Building Technology III
New York City College of Technology

Course Day 14
Revit Day 06 (Project Day 3)

The New Academic Building – Concrete Beams & Level 1 Concrete Slabs

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125.00

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Day 14 Project 04

Overview

Beams
- Add New
- Sizing

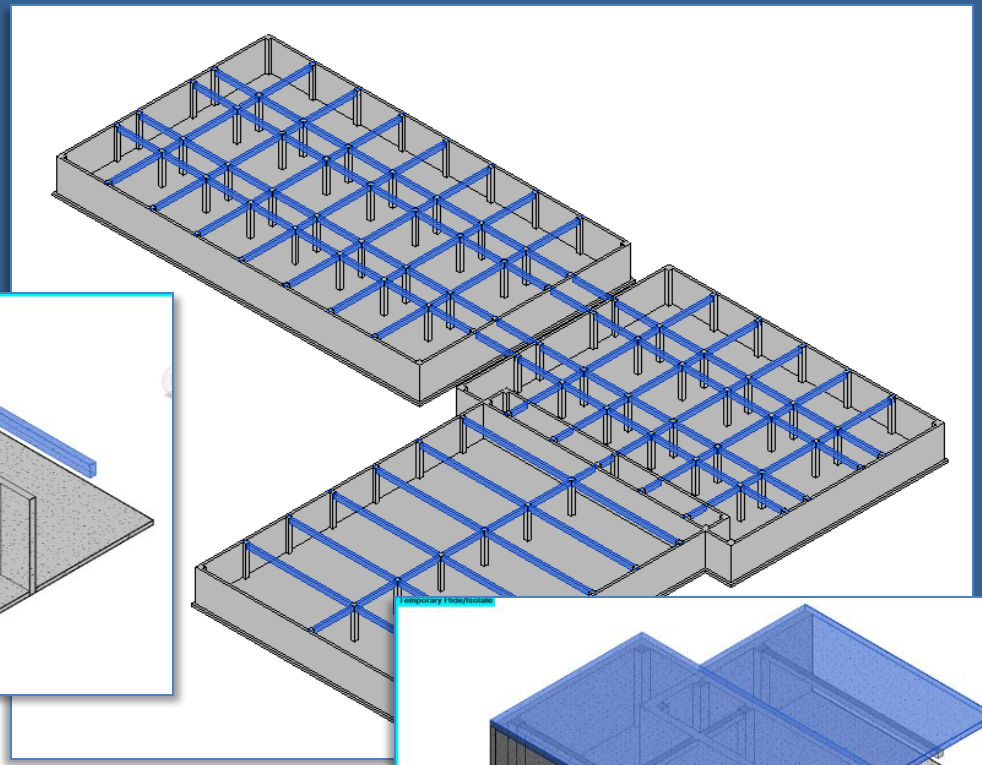
Structural Plans
- Apply Template
- Framing Tags
- S-100 & S-101

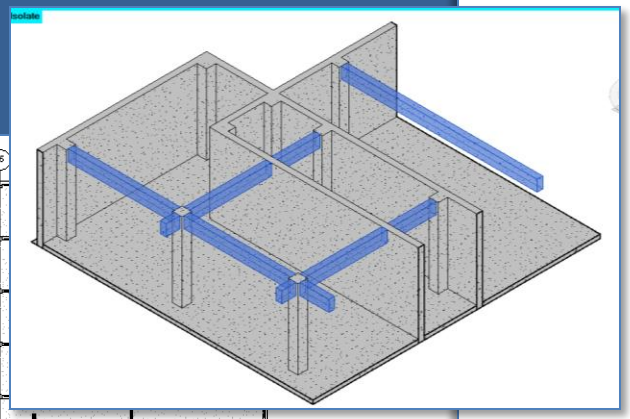
Structural Slab
- Concrete 12”
- GYM
- ATRIUM
- LAB

