CI9925 - Gaming the System: Combine AutoCAD Civil 3D, Revit, InfraWorks, and Game Engines for Sites

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Before we begin...

We are a big class… **Please** hold all questions and comments until the end of the lecture.

Silence your phones now!!
This class is designed to show land development professionals techniques for creating renderings and movies of their proposed projects. Utilizing many of the programs provided in Infrastructure Design Suite software (AutoCAD Civil 3D software, InfraWorks software, Revit software, and 3ds Max software), this class will consist of a live demonstration showing how to create compelling and grade accurate visualizations of your site designs.

By treating InfraWorks 360 software as a “level builder” we will explore how to composite existing and proposed ground surfaces, build and apply coverages for pavement and pavement markings, and prepare tree surveys for 3D placement. Finally, we will explore the use of InfraWorks software models in real-time game rendering engines.
Key learning objectives

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

- Develop quick workflows to create compelling and cost-effective visualizations using Infrastructure Design Suite
- Establish a model-based design as a means to coordinate with architects when creating realistic site renderings
- Composite AutoCAD® Civil 3D® surfaces and coverages (grass, pavement, markings) in InfraWorks® in order to create a detailed site model
- Use an InfraWorks model in a game engine to produce real-time visualization deliverable
“Competing among the Goliaths on civil projects, one small firm uses BIM as their slingshot to success.”

-BimOnTheRocks.com about CivilE’s 3D workflows-
The Goal: Get complex Civil3D designs into a game engine for creating visualizations
Take a cue from the video game industry - development is a coordination between three teams

Artist  
Level Builder  
Programmer
Take a cue from the video game industry - development is a coordination between three teams

- Land Planners
- Civil Engineers & Architects
- Design software
Get your surfboard ready... waves (of change) are coming.
Using Infraworks at the End of Design Phase!?

WHAT IF I TOLD YOU

INFRAWORKS IS USED AT THE END OF A PROJECT'S DESIGN PHASE
Building good 3D content matters. How to do it now!

3D grading in Civil3D
Easy data compositing in Infraworks
Revit Building Model
# Work flow for this class

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- **Civil3D**
  - a) Existing Ground
  - b) Site Plan
  - c) Proposed Ground
  - d) Coverages
  - e) Tree Points

- **Infraworks**
  - a) Composite Ground
  - b) Aerial Overlay
  - c) Coverages
  - d) Trees
  - e) FBX export

- **Revit**
  - a) Building Conversions

- **3ds Max**
  - a) Material Adjustments
  - b) Model Location Adjustments

- **Lumion**
  - a) Bring in the Site
  - b) Bring in the Building
  - c) Adding Assets
  - d) Render Images
Step 1: Create existing and proposed surfaces in Civil3D utilizing grading objects.
Step 1: Export the existing and proposed ground as IMX files
Step 1: Create SDF files of the coverage from the Civil3D base file. (Used closed polylines)

- Total site boundary
- Asphalt pavement limits
- Concrete gutter limits
- Sidewalks
- Building slabs
- Retaining walls
Step 1: Export the coverages as SDF files – “mapexport” command
Step 2: Import Surfaces and coverages into Infraworks. Order appropriately.
Step 2: Export the Infraworks model as an FBX
Step 3: Revit Building Models
Step 3: Export Revit Model as FBX
Step 4: Material assignments in 3DS Max
Step 4: Model relocation in 3DS Max

Select All… Unlink… Group… Move
Step 4: Export the modified model from 3DS Max as an FBX file
Step 5: Bring it into a Game Engine

Currently, we like Lumion for ease of use and speed. Import the FBX files.
Step 5: Assign Materials to the Imported FBX
Step 5: Bring in the building. Assign Materials and rotate into place
Step 5: Add assets… Cars, Landscape, light poles, dumpsters, fences
Step 5: Render images!
Bonus Material: Stingray Game Engine

Interactive First Person - shooter
Bonus Material: Stingray Game Engine
Bonus Material: Stingray Game Engine
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All of your sessions will be there to enjoy again and again.