

# Dynamo Express Lane: 12 Items or Less

Robert Cervellione

Woods Bagot , Design Technology Manager





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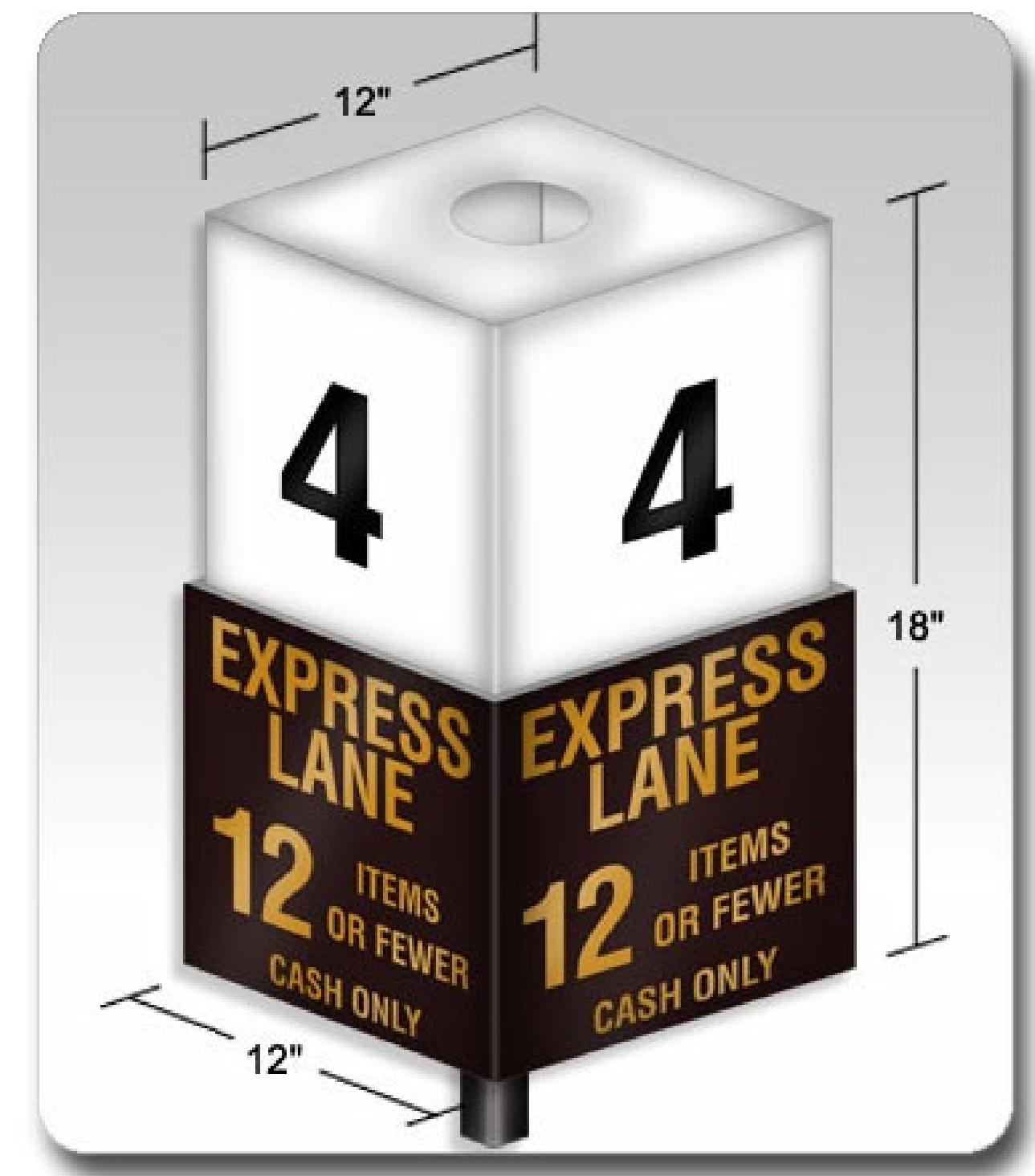
## About the speaker

- Woods Bagot, Design Technology Manager
- Registered Architect
- Dynamo user for many years
- 20 years in design computation (way back before dynamo/grasshopper, and GC was a thing)

# Class Overview

## LEARNING OBJECTIVE

- Understand simple Dynamo / Revit interaction through various selection and filtering methods
- Learn the power of dynamo through simple setups that are easy to use, easy to maintain, and easy to deploy
- Understand how to automate basic task in Revit
- Create graphs that are Dynamo Player ready





# How many of you are using Dynamo Everyday



# Session Material

ALL THE LATEST CLASS MATERIAL, PRESENTATIONS, AND  
EXAMPLE FILES ARE ON GITHUB HERE

[https://github.com/cerver/AU2019\\_Dynamo\\_12ItemsOrLess](https://github.com/cerver/AU2019_Dynamo_12ItemsOrLess)

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3 commits

1 branch

0 packages

0 releases

1 contributor

MIT

Branch: master

New pull request

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cerver

Update README.md

Latest commit b9ea1b5 20 days ago

Docs	Initial Commit	20 days ago
LICENSE	Initial commit	20 days ago
README.md	Update README.md	20 days ago

README.md

# AU2019\_Dynamo\_12ItemsOrLess

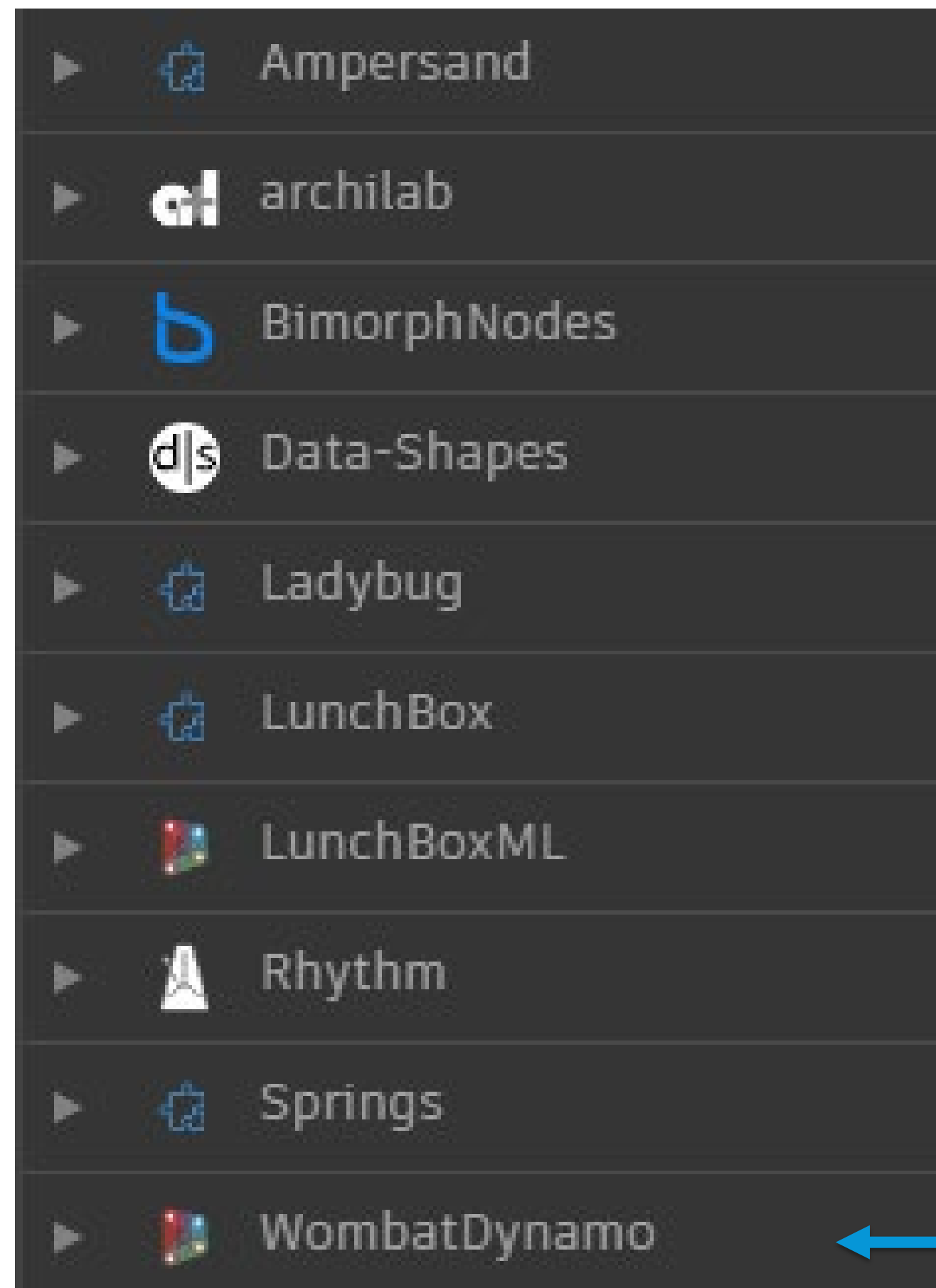
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Robert Cervellione, AIA  
Design Technology Manager  
Woods Bagot Architects, PC

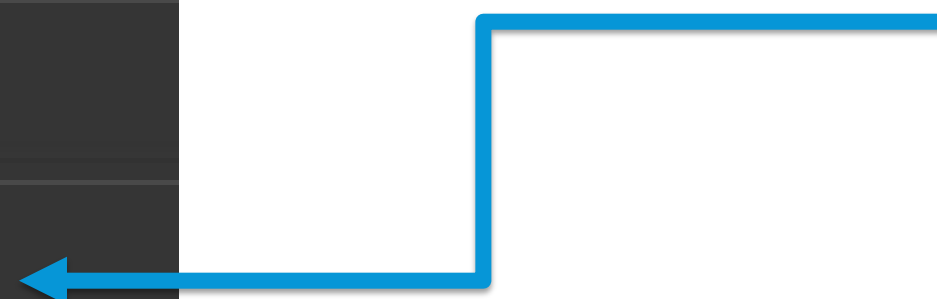
Description

# Packages

SOME OF THE EXAMPLES USE ADDITIONAL PACKAGES. HERE ARE SOME OF MY FAVORITE.

