Autodesk®

AutoCAD® Architecture 2026 Fundamentals

AUTODESK. Certified Instructor

ELISE MOSS
Autodesk Certified Instructor

SDC PUBLICATIONS
Better Textbooks. Lower Prices.
www.SDCpublications.com

Visit the following websites to learn more about this book:

Lesson 3:
Floor Plans

AutoCAD Architecture comes with 3D content that you use to create your building model and to annotate your views. In ACA 2026, you may have difficulty locating and loading the various content, so this exercise is to help you set up ACA so you can move forward with your design.

The Content Browser lets you store, share, and exchange AutoCAD Architecture content, tools, and tool palettes. The Content Browser runs independently of the software, allowing you to exchange tools and tool palettes with other Autodesk applications.

The Content Browser is a library of tool catalogs containing tools, tool palettes, and tool packages. You can publish catalogs so that multiple users have access to standard tools for projects.

ACA comes with several tool catalogs. When you install ACA, you enable which catalogs you want installed with the software. By default, Imperial, Metric, and Global are enabled. The content is located in the path: C:\Program Files\Autodesk\ACA 2026\Tool Catalogs.

The floor plan is central to any architectural drawing.

A floor plan is a scaled diagram of a room or building viewed from above. The floor plan may depict an entire building, one floor of a building, or a single room. It may also include measurements, furniture, appliances, or anything else necessary to the purpose of the plan.

Floor plans are useful to help design furniture layout, wiring systems, and much more. They're also a valuable tool for real estate agents and leasing companies in helping sell or rent out a space.

If you are using Projects to organize your model, it is recommended that exterior walls are placed on Shell Constructs and interior walls are placed on Interior Constructs.

Exercise 3-1:

Creating a Floor Plan

Drawing Name: 01 Core.dwg
Estimated Time: 60 minutes

This exercise reinforces the following skills:

- Create Walls
- Wall Properties
- Wall Styles
- Style Manager
- Insert a PDF
- Insert Doors
- Insert Windows
- Materials
- Content Browser

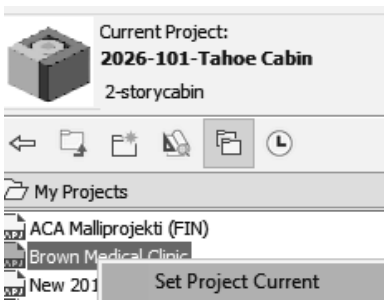
1. 

Launch the US Metric version of ACA.

This ensures that all the content will be metric. You can also go to Options and switch to the AutoCAD Architecture Metric profile.

2. 

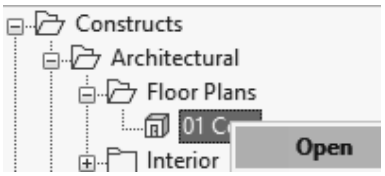
Open the Project Browser.

3. 

Set the **Brown Medical Clinic** Current.

The Brown Medical Clinic project was created using a metric project template. Placeholders were automatically generated.

Close the Project Browser.
The Project Navigator will automatically launch.

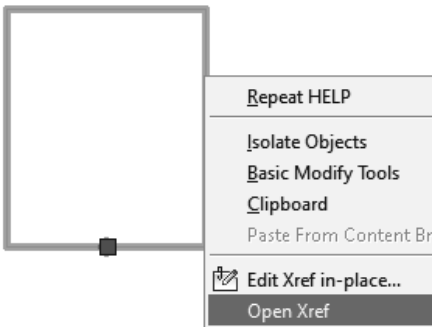
4. 

Switch to the Constructs tab.

Highlight **01 Core**.

Right click and select **Open**.

5. *There is a rectangle in the drawing acting as a placeholder.*



Select the rectangle.

Right click and select **Open Xref**.

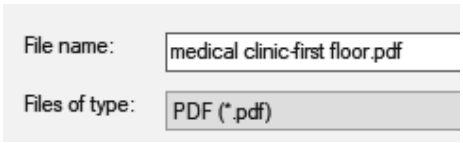
The external reference is an element called Typical Toilet Room.

Close the drawing.

6. 

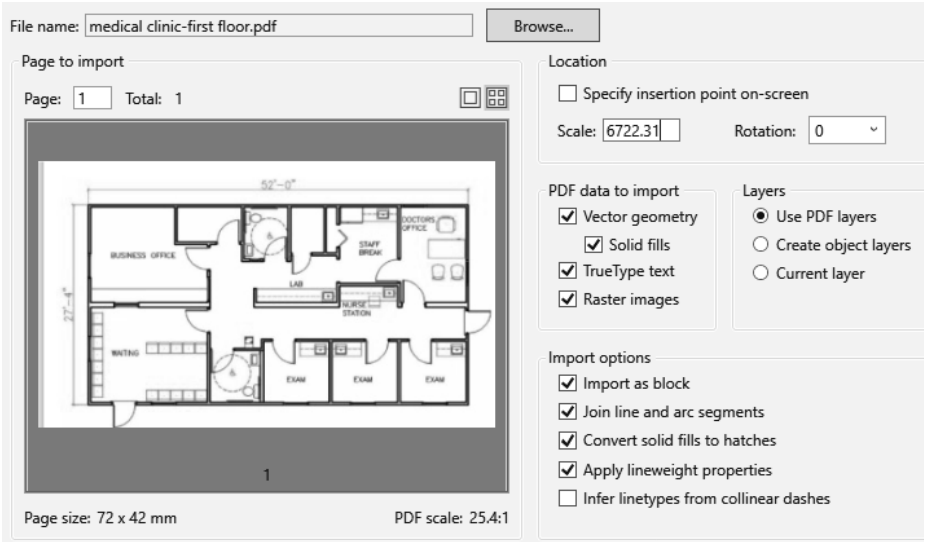
Switch to the Insert ribbon.

Select **PDF Import**.

7. 

Locate the *medical clinic – first floor.pdf.*

Click **Open**.

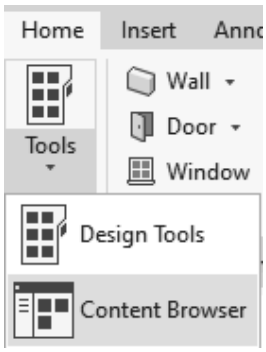


8. Disable **Specify insertion point**.
This will insert the PDF at 0,0,0
Change the Scale to **6722.31**:
Enable **Raster Images**.
Enable **Import as block**.
Enable **Convert solid fills to hatches**.
Enable **Apply lineweight properties**.

Click **OK**.

9. 

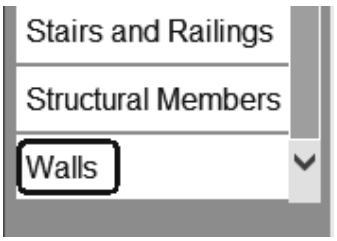
Set the View Scale to **1:1**.

10. 

Launch the **Content Browser** from the Home ribbon.

11. 

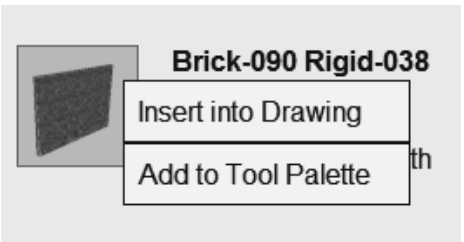
Locate the **Design Tool Catalog -Metric**.

12. 

Scroll down and select **Walls**.

13. 

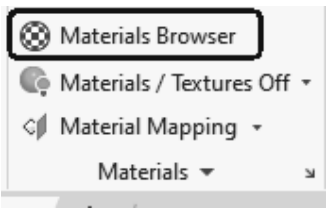
Select **Brick**.

14. 

Locate the **Brick-090 Rigid-038 Air-050 Brick-090**.

Right click and select **Insert into Drawing**.

Exit the WALLADD command.

15. 

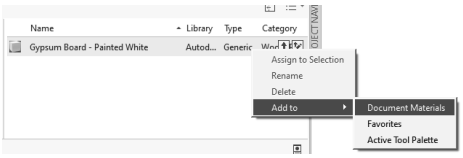
Go to the Render ribbon.

Select **Materials Browser**.

16. 

Locate the **Gypsum Board**.

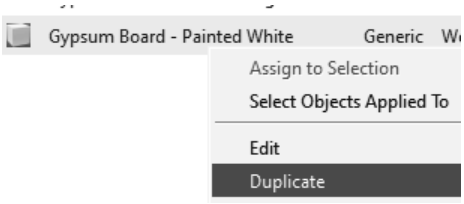
The material exists in the library, but not in the active drawing.

17. 

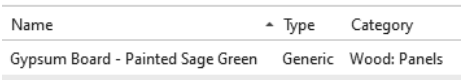
Import into the current drawing.

Highlight the gypsum material. Right click and select **Add to →Document Materials.**

The gypsum material is now copied to the active document/drawing

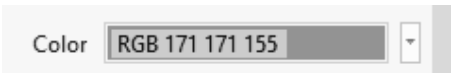
18. 

Highlight the Gypsum Board material that is in the document. Right click and select **Duplicate**.

19. 

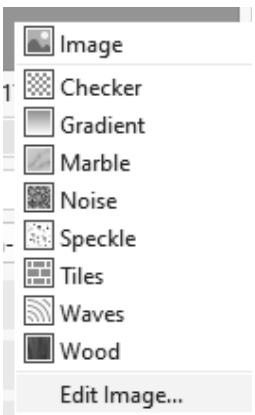
Rename the copied Gypsum Board material:
Gypsum Board - Painted Sage Green.

Double click on the material to edit.

20. 

Change the Color to **RGB 171,171,155**.

I use the ColorPicker website to help you determine the RGB values of paint colors.

21. 

Right click on the image and select **Edit Image**.

22. 

Click on the Source file name.
Select the image file located in the Lesson 3 download files named *SW **6178 Clary Sage***.
Close the dialog.

23. The appearance has been edited.

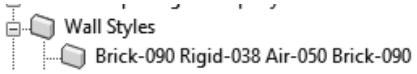
Close the Materials Editor.

Close the Materials Browser.

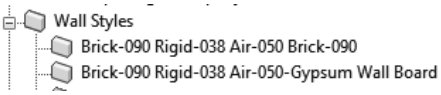
24. 

Go to the Manage ribbon.

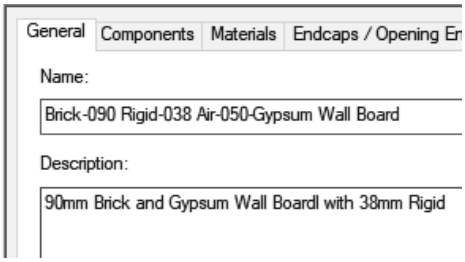
Launch the **Style Manager**.

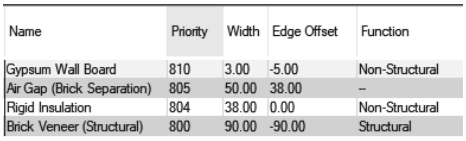
25. 

Browse to **Wall Styles** under Architectural Objects.
You will see the wall style you just imported.

26. 

Create a copy of the Brick-090 wall style.
Paste under Wall Styles.
Rename the copied style:
Brick-090 Rigid-038 Air-050 Gypsum Wall Board.
Change the Description.

27. 

28. 

Name	Priority	Width	Edge Offset	Function
Gypsum Wall Board	810	3.00	-5.00	Non-Structural
Air Gap (Brick Separation)	805	50.00	38.00	–
Rigid Insulation	804	38.00	0.00	Non-Structural
Brick Veneer (Structural)	800	90.00	-90.00	Structural

Select the Components tab.

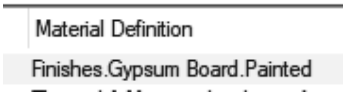
Set up the layers as shown.

The Brick Veneer should be on the exterior.

29. 

Select the Materials tab.

Click on **New Material**.

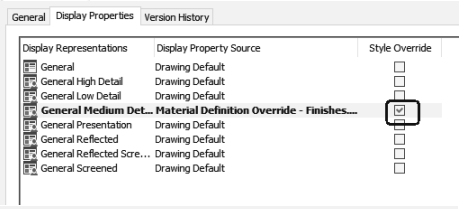
30. 

Name the new material **Finishes.Gypsum Board.Painted**.

Click **OK**.

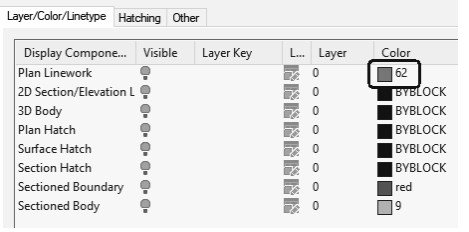
31. 

Edit the Gypsum Wall Board.

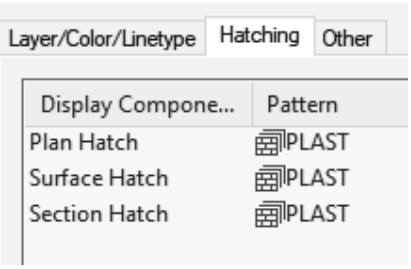
32. 

Select the **Display Properties** tab.

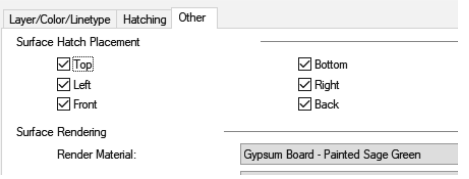
Click on **Style Override**.

33. 

Set the Plan Linework color to **Green** on the Line/Color/Linetype tab**.**

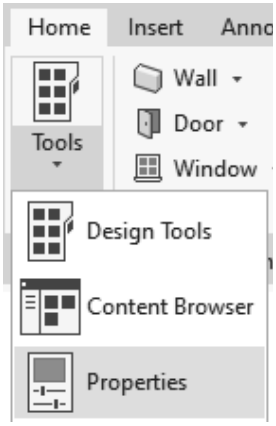
34. 

Set the Hatching to **PLAST** on the Hatching tab.

35. 

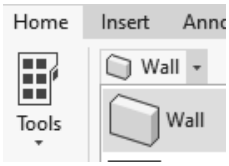
Set the Render Material to the **Gypsum Wall Board Sage Green** on the Other tab.

Click **OK** to close all the dialog boxes.

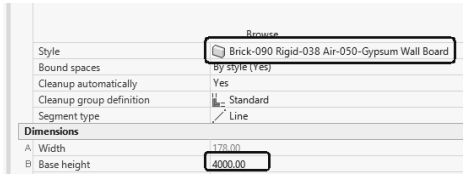
36. 

If the Properties palette is closed:

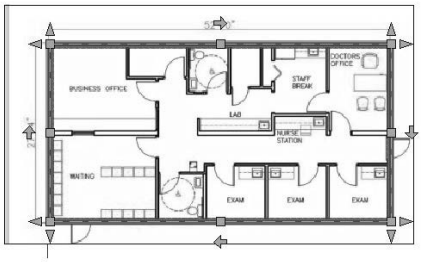
Go to the Home ribbon and launch **Properties** from the Tools drop-down.

37. 

Select the **Wall** tool from the Home ribbon.

38. 

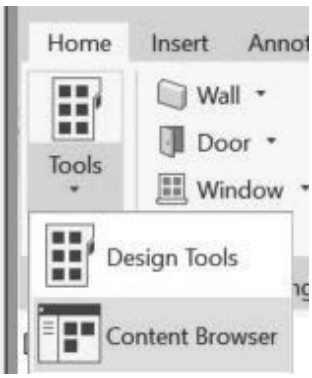
Set the Style to **Brick-090 Gypsum Wall Board**.
Set the Base Height to **4000**.

39. 

Turn ORTHO ON.

Draw the four walls that are the outline of the building.

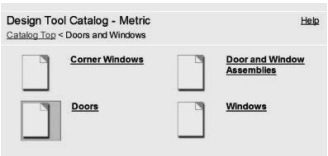
The horizontal walls are 15850 mm long.
The vertical walls are 8230 mm long.

40. 

Launch the **Content Browser** from the Home ribbon.

41. 

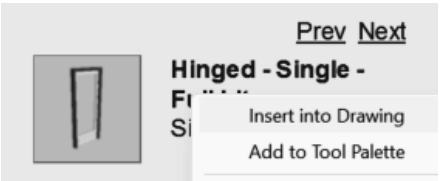
Locate the **Design Tool Catalog -Metric**.

42. 

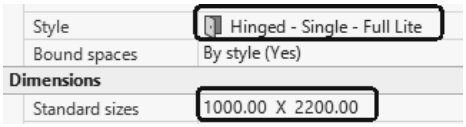
Locate the **Doors** category.

43. 

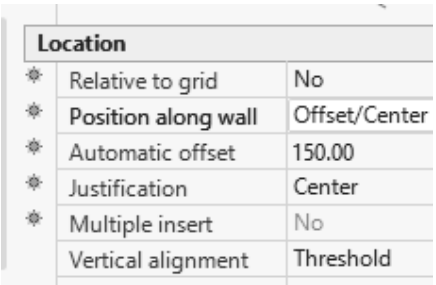
Locate the **Hinged – Single – Full Lite** door.

44. 

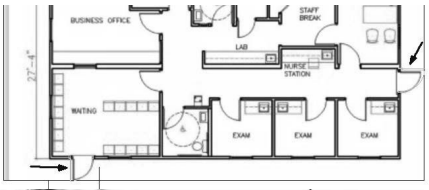
Right click and select **Insert into Drawing**.

45. 

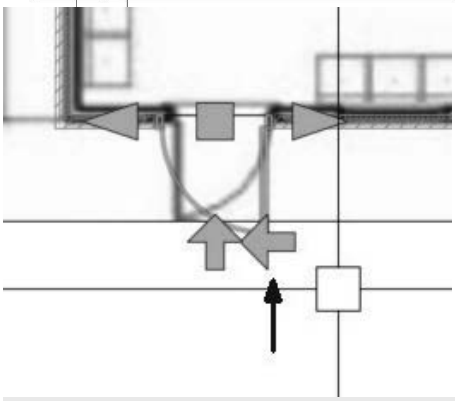
Set the Door Style to **Hinged – Single – Full Lite**
Set the Standard size to **1000 x 2200.**

46. 

Set Position along wall to **Offset/Center**.

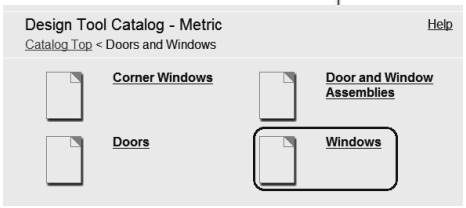
47. 

Place in the locations shown – where the exterior doors are located on the pdf.

