Building Technology III
New York City College of Technology

Course Day 16
Revit Day 08 (Project Day 5)

The New Academic Building – Masonry Wall Construction : GYM

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http://professorpaulking.wordpress.com/
http://students.autodesk.com/

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Project Day 04

GYM
Brick on CMU
- Duplicate
- Edit Structure
- Assembly View

- Split Region
- Assign Material
- Assign Wall Type

- Add Reveals
- Add Sweeps
- Overview 1 2

Windows
- 96 x 144
- Insert & Align
- Copy & Mirror

GYM Overview

Autocad
Coursing Study
- Layers & Units
- Wall Section

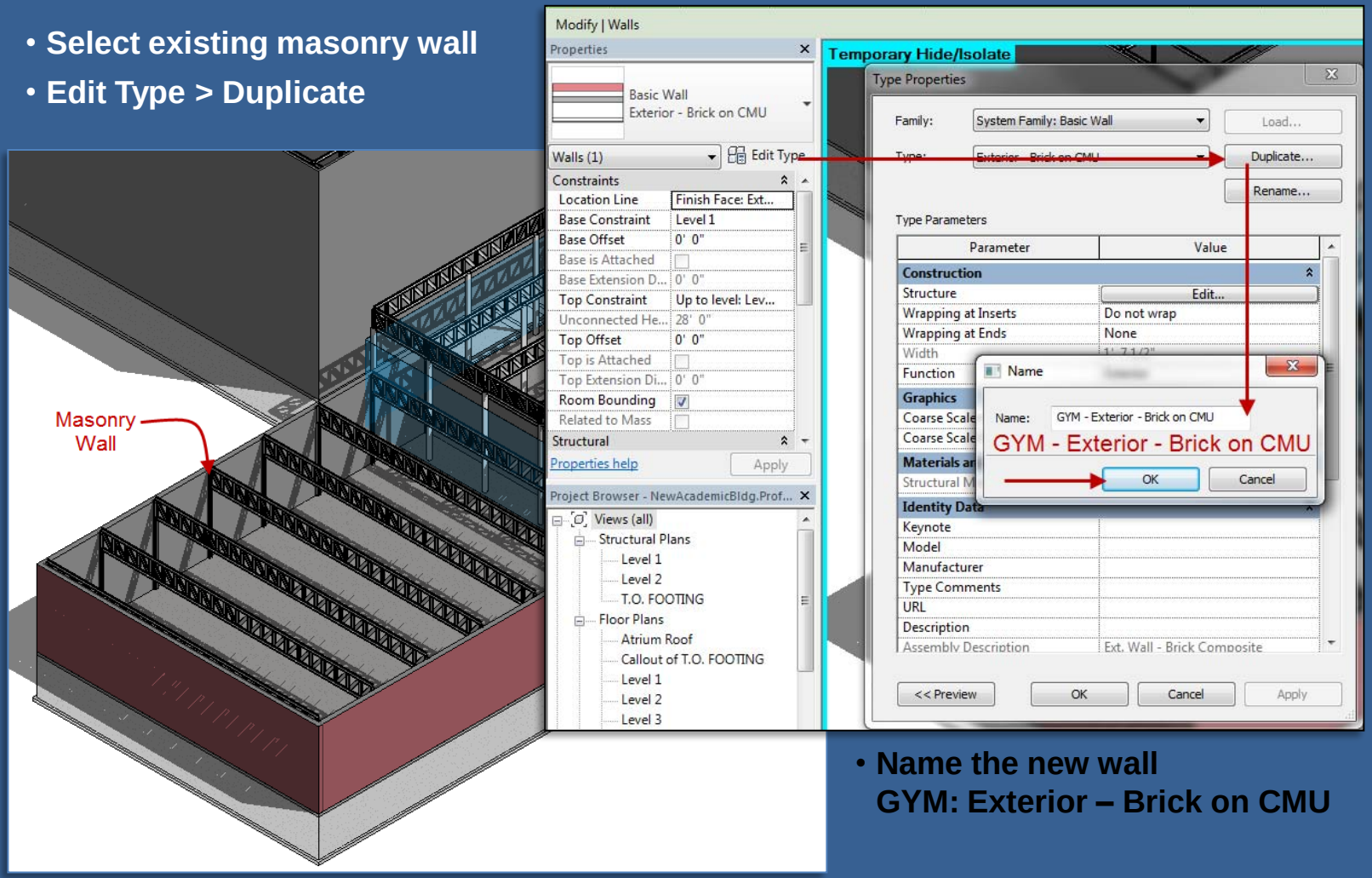
- Elevation
- Section

- Steps 1 2 3 4 5 6 7 8 9 10

Wrap-Up

New Masonry Wall : Brick on CMU

- **Select existing masonry wall**
- **Edit Type > Duplicate**



- **Name the new wall**
  GYM: Exterior – Brick on CMU

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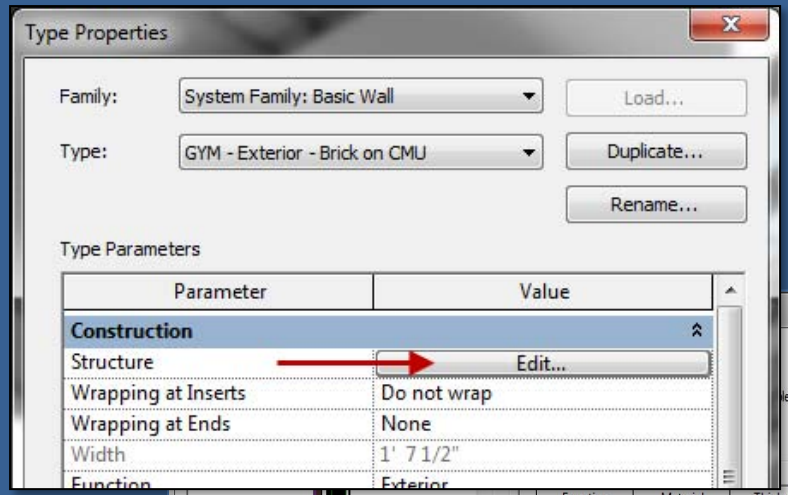
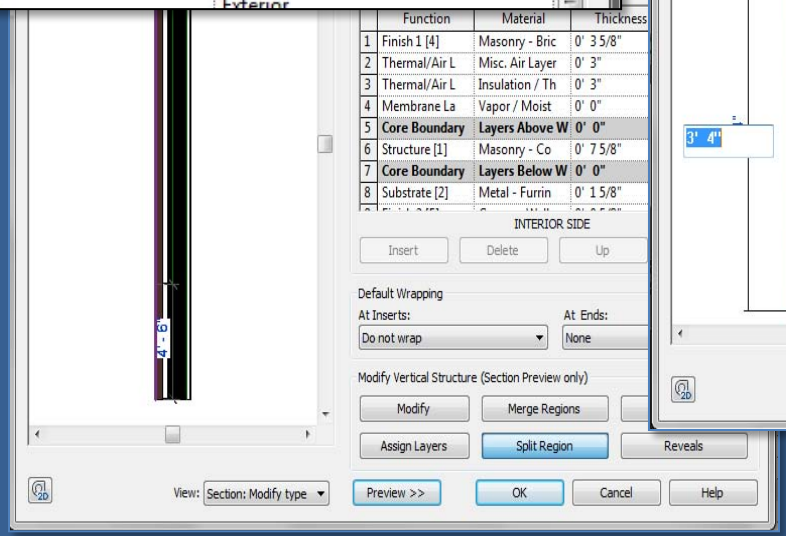
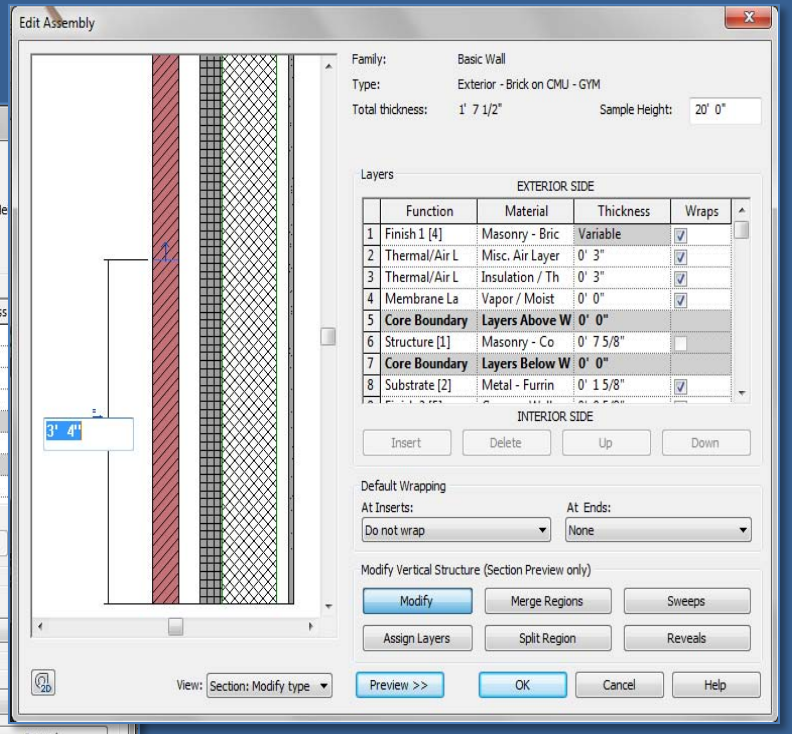
Wrap-Up

New Masonry Wall : Brick on CMU



- Structure > Edit
- Preview Bottom (lower left corner)
- View: Section Modify Type Attributes