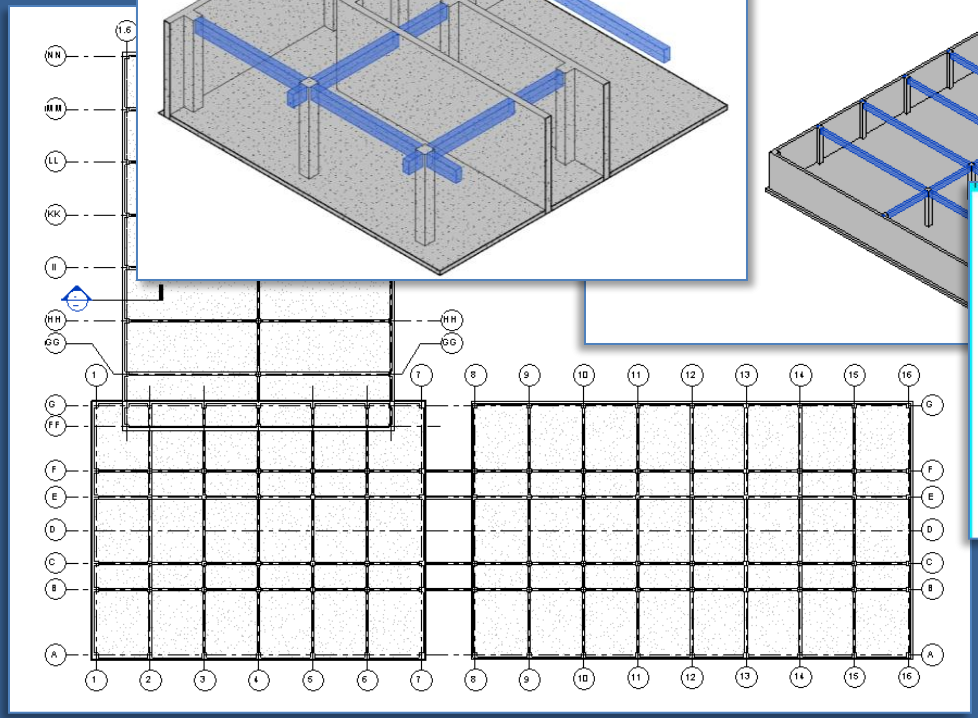
Wrap-Up

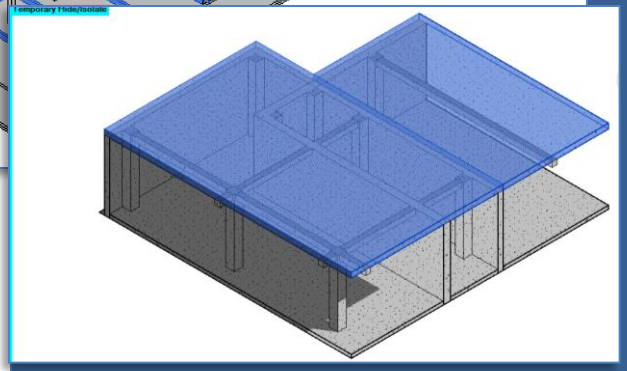
Add Beams

- Add Beams (GYM,Atrium,LAB)
- Add First Floor Slab









- Add concrete Beams spanning from column to column along the grid lines

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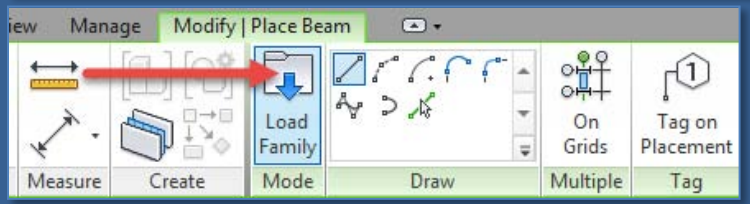
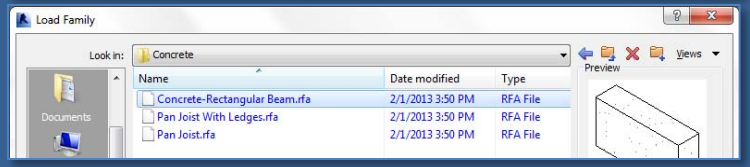
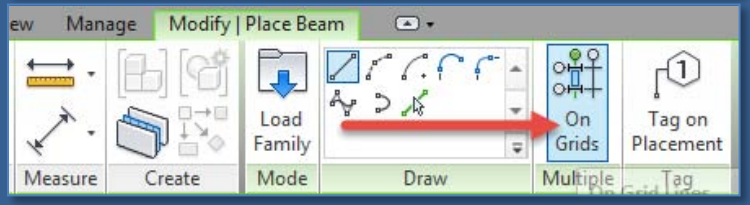
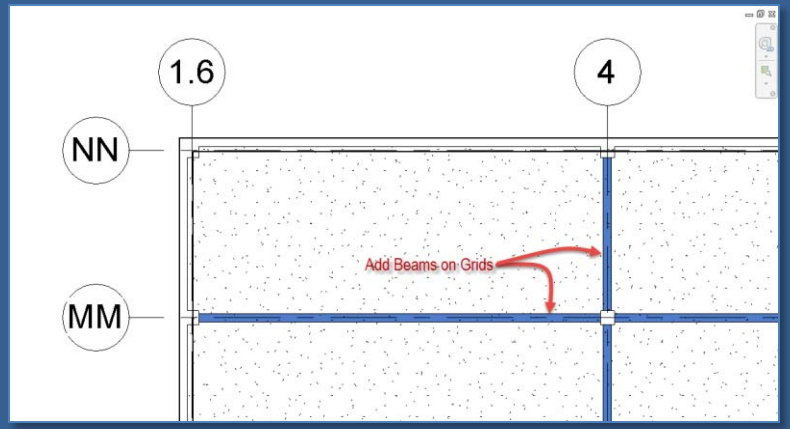
Wrap-Up

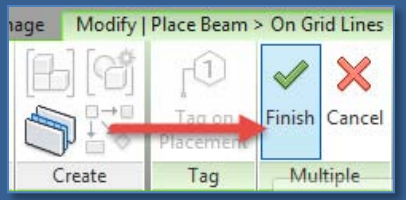
Add Beams : Concrete Rectangular Beams











- Structure > Beams > Load Family > Structural Framing > Concrete
- Concrete Rectangular Beam
- On Grids (Select Grid Lines)
- Finish Sketch

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Wrap-Up

Add Beams for Sizing Concrete Beams

RULE OF 16

	SPAN IN FEET	SPAN IN INCHES	DIVIDE BY 16	ROUND UP		WIDTH OF BEAM 1:2	WIDTH OF BEAM ROUND UP
8'-0"	8	96	6	6		3	3
	9	108	6.75	7		3.375	4
10'-0"	10	120	7.5	8		3.75	4
	11	132	8.25	9		4.125	5
	12	144	9	9		4.5	5
	13	156	9.75	10		4.875	5
	14	168	10.5	11		5.25	6
	15	180	11.25	12		5.625	6
	16	192	12	12		6	6
	17	204	12.75	13		6.375	7
	18	216	13.5	14		6.75	7
	19	228	14.25	15		7.125	8
	20	240	15	15		7.5	8
20'-6"	21	252	15.75	16		7.875	8
	22	264	16.5	17		8.25	9
	23	276	17.25	18		8.625	9
	24	288	18	18		9	9
24'-10"	25	300	18.75	19		9.375	10
	26	312	19.5	20		9.75	10
	46	552	34.5	35		17.25	18
	47	564	35.25	36		17.625	18
	48	576	36	36		18	18
	49	588	36.75	37		18.375	19
50'-0"	50	600	37.5	38		18.75	19

- Span in inches / 16 = depth in inches
- 10’ span = 10 x 12 = 120 inches divided by 16 = 7.5 inches
- Round up to (8)
- Height/Width = 2/1
- Divide height by 2 = 8/2 = 4
- Width of Beam should be a minimum of 4” to allow for rebars with enough room between for aggregate to be evenly distributed and for enough coverage from rebars to face of concrete