48. 

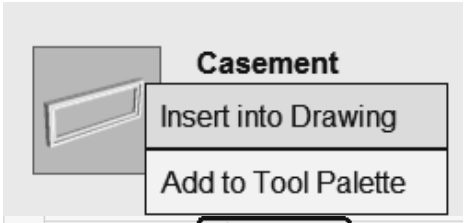
If required, select the placed door. Use the arrows to flip the door so it is oriented correctly.

You can use the rectangular center grip to adjust the door's location.

49. 

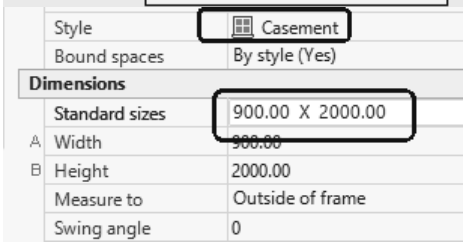
Return to the Design Tool Catalog – Metric.

Select the **Windows** category.

50. 

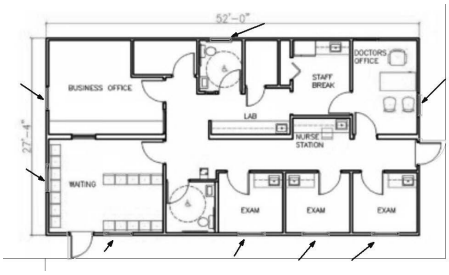
Locate **the Casement – Single Casement window**.

Right click and select **Insert into Drawing.**

51. 

The window command is active.

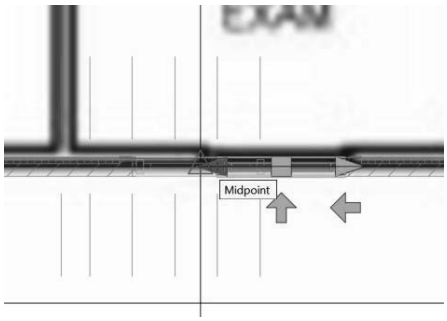
Set the size to **900.00 x 2000.00**.

52. 

Place a window using the PDF as your guide.

Place the additional windows.

Click ENTER to exit the command.

53. 

You can use the arrows to orient the windows correctly.

The arrows should be located on the exterior side of the windows. You can use the middle grip to position the window.

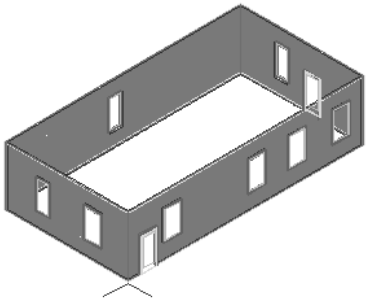
You can use the end grips to resize the window.

54. 

The PDF should be placed on the PDF_Images layer.

Freeze this layer.

55. Switch to a 3D view.



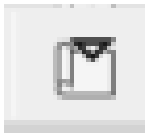
Save the *01 Core.dwg* and close.

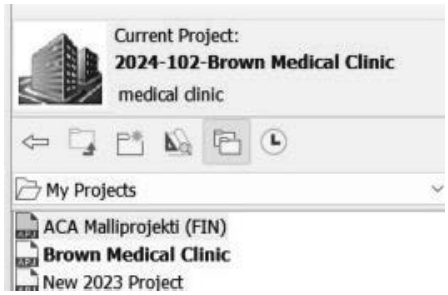
Exercise 3-2:
Adding Interior Walls

Drawing Name: 01 Core.dwg
Estimated Time: 20 minutes

This exercise reinforces the following skills:

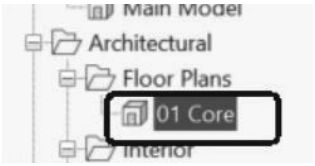
- Create Walls
- Insert Doors
- Content Browser

1.  Open the Project Browser.

2. 

Set the **Brown Medical Clinic** Current.

The Brown Medical Clinic project was created using a metric project template. Placeholders were automatically generated.

3. 

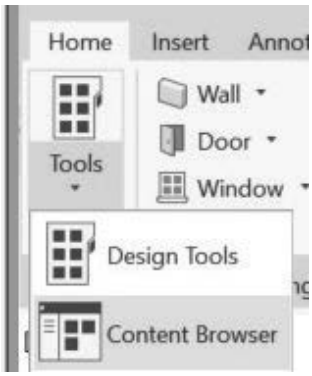
Switch to the Constructs tab.

Highlight **01 Core**.

Right click and select **Open**.

4. Switch the view to Top.
Thaw the PDF_Images layer so you can see the PDF.

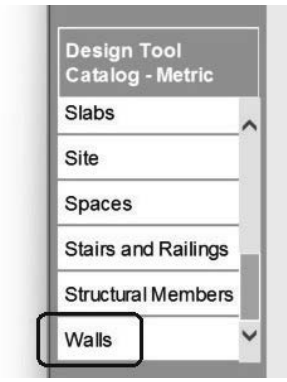
Turn off OSNAPS and use running OSNAPS to place the interior walls.

5. 

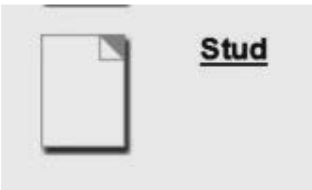
Launch the **Content Browser** from the Home ribbon.

6. 

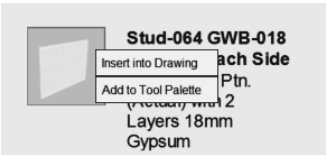
Locate the **Design Tool Catalog -Metric**.

7. 

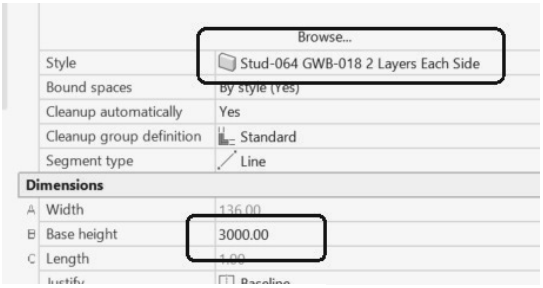
Scroll down and select **Walls**.

8. 

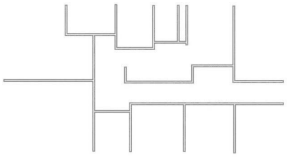
Select the **Stud** category.

9. 

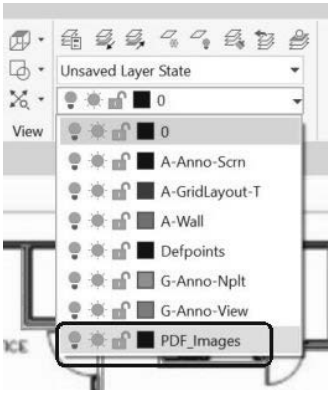
Locate the **Stud-064 GWB-018 2 Layers Each Side**.
Right click and select **Insert into Drawing**.

10. 

Verify that the Style is set correctly.
Set the Base Height to **3000**.
Set Justify to **Center**.

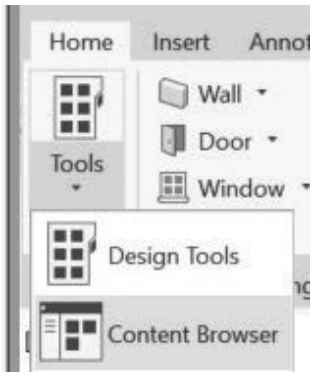
11. 

Trace over the PDF to place just the interior walls.

12. 

You can freeze and thaw the PDF_Images to review your work.

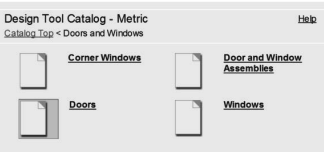
Lock the PDF_Images layer to ensure that the PDF is not moved or accidentally deleted.

13. 

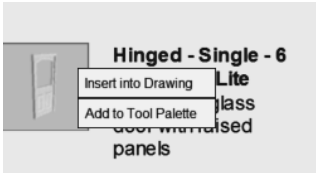
Launch the **Content Browser** from the Home ribbon.

14. 

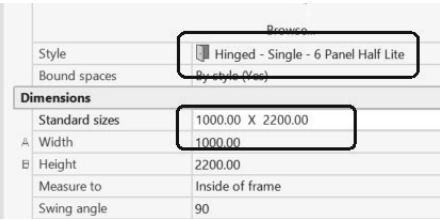
Locate the **Design Tool Catalog -Metric**.

15. 

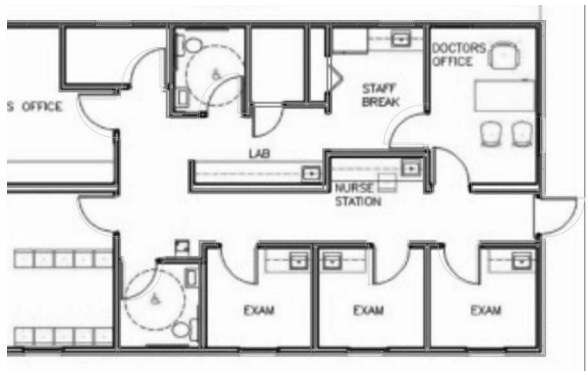
Locate the **Doors** category.

16. 

Locate the **Hinged – Single – - 6 Panel - Half Lite** door.
Right click and select **Insert into Drawing**.



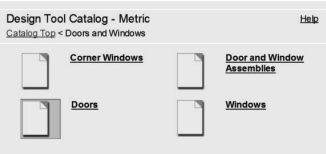
Set the Standard size to **1000 x 2200**.

17. 

Use the grips and flip arrows to adjust the orientation, position, and size of the doors to match the PDF layout.

18. 

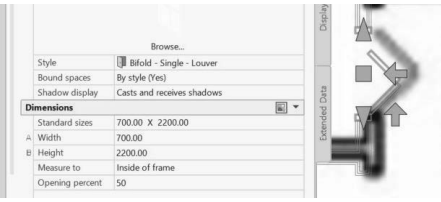
Locate the **Design Tool Catalog -Metric**.

19. 

Locate the **Doors** category.

20. 

Locate the **Bifold – Single Louver** door.
Right click and select **Insert into Drawing**.

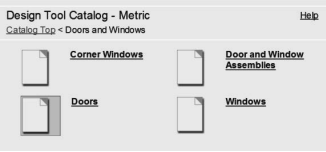
21. 

Set the Standard size to **700 x 2200**.

Place in the Staff Break room.

22. 

Locate the **Design Tool Catalog -Metric**.

23. 

Locate the **Doors** category.

24. 

Locate the **Hinged - Single** door. Right click and select **Insert into Drawing**.

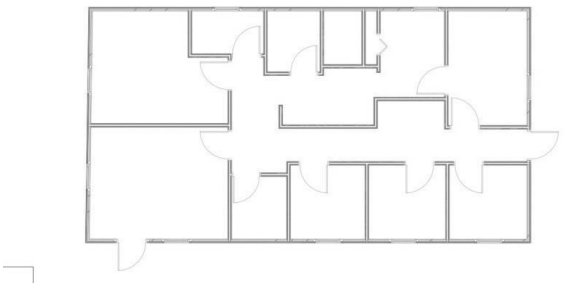
25. 

Set the Standard size to **950 x 2200**.

Place in the two bathrooms.

If you accidentally placed a different door style in the bathrooms, select the door and use Properties to change the door style.

26. Save and close the file.



Tips Tricks

- If you draw a wall and the materials composing the wall are on the wrong side, you can reverse the direction of the wall. Simply select the wall, right click and select the Reverse option from the menu.
- To add a wall style to a drawing, you can import it or simply create the wall using the Design Tools.
- Many architects use external drawing references to organize their projects. That way, teams of architects can concentrate just on their portions of a building. External references also use fewer system resources.
- You can convert lines, arcs, circles, or polylines to walls. If you have created a floor plan in AutoCAD and want to convert it to 3D, open the floor plan drawing inside of AutoCAD Architecture. Use the Convert to Walls tool to transform your floor plan into walls.

- To create a freestanding door, click the ENTER key when prompted to pick a wall. You can then use the grips on the door entity to move and place the door wherever you like.
- To move a door along a wall, use Door→Reposition→Along Wall. Use the OSNAP From option to locate a door a specific distance from an adjoining wall.

Exercise 3-3:

Place a Grid

Drawing Name: new
Estimated Time: 10 minutes

This exercise reinforces the following skills:

- Place a grid
- Create a new Construct

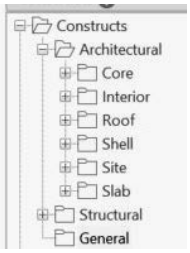
1. 

Launch the US Metric version of ACA.

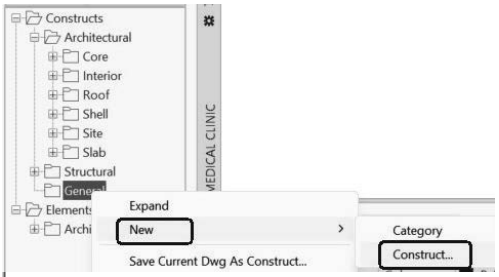
This ensures that all the content will be metric.

2. 

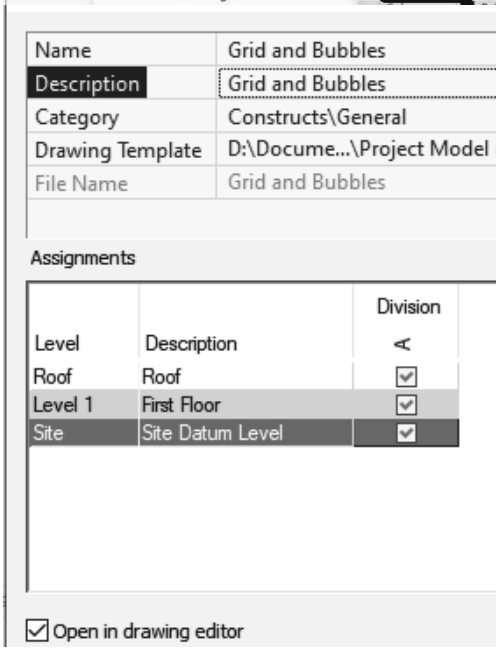
Launch the Project Navigator.
On the Constructs tab:
Highlight **Constructs**.
Right click and select
New→Category.

3. 

Name the new category **General**.

4. 

Highlight **General**.
Right click and select **New→Construct**.

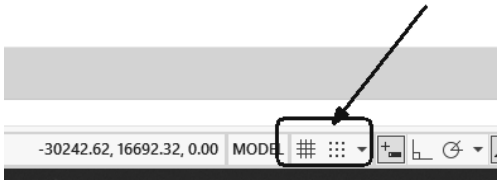
5. 

Change the Name to **Grid and Bubbles**.
In Description, type **Grid and Bubbles**.
Enable all the **Levels**.
Enable **Open in drawing editor**.

Click **OK**.

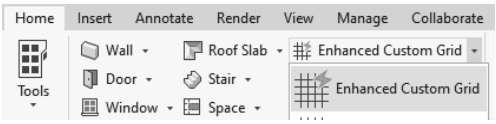
6. Set the Scale to **1:1**.

7.



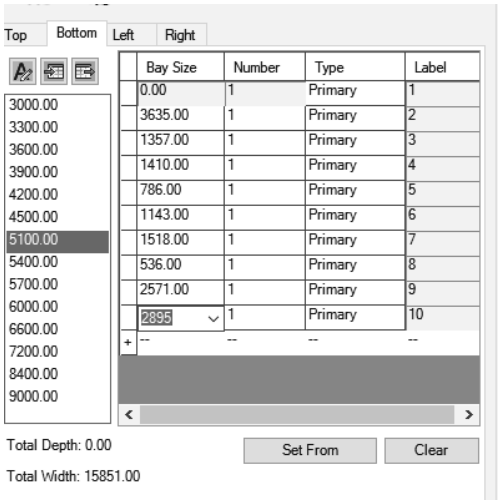
Toggle off the Grid and Snap to Grid.

8.



Click on **Enhanced Custom Grid** on the Home ribbon.

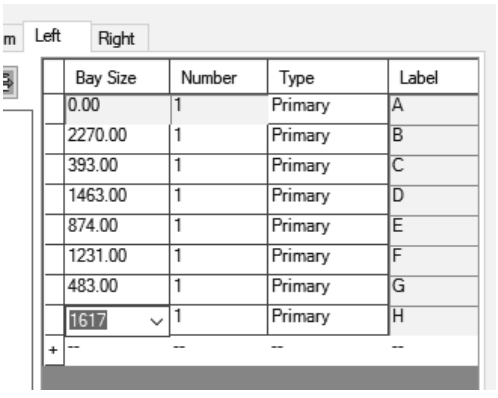
9.



Select the **Bottom** tab.
Type in the following values:

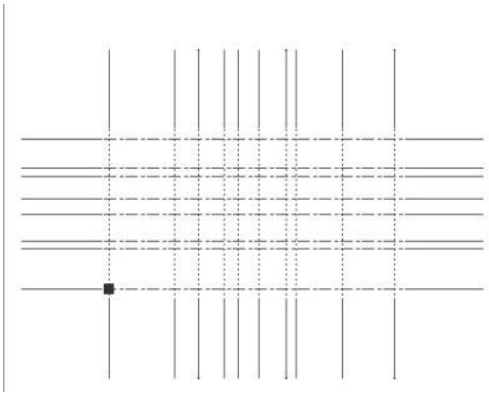
3635
1357
1410
786
1143
1518
536
2571
2895

10.

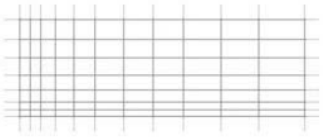


Switch to the Left tab.
Type in the following values:

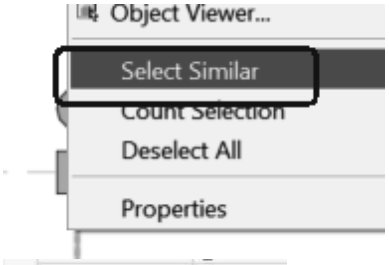
2270
393
1463
874
1231
483
1617

11. 

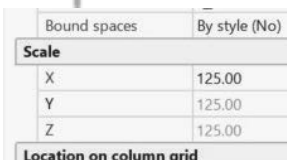
There is a preview window which shows the grids.
Click **OK** to place the grid.

12. 

Type **0,0** as the insertion point.
Click **ENTER** to accept the rotation angle of 0.
The grid is placed.

