Certified Installer Manual

elemex®

Architectural Facade Systems

530 Admiral Drive, London, Ontario, Canada N5V 0B2 • Tel: 1-844-435-3639 • elemex.com

Elemex® Training & Foreman Support Agreement

To: Company Name _____ Support #: _____

Attn: Company Representative(s) _____ Date: _____

Tel: _____ Fax: _____

Project: Project Name and Location _____

_____

Project Estimated Start Date: _____

Architect: _____ From: Elemex® Rep. _____

Contractor Training & Sales Policy

Elemex® approves sales to contractors who have attended an Elemex training class and who continuously install the system per the product specifications and installation guide. The Elemex training program is offered to select contractors by invitation only at a cost of $5,500.00

Attend the Elemex training class- The 1.5 day training class is held at the Elemex office in London, ON. Curriculum covers the application of applicable Elemex panel systems and application methods. Attendees are responsible for their own transportation and cost of lodging. Meals, training materials, and instruction for up to two people are provided by Elemex.
Additional people may attend at a cost of $300.00 per person.

Supervision

Additional Elemex Supervisor to assist with the installation of the Elemex products - $1,100.00 per day.

Tools and accessories as listed below:

- 3/16" HSS drill bits, used to pre-drill the attachment clips
- 5/32" HSS drill bits, used to pre-drill the back screwed attachment clip to the panel.
- #2 Robertson bits, to be used for all #10 panel attachment screws.
- Rounded shank to avoid damage to panels.
- Cordless impact drill, used for installation of all necessary screws during installation
- Cordless driver drill, to be used for pre-drilling holes in attachment clip and during panel
- preparation.
- Saw horses for panel preparation with protection in place
- Plunge router with 130 dg. router bit to create custom bent infills
- 6', 4' and 2' levels
- Line laser level
- Panel shims – 1/16", 1/8", 1/4"
- 12" panel pry bar – Richard's S.S. pry bar
- Aviation snips to cut infill strips to length and for all metal flashing
- Folding pliers to custom bend metal flashings
- Safety hard hat
- Safety glasses
- Safety vest
- Field gloves
- Hearing protection

Equipment - selection as listed below (dependent on site conditions):

- Rough terrain scissor lifts
- Articulating booms
- Linear zoom booms
- Lifting cranes/devices
- Scaffold - various types for different applications
- Ladders - various types for different applications
- Security fencing/storage

Installation and Instructional Videos for Certified Installers

Ceramitex - Sintered Ceramic Facade System or Stonitex Natural Stone Facade System

Ceramitex Installation (General) - https://youtu.be/Vsj6iukUgHs

Included with the Ceramitex System - https://youtu.be/9c4XCN08ZzM

How to Install Ceramitex Panels - https://youtu.be/Vsj6iukUgHs?t=93

Ceramitex Chip Repair - https://youtu.be/m_TyHbtGz5E

Ceramitex Mitre Repair and Silicone Gap Filling - https://youtu.be/8Ue2L3GY8YA

Alumitex - Aluminum Facade System

Alumitex Installation (General) - https://youtu.be/q_afvohxpv8

For any Elemex products:

How to Take Proper Site Measurements - https://youtu.be/pFB1KPBJHD0

How to Install Air/Vapor Barrier, Sub-Framing (Girts and Studs), Insulation, Flashing - https://youtu.be/h0CbLXZC8n4

Ceramitex®, Alumitex® or Stonitex®

Installation Guide

for Certified Installers

elemex®

Architectural Facade Systems

Tools Required

- 3/16" HSS drill bits; used to pre-drill the attachment clips.
- 5/32" HSS drill bits; used to pre-drill the back screwed attachment clip to the panel.
- #2 Robertson bits; used for all #10 panel attachment screws.
- Rounded shank to avoid damage to panels.

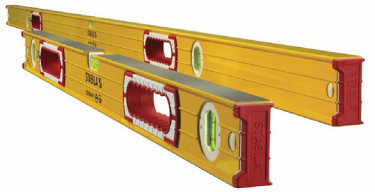
#2 x 6" long
Contractor Grade

- Cordless impact drill; used for installation of all necessary screws during installation.
- Cordless driver drill; to be used for pre-drilling holes in attachment clip and during panel preparation.

- Saw horses for panel preparation. Top of saw horses need to be free of debris and sharp edges to avoid scratches to panel.

- Plunge router with 130 dg. router bit to create custom bent infills to match the shape of the panel. Infill is to be routed on the back side to obtain the desired shape.

- 6' level to be used for larger panels. Will also require a 4' level and 2' level for smaller panels. Magnetic levels are preferred especially with galvanized steel framing.



- Line laser level to establish a vertical and horizontal benchmark to begin the layout from. These lines can be marked on the wall or framing to use as a reference.

- Clamps (needle nose, c-clamps - i.e. Irwin)

- Additional hand tools required such as aviation snips to cut infill to length. Also used for all metal flashing (i.e. drip flashing and cap flashing). Folding pliers can also be used to custom bend metal flashings to desired shape.

Access Equipment and Aerial Platforms

Access equipment for your job-site is determined by the terrain and the height of which you need to access. 4 x 4 rough terrain lifts are commonly used in all circumstances. Scissors lifts can be used to increase the amount of men and material to be elevated with one machine. A variety of booms and scissor lifts are available to increase productivity.

Specialized accessories are used to protect the product and provide a safe working procedure for the workers and other trades on the job. The panel cradle is used to safely transport the panels into place. This will eliminate damage to the panel and provide a safe work procedure.

AVB / VP Wall Construction

Air Vapor Barrier (AVB) and Vapor Permeable (VP) membranes are used to keep water and air "AVB" out of the wall cavity. "VP" is used and installed in the same way but it allows "vapor" to escape from the wall cavity without allowing water in.

All adjacent substrates such as brick, glass or siding need to use compatible membranes.

These substrates and membrane tie-ins should be installed before your work to allow a minimal of a 3" lap to tie into.

Upon completion of the building membranes, an inspection of the quality of work along with photos are suggested to document that the work is at or above manufacturers recommendations.