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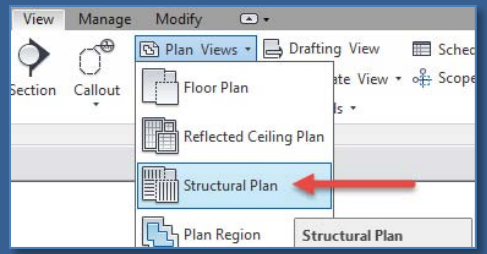
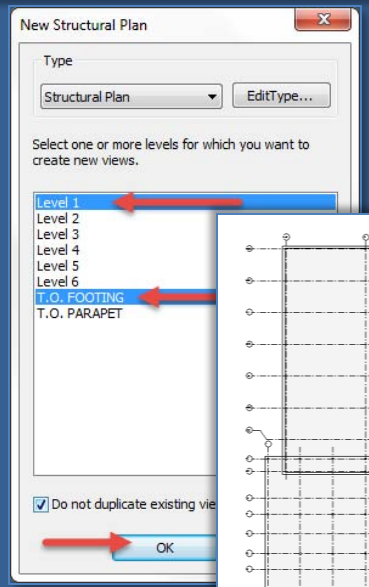
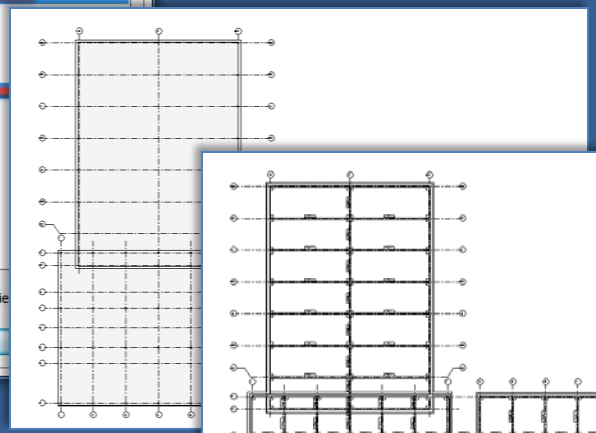
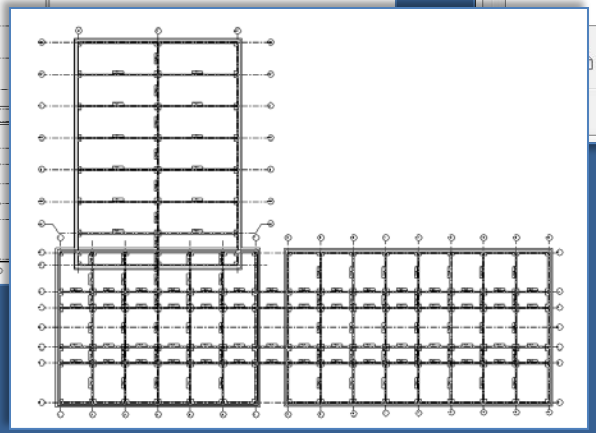
Wrap-Up

Add Structural Plans : Apply Template

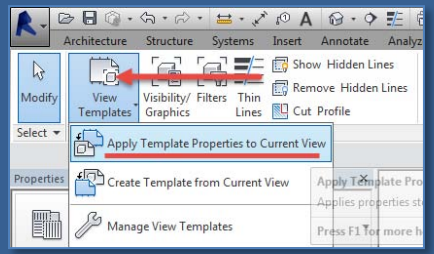


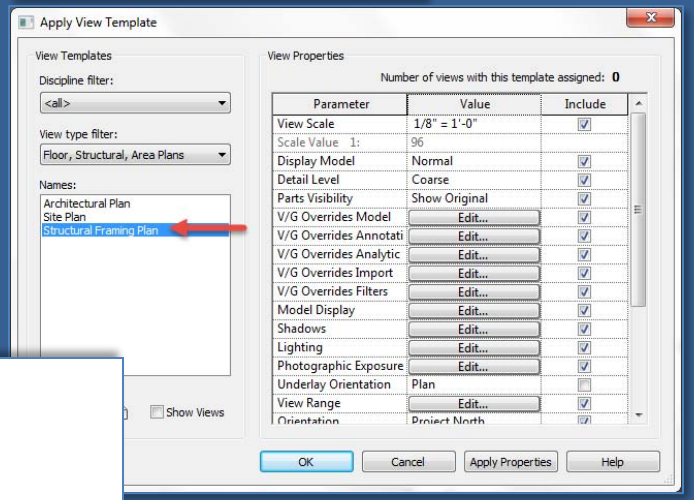






- Apply the Architectural Template to the floor plans
- Apply the Structural template to the structural plans





- Propagate Extents:
- Always propagate extents to be certain the grid displays properly

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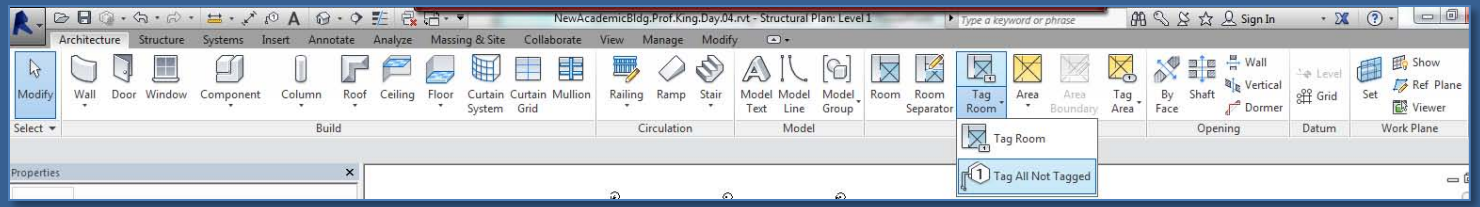
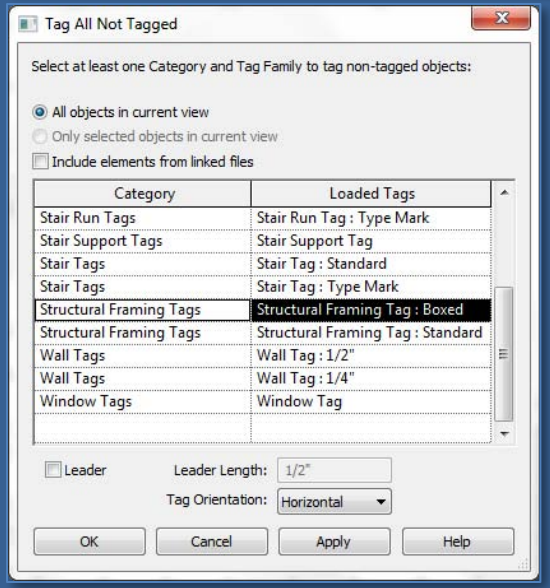
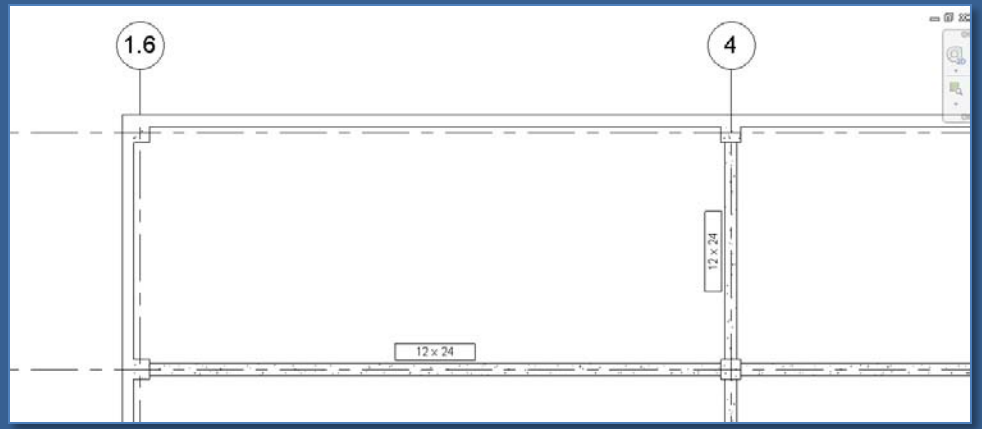
Wrap-Up