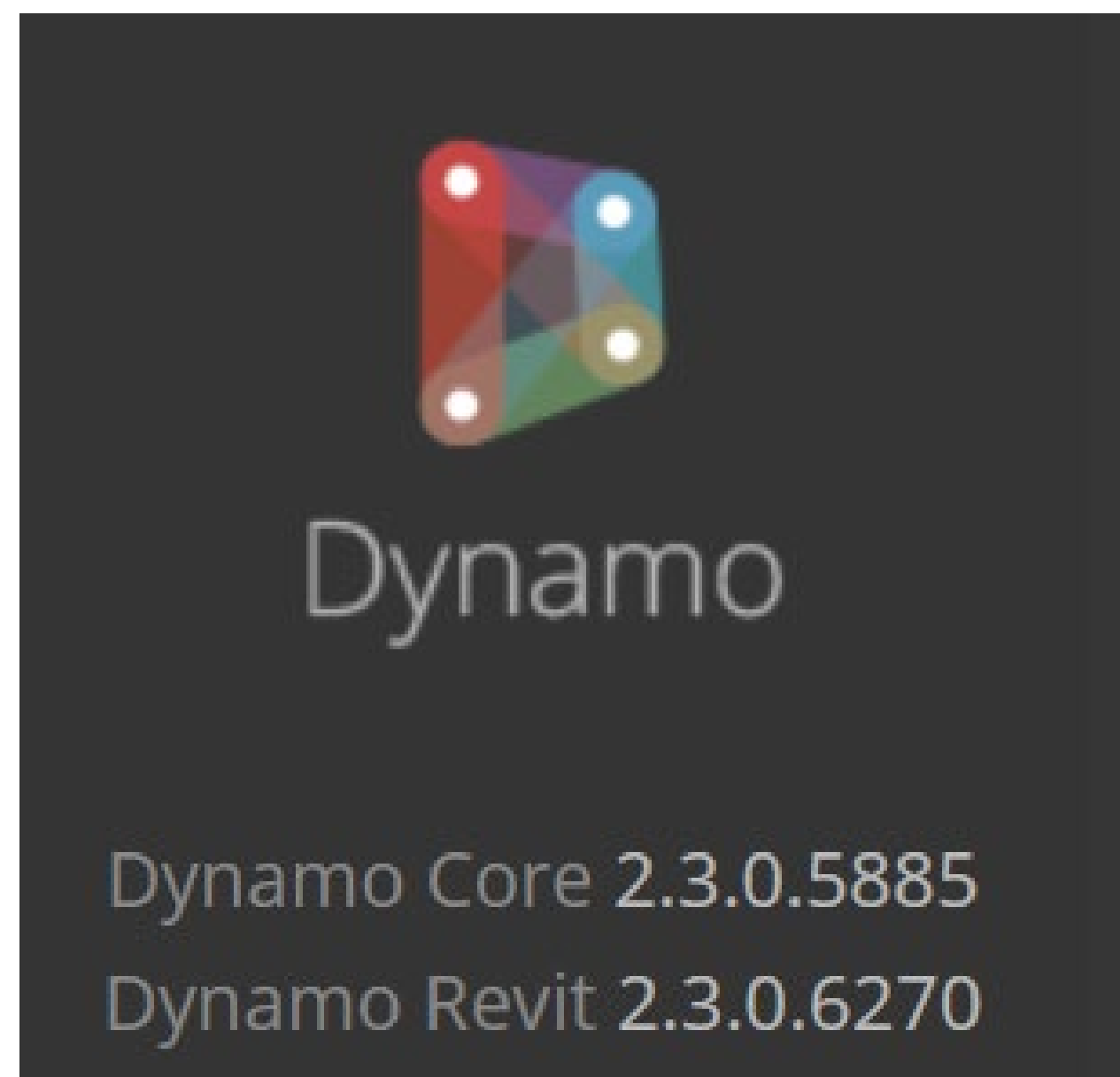


Woods Bagot Nodes



# Dynamo/Revit Versions

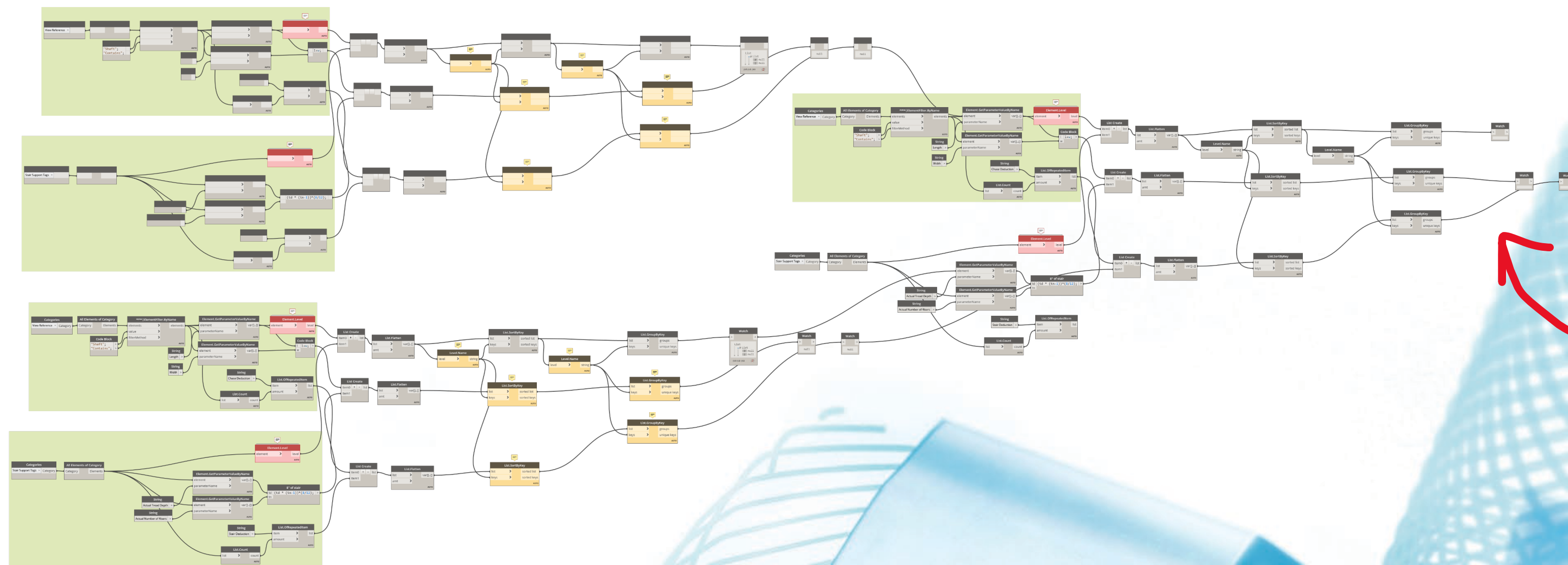
THIS PRESENTATION IS USING REVIT 2020.2 AND DYNAMO 2.3.0.5885





# Dynamo does not have to be complex

Dynamo can be used to create simple definition that are design to be quick and friendly.



Not Like This



# BIG PICTURE

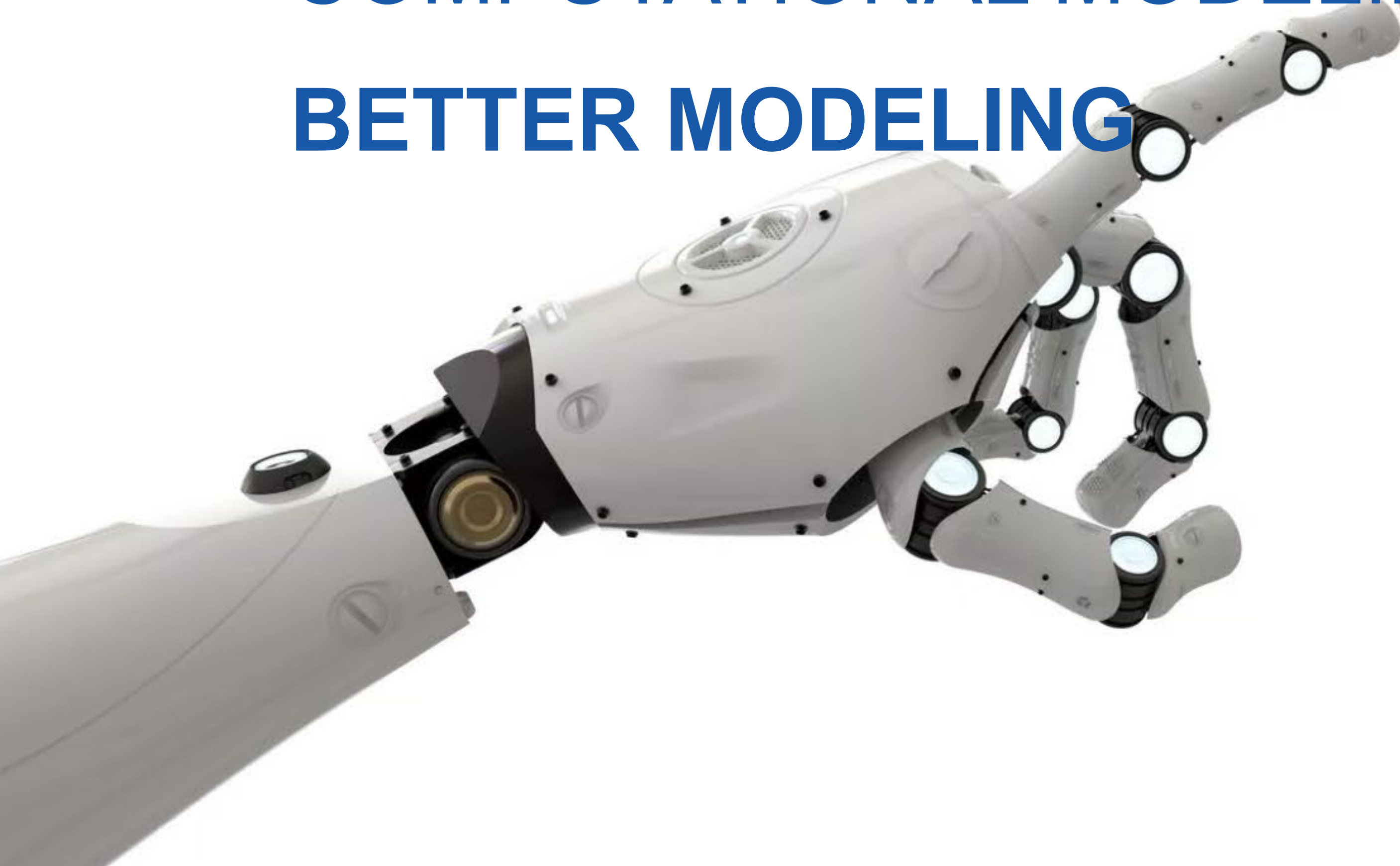
## FOSTER A CULTURE OF COMPUTATIONAL THINKING

How simple definitions foster use (gateway drug)

- Small, Useful and Digestible
- Time saving and powerful
- Enable people to become comfortable with interacting with data in a computational way.
- Show the power that both traditional modeling and computational modeling have when they work together.

