



MP1285 - It's All in the Process...

Howard Munsell
CADD System Specialist - BIM



House Keeping...

Please silence all Cell Phones



Please hold all questions until the end of the presentation



Class summary...

Revit is recognized as a building design tool for Architectural, Structural, Plumbing, Electrical and HVAC. At Whitman Requardt & Assoc. (WR&A) our Water Wastewater discipline saw the benefits others were experiencing using Revit and decided to take the Water Wastewater Dept. to the next level by utilizing Revit on their Process Projects. In this session I will demonstrate how WR&A's Water Wastewater disciplines utilize Revit for more than plumbing.

Key learning objectives...

By the end of this class, you should have an understanding of:

- The process of initial design to hand-off to other disciplines
- How to Create new Pipe Segments, Systems and Types
- How to Create content for large diameter pipe
- Some special circumstances and how they were overcome

Background...

Whitman, Requardt & Assoc. (WR&A)

Established in 1915, WR&A was started as a Water Wastewater firm. Other disciplines were added in the 40's to accommodate DOD contracts. WR&A is a privately owned, full service Engineering, Architectural, and planning firm. WR&A provides planning, design, and construction management services focused on the needs of governmental, educational, institutional, and private sector clients.

- Staff of 600+
- 13 offices Along the Mid Atlantic (+2 in Texas)
- WR&A has been recognized as a Top 130 Design Firm by Engineering News Record.
- Top 200 Architectural and Environmental firm
- ...

Background...

A little about Me

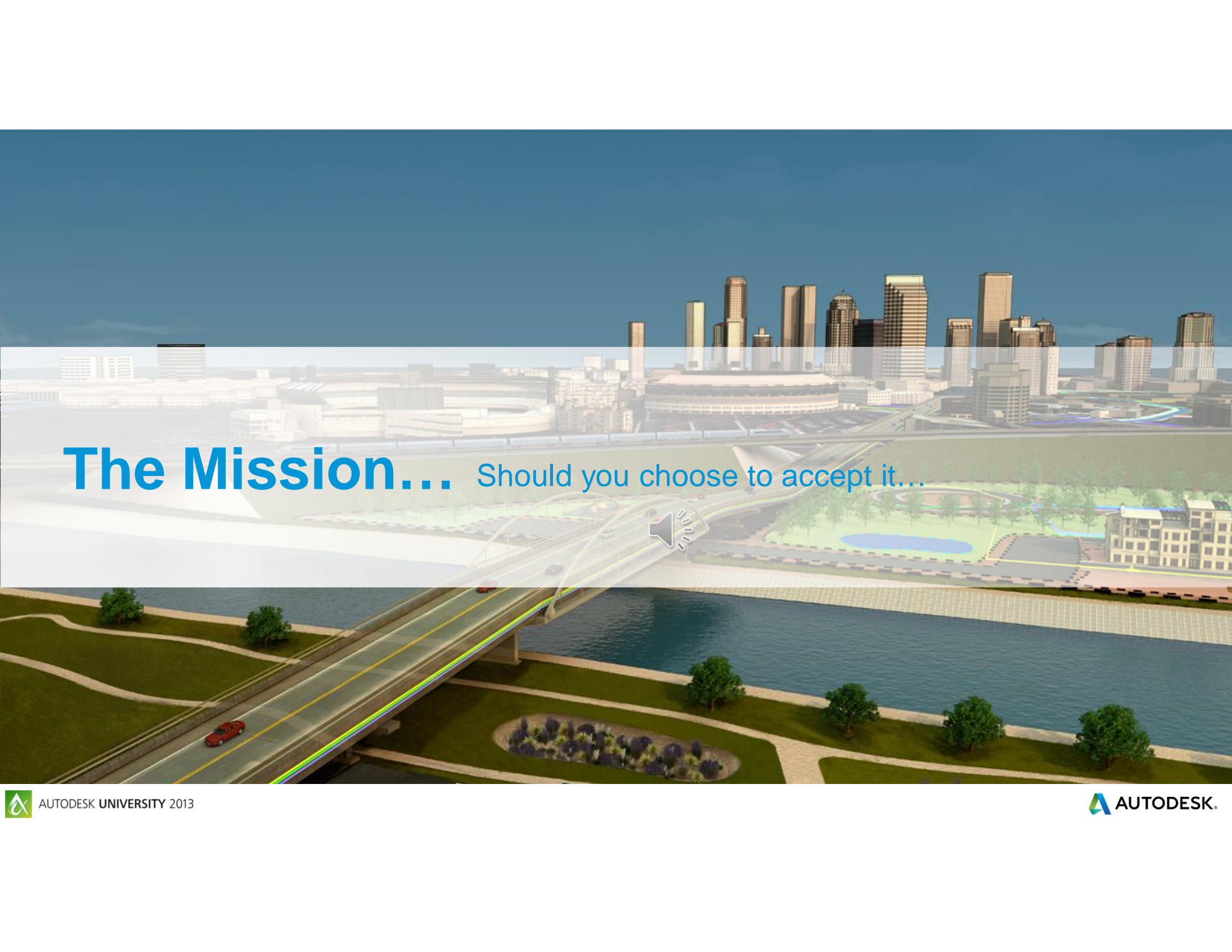
- 25 years of A/E experience
- Started as a board drafter, doing I&C
- I have been using AutoCAD with v2.6
- I have been using Revit with Version 1
- Experience working in most building disciplines
- AutoCAD and Revit Certified Professional 2011 & 2013
- Member of DCRUG and Baltimore RUG
- CAD Systems Specialist at WR&A for the past 4 years supporting the Building disciplines' BIM efforts.

Who's here today...

A little about You...

- For how many is this your First AU?
- How long have you been using Revit?
- What version of Revit are you using?
- CAD/BIM Managers vs. Engineers? ... Other

Lets get started.....

An aerial perspective of a cityscape featuring a river, a bridge, and various urban structures. A semi-transparent white banner is overlaid across the middle of the image, containing text and a speaker icon.

The Mission... Should you choose to accept it...



The Mission...

At WR&A our Water Wastewater discipline saw the benefits others were experiencing using Revit and decided to take their work to the next level. That would mean adapting Revit for use with for type of pipe and the equipment that they use in their Waste Water process plants.

The Mission was to see if Revit will work for WR&A's Water Wastewater group, help develop their design process and help them with any challenges they had along the way.

An aerial perspective rendering of a city skyline. In the foreground, a multi-lane bridge with a rainbow-colored light strip along its edge spans a body of water. To the right of the bridge is a landscaped park area with green grass, trees, and a blue pond. In the background, a dense urban skyline with various skyscrapers is visible under a clear blue sky.

The Benefits...



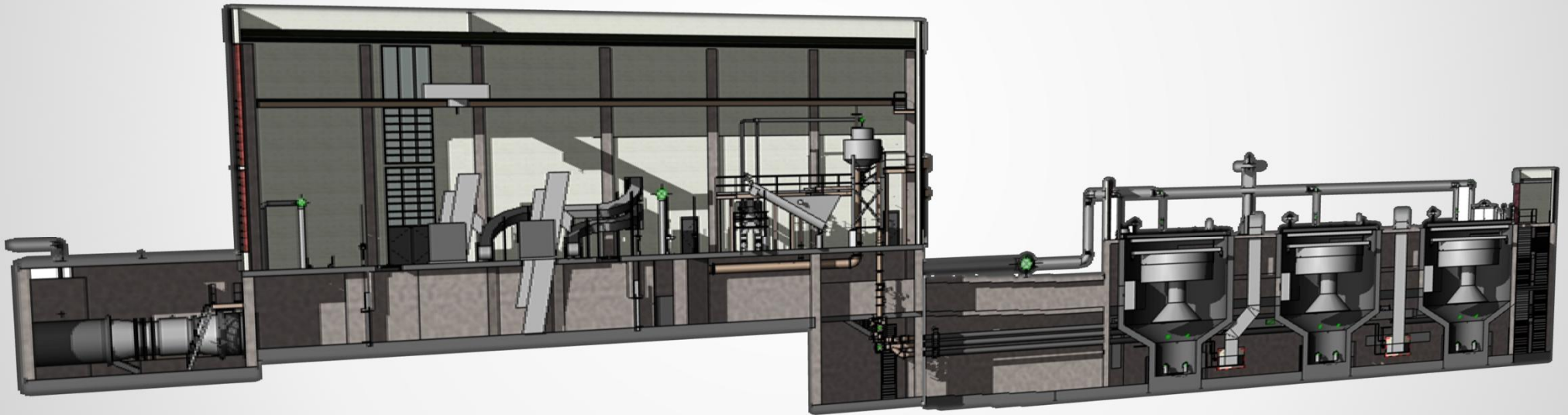
The Benefits...

The Benefits other disciplines were experiencing using Revit



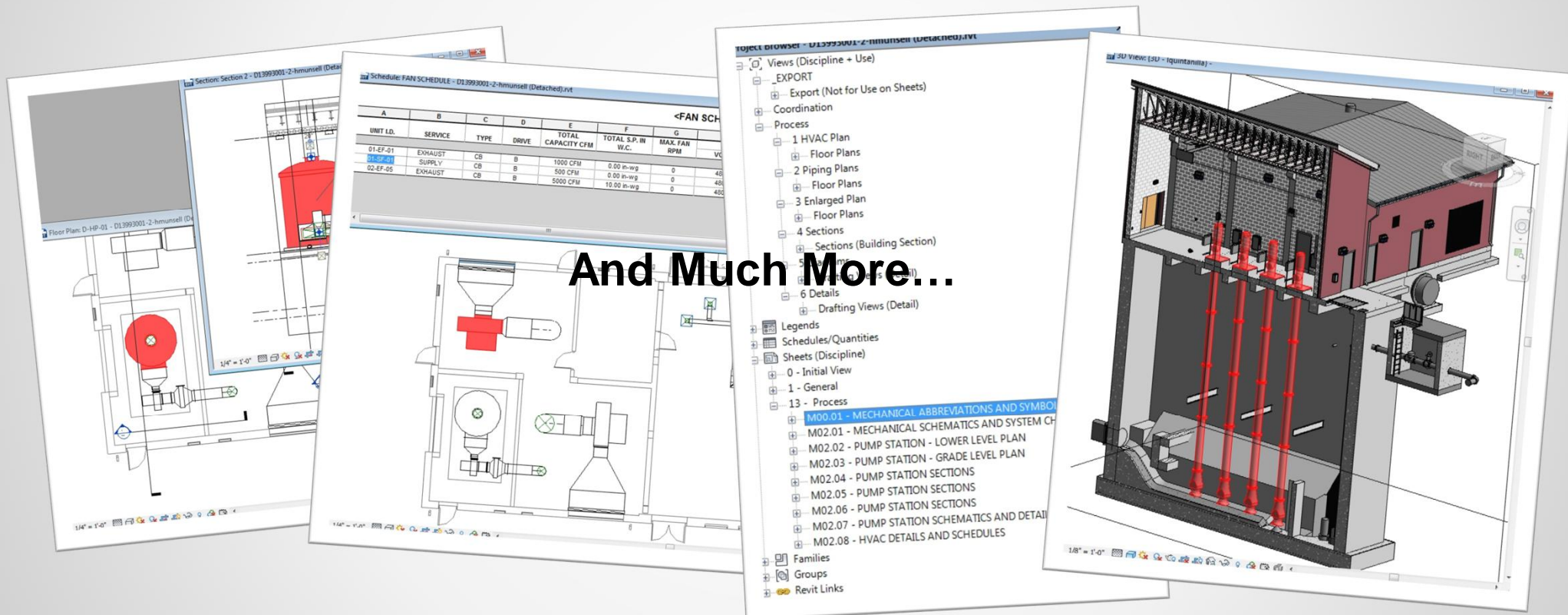
The Benefits...

The Benefits other disciplines were experiencing using Revit



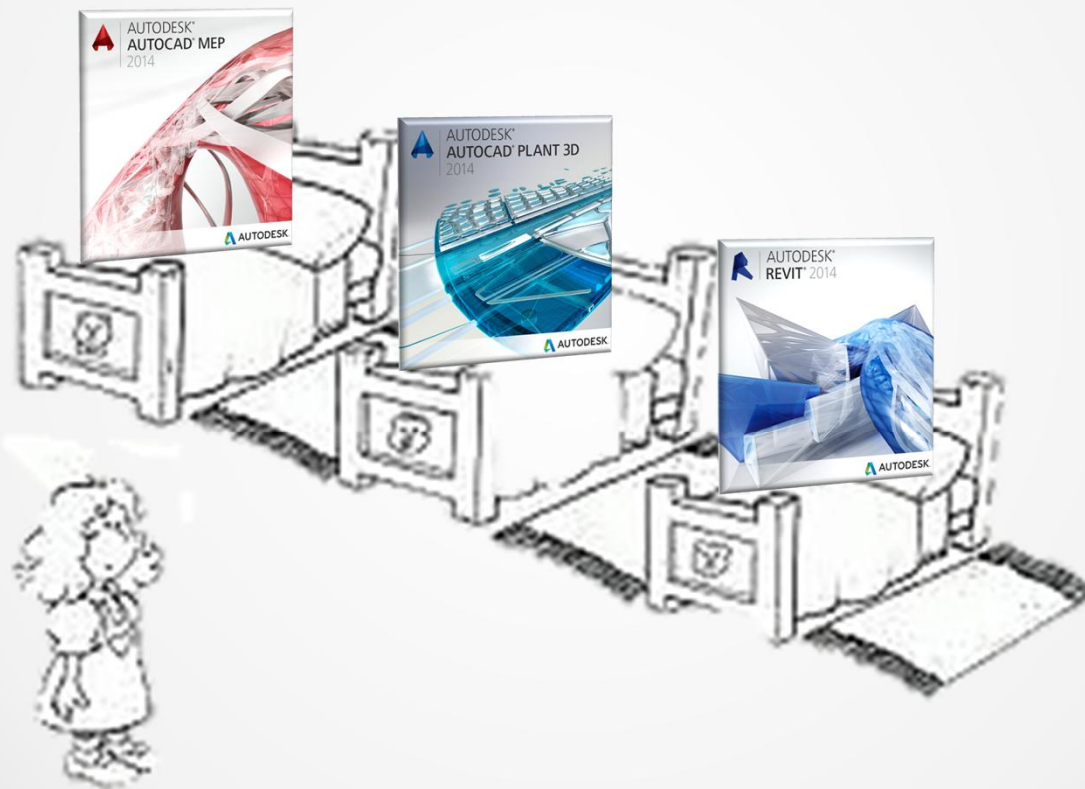
The Benefits...