Adjustable Framing / Fixed "Z" Bars / Wood Substrate/ Enviroclip

Adjustable steel angles are most commonly used as the support framing. This type of adjustable framing allows the installer to provide a perfectly level and straight plane of wall to successfully site dimension from. Enviroclips are use as the primary layer of framing to be attached to the substrate. Enviroclips come with a thermally broken layer to reduce heat loss within the building envelope.

Fixed "Z" bar framing can be used if the substrate is fairly level and straight. If this method of framing is used and applied directly to the substrate, more time will be spent on the site dimensions to assure the "worst case" scenarios are found throughout each elevation. During panel installation some shimming will be required.

Plywood substrates provide a solid surface to fasten to. A ¾" plywood should be used for adequate fastening and strength.

*All substrates including plywood should be within ¼" of plumb. Shimming beyond ¼" is prohibited and would require additional framing such as a "Z" bar.

Delivery of Material

Upon delivery of material, inspect the crate for any visible damage to the skid.

* Photos should be taken at this time to show the condition. Any damage must be reported to Elemex along with photos within 48hrs. of receiving the material.

The skid(s) will be clearly labeled with instruction on which side to open first, please follow these instructions to avoid damage to the tightly-packed panels inside. A list of panel numbers will be sent with the delivery for easy identification of the contents of each skid.

After removing the side wall of the skid, inspect the panels for any visible damage during shipping.

Do not leave any panels unsecured (it may take up to 6 weeks to replace any damaged panels).

Storage & Handling Recommendations

- A forklift or crane should be used when moving crates.
- Open crates from designated wall. "Open here" is labeled on the correct wall. Walls not designated with this label should not be removed.
- Panels should be lifted off and removed from crates carefully, never slide them out as damage to panel may occur.
- Never carry flat.
- Handling panels should be done by 2 people.
- Always store panels upright and against stable structures. Panels should not be stored on top of each other flat.
- Never sit/stand or place things on finished panels.

Preparation of Panels

For instructional purposes our installation direction will be bottom up and left to right.

- Pre-drill 3" long attachment clips with two 3/16" holes equally spaced. This process should be repeated for all 3 different attachment clips; full, half and "J" starter clip.

- Sort and organize panels according to the wall layout provided. Our progressive systems work from the bottom up and the choice of left or right progression depending on your desired start point.

- Lay panel face down on protected saw horses. Please note the installation direction (panels with protective film will have arrows indicating "up" whereas ceramic/aluminum/stone panels will have weep holes with mesh indicating the bottom of the panel). All panels should be installed in the proper direction.

- When working with panels that have a protective coating, lightly scribe all outside corner edges of the 1" panel returns with a plastic edged scraper and proceed to remove the protective film on the return only leaving the protective film on the face of the panel.

- With panel properly orientated, proceed to place full clips on top and right side

(installation direction is "up" and to the "right"). Holding the full clip firmly into the extrusion, drill a 5/32" hole through the panel extrusion into the full clip and continue through. Secure the clip with a #10 S.S. Pan Tek screw.

- Continue to install the full attachment clips at spacing noted on shop drawings. Install full attachment clips to the remaining panels.

- Sort panels in the order of installation keeping them face-to-face and back-to-back to ensure no damage is done to the panels. Secure panels with rope or ratchet straps to avoid the panels tipping over due to wind or movement on site. Protect bottom edge with foam. Make sure it is free from debris.

* Photos should be taken at this time to show the condition. Any damage needs to be reported to Elemex along with photos within 48 hrs. of receiving the material.

Installation of Panels

- Using the horizontal and vertical line laser, clearly mark both lines for a level reference while installing the panels.

- Layout the panels according to the provided layout across the elevation. This will assure a successful start and a chance to make adjustments needed to fit the supplied panels.

- Install "J" starter at base of wall plumb, straight and free of debris.

- Place first panel in the "J" starter making sure the edges of the panel are aligned with your panel layout. Check that the panel is level, recheck panel to the laser line previously marked on the wall.

- Install 2 #10 SS Tek screws per attachment clip.

- Proceed to install the next panel to the right into the "J" starter leaving a 2" gap between panels. Once the panel is properly in the "J" starter, slide panel to the left engaging into the full attachment clips on the previously installed panel. Make sure all clips are engaged.

- Continuing installing the bottom row of panels in the same sequence - always referencing back to the vertical and horizontal laser lines and aligning with the panel layout that was marked on the wall.

- Always double check the layout to critical openings or features.

- Continuously check measurements.

- Cut the vertical infills to size. Slide the infill down the joint passing the attachment clips. After the verticals are installed, place in the horizontal infill strips securely setting it tight down into the extrusion.

- Install the next row of panels using the same procedures and guidelines as outlined previously. Continue to check that the panels are aligned and level. Always reference the original panel layout to ensure the panels will terminate at adjacent substrates or turn a corner properly.

- A 2-sided corner panel or a fascia to soffit panel will require a custom infill to be routed on the back side to allow it to bend with shape of the panel. Using the specified tools this can easily be achieved in a short period of time.

Ceramitex®

Chip Repair Guide

for Certified Installers

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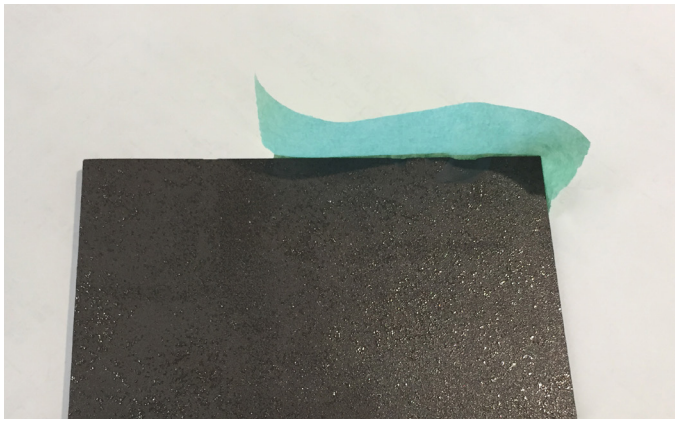
Architectural Facade Systems

