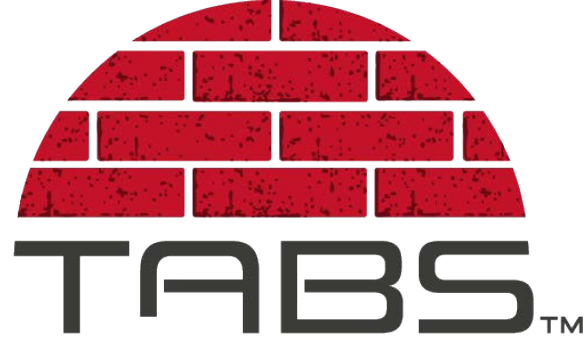




Project Material and Labor Estimating Guide

I. SYSTEM MATERIALS: COMPONENTS OF PROJECT SECTION

A. TABS II (Heavy Duty) Panels:

Panel Sizes: (w x h) (mm x mm)

48" x 24"	1200 x 600
48" x 48"	1200 x 1200
48" x Custom	

Support Tab Spacing:

(2-5/8" – 66mm)	(2-7/8" – 73mm)	(3" – 75mm)
(3-1/8" – 200mm)	(4" – 100mm)	(6" – 150mm)
(8" – 200mm)	(12" – 300mm)	

Support Tab Lengths:

(5/16") tab for (1/2" to 5/8") thick veneer, and (9/16") additional extended tab for (3/4" to 1 1/4") thick veneer.

B. Panels Pre-Bent for Corners, Windows, and Door Return:

Panel Sizes: (w x h)

48" x 24"

C. Veneers: Supplied by TABS Wall Systems or equal (maximum 1-1/4" thick).

1. Thin brick meeting ASTM C-1088, Decorative Block meeting ASTM C-90, Dimensional Cast Stone meeting ASTM C-1364, along with tile, marble, granite, or natural stone.
2. Additional veneers must be approved by TABS Wall Systems.
3. Saw cut veneers must be clean & free of all residual debris or primed using TABS Primer.

- D. **Adhesive and Structural Silicone:** TABS brand only.
1. TABS II adhesive in tubes, for use with Thin Brick, Decorative Block, and Tile.
 2. TABS II Structural Silicone in sausages & primer, for use with Cast Stone, Marble, Granite, and other Natural Materials.
- DI. **Mortar:** Supplied by TABS Wall Systems or equal.
1. Type "S" mortar mix required; either pre-blended in a bag, or mortar cement mixed with washed sand, per code standards. Natural Stone and Tile might require stone or tile grout, check first with manufacturer prior to using Type "S" mortar mix.
- DII. **Mortar Additive:** TABS brand only.
1. Concentrated water-based TABS II acrylic latex bonding agent.
 2. Diluted additive used with S-Grade mortar mix.
- DIII. **Fasteners:** Supplied by TABS Wall Systems
1. Non-corrosive #8 - #12 fasteners with a wafer head (or) flat back design. Type and length of fastener will be determined by substrate and overall wall thickness.
- DIV. **Water Infiltration Barrier:** Supplied by TABS Wall Systems or equal.
1. Green Guard Rain Drop Wrap, supplied by TABS Wall Systems or equal to meet local building code, project specification requirements, and TABS requirements.
- DV. **Flashings and Trims:** Supplied by TABS Wall Systems or equal.
1. TABS Starter, Top Side, Side Angle Flashing, or Stone Brackets (G90, 22 to 24 gauge w/ Kynar 500 finish) or equal to meet local building code and project specification requirements.
 2. If specification is not called out, project needs to meet BIA tech notes 7 - 7A, 7B, 7C and TABS details.
- DVI. **Cleaning Agent:** Use appropriate type for veneer.
- DVII. **Caulking:** Material per project specifications and local building code.

II. RELATED PROJECT MATERIALS

1. Substrate (as needed).

III. SYSTEM MATERIAL PURCHASE GUIDELINES

- A. **Panels:** Priced per square foot, various panel sizes, including custom, can be ordered using the same spacing.
1. Average pallet load ~ approximately 150 panels, 2400 sq. ft. (or) 2000 lbs.
 2. Order panels using a 2% waste factor, this is based upon wall square footage, with major openings omitted.

