CES500155
Subway Railway: Tunneling and Underground Stations with AEC Collection

Rad Lazic, ME Civil
Rad Lazic Consulting Inc.
rad@radlazic.com

Learning Objectives

- Learn how to use Civil 3D stock and custom subassemblies to design railway tracks, tunnels and station Corridors.
- Learn how to use custom families in Revit for design coordination.
- Learn how to use AutoCAD Civil 3D, Revit and Dynamo scripting to coordinate track Alignment design with an underground station.

Description

Expand your understanding of Autodesk AEC Collection software for Urban Subway design. Learn how to use customized content in both AutoCAD Civil 3D and Revit to streamline coordination between design teams of architects, MEP (mechanical, electrical, and plumbing), and civil engineers. This dynamic presentation will teach you how to push the boundaries of the design software into the areas of expanded functionality through simple customization of common content, tailored to support urban subway design projects. This session features AutoCAD Civil 3D, Autodesk Revit, Autodesk Subassembly Composer, Civil 3D Dynamo, Revit Dynamo.

About the Speaker

Rad Lazic is empowering engineering professionals and organizations to succeed with technology implementations for design, visualizations, safety audits and process automation.

Rad's clients consistently succeed in achieving the highest levels of quality and automation through rapid skills development and through building a comfortable and inspiring technological environments that promote creativity, motivate productivity and energize technical teams in the workplace environment. Rad is connecting with diverse and large audiences through public speaking at technical and engineering conferences, delivering presentations with high technical impact and professional values. Rad delivers very well recognized online training courses and continues to be a sought after presenter of Autodesk software and vision of technology.

LET'S TAKE A LOOK AT THE EXAMPLE MODEL

How to keep Civil 3D Rail Tracks Alignment and tunnels changes synchronized with the Revit model of undergraound station?
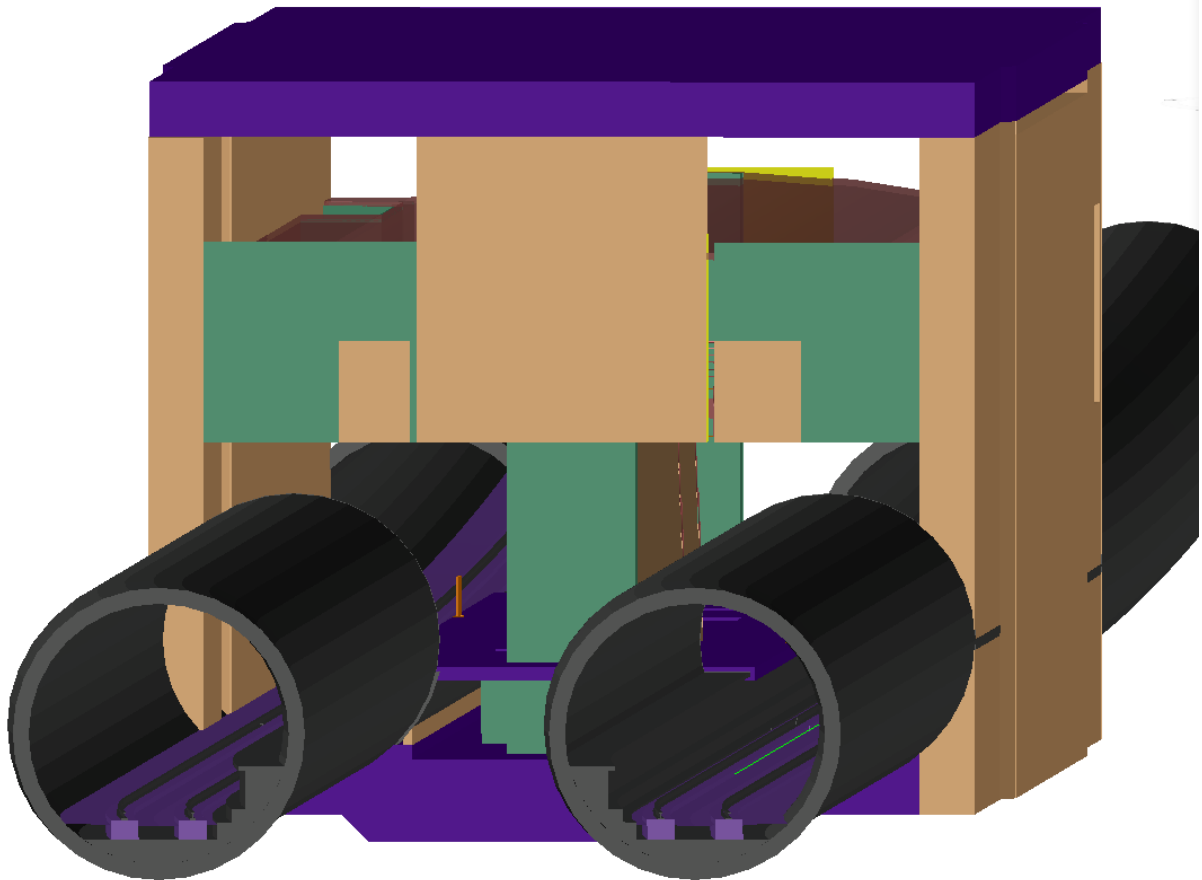
Civil 3D stock and custom Subassemblies

