# Visualize the Design Workflow of Custom-Built Homes with FormIt, Revit, and InfraWorks

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# About the speaker

## Jamie Owens II | Applications Expert

Focuses on guiding AEC and Manufacturing companies in growing their technology platform; assisting companies in becoming more efficient and competitive in the AEC industry; and adopting new workflows to assist in project success. A certified Revit Professional and Certified Revit Instructor with an undergrad and graduate degree in Architecture.

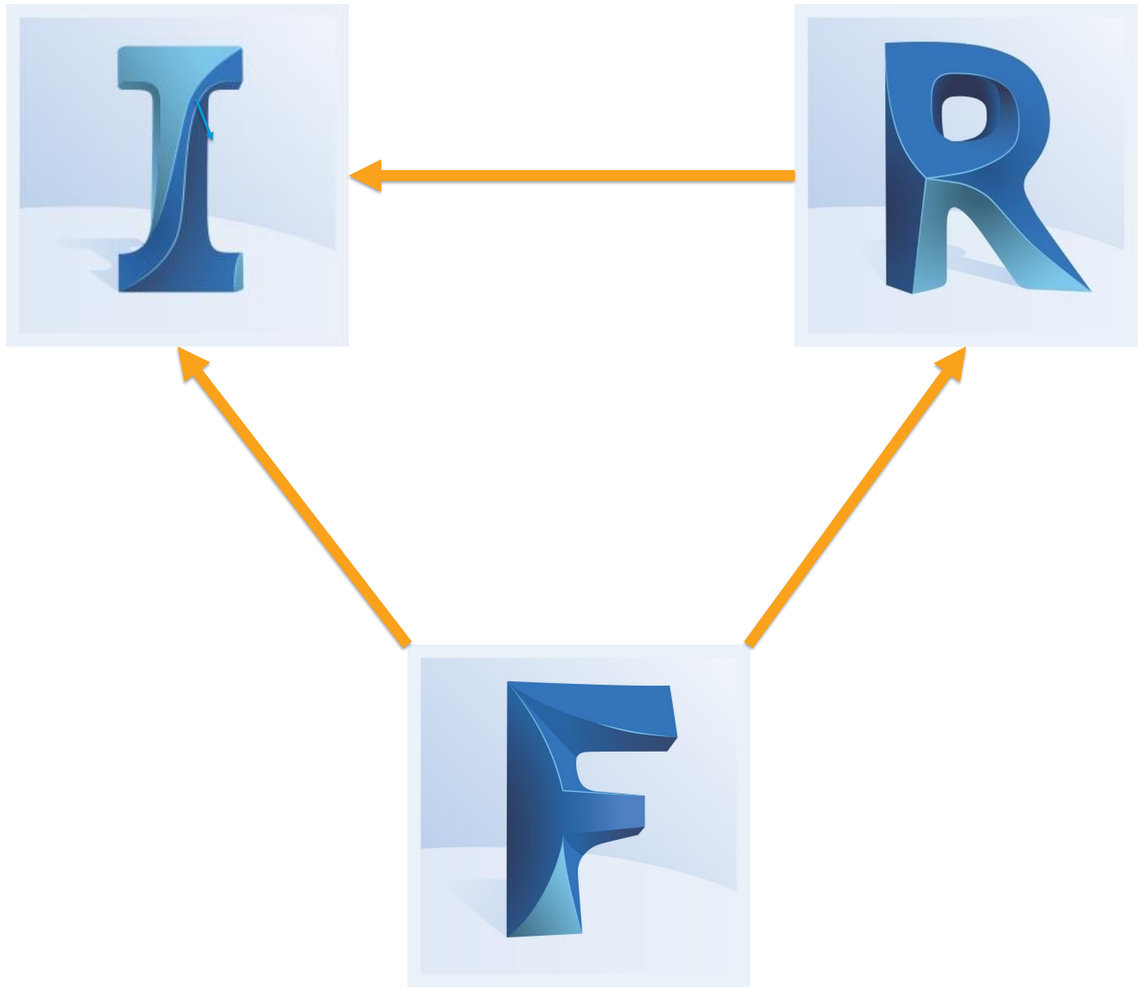
# Learning Objectives

- Discover how conceptual, custom home models in FormIt can be visualized in InfraWorks
- Learn how to bring a conceptual model from FormIt to Revit
- Learn about how Revit custom home models can be visualized in InfraWorks
- Learn about the workflow to visualize multiple design options from FormIt and Revit in InfraWorks

# Question / Poll

Is there anyone that uses multiple platforms in their design process?

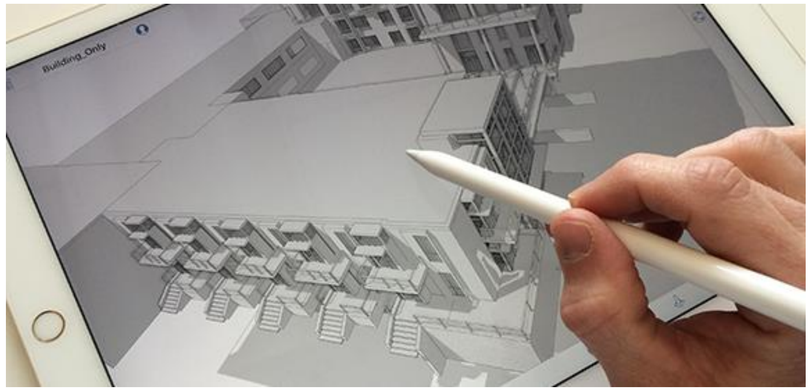
# Workflow

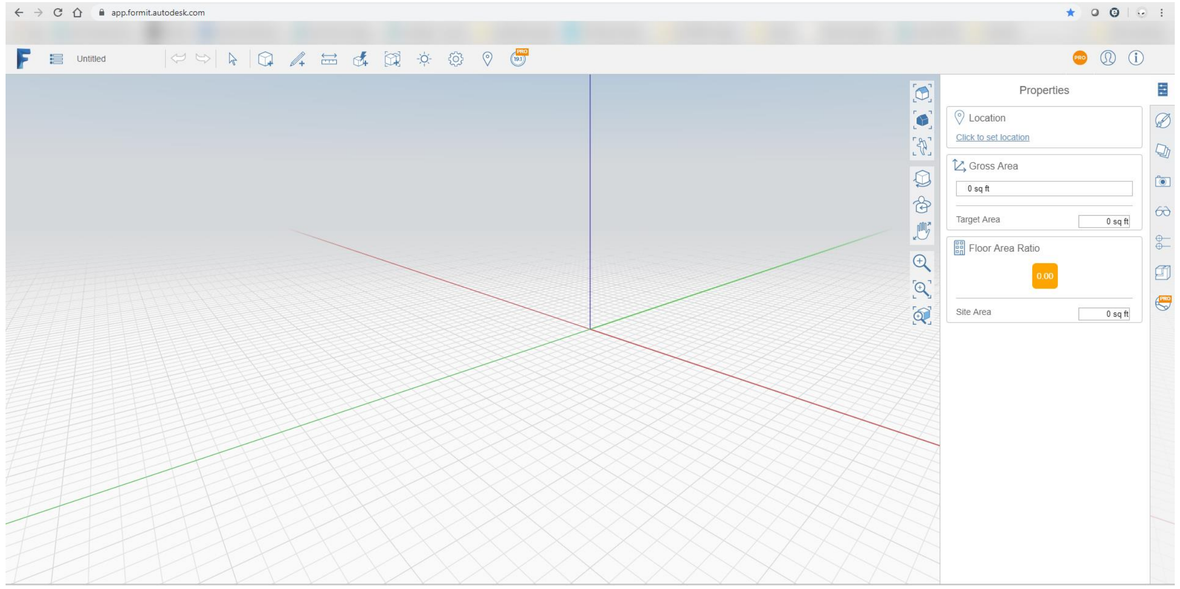


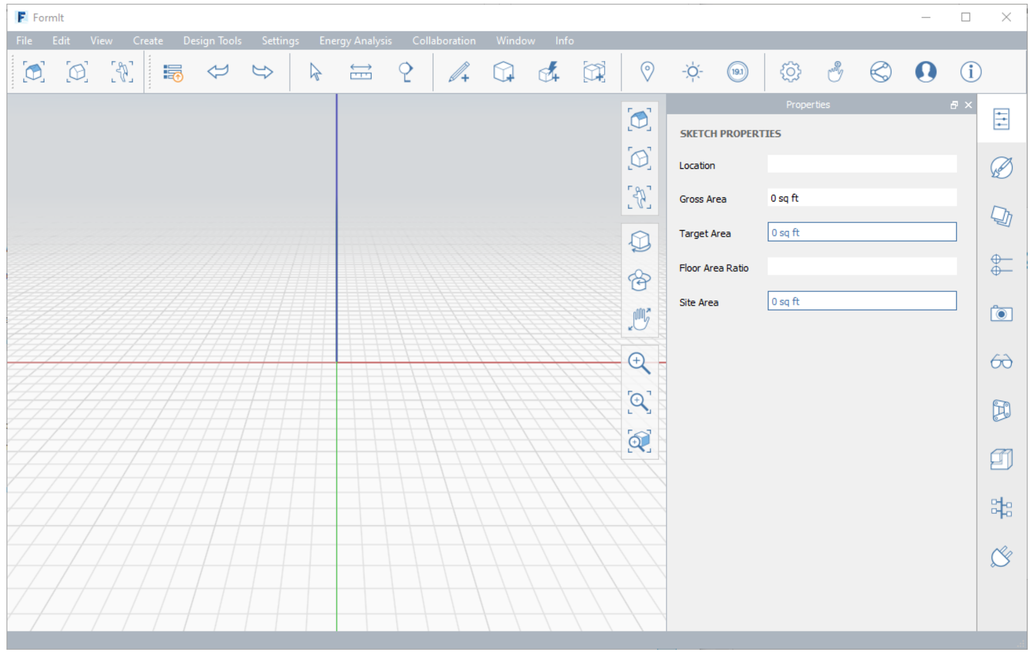
# What is FormIt?

## CONCEPTUAL DESIGN TOOL GENERATING DESIGNS QUICKLY ON MULTIPLE PLATFORMS.

- Mobile Application on ANDROID OR iOS
- Web-based Browser Application
- Windows Based Desktop Application



# Benefits of Using FormIt

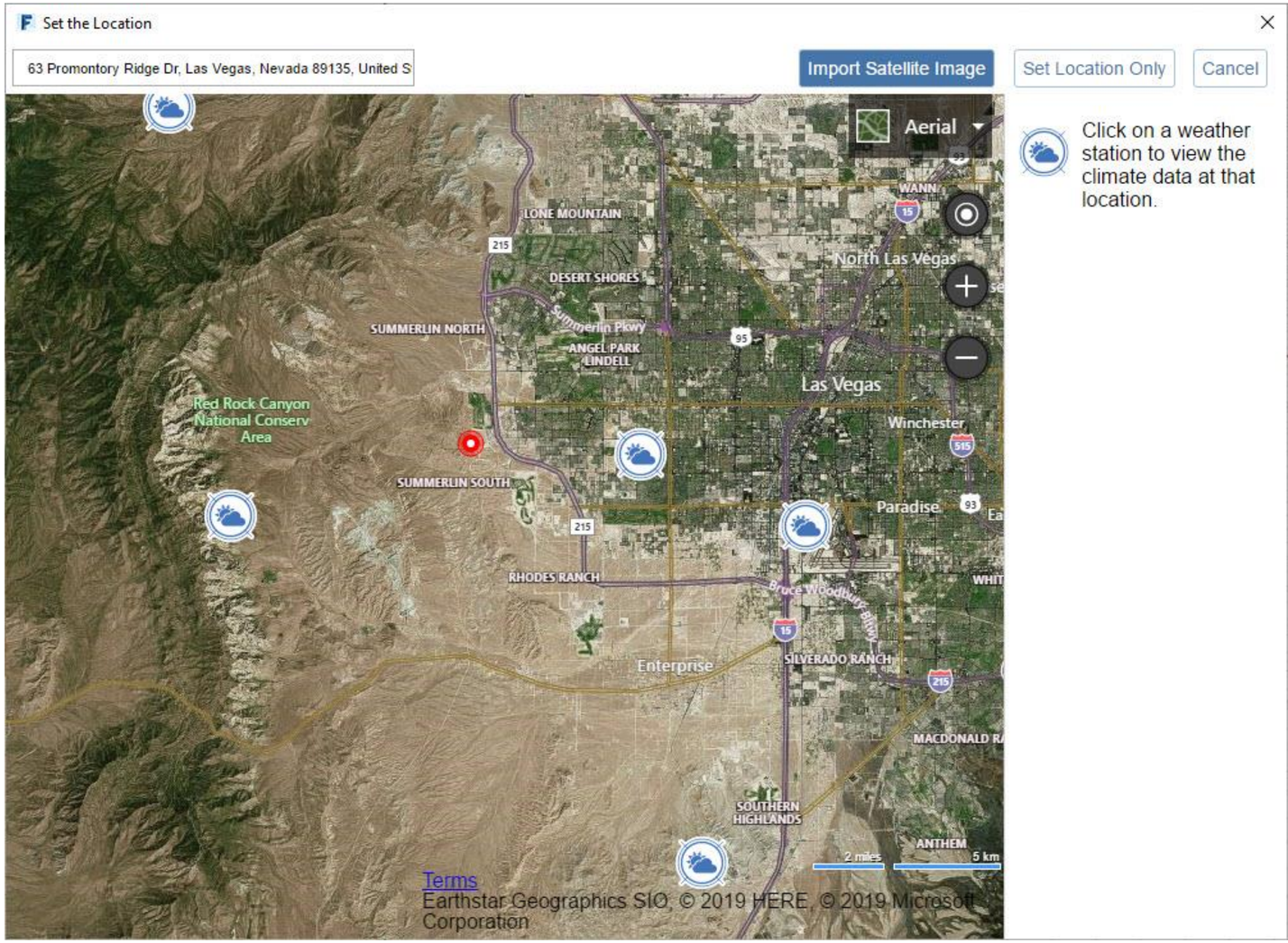
Using Autodesk FormIt for conceptual design has it’s benefits over other conceptual design tools.