- Zoom in close to the bottom of the wall

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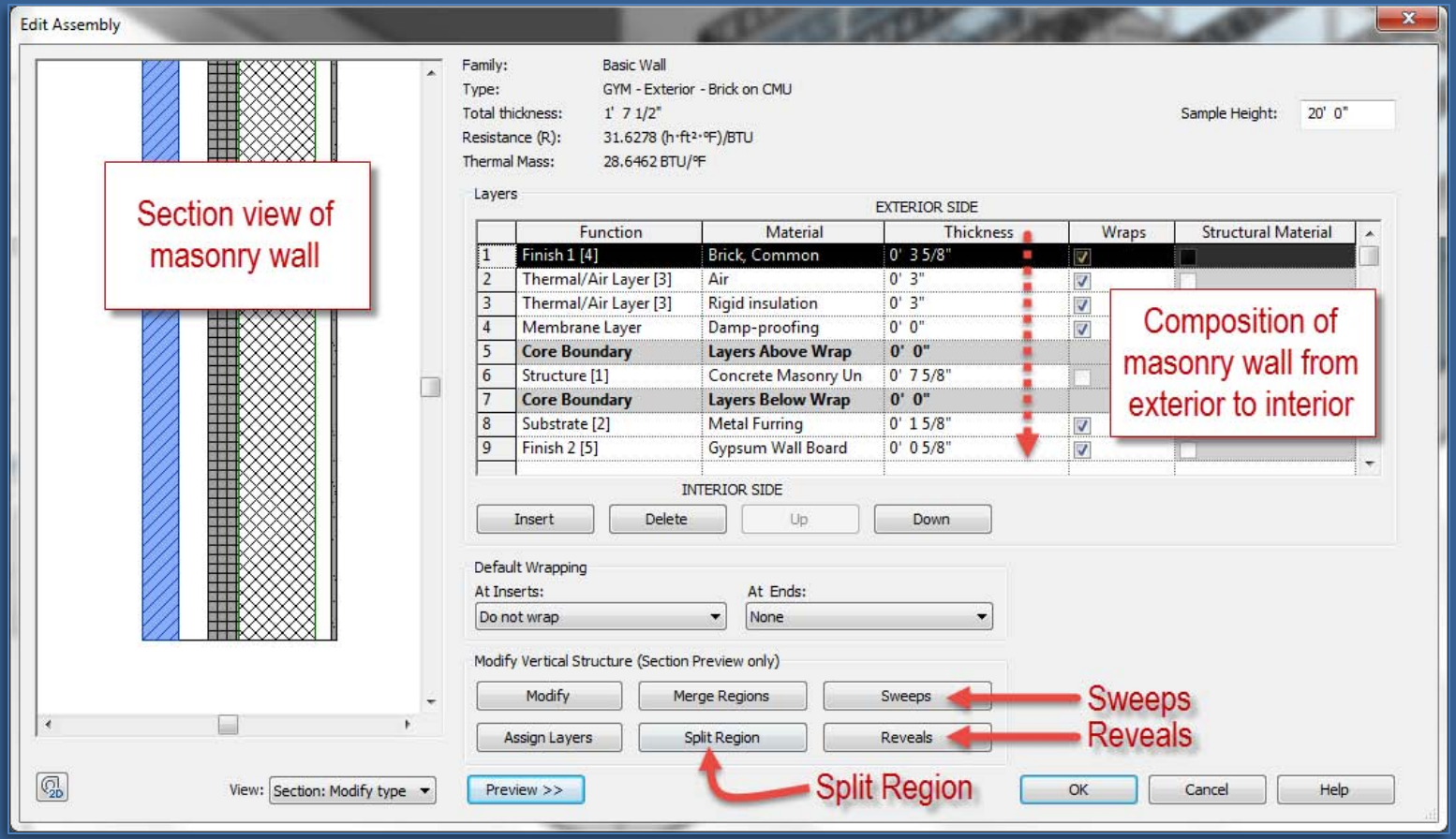
Wrap-Up

Edit Assembly View

- Sectional or Plan View of Assembly
- Listing of Layers of Assembly
- Split Region
- Sweeps & Reveals



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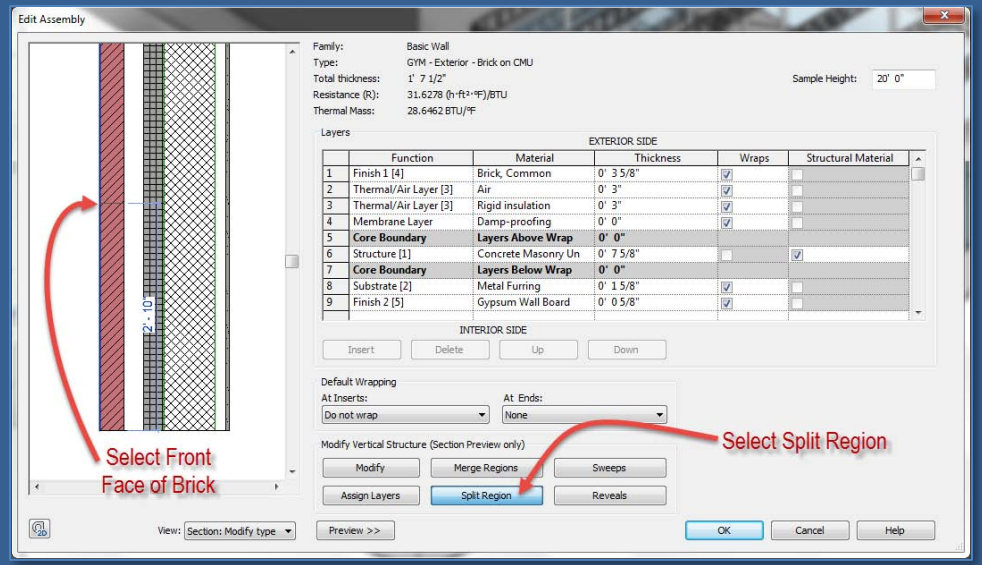
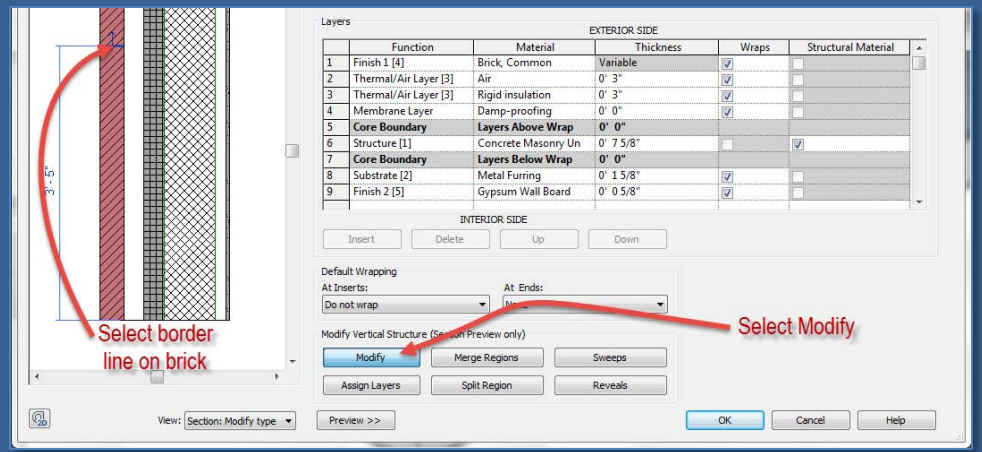
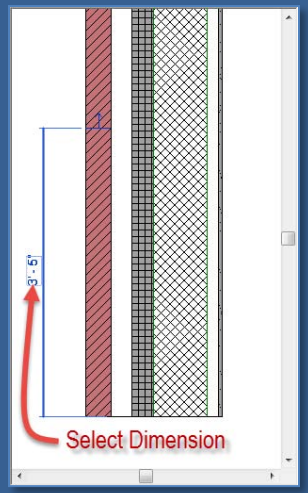
Wrap-Up

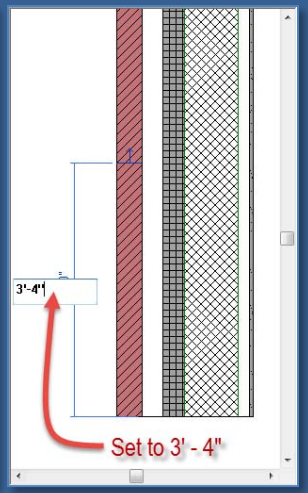
Add Precast or Stone Base : Split Region





- Split Region
- Select Front Face of Brick
- Select Dimension
- Set Value to 3'-4" (brick coursing)





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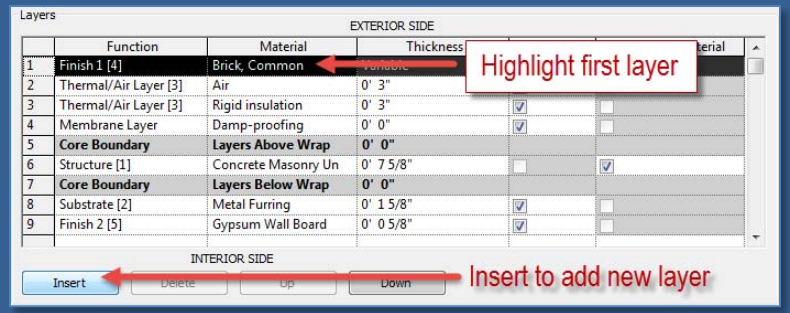
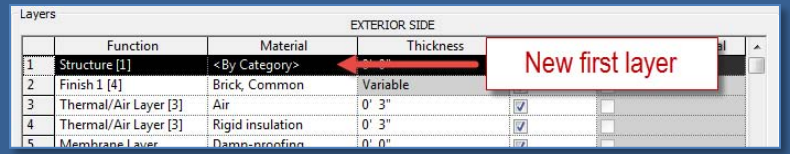
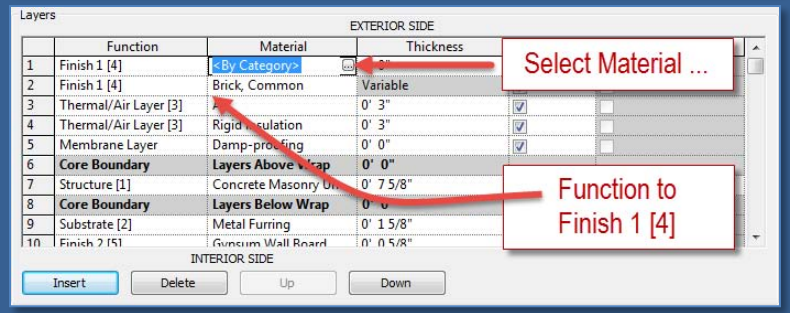
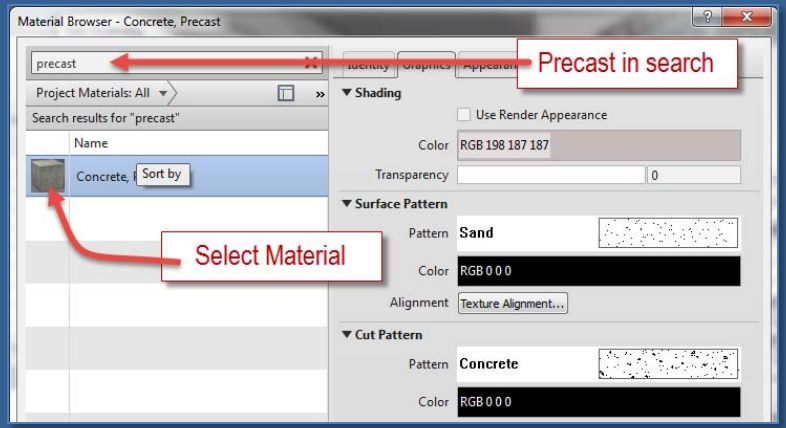
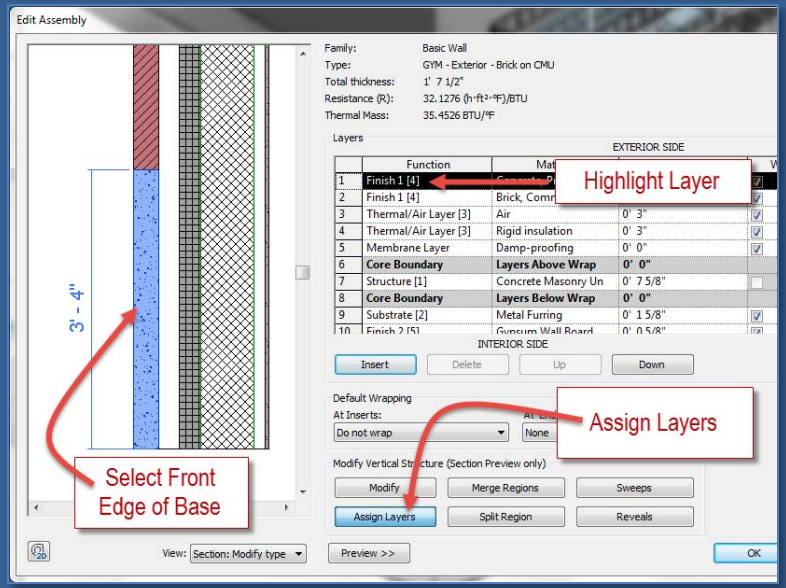
Add Precast or Stone Base : Assign Material











