



New York City College of Technology Division of Continuing Education

Building Information Modeling with Revit 2014 Module 05 : FH.02 *Firehouse Foundations*



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<http://professorpaulking.wordpress.com/>
<http://openlab.citytech.cuny.edu/bim101-sp14/>

<http://students.autodesk.com/>

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

- Sketch
- Mirror
- Columns

Sheet Layout

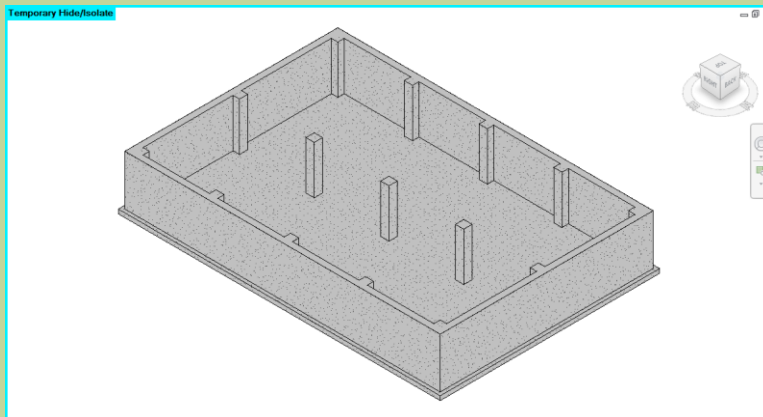
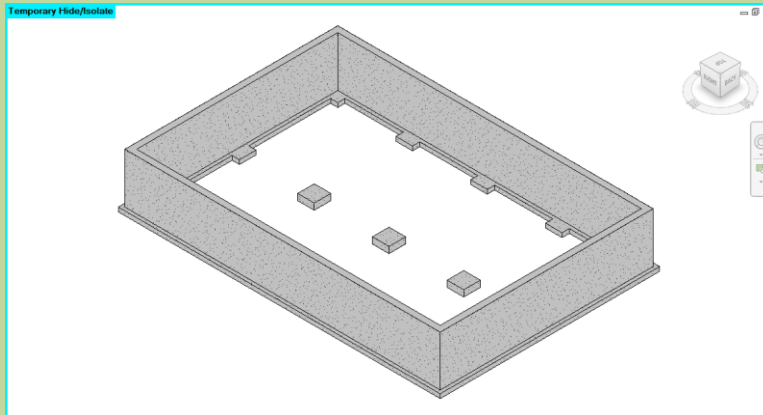
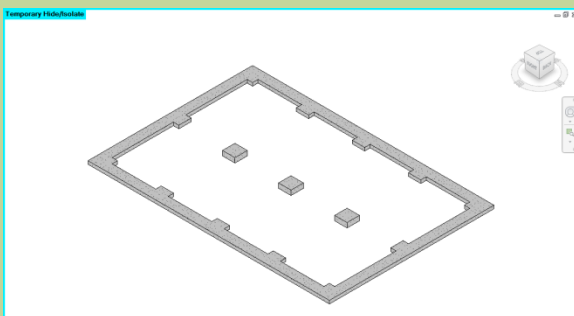
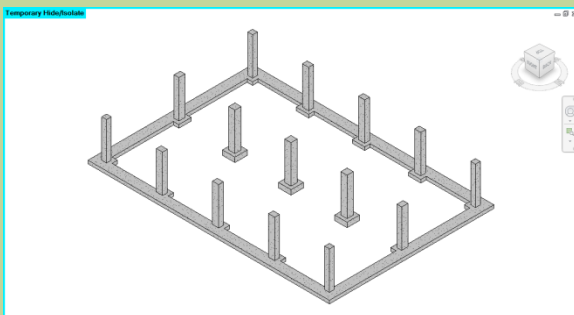
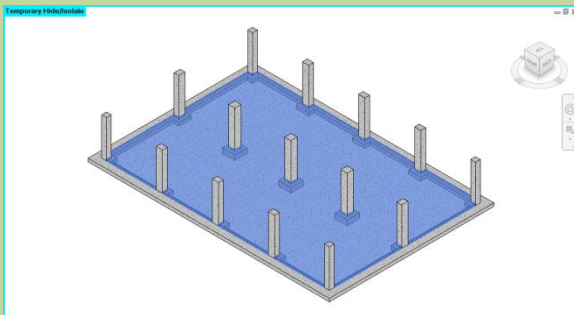
- S-100
- View Template

Wrap-Up

Revit Introduction

Overview: Foundations

- Foundation Wall
- Footing
- Structural Columns
- Isolated Footings



Add New Level

Day 05

Overview

New Level Propagate Extents

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- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

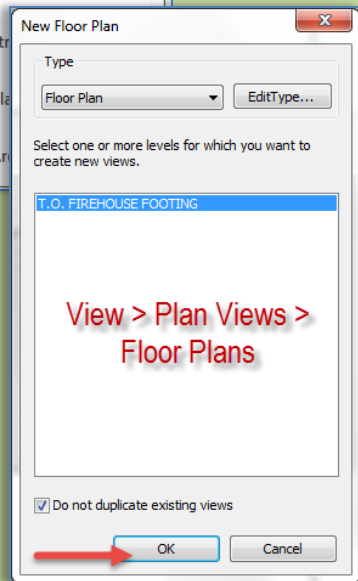
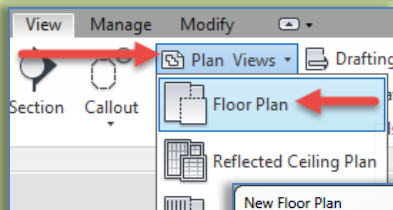
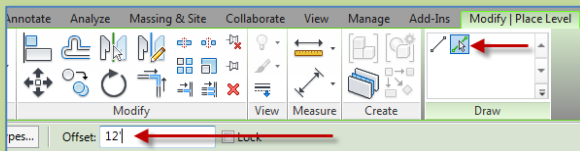
- Sketch
- Mirror
- Columns

Sheet Layout

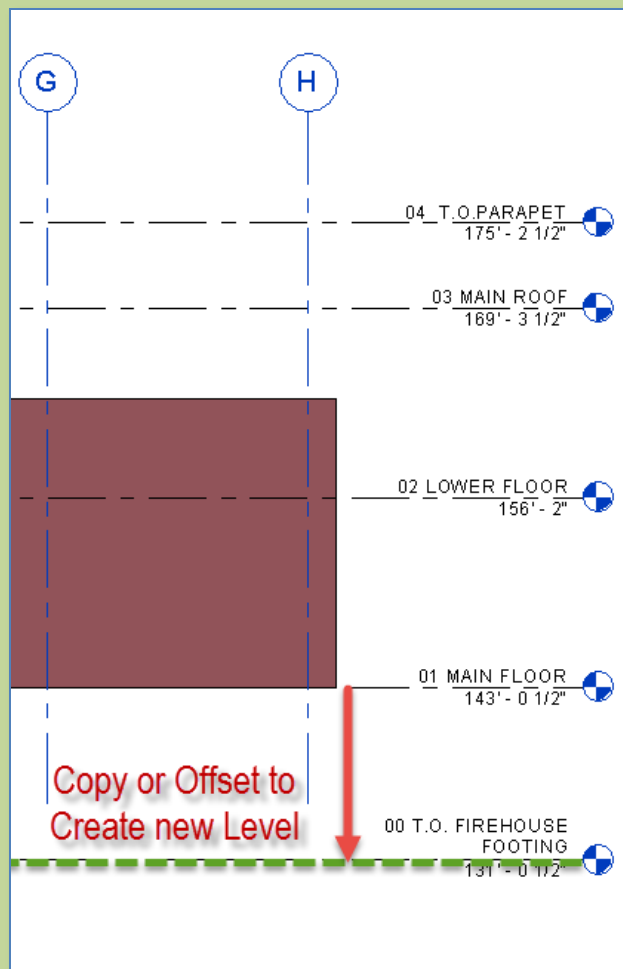
- S-100
- View Template

Wrap-Up

Revit Introduction

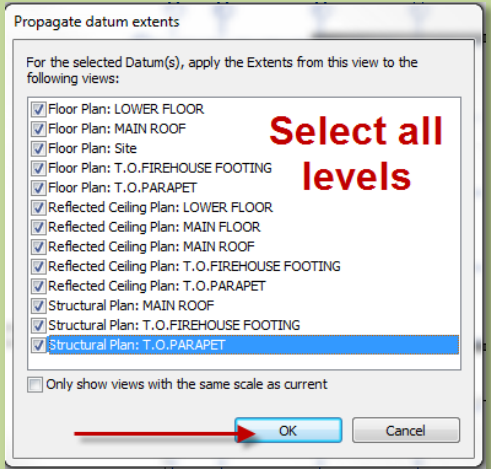
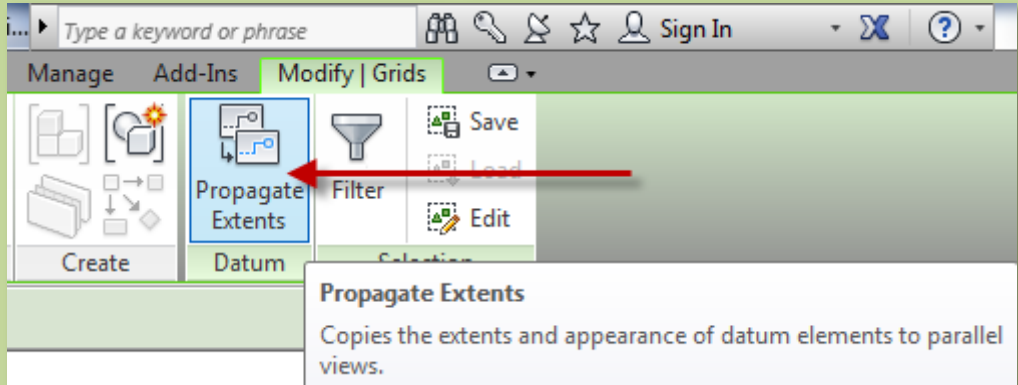
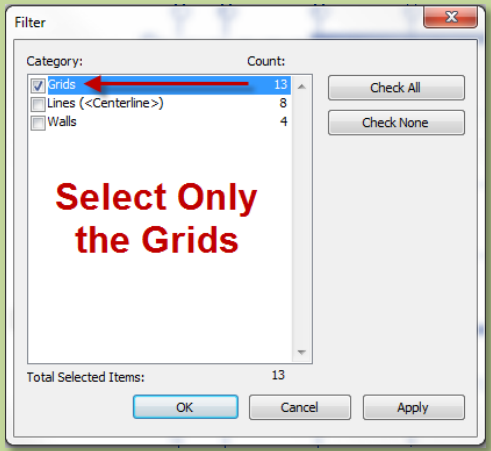
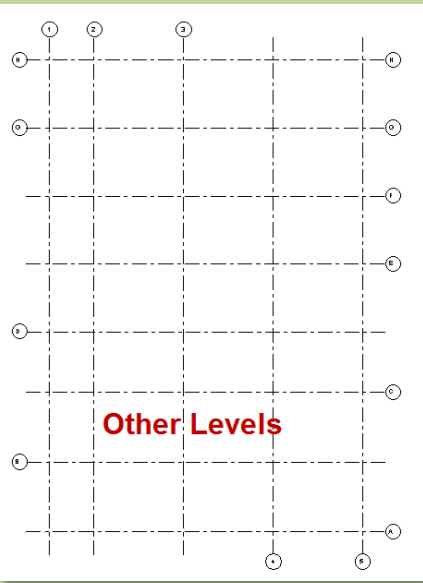
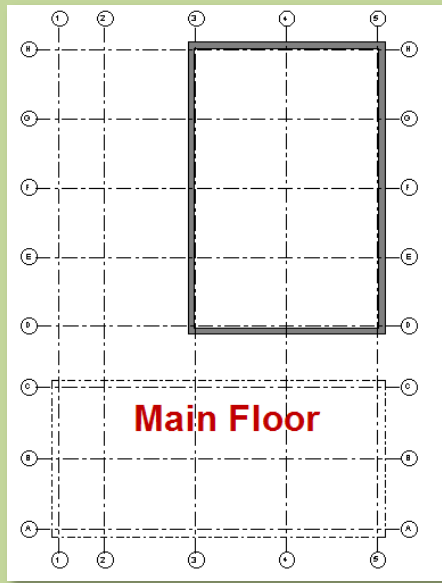