- B. **Pre-Bent Panels:** Priced per square foot, with 90-degree bends only.
1. Average pallet load, 50 panels ~ approximately 300lbs.

- C. **Veneer:** Can be ordered through TABS Wall Systems or local distributor. Thin brick straights, tile, and stone veneer are priced per square foot, brick corners and special shapes are priced per piece.

Note: When veneer is purchased through TABS, veneer becomes part of the TABS Wall Systems Warranty.

1. To figure the amount of outside veneer corners, for modular size veneer, use total lineal footage and multiply by 4 ½ pieces per running foot. For other sizes contact distributor.
 2. Straight brick waste should be calculated at 3%, and corner brick waste at 5%.
 3. Stone veneer waste should be calculated at 3%.
- D. **Adhesive:** Sold by the case, 12 - (29 oz. – 860 ml) tubes per case.
1. Each 29 oz. tube of TABS II Adhesive will supply enough coverage for approximately 12 sf to 16 sf of veneer per tube.
 2. Each 20 oz. Sausage of TABS II Structural Silicone will supply enough coverage for approximately 10 sf to 12 sf of veneer per tube.

3. When using TABS II Structural Silicone, it may be required to prime veneer with TABS II Primer (1 pint can will yield 150 sf per pint), please consult with your TABS representative.

4. Extra tubes are recommended for first run projects.

E. **Mortar:** Available through your local distributor.

1. (50) lbs. of S-grade mortar mix will cover approximately 30 ~ 35 sq. ft., and (80) lbs. will cover approximately 45 ~ 50 sq. ft.
2. Natural Stone and Tile might require stone or tile grout, check first with manufacturer prior using Type "S" mortar mix.

F. **Mortar Colorant:** If needed.

1. Iron oxide colors are recommended which can be mixed with S-grade mortar.
2. Pre-colored mortar available through distributor.

G. **Mortar Additive:** Sold by (gallons – 3.79 liters) 4 gallons/15 liters per box, or (5 gallon – 19 liter) buckets.

1. One gallon of TABS II concentrated mortar additive diluted to a 1:5 ratio (or 1:6 ratio in summer) will cover approximately 200 ~ 240 sq. ft.
2. TABS Additive must be used if poly-modified Type S mortar is not utilized.

H. **Fasteners:** Supplied by TABS Wall Systems (**NO EXCEPTIONS**)

1. TABS panel requires minimum (1.5) fasteners per square foot.
Refer to fastener schedule on pg 10.
2. TabGuard Non-corrosive #8 - #12 fasteners with a wafer head (or) flat back design.
3. Type and length of fastener will be determined by substrate.
Fasteners will extend beyond substrate and into framing as follows;
1" into wood frame, 1/4" (minimum 4 treads) into metal frame, 3/4" to 1" into masonry (not to enter masonry core).
4. Additional fasteners needed for trims and flashing.

5. Fasteners shall be approved by fastener manufacturer with regards to project condition.

I. Water Resistive Barrier:

1. Install per manufacturer, regional building code, and/or project specifications. TABS details and recommendations are available to be submitted to project architect and/or project engineer for approval.

II. Flashing and Trim: Supplied by Tabs Wall Systems or equal.

(DO NOT USE ALUMINUM FLASHING OR TRIM)

1. Figure lineal footage of flashing, trim, horizontal control joints, and starter strip if required.
2. Install and fasten per project specifications, TABS details, and code.

III. Cleaning Agents:

1. Detergent type recommended, or per veneer manufacturer requirements.

IV. Material Storage:

1. All materials including thin veneer shall be kept clean and dry. Adhesive and Mortar Additive are to be stored above 32° Fahrenheit and below 86° Fahrenheit temperatures.

