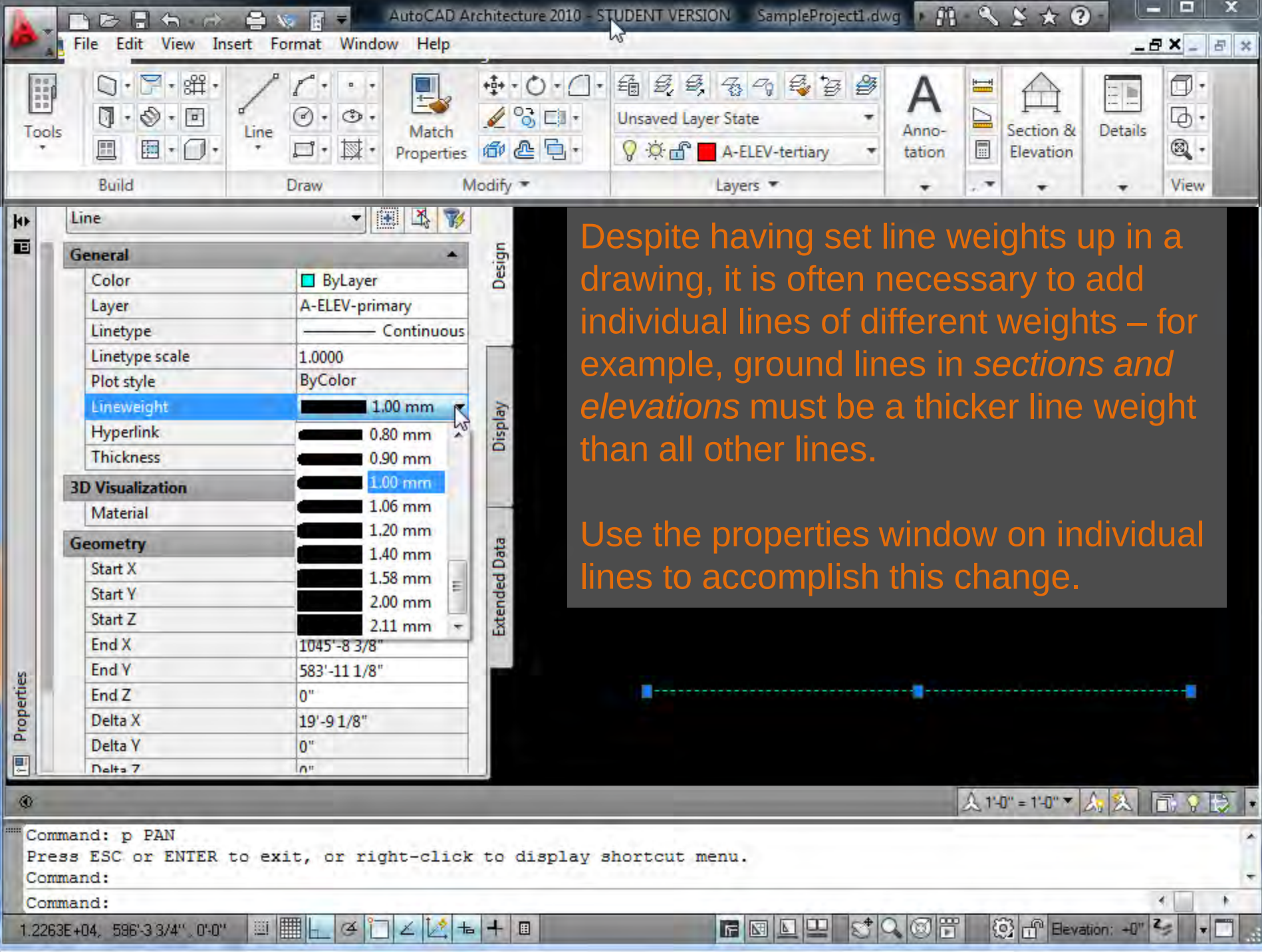
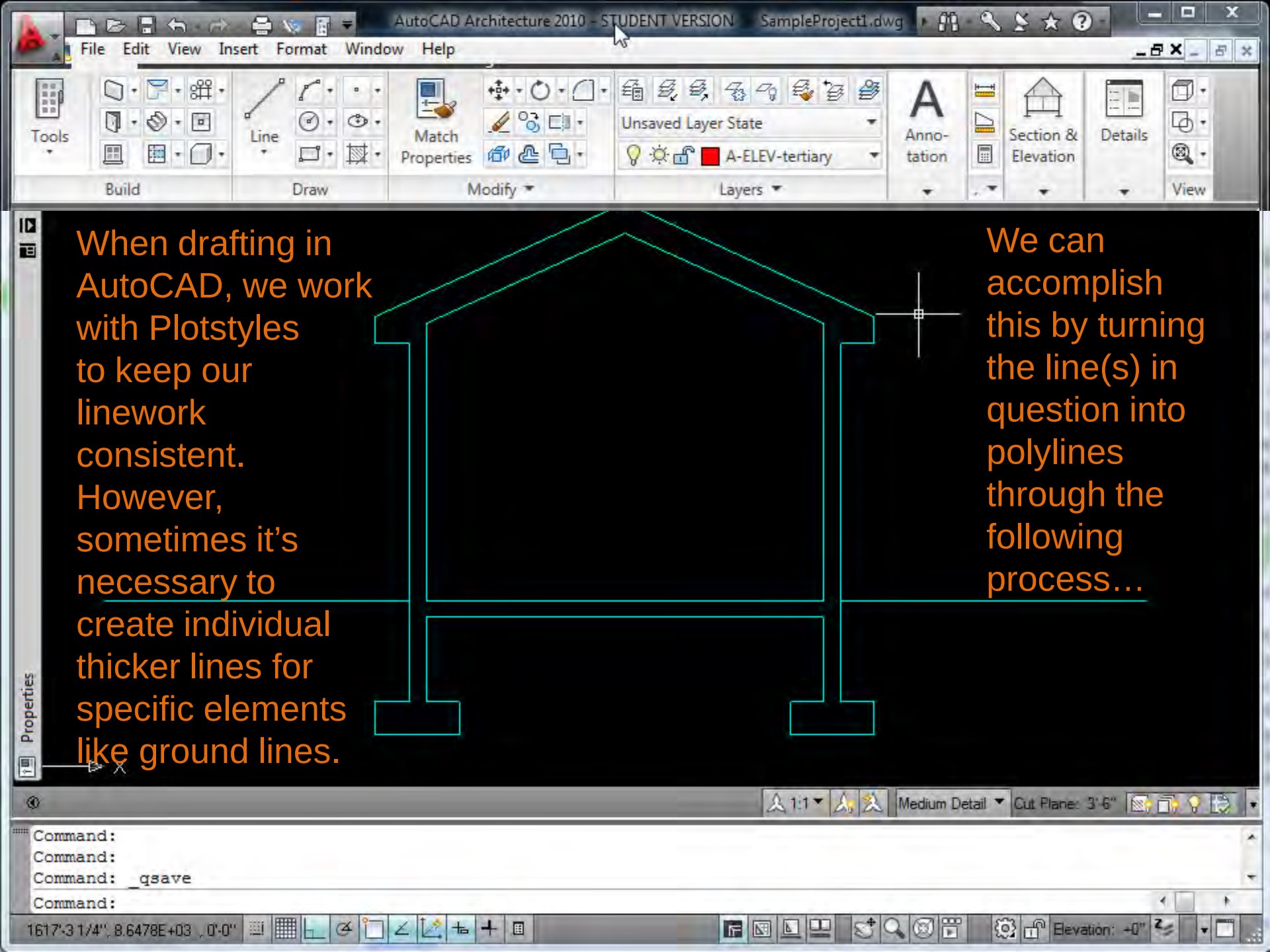
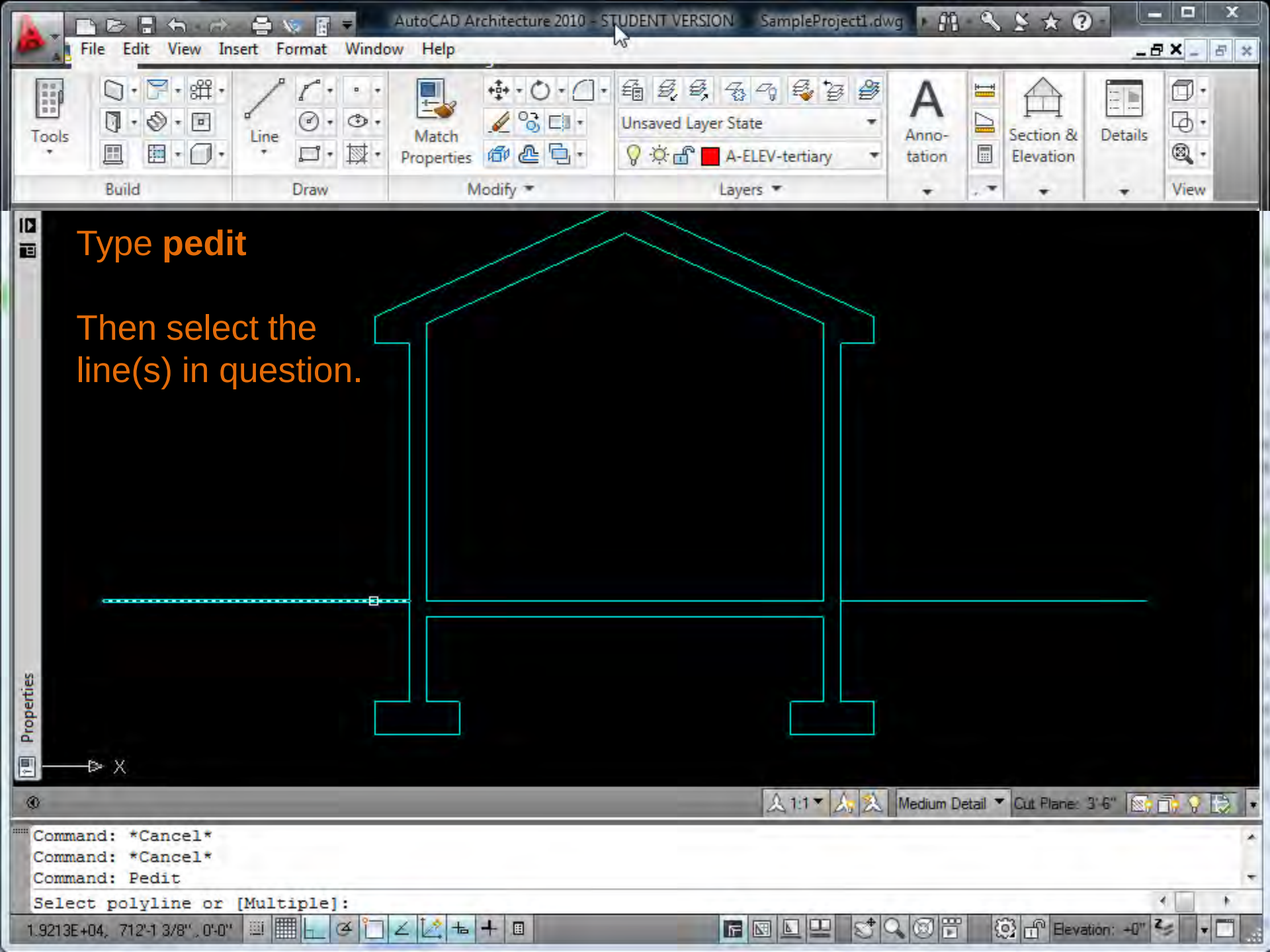
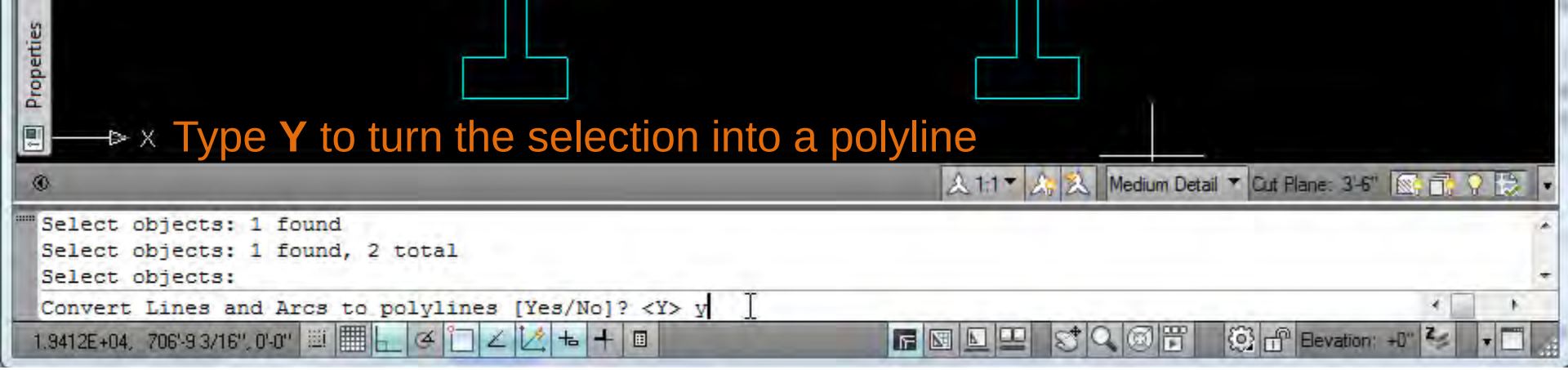
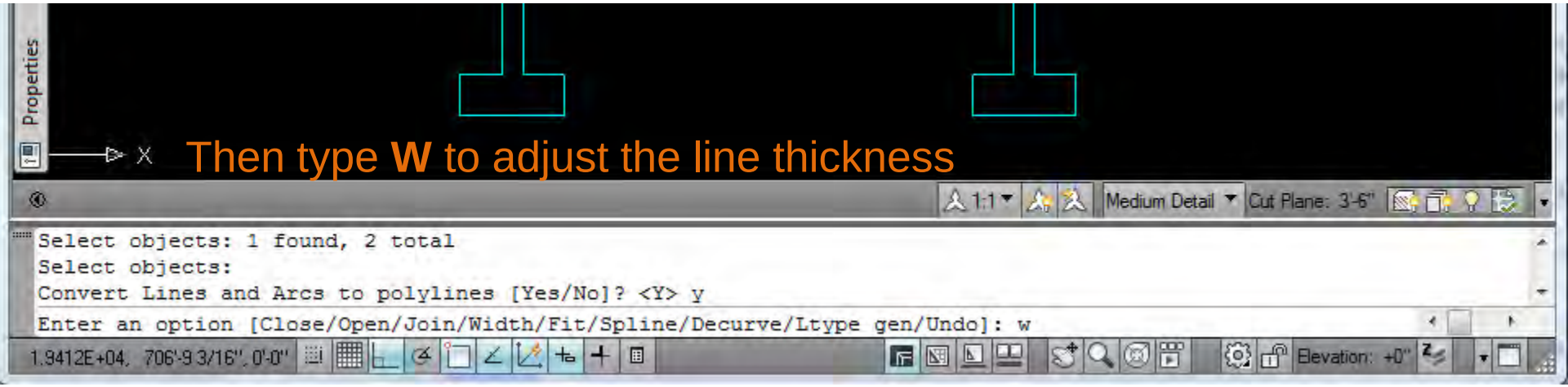
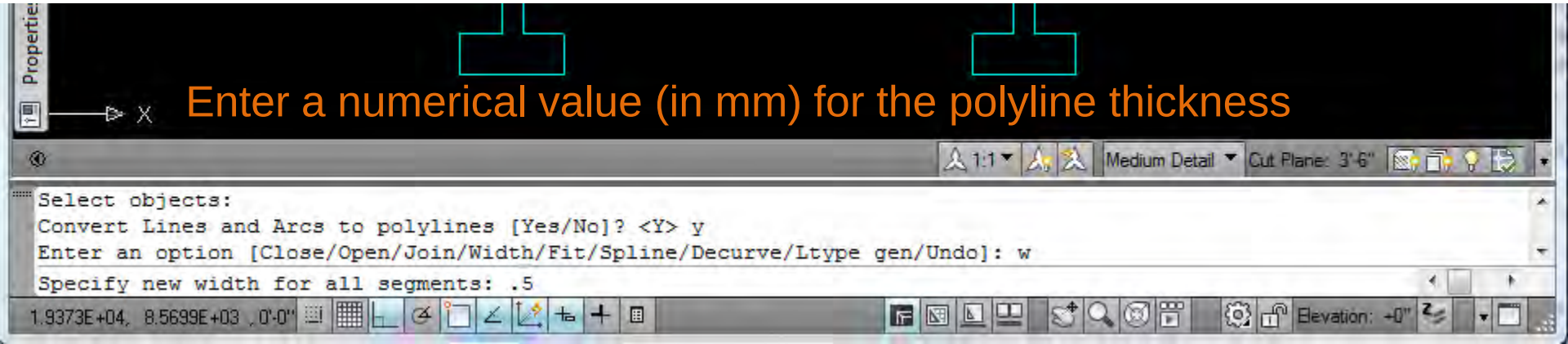

AutoCAD Architecture 2010 - STUDENT VERSION
SampleProject1.dwg
File Edit View Insert Format Window Help
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-tertiary
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
Line
General
Color ByLayer
Layer A-ELEV-primary
Linetype Continuous
Linetype scale 1.0000
Plot style ByColor
Lineweight 1.00 mm
Hyperlink
Thickness
3D Visualization
Material
Geometry
Start X
Start Y
Start Z
End X 1045'-8 3/8"
End Y 583'-11 1/8"
End Z 0"
Delta X 19'-9 1/8"
Delta Y 0"
Delta Z 0"
0.80 mm
0.90 mm
1.00 mm
1.06 mm
1.20 mm
1.40 mm
1.58 mm
2.00 mm
2.11 mm
Design
Display
Extended Data
Properties
Despite having set line weights up in a drawing, it is often necessary to add individual lines of different weights – for example, ground lines in *sections and elevations* must be a thicker line weight than all other lines.
Use the properties window on individual lines to accomplish this change.
1'-0" = 1'-0"
Command: p PAN
Press ESC or ENTER to exit, or right-click to display shortcut menu.
Command:
Command:
1.2263E+04, 596'-3 3/4", 0'-0"
Elevation: -0"