- Create Plan View for Level



- Level 4 @ 173'- 2 1/2"
- Rename T.O.PARAPET
- Level 3 @ 169'- 3 1/2"
- Rename MAIN ROOF
- Level 2 @ 156'- 2"
- Rename LOWER LEVEL
- Level 1 @ 143'-0 1/2"
- Rename MAIN FLOOR
- New Level 12' below
- Level 5 @ 131'-0 1/2"
- Rename T.O. FIREHOUSE FOOTING

Cleanup: Propagate the grid extents



Overview

New Level
Propagate Extents

Structural
Foundation Wall

Visibility Settings
View Depth
Underlay

Add
Wall Footing
Structural
Columns
Isolated
Footings
Modify Footings

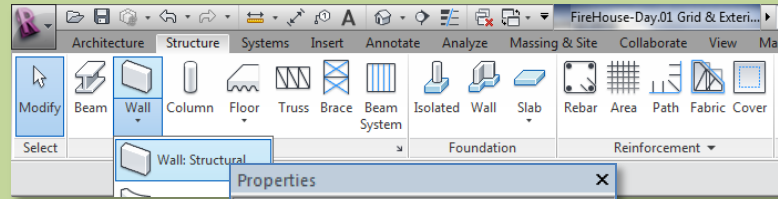
Slab on Grade
Sketch
Mirror
Columns

Sheet Layout
S-100
View Template

Wrap-Up

Revit Introduction

Draw Structural Foundation Wall



- Goto MAIN FLOOR
- Structure > Wall Structural
- Foundation 12" Concrete > Edit Type > duplicate

Type Properties

Family: System Family: Basic Wall
Foundation - 12" Concrete

Type: Foundation - 12" Concrete

Buttons: New Walls, Edit Type, Duplicate..., Rename...

Type Parameters

Parameter	Value
Construction	
Structure	Edit...
Wrapping at Inserts	
Wrapping at Ends	Do not wrap
Width	None
Function	
Graphics	
Coarse Scale Fill Pattern	
Coarse Scale Fill Color	
Materials and Finishes	
Structural Material	
Identity Data	
Keynote	
Model	
Manufacturer	
Type Comments	
URL	
Description	
Assembly Description	Foundation Walls

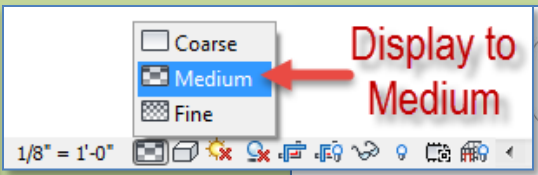
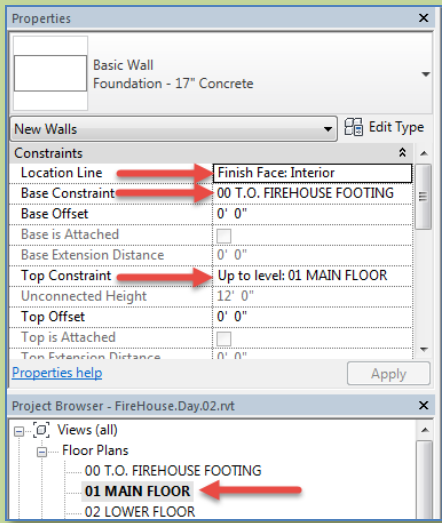
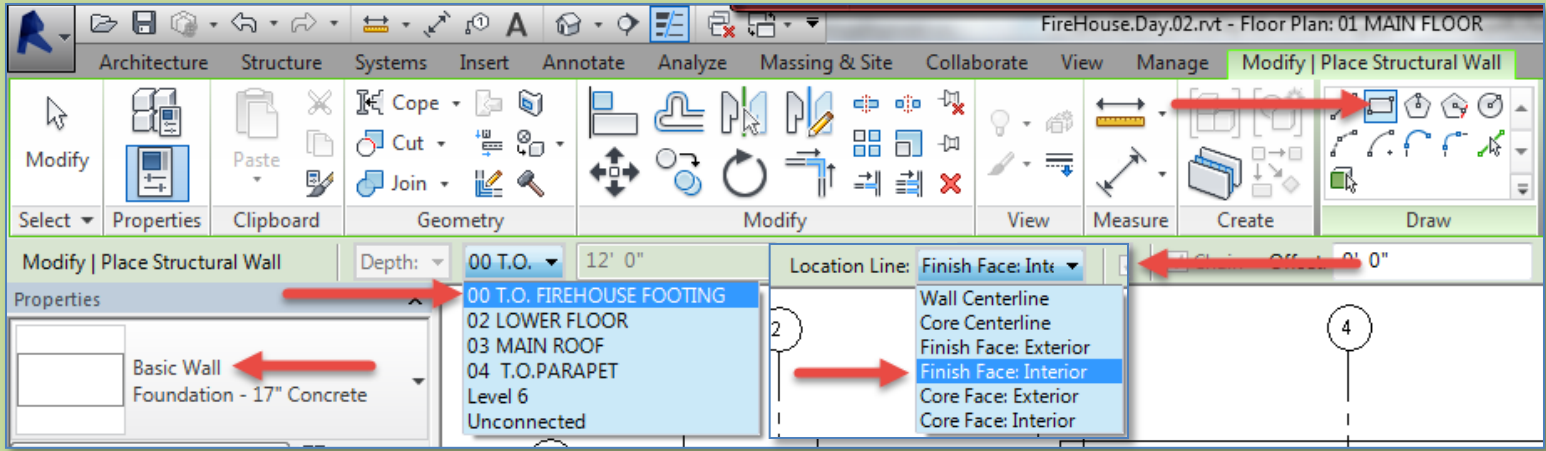
Edit Assembly

Family: Basic Wall
Type: Foundation - 17" Concrete
Total thickness: 1' 5"
Resistance (R): 2.3440 (h-ft²·°F)/BTU
Thermal Mass: 31.9196 BTU/°F
Sample Height: 20' 0"

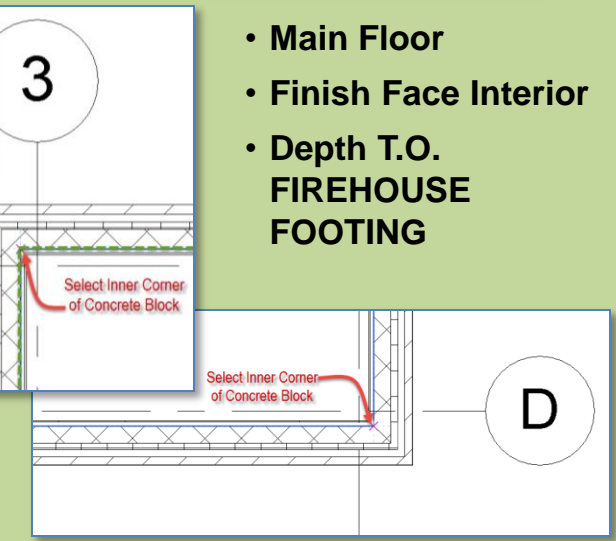
LAYERS					
EXTERIOR SIDE					
	Function	Material	Thickness	Wraps	Structural Material
1	Core Boundary	Layers Above Wrap	0' 0"		
2	Structure [1]	Concrete, Cast-in-Place	1' 5"		<input checked="" type="checkbox"/>
3	Core Boundary	Layers Below Wrap	0' 0"		

- New Wall Type
- Foundation 17" Concrete
- Edit Structure to 1'-5"

Draw Structural Foundation Wall



Change the Detail Level to Medium so that the Interior of the Brick Wall is visible



Fix Visibility of Foundation Wall (Main Floor)

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

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Add

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- Isolated Footings
- Modify Footings

