



New York City College of Technology Division of Continuing Education

Building Information Modeling with Revit 2014 Module 04 : FH.01 *Starting the Firehouse : Grids & Levels*



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

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

Modify Command Review

Day 04

Modify Shortcuts . . .

Firehouse

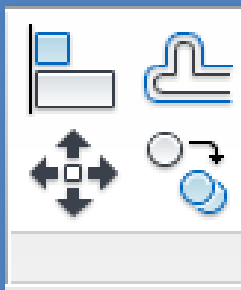
- New Project
- Grids . .
- Perimeter
- Levels . .
- Exterior Wall . .
- Fix Bricks

Bunkhouse

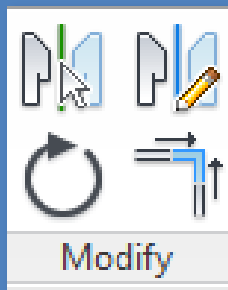
- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

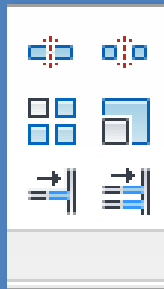
Wrap Up



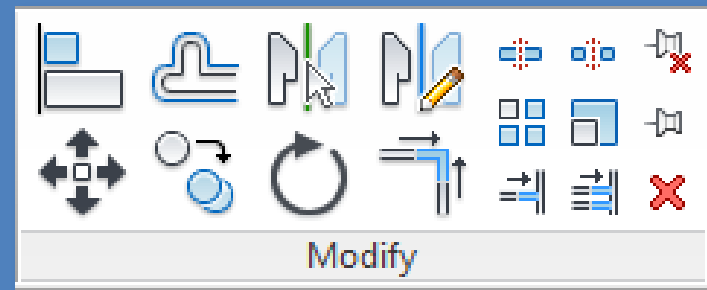
- AL = align
- OF = offset
- MV = move
- CO, CC = copy



- MM = mirror
- MD = mirror draw axis
- RO = rotate
- TR = trim / extend to corner



- SL = split element, split with gap
- AR = array, RE = scale
- trim / extend single, trim extend multiple



- PN = pin in place / lock
- UP = unpin / unlock
- DE = delete

Keyboard Shortcuts (common)

Day 04

Modify Shortcuts . . .

Firehouse

- New Project
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- Levels . .
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- Fix Bricks

Bunkhouse

- Exterior Siding Wall
- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction

View

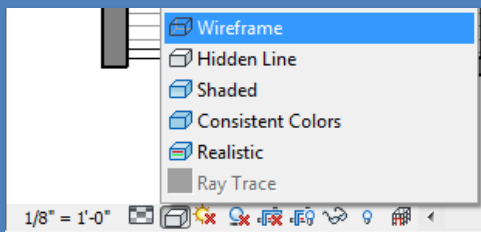
- ZR, ZZ = zoom region
- ZO, ZV = zoom out
- ZE, ZF = zoom to fit
- ZS = zoom sheet size
- ZP = zoom previous

Interface

- PP = properties on/off
- VV = visibility graphics

Display

- WF = wireframe
- HL = hidden line
- SD = shaded with edges

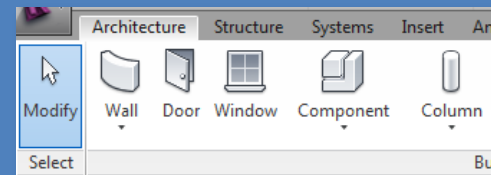


Modify

- AL = align
- OF = offset
- MM = mirror
- MD = mirror draw axis
- SL = split element
- MV = move
- CO, CC = copy
- RO = rotate
- TR = trim / extend
- AR = array
- RE = scale
- PN = pin in place / lock
- UP = unpin / unlock
- DE = delete

Drafting

- LL = create level
- GR = create grid
- TG = add tag
- RT = add room tag
- TX = add text
- DI = add dimension



Modeling

- WA = add wall
- WN = add window
- DR = add door
- CM = place component
- CL = add column
- MA = match properties

Keyboard Shortcuts

Day 04

Modify
Shortcuts ...

Firehouse

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Bunkhouse

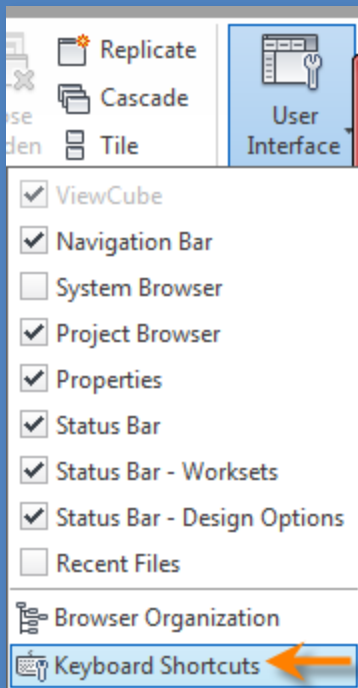
- Exterior Siding Wall

▪ New Sheets

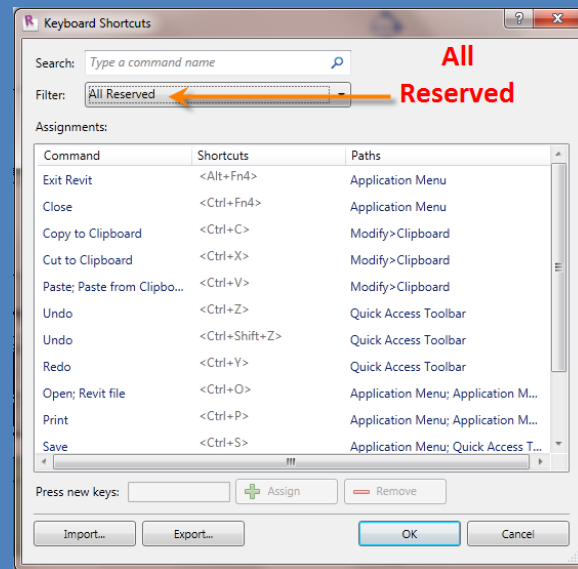
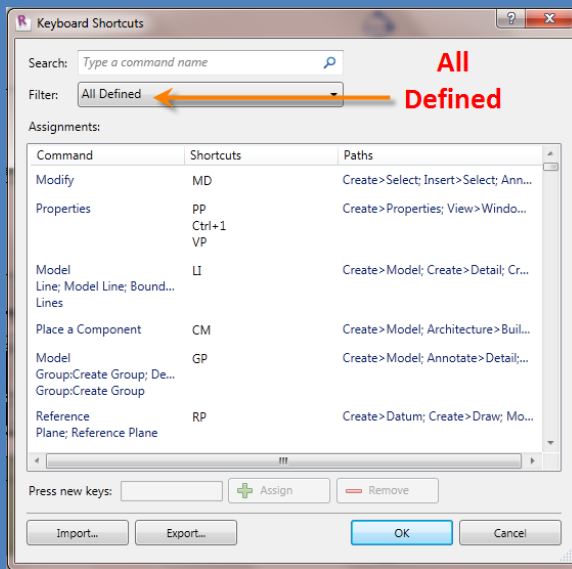
- 1/8" or 1/4"

Wrap Up

Revit Introduction



- View > User Interface > Keyboard Shortcuts
- Revit xxxx \ program \ Keyboardshortcuts.txt
- Additional Shortcuts can be created
- All Defined
- All Reserved



New Project – Firehouse & Bunkhouse

Day 04

Modify
Shortcuts ...

Firehouse

- New Project
- Grids ..
- Perimeter
- Levels ..
- Exterior Wall ..
- Fix Bricks

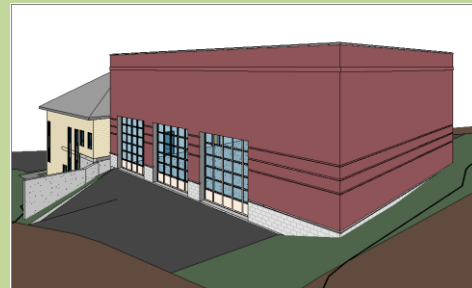
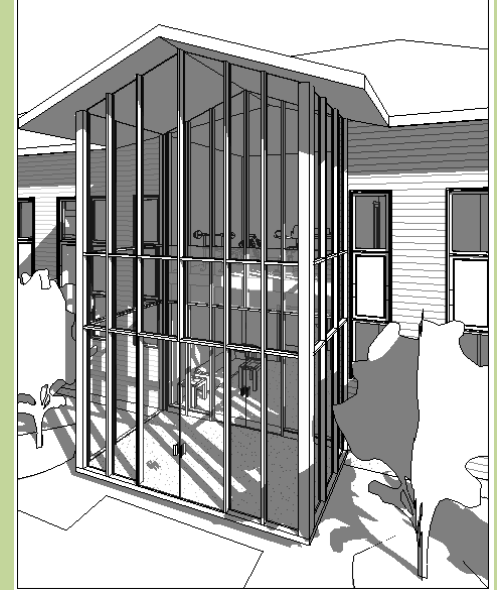
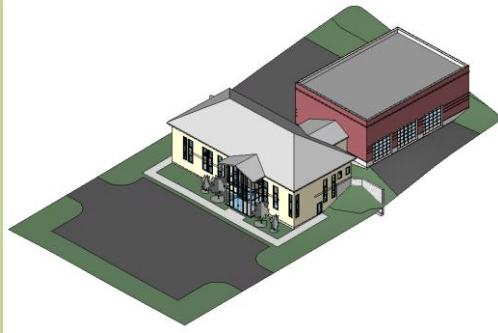
Bunkhouse

- Exterior Siding
Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction



New Project – Firehouse & Bunkhouse

Day 04

Modify Shortcuts ...

