Site Measuring Guide

for Certified Installers

elemex®

Architectural Facade Systems

Tools Required

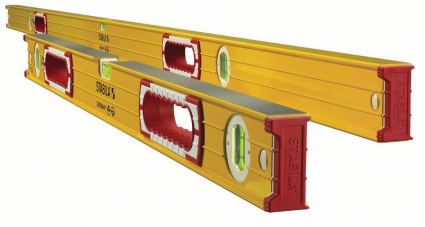
- Exterior rotating / line laser with receiver; this tool is used to establish a level plane across the face of an elevation. By laying the laser on its side, it will provide a 360° beam to be used to measure back-to-face of bar or sheathing, windows and doors. This tool is also used to establish a horizontal level line. The laser is placed in the upright vertical position. A level 360° beam is projected on the elevation; this line should be clearly marked on the building as a reference line to be used during panel installation. This horizontal laser line is then used to take vertical measurements to bottom of wall or top of curb, bottom and top of windows, top of wall or parapet or underside of soffit. All lasers and manufacturers are not created equally; lasers with a tolerance of 1/8" +/- per 100 ft. is required.

- Plumb lasers are used throughout the elevation to establish a permanent level line to measure horizontally to windows, door openings in the wall and adjacent elevations or corners of the buildings. All lasers and manufacturers are not created equally; plumb lasers with a tolerance 1/8" per 30 ft is required.

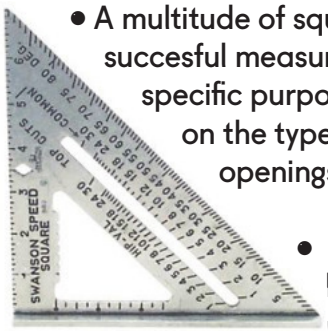
- Standard tape measure used for all distances vertical and horizontal.

- Distance meter is used to measure long distances with accuracy. Setting up targets to shoot to at the vertical and horizontal laser line increase's accuracy and productivity. Steel framing angle or clips, blocks of wood or laser targets can be used to shoot to. These practices make the measuring process possible with one man. Accuracy of of 1/8" per 100 ft is required.

- 4' and 2' levels will be needed to transfer laser lines into openings, windows and doors. Levels can also be used as a straight edge to measure from. Magnetic levels are very useful with steel framing; this allows the site measurer to have both hands free to measure to and from the level.



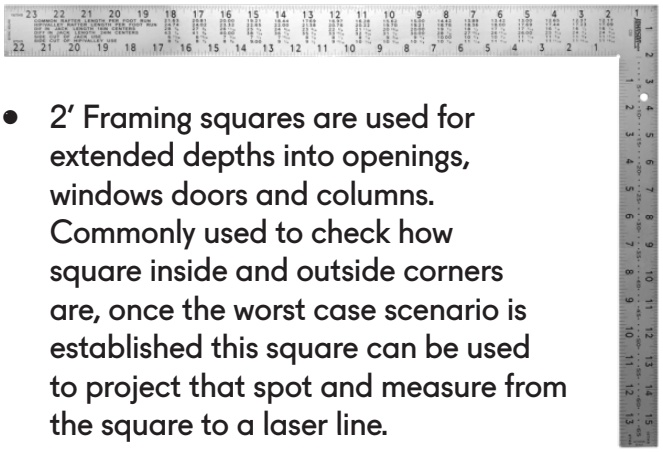
- Chalk line with waterproof chalk can be used to snap the laser lines on the wall, a fine point marker is also used to mark the vertical and horizontal lines. All laser lines will be labelled on your site dimension drawing and submitted for design. Upon the delivery of fabricated panels, you will receive a copy of installation drawings that will have your laser lines marked on it and are to be used as a reference to begin a successful installation.



- A multitude of squares can be used for succesful measuring; each one has a specific purpose and use depending on the type of building and openings you need to measure.

- Rafter square can be used to square off of windows and doors that are recessed from the face of the sheathing or bar to achieve an accurate dimension.