Slab on Grade

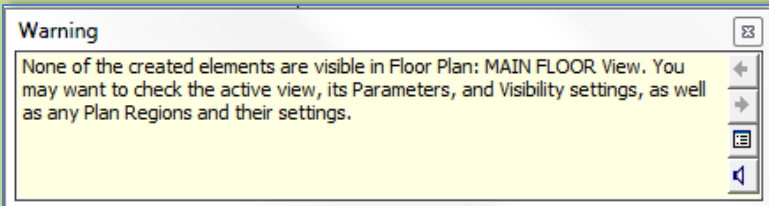
- Sketch
- Mirror
- Columns

Sheet Layout

- S-100
- View Template

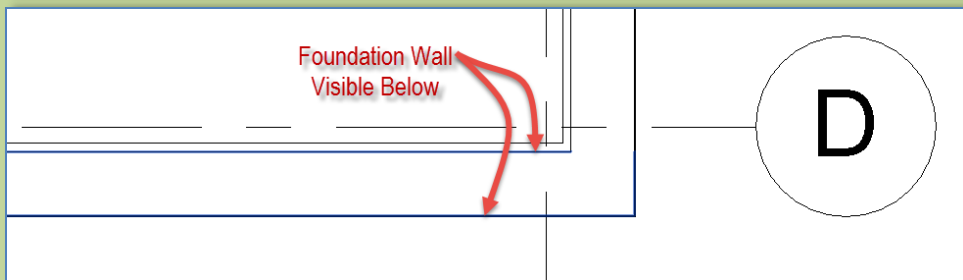
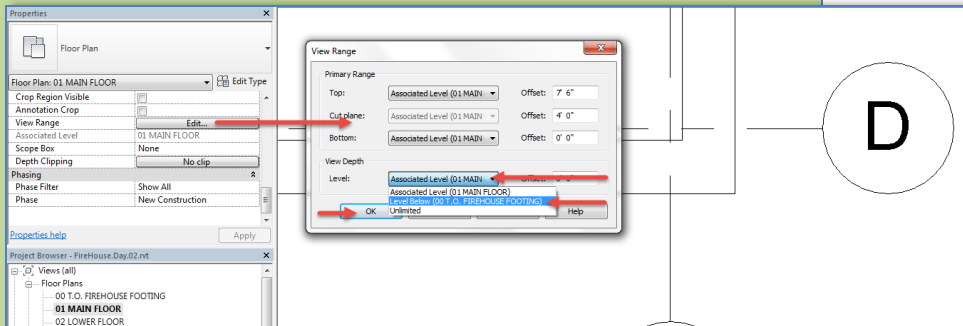
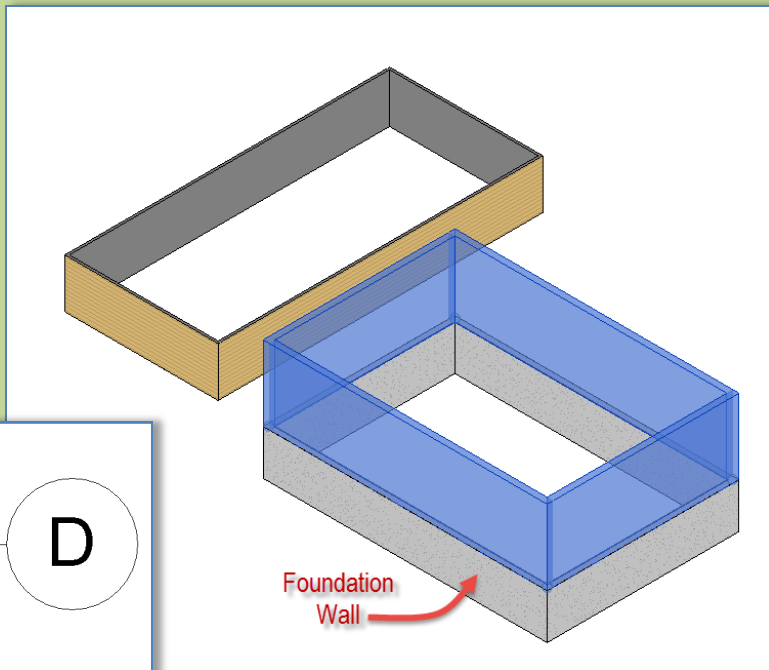
Wrap-Up

Revit Introduction



Visibility Notes:

- It is common to need visibility settings that help you work and edit and a different set of visibility settings for printing



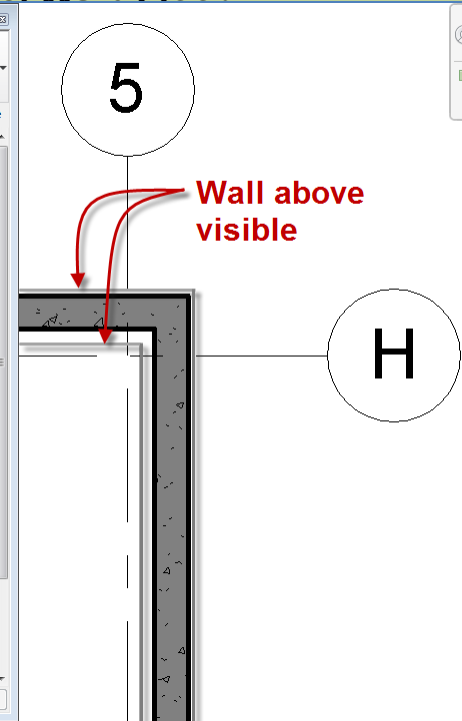
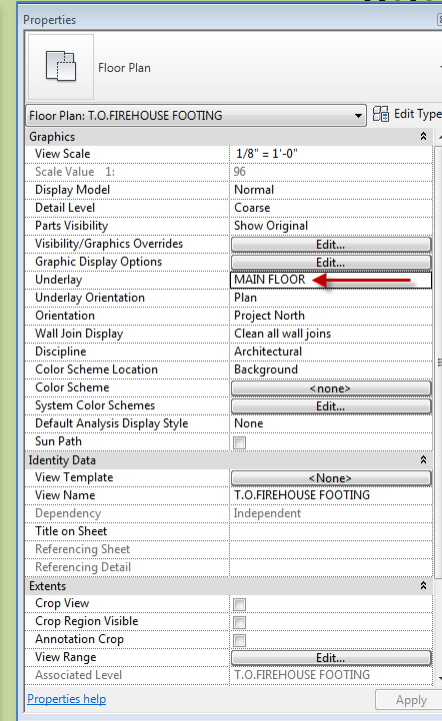
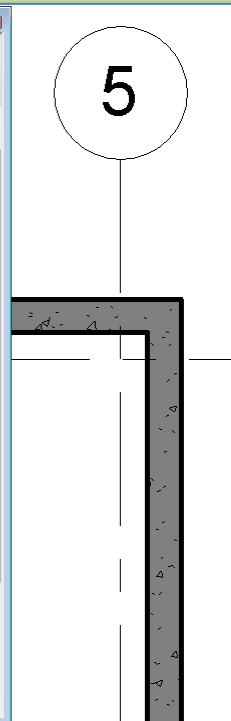
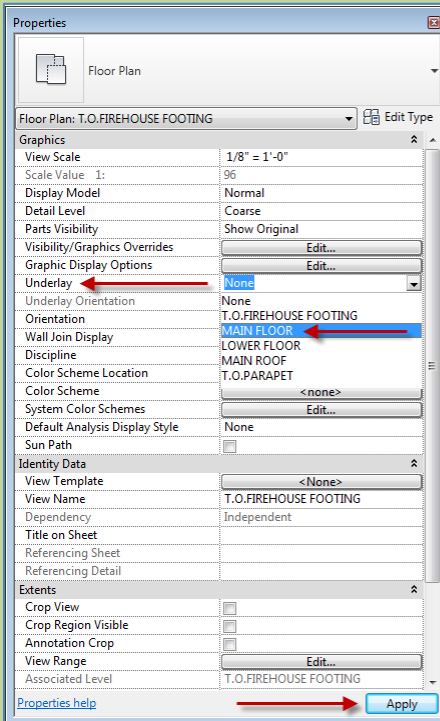
- Select Main Floor
- View Range >
 - View Depth
 - T.O. Firehouse Footing
 - Apply or OK

Modify Visibility of Main floor Wall (T.O.FOOTING)

- Select T.O. Firehouse Footing
- Underlay > Main Floor > Apply

Visibility Notes:

- It is common to need visibility settings that help you work and edit and a different set of visibility settings for printing



Add Wall Footing

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

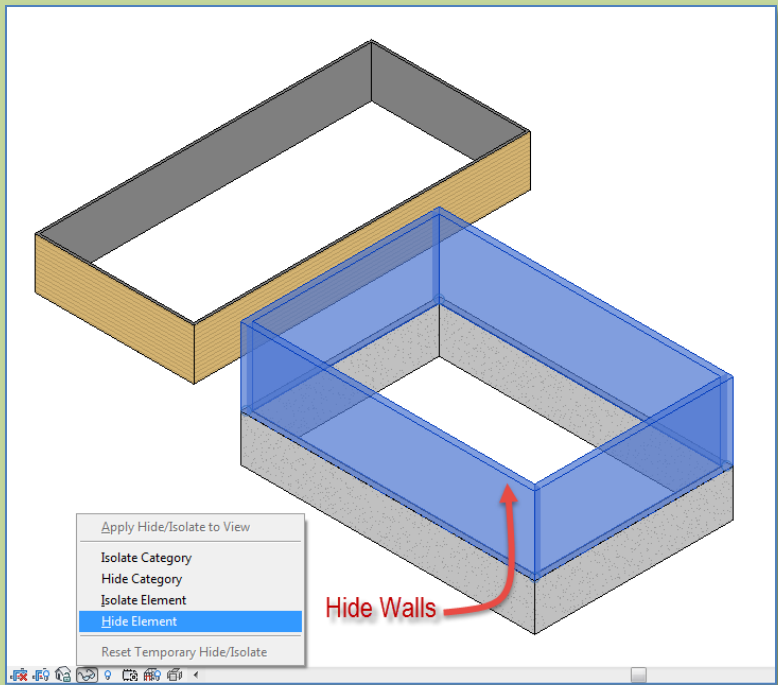
- Sketch
- Mirror
- Columns

Sheet Layout

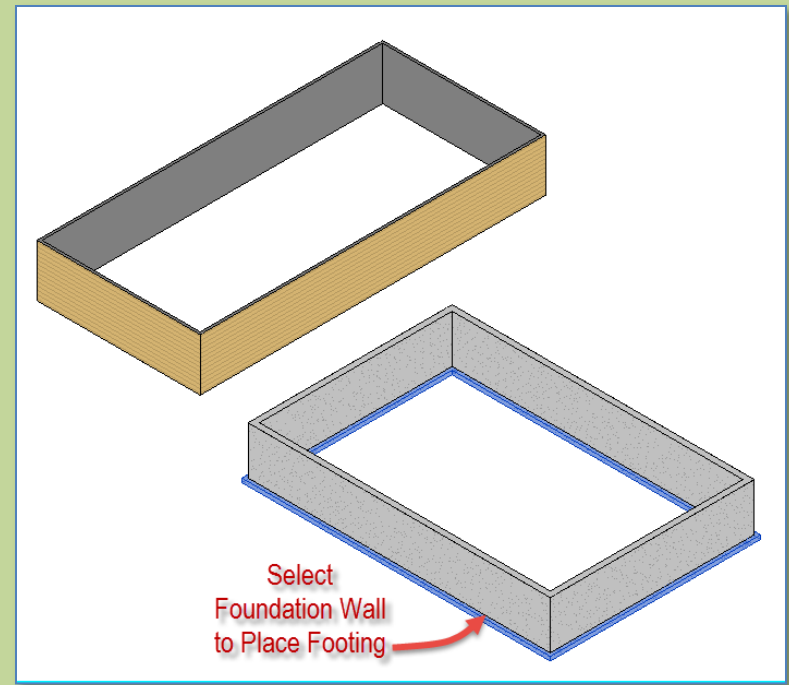
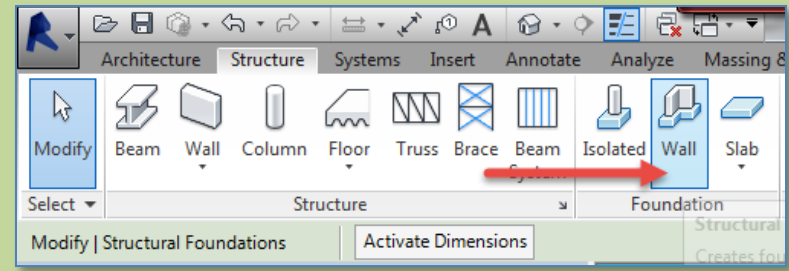
- S-100
- View Template