Tools Required

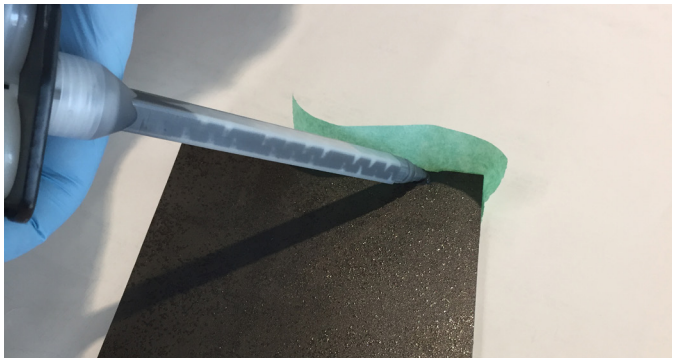
- Utility Knife
- Mixing Cup (supplied in repair kit)
- Integra Adhesive
- Integra Adhesive Applicator
- Masking Tape (painters tape 2" recommended)
- Porc-A-Fix Touch-Up Base
- Color Tints

Filling Chip

- Mask off area needing patch. Apply masking tape on edge of damaged area ensuring the tape forms a 90° at both intersecting surfaces. Peel the masking tape from the distance of the damage, to the perpendicular plane.

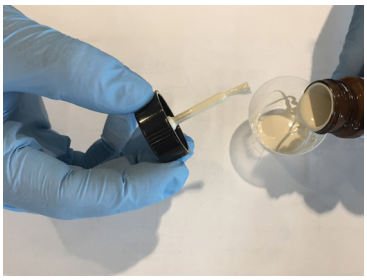


- Apply base color match Integra epoxy and fill chipped area.



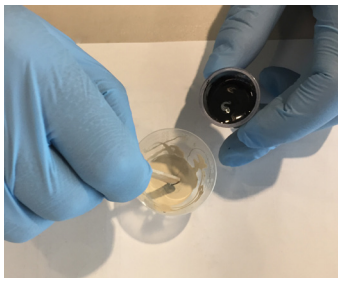
- Allow the fill area to cure to the point where the surface is solid enough that it can be shaved off with your utility knife (approx. 25 minutes).
- After the Integra epoxy is in place, begin your color matching paint process.

Color Matching

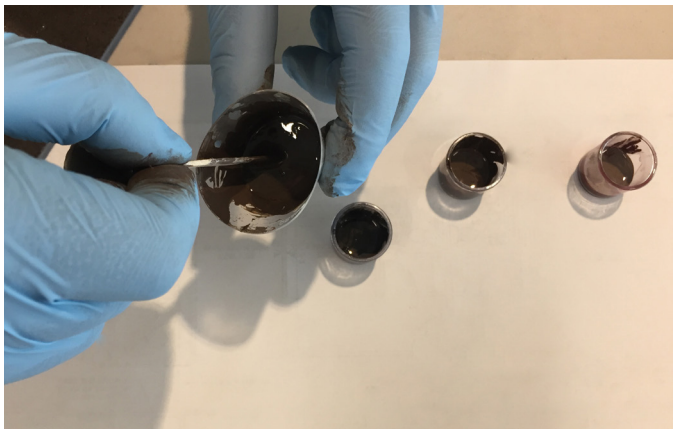


- Get Mixing Cup and add in base Porc-A-Fix until the base covers the bottom of the Mixing Cup (1/8" to 1/4" in depth).

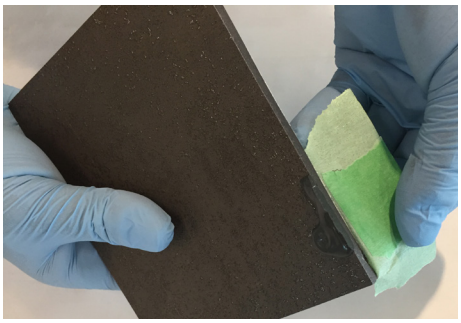
- Once the desired base quantity has been executed, begin to add the color tints to replicate the color of the ceramic slab you are trying to match.



- Thoroughly mix the color tint with the base material until a uniformed color has been achieved with the ceramic touch up paint.

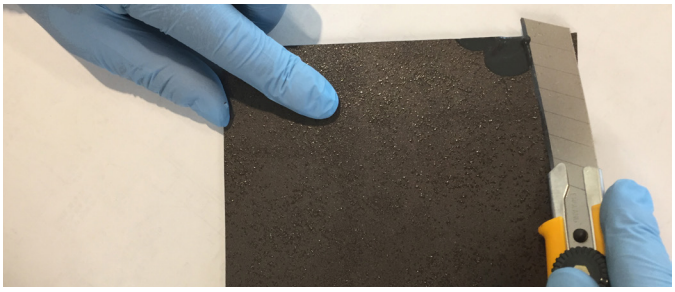


Finishing Filled Chip

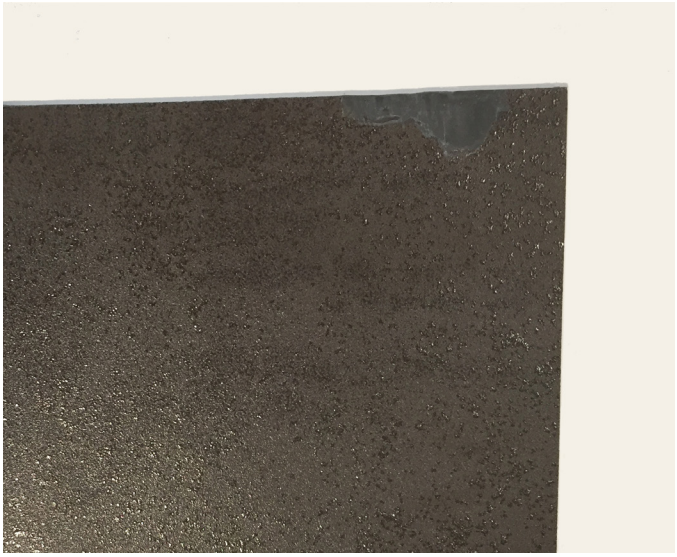


- Remove masking tape dam that you made on the patch piece.