# BIG PICTURE

TRADITIONAL MODELING +  
COMPUTATIONAL MODELING =  
**BETTER MODELING**



# BASIC DATA TYPES

## DYNAMO THINGS

- Geometry (Solid, Curve, Surface, Point)
- Vectors
- Planes
- Coordinate Systems (3 planes and 3 vectors)
- Strings (text)
- Double (decimals)
- Int (integer)

## REVIT THINGS

- Elements
- Parameters
- Global Parameters

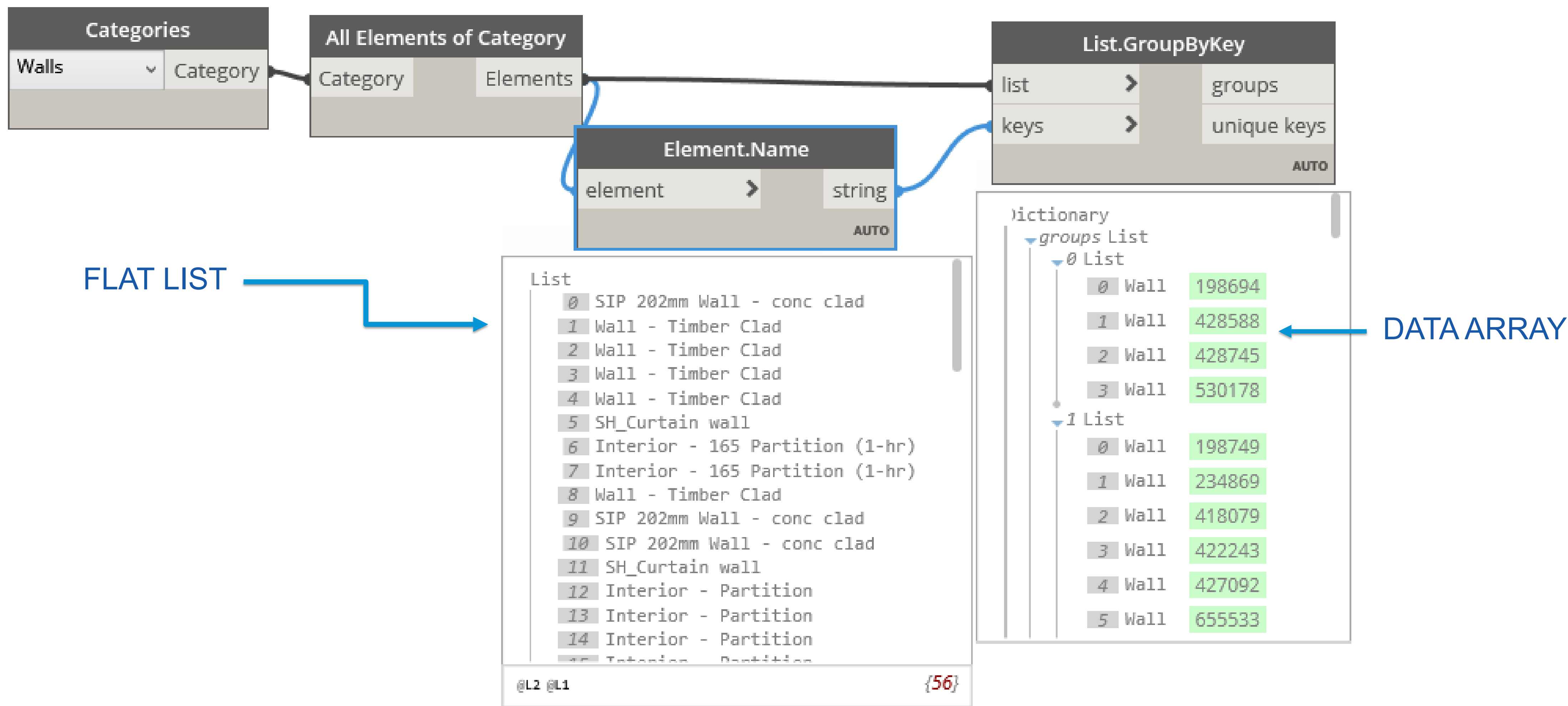


# Basic Mappings

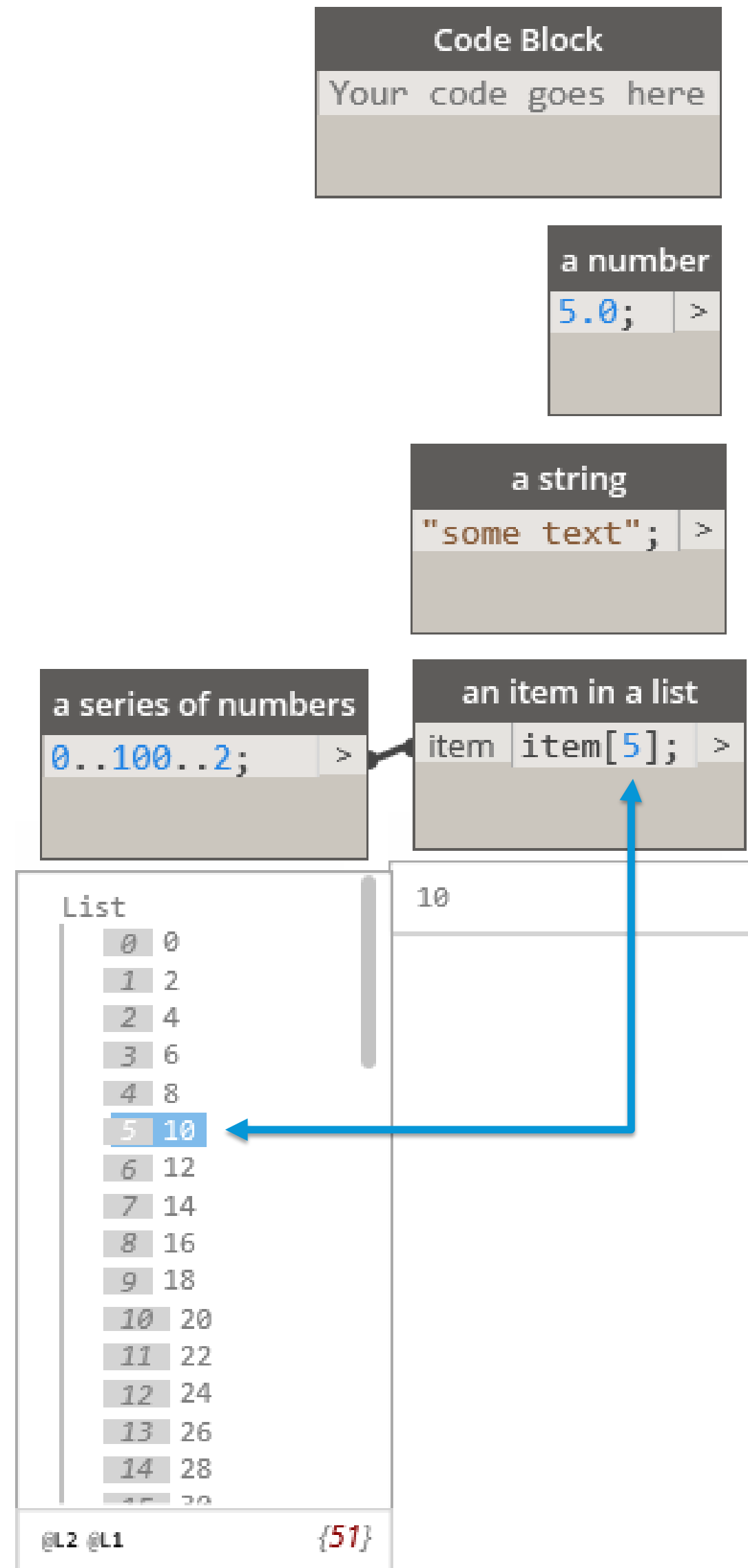
DYNAMO THINGS <-> REVIT THINGS

- Surface <-> Element Face
- Solid <-> Element (walls roofs floors...)
- Curves <-> Model Lines, drafting lines, sketch lines, area lines