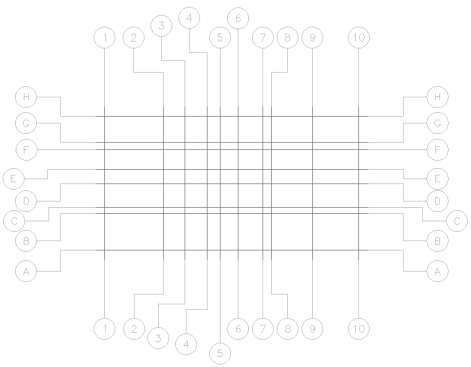
13. 

Select one of the column bubbles.
Right click and **Select Similar**.

14. 

Change the Scale to **125** in the Properties palette.

Click ESC to release the selection.

15. 

The grid updates.

You can select the overlapping column bubbles and move them to a new position.

Save and close the file.

Exercise 3-4:

Combining Constructs

Drawing Name: Main Model.dwg
Estimated Time: 15 minutes

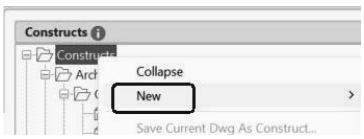
This exercise reinforces the following skills:

- Add Constructs to a 3D model
- Create a new Construct
- Visual Styles

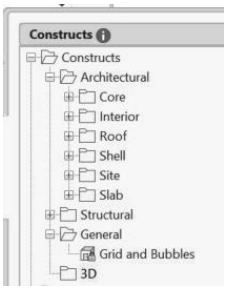
1. 

Launch the US Metric version of ACA.

This ensures that all the content will be metric.

2. 

Launch the Project Navigator.
On the Constructs tab:
Highlight **Constructs**.
Right click and select **New→Category**.

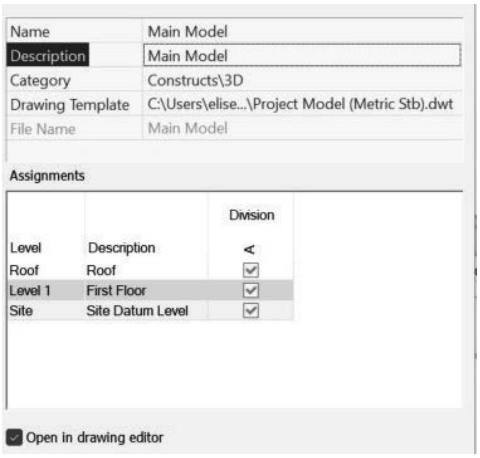
3. 

Name the new category **3D**.

4. 

Highlight **3D**.
Right click and select **New→Construct**.

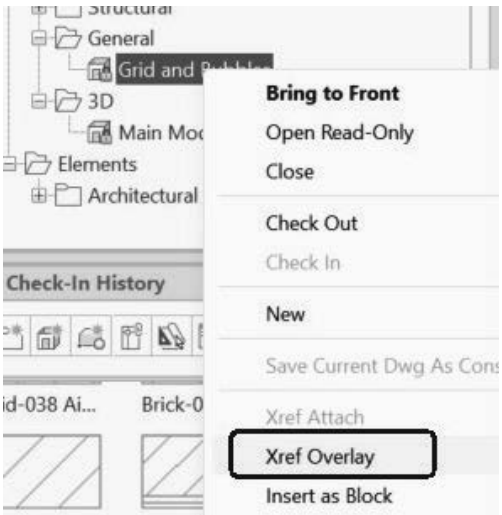
5.



Change the Name to **Main Model**.
In Description, type **Main Model**.
Enable all the **Levels**.
Enable Open in drawing editor.

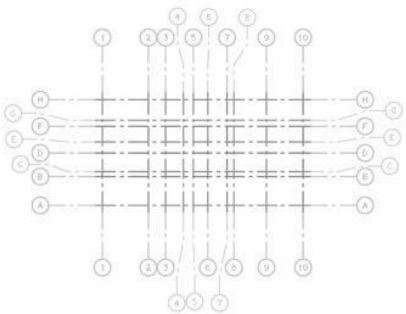
Click **OK**.

6.



Highlight the **Grid and Bubbles** construct.
Right click and select **Xref Overlay**.

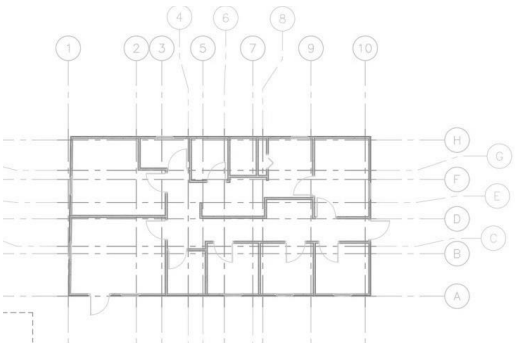
The Grid and Bubbles drawing is placed in the Main Model drawing.



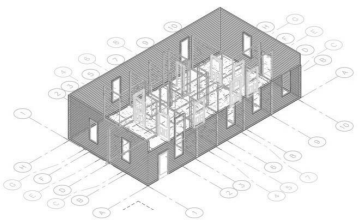
7. 

Highlight the **01 Core** construct.

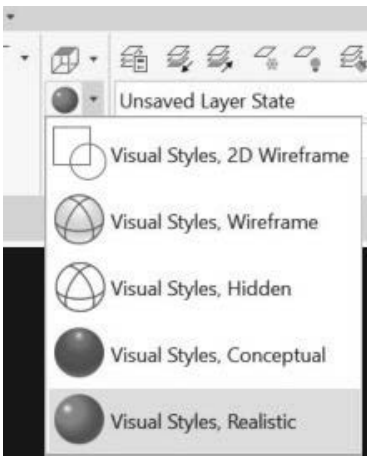
Right click and select **Xref Overlay**.

8. 

If necessary, reposition the 01 Core construct so it is aligned with the grid layout.

9. 

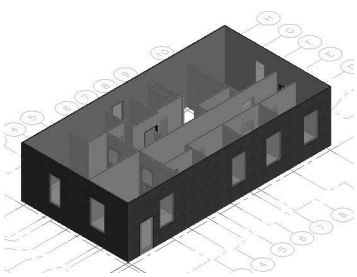
Switch to an isometric view.

10. 

Set the Visual Style to Realistic.

Orbit around the model.

Check for any other errors and correct as needed.



11. Save and close the drawing.

Exercise 3-5:

Create a Floor Plan Reprised

Drawing Name: new
Estimated Time: 30 minutes

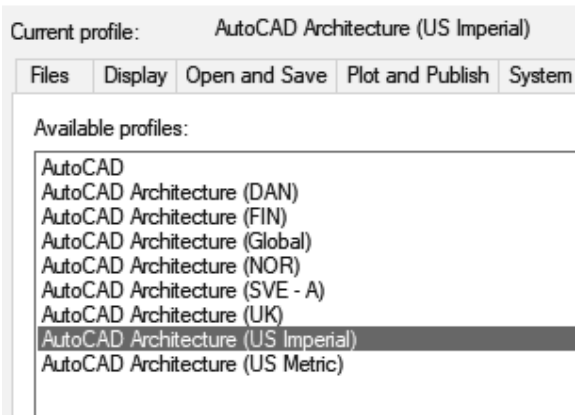
This exercise reinforces the following skills:

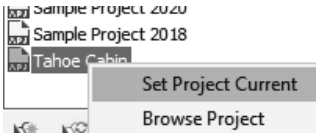
- Import PDF
- Levels
- Copy and Paste Wall Style
- Style Browser
- Walls
- Doors
- Windows

1. 

Launch the ACA English (US Imperial) software.

You can also go to Options/Profiles and set the (US Imperial) profile current.

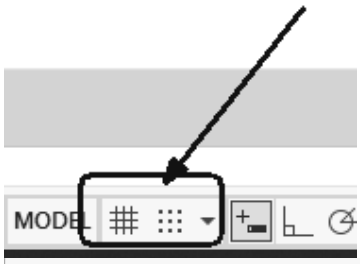


2. 

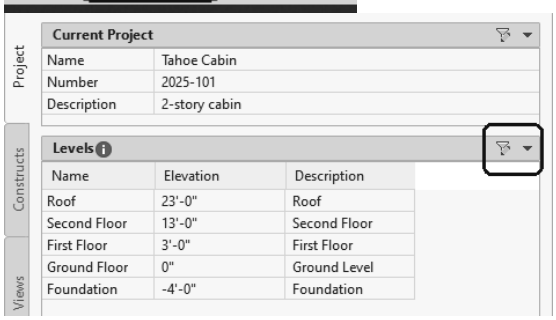
Set the **Tahoe Cabin** project current.

Close the Project Browser.

3. Start a new drawing.

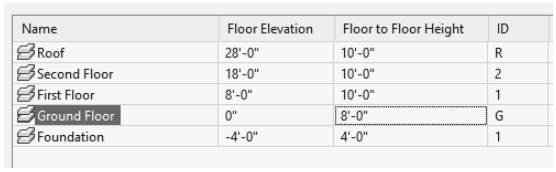


Toggle off the Grid and Snap to Grid.

4. 

Open the Project Navigator. Select the **Project** tab.

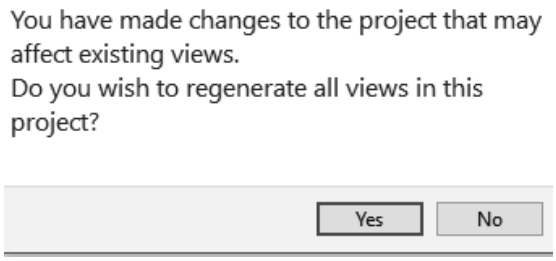
Click on **Edit Levels**.

5. 

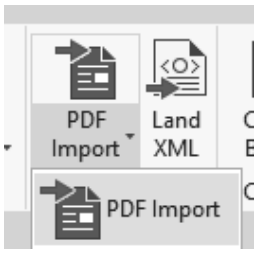
Change the Ground Floor Level Floor to Floor Height to **8'-0".**

Notice that all the other levels adjust.

Click **OK**.

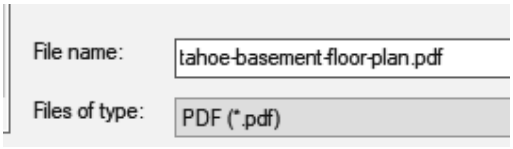
6. 

Click **Yes**.

7. 

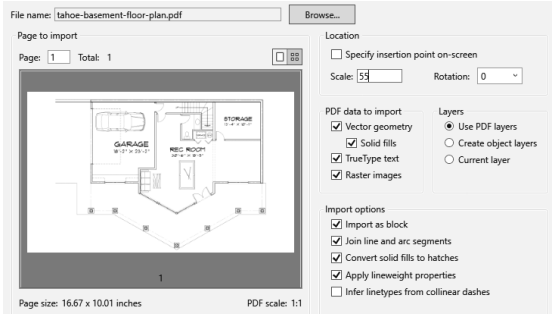
Go to the **Insert** ribbon.

Click **PDF Import.**

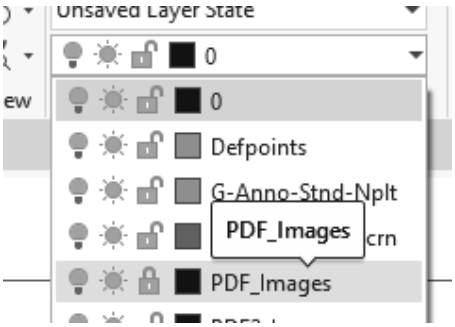
8. 

Locate the *tahoe-basement-floor-plan.pdf* in the downloaded files.

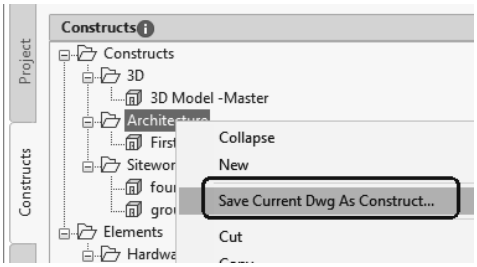
Click **Open**.

9. 

Disable **Specify insertion point**.
This will insert the PDF at 0,0,0
Set the Scale to **55**.
This scales the PDF to the correct imperial measurements.
Enable **Raster Images**.
Enable **Import as block**.
Enable **Convert solid fills to hatches.**
Enable **Apply lineweight properties**.
Click **OK**.

10. 

Place the PDF on the PDF_Images layer and lock the layer.

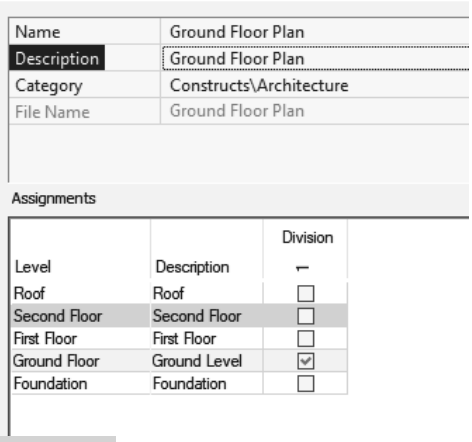
11. 

Go to the Project Navigator.

Open the **Constructs** tab.

Right click on the **Architecture** category.
Select **Save Current Dwg As Construct.**

12.



Name the drawing **Ground Floor Plan**.
Add the description.
Enable the **Ground Floor** Division.

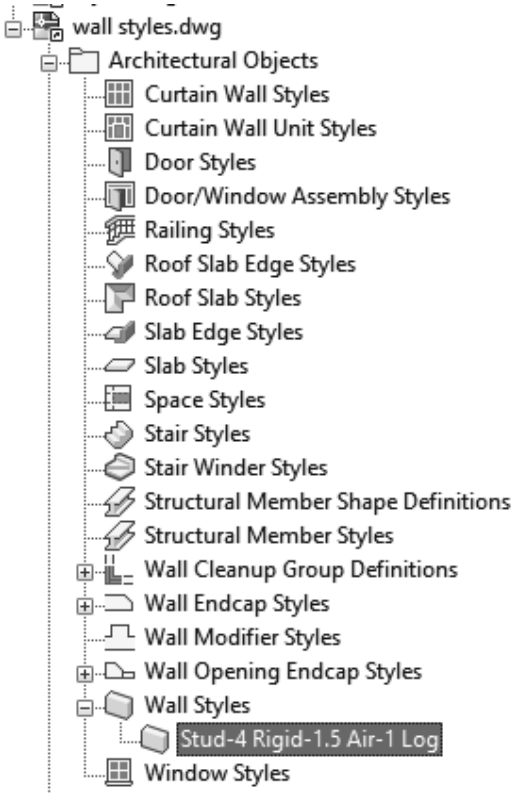
Click **OK**.

13.

Go to the Manage ribbon.

Open the **Styles Manager**.

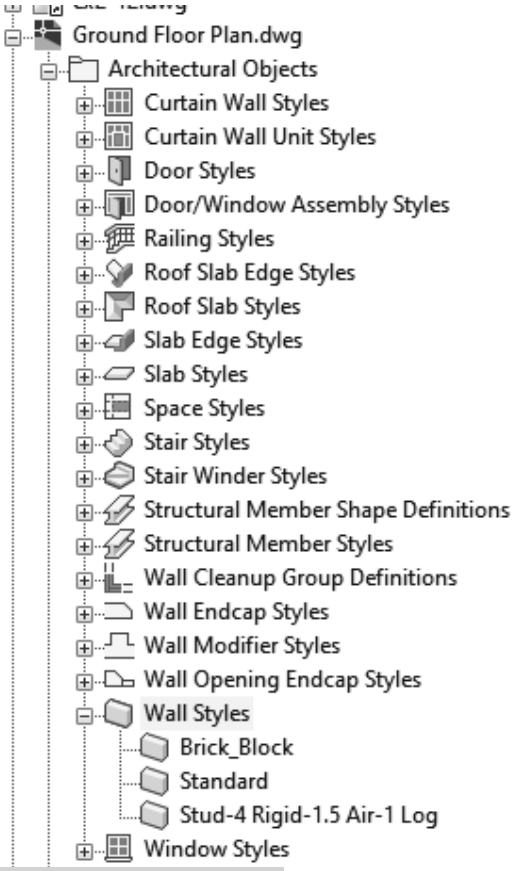
14.



Open the *wall styles.dwg* in the downloaded exercise files.

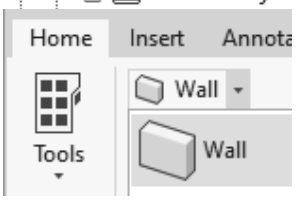
Locate the **Stud-4 Rigid-1.5 Air- 1 Log** wall style.

Copy and paste into the Ground Floor Plan drawing.

15. 

You should see the new wall style in the Ground Floor Plan under the Wall Styles category.

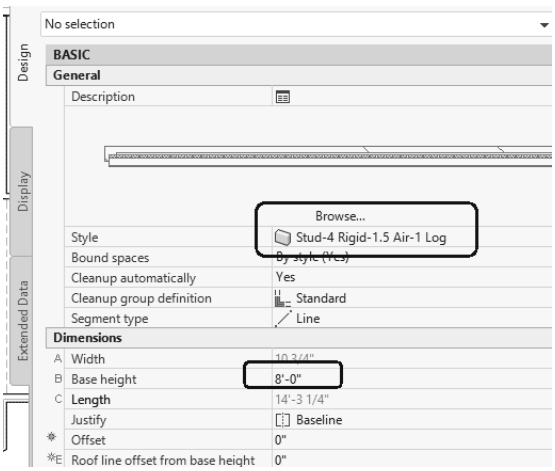
Close the Style Manager.

16. 

Set ORTHO ON.

Go to the Home ribbon.

Select the **Wall** tool.

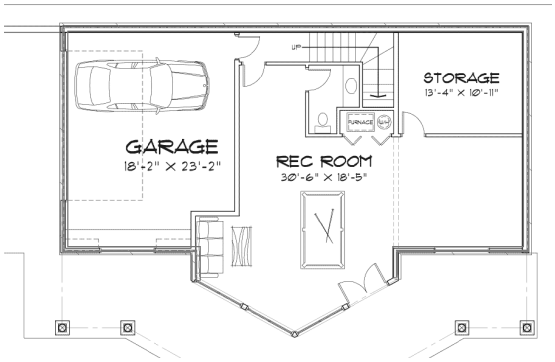
17. 

On the Properties palette:

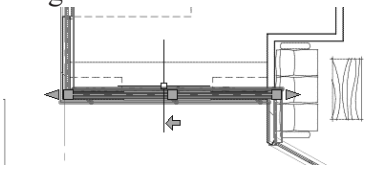
Set the Style to **Stud-4 Rigid-1.5 Air-1 Log**.