- STOCK SUBASSEMBLIES HAVE SUFFICIENT DETAIL AND FLEXIBILITY
- THEY WILL NEED SOME FINE TUNNING TO FIT IN YOUR PROJECTS
- THEY WILL <u>NOT</u> HAVE **ALL** PROPERTIES FOR EVERY DESIGN CASE

AUTODESK UNIVERSITY

ENTER THE AUTODESK SUBASSEMBLY COMPOSER
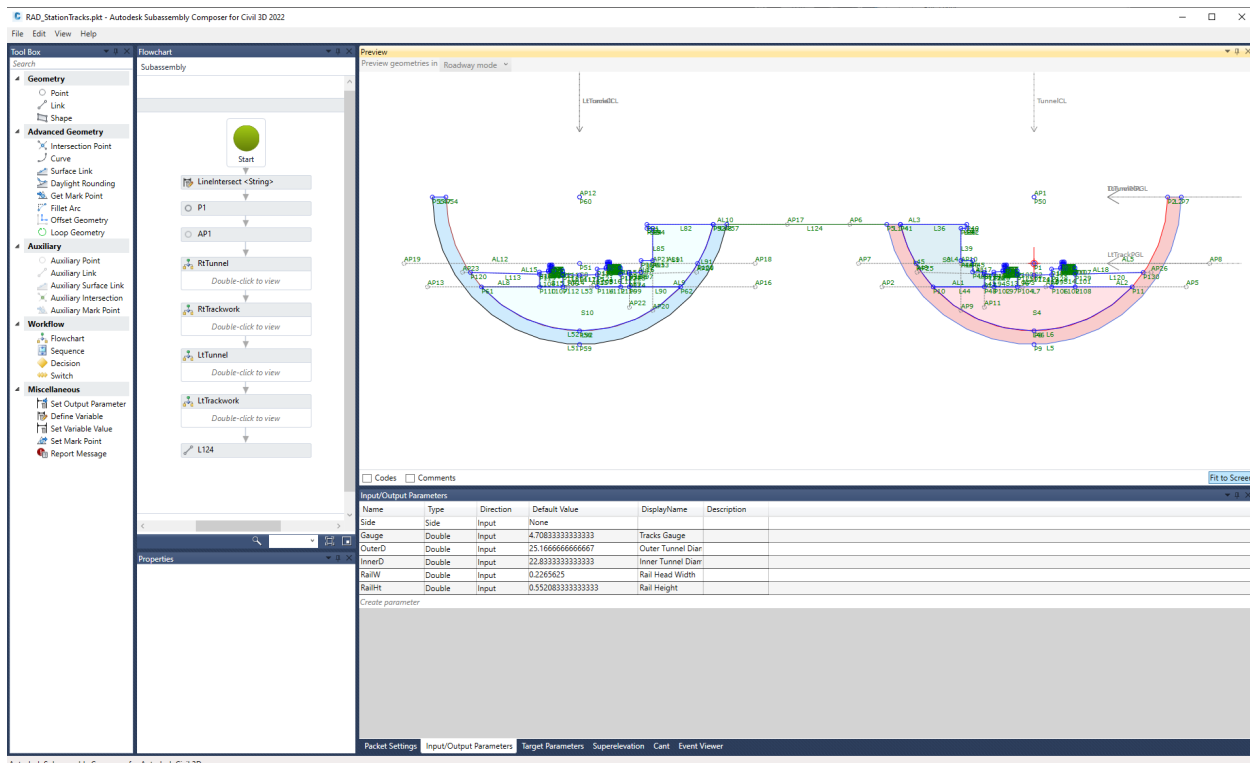
