QUALITY STONE VENEER, INC.

DRY LAID PANELS INSTALLATION GUIDE

INSTALLATION METHODS COVERED:

THE QUALITY STONE VENEER PATENTED
CLIP SYSTEM™ *APPLICATION*

DIRECT APPLICATION

APPLICABLE STONE STYLES:
APILADA, SEGOVIA
DRYSTACK LAMBRIS, OHIO DRYSTACK LAMBRIS
URBANA FUSION, URBANA SANDSTONE, URBANA TRAVERTINE



www.QualityStoneVeneer.com

HEADQUARTERS

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Dry Laid Panels Installation Guide

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QUALITY STONE VENEER INC
est. 1976

WHO ARE WE?

Company Introduction
Our Core Values
Areas of Service
Turnkey Packages
Material Only Packages
Contact



SINCE 1976

Founded in 1976, Quality Stone Veneer has been committed to producing and installing the most durable and aesthetic stone veneer product in the world. Our molds replicate the shapes and texures of natural stone. A process involving a hand casting of actual natural stone, intricate detail is achieved in a vast variation of pieces, leaving no two individual stones looking exactly alike. The end result is an unmatched natural aesthetic.

Quality, Sustainability, Value, Innovation.

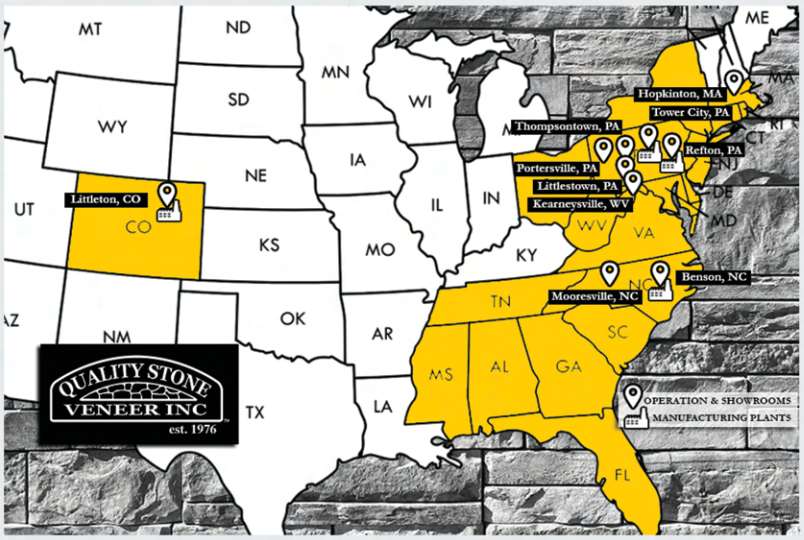
QUALITY
Quality Stone Veneer, Inc. is constantly striving to provide a quality product, intricately detailed installation, and excellent customer service, approaching each project with commitment, diligence, and attention to detail.

SUSTAINABILITY
We strive to be stewards of resources, aligning our operations with both the business and the natural environment. We wisely invest and allocate our finances and time, enabling the company to be profitable and influential to our local economies.

VALUE
Considering employees are our most valuable assets, we provide jobs with opportunities for advancement in an environment that allows everyone to be safe and productive.

INNOVATION
Our employees are encouraged to think creatively and pursue curiosity, creating new avenues for the company to grow and excel in our industry.

AREAS OF SERVICE



Our Footprint
Quality Stone Veneer started in 1976 in Refton, Pennsylvania where we're still headquartered today. In fact, in all those 40-some years, our corporate address and phone number has remained the same.

Quality Stone Veneer has since expanded up and down the east coast and out to Colorado. We proudly service all markets within these territories, both in turnkey material and installation packages, to product only sales.

Our products are designed for all types of building construction, residential and commercial, interior and exterior, regardless of the scope or size of the project.

Whether you're building a dream home, remodeling an existing home, adding stone to a fireplace, building a church, university, hotel, apartment building, or an assisted living facility, we bring your ideas to life from concept to completion.

FULL TURNKEY PACKAGES



1

MATERIAL ONLY PACKAGES



2

1) Turnkey Material + Installation Packages
Quality Stone Veneer specializes in both the manufacturing of the stone and its installation. We can provide a full turnkey package from project estimation, delivery to site, installation and site management, to final product. A single source of accountability from project inception to completion ensures your project is done right, everytime.

2) Material Only Packages
Product Only packages are also available. QSV can supply everything from preparation and installation materials, hand crafted precast, to any stone style and color combination you can think of.

DIRECTORY
Orders, Technical Services, Warranty
(717) 786 3229
Samples and Literature
Marketing@qualitystoneveneer.com

INSTALLATION GUIDE
FOREWORD

This Installation Guide has been produced to help builders, masons, do-it-your-selfers and installers alike in the preparation and installation of Quality Stone Veneer's line of Dry Laid Panelized stone styles. Reviewed in this guide is a detailed look at how these products can be paired with the Quality Stone Veneer Patented **Clip System™** application method. An installation method designed for ease of install and moisture management, the **Clip System™** application allows for a more-easily installed, better functioning stone veneer system, with a built in drainage plane behind the stone.

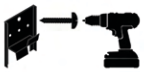
Also discussed in this guide is the traditional mortar and wire ***Direct Application*** method, to be followed when the substrate the stone is being installed over requires a traditional installation, such as a CMU block wall or concrete foundation.

This manual must be read in conjunction with the project's drawings and specifications, applicable building codes, and relevant compliance documents. The details within this manual provide guidance on how to comply with Quality Stone Veneer's installation requirements for all Dry Laid Panelized stone styles, both in Clip System and Direct Application installations.

These requirements and best practices should be reviewed and followed by all parties who are responsible for installing Quality Stone Veneer products on a project in order for warranty to apply.

This manual is subject to periodic re-examination and revision at any time. For information on the current status of these documents please consult your local QSV representative.

INSTALLATION METHODS DEFINED



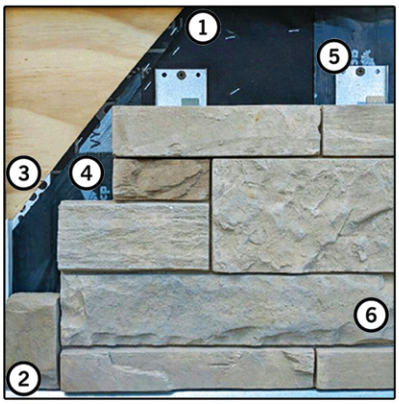
THE QUALITY STONE VENEER PATENTED ***CLIP SYSTEM™*** *APPLICATION*

INSTALLATION

-

COMPONENTS

-





1.) 2 Layers Water Resistant Barrier

2.) Clip Starter Strip

3.) 6" Self-Adhered Rubber Flashing

4.) Casing Bead with factory-applied backer rod

5.) Clip & Screw Attachment

6.) Clip Applied Stone



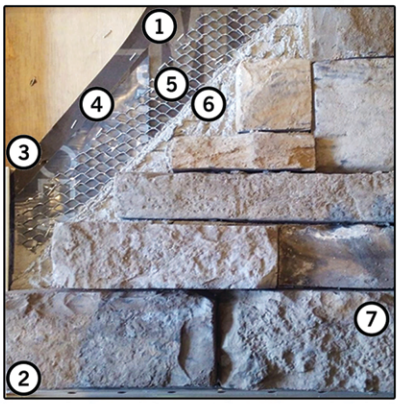
DIRECT APPLICATION

INSTALLATION

-

COMPONENTS

-





1.) 2 Layers Water Resistant Barrier

2.) Weep Screed

3.) Casing Bead with factory-applied backer rod

4.) 6" Self-Adhered Rubber Flashing

5.) Wire Lath

6.) Mortar Scratch Coat

7.) Mortar Applied Stone

APPLICABLE STONE STYLES

WHICH STYLES APPLY TO THIS MANUAL?



APILADA



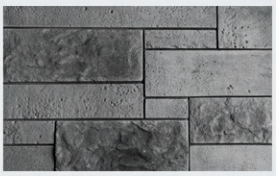
SEGOVIA



DRYSTACK LAMBRIS



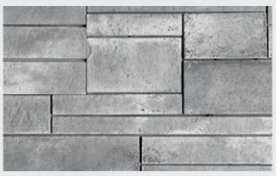
OHIO DRYSTACK LAMBRIS



URBANA FUSION



URBANA SANDSTONE



URBANA TRAVERTINE

Note: All stone style swatches are pictured in black and white. For a full look at color ranges and color options compatible with each style, please visit our website or contact your local QSV representative.

GENERAL PRODUCT INFORMATION

STORAGE AND HANDLING

QSV products should be stored in unopened packaging until ready for installation to prevent damage from moisture, temperature, or outside forces. Cementitious materials should be stored on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

MAINTENANCE

Most applications require no maintenance. The use of a high quality waterproofing sealer is recommended on any Quality Stone Veneer surface, but especially on those exposed to severe freezing or thawing, excessive moisture, or conditions which could discolor or stain the stone. A sealed surface is much easier to clean than an unsealed surface.

EFFLORESCENCE

Efflorescence is normal and common in all masonry products and easily remedied. To remove, allow stone to dry. Scrub with stiff bristle brush and clean water. If efflorescence is still noticeable, scrub with a solution of 50% household white vinager and 50% water and rinse thoroughly. Do not power wash stone. Do not use any salt and calcium chloride products on areas adjacent to stone veneer product.

SYSTEM REQUIREMENTS

WEATHERPROOFING & UNDERLAYMENT

All waterproofing and underlayment in stone areas including weather resistant barrier, flashing and trim are to be coordinated with construction of studs, soffits, and other adjoining work to provide a secure and water-tight installation.