V. TOOLS AND EQUIPMENT FOR INSTALLATION

A. Recommended:

1. Safety glasses, extension cords
2. 4' Level and/or laser level
3. Hammer, drill and/or screw gun
4. Chalk line, utility knife
5. Flat screwdriver, needle nose pliers
6. Tin snips and/or power shears for panel
7. Sawhorse and support planks, and/or work table
8. Ladders, jacks, picks, scaffolding and/or lifts
9. Quart size caulking gun, offset tile nippers
10. Circular saw/masonry blade (or) tile saw
11. Template for cutting and holding brick (if needed)
12. Clean wheel barrel & hoe, or mortar mixer, or (5) gal. bucket and whip.
13. Mortar scoop, plastic mortar tub, dishpan, or kitty litter tub
14. Screen box with ¼" opening, approximately 2' x 1 ½' dimensions

15. Mortar bag and tip, mortar gun, mortar hopper with drill motor (or) pumping system
16. Striker, jointer rounded 1/2" x 5/8"
17. Two gallon water pail with quart measurements
18. Water buckets, (3) – 5 gallon pails
19. Flat, stiff Tampico bristle brush to clean brick surface
20. Acid brush and handle (if needed)
21. Cleaning brush (plastic bristle to clean tools and equipment only)
22. Tampico bristle water brush

V. ESTIMATING INSTALLATION LABOR

A. Estimation Tables - Labor Force: 3-Man Seasoned Crew:

Time to Install 100 Sq. Ft. of Material

<i>Material</i>	<i>Time Frame</i>	<i>Man Hours</i>
Apply Panel	3-Man Crew, 20 Minutes	1.00
Adhere Veneer	3-Man Crew, 90 Minutes	4.50
Tuck Point Mortar	3-Man Crew, 90 Minutes	4.50
Clean Brick	3-Man Crew, 20 Minutes	1.00

* Total man-hours per 100 square feet = 11.00 man-hours to apply panel, veneer, tuck point, and clean brick finish.

**Installation on Single and Multi-Story Projects
Man Hours per 100 Sq. Ft. of TABS System**

<i>Wall Height</i>	<i>w/ Screws</i>	<i>w/ Masonry Anchors</i>
Single - Story	11	13
Multi - Story	12	14

B. Supplemental Labor Guideline:

- a. Cutting, add (1) man hour for each 10 linear feet of possible cutting.
- b. Natural Stone, add (1) man hour for applying Tabs Primer "P"
- c. Ashlar Patterns, add (1) man hour for layout of pattern.

VI. PROJECT PARAMETERS

The following are not included in estimating materials and labor for installing the TABS II System.

1. Scaffolding or support mechanism and the placement of such.
2. Wall preparation; wall shall be flat and meet the design requirement of L/360 and code standards.
3. Control/movement joints are to be called out on the prints and placed accordingly.
4. All sheathing materials and/or water infiltration barriers are in place.
5. All flashings and/or trims are in place (check project specs and/or code for details).
6. The finished system follows the surface of the supplied wall, if in doubt as to meeting finished surface requirements, notify owner or owner's representative.

Note: The above information is for use with TABS II (Heavy Duty) "Moisture Control" Panel Systems. Additional materials and guidelines must be added, when installing "TABS II Plus and TABS TI Panel Systems. Prior to installing these additional systems be sure to refer to your TABS Wall Systems PDF Details, or contact TABS Wall Systems.

When the "Plus" is added next to the TABS Panels description (ie. TABS "II" Plus), this indicates the addition of TABS "Rain Screen ", which must be installed before the TABS Panel and after the building substrate and water infiltration barrier. TABS Rain Screen is available in Standard 5mm thickness, . When installing TABS "Rain Screen " be sure to install 1/8" above all rigid flashing located above all window heads, door heads, and horizontal control joints. Possible additional materials if specified are: TABS Rain Screen with Wrap, 9" Flashing Tape, and SuperStretch Tape (all provided by TABS).

When the "TI" is added next to the name TABS (ie. TABS "TI"), this indicates the addition of TABS "Rigid Insulation Panel", which must be installed before the TABS Panel and after the building substrate and water infiltration barrier. Additional materials needed are: TABS supplied insulation (1", 1 1/2", or 2") & TABS II Rigid Starter Flashing . *Maximum overall thickness of TABS TI system that exceeds 3 inches (including but not limited to; veneer, rainscreen, insulation, etc.), should be consulted prior to installation.*

Insulation Chart

Veneer Thickness	Maximum Insulation	R Value
up to 1/2"	up to 2"	Pending insulation type
up to 3/4"	up to 1-1/2"	
up to 1"	up to 1"	
up to 1-1/4"	up to 1/2"	

