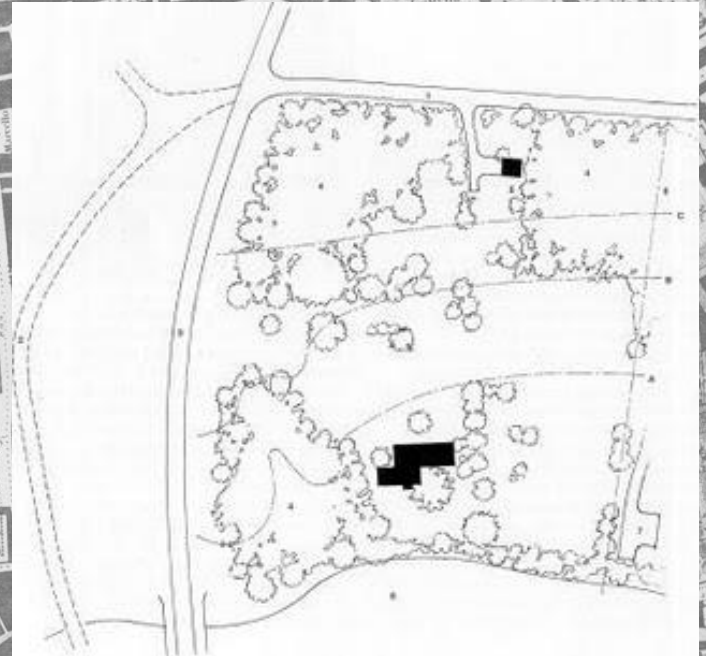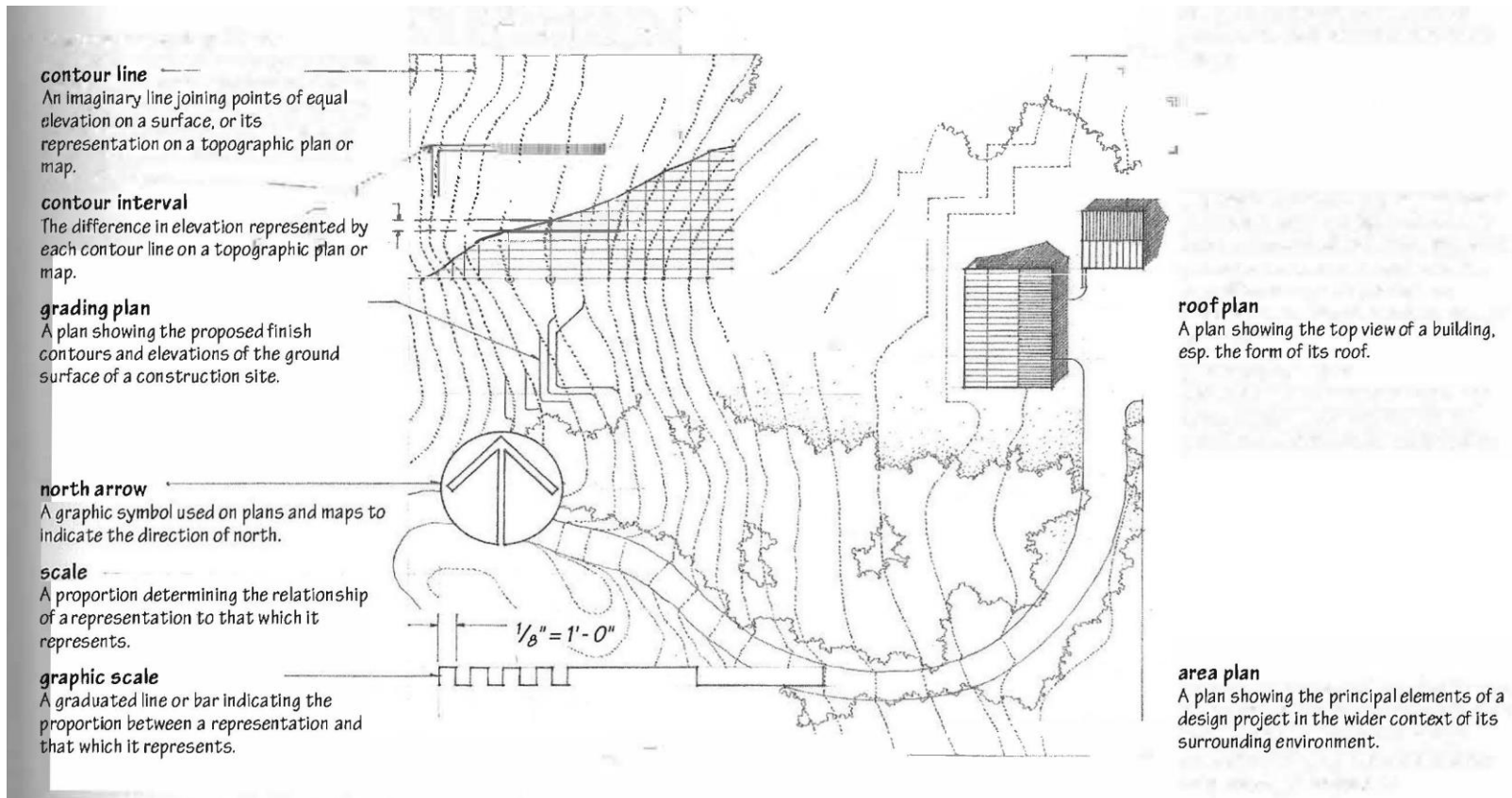# Site Plan:

Illustrates the existing natural and built features of a site and describes proposed construction in relation to the existing features. The site plan is essential for studying the influence of the environmental and regulatory factors on the planning, siting, and massing of a building.

What is a *Site Plan*?

A plan showing the form, location, and orientation of a building or group of buildings on a site; usually including the dimensions, contours, landscaping, and other significant features of the plot. Also call a *plot plan*.

Ching, Francis. *A Visual Dictionary of Architecture*. Van Nostrand Reinhold, 1995.

contour line
An imaginary line joining points of equal elevation on a surface, or its representation on a topographic plan or map.

contour interval
The difference in elevation represented by each contour line on a topographic plan or map.

grading plan
A plan showing the proposed finish contours and elevations of the ground surface of a construction site.

north arrow
A graphic symbol used on plans and maps to indicate the direction of north.

scale
A proportion determining the relationship of a representation to that which it represents.

graphic scale
A graduated line or bar indicating the proportion between a representation and that which it represents.

