

# SYNTHETIC STONE VENEER —

## *How to Avoid Problems*



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Stone has been used as a building material since the Stone Age and, unlike that period, it will not be an extinct construction material anytime soon. While natural stone is used in all aspects of home construction such as exterior wall claddings, in the early 1960s, companies began manufacturing synthetic or “fake” stones that replicated natural stones. Advancements in technology throughout the years have created more authentic artificial stones that continue to replace natural stones for use as exterior wall claddings.

Without advocating on behalf of the synthetic stone industry, the products it manufactures offer many advantages over natural stone. Advantages include lower cost, greater availability, a wide variety of colors and styles, lighter weight, quicker installation time, small waste factors due to custom pieces such as corners and water tables, repeatability, and reliability for the construction trades installing the products.

Regardless of the quality of the product used to “skin” a building, the quality of any exterior cladding ultimately depends on the quality of installation. This article will attempt to provide the information needed to ensure that stone veneer and related building components do not suffer failures related to improper installation and lack of detailing at important locations.

### **Why Problems Occur**

If stone has been around and used as an exterior wall cladding for thousands of years, why have there been problems with it only recently? Water is the catalyst for nearly all problems associated with exterior wall claddings, including stone veneer. While the amount of rain and snow has not changed significantly through the years, the ability of a structure to “get wet” and allow for drying of the materials (moisture reservoir) has. In the past, homes were not built utilizing airtight methods, nor were they insulated very well, and therefore they were not very energy efficient. However, the advantage of this old system was that it allowed wet building components to “dry out” without damage.

The current emphasis on energy-efficient homes has created much “tighter” building envelopes, utilizing better air barriers and increased levels of insulation. In addition, the materials used to build these homes have also changed and become more susceptible to water damage, in many instances providing food for fungal growth. The increase in “tightness” and change in materials has led to a decrease in the building envelope’s ability to absorb water and “dry out” without damage. Therefore, the industry’s previous methods of installing exterior wall claddings such as stone with a drainage cavity or stone thickness that allowed a moisture reservoir must change

and adapt to trends in the industry. This way, one can effectively control water and ultimately have a satisfied end user, avoiding costly damages and callbacks.

Unfortunately, the increase in water related problems associated with exterior veneers is not limited to an increase in the building envelope’s “tightness” or a change in materials. Consider the following:

1. **Stone application is no longer a skilled craft.** Due to budget constraints and improperly used “value engineering,” builders and developers will commonly award contracts to the lowest bidder. These low bidders generally do not lower their price based on material cost, which should be relatively similar among all bidders. Instead, they employ the cheapest labor available and reduce or eliminate supervision of the installation and review of the drawings, specifications, and other requirements. If the labor pool is not educated as to proper installation of the product, the result may be an unsatisfied client.
2. **Lack of information.** Many stone manufacturers currently do not publish adequate details to properly install the stone at terminations and other components. Additionally, many projects employ a “builder’s set of plans,” in which only a know-

ledgeable builder can determine the remaining details and coordinate this information to the subtrades on the project. Unfortunately, this means the detailing is often left up to the laborer in the field.

3. **The language barrier.** If English is not the primary language of many of the applicators, training then presents a problem that companies must consider. Even if the applicators possess a genuine concern and an “old-school” pride in their work, updated requirements and changes in waterproofing techniques may prevent them from installing the stone as instructed because of language barriers. Moreover, laborers may not be provided a meaningful way of presenting questions due to fear of retribution or perceived

ing,” lack of quality information and details, unskilled workers, the language barrier, and a lack of supervision all result in a reduced standard of installation and stone veneer application with greater susceptibility to problems down the road.

So now that we know why these problems can occur, how can we avoid them?

#### How To Avoid Problems

We will attempt to break down the application of synthetic stone veneer from the sheathing to the weatherproofing systems. With the proper information provided, field superintendents and stone contractors can utilize this article and details when observing or supervising applicators to avoid costly callbacks and, possibly, court time.

It is important to point out that waterproofing details and characteristics of synthetic stone veneer are functionally similar to those of traditional stucco. The waterproofing details for stone should be better than those for stucco because the outer face of the stone field will generally allow a greater amount of water to reach the

building papers and, therefore, the discharge points will need to handle greater quantities.

At a minimum, stone installation should be treated in a manner similar to stucco. Stucco systems are not immune to water-related problems when they are installed improperly. However, there is currently a greater amount of information on stucco that is easily available for detailing and installing in a weather-tight manner. That information is also useful for stone installers, designers, and contractors.