Firehouse

- **New Project**

- Grids ..
- Perimeter
- Levels ..
- Exterior Wall ..
- Fix Bricks

Bunkhouse

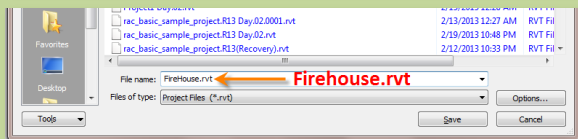
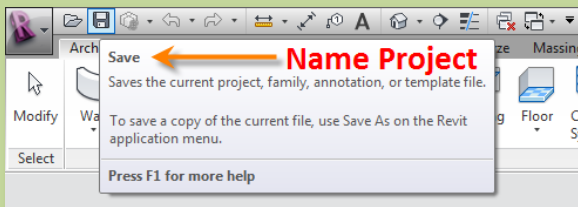
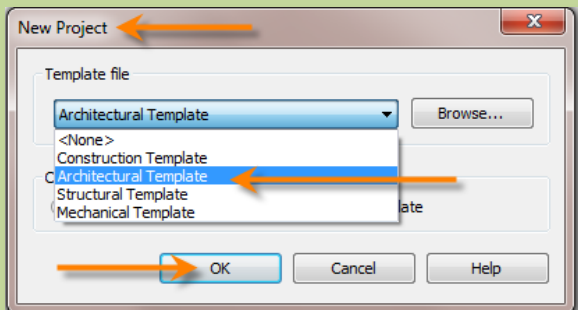
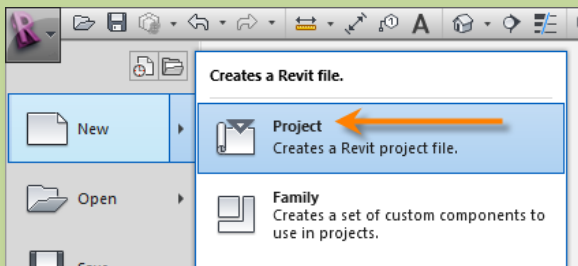
- Exterior Siding Wall

- **New Sheets**

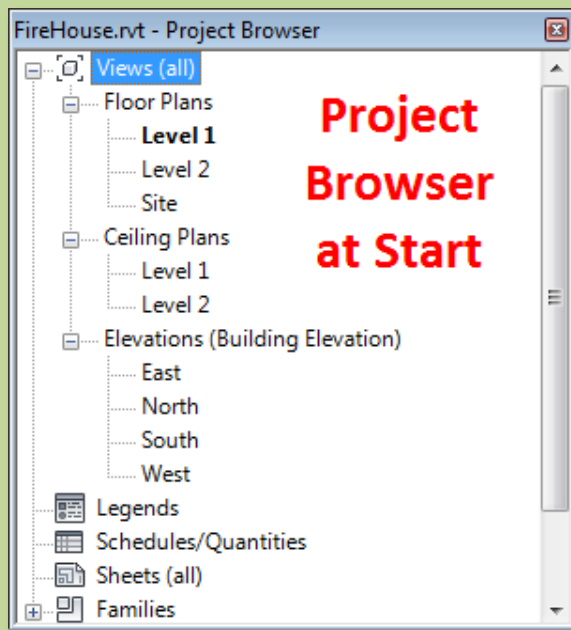
- 1/8" or 1/4"

Wrap Up

Revit Introduction



- **New > Project**
- **Architectural Template**
- **Save & Name Project > Firehouse**
- **Name your file Firehouse-yourfullname.rvt**



Day 04

Modify Shortcuts ...

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- Grids ...
- Perimeter
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- Fix Bricks

Bunkhouse

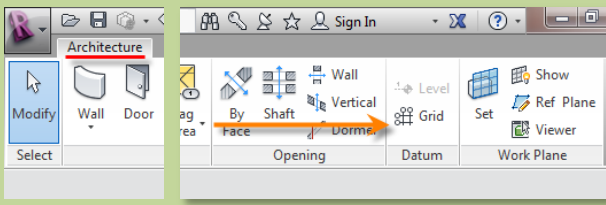
- Exterior Siding Wall

New Sheets

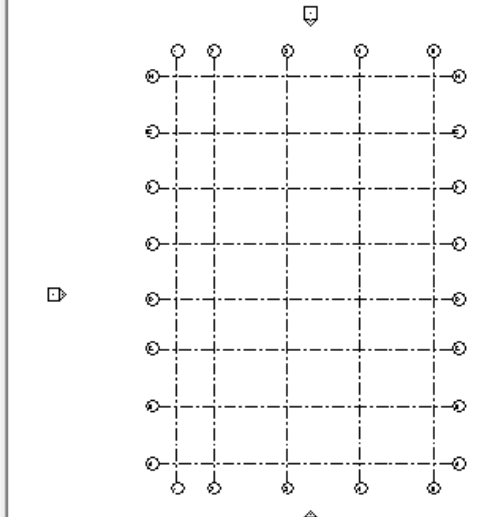
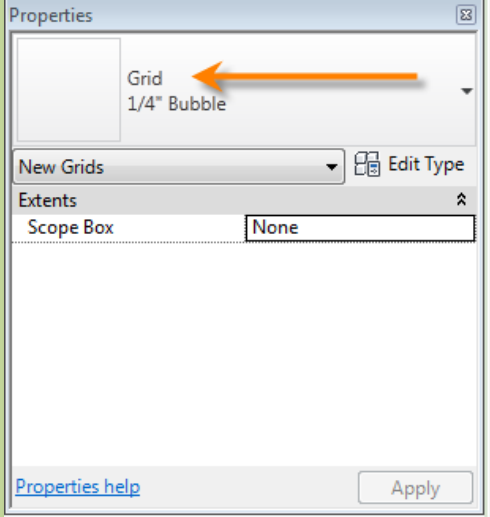
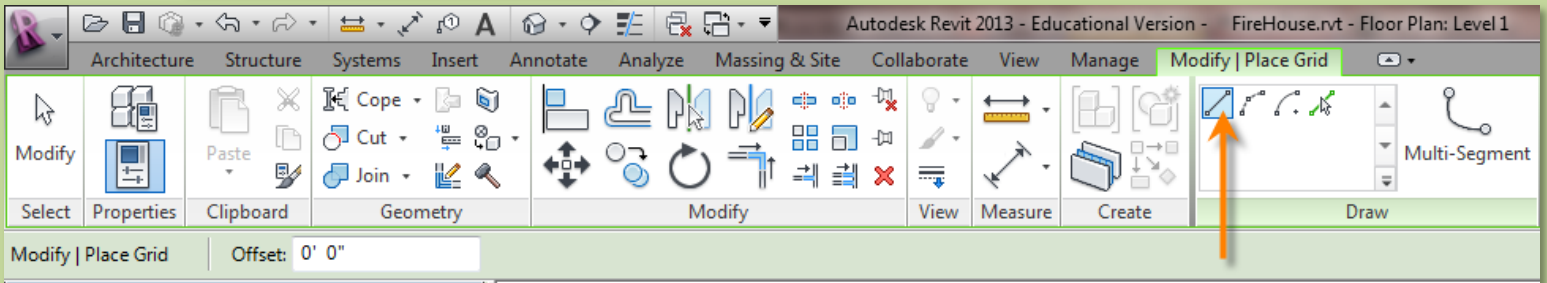
- 1/8" or 1/4"

Wrap Up

New Project – Add Grids



- Architecture > Grid
- Grids 1 to 5 across horizontal
- Grids A to H up vertically



Vertical Grids
11'10, 23'8, 23'8, 23'8

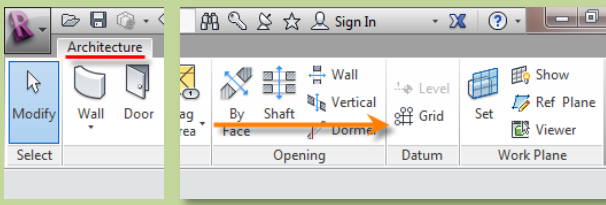
Horizontal Grids
18'6, 18'6, 16',
18', 18', 18', 18'

- New Project
- Grids ...
- Perimeter
- Levels ...
- Exterior Wall ...
- Fix Bricks

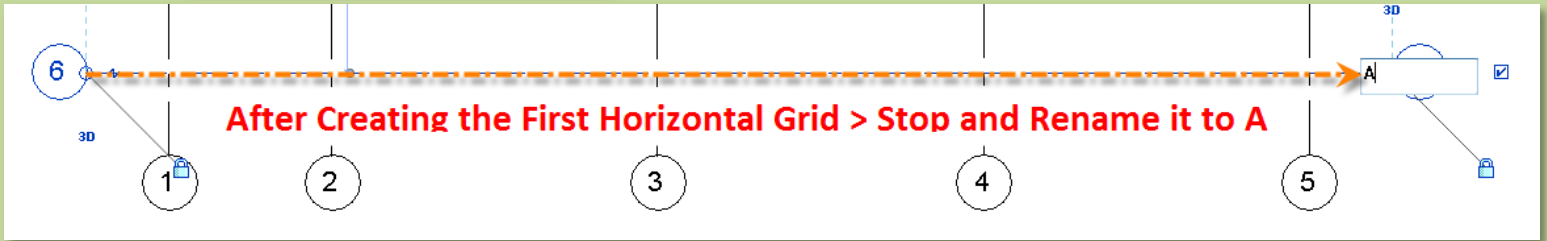
- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

