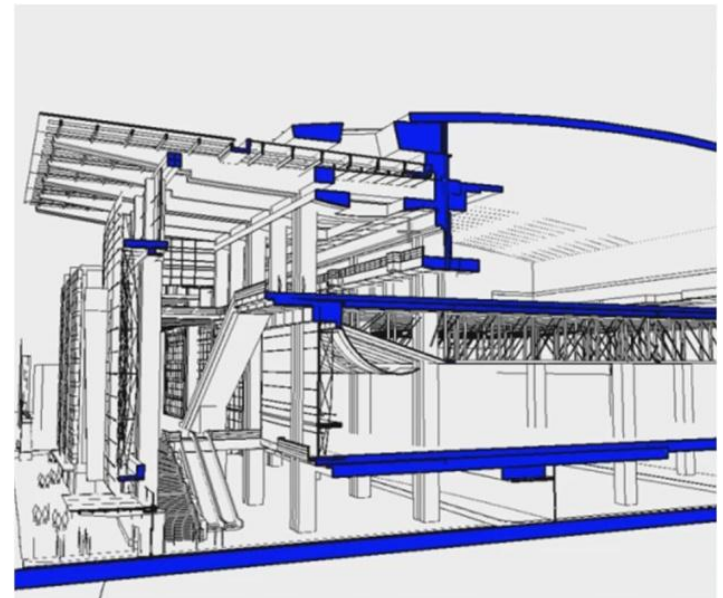
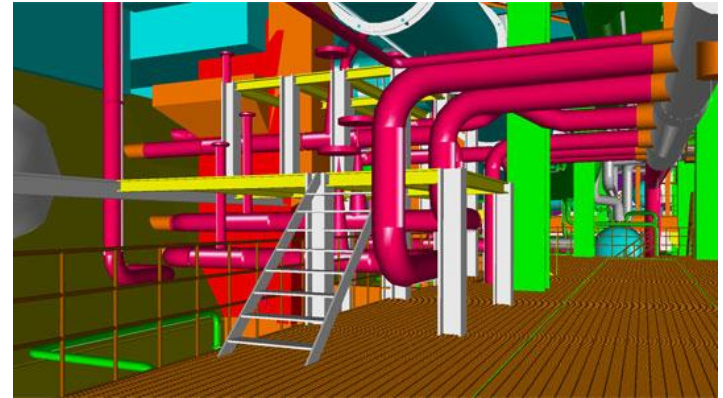


# A 360 Degree Review of 3D in MicroStation V8i

Chris Bober - Director, Platform Product Management

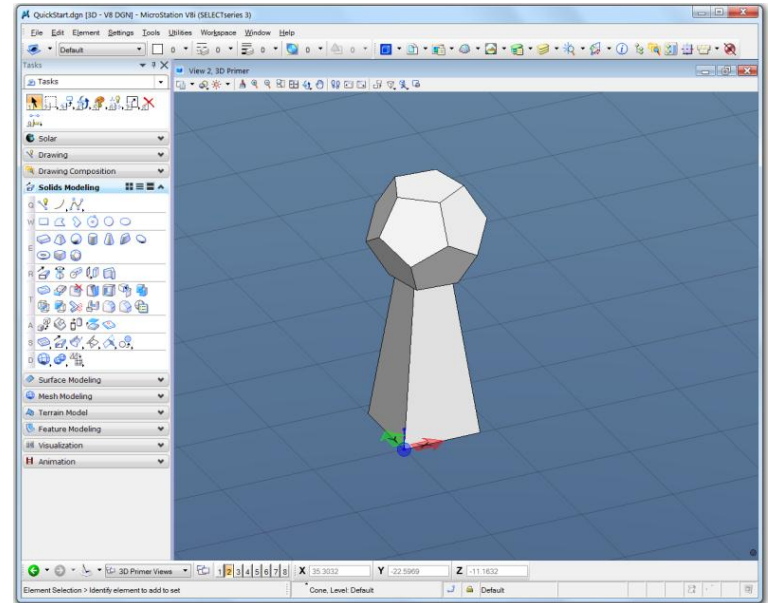
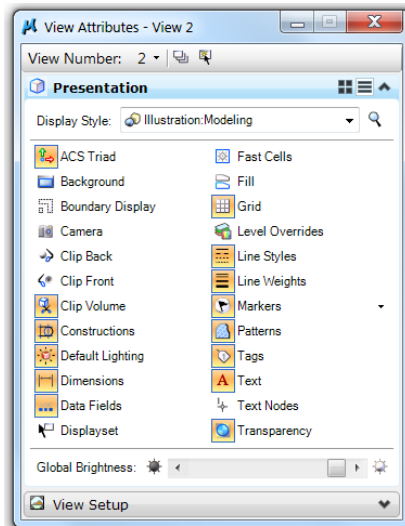
# 3D Modeling in MicroStation V8i