For an up to date look at national code requirements for all weatherproofing and underlayment for stone veneer installations, please visit NCMA.org to download the latest version of the National Concrete Masonry Association's stone veneer installation guideline.

SUBSTRATE REQUIREMENTS

Installation of stone panels requires a substrate that will carry a load of 15 pounds per square foot for Clip System Application, and 25 pounds per square foot for Direct Application. Areas of rigid insulation will require a layer of plywood over the rigid insulation in order to meet this load requirement.

DESIGN DEFLECTION

For all products, including cast accessories, a minimum building Design Deflection of L/360 is required. A Design Deflection of L/600 is recommended.

CLIP SYSTEM SPECIFIC INSTALLATION REQUIREMENTS

The Quality Stone Veneer, Inc. Clip System application requires a plywood substrate to accept the galvanized Clips and Screws, hitting studs where possible.

GENERAL INSTALLATION REQUIREMENTS

Outside temperatures must exceed 40 Degrees F for all mortared applications to allow for proper mortar bond and curing. Morar scratch coat must cure for 24 hours before stone installation can begin.

Stage and pull from multiple boxes throughout the entirety of the stone installation to create a consistent blend of color and texture on the wall.

GAPPING TO DISSIMILAR MATERIALS

Stone is required to terminate 3/8" minimum from dissimilar matierals and openings for expansion and contraction.

PERSONAL PROTECTIVE EQUIPMENT
INSTALLING SAFELY

"WE CHOOSE SAFETY FIRST."

QUALITY STONE VENEER INC est. 1976

REQUIRED PPE

-

Quality Stone Veneer has compiled a list of required personal protective equipment for use in the preparation and installation of any stone veneer system.

OSHA:
Refer to OSHA.gov for all up to date jobsite safety codes and requirements.

WARNING

Failure to wear proper, required PPE may result in serious personal injury.

PPE	PHOTO	AREA OF USE
Hard Hat		Head Protection
Steel Toe Boots		Foot Protection
Hi-Vis Safety Vest		Or similar to make it easier for drivers to spot workers in construction zones.
Safety Glasses		Eye protection during cutting and installation.
Dust Mask/Respirator		Respiratory protection while cutting.
Protective Gloves		Hand Protection
Hearing Protection		Used when noise is over 85 decibels. Used while any cutting takes place.
Long Pants		Leg Protection
Fall Protection		Fall protection equipment when working above 6 feet.

PRE-INSTALLATION JOBSITE SAFETY INSPECTION

-

Safety is always first priority while working on any jobsite. Use a checklist such as the one here to inspect your work area before installation or work of any kind begins. What Pre-Installation steps do you need to take before beginning to ensure the safety of all workers throughout the entirety of the project?

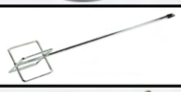
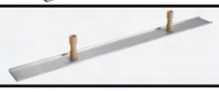
For all infromation on jobsite safety requirements and best practices, please visit OSHA.gov.

JOBSITE SAFETY CHECKLIST	YES	NO	N/A
Work areas free from overhead work?			
Workspace protected from immediate jobsite hazards?			
All workers wearing proper personal protective equipment?			
Caution tape in place for pedestrian traffic?			
All workers trained and certified to use equipment on site?			
Fire extinguisher & first aid kit available on the jobsite?			
Electric cords free from defects?			
Unserviceable hand tools tagged for repair?			
All guards on cutting blades?			
Emergency contact information available on site?			
Updated SDS Binder on site?			

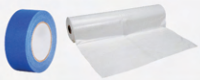
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REQUIRED TOOLS

CUTTING, MEASUREMENT, INSTALLATION & FINISHING TOOLS

TOOL	PHOTO	AREA OF USE
Cutting and Power Tools		
Compound Miter Saw with Dust Collection		Cutting stone panels. Saws should be used in conjunction with a vacuum equipped with a HEPA filter for maximum dust protection. Cutting should take place in an outdoor, well-ventilated area.
Angle Grinder with Guard		Small adjustment cutting and notching of stone panels.
Masonry Specific Blades for Saw and Grinder		Cutting and notching stone panels when required.
Power Drill		Clip System Clip and Starter Strip installation.
Fastener Gun		Fastening wire lath and flashing materials in direct applied installations, most common over cement or block areas.
Measurement and Accuracy		
Tape Measure		Measurement
Square (Various)		Accuracy in cutting
Level (Various)		Leveling of installation of flashing, stone panels, etc. Checking existing transitions for levelness.
String Line and Line Blocks		Lines and Blocks are to be used vertically at all outside corners and horizontally at each row of stone to ensure levelness.
Surface Preparation		
Tin Snips		Cutting of wire lath and flashings
Razor Knife		Cutting and opening installation materials
Hammer Tacker		WRB Installation
Rubber Mallet		Subtle tapping of stone panels to lock them in place.
Mortar Preparation and Finishing Tools		
Mixing Bucket, Concrete Mixer, or Wheelbarrow		Mortar Mixing
Mixing Paddle		Used in conjunction with a power drill for a consistent, even mortar mix.
Darby		Leveling of mortar scratch coat
Grout Bag		Jointing of stone panels, caps and accessories where required.

REQUIRED TOOLS CONTINUED
CUTTING STATION SETUP

TOOL	PHOTO	AREA OF USE
Mortar Preparation and Finishing Tools		
Trowel (Various)		Mortar Application
Joint Slicking Tool (Various)		Raking mortar joints between products where required.
Brush (Various)		Stone finishing and final clean up
Surface Protection and Clean Up		
Quality Stone Veneer Staining Kit		Used on touch up areas and on exposed cut ends of stone. One pint of stain figured per 500 sq/ft, or 1 quart per 1,000 sq/ft.
Painters Tape, Plastic, Tarps, Paper, Cardboard, or similar		Covering of all surface areas for protection during stone installations. Including, but not limited to, windows, floors, flatwork, transitions and trim.
Power Blower		Final face cleaning of stone. To be used in outside, well-ventilated areas only, down-wind of other workers.

CUTTING STATION SETUP

-

Stone cutting station should be set up in a well-ventilated, outdoor area where dust particles can be carried away from workers. An approved respirator should be used at all times while cutting, in addition to hearing and eye protection. Never cut stone indoors where dust particles can become airborn and trapped.

Cut stone panels face down to minimize the amount of dust that collects on the face of the stone. This reduces clean up during final finishing stages of the install.

CLEAN UP

Clean up of dust and debris is best completed using a vacuum with a HEPA filter, especially in indoor and non-ventilated areas.



⚠ WARNING

Never use power cutting tools on stone indoors.

⚠ WARNING

Prior to installing all Quality Stone Veneer products, all users must read all applicable warnings and comply with manufacturer installation instructions.

WARNING: AVOID BREATHING SILICA DUST

Quality Stone Veneer products contain respirable crystalline silica. Crystalline silica is a common mineral found in the earth's crust. Materials like sand, stone, concrete, and mortar contain crystalline silica, and are used to make products such as ceramics, brick, and artificial stone veneer. Activities related to the installation of stone veneer, such as cutting, grinding, or breaking, may result in the release of respirable silica found in the the dust. Breathing excessive amounts of respirable silica dust can cause damage to lungs through prolonged or repeated inhalation exposure, and can also lead to a potentially fatal lung disease called silicosis. During cutting, handling, and installation: (1) work in well-ventilated areas; (2) use a circular saw with vacuum attachment and HEPA filter to reduce dust while cutting (3) warn others in the immediate area; (4) wear a properly fitted approved dust mask or respirator in accordance with applicable government regulations and current manufacturer instructions to further limit respirable silica exposure. In addition, do not eat, drink or smoke while handling product. Protective gloves, clothing, eye and face protection should be used at all times. Wash from skin with plenty of water. Never cut stone indoors. For further information, refer to current OSHA procedures and regulations by visiting www.OSHA.gov, or by calling 1-800-795-3229 to speak to a Quality Stone Veneer Safety representative.

DRY LAID STONE STLYES
DETERMINING PIECE COUNTS

A quantity of each stone piece required for a project is calculated by taking the stone square footage, or lineal footage of corner areas, divided by the individual footage each piece covers, shown below. A higher percentage of the largest flat size is recommended in wide open wall areas. A blend of small and large flat sizes are recommended in smaller, more intricate wall sections to reduce cutting. Quality Stone Veneer is available to help determine a piece count for the stone pieces your project will require. Contact us today to get started.

