



Specifications for ALVERSON LIMESTONE® irregular

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

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

Stone shall meet the following specifications:

TYPE GEOLOGY: Dolomitic Limestone (Dolomite)

CLASSIFICATION: Limestone III - High Density

COLOR: Gray, gray-blue, tans, browns.

SHAPE: Rough Random Irregular Shapes.

SIZE:

3"-6" Thickness Range (Bed Depth minimum requirement 6")

5"-20" Diameter

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 bend 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 accurately guarantee coverage for machine cut stone products.

TEST RESULTS:

Absorption ASTM C97 - .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 other standards per manufacturers 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 a standard and approved two-piece non-corrosive 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. (Some systems require ties 16" on center to account for regular stud construction.) Wall ties shall extend directly into masonry joint with full contact to mortar (or other per architect recommendation).

STONE SHAPING: Shape stones by cutting and trimming as necessary to achieve the desired finished installation. If the naturally weathered exterior color of the stone is desired, trimming on the faces must be kept to minimum. Excessive trimming and cutting on each stones natural seam face will change the color and character of the stone, since the fresh cut face will often be different in appearance.

CAUTION: Always use safety glasses when cutting stone.

STONE PATTERN: Irregular stones are normally laid to a random irregular mosaic type pattern. Sizes and colors shall be varied as much as possible within the pattern in order to create a uniform appearance throughout. Avoid continuous running joints as much as possible.

Special patterns will in most cases require more work and experience on the part of the stonemason. This stone requires the architect to allow at least a 6" bed depth so the mason has more flexibility and room in setting the stone to achieve the desired result. The architect should check with the supplier on the bed depth requirement if a special stone pattern is desired.

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"-6" 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 is essential.

Note: Cavity walls often are not specified where the stone is a non-dimensional machine split stone. if a cavity wall is desired, consult a product specialist to find an appropriate system that will be able to be easily integrated by installing mason contractor.

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. Never use acid for cleaning limestone.

No stonework shall be set unless the job site temperature is no lower than 35 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 as opposed to white pointing. 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 NEVER be used to clean a limestone product as it can cause damage and discolor the stones surface.***

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

The application of a good 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 good 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.