- Select First Layer > Insert New Layer
- Function to Finish 1 [4]
- Assign Material > Precast
- Assign Layers

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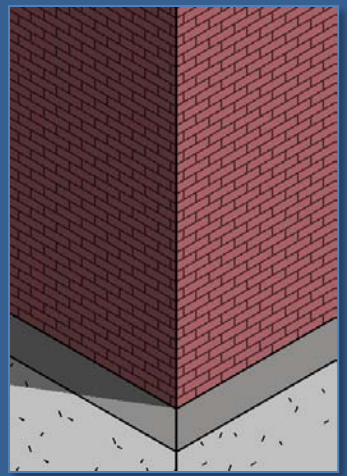
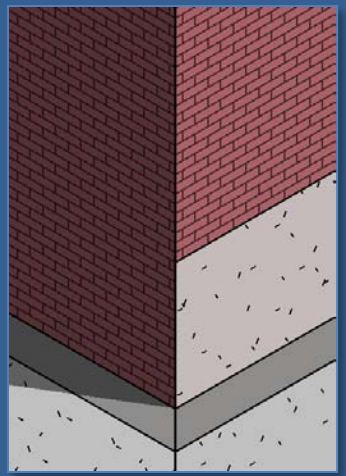
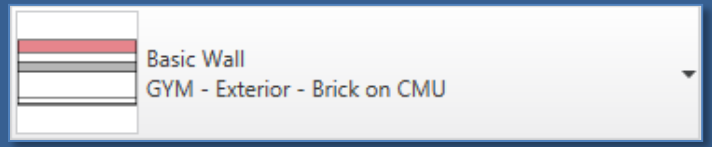
Add Precast or Stone Base : Assign Wall Type

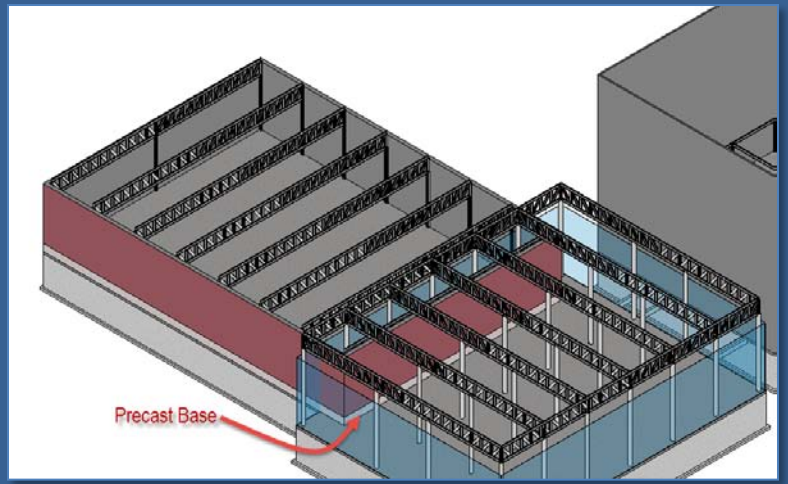
- **Selected wall displays with precast base**

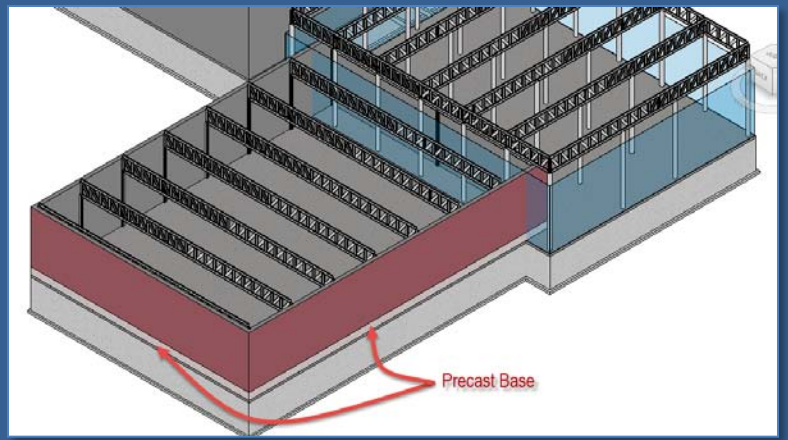






- **Select all 4 masonry walls and assign the to the new type**
- **GYM – Exterior – Brick on CMU**





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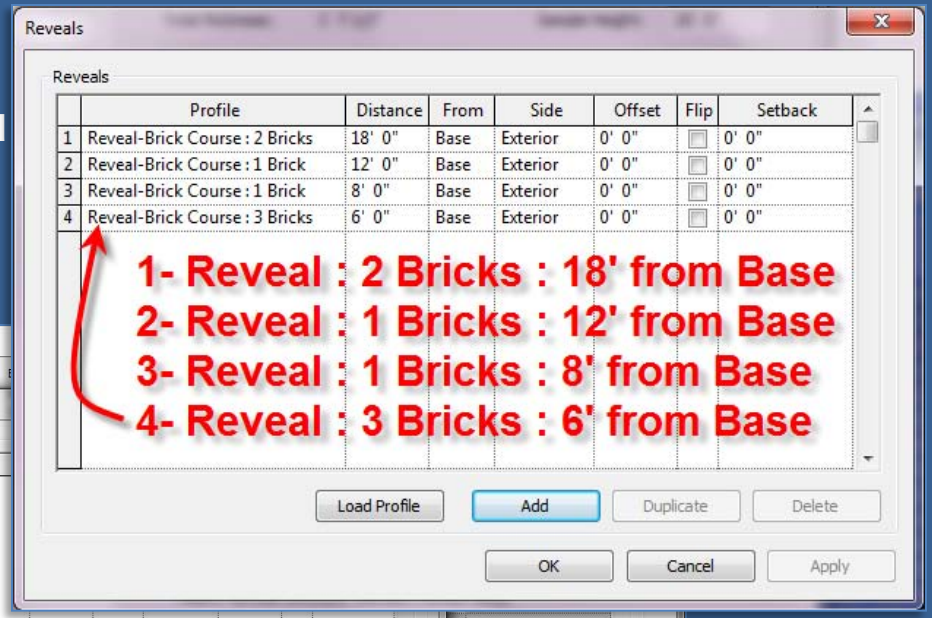
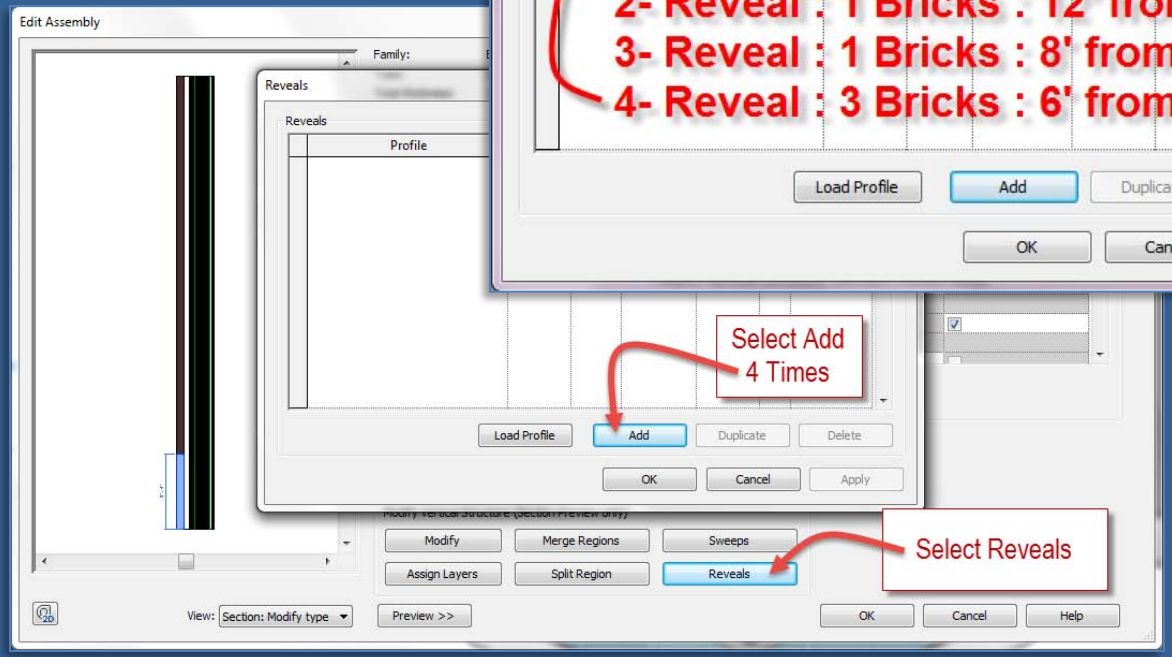
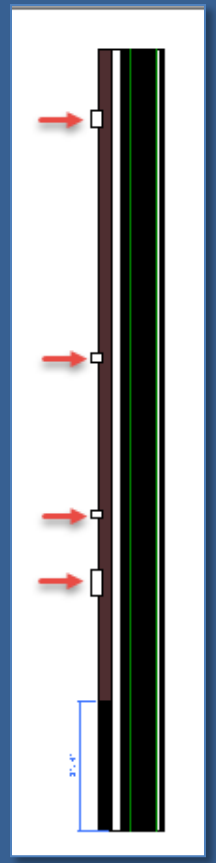
Masonry Wall : Add Reveals

- What is a reveal?
- A reveal is a negative shape – it is subtracted from the wall
- Add 4 reveals as shown







- Options:
  - Profile
  - Distance
  - From (Base/Top)