Wrap-Up

Revit Introduction



- Select the Firehouse Walls and hide them temporarily
- Structure > Foundation > Wall
- Create Foundation 30" x 12"
- Reset Visibility



Add Wall Footing

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

- Visibility Settings
- View Depth
- Underlay

Add
Wall Footing

- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

- Sketch
- Mirror
- Columns

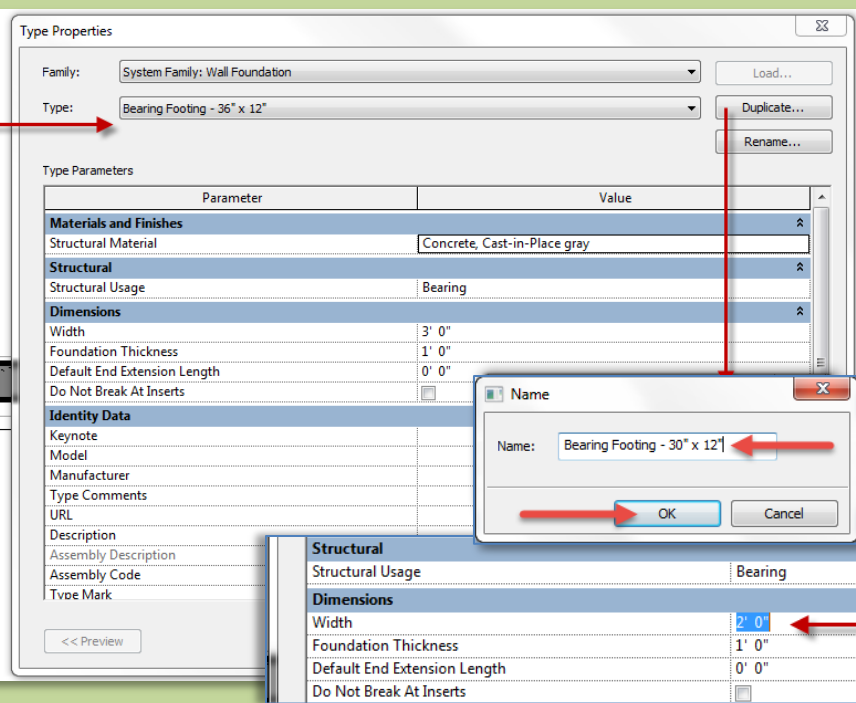
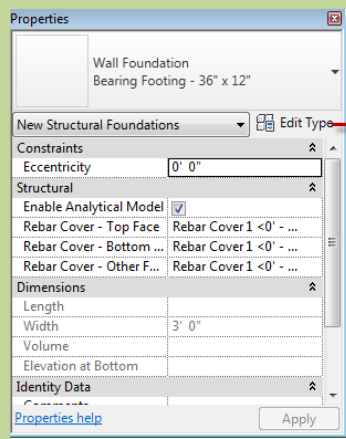
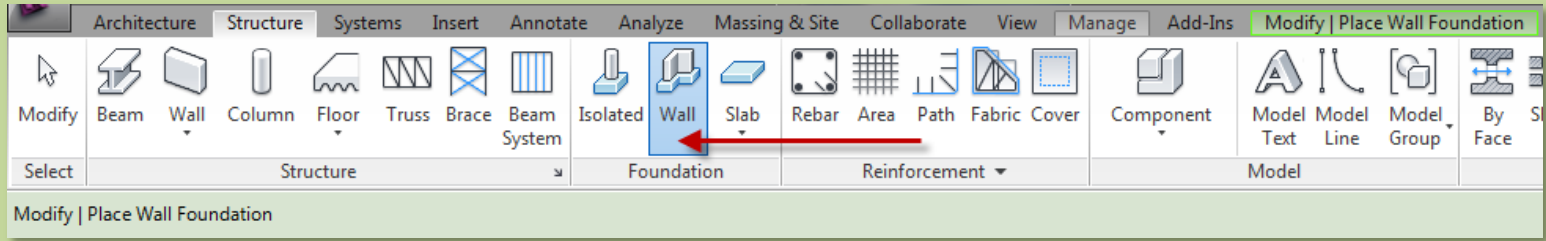
Sheet Layout

- S-100
- View Template

Wrap-Up

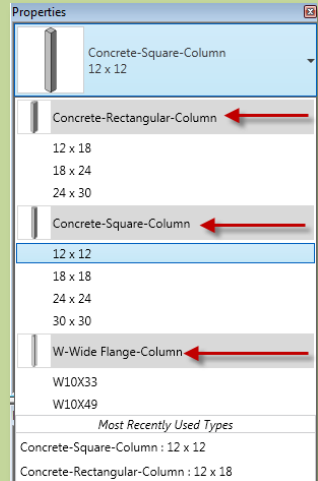
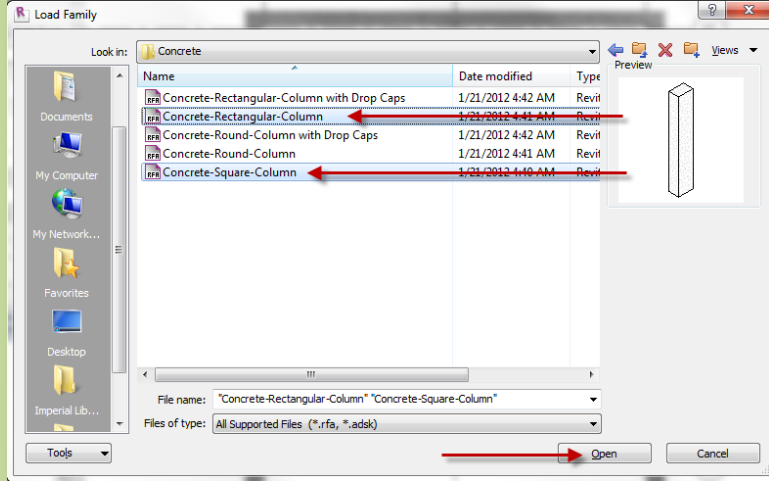
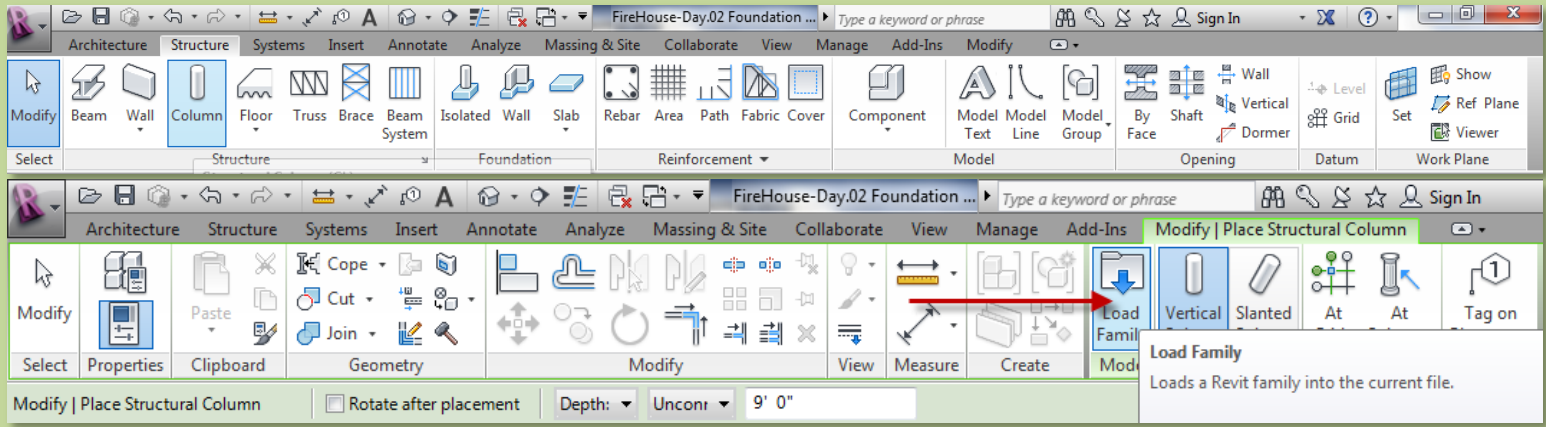
Revit Introduction

Division of Continuing Education



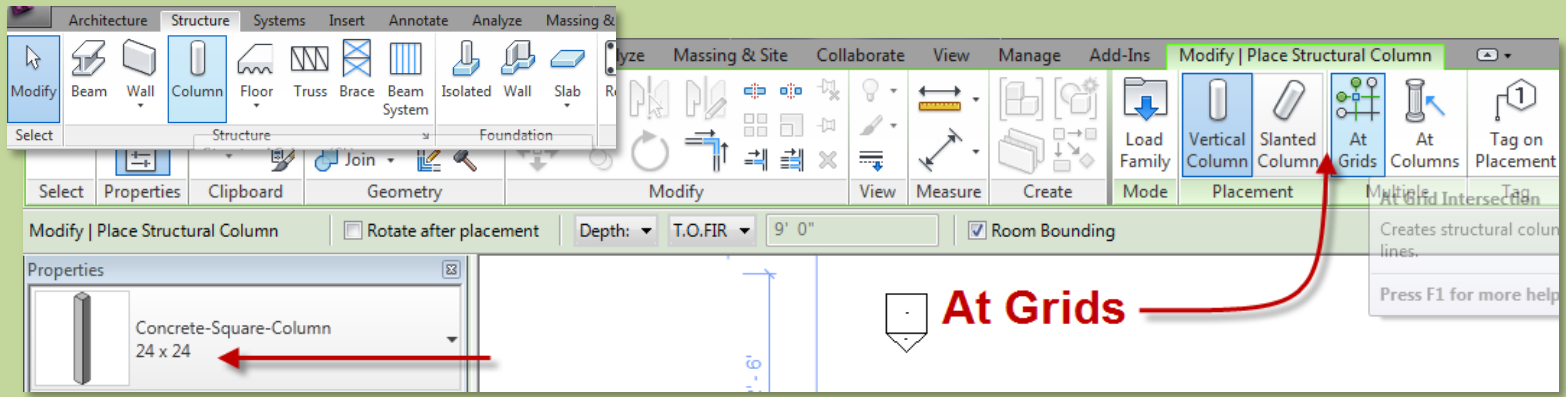
- Wall Foundation 36" x 12"
- Edit Type
- Duplicate
- 30" x 12"
- Modify Dimension to 30"
- OK