Set the Base height to **8’-0”.**

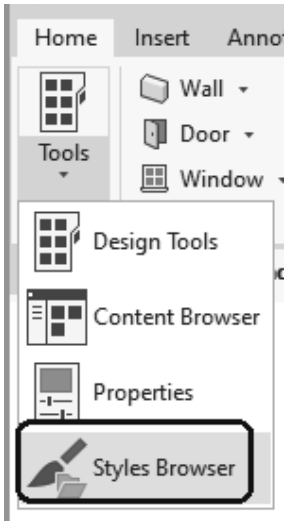
Set Justify to **Center.**

18. 

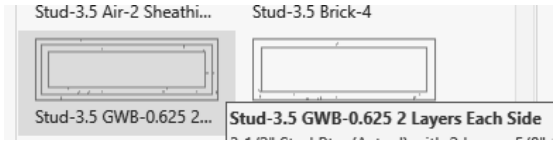
Trace around the exterior of the building using the PDF as the guide.



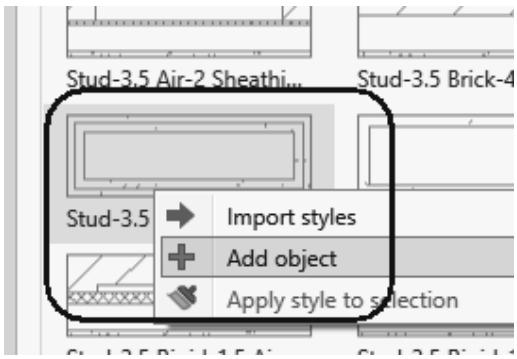
Check that walls are oriented correctly with the arrow on the outside of the building.

19. 

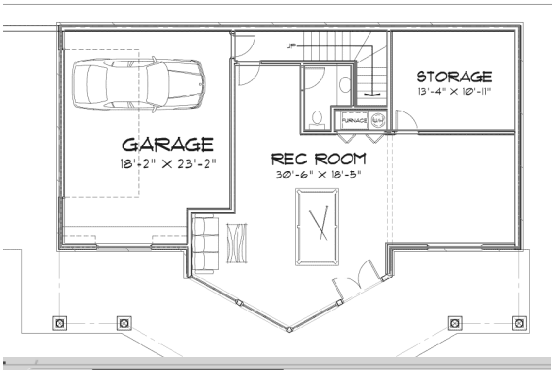
Go to the Home ribbon and open the **Styles Browser**.

20. 

Locate the **Stud -3.5 GWB-0.625 2 Layers Each Side** wall style.

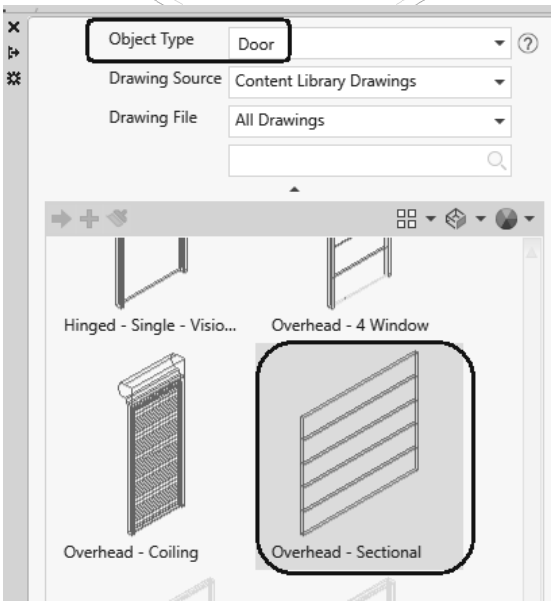
21. 

Right click on the wall tool and select **Add object**.

22. 

Add the interior walls. *DO NOT PLACE ANGLED WALLS.*

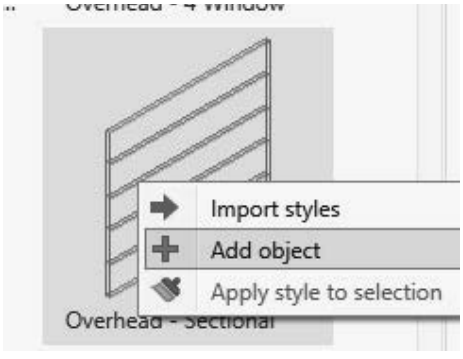
Use TRIM, EXTEND, and ALIGN to clean up walls as needed.

23. 

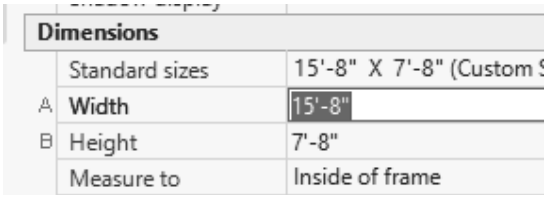
Open the Style Browser.

Set the Object Type to Door.

Locate the **Overhead – Sectional door**.

24. 

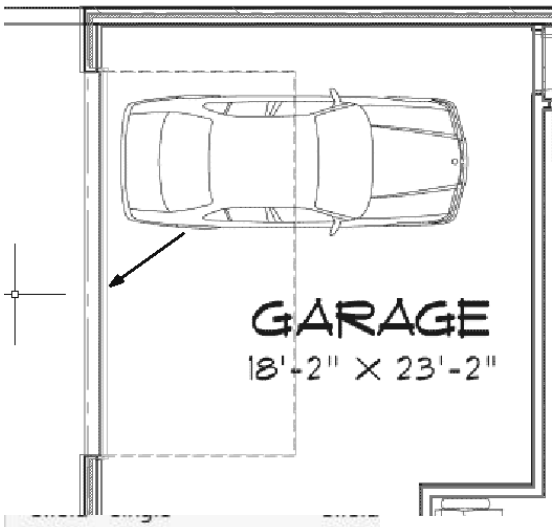
Right click on the door tool and select **Add object**.

25. 

Set the Width to **15’-8”.**

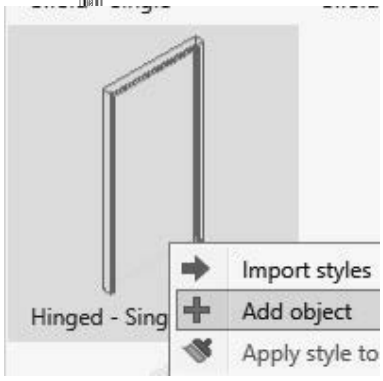
Set the Height to **7’ 8”**.

26. Place on garage wall.

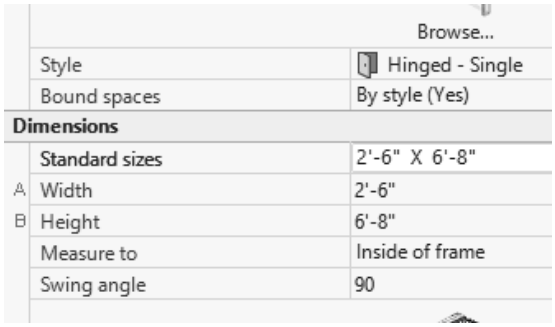


27. Locate the **Hinged – Single** door in the Styles Browser.

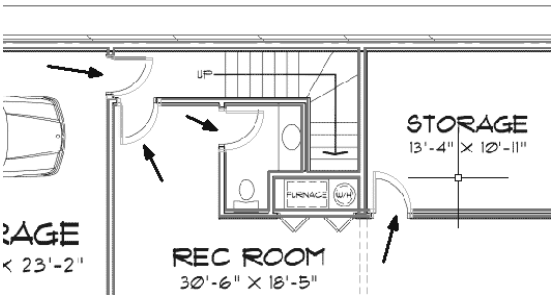
Right click and select **Add object**.



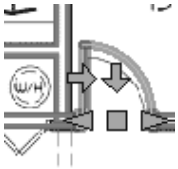
28. Set the Size to 2’-6” x 6’-8”.



29.

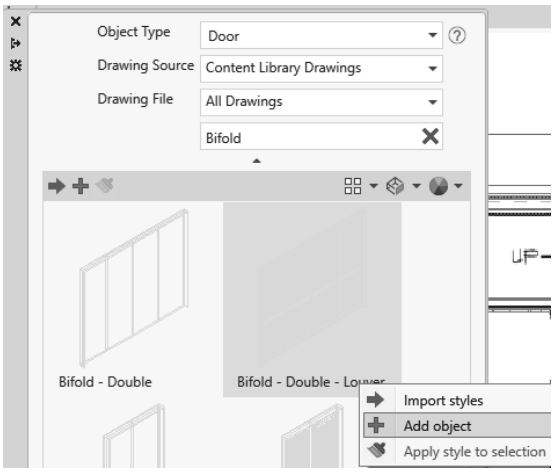


Place four doors as shown.



Use the arrows to flip the door's orientation as needed. Use the grips to resize the doors as needed.

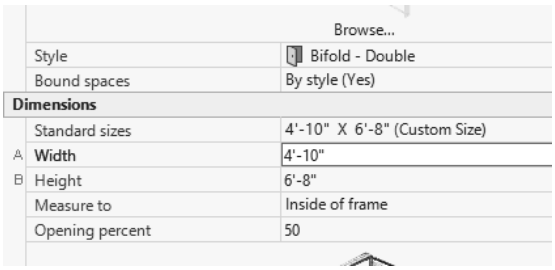
30.



Locate the **Bifold – Double - Louver** door in the Styles Browser.

Right click and select **Add object**.

31.

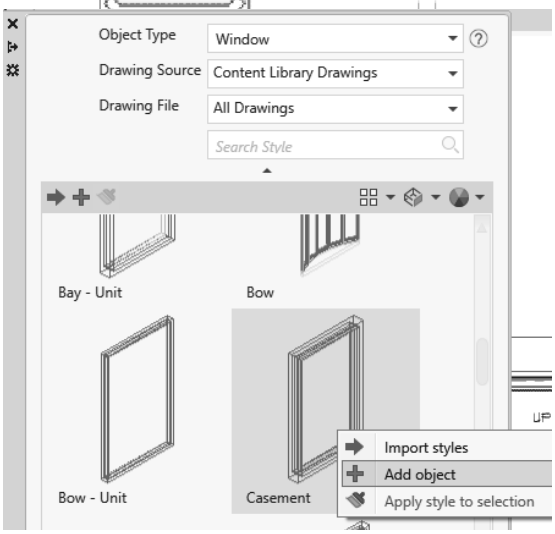


Set the Width to **4'10"** in the Properties palette.

Set the Height to **6'-8".**

32. 

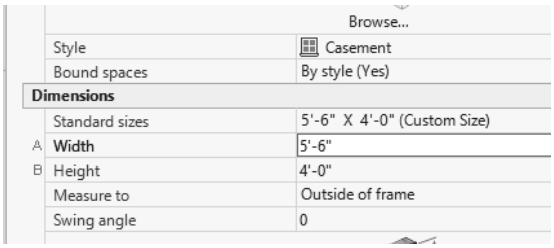
Place in the furnace room.

33. 

Change the Object Type to **Window** in the Styles Browser.

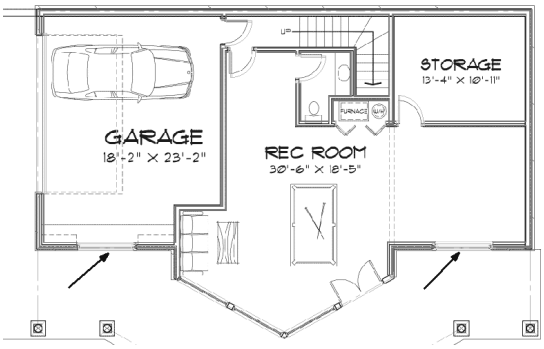
Locate the **Casement** window.

Right click and select **Add object**.

34. 

Change the Width to **5'6".**

Change the Height to **4'-0".**

35. 

Add the windows in the two locations indicated.

Check that the windows are oriented with the exterior arrow outside the building.

36. Save and close the drawing.

Curtain Walls

Curtain walls provide a grid or framework for inserting objects such as windows and doors. Curtain walls have many similarities to standard walls, such as baseline, roof line, and floor line, and they allow for interferences. You can insert doors, windows, and door/window assemblies into a curtain wall, just like standard walls, but the insertion process is different.

Curtain Wall Grids

Curtain walls are made up of one or more grids. Each grid in a curtain wall has either a horizontal division or a vertical division, but you can nest the grids to create a variety of patterns from simple to complex.

Elements of Grids

Grids are the foundation of curtain walls, curtain wall units, and door/window assemblies. Every grid has four element types:

- **Divisions:** Define the direction of the grid (horizontal or vertical) and the number of cells
- **Cell Infills:** Contain another grid, a panel infill, or an object such as a window or a door
- **Frames:** Define the edge around the outside of the primary grid and nested grids
- **Mullions:** Define the edges between the cells

Note: Division is an abstract element, in contrast to the other three element types that represent physical elements of the curtain wall.
Each element type is assigned a default definition that describes what elements of that type look like.

Element type	Default definitions
Divisions	Primary horizontal grid with a fixed cell dimension of 13' and secondary vertical grid with a fixed cell dimension of 3'
Cell Infills	Cells containing simple panels 2" thick
Frames	Left, right, top, and bottom outer edges of grid 3" wide and 3" deep
Mullions	Edges between cells 1" wide and 3" deep

Exercise 3-6:

Place a Curtain Wall

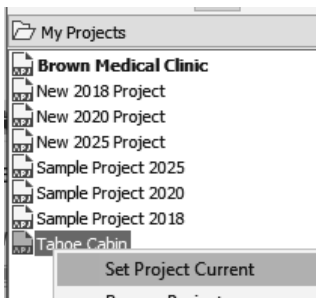
Drawing Name: Ground Floor Plan
Estimated Time: 15 minutes

This exercise reinforces the following skills:

- Place a curtain wall
- External References
- Steering Wheel
- Views
- UCS

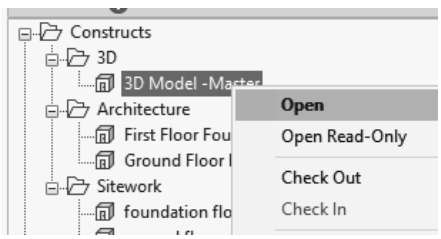
1. 

Launch the ACA English (US Imperial) software.

2. 

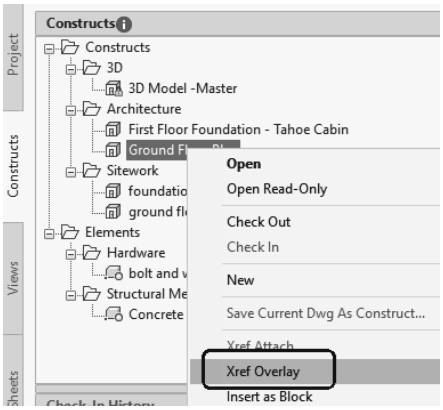
Set the **Tahoe Cabin** project current.

Close the Project Browser.

3. 

Go to the Constructs tab on the Project Navigator.

Open **3D Model-Master**.

4. 

On the Project Navigator:

Open the **Constructs** tab.

Highlight **Ground Floor Plan**.

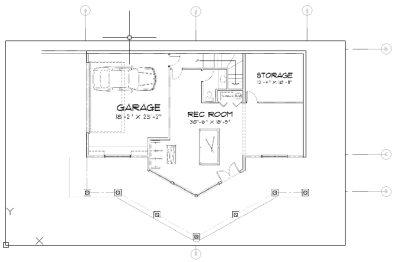
Right click and select **Xref Overlay**.

5. 

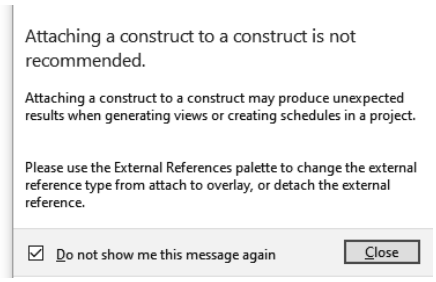
Zoom out.

The Ground Floor Plan was inserted at 0,0.

The other Xrefs are located far apart.

6. 

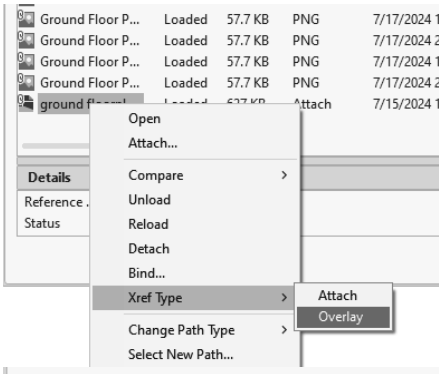
Shift the xrefs so they are aligned at the 0,0 location.

7. 

Type **XREF** to bring up the XREF Manager.

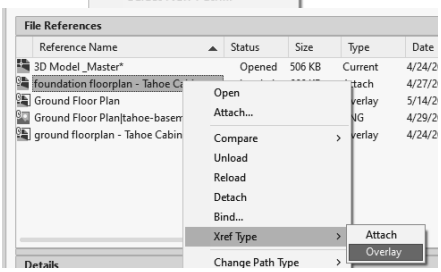
Change all the XREFs to Overlays.

If you see this dialog, enable **Do not show me this message again** and click **Close**.

8. 

Highlight the ground floorplan XREF.

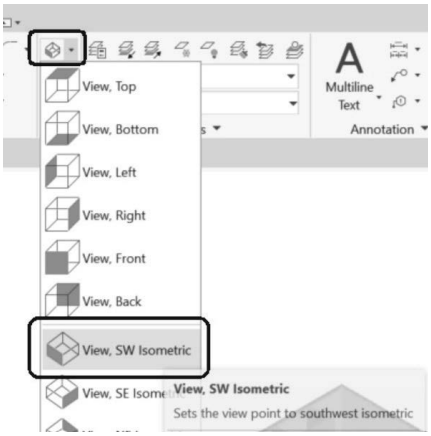
Right click and select **XREF Type→Overlay**.

9. 

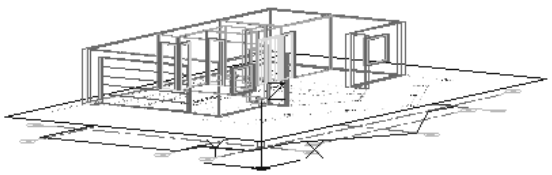
Highlight the foundation floorplan-Tahoe Cabin XREF.

Right click and select **XREF Type→Overlay**.

Close the XREF Manager.

10. 

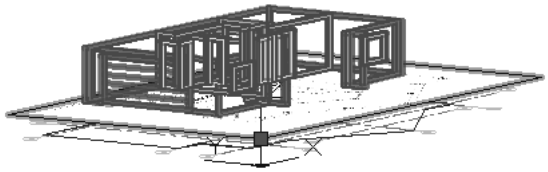
On the Home ribbon:
Switch to a **SW Isometric view**.