- Mesh Modeling
- Surface Modeling
- Push-Pull Modeling
- Solids Modeling
- Feature Modeling
- Generative Design
- Visualization and Animation



# 3D Modeling Primer

- Setting up your environment
  - View Attributes
  - Display styles
  - View Rotation
  - ACS Triad
  - Grids
  - AccuDraw



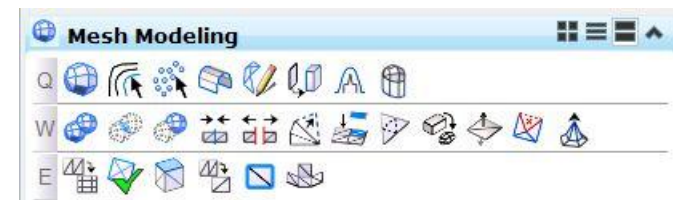
The screenshot shows the 'Auxiliary Coordinates' dialog box, which displays a table of coordinate origins for different views. The table has columns for Name, Origin X, Origin Y, Origin Z, Type, and Description.

Name	Origin X	Origin Y	Origin Z	Type	Description
View 2: Top Origin	0.0000	0.0000	0.0000	Rectangular	
Front Origin	0.0000	0.0000	0.0000	Rectangular	
Right Origin	0.0000	0.0000	0.0000	Rectangular	
Top Origin	0.0000	0.0000	0.0000	Rectangular	

\*New Quick Start Guide in  
MicroStation V8i (SELECTseries 3) Update 1

# Mesh Modeling

- The Mesh Modeling toolbox contains tools that let you create or convert contours into meshes for very simple land contours to very complex landscapes with a very lightweight mesh. You can import data containing points, contours, or elements of a landscape and convert it into a mesh.
- Use Cases:
  - Data Interoperability
  - Large scale data collection, mining
  - Terrain models
  - Solar analysis
  - 3D Printing
  - Lighter weight visualization