The Benefits other disciplines were experiencing using Revit



The Benefits...

We looked at Other Programs

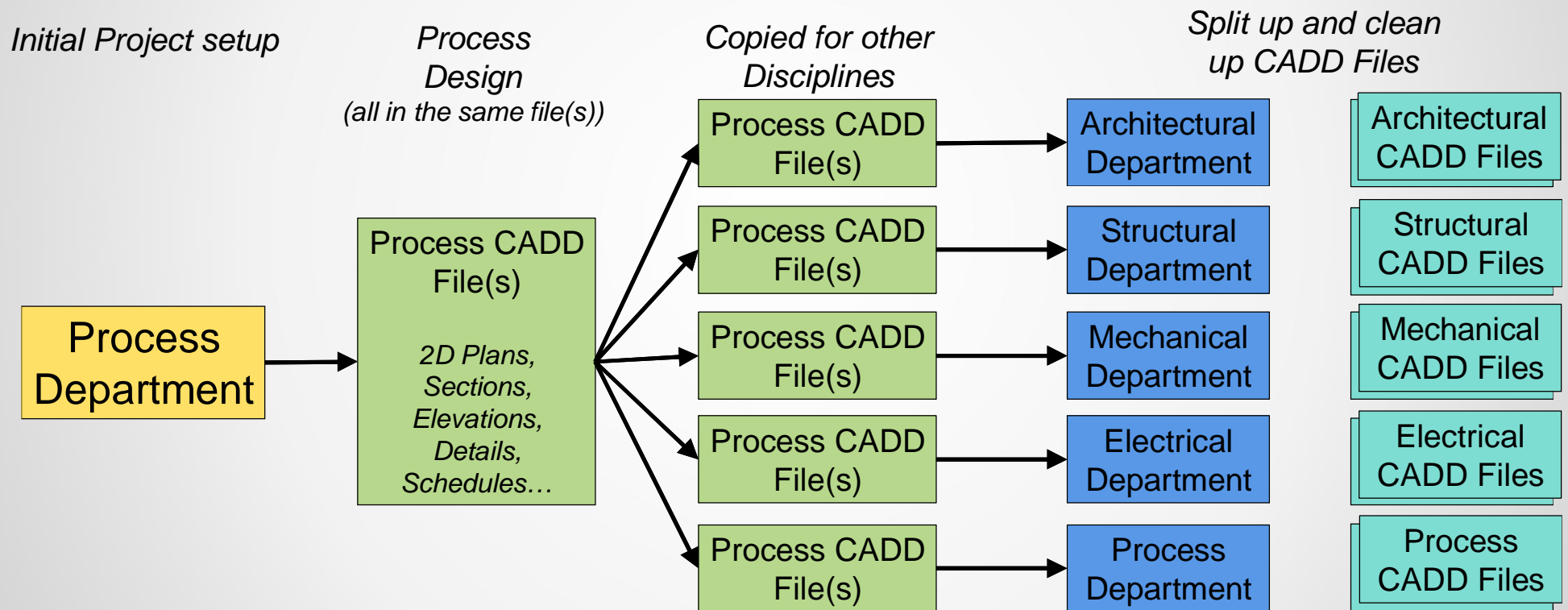


The Switch...



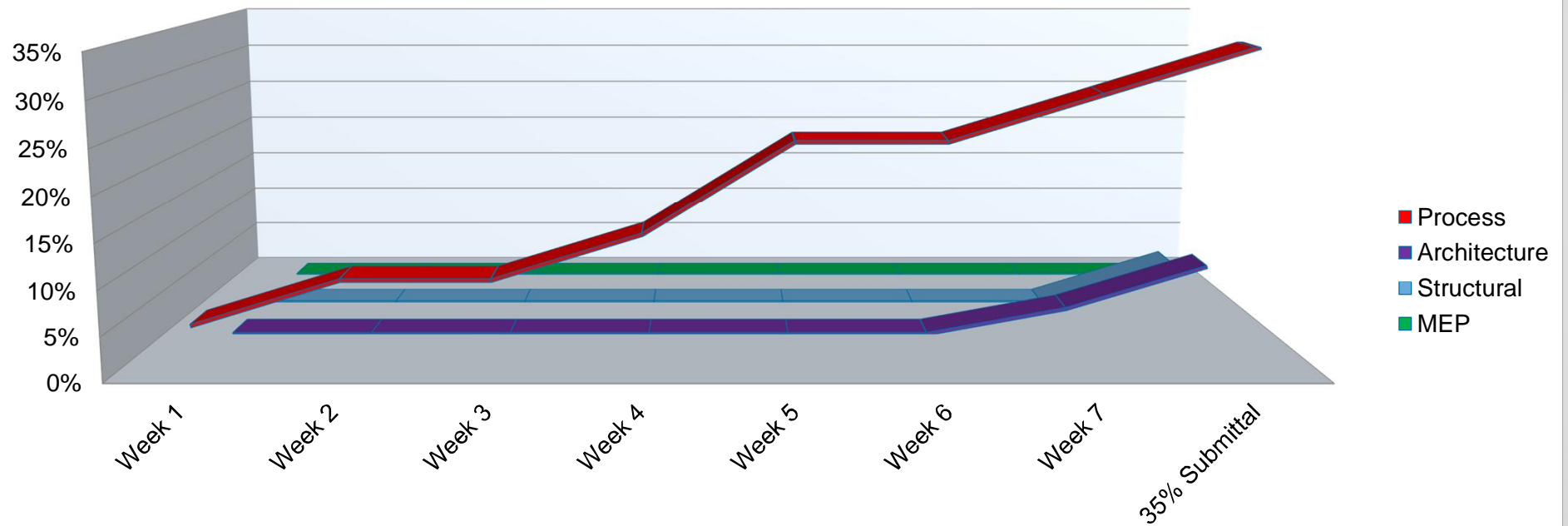
The Switch...

Previous CADD workflow



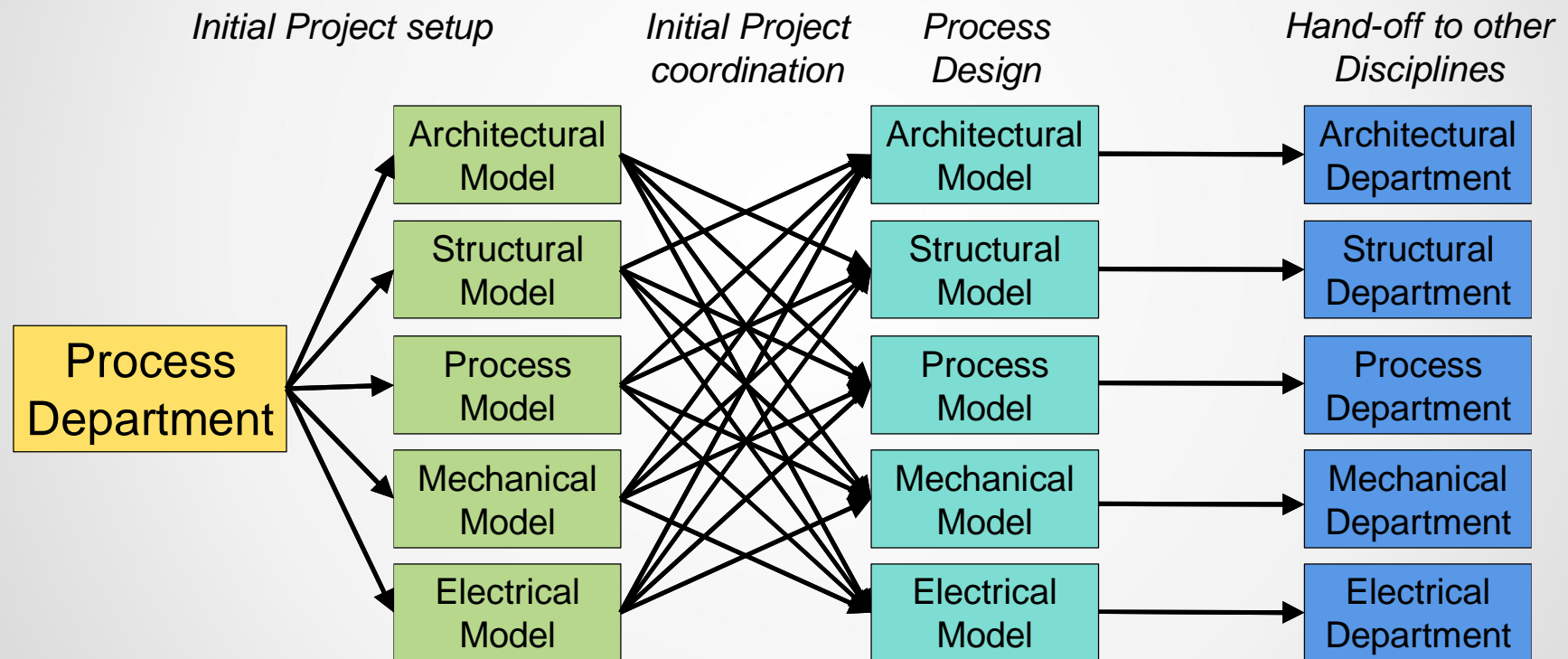
The Switch...

Previous CADD workflow



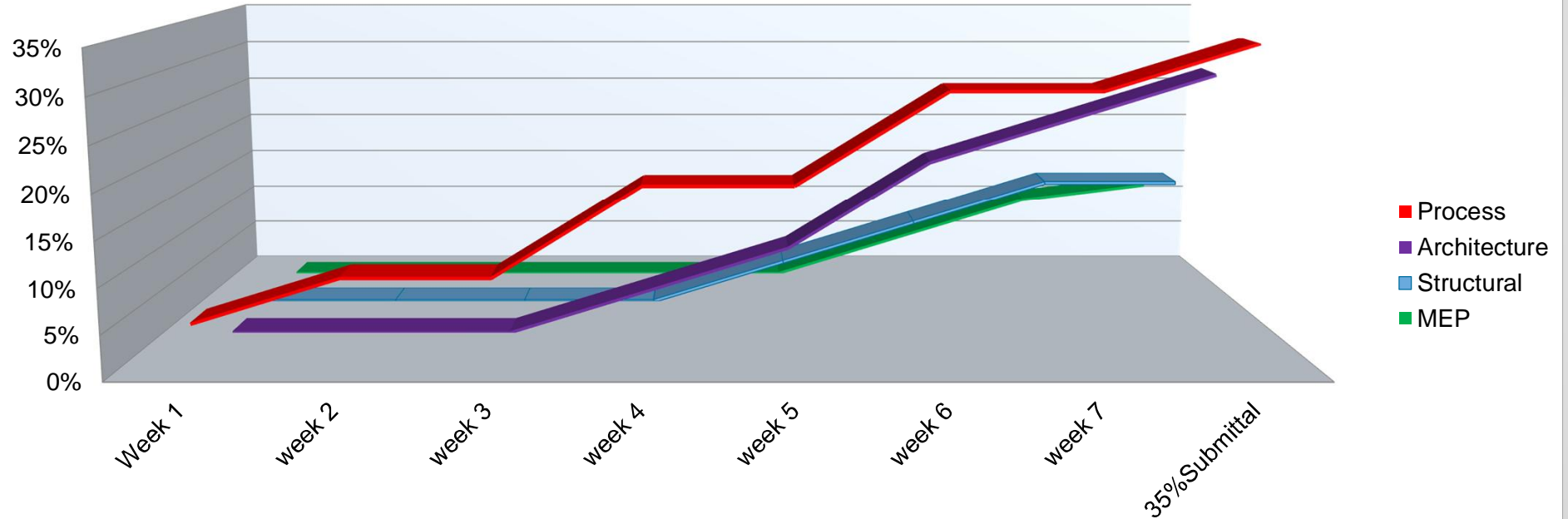
The Switch...

Revit workflow...



The Switch...

