

Valer Deck & Patio Publishes Deck Footing Guidance for Expansive Soils

September 02, 2026

FAIRFAX, VA - September 02, 2026 -
Valer Deck & Patio has published new homeowner guidance explaining how expansive clay soils affect deck footing depth and substructure design, drawing on published soil data from Fairfax County and the Northern Virginia Soil and Water Conservation District.

Fairfax County's Land Development Services documents a category of local soils, mapped as Marumsco and commonly referred to as marine clay, that swells when wet and shrinks when dry. The Northern Virginia Soil and Water Conservation District reports that swelling in these soils can exert thousands of pounds of pressure, and that shrinkage during hot, dry summer months can cause irregular settling. The county maintains a published map layer identifying areas previously surveyed as marine clay, which homeowners can consult for their own property.

The guidance addresses a question that comes up regularly in residential construction across the region. Two decks built to identical drawings can behave differently on lots a short distance apart, and soil is often

the reason. County soil descriptions note that in certain map units, footings must extend below soft plastic clays to reach competent bearing. That is a condition determined by the site rather than by the design, and it is not visible from a drawing or a photograph.

"A drawing tells you what to build, but the ground tells you how deep to go," said Daniel Stendeback, President of Valer Builders LLC. "Two houses on the same street can sit on different soil, and that changes the footing before anything else about the project changes."

The document explains the mechanism in plain terms. Clay minerals in these soils take on water and expand, then release it and contract as conditions dry out. The cycle repeats seasonally. Structures bearing on soil that moves are subject to that movement, and the effect is cumulative rather than immediate. A deck that performed well for several seasons can begin showing signs after a particularly wet spring followed by a dry summer.

Late summer is typically when the contraction half of the cycle becomes visible to homeowners. The guidance describes the signs worth a closer look, including posts that appear out of plumb, stairs separating from a landing, railing sections that no longer sit square, and gaps opening where a deck meets the house. It also notes that these signs do not always indicate soil movement, which is the reason the document walks through how to tell the difference.

"Most people notice something looks off in August and assume the deck was built wrong," Stendeback said. "Sometimes it was, and sometimes the ground moved. Those are two different problems with two different fixes, and it is worth knowing which one is in front of you before deciding what to do about it."

Substructure material receives its own section. Valer Deck & Patio builds deck framing in pressure-treated wood, steel, aluminum and composite. The guidance describes the general characteristics of each rather than ranking them, and makes the point that material selection follows a site assessment rather than substituting for one. A substructure specified without regard to what it is bearing on addresses only half the question.

The document also covers the relationship between a deck and the structures around it. Patios built in concrete, pavers or natural stone sit directly on the same ground and respond to the same seasonal cycle. Pergolas, covered porches and screened enclosures that share a footing system with a deck are subject to the same conditions and are best planned as part of a single structure rather than as separate additions made later. The guidance notes that phased outdoor projects benefit from having the full footing layout worked out at the start, even when the work is scheduled across multiple seasons.

For older structures, the guidance outlines what a homeowner can reasonably assess without specialized

equipment and where the limits of a visual review sit. Some conditions are apparent from the surface. Others involve what is happening below grade, where nothing is visible once construction is complete. The document is explicit that a published soil map indicates general conditions across an area rather than confirming what is present on any individual lot.

Valer Deck & Patio developed the guidance to give homeowners a starting point for understanding conditions that are documented in public records but rarely discussed during a residential project. The company directs readers to Fairfax County's own published soil resources, including the county's homeowner guide to marine clay soils and the mapped soil layer, for information specific to a given address.

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Valer Deck and Patio

Valer Deck & Patio is a custom deck and outdoor living builder serving Fairfax, VA and Northern Virginia. Led by owner Dan Stendeback, who brings 25+ years of Experience

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