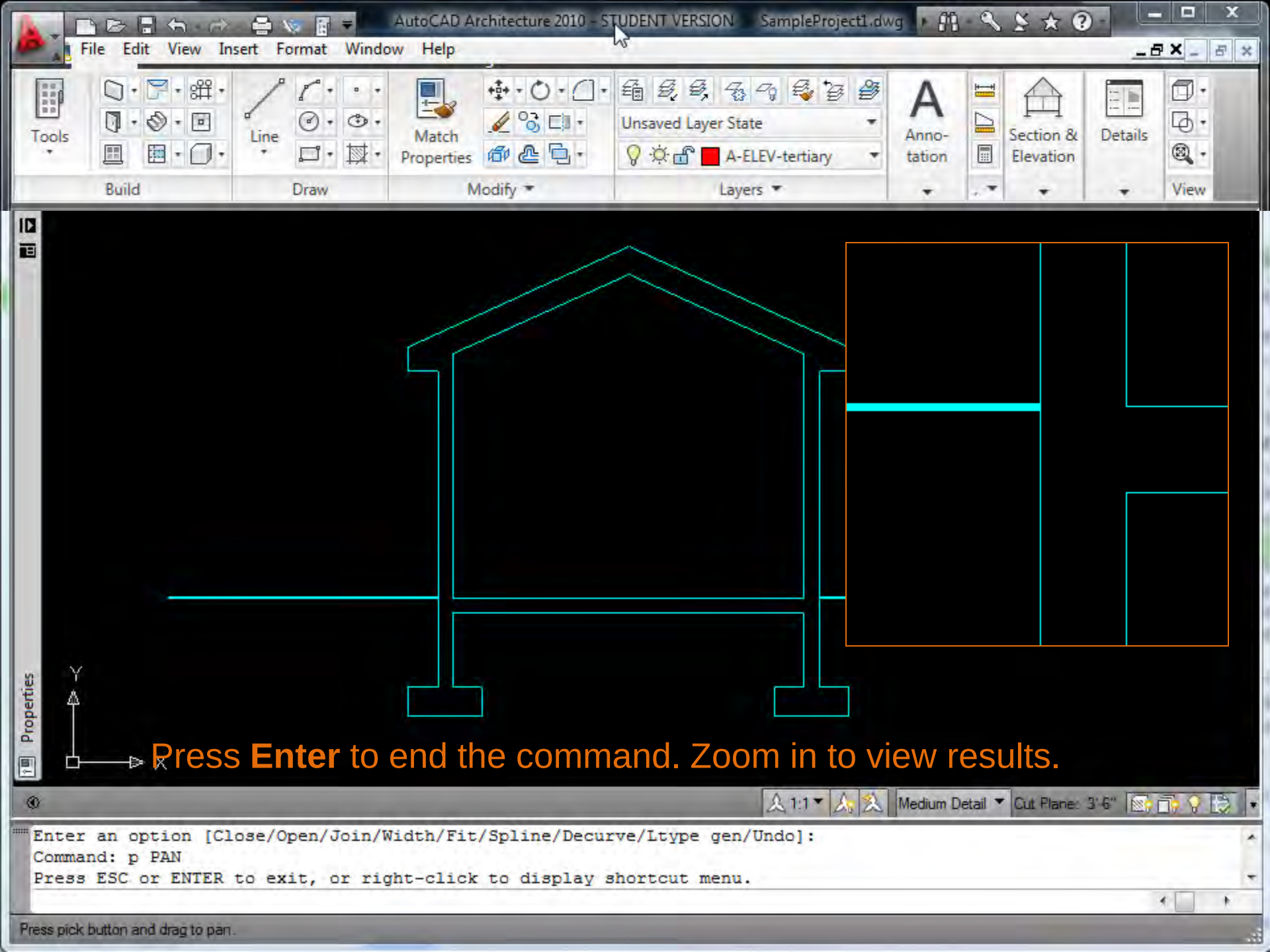

AutoCAD Architecture 2010 - STUDENT VERSION
SampleProject1.dwg
File Edit View Insert Format Window Help
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-tertiary
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
When drafting in AutoCAD, we work with Plotstyles to keep our linework consistent. However, sometimes it's necessary to create individual thicker lines for specific elements like ground lines.
We can accomplish this by turning the line(s) in question into polylines through the following process…
Properties
1:1
Medium Detail
Cut Plane: 3'-6"
Command:
Command:
Command: _qsave
Command:
1617'-3 1/4", 8.6478E+03 , 0'-0"
Elevation: -0"

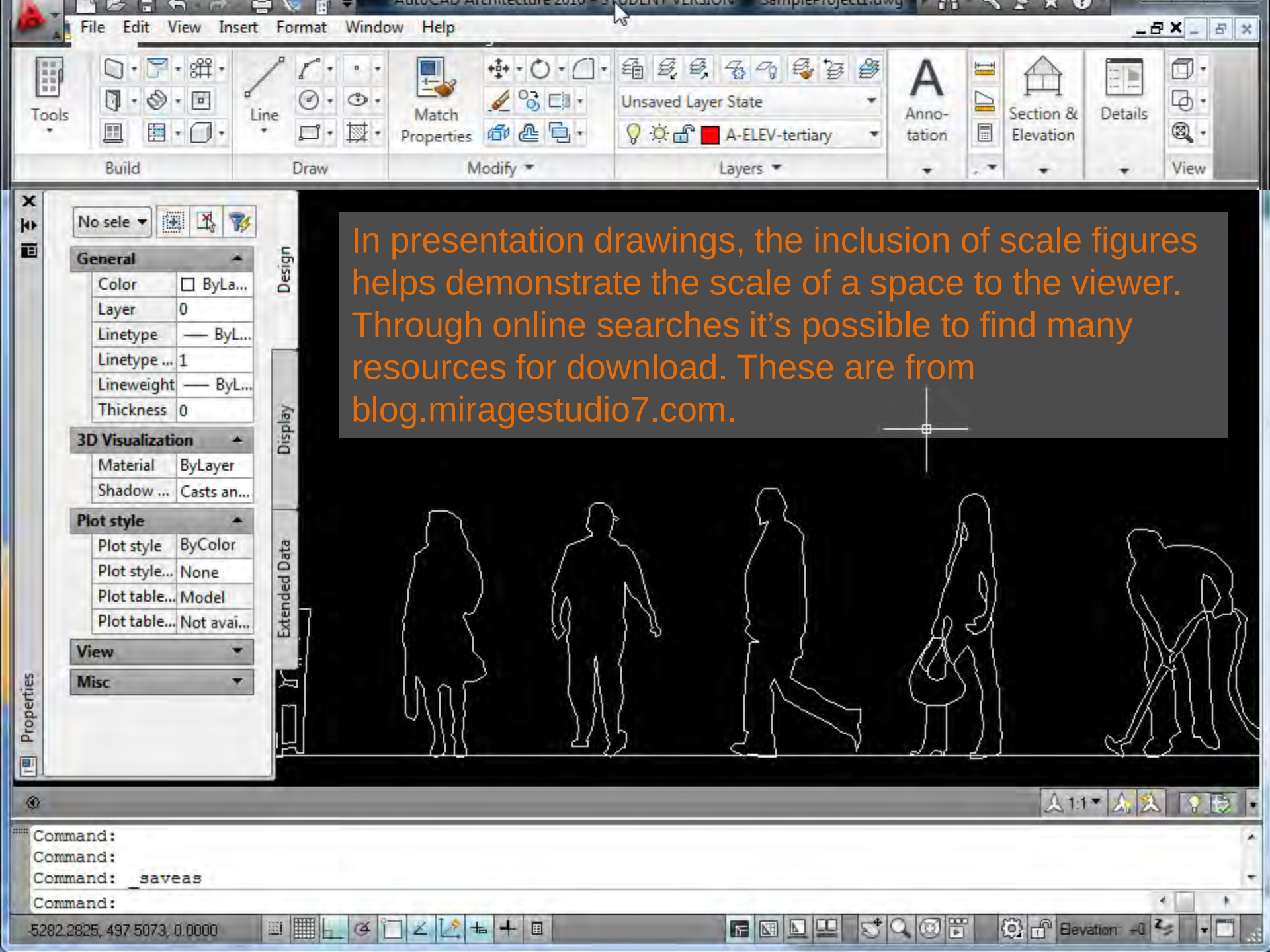

AutoCAD Architecture 2010 - STUDENT VERSION
SampleProject1.dwg
File Edit View Insert Format Window Help
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-tertiary
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
Type pedit
Then select the line(s) in question.
Properties
X
1:1
Medium Detail
Cut Plane: 3'-6"
Command: *Cancel*
Command: *Cancel*
Command: Pedit
Select polyline or [Multiple]:
1.9213E+04, 712'-1 3/8", 0'-0"
Elevation: -0"


Properties
Type Y to turn the selection into a polyline
1:1
Medium Detail
Cut Plane: 3'-6"
Select objects: 1 found
Select objects: 1 found, 2 total
Select objects:
Convert Lines and Arcs to polylines [Yes/No]? <Y> y
1.9412E+04, 706'-9 3/16", 0'-0"
Elevation: +0"

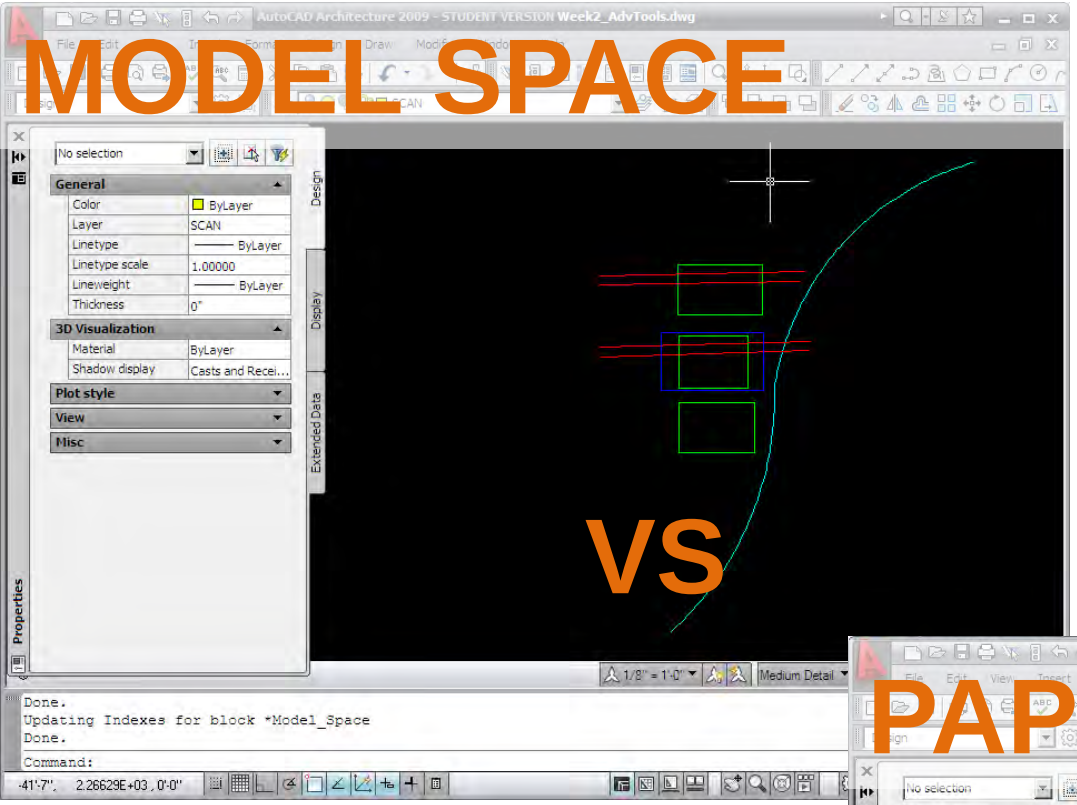

Properties
Then type W to adjust the line thickness
1:1
Medium Detail
Cut Plane: 3'-6"
Select objects: 1 found, 2 total
Select objects:
Convert Lines and Arcs to polylines [Yes/No]? <Y> y
Enter an option [Close/Open/Join/Width/Fit/Spline/Decurve/Ltype gen/Undo]: w
1.9412E+04, 706'-9 3/16", 0'-0"
Elevation: +0"


Enter a numerical value (in mm) for the polyline thickness
1:1
Medium Detail
Cut Plane: 3'-6"
Select objects:
Convert Lines and Arcs to polylines [Yes/No]? <Y> y
Enter an option [Close/Open/Join/Width/Fit/Spline/Decurve/Ltype gen/Undo]: w
Specify new width for all segments: .5
1.9373E+04, 8.5699E+03, 0'-0"
Elevation: +0"


AutoCAD Architecture 2010 - STUDENT VERSION
SampleProject1.dwg
File Edit View Insert Format Window Help
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-tertiary
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
Properties
Y
X
Press Enter to end the command. Zoom in to view results.
1:1
Medium Detail
Cut Plane: 3'-6"
Enter an option [Close/Open/Join/Width/Fit/Spline/Decurve/Ltype gen/Undo]:
Command: p PAN
Press ESC or ENTER to exit, or right-click to display shortcut menu.
Press pick button and drag to pan.

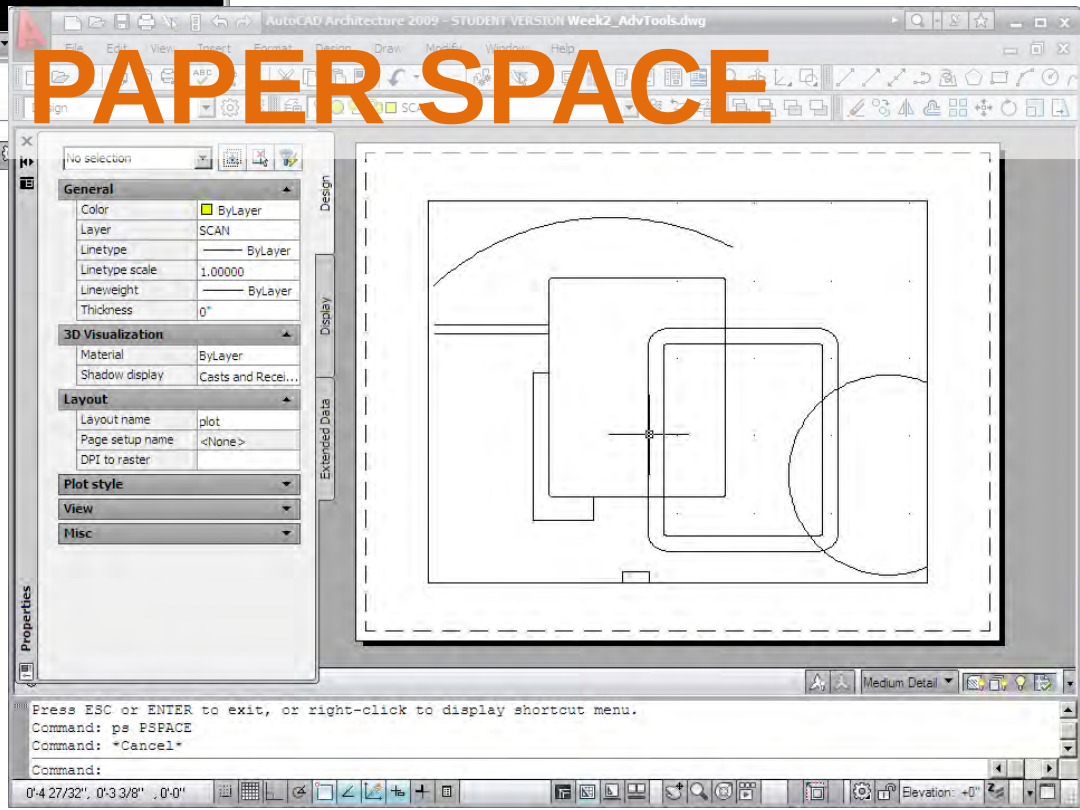

File Edit View Insert Format Window Help
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-tertiary
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
No sele
General
Color ByLa...
Layer 0
Linetype ByL...
Linetype ... 1
Lineweight ByL...
Thickness 0
3D Visualization
Material ByLayer
Shadow ... Casts an...
Plot style
Plot style ByColor
Plot style... None
Plot table... Model
Plot table... Not avai...
View
Misc
Design
Display
Extended Data
Properties
In presentation drawings, the inclusion of scale figures helps demonstrate the scale of a space to the viewer. Through online searches it's possible to find many resources for download. These are from blog.miragestudio7.com.
Command:
Command:
Command: _saveas
Command:
-5282.2825, 497.5073, 0.0000
Elevation: 0

MODEL SPACE



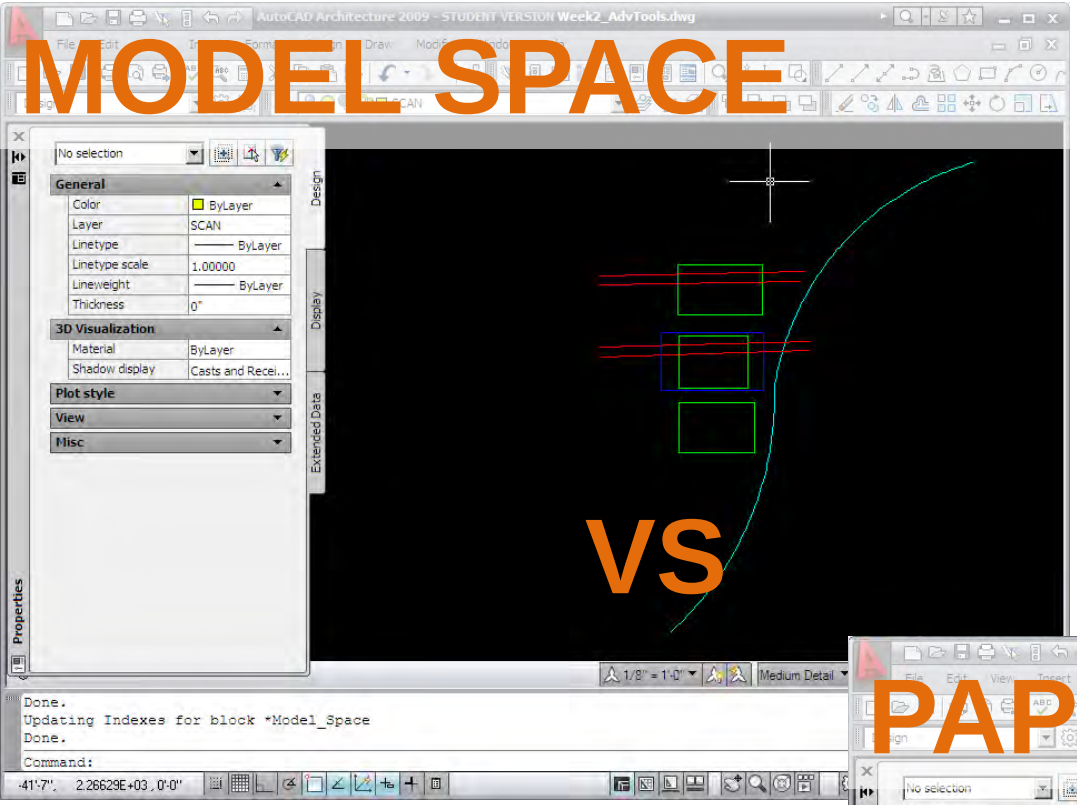
The *annotation* of all drawings is to be completed in **Paper Space.**

PAPER SPACE



Why?