Revit Workflow



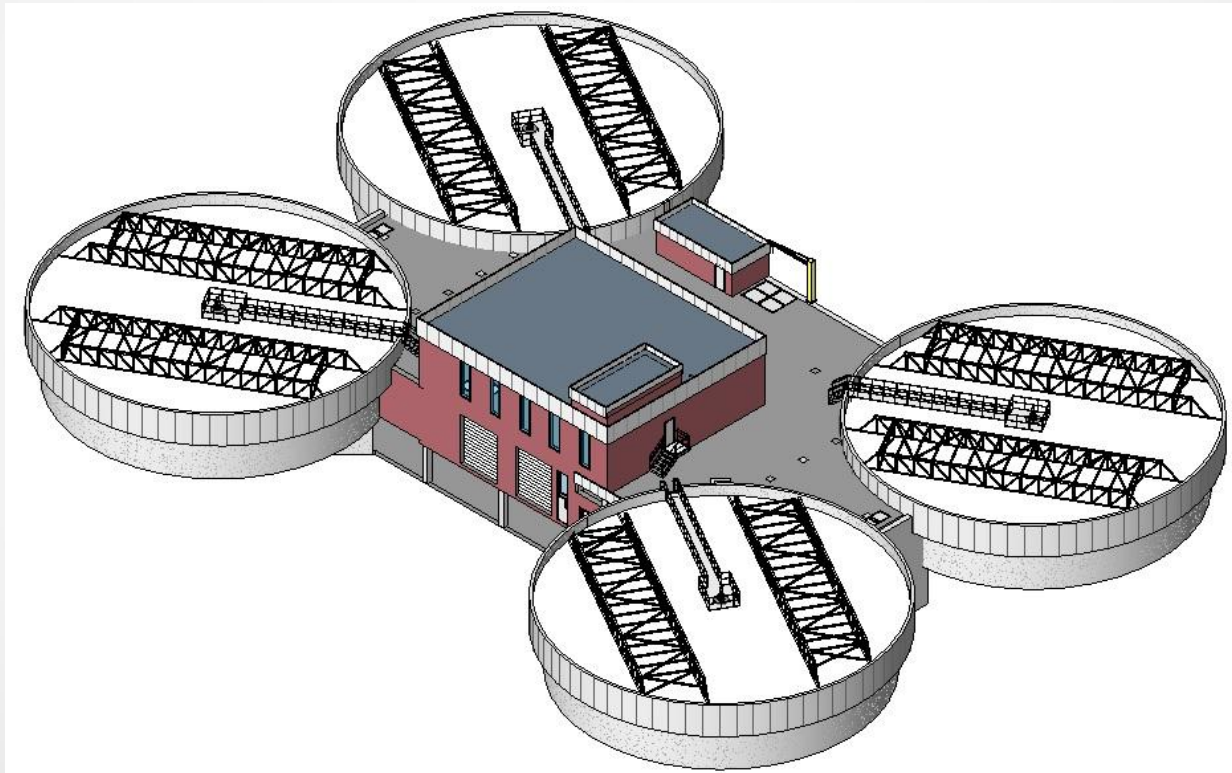
An aerial perspective of a city skyline across a body of water. In the foreground, a multi-lane bridge with a rainbow-colored light strip along its edge spans the water. To the right of the bridge is a green park area with a blue pond and a baseball field. The background features a dense urban skyline with various skyscrapers under a clear blue sky.

The Next Level...



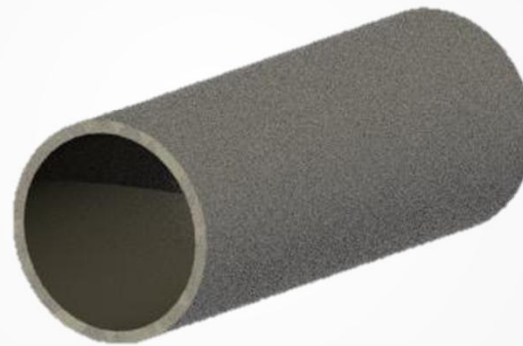
The Next level...

Using Revit to take the Water Wastewater Dept. to the next level



The Next level...

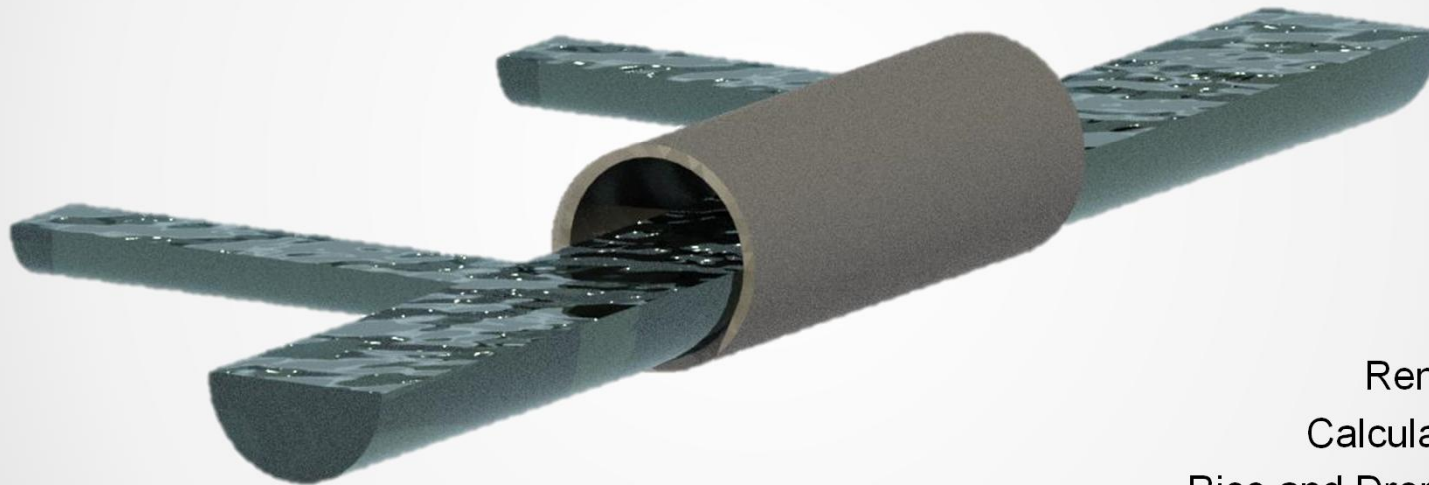
Segments vs. Systems vs. Types



Routing Preferences
(Pipe Segment & Fittings)
Identity Data

The Next level...

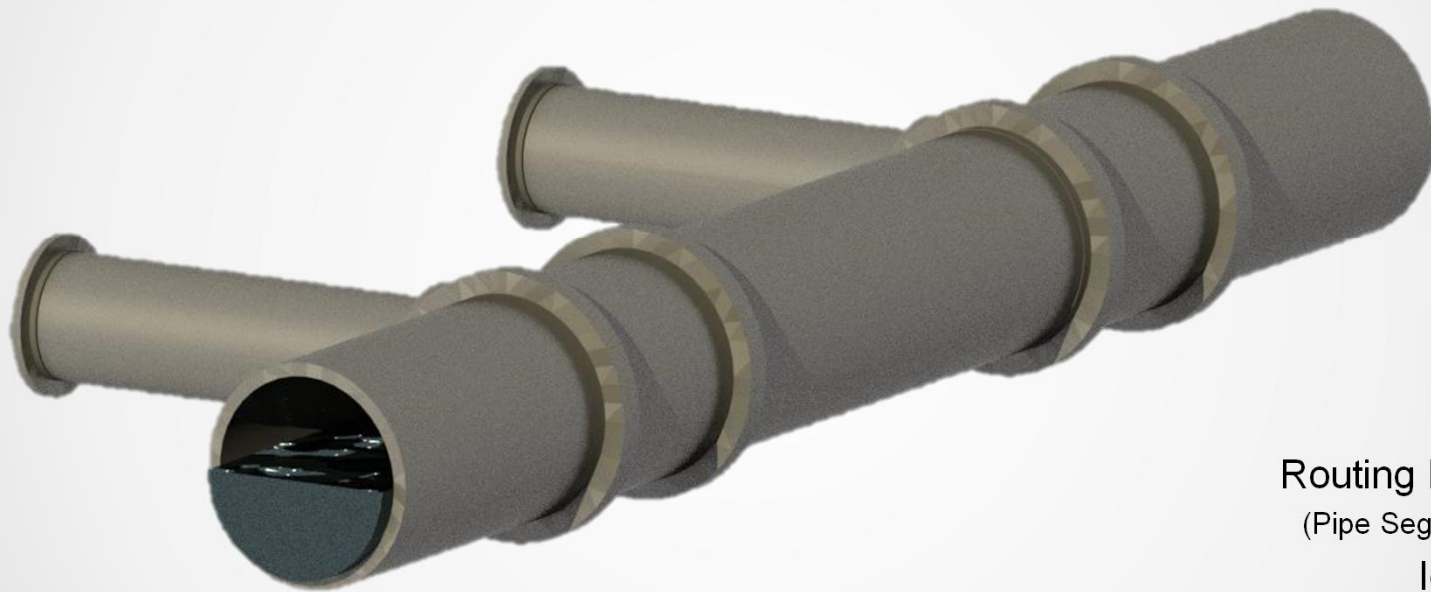
Segments vs. **Systems** vs. Types



Render Material
Calculation Method
Rise and Drop Symbology
Identity Data

The Next level...

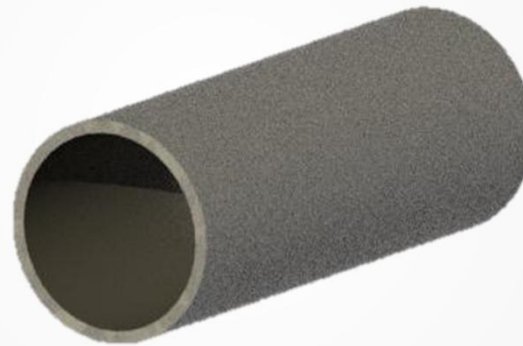
Segments vs. Systems vs. Types



Routing Preferences
(Pipe Segment & Fittings)
Identity Data

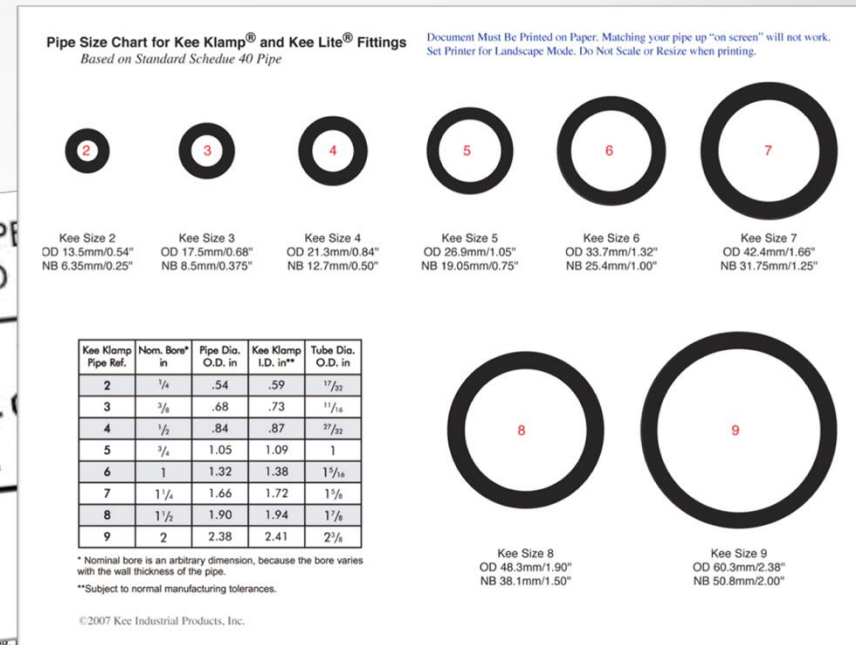
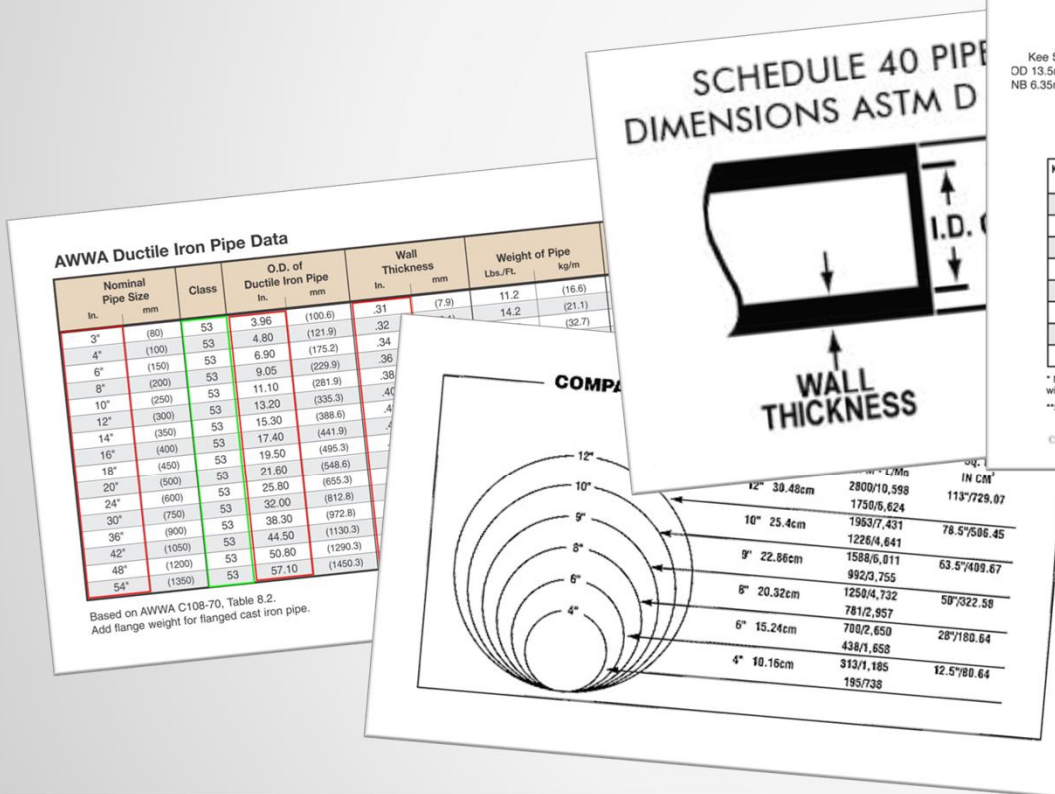
The Next level...