$1/8" = 1' - 0"$

roof plan
A plan showing the top view of a building, esp. the form of its roof.

area plan
A plan showing the principal elements of a design project in the wider context of its surrounding environment.

Topography

Topography refers to the configuration of surface features of a plot of land, which influences where and how to build and develop a site. Contour lines are imaginary lines joining points of equal deviation above a datum or bench mark. The trajectory of each contour line indicates the shape of the land formation at that deviation.
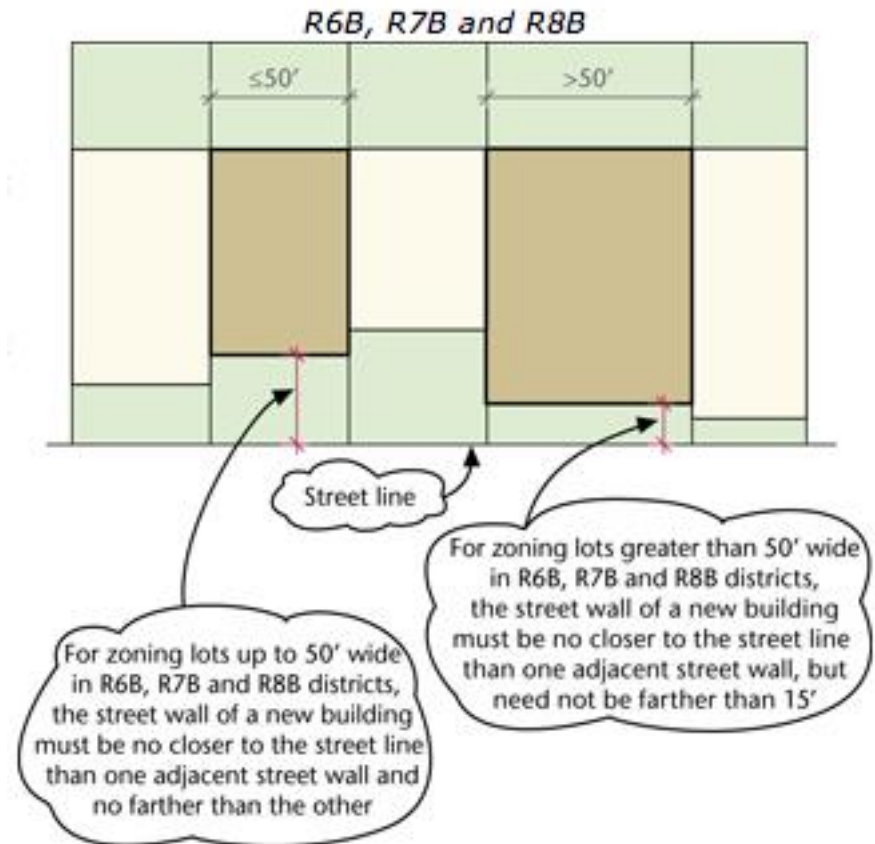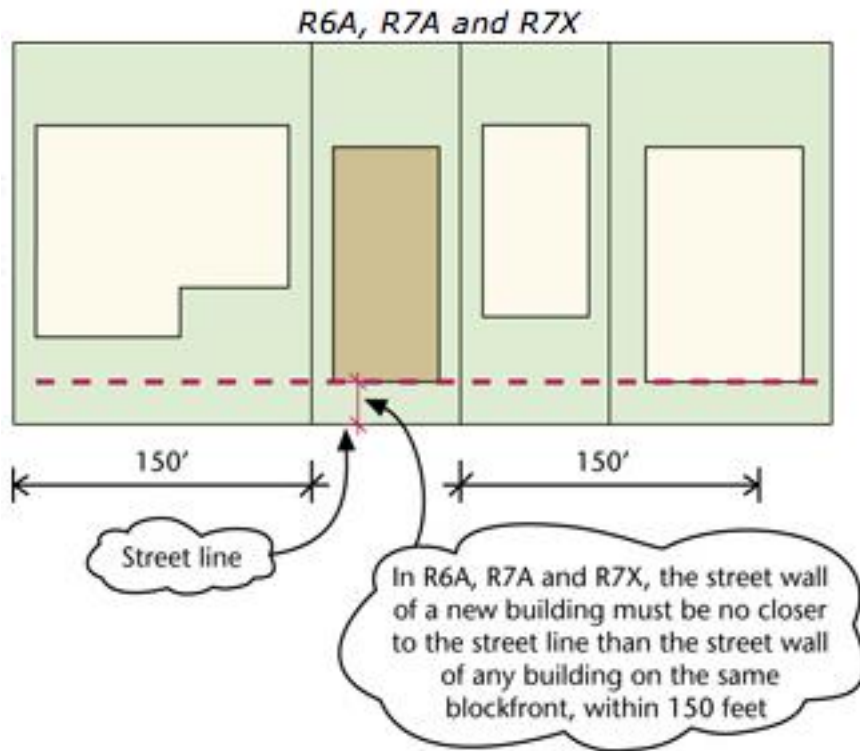
Ching, Francis. *Building Construction Illustrated*.John Wiley & Sons. 2008.

The site plan is informed by a professional land survey.

What is a *Survey*?

A *land survey* locates, describes, and maps the boundaries and corners of a parcel of land including:

- Topography
- Location of building and features
- Course and location of each boundary line (metes and bounds)

Zoning Ordinance

A site plan is used to demonstrate compliance with applicable codes and zoning ordinances.

