Geospatial and BIM Convergence for Digital Built Environment

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Where we came from…
…and how far we've come

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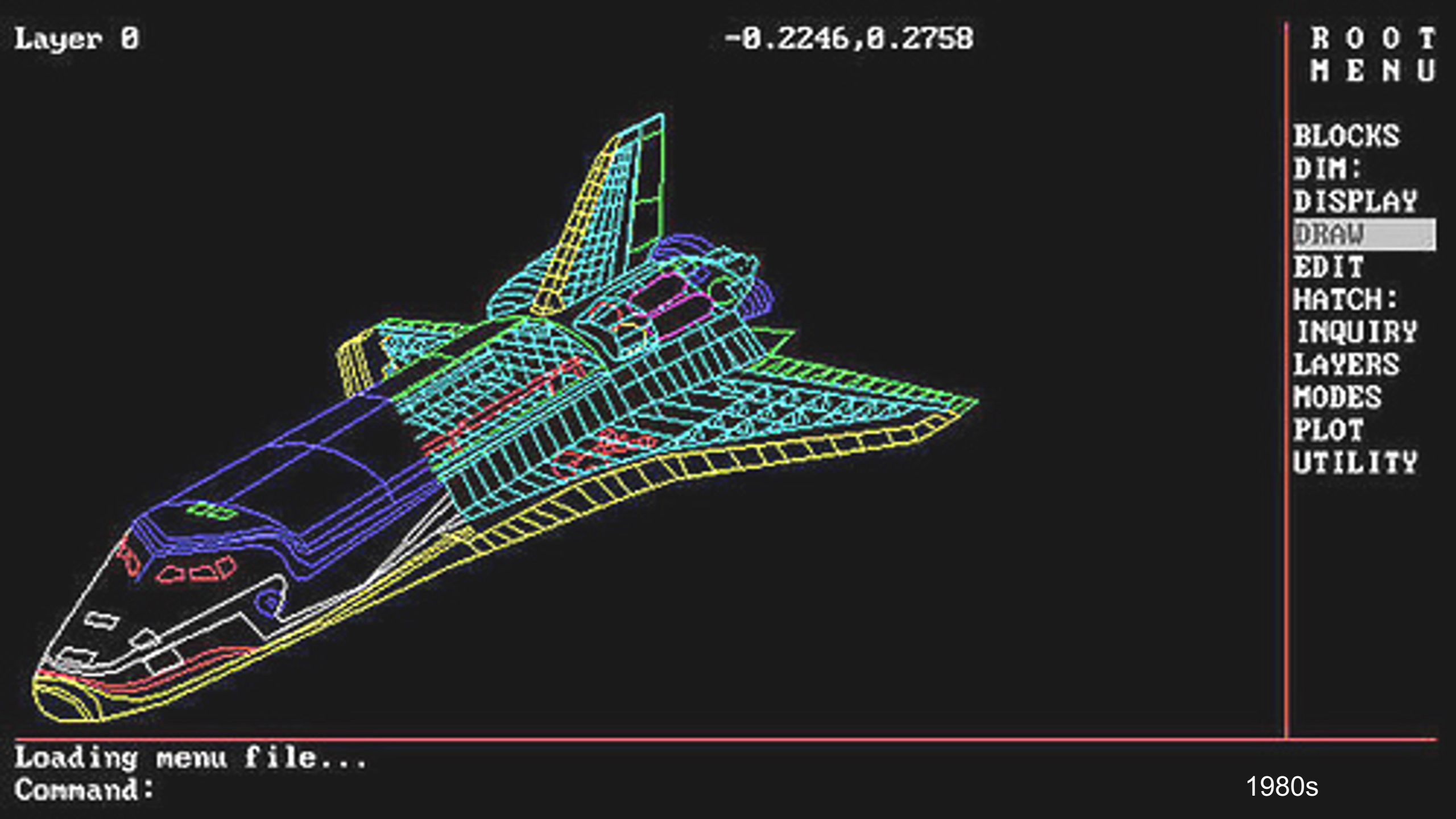
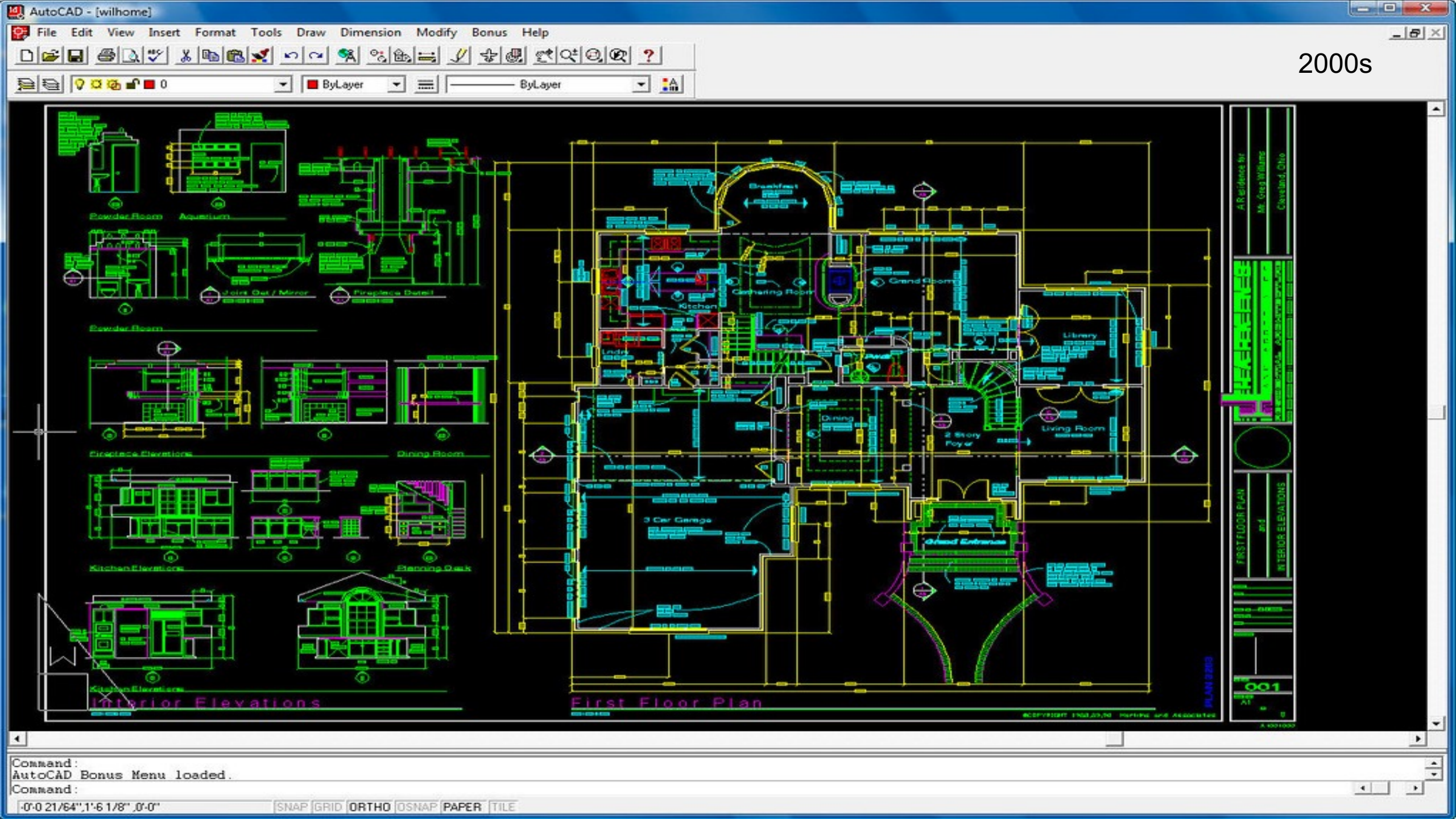
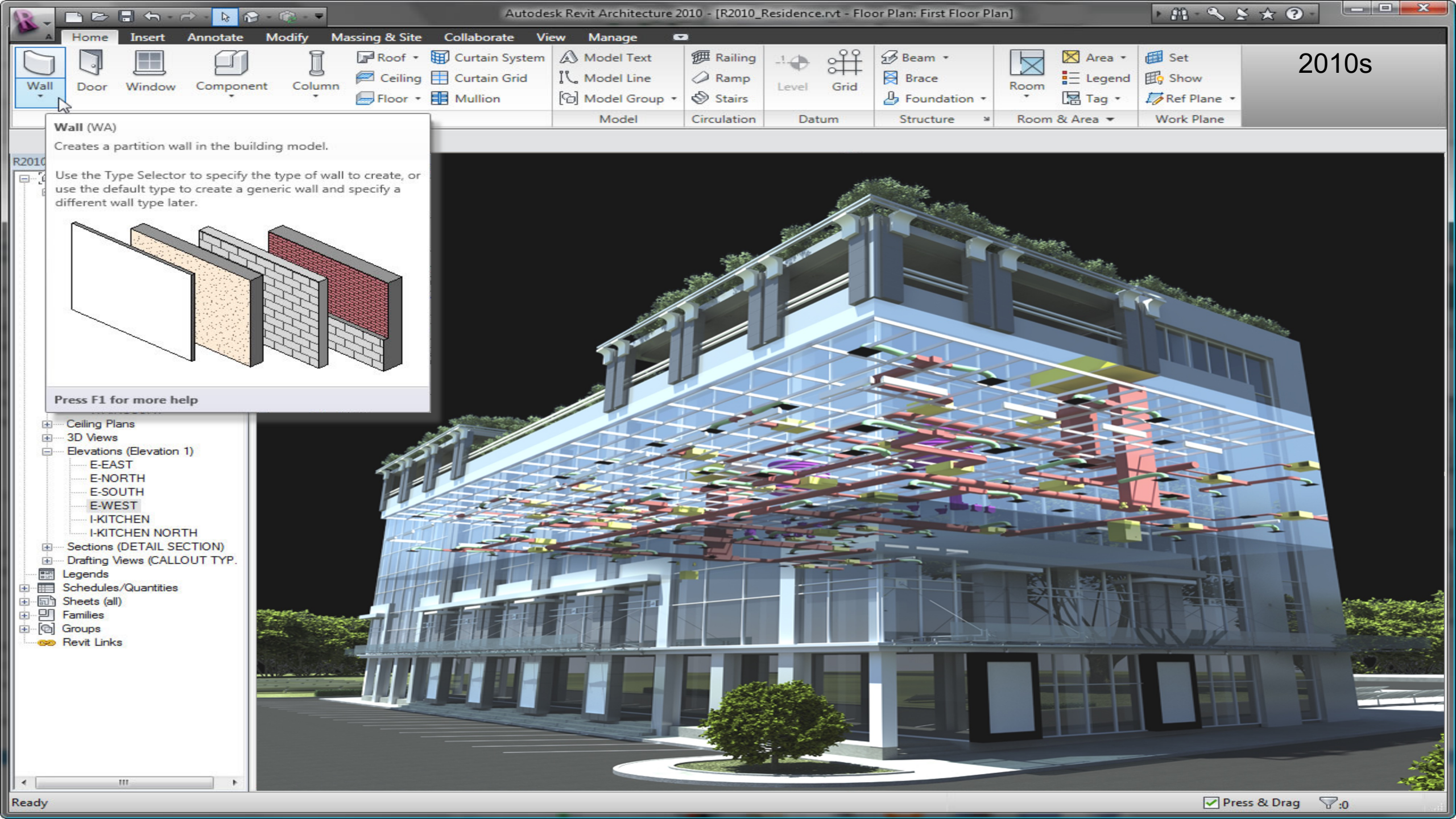
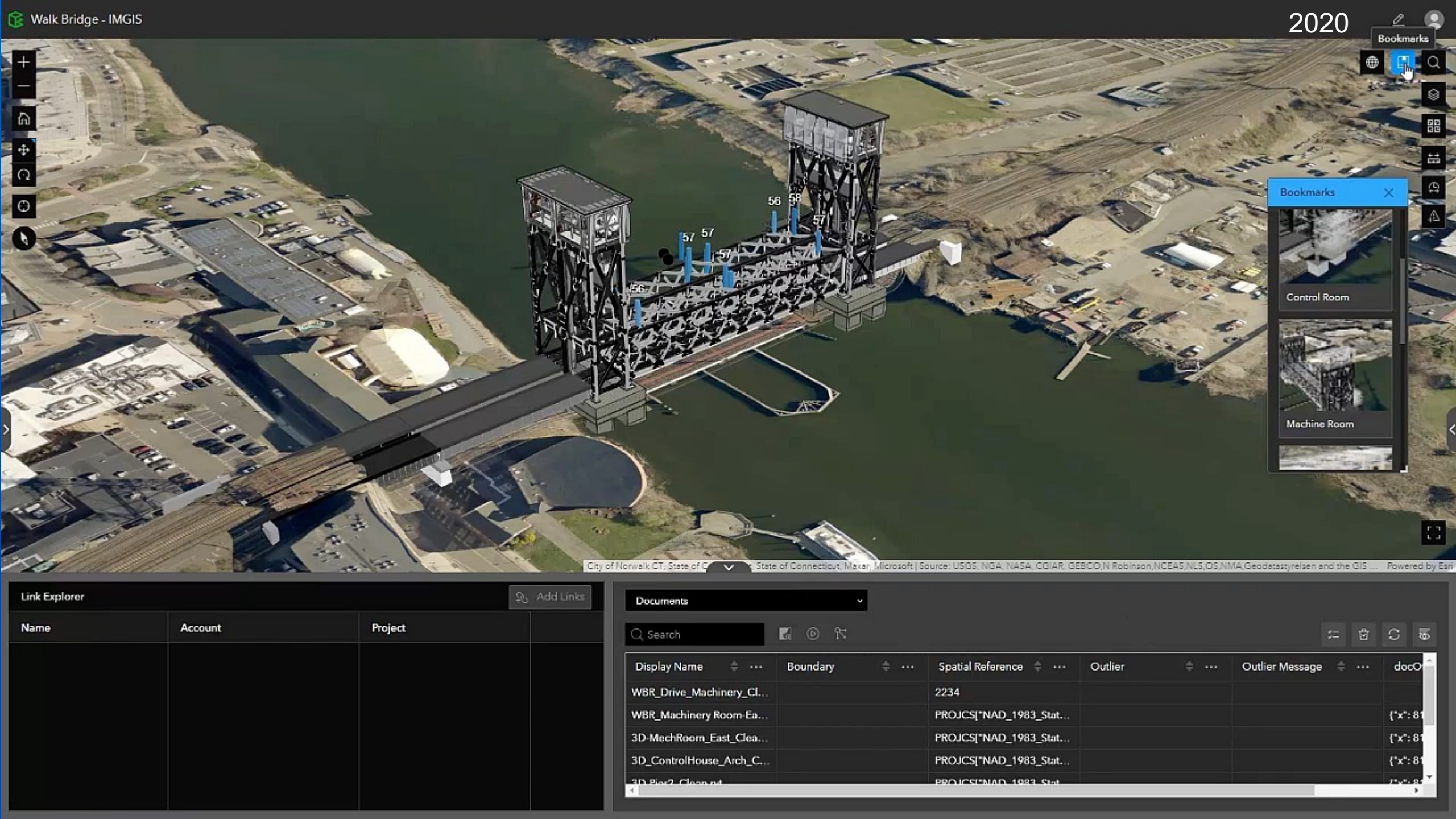
1960s