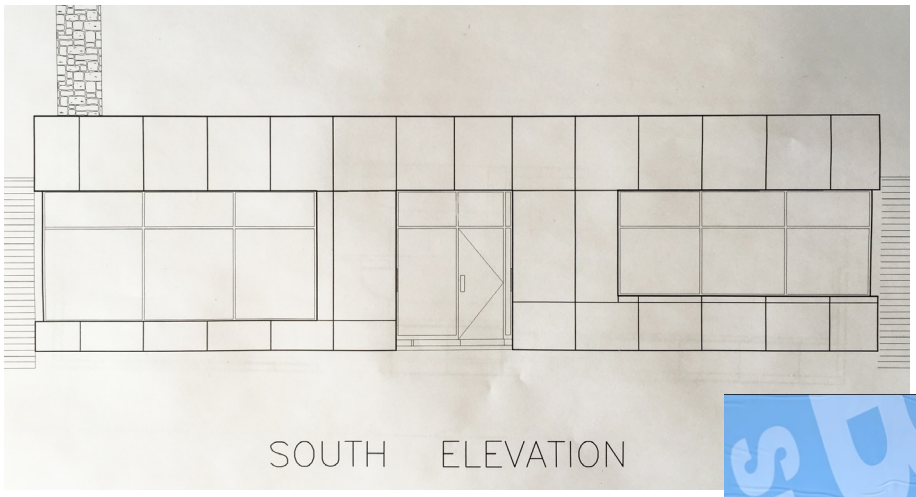
- Combination squares can be used for the same purpose as the rafter square but allows you the flexibility to change the depth in which you need to accurately square back to an opening or a step in the elevation. This can easily be achieved by sliding the guide up and down the ruler to the desired depth.



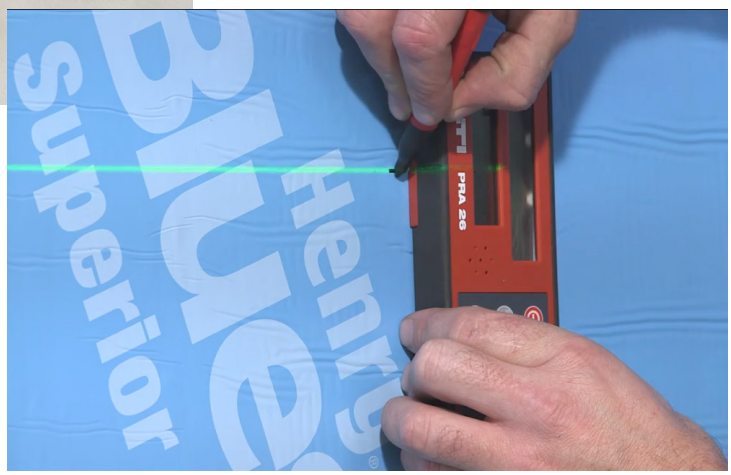
- 2' Framing squares are used for extended depths into openings, windows doors and columns. Commonly used to check how square inside and outside corners are, once the worst case scenario is established this square can be used to project that spot and measure from the square to a laser line.

- It is very important that all tools are in good working condition. Verify all laser calibration prior to beginning.