#### Weather-Resistive Barrier and Drainage Plane

The installation of the weather-resistive barrier and drainage plane over the sheathing is the most important step in the application of stone veneer to prevent moisture intrusion issues. Before any wire lath (and certainly stone) is applied, a thorough and detailed review of the weather barrier

should be performed. Do not assume the laborers in the field who installed the paper have taken the necessary steps to ensure the building is weatherproof. The building should function fully at this stage without veneer being installed; that is, the building is weathertight without stone veneer, as flashings will direct water to the exterior.

Here are some helpful hints to avoid costly repairs. It will save a lot more money to do it right the first time than to fix the building after the fact.

- Material selection: Currently, two layers of Grade D Kraft building paper (20-minute rating) is acceptable as the weather-resistive barrier behind adhered stone veneer. Our firm has observed multiple projects in which this weather-resistive barrier material does not hold up well behind adhered stone veneer and cannot handle repeated wetting and drying.

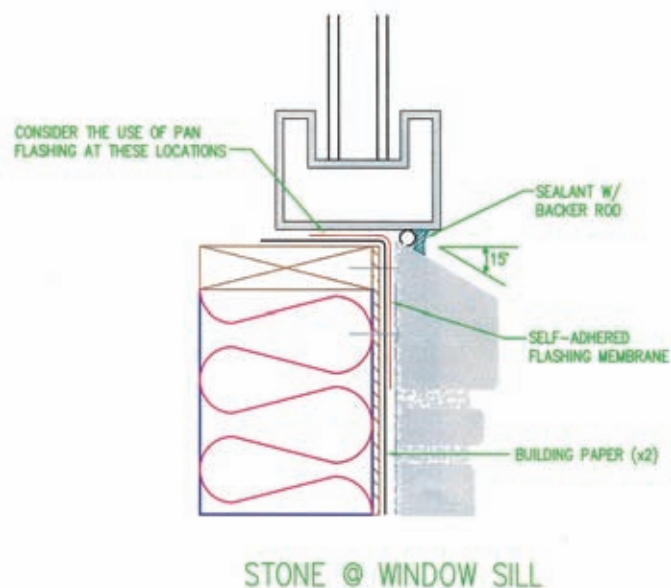
There is a growing concern in the building envelope industry that Grade D paper disintegrates with repeated wetting and drying. With synthetic stone veneer (especially the dry-stack installation method), more incidental water typically reaches the underlying weather-resistive barrier than is true with stucco systems. This is due to the increased amount of separations in the grout between individual stones (the dry-stack method does not include grout at all) and the lack of proper sealant joints at terminations (to be discussed later). Use caution if selecting and applying Grade D building paper behind adhered stone systems. Using building felts or a combination of polymeric housewraps with building paper may withstand repeated wettings and dryings better than Grade D paper.

- Use a minimum of two layers of building paper or properly selected housewrap. The first layer, considered sacrificial, can bond to the scratch coat and lose its waterproofing ability or deteriorate altogether (see above). The second layer is the actual waterproofing layer.
- Water flows downhill when not restrained by other forces. Water will flow in a downhill direction on the

## WATER IS THE CATALYST FOR NEARLY ALL PROBLEMS ASSOCIATED WITH EXTERIOR WALL CLADDINGS, INCLUDING STONE VENEER.

incompetence. One method that can help to overcome the language barrier is to supply adequate illustrated details that can greatly assist the applicator in properly installing the product.

4. **Lack of supervision.** Too often, the project superintendent will simply rely on the “stone guys” to get it right. And although upon completion of the project any installed stone veneers appear to be aesthetically functional, the performance of the system is set for failure. The general contractor needs to set supervision roles at a level that is consistent in order to provide the correct end product and not base oversight around the possible profit of the job.
5. **The slipping standard of installation.** This basically summarizes all the points above. “Value engineer-



Detail 1

weather barrier. Make sure the weather barrier is installed to shed water onto the lower layer. It is surprising how often installers start applying building paper from the top down. Again, don't take this simple issue for granted.

- Watch the windowsills. Many times when a project comes to our attention as forensic engineers, our job is to determine if there's a problem with the stone veneer and any related damage. Generally, the first place to review and inspect is behind stones at the corner of an exposed windowsill. Damage found is often directly related to paper that is reverse-lapped at the windowsill, which allows water to penetrate the stone layer and flow behind the paper against the sheathing.