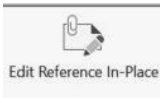
11. 

Rotate around.

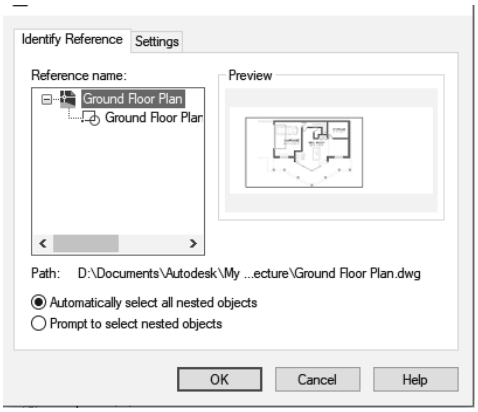
You will see the Ground Floor level inserted at the correct elevation.

12. Select the Ground Floor Plan XREF.

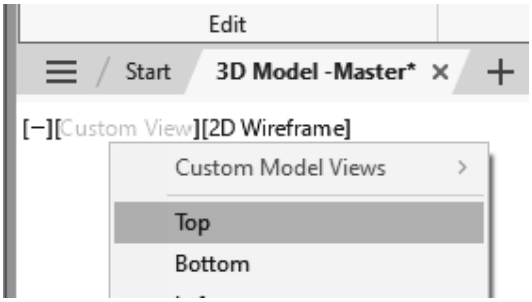




On the ribbon, select **Edit Reference In-Place**.

13. 

Click **OK**.

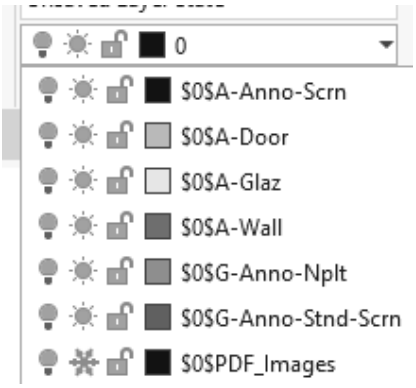
14. 

Switch to a **Top** view.

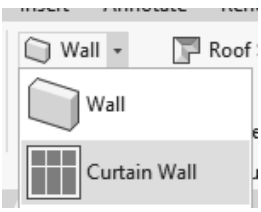
15. 

Under the Viewcube, select **WCS** to use the World UCS.

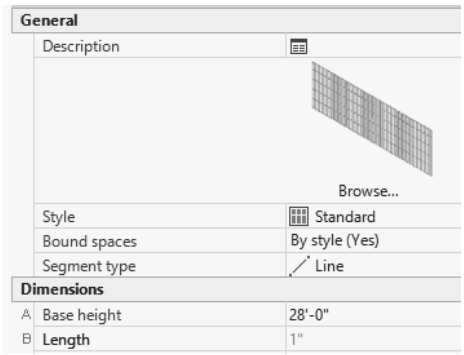
You will see the UCSICON adjust.

16. 

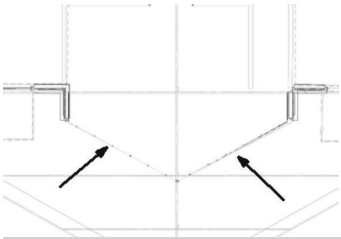
Freeze the **0PDF_Images** layer.

17. 

Select the **Curtain Wall** tool on the Home ribbon.

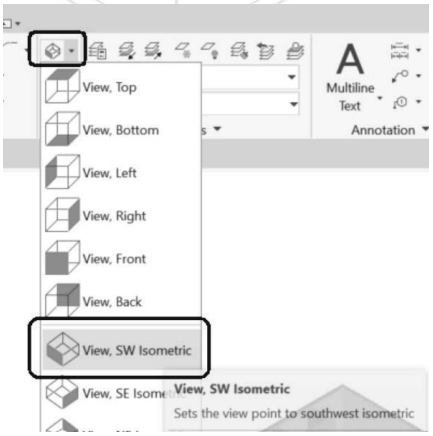
18. 

Set the Base Height to **28’-0”.**

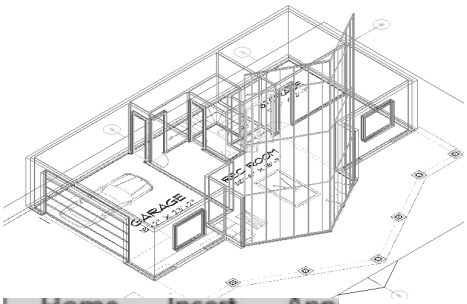
19. 

Draw two angled lines to place the curtain wall.

ESC out of the Curtain Wall tool.

20. 

On the Home ribbon:
Switch to a **SW Isometric view**.

21. 

Press the SHIFT key and the middle mouse button to orbit around the model and inspect the curtain wall.

22. 

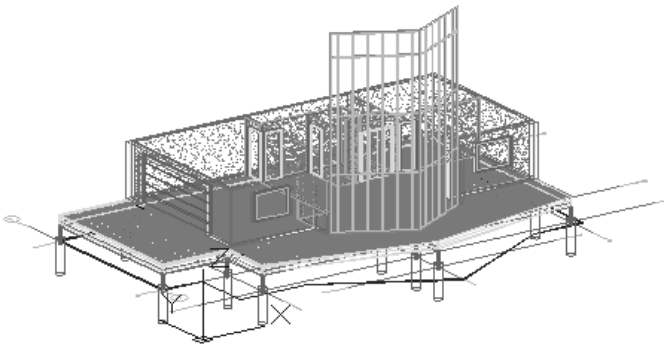
Switch the View ribbon.

Launch the **Full Navigation** Steering Wheel.

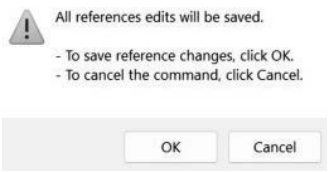
23. Use the different tools on the steering wheel to view the model.

When you are done, click the X located in the upper right corner of the steering wheel to close.

24. 



Select **Save Changes** on the ribbon.

25. 

Click **OK**.

Save the *3D Model_Master.dwg.*

Exercise 3-7:

Create a Second Floor Plan

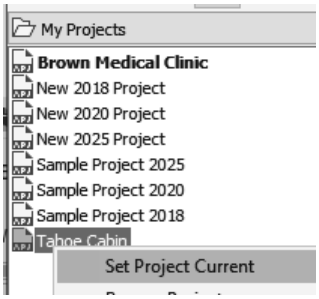
Drawing Name: new
Estimated Time: 30 minutes

This exercise reinforces the following skills:

- PDF Import
- Walls
- Doors
- Windows
- Properties

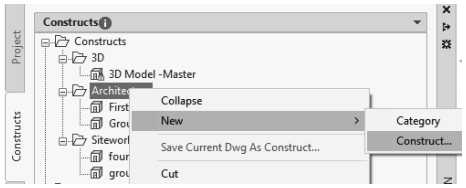
1. 

Launch the ACA English (US Imperial) software.

2. 

Set the **Tahoe Cabin** project current.

Close the Project Browser.

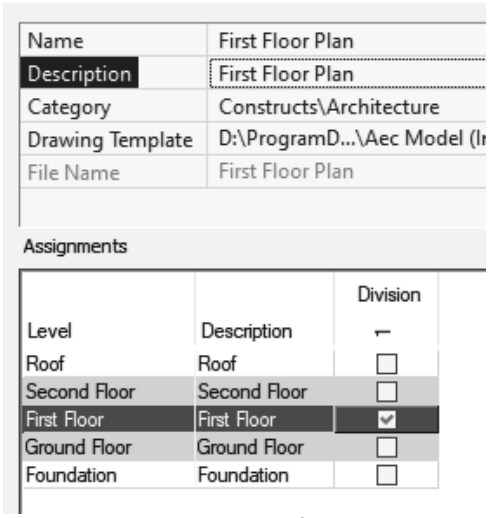
3. 

In the Project Navigator:

Open the Constructs tab.

Highlight the **Architecture** category:

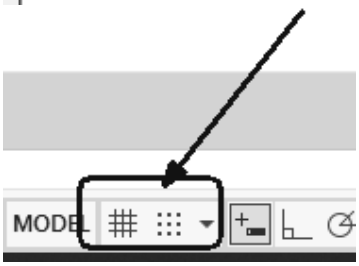
Right click and select **New→Construct**.

4. 

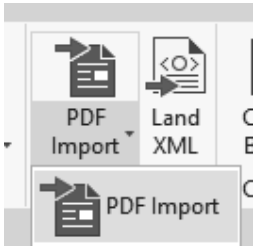
Assign **First Floor Plan** to the Name.
Assign **First Floor Plan** to Description.
Enable the **First Floor** Division.

Enable **Open in drawing editor.**

Click **OK.**

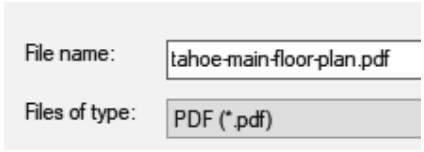
5. 

Toggle off the Grid and Snap to Grid.

6. 

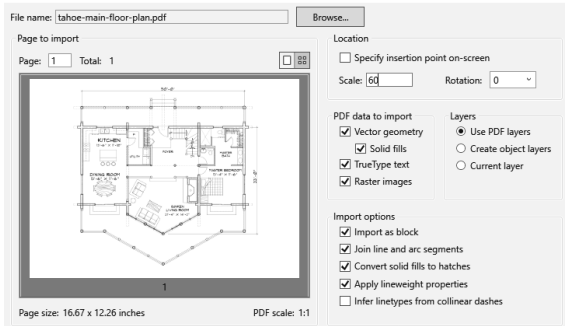
Go to the **Insert** ribbon.

Click **PDF Import.**

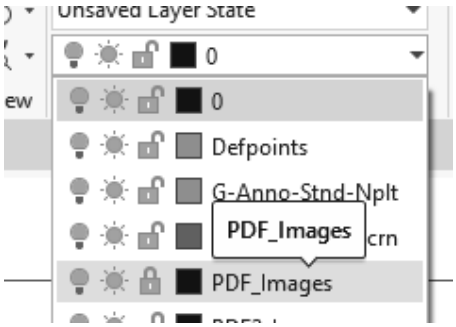
7. 

Locate the *tahoe-main-floor-plan.pdf* in the downloaded files.

Click **Open**.

8. 

Disable **Specify insertion point**.
This will insert the PDF at 0,0,0
Set the Scale to **60**.
This scales the PDF to the correct imperial measurements.
Enable **Raster Images**.
Enable **Import as block**.
Enable **Convert solid fills to hatches.**
Enable **Apply lineweight properties**.
Click **OK**.

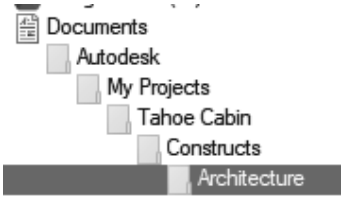
9. 

Place the PDF on the **PDF_Images** layer and lock the layer.

10. 

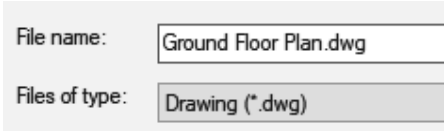
Go to the Manage ribbon.

Open the **Style Manager**.

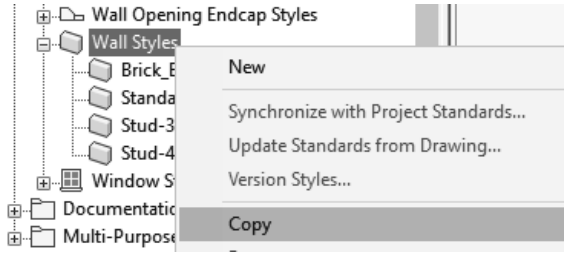
11. 

Click Open.

Browse to the **Architecture** category under Constructs.

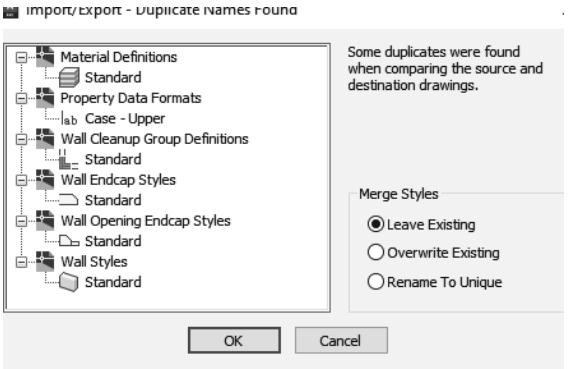
12. 

Open the *Ground Floor Plan.dwg*.

13. 

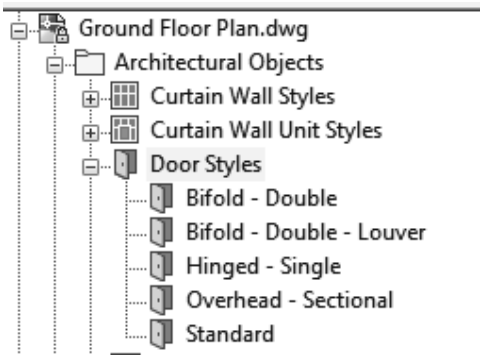
Highlight **Wall Styles** in the Ground Floor Drawing, Right click and select **Copy**.

Paste into the *First Floorplan.dwg.*

14. 

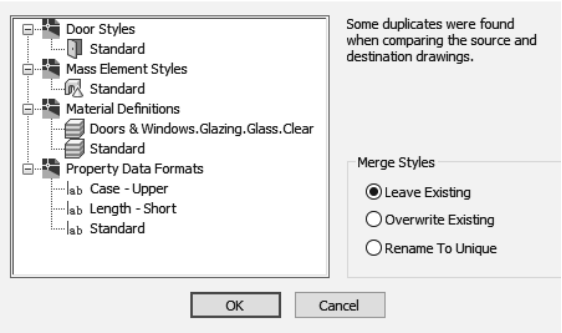
Enable **Leave Existing**.

Click **OK**.

15. 

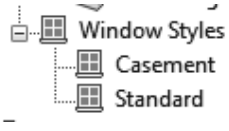
Highlight **Door Styles** in the Ground Floor Drawing, Right click and select **Copy**.

Paste into the *First Floorplan.dwg.*

16. 

Enable **Leave Existing**.

Click **OK**.

17. 

Copy and Paste the **Casement** Window Style from the Ground Floorplan into the First Floor Plan.

Close the Style Manager.

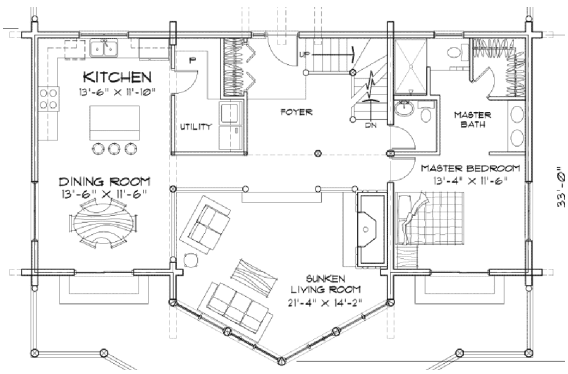
18. 

Launch the Layer Manager.

Create layer named **exterior walls.**

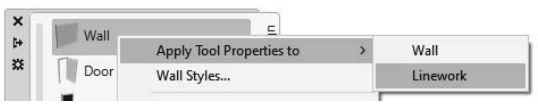
Make that layer current.

Close the Layer Manager.
Toggle ORTHO ON.

19. 

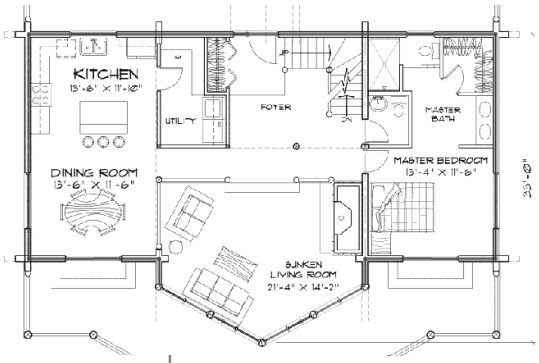
Trace the exterior outline of the building using lines.

Do not place lines where the curtain wall is located. Those are the two angled walls.

20. 

Locate the **Wall** tool on the Design Tool Palette.

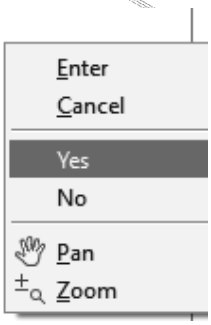
Right click and select **Apply Tool Properties to →Linework**.

21. 

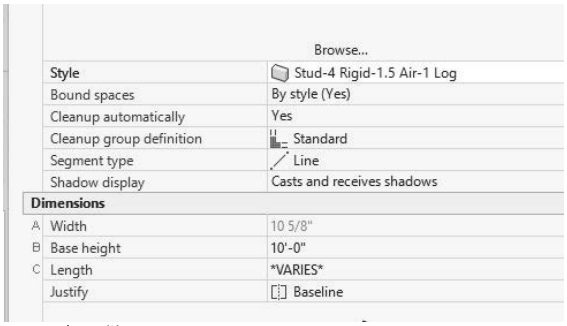
Select the lines that were placed.

You can window around the lines to select them.

Click **ENTER**.

22. 

Right click and select **Yes** to erase the lines.

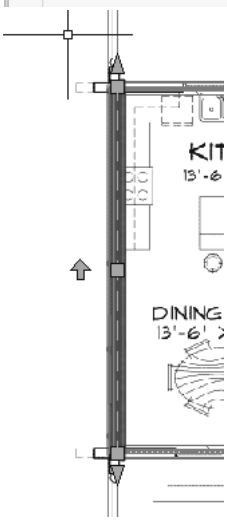
23. 

The walls should still be selected.

On the Properties palette:

Change the Style to **Stud-4-1.5 Air – 1 Log**.

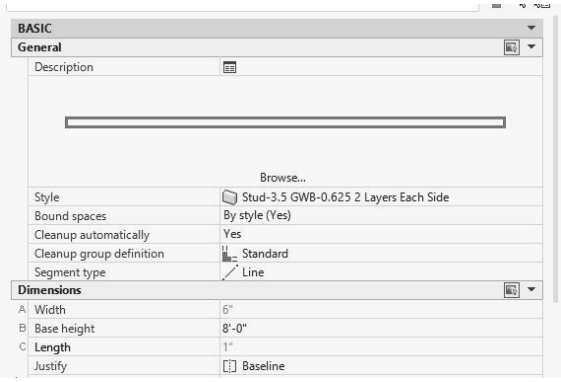
Click **ESC** to release the selection.