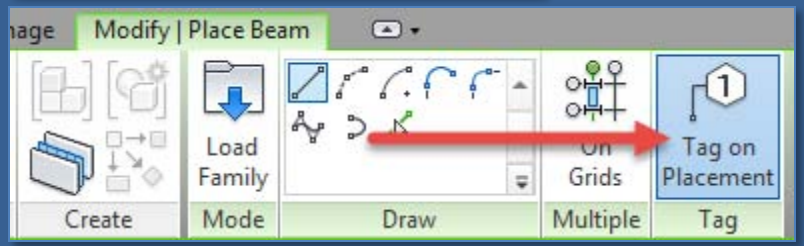
Structural Framing with Tags





- Architecture > Tag Room > Tag all not tagged
- Structural Framing with Tags





- When creating beams you have the option of selecting “Tag on Placement”

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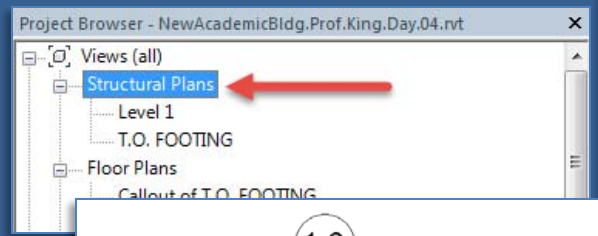
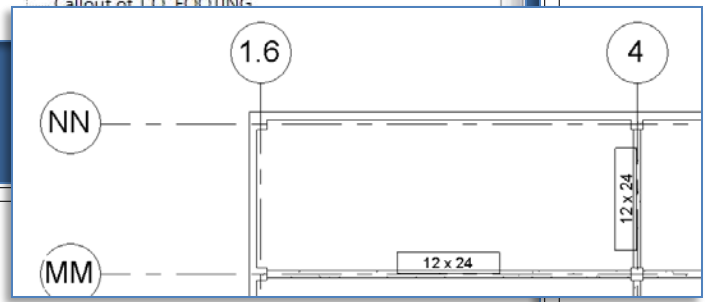
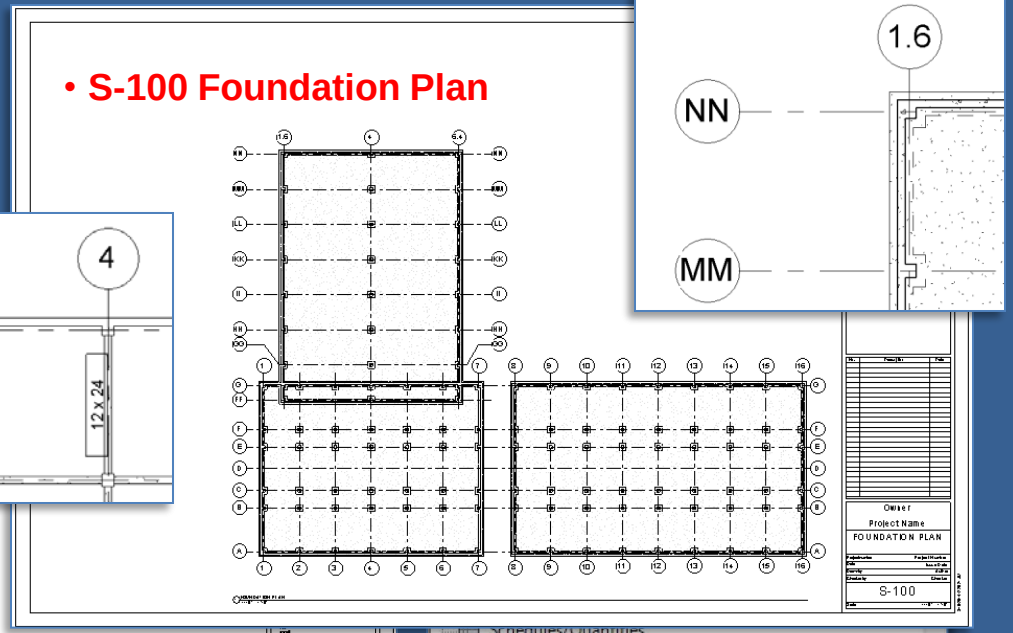
Wrap-Up