- Ability to work on multiple platforms without losing data.
- Real world site information for context and scale (Background Satellite Image)
- Use familiar 2D and 3D modeling creation tools
- Easily modify geometry with easy push/pull tools
- Ability to incorporate Revit families into concepts to enhance design

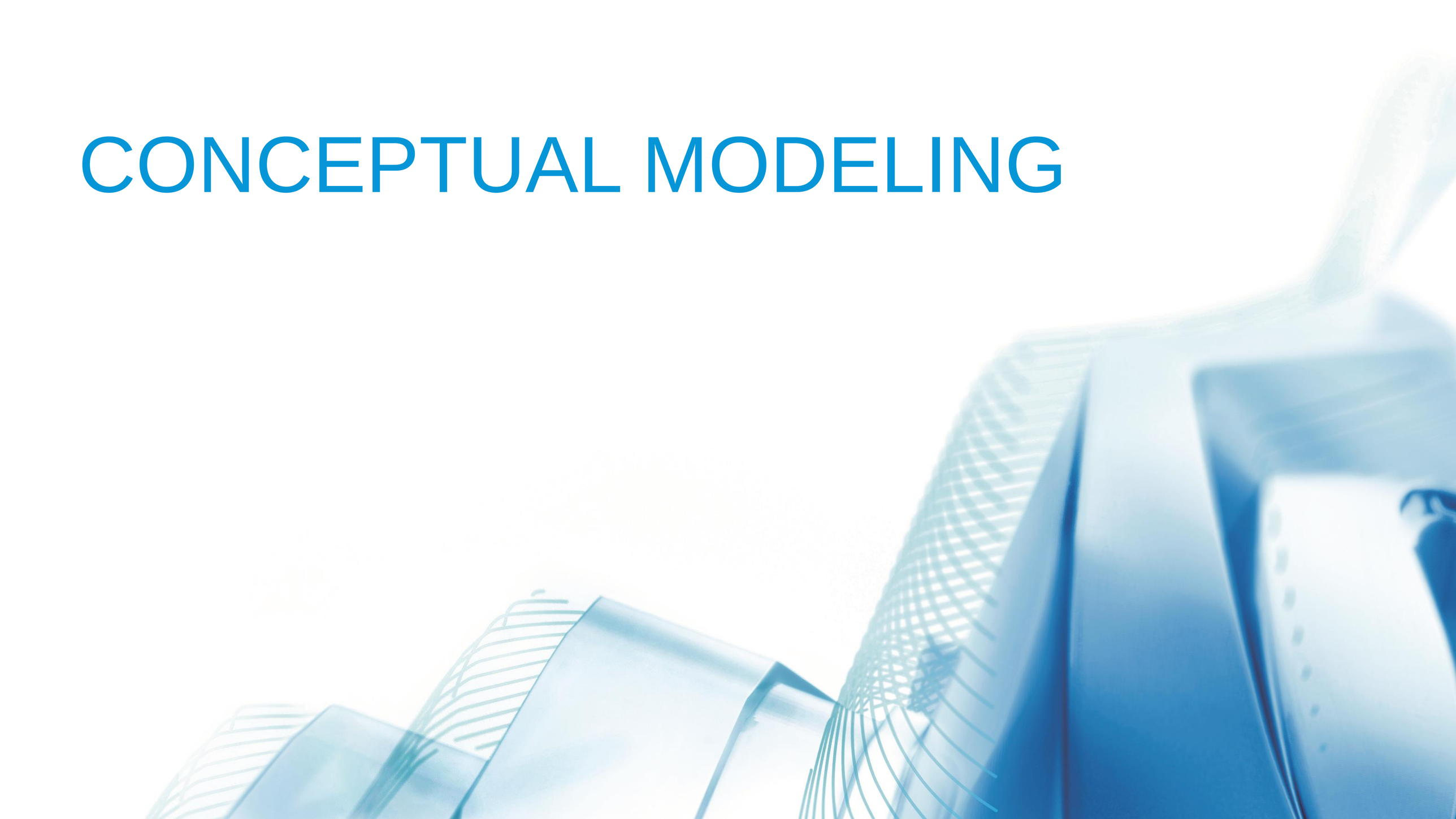
# Setting Actual Location

## BENEFITS OF SETTING LOCATION

- Downstream energy analysis
- Sets Building Orientation
- To-Scale Background Satellite Image
- Street View vs Satellite Image



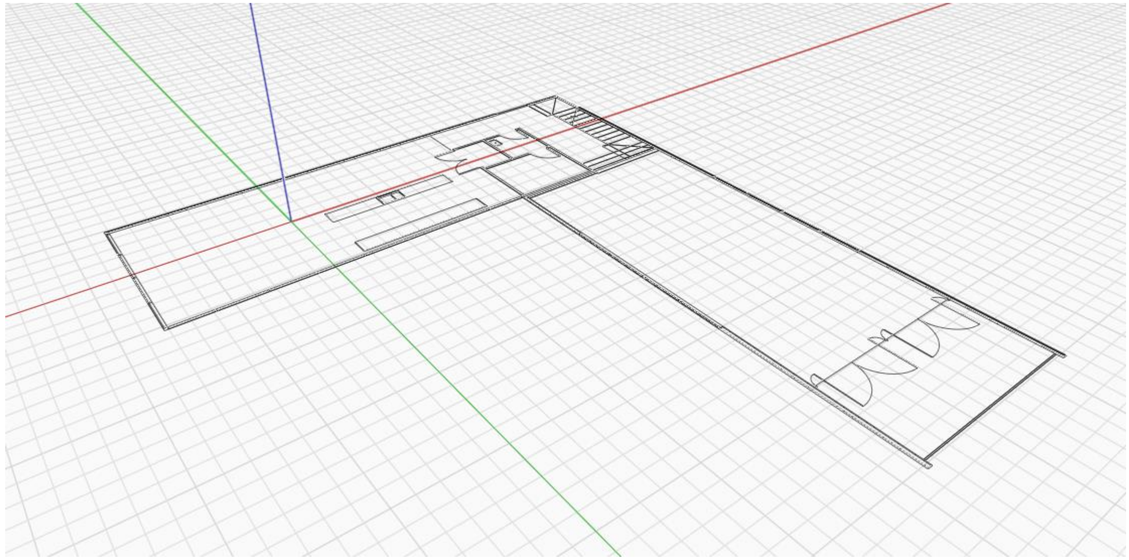
# CONCEPTUAL MODELING



# Incorporating Other Sketch Elements

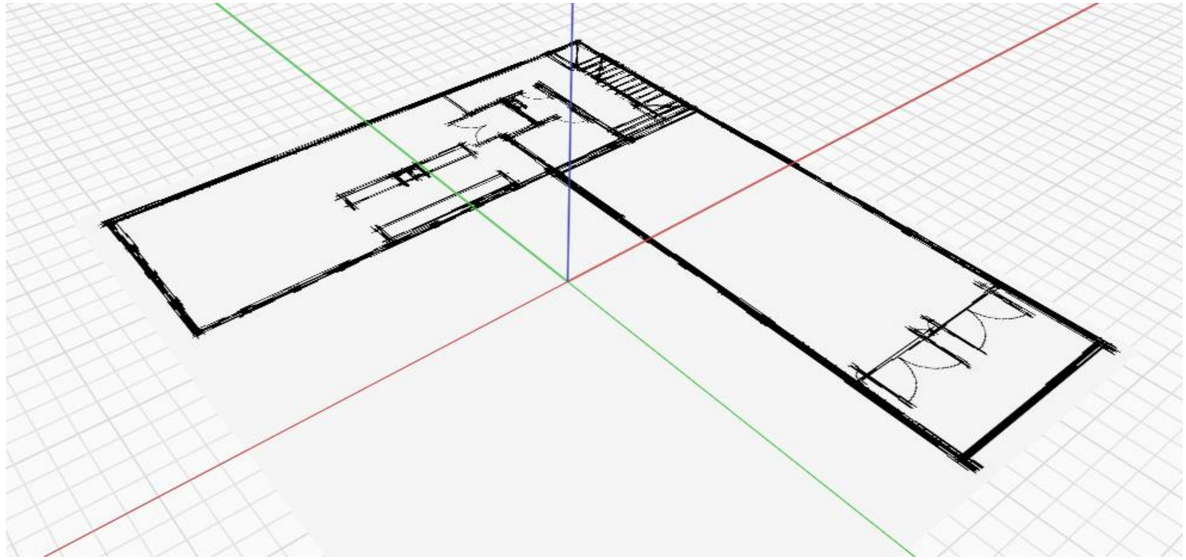
## AUTOCAD DWG (2D OR 3D)

- Scaled
- Object Snapping
- Orient as Needed



## IMAGE SKETCHES (NAPKIN, TRACE, ETC.)

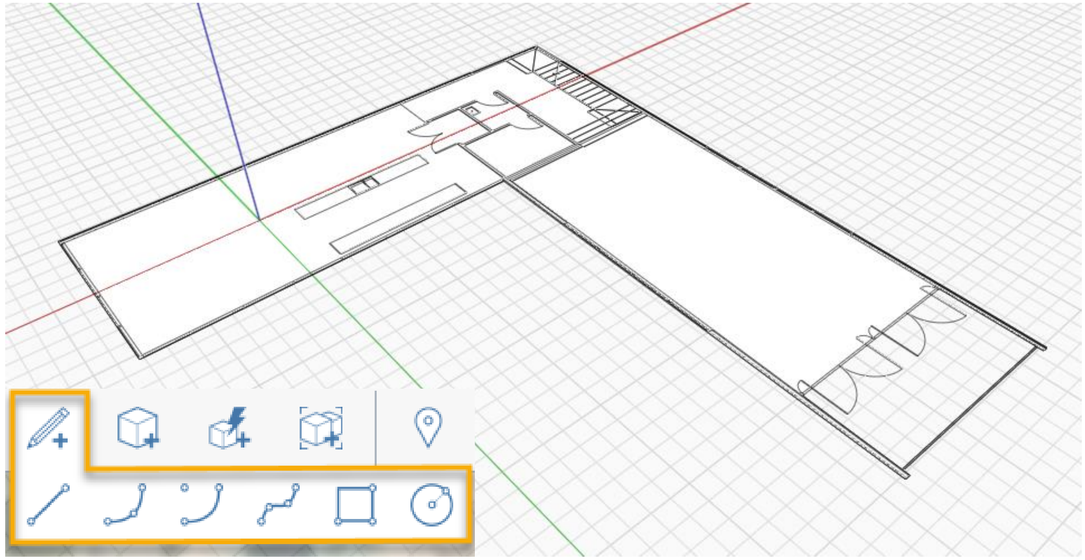
- Need to be Scaled
- Orient as Needed
- No Object Snapping



# MODELING PROCESS

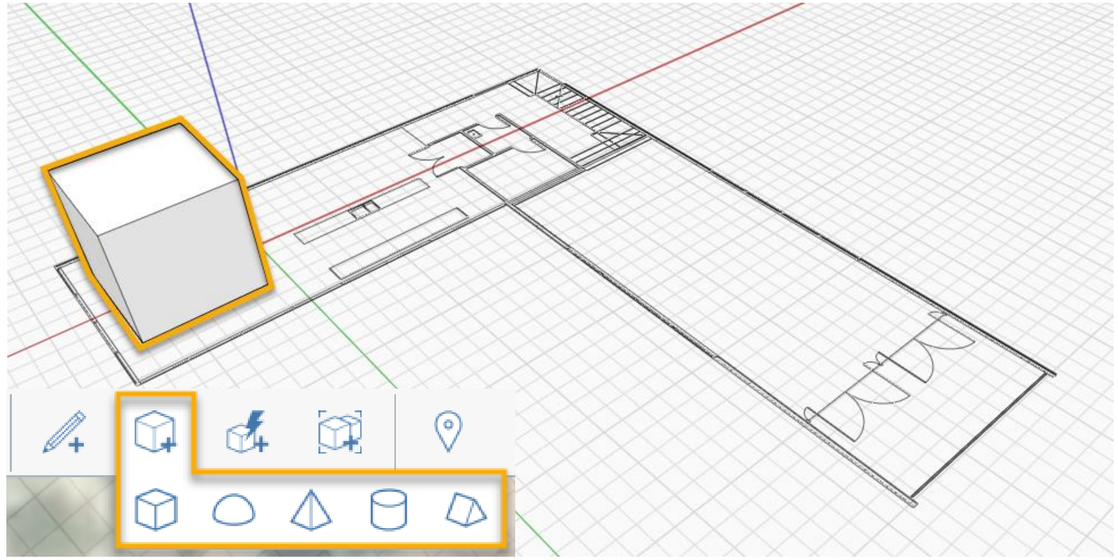
## STARTING IN 2D

- Draw or Trace Shape
- Create Surfaces w/ closed loops
- Push/Pull Surfaces to Make 3D
- Add Additional Lines to Create Breaks
- Use Push/Pull to Modify Shapes



## STARTING IN 3D

- Use Premade Solid Shapes
- Place 3D Shape
- Add Lines to Create Breaks
- Use Push/Pull to Modify Shapes