24. 

Go around the walls and flip the orientation so that the exterior is oriented correctly.

25. 

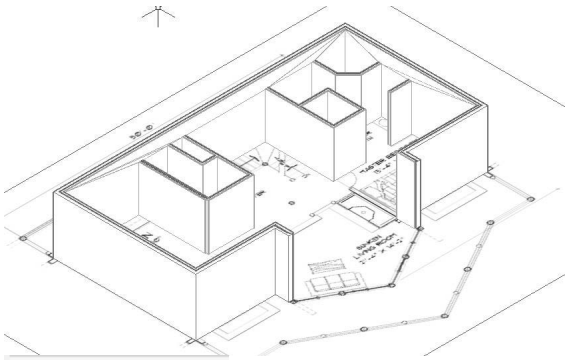
Select the Wall tool from the Home ribbon.

26. 

On the Properties palette:

Set the **Style to Stud-3.5 GWB-0.625 2 Layers Each Side**.

Add the interior walls, tracing over the PDF.

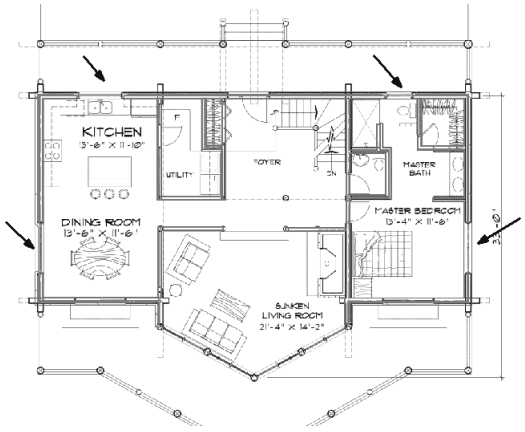
27. 

[−][SW Isometric][Hidden]

Change the view to **SW Isometric/Hidden** to inspect the floor plan.

28. [−][Top][Hidden]

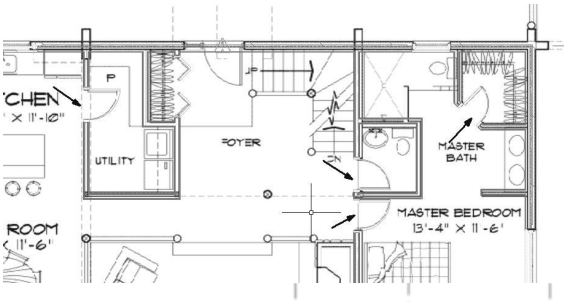
Return to a **Top** view.

29. 

Add casement windows at the locations shown.

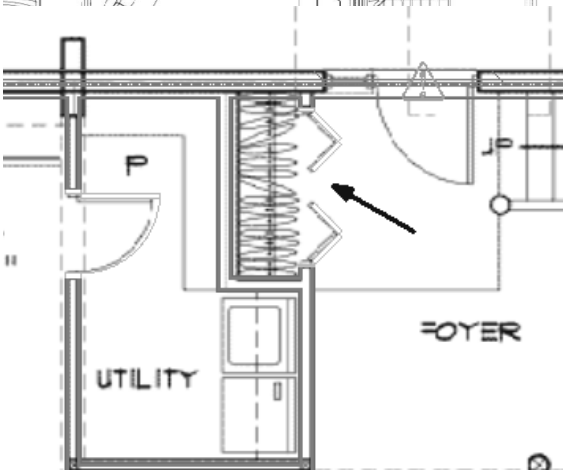
All the windows are 5’6” x 4’-0” except for the bathroom window.

The bathroom window is 3’ x 4’.

30. 

Add single hinged doors in the locations shown.

The master closet door is 2’-0” x 6’8”.
The other doors are 2’6” x 6’ 8”.

31. 

Add a 4’-6” x 6’-8” bifold closet door at the entrance.

32. Save and close the drawing.

Exercise 3-8:

Use the Style Browser to Add Doors

Drawing Name: First Floor Plan
Estimated Time: 10 minutes

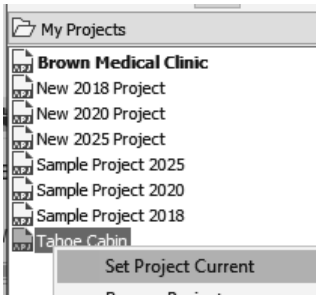
This exercise reinforces the following skills:

- Doors
- Properties
- Styles Browser

1. 

Launch the ACA English (US Imperial) software.

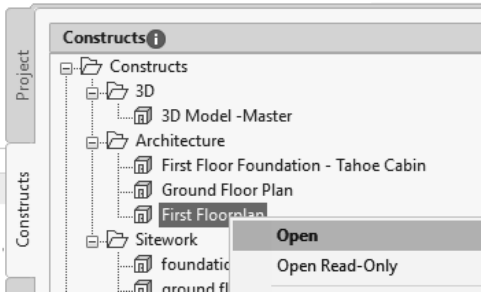
2.



Set the **Tahoe Cabin** project current.

Close the Project Browser.

3.



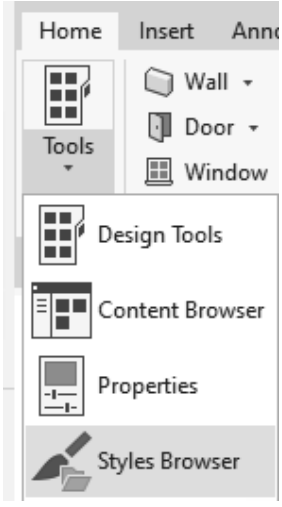
In the Project Navigator:

Open the Constructs tab.

Highlight the **First Floor Plan** under the **Architecture** category:

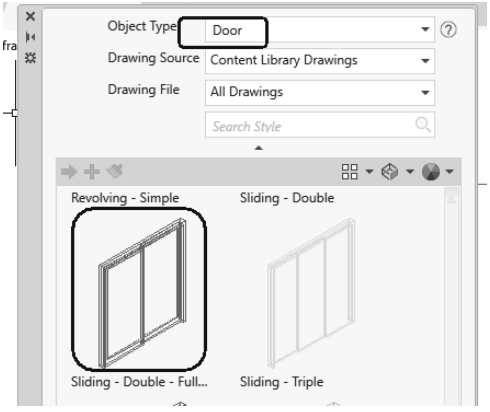
Right click and select **Open**.

4.



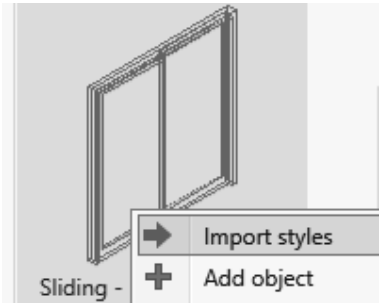
Launch the **Styles Browser** from the Home ribbon.

5.



Set the Object Type to Door.

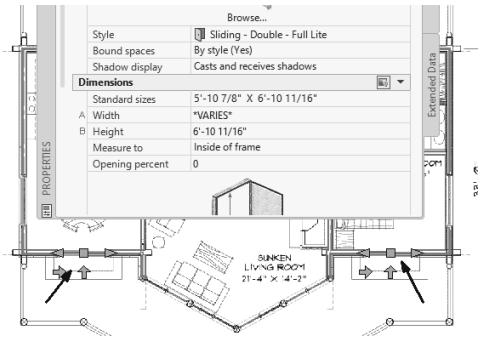
Locate the **Slding – Double- Full Lite** door.

6. 

Right click and select **Import styles**.

This adds the door style to the open drawing.

Close the Styles Browser.

7. 

Add a sliding door that is 5’ 10 7/8” x 6’ 10 11/16” in the dining room and master bedroom as shown.

8. Save and close the file.

Exercise 3-9:

Create a Door and Window Assembly

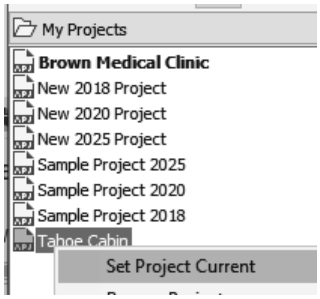
Drawing Name: new
Estimated Time: 30 minutes

This exercise reinforces the following skills:

- Doors
- Properties
- Styles Browser
- Style Manager
- Door/Window Assembly

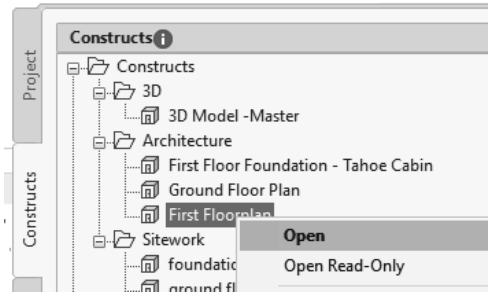
1. 

Launch the ACA English (US Imperial) software.

2. 

Set the **Tahoe Cabin** project current.

Close the Project Browser.

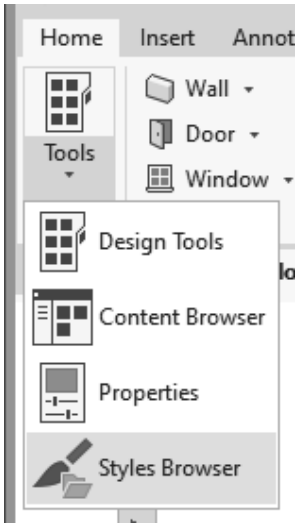
3. 

In the Project Navigator:

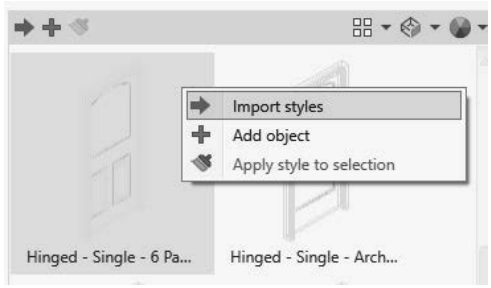
Open the Constructs tab.

Highlight the **First Floor Plan** under the **Architecture** category:

Right click and select **Open**.

4. 

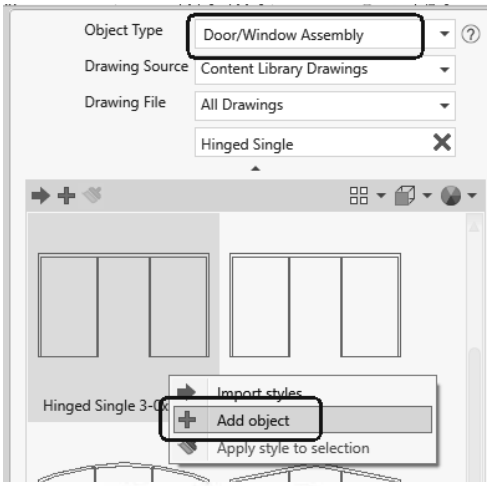
Launch the **Styles Browser.**

5. 

Set the Object Type to **Door.**

Locate the **Hinged - Single – 6 Panel – Half Lite.**

Right click and select **Import styles.**

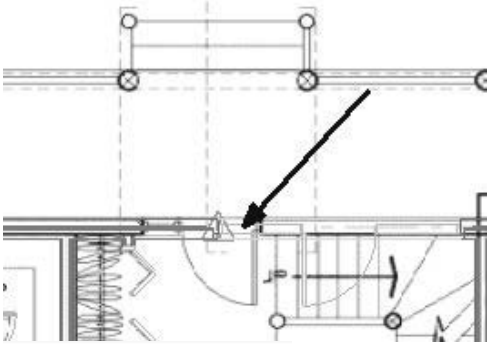
6. 

Set the Object Type to Door/Window Assembly.

In the search field, type Hinged Single.

Locate the **Hinged Single 3- 0x6-8 + Sidelights 2-0x6-0 (R)** ·

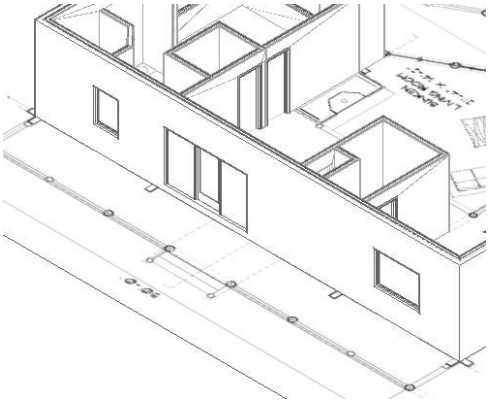
Right click and select **Add object**.

7. 

Place the door at the entrance.

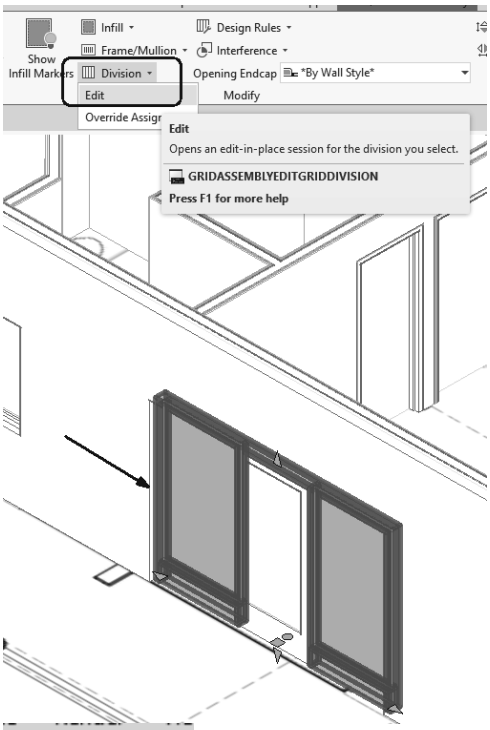
8. 

Change the view to NW Isometric/Hidden.

9. 

You see the door window assembly that was just placed.

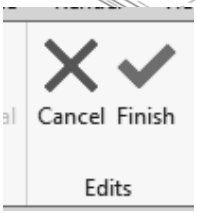
Select the sidelights.

10. 

With the sidelights selected,

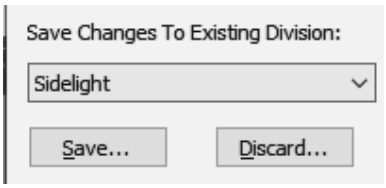
Click **Edit** under Division on the ribbon.

Click on the left window sidelight.

11. 

Select the – grip at the bottom of the window.

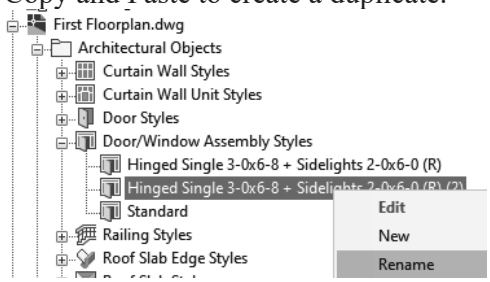
Click **Finish** on the ribbon.

12. 

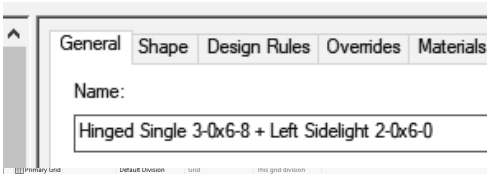
Click **Save**.

13. Go to the Manage ribbon.

Open the Style Manager.
Locate the **Hinged Single 3- 0x6-8 + Sidelights 2-0x6-0 (R).**
Copy and Paste to create a duplicate.

14. 

Highlight the copied door/window assembly style.
Right click and select **Rename**.

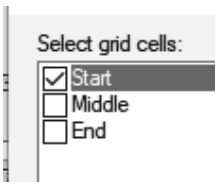
15. 

Rename the assembly: **Hinged Single 3-0x6-8 + Left Sidelight 2-0x6-0**

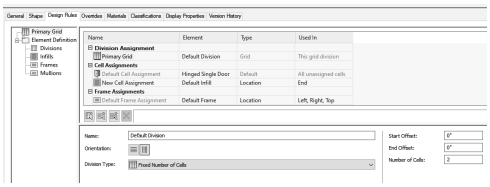
16. 

Select the Design Rules tab.

Click the New Nested Grid and change to New Cell Assignment. Set the Element to Default Infill.

17. 

Set the cell location to the **Start**.

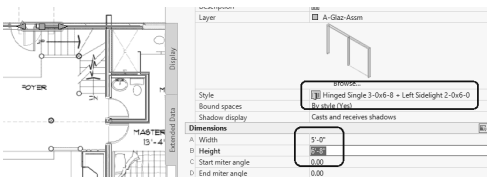
18. 

Click **Divisions**.

Set the Division Type to **Fixed Number of Cells**.
Set the Number of Cells to **2**.

There will be the door and a single sidelight.

Click **OK** to close the Style Manager.

19. 

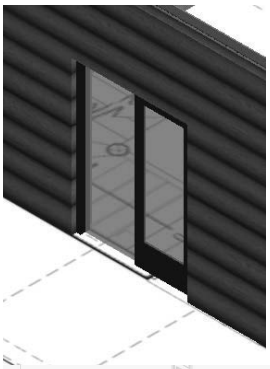
Switch back to a Top view.

Select the door/window assembly and assign the new style with the single sidelight.

Change the Width to **5'0"**.

If you see a warning icon, shift the position of the door window assembly slightly and it should resolve.

20.

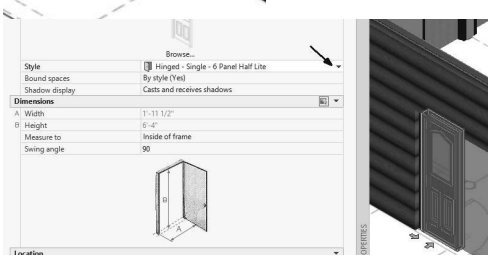


[−][NW Isometric][Realistic]

Change the view to NW Isometric/Realistic.

Select the door.

21.

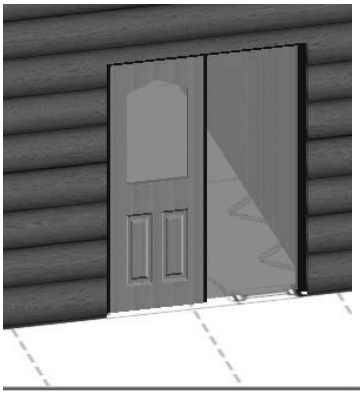


On the Properties palette:

Change the door style to **Hinged – Single – 6 Panel Half Light.**

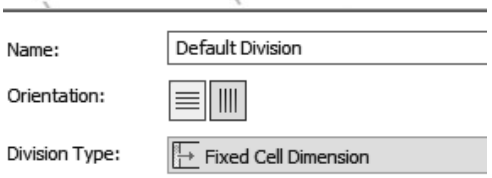
Click **ESC** to release the selection.