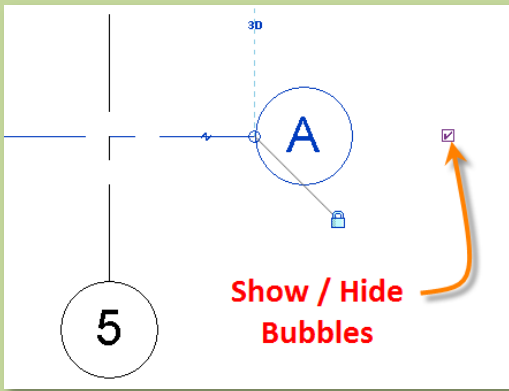
New Project – Edit Grid Formatting



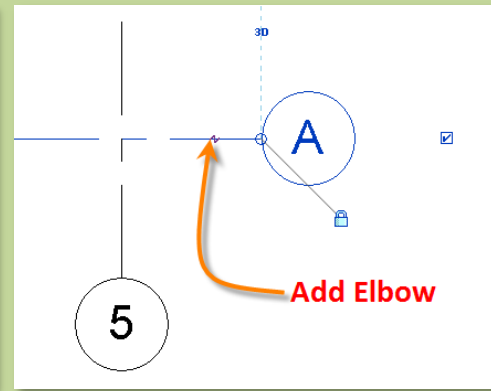
- Architecture > Grid
- Grids 1 to 5 across horizontal
- Grids A to H up vertically



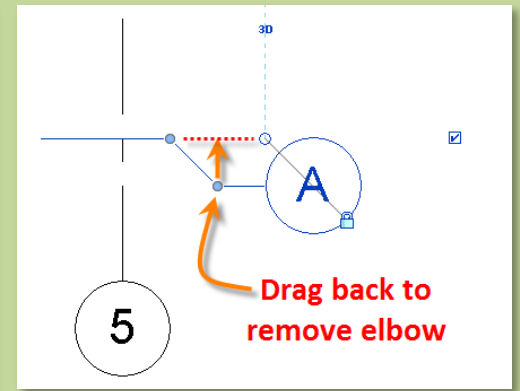
- Show Hide Bubbles



- Add an Elbow



- Remove an Elbow



Day 04

Modify Shortcuts

Firehouse

- New Project
- Grids
- Perimeter
- Levels
- Exterior Wall
- Fix Bricks

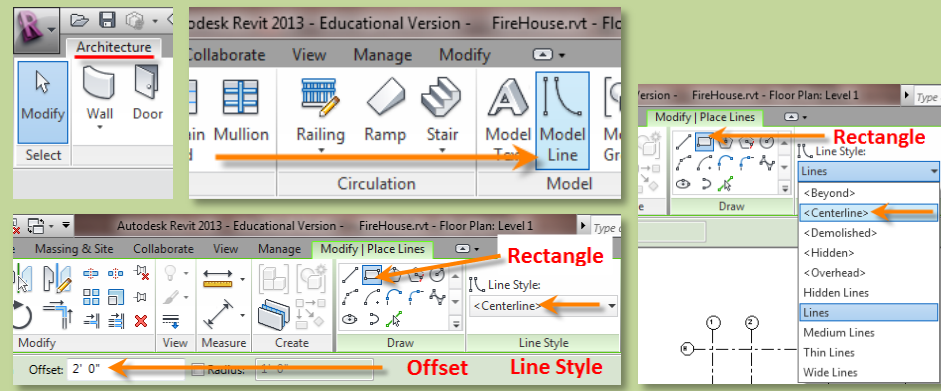
Bunkhouse

- Exterior Siding
- Wall

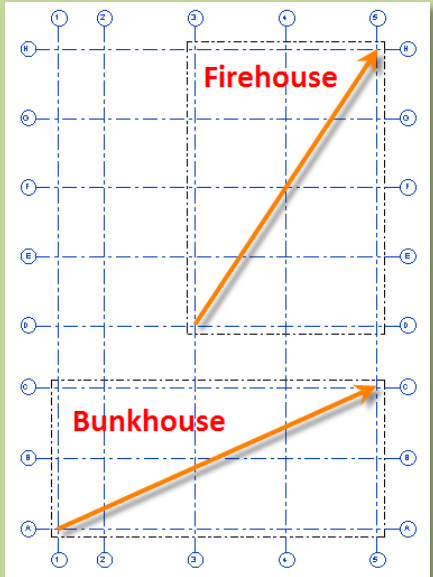
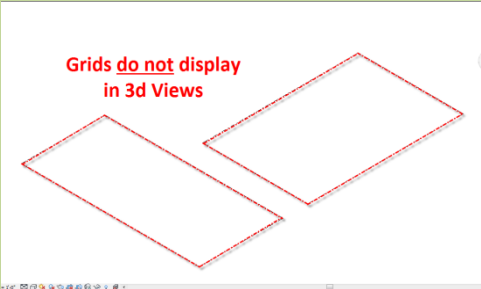
- New Sheets
- 1/8" or 1/4"

Wrap Up

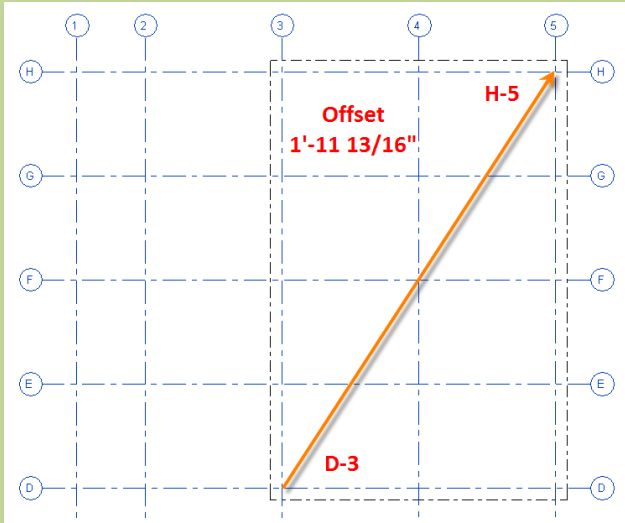
New Project – Add Building Perimeter



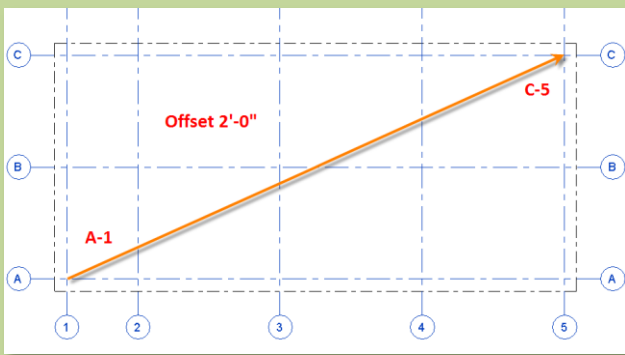
- Architecture > Model Lines
- Line Style to Centerline
- Rectangle tool
- Set Offsets



- Grid D-3 to H-5
- Offset 1'-11 13/16"



- Grid A-1 to C-5
- Offset 2'-0"



New Project – Add & Adjust Levels

Day 04

Modify Shortcuts . . .

Firehouse

- New Project
- Grids . . .
- Perimeter
- Levels . . .
- Exterior Wall . . .
- Fix Bricks