An easy way to avoid this problem is to wrap the building prior to the windows and doors being set. Wrap the paper into the rough opening, using a self-adhering, modified bitumen flashing tape at the sill rough opening, and then set the window. (If this is done, watch the weather barrier at the window head to make sure it is not lapped behind the window frame. When a client complains about window leaks originating from the head, this condition of reversed head flashing is usually why.)

In many jobs, the sequencing of the

trades requires that the contractor install the windows prior to the building paper to get the building "dried in." The window installers typically apply their flashing tape around the window, setting the stage for a future flashing back-lap below the window. However, measures can still be taken to ensure there is a proper weather barrier application at the windowsill if the windows are set first. Strips of building paper slightly wider than the rough opening should be cut. Self-adhering modified bitumen (SAMB) should be applied into the rough opening and the cut section of paper should be attached to the SAMB (see *Figure 1*). When the rest of the weather barrier is applied, it can be easily integrated with the cut section of paper in shingle-lap fashion.

- Flashings are an integral component of the weather barrier and drainage plane. The building paper and flashings must all be integrated to shed water onto one another and eventually out of the system. This includes both sheet metal "Z"-type flashings and membrane-type flashings. Apply the knowledge that a drop of water should flow freely from the roofline to the foundation wall. If any areas are constructed that allow water the avenue to travel behind the weather paper, they should be corrected.
- Coordination between trades is also important. Typically, homes have more than one type of exterior cladding material installed. Therefore, problems often occur where the two claddings interface. Too often, a reverse lap or gap occurs in the weather barrier behind the interface. An easy way to avoid this is to have only one contractor apply the entire weather barrier around the building. That way, there's only one trade whose work has to be inspected. This also reduces finger pointing later. Another successful method is cutting a strip of building paper about 12 inches wide and attaching it to the sheathing where the two



Figure 1: Examples of precut sections of building paper under windows to ensure proper lapping.



Figure 2: The consequences of reverse lapping.

claddings interface. That way, the paper from the cladding below the interface can be slipped up behind the precut piece, similar to the window situation previously mentioned. Make sure that the trade knows the intent of the precut paper.

- Don't forget about the penetrations. A good idea is to strip in the penetrations with SAMB so they are sealed to the weather barrier.

The building should be weathertight, even without any exterior cladding applied. After the weather barrier has been applied and windows installed,

imagine a heavy rainstorm occurring. Will any water be able to reach the OSB sheathing? Will any water be able to enter the building? If the weather barrier is applied correctly, all of the water should stay on the weather barrier and shed over the sloped horizontal flashing leg, over the drip leg of the flashing, and away from the building.

Do not move forward until it is absolutely certain that the building is weatherproof without any wall cladding. Once the stone is applied, the weather barrier is covered, along with any reverse laps, voids, etc. Again, it's much more expensive to find and correct problems later with the weather barrier, so get it right the first time.

#### Trim Accessories

Trim accessories for stone? As discussed earlier, stone and stucco are func-

tionally similar, especially their waterproofing characteristics. In fact, Eldorado Stone, a synthetic stone manufacturer, even states on its Web site, "Eldorado Stone requires the same flashing and waterproofing as stucco. (This includes the use of a weep screed.)" Also, Dennis McCoy states in a December 2004 article in the *Journal of Light Construction*, "I've been finding more and more cases of leaking and rot behind another material that is very similar to stucco: cementitious, manufactured-stone veneer."

These authors absolutely agree. As mentioned earlier, the waterproofing requirements for synthetic stone veneer should be equal to or better than traditional stucco because the

likelihood of water reaching the weather barrier is significantly higher, especially with "dry stack" stone applications.

Trim accessories include expansion joints, control joints, casing beads, and weep screeds (casing beads with weeps). They are typically manufactured of galvanized steel or vinyl. The following text separates the trim accessories and then provides recommendations for each.

#### Expansion Joints

Expansion joints are typically required at floor lines and at changes in substrates. For example, if the OSB sheathing terminates at a foundation ledge but the stone

continues, install an expansion joint there. Expansion joints should still be installed at floor lines. Wood shrinks due to the climatic interaction of the original moisture content – either drying or wetting to the climatic elements – and the sheathing moves under structural loads. These loads may include inward or outward deflections between "height over 240" to "height over 480." [In a 10-foot section (or 120 inches), the wall may deflect between 1/4 and 1/2 inch.] A gable wall attached to a non-gable wall will have differential deflections located at the stiff points versus the non-stiff points. Foundations on soils with variable properties of expansion or contraction may result in differential movement. When in doubt, consult the architect and engineer on the areas that are most susceptible to the substructure's moving and affecting the product.