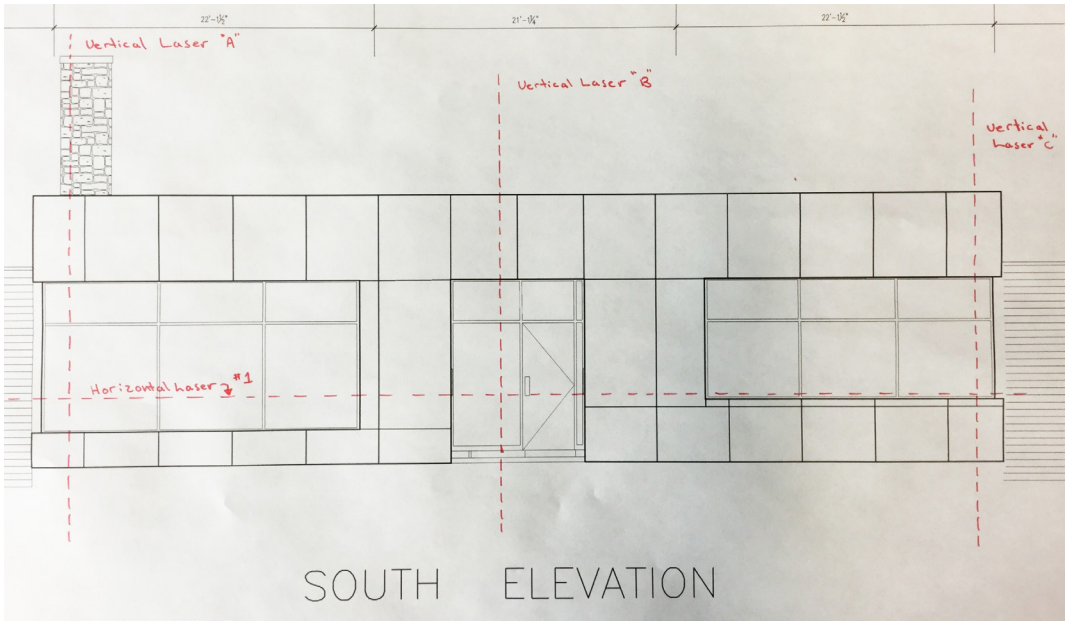
Site Measuring Procedure - Step by Step



A blank set of architectural elevation drawings are used similar to the example below. These drawings show top and bottom of wall, window and door openings. These drawings are clear of all dimensions and text which allows for the site dimensions to be clear and visible.



For this "example" elevation we have 3 different laser setups: vertical lasers (approximately 30' apart), horizontal laser (placed at a height that is comfortable to measure), and a plane laser (set out 3" – 6" off the face of the substrate or bar). The plane laser will be used to measure to face of bar or substrate, face of window and doors. See "example":

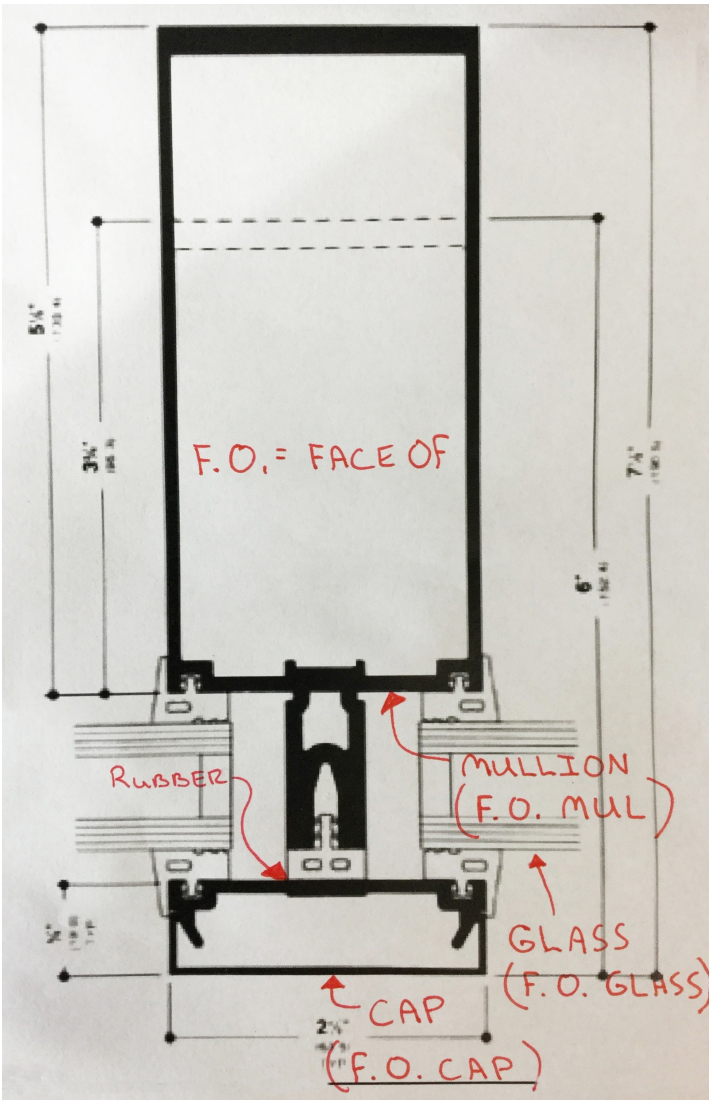


The "example" elevation is constructed of plywood sheathing; the windows and doors are commercial window wall. This is the most commonly used glazing system and depending on the stage of construction you may be measuring to different components of the curtainwall. Many acronyms are used throughout the measuring process to keep the drawing free of clutter. See example below of a mullion cap section and common parts that are labelled.