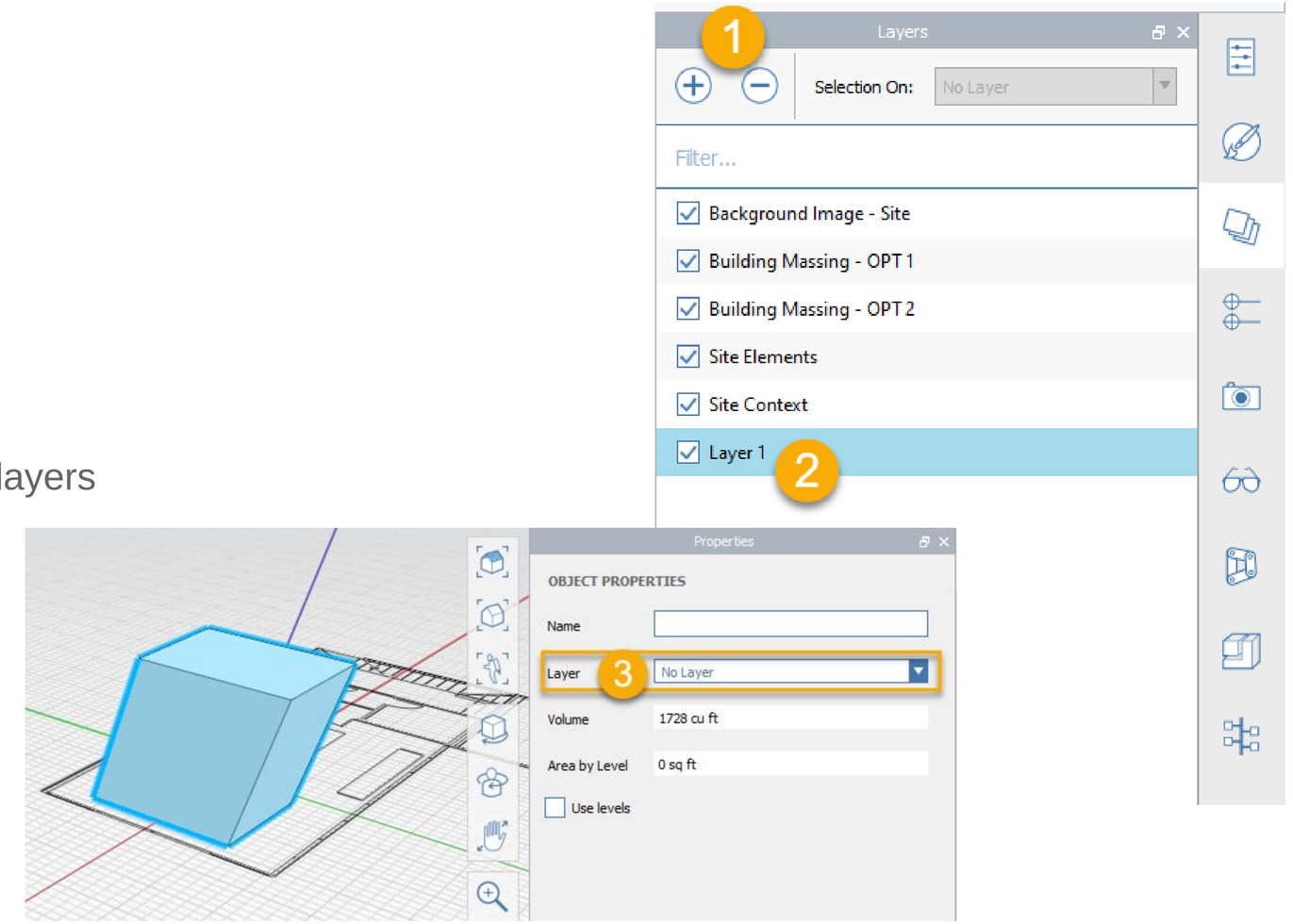
# LAYERS

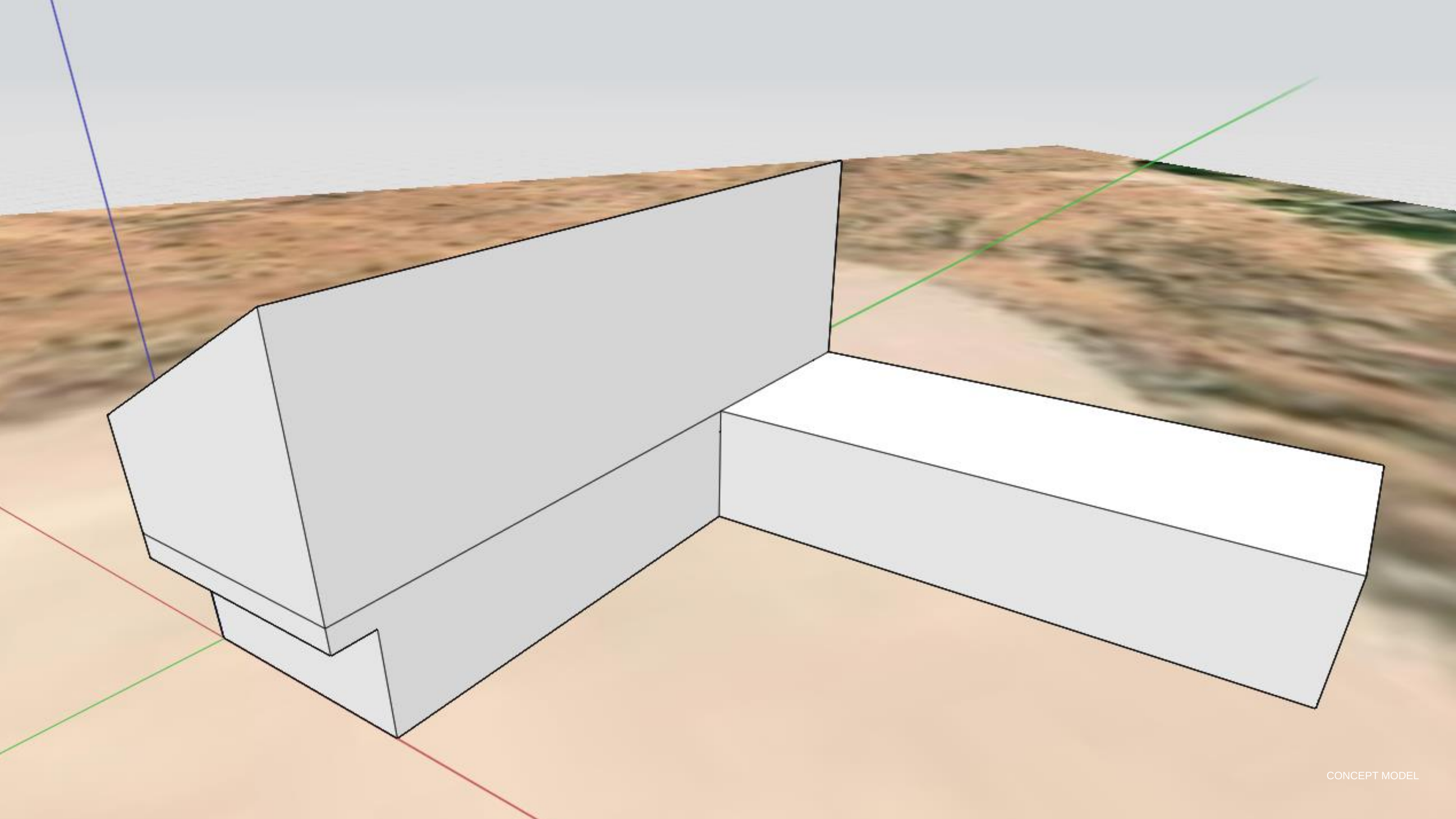
## BENEFITS OF LAYERS

- Helps Keep Model Organized
- Allows for Multiple Design Options
- Similar Logic to AutoCAD Layers

## ADDING LAYERS

- Click the + or – to create or delete layers
- Give the Layer a Name
- Add Object to Layer



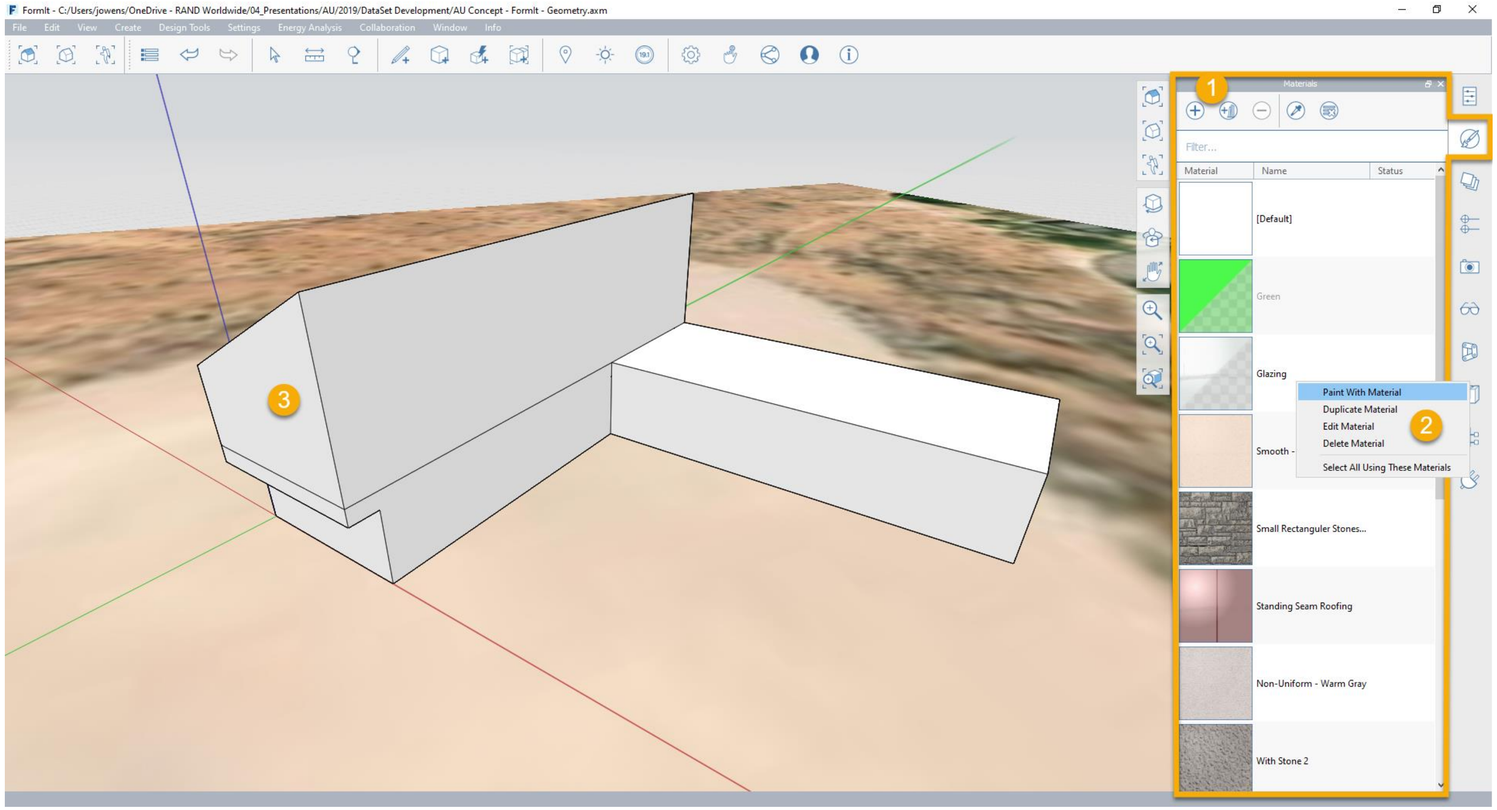

CONCEPT MODEL

# DEVELOPING THE CONCEPT

# MATERIALS

## FORMIT MATERIALS

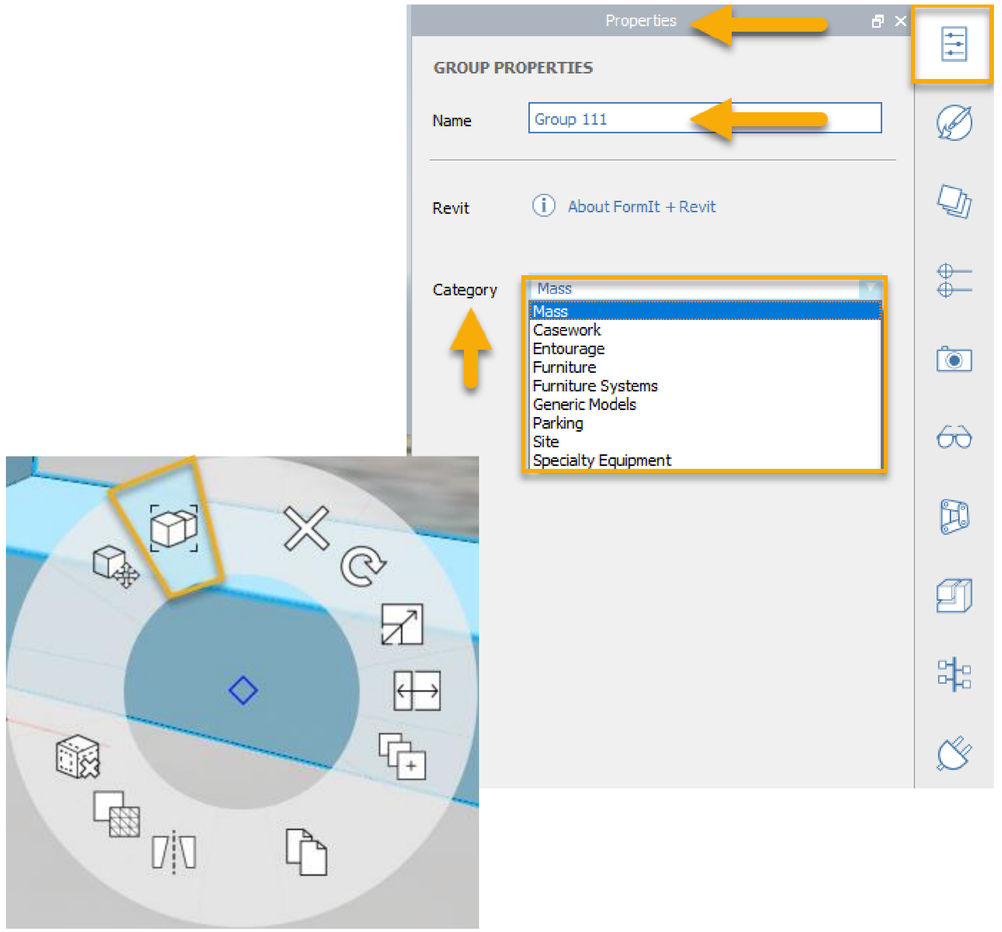
- Uses Autodesk Material Library
- Custom Materials
- Easy Paint Application
- Apply to Individual Surfaces
- Apply to Whole Group