Layer 0
-0.2246,0.2758
ROOT MENU
BLOCKS
DIM:
DISPLAY
DRAW
EDIT
HATCH:
INQUIRY
LAYERS
MODES
PLOT
UTILITY
Loading menu file...
Command:

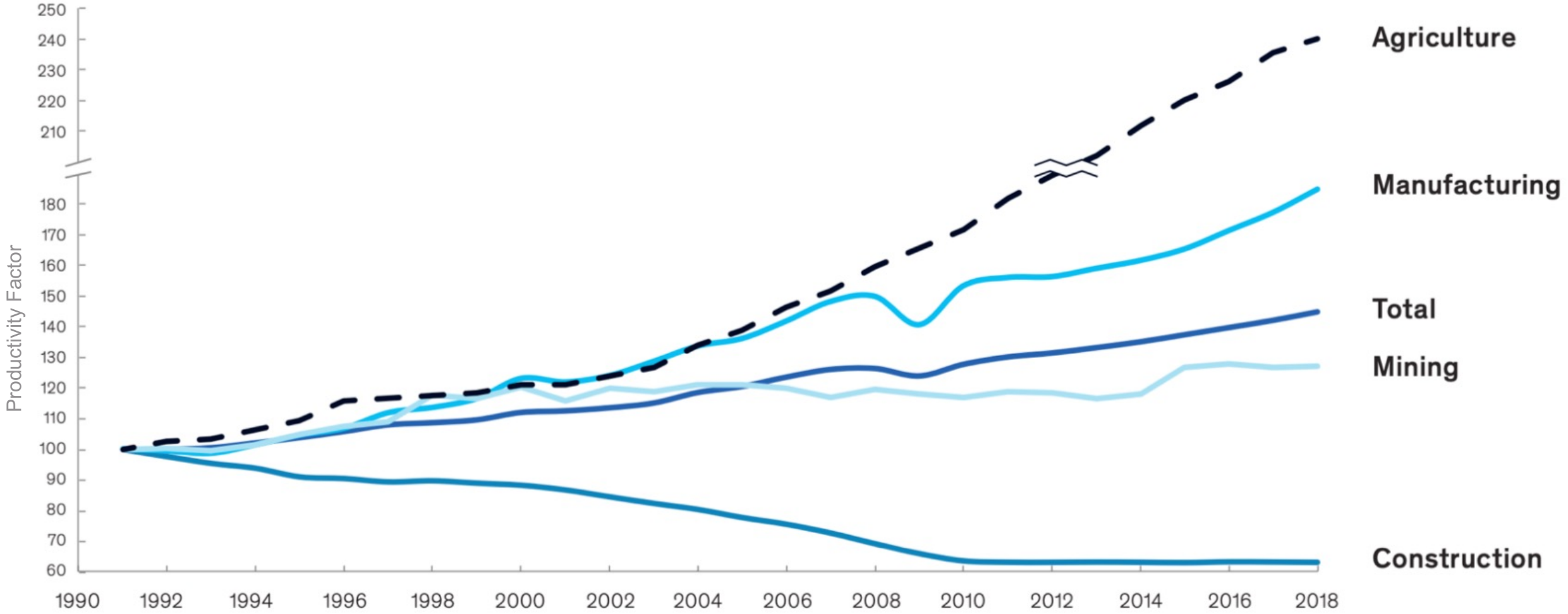
1980s


AutoCAD - [wilhome]
File Edit View Insert Format Tools Draw Dimension Modify Bonus Help
ByLayer
ByLayer
2000s
Interior Elevations
First Floor Plan
Command:
AutoCAD Bonus Menu loaded.
Command:
SNAP GRID ORTHO OSNAP PAPER TILE


Autodesk Revit Architecture 2010 - [R2010_Residence.rvt - Floor Plan: First Floor Plan]
Home
Insert
Annotate
Modify
Massing & Site
Collaborate
View
Manage
Wall
Door
Window
Component
Column
Roof
Ceiling
Floor
Curtain System
Curtain Grid
Mullion
Model Text
Model Line
Model Group
Railing
Ramp
Stairs
Level
Grid
Beam
Brace
Foundation
Room
Area
Legend
Tag
Set
Show
Ref Plane
Model
Circulation
Datum
Structure
Room & Area
Work Plane
2010s
Wall (WA)
Creates a partition wall in the building model.
Use the Type Selector to specify the type of wall to create, or use the default type to create a generic wall and specify a different wall type later.
Press F1 for more help
Ceiling Plans
3D Views
Elevations (Elevation 1)
E-EAST
E-NORTH
E-SOUTH
E-WEST
I-KITCHEN
I-KITCHEN NORTH
Sections (DETAIL SECTION)
Drafting Views (CALLOUT TYP.
Legends
Schedules/Quantities
Sheets (all)
Families
Groups
Revit Links
Ready
Press & Drag
:0


Walk Bridge - IMGIS
2020
Bookmarks
Bookmarks
Control Room
Machine Room
Link Explorer
Add Links
Name
Account
Project
Documents
Search
Display Name
Boundary
Spatial Reference
Outlier
Outlier Message
WBR_Drive_Machinery_Cl...
2234
WBR_Machinery Room-Ea...
PROJCS["NAD_1983_Stat...
3D-MechRoom_East_Clea...
PROJCS["NAD_1983_Stat...
3D_ControlHouse_Arch_C...
PROJCS["NAD_1983_Stat...