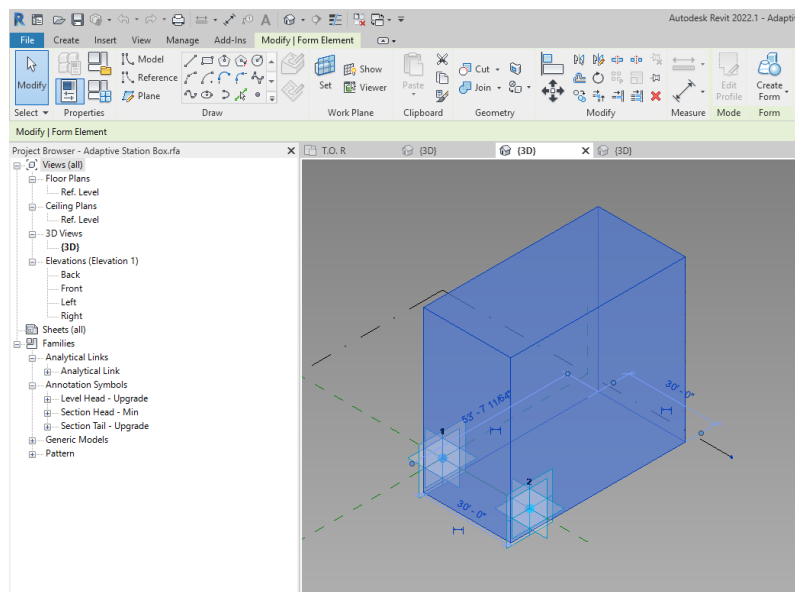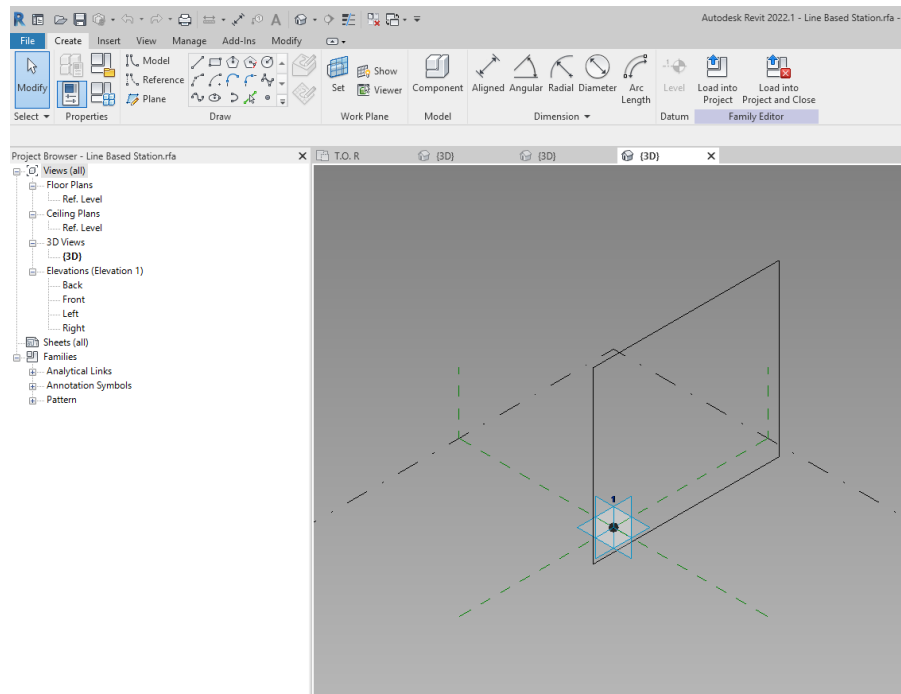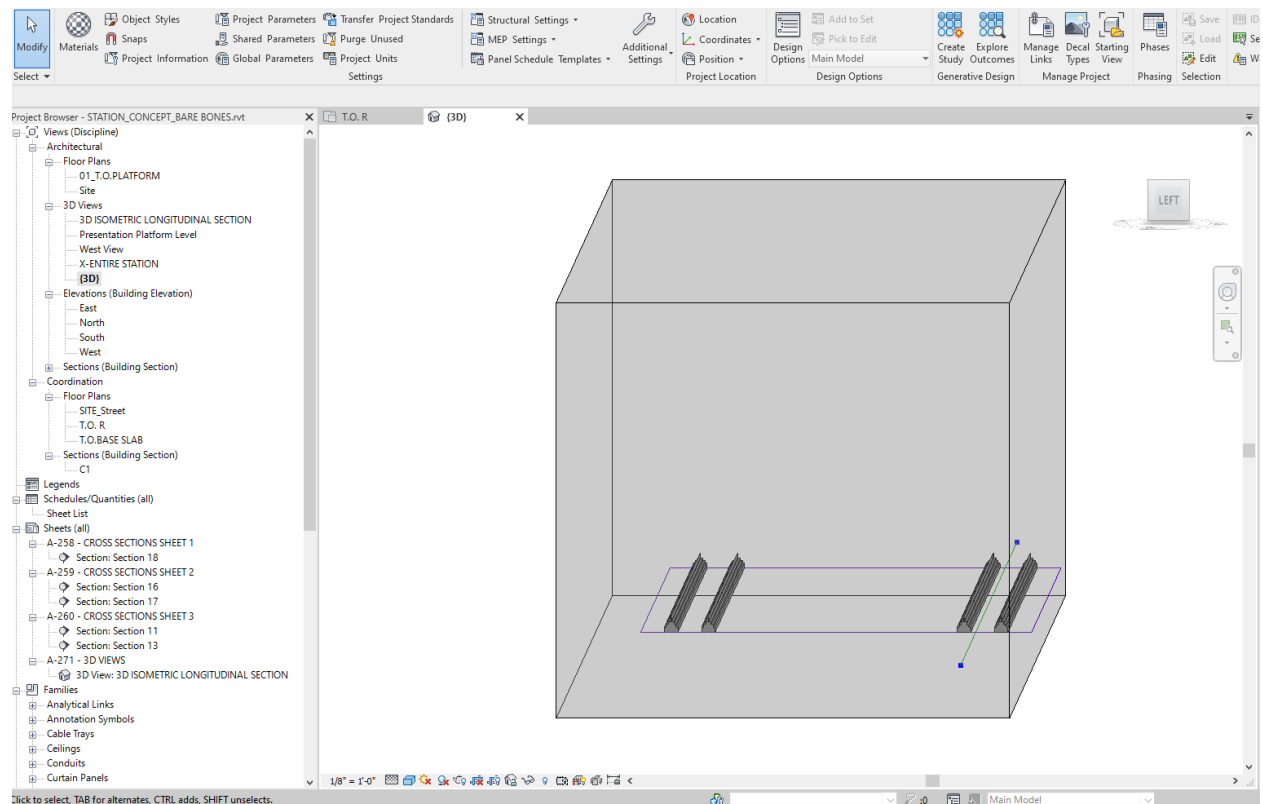# AUTODESK UNIVERSITY