INSTALLATION INSTRUCTIONS

VII. WALL PREPARATION/CONDITIONING:

1. Structurally sound wall: if in doubt, get owner or engineer's approval prior to installation. Framing for control/movement joints are in place.
2. Substrate will have a recommended deflection design of no greater than $L/360$ unless consent is given by TABS WALL SYSTEMS.
3. Corners are to be braced to meet code and design requirements in order to alleviate shrinkage, raking, settling and movement. Wall is to be flat within $\frac{1}{4}$ " per 10 lineal feet. The TABS WALL system follows the contour of the wall. If it is not flat, notify the owner or project manager prior to starting. Walls can be shimmed with felt or foam to obtain desired results.
4. Sheathing will be of approved type for installation and code equal and installed to sheathing manufacturers recommendations and specifications.
5. Water or air infiltration barrier in place, if needed, with any openings or tears repaired.
6. Starter angles, flashing, and trim in place as per detail drawings to be approved by project architect, project engineer.
7. TABS Wall Systems requires that control/movement joints be located within 2'-4' of outside corners, and shall not exceed 24' on center vertically, regardless of wall type. Where the panel system is applied over concrete or masonry (CMU) backup walls, control/movement joints shall coincide with the control joints of the backup wall, in addition to the requirements above.
8. TABS Wall Systems requires that horizontal control/movement joints be installed at least once per story, not to exceed 18' on center, regardless of wall type.

VIII. LAYOUT:

A. Control Areas

1. Stop panel and veneer at building control joints.
2. Install vertical control/movement joints within 2' to 4' of outside corners, and not to exceed 24' on center thereafter, regardless of wall type (see above).
3. Install horizontal control/movement joints not to exceed 18' on center per story, regardless of wall type (see above).
4. Stop panel and veneer 1/4" to 3/8" away from doors, windows, and overhead door openings (See Details).
5. Stop panel and veneer 1/4" to 3/8" from inside corners.
6. Control joints should be 3/8" wide to accommodate movement of veneer and panel. Larger joints may be needed to accommodate building movement. These should be specified by the designer or engineer.
7. For ease of installation, window or door frames should be within 3" of surface, for veneer returns using outside corners pieces.
8. If window sill is to be angled by using outside corner piece, frame should be within 2 1/2" of outside surface (See Details).
9. Lowest common corner of building is starting point. Then level corner to corner.
10. Align tabs at corners and all joints.
11. Adjust panel, if possible, so full course fits under or over windows, doors, or openings (cut as little as possible).
12. If a full course is not possible, use soldier coursing or trims.

B. STANDARD PANELS:

(If using TABS II Plus or TI Systems, prior to installing the TABS II Panel, first install TABS Rain Screen Wrap over the building substrate and water infiltration barrier). Be sure to install TABS Rain Screen Wrap 1/8" above all starter flashing at wall base, window heads, door heads and horizontal control joints.

Clean panel, if necessary, with non-oil base cleaner of any dirt, film, or residue that interferes with adhesion of adhesives or mortar.

1. Install panel in upright position, with control date/stamps on bottom center of panel or punched openings above tab.
 - a. Using a metal cutting shear, cut off the bottom 3/8" from the TABS panel resting Thin Veneer on Flashing for all starter panel locations including horizontal control joint locations where flashing is used (example pictured to the right).



2. Panel edges to end or begin on stud or girt.
3. Start at outside corner;
 - a. panel may be custom bent or wrapped around corner for additional bracing.
 - b. stagger panel joints over joints in sheathing.
 - c. stagger panel joints if possible (this will help brace the wall);
 - d. panels are butted at edges; for optimal stress relief, a 1/16" gap between panels is recommended.
4. Panel should be fastened as flat as possible; fasten down center then work out to edges. Apply adhesive to areas behind panel that may flex too much or install additional fasteners to pull panel flat to wall.
5. Panel may be cut with tin snips or power shears.

