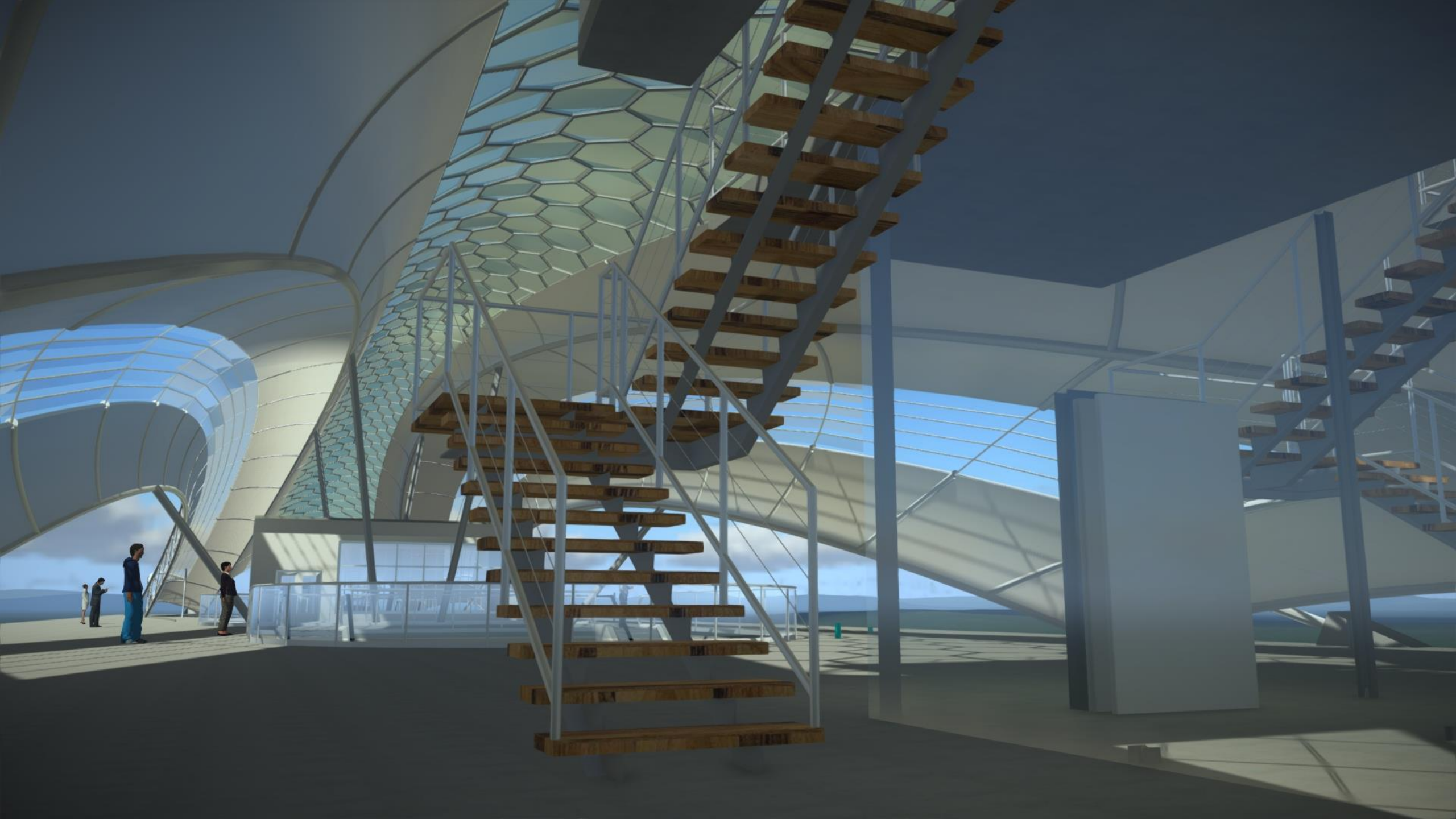


OpenBuildings
Station Designer





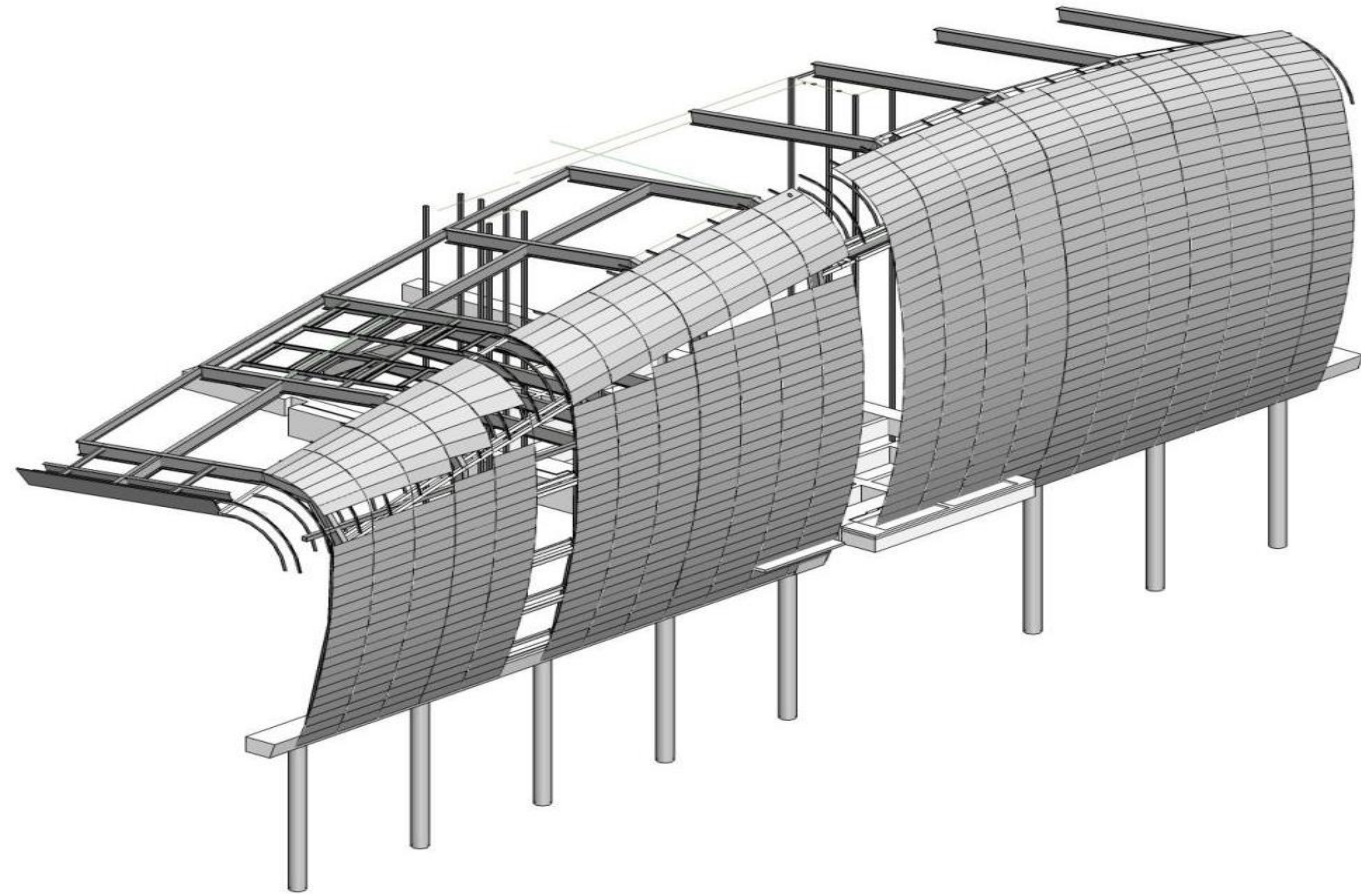




Automate Design Variation



OpenBuildings
Station
Designer



Accelerate Station Design

Computational Design

- Generative Components
- Built in example templates for designing complex elements like tunnels
- Parametric design and change propagation
- Explore design alternatives

Attributes: None, A-WALLBLOK_E- (Walls - Blo...
 3, 0, 0, 0, 0

GC Attributes: Assign to Node, Replication Style

Primary: Update Model, Generate Node Type

Selection: Element Selection, Construction Plane

Place Geometry: Point, Promote Element

Manipulate: Move, Copy, Mirror

Modify: Edit Node, Delete Submodel

Walls_Ext, Block Wall, Compound, Part Level, Part Color, Part Style, Part Weight

Node Types

References (1 of 1 unique, 1 displayed)

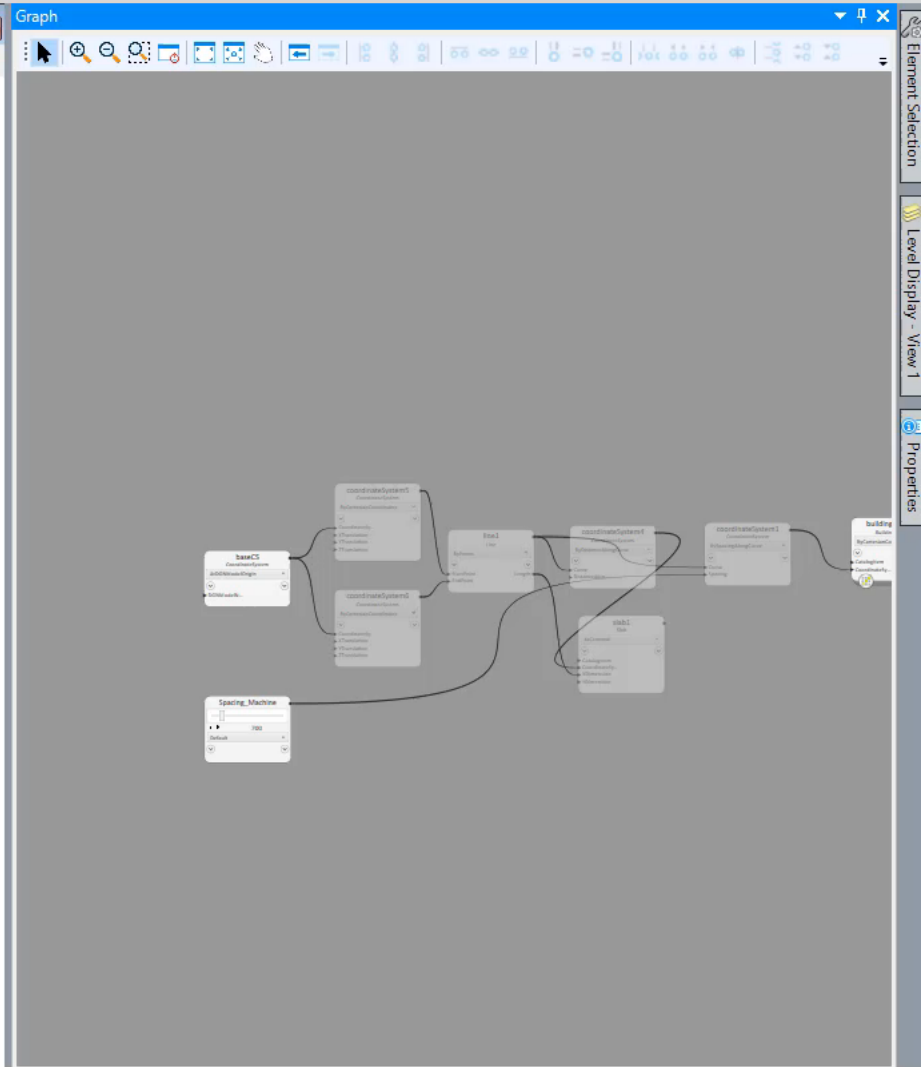
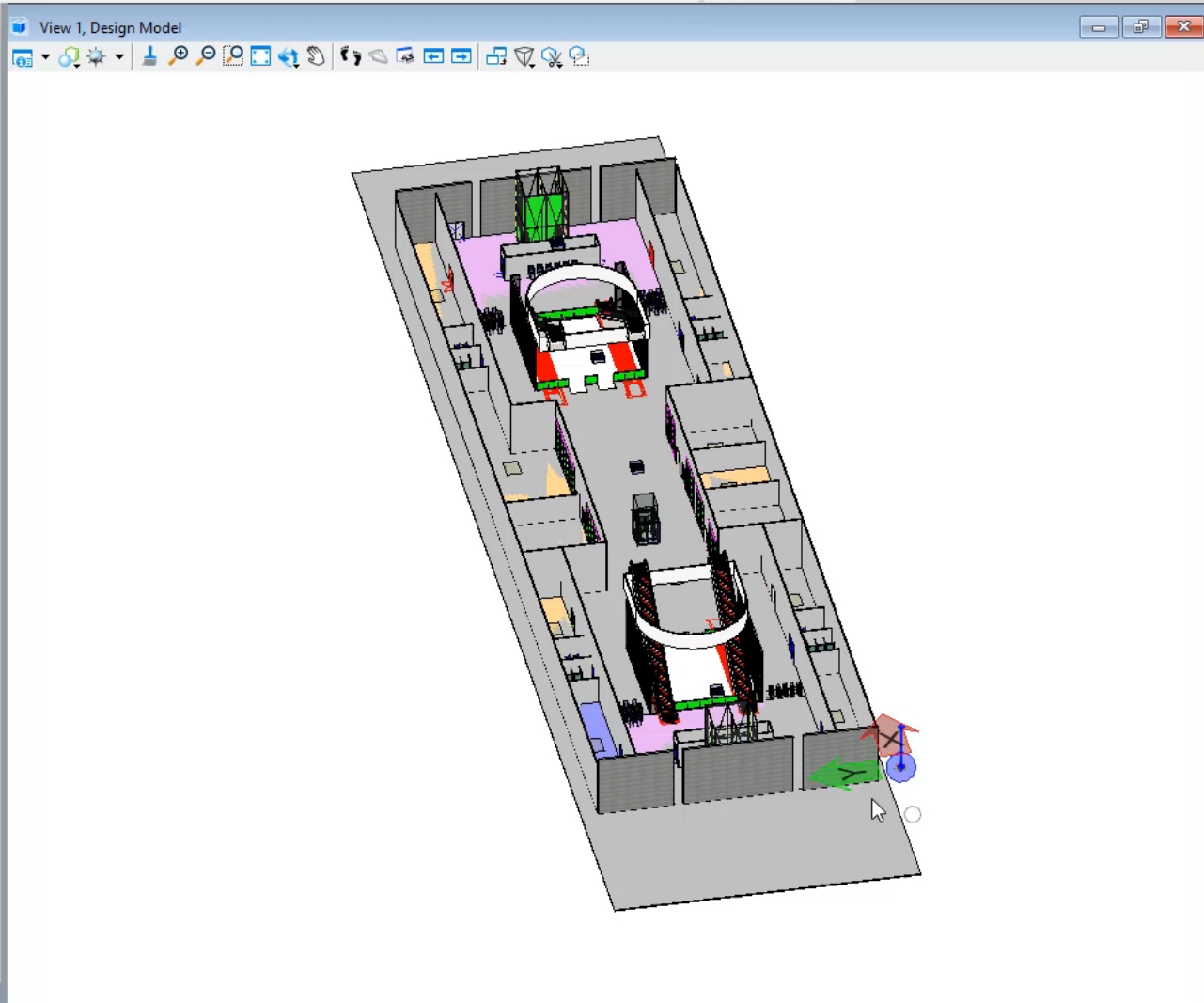
Geometry

- Arc, BSplineCurve, BSplineSurf...
- Cell, Circle, Cone
- Coordinate..., Curve, Direction
- Ellipse, EllipticalArc, EvaluateSur...
- Fabrication..., Line, Mesh
- Plane, Point, Polygon
- PolyLine, Range, Solid
- Text

OpenBuildings Designer

- Building, BuildingCo..., Compound...
- Door, Floor, FreeForm
- Grid, Plan, Section
- Slab, Space, StructuralM...

Node Prop..., Transactions, Node Types



X 16826.13 Y -11861.38 Z -19894.48

Element Selection > Identify element to add to set

File Home Model Help

Selection X

Common Tools

Presentation

View Attributes Apply Display Style

Tools

Window Area Zoom Out Fit View

Camera

Lens Type Place Camera

Named Boundaries

Place Named Boundary

Clip

Clip Volume

Save Views

Create Saved View Update Saved View Settings Apply Saved View

Window

Copy View Cascade Tile Arrange View Size

View Groups

Prev Next All

Design Model

1 2 3 4 5 6 7 8

Part Level Part Color Part Style Part Weight

X -42.8 Y -25.0 Z 19.8

- Transactions
- 1 Set up parameters and attach alignment
 - 2 Integrate center alignment
 - 3 Determine tunnel liner distribution along tunnel center
 - 4 Place tunnel liners
 - 5 Integrate first stage sub-ballast concrete datum line string
 - 6 Constructions for sub-ballast concrete
 - 7 Sub-ballast concrete solid and volume
 - 8 Integrate top ballast concrete datum line strings
 - 9 Constructions for top ballast concrete
 - 10 Top ballast solid
 - 11 Integrate walkway edge datum line string
 - 12 Constructions for walkway
 - 13 Walkway solid and walkway cover
 - 14 Integrate rail track alignment line strings
 - 15 Constructions for sleepers
 - 16 Change sleeperLimitCount temporarily to 10
 - 17 Add Sleepers
 - 18 Add Tracks
 - 19 Hide alignments
 - 20 Change numberOfRings to 40
 - 21 Add ExportTunnelRings
 - 22 Add ExportFirstStageConcrete
 - 23 Add ExportTopConcrete
 - 24 S Change numberOfRings to 200
- Node Types Transactions Node Properties

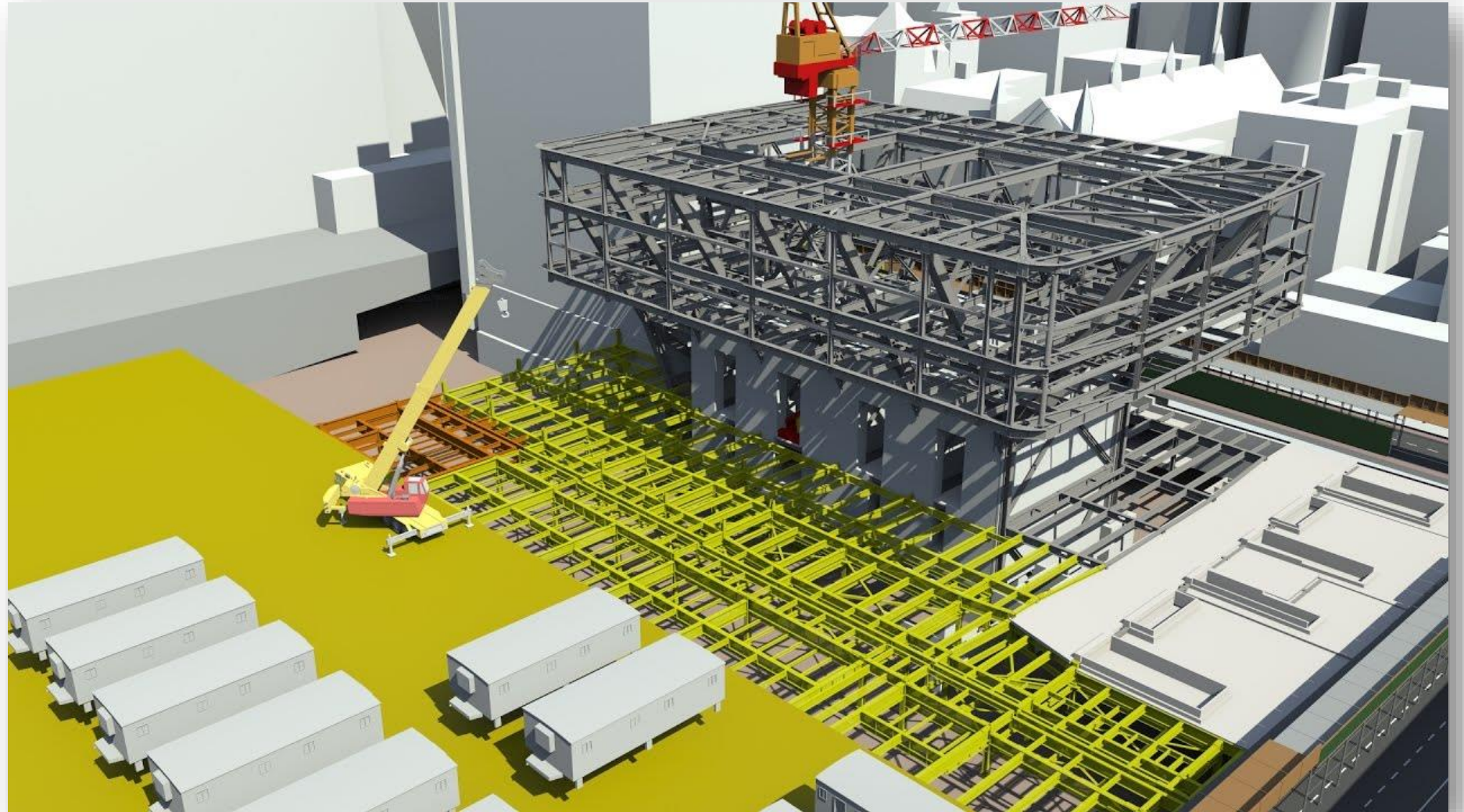
Graph

View 1 - FinalPerspIlluminorLight, Design Model

Digital Construction with Bentley Synchro



OpenBuildings
Station
Designer



Metro_Station - Synchro

File Plan Assign Resources 3D 4D Review Project Controls Reports Windows Navigator