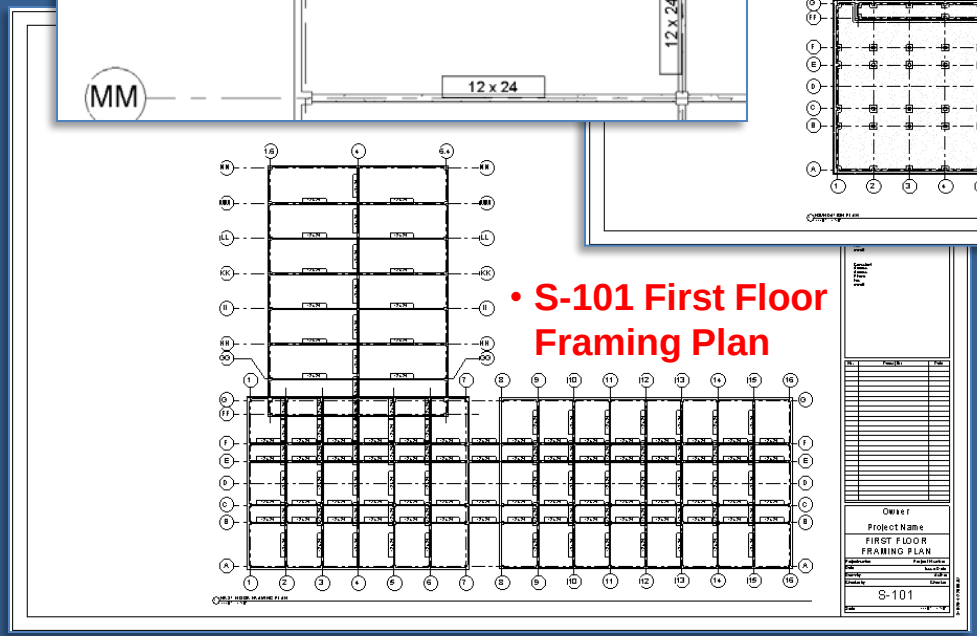
Structural Plans : Foundation & Framing



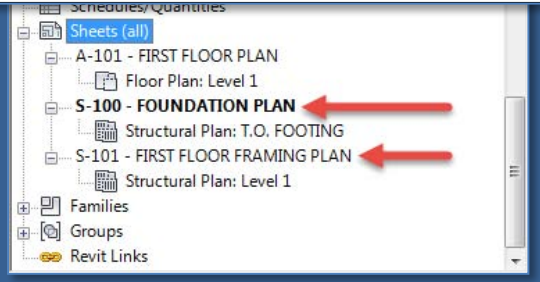




- S-100 Foundation Plan



- S-101 First Floor Framing Plan



- Add sheets S-100 & S-101 at 1/16” = 1’-0” to your dwg set

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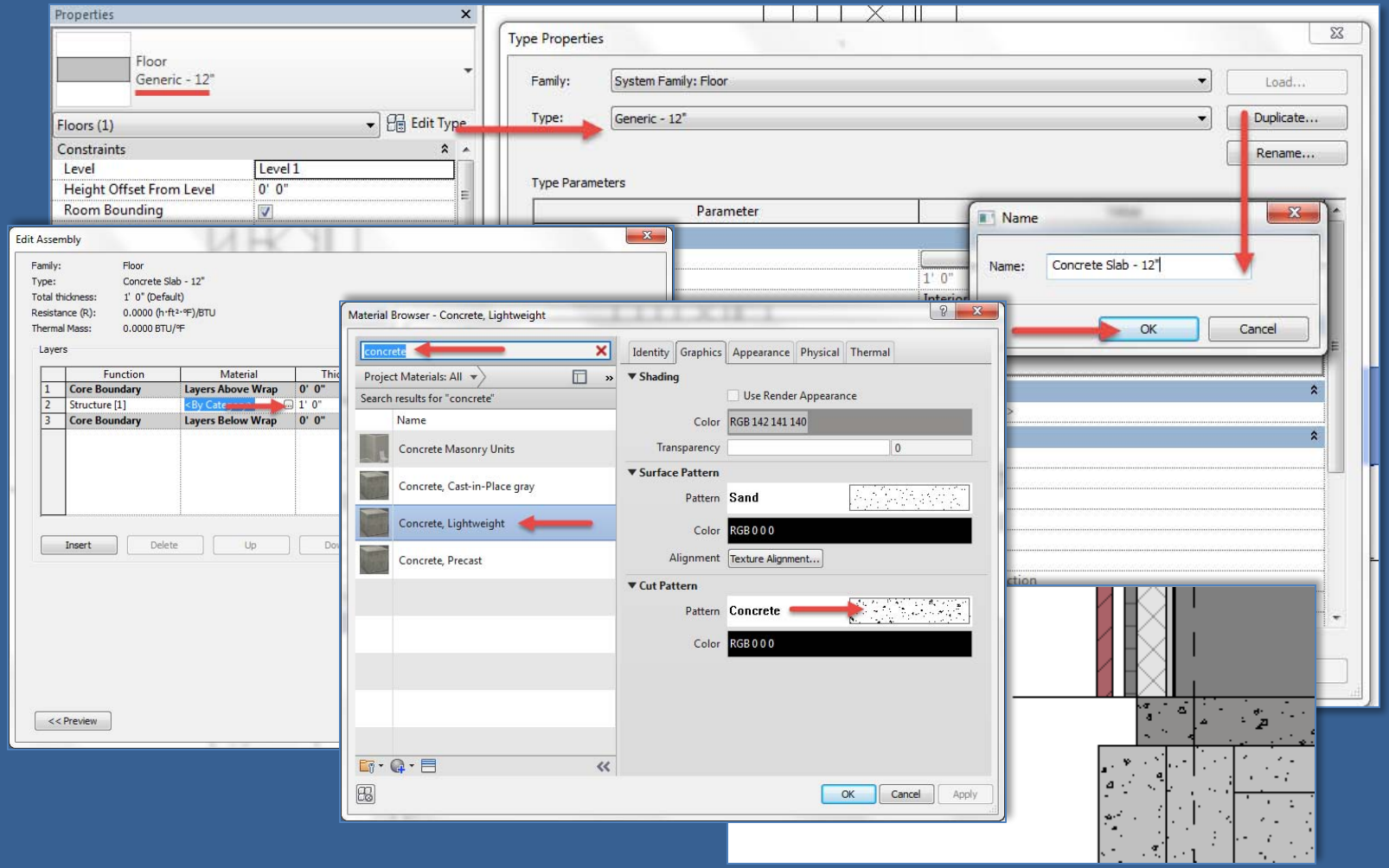
Wrap-Up

Create Slab New Type “Concrete Slab 12”