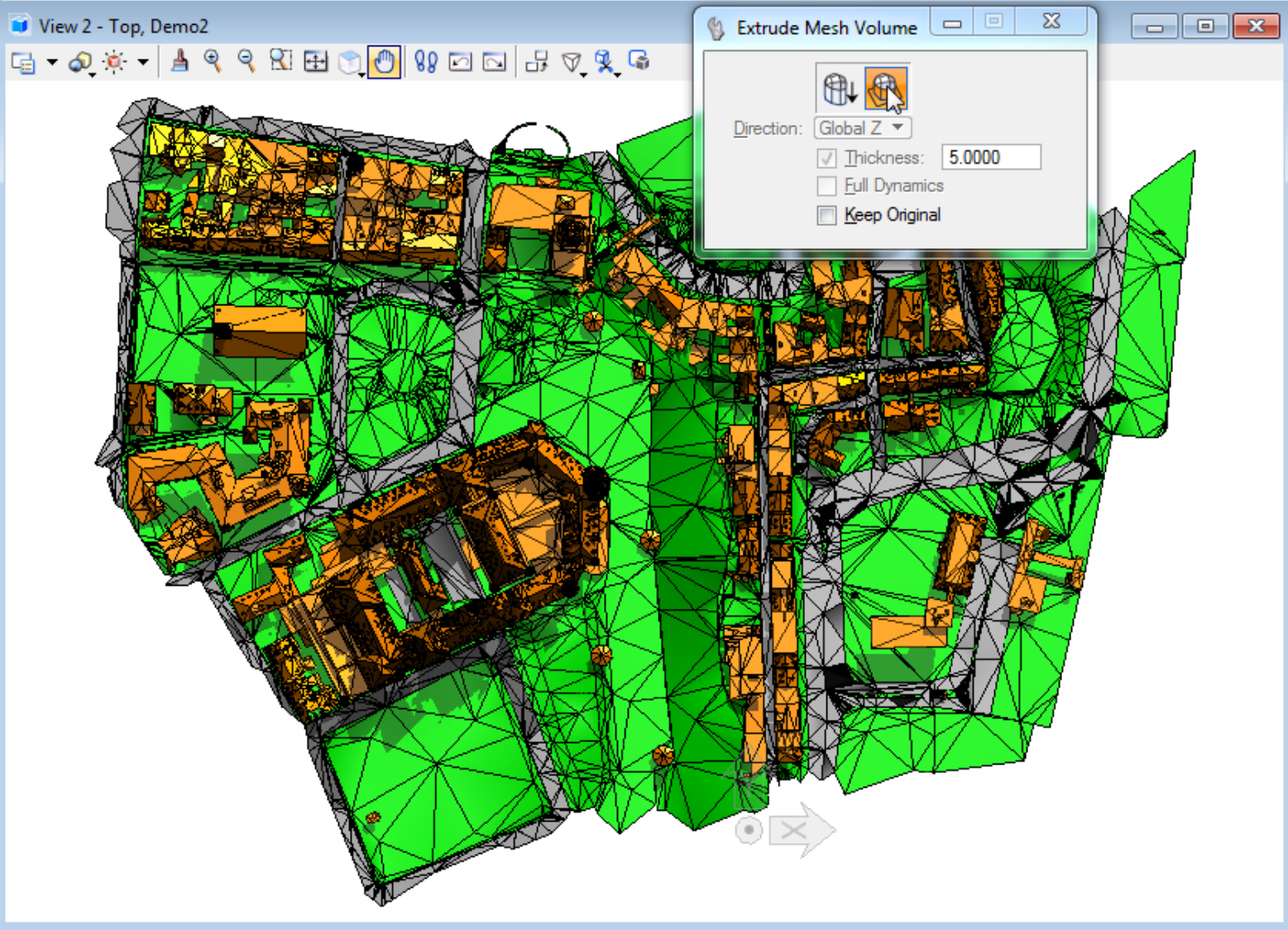
Tasks

Tasks

- 1
- 2

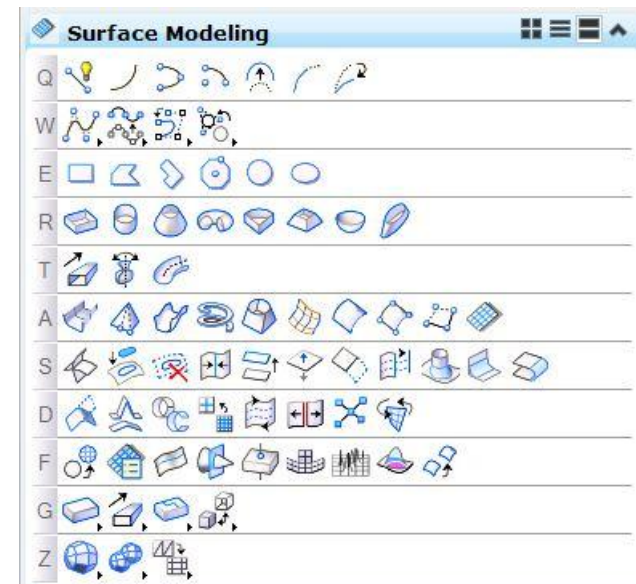
PushPullMod...  
SolidsModeli...  
SurfaceMode...  
Mesh Modeli...  
FeatureMode...  
DDDesign (B...  
Drawing  
Drawing Co...  
Solids Modeli...  
Surface Mod...  
Me...  
Q  
W

Tasks Project E...



# Surface Modeling

- MicroStation's Surface Modeling tools let you create all manner of surfaces, from the very simple through to complex B-Spline surfaces and, if required, meshes. You can modify and manipulate it into the shape you want. Other tools let you create a “skeleton” from profiles, or sections
- Use Cases:
  - Complex surfaces with smooth curves
  - Ship hull design
  - Car body design
  - Free form architecture
  - To create complex solids