Below Outdent Link As Chain On Screen Centre Project Start Project Calendar Resource Task 1:00 PM 12/ 6/2019 63

Open Schedule Alerts Update Progress... Baseline Selected Baselines and Scenarios WBS WBS Layout Codes Use Status Colours Show Spotlight Find and Replace... Select All Up to previous selected Filters

3D Objects

Name
Objects of scene
Metro_Station_Architecture.spx
Metro_Station_HVAC.spx
Metro_Station_Roof.spx
Untitled
Station_Roof.nwc
A-GLAZ-CLER
A-GLAZ-GREY
A-HRAL-MWRK
Level
S-BEAM
S-JOIS-ENVL
S-LABELS-MARK
S-SLAB-CONC
Metro_Station_Site.spx
Metro_Station_Structure.spx

Open

Search OneDrive_1_9-24-2018

Name	Type	Date modified
Station_HVAC	Bentley MicroStation Design	2018-09-24
Station_Master	Bentley MicroStation Design	2018-09-24
Station_Roof	Bentley MicroStation Design	2018-09-24
Station_Site	Bentley MicroStation Design	2018-09-24

File name:

Support Gantt

3D Using Dates [Best] Colours [Appearance Prof]

- All Importable Files
- All Importable Files
- AutoCAD DWG (*.dwg)
- AutoCAD DXF (*.dxf)
- Autodesk FBX (*.fbx)
- Collada DAE (*.dae)
- Alias OBJ (*.obj)
- HOOPS Stream File (*.hsf)
- Autodesk DWF (*.dwf; *.dwx)
- SketchUp Model (*.skp)
- Bentley i-model (*.i.dgn)
- MicroStation DGN (*.dgn)
- 3D PDF (*.prc; *.pdf)
- UGS JT (*.jt)
- Parasolid Files (*.x_t; *.x_b; *.xmt_bin; *.xmt_bin)
- Acis Files (*.sat; *.sab)
- Autodesk Inventor Files (*.ipt; *.iam)
- Catia V4 Files (*.model; *.session; *.exp; *.dlv)
- Catia V5/V6 Files (*.catpart; *.catproduct; *.catdrawing; *.catshape; *.c)
- Dassault Interchange Format Files (*.3dxml)
- ProE/Creo Files (*.prt; *.prt; *.asm; *.asm; *.neu; *.xas; *.xpr)
- I-deas Files (*.mf1; *.arc; *.unv; *.pkg)
- IGES Files (*.igs; *.iges)
- Siemens NX Files (*.prt)
- Rhino Files (*.3dm)
- Solid Edge Files (*.asm; *.par; *.pwd; *.psm)
- SolidWorks Files (*.sldprt; *.sldasm)
- STEP Files (*.stp; *.step)
- Stereo Lithography Files (*.stl)
- Universal 3D Files (*.u3d)
- VDA-FS Files (*.vda)

1st Dec 2019

29th	30th	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th
wk 62		wk 63								wk 64							wk 65		
Station Structure B1																			
Station Architecture Roof																			
Roof Support																			
Roof Skeleton																			
Roof Primary Skeleton																			
Roof Secondary Skeleton																			
Roof Teflon																			
Roof Skin																			
Roof Vents																			
B2 Elevator																			
B2 Walls																			

File

- New
- Open
- Save
- Save As
- Log in as different User...
- Open LINK Session...
- Send...
- Import
- Export
- Print...
- Print Preview
- Print Setup...

Search Command

Options... Exit

- Asta Powerproject
- Microsoft Project XML
- PMA NetPoint
- Primavera P6
- Safran Project
- IFC
- 3D
- PRO Synchro project
- Microsoft Excel
- ProjectWise Project

Metro_Station - Synchro

Reports Windows Navigator

Paste Task(s) Delete Task(s) ID (Re)assign IDs Change Colours Reschedule Reschedule Selected Compute Critical Path Settings Reschedule Report Schedule Health Check Alerts Update Progress... Baseline Selected Tasks Baselines and Scenarios Baselines WBS WBS Layout Codes Use Status Colours Show Spotlight Find and Replace... Select All Up to previous selected Filters

Source Task 1:00 PM 12/ 6/2019 63

Name	Duration	Start	Finish
Station Structure Base Steel Beams	1d	9:00 AM 10/2/2018	5:00 PM 10/2/2018
Station Structure B1	5d	9:00 AM 11/25/2019	5:00 PM 11/29/2019
Station Architecture	25d	9:00 AM 12/2/2019	5:00 PM 1/3/2020
Station Architecture Roof	6d	9:00 AM 12/2/2019	5:00 PM 12/9/2019
Roof Support	1d	9:00 AM 12/2/2019	5:00 PM 12/2/2019
Roof Skeleton	2d	9:00 AM 12/3/2019	5:00 PM 12/4/2019
Roof Primary Skeleton	1d	9:00 AM 12/3/2019	5:00 PM 12/3/2019
Roof Secondary Skeleton	1d	9:00 AM 12/4/2019	5:00 PM 12/4/2019
Roof Teflon	1d	9:00 AM 12/5/2019	5:00 PM 12/5/2019
Roof Skin	1d	9:00 AM 12/6/2019	5:00 PM 12/6/2019
Roof Vents	1d	9:00 AM 12/9/2019	5:00 PM 12/9/2019
Station Architecture B2	8d	9:00 AM 12/10/2019	5:00 PM 12/19/2019
B2 Elevator	1d	9:00 AM 12/10/2019	5:00 PM 12/10/2019
B2 Walls	1d	9:00 AM 12/11/2019	5:00 PM 12/11/2019

1st Dec 2019

wk 62 29th 30th wk 63 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th wk 64 wk 65

Station Structure B1

Station Architecture Roof

Roof Support

Roof Skeleton

Roof Primary Skeleton

Roof Secondary Skeleton

Roof Teflon

Roof Skin

Roof Vents

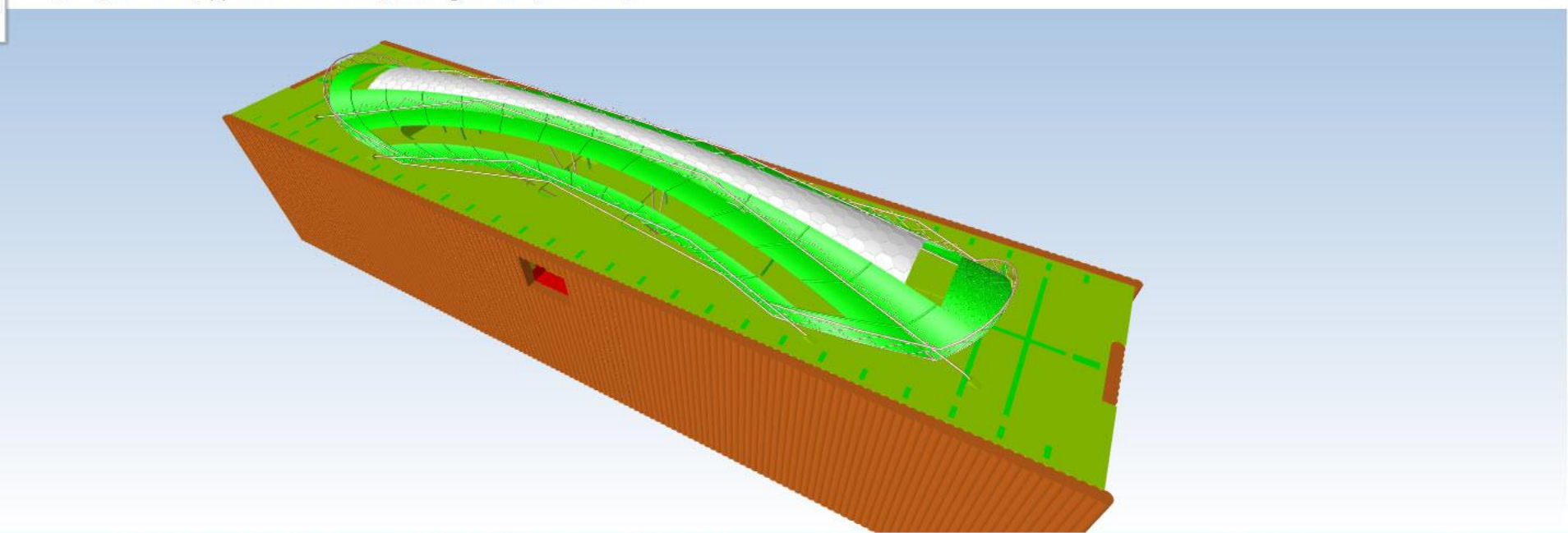
B2 Elevator

B2 Walls

Dates [Best] Colours [Appearance Profiles] Cutting Planes [1516x478]