# Data Structures



# Code Blocks





# Categories of Scripts

## SOME EXAMPLES OF SCRIPTS

- QA/QC Scripts:**

- Selection of masking regions
- Find Cad Drawings
- Check warnings

- Basic Automation**

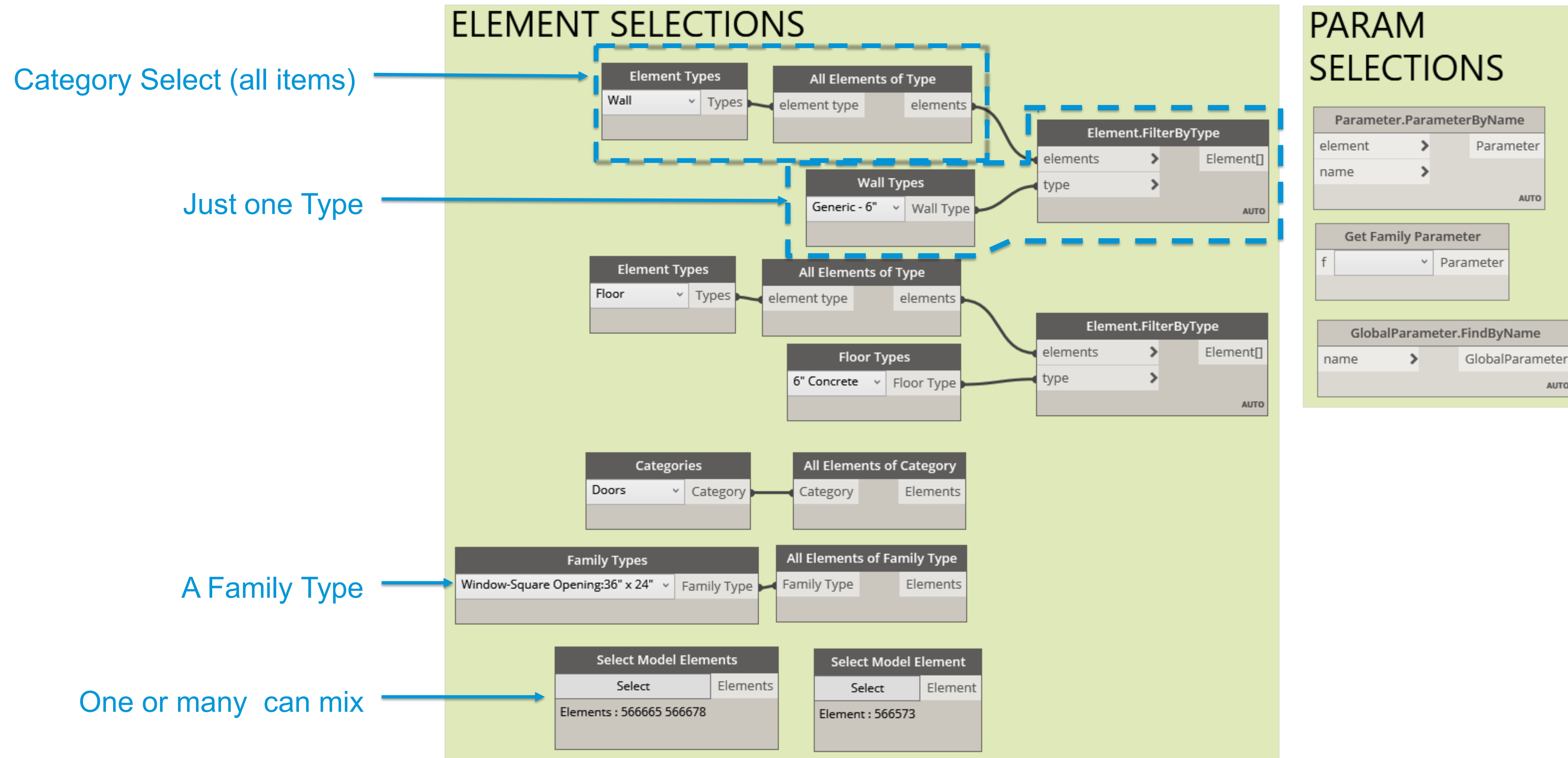
- Change Line types
- Rotate objects
- Place objects
- Control Visibility
- Modify parameters
- Assign Unique Room Numbers

- Sheets/Views/Schedules**

- Duplicate Sheet
- Renumber Drawings
- Export to excel
- Read from excel

# Selection

SELECTION OF ELEMENTS IS THE ONE OF THE FIRST STEPS , WE NEED TO GET THE DATA



# Selection

## TIP FOR MULTIPLE ITEM SELECTIONS

The selection prefers “window selection” so use isolate element/category for this

Video here:

[https://github.com/cerver/AU2019\\_Dynamo\\_12ItemsOrLess/tree/master/Pres/Content](https://github.com/cerver/AU2019_Dynamo_12ItemsOrLess/tree/master/Pres/Content)

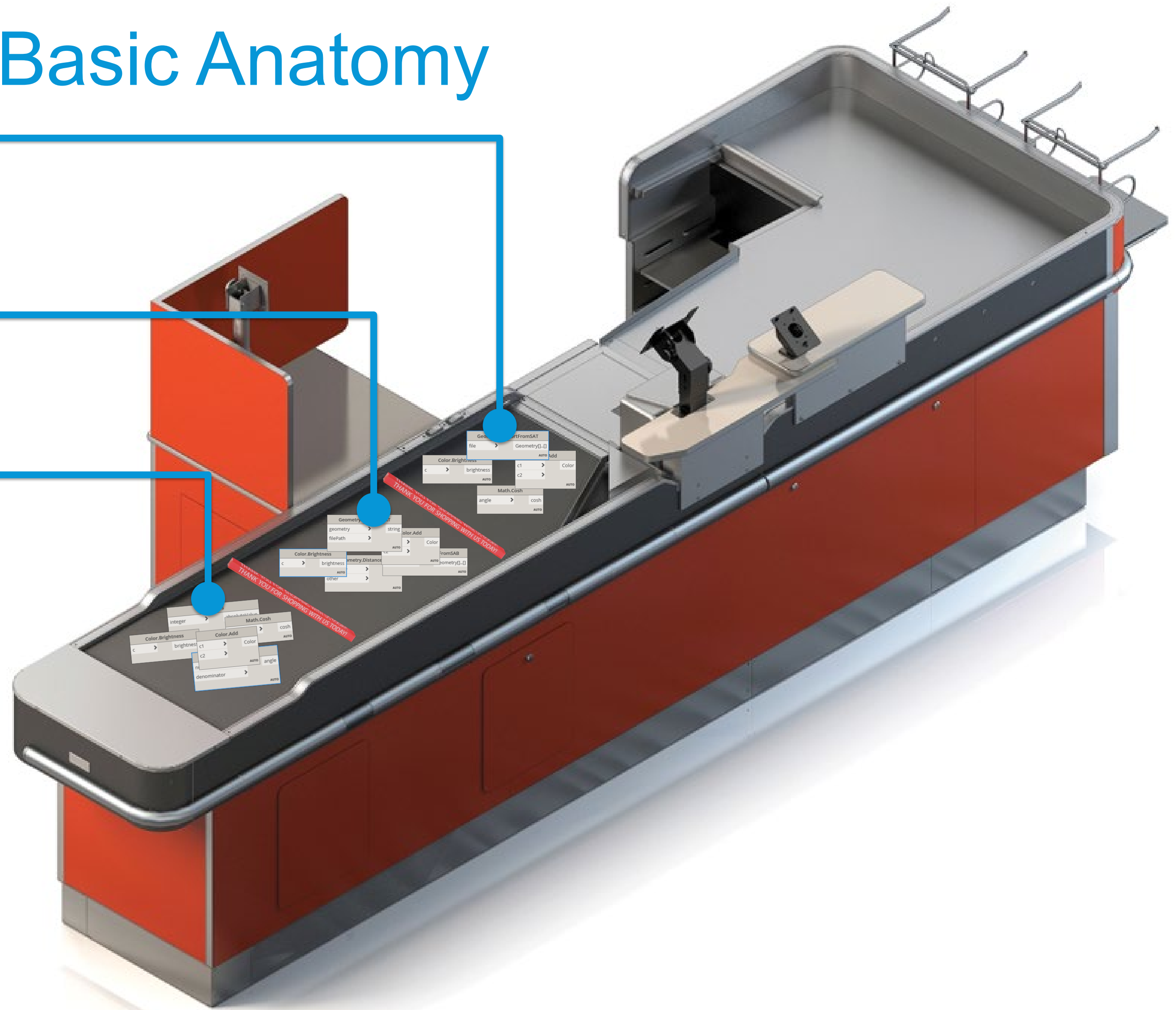


# Basic Anatomy

SELECTION ITEMS

ACTION ITEMS

COMMIT ITEMS



# On to the show...some examples



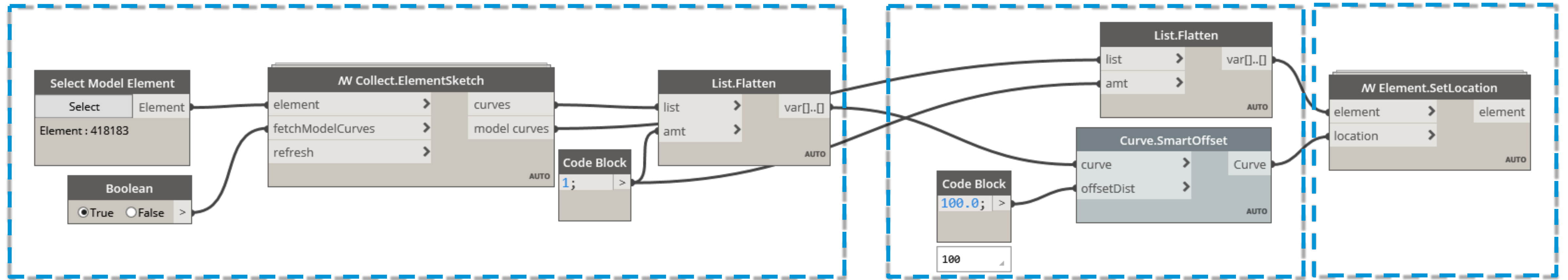
# Examples

## SLAB OFFSET

[selection]

[action]

[commit]





Video here:

[https://github.com/cerver/AU2019\\_Dynamo\\_12ItemsOrLess/tree/master/Pres/Content](https://github.com/cerver/AU2019_Dynamo_12ItemsOrLess/tree/master/Pres/Content)