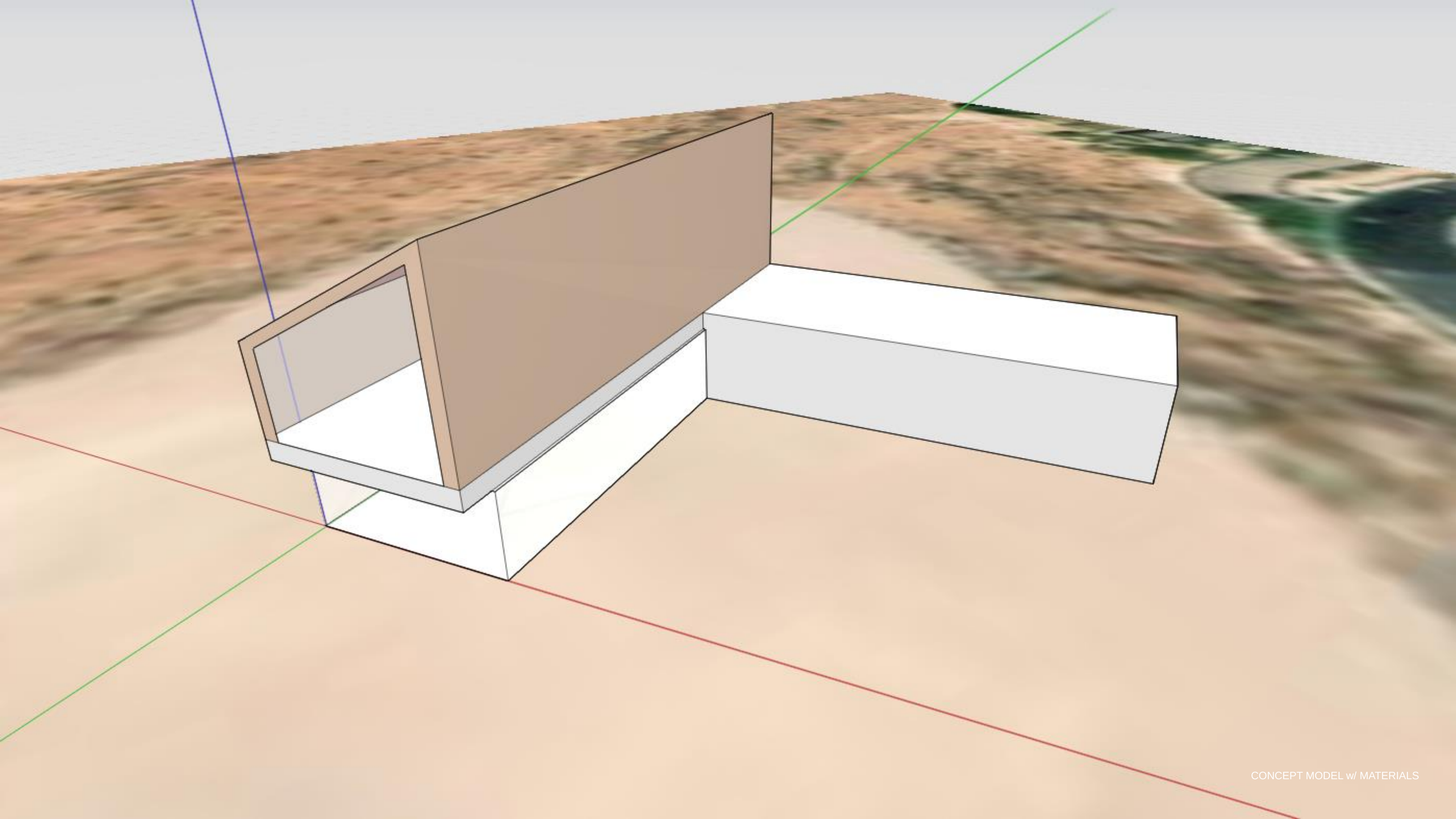


# MODEL GROUPS

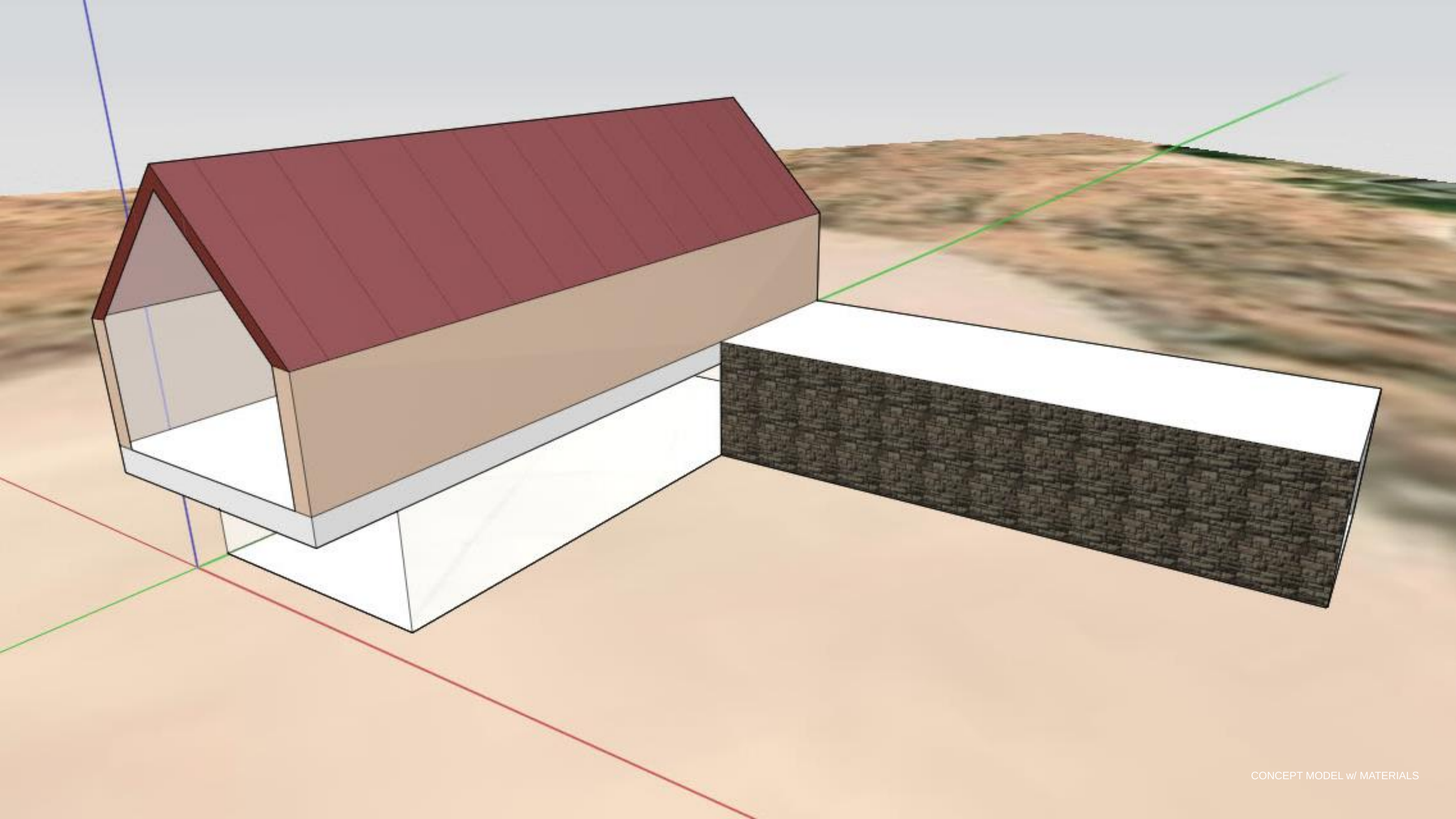
## GROUP BENEFITS

- Aids in Organizing Model
- Creating Repeating Parts
- Ability to Assign Revit Category





CONCEPT MODEL w/ MATERIALS

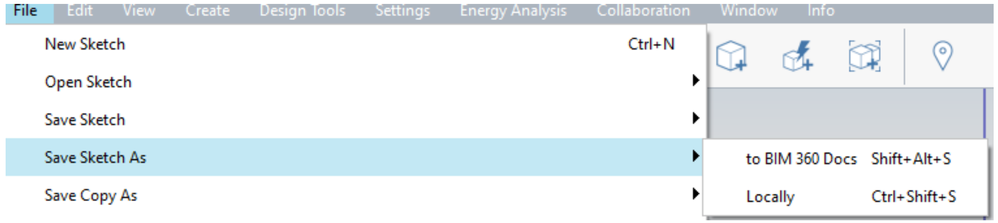


CONCEPT MODEL w/ MATERIALS

# Handing off the Model

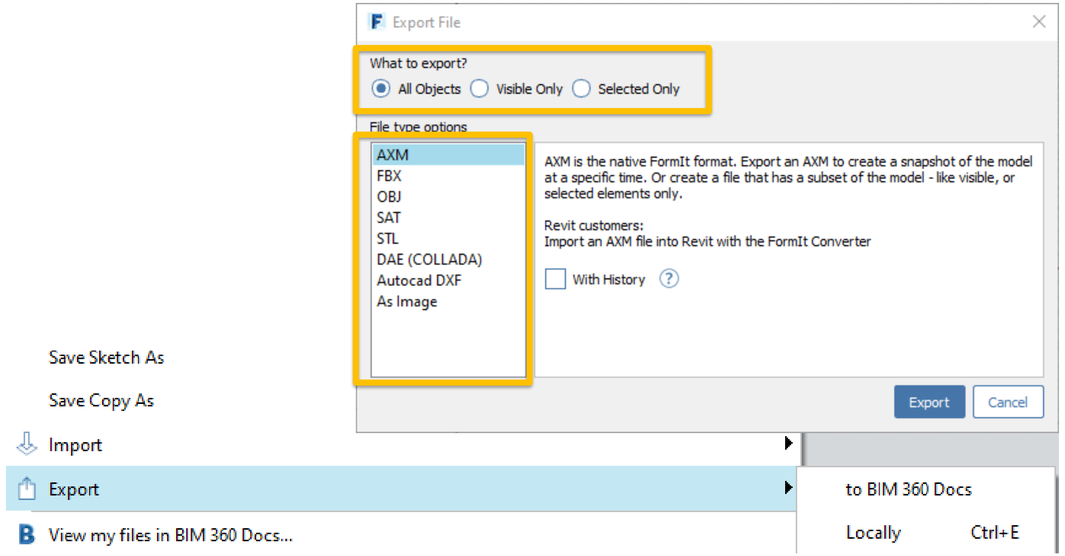
## SAVING FORMIT MODEL

- .axm file type
- Locally or BIM 360 DOCs




## EXPORTING 3D MODEL

- Many Different File Types
- Ability to Export All or Some
- FBX works best for InfraWorks



# FORMIT -> INFRAWORKS

# Benefits of Using InfraWorks

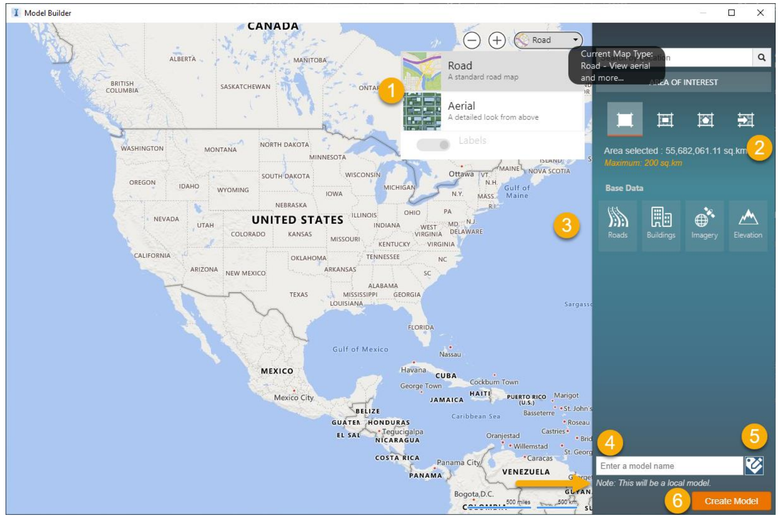
Using Autodesk InfraWorks for visualizing Designs within Surrounding Context.

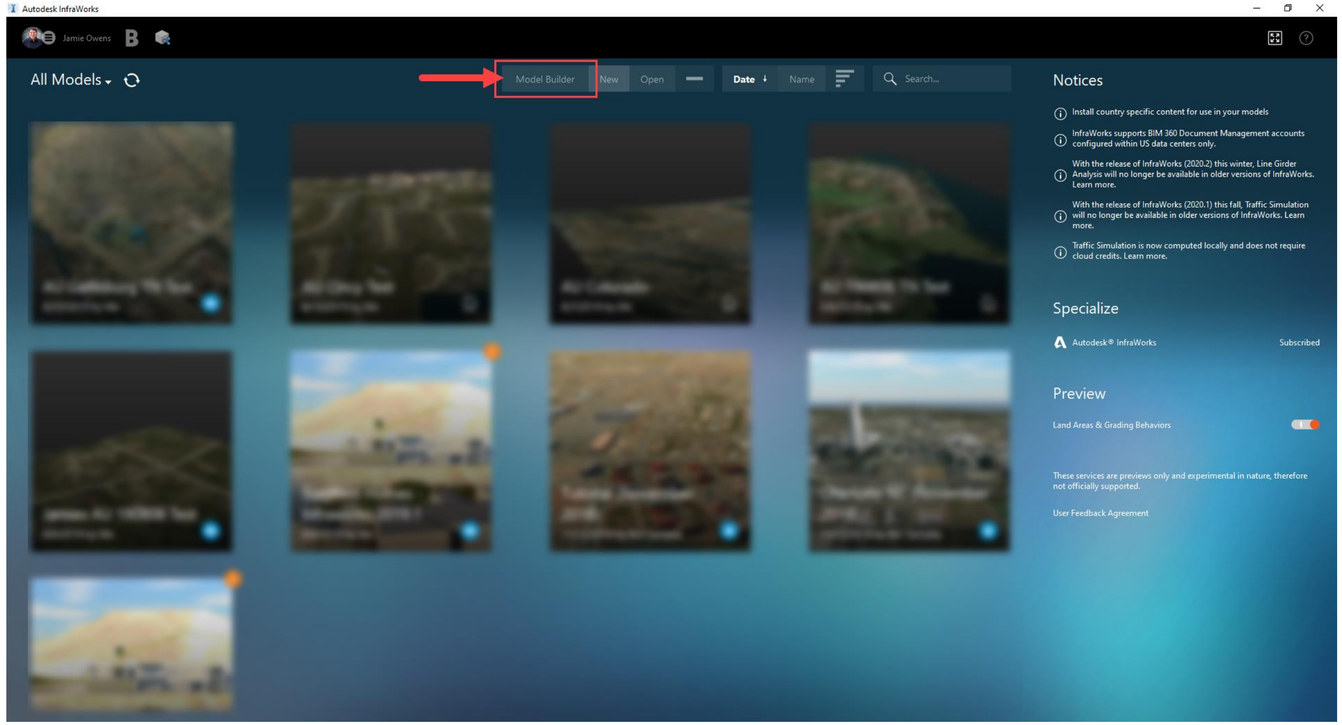
- Ability to use GIS data to generate topography.
- Use Map Data to generate Roads, Bridges, Waterways
- Generate Public Buildings Based on Rule Styles
- Import Outside Data Sources
- Visualize Multiple Design Concepts in Context
- Ability to Store Models Locally or Cloud

# MODEL SETUP

## MODEL BUILDER

- Identify Area of Interest (AOI)
- Import Open Map Data
- Generate Public Buildings
- Generate Roadways

