

WARNER'S CORNER

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BE RATIONAL



JAMES WARNER

As “experts” in our field, our clients should rightly expect us to perform in a completely knowledgeable manner.

Part of such performance requires that our decisions be rational. Although education and experience both contribute to our ability to perform well, common sense is equally as important, and the exercising of such is sometimes sadly missing.

I was once retained by a contractor who had performed compaction grouting of some faulty soil. The process involves injection of a mortar-like grout into soil to densify it. The grout remains in a cohesive mass, which is surrounded by the soil it displaces and compacts. The specification required that the grout reach an unconfined compressive strength of 2000 psi (13.8 MPa). Upon completion of the work, the contractor was denied payment on the basis that cylinder breaks did not achieve the required strength. The low breaks are not surprising, as the procedure uses a cement sand mixture rich in fines, and the grout seldom reaches such strengths. More importantly, it was not rational to require grout strength some 200 times greater than the strength of the surrounding soil. There was no rationality for the specified strength level, which was unreasonable. One must wonder further about the rationality of the contractor who entered into such an unreasonable agreement.

In another case, there was a requirement to provide a “bonding layer” with a minimum bond strength of 10,000 psi (69 MPa) for an overlay of some existing concrete. The compressive strength of the original concrete was approximately 3000 psi (20.7 MPa) and the overlay concrete was specified to be 3500 psi (24 MPa). Other than one might question the meaning of a “bonding layer,” it was certainly not rational to require such high strength at the bond line. A composite is no stronger than its weakest component. Tensile strength of concrete is on the order of one-tenth of its compressive strength, and thus about 350 psi (2.4 MPa) for the new concrete. It was not rational to require a bond strength so in excess of the tensile strength of the concrete.

The true professional will always be rational and will question requirements that are either unreasonable or unnecessary.

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