



SPECIFICATIONS FOR ALVERSON LIMESTONE® ASHLAR

STONEMWORK INCLUDED: This contract shall include the furnishing off all exterior and/or interior stone facing known as *Alverson Limestone® ashlar* as specified and indicated herein.

STONE SPECIFICATION: Stone shall be *Alverson Limestone® ashlar* as produced by Greystone Quarries, Inc. and supplied by (*company name of Authorized Reseller*).

Stone shall meet the following specifications:

TYPE, GEOLOGY: Dolomitic Limestone (Dolomite)
CLASSIFICATION: Limestone III - High Density
COLOR: Gray, gray-blue, tans, browns.
SHAPE: Machine Cut to Rough Random Ashlar Shapes.
SIZE: 6" Bed (Thickness range 3" – 6.5")
2"- 9" Rise
6"-24" Lengths

COVERAGE: Approximately 30 to 35 square feet per ton. Coverage cannot be guaranteed due to masonry techniques and method of installation. Tight mortar joints, extensive trimming and setting the stone on its widest bed are all examples of installations that will greatly decrease the coverage per ton. Unlike dimension cut stone or unit masonry, it is not possible to guarantee coverage for machine cut stone products.

TEST RESULTS:

Absorption ASTM C97 - 0.34%
Density ASTM C 97 - 170 lbs/cu. ft.
Compressive Strength ASTM 170 – 23,815 P.S.I.
Modulus of Rupture ASTM C99 – 2,990 P.S.I.

STONE SAMPLE: The contractor for the Architects approval shall construct a sample panel on the job site. The sample panel shall be at least 15 sq. ft. minimum in face area. It is understood that this color is representative only, and the complete job cannot match exactly any sample panel.

STONE DELIVERY: The contractor will be responsible to prepare a suitable place for delivery of stone. If stone is delivered in loose bulk form on a dump truck the site must be prepared with gravel or other appropriate ground cover to dump stone. If stone is delivered on pallets a suitable area must be arranged for storage of same. Deliveries of palletized material may require a forklift on the site to unload the truck. Check with the supplier of the stone to find out what type of delivery can be arranged in your area and how much room will be required on the job site to deliver and place stone. After the stone is on the job site it should be covered with plastic or a tarp to keep clean and dry until it is ready to be used.

NOTE: Covering the stone may also protect it from the eyes of vandals.

STONE PROTECTION: It is the responsibility of the contractor to maintain a ground cover of gravel or other suitable material under and adjacent to stockpiles and in all work areas to prevent mud splash. It is especially important to maintain a minimum 4' wide ground cover around the perimeter of all walls to prevent mud splash until the landscaping is complete.

At the completion of each days work, the tops of the walls should be covered to prevent water penetration into the wall cavity. Rain-wash entering a wall is one of the main causes of wall staining/efflorescence. The water causes a reaction with alkaline salts inherent to Portland Cement and cement blocks. The salts penetrate into the joints and eventually percolate to the surface leaving a brown stain in the process.

MORTAR SPECIFICATIONS:

Portland Cement: ASTM C150 Type 1

Hydrated Lime: ASTM C207 Type S

Aggregate: ASTM C144

NOTE: Pointing mortar shall use sand graded with 100 percent passing the No. 16 sieve unless a courser finish is approved by architect.

Water: Clean, non-alkaline, and potable.

MORTAR MIXING: Mortars should be mixed to the proportion requirements of ASTM C270, Type N. This mixture consists of one part Portland Cement, one part lime and six parts sand, all by volume.

Type N Masonry Cement can be used instead of separately mixing Portland Cement and lime, as it is already blended. If Type N Masonry Cement is used it is mixed one part to three parts sand.

Enough water should be added to mix to the consistency of a stiff buttery texture.

Mortar should be mixed for a five-minute period after all materials are placed in a mechanical mixer. (or according to standards set per manufacturer instructions)

The Portland Cement Association recommends that mortar be re-tempered as often as needed to keep the mortar moist and workable. Mortar not used within two hours of initial mixing should be discarded.