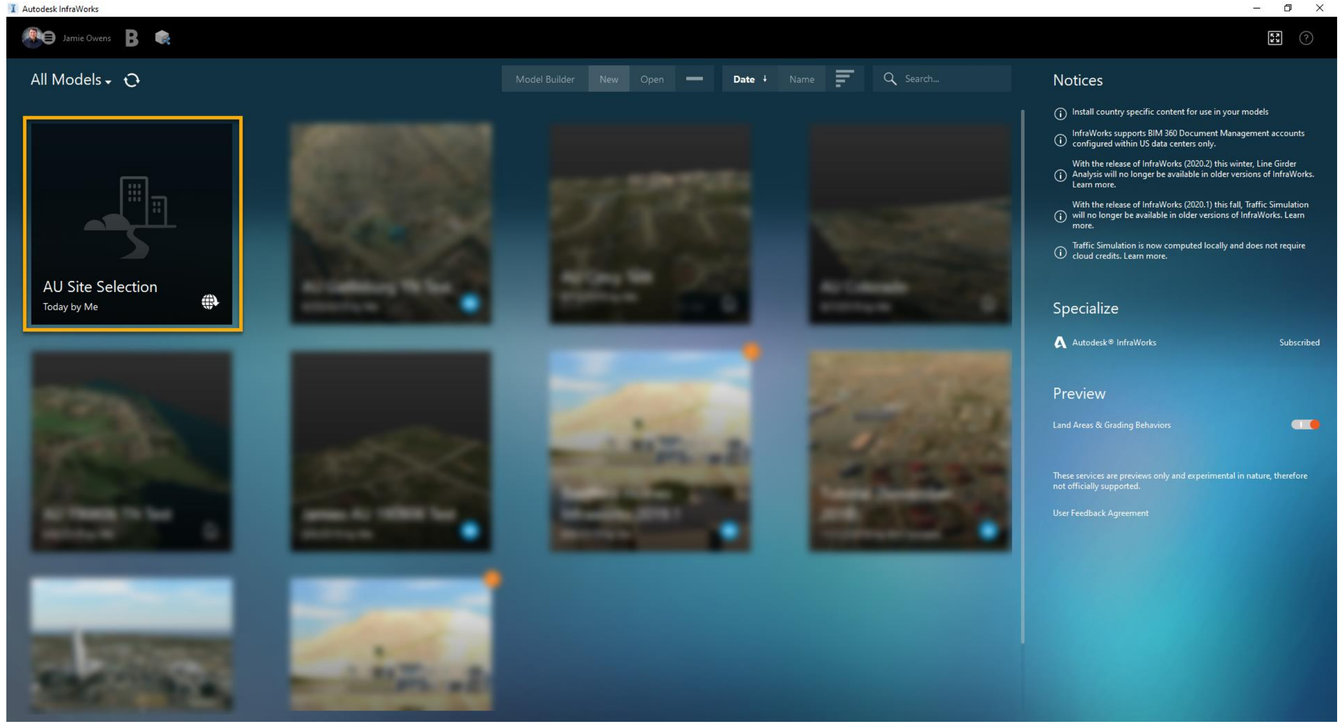


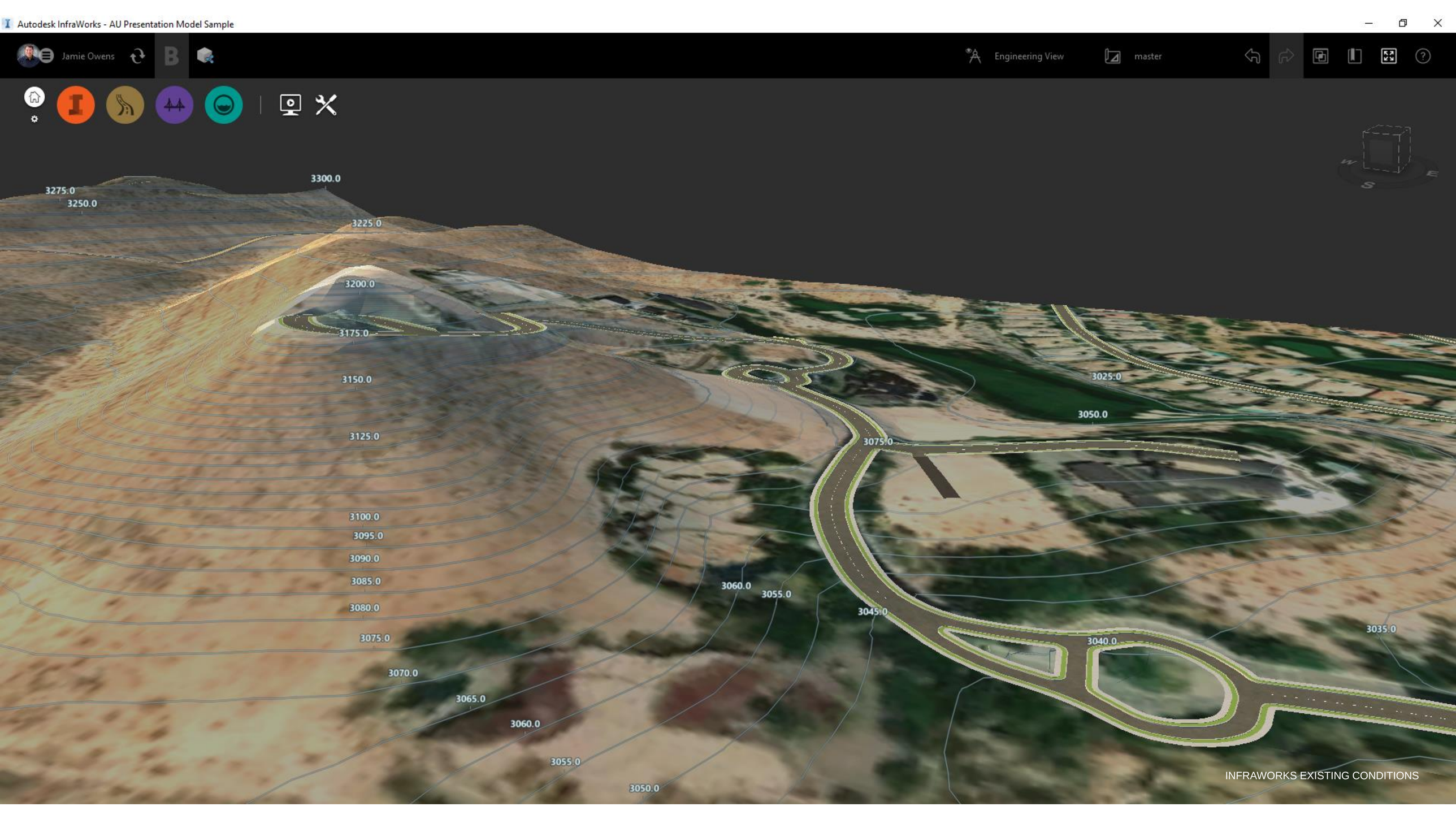



# MODEL SETUP

## BUILD INFRAWORKS MODEL

- Uses Model Builder Model
- Downloads Model to Build Existing Conditions




Autodesk InfraWorks - AU Presentation Model Sample
Jamie Owens
Engineering View
master
3300.0
3275.0
3250.0
3225.0
3200.0
3175.0
3150.0
3125.0
3100.0
3095.0
3090.0
3085.0
3080.0
3075.0
3070.0
3065.0
3060.0
3055.0
3050.0
3025.0
3050.0
3075.0
3060.0
3055.0
3045.0
3040.0
3035.0
INFRAWORKS EXISTING CONDITIONS

# InfraWorks Design Proposals

## MASTER PROPOSAL

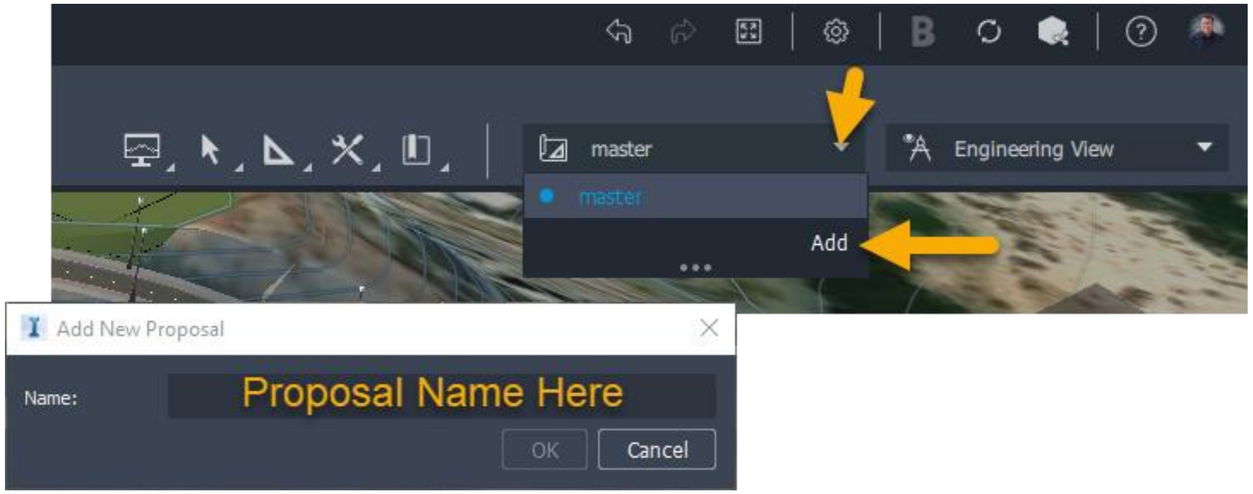
- Default Proposal from Initial Model Build
- Maintain for Future Reference

## EXISTING CONDITIONS

- Add Any Additional Existing Context

## NEW PROPOSALS

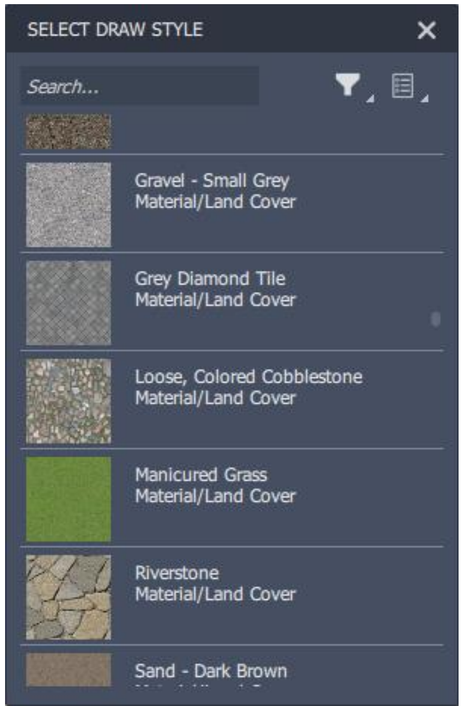
- Create New Proposals for Each Concept
- Add Additional Context for Each Concept
- Create After Existing Conditions

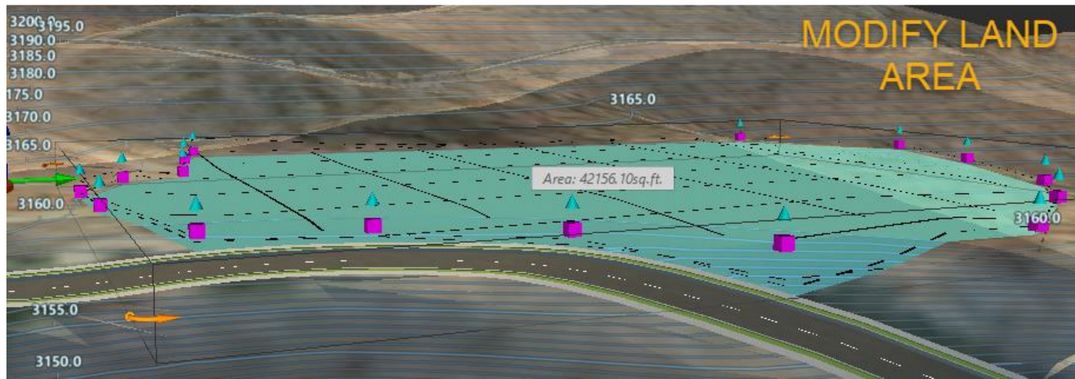


# EXISTING CONDITIONS

## LAND AREAS

- Add Specific Area Types
  - Grass
  - Pavers
  - Drives

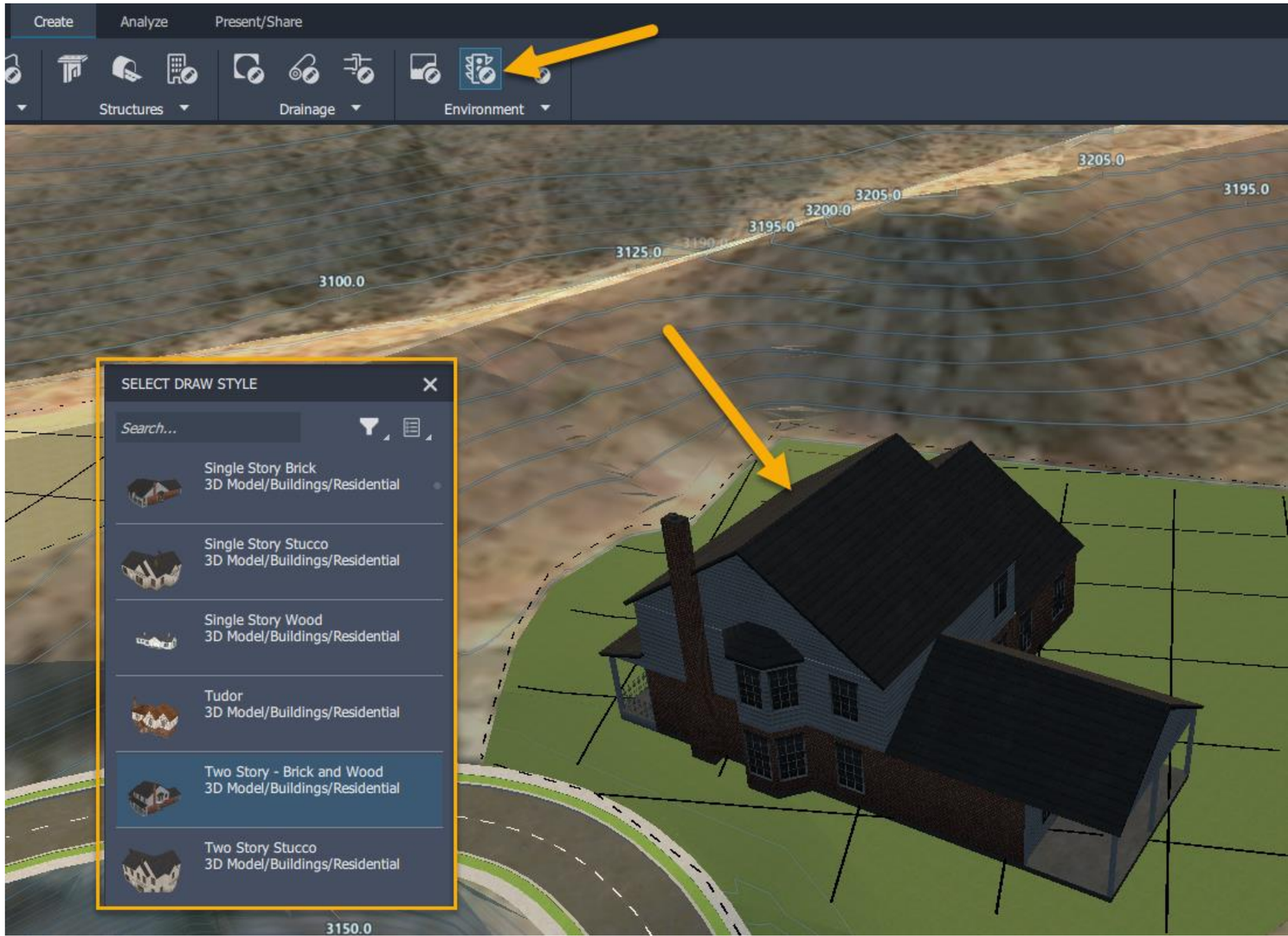




# EXISTING CONDITIONS

## ADDITIONAL BUILDINGS

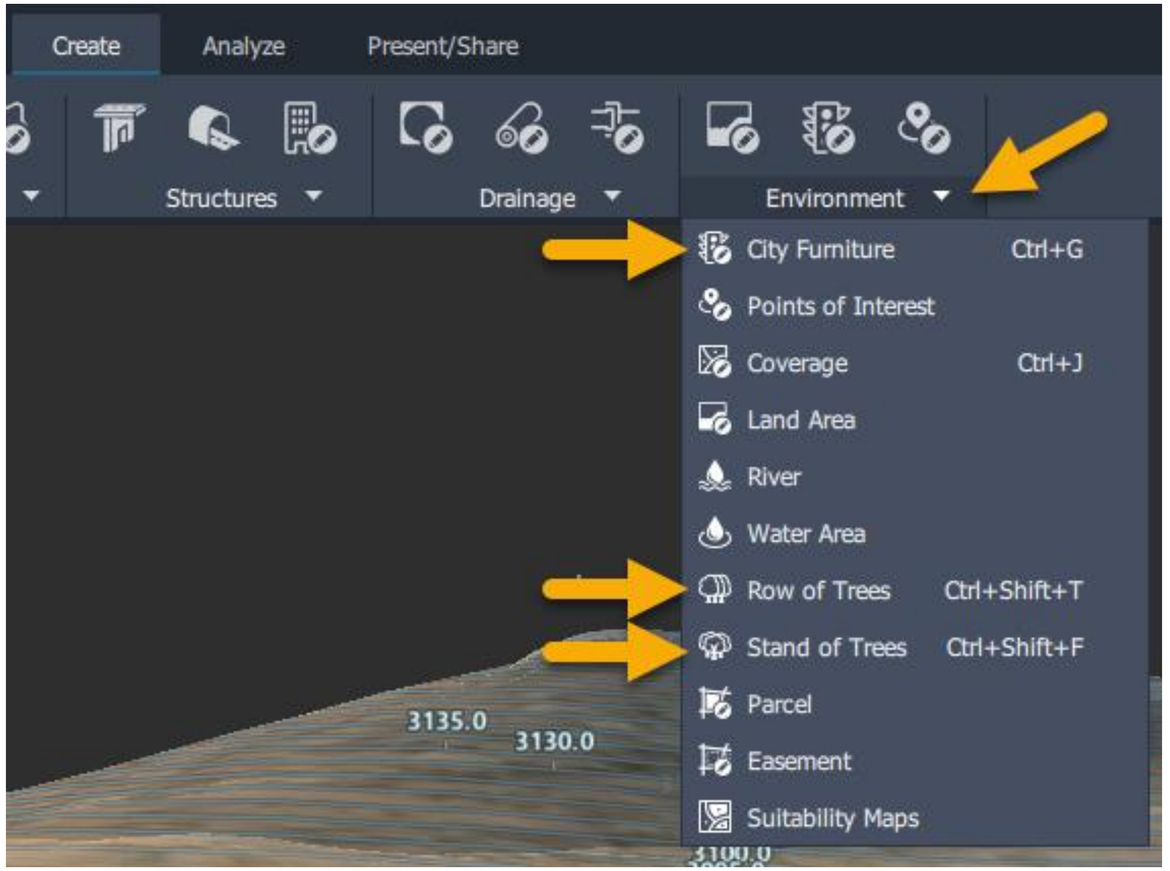
- Add Residential Houses
  - Residential Does Not Auto Generate
- Surrounding Buildings as Needed
- Includes Some Houses
- Use Imported Geometry