#### Control Joints

Control joints are typically used to "control" the cracking within the stucco itself. If control joints are not installed, the stucco will create them. Stone is not different, as it incorporates a monolithic cementitious scratch coat. Some accessories may not match the surrounding façade perfectly, but they would look better than missing stones or cracked grout. Joints can be installed in the scratch coat and the stones affixed over them with a side unbonded (limited to length of bonding). This method of concealing the joint should be designed by the engineer or architect.

#### Casing Beads

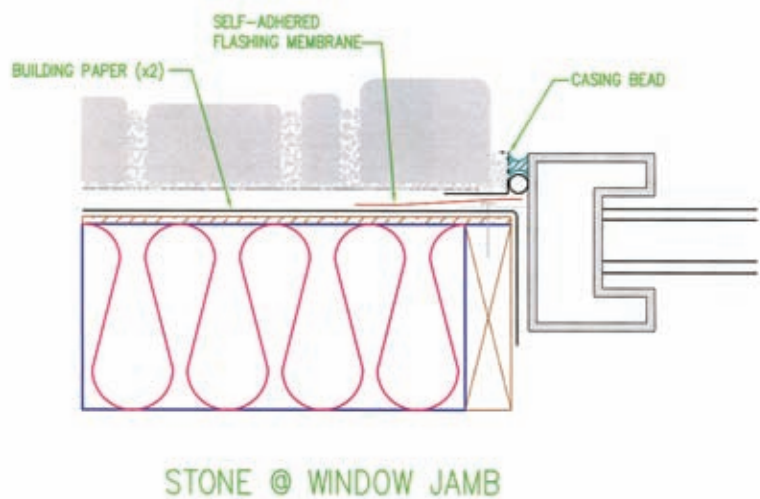
Use casing beads around windows, doors, and any other straight terminations



Figure 3: Penetration integrated into drainage plane.



Figure 4: Trim accessory used at window jamb.



Detail 2

in the stone veneer. Utilizing casing beads at terminations provides many benefits:

- Sealant joint widths are set to a uniform dimension, allowing sealant trades to apply standard backer rod sizes and standard work procedures at the sealant face.
- The sealant joint substrate is a nice, uniform surface. This helps the client maintain the sealant in the future.
- Stone and grout are isolated from dissimilar materials. We all know about coefficients of thermal expansion – materials expand and contract at different rates. It is unfortunately common practice to use grout as a sealant around window and doorframes. When the windowframe expands, it exerts a force on the surrounding grout and usually the grout will crack, which allows more water to reach the weather barrier and travel to the corners of windowsills. So instead of butting different materials directly against each other, let them expand.

Do not use grout as sealant. By installing casing beads, dissimilar materials are separated and sealant can be used to prevent water from reaching the weather barrier.

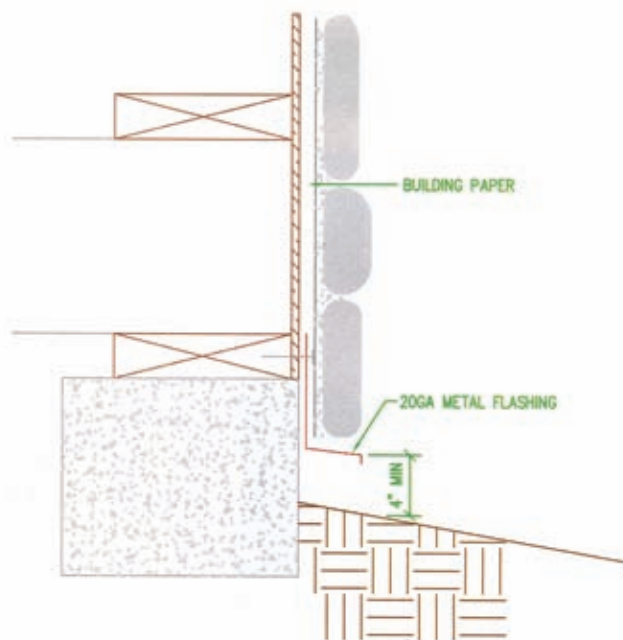
### Weep Screeds

A weep screed is a casing bead with weep holes. In stucco applications, weep screeds are installed at grade and other horizontal interruptions where drainage of the system is desired. There is discussion that the weep holes are for the installation of the lathe; however, during water entry and exit, the holes function quite well to provide a path for water exit. Sloped screeds do not require weep holes. While using weep screeds with stone is a good idea, they may not be necessary. Consider using heavy-gauge galvanized flashing at horizontal interruptions, such as grade and paved surfaces. The key is to provide drainage at the interruptions.