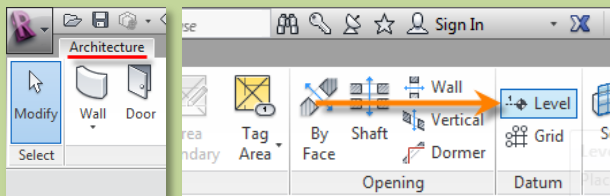
Bunkhouse

- Exterior Siding Wall

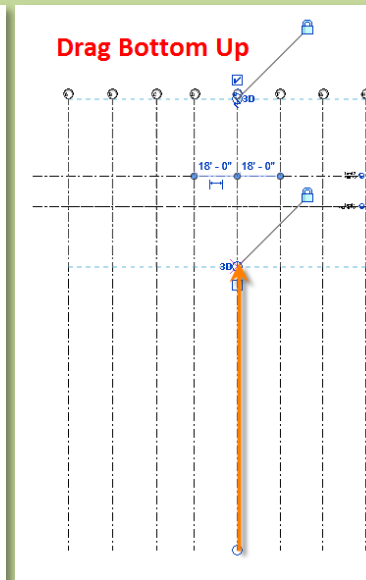
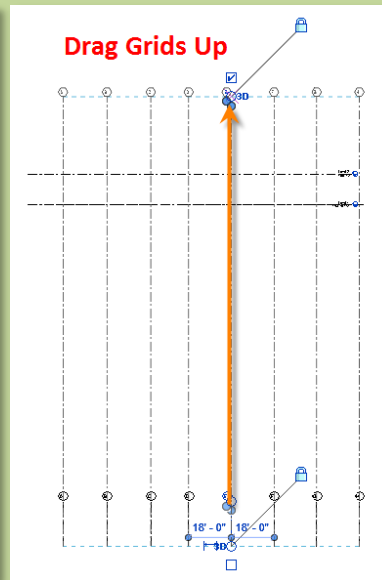
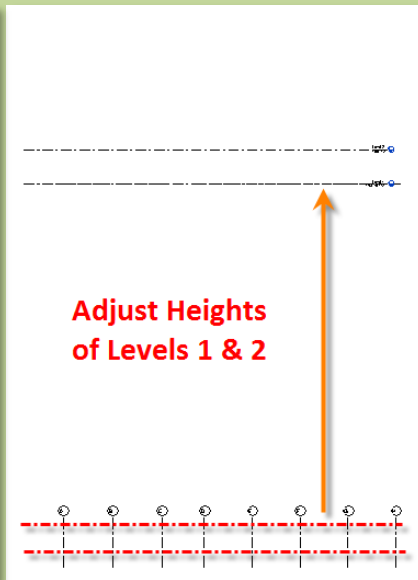
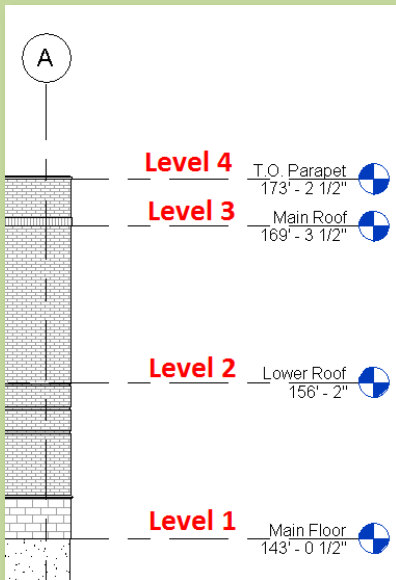
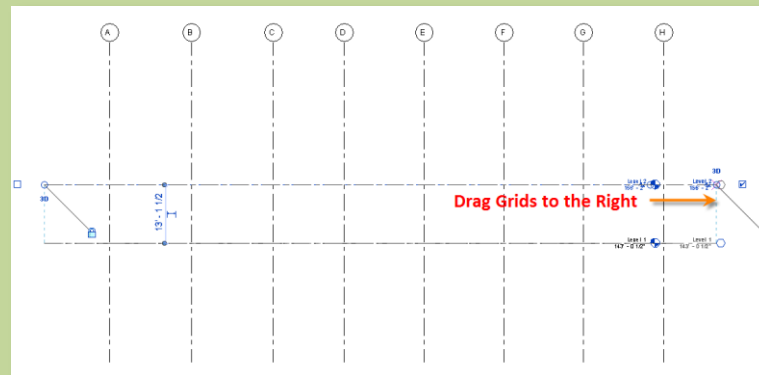
- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction

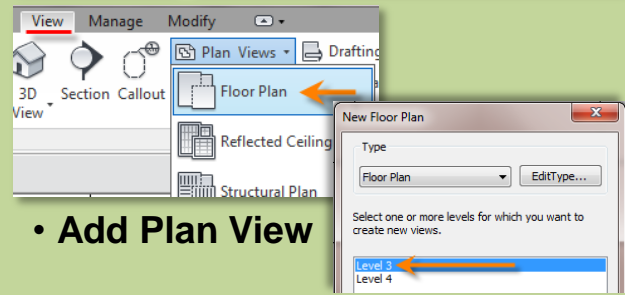
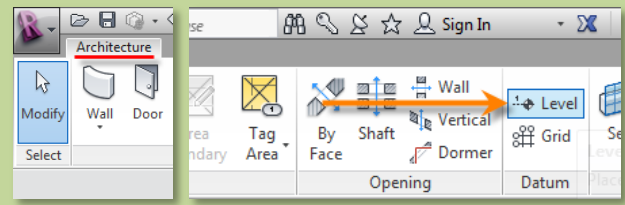


- Adjust Height of Levels 1 & 2
- Level 1 to 143'-0 1/2"
- Level 2 to 156'-2"
- Adjust Graphics in East & North Elevation
- Grids must intersect each level to display

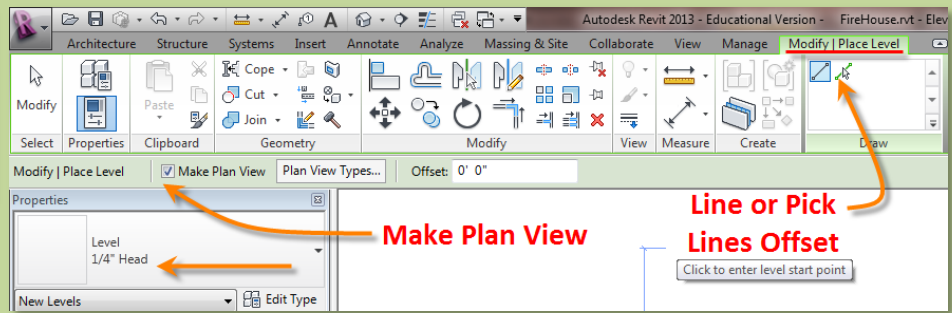


New Project – Add & Adjust Levels

- Day 04**
- Modify Shortcuts**
- Firehouse**
- New Project
 - Grids ..
 - Perimeter
 - Levels ..
 - Exterior Wall ..
 - Fix Bricks

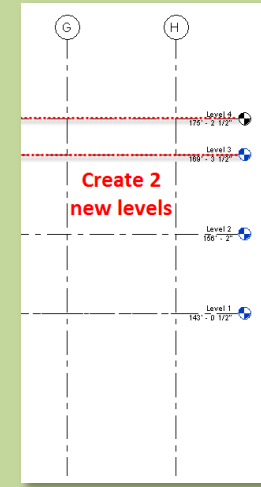
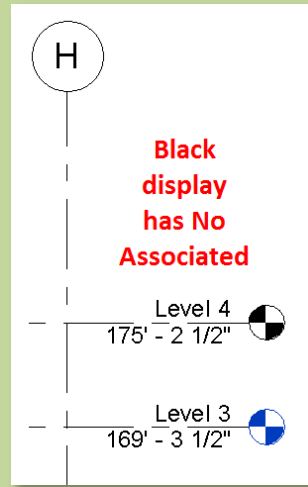
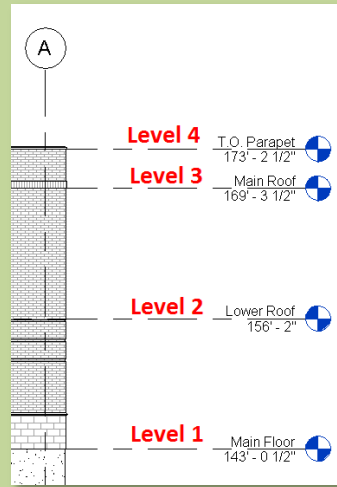


• **Add Plan View**



• **Select “Make Plan View”**

- Bunkhouse**
- Exterior Siding Wall
 - New Sheets
 - 1/8” or 1/4”



- **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 Floor**
- **Level 1 @ 143'-0 1/2”**
- **Rename Main Floor**

New Project – Add Exterior Wall for Firehouse

Day 04

Modify
Shortcuts

Firehouse

- New Project
- Grids ..
- Perimeter
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- Exterior Wall ..
- Fix Bricks

Bunkhouse

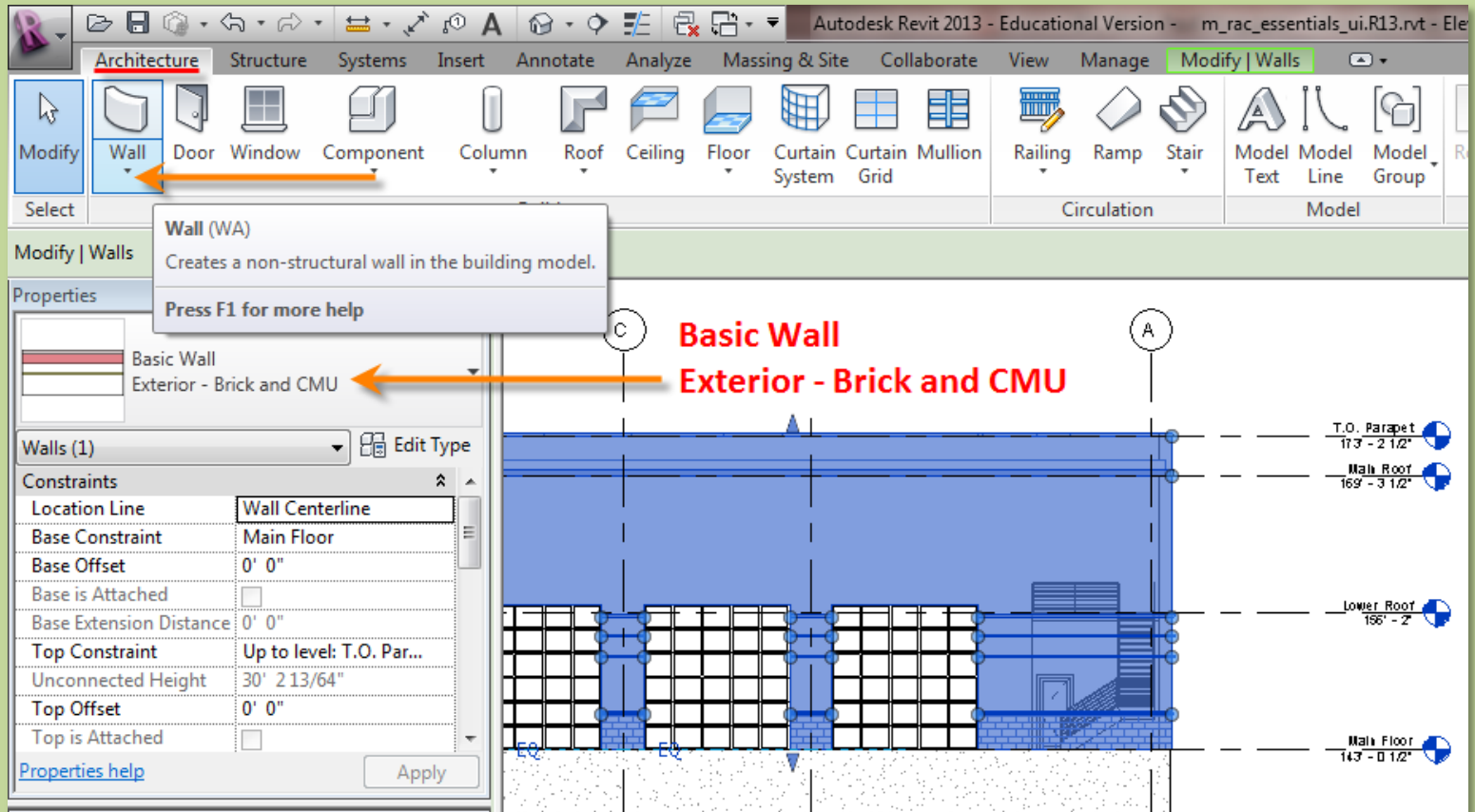
- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