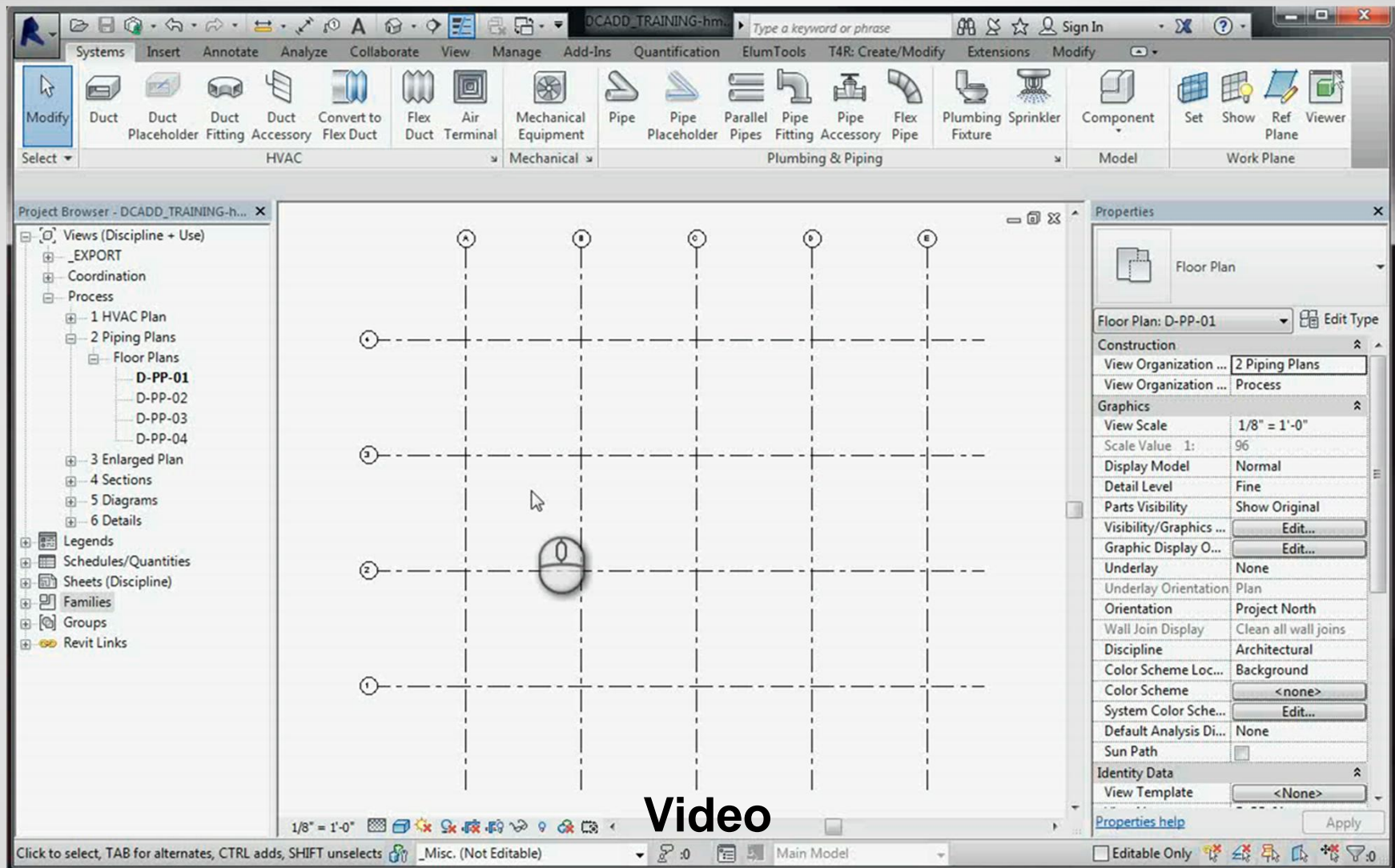
Creating New Pipe Segments

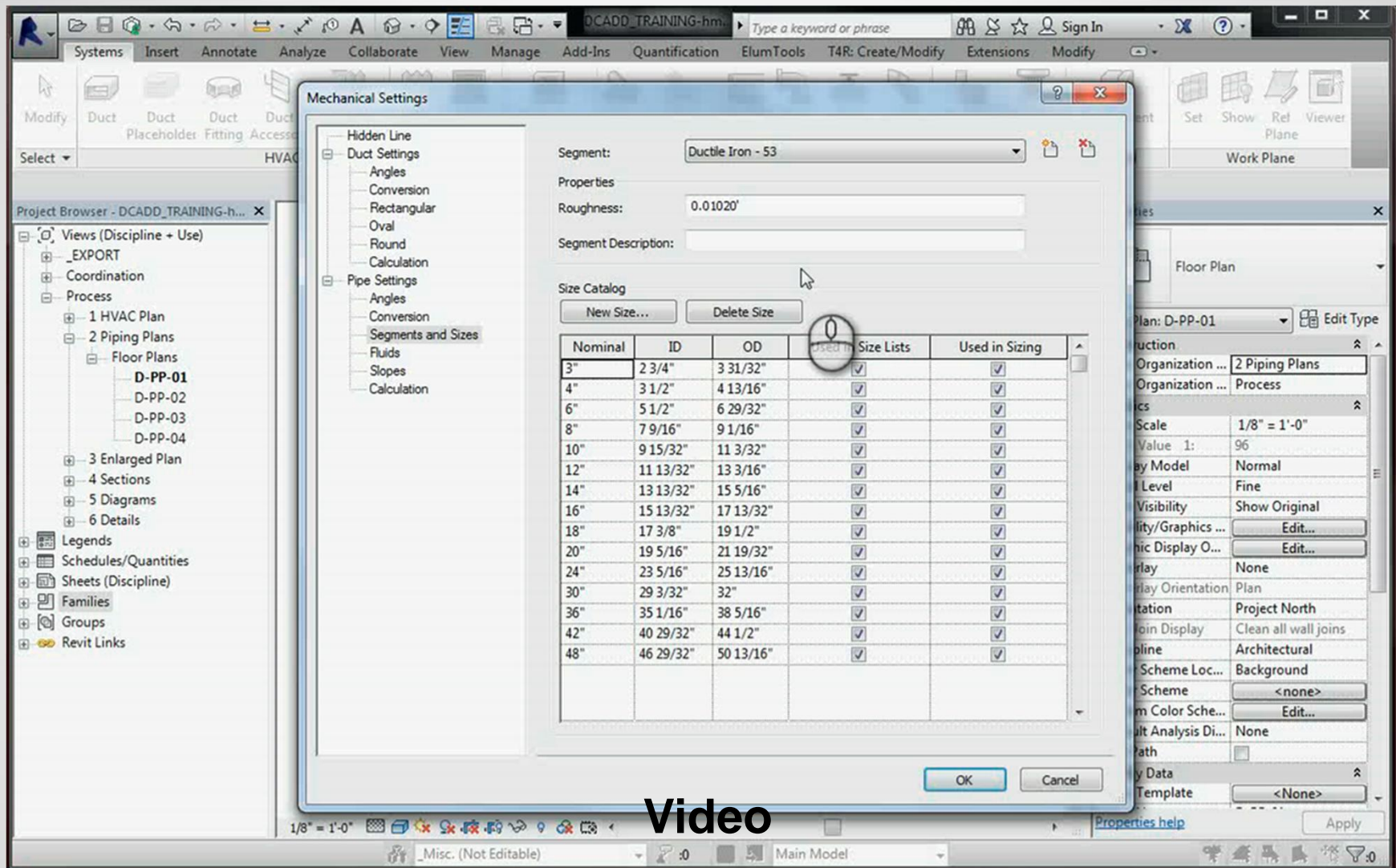


The Next level...

Creating New Pipe Segments



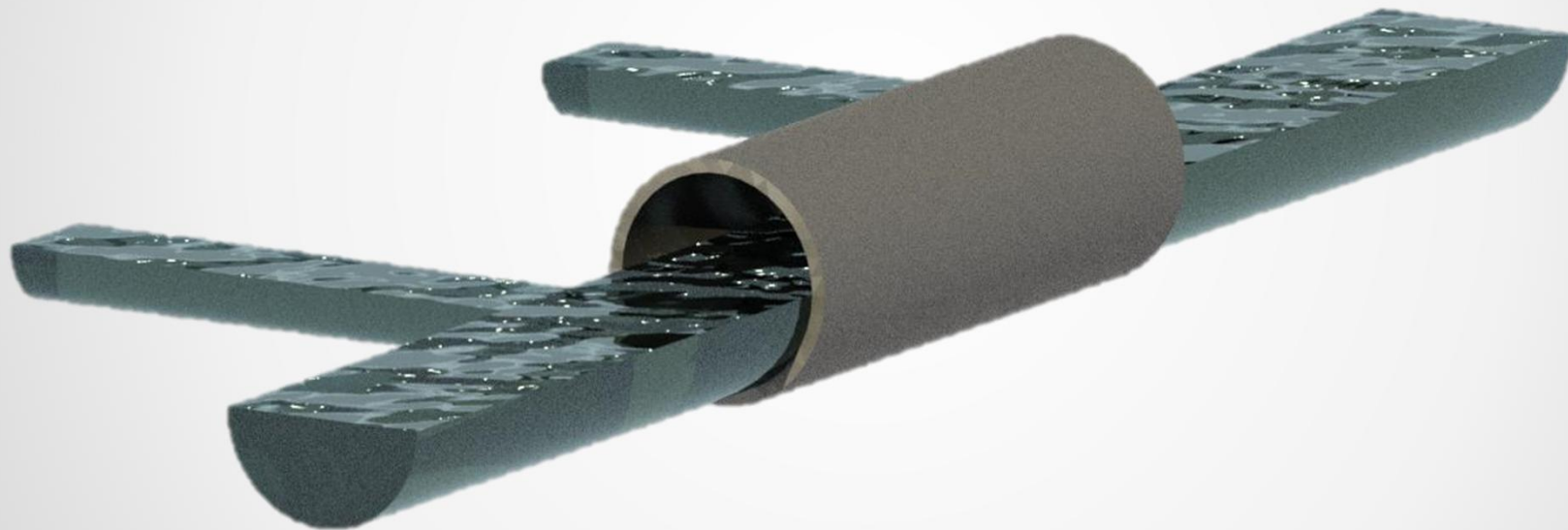




Video

The Next level...