22.



Orbit around to inspect the door.

23.

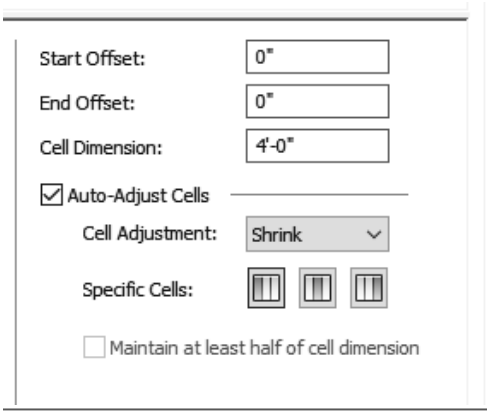


Return to the Style Manager.

Highlight the **Hinged Single 3-0x6-8 + Left Sidelight 2-0x6-0.**

On the Design Rules tab:

Set the Default Division.
Set the Division Type to Fixed Cell Dimension.

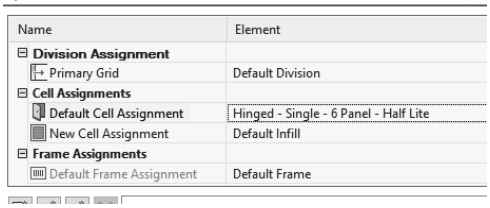
24. 

Set the Cell Dimension to 4’-0”.

This will be the door width.

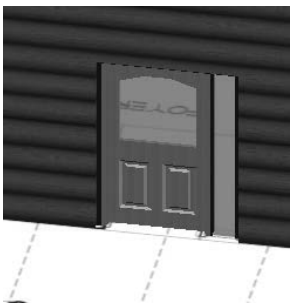
Enable **Auto-Adjust Cells**.
Set Cell Adjustment to **Shrink**.

This will decrease the width of the sidelight.

25. 

Set the Default Cell Assignment to the Hinged – Single – 6 Panel – Half Lite.

Click **OK**.

26. 

Save and close file.

Exercise 3-10:

Add an Overlay

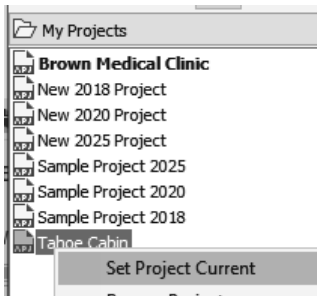
Drawing Name: 3D Model - Master
Estimated Time: 10 minutes

This exercise reinforces the following skills:

- Project Navigator
- XREF
- UCS
- Project Navigator

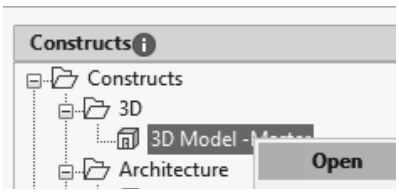
1. 

Launch the ACA English (US Imperial) software.

2. 

Set the **Tahoe Cabin** project current.

Close the Project Browser.

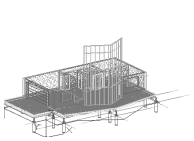
3. 

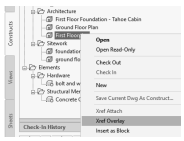
In the Project Navigator:

Open the Constructs tab.

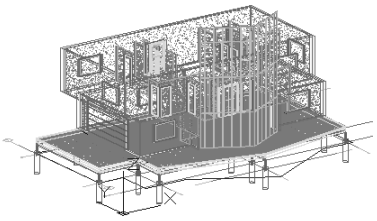
Highlight the **3D Model – Master** under the **3D** category:

Right click and select **Open**.

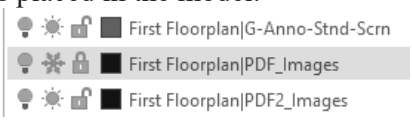
4. 



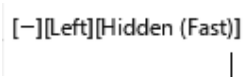
Highlight the First Floor Plan construct.
Right click and select **Xref Overlay**.

5. 

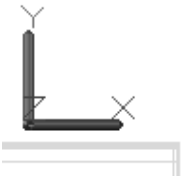
It is placed in the model.



Freeze the First Floorplan|PDF Images layer, so you can see the model.

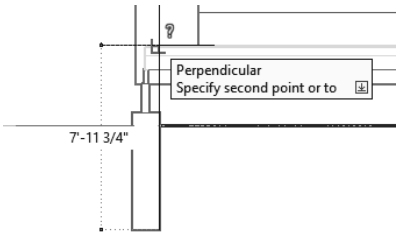
6. 

Switch to a **LEFT| Hidden** display.

7. 

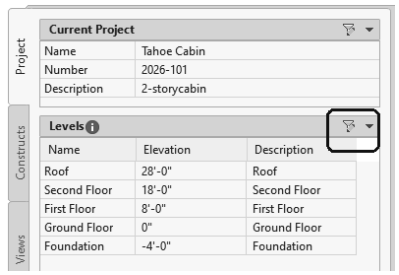
Type **UCS, View**.

This changes the UCS to an XY display.

8. 

Use DIST to measure the distance from the bottom of the concrete columns to the top of the foundation.

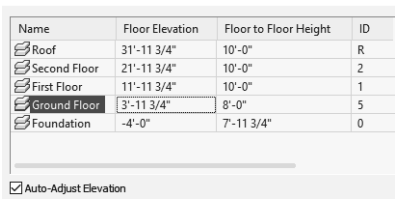
This will be the elevation for the ground floor. The foundation is inserted at -4'. So, the ground floor should be located 4' below the distance measured.

9. 

Bring up the Project Navigator.

Go to the Project tab.

Click on **Edit Levels**.

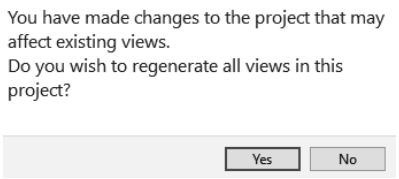
10. 

Set the Ground Floor Elevation to **3' 11 ¾".**

The other elevations should update.

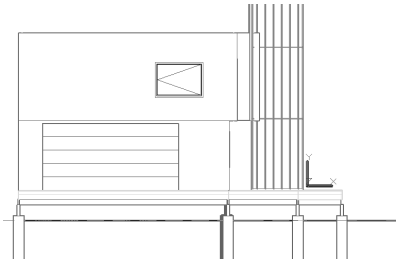
Click **OK**.

11.



Click **Yes**.

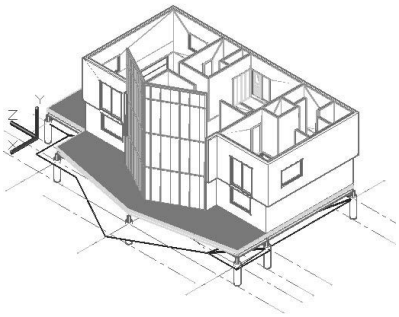
12.



Use MOVE to place the XREFs so they are aligned on top of each other.

13. Switch to a SE Isometric view.

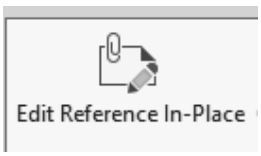
14.



Use the MOVE tool to adjust the position of the first floor.

Some of the exterior walls need to be adjusted to match the ground floor.

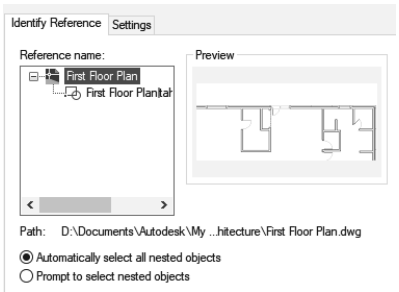
15.



Select the first floor.

Click **Edit Reference In-Place** on the ribbon.

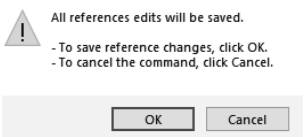
16.



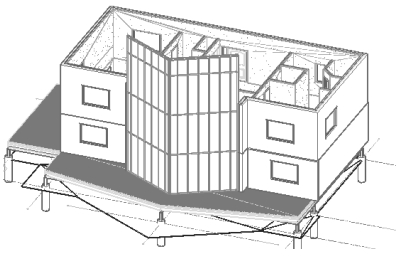
Click **OK**.

17. 

When you are done with the adjustments, click Save Changes on the ribbon.

18. 

Click **OK**.

19. 

Orbit around the model to verify the walls are aligned.

Save and close the file.

Exercise 3-11:

Create a Third Floor Plan

Drawing Name: new
Estimated Time: 30 minutes

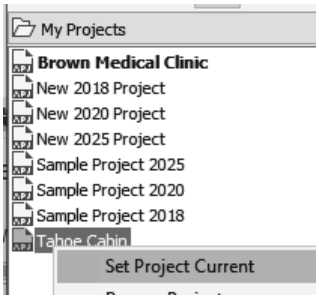
This exercise reinforces the following skills:

- Project Navigator
- Insert PDF
- Styles Manager
- Styles Browser
- Walls
- Doors
- Windows
- Properties

1. 

Launch the ACA English (US Imperial) software.

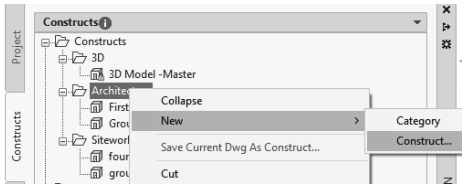
2.



Set the **Tahoe Cabin** project current.

Close the Project Browser.

3.



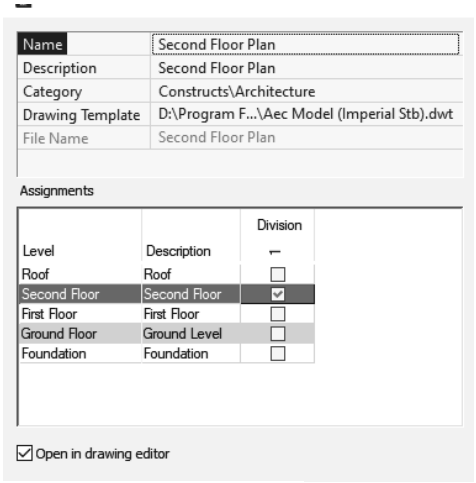
In the Project Navigator:

Open the Constructs tab.

Highlight the **Architecture** category:

Right click and select **New→Construct**.

4.

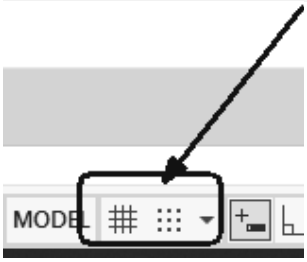


Assign **Second Floor Plan** to the Name.
Assign **Second Floor Plan** to Description.
Enable the **Second Floor** Division.

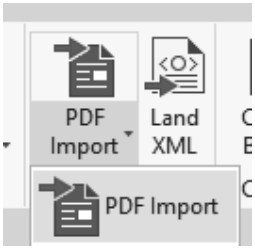
Enable **Open in drawing editor.**

Click **OK.**

5.

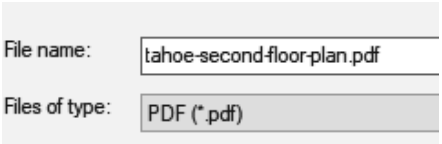


Toggle off the Grid and Snap to Grid.

6. 

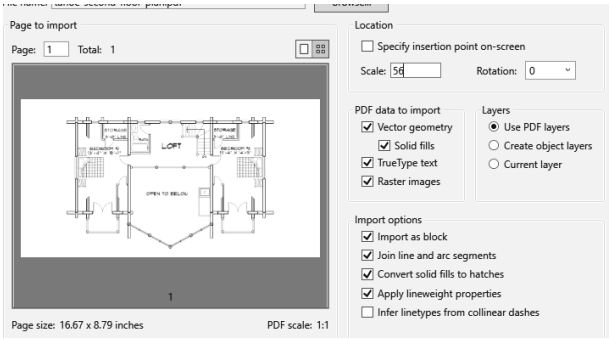
Go to the **Insert** ribbon.

Click **PDF Import.**

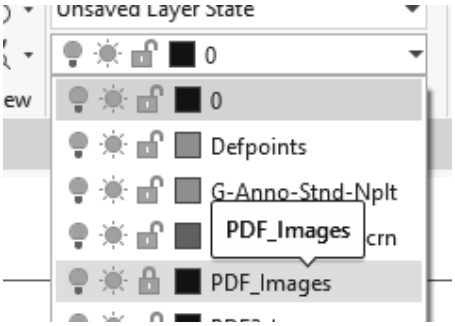
7. 

Locate the *tahoe-second-floor-plan.pdf* in the downloaded files.

Click **Open**.

8. 

Disable **Specify insertion point**.
This will insert the PDF at 0,0,0
Set the Scale to **56**.
This scales the PDF to the correct imperial measurements.
Enable **Raster Images**.
Enable **Import as block**.
Enable **Convert solid fills to hatches.**
Enable **Apply lineweight properties**.
Click **OK**.

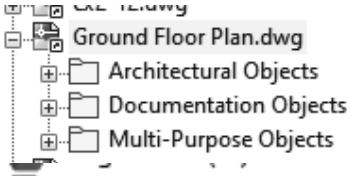
9. 

Place the PDF on the **PDF_Images** layer and lock the layer.

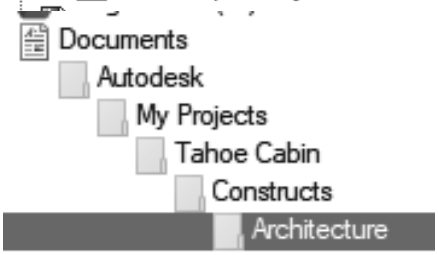
10. 

Go to the Manage ribbon.

Open the **Style Manager**.

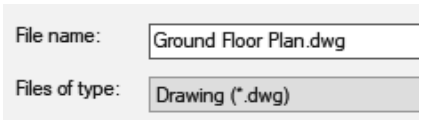
11. 

The Ground Floor Plan.dwg should still be listed as an open drawing.

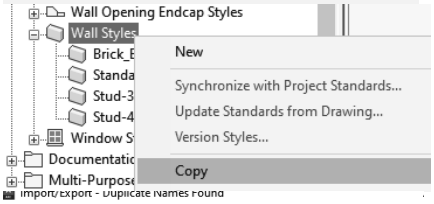
12. 

If the Ground Floor Plan.dwg isn't listed, click **Open**.

Browse to the **Architecture** category under Constructs.

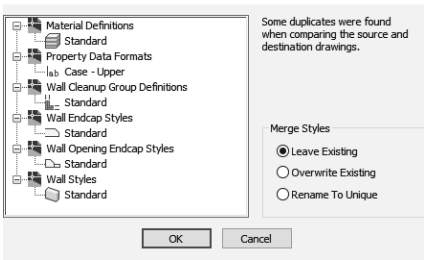
13. 

Open the *Ground Floor Plan.dwg*.

14. 

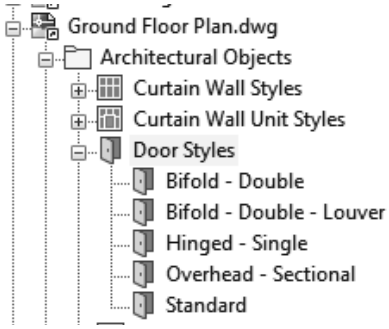
Highlight **Wall Styles** in the Ground Floor Drawing,
Right click and select **Copy**.

Paste into the *Second Floorplan.dwg.*

15. 

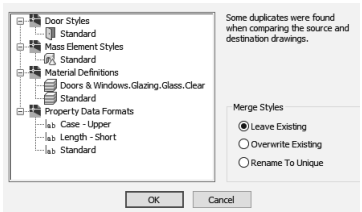
Enable **Leave Existing**.

Click **OK**.

16. 

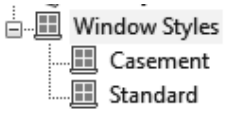
Highlight Door Styles in the *Ground Floor* Drawing,
Right click and select **Copy**.

Paste into the Second Floorplan.dwg.

17. 

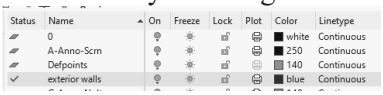
Enable **Leave Existing**.

Click **OK**.

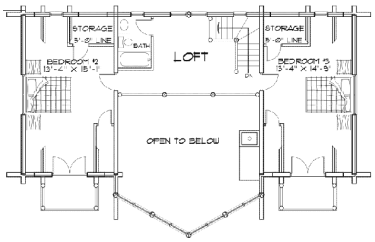
18. 

Copy and Paste the **Casement Window** Style from the Ground Floorplan into the Second Floor Plan.

19. Close the Style Manager.

20. 

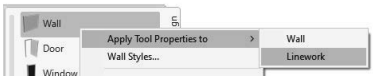
Launch the Layer Manager.
Create a layer named **exterior walls**.
Make that layer current.
Close the Layer Manager.

21. 

Turn ORTHO ON.

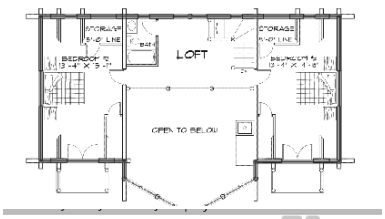
Trace the exterior outline of the building using lines.

Do not place lines where the curtain wall is located. Those are the two angled walls.

22. 

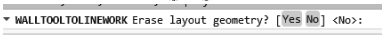
Locate the **Wall** tool on the Design Tool Palette.

Right click and select **Apply Tool Properties to →Linework.**

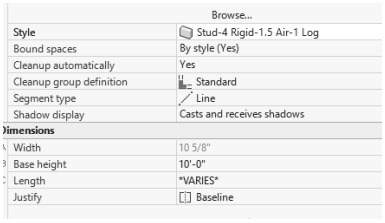
23. 

Select the lines that were placed.

Click **ENTER**.

24. 

Right click and select **Yes** to erase the lines.

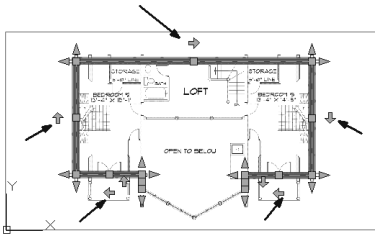
25. 

The Properties palette should appear.