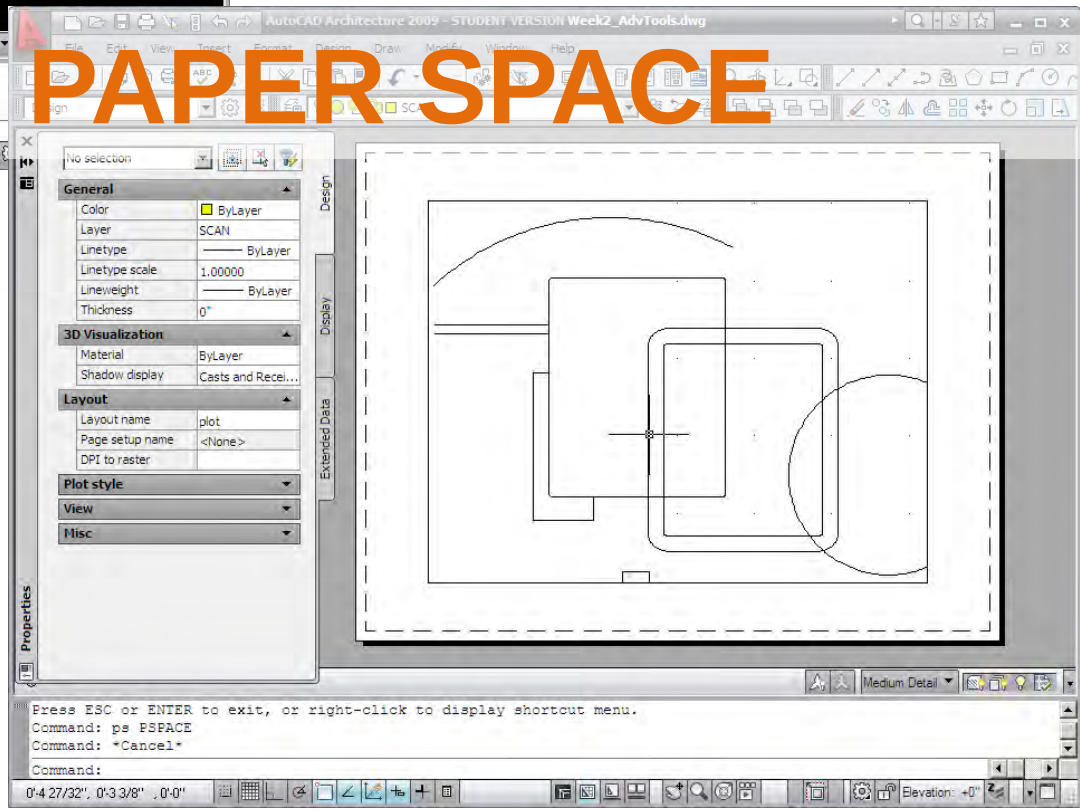
MODEL SPACE



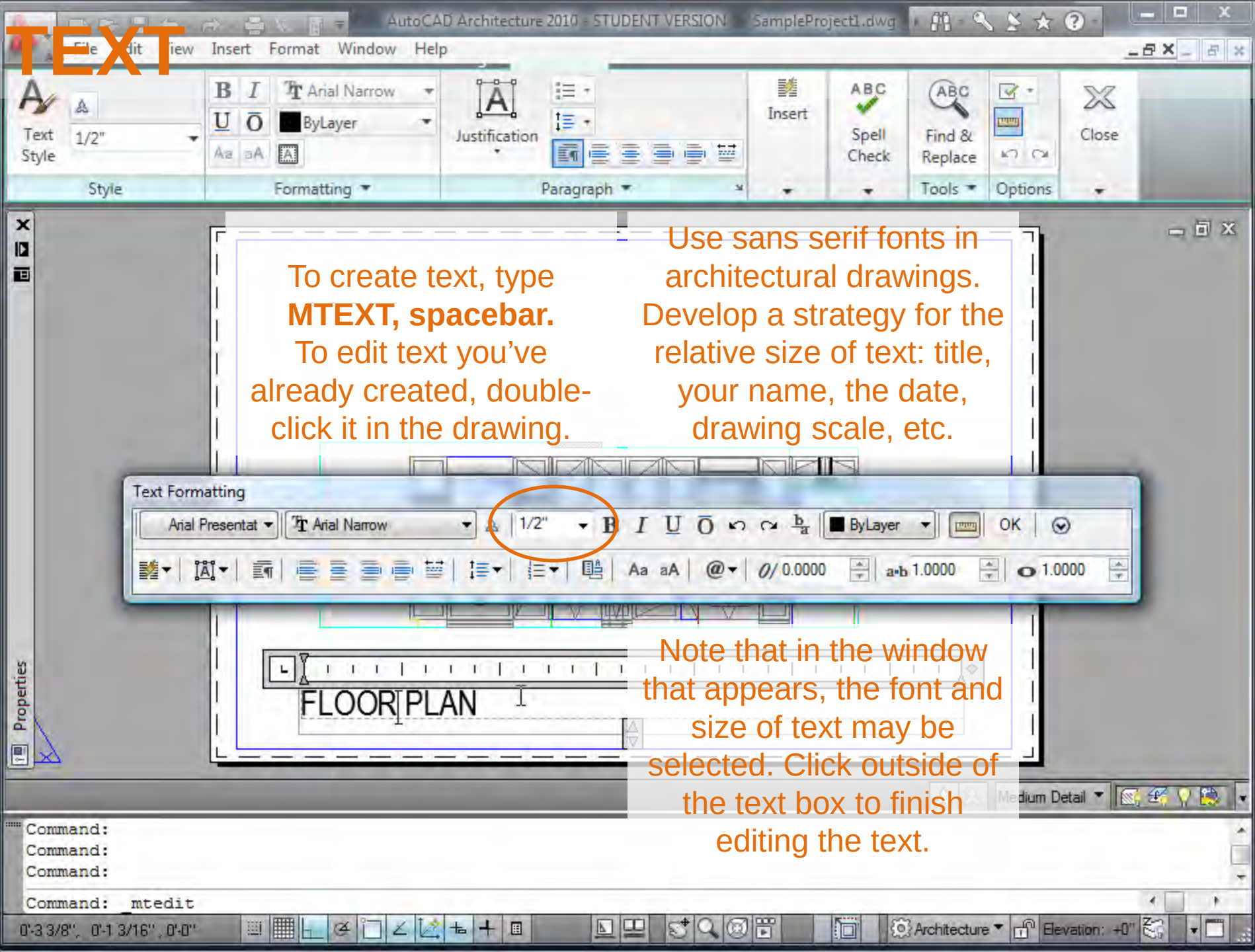
In **Model Space**, everything is drawn at 1:1 (full) scale.

However, we need to be able to plot drawings at a wide range of scales while maintaining a consistent appearance of line weights, text, symbols and other drawing elements.

PAPER SPACE



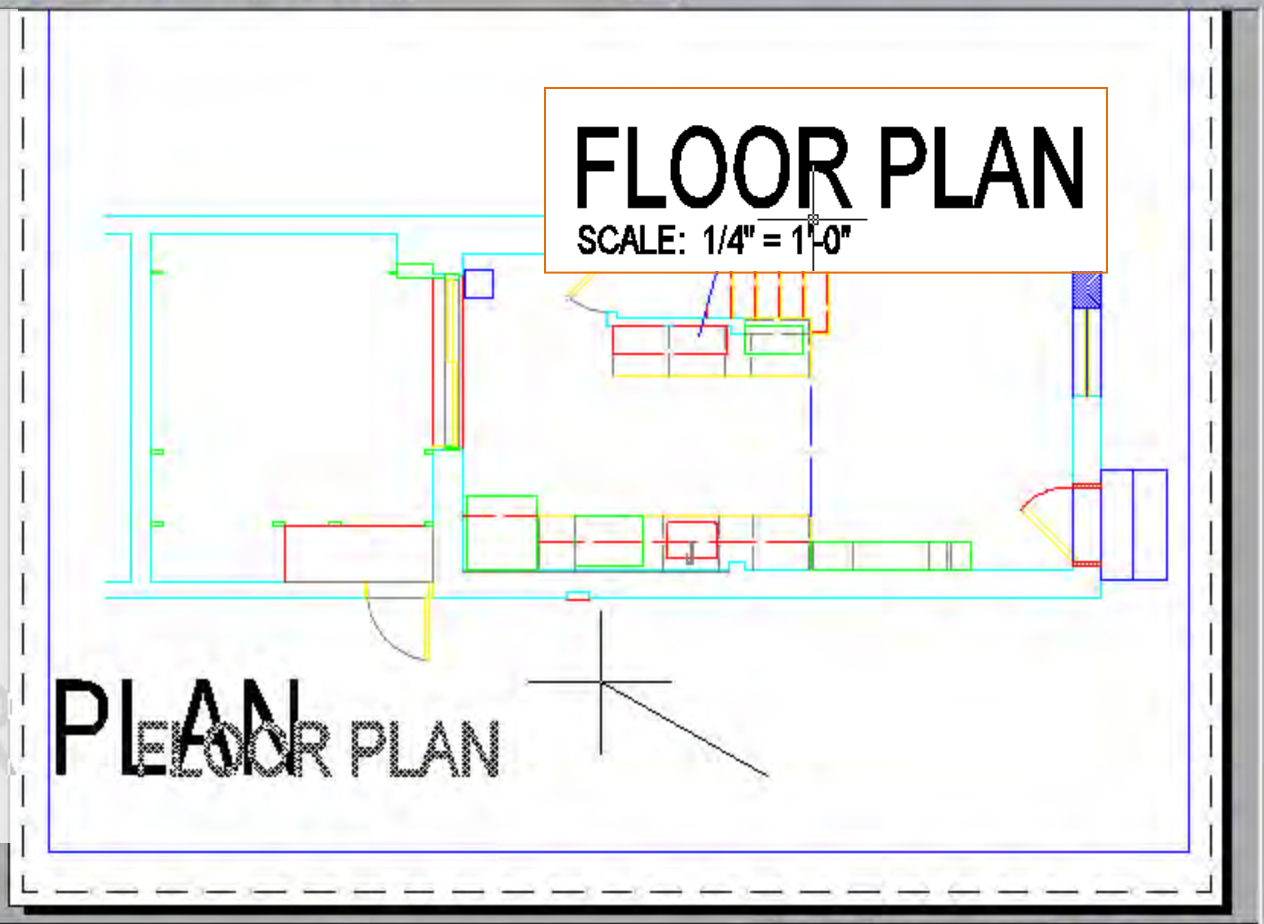
TEXT

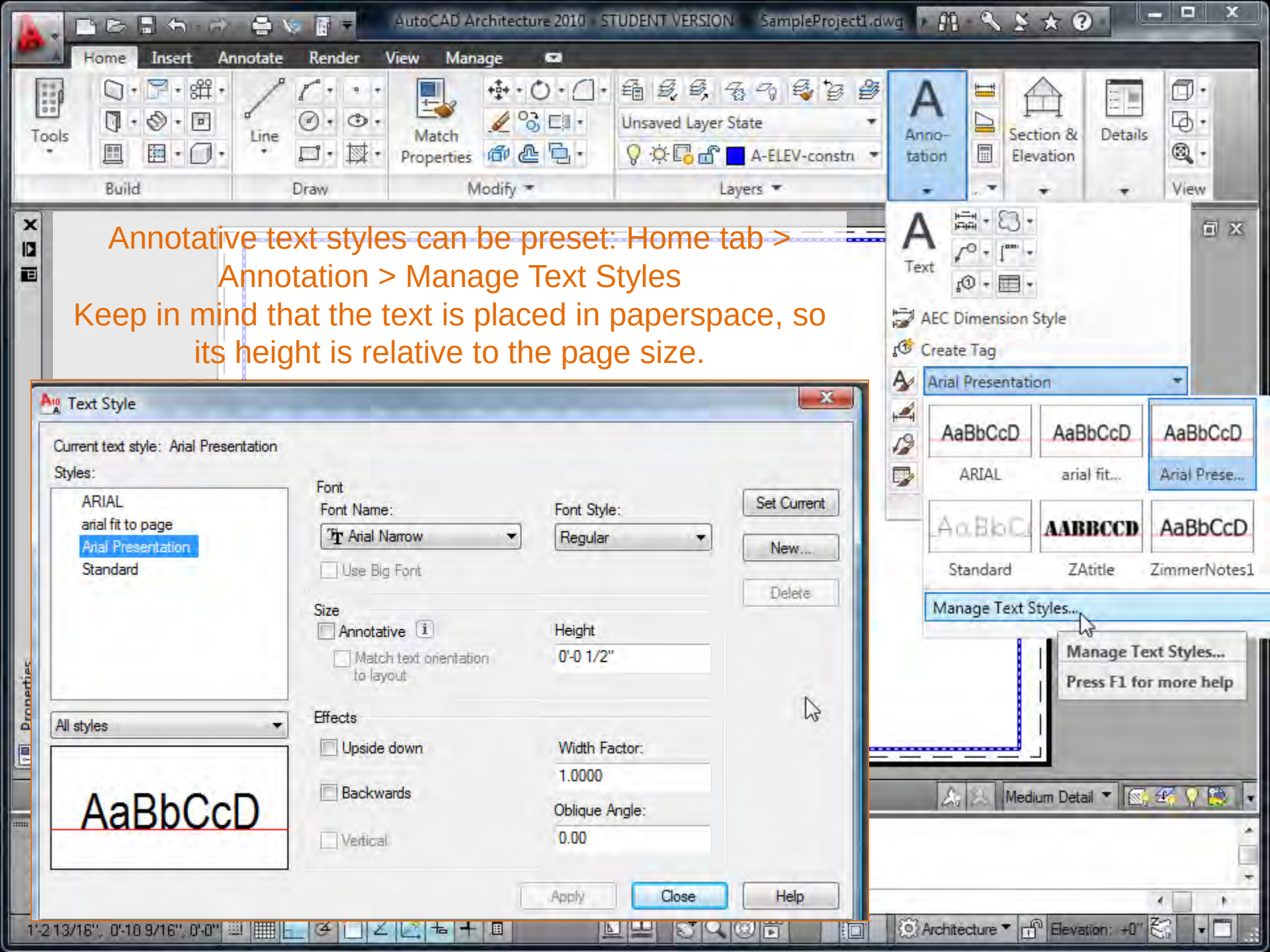

AutoCAD Architecture 2010 - STUDENT VERSION SampleProject1.dwg
File Edit View Insert Format Window Help
Text Style
1/2"
Arial Narrow
ByLayer
Justification
Insert
Spell Check
Find & Replace
Close
Style
Formatting
Paragraph
Tools
Options
To create text, type **MTEXT, spacebar.** To edit text you've already created, double-click it in the drawing.
Use sans serif fonts in architectural drawings. Develop a strategy for the relative size of text: title, your name, the date, drawing scale, etc.
Text Formatting
Arial Presentat
Arial Narrow
1/2"
ByLayer
OK
0.0000
1.0000
1.0000
FLOOR PLAN
Note that in the window that appears, the font and size of text may be selected. Click outside of the text box to finish editing the text.
Properties
Command:
Command:
Command:
Command: _mtedit
Architecture
Elevation: +0"

SCALE

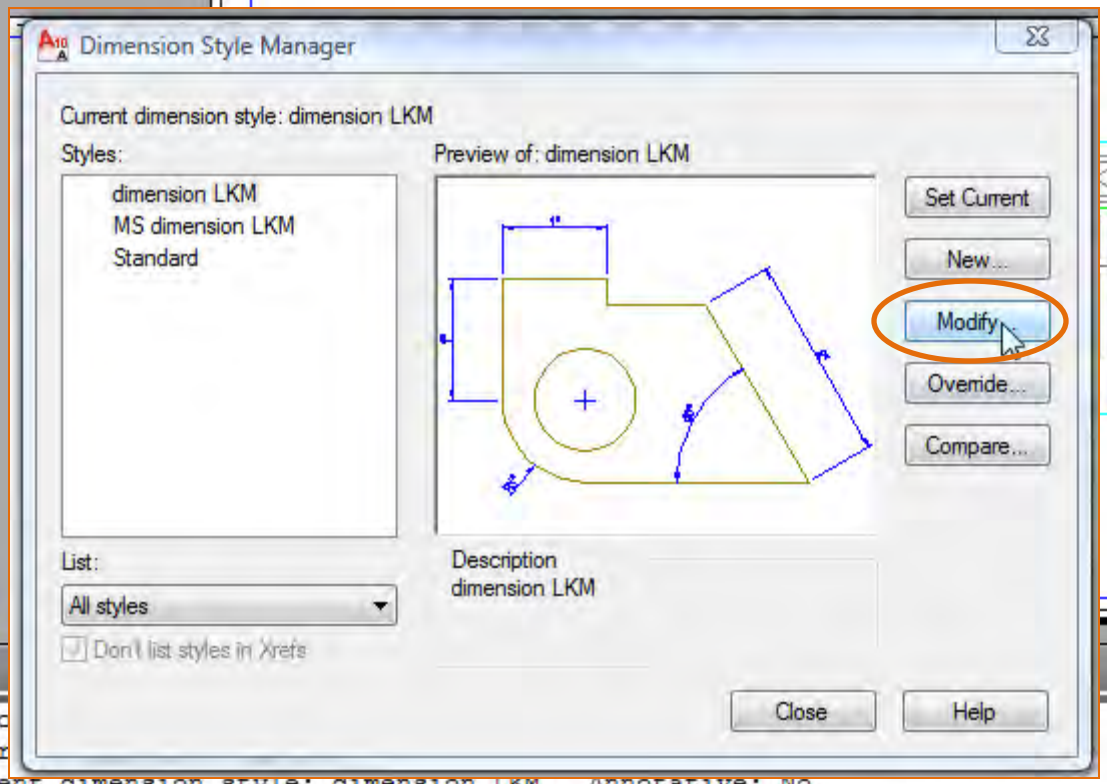
Relative text size is important – major titles should be largest while drawing scale, your name and the date should be smaller text sizes.

Type **SC** to change the scale of an object in Model or Paper Space. After selecting the object, you'll be able to enter a scale factor to precisely resize objects.



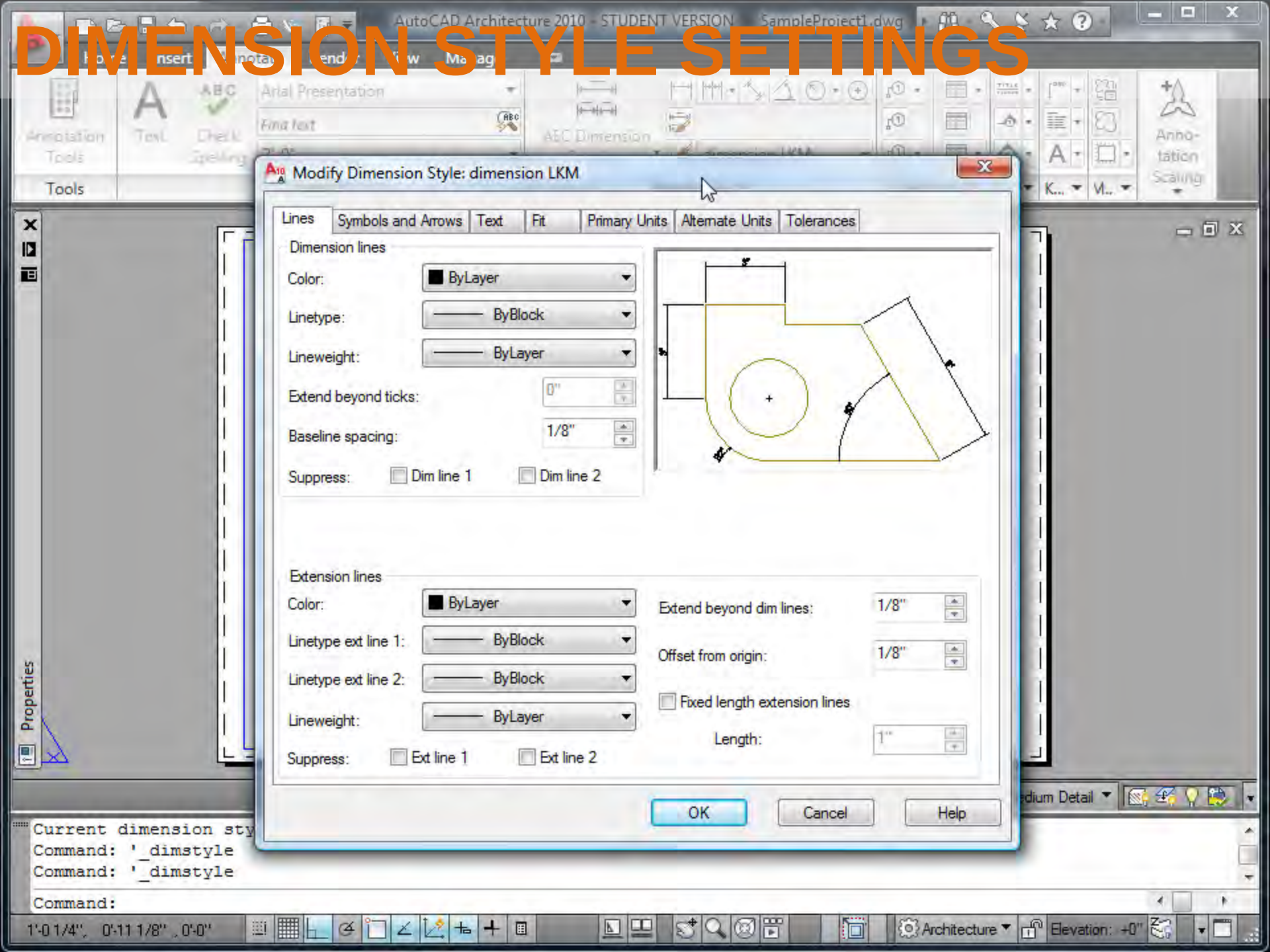

AutoCAD Architecture 2010 - STUDENT VERSION SampleProject1.dwg
Home Insert Annotate Render View Manage
Tools
Line
Match Properties
Unsaved Layer State
A-ELEV-constr
Anno-tation
Section & Elevation
Details
Build
Draw
Modify
Layers
View
Annotative text styles can be preset: Home tab > Annotation > Manage Text Styles
Keep in mind that the text is placed in paperspace, so its height is relative to the page size.
Text
AEC Dimension Style
Create Tag
Arial Presentation
AaBbCcD
ARIAL
arial fit...
Arial Prese...
Standard
ZAtitle
ZimmerNotes1
Manage Text Styles...
Manage Text Styles...
Press F1 for more help
Text Style
Current text style: Arial Presentation
Styles:
ARIAL
arial fit to page
Arial Presentation
Standard
All styles
AaBbCcD
Font
Font Name:
Arial Narrow
Font Style:
Regular
Use Big Font
Set Current
New...
Delete
Size
Annotative
Match text orientation to layout
Height
0'-0 1/2"
Effects
Upside down
Backwards
Vertical
Width Factor:
1.0000
Oblique Angle:
0.00
Apply
Close
Help
Medium Detail
Architecture
Elevation: +0"
1'-2 13/16", 0'-10 9/16", 0'-0"

Dimensions also must be added to your drawings. To adjust these settings, go to the Annotate tab > Dimensions > Dimension Style to make adjustments.

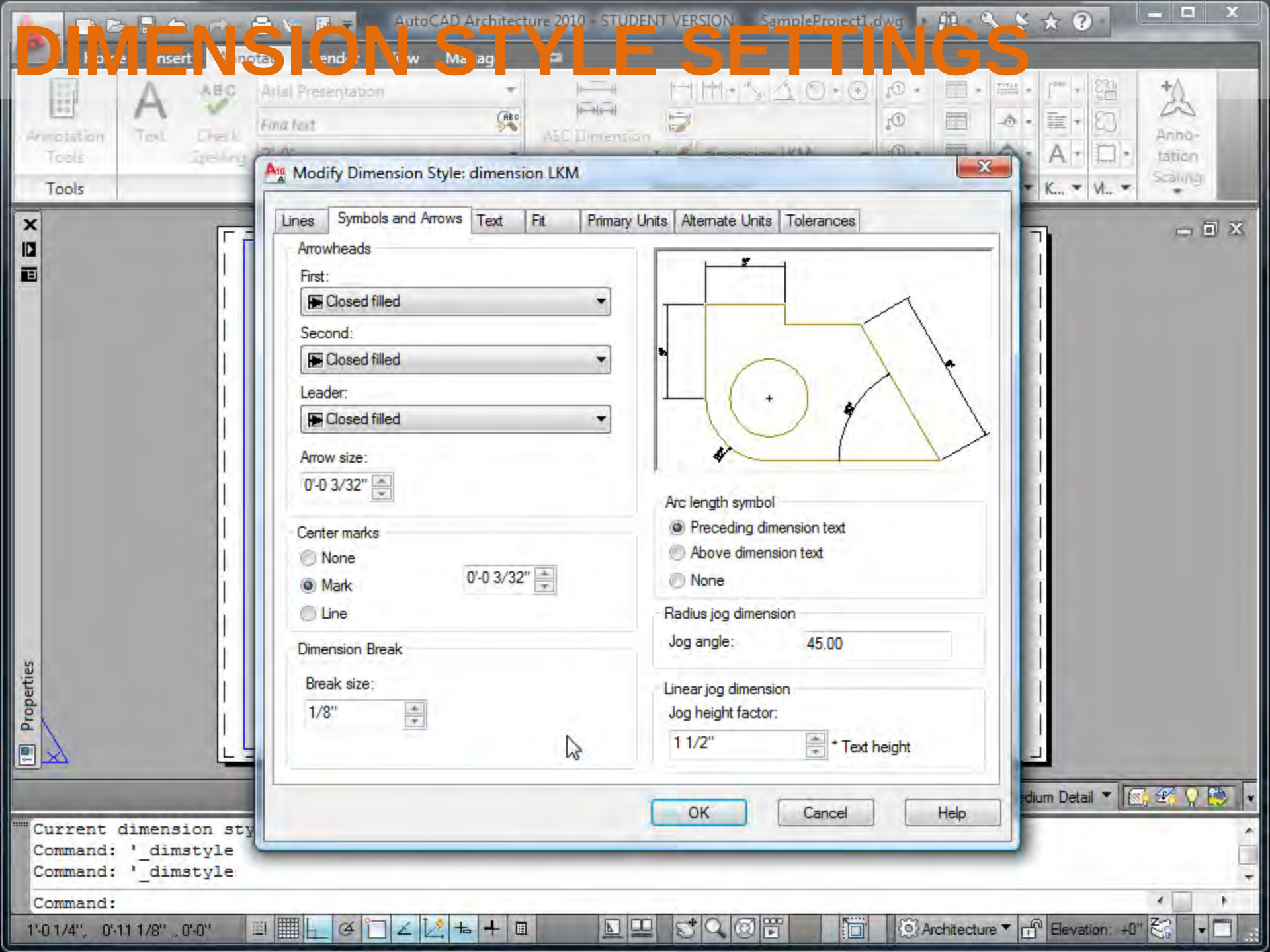


Select New or Modify (if you are using the Sample Project file).

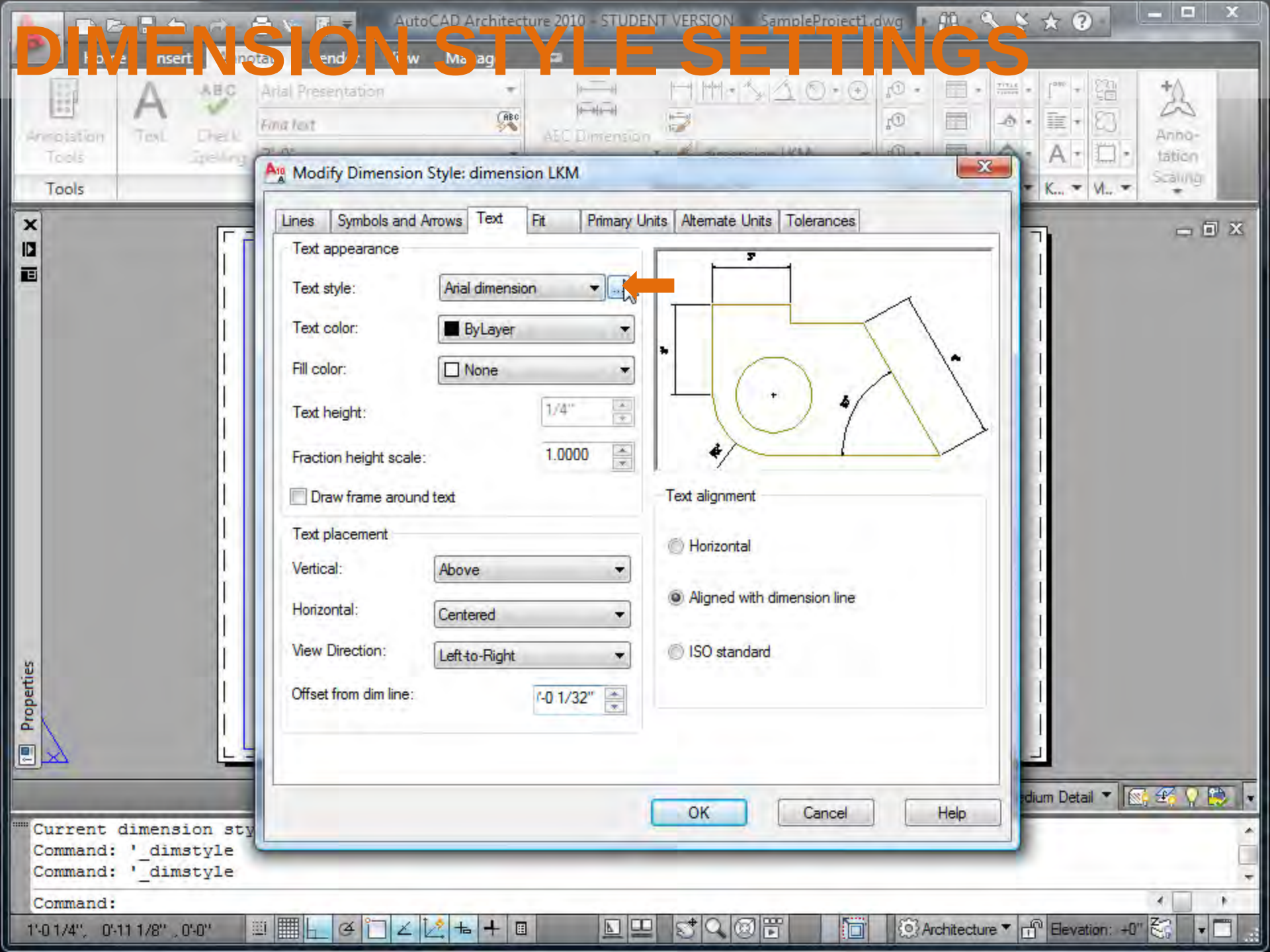
DIMENSION STYLE SETTINGS



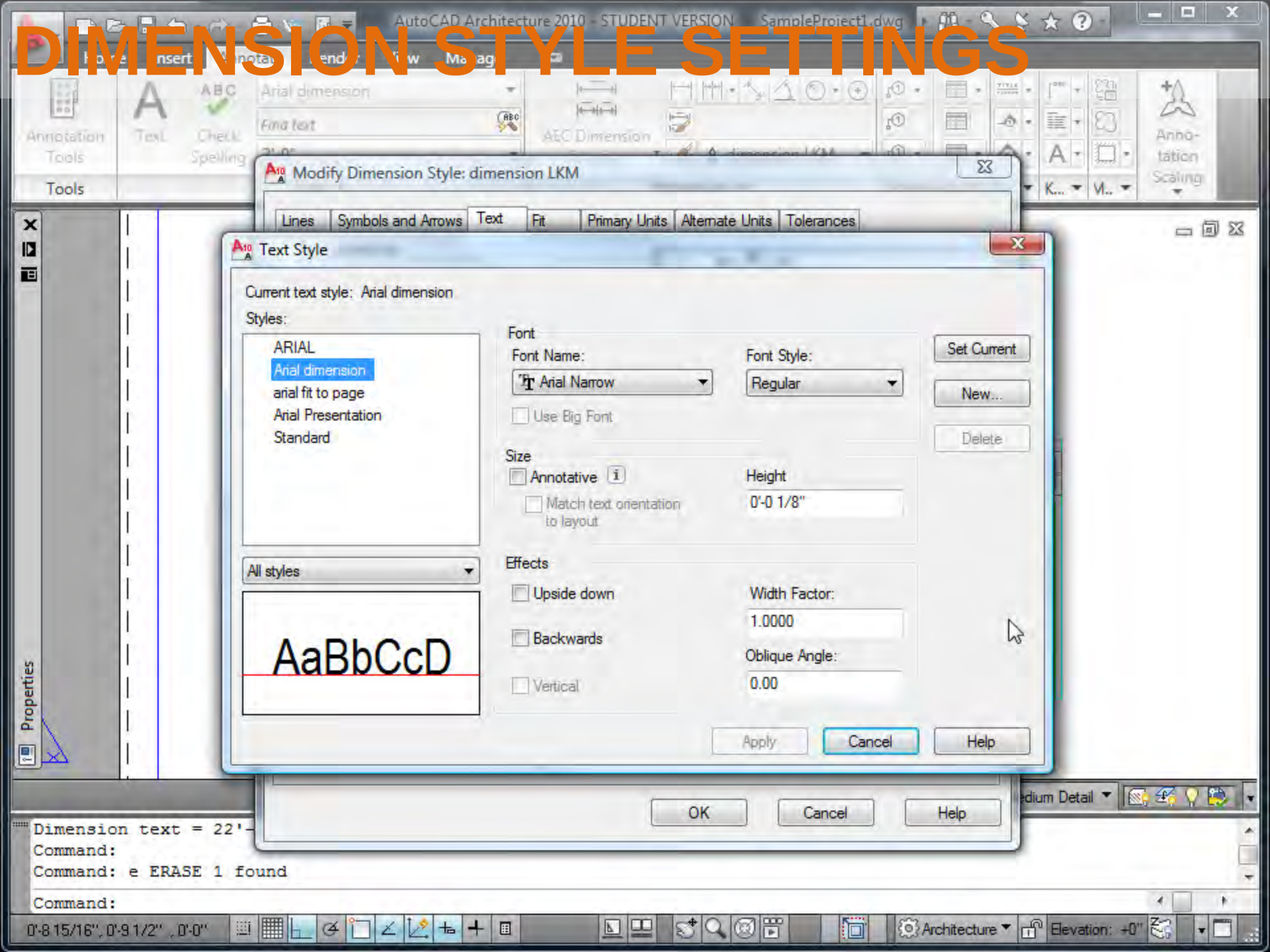
DIMENSION STYLE SETTINGS



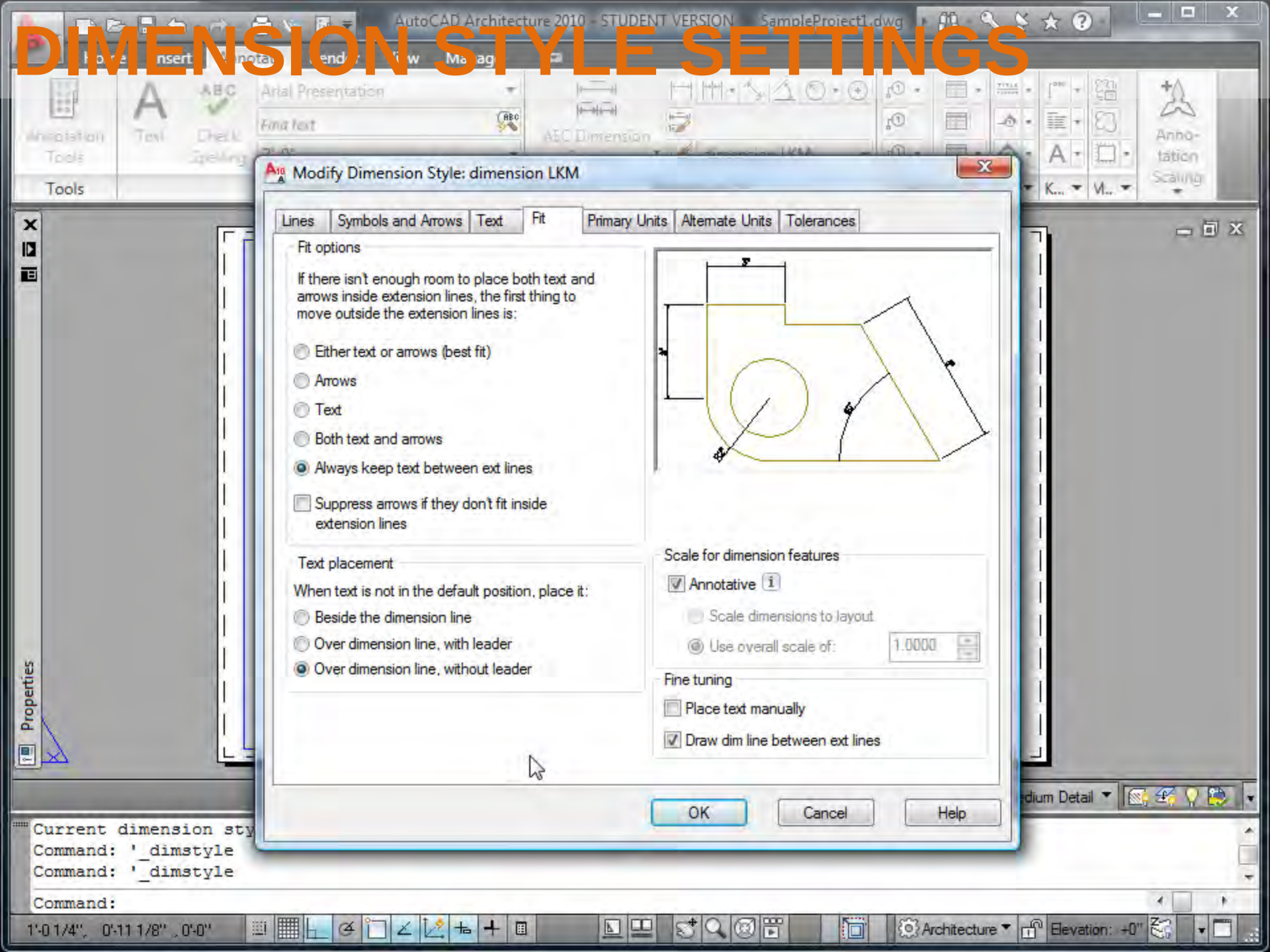
DIMENSION STYLE SETTINGS



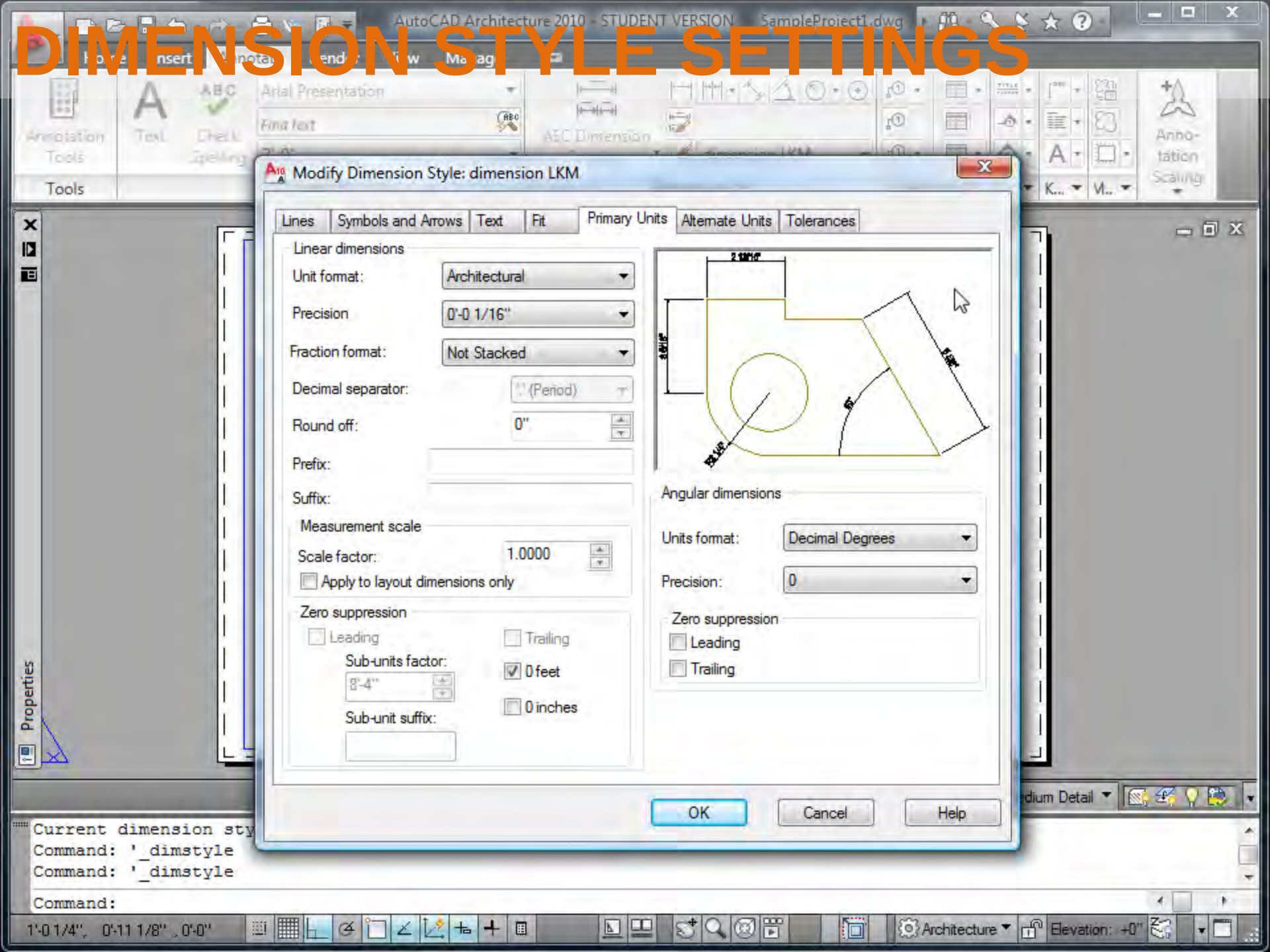
DIMENSION STYLE SETTINGS



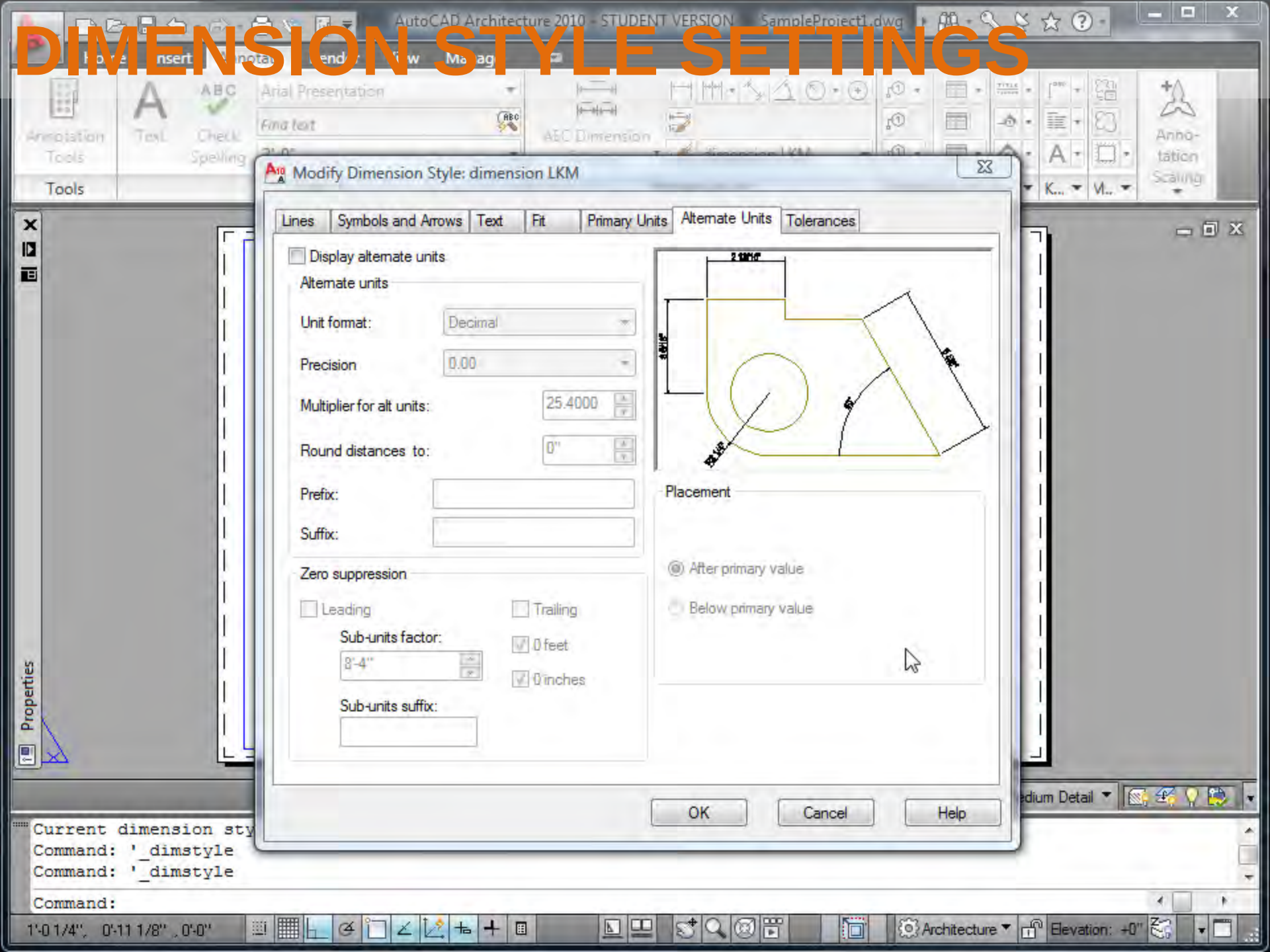
DIMENSION STYLE SETTINGS



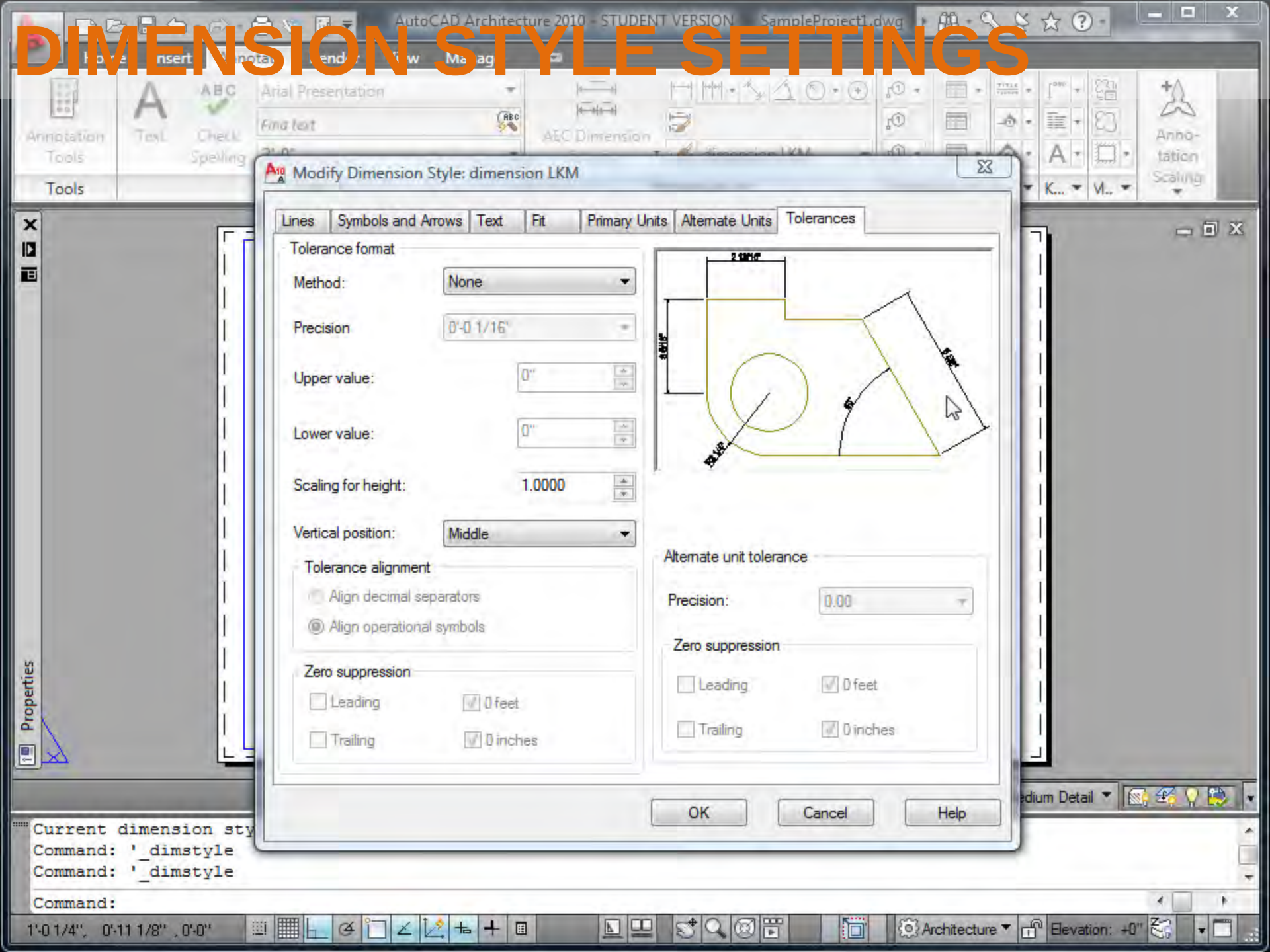
DIMENSION STYLE SETTINGS



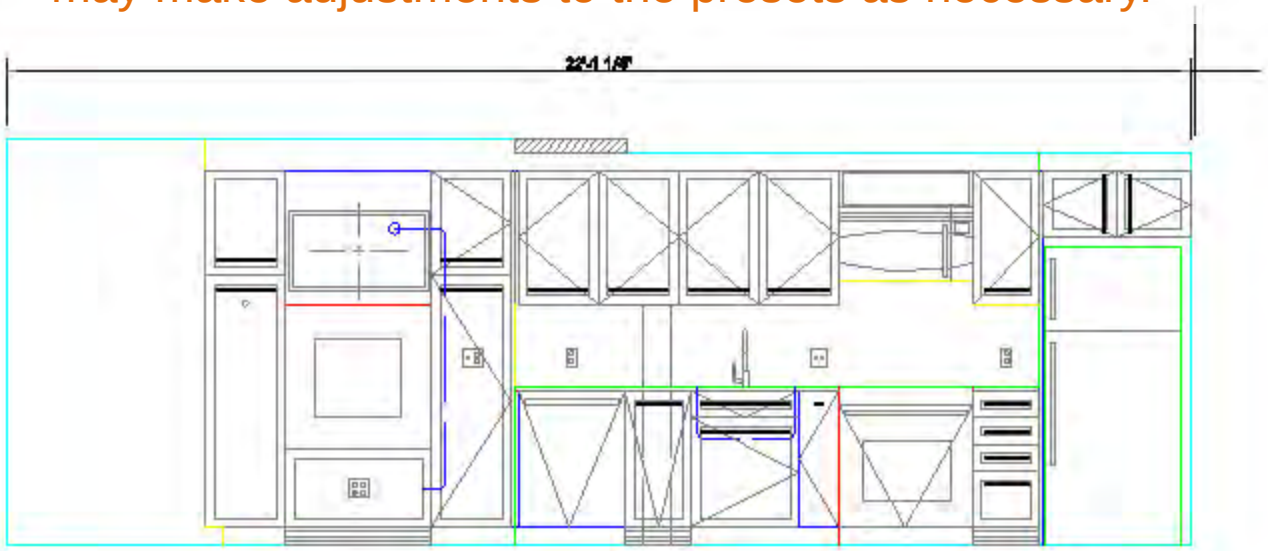
DIMENSION STYLE SETTINGS



DIMENSION STYLE SETTINGS

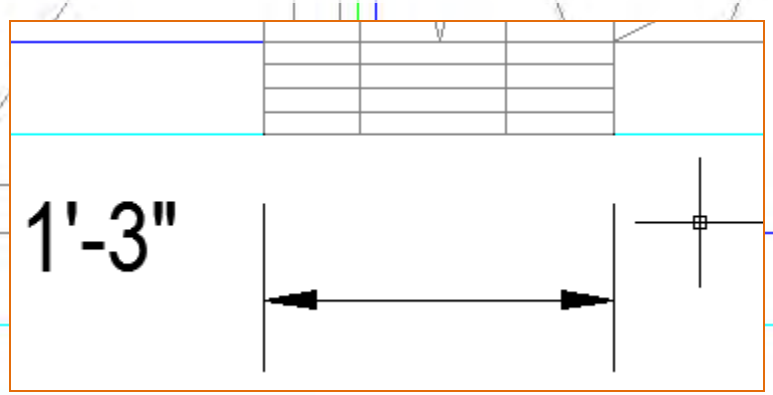


Type **dimlin** to add dimensions to your drawing. You may make adjustments to the presets as necessary.



```
Specify first extension line origin or <select object>:
Specify second extension line origin:
Specify dimension line location or
[Mtext/Text/Angle/Horizontal/Vertical/Rotated]:
```

If the dimension text is too large to fit between the arrows, you may position it independently. After it's drawn, select the dimension and *right-click*. Then, select **Dim Text position > Move text alone.**



AutoCAD Architecture 2010 - STUDENT VERSION - SampleProject1.dwg

File Edit View Insert Format Window Help

Annotation Tools | Text | Check Spelling | Arial dimension | Find text | 2'-0" | AEC Dimension Interior | dimension LK

Tools | Text | Dimensions

Repeat DIMLINEAR
Recent Input
Dim Text position
Precision
Dim Style
Flip Arrow
Continue
Oblique
Update
Reassociate
Isolate Objects
Basic Modify Tools
Clipboard
AEC Modify Tools
Annotative Object Scale
Edit Object Display...
Edit Dimension Style...
Object Viewer...
Select Similar
Deselect All
Properties

Above dim line
Centered
Home text
Move text alone
Move with leader
Move with dim line

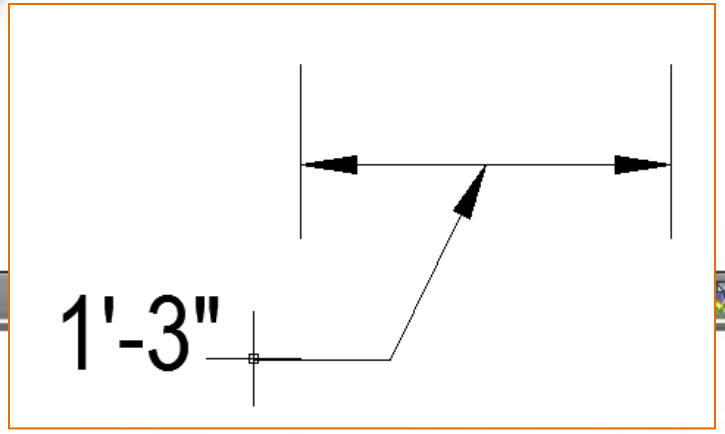
Properties

Medium Detail

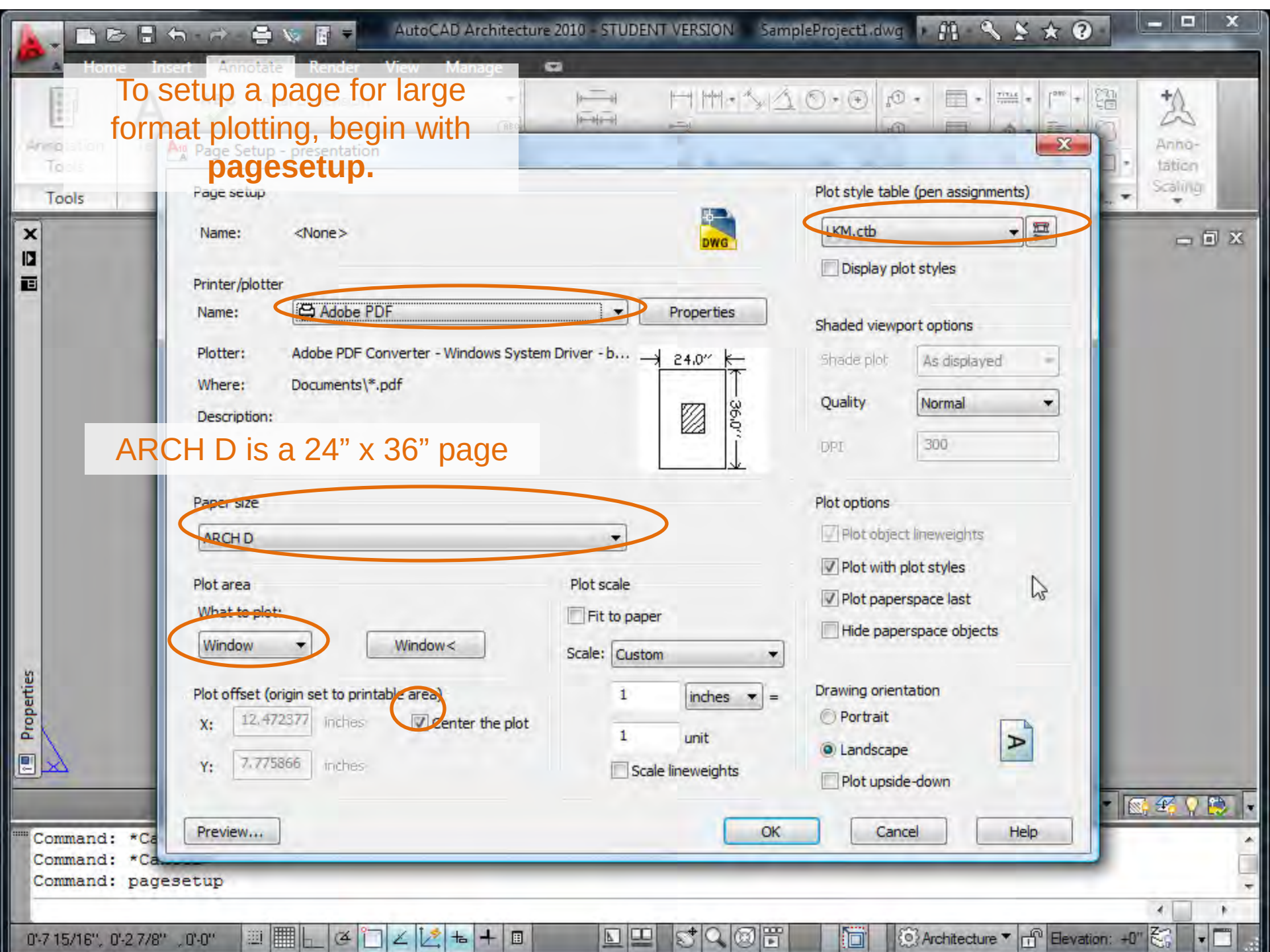
[Mtext/Text/Angle/Horizontal/Vertical/Rotated]:
Dimension text = 1'-3"
Command:
Command:

Move dimension text alone

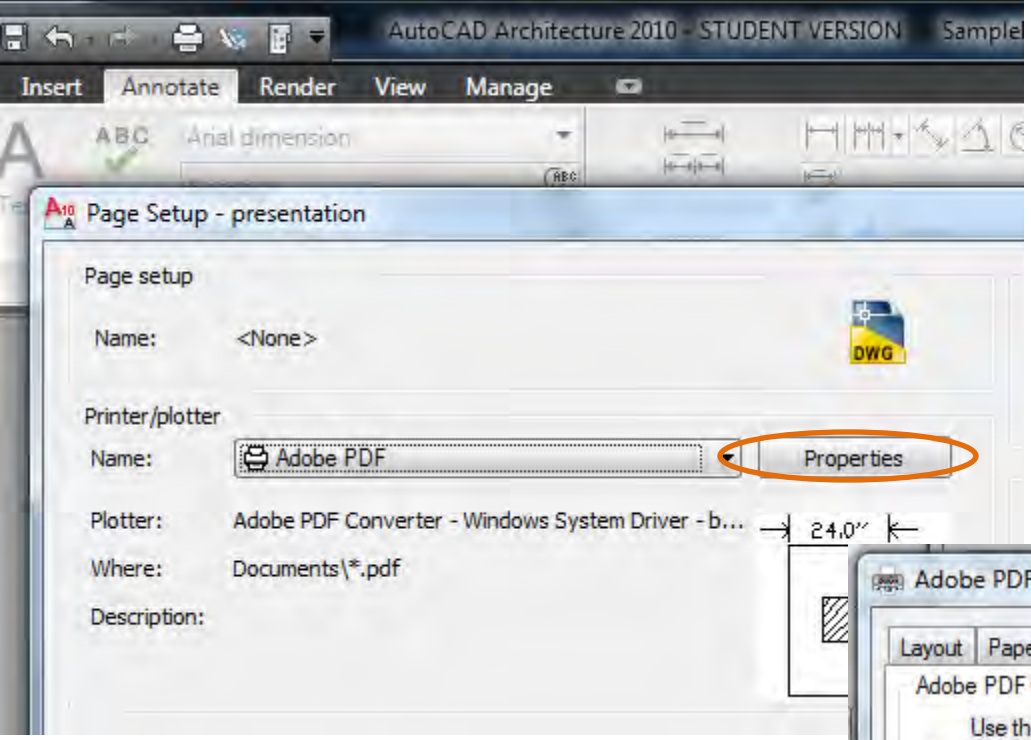
When moving text outside of dimension lines, use a leader to point to its original location: type **Qleader, Spacebar.** Type **S** to adjust the settings of the leader.

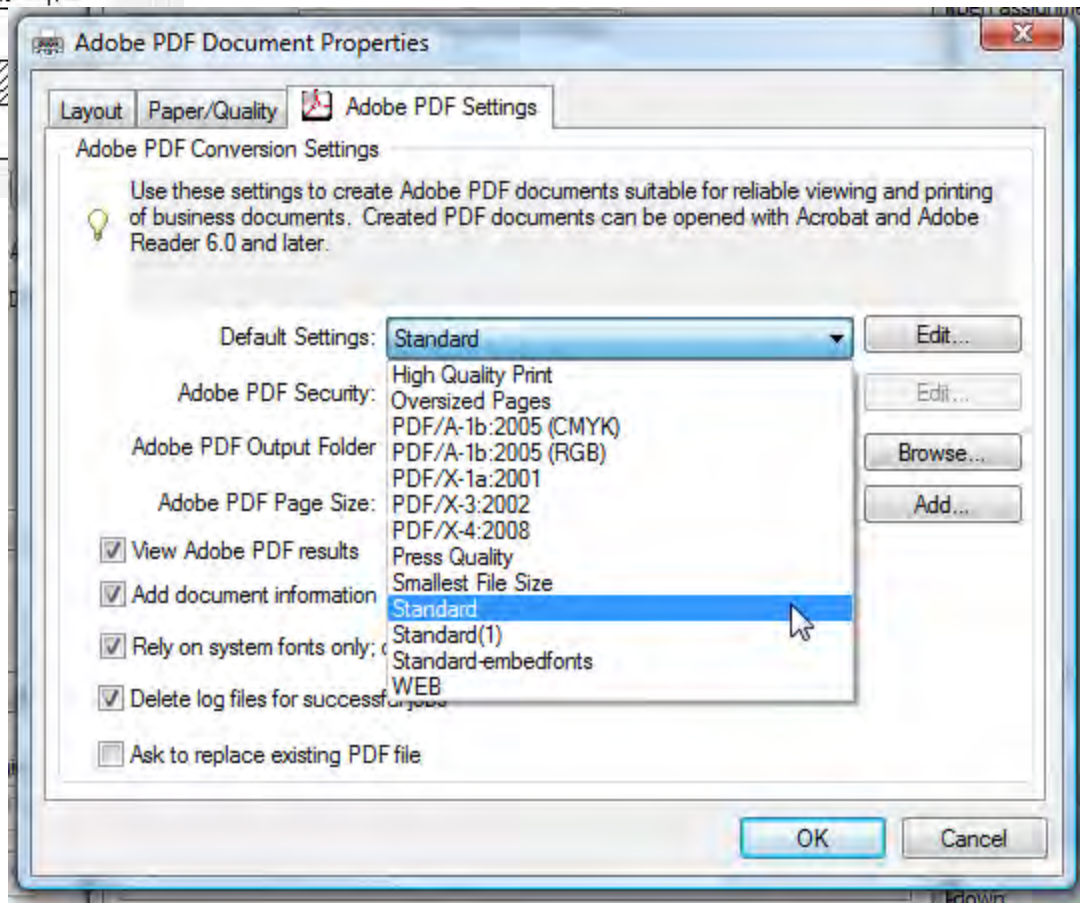


1'-3"

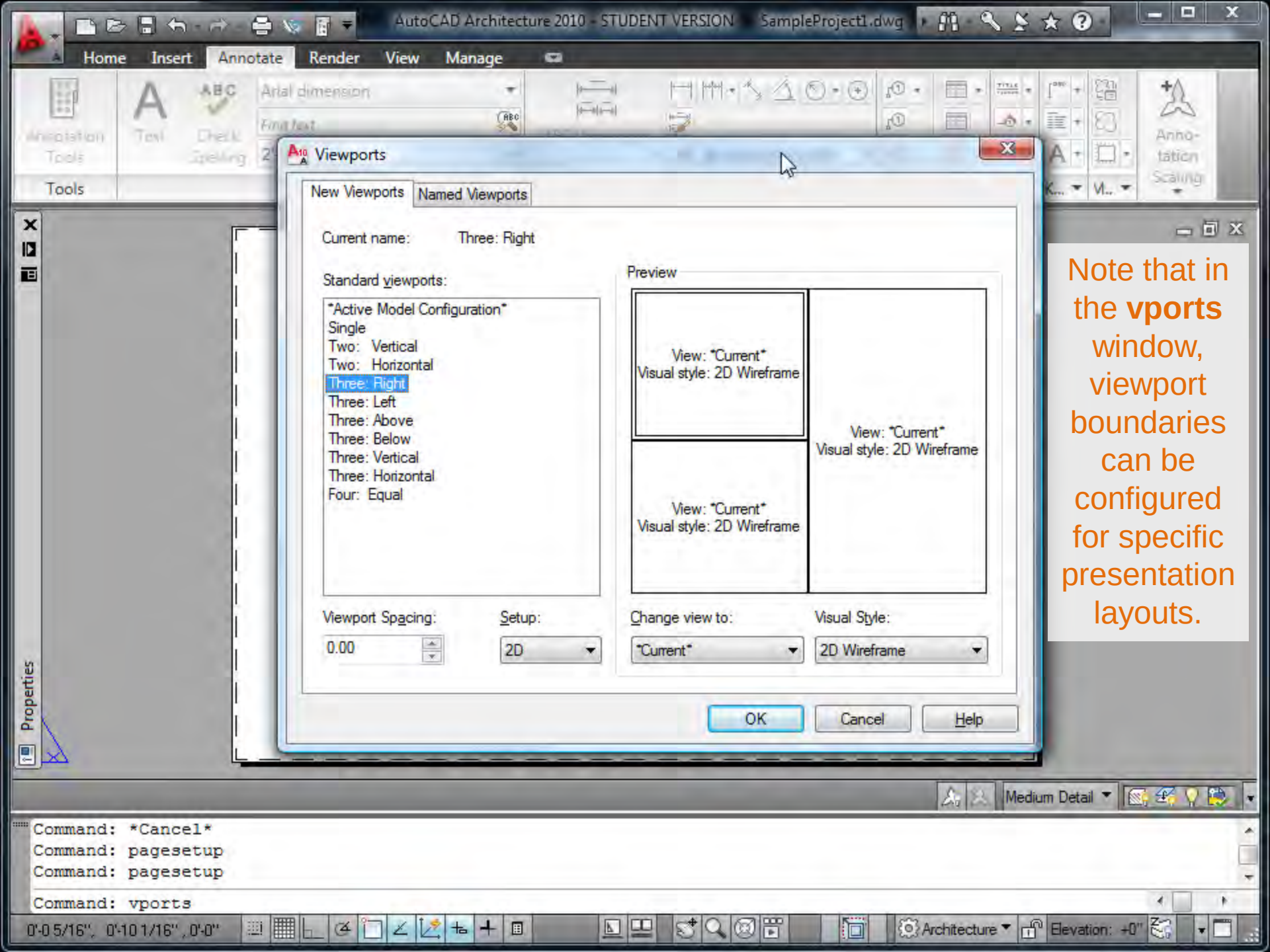

To setup a page for large format plotting, begin with **pagesetup.**
ARCH D is a 24” x 36” page
AutoCAD Architecture 2010 - STUDENT VERSION
SampleProject1.dwg
Page Setup - presentation
Page setup
Name: <None>
Printer/plotter
Name: Adobe PDF
Properties
Plotter: Adobe PDF Converter - Windows System Driver - b...
Where: Documents*.pdf
Description:
24.0"
36.0"
Paper size
ARCH D
Plot area
What to plot:
Window
Window<
Plot offset (origin set to printable area)
X: 12.472377 inches
Center the plot
Y: 7.775866 inches
Plot scale
Fit to paper
Scale: Custom
1 inches =
1 unit
Scale lineweights
Plot style table (pen assignments)
LKM.ctb
Display plot styles
Shaded viewport options
Shade plot As displayed
Quality Normal
DPI 300
Plot options
Plot object lineweights
Plot with plot styles
Plot paperspace last
Hide paperspace objects
Drawing orientation
Portrait
Landscape
Plot upside-down
Preview...
OK
Cancel
Help
Command: *Ca
Command: *Ca
Command: pagesetup
Properties
Tools
Architecture
Elevation: +0"

If your prints are not of high enough quality, check the Properties for your plot settings

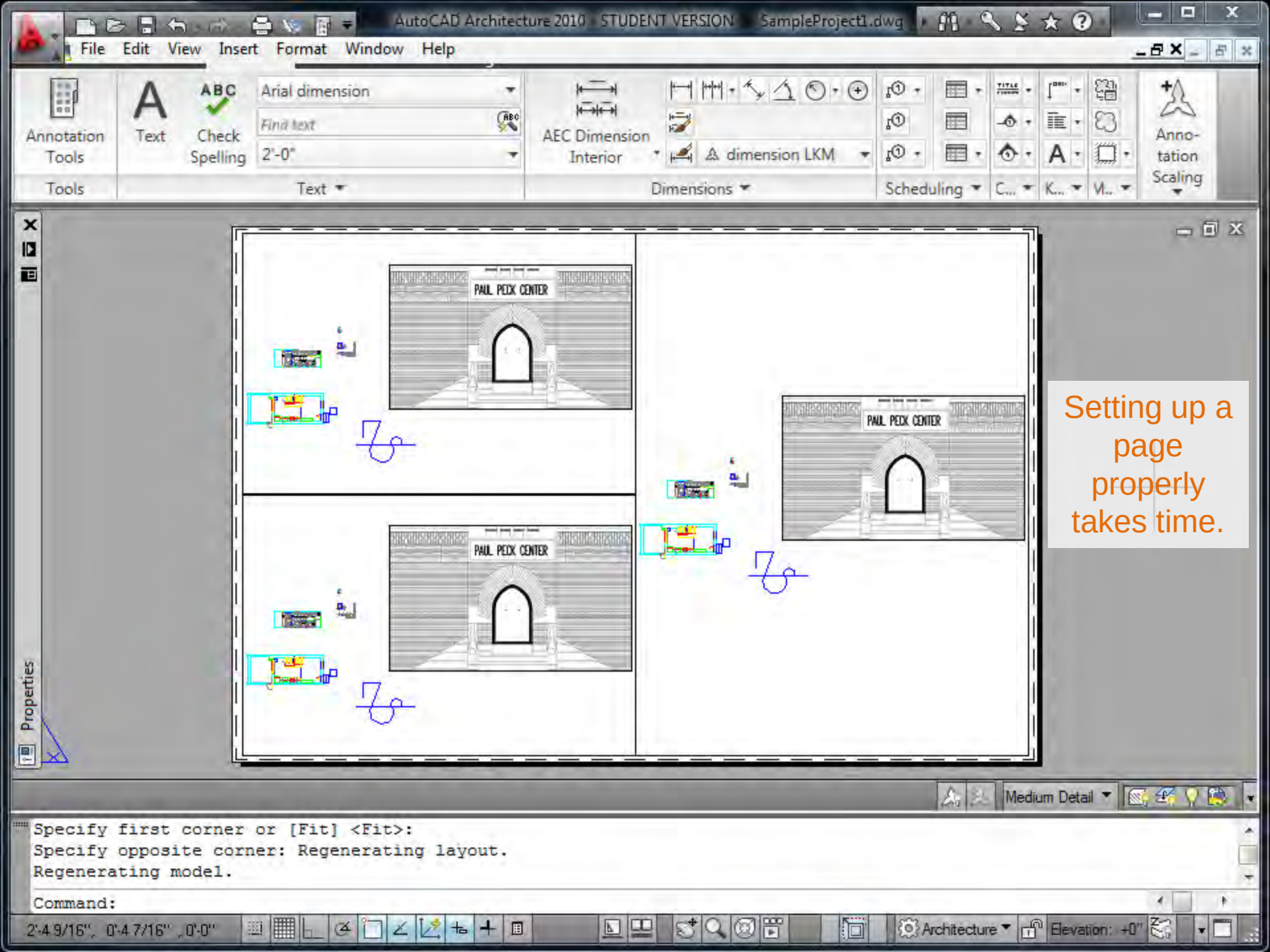




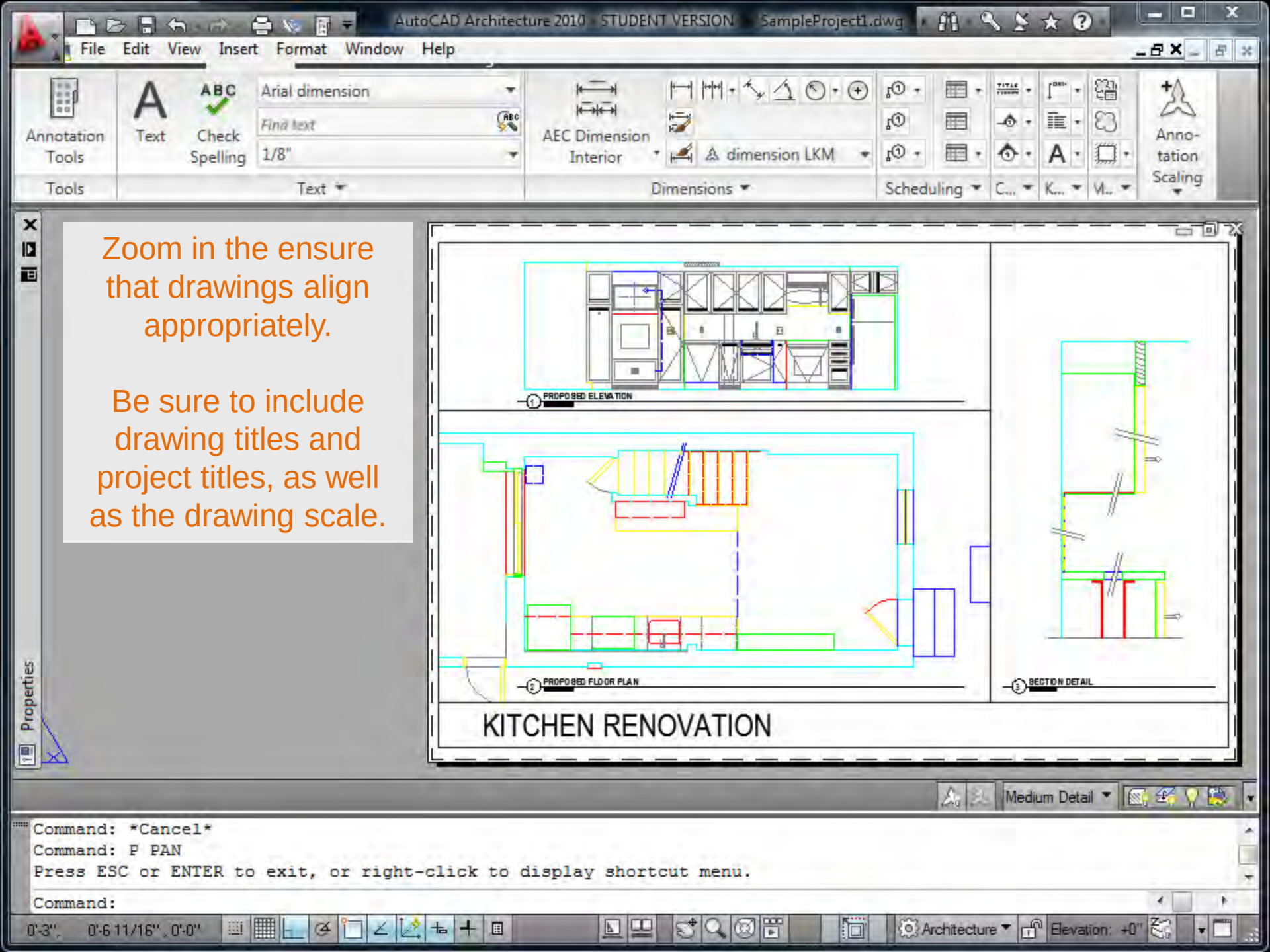
Select Standard or High Quality Print from the options.