APILADA



SEGOVIA



APILADA		
PIECE	DIMENSION	SQUARE FOOTAGE
	26¾"x12"x1½" Flat	***2.22***
	26¾"x3"x1½" Flat	***0.55***
	16½"x6"x1½" Corner	***0.68***

SEGOVIA		
PIECE	DIMENSION	SQUARE FOOTAGE
	24"x16"x1½" Flat	***2.66***
	24"x8"x1½" Flat	***1.33***
	24"x8"x1½" Corner	***1.33***
	16"x8"x1½" Corner	***0.88***

OHIO DRYSTACK LAMBRIS



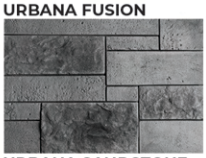
DRYSTACK LAMBRIS



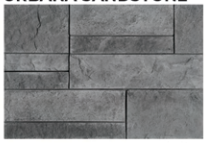
OHIO DRYSTACK LAMBRIS		
PIECE	DIMENSION	SQUARE FOOTAGE
	24"x12"x1½" Flat	***2***
	24"x4"x1½" Flat	***0.67***
	24"x12"x1½" Corner	***2***
	16¼"x12"x1½" Corner	***1.35***

DRYSTACK LAMBRIS		
PIECE	DIMENSION	SQUARE FOOTAGE
	18"x12"x1¾" Flat	***1.5***
	18"x6"x1¾" Flat	***0.75***
	18"x6"x1¾" Corner	***0.75***
	12"x6"x1¾" Corner	***0.5***

URBANA FUSION



URBANA SANDSTONE



URBANA TRAVERTINE

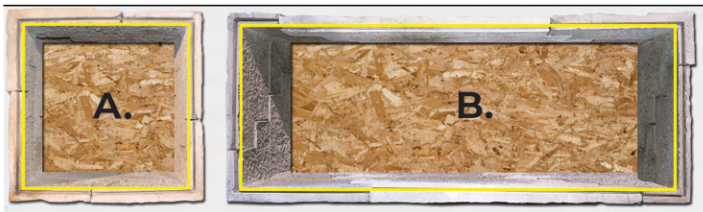


URBANA FUSION			URBANA TRAVERTINE			URBANA SANDSTONE		
PIECE	DIMENSION	FT	PIECE	DIMENSION	FT	PIECE	DIMENSION	FT
	24"x16"x1¾" Flat	***2.66***		24"x16"x1¾" Flat	***2.66***		24"x16"x1¾" Flat	***2.66***
	24"x8"x1¾" Flat	***1.33***		24"x8"x1¾" Flat	***1.33***		24"x8"x1¾" Flat	***1.33***
	24"x8"x1¾" Corner	***1.33***		24"x8"x1¾" Corner	***1.33***		24"x8"x1¾" Corner	***1.33***
	16"x8"x1¾" Corner	***0.88***		16"x8"x1¾" Corner	***0.88***		16"x8"x1¾" Corner	***0.88***

STONE COLUMNS

RECOMMENDED FRAMING DIMENSIONS FOR STONE COLUMNS

APILADA



FRAMING DIMENSIONS:

A. 15.25”x15.25”
B. 42.25”x15.25”

SEGOVIA



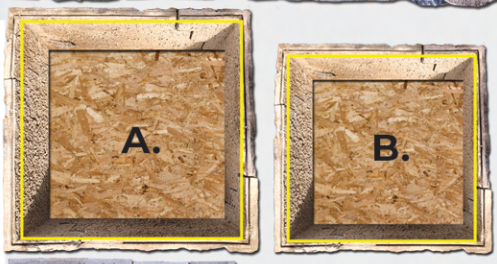
A. 23.25”x23.25”
B. 15.25”x15.25”

DRYSTACK LAMBRIS



A. 17.25”x17.25”
B. 34.75”x17.25”
C. 11.25”x11.25”

OHIO DRYSTACK LAMBRIS



A. 23.75”x23.75”
B. 15.75”x15.75”

URBANA
FUSION
TRAVERTINE
SANDSTONE



A. 23.25”x23.25”
B. 15.25”x15.25”
C. 39.75”x15.25”

COLUMN INSTALLATION

Planning ahead with pre-selected column framing dimensions paired specifically for the stone style you’re using can drastically minimize cutting and installation time and create a seamless fit of perfectly interlocked pieces.

Stone Style: Ohio Drystack Lambris
Stone Color: *Provence*
Application Method: Clip System™



INSTALLATION

SELECTING THE INSTALLATION METHOD BEST-SUITED FOR YOUR WALL TYPE

Before getting started, first determine which installation method is most suitable for your project. The Clip System is most commonly installed over stud framed wall systems requiring an exterior plywood substrate to accept the Clips and Screws, hitting studs where possible. A Direct Application (traditional mortar and wire installation) is primarily used when the stone panels are to be installed over concrete areas including concrete foundations, CMU block walls and retaining walls. Although, some framed wall types may also be better fastened to using this installation method. These wall types are, but not limited to: areas of rigid insulation, or gypsum sheathing areas. For all up to date Direct Application material requirements, installation codes and procedures, refer to the National Concrete Masonry Association's latest edition of the ***NCMA Installation Guide*** by visiting www.NCMA.org. All Quality Stone Veneer installations, both Clip System and Direct Application, follow all guidelines and specifications set forth by this guide. Any deviation from these set standards will void Quality Stone Veneer's limited warranty.

Wall Type

- Wooden (OSB) Stud framed wall with exterior plywood sheathing
- Steel Stud framed wall with exterior plywood sheathing
- Rigid insulation with exterior plywood sheathing

*Wall type rated to support 15 lbs per sq/ft minimum

INSTALLATION METHOD:



CLIP SYSTEM **PAGE 10**

Wall Type

- CMU Block wall
- Concrete Foundation wall
- Concrete Retaining wall
- Rigid insulation
- Gypsum sheathing, or similar

*Wall type rated to support 25 lbs per sq/ft minimum

INSTALLATION METHOD:



DIRECT APPLICATION **PAGE 16**

CLIP SYSTEM ADVANTAGES

WHAT SOLUTIONS DOES A CLIP SYSTEM INSTALLATION PROVIDE?



BUILT-IN DRAINAGE

Designed for moisture management, a ¼" air space between the wall and stone allows moisture to drain freely.



LESS WEIGHT

Less weight to install and requires no structural cement.



FEWER WEATHER LIMITATIONS

Can be installed in conditions sub 40 degrees F where a mortar and wire application require heating and tenting.



EASE OF INSTALLATION

Installs more easily than a mortar and wire, direct application.



REDUCTION ON MATERIALS

Eliminates the need for most cement, wire lath, drain mats, and casing beads.



TIME SAVINGS

Can save a considerable amount of time on installation and finishing.



CONTROLLED PATTERN

Preset stone panels with varying shapes and an off-setting pattern provide a control over the install, eliminating any guesswork in laying.



EASIER REMODELS

Remodel and transform an existing project more easily and more cost effectively.



PROFILE COMBINATIONS

Stone styles can be combined to create a building diverse in masonry type and color.



CLEAN FINISH EDGES

Precise finish edges can be cut where stone meets dissimilar materials, such as at window and door frames.



NATURAL AESTHETIC

Stone profiles are hand cast from natural stone, leaving no two faces of stone looking exactly alike.



VERSATILITY

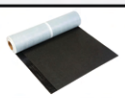
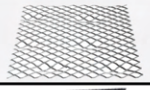
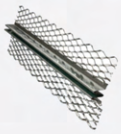
Stone panels have the ability to be direct applied with mortar and wire lath when required, such as transitioning stone onto a concrete foundation.

CLIP SYSTEM INSTALLATION

INSTALLATION MATERIALS

CLIP SYSTEM INSTALLATION MATERIAL REQUIREMENTS

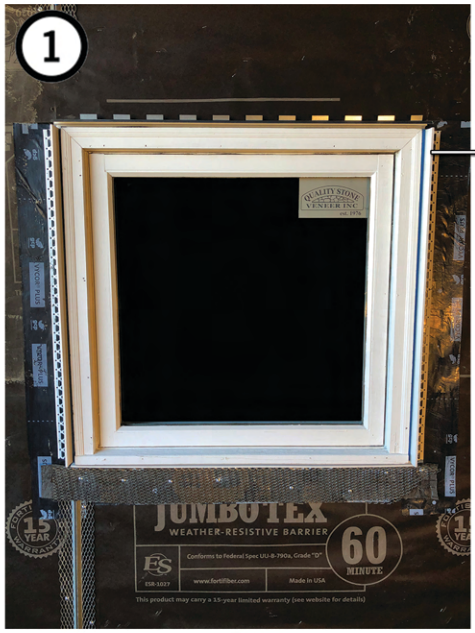
The following installation materials are required on all Quality Stone Veneer Clip System™ installations. For technical support on installation materials, contact 1-800-795-3229, or info@qualitystoneveneer.com to speak with a representative.

CLIP SYSTEM INSTALLATION MATERIAL	PHOTO	AREA OF USE
Water Resistant Barrier		Secondary layer of WRB is figured for the entire square footage of the stone area. WRB is to comply with ASTM D226, ASTM E2556, or equivalent.
6" Self-Adhered Rubber Flashing		Self-Adhered Flashing (6" Flexible Flashing Tape) is figured at and around all dissimilar materials in stone areas, including but not limited to, MEP penetrations, windows, doors and vertical transitions. An additional run of Self-Adhered Flashing is used when stone continues from the stud wall down onto concrete foundation, horizontally covering the Clip Starter Strip flange at this transition.
Ice and Water Shield		Ice and Water Shield waterproof underlayment membrane is to be used on top of framed columns, CMU masonry columns and walls alike, to cap and seal the top of the structure from water intrusion.
Clip Starter Strip		22 gauge galvanized metal Clip Starter Strip is used at the base of stud walls as a weep screed flashing over the sill plate transition. Used above windows, doors and framed openings as a drip cap flashing. Used at horizontal floor to floor tranitions as a expansion joint at rim joist level as stone continues up the wall. Clip Starter Strips are 10' long per piece.
Clip		20 gauge galvanized metal Clips used to fasten stone panels to the wall system. Minimum of 2 Clips per square foot of stone required. To calculate total Clips required, take the stone square footage x 2.3, then subtract the required linear footage of Clip Starter Strip from this number.
Clip Screw		1 5/8" Phillips-head galvanized metal Clip Screw used in fastening metal Clips and Clip Starter Strip to the wall. 1 Clip Screw is to be included per Clip, and 1 per linear foot of Clip Starter Strip required. There are 127 Clip Screws per pound.
Casing Bead with factory applied backer rod		2" Vinyl Casing Bead with factory applied backer rod, or similar flashing approved by Quality Stone Veneer. Used at all 4 sides of windows, doors, openings and vertical transitions to dissimilar materials to provide a 3/8" gap for expansion and contraction that can be caulked. Available in 10' lengths.
Wire Lath		1 piece of Wire Lath per 500 square feet of stone installed is to be figrued. Used in conjunction with mortar to install precast accessory items, such as sills and light blocks often subject to fixture attachment and contact.
Drain Mat		Referred to also as Rainscreen, Drain Mat can be added behind Wire Lath areas where precast accessories are installed to maintain a consistent drianage plane.
Expansion Joint		Galvanized zinc finish control and expansion joints are required to provide for movement, and to accommodate expansion and contraction caused by initial wall shrinkage and minor thermal movement. Installed at changes in wall heights, adjacent to changes in materials, and alongside windows and doors where possible. Spacing not to exceed 15 foot on center in any direction. Produced in galvanized steel and zinc alloy in 10’ lengths.
Polymer Modified Mortar		Used in conjunction with wire lath in the attachment of precast stone accessories, including sills, light, and outlet blocks subject to fixture attachment and contact. To be compliant with ANSI A118.4 or ANSI A118.5. 1 bag of Polymer Modified Mortar is to be figured per 200 square feet of Clip System stone areas.
Quality Stone Veneer Staining Kit		Finishing kit designed for stone touch up areas and on exposed cut ends of stone. 1 pint of stain figured per 500 sq/ft, or 1 quart per 1,000 sq/ft.