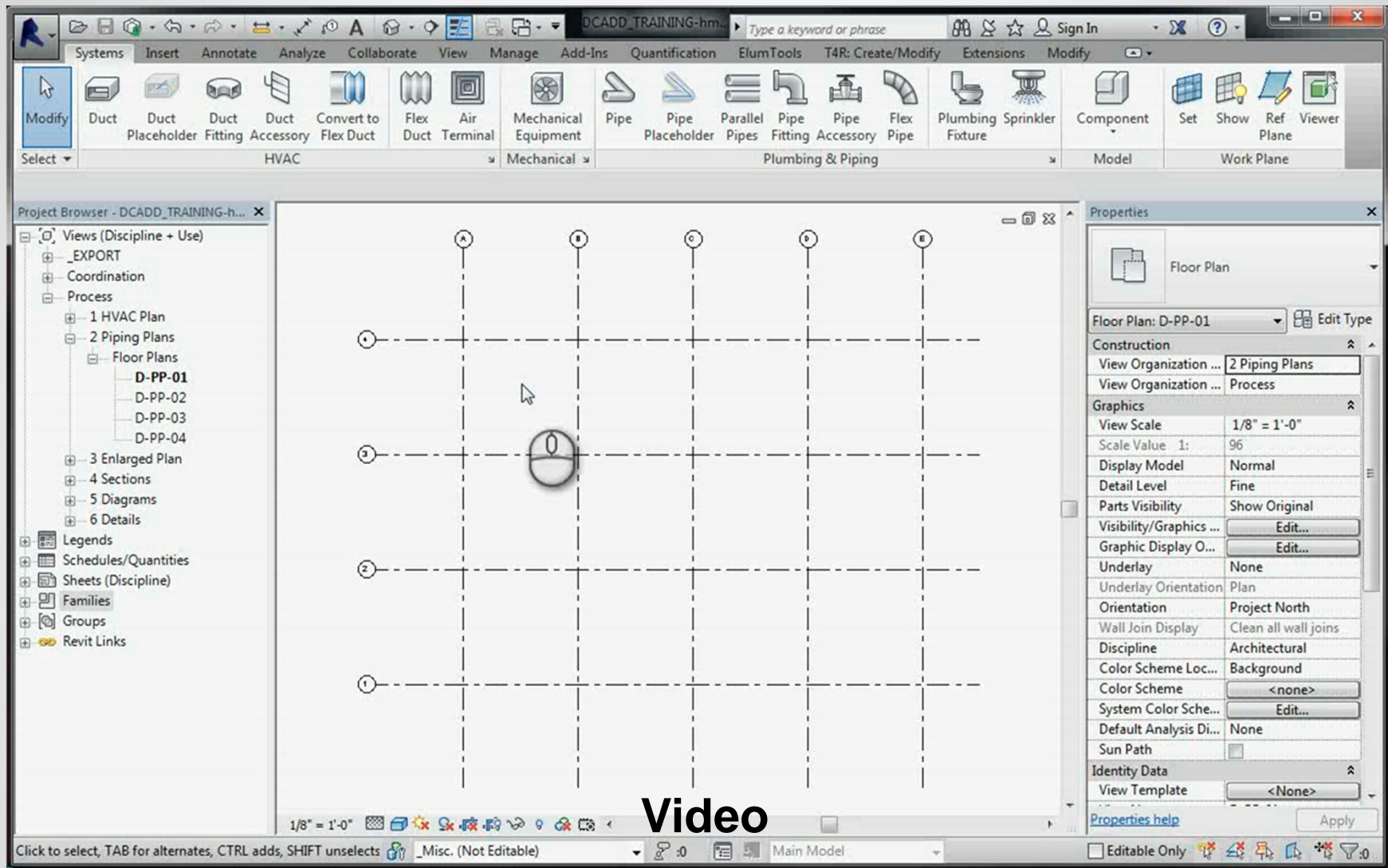
Creating New Piping Systems



The Next level...

Creating New Piping Systems

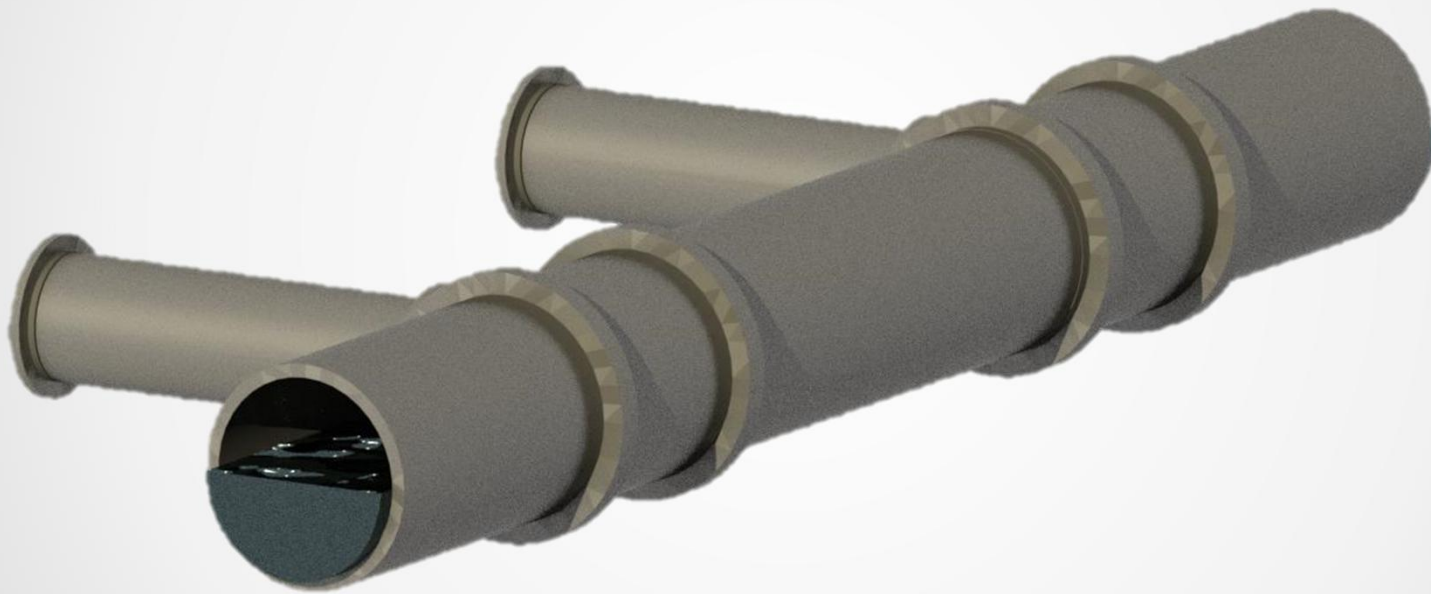




Video

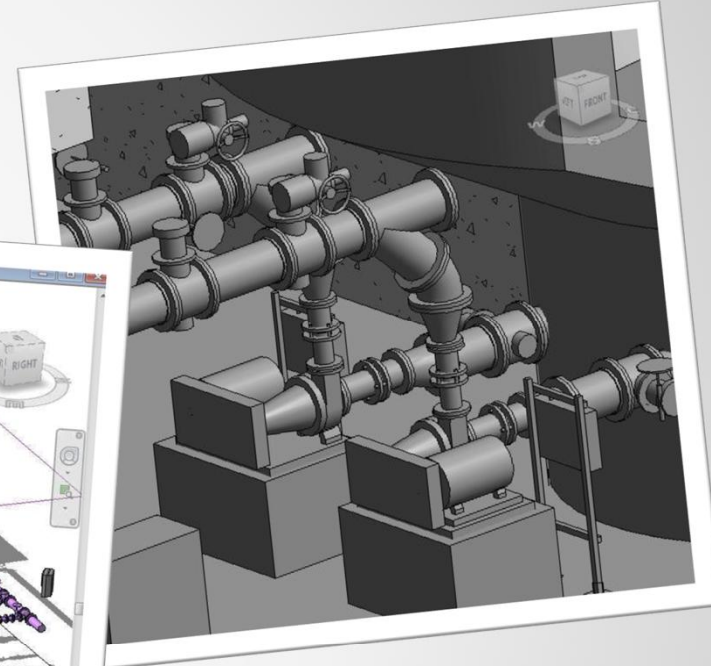
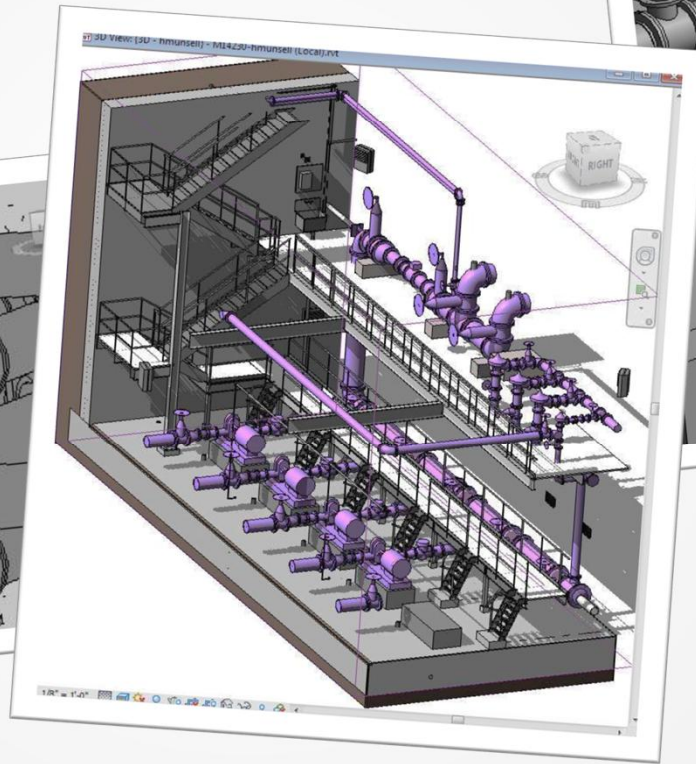
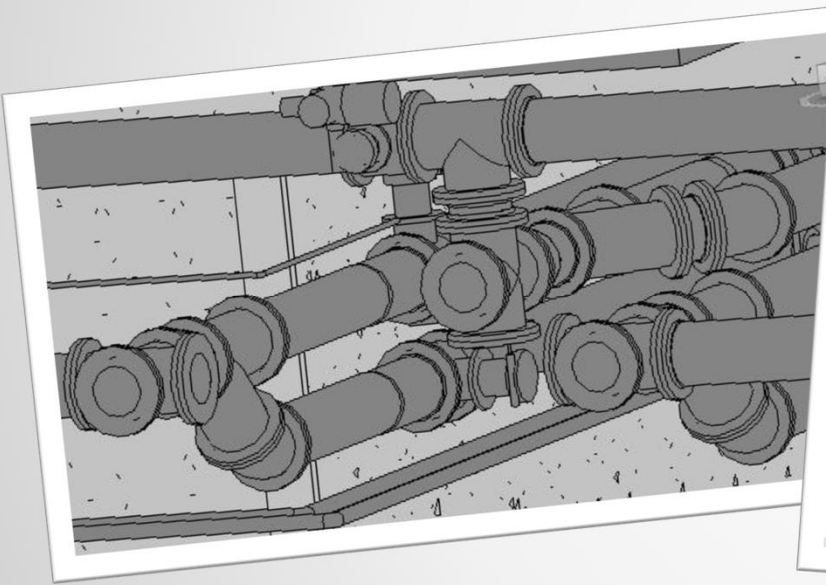
The Next level...