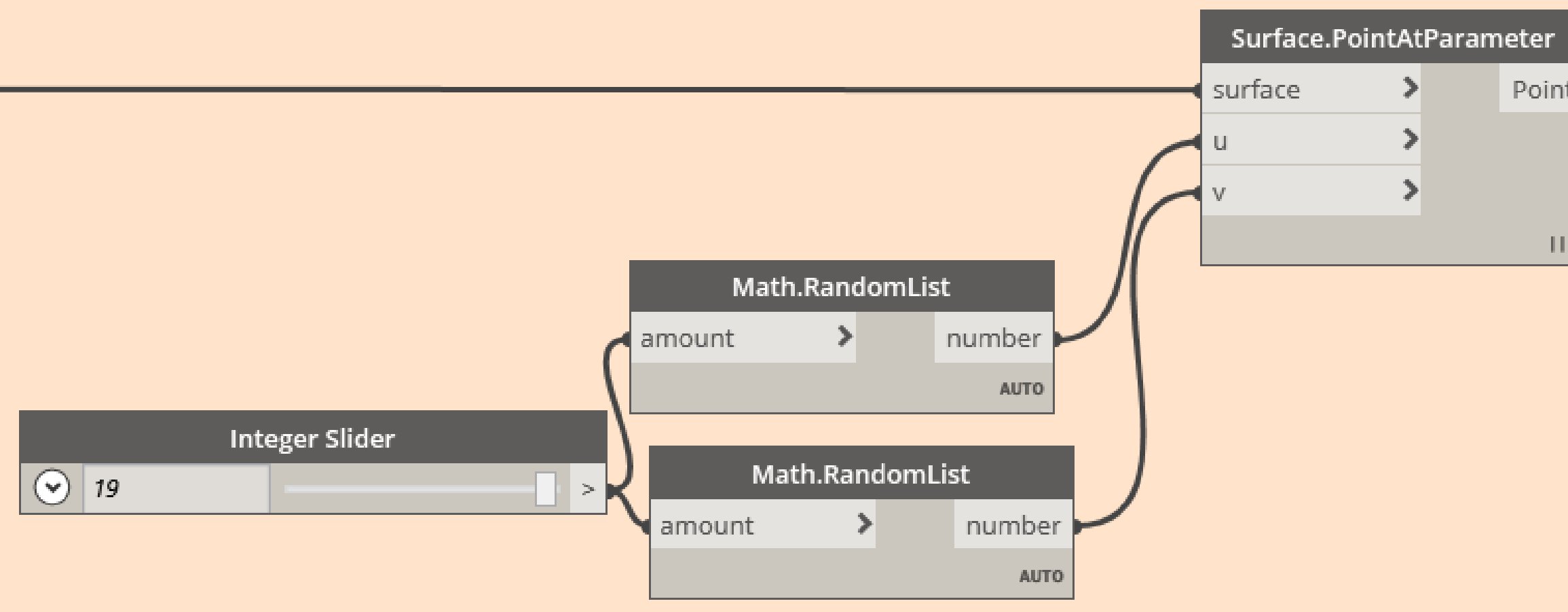
# Examples

## PLACE FAMILIES ON A SURFACE (FACE)

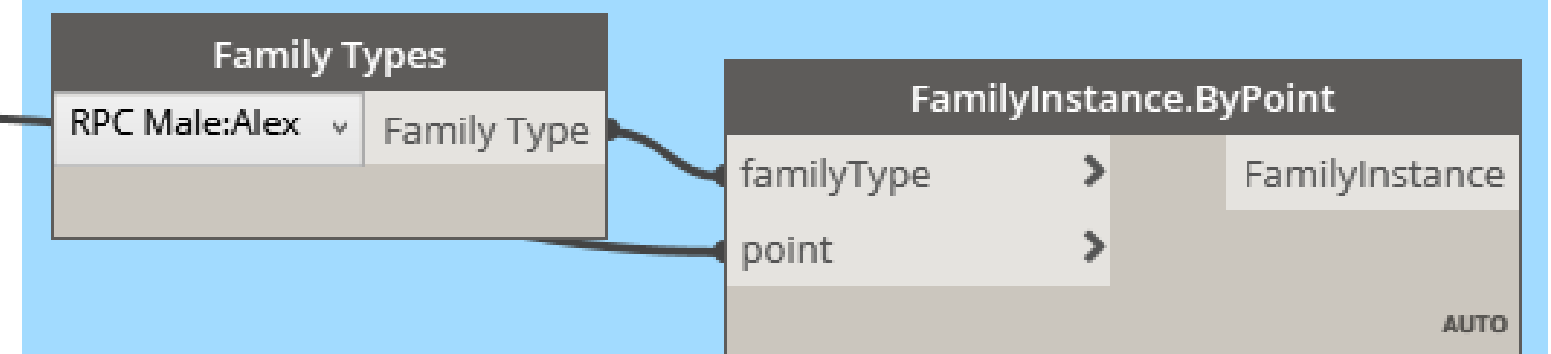
### Selection

Select Face	
Select	Surface
Face of Element Id : 1099172	

### Action



### Commit



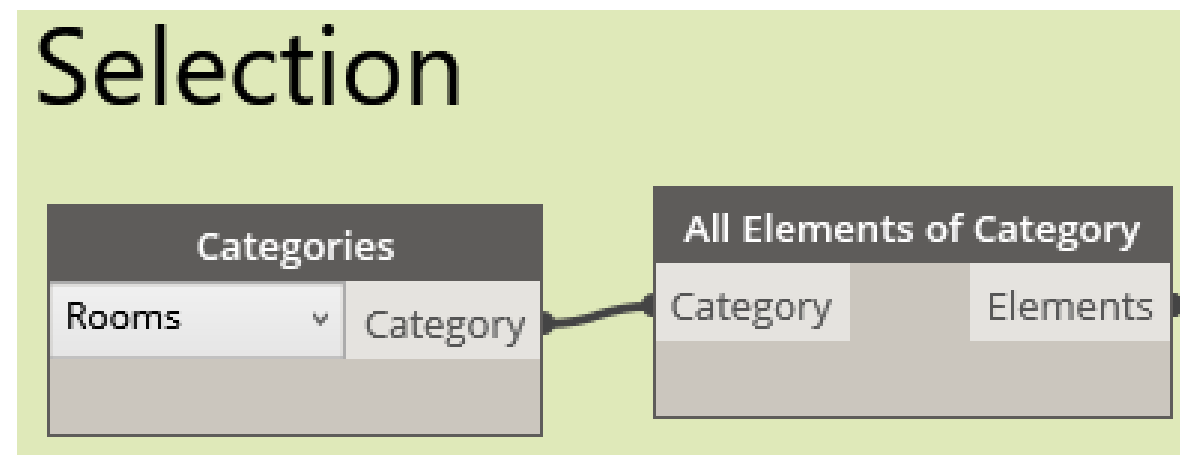
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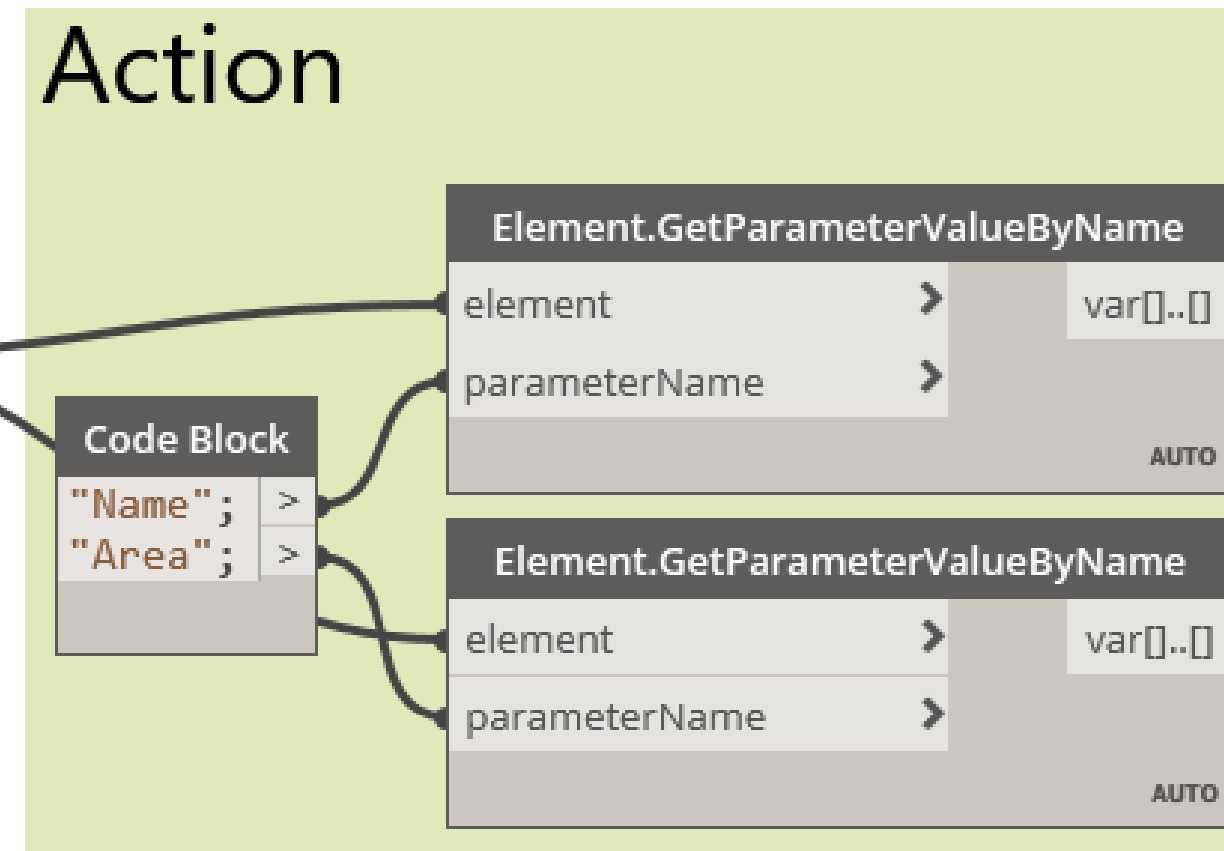
# Examples