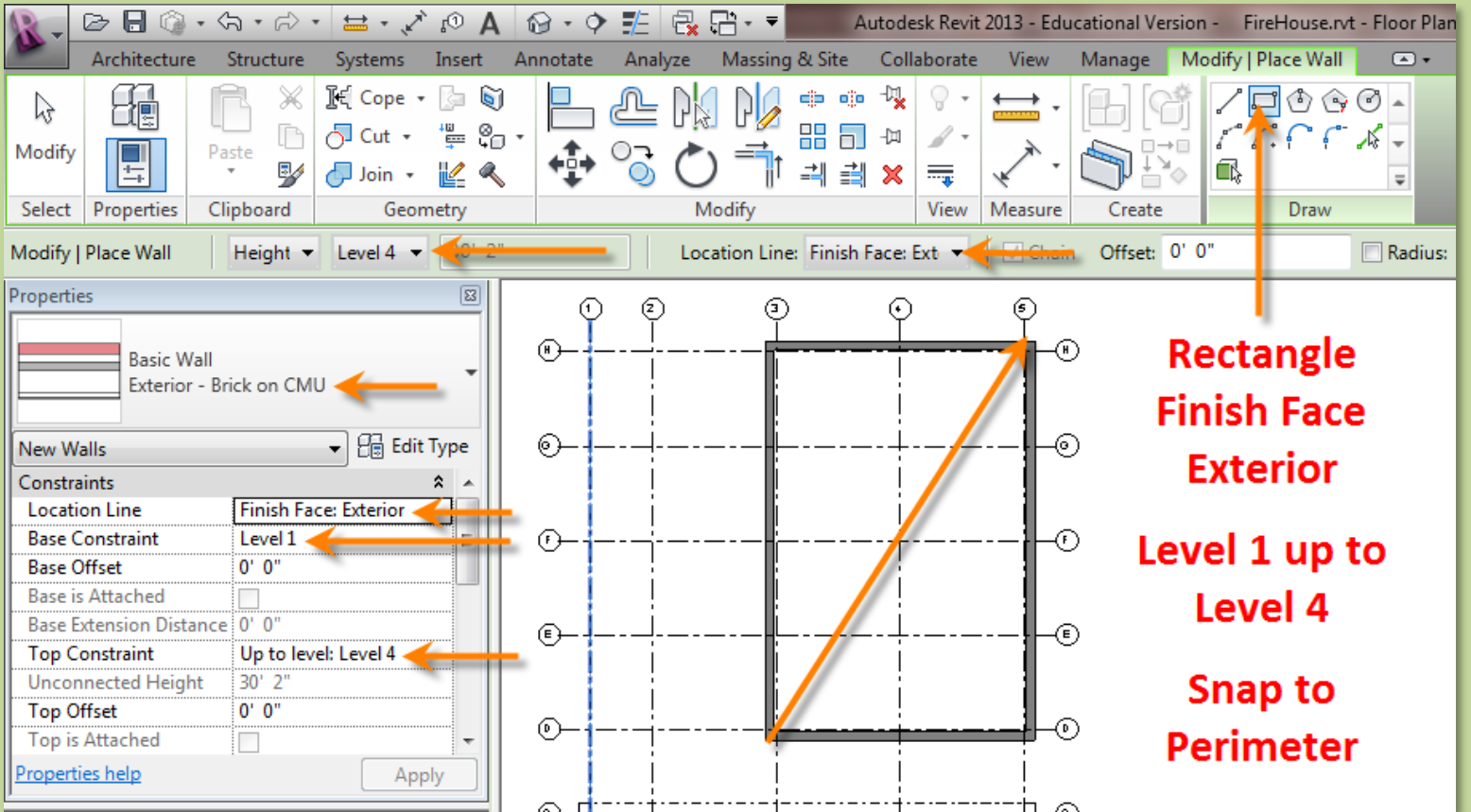
Revit Introduction

- Wall > Architectural > Basic Wall : Exterior – Brick and CMU
- Rectangle > Finish Face Exterior > Main Floor up to T.O.PARAPET > Snap to Perimeter



New Project – Add Exterior Wall for Firehouse

- Wall > Architectural > Basic Wall : Exterior – Brick and CMU
- Rectangle > Finish Face Exterior > Main Floor up to T.O.PARAPET > Snap to Perimeter



**Rectangle
Finish Face
Exterior
Level 1 up to
Level 4
Snap to
Perimeter**

New Project – Add Exterior Wall for Firehouse

Day 04

Modify Shortcuts . . .

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Bunkhouse

- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

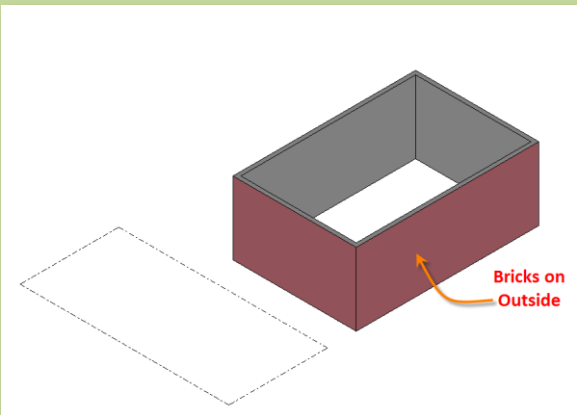
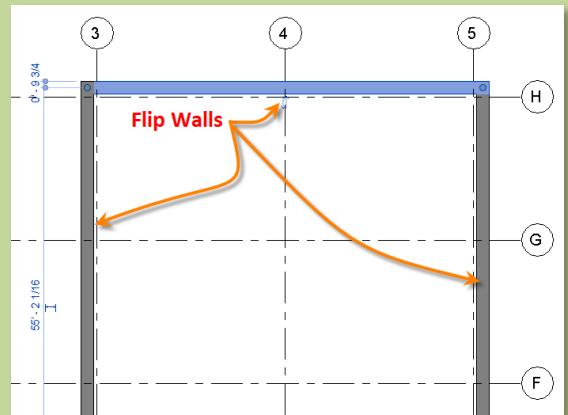
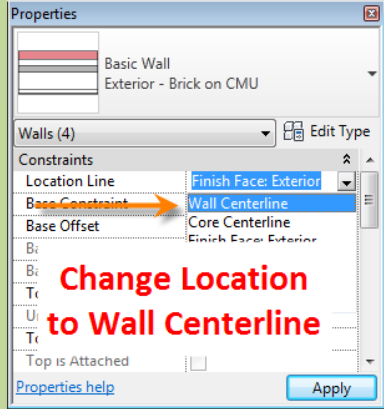
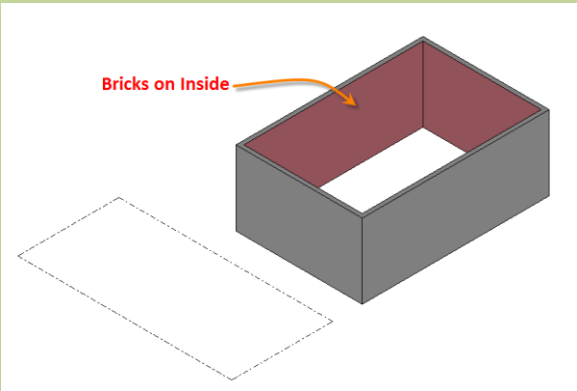
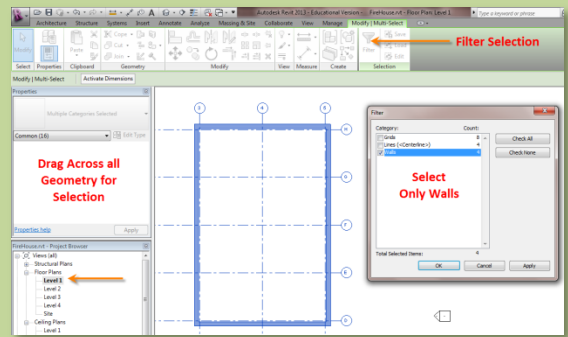
Wrap Up

Revit Introduction

Fix Orientation of Bricks

- Select Objects and Filter for Walls
- Change Location Line to Wall Centerline
- Flip each wall

- Draw from upper left to lower right to avoid needing this fix



Begin the Bunkhouse

Day 04

Modify Shortcuts . . .