Change the Wall Style to **Stud-4 Rigid-1.5 Air – 1 Log**.

Click **ESC** to release the selection.

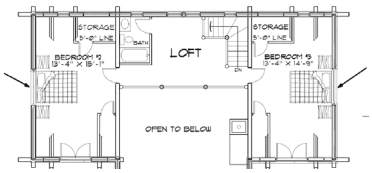
26.



Verify that all the walls are oriented with the exterior side on the outside of the building.

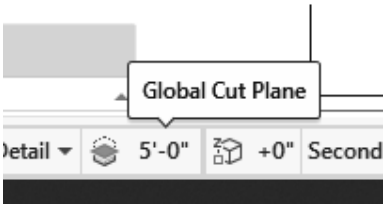
To change the orientation, just click on the arrow.

27.



Place a 5’6” x 4’-0” Casement window in the two locations indicated.

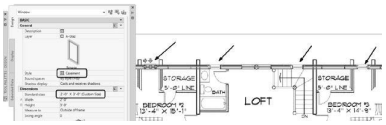
28.



Change the Global Cut Plane to **5’-0”.**

If you don’t change the cut plane, you won’t see the next set of windows that are placed.

29.

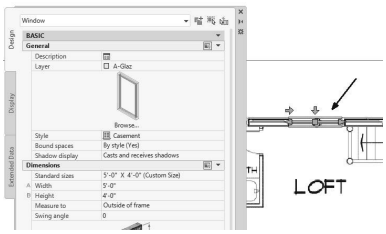


Place four casement windows in the location shown.

These windows should be 2’-0” x 3’0”.

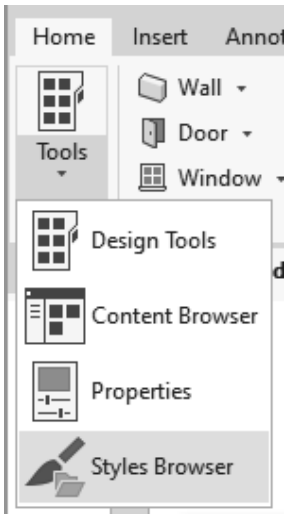
Verify that they are oriented correctly.

30.



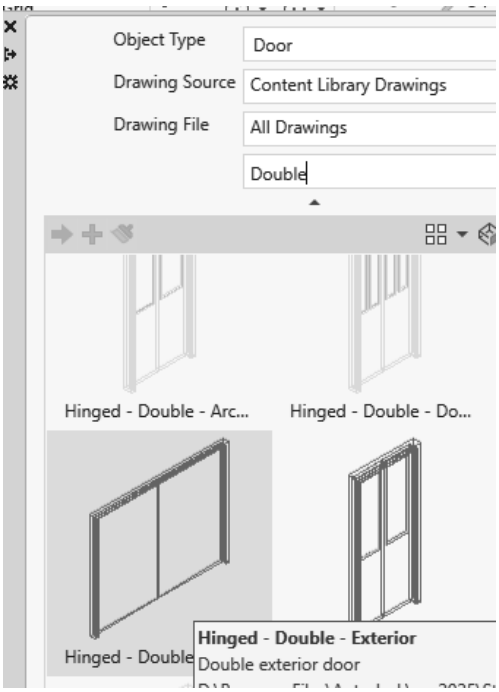
Place a 5’-0” x 4’-0” casement window in the location indicated.

31.



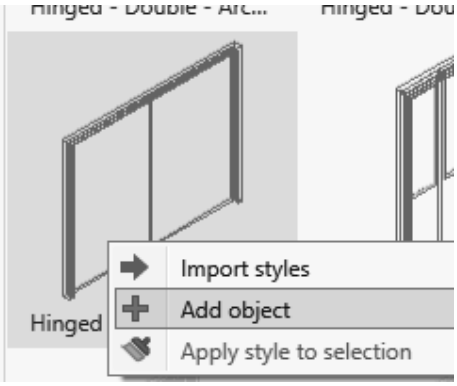
Launch the **Styles Browser** from the Home ribbon.

32.

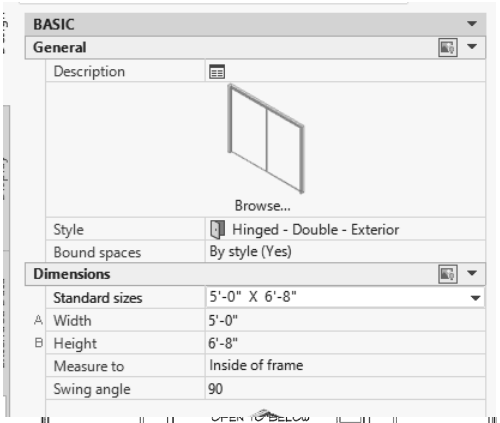


Set the Object Type to Door.

Locate the **Hinged – Double – Exterior** door.

33. 

Right click and select **Add object**.

34. 

Set the size to **5’-0” x 6’8”.**

35. 

Place in the two locations indicated.

36. Save and close the file.

Exercise 3-12:

Add Interior Walls and Doors

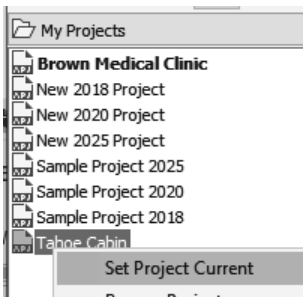
Drawing Name: Second Floor Plan.dwg
Estimated Time: 15 minutes

This exercise reinforces the following skills:

- Project Navigator
- Walls
- Doors
- Properties

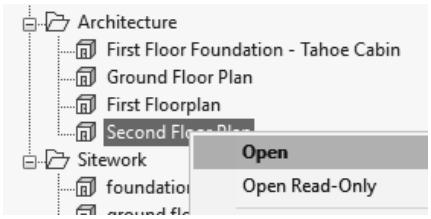
1. 

Launch the ACA English (US Imperial) software.

2. 

Set the **Tahoe Cabin** project current.

Close the Project Browser.

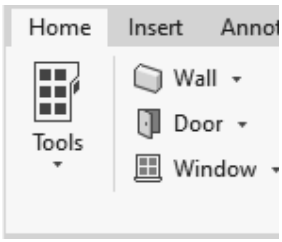
3. 

In the Project Navigator:

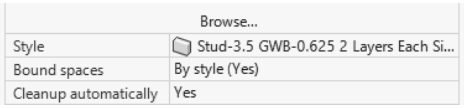
Open the Constructs tab.

Highlight the **Architecture** category:

Right click on the Second Floor Plan and select **Open**.

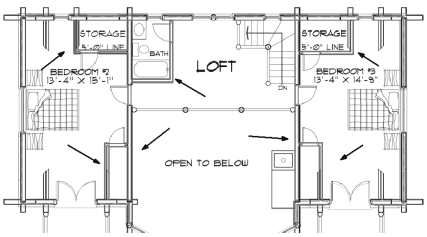
4. 

Select the **Wall** tool from the Home ribbon.

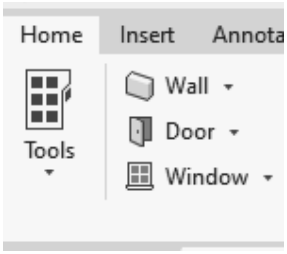
5. 

The Style should be set to **Stud-3.5 GWB-0.625 2 Layers Each Side.**

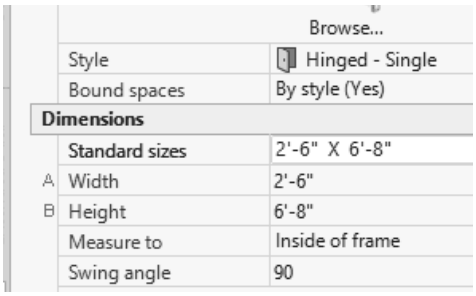
This is an interior wall style.

6. 

Place interior walls as indicated.

7. 

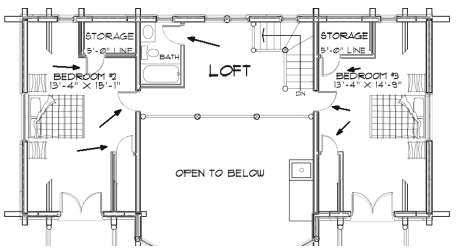
Select the **Door** tool from the Home ribbon.

8. 

On the Properties palette:

Set the Style to **Hinged – Single**.

Set the Size to **2’-6” x 6’-8”.**

9. 

Place doors in locations indicated.

Use Properties to adjust the size of the doors to match the PDF.
Use arrows to orient the doors properly.

10. Save and close the file.

Exercise 3-13:
Add Overlay - Reprised

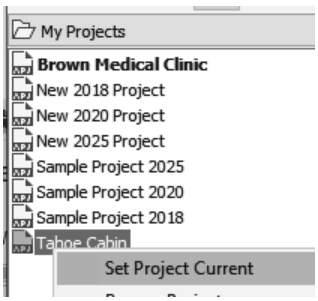
Drawing Name: 3D Model - Master.dwg
Estimated Time: 15 minutes

This exercise reinforces the following skills:

- Project Navigator
- XREF

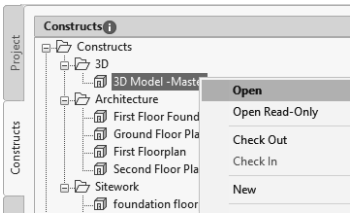
1. 

Launch the ACA English (US Imperial) software.

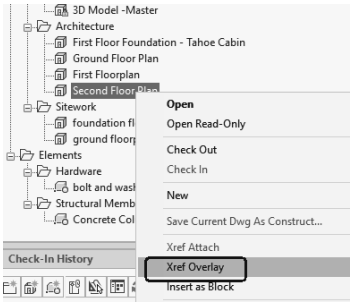
2. 

Set the **Tahoe Cabin** project current.

Close the Project Browser.

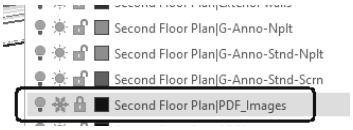
3. 

In the Project Navigator:
Highlight the **3D Model – Master**.
Right click and select **Open**.

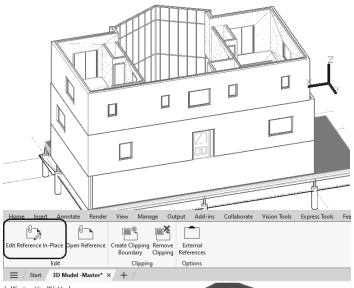
4. 

Locate the **Second Floor Plan** in the Project Navigator.

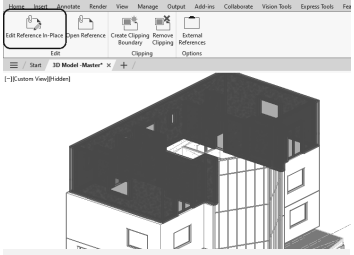
Right click and select **Xref Overlay**.

5. 

Locate the **Second Floor Plan|PDF Image** layer in the layer drop-down list.
Freeze the layer.

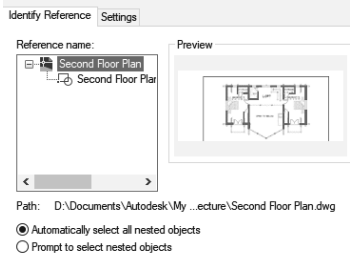
6. 

Use the MOVE tool to adjust the XREF position to align one of the building corner's with the existing model.

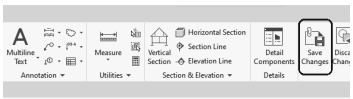
7. 

Select the Second Floor XREF.

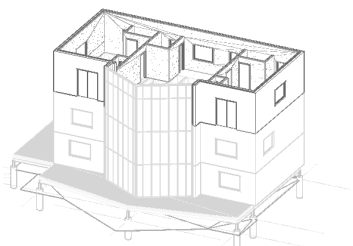
Select **Edit Reference In-Place.**

8. 

Click **OK**.

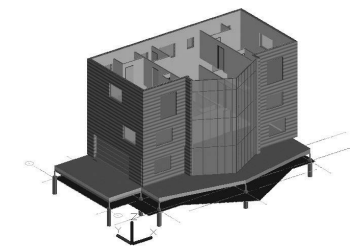
9. 

Adjust the exterior walls so they are aligned with the first level.



Tip: *Use FILLET with Radius 0 to clean up the wall corners.*

When all edits are completed, select **Save Changes** on the ribbon.

10. 

Switch to a **Realistic** display.

Save and close.

Exercise 3-14:
Add an Opening to a Wall

Drawing Name: 01 Core.dwg
Estimated Time: 10 minutes

This exercise reinforces the following skills:

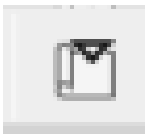
- Add an opening to a wall

1. 

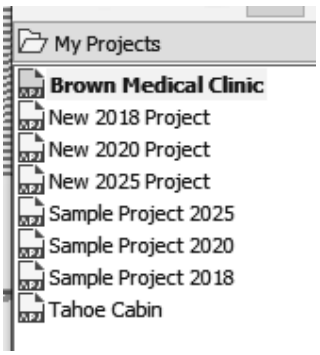
Launch the US Metric version of ACA.

This ensures that all the content will be metric.

You can also use Options→Profiles to switch to the Metric Profile.

2. 

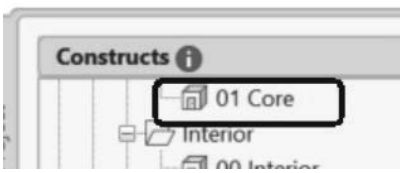
Open the **Project Browser**.

3. 

Set the **Brown Medical Clinic** Current.

The Brown Medical Clinic project was created using a metric project template. Placeholders were automatically generated.

Close the Project Browser.

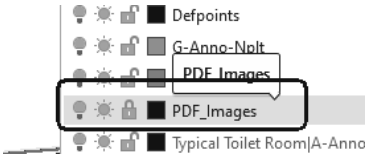
4. 

The Project Navigator should open.

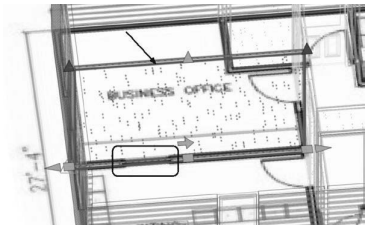
Switch to the Constructs tab.

Highlight **01 Core** under Floor Plans.

Right click and select **Open**.

5. 

Thaw the PDF_Images layer.

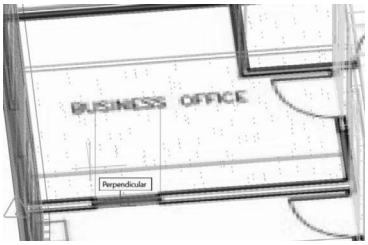
6. 

Switch to an Isometric view.

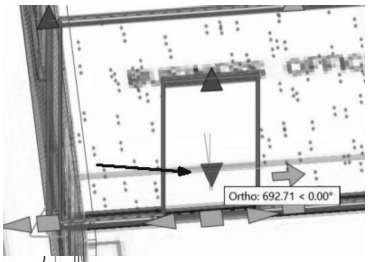
Select the wall located between the business office and the waiting area.

7. 

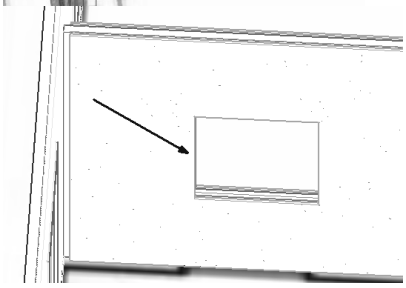
Select **Opening** on the ribbon.

8. 

Place the opening so it aligns with the opening shown in the PDF.

9. 

Click on the bottom arrow grip to raise the height of the opening.

10. 

The opening should be adjusted to look like a window between the rooms.

11. Save and close the drawing.

Notes:

QUIZ 3

True or False

1. When you insert a PDF into a drawing, it cannot be converted to AutoCAD elements, like lines or text.
2. When you insert an image, it cannot be converted to AutoCAD elements, like lines or text.
3. The direction you place walls – clockwise or counter-clockwise – determines which side of the wall is oriented as exterior.
4. Curtain walls can only be linear, not arcs, in AutoCAD Architecture.
5. Grids can only be lines, not arcs, in AutoCAD Architecture.
6. To re-orient a door, use the Rotate command.
7. You can set cut planes for individual objects (such as windows), an object style (such as walls) or as the system default.

Multiple Choice

8. To change the hatch display of wall components in a wall style:

   A. Modify the wall style
   B. Change the visual style
   C. Change the display style
   D. Switch to a plan\top view

9. This tool on the status bar:

   A. Sets the elevation of the active level
   B. Controls the default cut plane of the view and the display range
   C. Sets the distance between levels
   D. Sets the elevation of the active plane

10. To assign a material to a door:

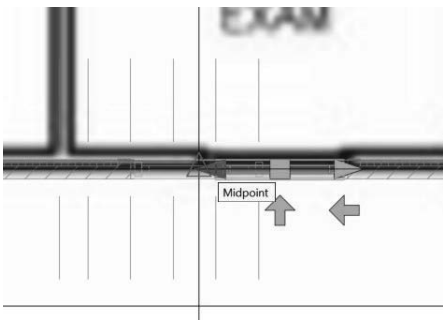
    A. Modify the door component by editing the door style
    B. Drag and drop the material from the Material Browser onto a door
    C. Use the Display Manager
    D. Define a new Visual Style

11. You want to create a wall that shows a specific paint color. Put the steps in the correct order.

    A. Place a wall.
    B. Open the Styles Manager.
    C. Import the desired material into the current drawing.
    D. Use the Materials Browser to locate a similar material.
    E. Duplicate the Material and redefine it with the correct color specification.
    F. Create a new wall style.
    G. Assign the desired material to a wall component.
    H. Set the Render material for the wall component to the desired material definition.

12. You want to place a door style that is not available on the Design Tools palette. You open the Design Tool Catalog and search for the desired door style. You locate the desired door style. Now what?

    A. Select the Door tool on the Home ribbon and use the Properties palette to select the desired door style.
    B. Add the Door Style from the Design Tool Catalog to the Design Tools palette.
    C. Right click on the desired door style in the catalog and select Insert into Drawing.
    D. Right click on the desired door style in the catalog and select Add to Styles Manager.



13. You select on a window that was placed in the model. The arrows can be used to:

    A. Change the window location/position.
    B. Change the window orientation.
    C. Change the window size.
    D. Change the window opening.

ANSWERS:

1) F; 2) T; 3) T; 4) F; 5) F; 6) F; 7) T; 8) A; 9) B; 10) A; 11) D, E, C, B, F, G, H, A; 12) C; 13) B