CLIP SYSTEM INSTALLATION
MATERIAL CLEARANCES

FIG. 1: UNDERLAYMENT AT WINDOW

Vinyl casing bead with factory-applied backer rod is to be used at all 4 sides of windows, doors and vertical transitions to dissimilar materials in stone areas. This practice provides a 3/8" gap allowing for expansion and contraction that can then be caulked.



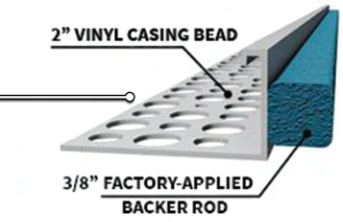


FIG. 2: CLIP STARTER STRIP ABOVE WINDOW AND DOOR HEADS

Clip Starter Strip is to be installed immediately over the casing bead to maintain a 3/8" gap to the window, or door head.



FIG. 3: GAPPING UNDER WINDOW

Vinyl casing bead under windows provides a 3/8" gap between the precast sill, or stone, to the base of the window frame.

FIG. 4: EXPANSION JOINT LOCATIONS

Install galvanized expansion joints at changes in wall heights, adjacent to changes in materials, and alongside windows and doors where possible. Spacing not to exceed 15 foot on center in any direction.

VERTICAL EXPANSIONS:



HORIZONTAL EXPANSIONS:

Detail: Page 23



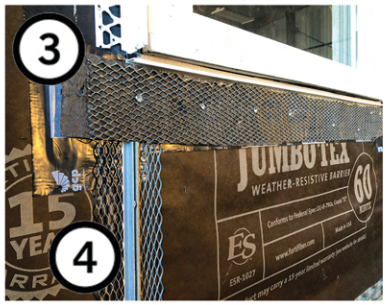




FIG. 5: GAPPING TO DISSIMILAR MATERIAL LOCATIONS

Always maintain a 3/8" gap in stone areas at:
- Windows, doors and framed openings
- Transitions to siding or dissimilar material
- Stone to stone inside corners
- MEP Penetrations and similar openings
- Expansion Joint locations
- All protrusions



FIG. 6: IMPROPER GAPPING TO DISSIMILAR MATERIALS

WARNING

Failure to gap stone to dissimilar materials may result in cracking due to building expansion and contraction.

CLIP SYSTEM INSTALLATION
WALL PREPARATION

1: JOBSITE SAFETY INSPECTION

"We Choose Safety First."

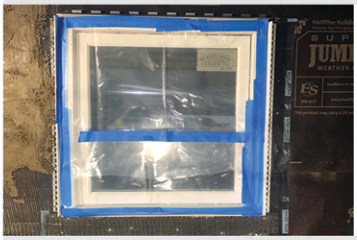
Before beginning any work on site, verify workspace is safe and free from all hazards. Use a jobsite safety inspection checklist like the one shown on page 4 of this guide. All workers should be equipped with the proper personal protective equipment for the job.

2: CHECK STONE TERMINATION POINTS AND FLATWORK



Ensure all necessary terminations, flashings, penetrations, and trim pieces are present to have a designated termination point for stonework in each direction. Concrete flatwork below stone area should be in place before stone installation, to have a clear understanding of where to properly terminate stone at the base of the wall system.

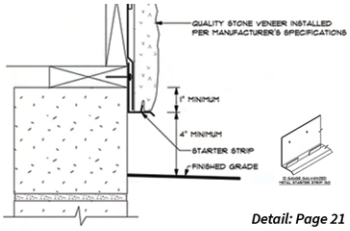
3: PROTECTION OF EXISTING MATERIALS



Begin by protecting existing finished surface areas. Install plastic covering around windows, doors, trim, siding, and any additional protrusions in stone areas using painters tape. Cover and protect any finished surfaces below stone areas with cardboard, tarps, paper or similar.

4: CLIP STARTER STRIP AT BASE OF STUD WALL





Detail: Page 21

IMPORTANT: The most critical piece before getting started is setting the Clip Starter Strip properly. Check the existing wall penetrations and transitions for levelness, using a level against windows, doors, soffits and openings in the stone area. Using a level and chalk line, create a level line across the base of the stud wall for the Starter Strip to follow.

Install Quality Stone Veneer 22 Gauge Galvanized Metal Starter Strip at base of stud wall using the Clip Screw corrosion resistant fastener, checking with a level. Fasteners are recommended every 8" of the Starter Strip and should be used a minimum of every 16".

The Starter Strip is to be attached directly into the wood structure. If an existing layer of WRB is present, the 3.5" flange should be tucked up underneath the WRB. Once installed, bring the weather resistant barrier out over the face of the Starter Strip Flange. Starter Strip is to overlap foundation plate a minimum of 1" from the stud wall onto the concrete foundation.

The bottom of Starter Strip is to sit 4" minimum above grade (dirt), or 2" minimum above a paved surface as shown on page 21. This can be reduced to .5" in when paving is supported by the same foundation as the wall. For all other clearances, reference the latest edition of the NCMA installation guide.

Note: Other required Starter Strip locations include horizontal floor to floor transitions at rim joist level, and above windows, doors, and framed openings in stone veneer areas described in the upcoming steps.

5: EXPANSION JOINTS



Using an approved corrosion resistant fastener, install galvanized expansion joints to provide for movement, and to accommodate expansion and contraction caused by initial wall shrinkage and minor thermal movement.

Install Expansion Joints at changes in wall heights, adjacent to changes in materials, and alongside windows and doors where possible. Spacing is not to exceed 15 foot on center in any direction.

Vertical Expansions: Use a standard galvanized expansion joint

Horizontal Expansions: Use the Clip Starter Strip
Detail: Page 23

CLIP SYSTEM INSTALLATION

WALL PREPARATION CONTINUED

6: WATER RESISTANT BARRIER



Using a hammer tacker, staple gun, or similar, install the second layer of Grade D Water Resistant Barrier.

Per the NCMA, The upper layer of the WRB should lap on top of the lower layer by a minimum of 2 inches (51 mm).

The vertical joints of the WRB should be lapped a minimum of 6 inches (152 mm).

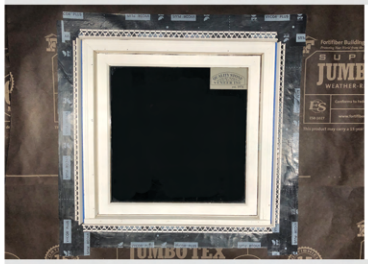
Inside and outside corners must be overlapped a minimum of 16 inches (406 mm) past the corner in both directions.

7: SELF-ADHERED RUBBER FLASHING



Apply 6” Self-Adhered Rubber flashing tape at all vertical transitions to dissimilar materials, around MEP Penetrations, windows, doors and additional openings in stonework.

8: CASING BEAD AND MATERIAL CLEARANCES



Install 2” vinyl casing bead with factory applied backer rod, or Quality Stone Veneer approved similar flashing, at all vertical transitions to dissimilar materials and around all 4 sides of windows, doors, and penetrations within stone areas. This practice allows for a required 3/8” flexible joint between products that can be caulked later, and provides a precise termination point to cover any cut ends of stone.

Note: For all required clearances and stone gapping to dissimilar materials, reference page 11 of this guide.

9: CLIP STARTER STRIP AT WINDOW AND DOOR HEADS



Install 22 Gauge Galvanized Starter Strip at all window and door heads in stone areas. This piece doubles as a drip cap flashing with weep holes for drainage and the starting point for a precast Clip Header, or next row of stone. Interlock the top of the 3.5” Starter Strip Flange with the WRB Layers.

Note: Refer to window and door details on pages 11, 20 and 23 of this guide.

10: STAGING STONE MATERIAL ON JOBSITE



Stone boxes should be staged so that product from multiple boxes can be used throughout the entirety of the installation. This is to create a diverse and even blend of coloring across the entire wall.

CLIP SYSTEM INSTALLATION

CLIP SYSTEM STONE INSTALLATION

11: STONE INSTALLATION START



Starting at the first outside corner, set and place the first corner piece down onto the starter strip. Place a Clip down into each side of the corner piece, and screw into the plywood sheathing using the corrosion resistant Clip Screw, hitting studs where possible. Check the piece with level.

12: NOTCHING GROOVES IN STONE



Quality stone veneer dry laid panels have a groove to accept the Clips on all sides. For strength, this groove does not extend to the outside edge of the product. On the first course of stone to be laid on the Starter Strip, use an angle grinder to make cuts extending the groove through the full length of the bottom of each panel.

13: SET STRING LINE AND LINE BLOCKS



To achieve a level installation, string line and line blocks should be set at the outside corners vertically, and set horizontally at each row of stone each time a new row is started.

This provides a reference to keep corner sections true vertically up the wall, and rows of stone level horizontally across the wall.

14: PLACE A BEAD OF CEMENT ON FIRST STONE CORNER



Place a small bead of cement around the top edge of the installed corner in front of the Clips, where the next panel will be placed overtop.

Note: A thin bead of cement is to be applied inbetween each panel throughout the entire installation. This creates a setting bed for each new piece, and adds a shadow line between the panels. Wipe and remove any excess mortar that is seeps out onto the face of the stone.

15: PLACE FIRST STONE FLAT



Place the first stone panel onto the Starter Strip, interlocking with the first corner piece. Place 2 Clips on the top of the panel and 1 on the offset leg to the left. Firmly attach the Clips to the plywood sheathing with the corrosion resistant Clip Screw.

Check the piece for levelness, then place a bead of cement on the top edge of the panel in front of the Clips, creating a setting bed for the next piece to set into.

16: CONTINUE PATTERN





Continue placing stone pieces across the wall until reaching the end of the wall or opposing corner following the same series of steps above. Follow the designated pattern for the dry laid stone style you're installing.

Smaller stone pieces are often helpful as you transition into the opposing corner.

The offsetting pattern of each system is designed to naturally break up horizontal and vertical lines as the stone continues up and across the wall.

Note: Leave a gap to all openings and dissimilar materials by 3/8". Failure to gap to dissimilar materials can result in cracking. (See Page 11)

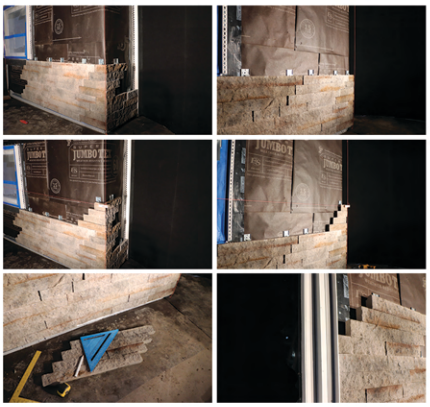
Stone will be gapped precisely at vertical transitions by stopping the stone right up against the Vinyl Casing Bead with factory applied backer rod installed during the underlayment and waterproofing.

Note: Stone is to be gapped 3/8" at all Expansion Joints.

CLIP SYSTEM INSTALLATION

CLIP SYSTEM STONE INSTALLATION CONTINUED

17: SECOND COURSE OF STONE



Adjust and level the horizontal string line for the next row of stone to follow.

Add a bead of mortar over the existing corner from the first row where the new corner will sit overtop. Staggering the corner with the opposite length leg as the first, install the next corner piece. Following the same steps as before, continue the pattern across the wall.

Repeat this installation process until the full wall has been infilled with stone.

Stone Cutting:

In areas where cutting is required, a masonry saw can be used to cut and adjust panels to the desired length or height. **Cut stone panels face down to reduce dust collection on the face of the stone.**

Note: For proper stone cutting station setup and safety protocol, see page 6.

WARNING

- **Stone should only be cut outdoors in a well ventilated area.**
- **Miter Saws should be equipped with a vacuum and HEPA Filter for dust collection.**
- **Never cut stone indoors.**

18: INSTALLING PRECAST ACCESSORIES



When installing precast accessories including Sills, Outlet, Light and Faucet Blocks, a mortar and wire lath Direct Application is to be used. This installation practice will add an additional firmness to these products that are often subject to fixture attachment and contact.

Install Wire Lath and full ½" bed of cement in area to recieve the precast accessory. Mortar the back of the piece with a generous amount of cement, being sure to cover the entire surface of the piece. Press the piece firmly into the wall using a level to adjust accordingly.

Rainscreeen/Drain Mat:

In order to not distrupt the drainage plane, a Rainscreen, often referred to as "Drain Mat" can be installed behind the wire lath, as shown. This product provides an air space between the wall and mortar scratch coat to allow moisture to drain freely.

19: STONE FINISHING AND CLEAN UP



Staining and Touch Up:

A Quality Stone Veneer Staining Kit is to be used for all touch up areas and at any exposed cut ends of stone. One pint of stain is recommended per 500 SF, or 1 quart per 1,000 SF.

Stain may be sprayed or brush applied. When stain is sprayed, hold applicator back 6" from the face of the stone. Stain can be blended into the stone using a towel when required. Wipe and remove any drips or running dye immediately.



Stone Face Cleaning:

A high power blower such as a leaf blower can be used as a final face cleaning to the finished stone in well-ventilated outdoor areas only, with the use of proper respiratory protection.

DIRECT APPLICATION

TRADITIONAL MORTAR AND WIRE INSTALLATION

1: JOBSITE SAFETY INSPECTION

"We Choose Safety First."

Before beginning any work on site, verify workspace is safe and free from all hazards. Use a jobsite safety inspection checklist like the one shown on page 4 of this guide. All workers should be equipped with the proper personal protective equipment for the job.

2: CHECK STONE TERMINATION POINTS AND FLATWORK



Ensure all necessary terminations, flashings, penetrations, and trim pieces are present to have a designated termination point for stonework in each direction. Concrete flatwork below stone area should be in place before stone installation, to have a clear understanding of where to properly terminate stone at the base of the wall system.

3: PROTECTION OF EXISTING MATERIALS



Begin by protecting existing finished surface areas. Install plastic covering around windows, doors, trim, siding, and any additional protrusions in stone areas using painters tape. Cover and protect any finished surfaces below stone areas with cardboard, tarps, paper or similar.

4: WATERPROOFING AND UNDERLAYMENT

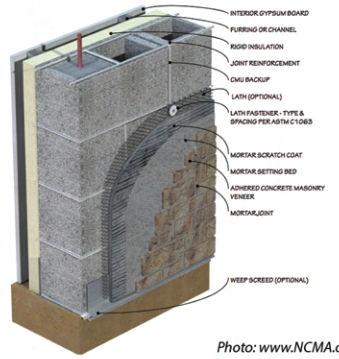


Photo: www.NCMA.org

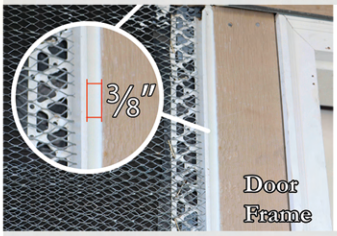
All waterproofing and underlayment, including, but not limited to the following should be installed in accordance with the current ***NCMA Installation Guidelines*** and material specifications for your wall type. To download a digital copy of the NCMA Installation Guide, visit www.NCMA.org.

Waterproofing and Underlayment, not limited to:

- **Drip Edge Flashing - Used at base of stud walls and above openings in conjunction with Wall Opening Weeps**
- **Secondary Layer of WRB**
- **Self-Adhered Flashing**
- **Vinyl Casing Bead with factory applied backer rod**

Scan and download the NCMA Installation Guide

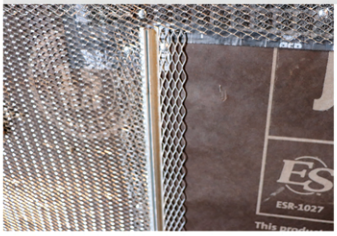
5: CASING BEAD AND MATERIAL CLEARANCES



Install 2" vinyl casing bead with factory applied backer rod, or Quality Stone Veneer approved similar flashing, at all vertical transitions to dissimilar materials and around all 4 sides of windows, doors, and penetrations within stone areas. This practice allows for a required 3/8" flexible joint between products that can be caulked later, and provides a precise termination point to cover any cut ends of stone.

Note: For all required clearances and stone gapping to dissimilar materials, reference page 11 of this guide.

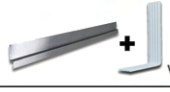
6: EXPANSION JOINTS



Using an approved corrosion resistant fastener, install galvanized expansion joints to provide for movement, and to accommodate expansion and contraction caused by initial wall shrinkage and minor thermal movement.

Install Expansion Joints at changes in wall heights, adjacent to changes in materials, horizontally at floor to floor breaks at rim joist level, and alongside windows and doors where possible. Spacing is not to exceed 15 foot on center in any direction. Gap stone to each Expansion Joint by 3/8".

VERTICAL EXPANSIONS:  STANDARD GALVANIZED EXPANSION JOINT

HORIZONTAL EXPANSIONS:  26 GAUGE DRIP EDGE FLASHING + WALL OPENING WEEPS

DIRECT APPLICATION

TRADITIONAL MORTAR AND WIRE INSTALLATION CONTINUED

7: WIRE LATH AND MORTAR SCRATCH COAT



Wire Lath: Install wire lath using the correct corrosion resistant fastener. Reference the NCMA for current fastener and lath requirements per the designated wall type.

Rainscreen/Drain Mat: A Rainscreen is an optional product that can be installed between the wire lath and mortar scratch coat layers to provide an air space for drainage.

Mortar Scratch Coat: For all Dry Laid Panel Direct Applications, Quality Stone Veneer specifies a Polymer Modified Mortar for scratch coat and stone application. Polymer Modified Mortar should be compliant with ANSI A118.4 or ANSI A118.15.

Direct Application During Winter Months: A blend of up to 50% regular Type S Premix Mortar can be blended with Polymer Modified Mortar to improve curing.

Applying the Scratch Coat:

1. Apply a bed of motar thick enough to cover all wire lath, leveling any recessed areas where minimal variation in wall depth may have occurred during framing or underlayment.

2. Using a ***Darby Tool*** (Page 5), rake and level the scratch coat to provide an even, continuous plane to install the stone over. Allow scratch coat to dry a total of 24 hours minimum.

Note: Scratch coat is required to cure a total of 24 hours minimum before stone installation can begin.