Add Structural Columns

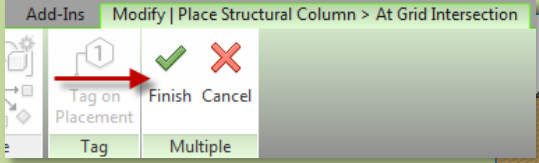
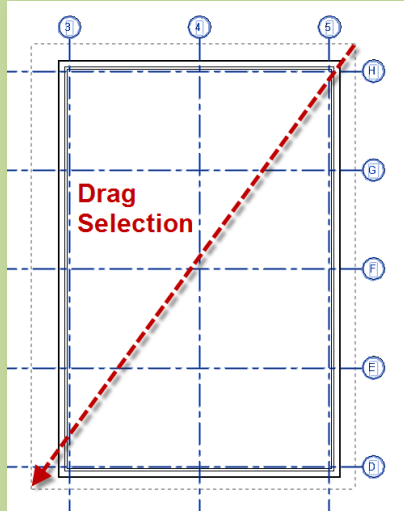


- Load Family
- Structure Columns
 - Concrete
 - Rectangular & Square families

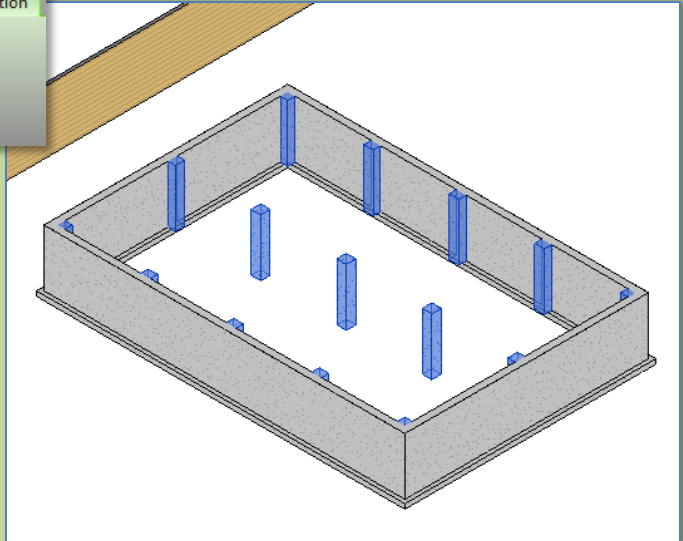
Add Structural Columns



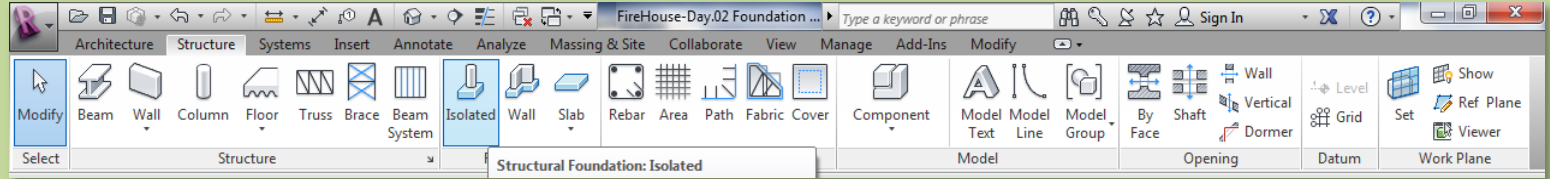
At Grids



- Main Floor
- Depth > T.O. Firehouse Footing
- Square 24 x 24
- At Grids
- Finish Sketch to accept



Add Isolated Footings



Overview

New Level Propagate Extents

Structural Foundation Wall

Visibility Settings

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Slab on Grade

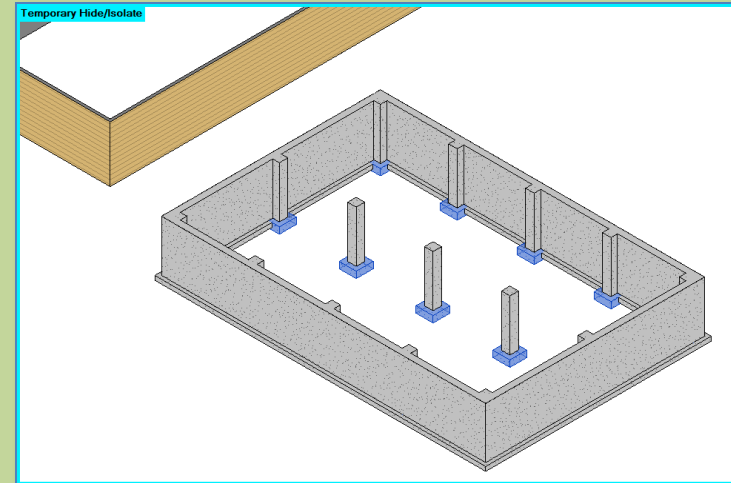
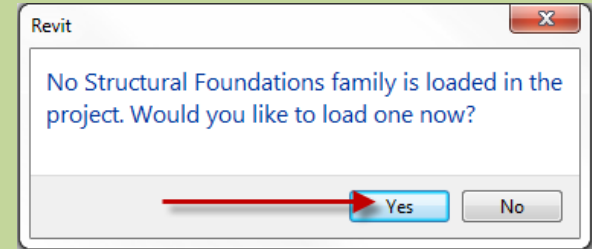
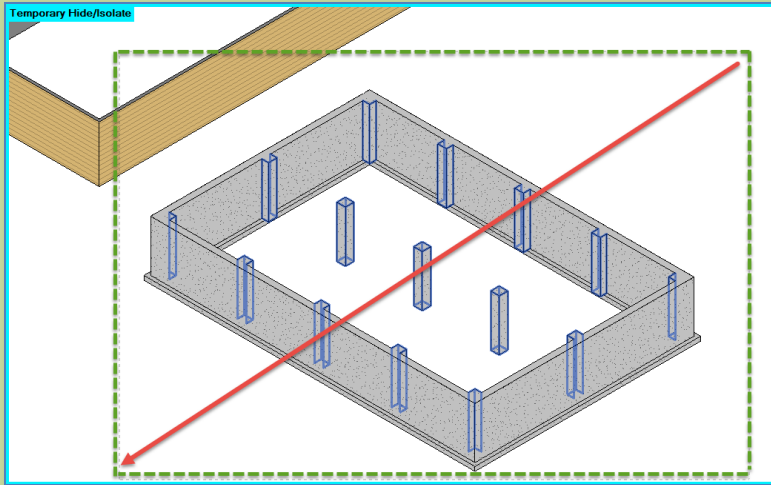
- Sketch
- Mirror
- Columns

Sheet Layout

- S-100
- View Template

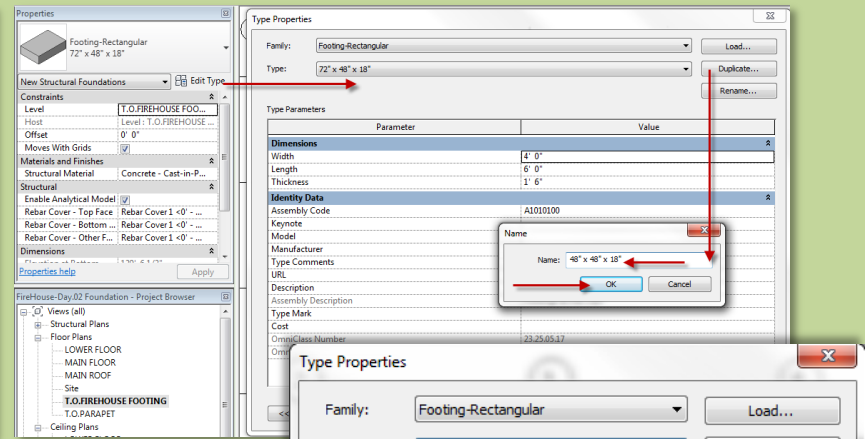
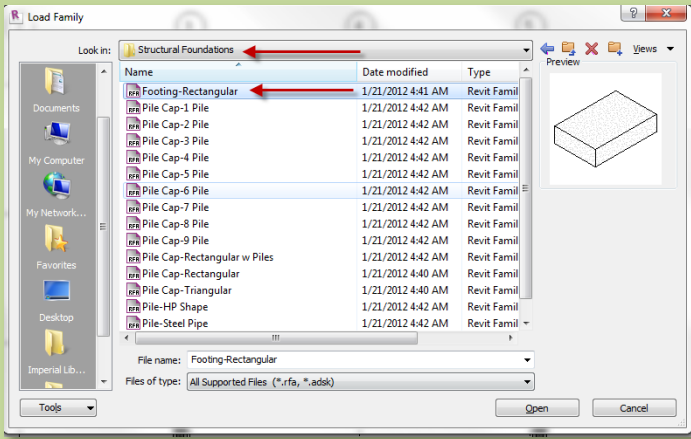
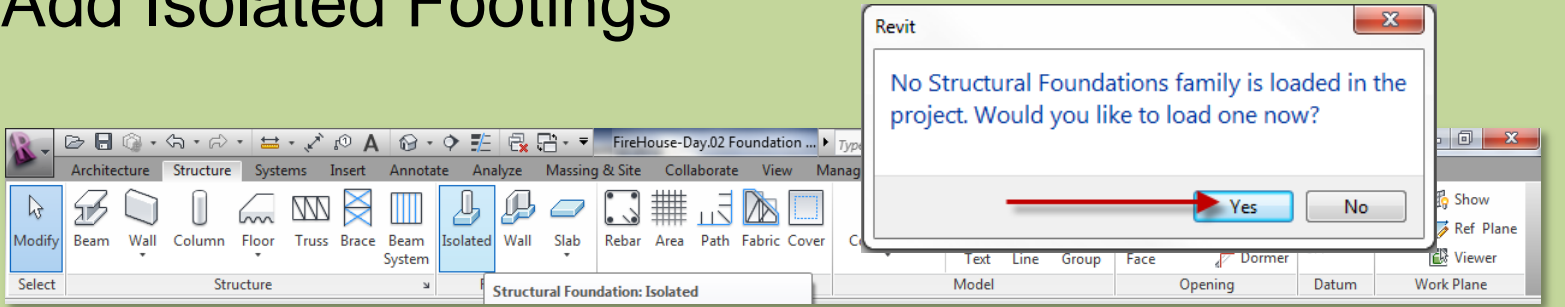
Wrap-Up

Revit Introduction

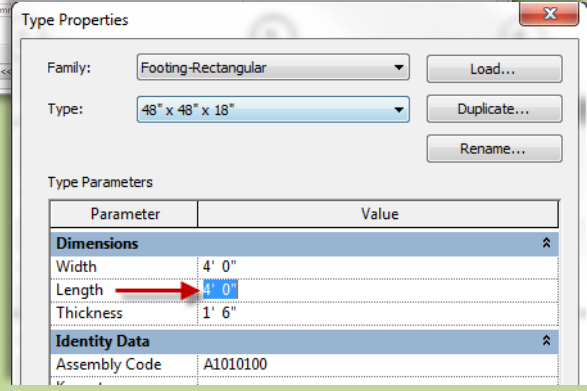


- Structure > Isolated Footing
- No Structural Foundation Family is loaded > Yes
- Structural Foundations > Footing-Rectangular
- Edit Type > Duplicate > 48" x 48" x 18"
- Length > 4'- 0"