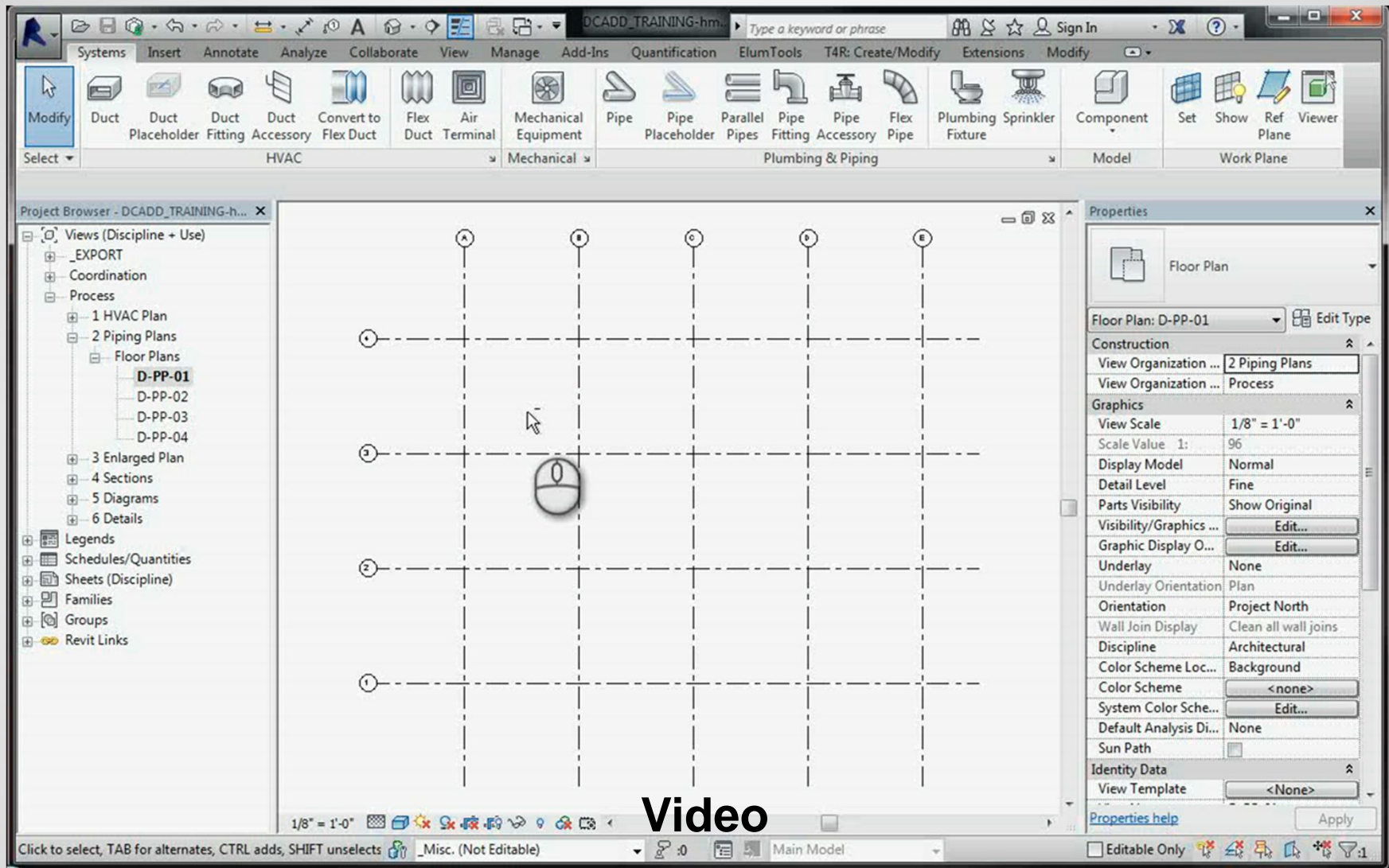
Creating New Pipe Types

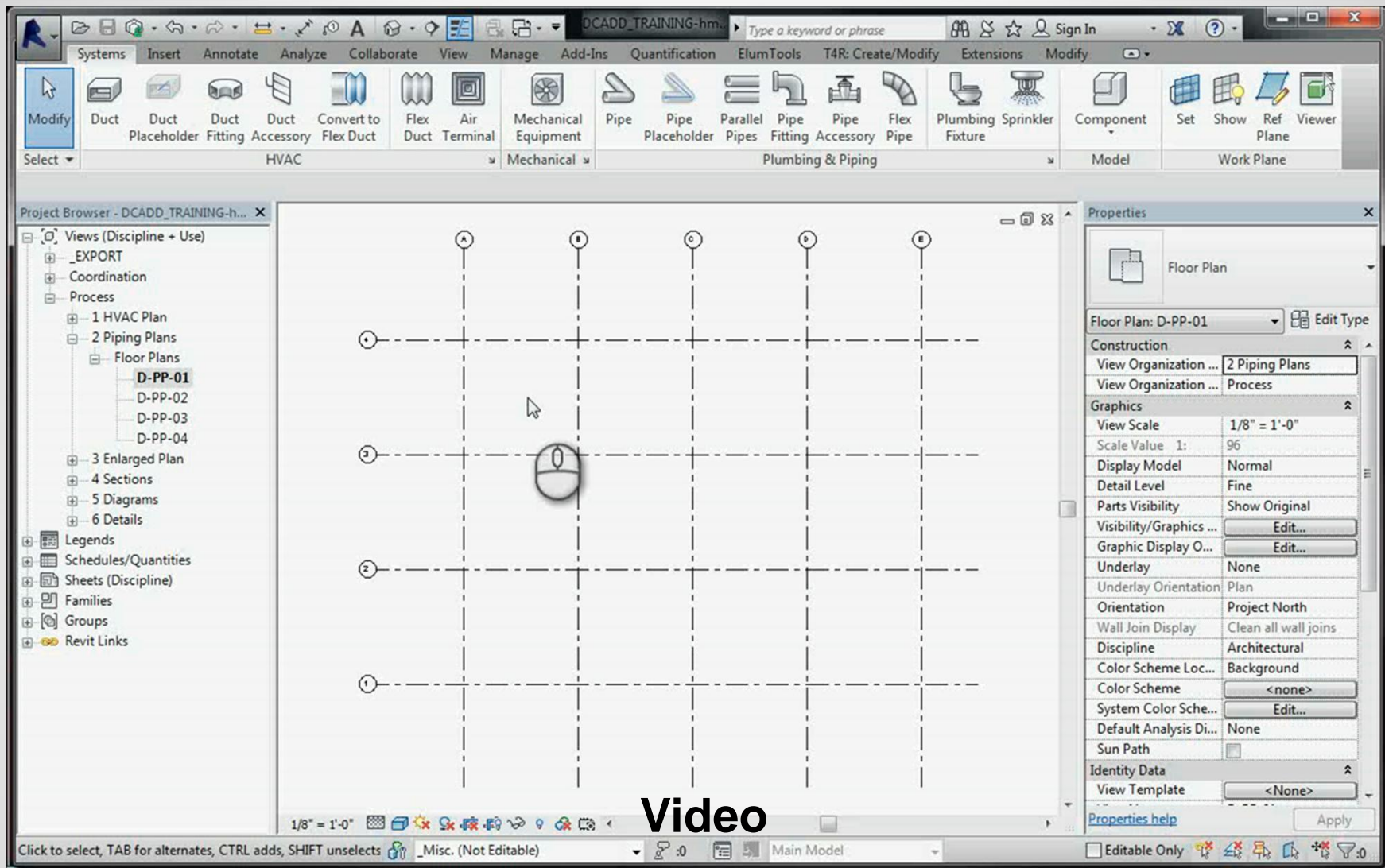


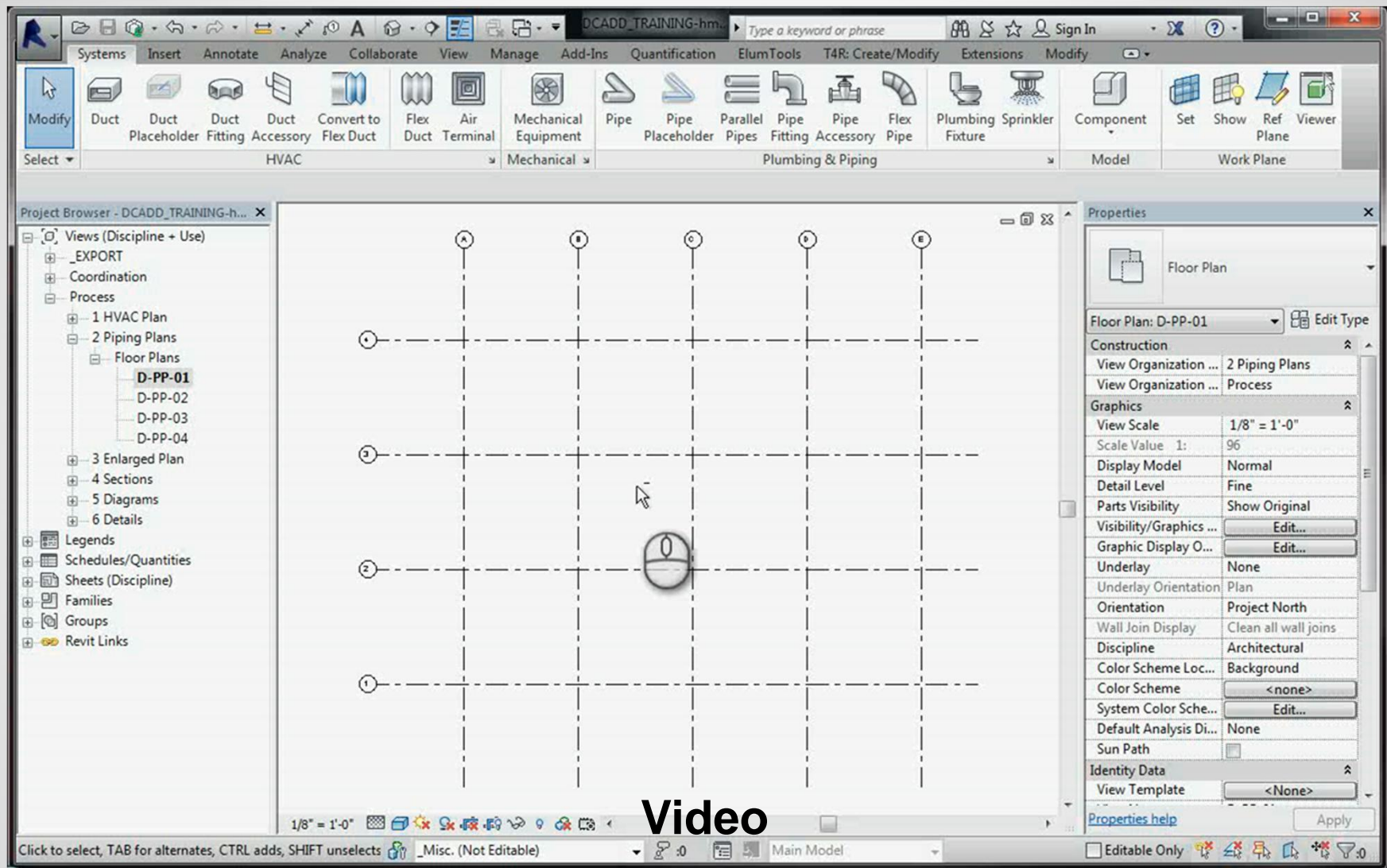
The Next level...