### At-Grade and Paved Surface Terminations

Why do building codes require stucco to terminate a minimum 4 to 6 inches from finished grade and 1 to 2 inches from concrete flatwork? This is to prevent water absorption from the grade areas, allow some drip protection, provide for protection

from insects, and prevent landscape materials from contacting the veneers. Also, by separating the stucco from paved surfaces, problems with differential movement between the flatwork and the stucco can be avoided. Stone is no different. Many manufacturers require at least a 4-inch clearance to finished grade. That 4 inches assumes that the material has spanned over the foundation wall to sill line interface. This overlap of product is good for the minimization of air loss in the tightening of the building and provides an aesthetic band. It also provides for a system that drains away from the foundation rather than onto the horizontal edge of the top of the foundation.



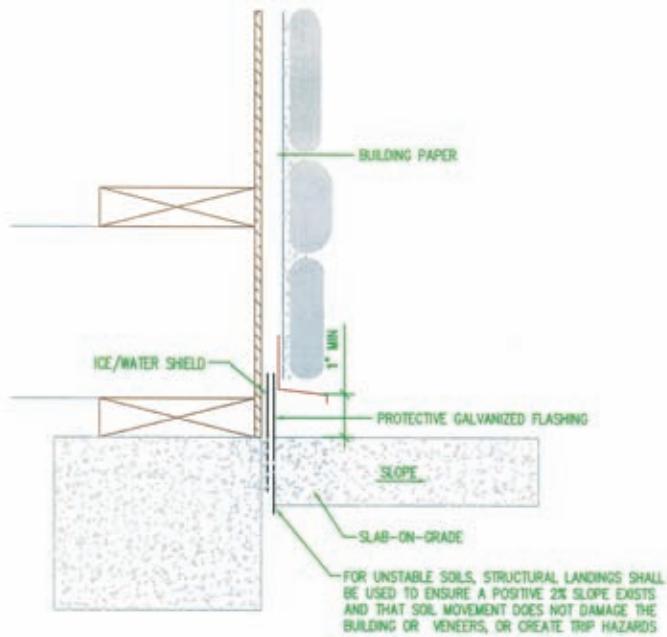
STONE @ GRADE 1

Detail 3

### At-Grade Terminations

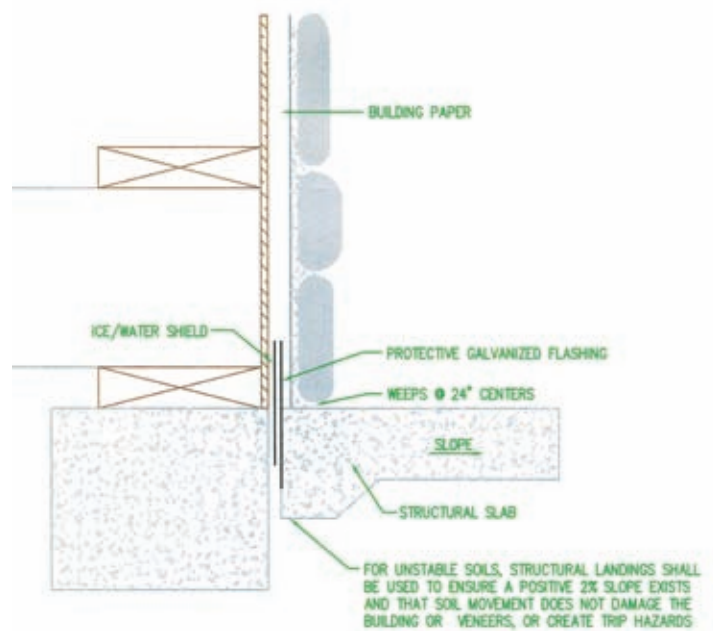
There are three important things to remember for grade terminations:

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STONE @ SLAB-ON-GRADE

Detail 4



STONE @ STRUCTURAL SLAB

Detail 5

1. Extend past the plate a minimum of 2 inches.
2. Withhold the stone a minimum of 4 inches from finished grade.
3. Allow the system to drain.

