Autodesk Dynamo Workshop

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Workshop Agenda

- Dynamo Introduction
- Dynamo terms
- Dynamo Interface
- Dynamo for Revit
- Geometry creation in Dynamo
- Placing Adaptive Components
Dynamo
What is Dynamo?

- Visual programming application
- Visual interface to construct logic routines
- Geometry creation
- Workflow automation
- Interface for multiple software
Dynamo Applications

- Conceptual Modeling
- Automation Workflows
Dynamo Terms
Nodes

- Each node is a **function** with Input and Output ports that take and create lists

- 3 behaviors:
  - Create (Constructor)
  - Action (Method)
  - Query (Property)
List

- Series of output values from a node. It helps you to perform tasks quickly by providing multiple inputs.
Dynamo Terminology

- Lacing – determines how the input port should use the incoming data
Shortest lacing

Only as many lines are drawn as there are items in the shortest input list. Points "left over" in the longer list are disregarded.
Longest lacing

As many lines are drawn as there are items in the longer list of input points. When the node runs out of points in the shorter list, it will make as many copies of the last item as it needs to match with the ending items in the longest list.
Cross lacing

All possible combinations of pairings are made. For ex. 7 points in the longer list and 5 in the shorter list, there will be $6 \times 8 = 48$ result lists.
The first index of a list is always 0; not 1. The zero-based index is standard practice in most computation systems.
Dynamo Interface
Dynamo for Revit
Dynamo for Revit

- **INPUTS**
  - Keyboard data entry
  - Selecting Revit geometries
  - Selecting Revit categories
  - Gathering Revit family properties
  - Importing Excel data

- **OUTPUTS**
  - Generating Revit massing
  - Generating Revit family instance
  - Setting Revit family properties
  - Exporting Excel data
Geometry creation in Dynamo
Geometry creation in Dynamo

- MANUAL
- REVIT DRIVEN
Placing Adaptive Components
Learning Objectives

▪ How to reference element curves in Revit to Dynamo

▪ Reference Revit element curves inside Dynamo

▪ Create coplanar reference points inside Dynamo

▪ Compute intersection of element curves and planes

▪ Associate Revit family with computed points inside Dynamo

▪ Assign parameters to Revit family
Learning Objectives

- Capture surfaces from Revit element
- Capture curves from Dynamo surface
- Generate geometry by loft
- Import geometry to Revit
Additional resources

DynamoBIM.org

Forum.DynamoBIM.org

Find your local Dynamo User Group
Questions?