Custom families in Revit for design coordination

USING GENERIC ADAPTIVE FAMILIES BASED ON ADAPTIVE COMPONENTS, POINTS AND SWEPT PROFILES AND REFERENCE GEOMETRY.

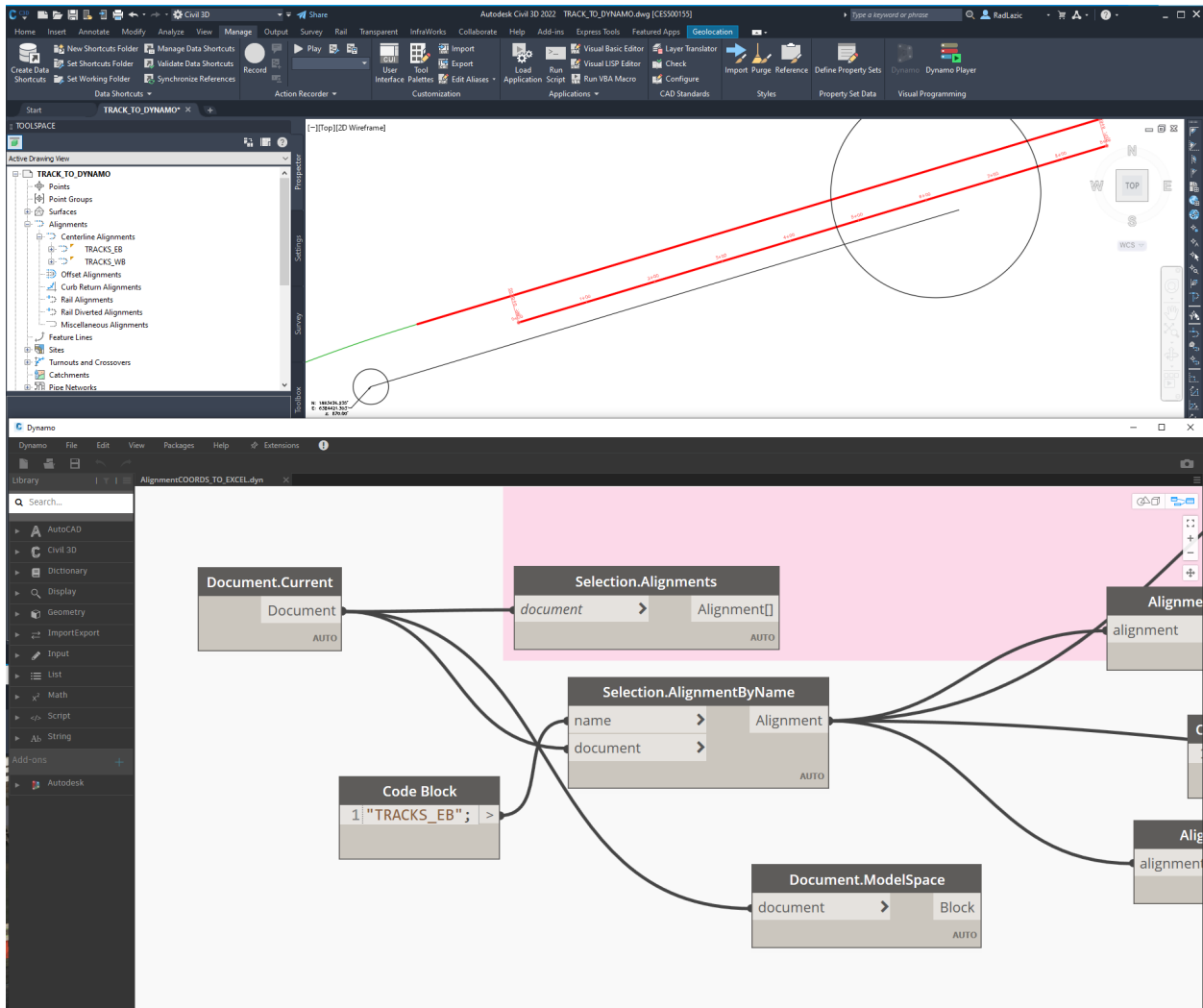THE SHAPE AND SIZE WILL ADAPT TO "HOST" ELEMENT (line) IN REVIT