Tasks

Surface Modeling

Q

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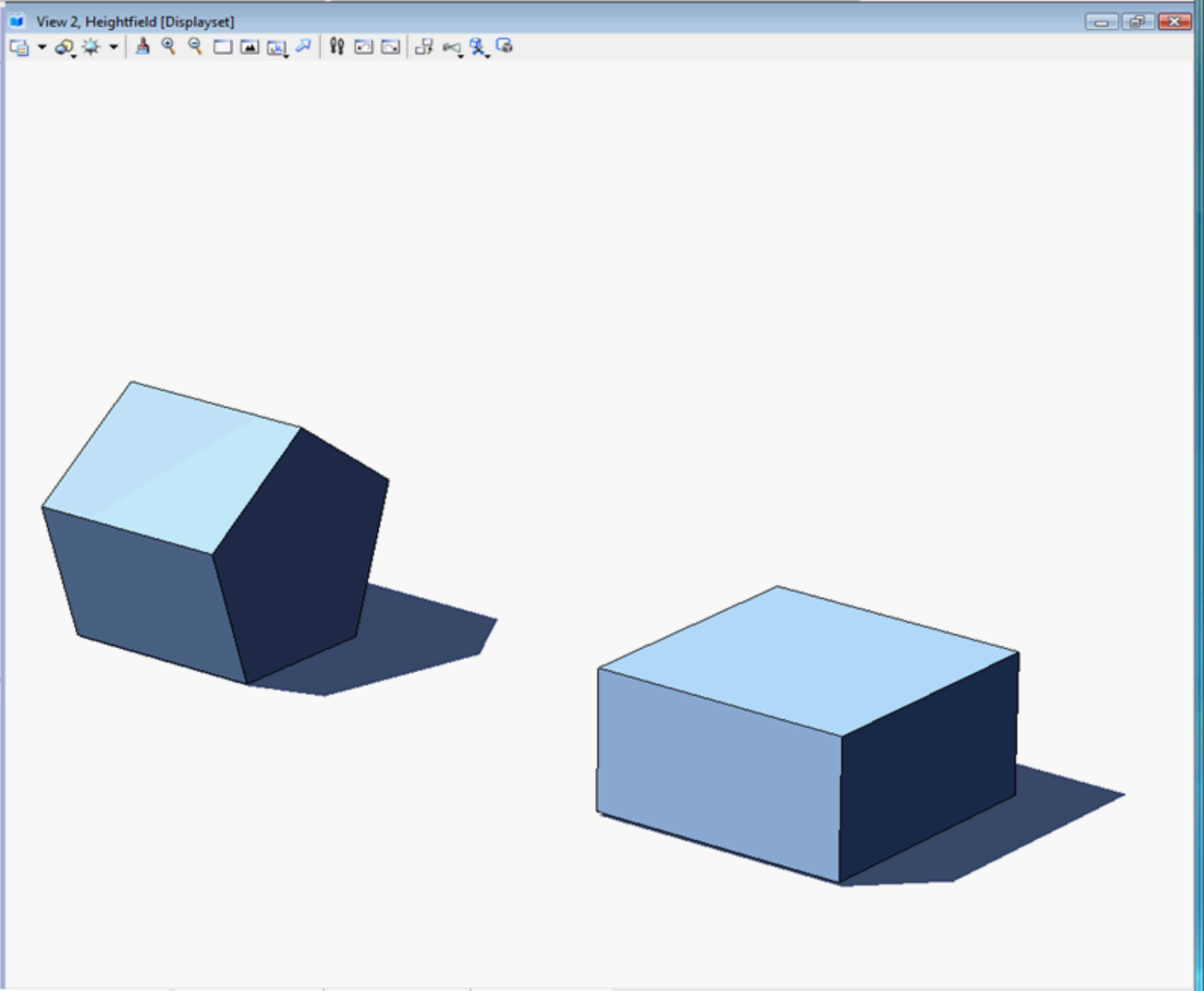
G