The provided details illustrate two options for stone terminations at grade. Both options involve waterproofing and protecting the interface between the plate and foundation. Utilizing a strip of SAMB with a galvanized protection flashing works great in this application. The first option utilizes an angle to act as a shelf with weepage provided at 24-inch centers. Too often, the bottom stone is susceptible to disbonding from either snow buildup or water flowing down the system and a lack of drainage at the base. The angle will help support this last stone to better avoid disbonding problems. Plus, consider the differential movement

between the plate and sheathing termination and foundation.

The second option involves utilizing a heavier gauge flashing, 20 gauge vs. 24 gauge, attached only to the plate to limit problems associated with the differential movement. Both options require weepage or a method of drainage to be provided. Weeps should be provided at tight spacing because the system is moisture-managed, not a drainage-plane system that would typically require a spacing between 24-inch and 32-inch centers.

#### Paved Surface Termination

This is the trickiest area to flash and seal correctly because the paved surfaces, such as concrete patios, sometimes are poured incorrectly directly against the top of the foundation wall. Prior to pouring the concrete, apply a strip of SAMB with a protective galvanized flashing over the plate/sheathing-to-foundation interface. Then, if a slab-on-grade surface is recommended per the soils report, a minimum of 1-inch clearance must be provided between the stone termination and concrete

to account for possible differential movement such as frost heave. If a structural slab is called for, then the differential movement is minimal and thus less clearance to the system can be provided as long as the water that is in the system can get out onto the concrete surfaces. Weepage should be provided for both options and the paved surface should be sloped away from the structure to avoid ponding water against the interface.

#### Lath

The lath is the substrate to which the stones are adhered. Two general options exist for the lath behind the stone: 1) 2.5-lb, diamond-mesh, expanded metal lath; or 2) 18-gauge, woven-wire mesh. Both options must be galvanized. Greater adhesion capability is seen with the diamond mesh, but it must be ensured that the cups are pointed upward. One small mistake such as that can equal a large callback due to disbonded stones.

Whichever lath is chosen for installation, it should be fastened at 6-inch centers through the studs, penetrating a minimum of 1 inch into the studs. The stud locations can be marked on the foundation wall prior to the installation of the building paper to aid the installers in hitting the studs. This allows the lath to move independently of the sheathing (remember the one-eighth-inch joints between sheathing panels). Finally, be sure to overlap the ends of the lath.

DO NOT MOVE FORWARD UNTIL IT  
IS ABSOLUTELY CERTAIN THAT THE  
BUILDING IS WEATHERPROOF  
WITHOUT ANY WALL CLADDING.

### Stone Application

The first decision during actual stone application is whether or not a scratch coat should be installed over the lath. While some stone manufacturers require a scratch coat, others are somewhat vague with their requirements. So what should be done if the manufacturer's instructions are vague? In this case, one should apply a scratch coat over the lath. The scratch coat will completely cover the weather barrier and will provide a solid substrate for subsequent stone application. Some manufacturers require that the stone be installed before the scratch coat has fully cured, and these authors agree. This may limit the amount of scratch coat that can be installed at one time, but the increased adhesion may be worth the potential increase in application time.

The second decision involves application techniques due to weather conditions at the time of installation. If the synthetic stone veneer is to be applied during either very hot or very cold temperatures, special measures should be taken to ensure the stones are securely bonded.

### Hot Weather

During hot weather (generally above 90°F), mortar will surface cure more quickly, which can cause it to become brittle. Also, the stone itself may be very dry and, therefore, want to absorb the water in the mortar, again negatively affecting adhesion. So if the stones will be applied during hot conditions, dampen both the scratch coat and stone prior to application. By wetting both surfaces to receive mortar, the mortar can cure at a more natural rate, and accelerated dehydration will be avoided.

### Cold Weather

Mortar contains water. Water freezes at 32°F. Mortar can take 14 days to fully cure. Do not apply stone if the temperature will fall below 32°F during the curing period. If this cannot be avoided, tent and heat the area. While this will most likely increase the initial cost of application, it will probably save money down the road due to fewer callbacks and increased customer satisfaction.

### Application Methods

There are two basic installation methods for stone application, and both relate to the joint size between stones.

### Traditional Grouted Joint Method

This method of stone application leaves

approximate 1/2-in to 3/4-in joints between the stones that are later grouted. This more traditional method prevents a greater amount of water from reaching the scratch coat or lath and, subsequently, the stone's point of adhesion. It is preferable to start from the top and move downward to avoid mortar from spilling onto already-applied stone courses.

### Dry Stack Method

The dry stack method involves stacking and butting the stones from the ground up directly against one another. Therefore,

there are no joints to grout between the stones.

Exercise caution if the dry-stack method is to be used in cold climates. Many disbonding problems are seen with dry-stack stone in cold climates, such as the Rocky Mountain region here in Colorado. Because the joints between stones are not grouted, rain and snow can easily travel to the scratch coat (point of adhesion) and the weather barrier. Also, because every stone is slightly different in shape, some may protrude past others and act as a gutter that captures water and channels it toward the



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scratch coat and weather barrier. Therefore, water that travels against the adhesion point can cause disbonding through freeze-thaw cycles. The same problem occurs near grade where snow can build up against the dry-stack stone.



Figure 5: Worst-case scenario. Note missing scratch coat between stones.

The worst scenario we have seen occurred when the dry stack method was chosen in a cold climate and no scratch coat was applied. Plus, it appeared the installer “value engineered” the amount of stone and left joints between them. Needless to say, disbonding is a major ongoing issue, among many others.

If synthetic stone veneer is to be applied in cold climates, if at all possible, avoid the dry stack method. If the dry stack method is used, at least use a scratch coat to avoid copying this “worst case scenario.”

### Specialty Stones

Most manufacturers create stones specifically for use at locations such as windowsills, water tables, and interior and exterior corners. The windowsill and water

table stones are typically manufactured with slope to shed rain and snow off the surface. Regardless, if specialty stones are being used at windowsills and water tables, the stone course should be sloped a minimum of 15 degrees to shed

water away from the joint above. This is especially important at windowsills where the weather barrier behind the stone can be susceptible to problems.

The same worst-case scenario also involved an absence of flashing membranes around the window, the building paper was back-lapped at the sill, and the stones at the sills were dead-level or even negatively sloped. When snow collected on the sill, it melted inward and traveled behind the building paper. Not surprisingly, the gypsum sheathing under windows deteriorated, and mold growth was occurring.

Rain has the same effect. If the water on the exterior face can be managed, then the proper interior side of the veneer will have a fighting chance. Remember that this system is a moisture-managed system, not a drain

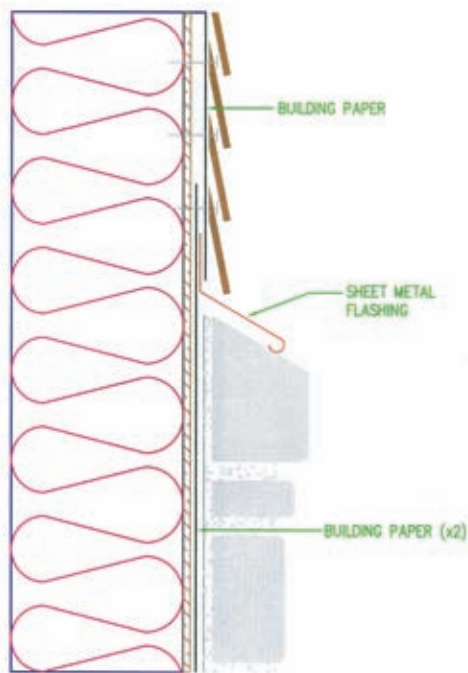
plane system, and large amounts of water cannot be handled by the paper layers without eventual deterioration.

### Dissimilar Façades and Water Tables

As stated earlier, most façades do not consist entirely of one type of veneer. The horizontal interface between two façades is sometimes referred to as a “water table.” It is common to use stucco or siding above stone. It is also common to find improperly installed weatherproofing at the water table interface. The lack of coordination between trades, which corresponds to a lack of the prime contractor’s oversight on the job site, is the primary cause of problems at this interface. Determination of the responsible trade for installing the water table flashing must be spelled out in the contracts. A good deal of post-construction fingerpointing occurs when this area fails. Define it up front and avoid this issue.