Add Isolated Footings



- Structure > Isolated Footing
- No Structural Foundation Family is loaded > Yes
- Structural Foundations > Footing-Rectangular
- Edit Type > Duplicate > 48" x 48" x 18"
- Length > 4'- 0" (48")



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Slab on Grade

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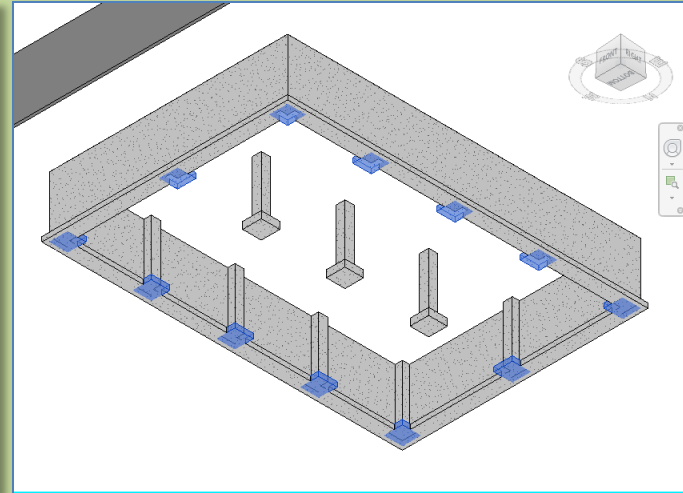
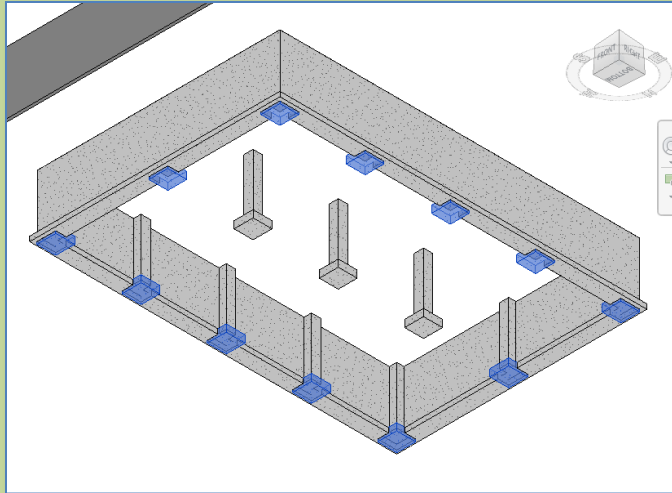
Sheet Layout

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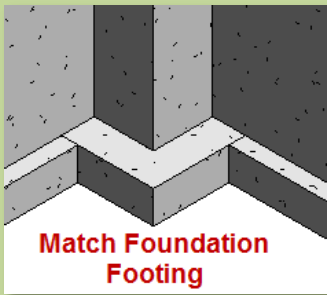
Wrap-Up

Revit Introduction

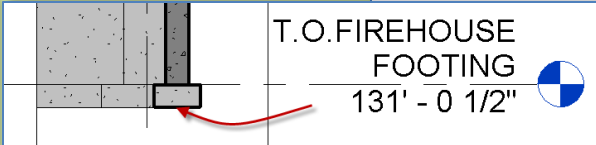
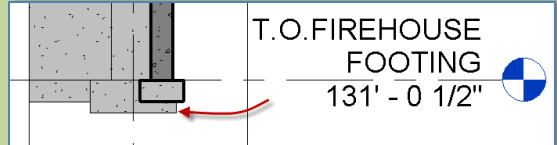
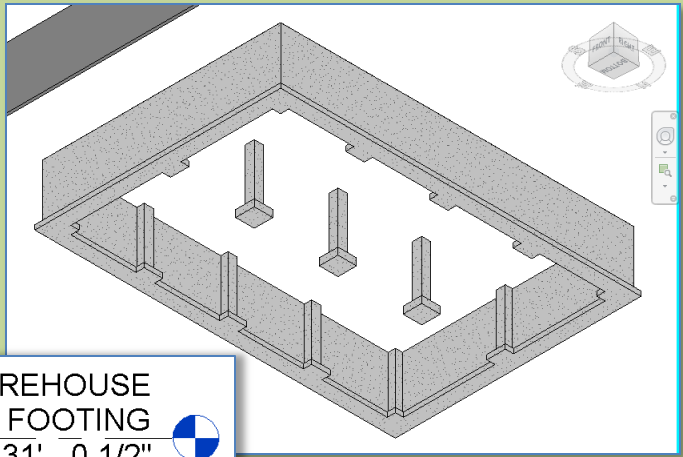
Modify Isolated Footings at Foundation Wall



3d Views from Below



- 48" x 48" x 18" Deep Footings
- Edit Type > Duplicate > 48"x48"x12"
- Thickness to 12"
- Select all perimeter isolated footings



Overview

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Slab on Grade

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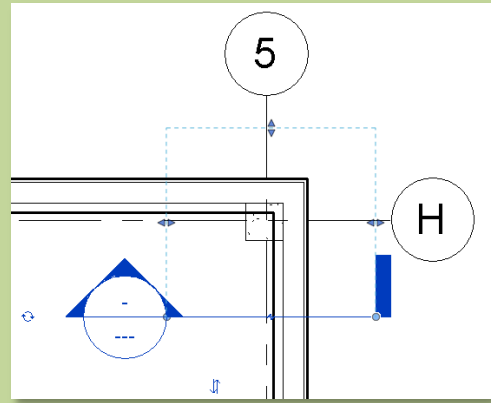
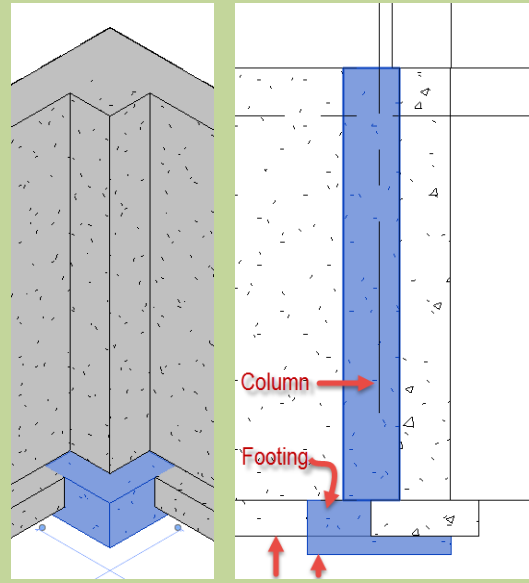
Sheet Layout

- S-100
- View Template

Wrap-Up

Revit Introduction

Modify Isolated Footings at Foundation Wall



Properties

Footing-Rectangular
48" x 48" x 18"

Structural Foundations (1)

Constraints

Level	T.O.FIREHOUSE FOO...
Host	Level : T.O.FIREHOUSE ...
Offset	0' 0"
Moves With Grids	

Type Properties

Family: Footing-Rectangular

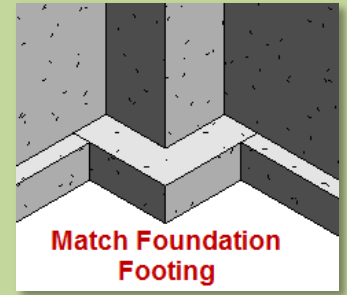
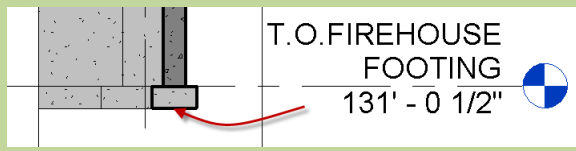
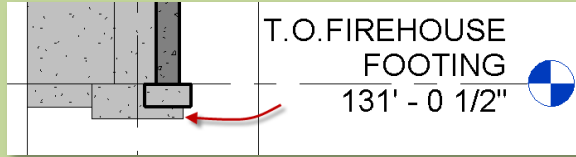
Type: 48" x 48" x 18"

Parameter	Value
Dimensions	
Width	4' 0"
Length	4' 0"
Thickness	1' 6"
Identity Data	
Assembly Code	A1010100
Keynote	
Model	
Manufacturer	
Type Comm	
URL	
Description	
Assembly D	
Type Mark	

Name: 48" x 48" x 12"

OK Cancel

- 48" x 48" x 18" Deep Footings
- Edit Type > Duplicate > 48"x48"x12"
- Thickness to 12"
- Select all perimeter isolated footings



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Wrap-Up

Revit Introduction

Slab on Grade (Top of Firehouse Footing)

Floor Plans
LOWER LEVEL
MAIN FLOOR
MAIN ROOF
Site
T.O.FIREHOUSE FOOTING
T.O.PARAPET

FireHouse-Day.05 Firehouse St... Type a keyword or phrase

Massing & Site Collaborate View Manage Add-Ins Modify

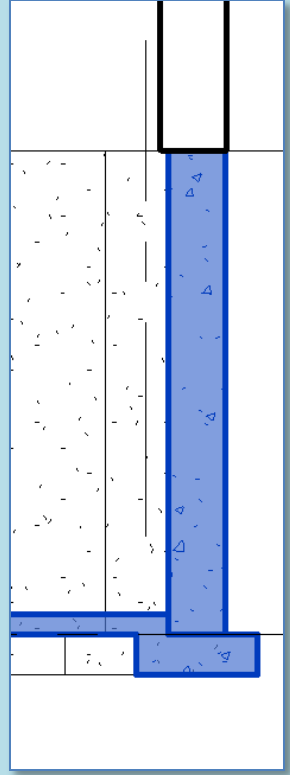
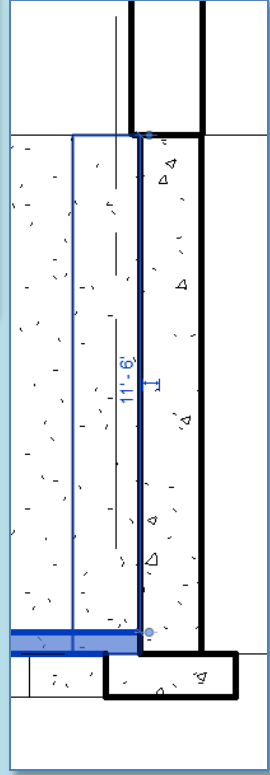
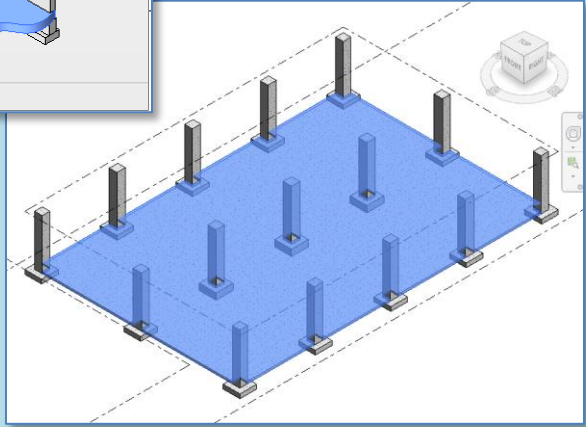
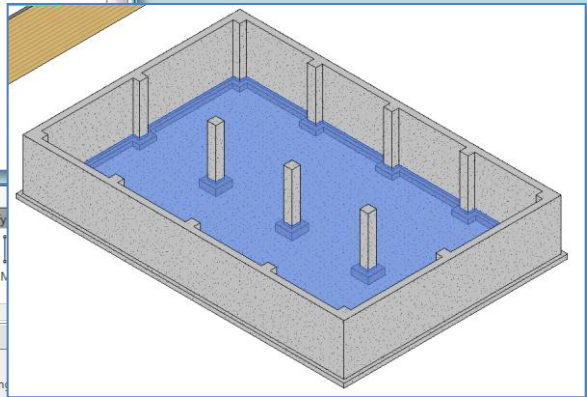
Foundation: **Structural Foundation: Slab**

Temp Floor: Slab Edge

Structural Foundation: Slab
Adds a foundation slab to the building.