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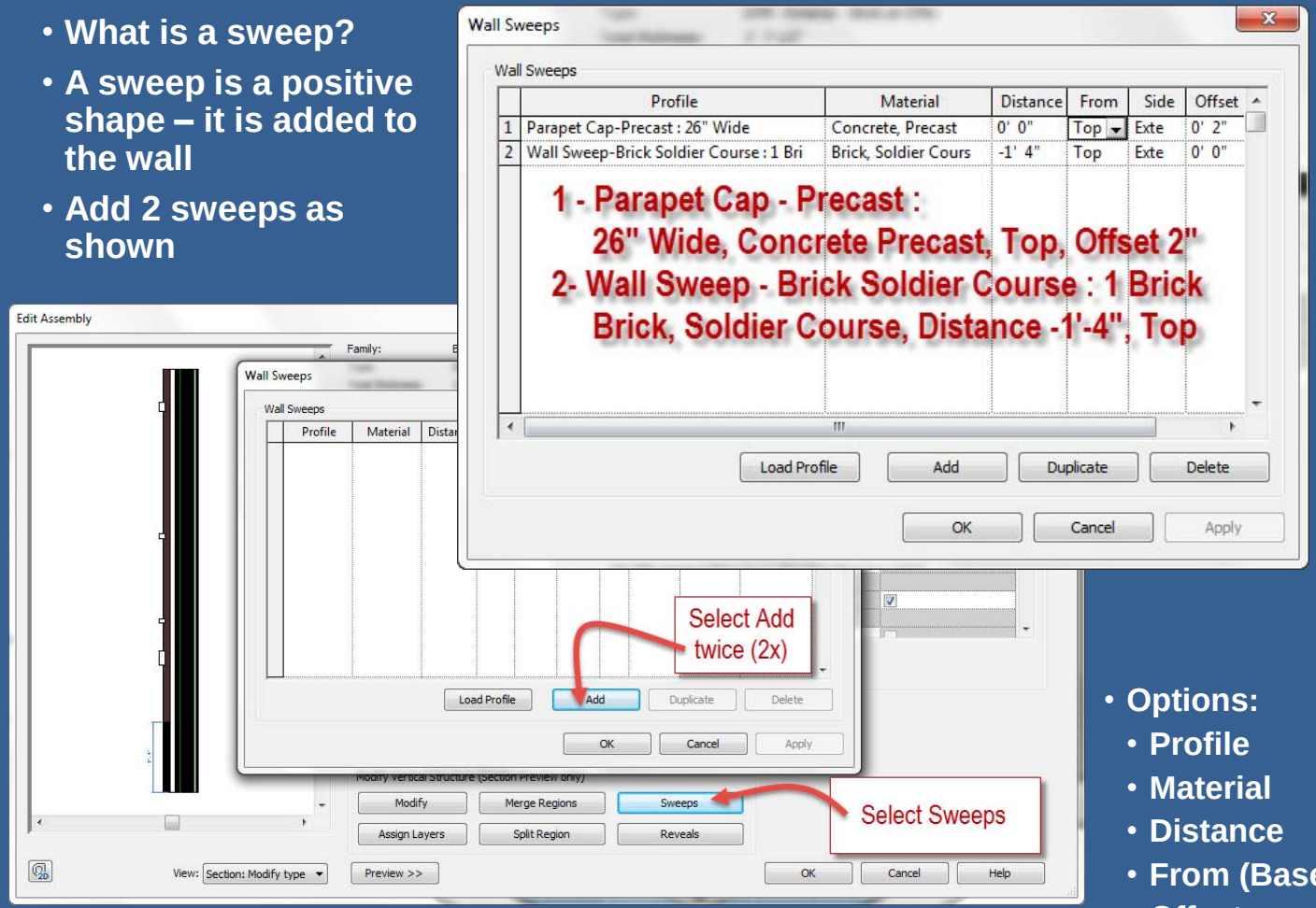
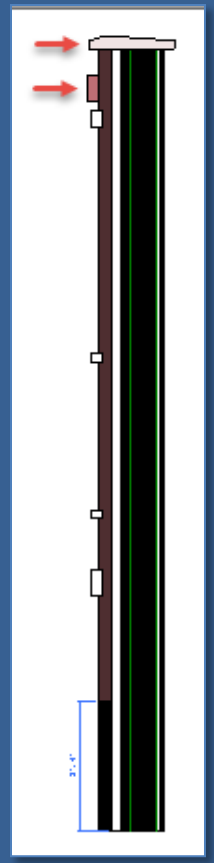
Masonry Wall : Add Sweeps

- What is a sweep?
- A sweep is a positive shape – it is added to the wall
- Add 2 sweeps as shown





- Options:
  - Profile
  - Material
  - Distance
  - From (Base/Top)
  - Offset

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Masonry Wall : With Reveals and Sweeps

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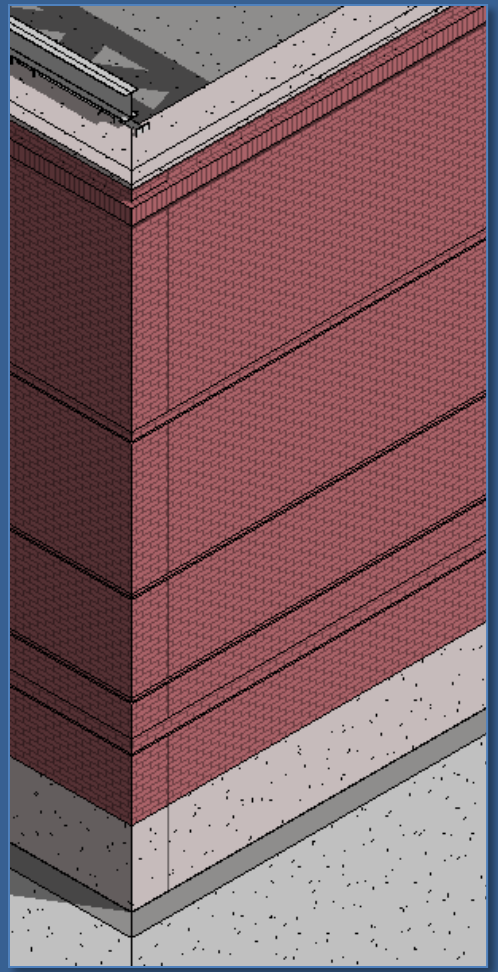
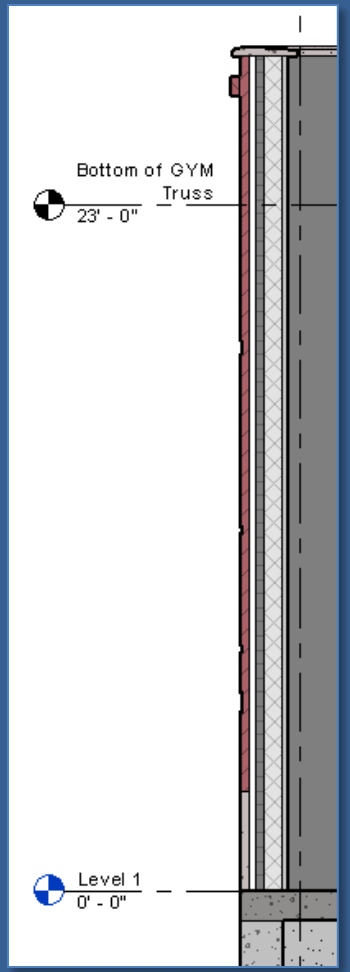
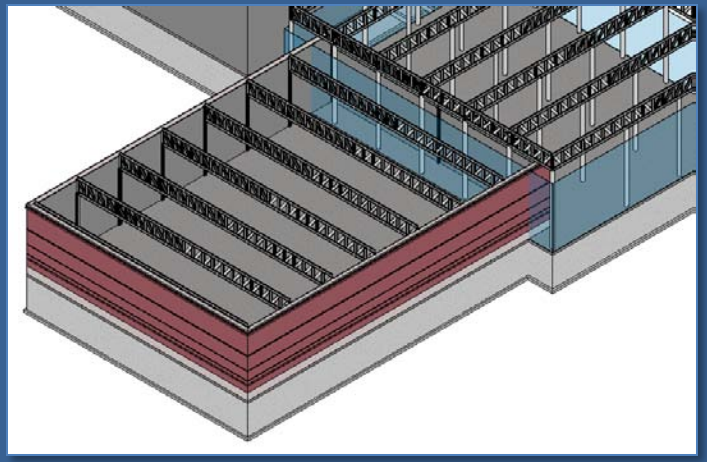
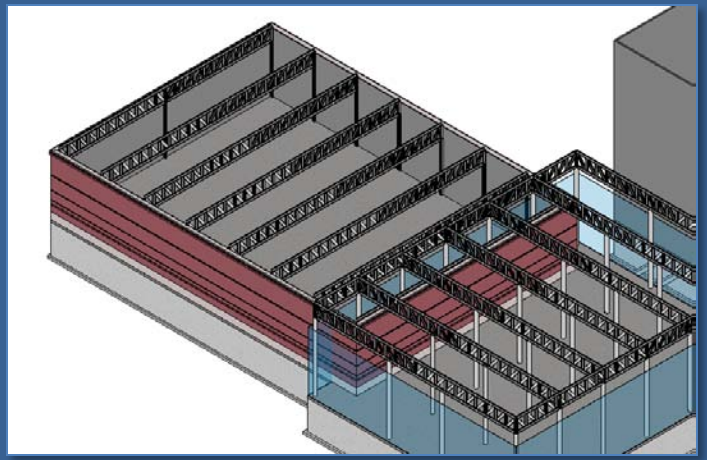
Wrap-Up









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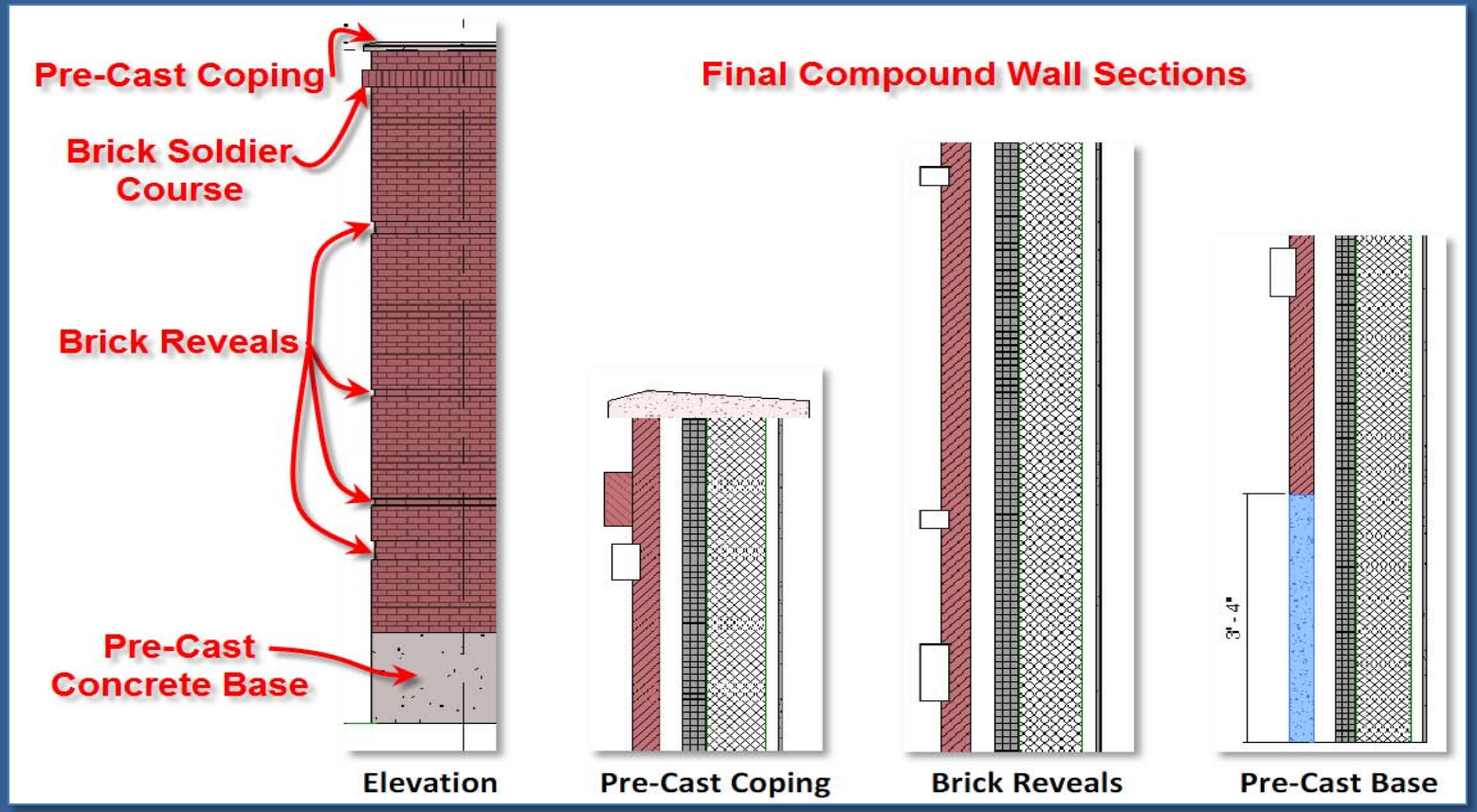
Masonry Wall : With Reveals and Sweeps