## SEND DATA TO EXCEL

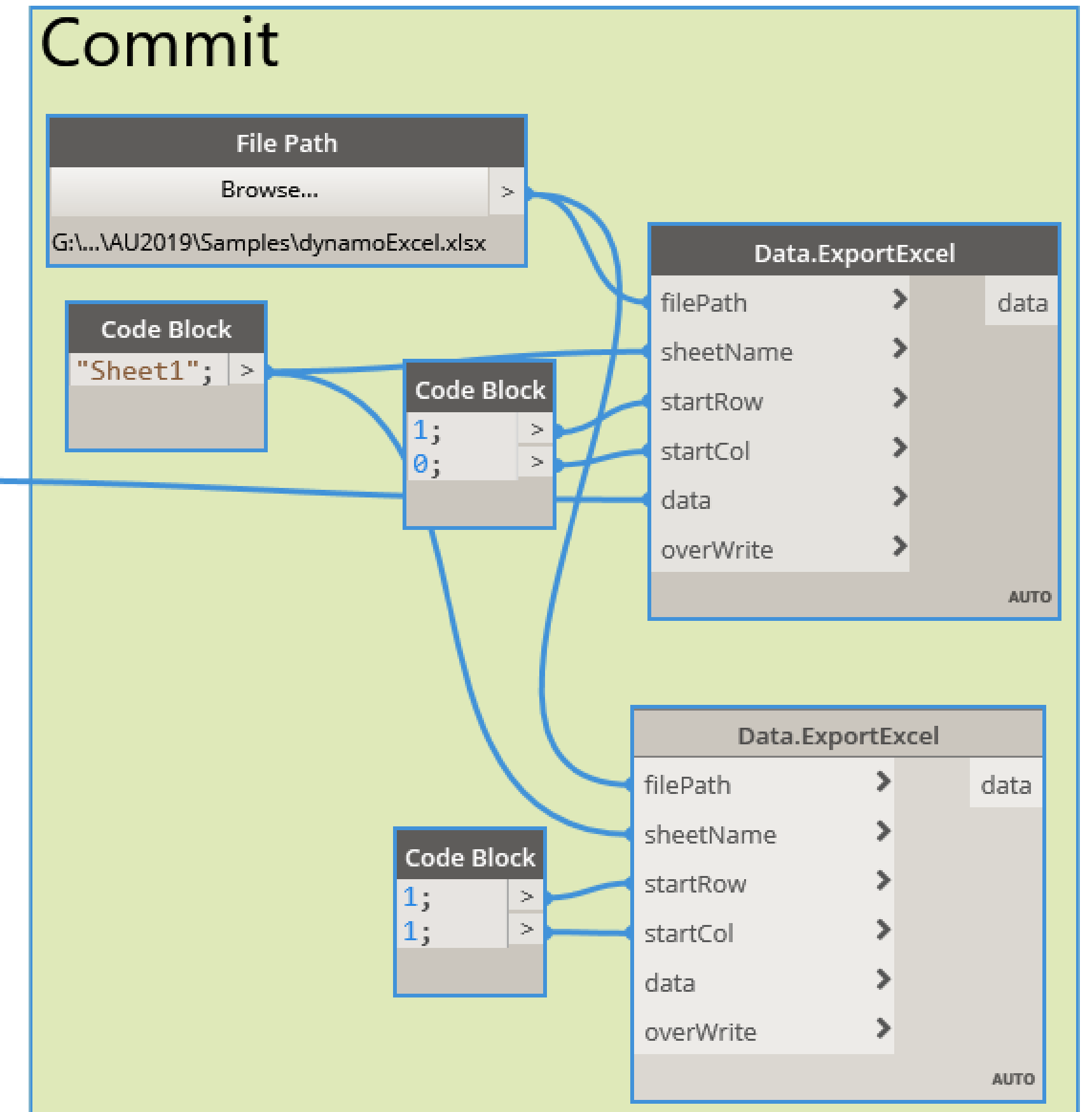
### Selection



### Action



### Commit

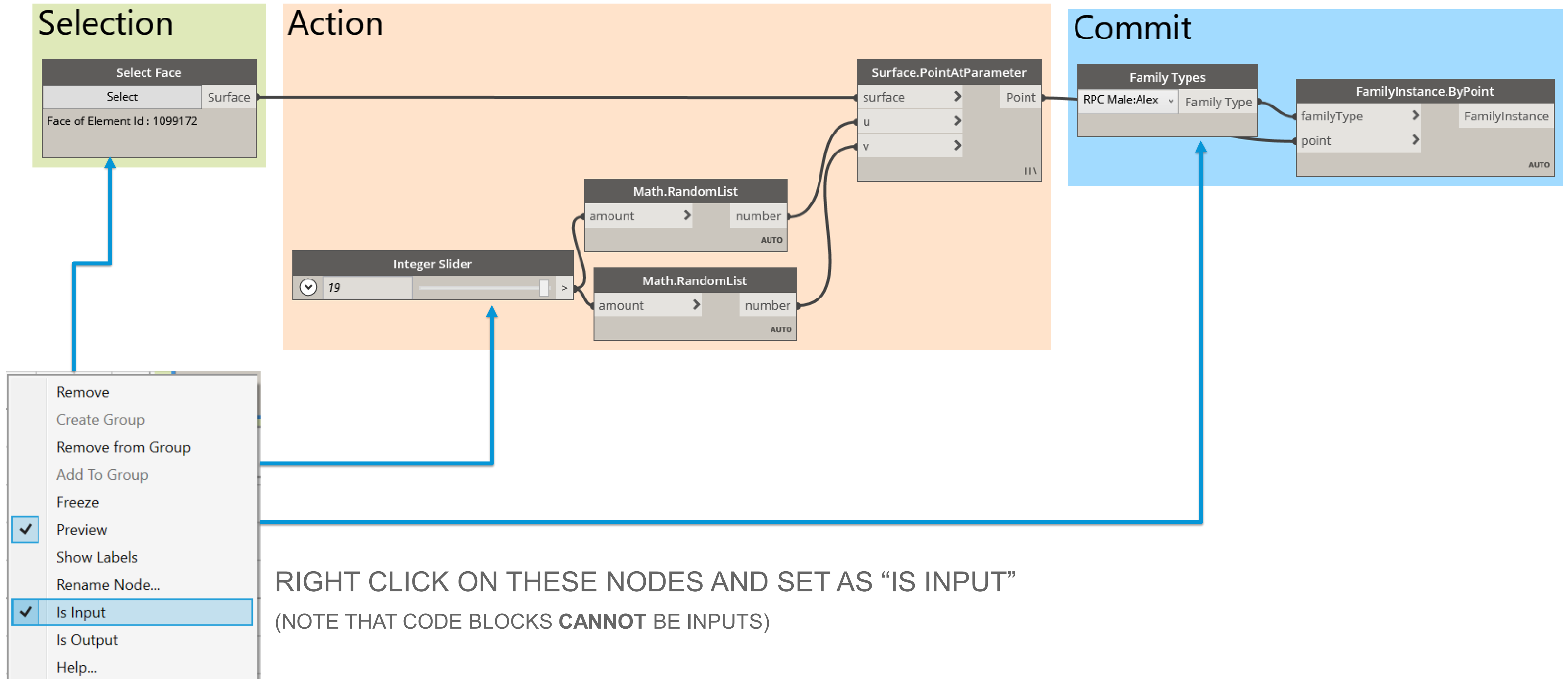


Video here:

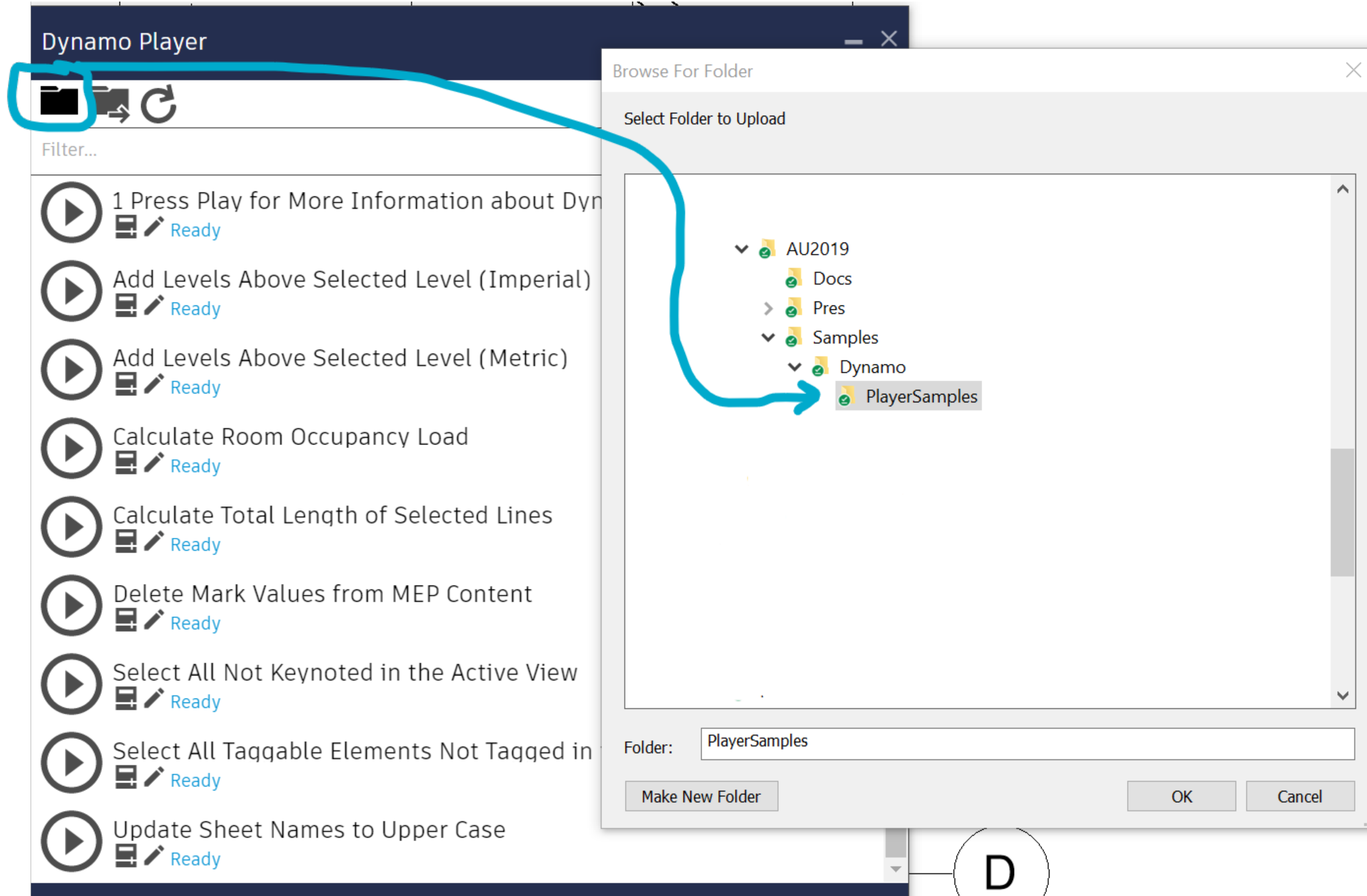
[https://github.com/cerver/AU2019\\_Dynamo\\_12ItemsOrLess/tree/master/Pres/Content](https://github.com/cerver/AU2019_Dynamo_12ItemsOrLess/tree/master/Pres/Content)