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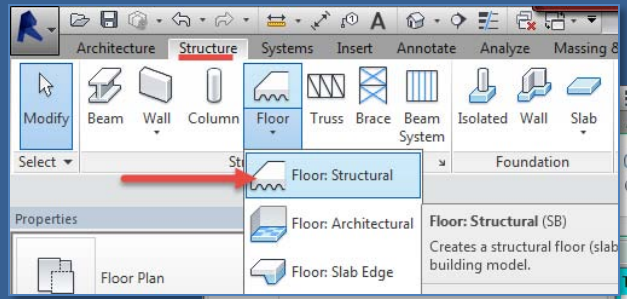
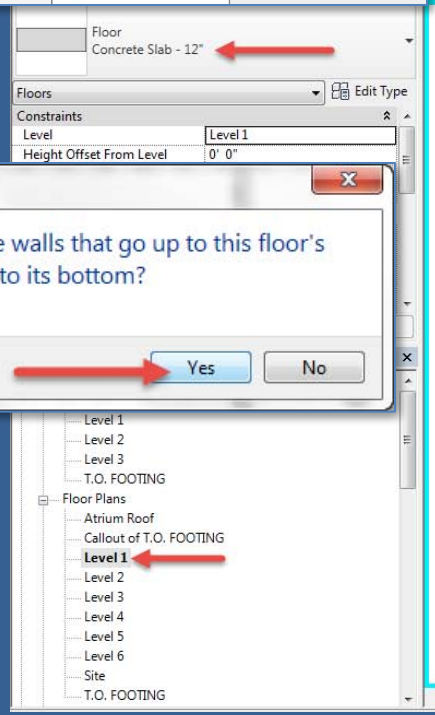
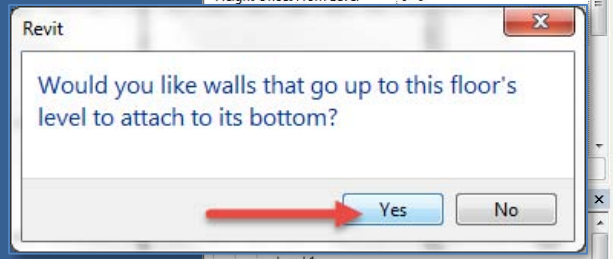
Wrap-Up

Level 1 GYM : Locating the Structural Slab :

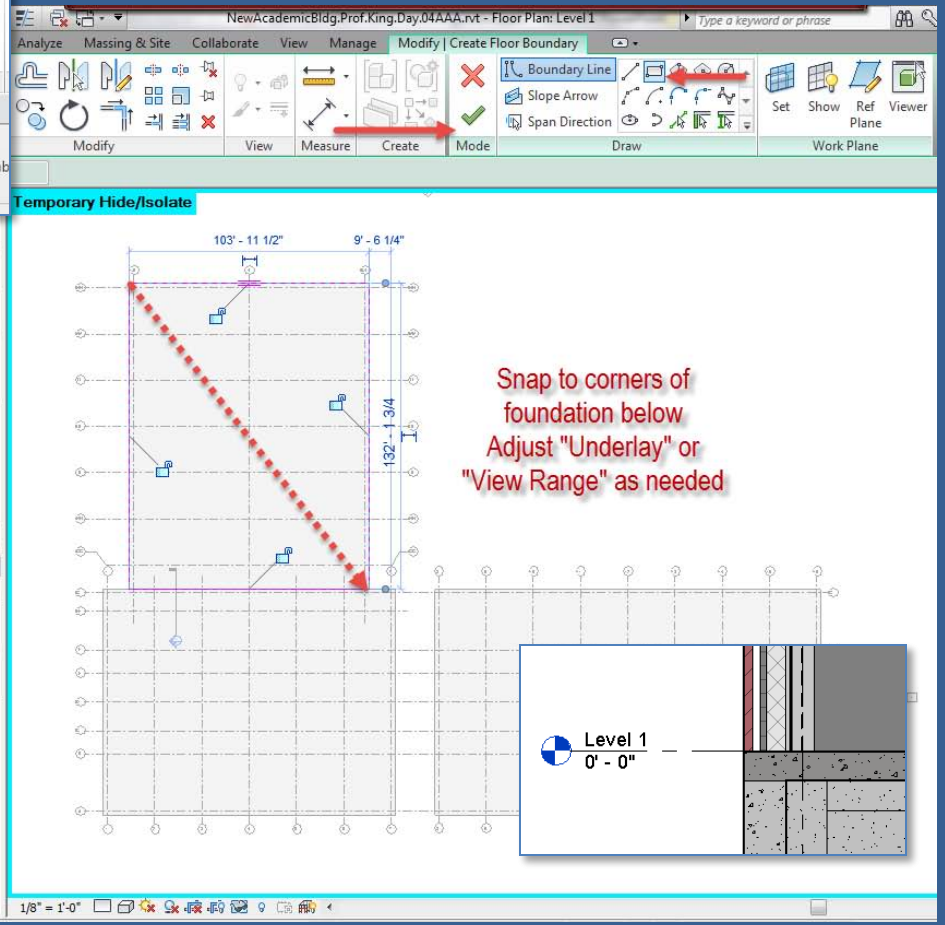
- Structure > Floor Structural > Concrete Slab 12







- Level 1



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Day 14 Project 04

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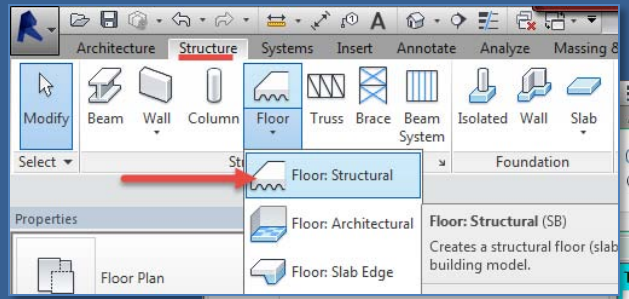
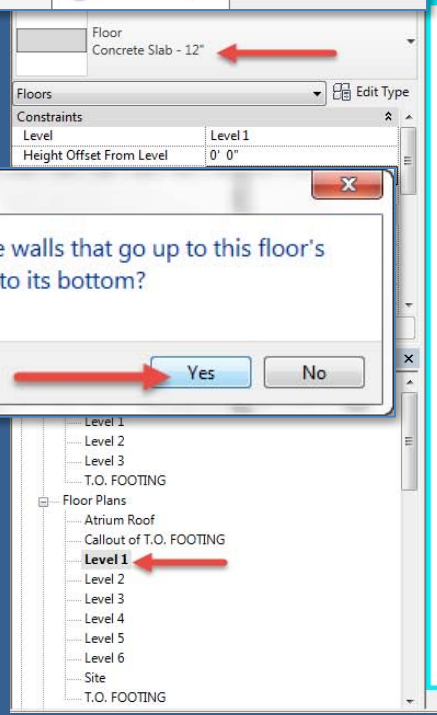
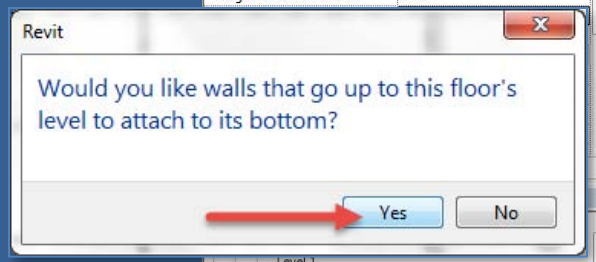
Wrap-Up

