

## TECHNICAL DRAWINGS

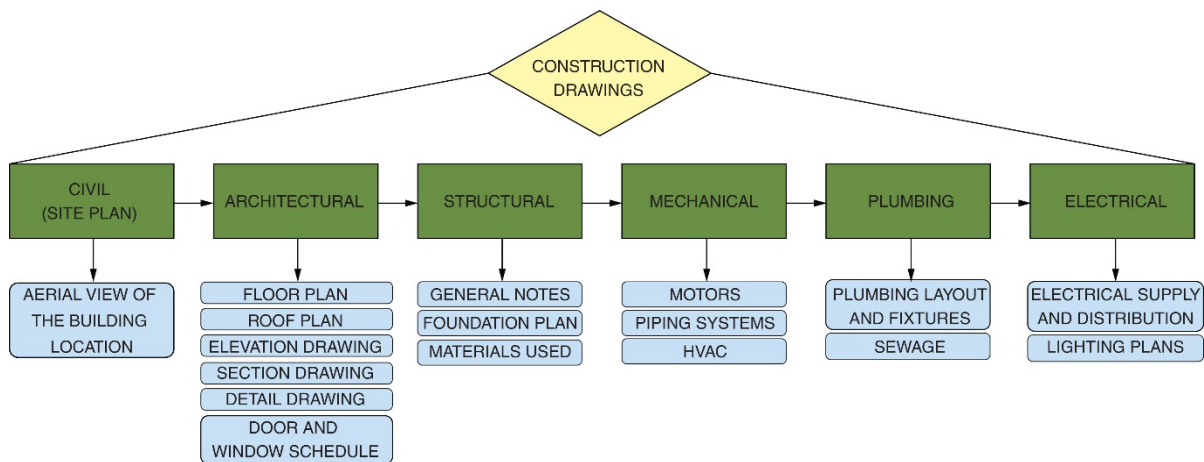
Contractors, estimators, builders and tradespersons all rely on technical drawings for the information they need to construct and/or manufacture a product.



### KEY POINTS

#### Technical Drawings:

- visually communicate how something is, or is to be constructed, or how it functions
- include a variety of plans that communicate how to build or repair things
- are accurate drawings that may show anything from a complete house design to how to fit small parts together
- use a system called the **Alphabet of Lines**, as part of how information is communicated
  - line styles describe the features of a site or buildings or the parts or fixtures of a construction project, shown in a set of technical drawings
  - line features vary by thickness, degree of darkness, solid or broken
  - thin, light lines are less important than thick dark lines
- include all of the common drawings used on a construction project such as those described in the chart below
  - Note that “blueprints” refers to reproductions of original technical drawings that used to be blue due to the process used to create them. Today they are usually white.



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**Title Blocks, Scale, Revision Records, and Legends**

- Title blocks commonly run horizontally across the bottom of the page or vertically on the right side of the page
- Scale may be shown as part of the title box or stand-alone
- Revision records will be in a separate box labelled as revisions
- Legends show symbols used in the drawing

Component	Description
<b>TITLE BLOCK</b>	
North point	Shows which way is north in relation to what is being built
Project name	Clear description of the project such as New house at
Project address	Correct location of the project
Project number (Job number)	A reference number for the project, given by the company preparing the drawing
Drawing title	Describes drawing and what is shown e.g. Roof Plan
Scale	The scale at which the drawing was plotted/printed. Take all measurements for construction purposes from the dimensions written on the drawing, not the scale.
Date	When the drawing was created
Drawing number	Number given for identification and for reference. Shown on every page of a drawing.
Revision	A letter or number indicating a change has been made and the revised drawing was resubmitted
Contact information	Contact information for the person or company that prepared the drawing(s)
Other information	Any extra information the company/individual preparing the drawing believed was needed for clarification.
<b>REVISIONS RECORD</b>	
Revisions record	A separate block on the drawing with date, a brief description, and approval, for each revision made. Always check the revision number and record to ensure you are looking at the most recent drawing.
<b>LEGENDS</b>	
Legend	Description of any symbols used in a drawing

See the examples on the next page.