The AEC Industry is unproductive



Source: World Bank, HIS, International Labour Organiztion

False impressions

Our industry is stuck in its ways

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Adoption of technology in AEC

Users ramp up

88%

People already using tech on projects are increasing their use

Skeptics join in

91%

People who didn't previously use tech are beginning to use it

Call from above

85%

Management encourages the use of tech and persuades team members to adopt new tech

www.openspace.ai/blog/technology-adoption-is-growing-on-construction-sites/

Why are things changing

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Location matters!

Planning, designing, building and operating in context!

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Location unites!

Integrates and connects varied AEC data types & schemas

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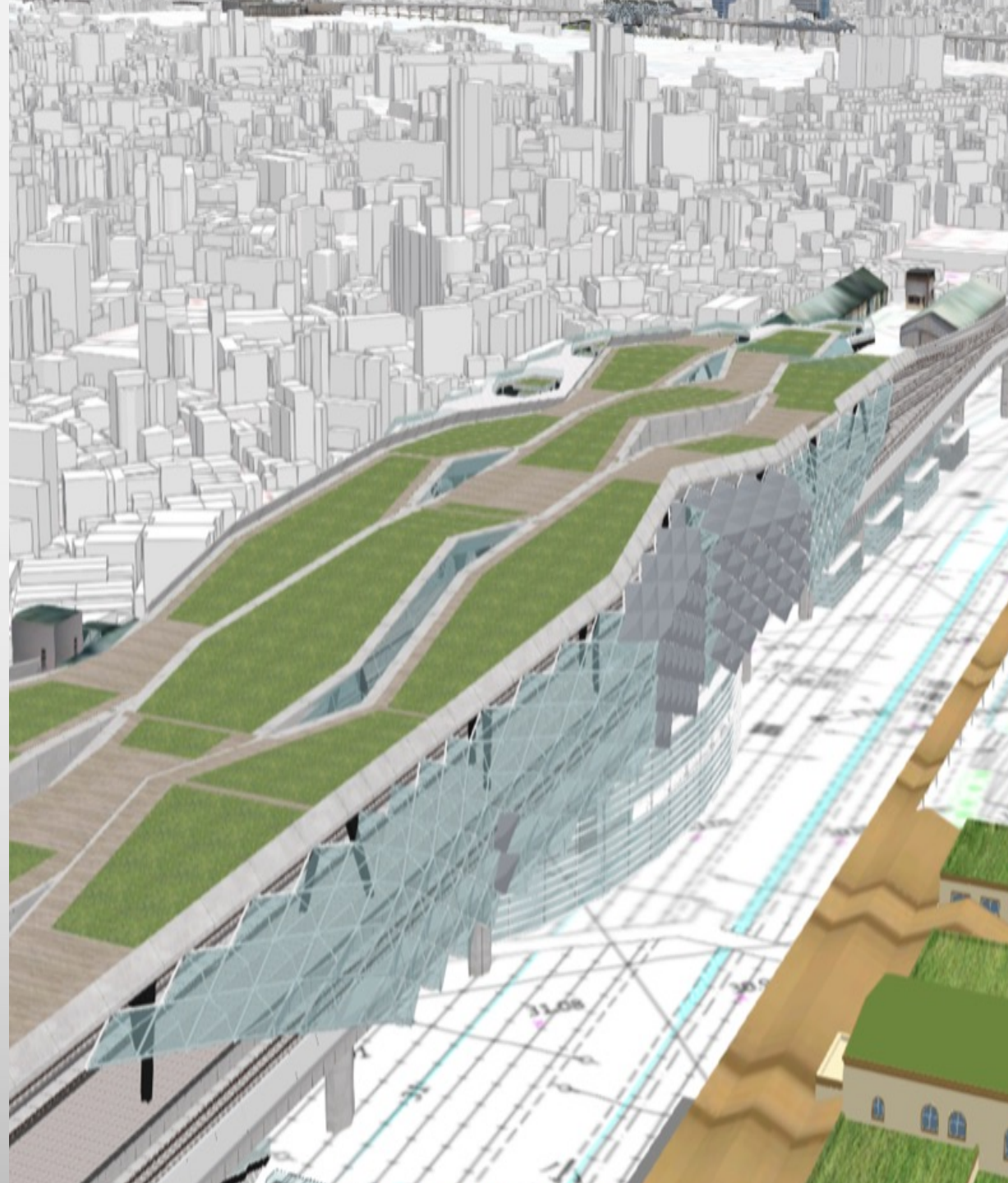
Location enables!

Digital transformation powered by connected apps and data



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Location based AEC!

Gone are the days of “tech shaming” the industry’s low-tech approach

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Working with industry standards

Governments use the OGC, Engineers use CAD & BIM. Developers use REST. A variety of format choices and services are available for any industry.

Connect, Transform & Automate

ArcGIS Data Interoperability accesses hundreds of nonnative datasets, spatial ETL tools geoprocess any data and service.

Removing data format barriers

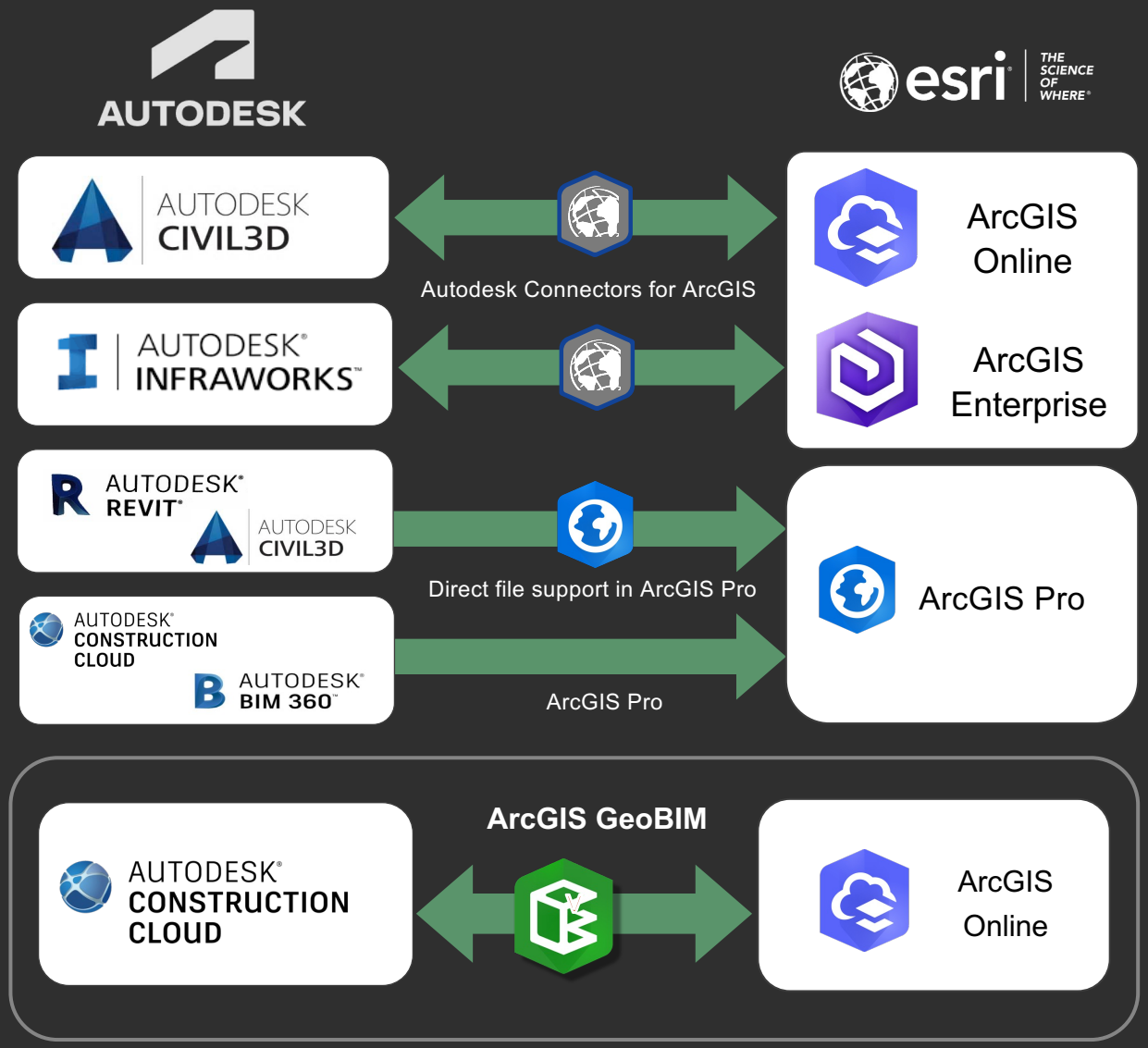
Bring connected data sources to life by designing transformations, implementing logic, and moving data where it needs to be.