8: SET STRING LINE AND LINE BLOCKS



To achieve a level installation, ***String Line and Line Blocks*** (Page 5) should be set at the outside corners vertically, and set horizontally at each row of stone each time a new row is started.

This provides a reference to keep corner sections true vertically up the wall, and rows of stone level horizontally across the wall.

9: STONE INSTALLATION: DIRECT APPLICATION



Stage stone such that product from multiple boxes can be used throughout the entirety of the install to create a consistent, natural blend of colors and textures. Mortar should be mixed outside in a designated, well ventilated space. Mortar should be loose enough to bond and fully coat the back of the panel to be pressed into the wall.

Note: It is critical to completely cover the back of each stone panel with cement for complete adhesion, free of voids.

Beginning at an outside corner, place and set the first corner piece of stone sitting flush on top of the weep screed. Use the string line and a level to check each return of the corner for levelness. With a towel, sweep off any excess mortar that has seeped from the back of the panel.

Apply the first flat stone panel to the wall, interlocking with the first corner piece. Check the piece for levelness using a level, continuing the wall pattern across the wall using the horizontal string line as a guide. Sweep excess mortar from the top of the piece. A rubber mallet can be used to gently make adjustments as necessary.

The offsetting pattern of the stone panels are designed to naturally break up horizontal and vertical lines as you work up and across the wall. Continue this process using the desginated pattern for the stone style being installed. Stone panels can be cut where required. Horizonatal string lines should be reset each time a new row of stone is started.

Note: Stone is required to gap 3/8" to all openings, dissimilar materials and transitions, as detailed on page 11.

10: STONE FINISHING AND CLEAN UP



A Quality Stone Veneer Staining Kit is to be used for all touch up areas and at any exposed cut ends of stone. See pages 10 and 15 for details.

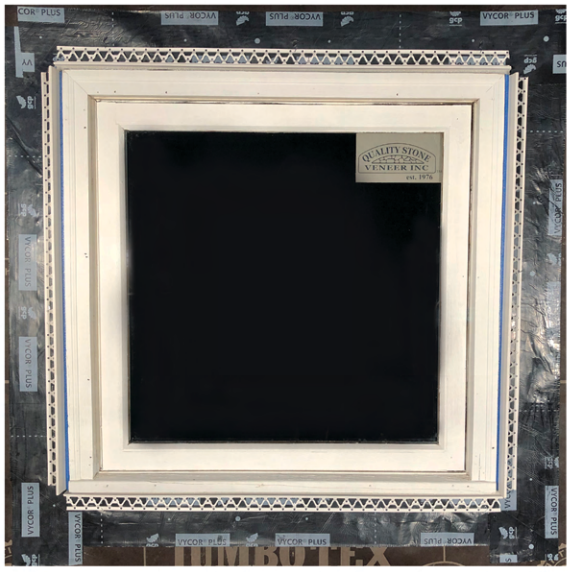
CLIP SYSTEM INSTALLATION DETAILS

WINDOW PREPARATION AND UNDERLAYMENT



CLIP SYSTEM INSTALLATION DETAILS

WINDOW PREPERATION AND UNDERLAYMENT PROCEDURE





1



- WATER RESISTANT BARRIER
- 6" SELF-ADHERED RUBBER FLASHING
- CASING BEAD WITH FACTORY APPLIED BACKER ROD

2



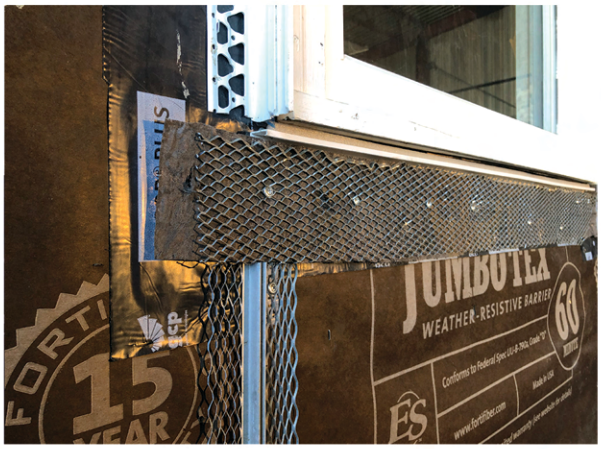
- CLIP STARTER STRIP AT WINDOW HEAD



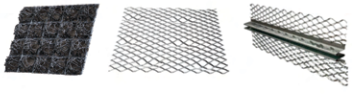
3



- CLIP STARTER STRIP AT WINDOW HEAD WITH WRB LAYER OVER FLANGE



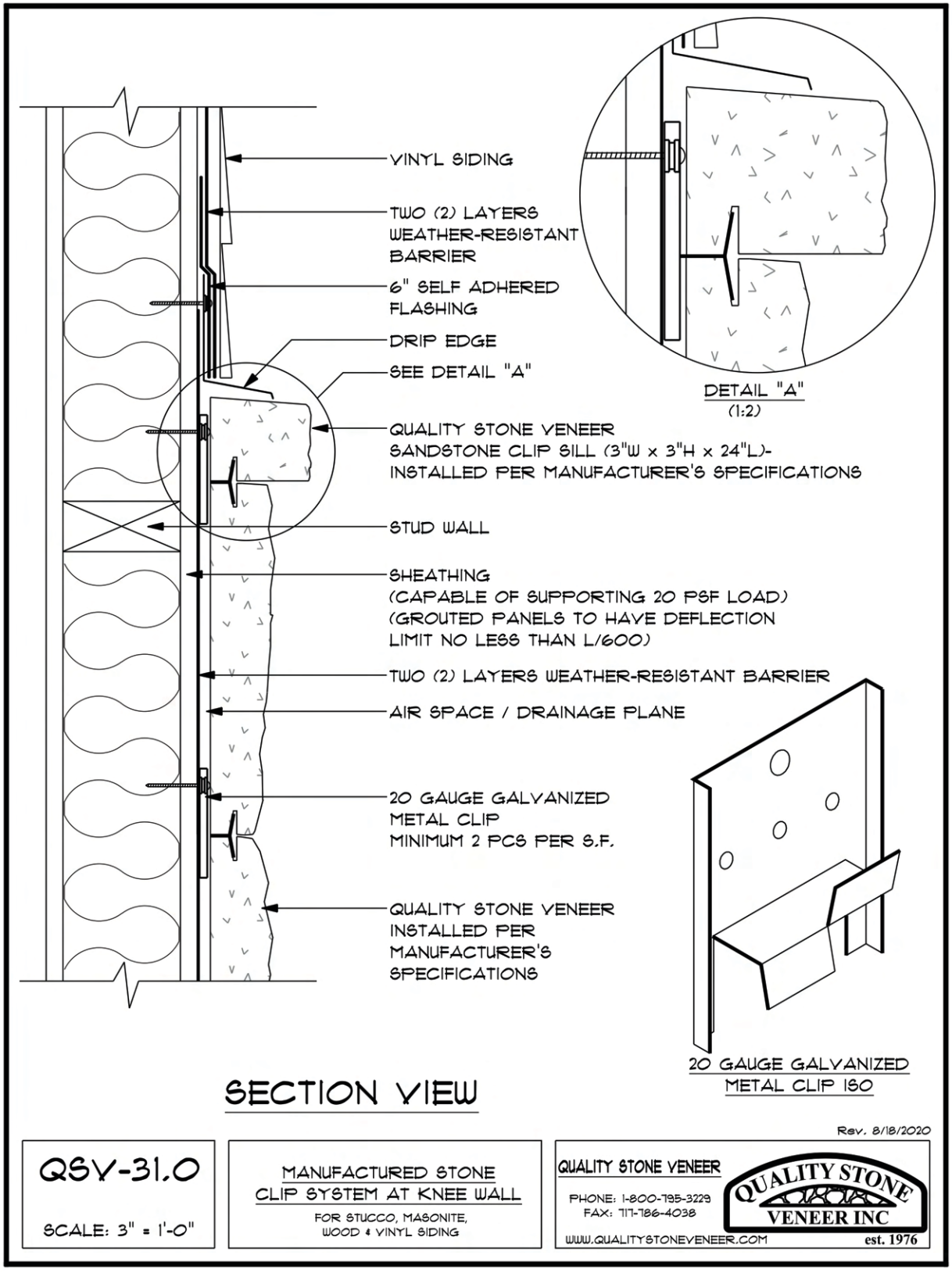
4



- DRAIN MAT BEHIND LATH FOR DRAINAGE
- WIRE LATH FOR PRECAST SILL MORTARED INSTALLATION
- GALVANIZED EXPANSION JOINTS

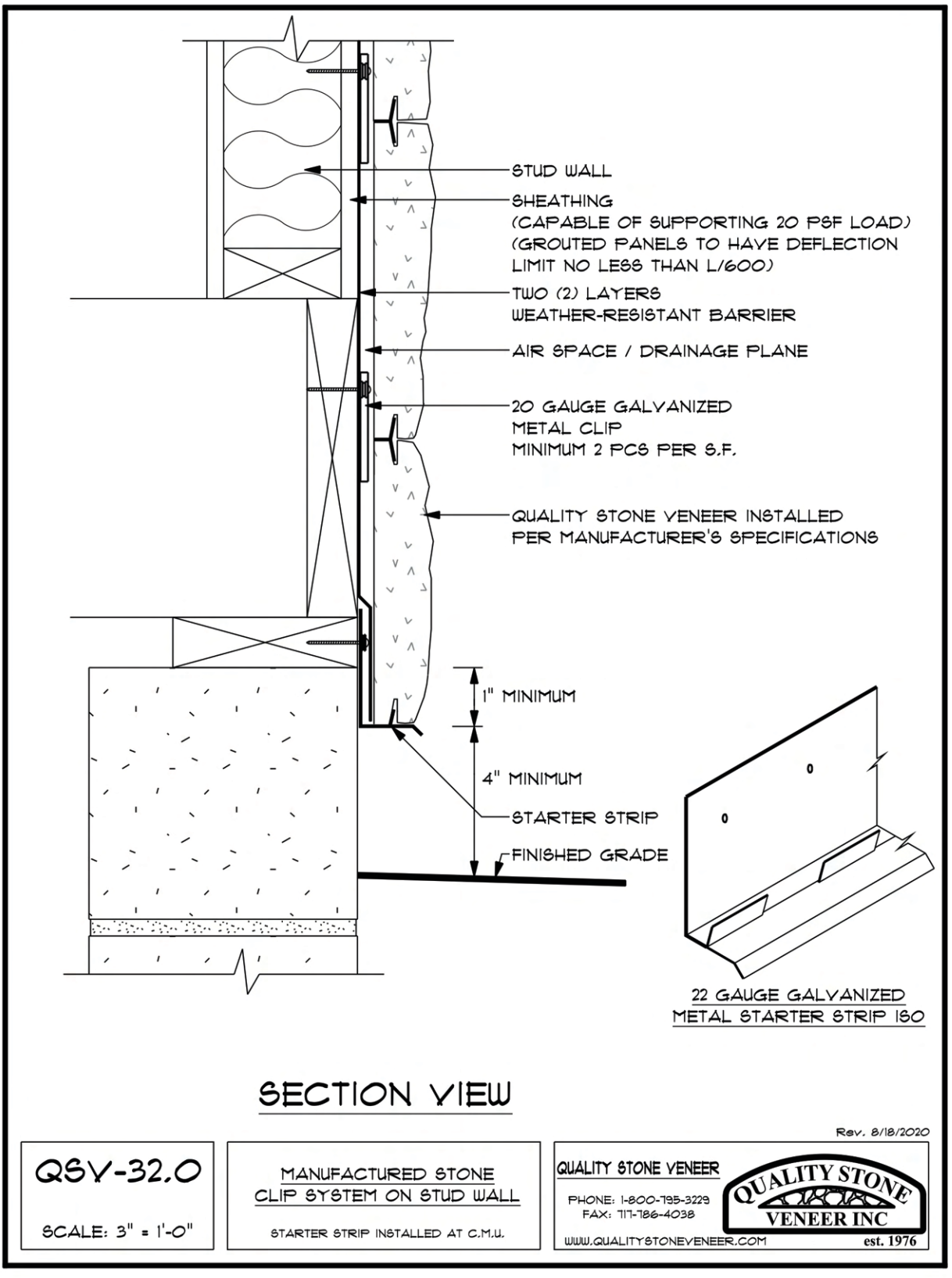
CLIP SYSTEM INSTALLATION DETAILS

CLIP SYSTEM AT KNEEWALL



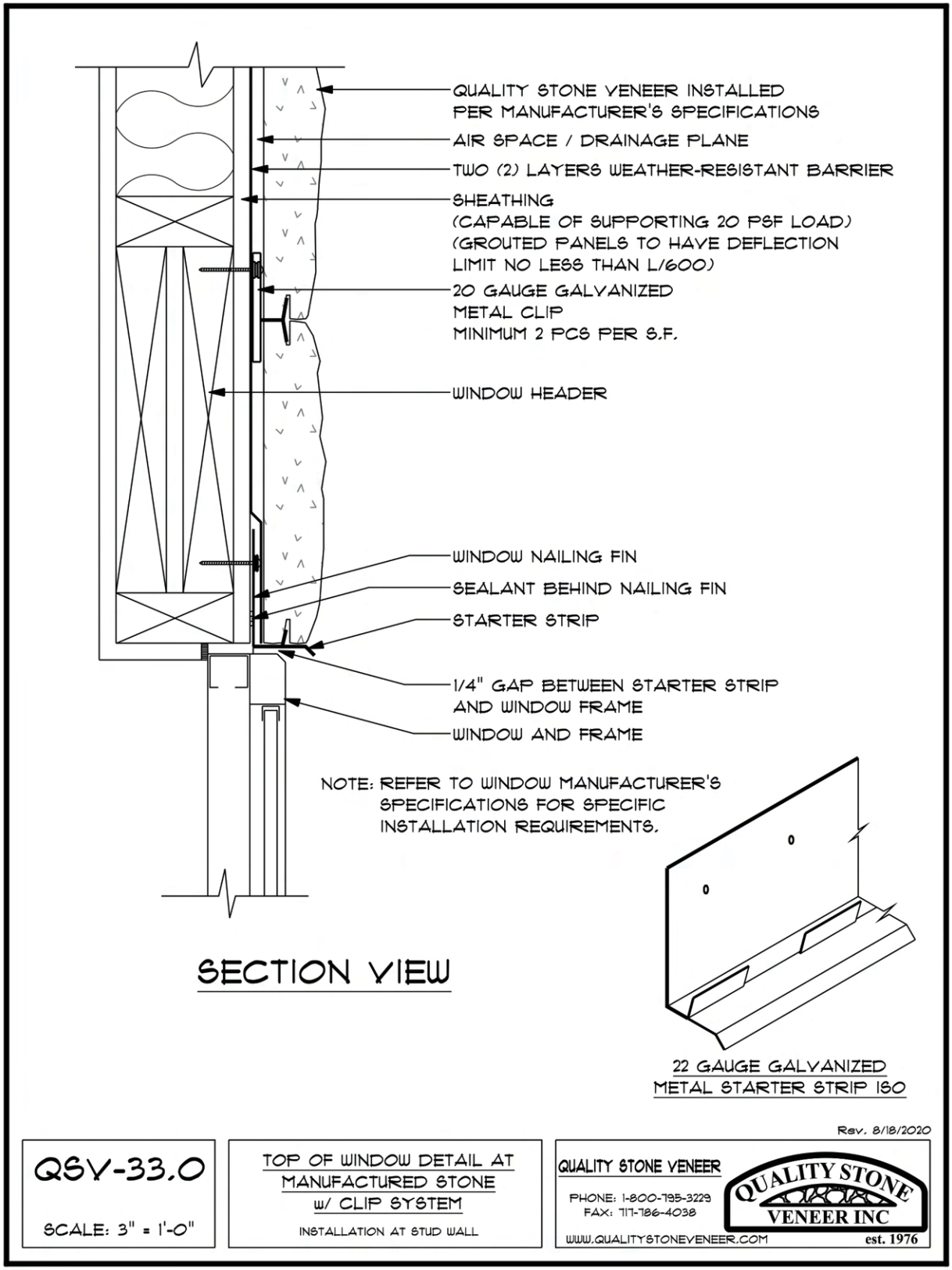
CLIP SYSTEM INSTALLATION DETAILS

CLIP STARTER STRIP AT FOUNDATION