C. FASTENER:

1. Shall be a TabGuard non-corrosive type with a flat or wafer head design.
2. Fasteners will extend beyond substrate and into framing as follows; 1" into Wood frame, 1/4" (minimum 4 treads) into metal frame, 1" into masonry (not to enter masonry core).
3. Fastening schedule of 1/4" from edge and every 8" on studs into 16" on center studs, or 5 1/4" on stud into 24 on center studs, through panel's pre-drilled holes. Additional fasteners can be used around perimeter of panel and cut edges (if pre-drilled hole is not accessible, fastener can be installed through panel, providing fastener is installed in between mortar joint and not behind thin veneer material). For masonry substrates use a minimum of one (1.5) fastener per square foot. *For additional fastener schedules, please refer to Appendix A (Additional Fastener Schedules) on page 14 of this document.*

CI. VENEER:

1. Veneer colors vary in shades and textures from veneer to veneer and process to process.
2. Order full veneer range (5 pieces) before placing order, if in doubt as to color range or texture.
3. Bricks, tile, or stone should be applied to wall out of several boxes at one time, so that a blend of color ranges may be achieved.

E. STARTING POINT (INSTALL MASTER ROW):

1. Start at outside corner of wall.
2. Apply corner bricks to wall, alternating long and short leg, for running bond pattern. Apply stone veneers with corner edge protruding the thickness of the return veneer.
3. Run one row of veneer the length of wall to next outside or inside corner under or over window or door line, with a 3/8" joint opening between veneers.
4. The position of the veneer on the panel to the double tabs will be the same on every other course.
5. Adjust tabs, if necessary, to keep course level.
6. Engage Tabs II's mortar tie, by pressing mortar tie in downward motion over top of each brick.

7. For brick walls not using outside corner pieces, wall will be started with a Full brick for the master row; the next course is started with a half brick.
8. To install brick vertically, creating a soldier course flatten 2 rows of tabs into their openings. Rest bricks vertically on tabs.
9. Veneers should be stopped 1/4" to 3/8" from door and window trims.

F. CUTTING:

1. Score brick or to 1/4" depth with masonry blade, circular or cut off saw on face of brick. Break scored pieces with offset tile nippers.
2. Tile, marble and granite must be cut all the way through with a tile saw.
3. Install factory edge toward window and door moldings - when edge is concealed by trim, place factory edge to be seen. Apply full pieces first, and then cut pieces.
4. Window and door head openings should be finished as shown in details.
5. If possible, grout joints should not be placed directly over panel seams or joints.

G. ADHESIVE:

1. Apply adhesive in dabs about the size of a quarter to the back of the brick on either end or on the panel so that each brick receives two dabs of adhesive. You may also apply vertical strips of adhesive at each end of the brick.
2. Apply adhesive to corner bricks with 2 dabs or strips on the long leg and 1 dab or strip on the short leg.
3. Do not run a continuous horizontal bead of adhesive on the panel, you will use more than what is needed and will hinder moisture movement on the face of the panel and reduce bond strength.
4. Adhesive if kept warm, can be applied to brick or panel at 0 degrees facilitating year around installation.
5. Too much adhesive will tend to push brick away from the wall. Air adhesive by pulling brick away from panel for a few seconds; then push back into place. This allows solvent to escape faster and the adhesive to become stickier.

6. Adhesive in hot weather can hasten a film. Slide brick on panel to break surface film and achieve a good bond. In direct summer heat, adhesive will most likely have to be aired to release solvent faster to allow adhesive to have a tackier set.
7. For tile and stone veneers, structural silicone should be applied in 3/8" vertical beads every 3" to 4" apart to panel or back of veneer. *See Appendix B located on page 16 for proper use of Tabs Structural Silicone.*