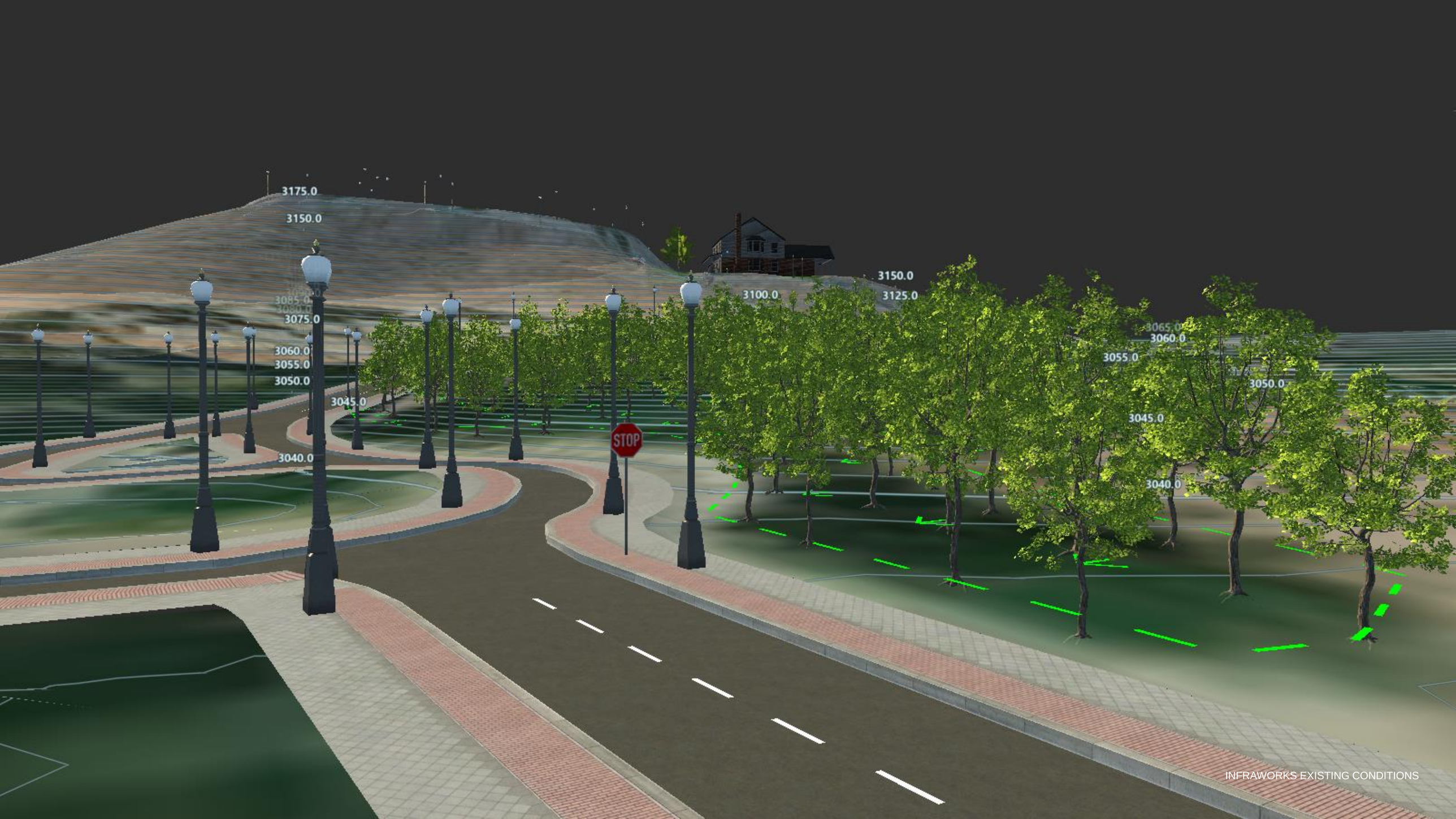


# EXISTING CONDITIONS

## SITE FURNISHINGS

- Add Signage
- Rows or Stand of Trees
- Water Areas (Lakes, Rivers, Pond)



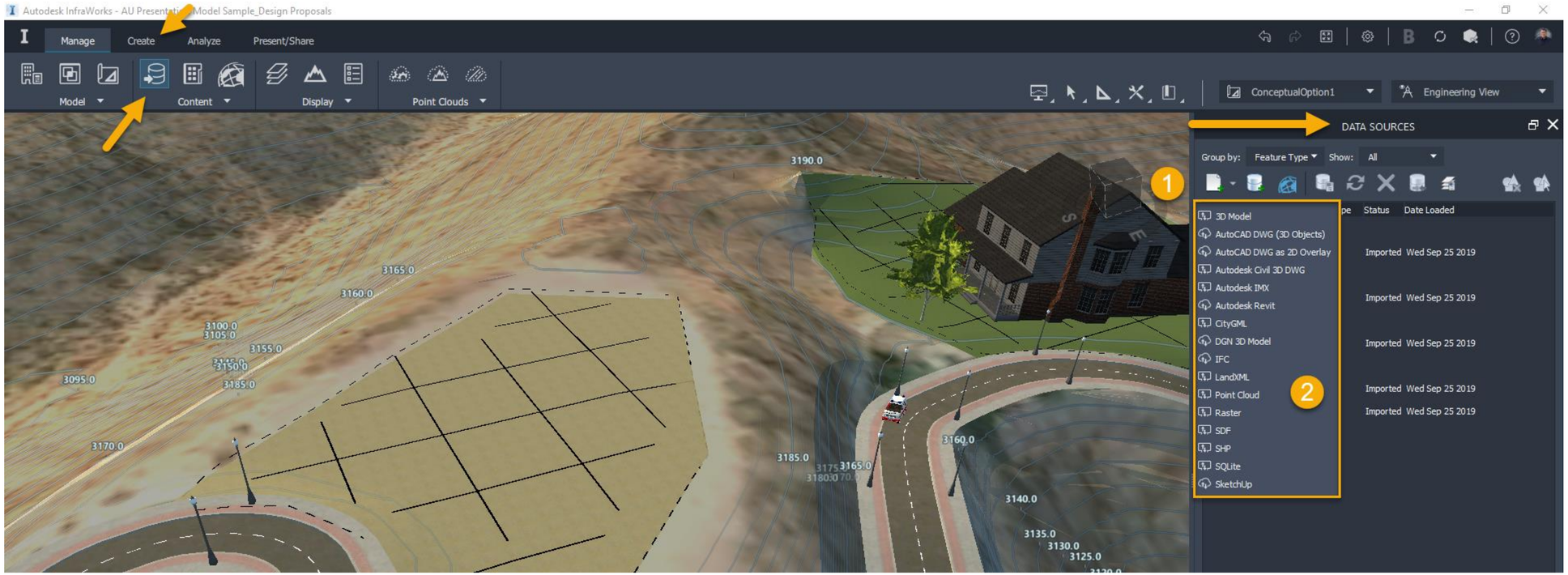



INFRAWORKS EXISTING CONDITIONS

# Design Concept Proposals

## IMPORTING  DESIGN MODELS

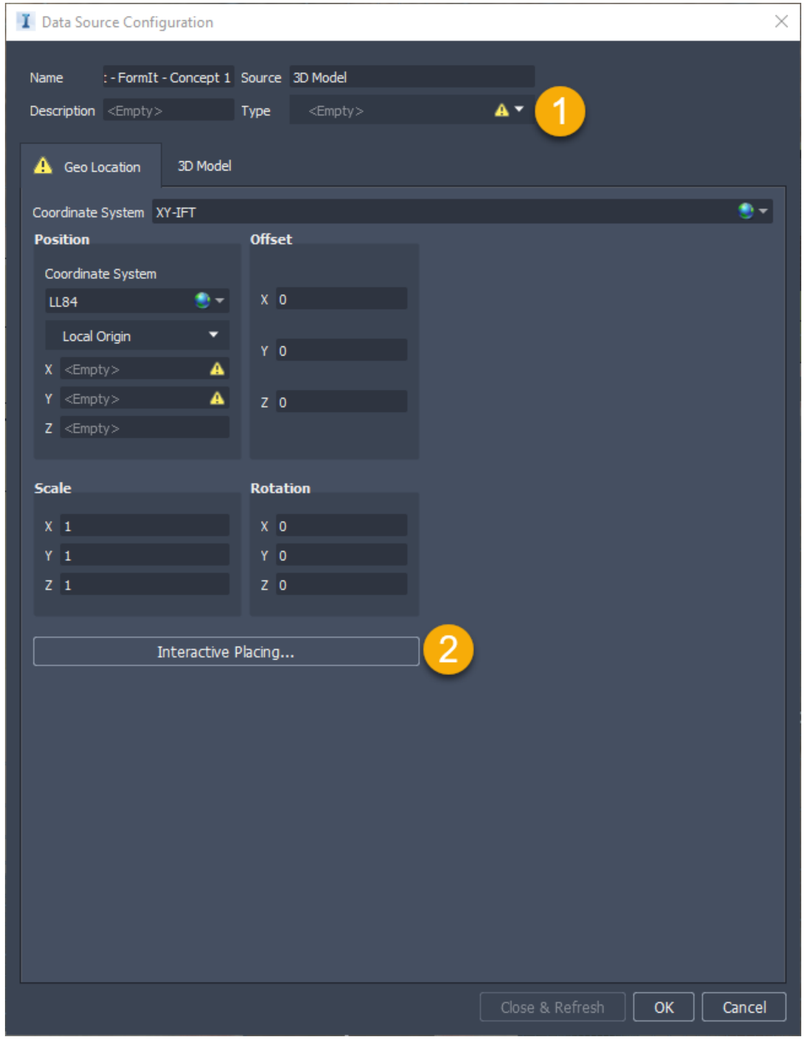
- Add Data Source for Each Design
- Multiple Different Source Options
- 3D Model for FBX, Revit for Revit



# Design Concept Proposals

## CONFIGURE  DESIGN MODELS

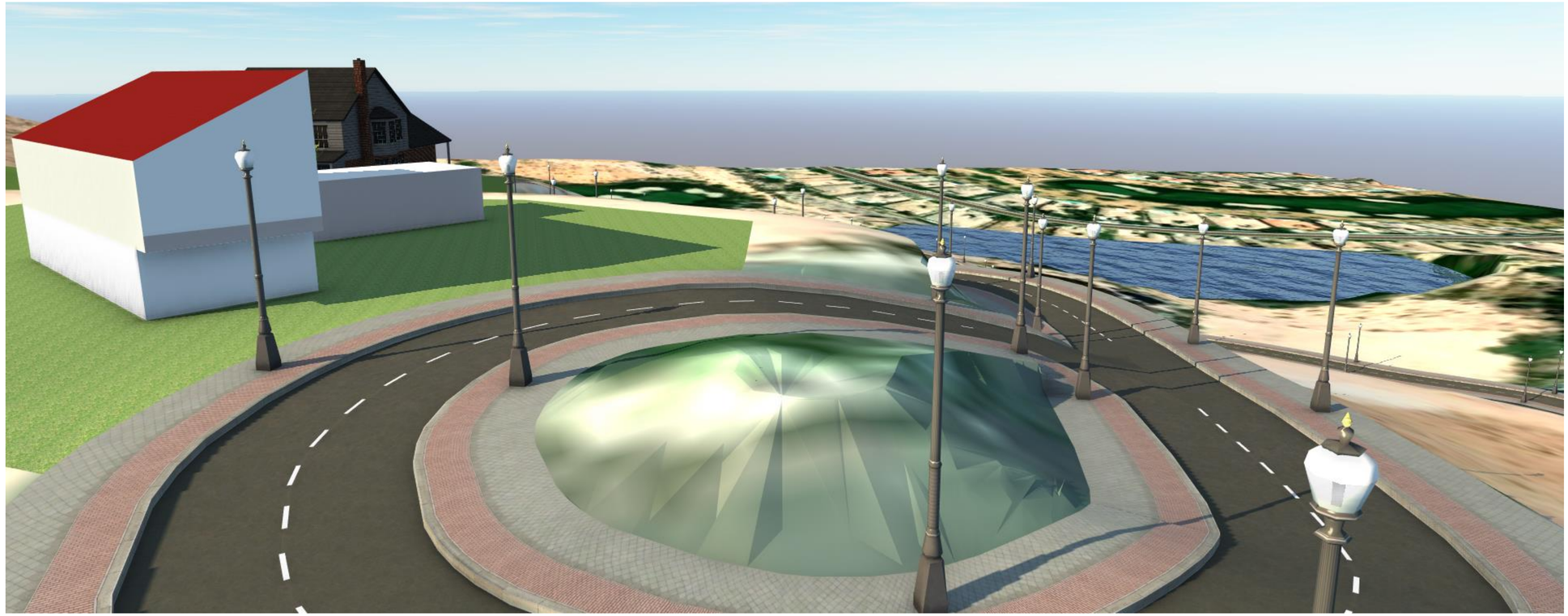
- Set Data Source Type: Building
- Ability to See Data Source in Configuration Panel
- Model Location: Interactive Placing