- Firehouse
 - New Project
 - Grids . .
 - Perimeter
 - Levels . .
 - Exterior Wall . .
 - Fix Bricks

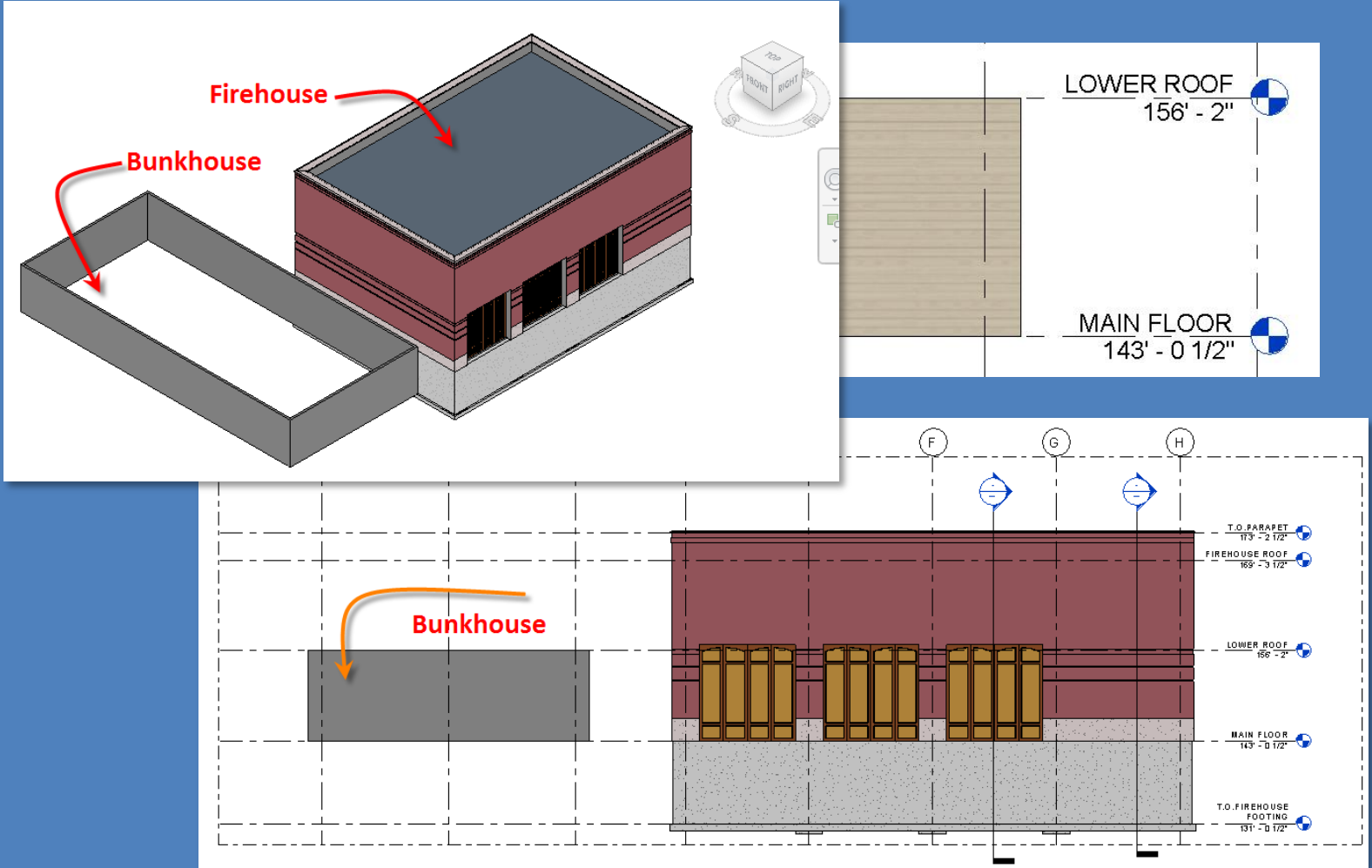
Bunkhouse

- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction



Create New Wall : Basic Wall - Exterior Siding

Day 04

Modify Shortcuts ...

Firehouse

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- Exterior Wall ..
- Fix Bricks

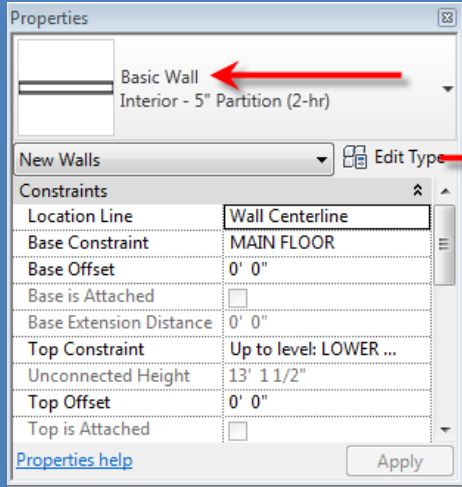
Bunkhouse

▪ Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction



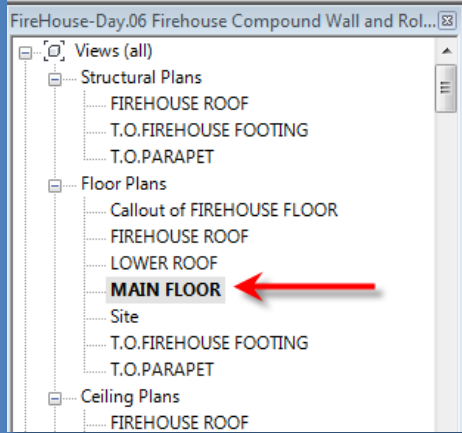
Properties

Basic Wall
Interior - 5" Partition (2-hr)

New Walls Edit Type

Constraints	
Location Line	Wall Centerline
Base Constraint	MAIN FLOOR
Base Offset	0' 0"
Base is Attached	<input type="checkbox"/>
Base Extension Distance	0' 0"
Top Constraint	Up to level: LOWER ...
Unconnected Height	13' 1 1/2"
Top Offset	0' 0"
Top is Attached	<input type="checkbox"/>

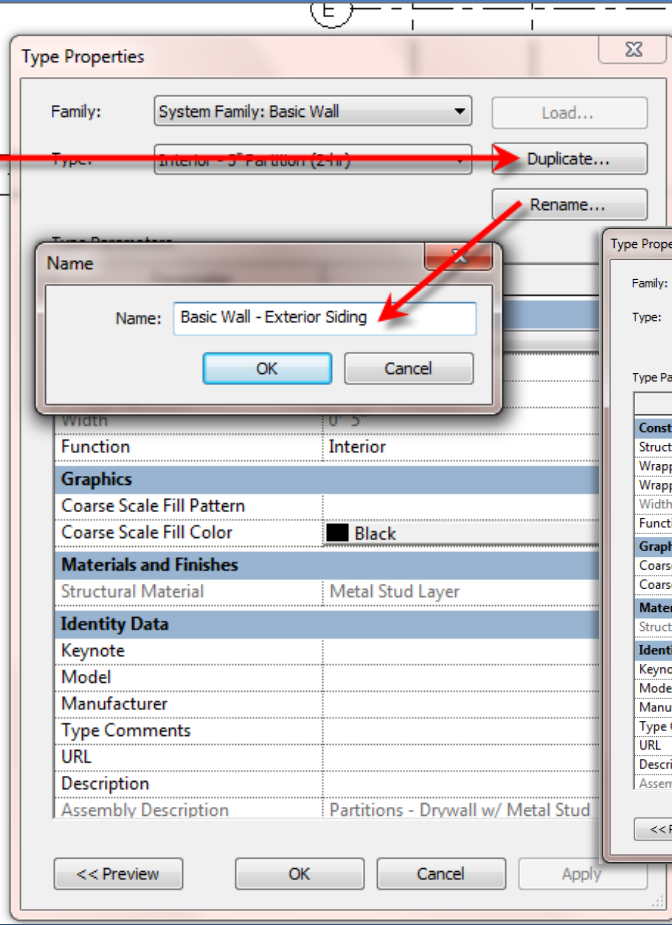
Properties help Apply



FireHouse-Day.06 Firehouse Compound Wall and Rol...

Views (all)

- Structural Plans
 - FIREHOUSE ROOF
 - T.O.FIREHOUSE FOOTING
 - T.O.PARAPET
- Floor Plans
 - Callout of FIREHOUSE FLOOR
 - FIREHOUSE ROOF
 - LOWER ROOF
 - MAIN FLOOR**
 - Site
 - T.O.FIREHOUSE FOOTING
 - T.O.PARAPET
- Ceiling Plans
 - FIREHOUSE ROOF



Type Properties

Family: System Family: Basic Wall Load...

Type: Interior - 5" Partition (2-hr) Duplicate... Rename...

Name: Basic Wall - Exterior Siding OK Cancel

Parameter	Value
Construction	
Structure	Edit...
Wrapping at Inserts	Do not wrap
Wrapping at Ends	None
Width	0' 5"
Function	Interior
Graphics	
Coarse Scale Fill Pattern	
Coarse Scale Fill Color	Black
Materials and Finishes	
Structural Material	Metal Stud Layer
Identity Data	
Keynote	
Model	
Manufacturer	
Type Comments	
URL	
Description	
Assembly Description	Partitions - Drywall w/ Metal Stud

<< Preview OK Cancel Apply

Create New Wall : Basic Wall - Exterior Siding

Day 04

Modify Shortcuts ...

