CI3206 - Can’t We All Just Get Along? Advanced Workflows Between Autodesk® Revit® and Autodesk® AutoCAD® Civil 3D®

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Class summary

Aimed at both Civil 3D and Revit users, this class will demonstrate collaborative workflows between Civil and Building disciplines, as they relate to real-world coordinates and site topography.

Key learning objectives

At the end of this class, you will be able to:

- Understand what data types civil engineers are creating in Civil 3D and architects are creating in Revit
- Incorporate site topographies and designs created in Civil 3D into Revit and properly align them to your design
- Properly export Revit models in preferred formats for use by civil engineers in Civil 3D
- Import building designs into Civil 3D and export the correct data for use by the building designer in Revit

Current challenges in Revit/Civil 3D workflows

- ✓ Misunderstanding of other's software
- ✓ Civil 3D is AutoCAD, Revit is… Revit
- ✓ Civil behind on BIM adoption
- ✓ Civil works in (understands) real-world coordinates, Architects do not

Outline

1. Sharing Civil 3D Topography with Revit
2. Coordinating building with site location
3. Sharing Revit model with Civil 3D

Sharing Civil 3D Topography with Revit

1. **Typical** Practice
    - *Civil 3D:* export contours as Polylines
    - *Revit:* Link DWG and generate Topo

2. **Better** Practice
    - *Civil 3D:* Extract 3D Triangles from TIN Surface
    - *Revit:* Topo *still* no good

3. **Best** Practice
    - *Civil 3D:* 3D triangles, and extra points for detailed areas
    - *Revit:* Generate final Topo that matches Civil's

Coordinating building with site location

- Revit must acquire coordinates (real-world location) from Civil 3D
  - **Method 1:** Manual (recommended)
    - *Civil 3D:* Label coordinates of building corner
    - *Revit:* Establish Shared Coordinates from label
  - **Method 2:** Autodesk Shared Reference Point tool
    - *Civil 3D:* Export XML of building corner
    - *Revit:* Import XML to establish shared coordinates

Sharing Revit model with Civil 3D

1. Revit DWG export (recommended)
    - Preparing the Views
    - Run export with correct settings
2. ADSK export
3. Pros and Cons of each method
    - File size
    - Visual control
    - Compatibility
    - Pick one and stick with it

Conclusions and Best Practices

1. Let's not mince words
    - Revit sucks at topography
    - Revit also sucks at real-world coordination
    - Civil 3D doesn't suck at these
2. Communication is key
    - Understand one another's perspective and software limitations
    - Establish workflows at project beginning
3. Document your standard process
    - Standardize workflows so all team members comply
4. Not perfect, but gets job done!
    - Both teams have additional work
    - Civil generating extra data to placate Revit
    - Revit must manually/intentionally prepare for Civil workflow

Who we are…

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