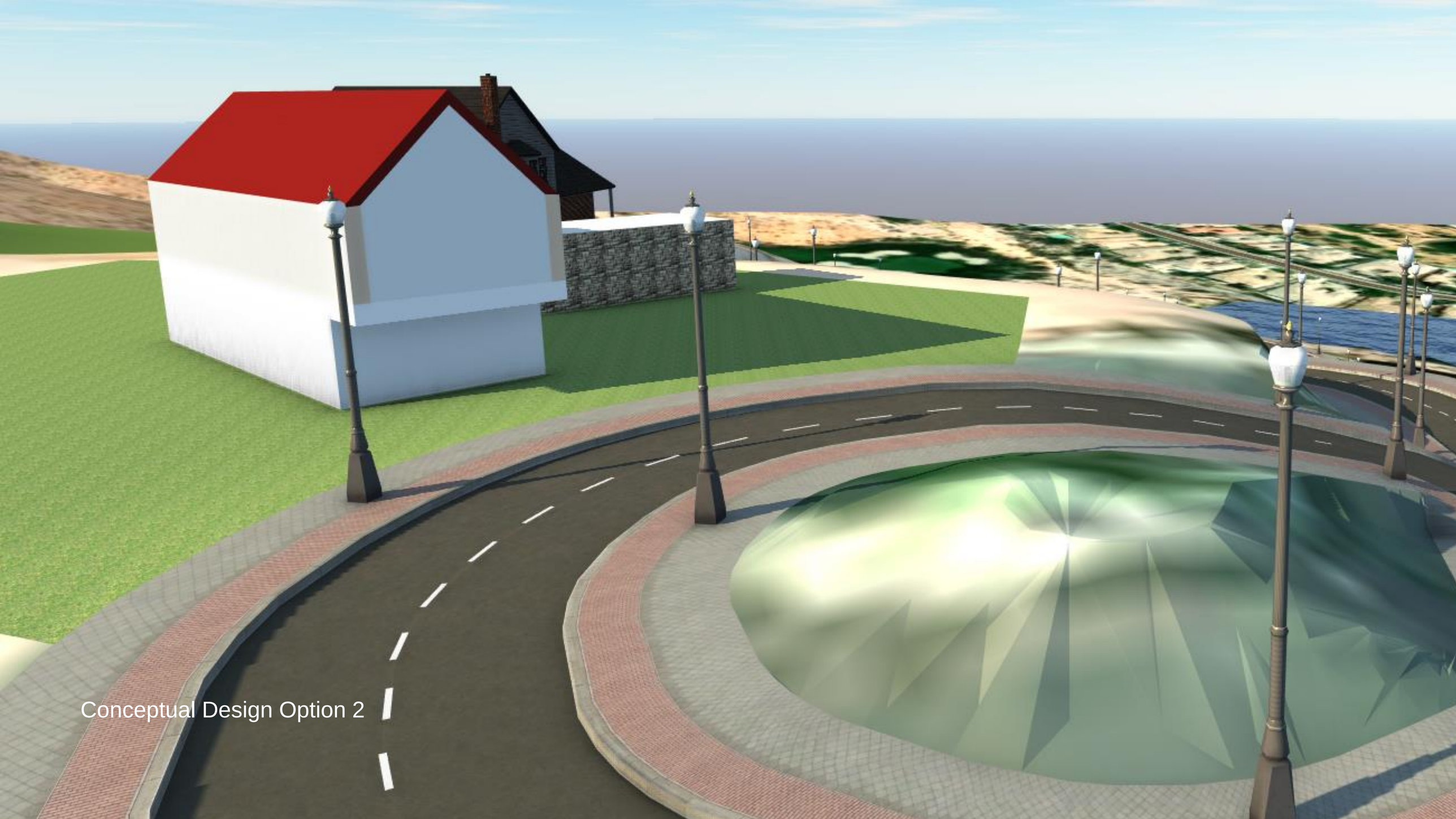


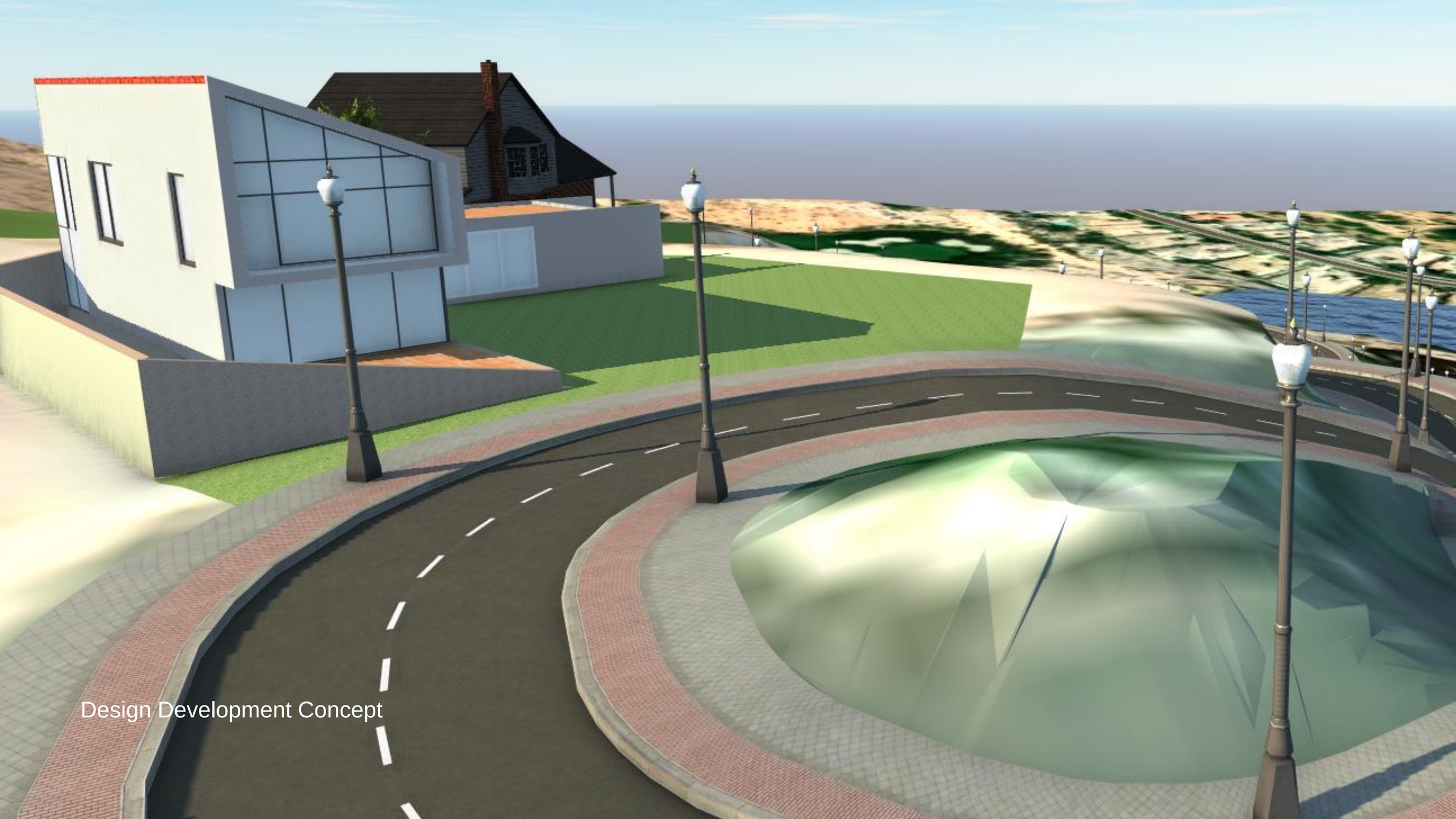
# Design Concept Proposals

## ADDITIONAL DESIGN ELEMENTS

- Land Use Areas
- Site Furnishings
- Plantings




Conceptual Design Option 2

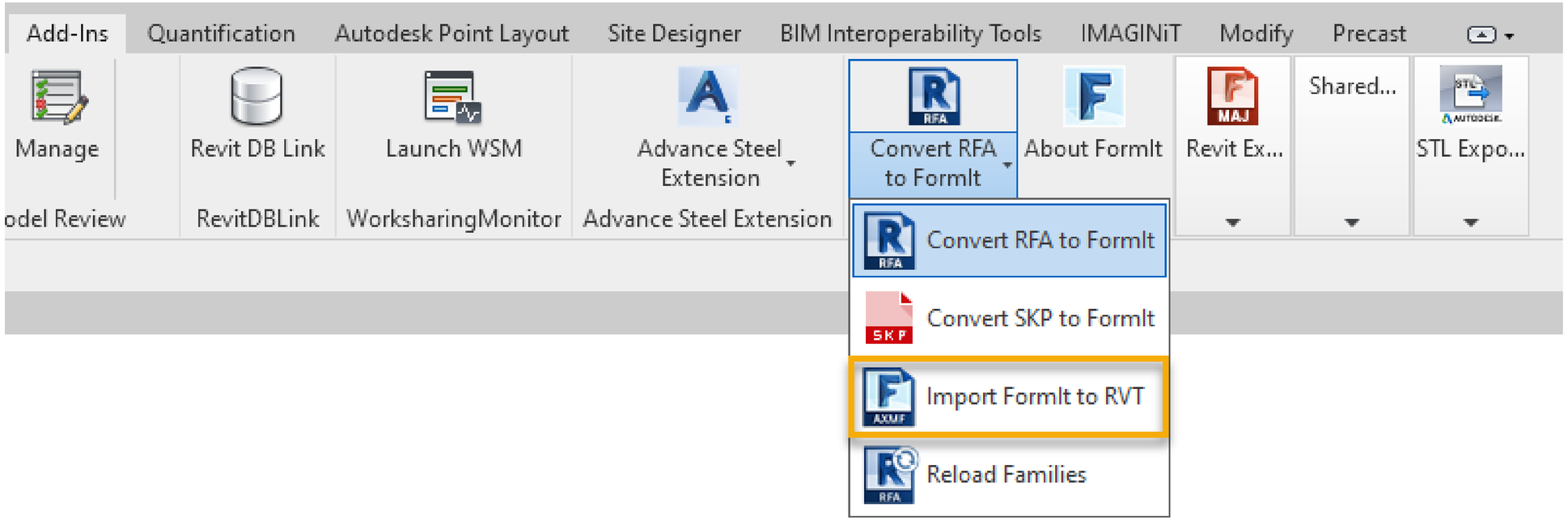

Design Development Concept

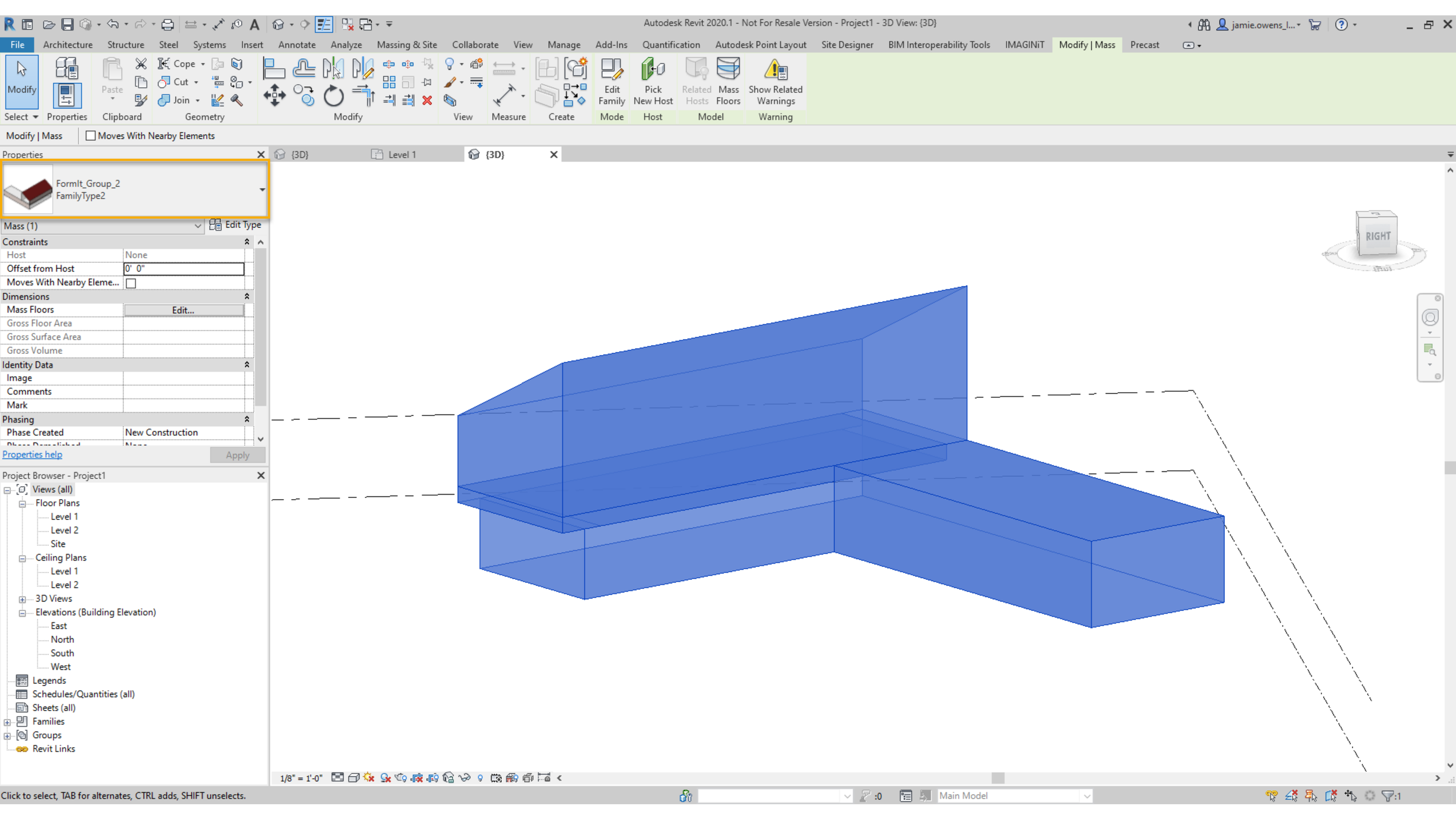
# FORMIT -> REVIT

# Furthering the Model

## ENHANCING THE DESIGN MODEL

- Model using Revit Families
- Enhance Design for Documentation
- Use FormIt Add-in for Revit




Autodesk Revit 2020.1 - Not For Resale Version - Project1 - 3D View: {3D}
File
Architecture
Structure
Steel
Systems
Insert
Annotate
Analyze
Massing & Site
Collaborate
View
Manage
Add-Ins
Quantification
Autodesk Point Layout
Site Designer
BIM Interoperability Tools
IMAGINiT
Modify | Mass
Precast
Modify
Select
Properties
Paste
Clipboard
Cope
Cut
Join
Geometry
Modify
View
Measure
Create
Edit Family
Mode
Pick New Host
Host
Related Hosts
Mass Floors
Model
Show Related Warnings
Warning
Modify | Mass
Moves With Nearby Elements
Properties
FormIt_Group_2
FamilyType2
Mass (1)
Edit Type
Constraints
Host
None
Offset from Host
0' 0"
Moves With Nearby Eleme...
Dimensions
Mass Floors
Edit...
Gross Floor Area
Gross Surface Area
Gross Volume
Identity Data
Image
Comments
Mark
Phasing
Phase Created
New Construction
Properties help
Apply
Project Browser - Project1
Views (all)
Floor Plans
Level 1
Level 2
Site
Ceiling Plans
Level 1
Level 2
3D Views
Elevations (Building Elevation)
East
North
South
West
Legends
Schedules/Quantities (all)
Sheets (all)
Families
Groups
Revit Links
{3D}
Level 1
{3D}
RIGHT
1/8" = 1'-0"
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.
Main Model

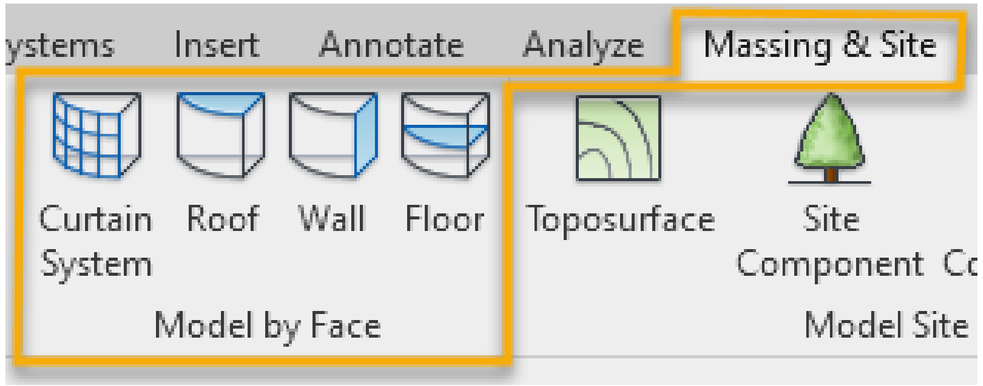
# Building the Revit Model

## MODELING BY FACE

- Model Walls, Floors, Roofs and Curtain Systems
- Quickly Generate Revit Building

## DOWNSIDES OF BY FACE

- Need to use Simplified Model
- Avoid Windows and Doors in Concept Model
- Join Geometry can be Sensitive