- Cut away excess epoxy.

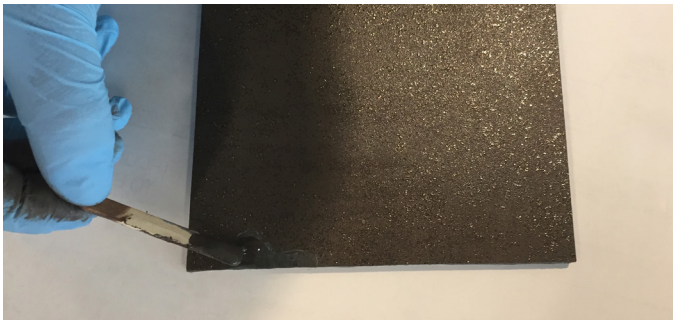


- Create new straight edges.

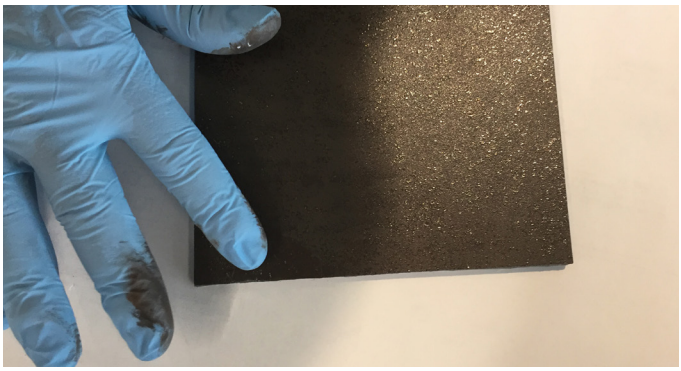


Ceramic Paint Touch-Ups

- Apply color-matched paint to area filled.

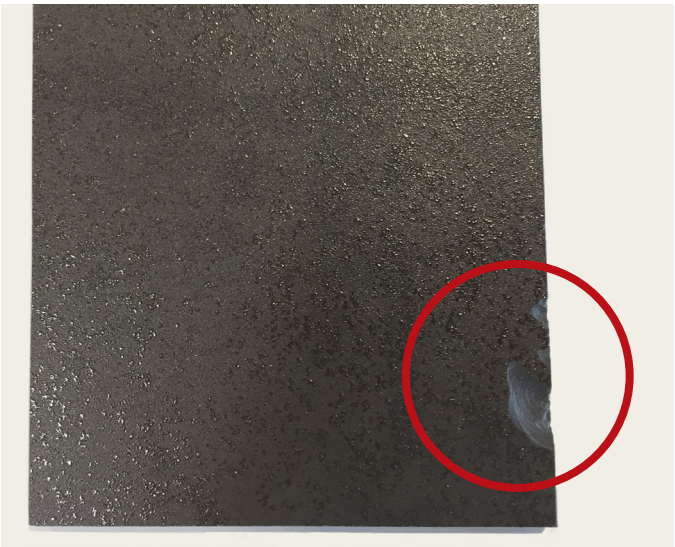


- Using a plastic gloved finger or small paint brush, pat/dabbing the paint to dull it out a bit.

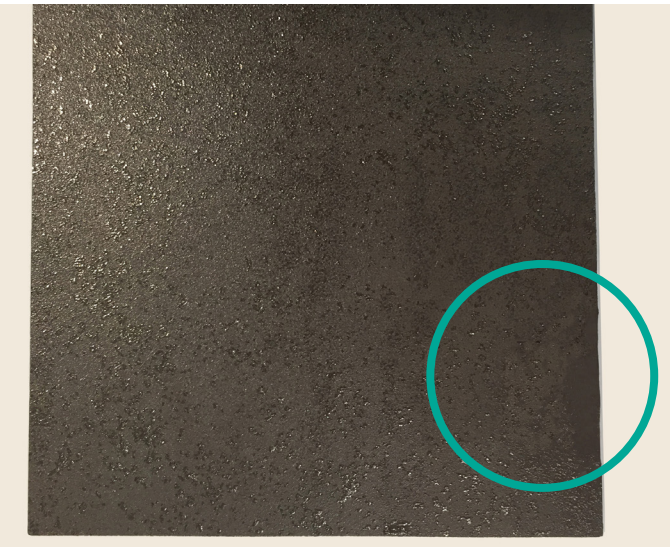


- Completed repair.

Before Repair



After Repair



You can watch the step by step video at: https://youtu.be/m_TyHbtGz5E

Site Measuring Guide

for Certified Installers

elemex®

Architectural Facade Systems

Tools Required

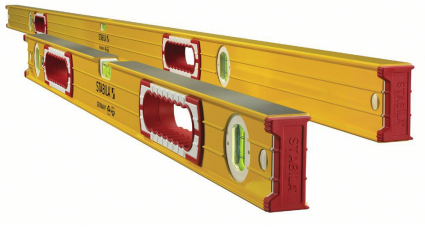
- Exterior rotating / line laser with receiver; this tool is used to establish a level plane across the face of an elevation. By laying the laser on its side, it will provide a 360° beam to be used to measure back-to-face of bar or sheathing, windows and doors. This tool is also used to establish a horizontal 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.

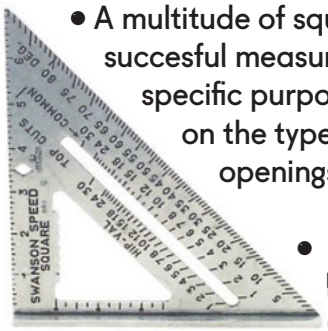
- Standard tape measure used for all distances vertical and horizontal.

- 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.