R6A, R7A and R7X

150'

150'

Street line

In R6A, R7A and R7X, the street wall of a new building must be no closer to the street line than the street wall of any building on the same blockfront, within 150 feet

R6B, R7B and R8B

≤50'

>50'

Street line

For zoning lots up to 50' wide in R6B, R7B and R8B districts, the street wall of a new building must be no closer to the street line than one adjacent street wall and no farther than the other

For zoning lots greater than 50' wide in R6B, R7B and R8B districts, the street wall of a new building must be no closer to the street line than one adjacent street wall, but need not be farther than 15'

Components

- Outline of **structures and features**
- **Dimensions** include:
  - overall size of buildings and features
  - distance from the outside wall of each building or feature to at least 2 property lines
  - Dimension and compass azimuth of each property line
- **Building Code and Zoning Analysis**
  - Property lines
  - Setbacks
  - Easements
- Contour lines and **grade elevation** of surfaces
- Architectural **surface materials** are labeled or shown with material symbols
- **Streets** adjacent to the property are labeled
- Compass **orientation** of the lot is identified by North arrow
- **Utility lines** are labeled by function
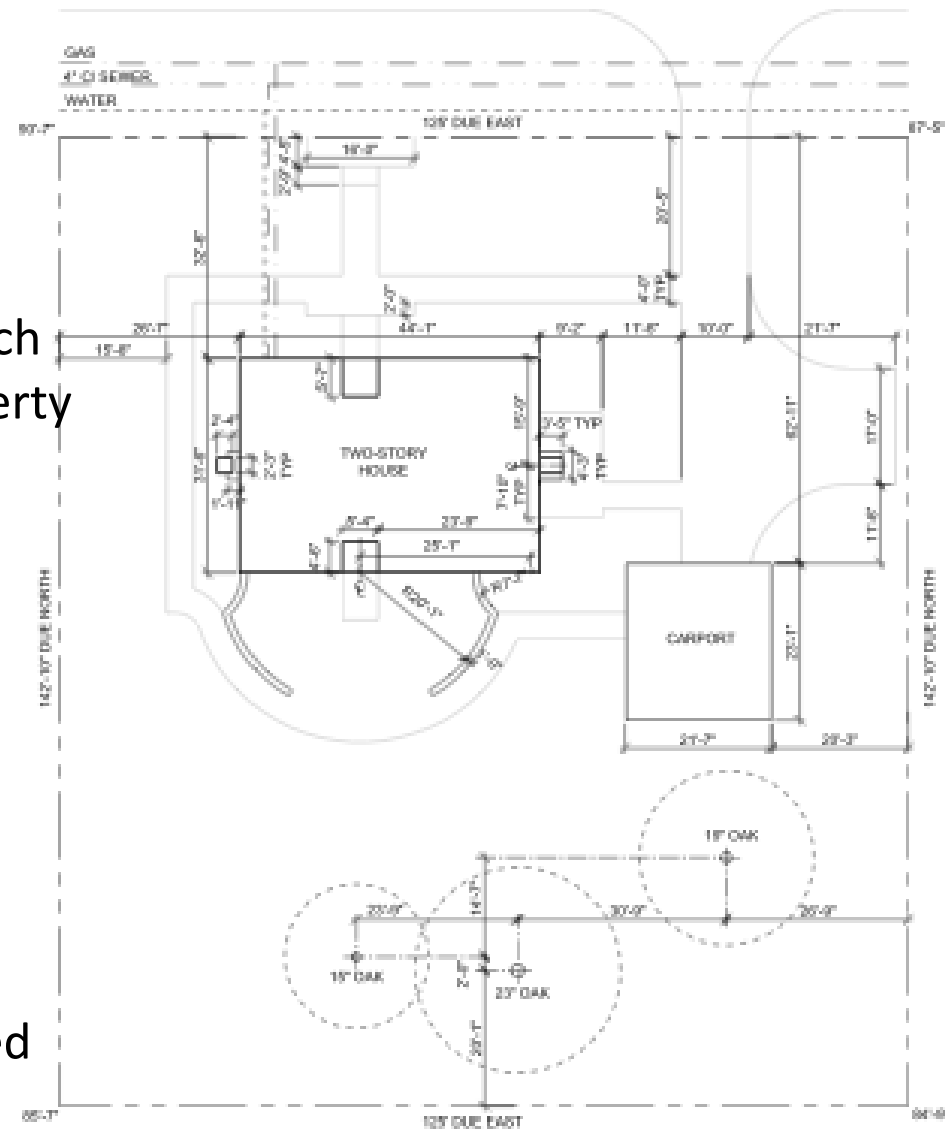
SITE PLAN

Margaret Esherick House, Louis Kahn, 1961.

Autocad Techniques

- Offset (recap)
- Extend/Trim (recap)
- Circle

- Check accuracy of your drafting(!)
- Viewports

Tools we have learned:
- Copy/Paste
- Ortho Mode and Polar Tracking
- Object Snap
- Construction Line
- Paper Space vs Model Space
- Text Styles
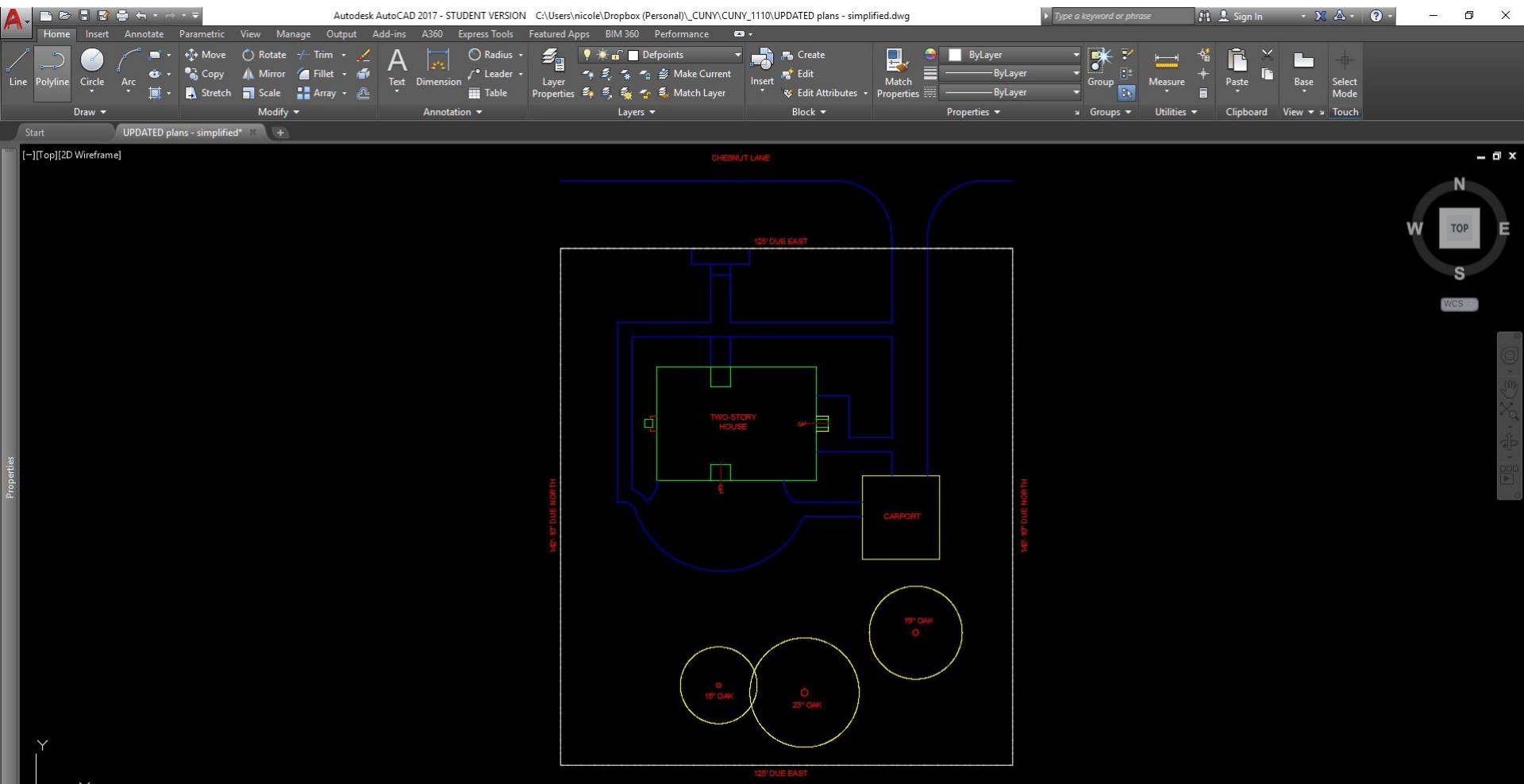
Trim/Extend