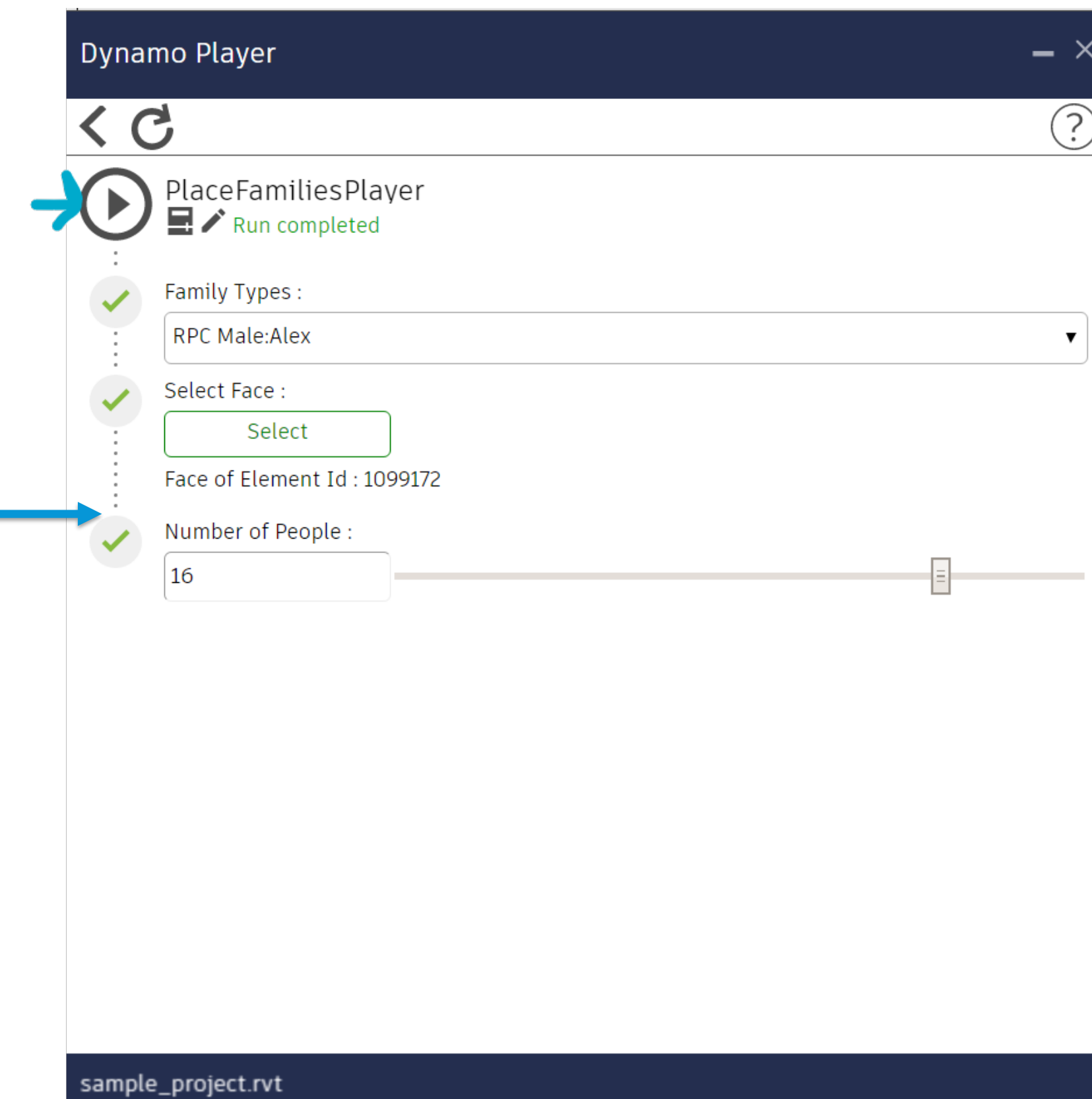
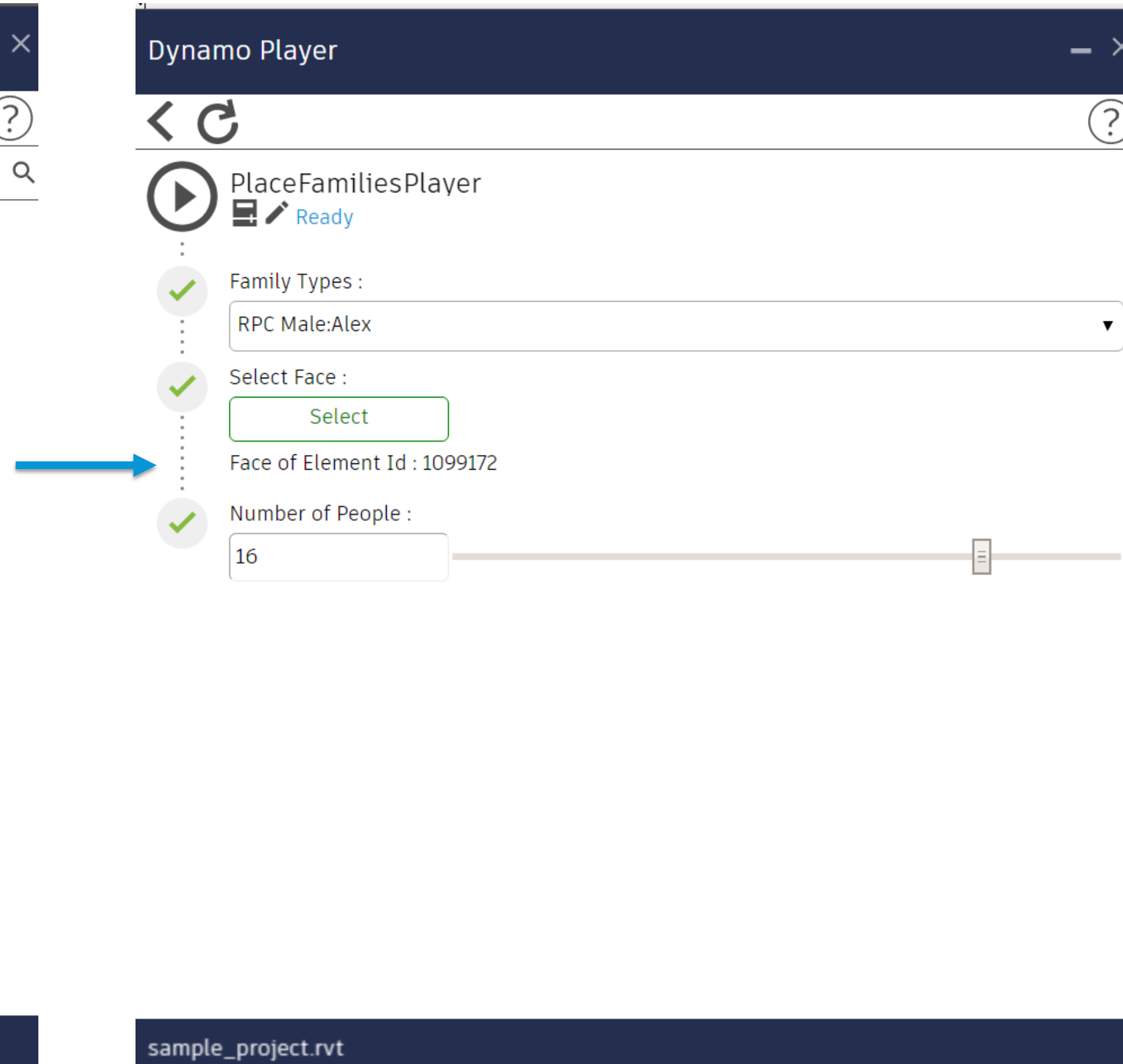
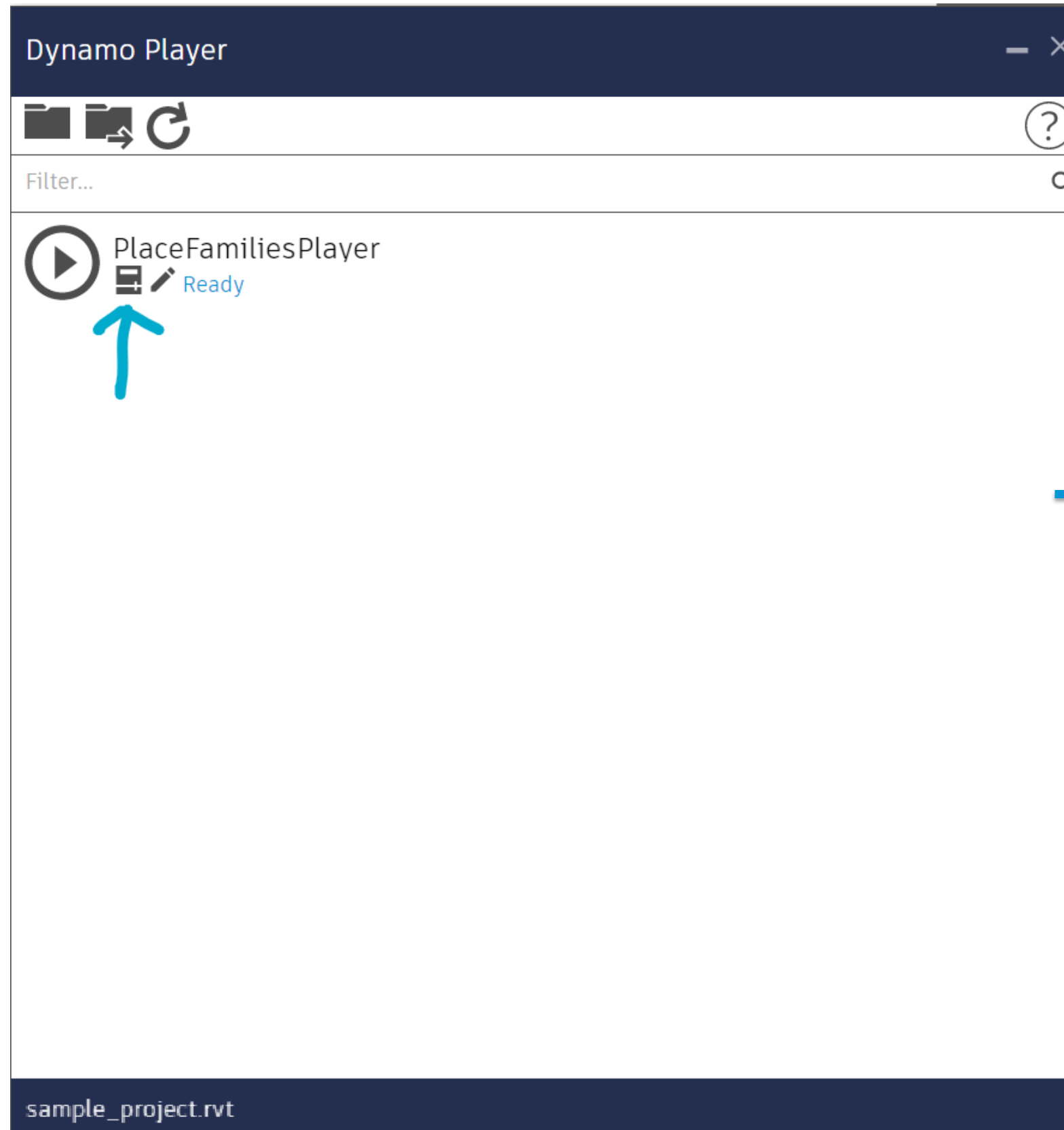
# Dynamo Player