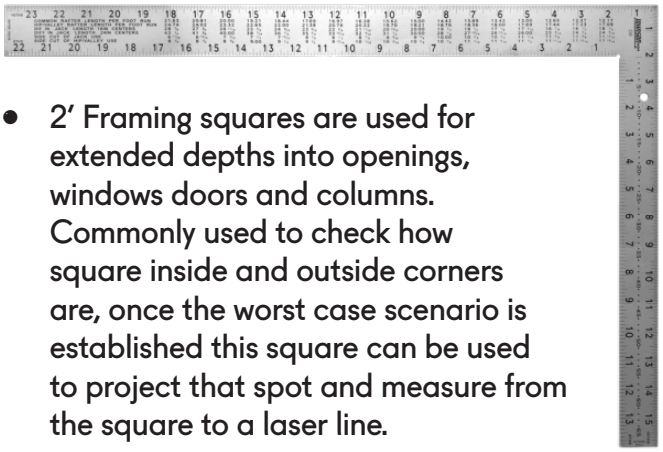
- Chalk line with waterproof chalk can be used to snap the laser lines on the wall, a fine point marker is also used to mark the vertical and horizontal lines. All laser lines will be labelled on your site dimension drawing and submitted for design. Upon the delivery of fabricated panels, you will receive 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.

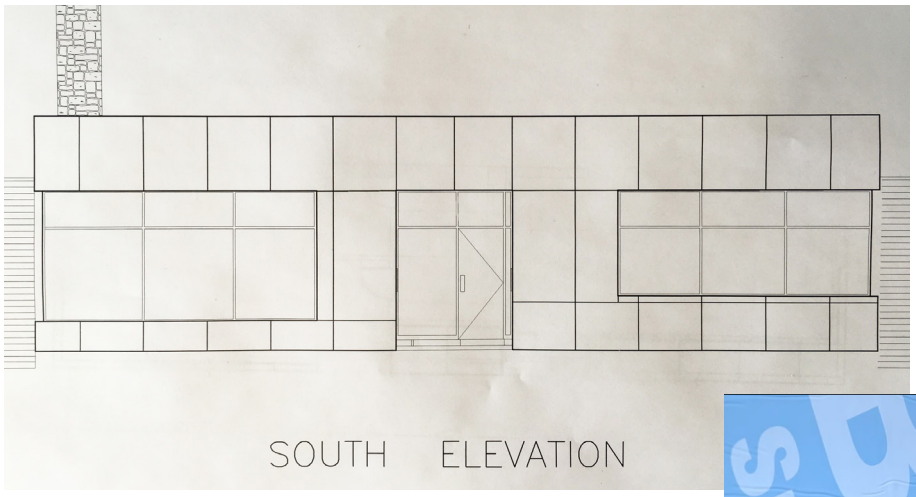
- Combination squares can be used for the same purpose as the rafter square but allows you the flexibility to change the depth in which you need to accurately square back to an opening or a step in the elevation. This can easily be achieved by sliding the guide up and down the ruler to the desired depth.



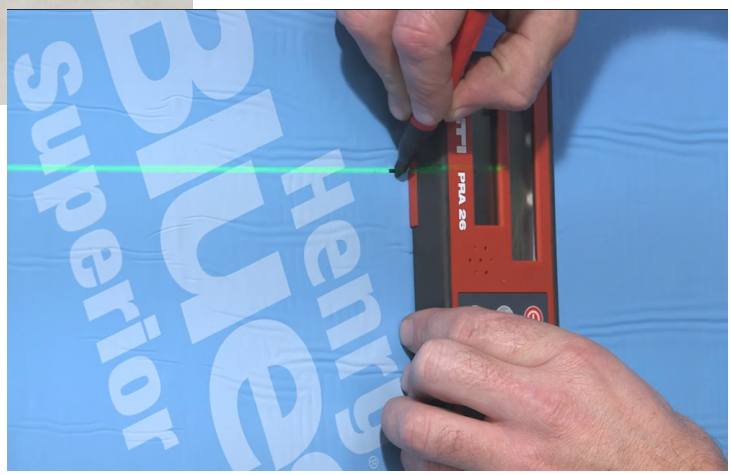
- 2' Framing squares are used for extended depths into openings, windows doors and columns. Commonly used to check how square inside and outside corners are, once the worst case scenario is established this square can be used to project that spot and measure from the square to a laser line.

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

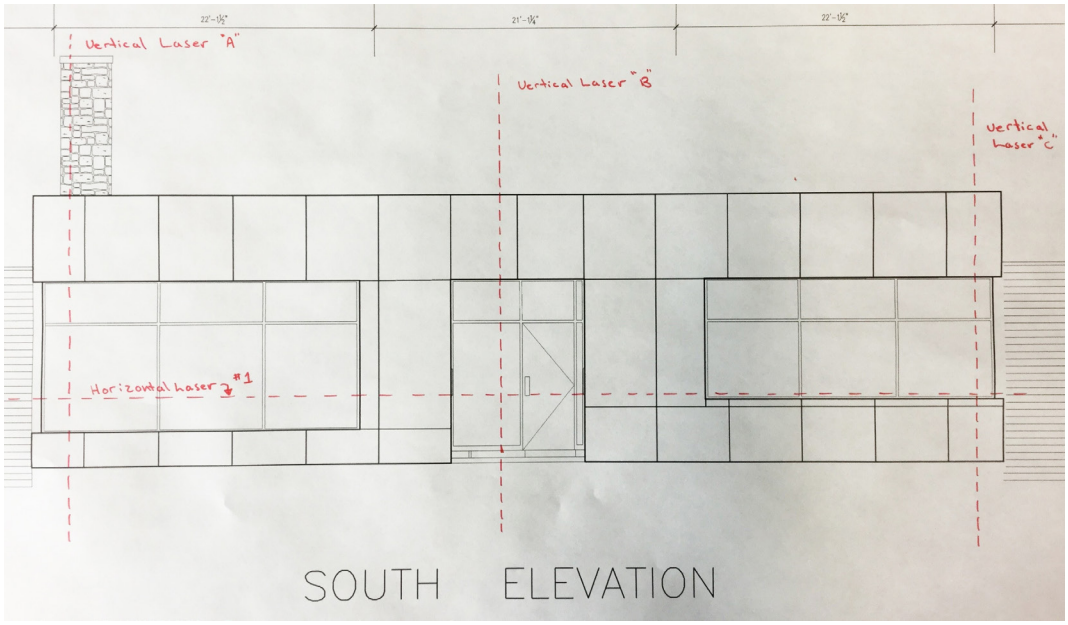
Site Measuring Procedure - Step by Step



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":