H. FIELD MIX FORMULAS:

1. Formulas – Type "S" Mortar Mix
Mix #1: 1 part Portland Type 1, 1/2-part hydrated lime, 2 to 3 parts sand. Mix #2: 1-part pre-mixed Type "S" masonry mix.
Mix #3: 1 80 lb. Bag of mortar mix Type "S", 2 to 3 parts sand.
2. Screen mortar mix, dry, through 1/4" screen cloth. This will stop lumps or stones from plugging the tip of the grout bag or applicator.
3. Add colorant, if required, to dry mix, then mix well dry.
4. Add 1 quart TABS latex to 5 quarts of water. Add this liquid mixture to the dry mortar ingredients. In summer add 1 qt latex to 6 qt, re-temper as needed.
5. Screen part of the wet mortar mix through a 1/4" screen cloth into a mortar tub to screen out any lumps.
6. Add additional water to screened mortar mixture, if needed, so the consistency is that of (a milkshake), or so it just drips through the tip of the grout bag.
7. Fill 4 feet of horizontal courses first. After every 4th row, fill vertical joints; this will allow the wall to dry evenly. Fill in all voids with damp mortar previously struck from the wall.
8. Over-fill joint with mortar, as mortar dries; it shrinks due to water volume loss. Note: normal slicker may penetrate to far, use modified slicker or a 6-9" piece of 1 1/2" to 2" ID pipe.
9. When mortar is thumb print dry to the touch (like wet beach sand), strike joint with slicker or jointer tool to pack mortar into the joint.
10. Struck mortar should be dry enough to fall away clean and tooled to a dull gritty finish, not wet and shiny.

11. Upon initial set, brush excess mortar off brick face, if necessary, with a flat natural bristle brush. Be careful not to drag mortar out of joint or smear wet mortar onto brick surface.
12. Setting time will depend on drying conditions. In very hot weather, dampen brick to prevent rapid absorbency of moisture from mortar. When starting a new day, break cold mortar tips before continuation of tuckpointing.
13. Natural Stone and Tile might require stone or tile grout, check first with manufacturer prior to using Type S mortar mix.

I. CLEANING:

1. TABS Wall Systems recommends cleaning veneer between 5 and 7 days (never to exceed 10 days). In the event brick is cleaned after 10 days and you experience difficulty in cleaning excess mortar from the brick, contact Tabs for the appropriate "Latex Stain Remover".
2. For additional methods on how to veneer, contact a thin veneer distributor or manufacturer.

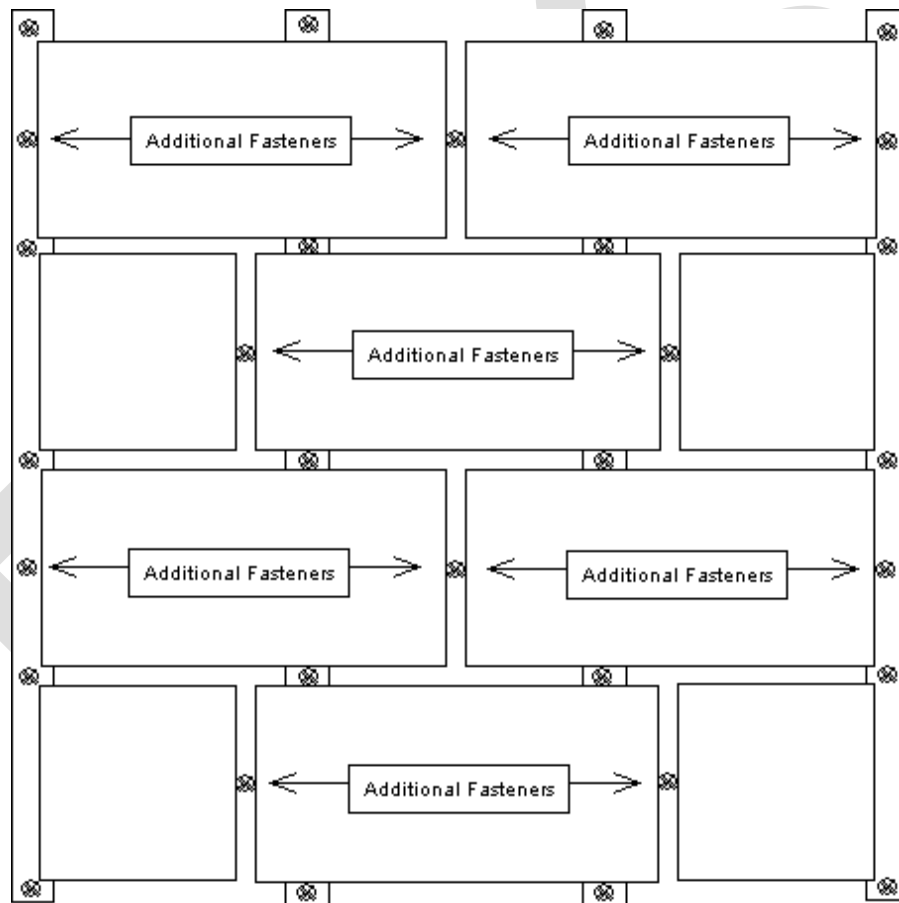
J. CAUTION:

1. TABS Wall Systems does not recommend acid-based cleaners. Prior to cleaning thin veneers, check with the thin veneer manufacturer, for their recommendation on what cleaner to use.