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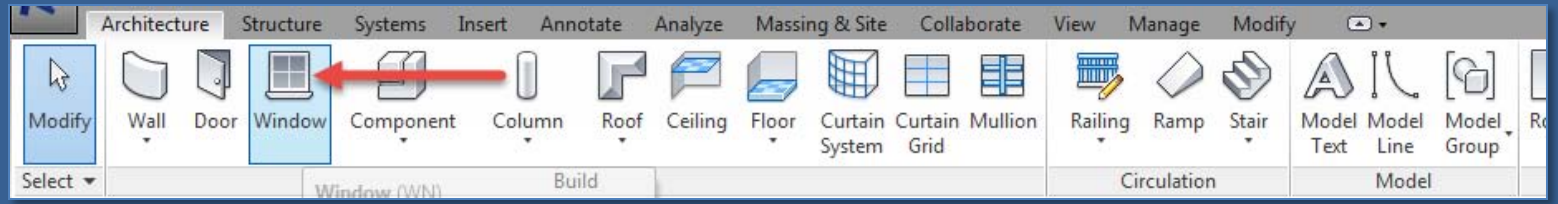
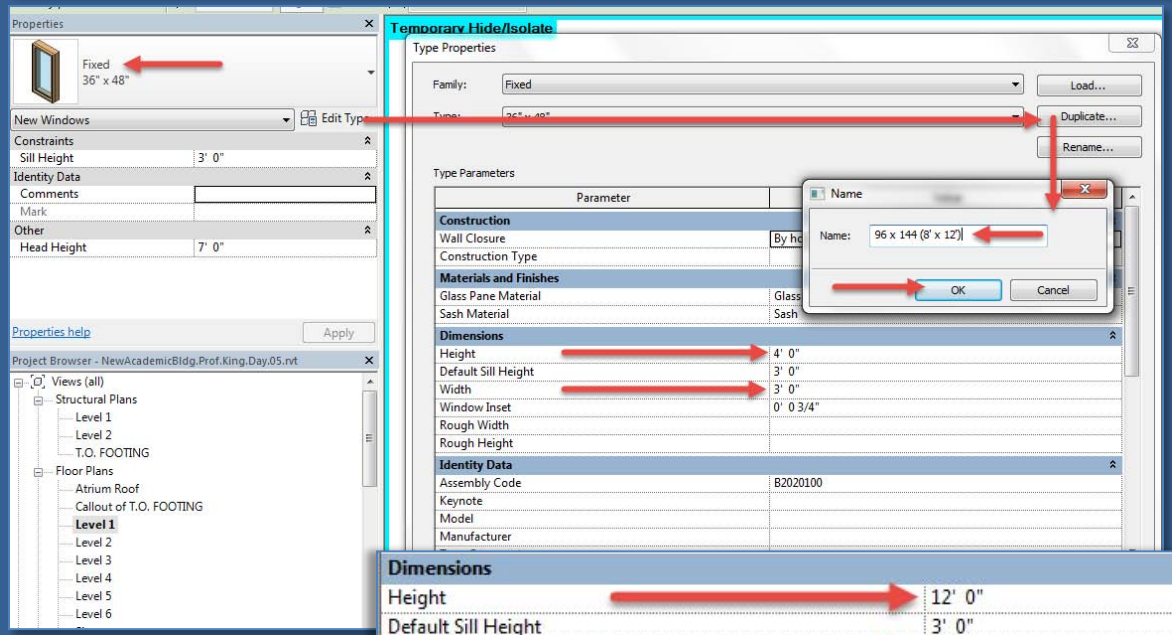
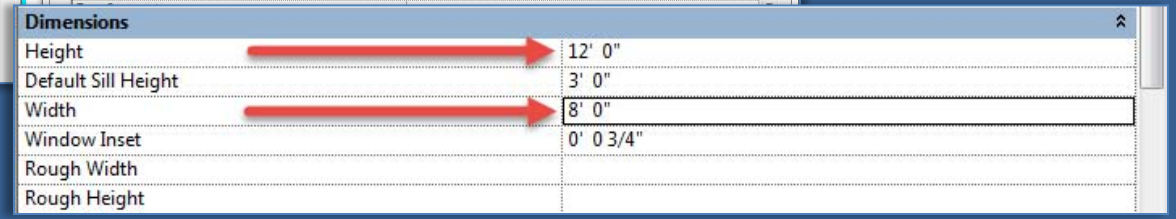
Windows : Create New Type 96 x 144 (8’ x 12’)







- Architecture > Window
- Fixed 36” x 48”
- Edit Type > Duplicate
- 96 x 144 (8’ x 12’)

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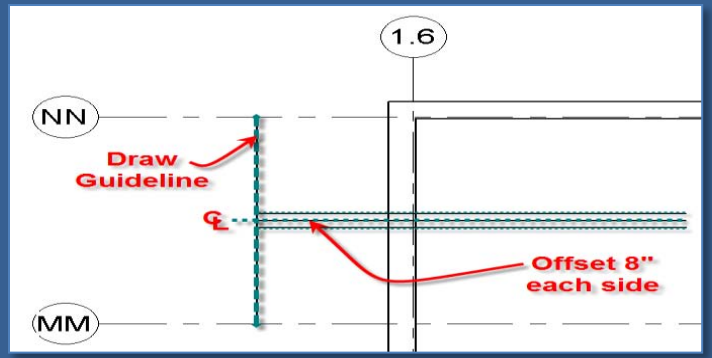
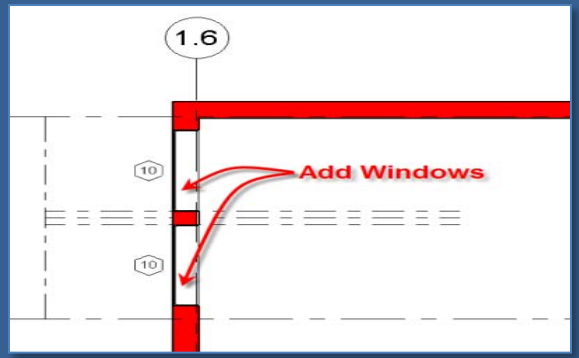
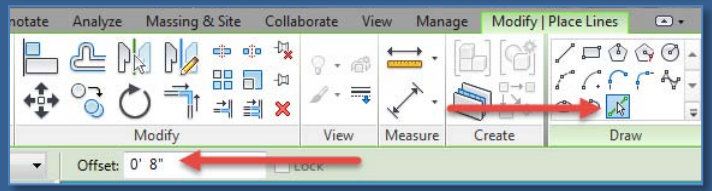
Wrap-Up

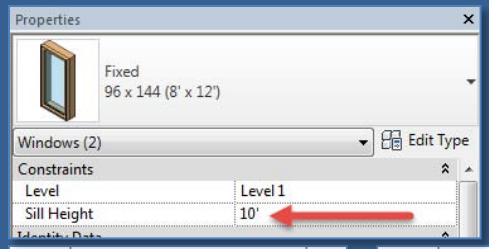
Windows : 96 x 144 (8’ x 12’) : Insert & Align



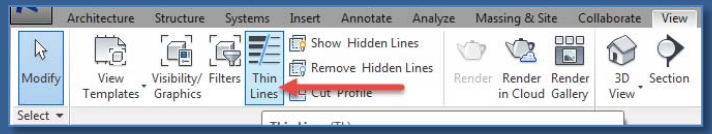


- Guidelines
- Offset 10’
- Offset 8” (2x)

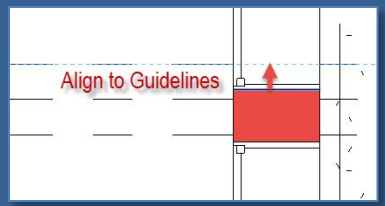


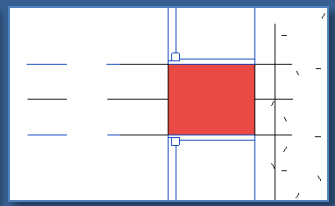


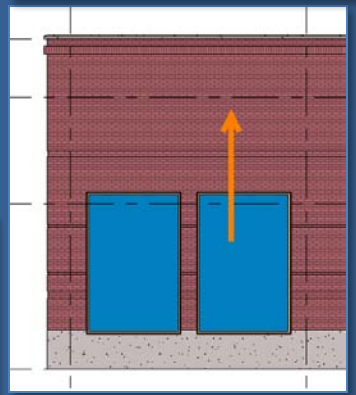
- Sill Height 10’-0”