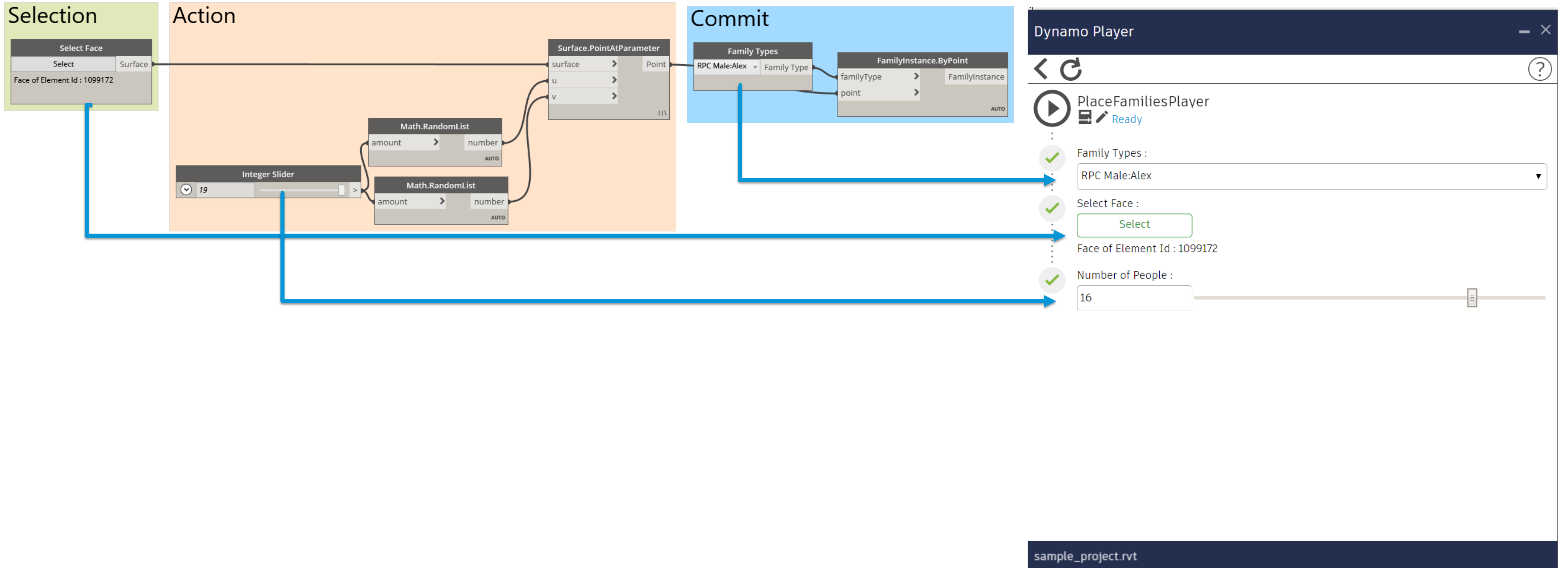
# Dynamo Player



# Dynamo Player

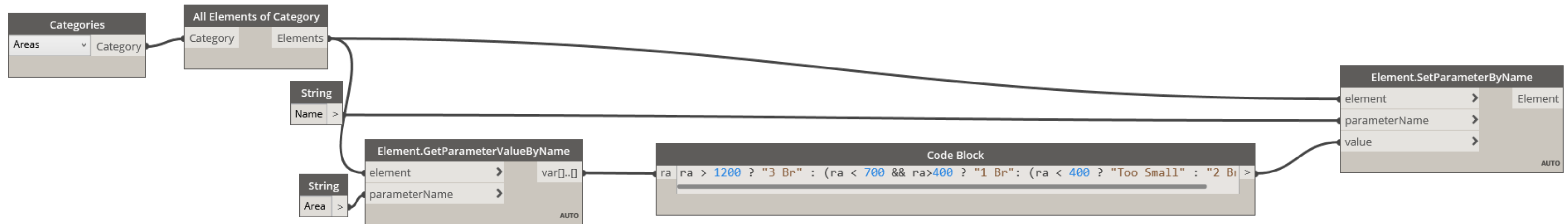


# Dynamo Player



# Examples

## AUTO ADJUST AREAS





Video here:

[https://github.com/cerver/AU2019\\_Dynamo\\_12ItemsOrLess/tree/master/Pres/Content](https://github.com/cerver/AU2019_Dynamo_12ItemsOrLess/tree/master/Pres/Content)

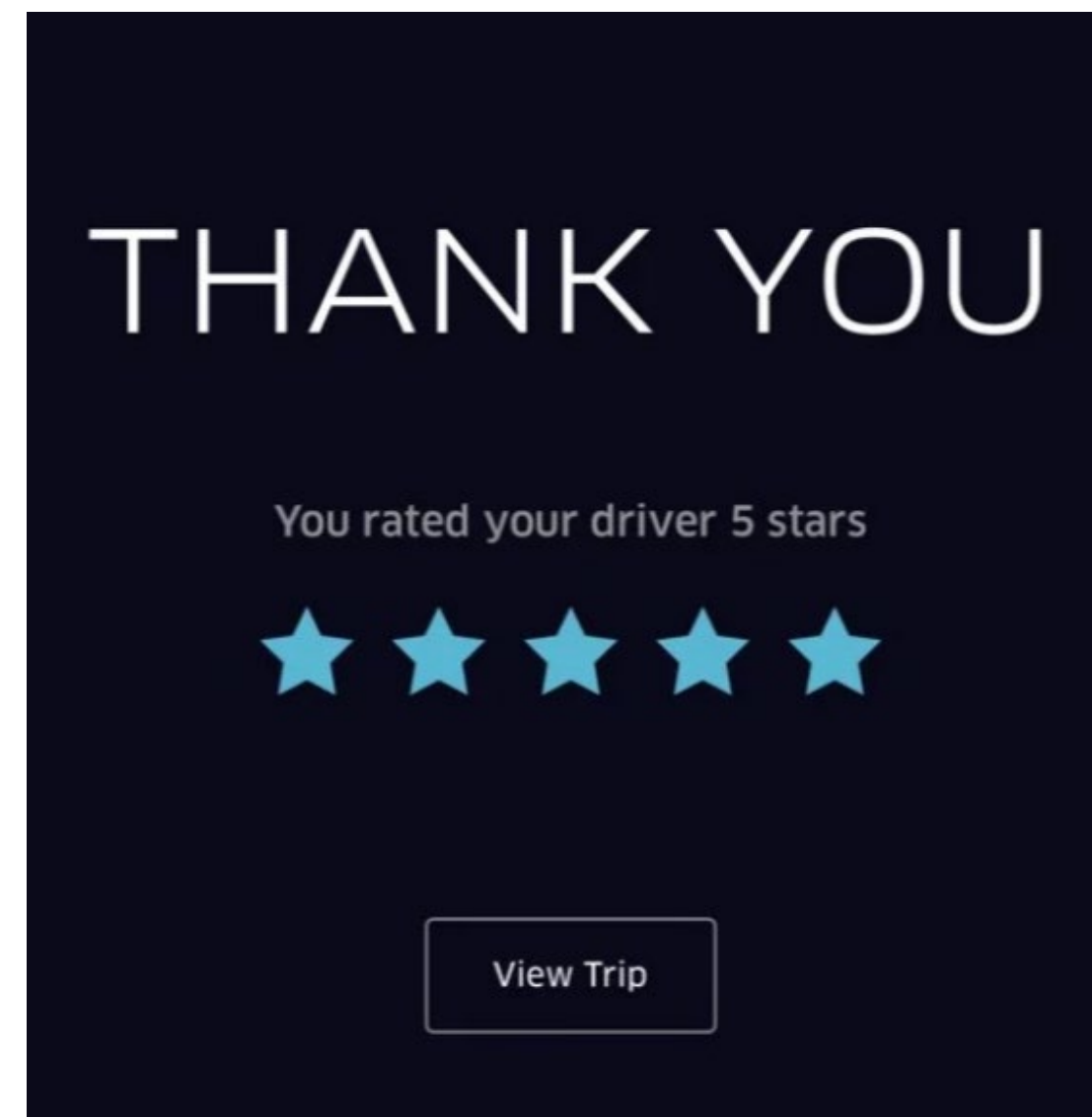
# Live Demo Time

- FYI: This is typically when things go wrong in the presentation





# Questions?



Please remember to fill out the class survey it can be found on the **AU App** or **AU Online**.

It's Very import we hear from you

Enjoy the rest of AU!!!