Z

Feature Modeling

Visualization

Element Selection



Tasks

Tasks

Drawing

Drawing Composition

Solids Modeling

**Surface Modeling**

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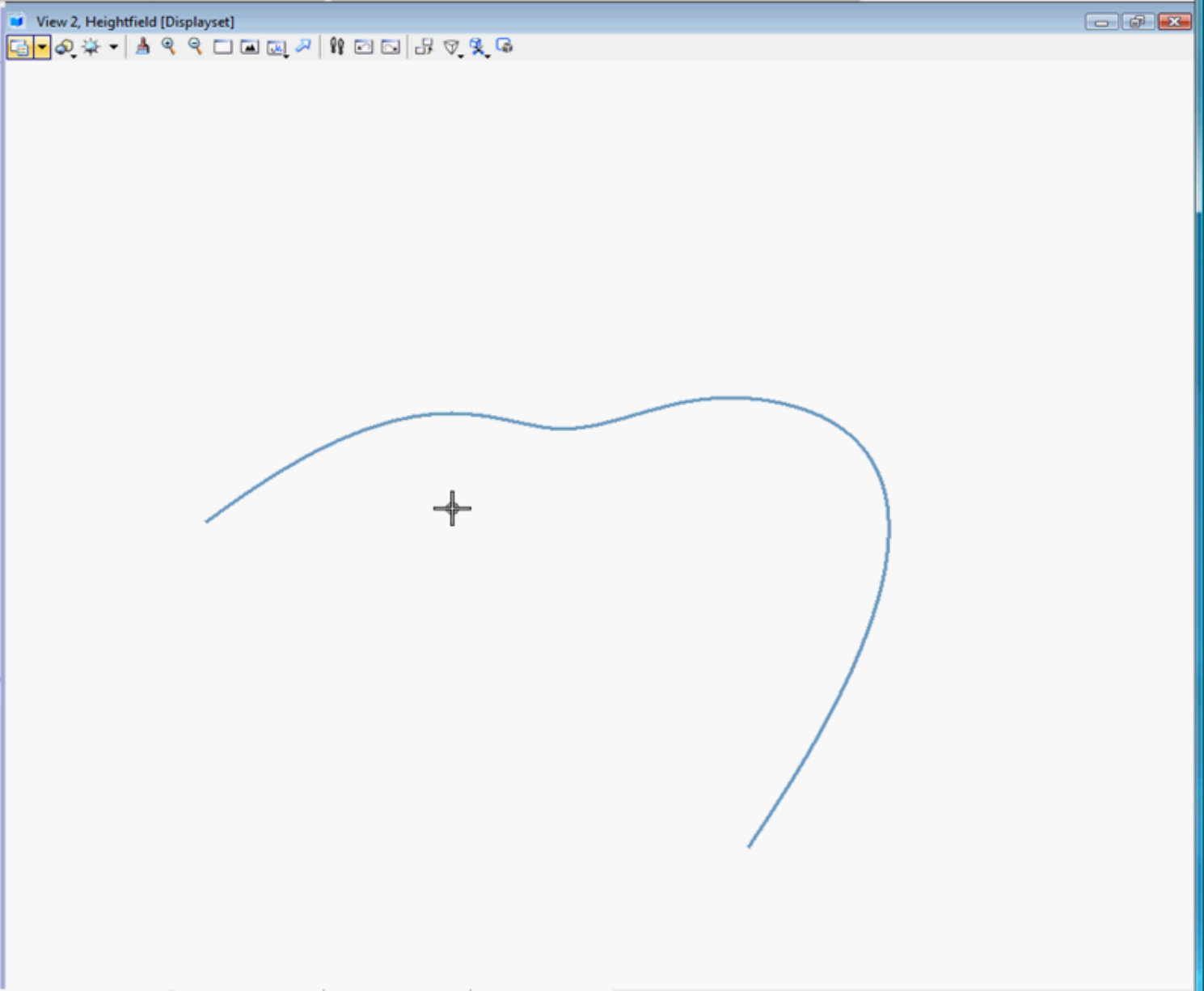
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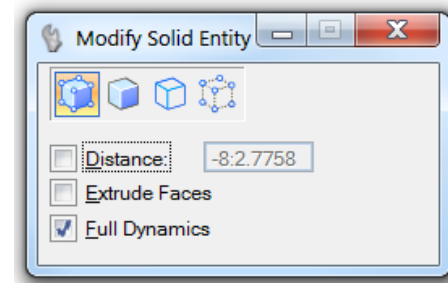
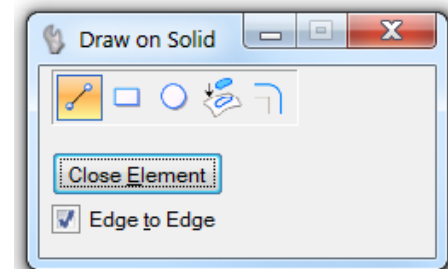


Curve Handlebar



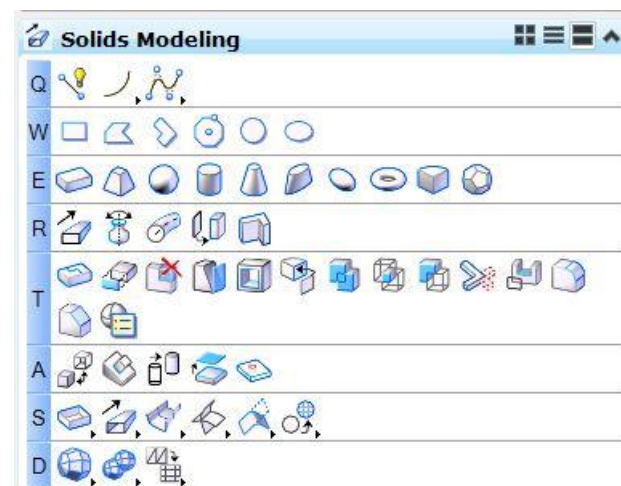
# Push-Pull Modeling

- Push-Pull Modeling or Conceptual Modeling technology lets you quickly create and modify solids interactively, by adding or removing faces, edges and vertices and pushing and pulling faces, edges and vertices.
- Use Cases
  - Simplified solid modeling
  - Conceptual design
  - Massing
  - Set up for detailed solids modeling



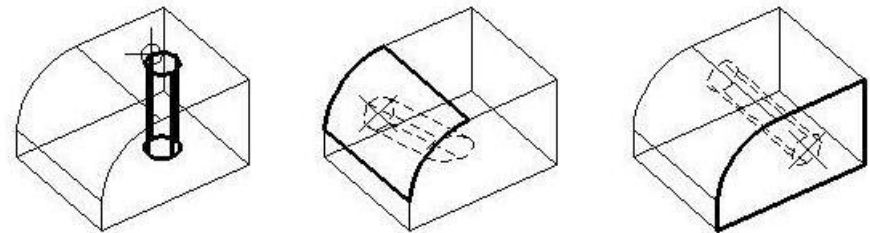
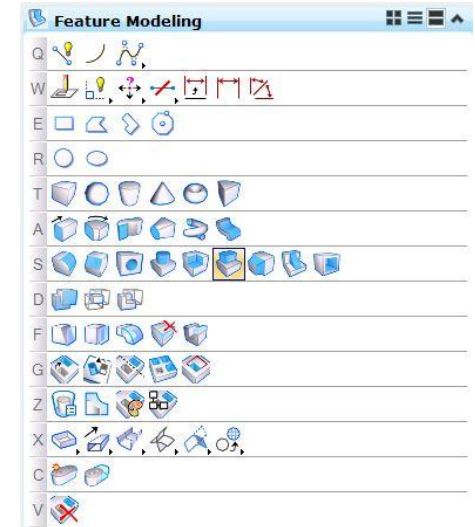
# Solids Modeling