Creating New Pipe Types



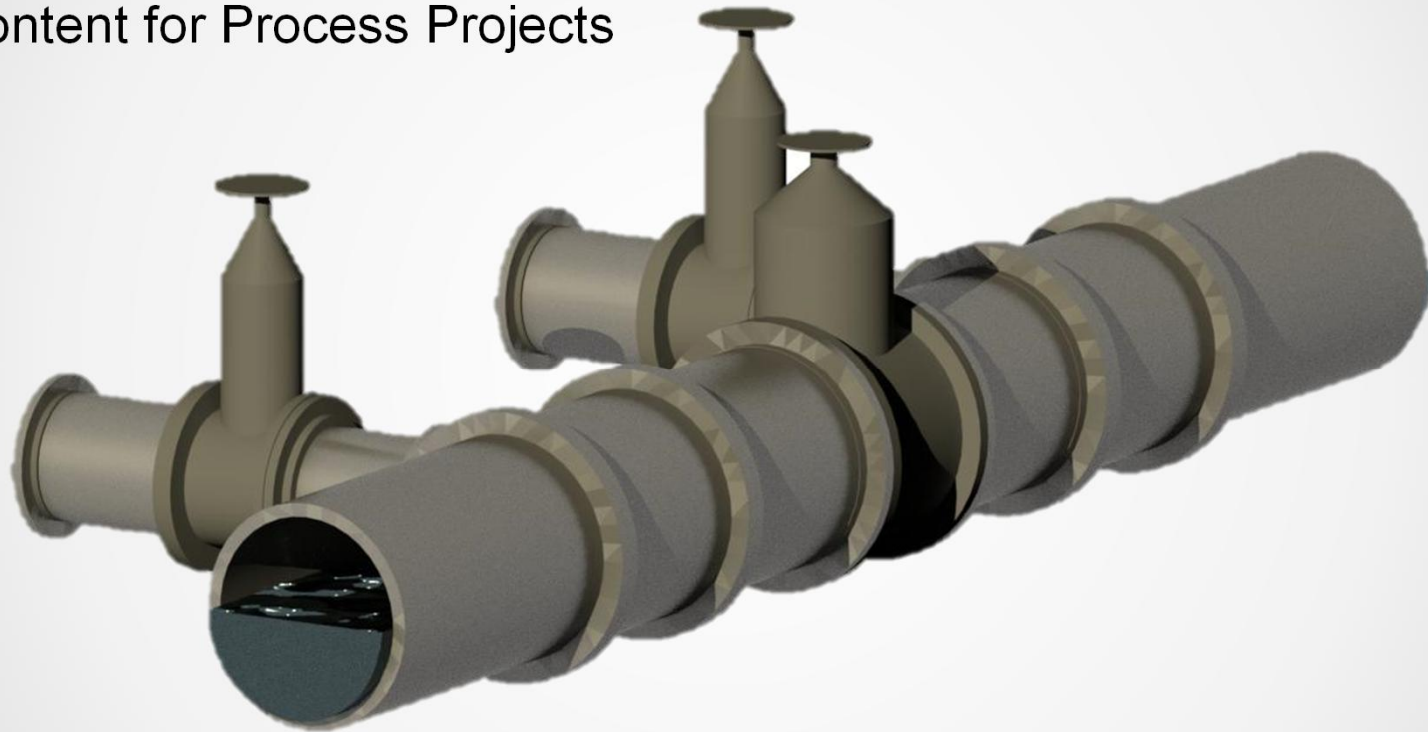


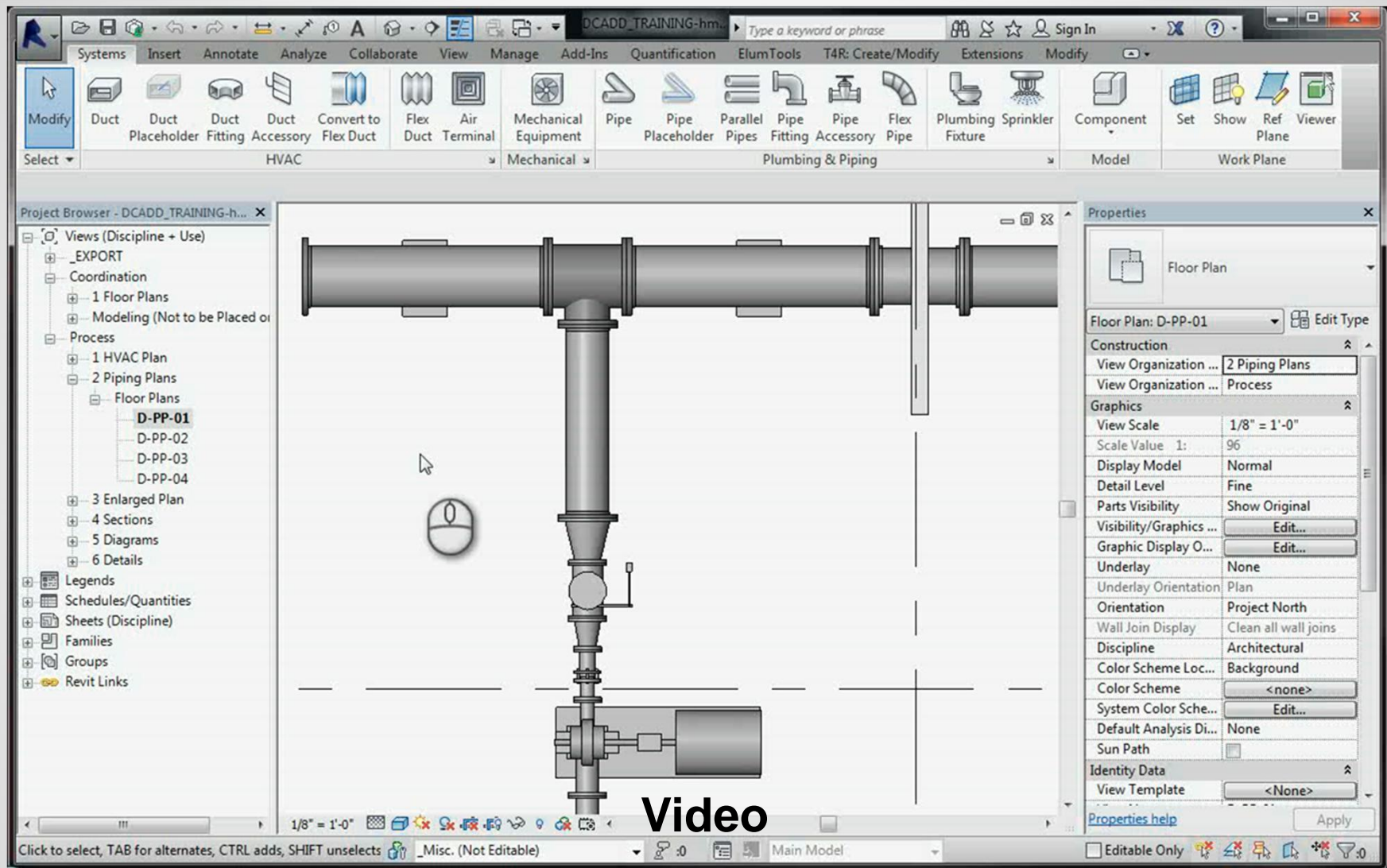


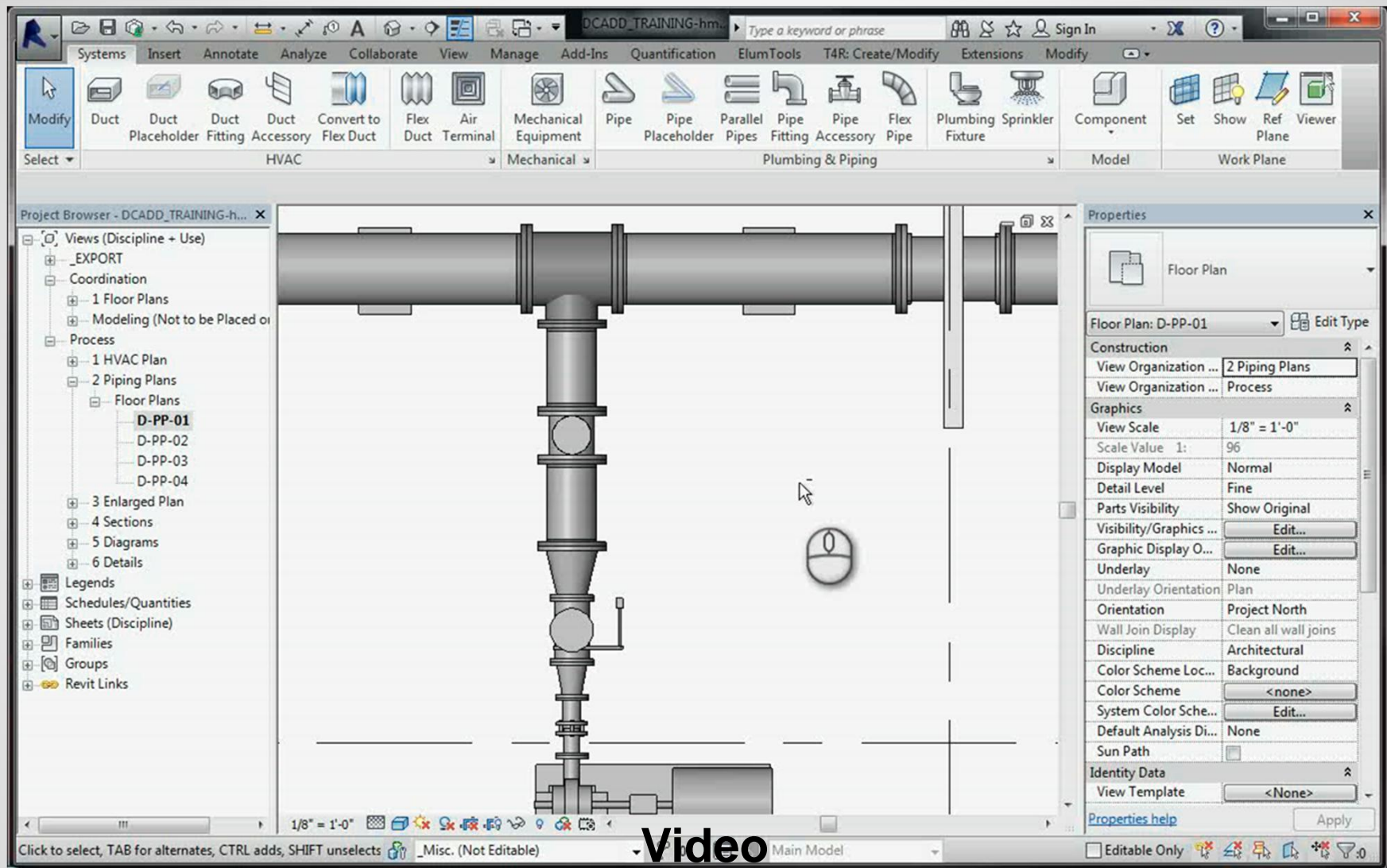


The Next level...

- Content for Process Projects







The Utilization...

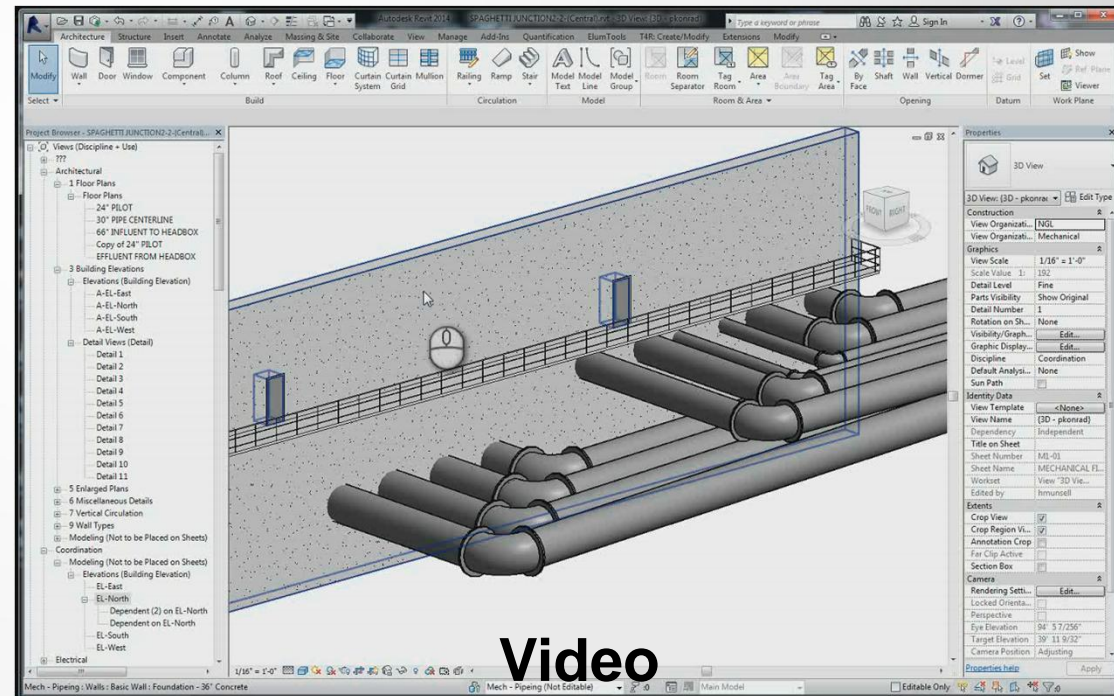


The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit for Large diameter Pipe and Systems.

Example 1:

Vignette used to validate an existing CAD design



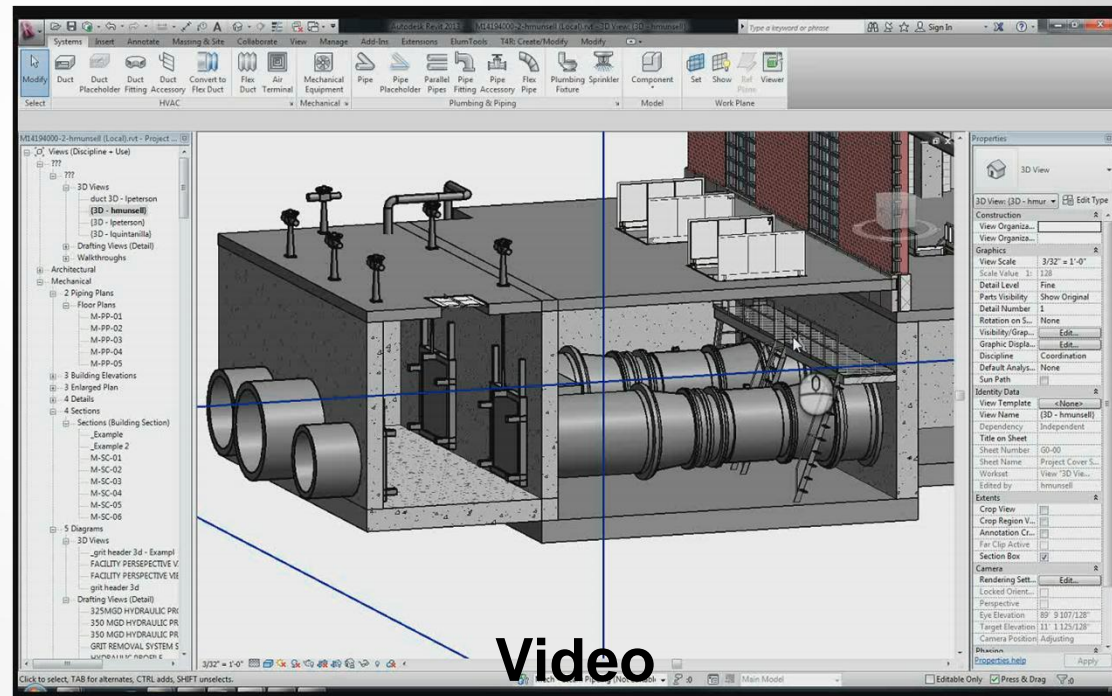
Video

The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit for Large diameter Pipe and Systems.

Example 2:

84" Pipe used in an existing design.

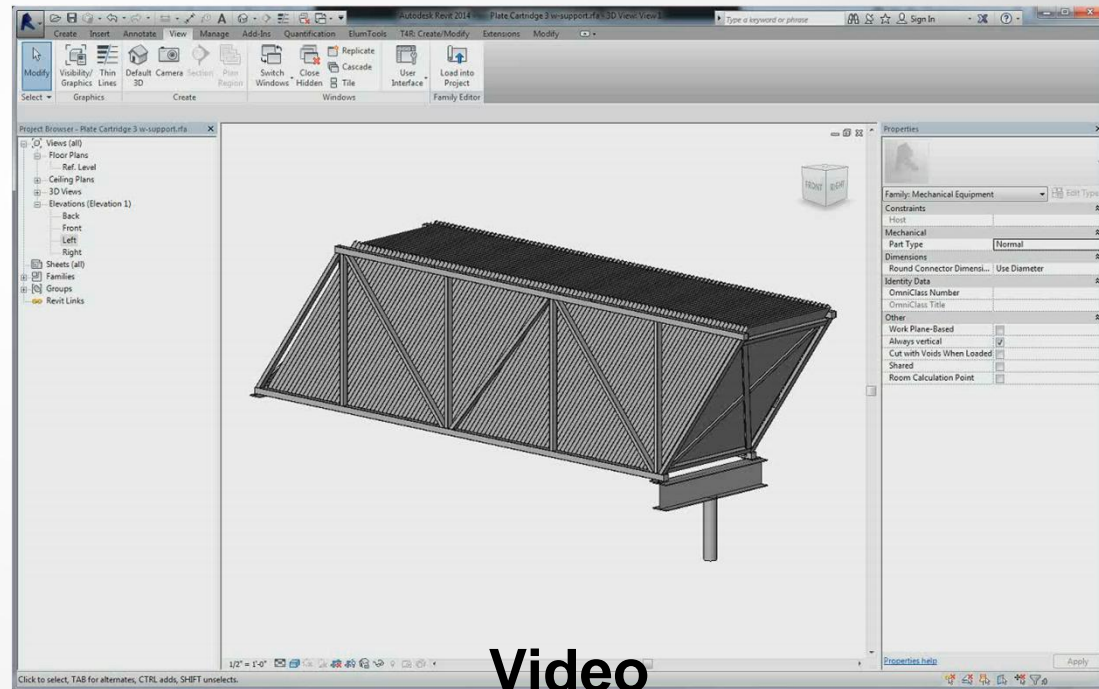


The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit to creating custom content.