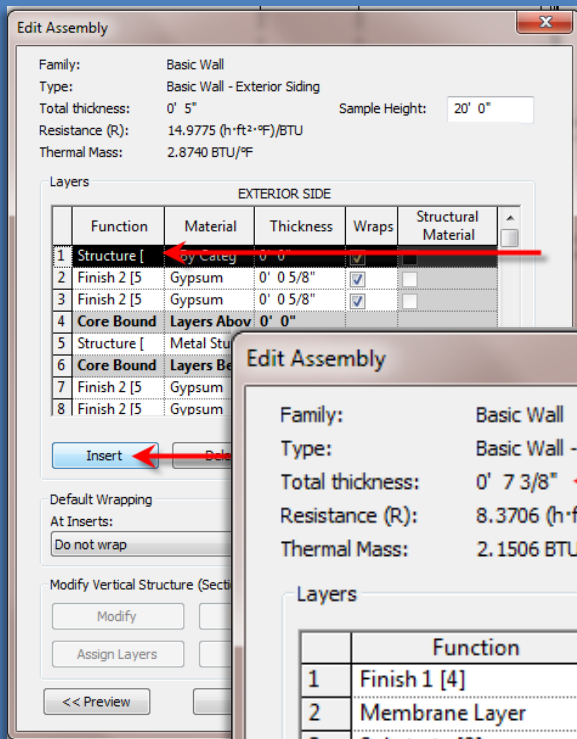
- Firehouse
 - New Project
 - Grids ..
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Bunkhouse
▪ Exterior Siding Wall

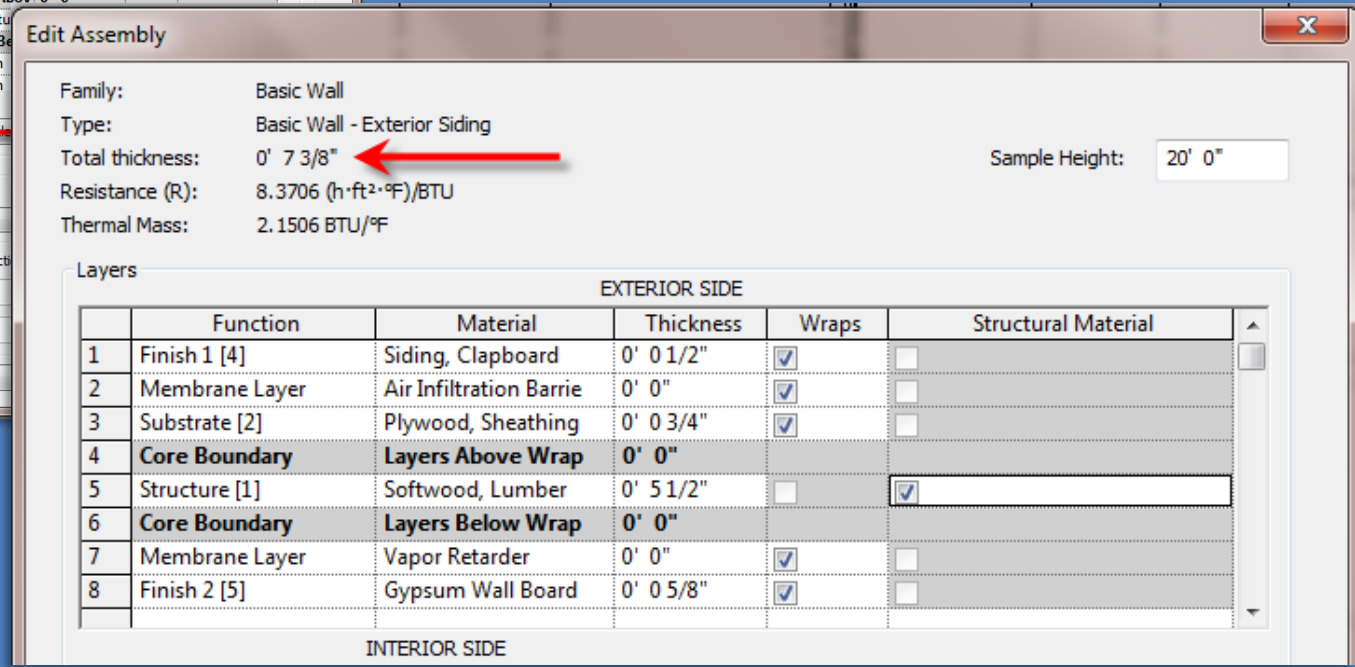
- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction



- Create a new wall with a total of 8 layers as shown below
- You may need to create some of the materials



Draw exterior wall of Bunkhouse

Day 04

Modify Shortcuts

Firehouse

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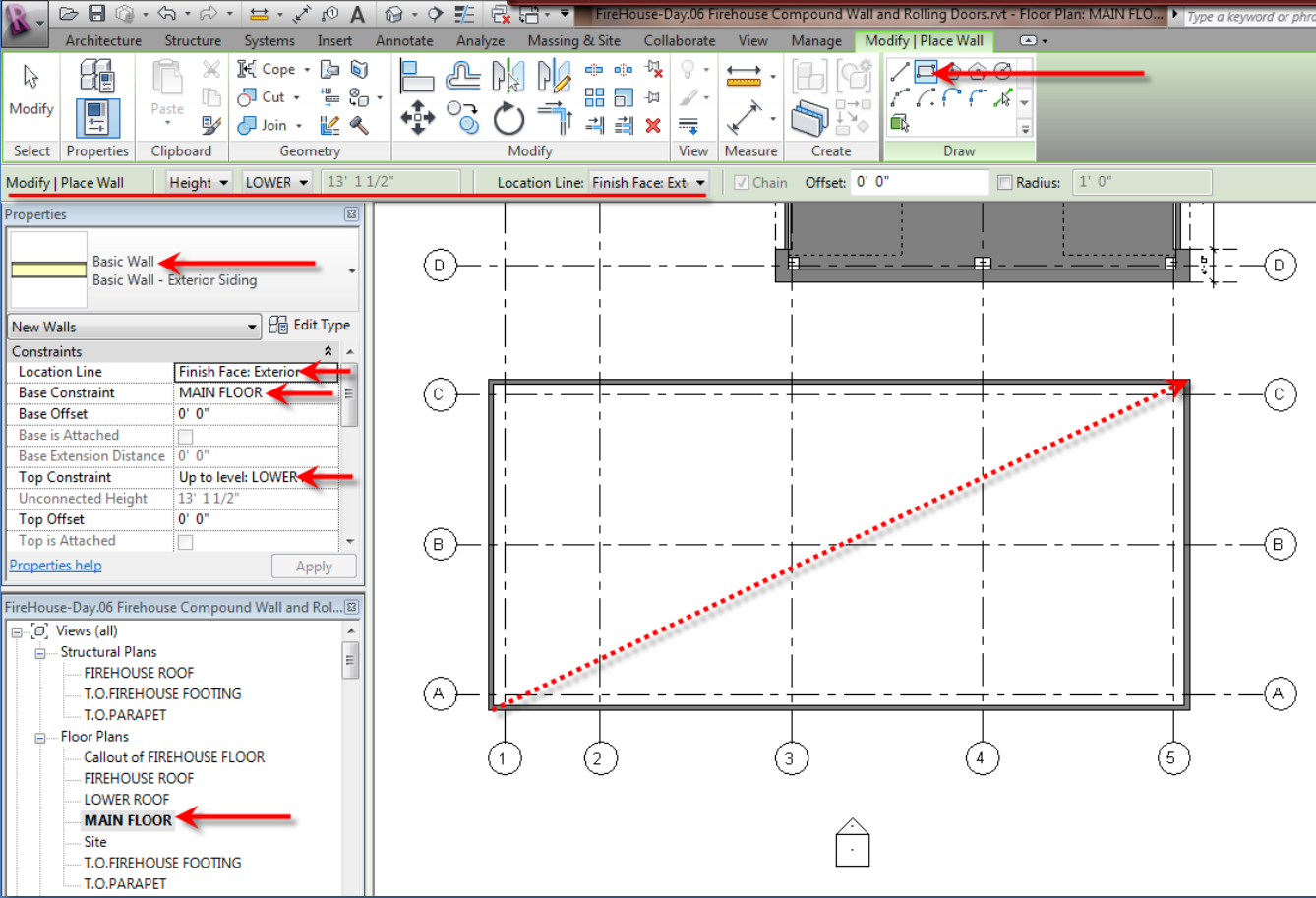
Bunkhouse

- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction



- **Basic Wall – Exterior Siding > Main Floor up to Lower Roof**
- **Finish Face Exterior > Rectangle Tool**

Sheet Layout (create new sheet)

- Day 04
- Modify Shortcuts ...
- Firehouse
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 - Grids ..
 - Perimeter
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 - Exterior Wall ..
 - Fix Bricks
- Bunkhouse
- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction

rac_basic_sample_project.R13.rvt - P...

West

- Sections (Building Section)
 - Section 1
 - Section 2
- Renderings
- Legends
- Schedules/Quantities
- Sheets (New Sheet...)
- Families (Type Properties...)
- Annotations (Search...)
 - Callout Head
 - Elevation Mark Pointer...
 - Elevation Mark Point
 - Square

Load Family

Look in: Titleblocks

Name	Date modified	Type
A 8.5 x 11 Vertical.rfa	1/21/2012 3:41 AM	RFA File
B 11 x 17 Horizontal.rfa	1/21/2012 3:41 AM	RFA File
C 17 x 22 Horizontal.rfa	1/21/2012 3:41 AM	RFA File
D 22 x 34 Horizontal.rfa	1/21/2012 3:41 AM	RFA File
E 34 x 44 Horizontal.rfa	1/21/2012 3:41 AM	RFA File
E1 30 x 42 Horizontal.rfa	1/21/2012 3:41 AM	RFA File

Preview: 22 x 34

New Sheet

Select titleblocks: Load...

None

Load

New Sheet

Select titleblocks: Load...