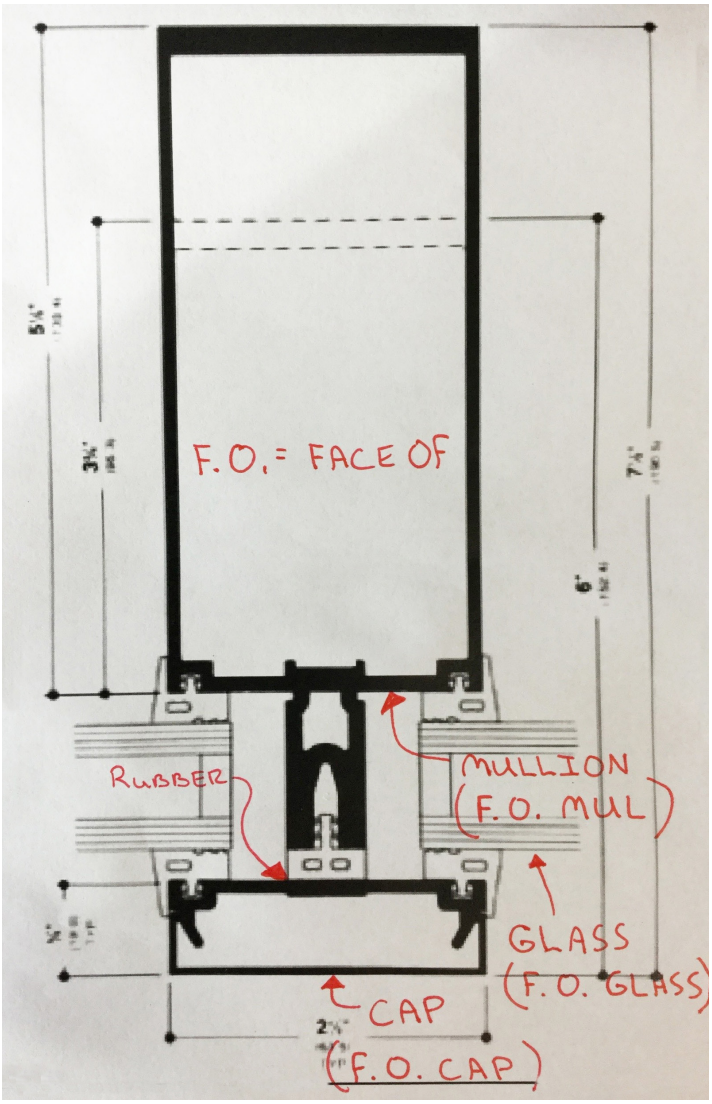


The "example" elevation is constructed of plywood sheathing; the windows and doors are commercial window wall. This is the most commonly used glazing system and depending on the stage of construction you may be measuring to different components of the curtainwall. Many acronyms are used throughout the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

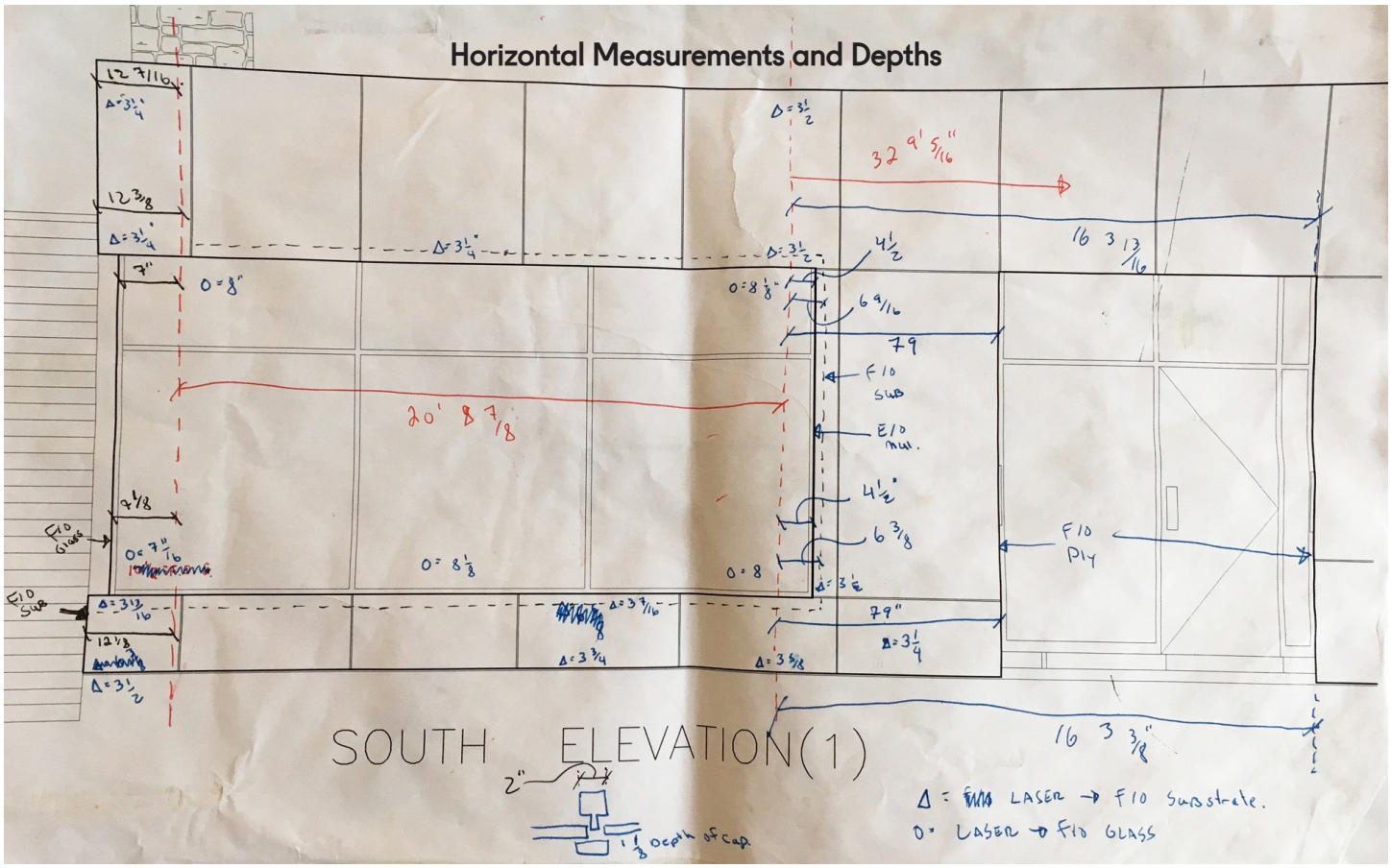
Here is a list of other typical acronyms used, creating your own is encouraged as long as you provide a legend to explain the meaning similar to the list below:

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

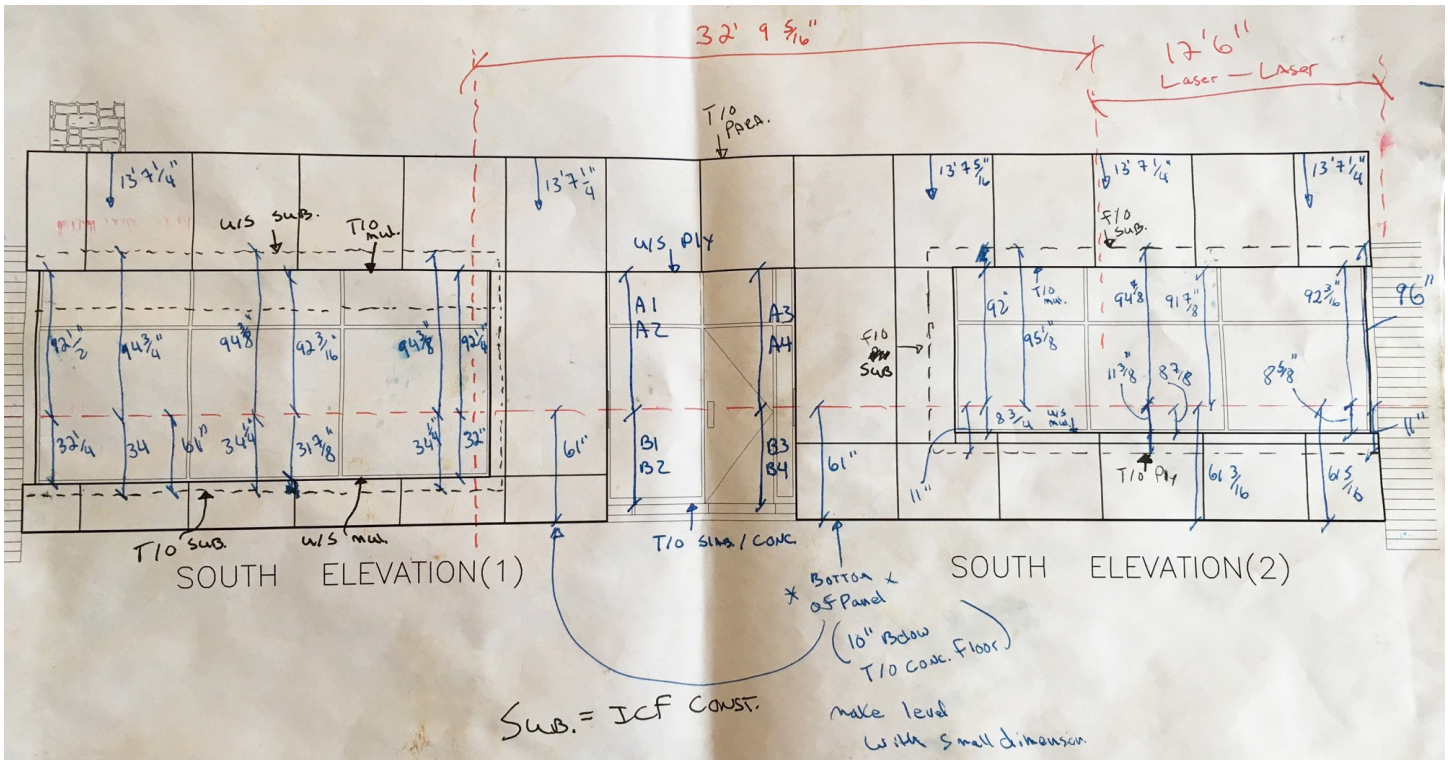
Symbols can also be used such as triangles, squares and circles defined in a legend to explain the meaning.