Level 1 ATRIUM : Locating the Structural Slab :

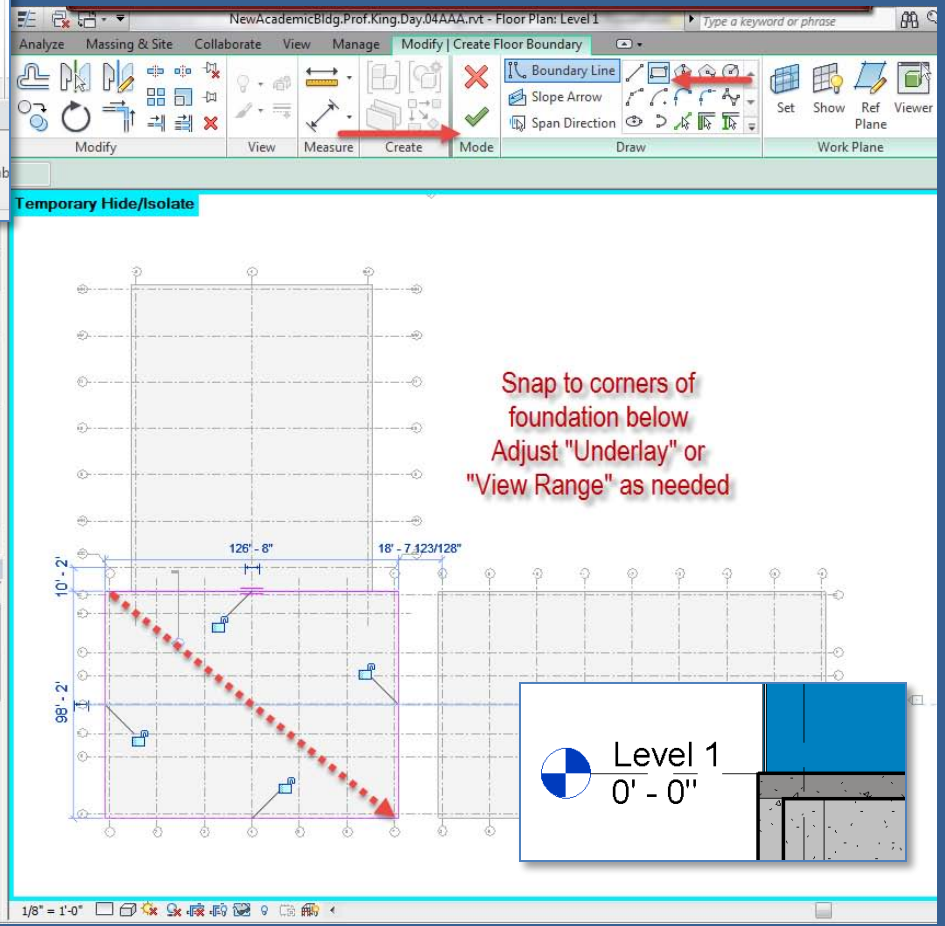
- Structure > Floor Structural > Concrete Slab 12







- Level 1



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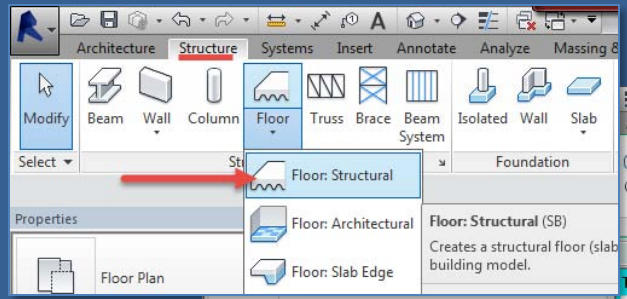
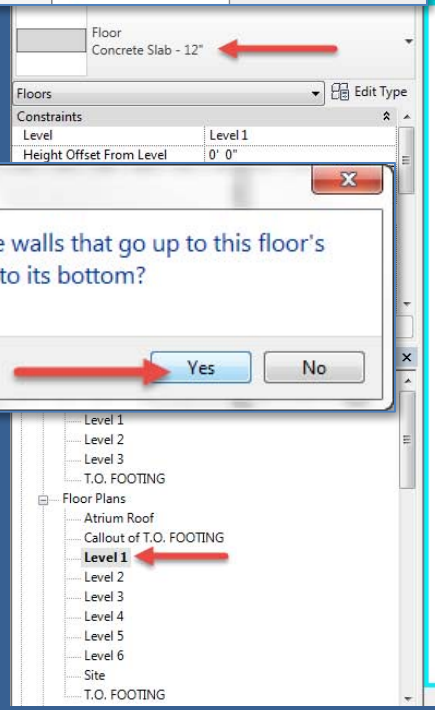
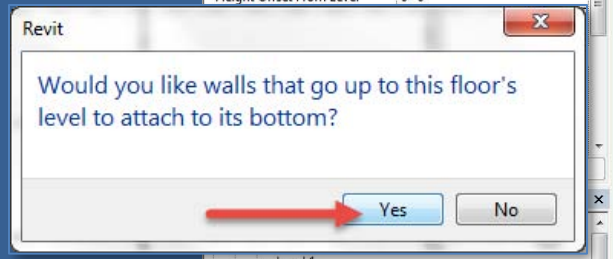
Wrap-Up

Level 1 LAB : Locating the Structural Slab :