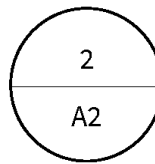
C	New links added to G823.	DJ	05/09/13
B	Removed G832. Added new reinforcement to G84 and G812. Added new G848	DJ	02/09/13
A	Ground beam B82 revised.	DJ	01/09/13
REV	DESCRIPTION	BY:	DATE:
STATUS: CONSTRUCTION ISSUE			
CLIENT: UHUB DEVELOPMENTS 56 New Hope Road London, ON C1B 3A5			
ARCHITECT: EDMUNDS ARCHITECTS 124 Logan Street London, ON C3L 7V3			
SITE:	31 ROGERS ROAD BLOCK A AND B		
TITLE:	RC DETAILS AND SECTIONS OF GROUND BEAMS		
SCALE AT A0:	DATE:	DRAWN:	CHECKED:
1:50, 1:100	05/09/13	DJ	DJ
PROJECT NO: 24567	DRAWING NO: A0/248	REVISION: C	

TITLE BLOCK

Source: Janicki, D. (n.d) Construction form template.[Image]. Retrieved from: <https://www.yourspreadsheets.co.uk/title-blocks-for-cad.html>. Content has been modified from source.

REV	DATE	DESCRIPTION	APP.
REVISIONS			

REVISION RECORD



REFLECTED CEILING PLAN

SCALE: 1/2" = 1'-0"

SCALE

	Existing Wall
	New Wall
	New Concrete Slab
	New Door
	Existing Door
Wall Type & Door Legend	

LEGENDS

ELECTRICAL PLAN LEGEND	
	CEILING MOUNTED LIGHT
	RECESSED LIGHT
	WALL MOUNTED LIGHT
	FAN
	DUPLEX RECEPTACLE OUTLET
	TELEPHONE OUTLET
	SWITCH
	DIMMER SWITCH
	DOOR BELL



STEPS

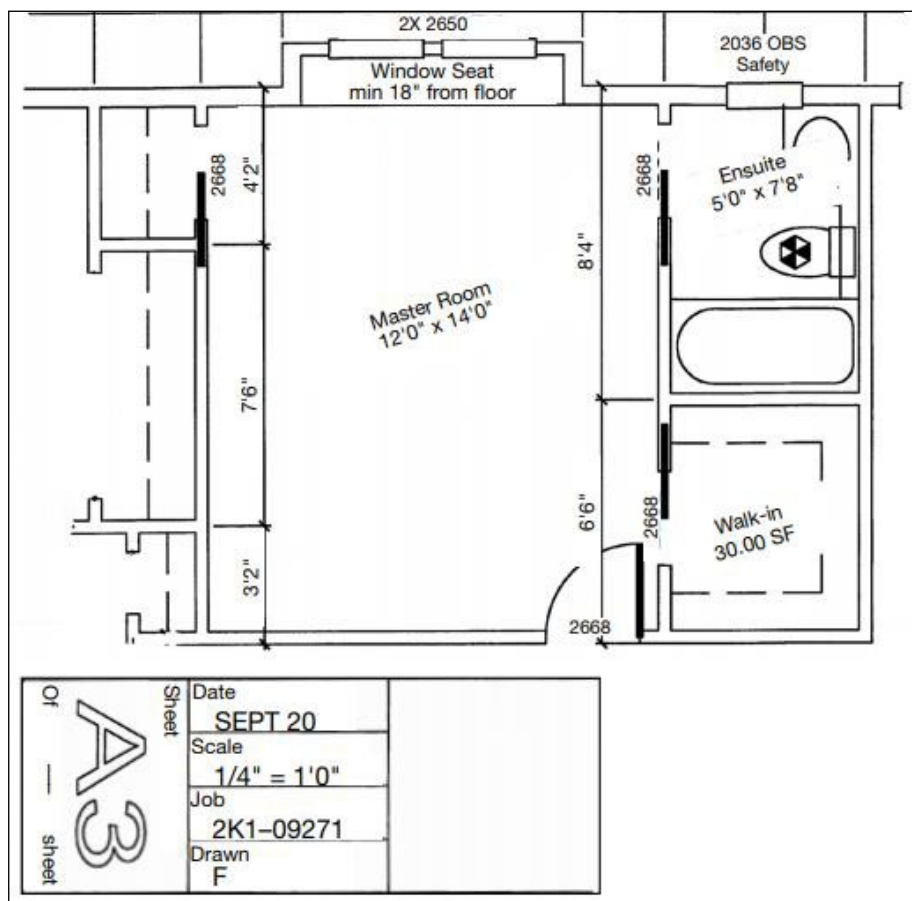
1. Read the title block and any revision records.
2. Determine the view. In 2 dimensional (2D) drawings, there can be three perspectives:
  - a. Plan View: bird's eye view from above
  - b. Elevation View: view from the side
  - c. Section View: view of something as if it were cut in half
3. Review the legend.
4. Read the lines.
5. Read the dimensions of the lines that are relevant to the work you need to do.