- The solids modeling tools let you quickly create 3D models of your designs. You can start with one or more simple underlying solids, then use construction and manipulation tools to finish the design
- Use Cases
  - Most widely used modeling option
  - Structures
  - Equipment
  - Buildings
  - Infrastructure



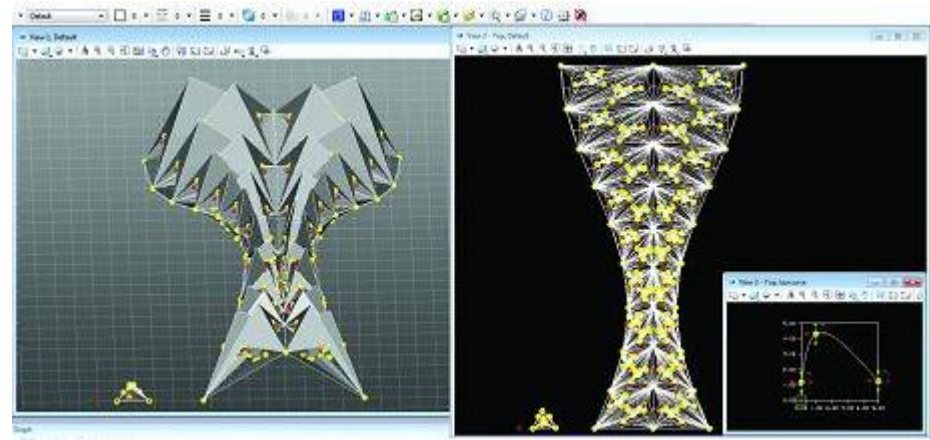
# Feature Modeling

- Feature Modeling tools let you create parametric feature-based solids that can be modified using the parameters used to create the design
- Use Cases
  - Catalogs of parts
  - Models with variations
  - Models subject to change



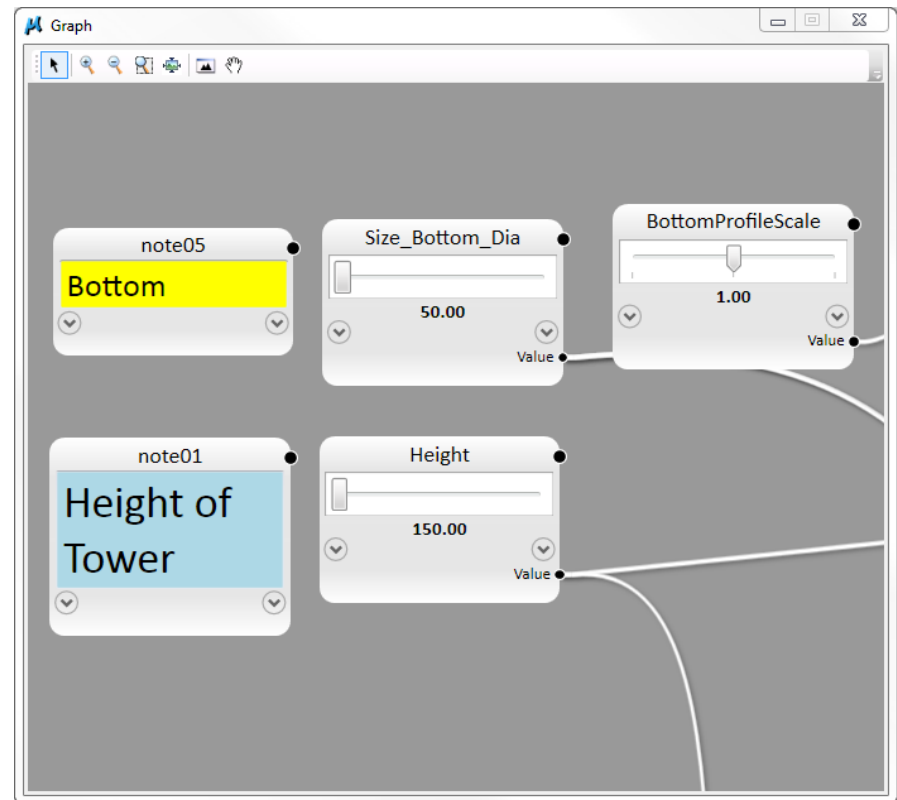
# Generative Design

- Generative Design combines the flexibility of conceptual design, with the rigor of complex relationships. Designs can be refined by either dynamically modeling and directly manipulating geometry, by applying rules and capturing relationships among building elements, or by defining concisely expressed algorithms.
- Use Cases
  - Highly iterative, complex conceptual design
  - Quick decisions requiring multiple inputs
  - Complex geometrical relationships



