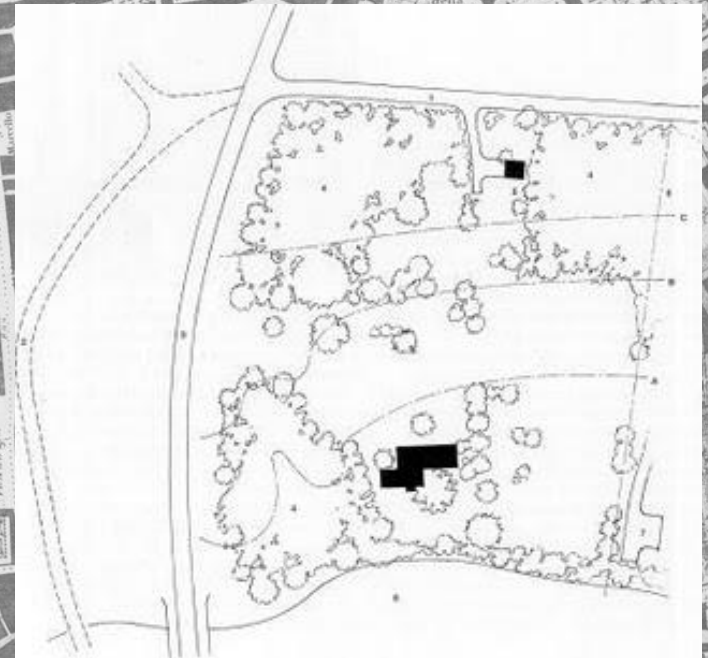


Site Plan:

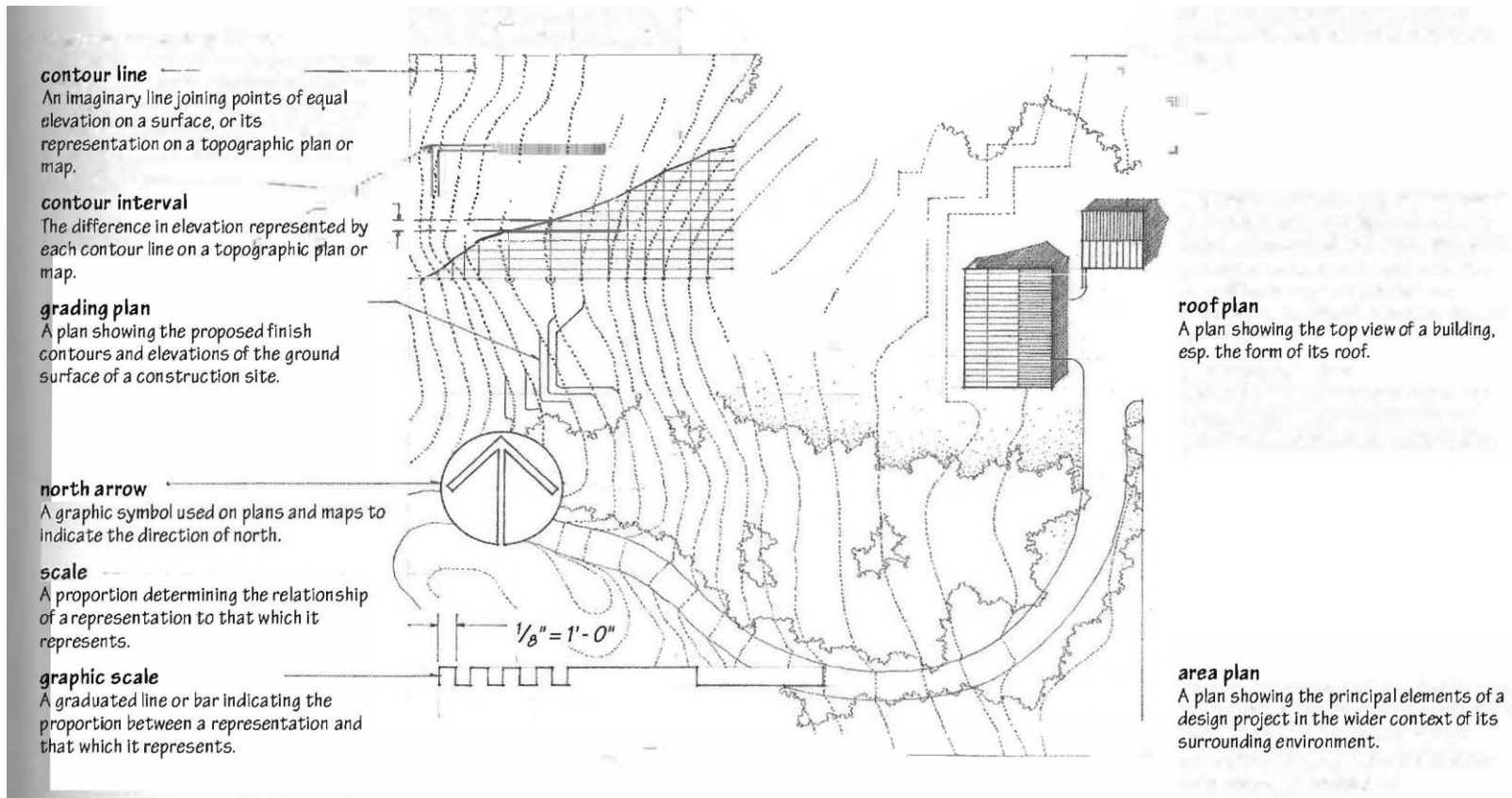
Illustrates the existing natural and built features of a site and describes proposed construction in relation to the existing features. The site plan is essential for studying the influence of the environmental and regulatory factors on the planning, siting, and massing of a building.



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.

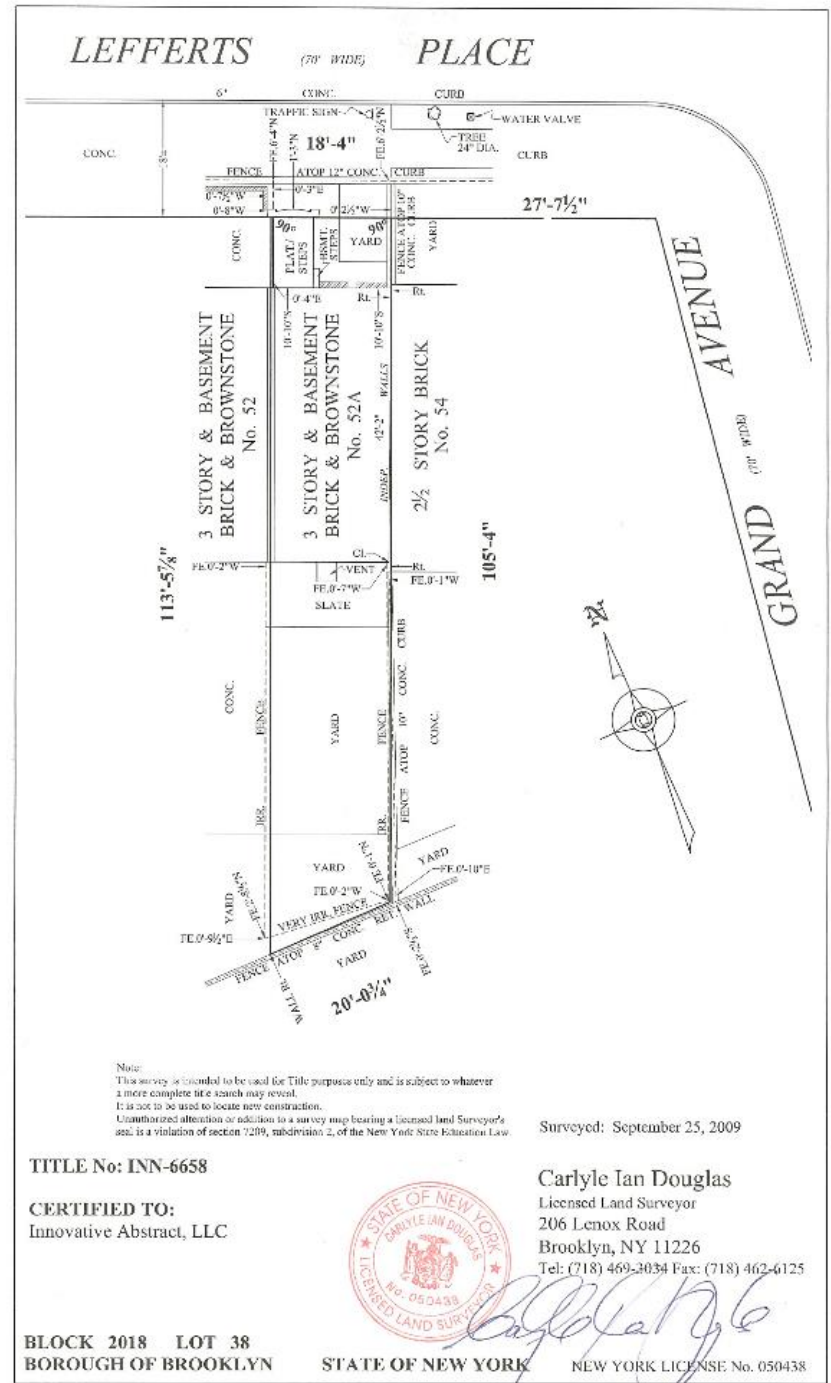


The site plan is usually based on an professional land survey.

What is a *Survey*?

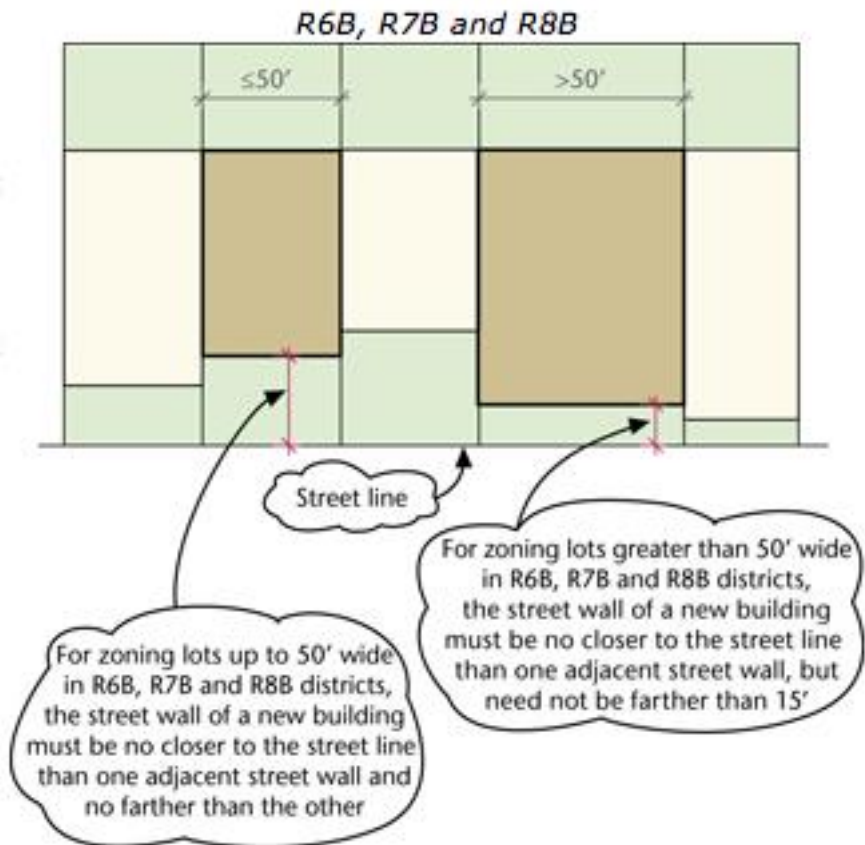
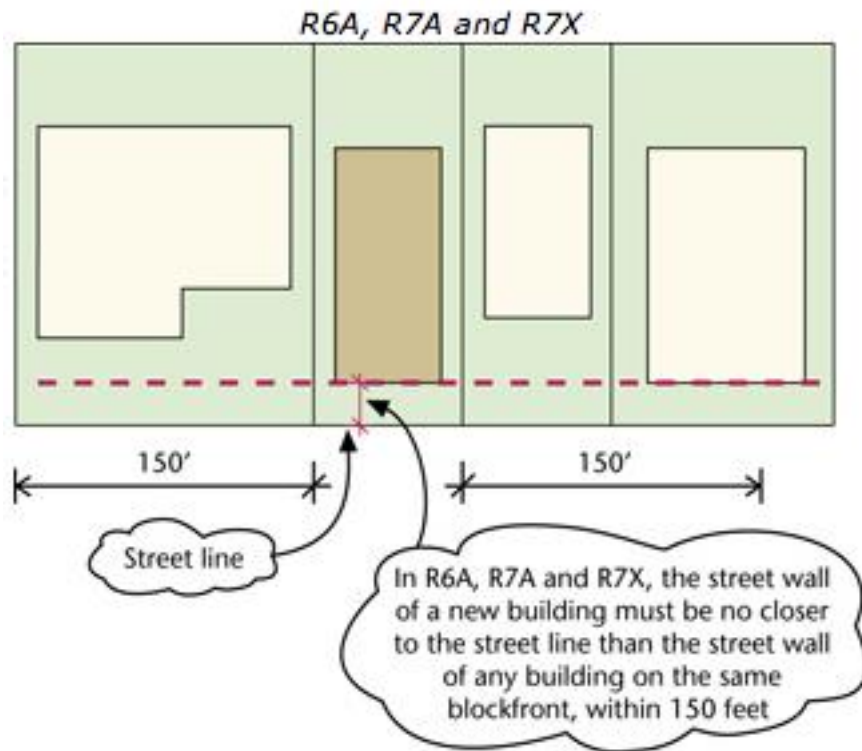
A land survey locates, describes, and maps the boundaries and corners of a parcel of land including:

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



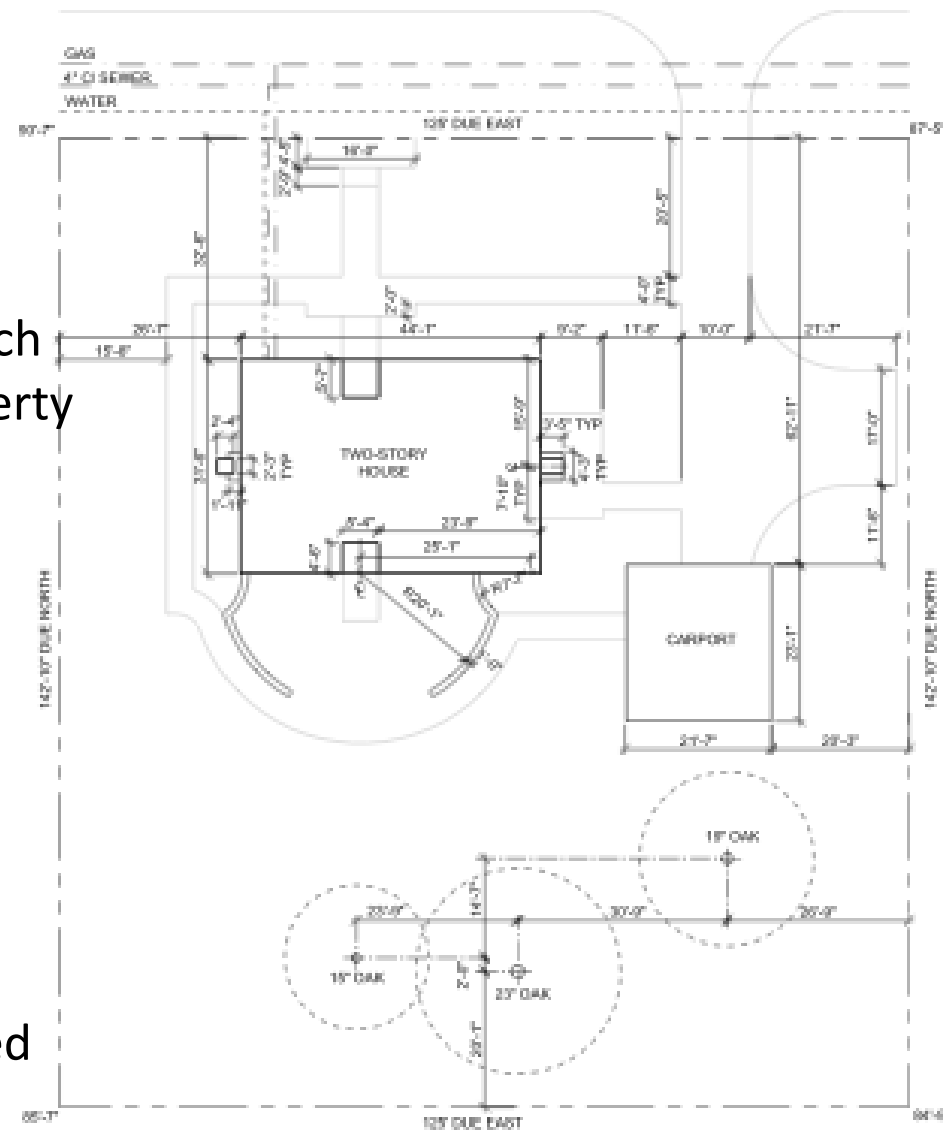
Zoning Ordinance

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



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





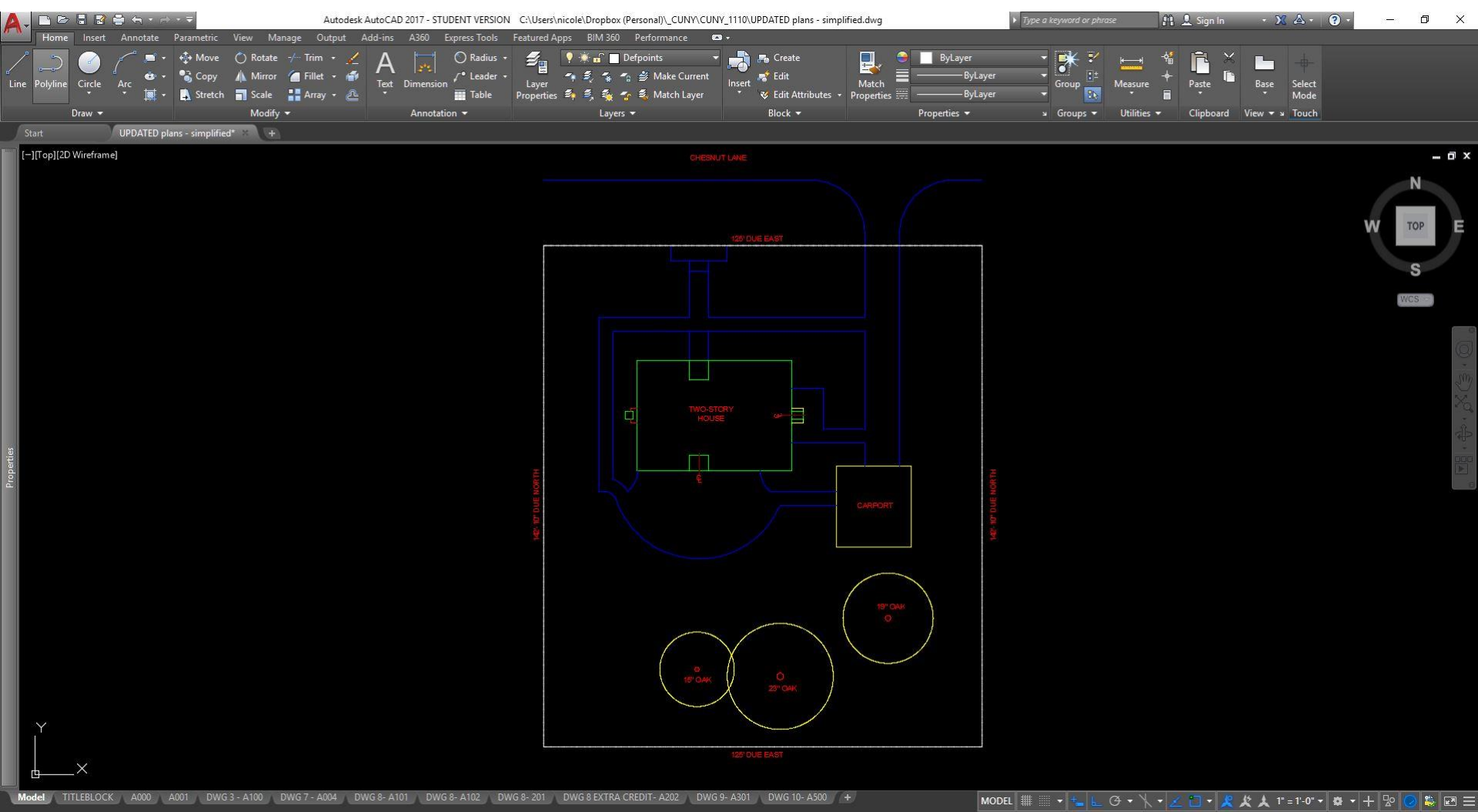
[Margaret Esherick House](#), Louis Kahn, 1961.

Autocad Techniques

- X-Lines
- Offset
- Extend/Trim
- Layers and Color Styles
- Line-types
- Text Styles
- Paper Space vs Model Space
- Viewports

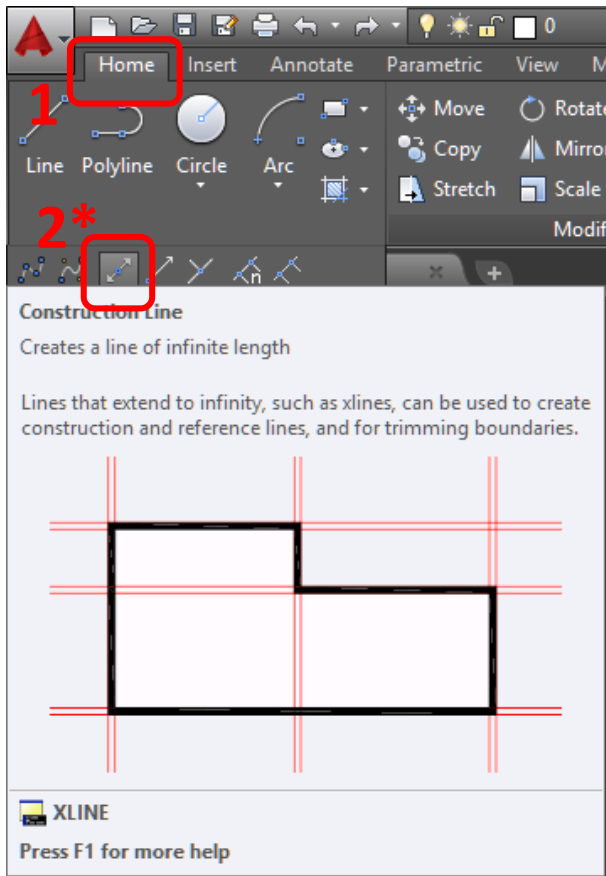
Tools we have learned:

- Copy/Paste
- Ortho Mode and Polar Tracking
- Object Snap
- Line



Construction Lines

Lines that extend to infinity and can be used as guidelines.



- *or type “xl” for x-line
- then “h” for a horizontal line
- or “v” for vertical line

Trim/Extend

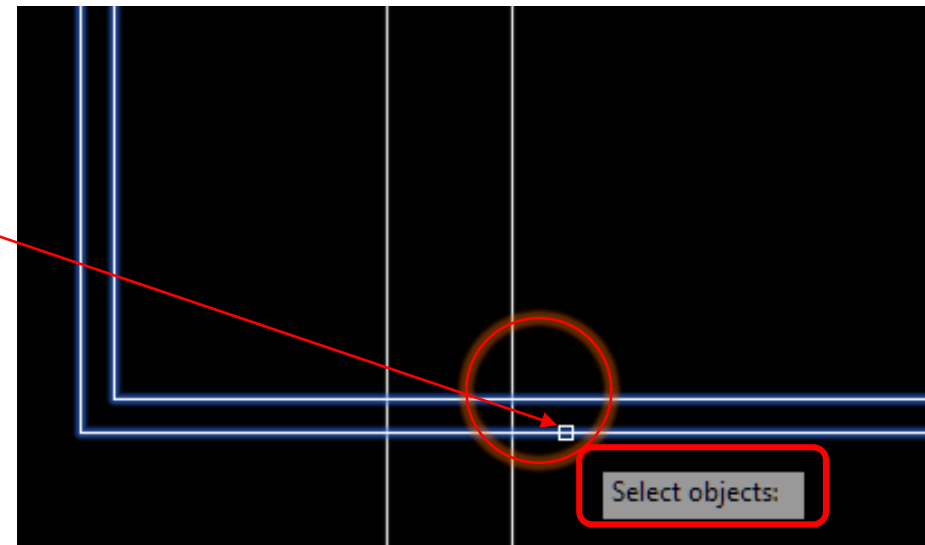
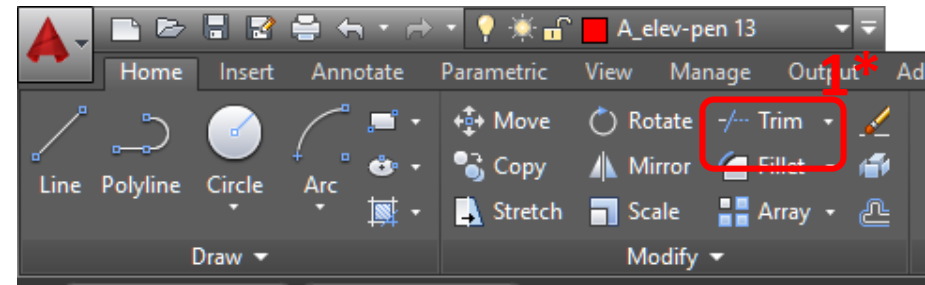
Trim objects to meet the edges of other objects.

Resources: [Autodesk / Trim Command](#)

1. Trim tool used to trim edges of lines (Shortcut “tr”)

***down arrow for extend command**

2. Select trim edges



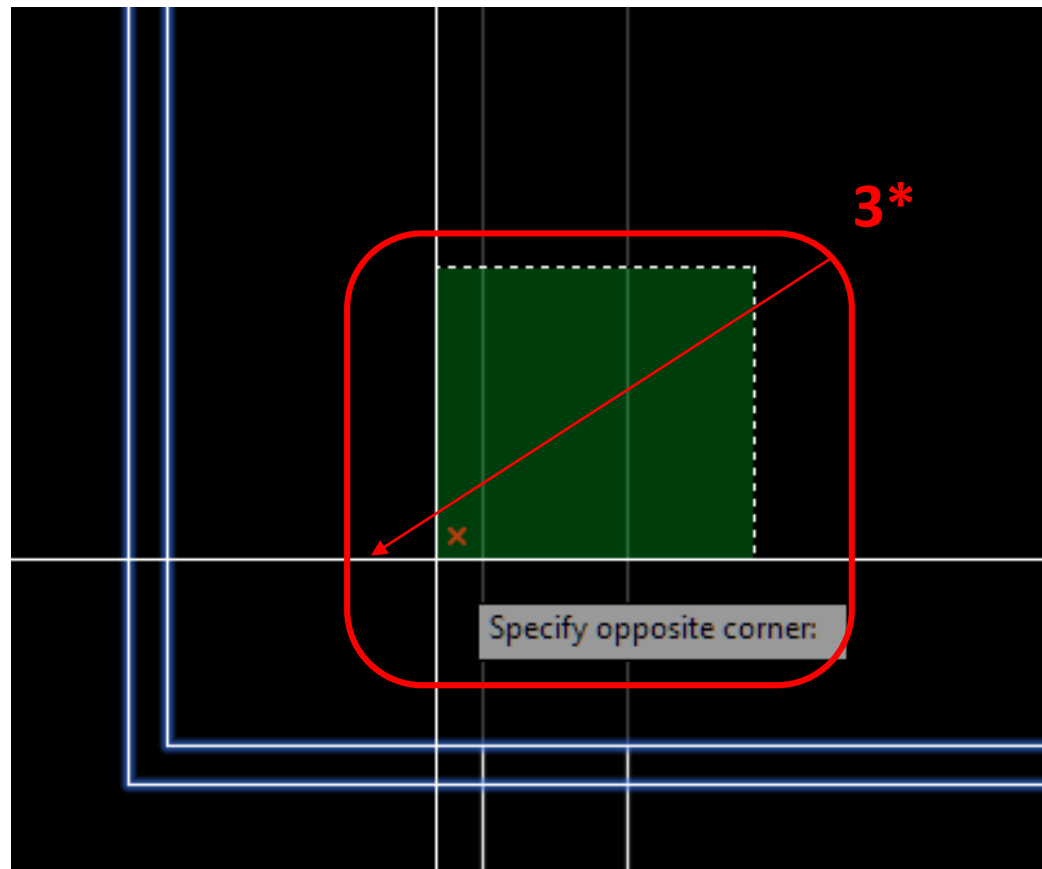
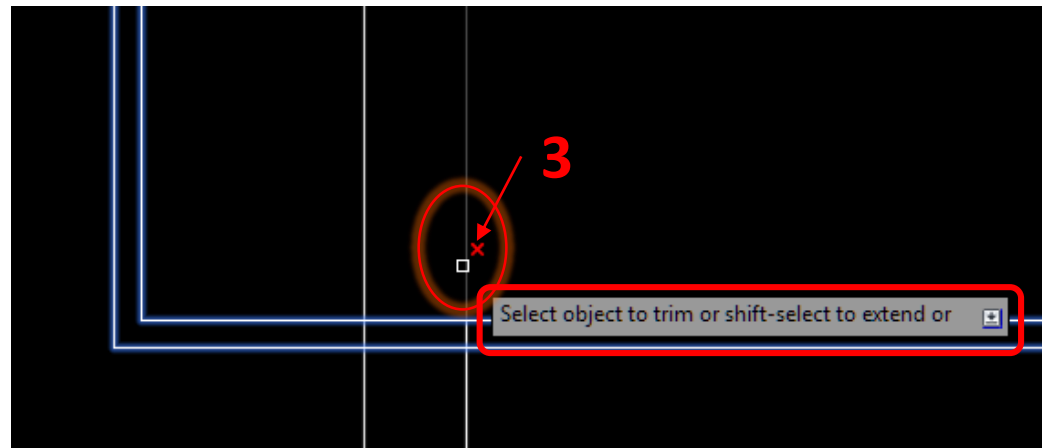
Trim/Extend

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

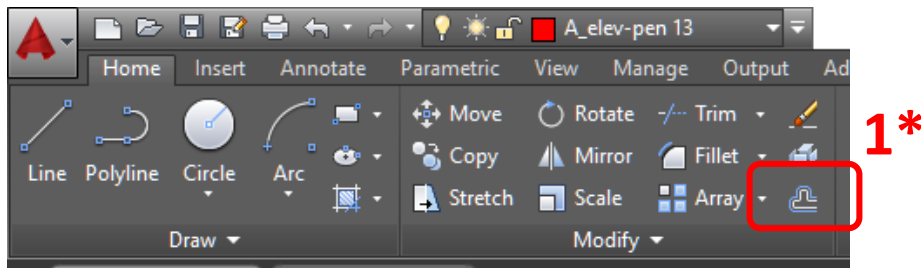
Note: Line to be trimmed is greyed out when mouse is placed over it as a preview



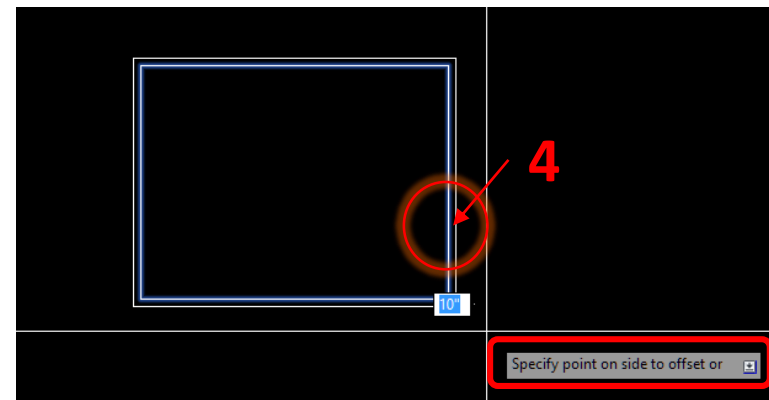
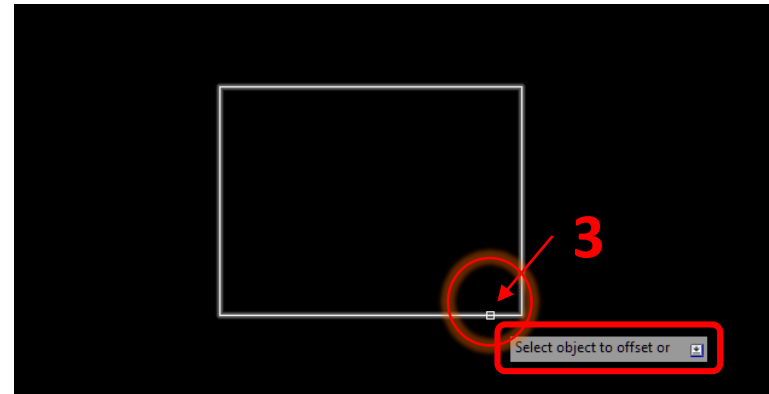
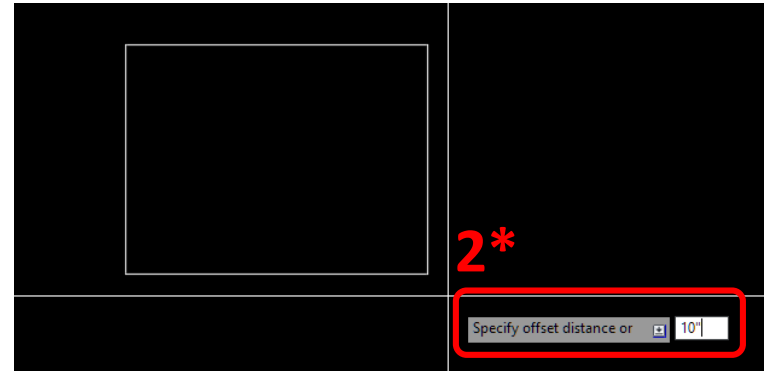
Offset

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

Resources: [Autodesk / To Offset and Object](#)



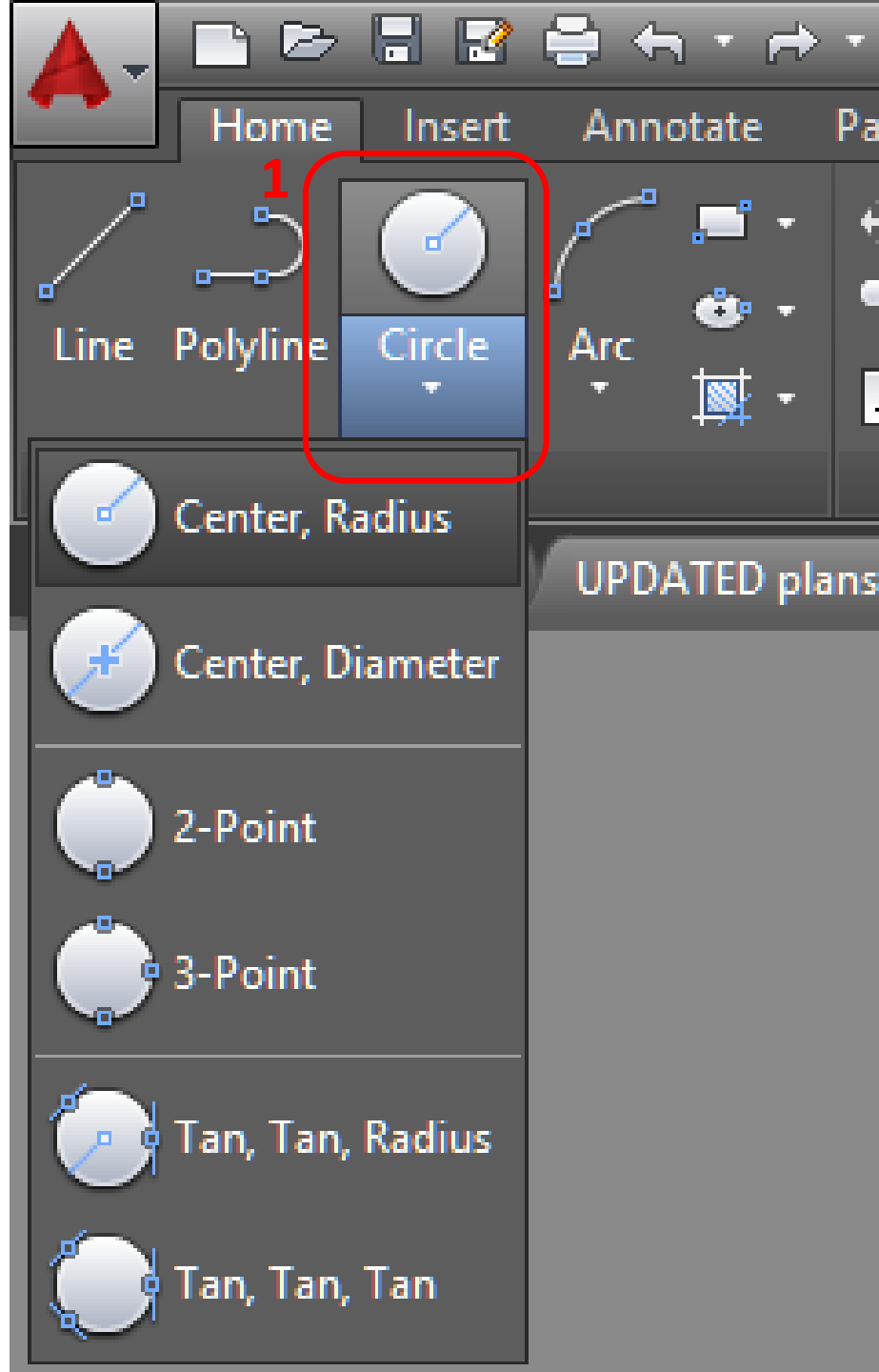
1. Select the offset tool
***or type "o"**



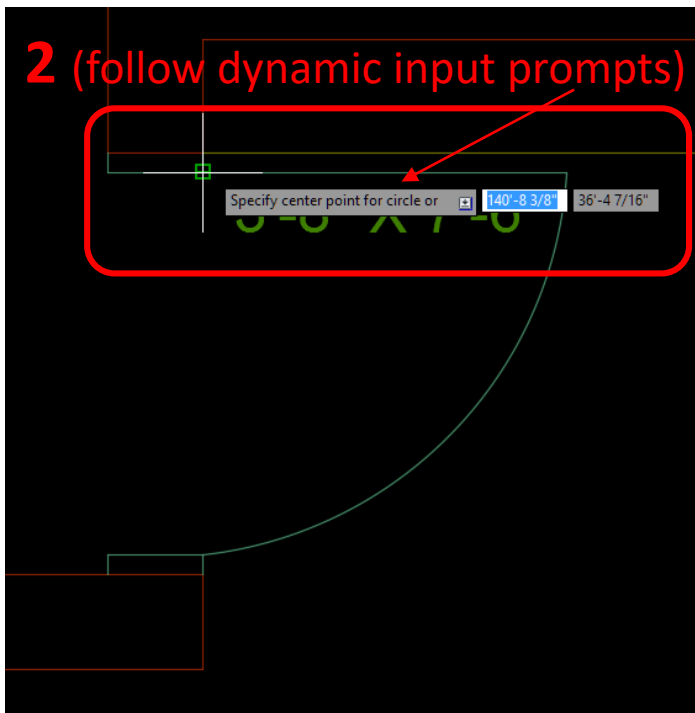
Circle

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)



Layers

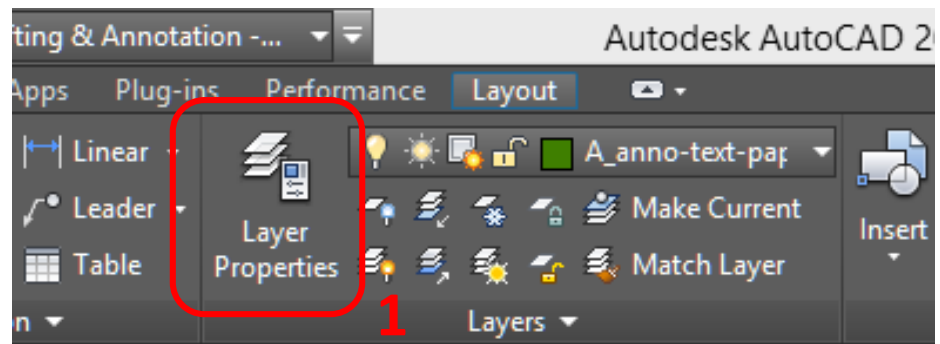
A **layer** is a virtual piece of paper on which objects/linework is placed. All layers are visible on top of each other... think of it as layers of vellum overlays. This helps in organizing your drawing and keep various elements separate from one another.

- Layers are given a standard name and color
- Layers can be turned on/off, freeze/thaw (visible/not visible), locked, re-ordered (above/behind other layers), matched...
- The **defpoints** layer does not print and is useful as guidelines

Resources: [Autodesk Layer Guide](#)

To create a new layer:

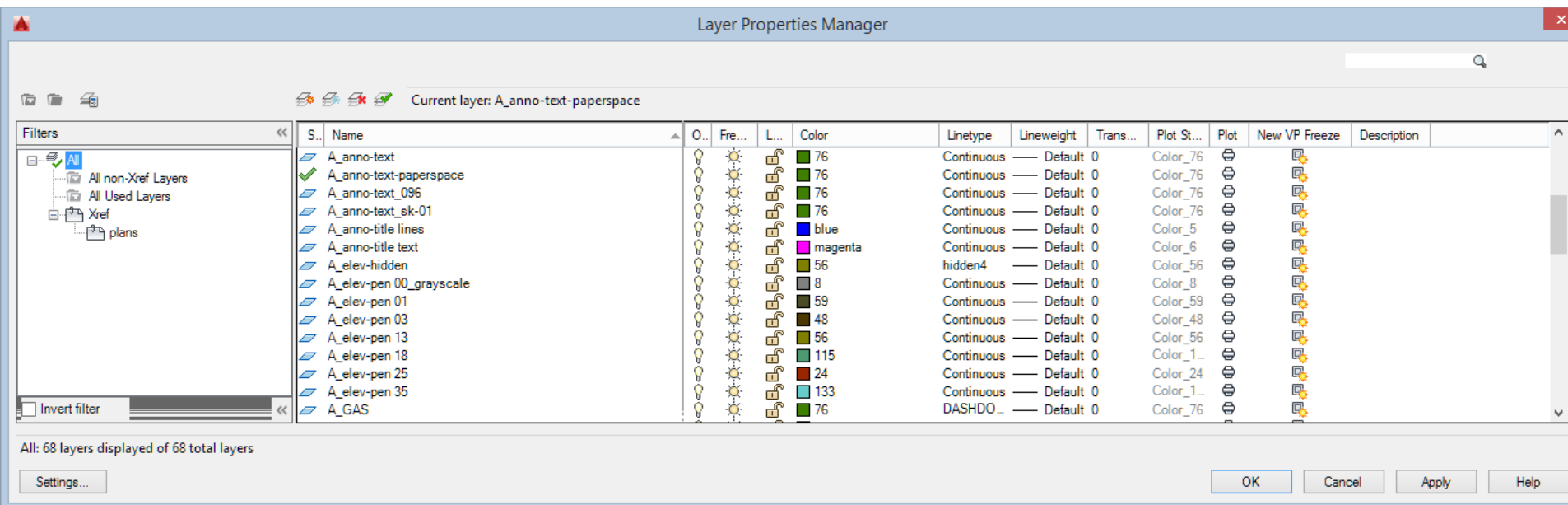
1. Select “Layer Properties Manager”



Layer Properties Manager

Allows you to create new layers and modify layer properties.

- Create new layers, delete layers
- Rename layers
- Layers can be turned on/off using lightbulb
- Linetypes can be assigned to a layer
- Color can be assigned to a layer to identify line weight



Layer Names

Follow standard *layer name* formatting.

Layer Name Formatting									
# 1	A-WALL	=	Discipline Code	+	Major Group				
# 2	A-WALL-FULL	=	Discipline Code	+	Major Group	+	Minor Group		
# 3	A-WALL-DEMO	=	Discipline Code	+	Major Group	+	Status Code		
# 4	A-WALL-FULL-E	=	Discipline Code	+	Major Group	+	Minor Group	+	Status Code

Discipline Designator			
A	Architectural	O	Operations
B	Geotechnical	P	Plumbing
C	Civil	Q	Equipment
D	Process	R	Resource
E	Electrical	S	Structural
F	Fire Protection	T	Telecommunications
G	General	U	University (HU defined)
H	Hazardous Materials	V	Survey/Mapping
I	Interiors	X	Other Disciplines
L	Landscape	Z	Contractor / Shop Drawings
M	Mechanical		

Layer Colors

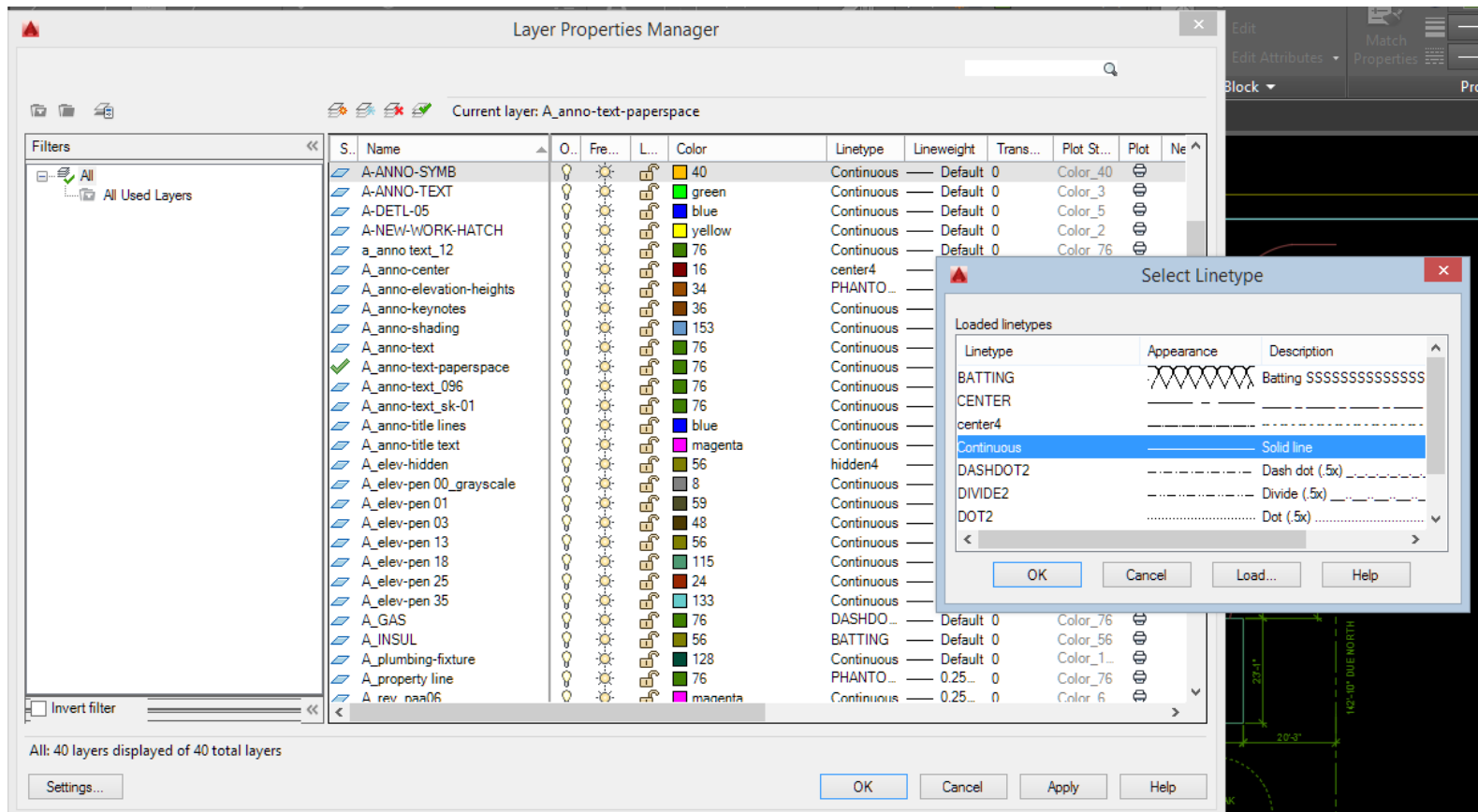
Layers are assigned colors allowing for clear distinction between various elements.

Color can also be used to determine the plotted properties of lines. Colors can be assigned lineweights. *See plot styles.*



Line-types

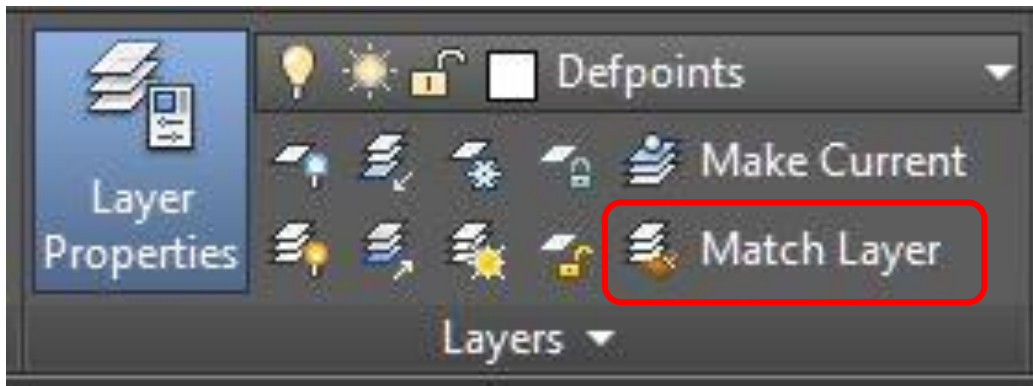
Layers are assigned *line-types*, which function the same as with analog drafting techniques.



Modifying Properties

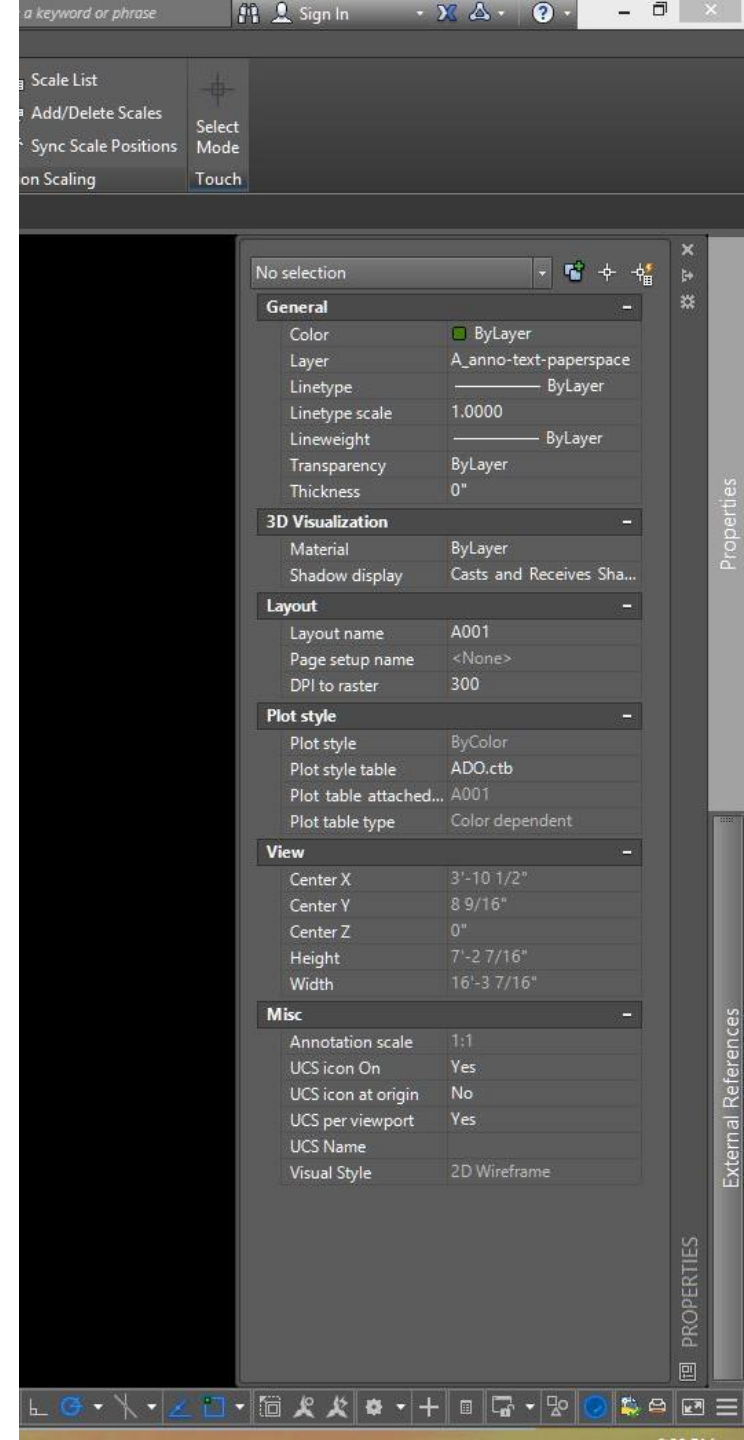
Use the **Layers** Ribbon tab:

- Select the object, then select the desired layer in the dropdown menu
- Match layer properties, select source layer then the object you want to match



Or

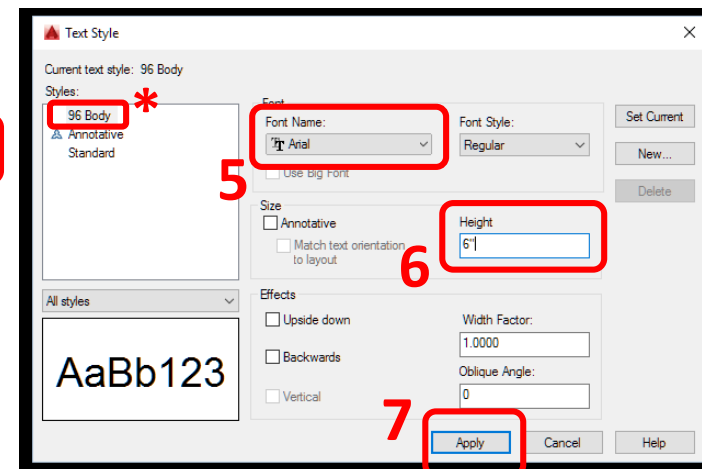
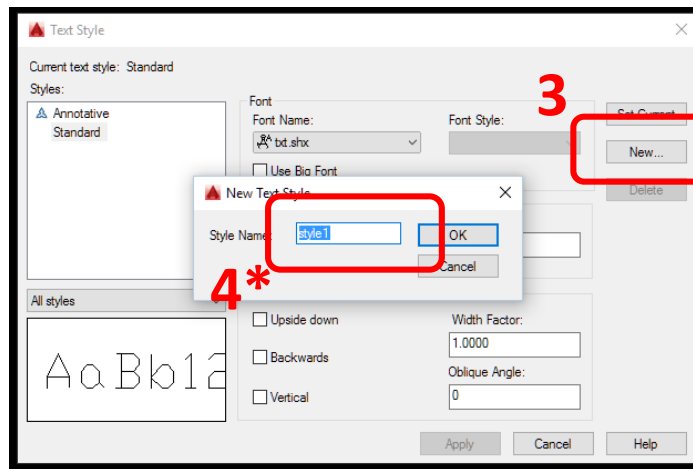
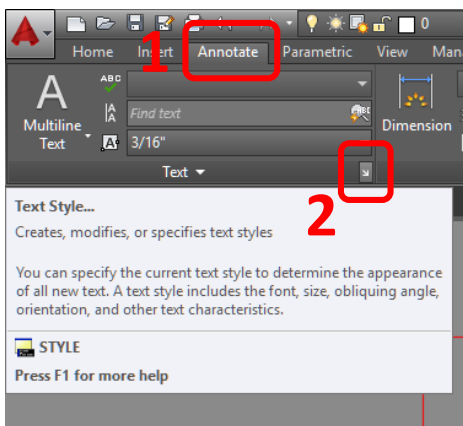
Properties Palette (to open: select an object then right click, then select “properties”)



Adding Text Styles

You will need to create a text style for heading (1/4") and body text (1/8") per the associated text scale factor. The text scale factor is based on the scale of the drawing in your viewport.

For example: I draft my floor plan at 1:1 in model space and I want the drawing to print at a scale of 1/4"=1'-0". I will create a text style for body text with height of 6" (Refer to chart).








Adding Text Styles – Scale Factor

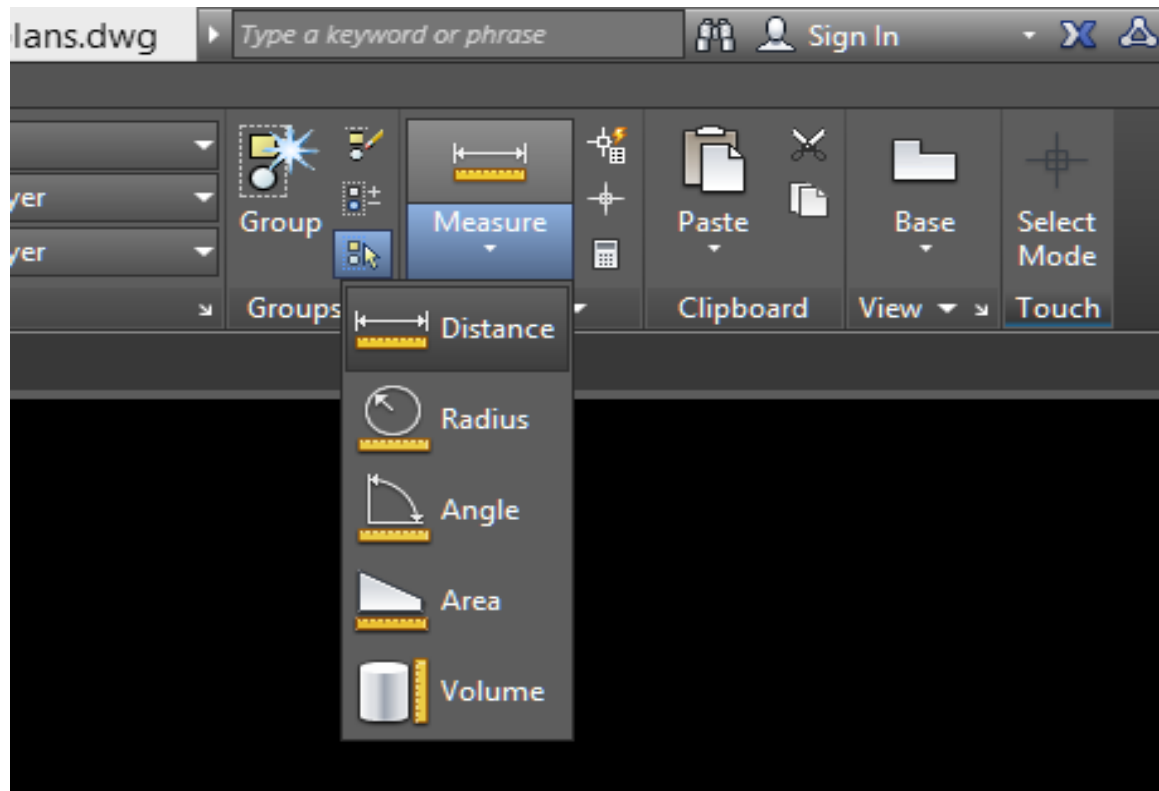
What scale
will your
drawing be?

PLOT SCALE	PLOTTED TEXT HEIGHT							
	1/16"	3/32"	1/8"	5/32"	3/16"	7/72"	1/4"	
FULL	.0625	.09375	.125	.15625	.1875	.21875	.25	
1/16"=1'-0"	12	18	24	30	36	42	48	
3/32"=1'-0"	8	12	16	20	24	28	32	
1/8"=1'-0"	6	9	12	15	18	21	24	
3/16"=1'-0"	4	6	8	10	12	14	16	
1/4"=1'-0"	3	4.5	6	7.5	9	10.5	12	
3/8"=1'-0"	2	3	4	5	6	7	8	
1/2"=1'-0"	1.5	2.25	3	3.75	4.5	5.25	6	
3/4"=1'-0"	1	1.5	2	2.5	3	3.5	4	
1"=1'-0"	.75	1.125	1.5	1.875	2.25	2.655	3	
1-1/2"=1'-0"	.5	.75	1	1.25	1.5	1.75	2	
3"=1'-0"	.25	.375	.5	.625	.75	.875	1	
1"=10'	7.5	11.25	15	18.75	22.5	26.5	30	
1"=20'	15	22.5	30	37.5	45	52.5	60	
1"=30'	22.5	33.75	45	56.25	67.5	78.75	90	
1"=40'	30	45	60	75	90	105	120	
1"=50'	37.5	56.25	75	93.75	112.5	131.25	150	
1"=60'	45	68.5	90	112.5	135	157.5	180	
1"=100'	75	112.5	150	187.5	225	262.5	300	

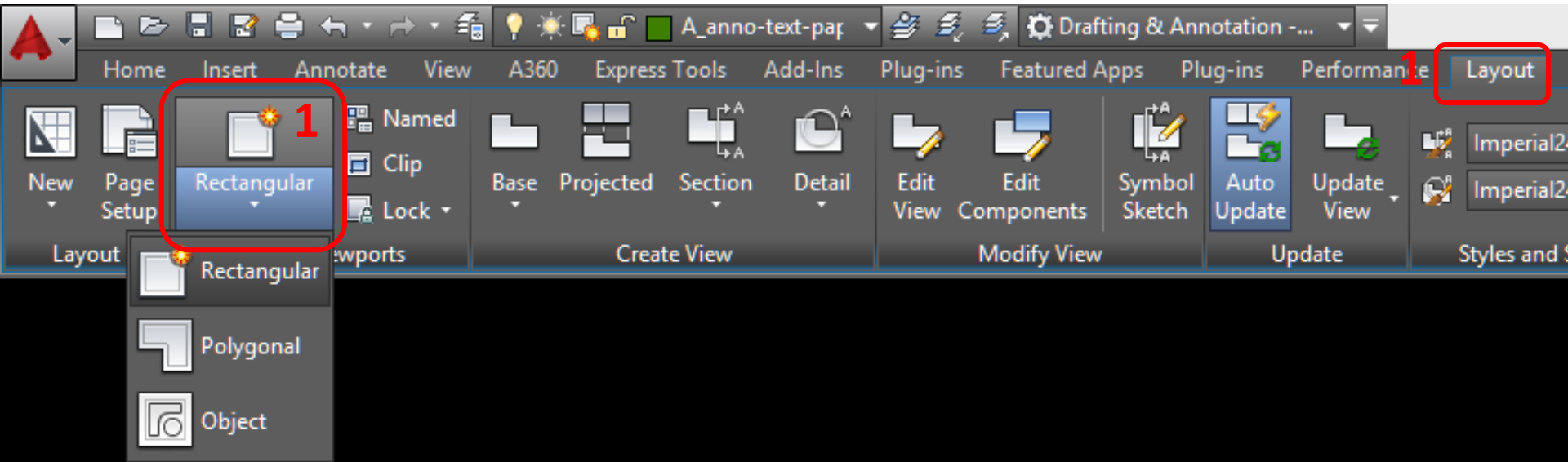
Check your drafting!

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.

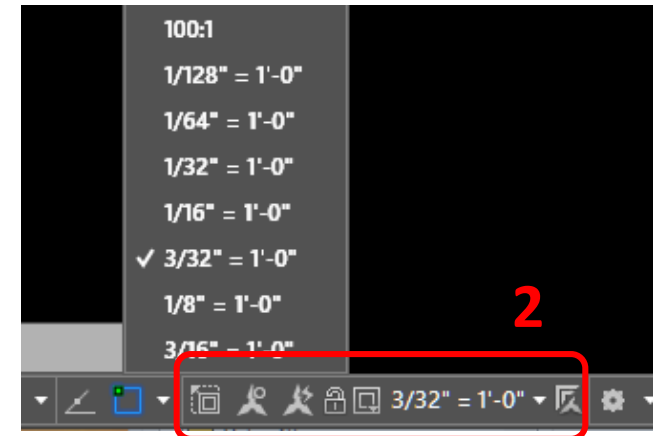


Viewports



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 area 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. $8/1 \times 12 = \text{Scale Factor } 96$

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) Create required text styles
- b) Label the objects

3. Drawing Layout in PAPER SPACE

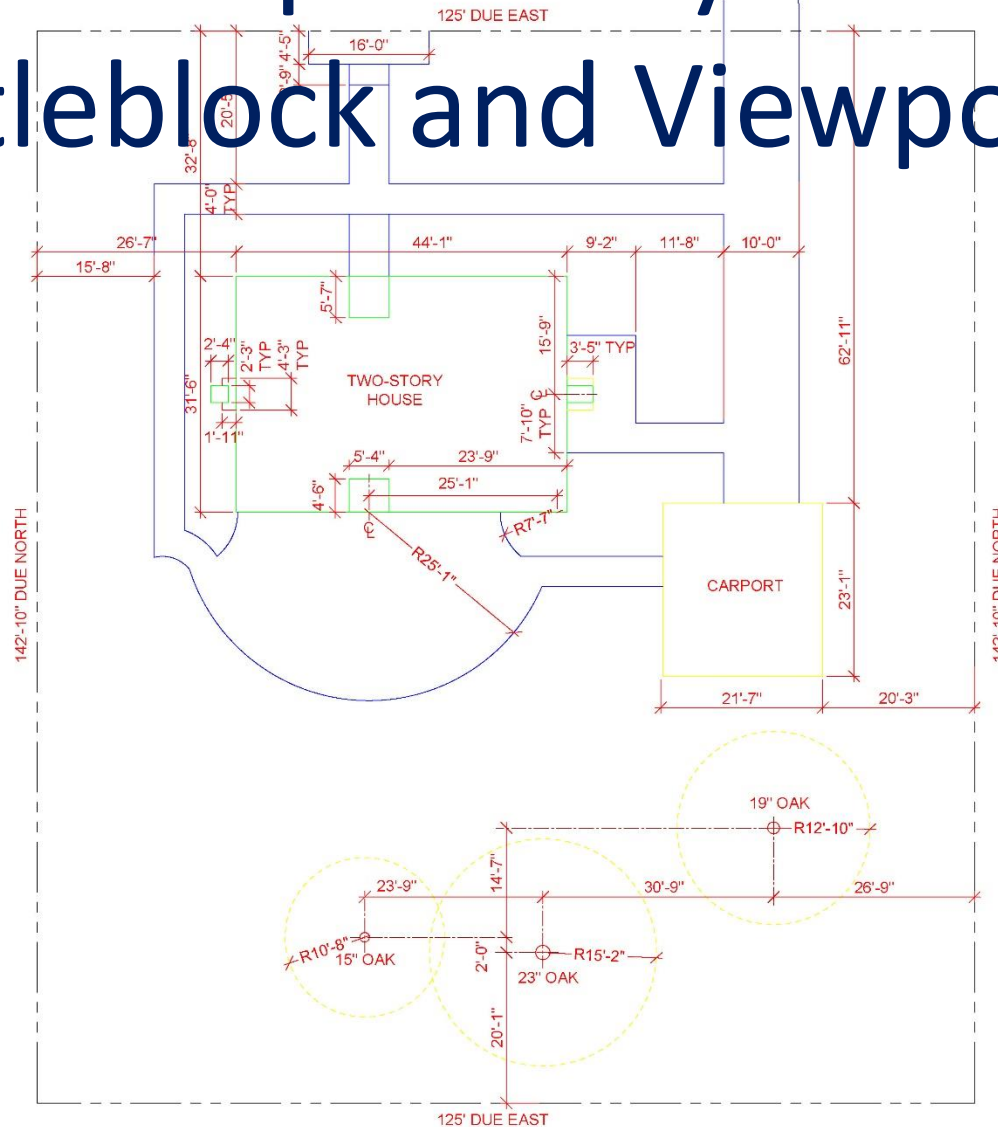
- a) Create a copy of your A000 Tab and rename A-004
- b) Create a viewport and adjust the scale
- c) Center the drawing in the viewport
- d) Add Title/Scale and North Arrow

4. Titleblock

- a) Complete Title, Scale, Date fields etc

5. Review and Submit via Dropbox/Pape Copy

Complete Layout: Titleblock and Viewport



1 SITE PLAN
3/32" = 1'-0"



ESHERICK HOUSE
204 SUNRISE LANE
PHILADELPHIA, PA 19118
LOUIS KAHN, 1961

NOTES:

NEW YORK CITY
COLLEGE OF
TECHNOLOGY

DRAWN BY:
YOUR NAME

DATE:

SCALE:

A-004

Assignment Specifications:

- Create a Dropbox folder “A-004”
- Upload your progress drawing at the end of this class to your Dropbox folder.
Name files: Last Name First Name – Assignment Title.
- Upload final submission *BEFORE THE START OF THE NEXT CLASS*
- Submit 8.5”x11” plot of each drawing *AT THE START OF THE NEXT CLASS*