Appendix A

K. ADDITIONAL FASTENER SCHEDULE:

1. When installing veneers greater than 8" in height and longer than 16" in length (example: TABS Stone units 1-1/4" x 11-5/8" x 23-5/8"), it is necessary to install additional fasteners in between veneer to assure TABS Panels are installed properly to substrate. *Note: Never install fasteners behind veneer! In addition, when using this fastener schedule it is recommended to install TABS II Heavy Duty Panel over exterior plywood, cement board, or masonry substrates. If installing over Dens-Glass Gold, Exterior Gypsum Board, or similar sheathing, *additional fasteners must include toggle wing nut.*



Appendix B:

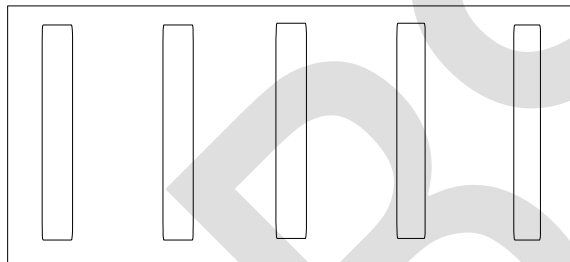
L. PROPER Installation using Pecora 895 NST Structural Silicone:

1. When applying Pecora 895 NST Structural Silicone to thin veneer concrete, cast stone, and natural stones the backside of the veneer must be properly prepped using **Pecora P-225 Primer** applied using a one-inch paint brush or clean cloth in vertical strips 2 to 3 inches apart.

Drying Time: Approximately 1 hour at 75°F. Pecora P-225 Primer should be allowed to dry completely before application of sealant. If allowed to dry over 8 hours, repriming is necessary. P-225 Primer is a moisture activated material. Allow longer drying times when humidity levels are below 50%.

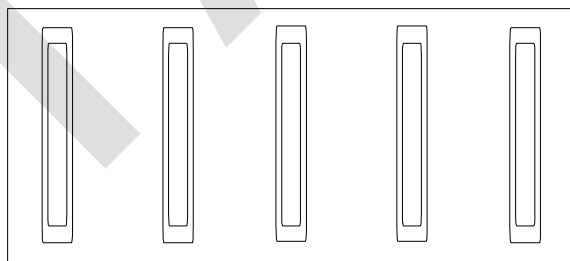
COVERAGE RATES:

Joint	Lineal
Feet	Size per
Gallon	3/8" x
3/8"	1800
1/2" x 1/2"	1200
1"x1"	600



Back Side of Veneer
1" Vertical painted strips of Pecora P-225 Silicone Primer

2. Once **Primer** has completely dried **Structural** Silicone can then be applied using 3/8" to 1/2" vertical beads on **the** back side of the veneer as shown below.



Apply 3/8" to 1/2" Vertical strips of Pecora 895 NST Structural Silicone

3. Before veneer can be applied to the TABS panel, you must allow silicone to set up approximately 2-5 minutes or, until silicone sets up and is thumbprint dry and strong enough for veneer to hold on to panel.

If you have any technical questions regarding the application of Pecora 895 NST Structural Silicone or P-225 Primer please do not hesitate to call your local TABS distributor or call Tabs Wall Systems direct at (616) 554-5400. (Revised 08/04/26)

Appendix C

M. Installing Porcelain Tile

Follow TABS installation instructions for installing panels.

Use Pecora 895NST Silicone without primer.

Apply silicone with three quarter size dabs on the 3" x 12" and 4" x 12" nominal units.

Apply silicone with vertical lines every 3"- 4" on 6" x 24" and 12" x 24" nominal units.

Do not push Locking TAB down into joint when using Porcelain Tile. Allow tile to remain on TAB.

You can use a concave joint or a floated joint for installing the grout.