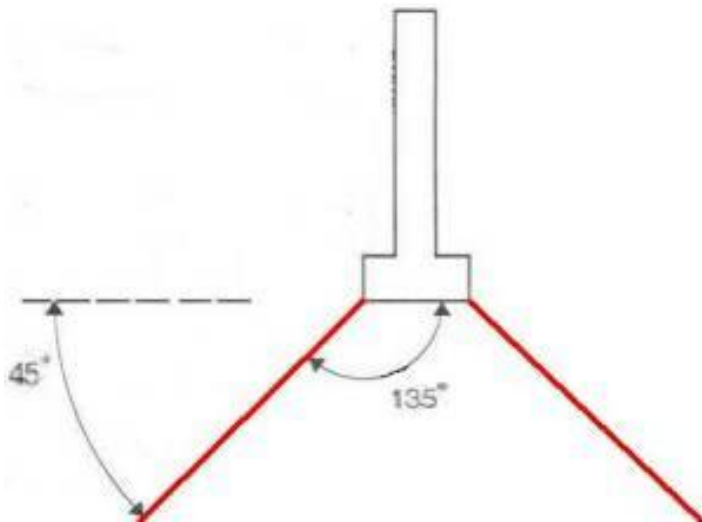


Angle of Repose, Footing and Foundation Work

Recently, I have been involved in a discussion between contractors and professional engineers regarding excavation work in the crawl space at an older home. The issue came up when the contractor, who is in charge of establishing proper clearances between structural lumber and the dirt floor of the crawl space, stated that he was concerned to dig anywhere near the foundation wall for fear of creating structural instability or undermining the foundation. That is, of course, a valid worry. During the discussion, the term "angle of repose" came up. I will explain how that term comes into play in a moment.

But first, let me establish that, since soils vary, there is no hard and fast rule as to how close, or at what angle, you can dig, tunnel or excavate next to a foundation wall or a footing. If circumstances might be critical, or complicated at all, then a structural engineer should, and could, do soil tests and calculate those parameters.

On the other hand, if all a person is looking for is a ballpark idea as to what is acceptable, then the 45 degree angle of repose comes into play. It is a general rule of thumb that you need to protect the soil below the foundation and out at 45 degrees to each side.



The "angle of repose", red lines, show distinctly the critical area in which you **must not** dig or tunnel. Disturbing the soil anywhere within those boundaries could lead to serious, and difficult to repair, consequences.

Knowing the term "angle of repose" does not make you, or me, an engineer. But it is information worth knowing. Remember that, in any circumstances where excavating close to a foundation could be critical, it is always best to first consult with a professional structural engineer.

Thanks for stopping by,

Steven L. Smith