Trim objects to meet the edges of other objects.
Resources: [Autodesk / Trim Command](#)

1. Trim tool used to trim edges of lines (Shortcut "tr")
*down arrow for extend command

2. Select trim edges
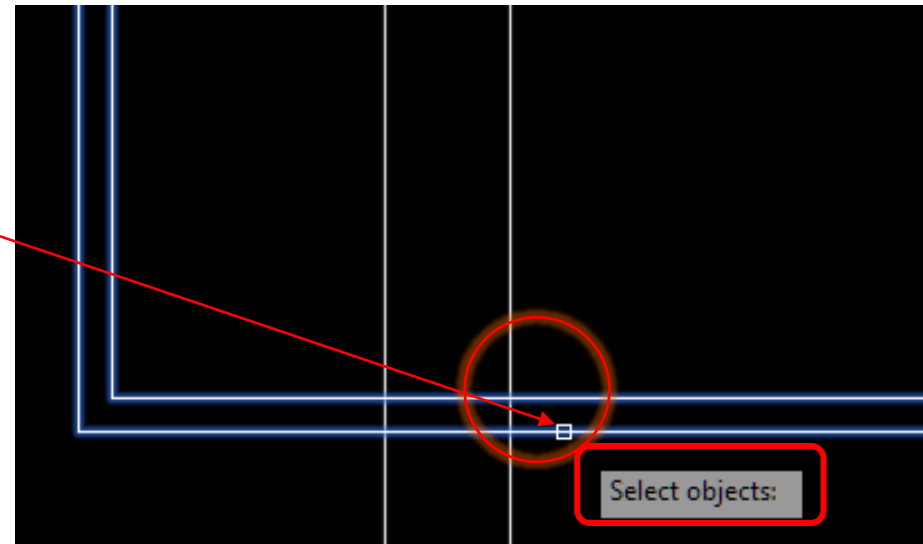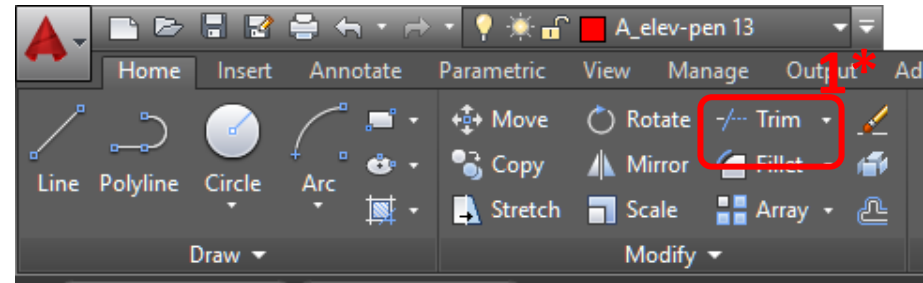
Trim/Extend

3. Select object to trim

3*click in upper right corner, then click in lower left corner of trim area to trim multiple objects