Example 1:

Custom Family made from an Inventor file

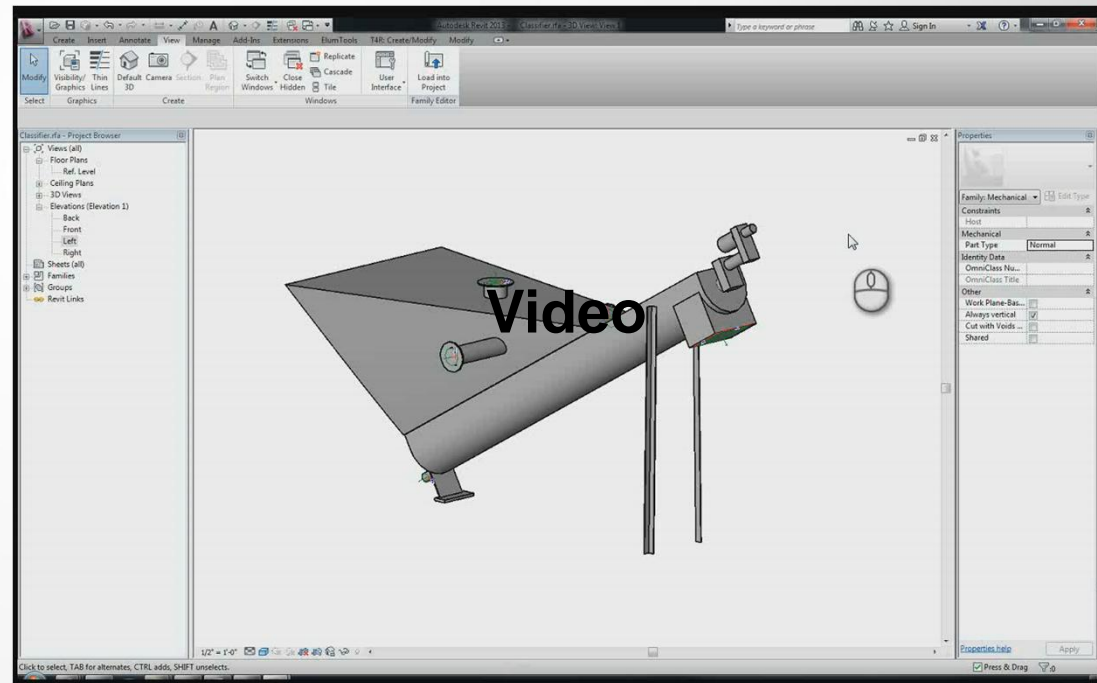


The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit to creating custom content.

Example 2:

Custom Grit Classifier Family

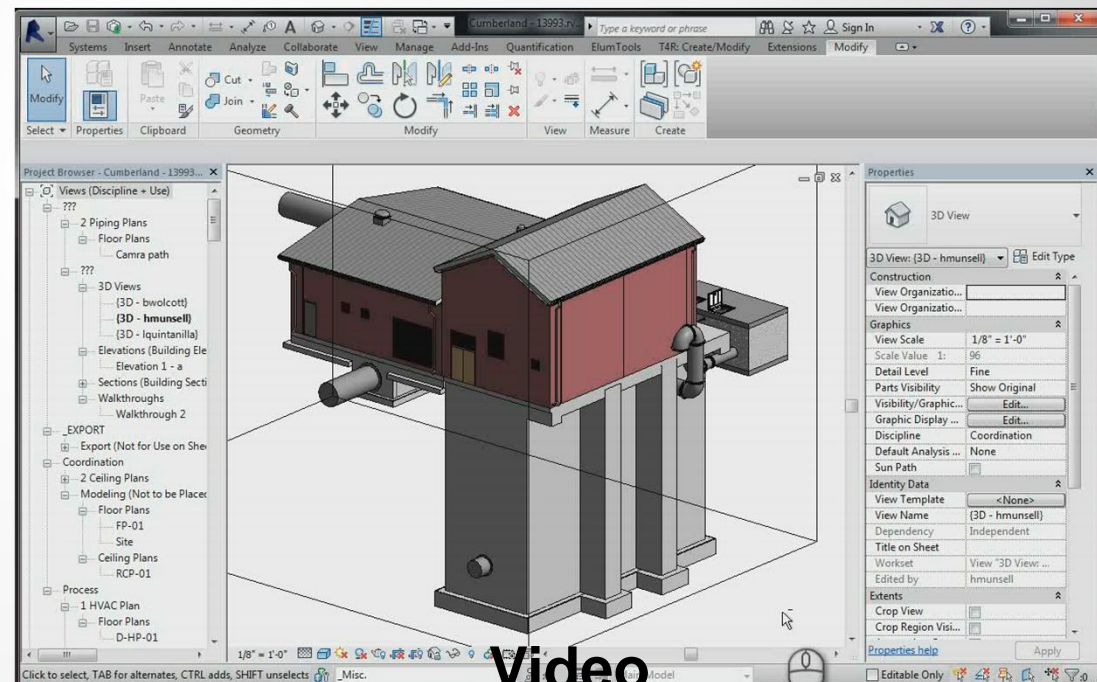


The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit to creating custom content.

Example 3:

Custom Pumps in a self cleaning wet well



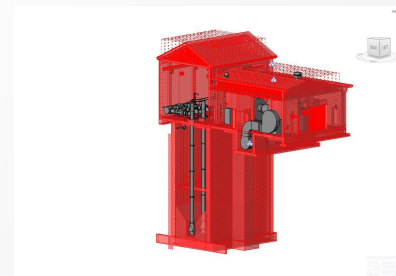
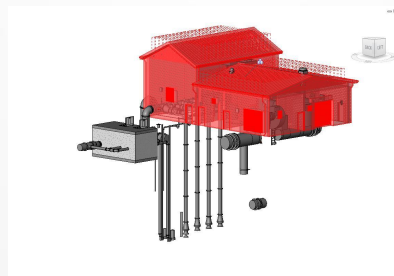
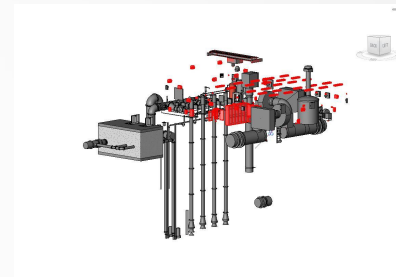
Video

The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit for overall building design and coordination.

Example 1:

Coordination of all building disciplines

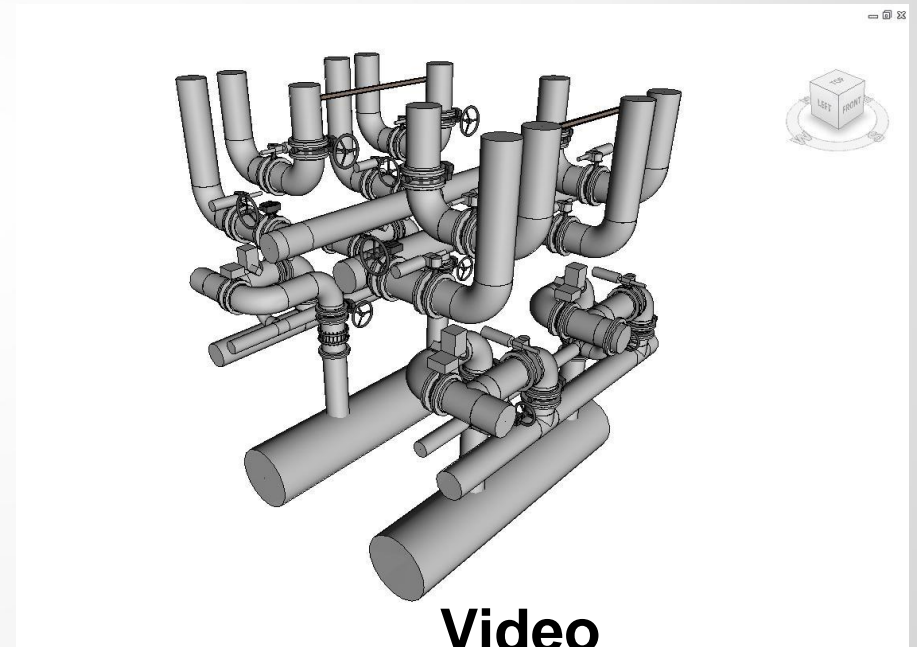


The Utilization...

How WR&A's Water Wastewater disciplines utilize Revit for overall building design and coordination.

Example 2:

Vignette of a tight pipe condition



Video

An aerial perspective rendering of a city skyline. In the foreground, a multi-lane bridge with a rainbow-colored railing spans a body of water. To the right of the bridge is a green park area with a blue pond and a baseball field. In the background, a dense urban skyline with various skyscrapers is visible under a clear blue sky.

The Projects...



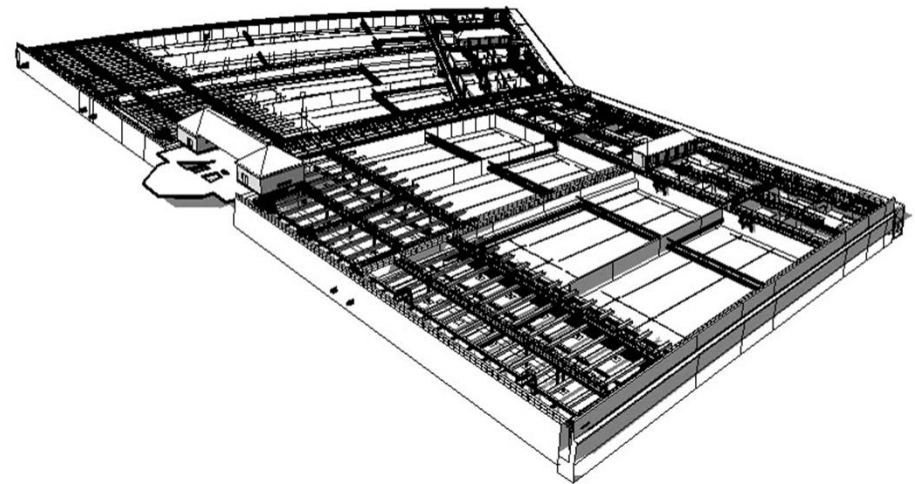
The Projects...

Water Treatment Plant in Virginia

- 132 Million Gallons per Day (MGD) treatment Plant
- Originally constructed in 1924

“Modeling the basins in Revit from survey data of the plant allowed construction plans and details to be created quickly. We were also able to efficiently fit the new mechanical equipment in the basins and incorporate it into the design details.” “...The city also liked the 3D output that was created from the model...” “It helped opened the door with the City for possibly more work at the treatment plant.”

Gregory Dempsey, P.E. | Design Engineer
Whitman, Requardt & Associates, LLP



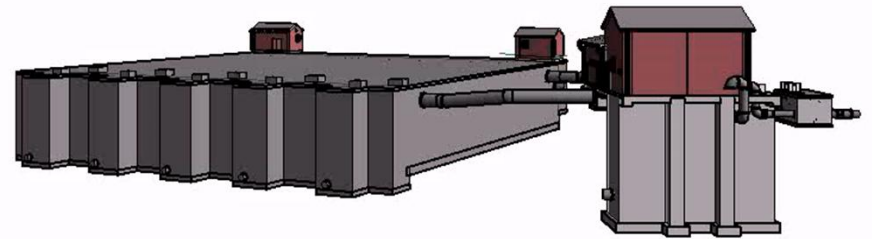
The Projects...

Pump Station near Baltimore

- 20 Million Gallons per Day (MGD) pumping station
- 5 Million Gallon Underground storage tank
- Other disciplines involved included
 - In-house, Architectural & Structural
 - Electrical and Structural (for the storage tank) were done out-of-house.

“Using Revit on this project definitely helped us keep on budget. We also found through using Revit, we were able to use less people to do the same amount of work as a traditional CADD project.”

Lou Klinefelter, P.E. | Sr. Vice President
Whitman, Requardt & Associates, LLP



The Projects...

Pollution Control Plant near Philadelphia

- 300 Million Gallons per Day (MGD) Preliminary treatment facility
- Six (6) Custom made mechanical bar screens
- Six (6) Custom made 26' diameter primary grit tanks

“Revit has provided powerful design tools within our projects. It has allowed us to create 3-D models of existing structures to better visualize and facilitate design of tie-ins and renovations, coordinate conflicts with multiple design disciplines in real-time, and most importantly, provide the Client with a clear picture of what the facility will be when it is built, which has been extremely beneficial in soliciting worthwhile feedback. These tools simply are not available in 2-D design.”

Michael D. Olivier, P.E. | Associate
Whitman, Requardt & Associates, LLP



Food for Thought....

Planning for the future....

- Waiting for the right Project for your first Process project
- Train staff as soon to starting the project as possible.
- Make Segments, Systems and Types as you go.
- Make content as you need it.

The Questions...



The End...

Please fill out the evaluation forms after you leave. It lets us know how we did and it lets Autodesk know if they should invite us back.

Class Name: It's All in the Process...

Class Number: MP1285

Instructor: Howard Munsell



Thank You for Attending.....

