

Outdoor Living, Pool, Deck and Patio Moisture Maintenance

Performances of structures built on ground-supported-concrete-foundations depend not only on proper design and construction, but also on proper moisture maintenance performed by the occupant or owner of the property. Many foundations have experienced problems as a result of improper installation, maintenance, or alterations of the drainage system and landscaping. A properly designed and constructed foundation may still experience distress from soils which undergo volumetric changes caused by non-climatic moisture sources such as leaking pipes or irrigation. Positive drainage is required for proper foundation moisture maintenance. The most commonly used technique for positive drainage is grading away from the foundation to promote rapid runoff and avoid ponding water near the foundation. Poor drainage and/or ponding water can cause a change in soil moisture content, resulting in swelling of supporting soils, thus causing foundation movement. Recommendation for positive drainage is minimum 5% ($\frac{5}{8}$ in/ft) for a minimum distance of 10 ft. from the edge of the foundation (or as allowed per Exception: IRC R401.3). Berming of landscape beds, while visually appealing, can create a damming effect between the berm and foundation that may prevent water from draining away. Special attention must be paid to these areas by providing additional precautions, such as area drains. Area drains must be checked periodically to insure they are functional. It is important to note that consistent moisture content of supporting soils is the key to proper foundation performance. In areas where silty and/or sandy soil material is present, excessive water can cause soil to lose bearing capacity. In areas such as Dallas/Fort Worth, where expansive clays are

present, excessive water will cause increased swelling of supporting soils, while insufficient moisture will cause shrinkage of supporting soils.

The following is a list of items to be considered when planning proper foundation maintenance:

1. Maintain positive drainage away from the foundation and install area drains (if applicable). Never allow water to pond near or against the foundation.
2. Replace and compact loose fill adjacent to the foundation with native soil; DO NOT use sand or a granular material.
3. Check gutters and downspouts to be sure they are clear and water is discharged minimum of 5' away from and downstream of the foundation.
4. Avoid seasonal drying around the perimeter of the foundation.
5. Existing vegetation near the foundation typically draws additional water from adjacent soils towards the foundation, causing added soil movement.

The objective of a proper maintenance program is to maintain as near constant moisture content as possible for soils around and under the foundation.

It is recommended that all property owners conduct a yearly survey of their foundation and perform any maintenance necessary to improve drainage and prevent ponding of water adjacent to these structures. This is especially important during the first ten (10) years after construction. This is usually when the most severe adjustment between the new foundation and supporting soil occurs.