# Generative Design Visual Programming

- Easy, visual creation of model relationships without scripting
- Combine and connect nodes and use controls to explore alternatives



Tasks

Tasks

1 2 3 4 5 6 7 8 9

**Primary**

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W

E

Promote Elements

View 1, Default

New Node

Node types, techniques  Show general properties

Node Type

- Technique
- ByAngleCenterStartPlanePoint
- ByCenterRadiusSweepAngle
- ByCenterStartSweepPoint
- ByFunction
- ByImportedData
- ByLengthStartEndPoint
- ByPointsOnCurve
- ByTangentCurveStartEndPoint
- ByTangentDirectionEndPoint
- CircularOffset
- ComplementArc
- ConvertCurveToArcSegments
- CopyTransformGeometricContents
- ExtractRegionUsingParameterSpan
- ExtractRegionUsingStartEndPoint
- FilletTangentToCurves
- FromDEllipse3d
- FromElementsInAttachment
- FromElementsInCell
- MirrorCopyGeometricContentsAboutPlane
- PartialDeleteUsingParameterSpan
- PartialDeleteUsingStartEndPoint
- ReverseArc
- SelectFeature(s)WithBase

Type:

Technique:  Example

Name of new node:

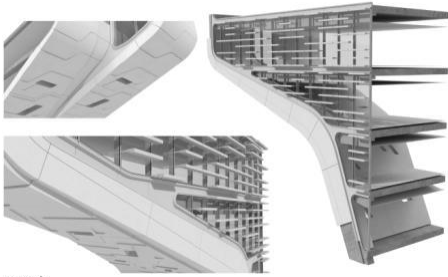
Assign active symbology

Edit Last OK

Graph

# Generative Design

VISUALISATIONS

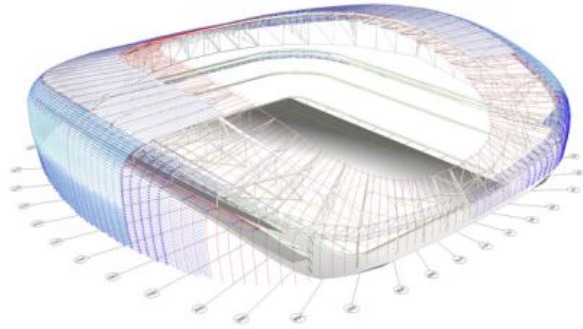


Generative design lets architects and engineers express their innovation resulting in design excellence.