Foundation slabs do not require support from other structural elements. Use foundation slabs to model slabs on a grade or complex foundation shapes.

Press F1 for more help

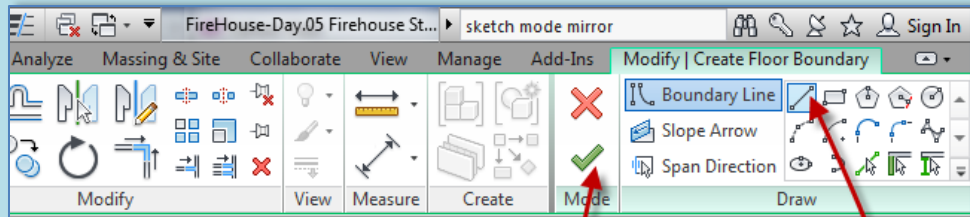
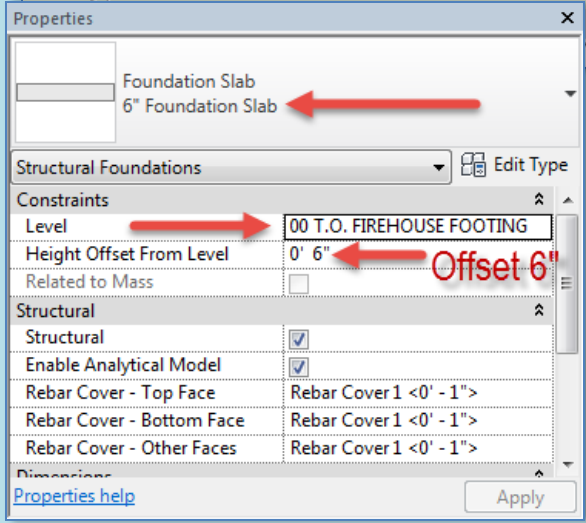
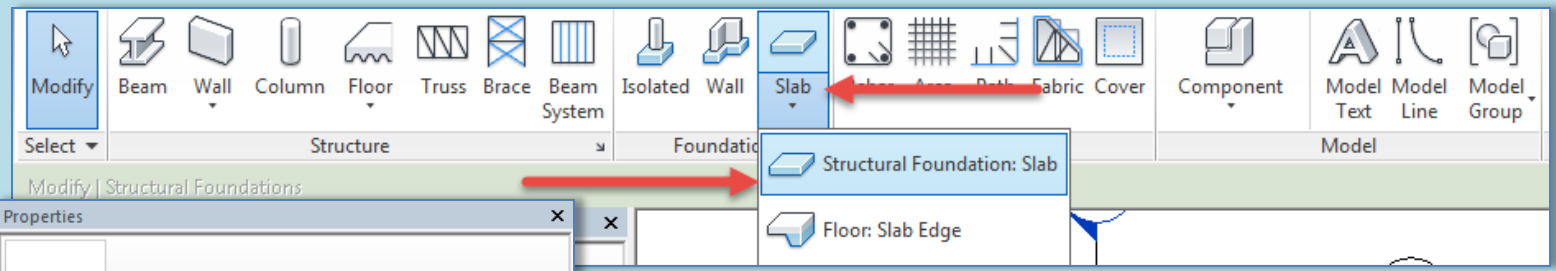


- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

- Sketch
- Mirror
- Columns

- S-100
- View Template

Slab on Grade (Begin Sketch)



- Current View: T.O. Firehouse Footing
- Sketch Slab on Grade
- Height Offset to 6"
- Trace Interior Face of Foundation

Slab on Grade (using mirror)

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

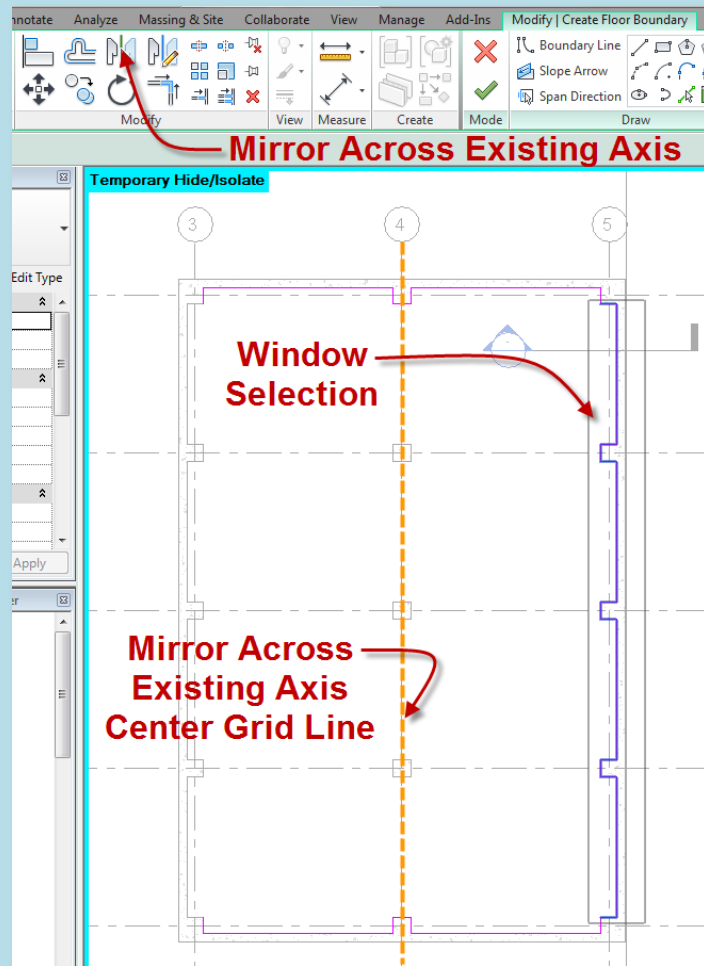
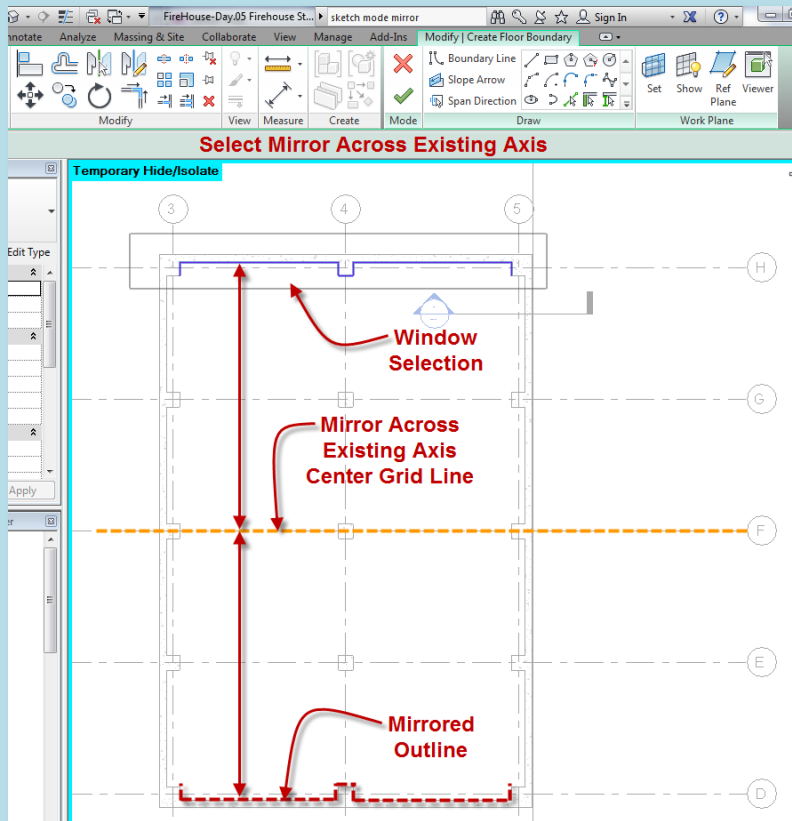
- Sketch
- Mirror
- Columns

Sheet Layout

- S-100
- View Template

Wrap-Up

Revit Introduction



- Make Window Selection
- Select Mirror Across Axis
- Select Axis (use center grid lines)

Slab on Grade (Add Cutouts for Columns)

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

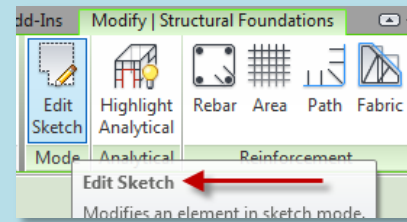
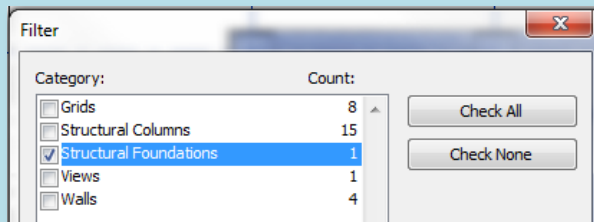
- Sketch
- Mirror
- Columns