Resources

3D Objects

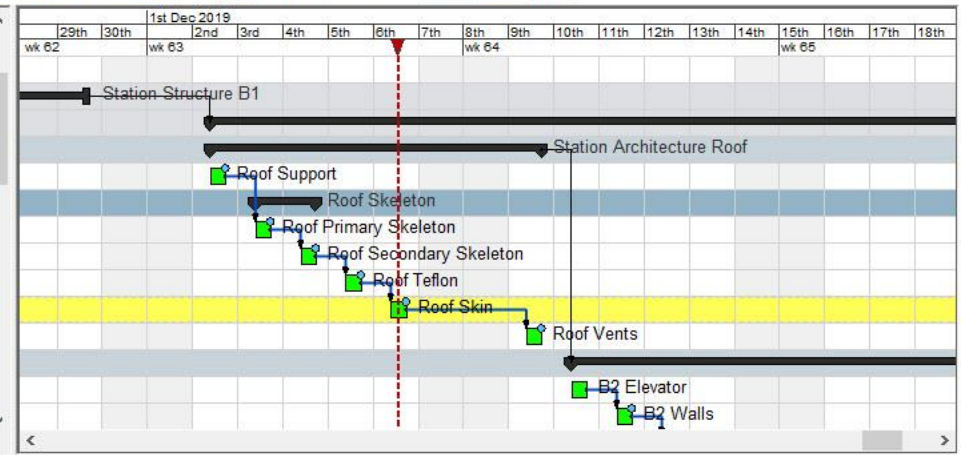


3D Objects

Name

- Objects of scene
 - Metro_Station_Architecture.spx
 - Metro_Station_HVAC.spx
 - Metro_Station_Roof.spx
 - Untitled
 - Station_Roof.nwc
 - A-GLAZ-CLER
 - A-GLAZ-GREY
 - A-HRAL-MWRK
 - Level
 - S-BEAM
 - S-JOIS-ENVL
 - S-LABELS-MARK
 - S-SLAB-CONC
 - Metro_Station_Site.spx
 - Metro_Station_Structure.spx

ID	Name	Duration	Start	Finish
305	ST0... Station Structure Base Steel Beams	1d	9:00 AM 10/2/2018	5:00 PM 10/2/2018
306	ST0... Station Structure B1	5d	9:00 AM 11/25/2019	5:00 PM 11/29/2019
312	ST0... Station Architecture	25d	9:00 AM 12/2/2019	5:00 PM 1/3/2020
313	ST0... Station Architecture Roof	6d	9:00 AM 12/2/2019	5:00 PM 12/9/2019
314	ST0... Roof Support	1d	9:00 AM 12/2/2019	5:00 PM 12/2/2019
315	ST0... Roof Skeleton	2d	9:00 AM 12/3/2019	5:00 PM 12/4/2019
316	ST0... Roof Primary Skeleton	1d	9:00 AM 12/3/2019	5:00 PM 12/3/2019
317	ST0... Roof Secondary Skeleton	1d	9:00 AM 12/4/2019	5:00 PM 12/4/2019
318	ST0... Roof Teflon	1d	9:00 AM 12/5/2019	5:00 PM 12/5/2019
319	ST0... Roof Skin	1d	9:00 AM 12/6/2019	5:00 PM 12/6/2019
320	ST0... Roof Vents	1d	9:00 AM 12/9/2019	5:00 PM 12/9/2019
321	ST0... Station Architecture B2	8d	9:00 AM 12/10/2019	5:00 PM 12/19/2019
322	ST0... B2 Elevator	1d	9:00 AM 12/10/2019	5:00 PM 12/10/2019
323	ST0... B2 Walls	1d	9:00 AM 12/11/2019	5:00 PM 12/11/2019



Support Gantt

3D Using Dates [Best] Colours [Appearance Profiles] Cutting Planes [1516x478]

Resources 3D Objects

For Help, press F1 Expire 95 days Enough memory [Filter Off] Selected[1][0][0] 1:00 PM 12/6/2019 Private Project Transactions: 299 Administrator

Metro_Station - Synchro

File Plan Assign Resources 3D 4D Review Project Controls Reports Windows Navigator Help

Above Outdent Link As Chain On Screen Centre Project Start Create Move Links Focus Centre View

Calendars Cut Task(s) Copy Task(s) Paste Task(s) Delete Task(s) (Re)assign IDs Change Colours

Reschedule Reschedule Selected Compute Critical Path Settings Reschedule Report Schedule Health Check Alerts Update Progress...

Baseline Selected Tasks Baselines and Scenarios WBS WBS Layout Codes Use Status Colours Show Spotlight Find and Replace... Select All Up to previous selected Filters

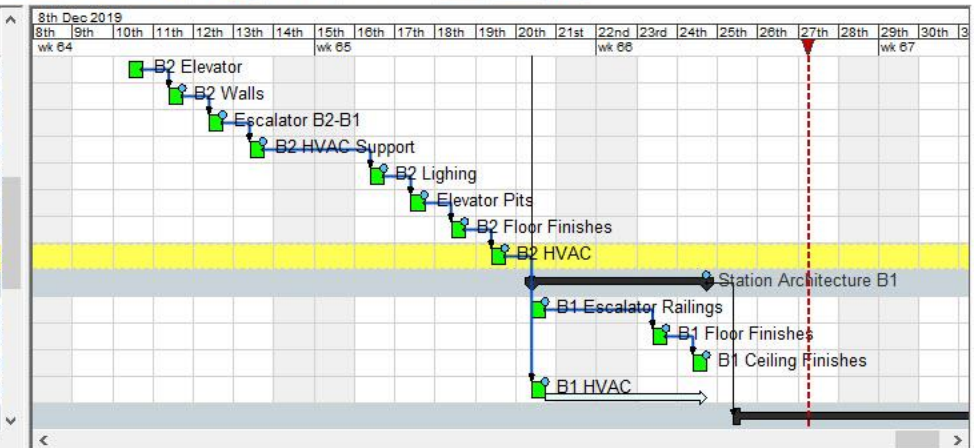
Install FS Project Calendar Resource Task 5:58 AM 12/27/2019 66

3D Objects

Name

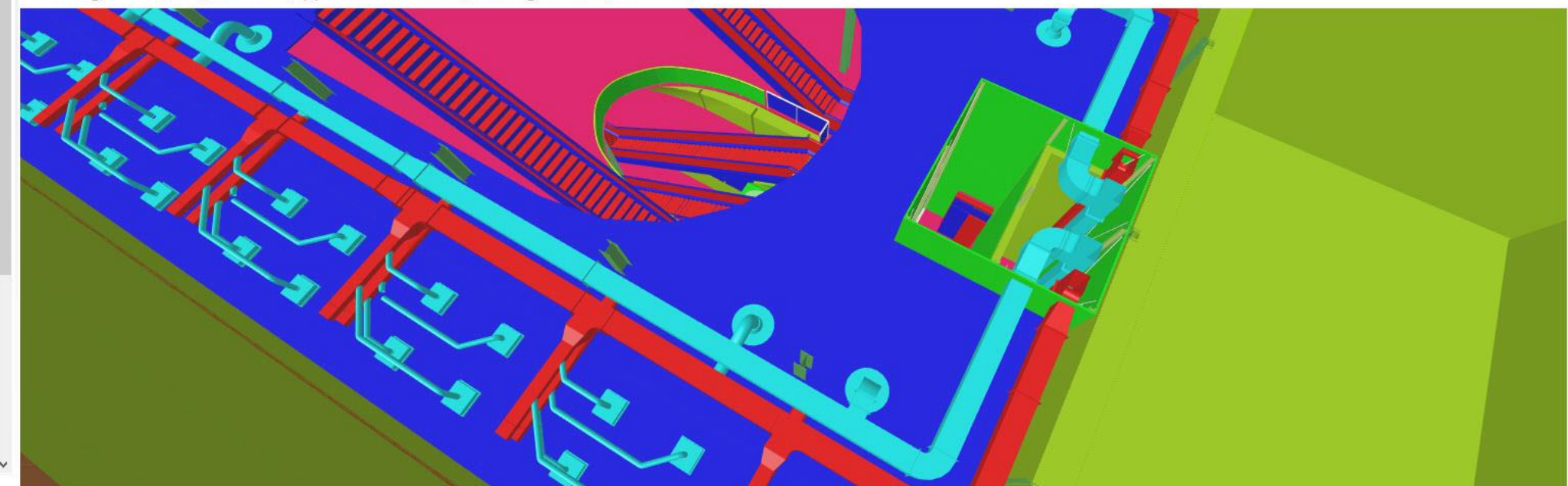
- Objects of scene
 - Metro_Station_Architecture.spx
 - Metro_Station_HVAC.spx
 - Untitled
 - Station_HVAC.nwc
 - M-HVAC-EXHS-DUCT
 - M-HVAC-SUPP-CDFF
 - M-HVAC-SUPP-DUCT
 - TurnOff
 - Metro_Station_Roof.spx
 - Metro_Station_Site.spx
 - Metro_Station_Structure.spx

ID	Name	Duration	Start	Finish
322	ST0... B2 Elevator	1d	9:00 AM 12/10/2019	5:00 PM 12/10/2019
323	ST0... B2 Walls	1d	9:00 AM 12/11/2019	5:00 PM 12/11/2019
324	ST0... Escalator B2-B1	1d	9:00 AM 12/12/2019	5:00 PM 12/12/2019
325	ST0... B2 HVAC Support	1d	9:00 AM 12/13/2019	5:00 PM 12/13/2019
326	ST0... B2 Lighting	1d	9:00 AM 12/16/2019	5:00 PM 12/16/2019
327	ST0... Elevator Pits	1d	9:00 AM 12/17/2019	5:00 PM 12/17/2019
328	ST0... B2 Floor Finishes	1d	9:00 AM 12/18/2019	5:00 PM 12/18/2019
329	ST0... B2 HVAC	1d	9:00 AM 12/19/2019	5:00 PM 12/19/2019
330	ST0... Station Architecture B1	3d	9:00 AM 12/20/2019	5:00 PM 12/24/2019
331	ST0... B1 Escalator Railings	1d	9:00 AM 12/20/2019	5:00 PM 12/20/2019
332	ST0... B1 Floor Finishes	1d	9:00 AM 12/23/2019	5:00 PM 12/23/2019
333	ST0... B1 Ceiling Finishes	1d	9:00 AM 12/24/2019	5:00 PM 12/24/2019
334	ST0... B1 HVAC	1d	9:00 AM 12/20/2019	5:00 PM 12/20/2019
335	ST0... Station Architecture Ground	8d	9:00 AM 12/25/2019	5:00 PM 1/3/2020



Support Gantt

3D Using Dates [Best] Colours [Appearance Profiles] Cutting Planes [1516x478]





01/05/20
Week: 32

A	2020		Jan 2021				Jan 2022			
	Jul	Oct		Apr	Jul	Oct		Apr	Jul	Oct
	wk 41	wk 54	wk 67	wk 80	wk 93	wk 106	wk 119	wk 132	wk 145	wk 1



First life, then spaces, then buildings — the other way around never works.

Jan Gehl, Danish architect

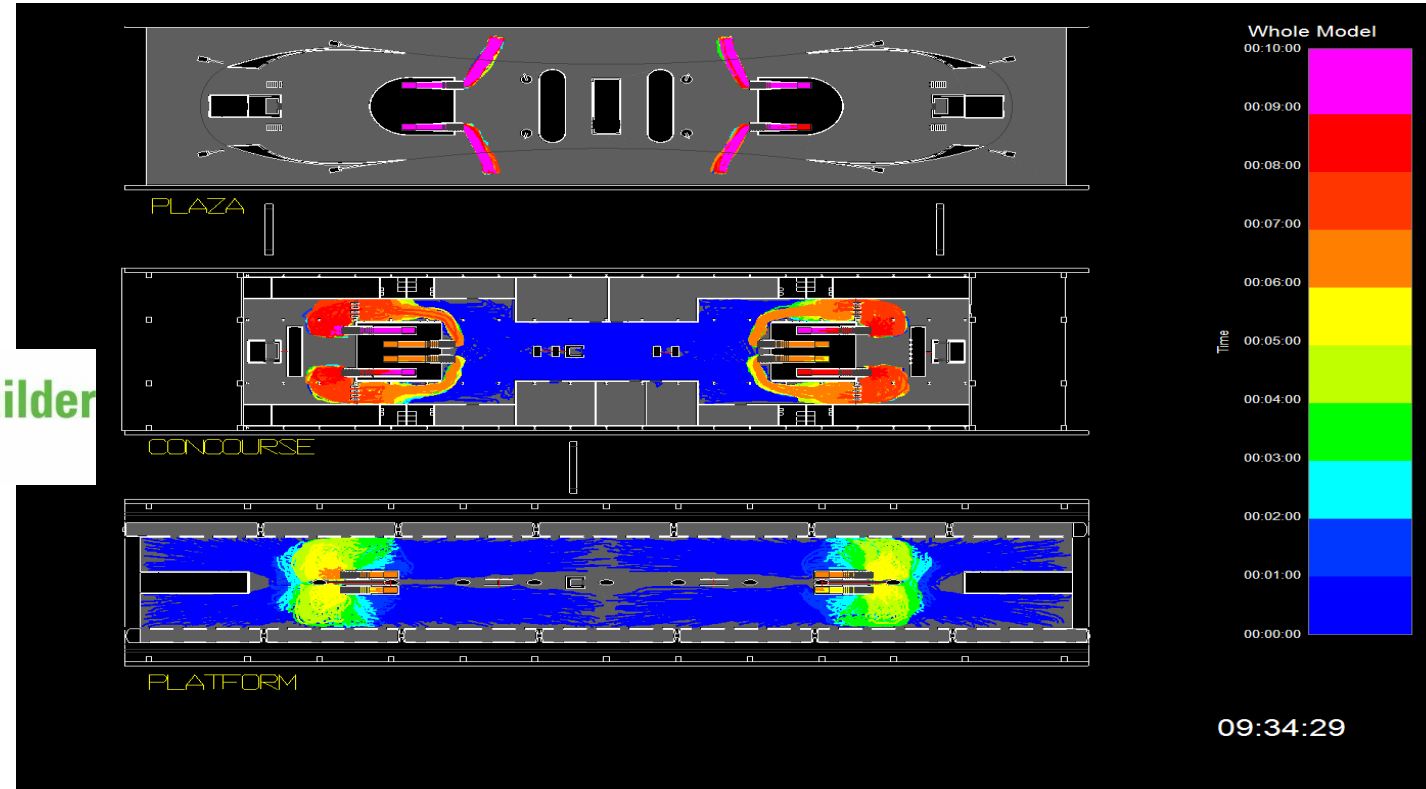
Pedestrian Simulation with LEGION



OpenBuildings
Station
Designer



LEGION® Model Builder
CONNECT Edition

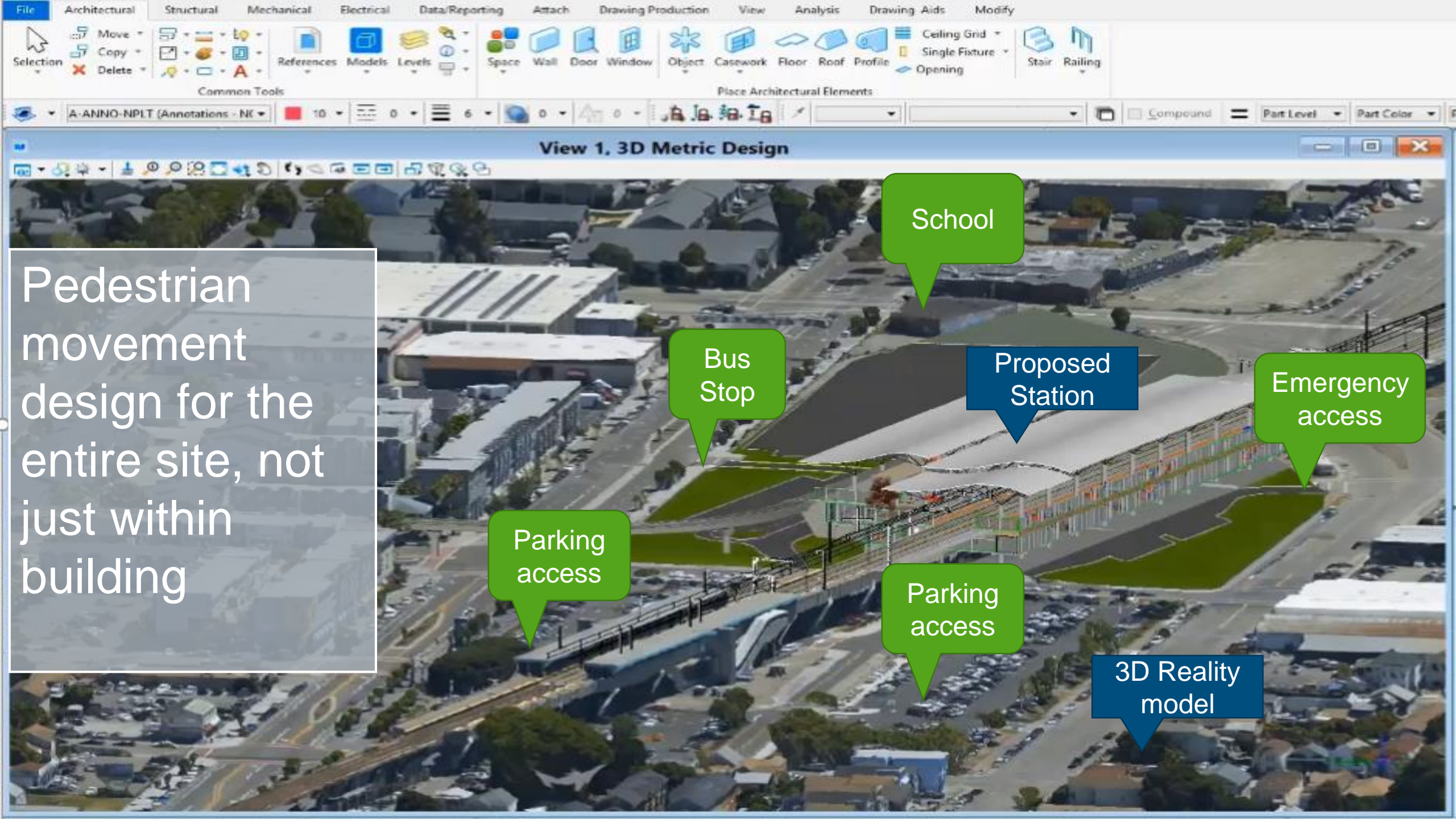


- All the LEGION possibilities working together with the design solution

Accelerate Station Design

Where does Station Designer add value ?

- Enhance pedestrian user experience design of critical transportation assets
- Generate automatically drawings from 3D models, the way you need it
- Scalable to address numerous project types:
 - Metro Stations, Bus Terminals, Airports
 - Stadiums, Campuses, shopping areas
 - Public spaces



Pedestrian movement design for the entire site, not just within building

School

Bus Stop

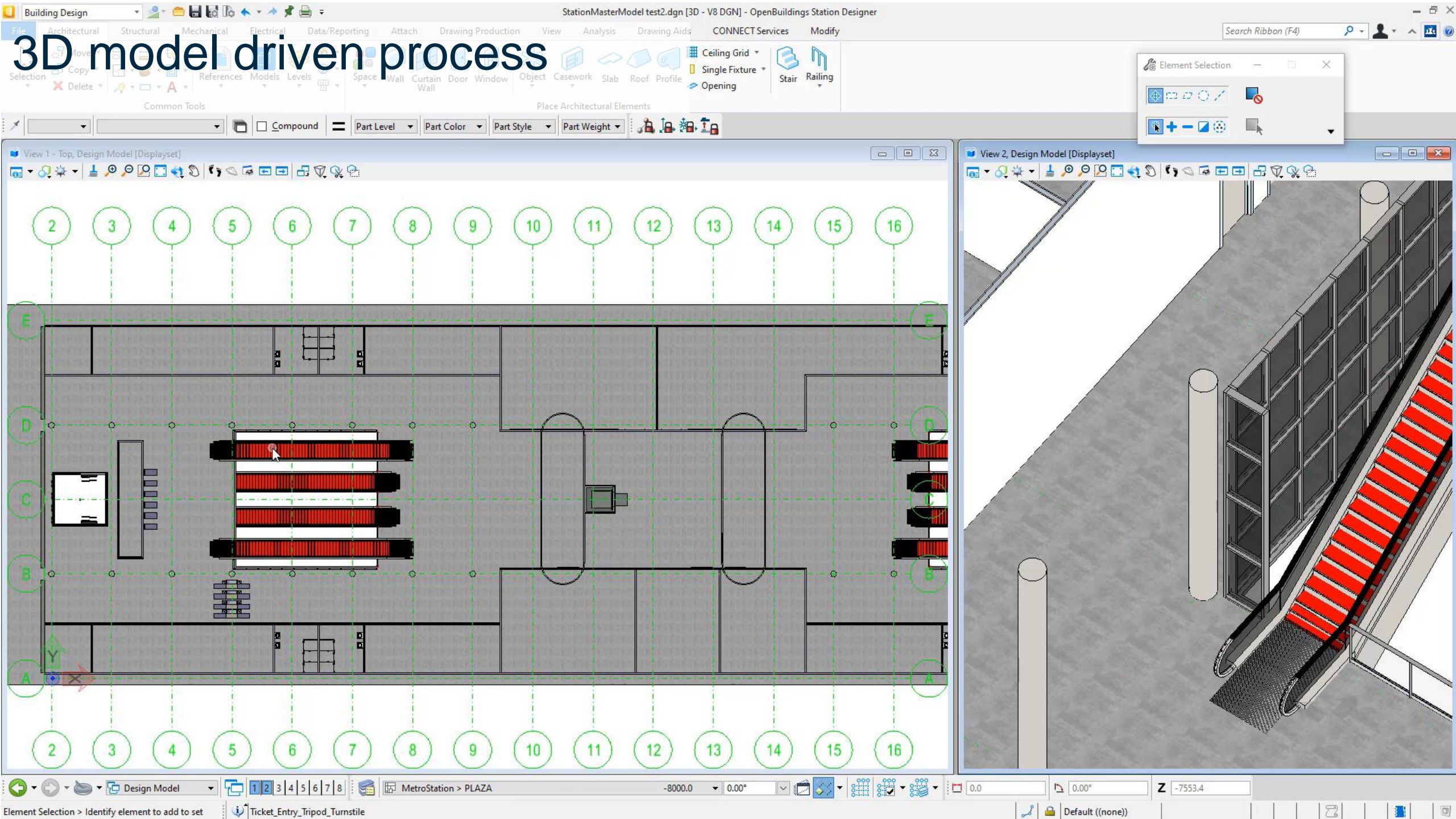
Proposed Station

Emergency access

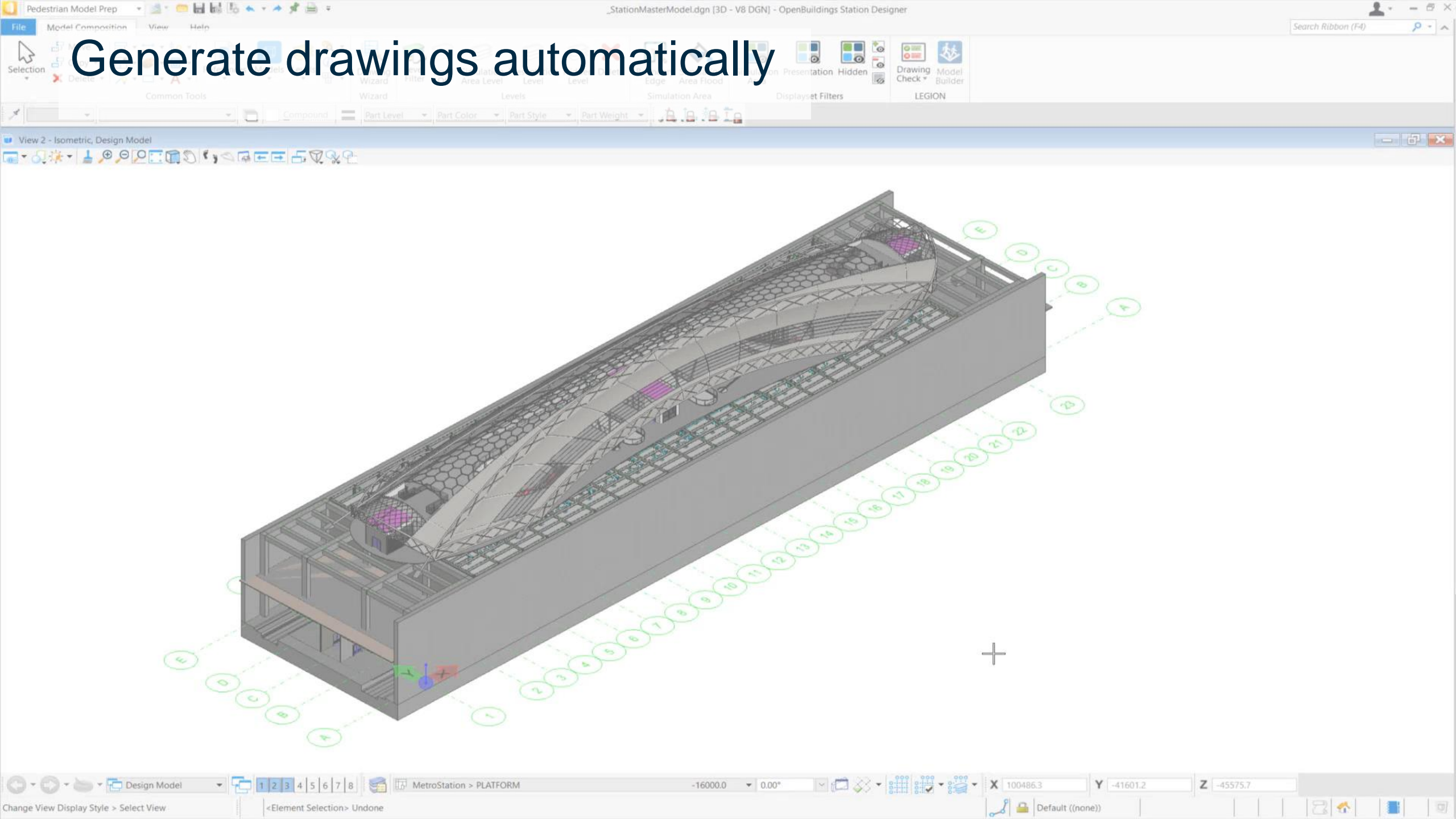
Parking access

Parking access

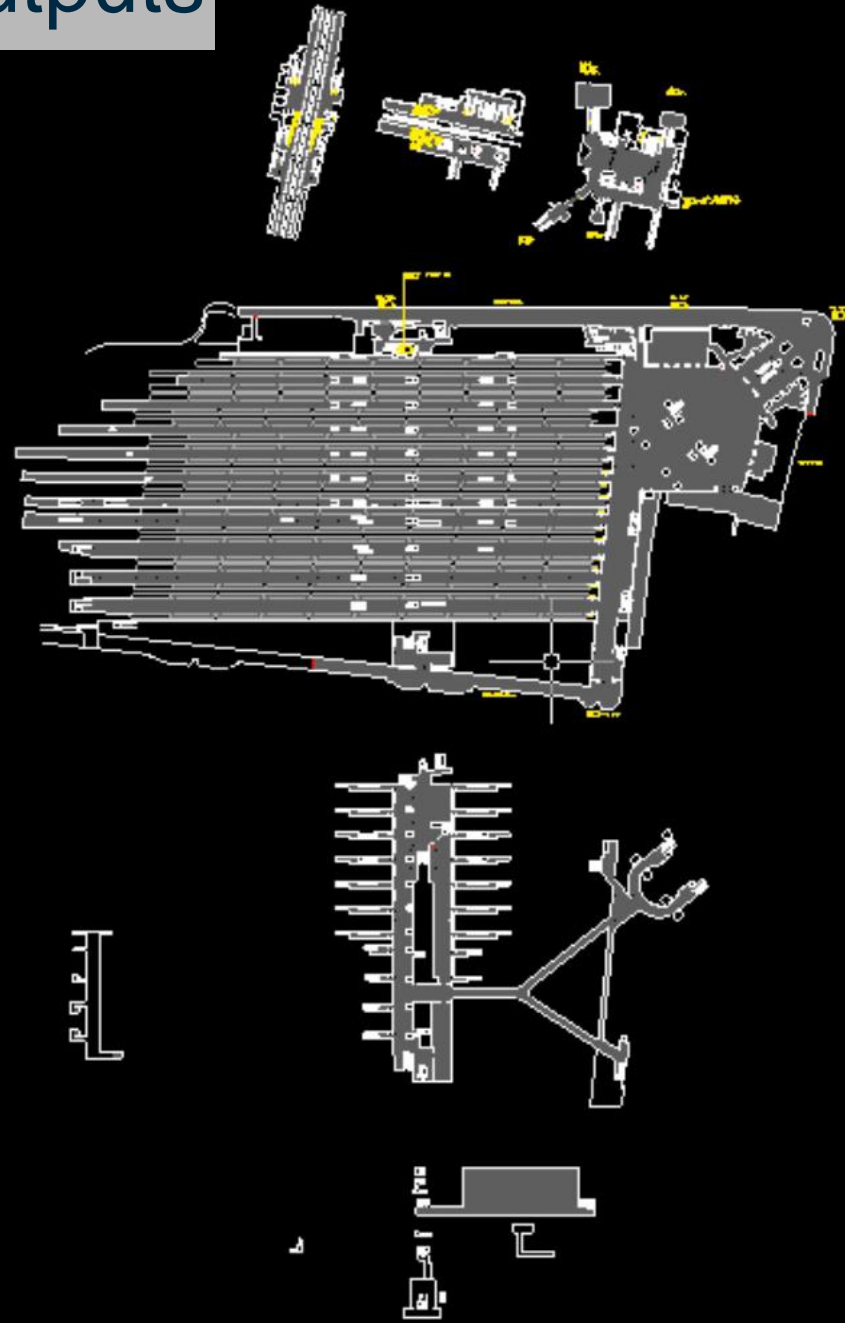
3D Reality model



Generate drawings automatically



Simulate and adjust outputs



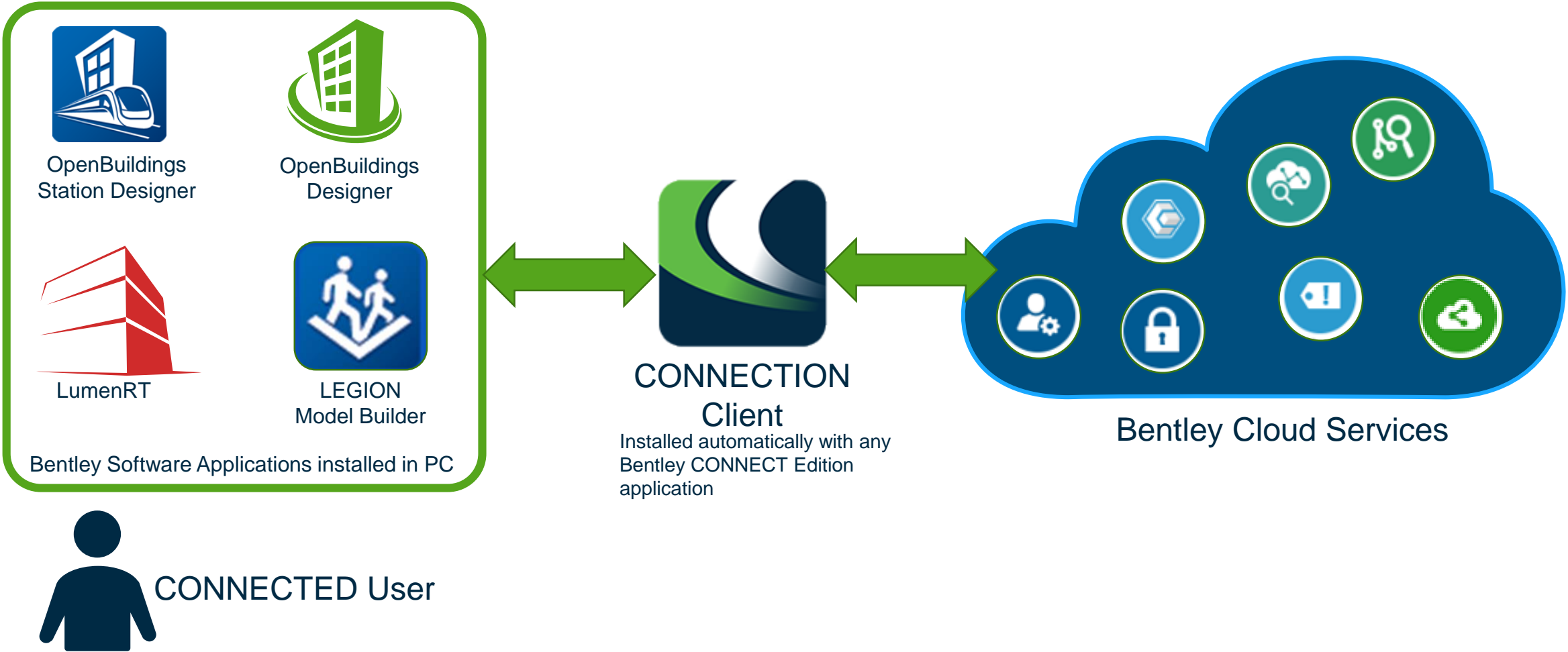
What is the **CONNECT** Edition?



OpenBuildings
Station
Designer

- Collaboration for
 - People
 - Data
 - Projects

Bentley CONNECTION Client











Bentley CONNECT Center

<https://connect.bentley.com>






For Users

My Services


 Components Center	 ProjectWise ContextShare	 Bentley Communities
 My Service Requests	 New Service Request	 Learn
 Product Documentation	 Software Downloads	

For your projects



ProjectWise 365 Services

 Share	 Deliverables Management	 Project Insights
 Issue Resolution	 Forms	

Optioneering Services











 Optioneering Center

iTwin Services

 Design Insights	 iModel Validation
--	--

Administration

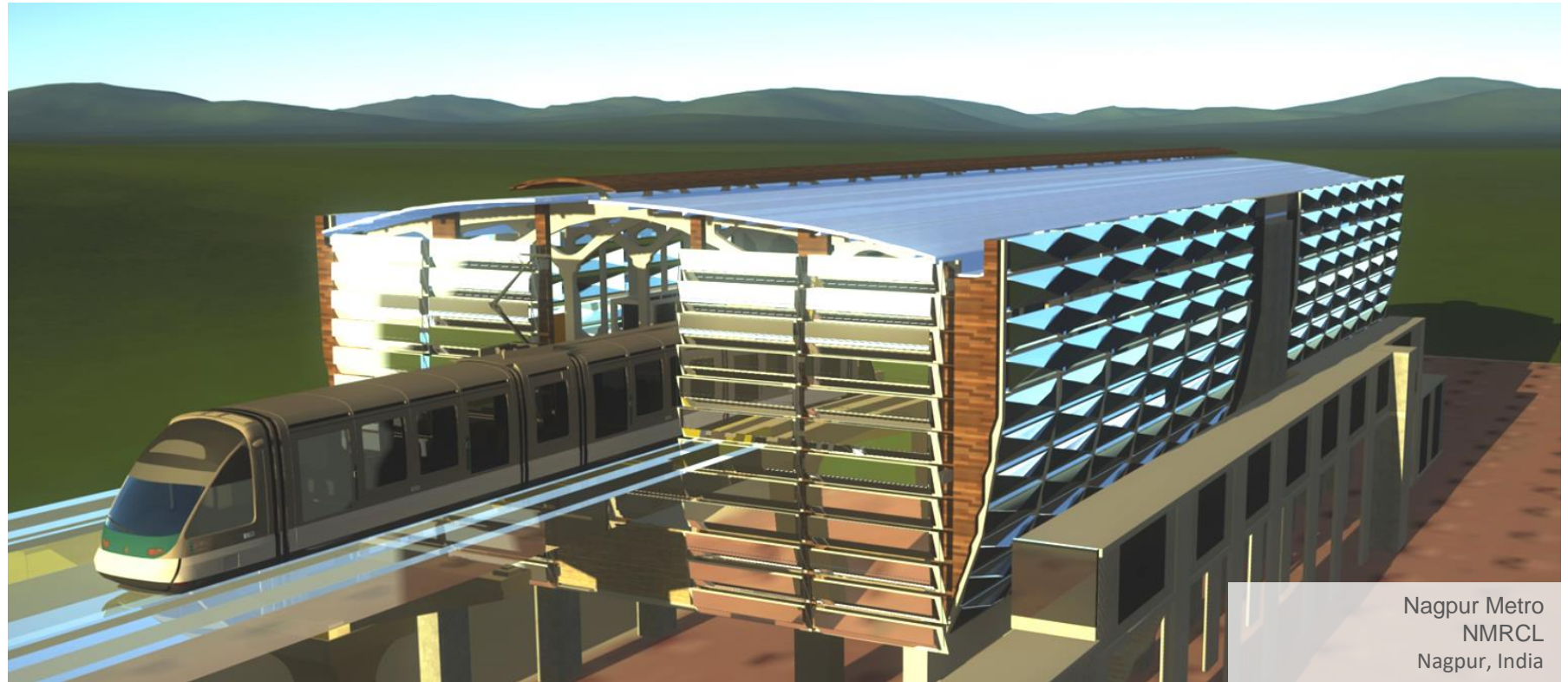
Subscription Services

 User Management	 Roles and Permissions	 Software Downloads
 License Management	 Product Usage Report	 Subscription Analytics
 Service Requests	 Software Administration	 ProjectWise ContextShare
 Service Registry		