4. Press Enter

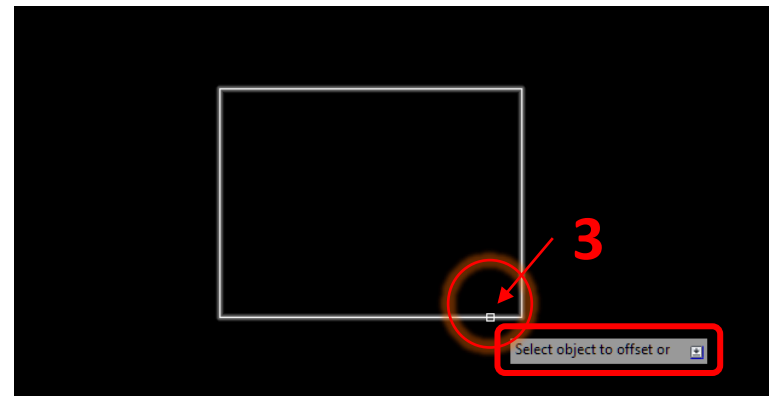**Note: Line to be trimmed is greyed out when mouse is placed over it as a preview**
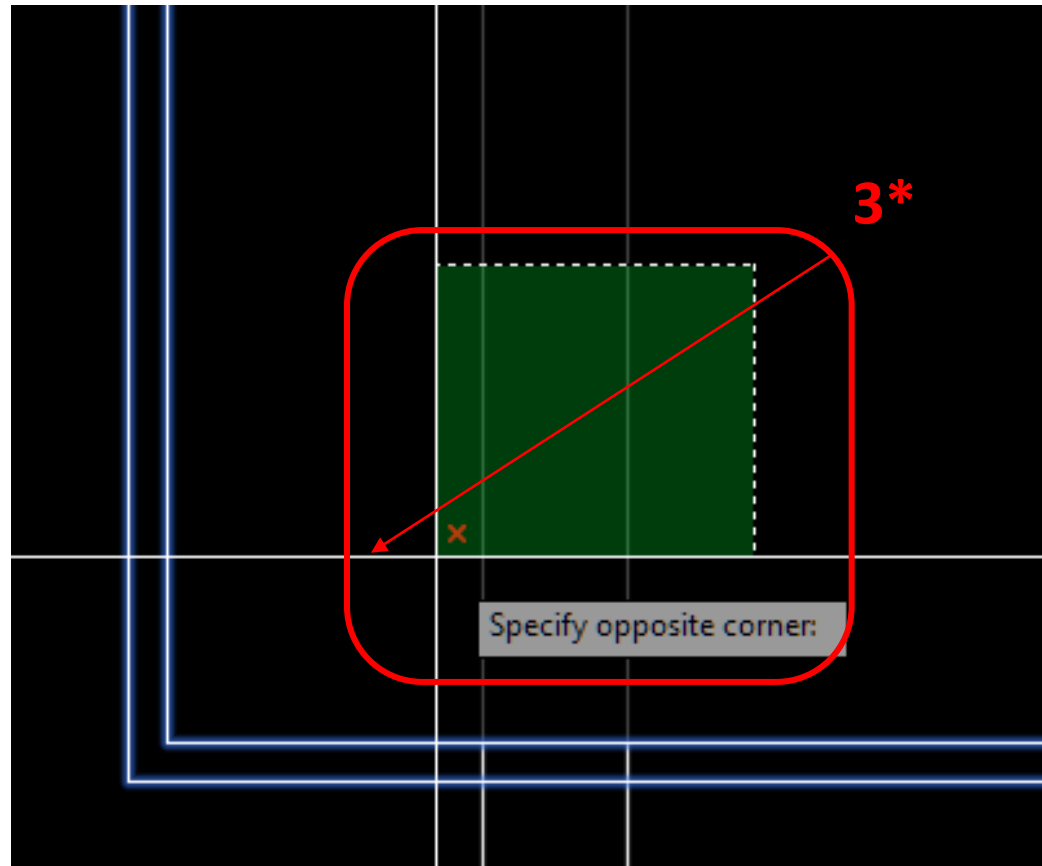
Offset

Offset creates concentric circles, parallel lines and parallel curves at a specified distance from the original.

Resources: Autodesk / To Offset and Oject

1*
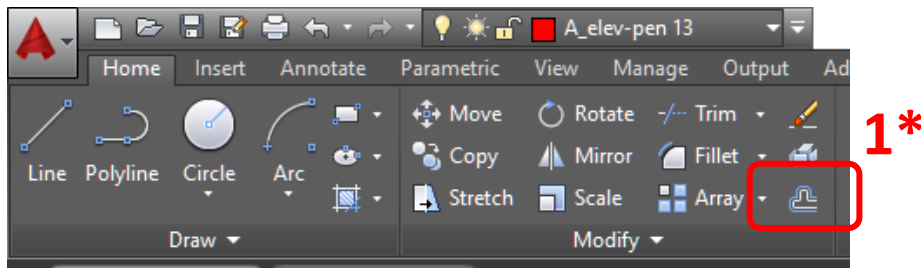
1. Select the offset tool
*or type "o"

2*

Specify offset distance or 10"

3

Select object to offset or

4

Specify point on side to offset or
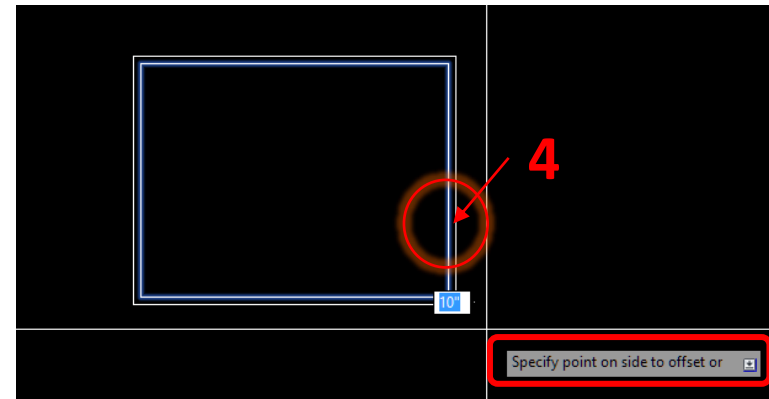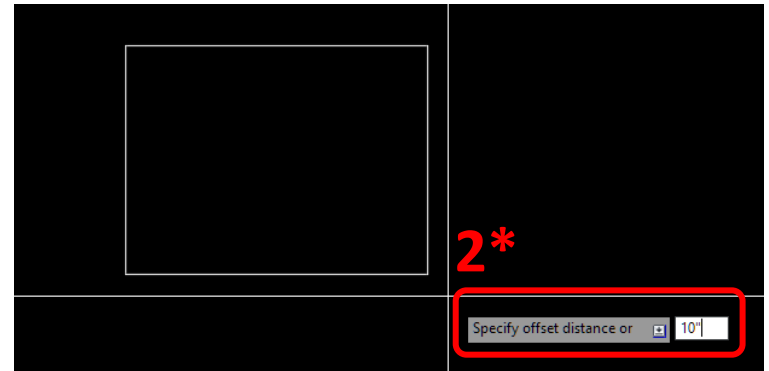
Circle

Access: Click circle button in Home tab or type "C". Use ↓ to cycle through construction options.