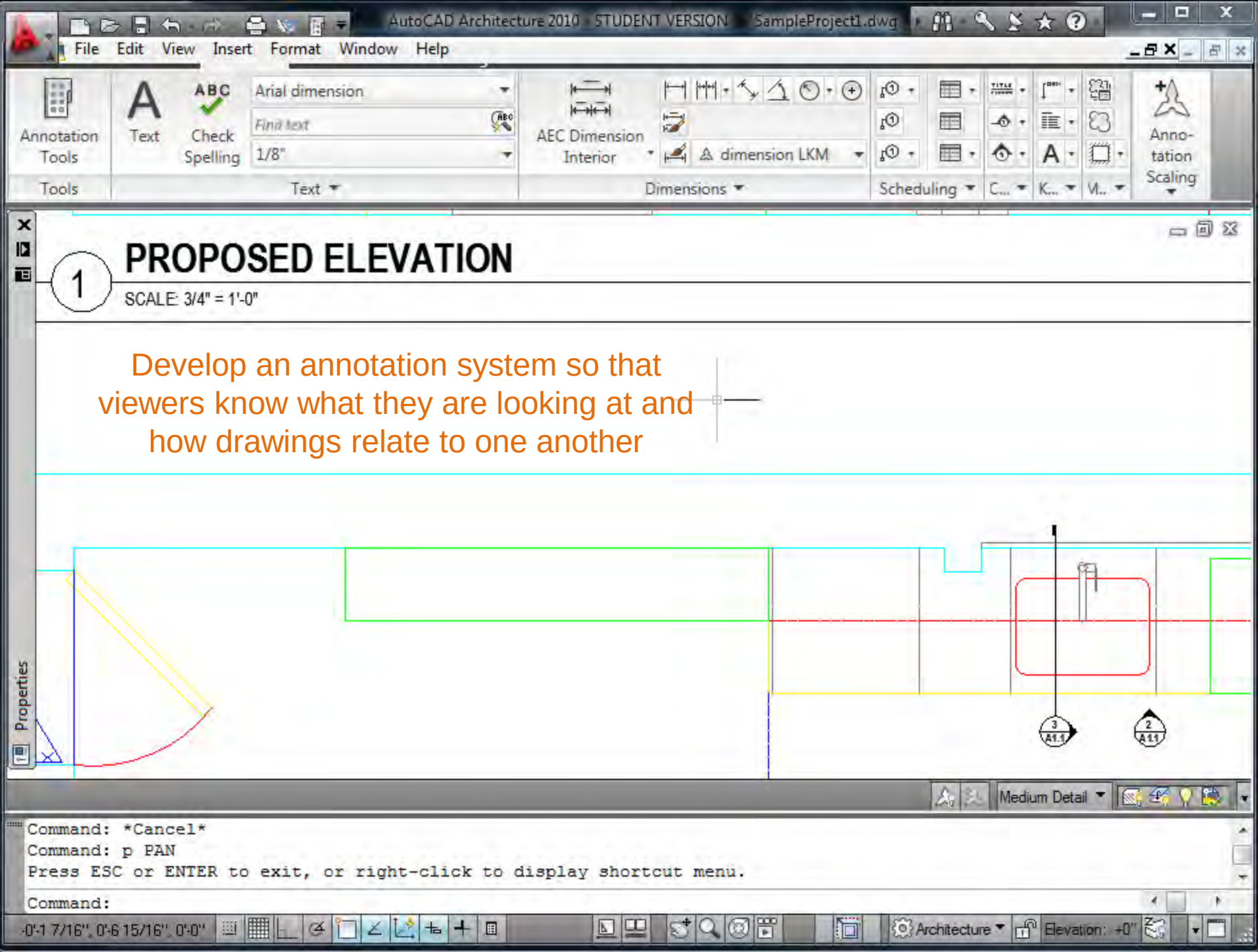


Note that in the **vports** window, viewport boundaries can be configured for specific presentation layouts.



Setting up a page properly takes time.


AutoCAD Architecture 2010 STUDENT VERSION SampleProject1.dwg
File Edit View Insert Format Window Help
Annotation Tools
Text
Check Spelling
Arial dimension
Find text
1/8"
AEC Dimension Interior
dimension LKM
Anno-tation Scaling
Tools
Text
Dimensions
Scheduling
Zoom in the ensure that drawings align appropriately.
Be sure to include drawing titles and project titles, as well as the drawing scale.
PROPOSED ELEVATION
PROPOSED FLOOR PLAN
SECTION DETAIL
KITCHEN RENOVATION
Properties
Medium Detail
Command: *Cancel*
Command: P PAN
Press ESC or ENTER to exit, or right-click to display shortcut menu.
Command:
0'-3", 0'-6 11/16", 0'-0"
Architecture
Elevation: +0"


AutoCAD Architecture 2010 - STUDENT VERSION - SampleProject1.dwg
File Edit View Insert Format Window Help
Annotation Tools
Text
Check Spelling
Arial dimension
Find text
1/8"
AEC Dimension Interior
dimension LKM
Anno-tation Scaling
Tools
Text
Dimensions
Scheduling
1
PROPOSED ELEVATION
SCALE: 3/4" = 1'-0"
Develop an annotation system so that viewers know what they are looking at and how drawings relate to one another
Properties
Medium Detail
Command: *Cancel*
Command: p PAN
Press ESC or ENTER to exit, or right-click to display shortcut menu.
Command:
Architecture
Elevation: +0"

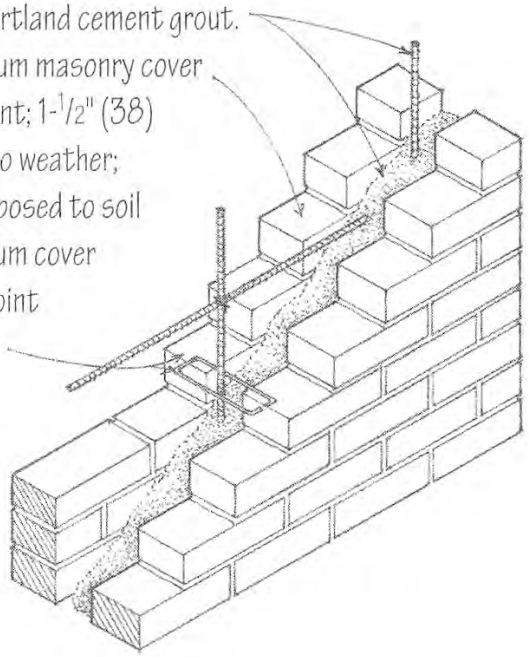
Project 1, Assignment 3:

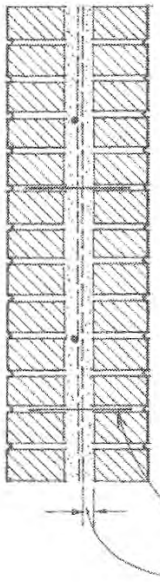
Survey a section cut along the north exterior wall.

What is the material composition of the exterior wall?

How can you tell what's happening inside the wall?

- Reinforcing steel bars are fully embedded in portland cement grout.
- 3/4" (75) minimum masonry cover for reinforcement; 1-1/2" (38) when exposed to weather; 2" (51) when exposed to soil
- 5/8" (16) minimum cover for horizontal joint reinforcement





Reinforced masonry walls use steel reinforcing bars placed in thickened joints or cavities with a fluid grout mix of portland cement, aggregate, and water for greater strength in carrying vertical loads and increased resistance to buckling and lateral forces. It is essential that a strong bond develop between the reinforcing steel, grout, and masonry units.

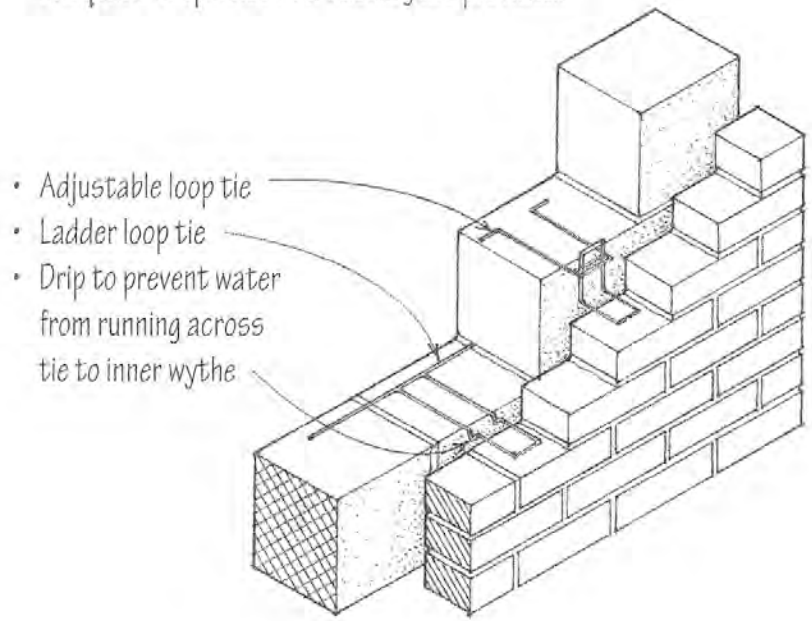
Reinforced Grouted Masonry

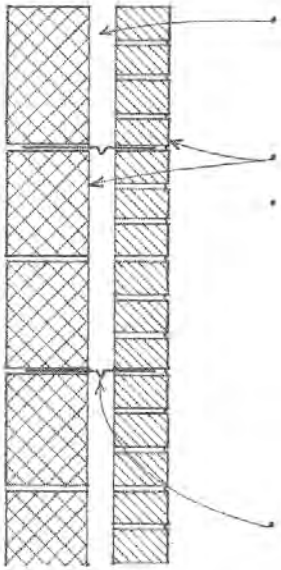
- Reinforced grouted masonry should conform to the requirements for plain grouted masonry. See 5.17.
- Metal wall ties
- 1/4" (6) minimum between reinforcement and masonry for fine grout; 1/2" (13) minimum cover for coarse grout

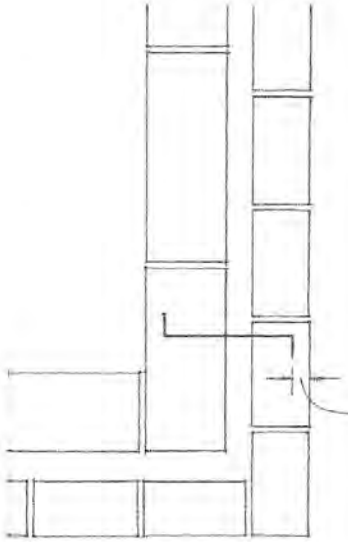
Cavity Walls

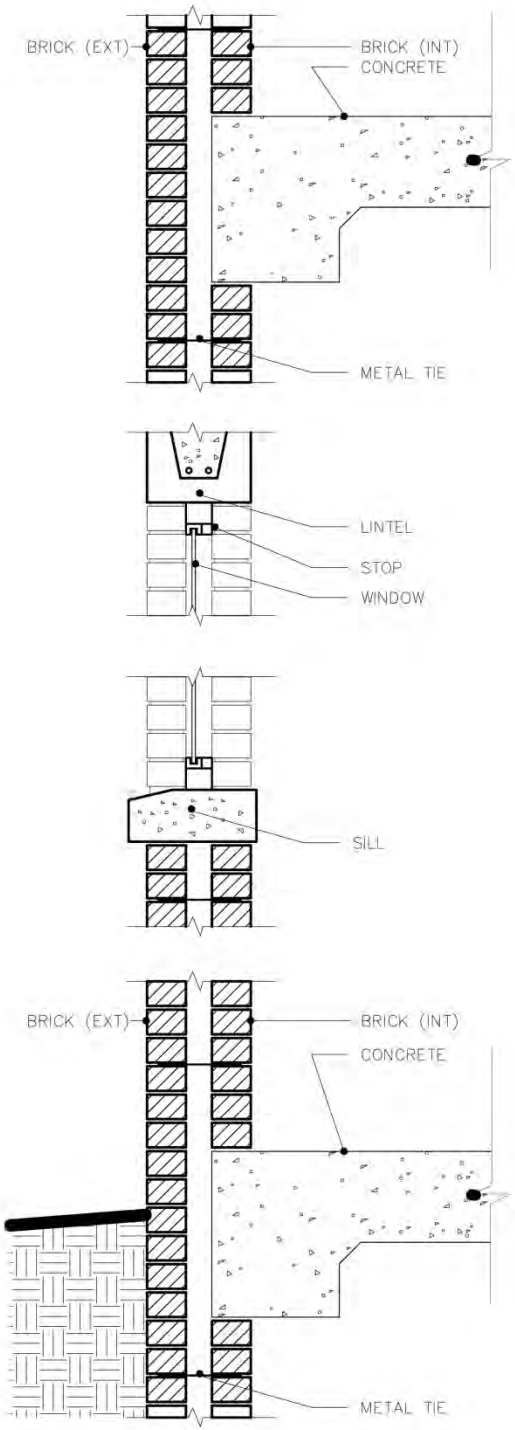
Cavity walls are constructed of a facing and a backing wythe of either solid or hollow masonry units, completely separated by a continuous air space and bonded with metal wall ties or horizontal joint reinforcement. Cavity walls have two advantages over other types of masonry walls:

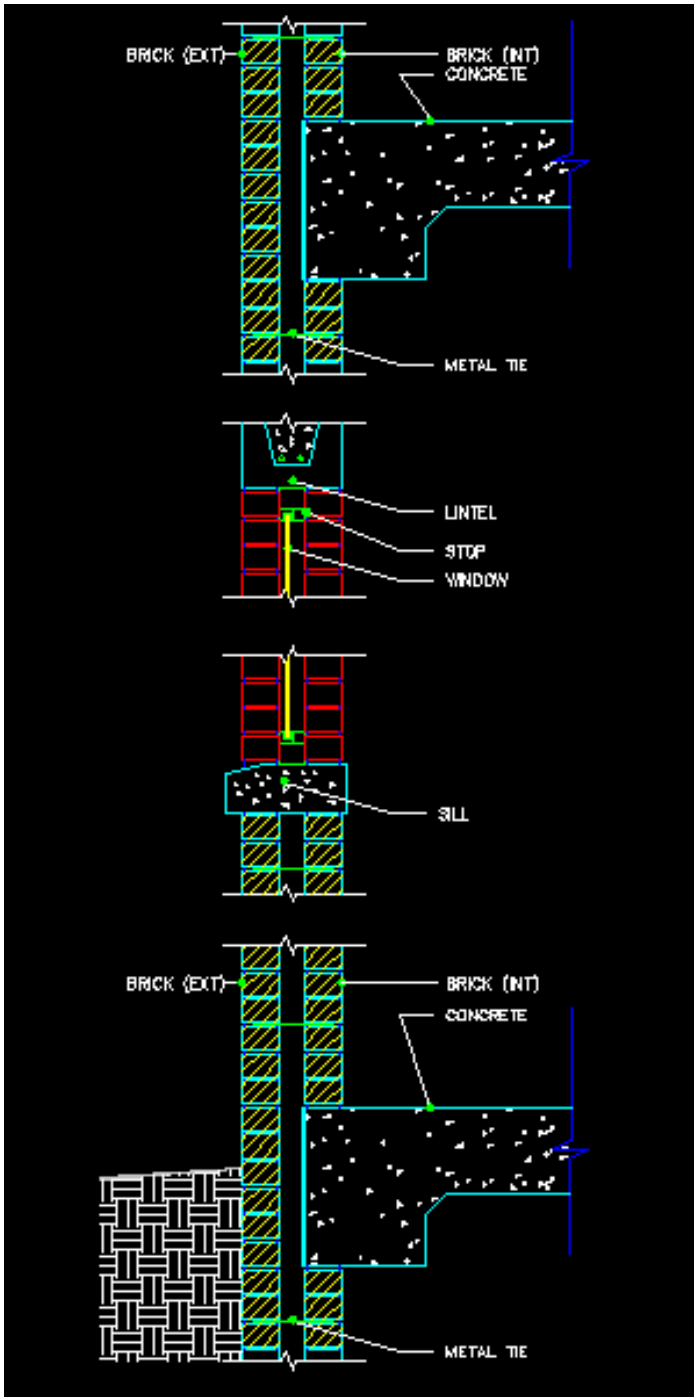
1. The cavity enhances the thermal insulation value of the wall and permits the installation of additional thermal insulation material.
2. The air space acts as a barrier against water penetration if the cavity is kept clear, and if adequate weep holes and flashing are provided.











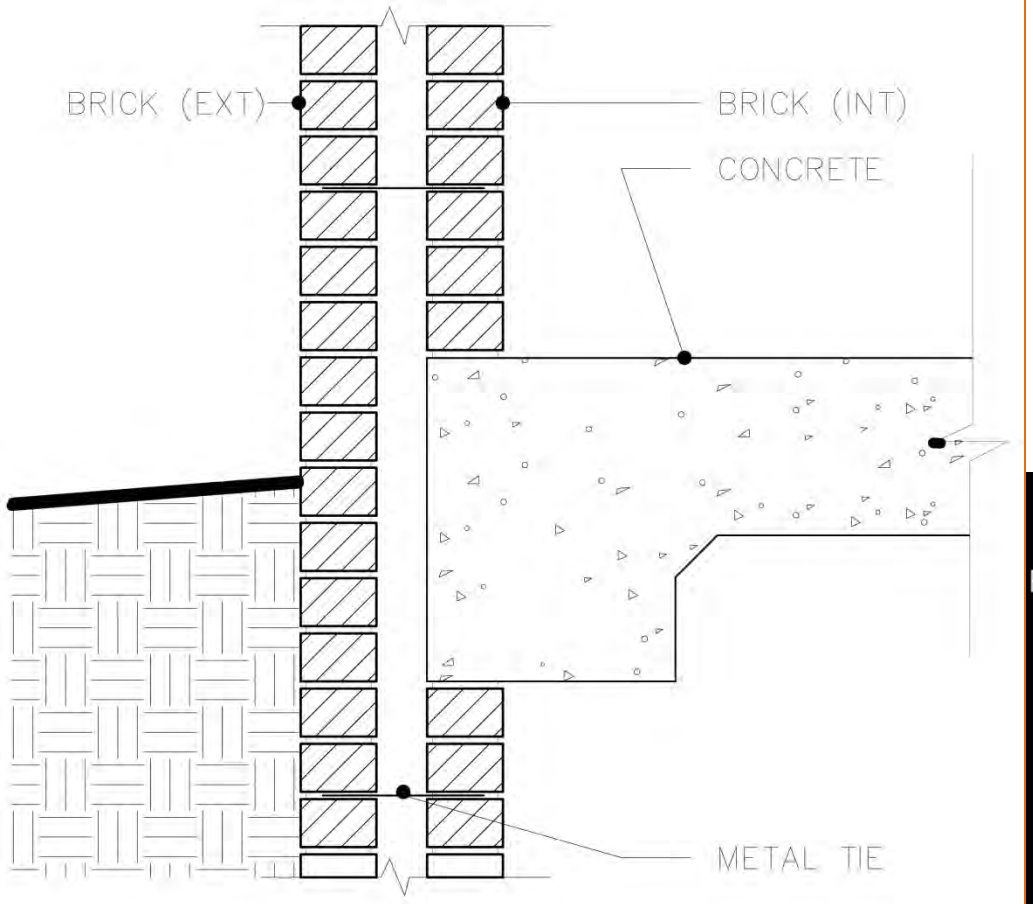
Project 1, Assignment 3:

Draft in AutoCAD a *continuous* section (the image shown here is *not* a continuous section).

Annotate and dimension your drawings (the screen shot shown here from AutoCAD is *not* properly annotated).

Use line weights and layers accordingly.