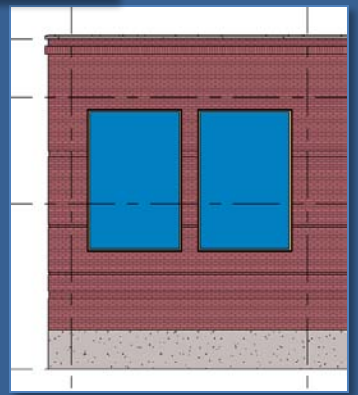


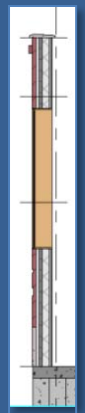
- Guidelines
- Thin Lines
- Align











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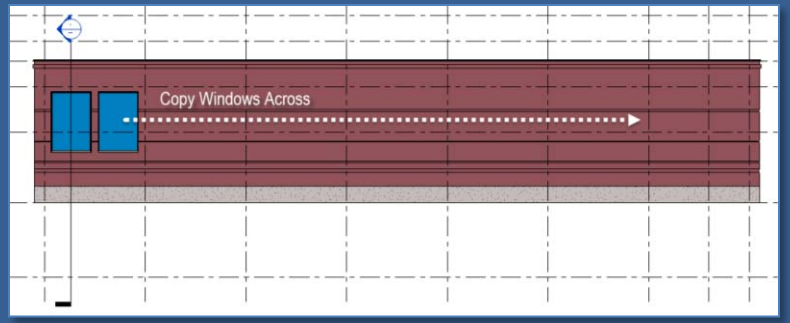
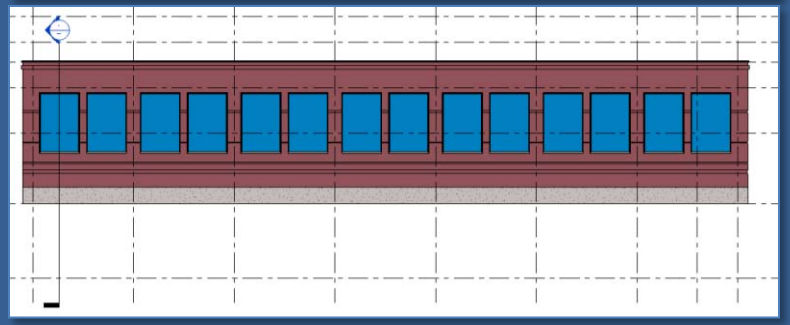
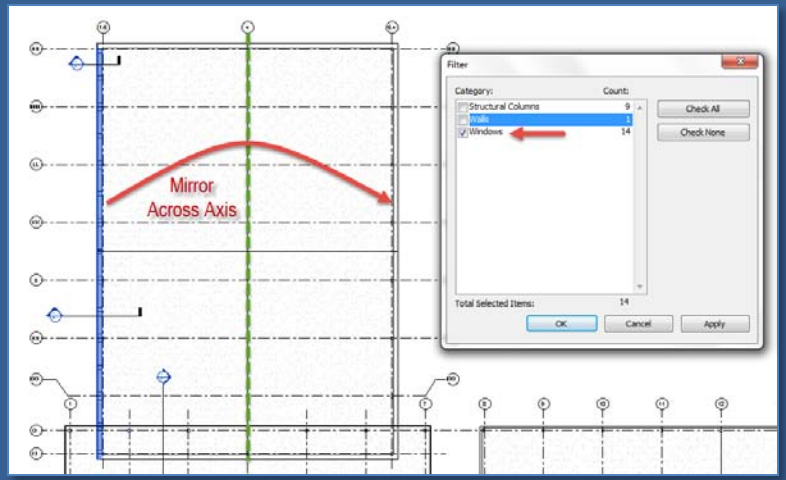
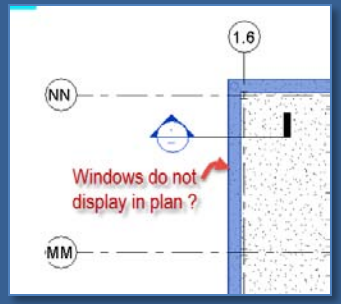
Windows : Copy & Mirror

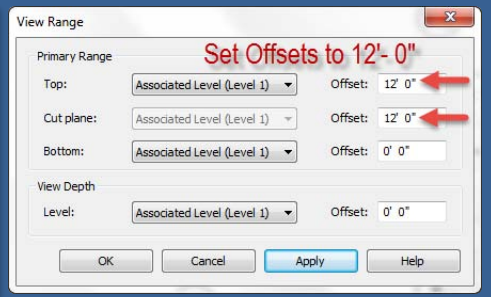


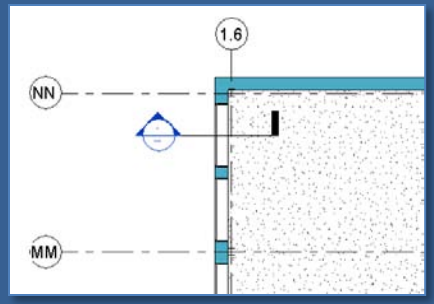


- North Elevation
- Copy Across
- Select Windows
- Mirror across axis









- Level 1
- View Range
- Offsets to 12’

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Project Day 04

GYM
Brick on CMU
- Duplicate
- Edit Structure
- Assembly View

- Split Region
- Assign Material
- Assign Wall Type

- Add Reveals
- Add Sweeps
- Overview 1 2

Windows
- 96 x 144
- Insert & Align
- Copy & Mirror

GYM Overview

Autocad
Coursing Study
- Layers & Units
- Wall Section

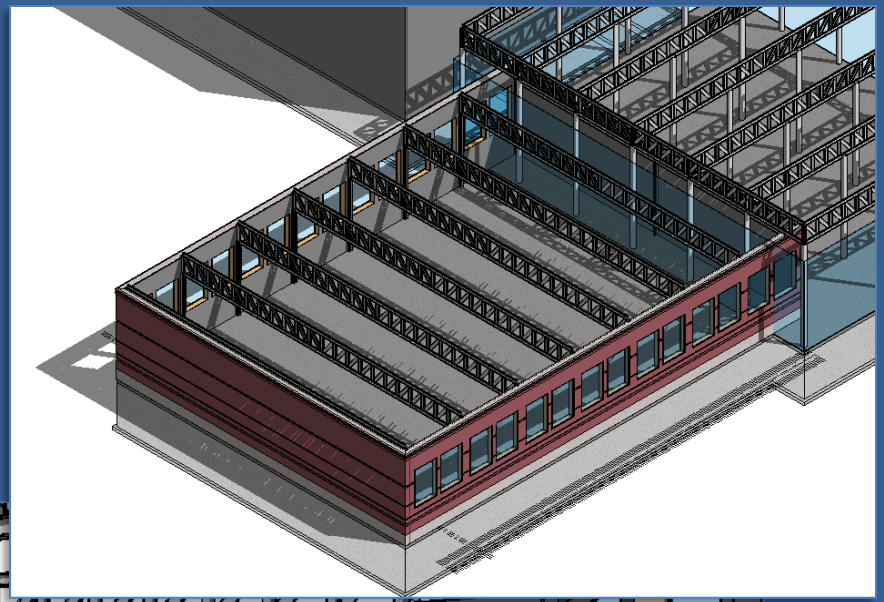
- Elevation
- Section

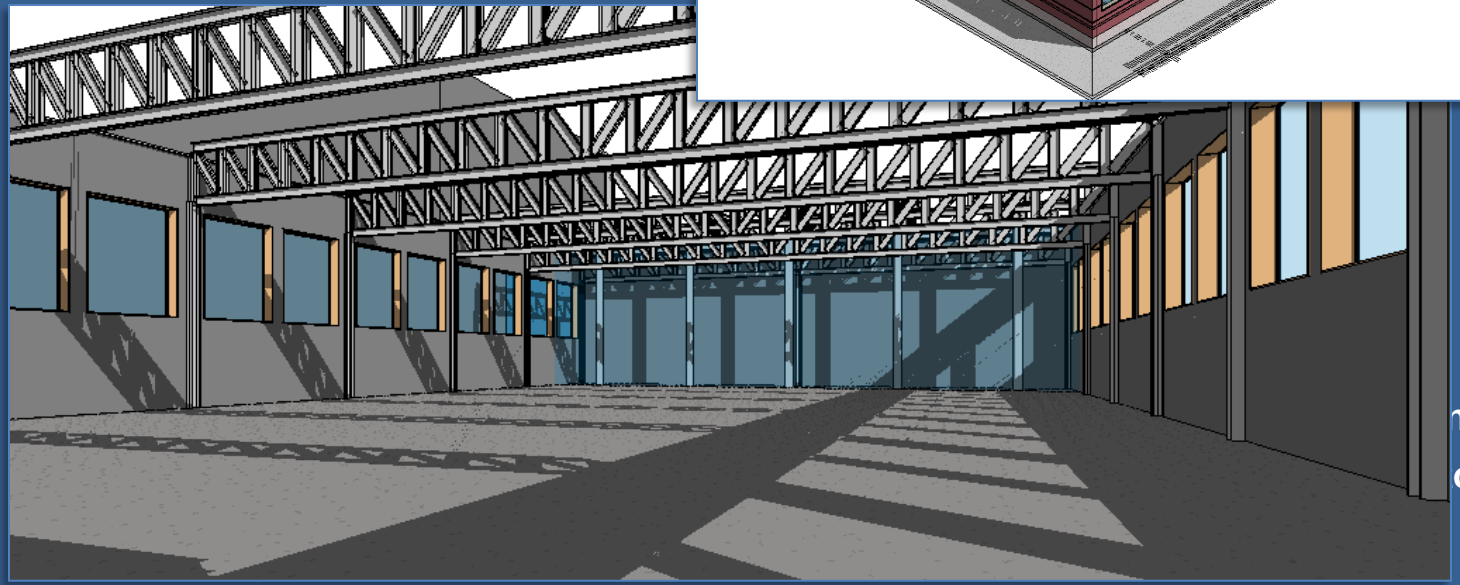
- Steps 1 2 3 4 5 6 7 8 9 10

Wrap-Up

GYM : Overview

- Isometric & Perspective views of GYM





nge
o 12’

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Autocad Study : Layers & Units

Project Day 04

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Brick on CMU
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GYM Overview