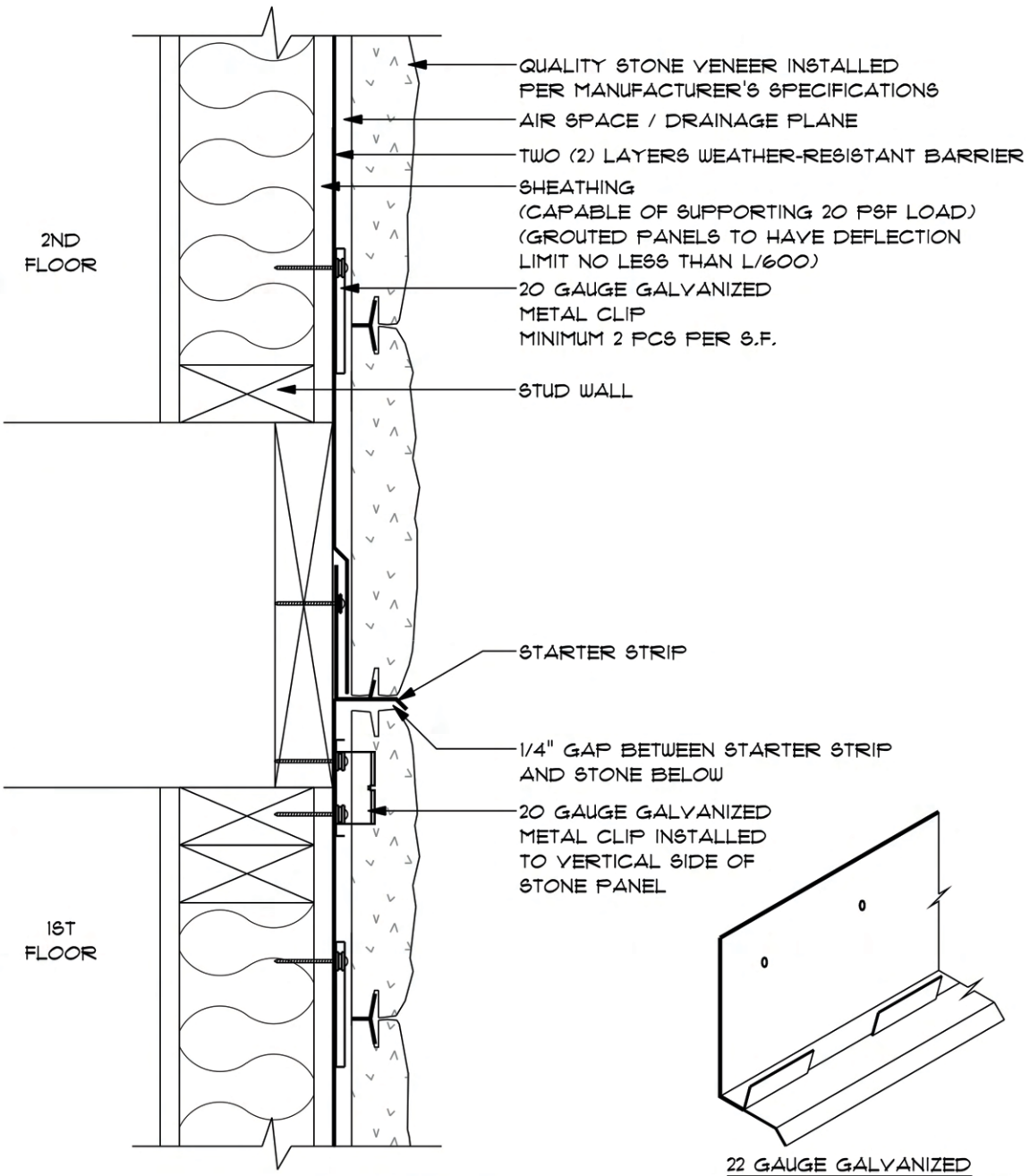
CLIP SYSTEM INSTALLATION DETAILS

CLIP SYSTEM AT TOP OF WINDOW



CLIP SYSTEM INSTALLATION DETAILS

FLOOR TO FLOOR TRANSITION



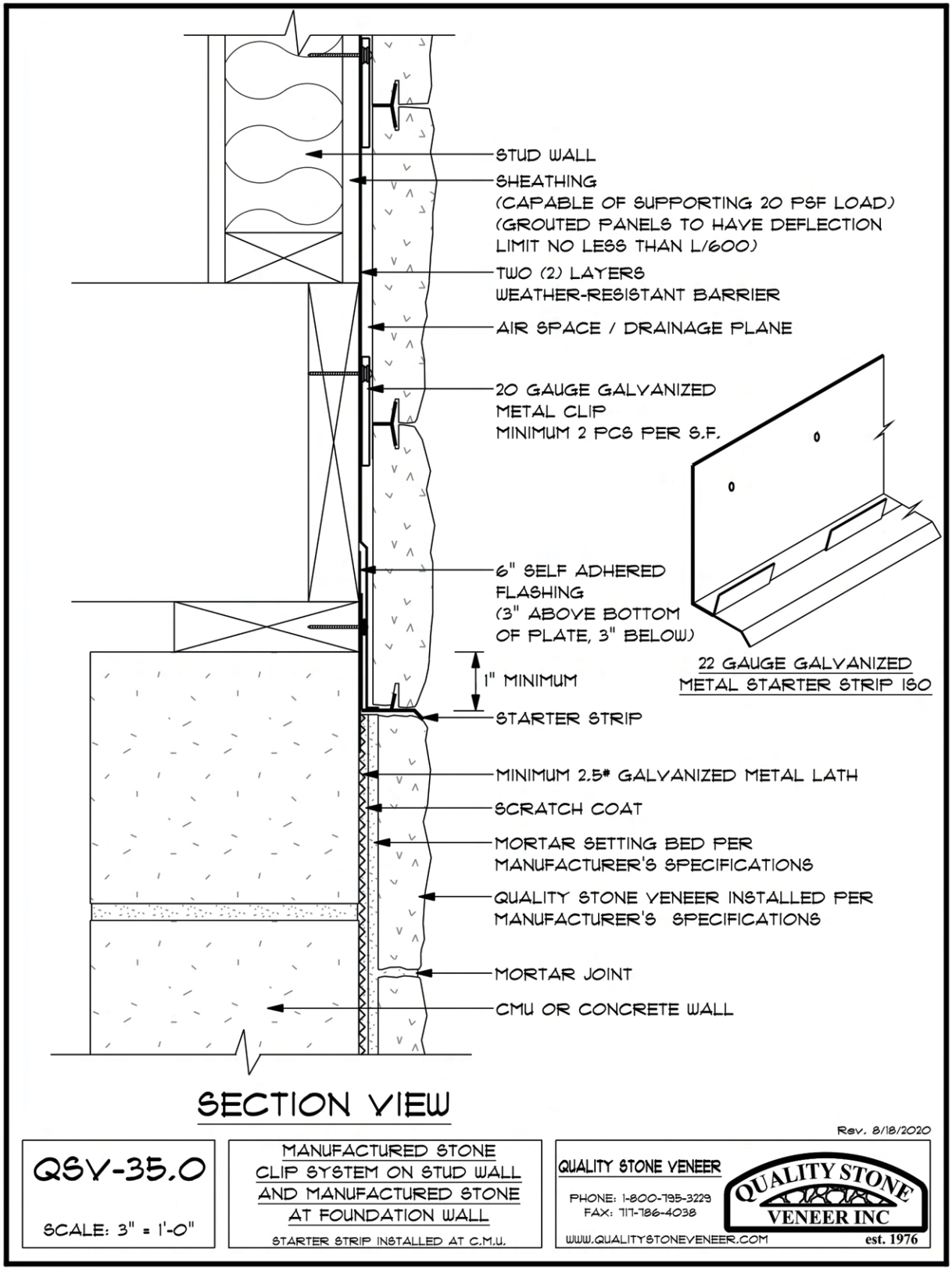
SECTION VIEW

Rev. 8/18/2020

QSV-34.0 SCALE: 3" = 1'-0"	TRANSITION BETWEEN EACH FLOOR MANUFACTURED STONE W/ CLIP SYSTEM INSTALLATION AT STUD WALL	QUALITY STONE VENEER PHONE: 1-800-795-3229 FAX: 717-786-4038 WWW.QUALITYSTONEVENEER.COM QUALITY STONE VENEER INC est. 1976

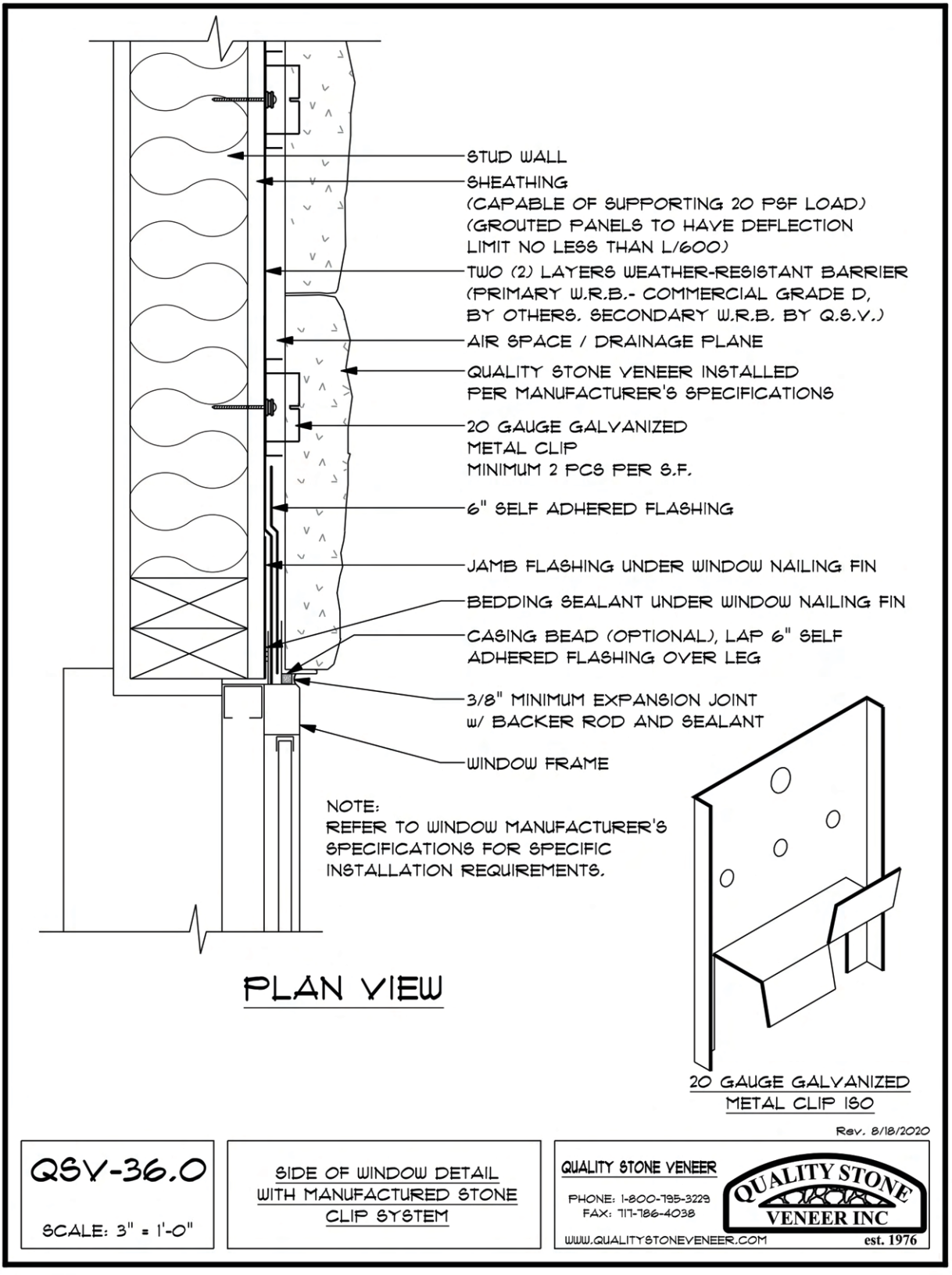
CLIP SYSTEM INSTALLATION DETAILS

STUD WALL TO FOUNDATION WALL TRANSITION



CLIP SYSTEM INSTALLATION DETAILS

CLIP SYSTEM AT SIDE OF WINDOW



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DRY LAID PANELS INSTALLATION GUIDE

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ONE SOURCE OF ACCOUNTABILITY.



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