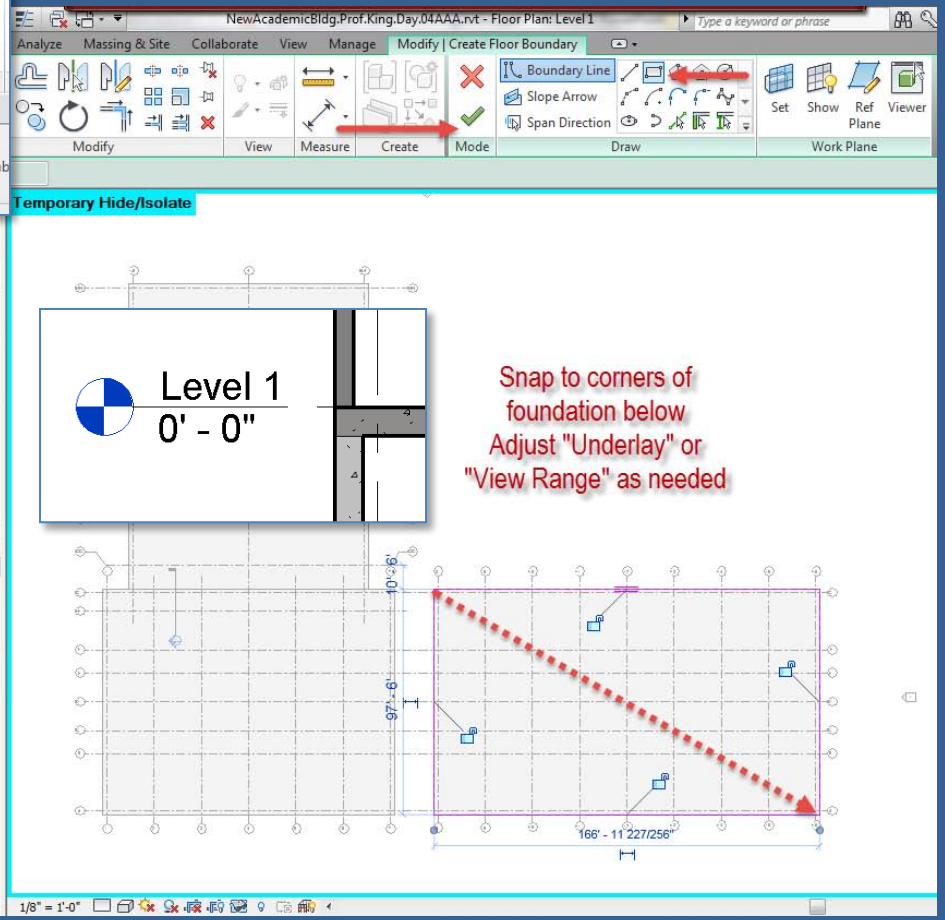
- Structure > Floor Structural > Concrete Slab 12







- Level 1



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Day 14 / Revit Day 06 / Project Day 04 - Wrap Up

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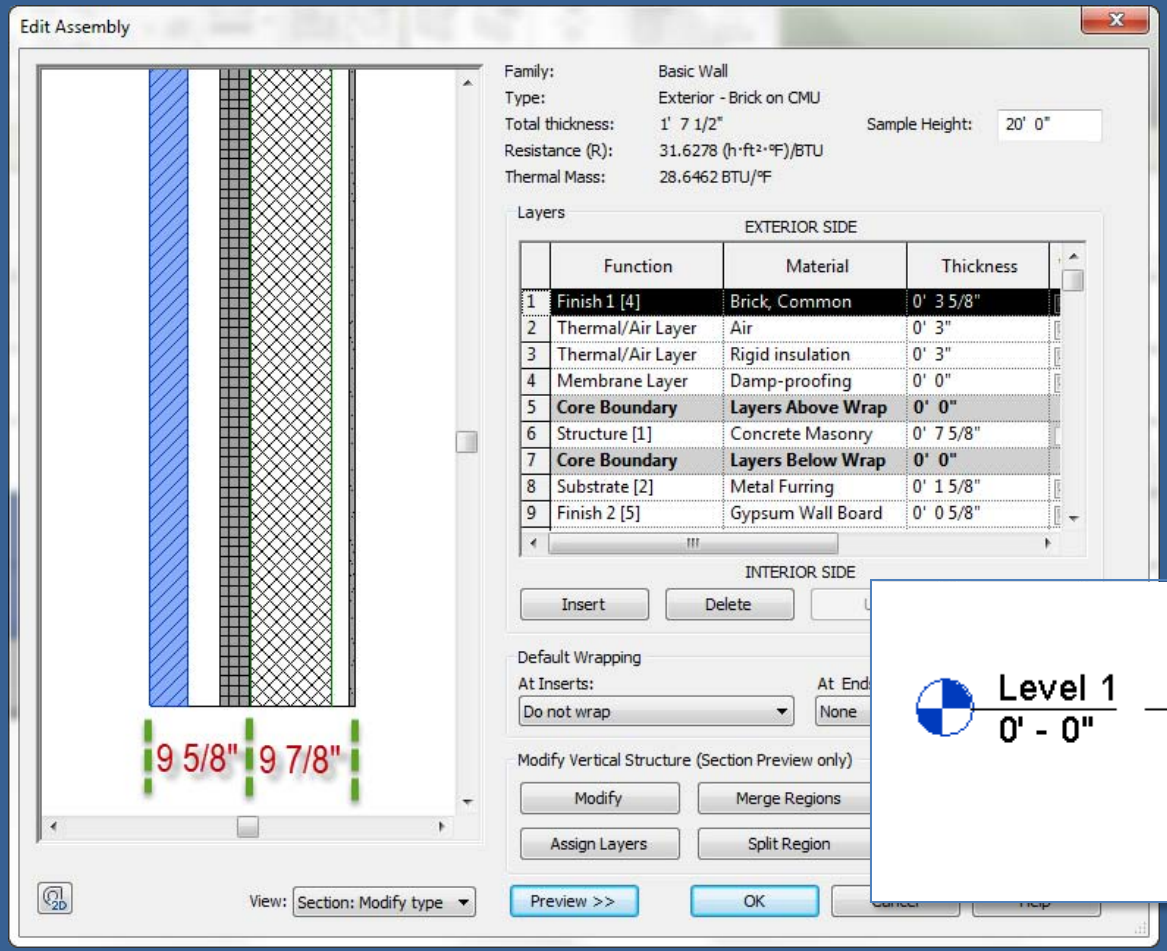
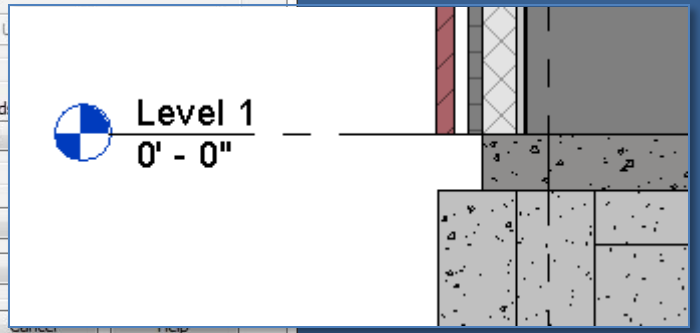
Level 1 GYM : Locating the Structural Slab :



- The slab edge should line up and support the concrete block
- Working back from the outside the slab should be located in 9 5/8”