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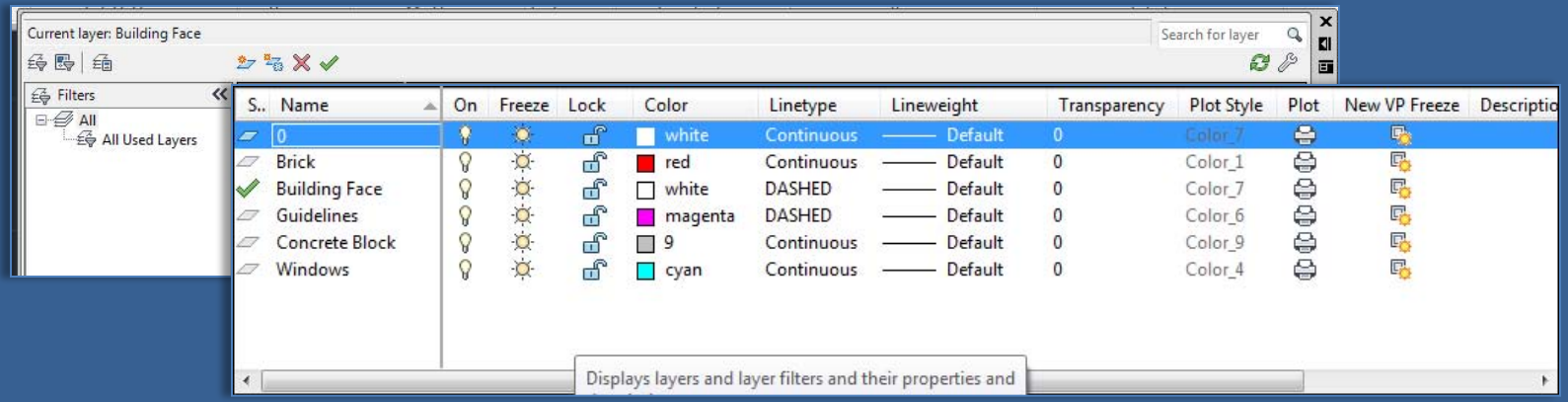
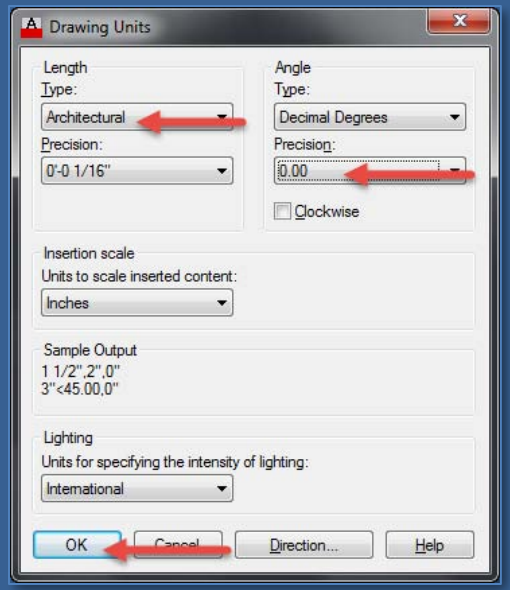
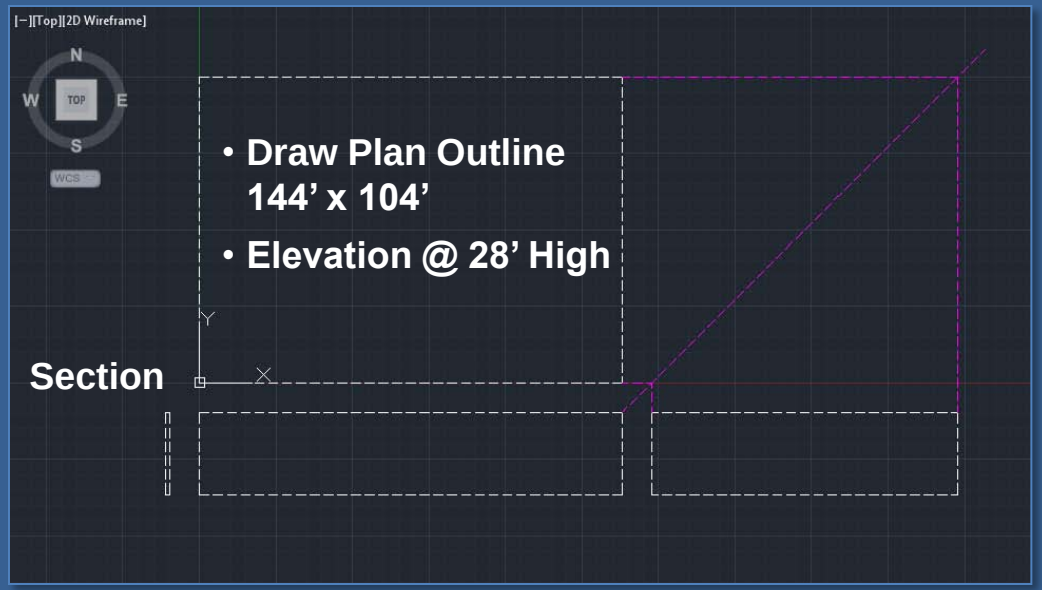
Wrap-Up







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Autocad Study : Layers of Masonry Wall

Project Day 04

GYM
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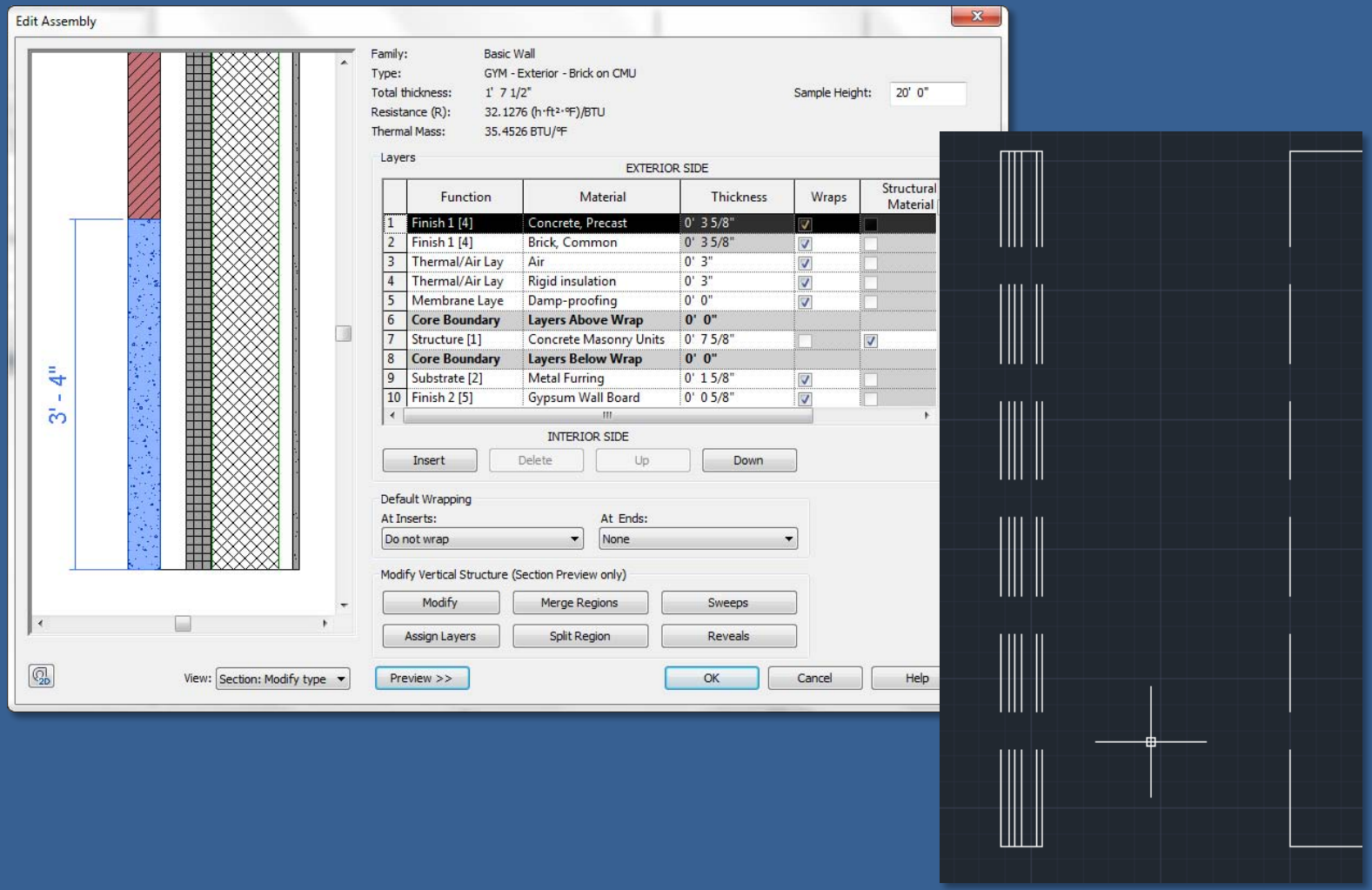
- Section

- Steps 1 2 3 4 5 6 7 8 9 10

Wrap-Up



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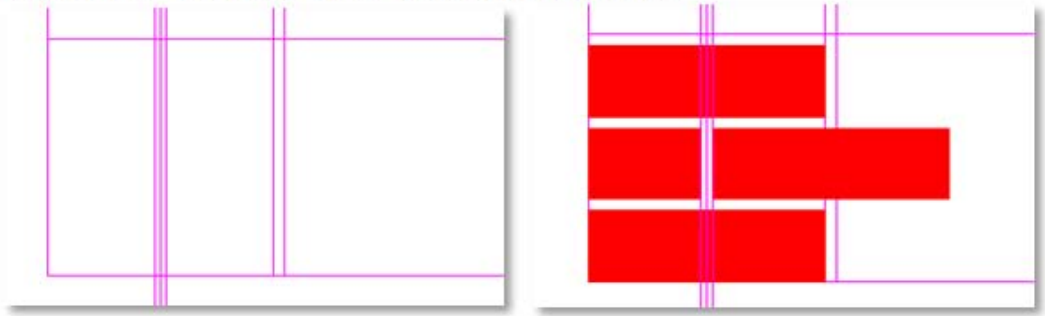
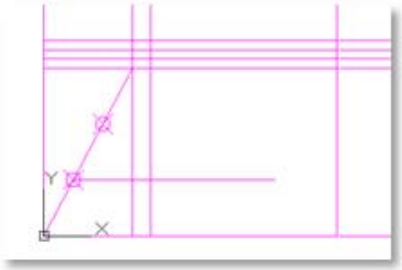
Autocad Study : Layers of Masonry Wall

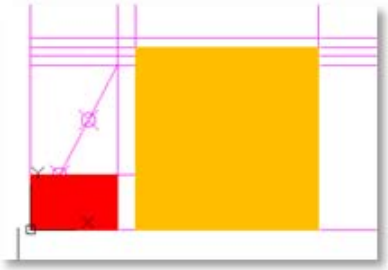
The Elevation: Create a set of guidelines based on the outlines of the elevations of the multi-use space taken from the Revit model. Add guidelines to find the center of the first brick and then account for the 3/8" joint by offsetting this line 3/16" in each direction. Use guidelines to draw the bricks.



Autocad Study : Layers of Masonry Wall

The Section: Start by drawing the guidelines. Create a horizontal line and offset this up 8". Remember that the first brick sits 3/8" above the ground line. Next offset the top line down three times at a distance of 3/8" to account for the mortar joints. Draw a diagonal line in the remaining space. Use the divide command to place "points" at the third points along the diagonal line. Draw your first brick in section. Draw your first concrete block. Copy the bricks to complete the first 8 inches of the wall.