## EXAMPLES

If you followed the steps above, you would find this information in the drawing example shown below.

1. The title block shows date, scale, job number, page number and drawing number. There is no revision record shown.
2. The drawing is a Plan View (from above - sometimes called Aerial or Top view).
3. There is no legend.
4. The scale shown is  $\frac{1}{4}'' = 1'$  so  $\frac{1}{4}$  inch on the drawing equals 1 foot in the physical space.
  - Remember - do not rely on the scale for the dimensions you need. Read the dimension lines on the drawing for any construction purposes.
5. The drawing uses imperial measurements. You may need to convert to metric, in order to complete your work.



Source: Human Resources and Skill Development Canada. (2010). Technical Drawing. [Image]. In Trades math workbook. (p. 16). Retrieved from: [http://506tc.org/\\_pdf/Trade-Math-Workbook.pdf](http://506tc.org/_pdf/Trade-Math-Workbook.pdf).

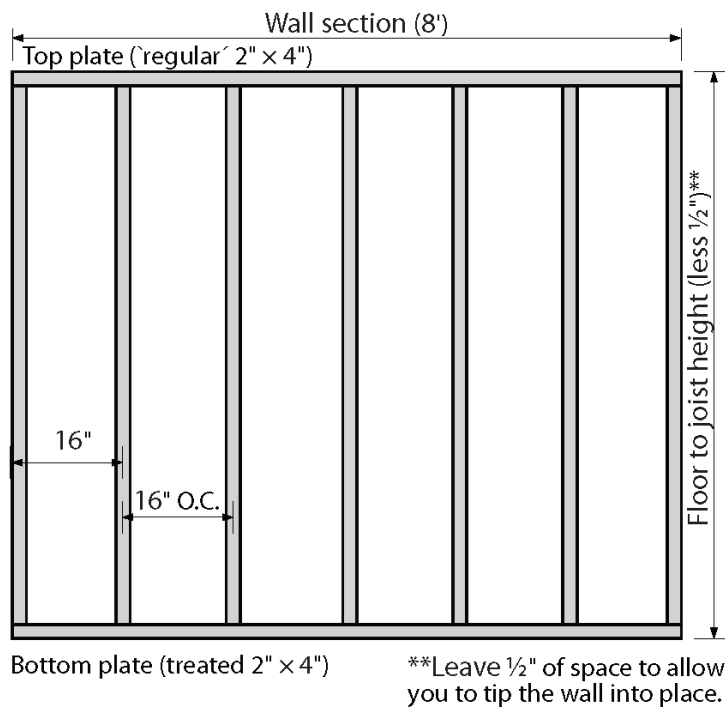


## EXAMPLES

Tradespersons use technical illustrations, such as diagrams and schematics, when assembling, installing, maintaining or repairing.

Technical illustrations are visual illustrations that explain how something works in a simple way. Technical illustrations may show the relationship between different parts, such as in a process or system. Similar to technical drawings, technical illustrations provide useful technical information and detailed specifications, such as measurements and information about component location or placement.

Technical illustrations may be two or three-dimensional and may contain authentic or realistic images. Technical illustrations provide information through key visual features. Leader lines indicate the specific location of a measurement or show the start and end-points of a particular component. Other lines and directional arrows may indicate the flow of information within a process or system. Technical illustrations use specific colour, shading, shape and size to distinguish important features, and for drawing attention to similar or contrasting information.



Source: ITA-Youth Explore Trades Skills (2013) *Carpenter Activity Plans* (p.64).