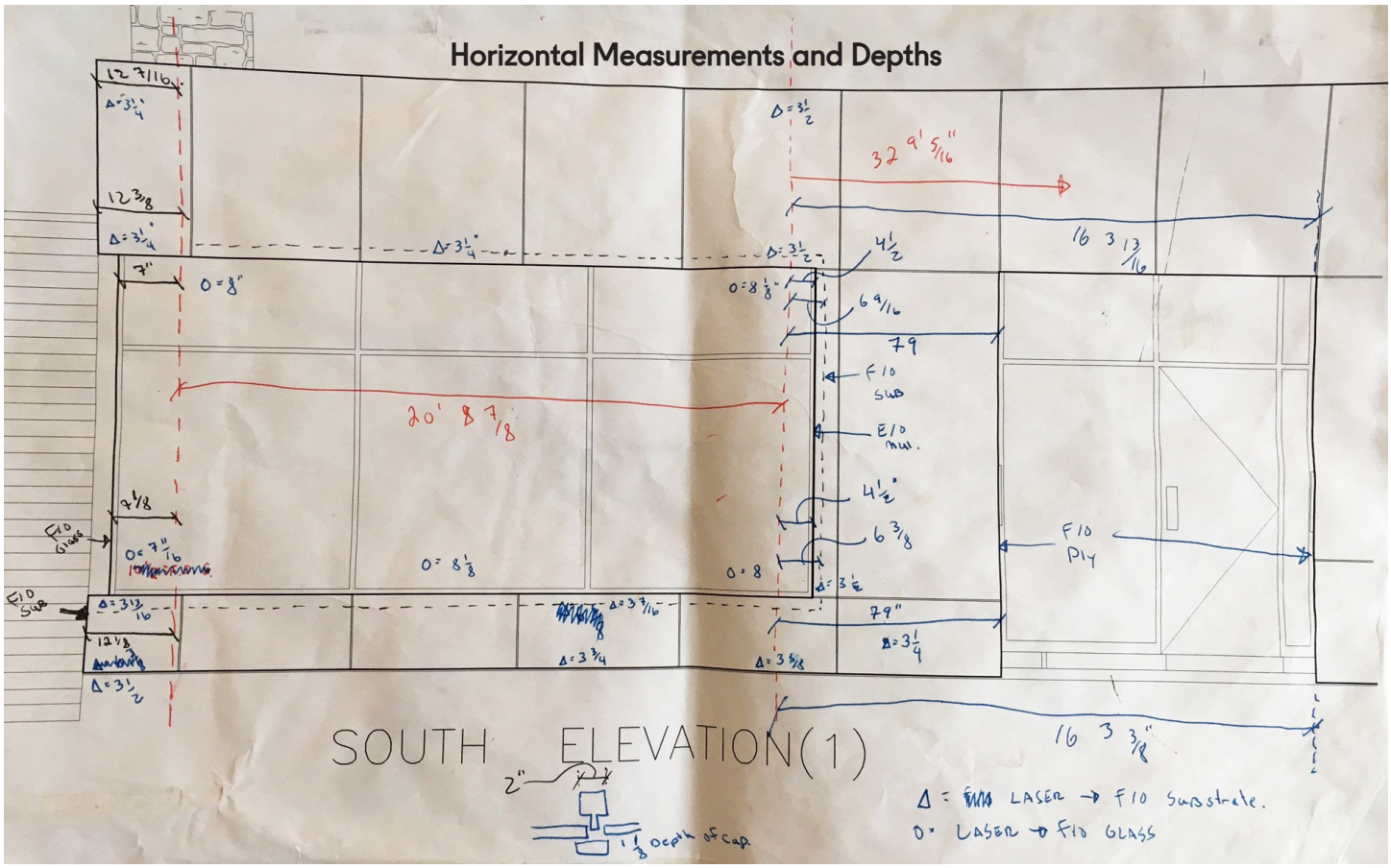
Here is a list of other typical acronyms used, creating your own is encouraged as long as you provide a legend to explain the meaning similar to the list below:

F.O.G. = FACE OF GLASS
E.O.M. = EDGE OF MULLION
T.O.M. = TOP OF MULLION
B.O.M. = BOTTOM OF MULLION
T.O.PARA. = TOP OF PARAPET
U.S.S. = UNDERSIDE OF SOFFIT
F.O.PLY. = FACE OF PLYWOOD
F.O.B. = FACE OF BAR