Arrange the plan, elevation and section on a sheet as per the assignment instructions. Plot first to PDF, then on a 24”x36” page.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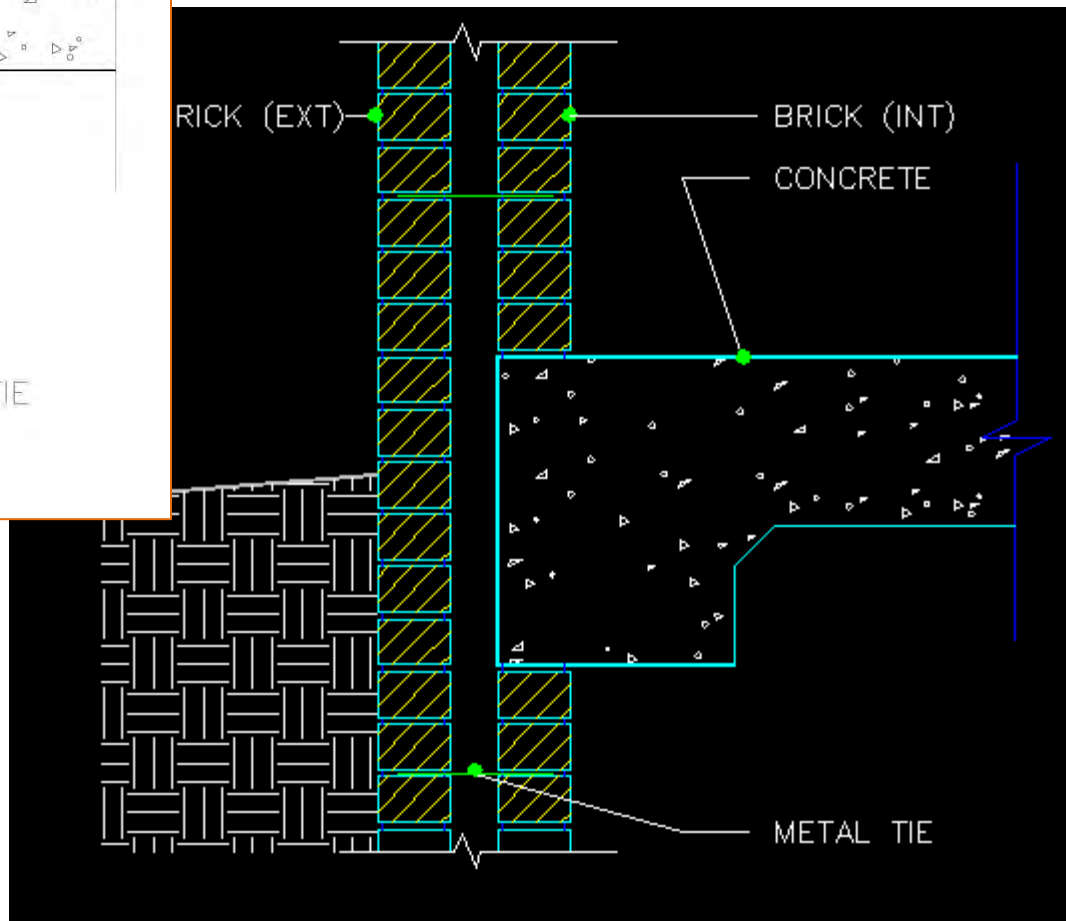
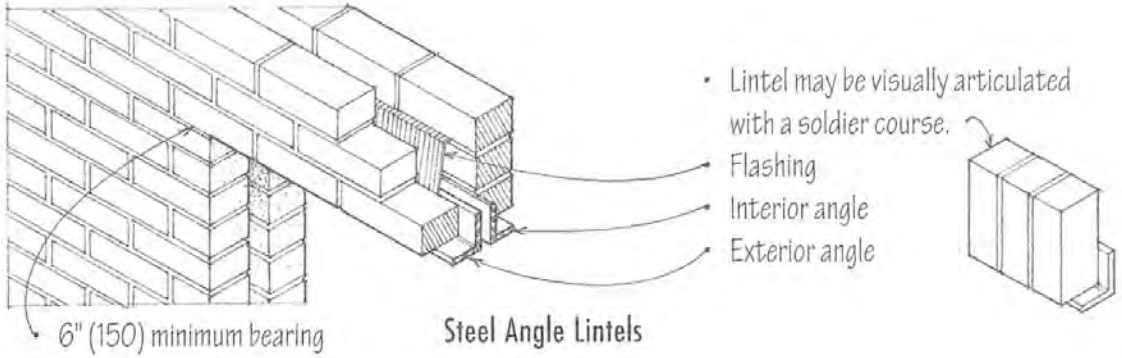
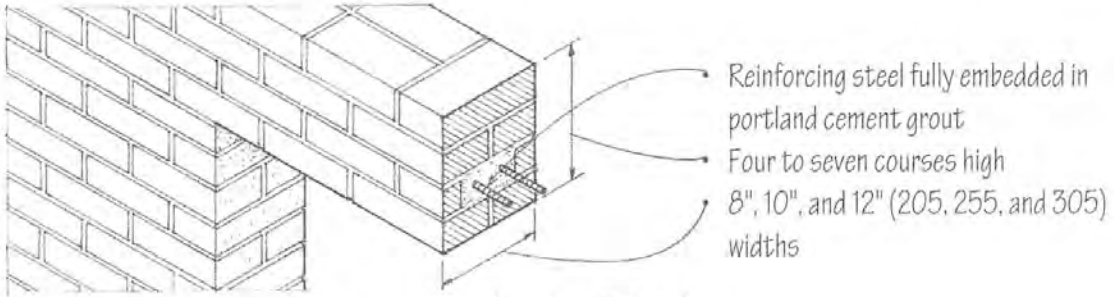
BRICK (INT)
CONCRETE
METAL TIE

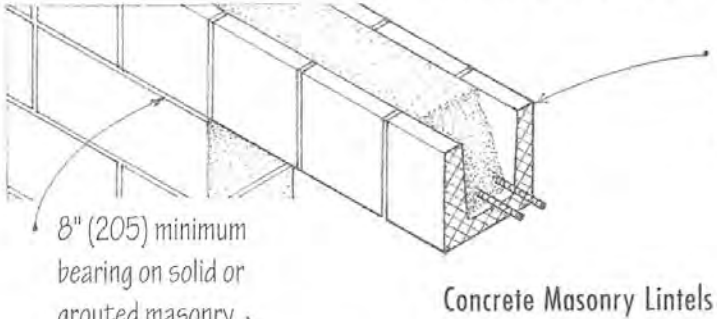

RICK (EXT)
BRICK (INT)
CONCRETE
METAL TIE



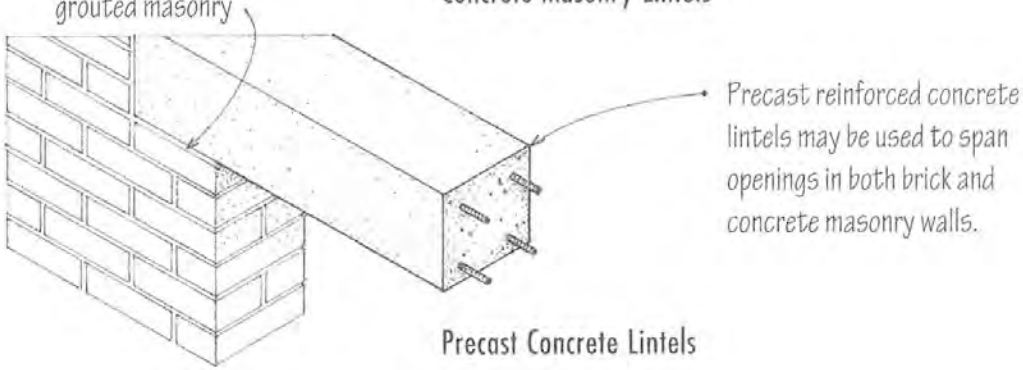
Steel Angle Lintels



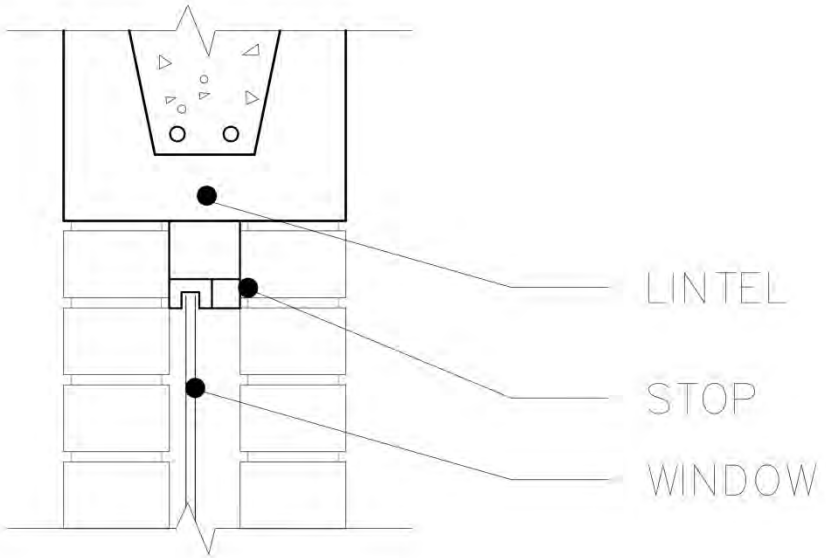
Reinforced Brick Lintels

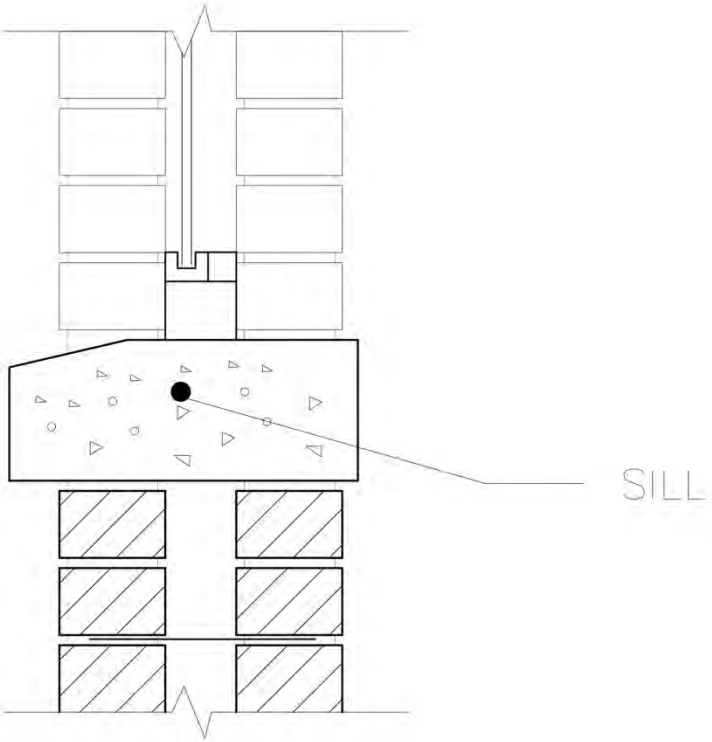


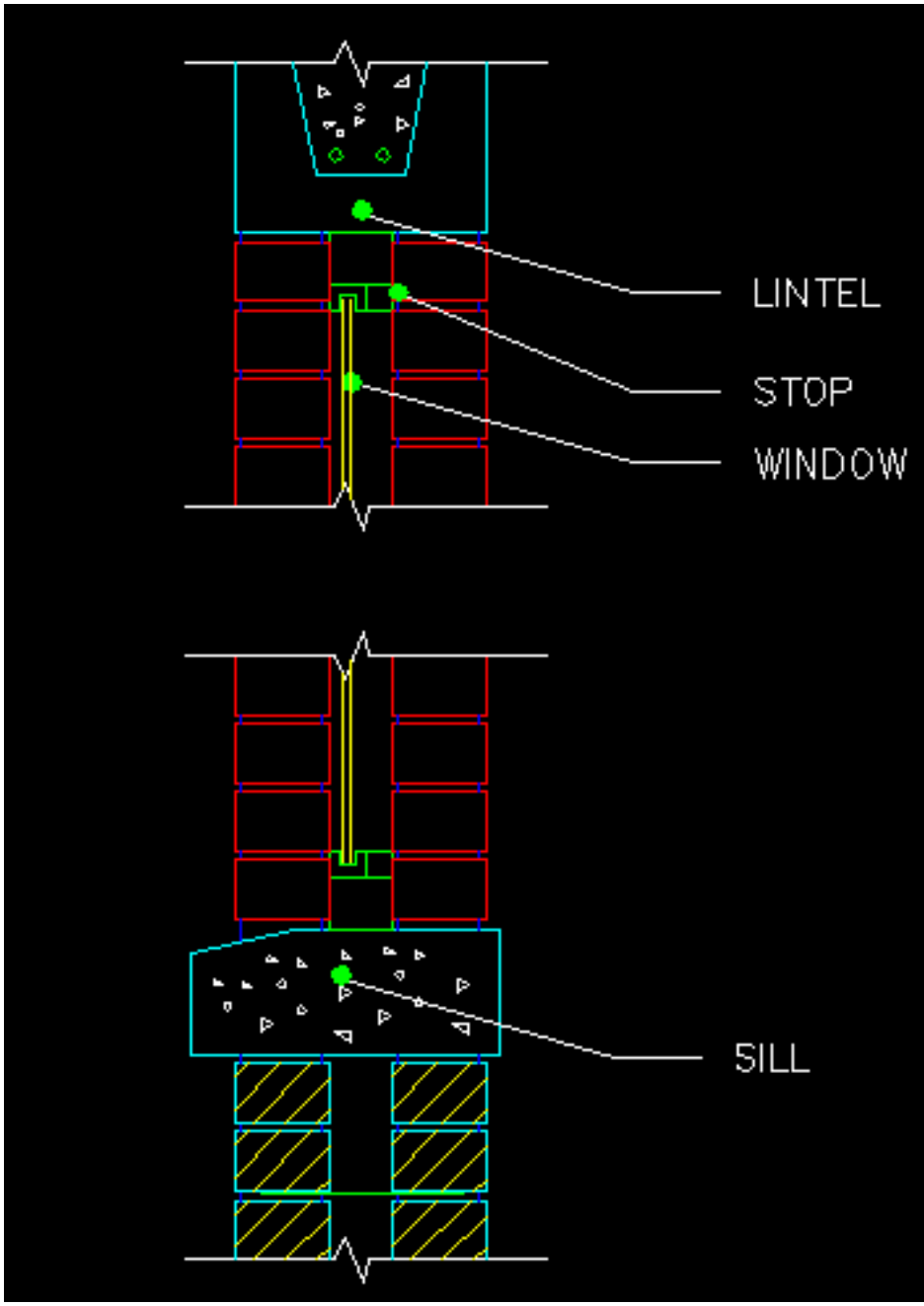
Concrete Masonry Lintels

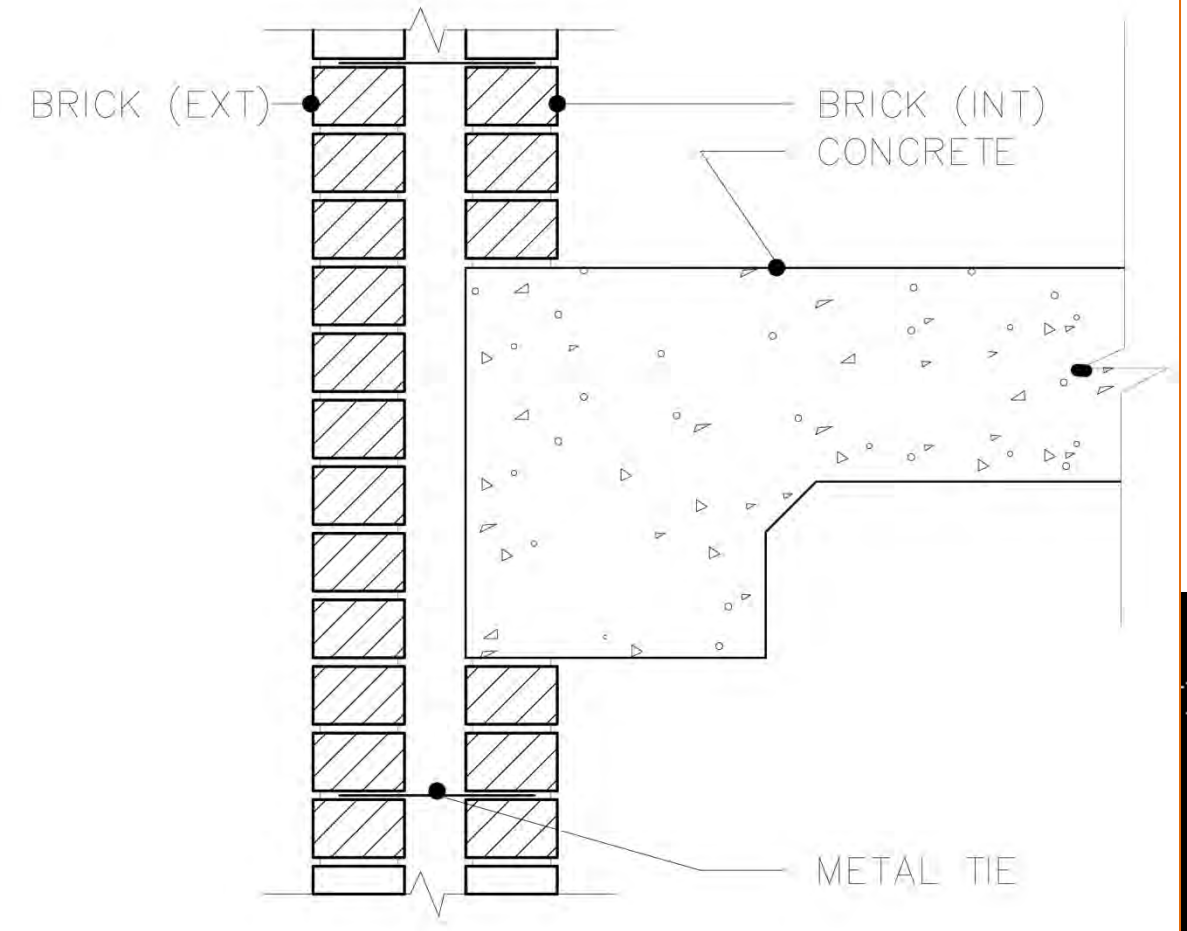


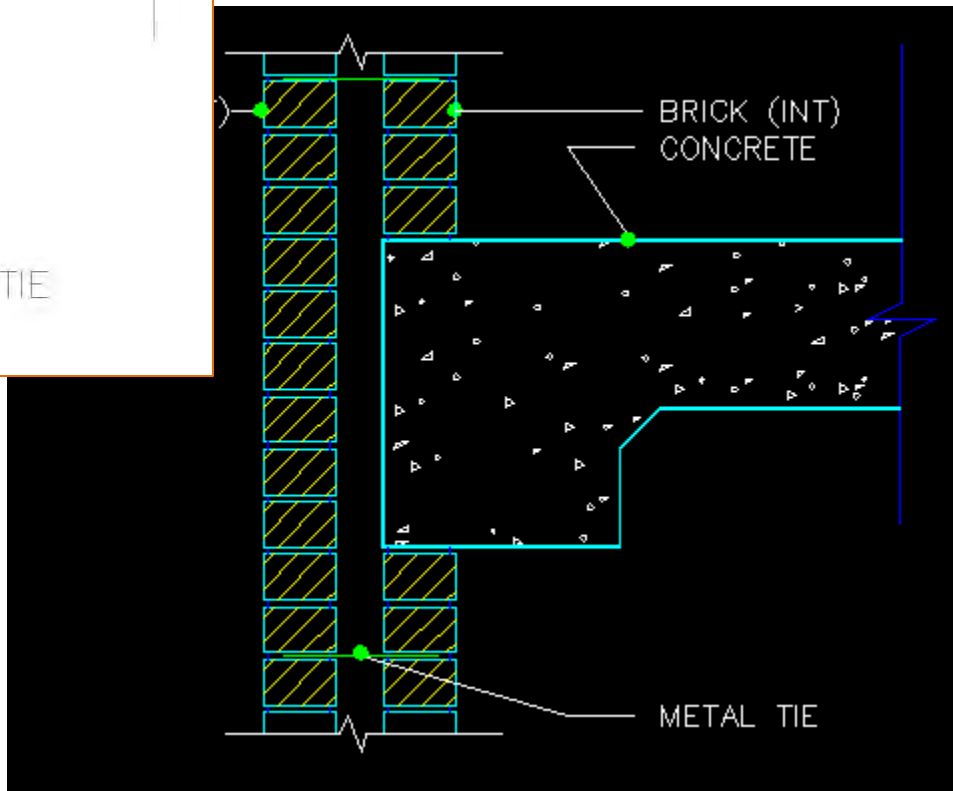
Precast Concrete Lintels


LINTEL
STOP
WINDOW


SILL


LINTEL
STOP
WINDOW
SILL



[CADD Lab this week](#)

Plotting demo -
you *must* attend!