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*Think you understand how to read technical drawings?  
Try it yourself on the next page.*

## USING THE SKILL

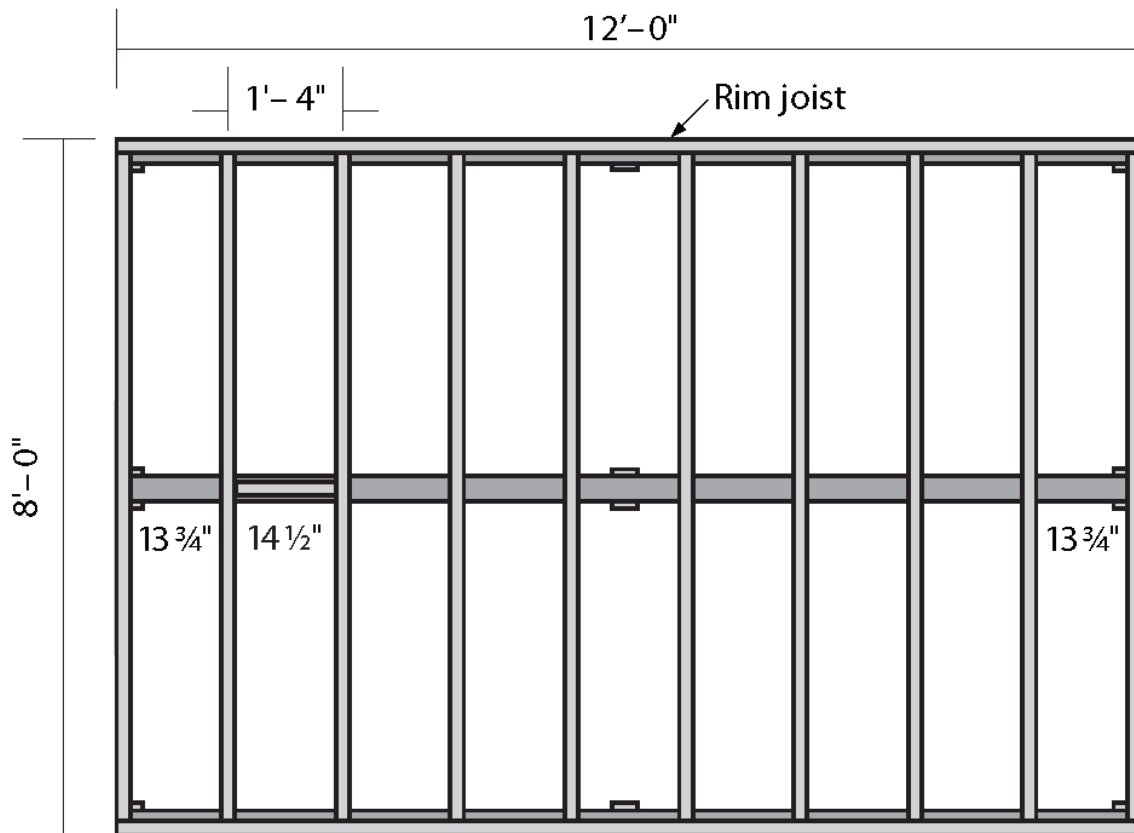


**In the Workplace:** technical drawings are used as part of build and repair processes.

### QUESTIONS

Use the drawing on the next page to answer the following questions.

1. What is the length of the rim joists?
2. How long is the floor at the mid-point?
3. How many blocks are needed to build this floor?
4. How wide is each joist spaced apart, centre-to-centre, within the floor frame?
5. How long is each joist cut to build the floor as shown?
6. What is the length of each 4" x 6" beam as shown in the drawing?
7. Measuring from the outside edge of the first joist, at what measurement is the lead edge of the second joist marked on the rim joist to ensure the correct spacing of all remaining joists and build the floor as shown?
8. Circle the blocking shown in the drawing.
9. Based on the information provided or shown in the drawing, which of the following statements is true?
  - a) Rim joists are cut to length to fit identically sized blocking.
  - b) The length of the 4" x 6" beams cannot be found using this drawing.
  - c) 8 ft. joists are cut to a different length to assemble the floor between the 12 ft. rim joists.
  - d) The distance between the joists is the same for the entire floor.



Attach (10) 8' × 2" × 6" joists to (2) 12' × 2" × 6" rim joists resting on the (3) 4" × 6" beams. Install blocking between joists. 7 at 14 1/2" and the two outside at 13 3/4"

Figure 6—Sample drawing illustrating basic measurements and spacing between joists for a floor

Source: ITA-Youth Explore Trades Skills (2013) *Carpenter Activity Plans* (p.44).



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## REFLECTION

How do you use technical drawings at work? When do you use them?