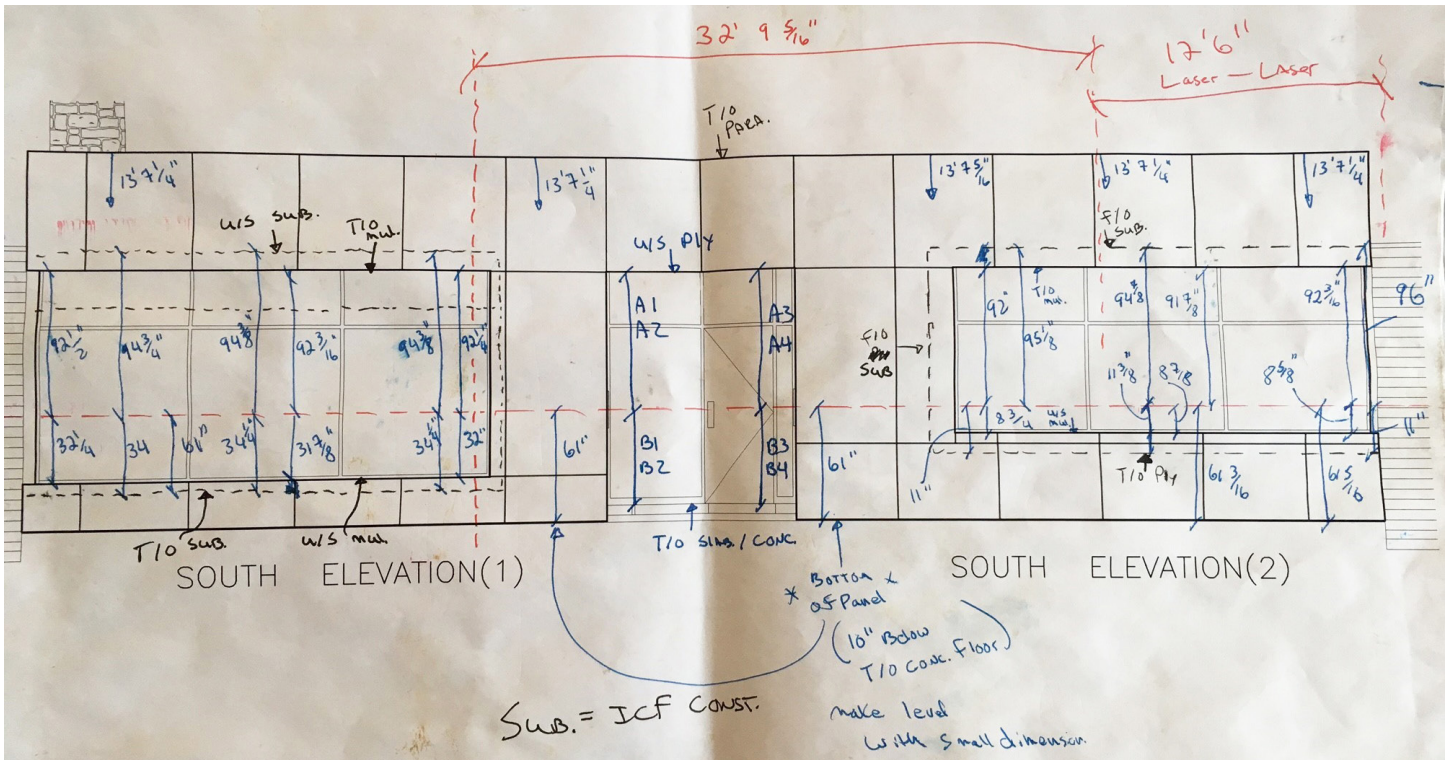
Symbols can also be used such as triangles, squares and circles defined in a legend to explain the meaning.