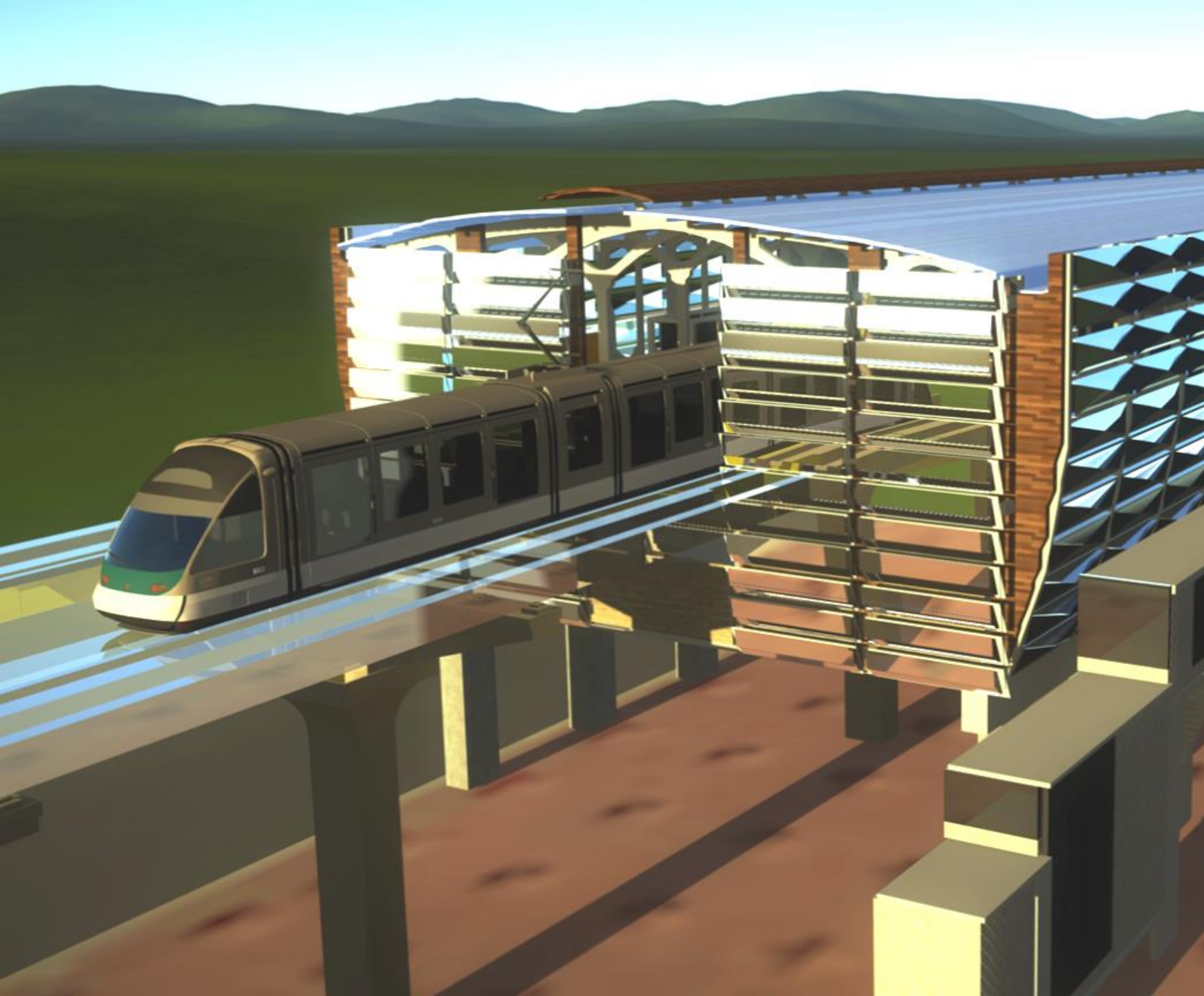
Our users



OpenBuildings
Station
Designer



- A Global User Community of Bentley Solutions for Projects



Nagpur Metro

Clove Technologies Ltd

- AECOsim Building Designer
- LOD 300 compatible BIM
- 10 Metro station buildings
- Enabled 5D BIM



BOND STREET STATION PASSENGER MODELLING
LONDON UNDERGROUND – TRANSPORT FOR LONDON
London, United Kingdom

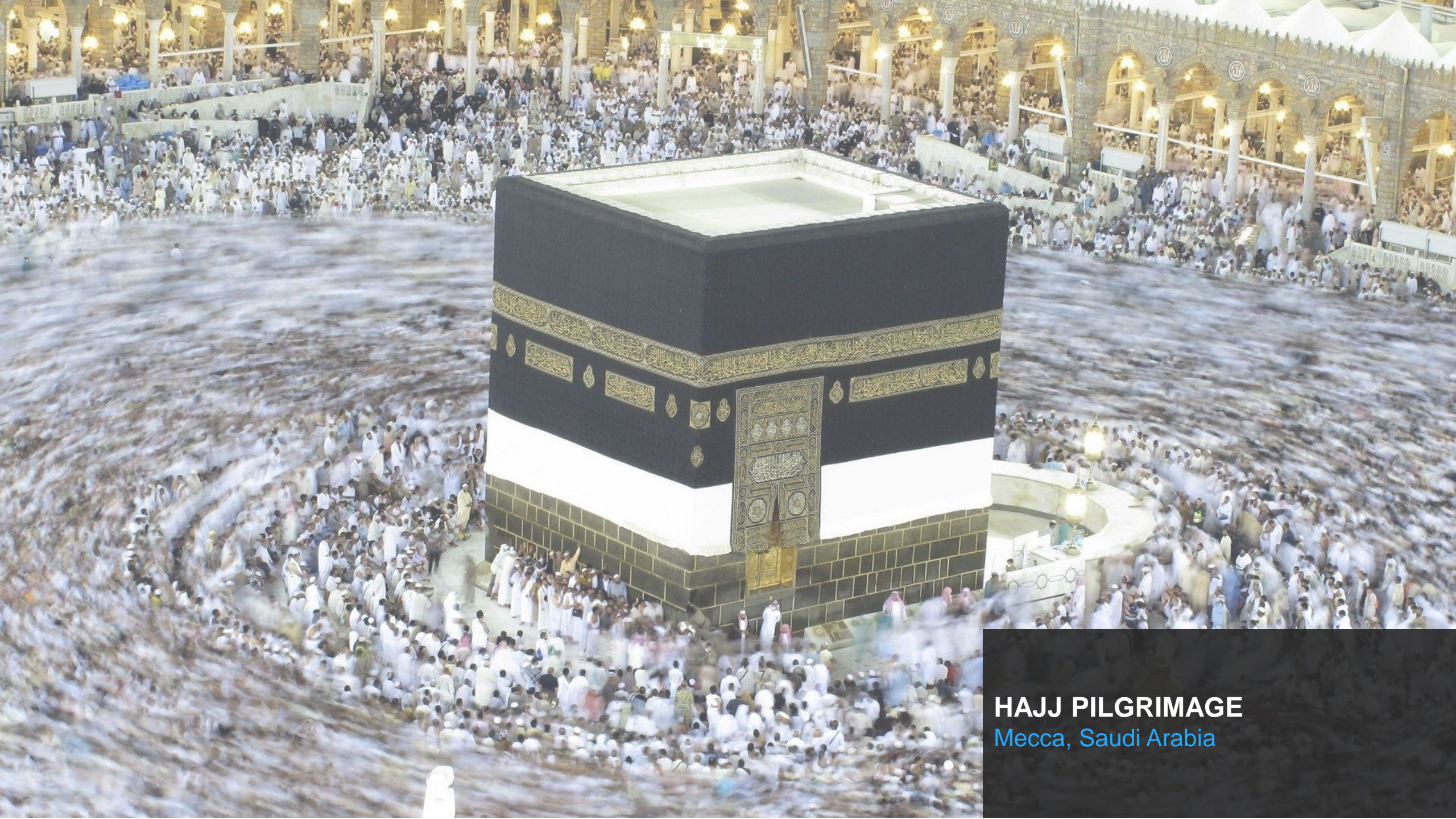
Project Playbook:
OpenBuildings Station Designer, LEGION Simulator



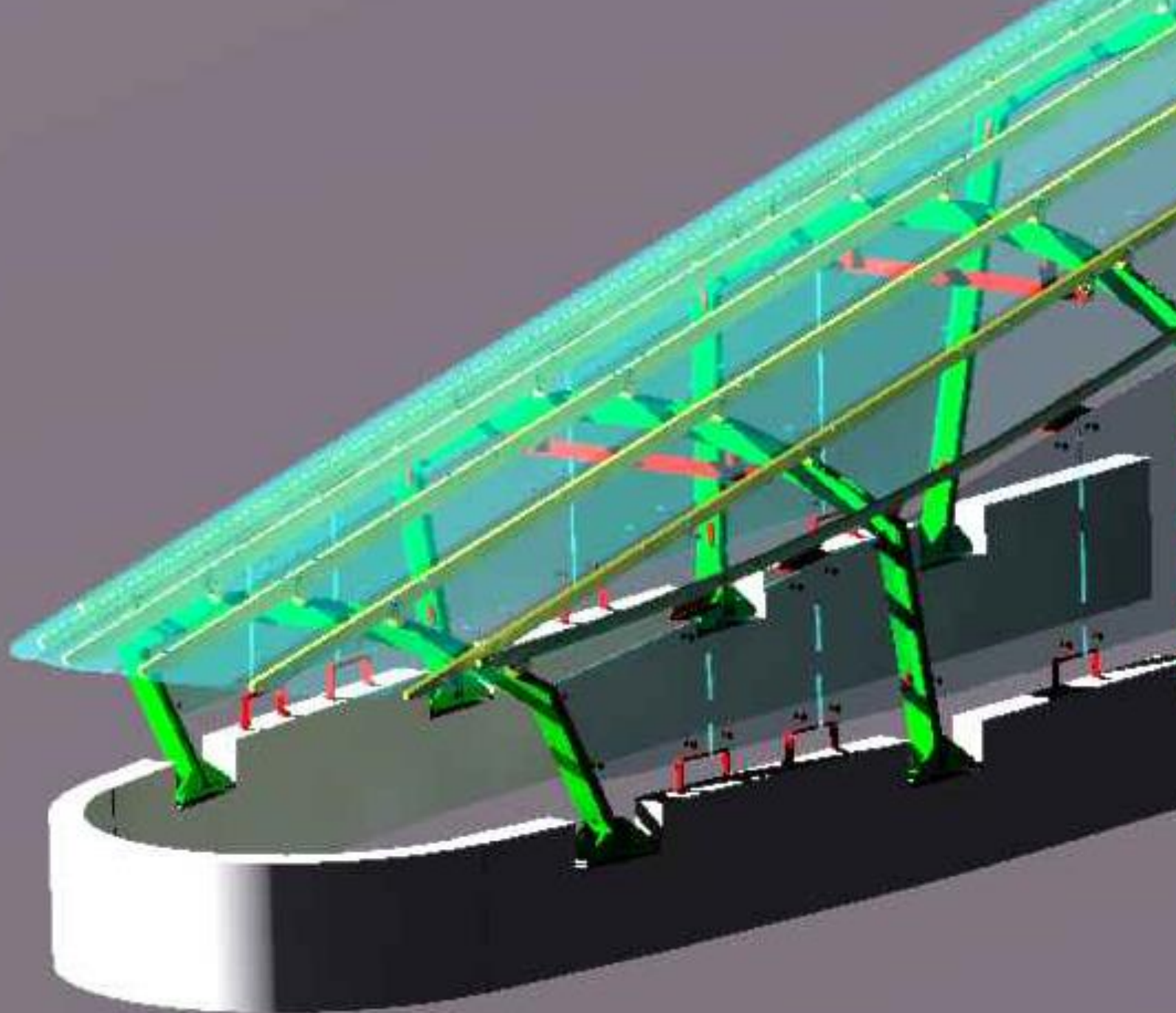
LUTON AIRPORT BAGGAGE RECLAIM
London, UK



SUMMER OLYMPIC GAMES 2000
Sydney, Australia



HAJJ PILGRIMAGE
Mecca, Saudi Arabia



Canopy of a Metro Station New York City

AlmassTronics

- AECOsim Building Designer
- Structural supports
- Flexibility in modeling

Redefine the Conventional!



OpenBuildings
Station
Designer



Are you **READY?**

To learn more visit: <https://www.bentley.com/en/products/product-line/building-design-software/openbuildings-station-designer>