Open Geospatial Consortium

CityGML

OVERTURE MAPS FOUNDATION

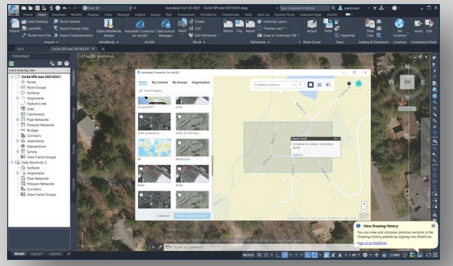
Connections and Integrations



AUTODESK

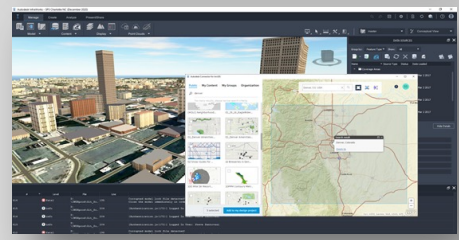
Civil 3D

Connecting Civil 3D Desktop to ArcGIS



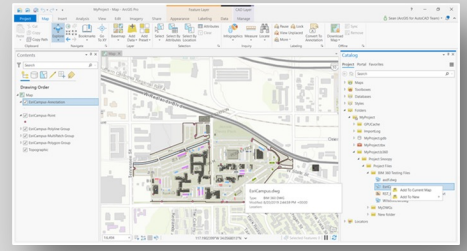
Infraworks

Connecting Infraworks Directly to ArcGIS content



BIM Cloud Connection

ArcGIS Pro Direct Connection to BIM360 / ACC



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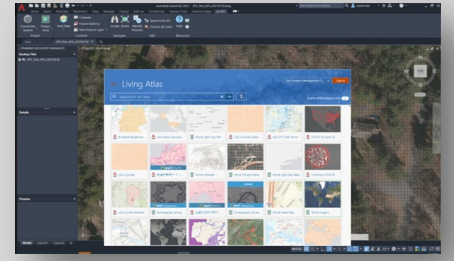
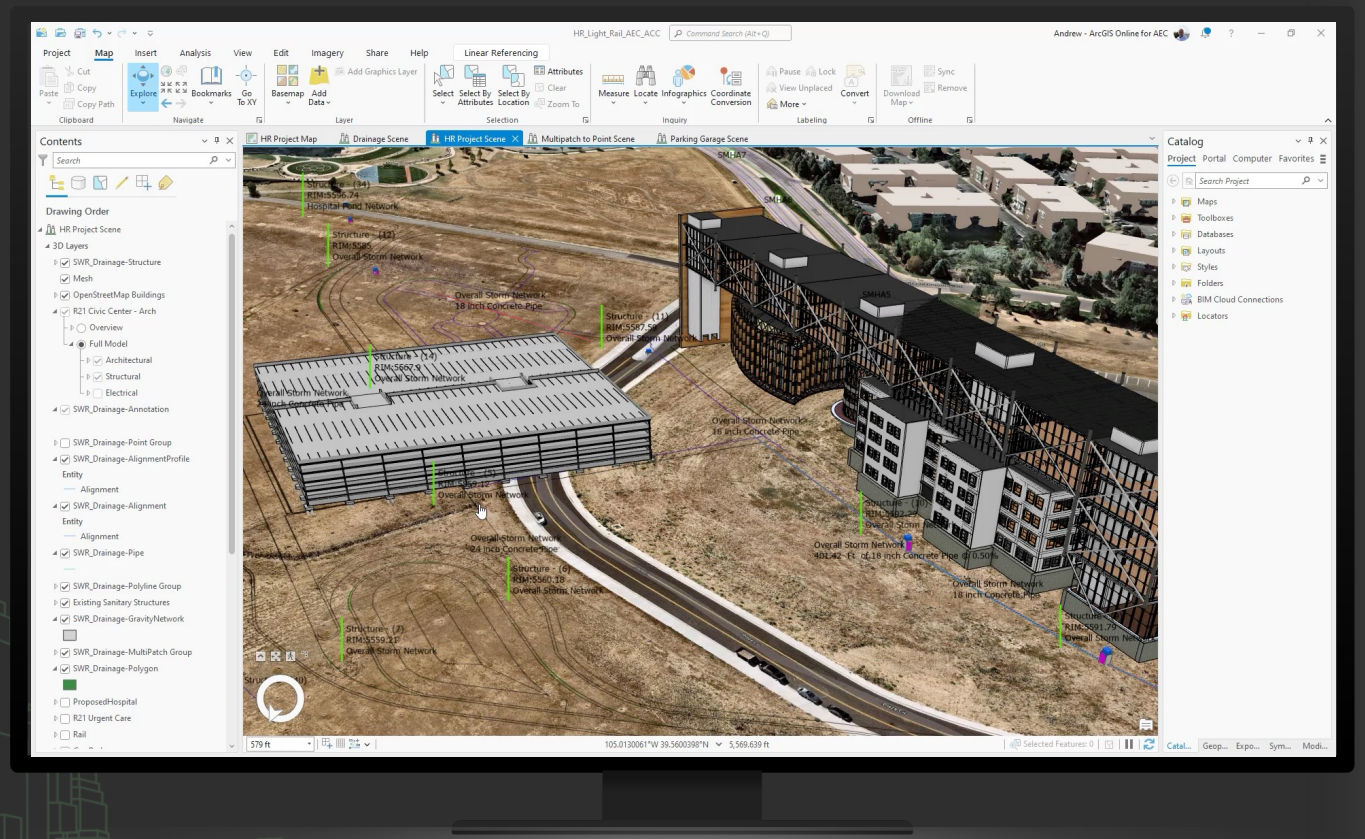
ArcGIS for AutoCAD

Making the CAD designer a direct participant in GIS workflows



ArcGIS Pro



Integrate data from many sources

Combine data from various sources and formats. ArcGIS Pro supports industry and community standards to ensure inclusion of any dataset you have.