STONE ANCHORING: Anchoring should be accomplished by standard non-corrosive two-piece wall tie system. Wall ties shall be attached to block or frame back up with a minimum of one wall tie per 2 sq.ft. area. (Please consult manufacturer of tie system for their recommendations and guidelines.) Wall ties shall extend directly into masonry joint with full contact to mortar (or per architect recommendation).

STONE SHAPING: Cut and trim stones to straighten setting beds and edges. Pitch and trim faces of stone to desired finish. The desired face on all stone 8" or less in rise is normally the splitface side. The splitface side of the *Alverson Limestone® ashlar* is that surface which is cut across the grain.

CAUTION: Always use safety glasses when cutting stone.

STONE PATTERN: Stones are to be laid to level in a Random Ashlar Pattern. Sizes of individual stones shall be varied as much as possible within the work in order to break up continuous running joints. Try to avoid a rolling or wavy pattern across the face of the stonework.

The standard product will not contain High Rise or Square/Rectangular shape. High Rise, also known as Jumpers, are roughly squared in shape, usually are 8" to 12" in rise, and are normally used to break up stone pattern and act as accent pieces such as Quoins for corners, around windows, etc. It is recommended that if these are desired, specify not less than 10% to up to 20% to be blended in with the ashlar. The square/rectangular should be used with more discretion in strategic locations as desired. The desired face to be exposed is the Seam Face on most stone 10" and higher. It is the face that shows the natural or seam colors usually on the bed of the stone.

The above recommendations may be modified in order to duplicate an approved sample panel or other pattern as approved by the architect.

STONE SETTING: Stone shall be set and jointed in a full bed of mortar with all joints filled and having no voids. Since stones vary in thickness from 3" to 6.5" some stones will need to be backed up with more mortar than others. It is important to make sure all cavities behind stones are filled up solid without any voids in order to insure structural integrity. Due to the thickness of the stones a 6" minimum setting foundation ledge (bed) is essential.

Note: Cavity walls are cannot be specified where the stone is a non-dimensional machine split stone. Products are available to be placed behind veneer to assist with this concern. Consult manufacturers of these products for details.

Joint width shall be as uniform as possible and average 3/4".

A variation in joint width of 1/2"-1" is acceptable.

Stone shall be laid free from mortar stains and be kept as clean as possible. Do not use acid for cleaning limestone.

No stonework shall be set unless the job site temperature is no lower than 40 degrees Fahrenheit and rising, or the architect has approved a cold weather-setting plan.

STONE POINTING: Pointing stone after setting rather than full bed setting in one operation is highly recommended as it reduces the chance of spalling and leakage. Shrinkage of the mortar bed will allow settling since the mortar hardens from the face inward. If the stone is set in one operation, the settling, combined with the hardened mortar at the face, can set up stresses on the edge of the stone.

After the stone is set, and before the mortar hardens, rake out the mortar to a depth of at least 3/4" to 1 1/2".

Pointing can be done in one or two stages allowing each stage to harden in between. This process allows each stage to seal shrinkage cracks in the preceding stage. The final stage shall be completed with a concave jointing tool to a finished depth of approximately 1/2". The final joint can be brushed out to complete finish.

The preferred pointing for this stone is the standard gray color mortar. Alternate mortar colors are to be approved by architect.

STONE CLEANING: After completion of stonework cleaning shall be accomplished with a stiff bristle brush and water. A neutral cleaner or mild detergent can also be used. ***Acids should NOT be used in any case to clean a limestone product as it can cause damage and discolor the stone surface.***

STONE PRESERVATION: One of the most important, but often-overlooked steps in an exterior stone project is the application of a high-quality water repellent after the work is completed.

The application of a 'breathable' high-quality water repellent will have the following benefits:

- Keeps walls easier to clean since the surface will be less absorbent to pollutants in the atmosphere.
- Reduces absorption of water, thus lowering humidity level within the wall interior.
- Helps to minimize freeze/thaw damage.
- Helps control efflorescence.
- Helps stabilize any pigment leaching from cement or stone.

Note: Although water repellents will reduce absorption, they are not meant to bridge gaps or cracks or replace a poor pointing job.

A high-quality water repellent will provide deep penetration into the stone and provide many years of protection without changing the color of the stone, all at a very affordable price.

Product Recommendation:

Prosoco®
(Available various formulas for a range of applications)