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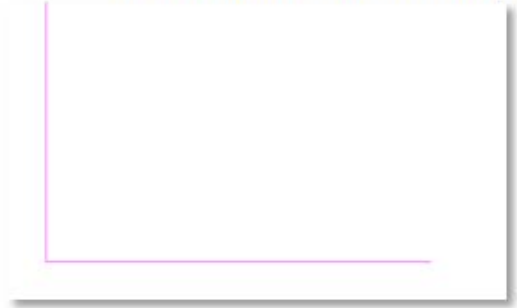
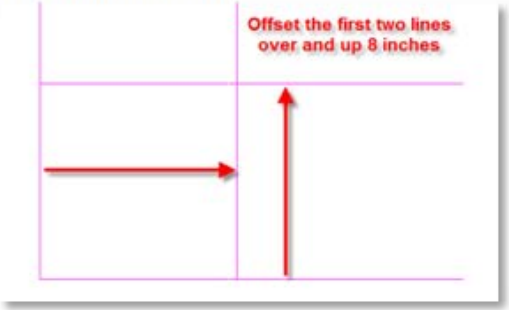
Autocad Study : Layers of Masonry Wall

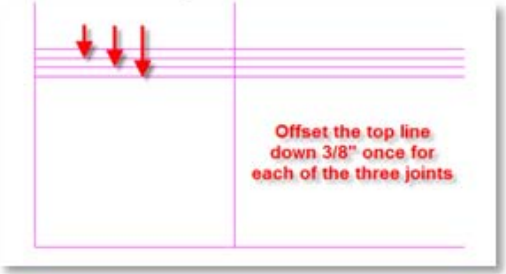
Step by Step: Creating properly coursed bricks in elevation using an 8" module

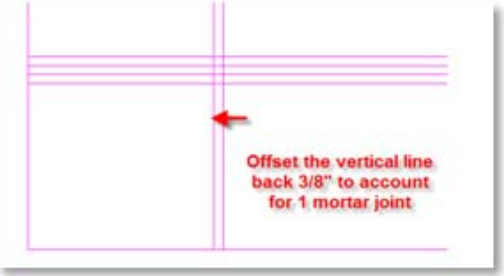
Step 1: Starting at **0,0** draw **horizontal and vertical lines** at least two feet long. Next **Offset** these two lines over and up at a distance of **8 inches**.



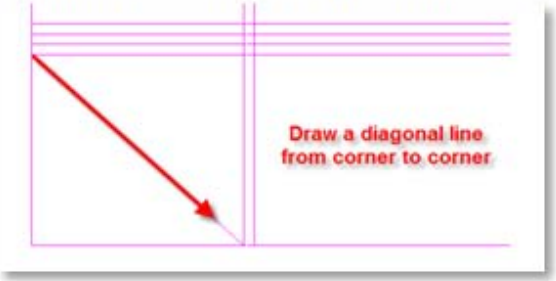


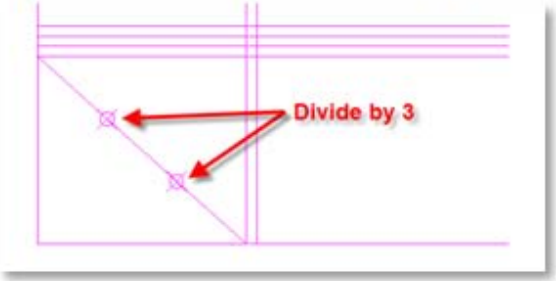
Step 2: **Offset** the **horizontal** lines down **three times** at a distance of **3/8"** once for each of the three joints. **Offset** the **vertical** line left **3/8"** to account for 1 mortar joint.



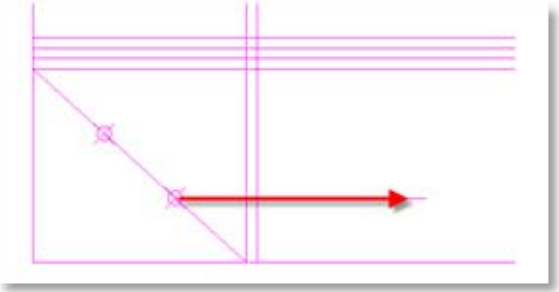


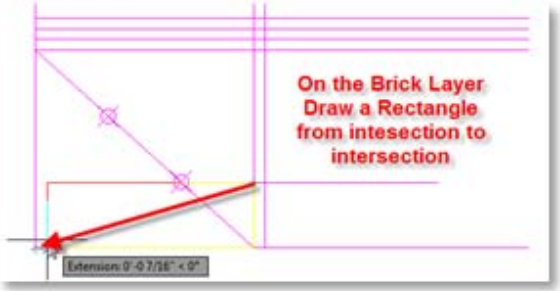
Step 3: Draw a **diagonal line** from **intersection to intersection**. Use the **divide** command to locate point notes at the **third points of the line**.



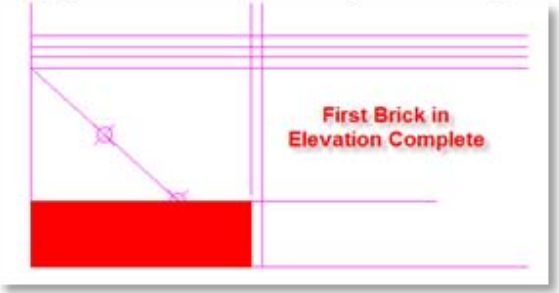


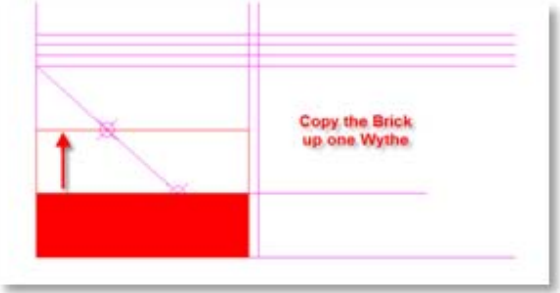
Step 4: Draw a **horizontal guideline** from the **first point node** across the vertical lines. On the **Brick Layer** draw a **rectangle** from **intersection to intersection**.



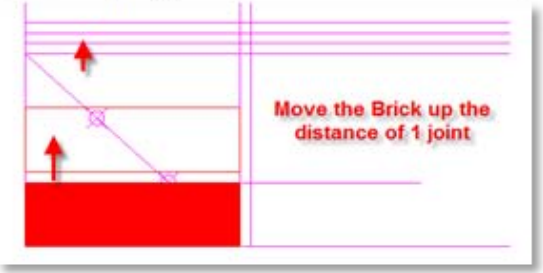


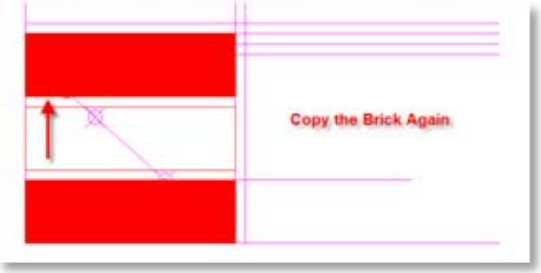
Step 5: Copy the **first brick** up the **height of the brick**.



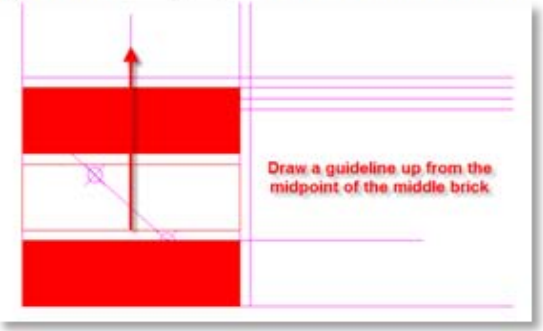


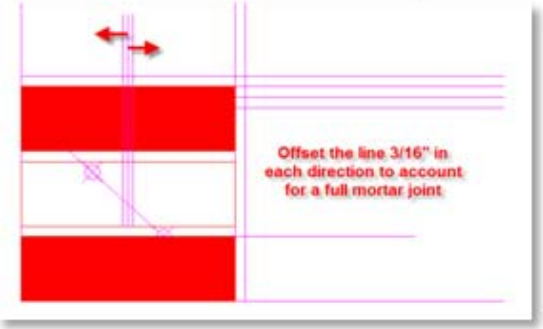
Step 6: **Move** the **second brick** up **3/8"** or the **height of 1 mortar joint**. **Copy** the **second brick** up again the distance of **1 brick and 1 joint**. Snap to the guidelines.



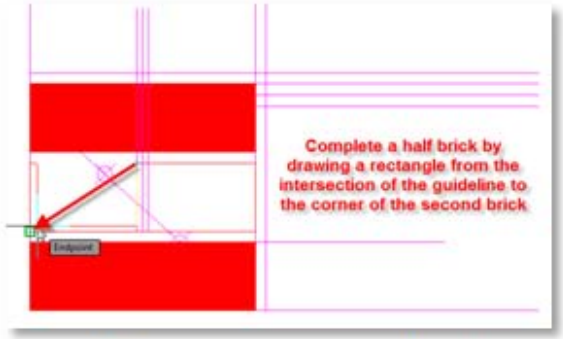


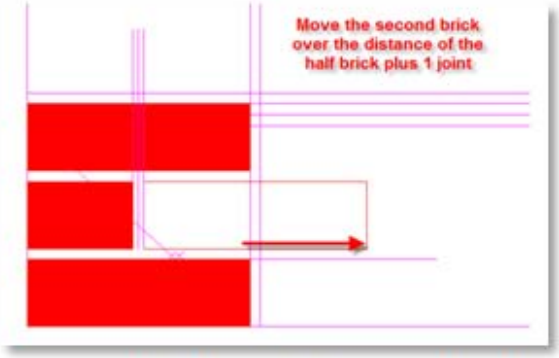
Step 7: **Draw** a **guideline** from the **midpoint** of the **second brick directly up**. **Offset** this guideline **3/16"** in each direction to account for a full mortar joint.



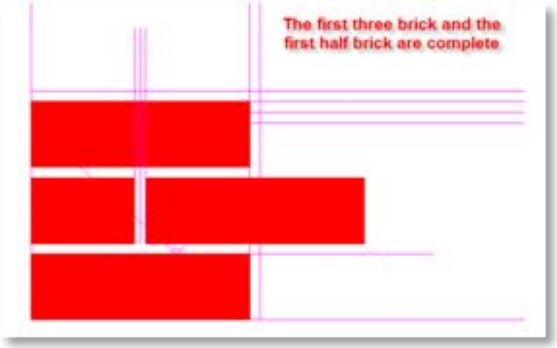


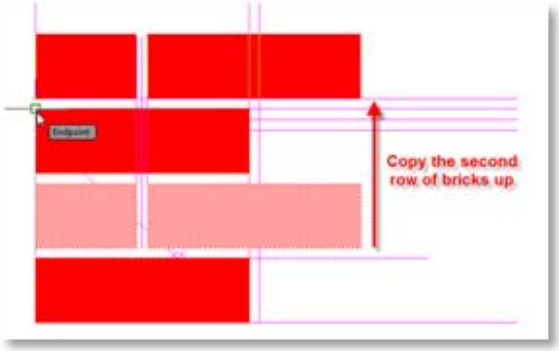
Step 8: Complete a half brick by **drawing** from the **intersection** of the guidelines to the **corner of the second brick**. **Move** the **second brick** over the distance of **the half brick plus 1 joint**.





Step 9: **Copy** the **second row** of bricks **up** to complete the first set of bricks.





Step 10: Working with this set of bricks use the **Array** command to copy bricks to fill the horizontal and vertical dimensions of the elevations. Working with proper coursing work out all the vertical and horizontal masonry openings.

Note: The half brick should be used to begin developing the wall section.

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Day 16 / Revit Day 08 / Project Day 05 - Wrap Up

GYM Brick on CMU
- **Duplicate**
- **Edit Structure**
- **Assembly View**

- **Split Region**
- **Assign Material**
- **Assign Wall Type**

- **Add Reveals**
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- **Copy & Mirror**

GYM Overview

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- **Section**

- **Steps 1 2 3 4 5 6 7 8 9 10**