Visualize your data

Display data in 2D and 3D simultaneously. Manage multiple maps and layouts in a single project-based workflow.

Edit and analyze your data

Simplify data editing and analysis with context-sensitive tools. Perform interactive 2D and 3D analysis. Automate work with ModelBuilder or Python.

Share your work with the world

Publish maps and analysis results as web services or high-quality prints. Share maps and data on ArcGIS Online, ArcGIS Enterprise, or as a package.

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ArcGIS GeoBIM

See projects in context

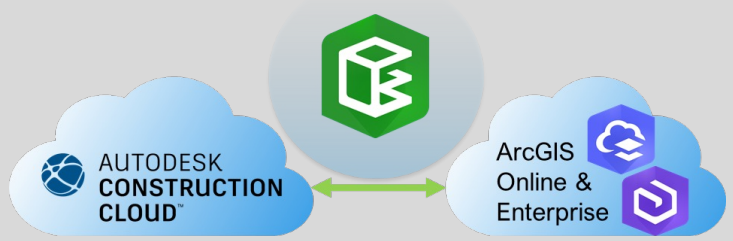
Simplify how teams view, manage, and access project data across multiple locations.

Keep projects organized

Access GIS, BIM, CAD and other project data in a single user experience.

Reduce costly model conversions

Keep your data federated and reduce conversions throughout the project life cycle.



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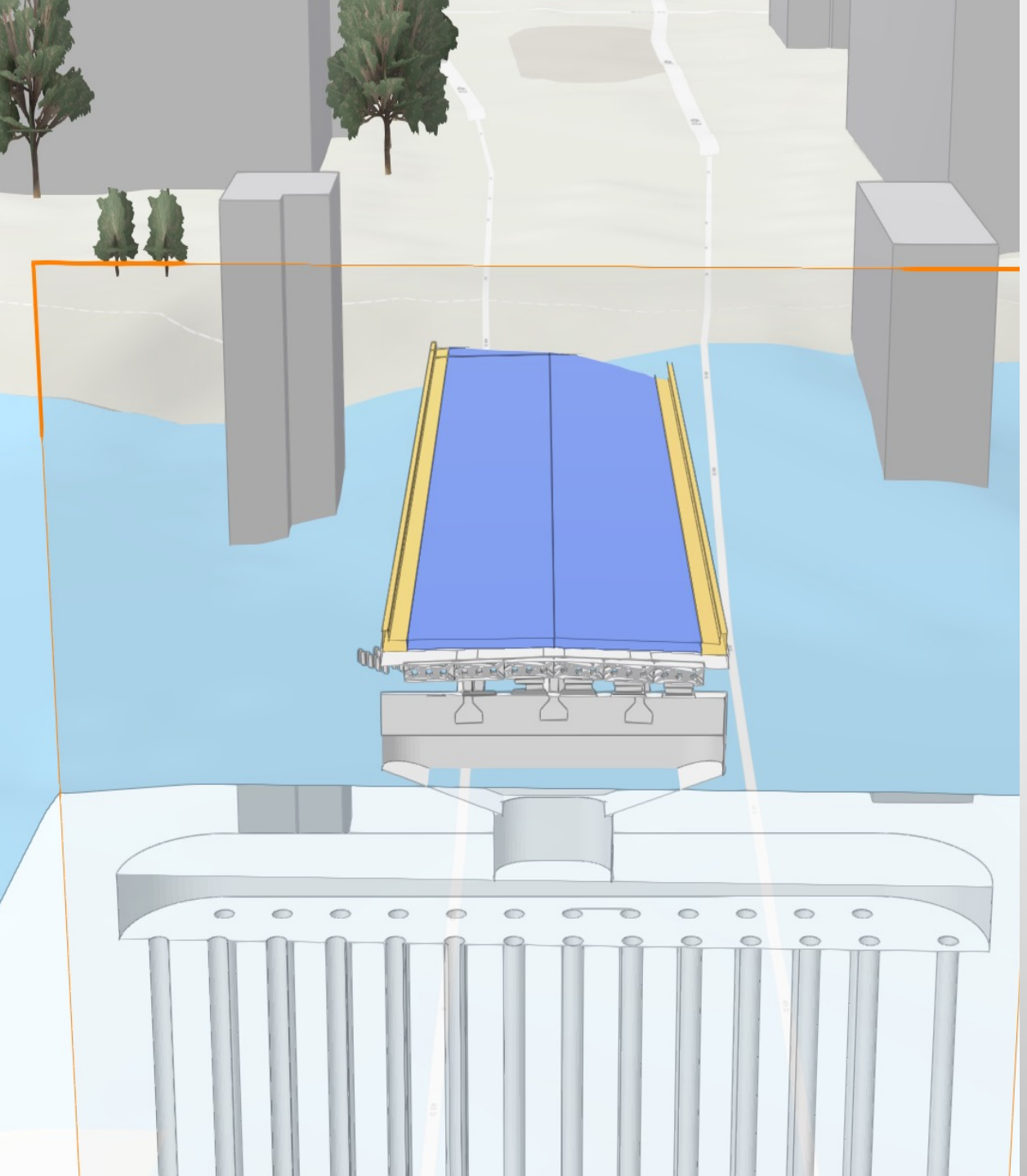

GIS + openBIM

Reading IFC v4.3

AUTODESK

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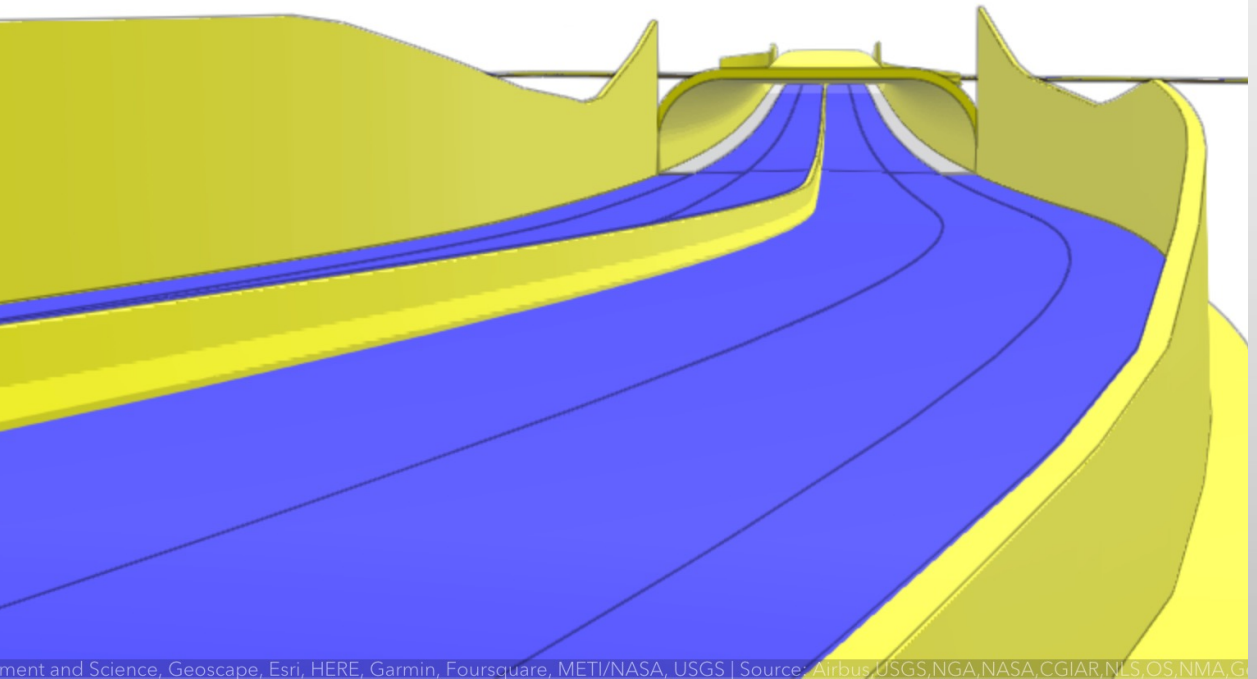