Resources: [Autodesk Support: Circle Command](#)

2 (follow dynamic input prompts)

Specify center point for circle or   140'-8 3/8"   36'-4 7/16"
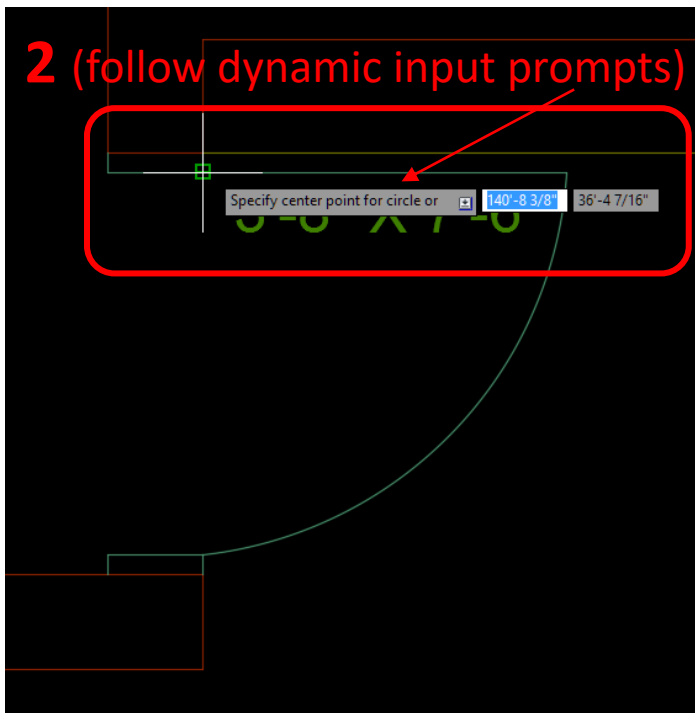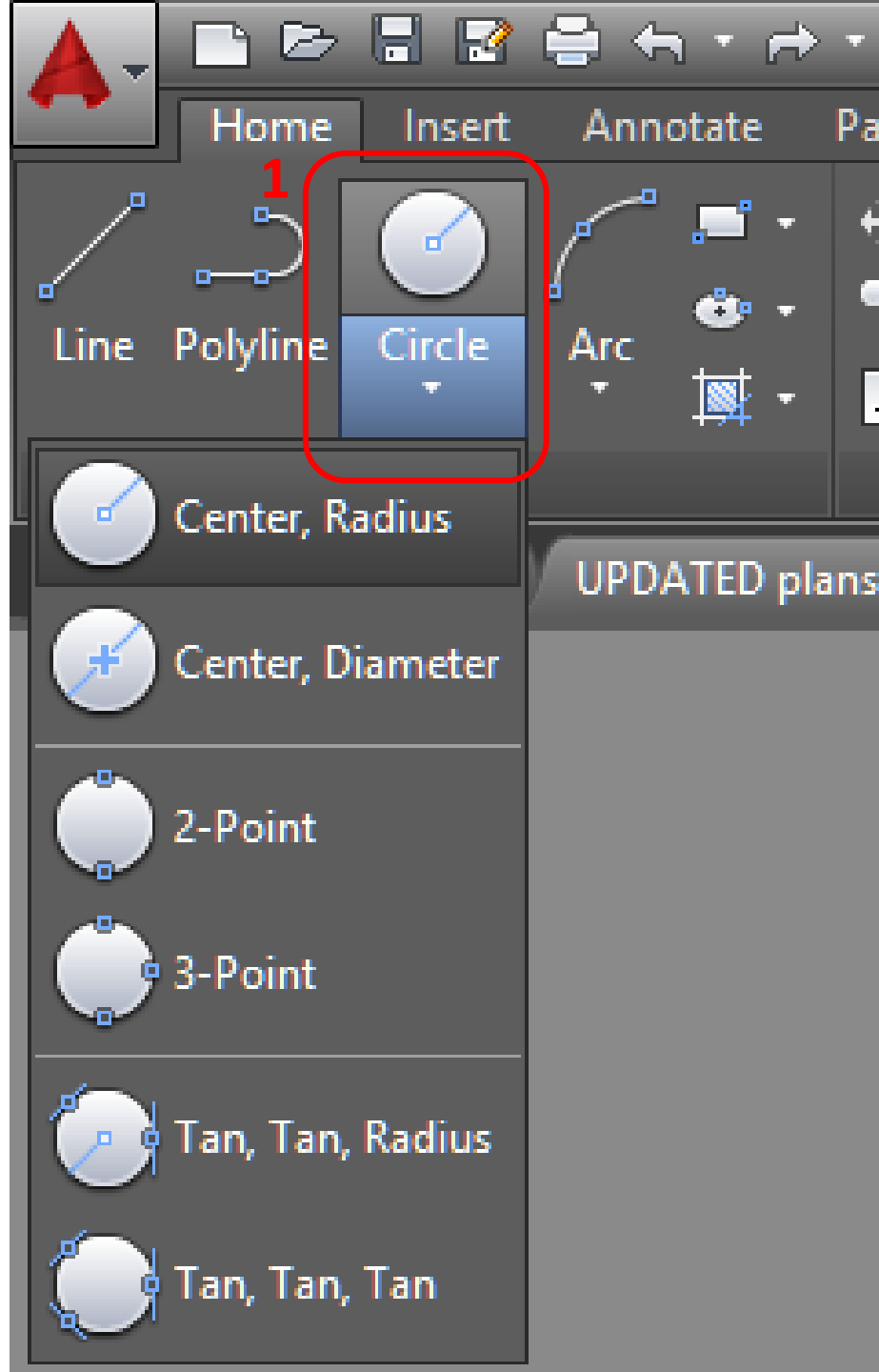
Check your drafting!

Pulling information directly from your drawing using *measure* utilities such as *distance*:

COMMAND	KEYBOARD	ICON	DESCRIPTION
Distance	DISTANCE / DI	Distance	Distance measures the distance and angle between two points
Radius	MEASUREGEOM	Radius	Measures the radius of an arc or a circle.
Angle	MEASUREGEOM	Angle	Measures the angle between two lines.
Area	AREA	Area	Area Calculates the area and perimeter of objects or of defined areas.
Volume	MEASUREGEOM	Volume	Area Calculates the area and perimeter of objects or of defined areas.
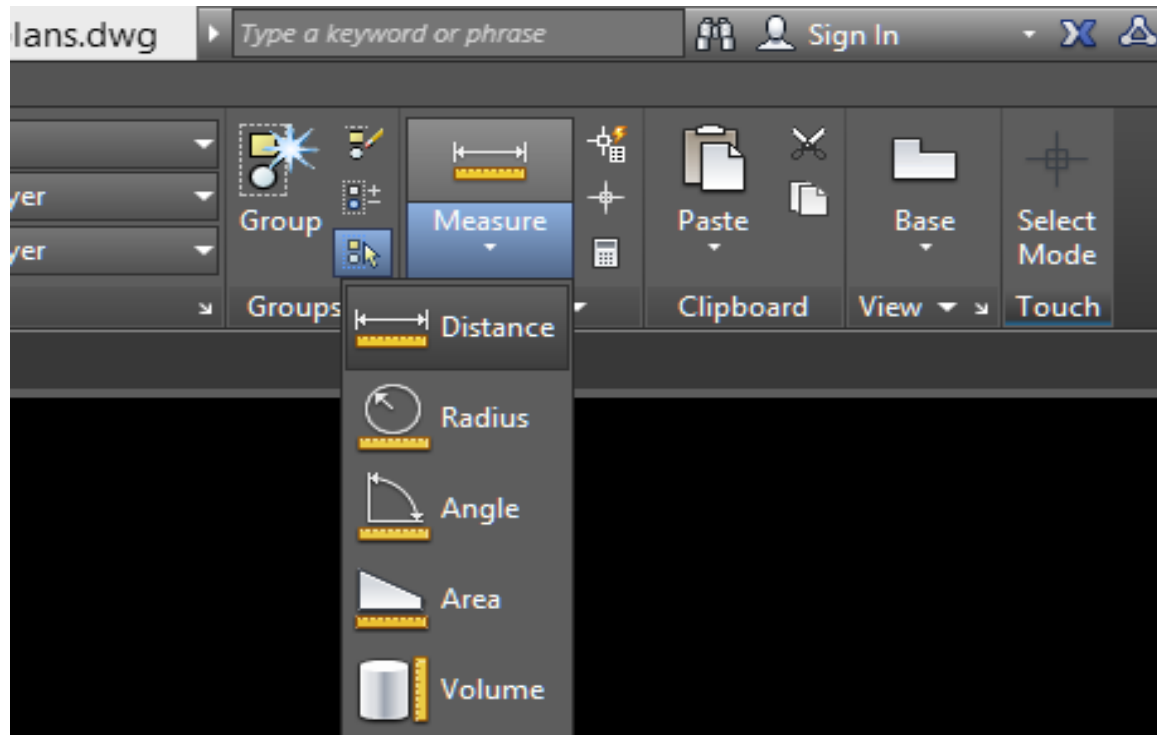
Viewports
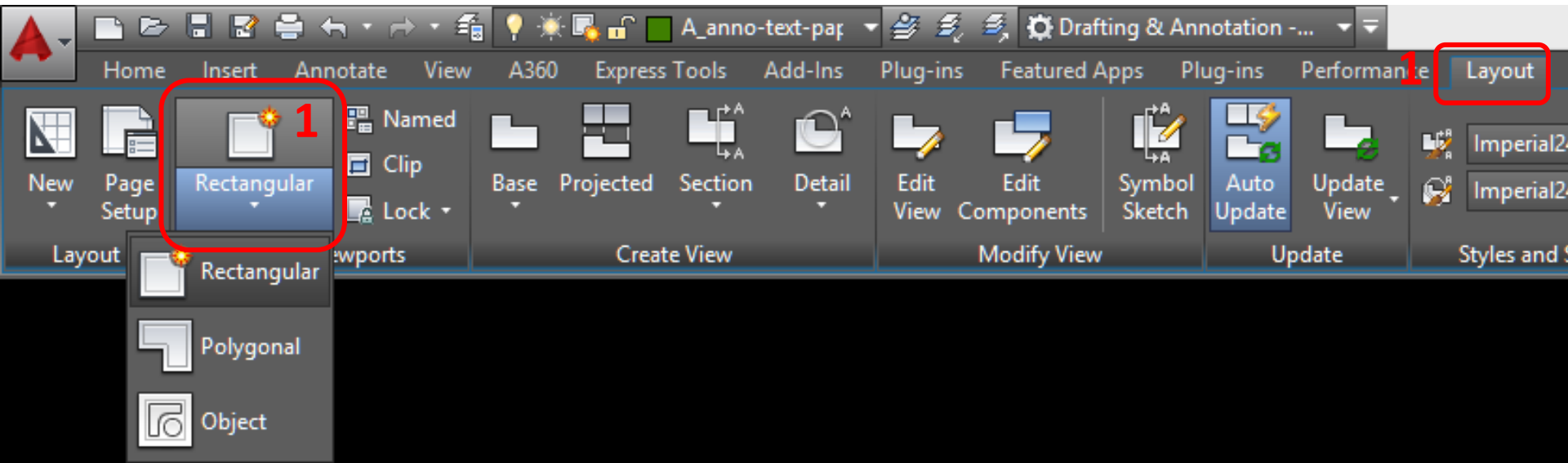
Viewports create a view into model space at a specific scale.

- Use the Titleblock constructed in *paper space* for the previous assignment
    1. Create a new Viewport (Rectangular)
    2. Double click inside your viewport and zoom to the are to be centered in your viewport
    3. Select the viewport, then select the scale in the viewport properties menu at lower right corner
    4. Pan within your viewport to center the drawing
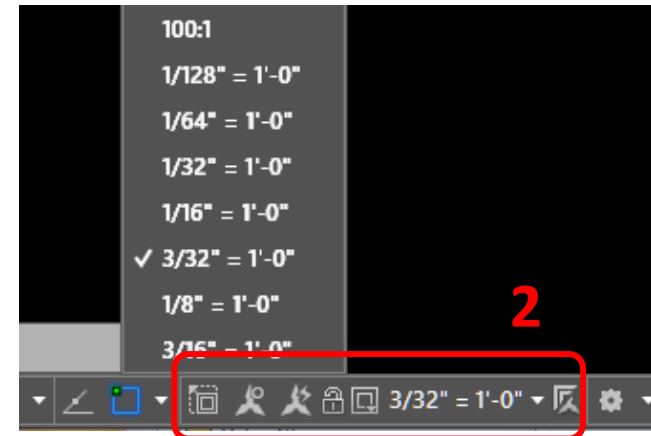
Scale Factors

We draft at 1:1 in model space, full scale. We use drawing scales so that we can view an entire building or city block on a manageable sheet of paper.

Scale factors are the reciprocal of the drawing scale. We can use them for objects in model space that should appear the same size regardless of the scale of the drawing… text, dimensions, symbols.

Calculating Scale Factor

To convert an architectural drawing scale to a scale factor:

1. Select the desired scale. 1/8" = 1'-0"
2. Invert the fraction and multiply by 12. 8/1 x 12 = Scale Factor 96

Architectural Scales

DRAWING SCALE	SCALE FACTOR	VIEWPORT SCALE	DECIMAL SCALE
1/16" = 1'-0"	192	1/192xp	.0625" = 1'-0"
3/32" = 1'-0"	128	1/128xp	.09375" = 1'-0"
1/8" = 1'-0"	96	1/96xp	.125" = 1'-0"
3/16" = 1'-0"	64	1/64xp	.1875" = 1'-0"
1/4" = 1'-0"	48	1/48xp	.25" = 1'-0"
3/8" = 1'-0"	32	1/32xp	.375" = 1'-0"
1/2" = 1'-0"	24	1/24xp	.50" = 1'-0"
3/4" = 1'-0"	16	1/16xp	.75" = 1'-0"
1" = 1'-0"	12	1/12xp	1" = 1'-0"
1 1/2" = 1'-0"	8	1/8xp	1.5" = 1'-0"
3" = 1'-0"	4	1/4xp	3" = 1'-0"

Site Plan: Process

1. **Draft the objects in MODEL SPACE**
   a) Start with guidelines
   b) Complete with proper layers (linewieghts and linetypes)
2. **Annotation:**
   a) Copy symbols and text from template information, apply as required
   b) Add notes and dimensions
3. **Drawing Layout in PAPER SPACE**
   a) Create a copy of your A000 Tab and rename A-004
   b) Create a viewport and adjust the scale
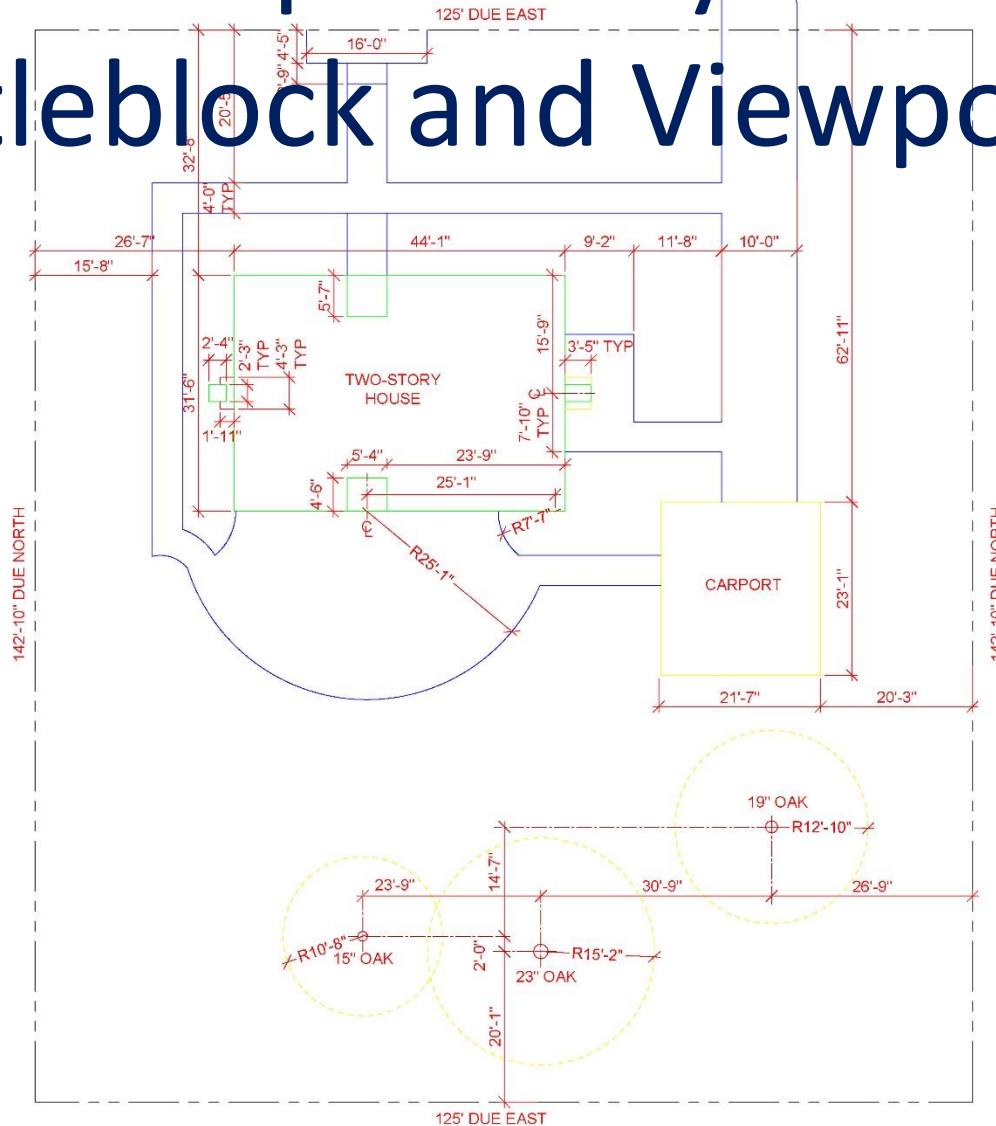   c) Center the drawing in the viewport
   d) Add Title/Scale and North Arrow
4. **Titleblock**
   a) Complete Title, Scale, Date fields etc
5. **Review and Submit "Last Name, First Name - Assignment.DWG" file via Dropbox**

Complete Layout:
Titleblock and Viewport

125' DUE EAST

16'-0"

-9' 4'-5'

32'-8'

4'-0' TYP

26'-7"   44'-1"   9'-2"   11'-8"   10'-0"

15'-8"

5'-7"

2'-4"

2'-3" TYP

4'-3" TYP

15'-9'

3'-5" TYP

31'-6"

TWO-STORY HOUSE

7'-10" TYP ℄

62'-11"

1'-11"

5'-4"   23'-9"

25'-1"

4'-6"

℄

R25'-1"

R7'-7"

142'-10" DUE NORTH

CARPORT

23'-1"

142'-10" DUE NORTH

21'-7"   20'-3"

19" OAK

R12'-10"

23'-9"

14'-7"

30'-9"   26'-9"

R10'-8" 15" OAK

2'-0"

R15'-2"

23" OAK

20'-1"

125' DUE EAST

① **SITE PLAN**
3/32" = 1'-0"