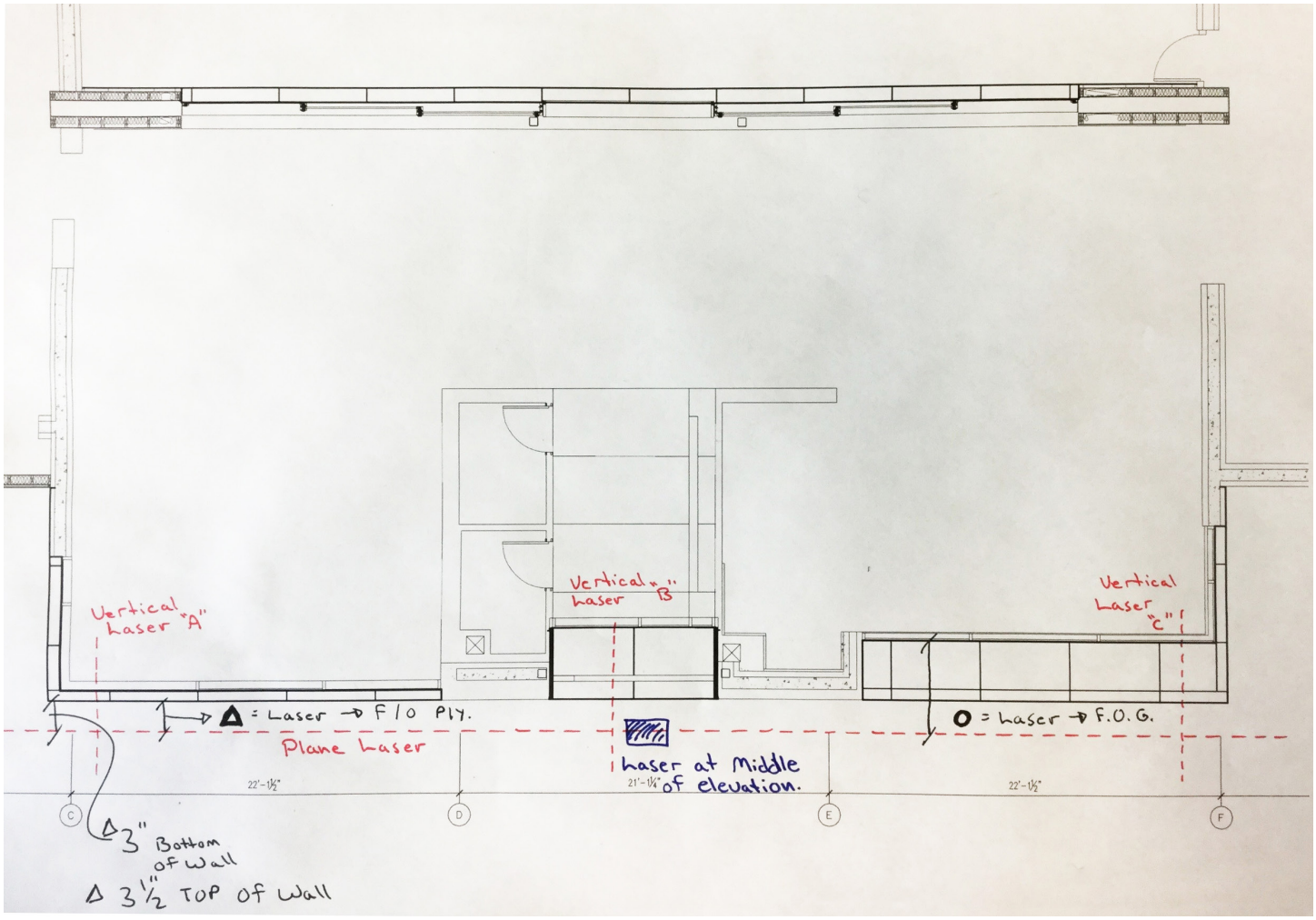
Multiple elevation drawings may be needed to avoid to much clutter and confusion. For example, one page can be used for vertical measurements, another page can be used for horizontal, depth and plane measurements. See below:



note the triangle and circle symbols at the bottom of the page that represent depths from the plane laser to face of substrate and glass



Setting up a plane laser can be the hardest to achieve; placing the laser in the middle of the elevation makes it easier to adjust the laser beam to be fairly parallel to the wall itself. For best results, spending the extra time to balance the laser with the plane of wall will help to see problem areas while measuring. For example, if your laser is parallel to the wall and measurements vary more than 1" from each other, then this is a clear sign that the wall construction is too far out of level. That will increase your bar depths (if framing is being used) or you will be required to add an excess of shimming. If the elevation is consistently more than a ¼" out of plumb, then you may need to add framing on top of the substrate. The plane laser is important for our designers to create a level and straight wall and also to determine the depths to all windows and doors with accuracy.



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