Stone Towers  
Zaha Hadid Architects  
Cairo, Egypt

# Generative Design



- Parametric Modeling



Aviva Stadium  
Populus  
Dublin, Ireland

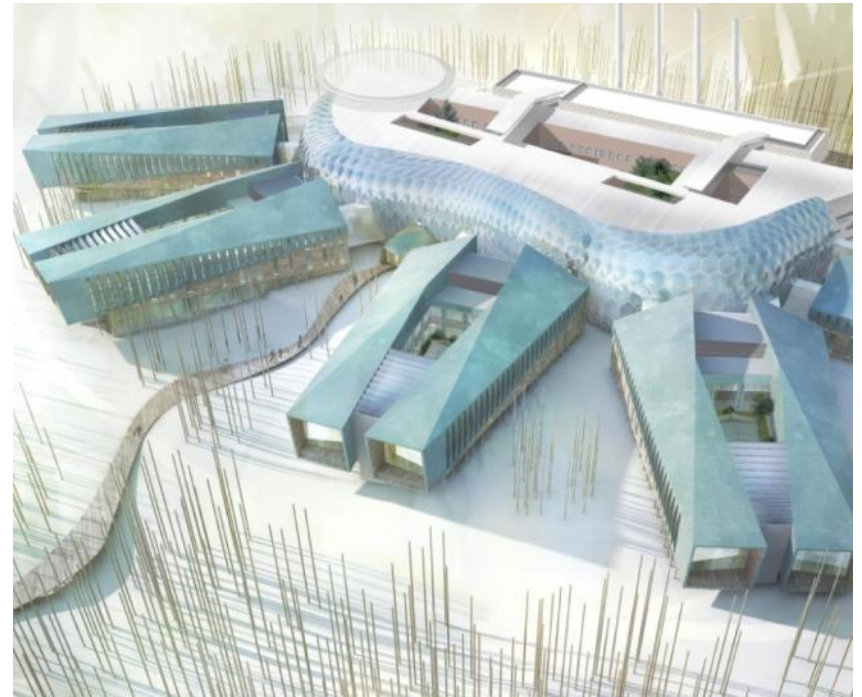


# Generative Design



The Lagoons  
Thompson, Ventulett, Stainback &  
Associates  
Dubai, UAE

- Design creativity



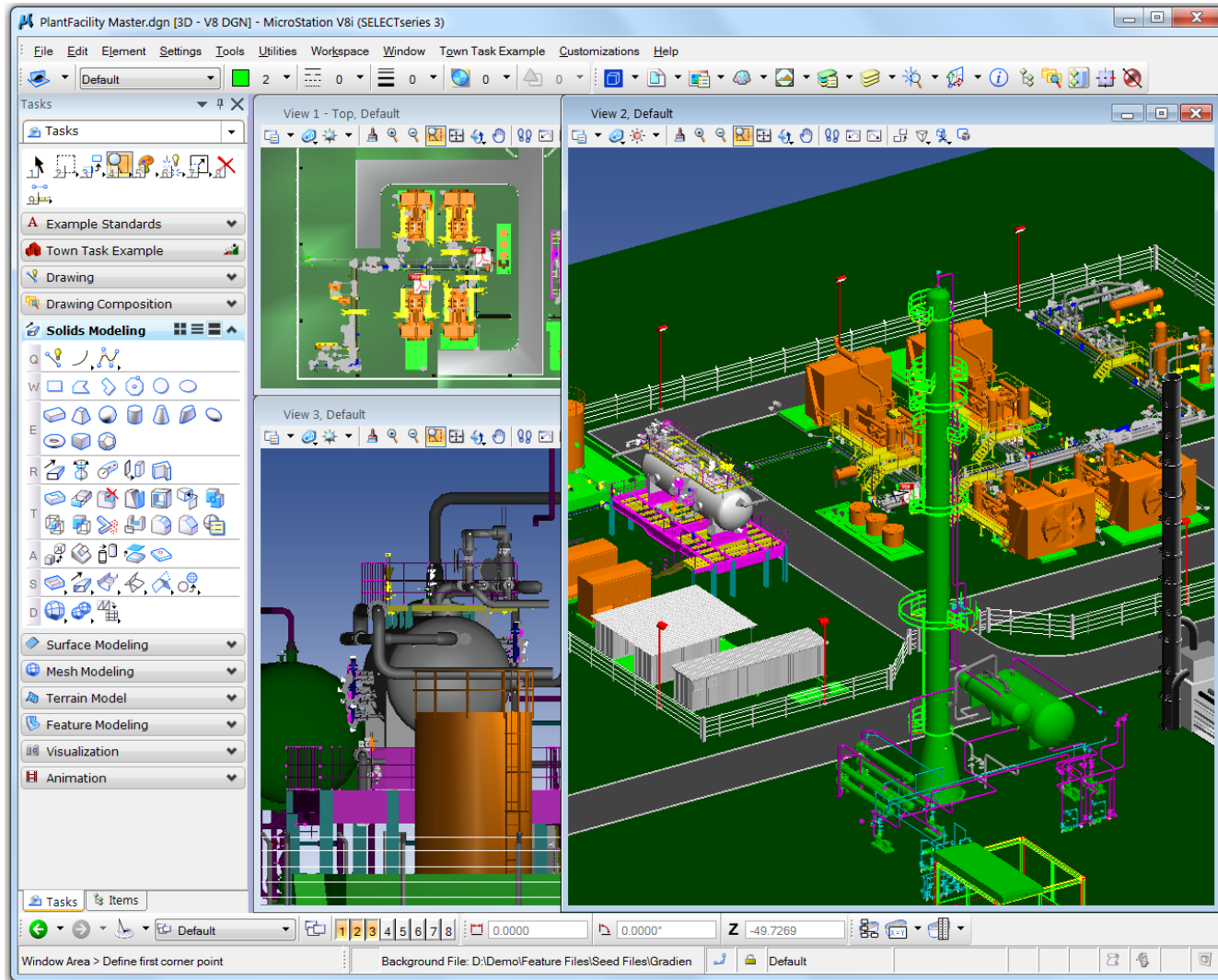
Ukrainian Health Protection Centre  
for Women and Children  
BDP  
Kiev, Ukraine

# Visualization and Animation

- With MicroStation's Luxology Rendering System you can save time and render more images, Improve the quality of rendered images for review and buy-in, produce and deliver high quality photo realistic renderings from 3D models, and enhance realism with powerful animation and live on-screen preview
- Use Cases:
  - Concept approval
  - Project bidding
  - Analytics and Simulation
  - Design Review



# Bringing It All Together



# Thank you for attending!