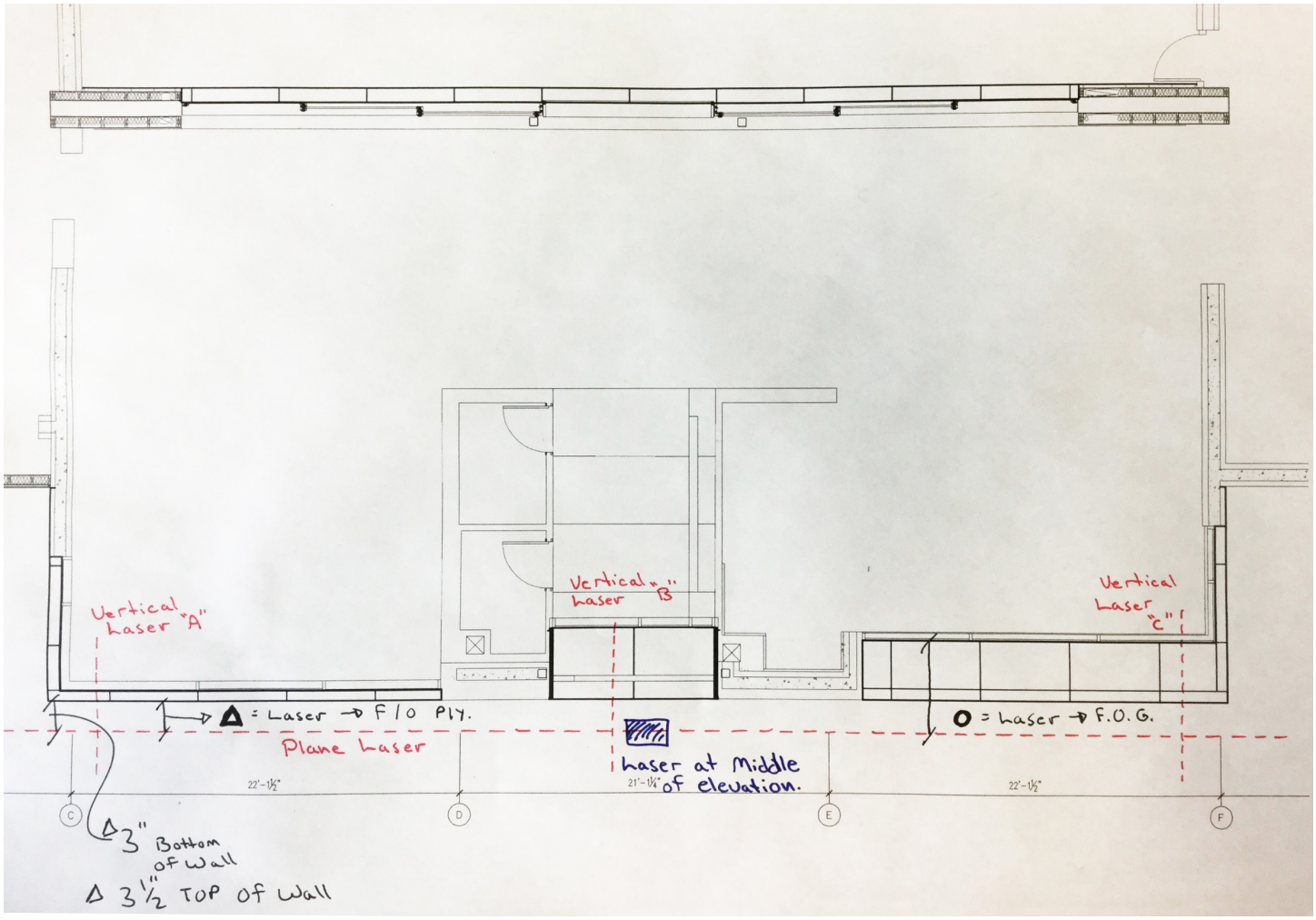
Multiple elevation drawings may be needed to avoid to much clutter and confusion. For example, one page can be used for vertical measurements, another page can be used for horizontal, depth and plane measurements. See below:



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.



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. These drawings will have your laser lines marked on it and are to be used as a reference to begin a successful installation.

elemex®

Architectural Facade Systems

530 Admiral Drive, London, Ontario, Canada N5V 0B2 • Tel: 1-844-435-3639 • elemex.com

Site Install Readiness Guide

Project: _____ Project #: _____

Address: _____ City/State: _____

Installer: _____ Products: _____

Pre-Measuring Requirements

1. Review all pre-measuring guides & videos (as applicable)

2. Substrate installed: plywood sheathing, concrete, CMU

3. Weatherproofing membrane installed including tie-ins: vapor and/or air barriers

4. Sub-framing installed (if required), which may consist of one or more of the following but is not limited to:
   - Thermal clip and angle
   - Adjustable angles
   - Furring/hat channel or continuous bar

5. Obstructions and openings are installed, such as but not limited to:
   - Window & Door frames
   - Outriggers or post structural anchors: i.e. canopy, sunshades, signage
   - Water Service Obstructions: i.e. Siamese connections, hose bibs, downspouts
   - Mechanical Service Obstructions: i.e. louvres, vents, gas connections
   - Electrical Service Obstructions: i.e. receptacles, wiring, card access, buttons
   - Lighting
   - Installer has reviewed all Mechanical, Electrical & Lighting plans to coordinate any obstructions with Elemex

Penetrations through panels must be coordinated prior to fabrication to maintain panel integrity. Penetrations must be a minimum of 2" from the edge of panel.

For a full list of obstructions to look out for, please refer to the Elemex Site Measuring Guide.
If any of the above items are not able to be installed prior to site measuring, consult the Elemex project manager to discuss further options.

Photo Confirmation or On-Site Video Conferencing

Send photos of all elevations of the building or special conditions so Elemex can confirm that the building is ready to measure upon representative arrival.

Alternatively, a video conference can be done with someone present on site in order to do a walk around of the building to verify conditions and ask questions.

Training with Elemex Representative

- Elemex University 1.5-day training held at Elemex head office in London, Ontario
- Conference call or video chat if in person training is not available
- On site training

1. Review all pre-training documents & videos (as applicable)

2. Site measuring training
   - Present for guidance and assistance of techniques including initial setup of measuring tools (lasers, targets, etc.)
   - Panel installation company to take and record actual dimensions, Elemex rep to oversee procedure and review dimensions
   - Help to check dimensions for initial errors and accuracy

3. Unloading crates and handling of material
   - Notes on crates
     i. "Open Here" and "Stop! Do not open here"
     ii. "Lift Here"
     iii. Clips, shims and infill location
   - Packing lists
   - Panel damage inspection & photography
   - Handling techniques

4. Site storage of panels
   - Staging panels for easy access
   - Proper storage methods – vertical orientation
   - Adequate laydown area for offloading and storage

5. Panel installation
   - Tools required
   - Layout preparation
   - Preparing panels
   - Infill installation
   - Panel spacers

6. Panel modification
   - Cutting penetration holes
   - Cutting down/modifying a panel on site – last resort option only. Any modification done on site to panels without Elemex involvement will void all workmanship warranty on those panels.