GIS + openBIM

Reading IFC v4.3

Bentley®

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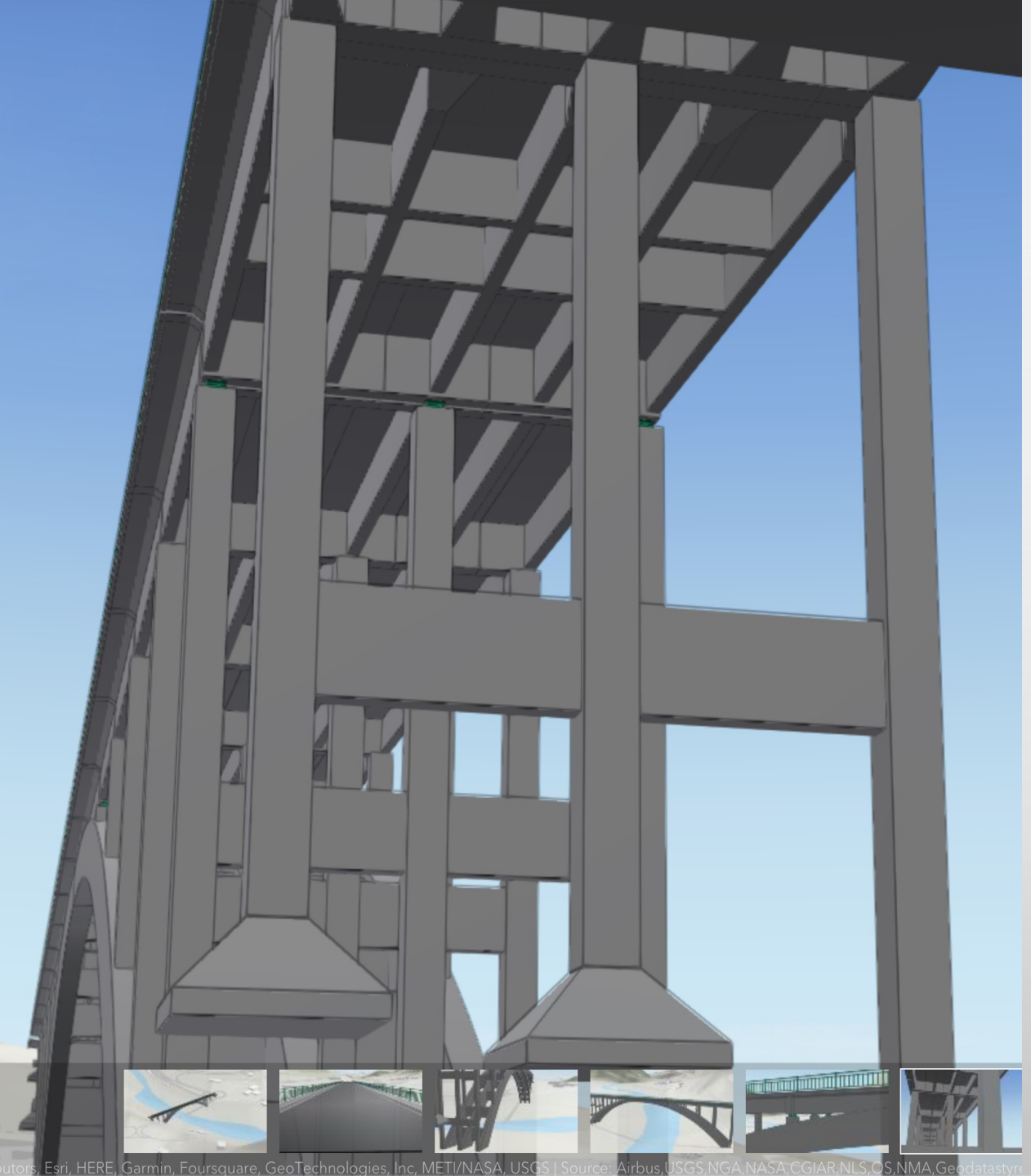