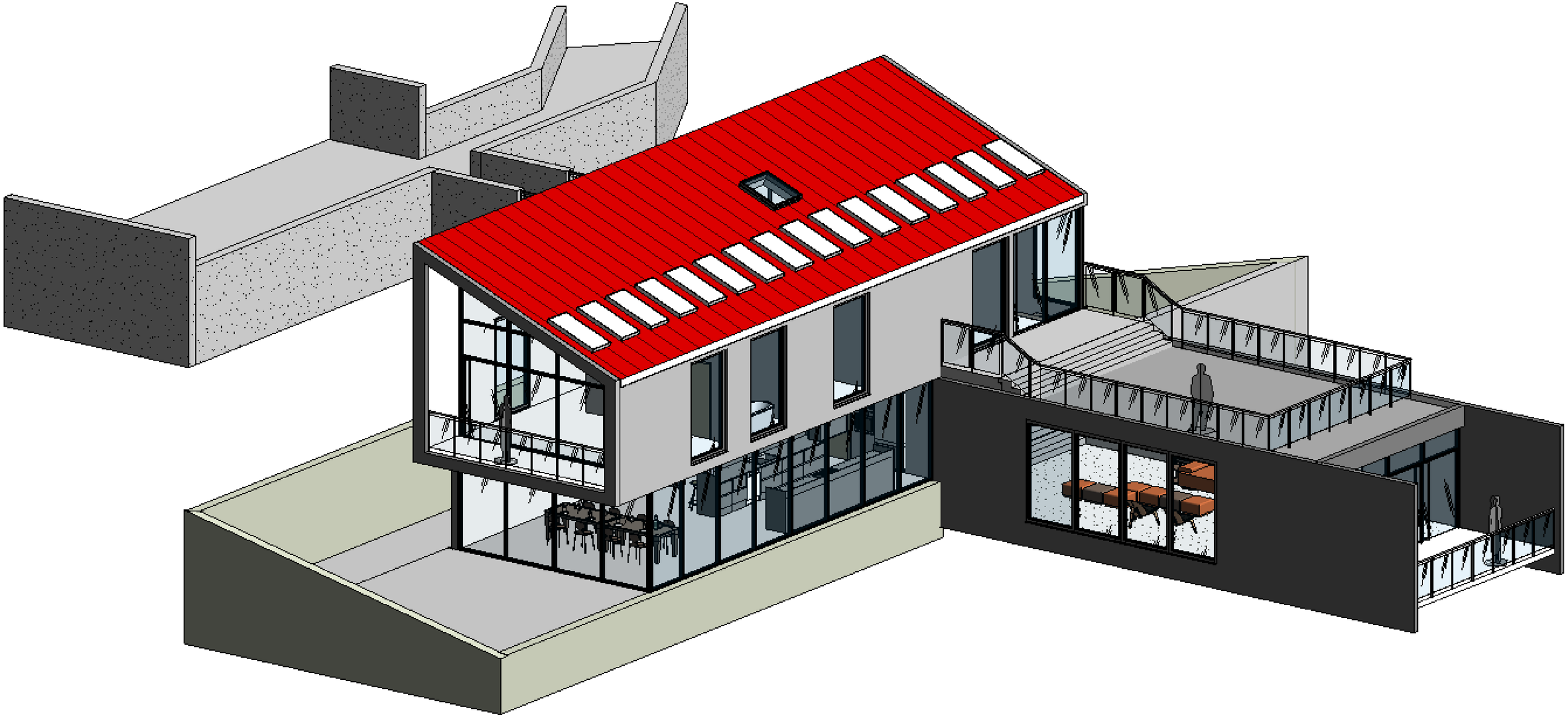
# Enhancing the Revit Model

## MATERIALS

- Apply Materials as Desired

## ENTOURAGE

- Add Furniture
- Add Hardscapes
- Add Softscapes



# REVIT -> INFRAWORKS

# VISUALIZING REVIT IN INFRAWORKS

## REVIT HAND-OFF TO INFRAWORKS

- Save Revit Model with Intended Geometry

## IMPORT REVIT INTO INFRAWORKS

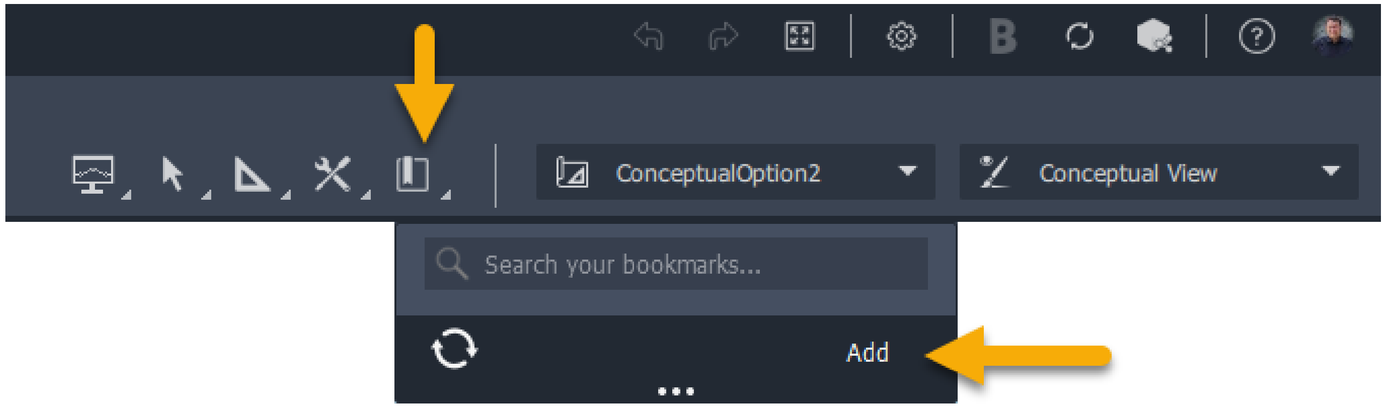
- Create Design Proposal
- Add Data Source
- Configure Data Source

# VISUALIZING THE DESIGNS

# VISUALIZING

## INFRAWORKS BOOKMARKS

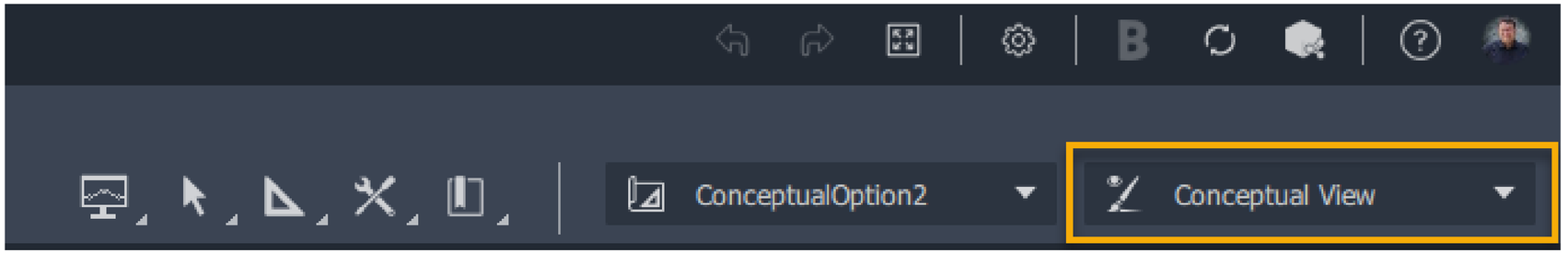
- Create Save Points for Visuals
- Can be used between Proposals



# VISUALIZING

## INFRAWORKS VISUAL STYLES

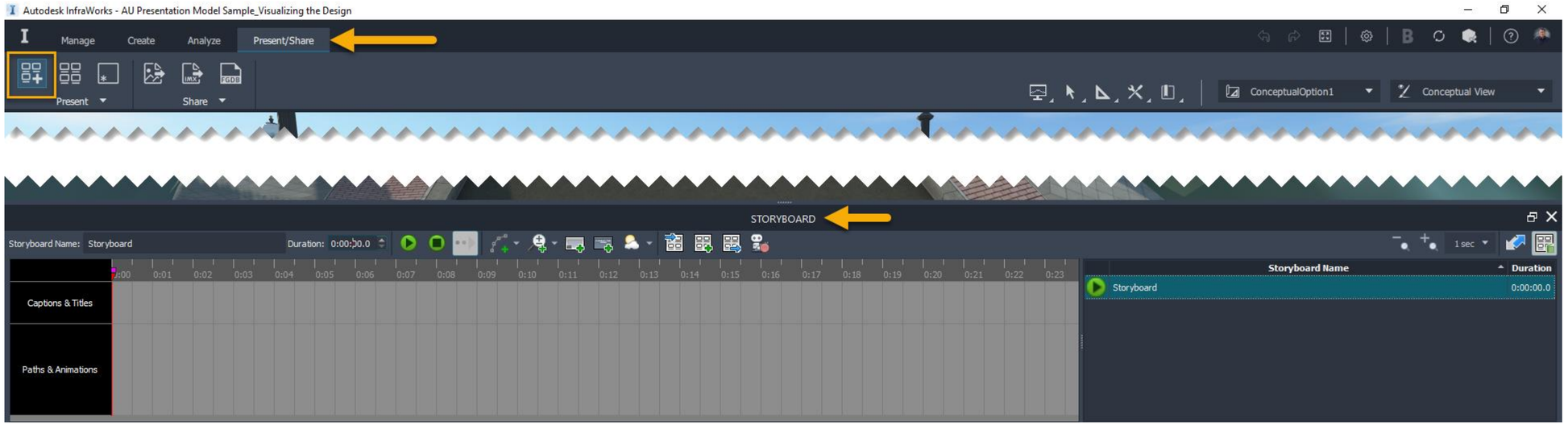
- Default Engineering and Conceptual
- Create Custom for Different Graphics



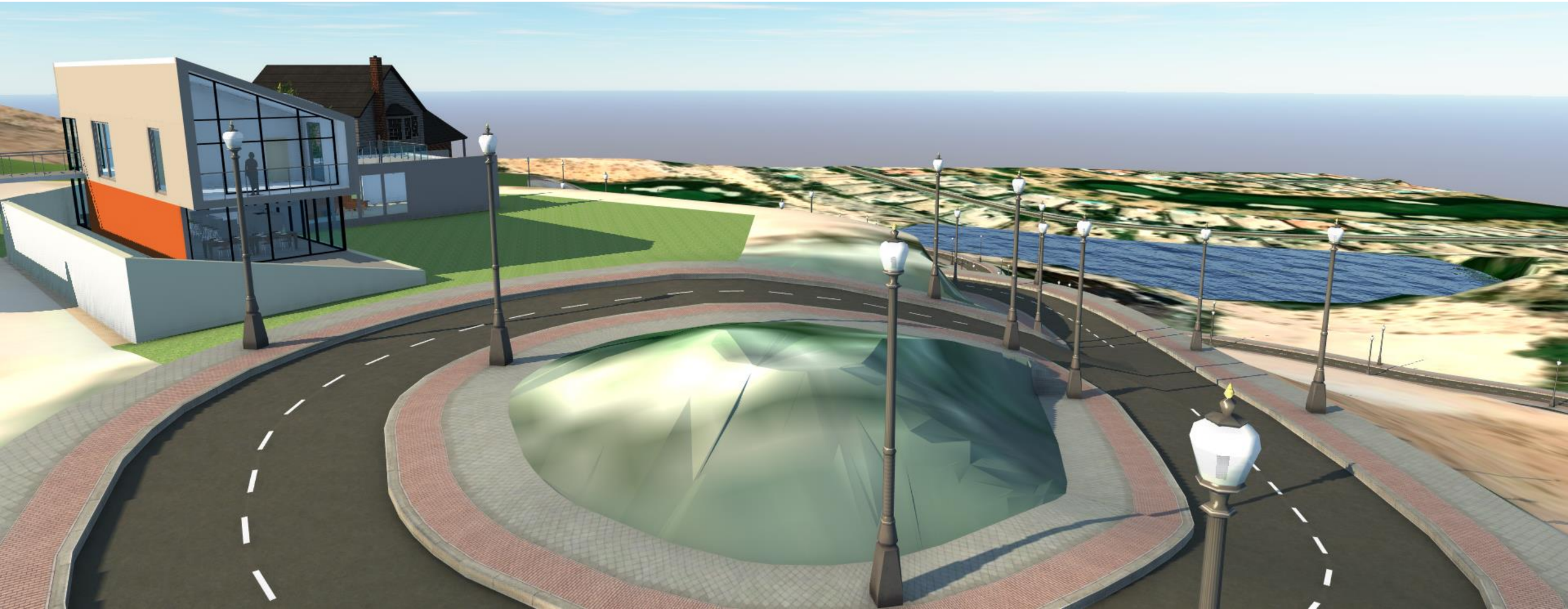
# VISUALIZING

## INFRAWORKS STORYBOARDS

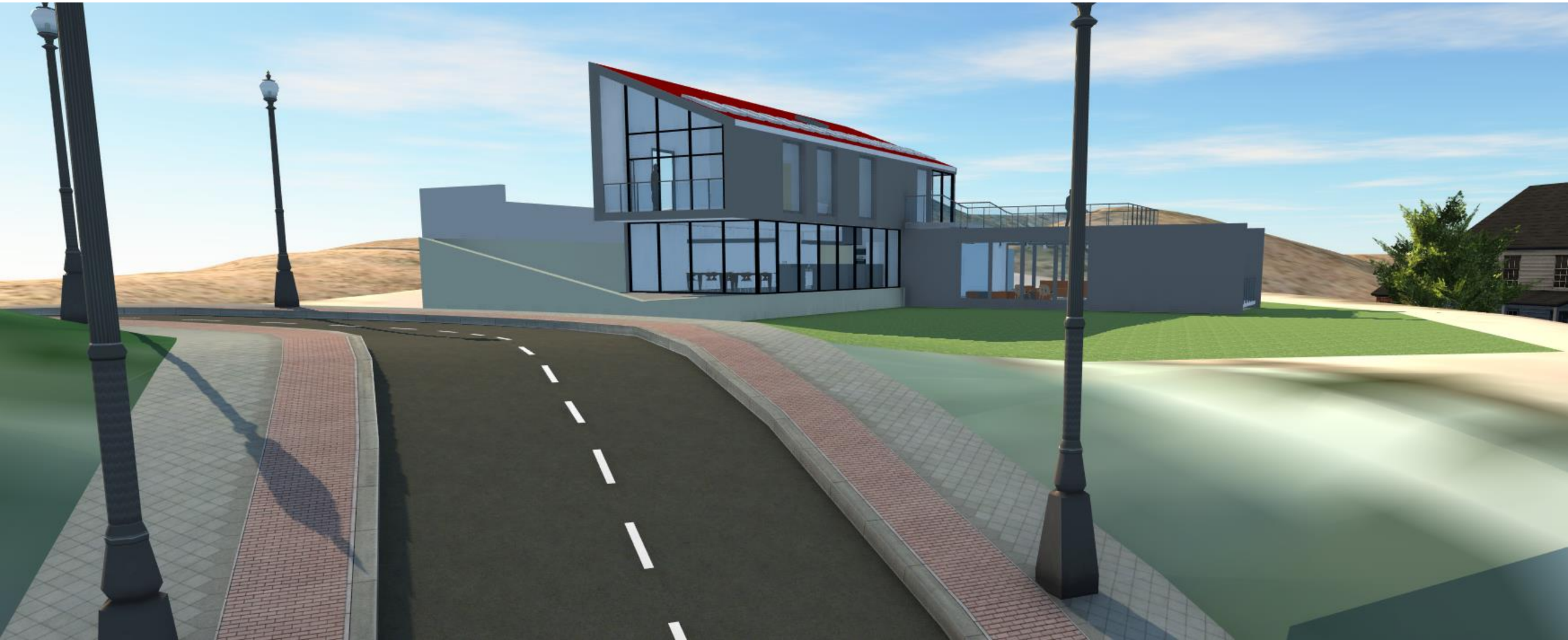
- Create Animations
- Use Street Data to Control Camera
  - Speed
  - Traffic Regulations (Stop Signs, etc.)
- Add in Bookmarks



# FINAL SHOTS



# FINAL SHOTS



# THANK YOU!

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