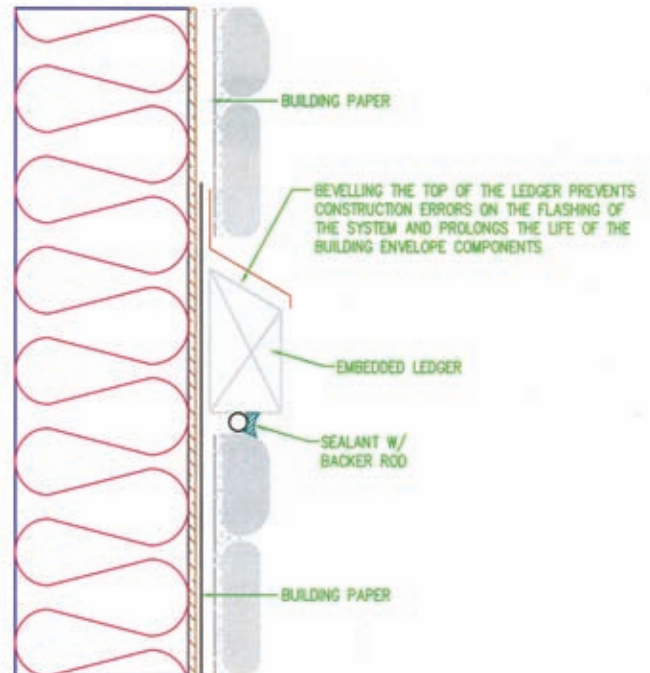
Here are two helpful hints to avoid problems at the water table interface:

1. The drainage plane and weather barrier should be continuous behind the interface.
2. Don’t let water get behind the lower façade. Shed the water onto the surface of the lower façade. This can be accomplished by sloping the stone and utilizing a sheet-metal flashing



STONE WATER TABLE

Detail 6



STONE EMBEDDED LEDGER

Detail 7

that extends from behind the stucco over the sloped stone piece. The flashing must be sloped as well.

### Embedded Ledger Boards

It is common to see the ledger board embedded in the field of the stone. Unfortunately, this condition promotes premature deterioration of the ledger board due to a lack of flashing and waterproofing. Mortar absorbs water and acts as a sponge. When the ledger board is constantly in direct contact with a wet sponge, it will rot out much faster.

An easy way to avoid this problem is to isolate the embedded ledger board from the mortar and flashing over the top to shed water to a surface below. The top edge of the ledger board should be beveled and the flashing should be positively sloped to avoid ponding water. Below the ledger board, it is best to install a flashing that extends from behind the ledger board over the stone below. This way, when the ledger board is replaced, it will not damage the surrounding stone. Another option would be to seal the interface between the bottom of the ledger and the top of the stone.

### Roofs

The kickout flashing may be the most important piece of flashing on the building that has to transition between surface products. After the windowsills, the second most common error is when a kickout (or diverter) flashing at rake wall terminations is missing. Without the kicker flashing, the water is channeled into the stone veneer, which not only increases the likelihood for debonded stones, but also ultimately allows excess water into the moisture-managed system. Further, it is common to cut the building paper around the rake termination, so not only is the water directed into the stone veneer, but also behind the weather barrier. Make sure kicker flashings

are installed and make sure the weather barrier is continuous behind the flashing to catch any incidental water.

Maintain clearances above the roofline similar to the clearance above the concrete and asphalt at the first-floor level. Installing a trim accessory such as a weep screed can be useful for setting the stone clearance height prior to the actual stone application.


### Protective Coatings

Some homeowners want to install a clear waterproof coating over the stone veneer, wishing to protect the stone from weathering. If this coating is planned for the home, it must be a vapor-permeable coating, such as a silane or siloxane. If an impermeable coating is installed, the natural drying ability to the exterior is reduced. Combined with walls full of insulation and an interior vapor retarder, deficiencies that allow water behind the stone result in a wall that cannot dry to the interior or exterior. Moisture-sensitive building materials (i.e., wood) will deteriorate even faster. A coating will not save the system if the underlying materials have been improperly installed.

### Summary

Stone is functionally similar to stucco; even stone manufacturers disclose this. Stone requires equal or better weather-

proofing details than stucco, especially when dry-stacked. If the architect or client insists on the dry-stack look in a cold climate, then greater attention to waterproofing details, application techniques, and manufacturer requirements must be adhered to in order to avoid costly callbacks. It all starts with a proper weather barrier. This is the most important step in any façade installation, especially stone.

Synthetic stone veneer is here to stay. Stone has been used as a building material since man moved into caves and called them home. Synthetic stone is a product that will continue to be utilized in the construction of buildings. With improved manufacturing techniques, almost any stone architectural “look” can be achieved and appear completely natural. Unfortunately, waterproofing techniques and the skill of application have not caught up with the improved stone manufacturing techniques and “tighter” construction practices. 

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# SYNTHETIC STONE VENEER IS HERE TO STAY...

## WITH IMPROVED MANUFACTURING TECHNIQUES, ALMOST ANY STONE ARCHITECTURAL “LOOK” CAN BE ACHIEVED AND APPEAR COMPLETELY NATURAL.



*International*, November/December 2005.

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