GIS + openBIM

Reading IFC v4.3

CSPFEA ENGINEERING SOLUTIONS

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GIS + openBIM

Reading IFC v4.3

istram®

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GIS + openBIM

Construction - Design management

SKANSKA

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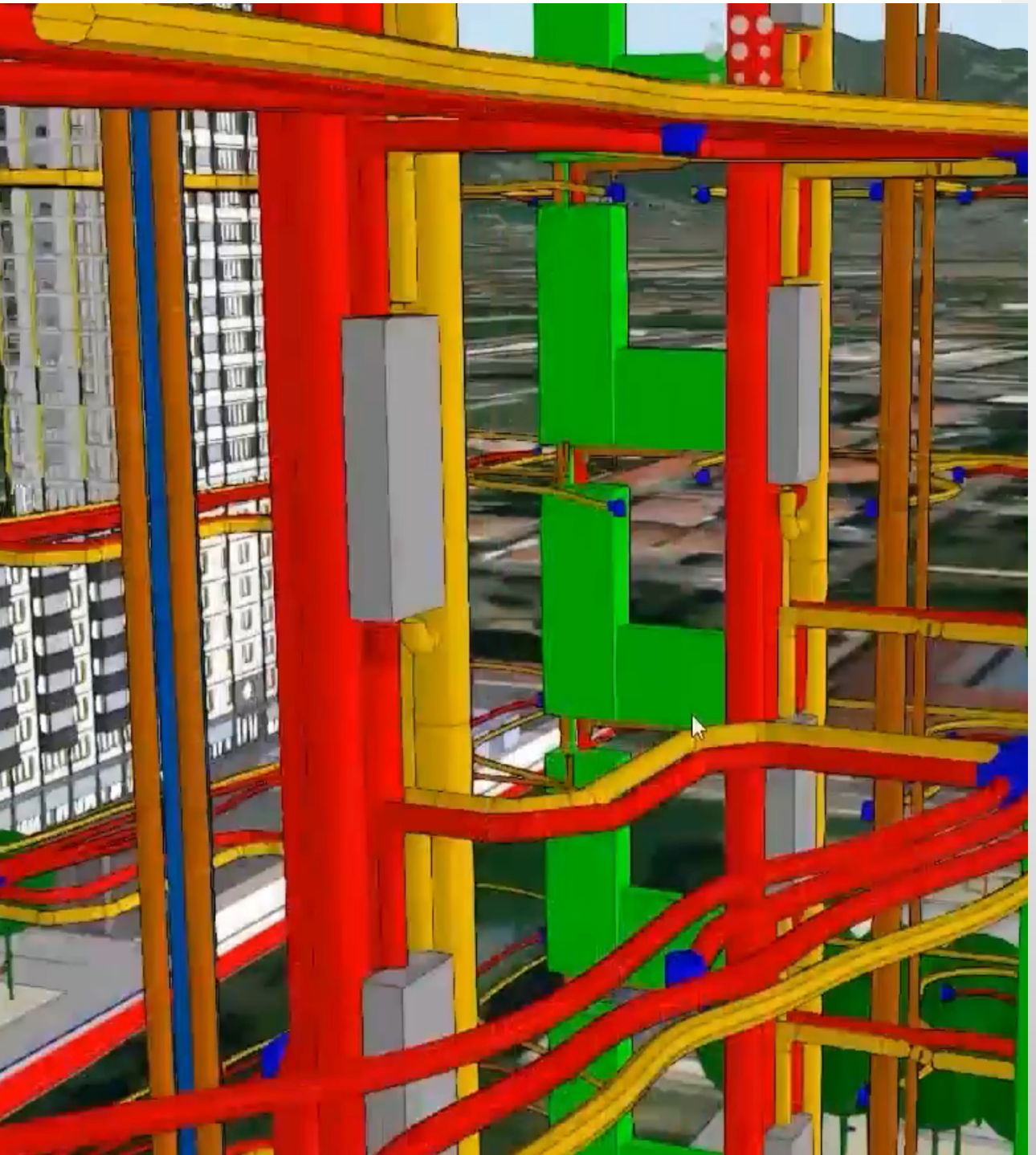

GIS + openBIM

Building solutions with Esri's APIs

ACCA SOFTWARE

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usBIM.browser
Powered by ACCA software
Federazione
esri
Barcelona
Lisbon
Algiers
Tunis
Casablanca
Tripoli
Athens
Istanbul
Ankara
Bucharest
Cairo
Amman
Jeddah
Riyadh
Kuwait City
Dubai
Khartoum
Addis Ababa
Mogadishu
Djibouti
Dakar
Bamako
Kano
Mediterranean Sea
MOROCCO
ALGERIA
TUNISIA
LIBYA
EGYPT
WESTERN SAHARA
MAURITANIA
MALI
NIGER
CHAD
SUDAN
BURKINA FASO
SAUDI ARABIA
YEMEN
ETHIOPIA
SOUTH
FRANCE
AUSTRIA
HUNGARY
ROMANIA
BULGARIA
UKRAINE
GEORGIA
SYRIA
ACCA
ACCA SOFTWARE
Earthstar Geographics | Source: Airbus,USGS,NGA,NASA,CGIAR,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community
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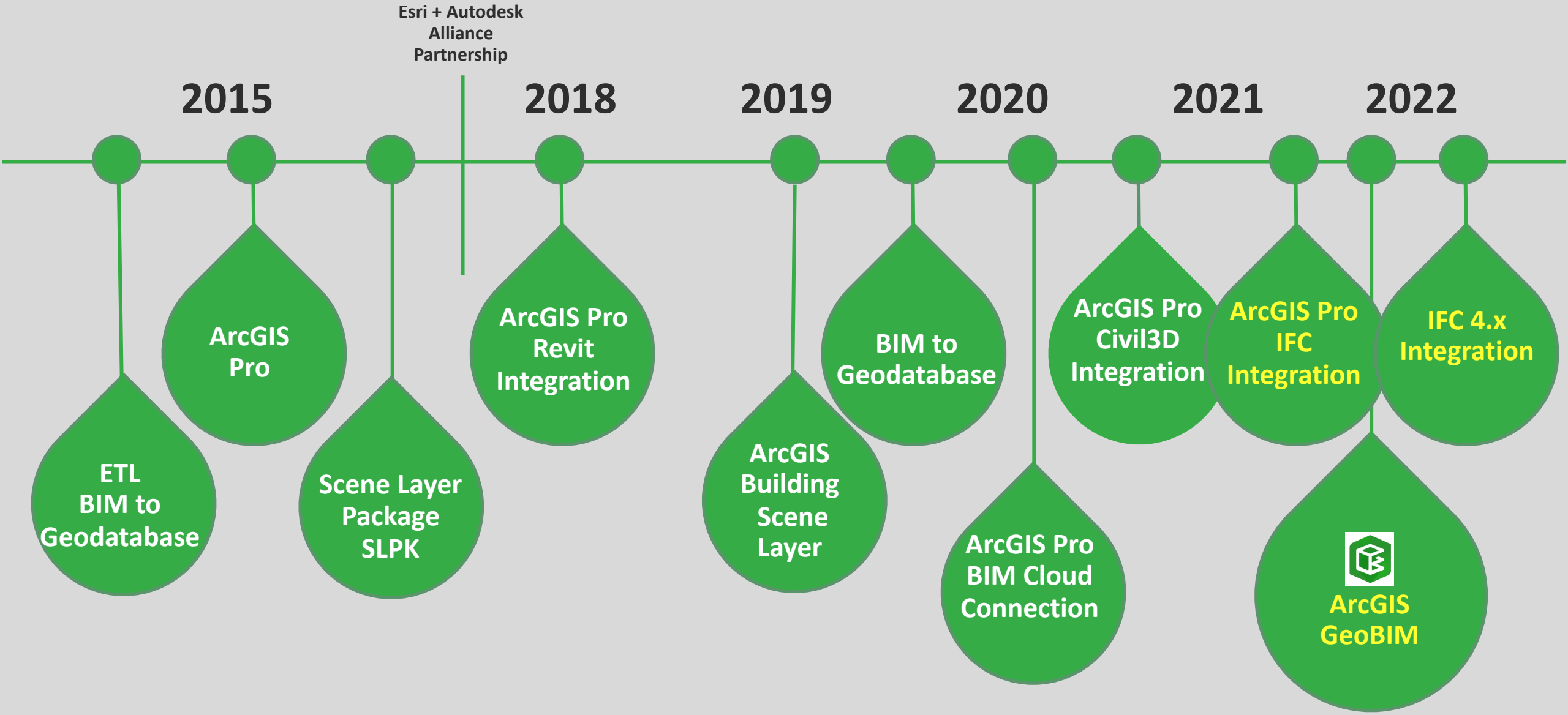
BIM Integration in Esri ArcGIS



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