

DRY-SET NATURAL STONE PAVING GUIDELINES AND SUGGESTIONS

The recommended residential application for dry-set exterior natural stone is a properly constructed permeable system that promotes drainage away from the stone. This guideline is applicable for all natural stone, regardless of geology.

Clean crushed stone (washed 2B, #67 or similar) should be used as the base. Base minimum is 6", actual depth will depend on sub-soil, compacted in 4" layers. Extending the base 6"-12" beyond the paved surface may yield best results.

Consult a soil engineer and local code officer as applicable.

It may be necessary to construct drains to carry the water away from the installation once it has been captured.

Use clean concrete sand (ASTM C33 / C33M-13) or clean crushed fines without dirt as the setting material (1B, #8 are common).

Use concrete sand or decorative gravel for all exposed joints. If using the butt-joint method, sand may or may not be needed, and keep in mind edges of pavers may spall or chip.

Geotextile fabrics may be used between the various stone and sand layers. Ensure that they are installed in a way that will contribute to proper drainage.

The use of stone dust, screenings, modified or crusher run (dense-graded aggregate, CR-6, etc.), or any crushed stone with dirt and/or fines, as a base, setting bed, or joint is not recommended. Use of polymeric sand for joints is also not recommended. These may drain poorly and promote the retention of water. This can damage natural stone paving by contributing to the causes of mechanical and/or chemical weathering. The results may include efflorescence, subflorescence, premature aging, delamination, spalling, staining, and other weathering characteristics.

Limestone dust and limestone screenings seem to cause many issues with stone paving, including subflorescence, and should not be used in constructing a natural stone exterior paving system.

Discovery Notes:

The use of compactable stone that includes dirt may keep the stone pavers wet for extended periods of time. This could enable minerals and chemicals that result from groundwater, rainwater, spreading of ice melts due to winter weather, swimming pool chemicals, etc. to be drawn into the pores of natural stone. The result seems to contribute to post-installation weathering issues. It may directly result in the degradation of the paved area and shorten the lifespan of the stone.

The use of cleaning chemicals and sealing chemicals may affect natural stone. While it should suffice to read the directions of a manufacturer, it has been discovered that some manufacturers do not market these products appropriately. A result may be a cause of owners and contractors experiencing issues post installation. Some other associated companies in the industry also do not endorse or recommend the use of chemicals.

Factors worthy of consideration before installing natural stone pavers:

- Proper material selection for application
- Sub-soil conditions
- Drainage
- Correct depth and proper base material
- Proper compaction of base material
- Anticipated weight load of pavement
- Edge restraint and border
- Movement due to frost and settlement
- Weather maintenance requirements; including winter and harsh weather climates
- Natural stone is different than concrete pavers and brick