Sheet Layout

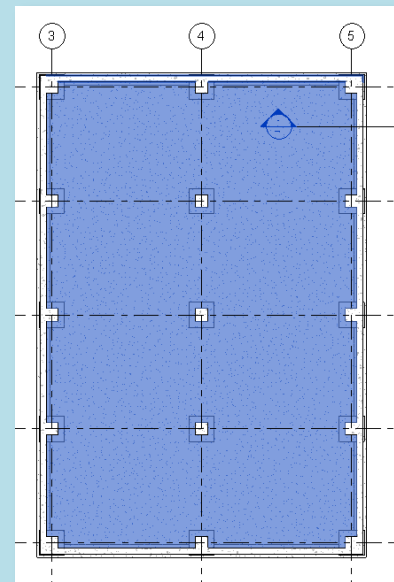
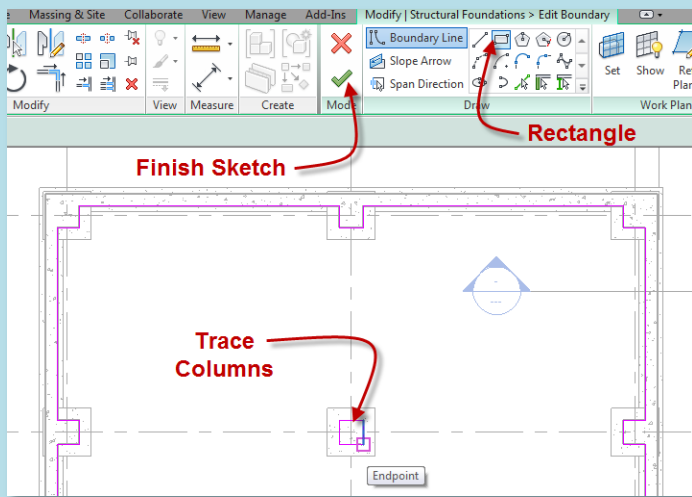
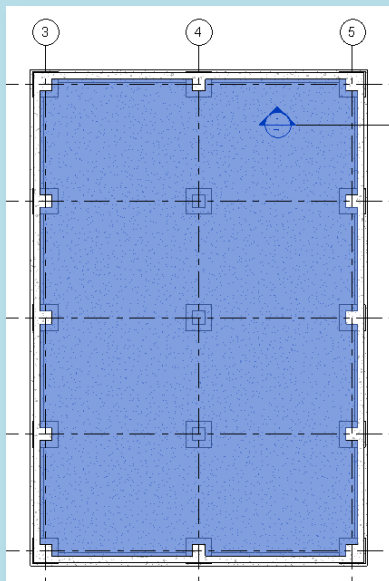
- S-100
- View Template

Wrap-Up

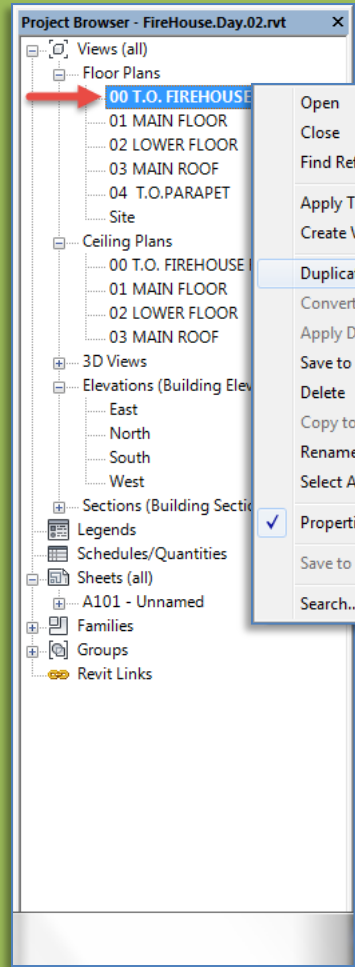
Revit Introduction



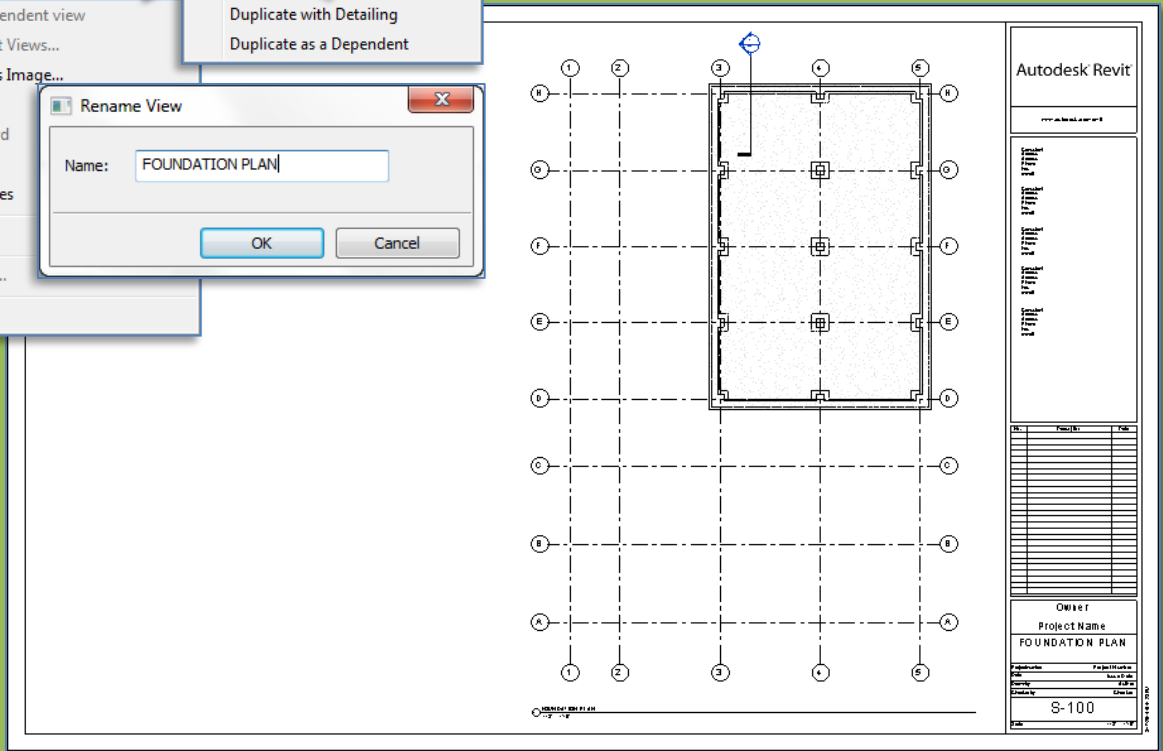
- Select Slab using Filter Selection
- Edit Sketch
- Draw Rectangles around columns
- Finish Sketch



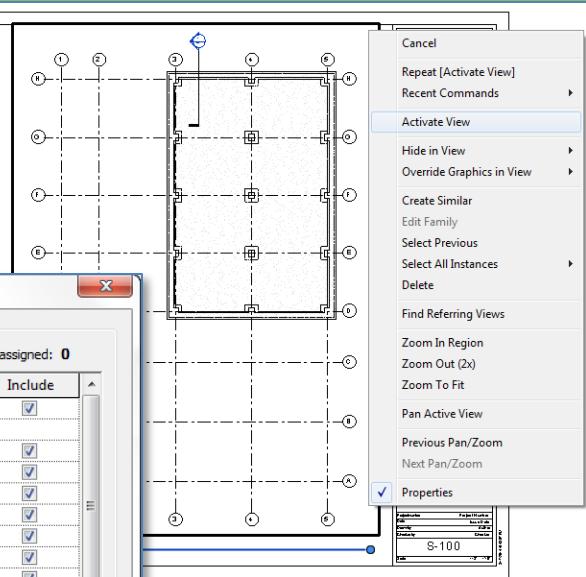
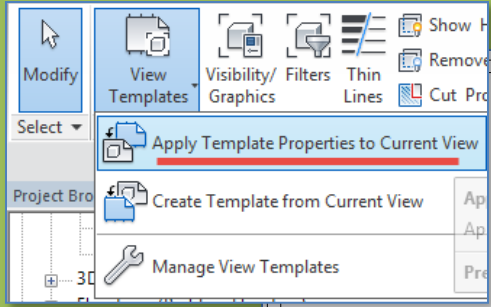
Sheet : S-100 Foundation Plan : Duplicate View



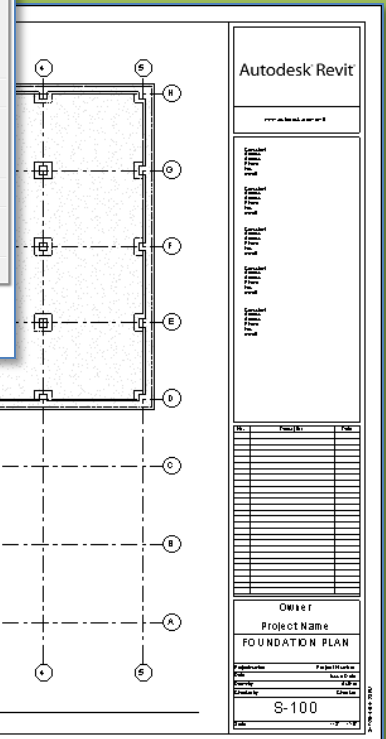
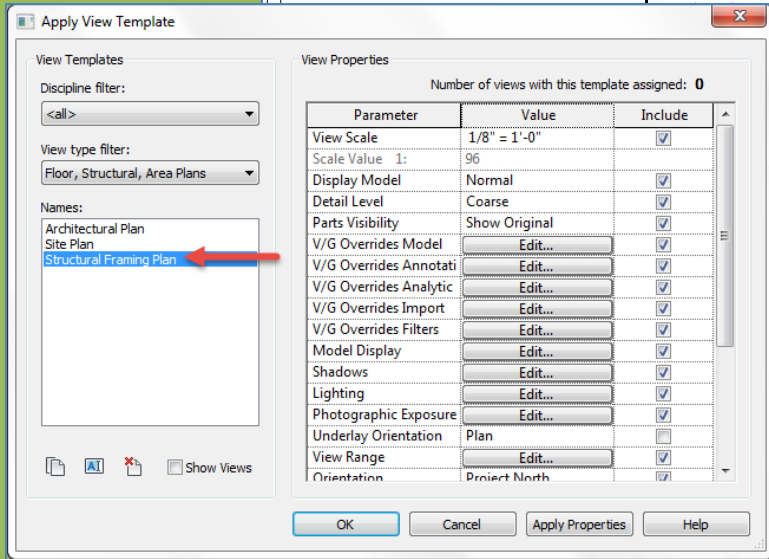
- Select Slab using Filter Selection
- Edit Sketch
- Draw Rectangles around columns
- Finish Sketch



Sheet : S-100 Foundation Plan : View Template



• Activate View



- Apply View Template
- Structural Framing plan

Day 05

Overview

New Level
Propagate Extents

- Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

- Sketch
- Mirror
- Columns

Sheet Layout

- S-100
- View Template

Wrap-Up

Revit Introduction

Day 5 - Wrap Up

New Level

Propagate Extents

Structural Foundation Wall

Visibility Settings

- View Depth
- Underlay

Add

- Wall Footing
- Structural Columns
- Isolated Footings
- Modify Footings

Slab on Grade

- Sketch
- Mirror
- Columns

Sheet Layout

- S-100 : FOUNDATION PLAN
- View Template