D 22 x 34 Horizontal

None

Select placeholder sheets:

New

OK Cancel

Setup Project Sheets – 22 x 34 Format

Day 04

Modify Shortcuts . . .

- Firehouse
- New Project
 - Grids . .
 - Perimeter
 - Levels . .
 - Exterior Wall . .
 - Fix Bricks

Bunkhouse

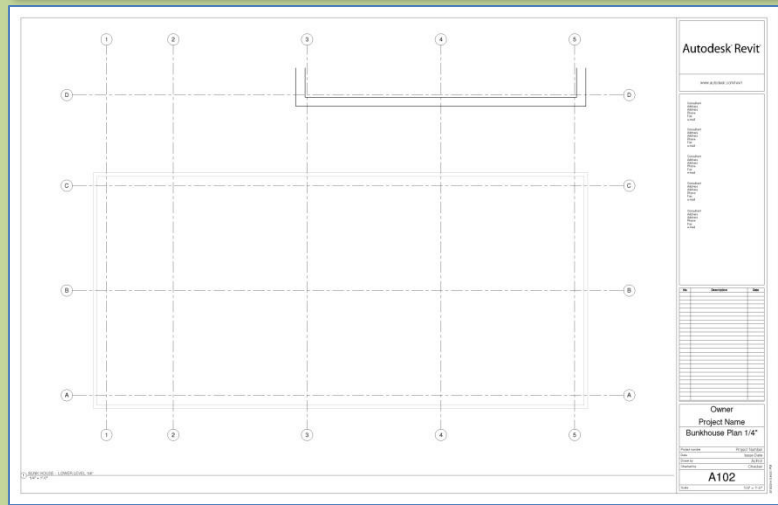
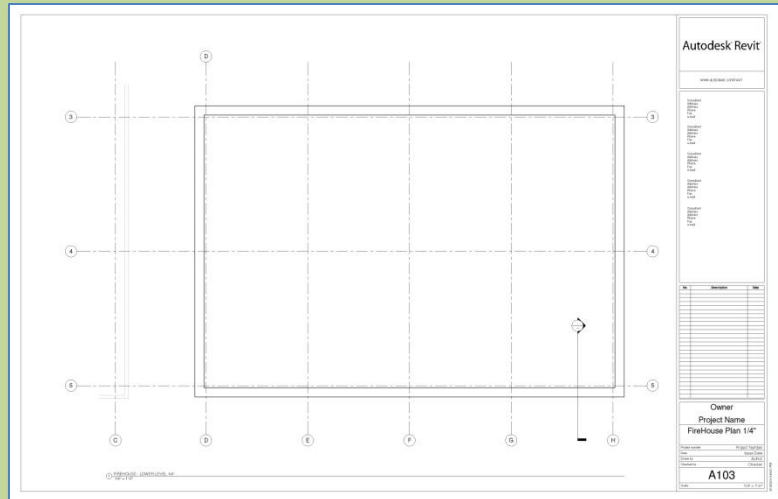
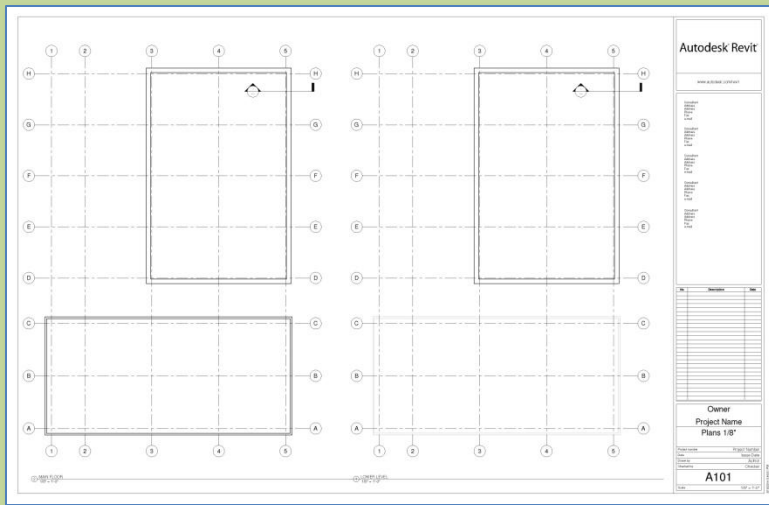
- Exterior Siding Wall

- New Sheets
- 1/8" or 1/4"

Wrap Up

Revit Introduction

Floor Plans, RCP Plans at 1/4" or 1/8"



Setup Project Sheets – 22 x 34 Format

Day 04

Modify Shortcuts . . .

- Firehouse
 - New Project
 - Grids . .
 - Perimeter
 - Levels . .
 - Exterior Wall . .
 - Fix Bricks

Bunkhouse

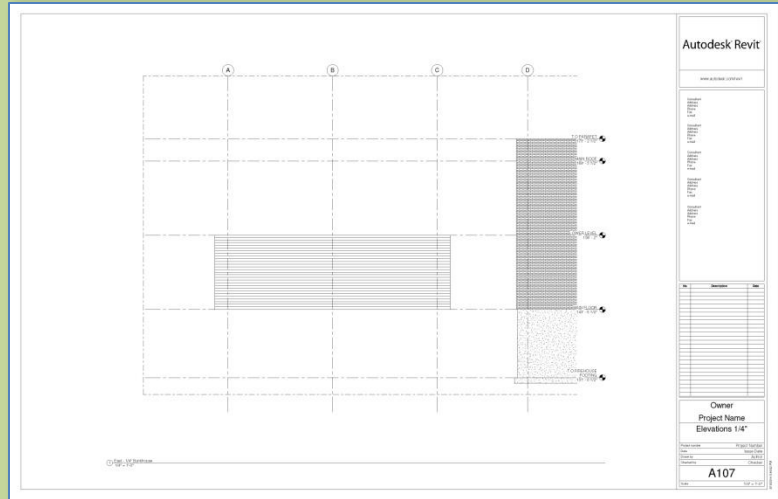
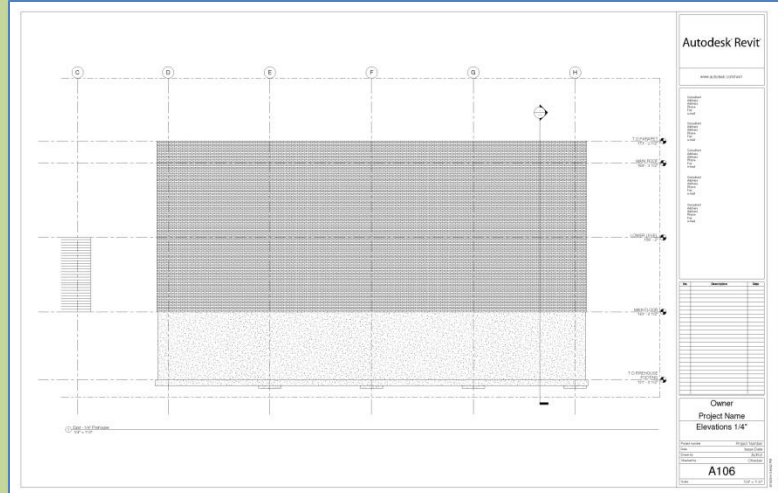
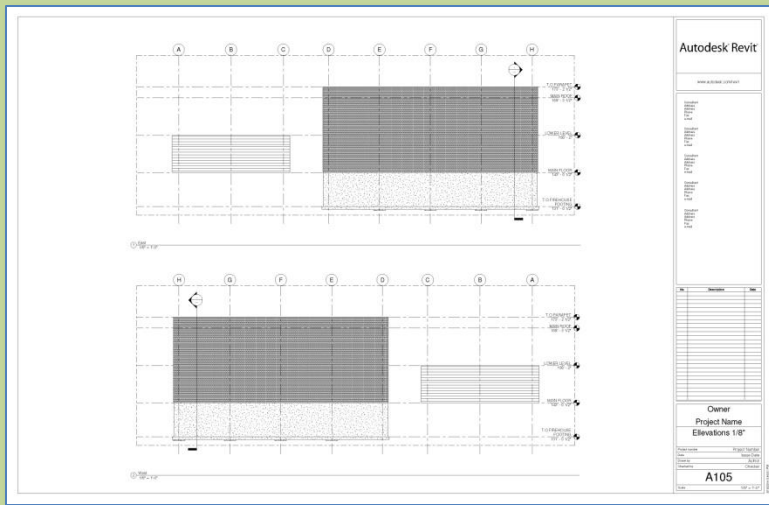
- Exterior Siding Wall

- New Sheets
 - 1/8" or 1/4"

Wrap Up

Revit Introduction

Exterior Elevations at 1/4" or 1/8"



Day 4 - Wrap Up

Day 04

Modify
Shortcuts . .

Firehouse
▪ New Project
▪ Grids . .
▪ Perimeter
▪ Levels . .
▪ Exterior Wall . .
▪ Fix Bricks

Bunkhouse
▪ Exterior Siding
Wall

▪ New Sheets
• 1/8" or 1/4"

Wrap Up

Revit Introduction

- **Grids**
 - Draw in Order
 - Rename
 - Adjust graphics
 - Copy
- **Model Lines**
 - For perimeter
 - For Guidelines
- **Family Editor**
 - Window
 - Edit Type
 - Duplicate
 - Rename
 - Change Size
- **Levels**
 - Adjust graphics
 - Copy or create new
 - Add Plan view if needed
- **Creating New Walls**
 - Select Type
 - Select Justification
 - Select Bottom Constraint
 - Select Top Constraint
- **Drawing Best Practices**
 - Always select the proper level
 - Pay attention to naming
 - Pay attention to project browser