WE ARE LOOKING FOR CONTROLLED AUTOMATION WITH UPDATING REVIT MODEL WHEN CIVIL DESIGN COMPONENTS CHANGE

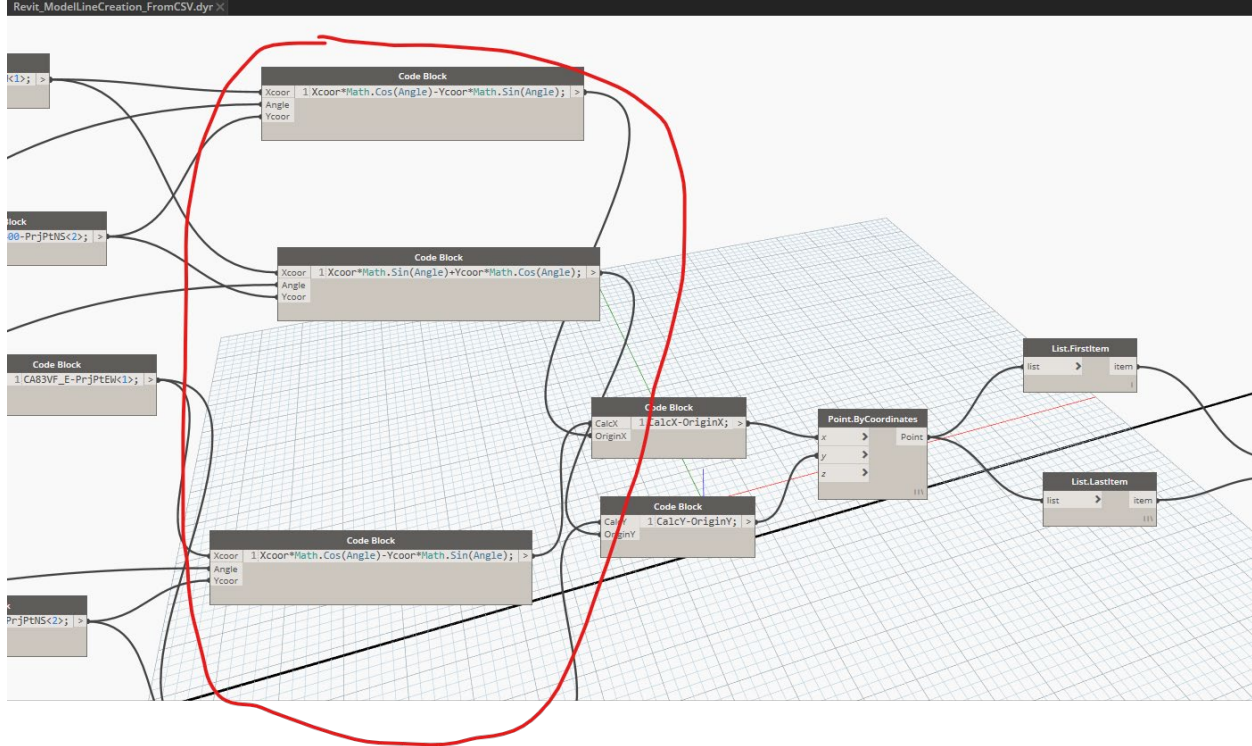LET'S EXPLORE THE TECHNOLOGY AT THE CONCEPTUAL LEVEL

AUTODESK UNIVERSITY

Dynamo scripting in AutoCAD Civil 3D and Revit to coordinate track design with an underground station model

- ALIGNMENT GEOMETRY IN CIVIL 3D AS A HOST OBJECT IN REVIT
- COLLECT ALIGNMENT GEOMETRY WITH DYNAMO IN CIVIL 3D
- USE IT TO CREATE THE HOST ELEMENT WITH DYNAMO IN REVIT
- WHEN ALIGNMENT DESIGN CHANGE OCCURS, UPDATE THE HOST OBJECT
- THE DEPENDANT ELEMENTS IN REVIT WILL UPDATE WITH THE HOST

The coordinates read from the external CSV file have to be translated and, in this example rotated to the project point in Revit as part of Revit Dynamo script:

Revit and Civil 3D models, both coordinated inside InfraWorks: