

# Carpentry Level One



Introduction to Construction Drawings, Specifications, and Layout 27104-13





# Objectives

List the types of drawings usually included in a set of plans and describe the information found on each type.

- a. Identify the different types of lines used on construction drawings.
- b. Identify selected architectural symbols commonly used to represent materials on plans.
- c. Identify selected electrical, mechanical, and plumbing symbols commonly used on plans.
- d. Identify selected abbreviations commonly used on plans.

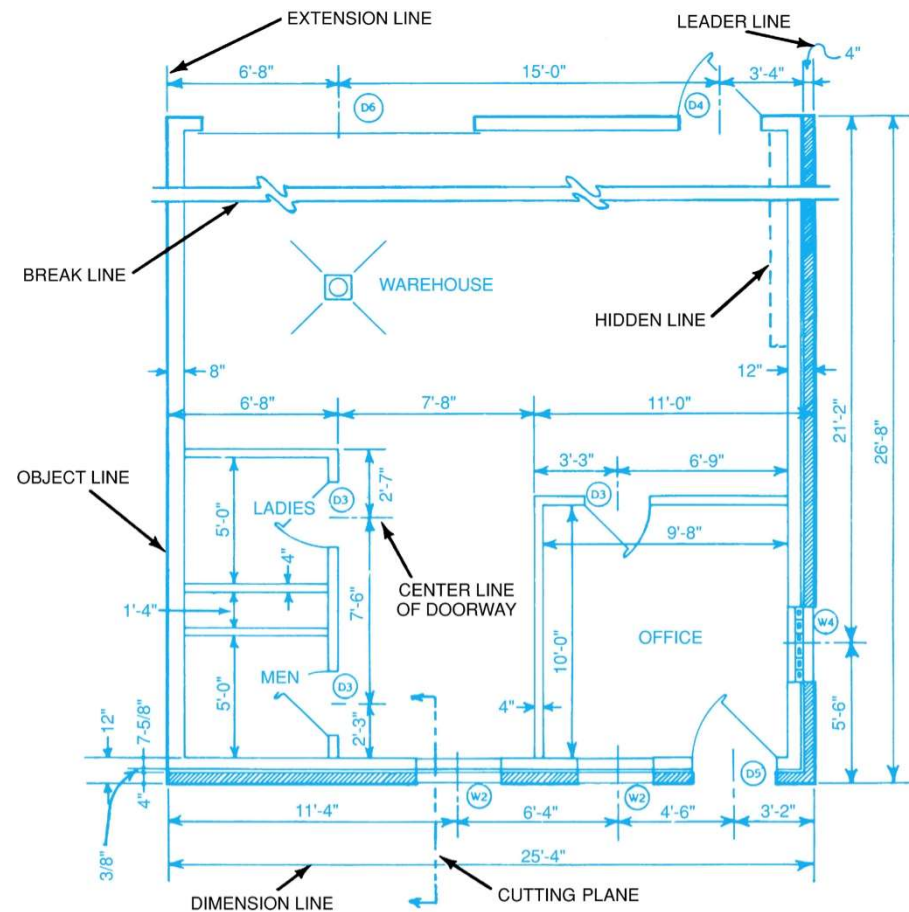
# Kickoff Activity

- Using the construction drawings provided, identify what information is readily understandable.



# Section 1.0.0

- A special language of lines, symbols, abbreviations, and notes is used on construction drawings to deliver the architect's message as clearly and concisely as possible.



## Section 1.1.0

- Common lines used on construction drawings:
  - Object line
  - Center line
  - Cutting plane line
  - Break line
  - Leader line
  - Dimension and extension lines
  - Hidden line
  - Phantom line
  - Stair indicator line
  - Contour lines



## Section 1.1.0

- Identify each type of line with its definition.

- |                       |   |
|-----------------------|---|
| 1. Center line        | A. Connects a note or dimension to a related part of the drawing        |
| 2. Contour line       | B. Designates the center of an area or object                           |
| 3. Cutting plane line | C. Indicates alternative positions of moving parts                      |
| 4. Hidden line        | D. Indicates an area that is being cut away and shown in a section view |
| 5. Leader line        | E. Indicates an outline that is invisible to an observer                |
| 6. Object line        | F. Shows the changes in elevation                                       |
| 7. Phantom line       | G. Shows the main outline of a structure                                |



## Section 1.2.1

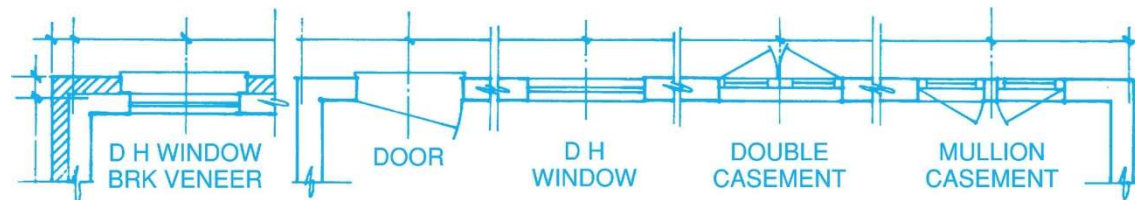
- Typically, materials are shown on drawings in two ways:
  1. As a plan view, where the material is presented as you would see it when looking down on it.
  2. As an elevation view or section view, where the symbol shows the material roughly as it would look when you are facing it.



## Section 1.2.2

- Window and door are shown on drawings as either elevation or plan views.

DOOR TYPE	SYMBOL	WINDOW TYPE	SYMBOL
SINGLE SWING		AWNING	
SLIDER		FIXED SASH	
BIFOLD		DOUBLE HUNG	
FRENCH		CASEMENT	
ACCORDION		HORIZONTAL SLIDER	



**DOORS AND WINDOWS IN BRICK VENEER AND WOOD STUD WALLS**



# Section 1.3.1

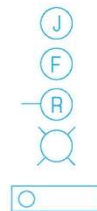
- Electrical symbols indicate the location of outlets and switches and auxiliary hardware.

## GENERAL OUTLETS

- Junction Box, Ceiling
- Fan, Ceiling
- Recessed Incandescent, Wall
- Surface Incandescent, Ceiling
- Surface or Pendant Single Fluorescent Fixture

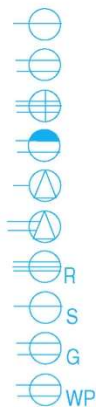
## SWITCH OUTLETS

- Single-Pole Switch
- Double-Pole Switch
- Three-Way Switch
- Four-Way Switch
- Key-Operated Switch
- Switch w/Pilot
- Low-Voltage Switch
- Door Switch
- Momentary Contact Switch
- Weatherproof Switch
- Fused Switch
- Circuit Breaker Switch



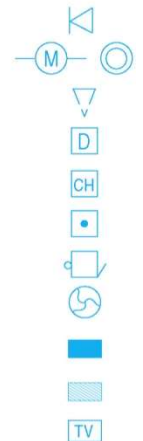
## RECEPTACLE OUTLETS

- Single Receptacle
- Duplex Receptacle
- Triplex Receptacle
- Split-Wired Duplex Recept.
- Single Special Purpose Recept.
- Duplex Special Purpose Recept.
- Range Receptacle
- Switch & Single Receptacle
- Grounded Receptacle
- Duplex Weatherproof Receptacle



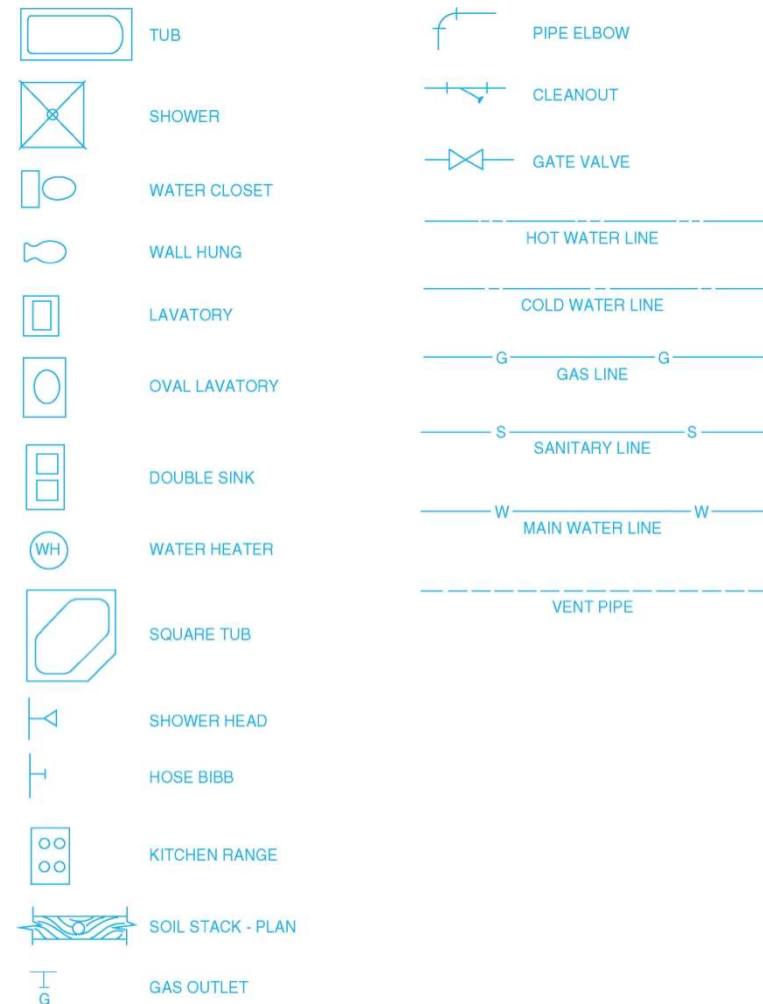
## AUXILIARY SYSTEMS

- Telephone Jack
- Meter
- Vacuum Outlet
- Electric Door Opener
- Chime
- Pushbutton (Doorbell)
- Bell and Buzzer Combination
- Kitchen Ventilating Fan
- Lighting Panel
- Power Panel
- Television Outlet



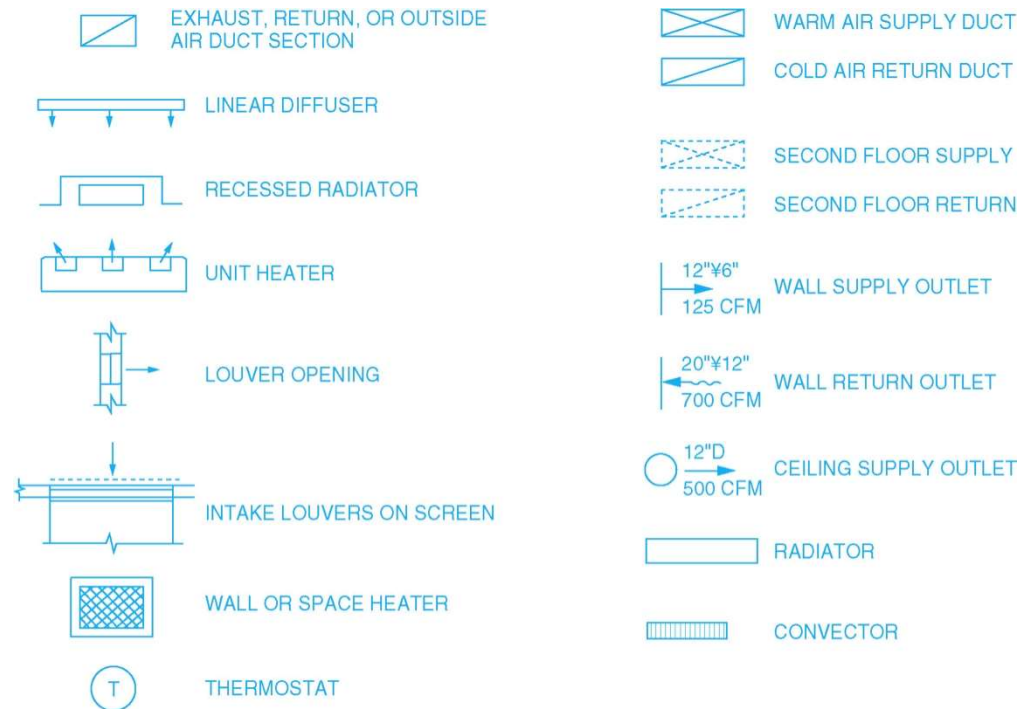
## Section 1.3.2

- Plumbing symbols indicate the hardware and fixtures required.
- Floor plans usually indicate only where the different fixtures should be located and plumbed.



## Section 1.3.3

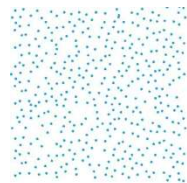
- The location and types of HVAC equipment are shown on construction drawings.



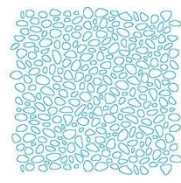
- Symbols are also used to show the direction of movement of the hot and cold air in the system.

## Section 1.3.4

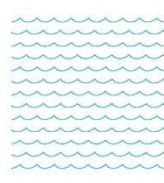
- Site plans show the position and sizes of all relevant structures on the site as well as the features of the terrain.
- A good site plan will include a legend of the symbols used.



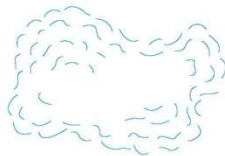
SAND



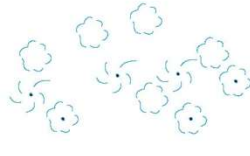
GRAVEL



WATER



WOODS



INDIVIDUAL TREES



PAVED ROAD



UNPAVED ROAD



RAILROAD TRACK



PROPERTY LINE



TELEPHONE LINE



POWER LINE



GAS LINE



WATER LINE



SEWER LINE



STORM SEWER



LEACHING FIELD



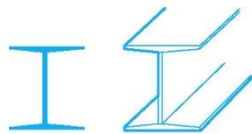
SIDEWALK



TREES

## Section 1.3.5

- Structural steel shapes have a system of identification by the use of symbols.



S BEAM (I BEAM)



W (WF) BEAM  
(WIDE FLANGE BEAM)



C CHANNEL



T BEAM (TEE BEAM)



L BEAMS  
(ANGLE BEAM)



PIPE



TUBING



PLATE

## Section 1.3.6

- Symbols for welding and their method of use are defined in the *American National Standard ANSI/AWS A2.4-2012*.
  - Weld symbol—used to indicate the type of welding to be performed
  - Welding symbol—made up of as many as eight elements that are used together to provide exact welding instructions



## Section 1.4.0

- Practices for using abbreviations on drawings
  - Typically capitalized
  - Periods are used when abbreviations look like a whole word
  - Are the same whether they are singular or plural
  - Several terms have the same abbreviations and can only be identified from the context in which they are found
  - Many are similar



## Wrap Up

The class will be divided into groups for a modified game of Pictionary® with the symbols commonly found on construction drawings. The first team to 10 points wins the game.

Next Lesson: Plan View Drawings, Part Two  
Review Section 1.5.0

