risk management topics for structural engineers

## Reduce Risk by Communication

You're Involved Even If You're Not Involved By Trailer Martin

This article is to introduce the CASE Foundations for Risk Management (see below), and to present the first of a series of articles to share experiences that relate to the foundations as well as the lesson(s) learned from the experiences. This article is based on Foundation #2 – Prevention and Proactivity, and #4 – Communication.

read the article by John Tawresey in the August issue of STRUCTURE® and found myself drawn into the case. I know, all too well, the sinking feeling that John described of being served with a complaint for damages that exceeds your insurance coverage by a multiple of 20 or more. I would like to present a case that falls on the other end of the litigation spectrum. This is a case that flies in almost below your radar coverage.

We designed a school for a client that we have worked with for over forty years. Our relationship with this client would have to rank as one of the oldest and closest for our organization.

In California public schools are reviewed and inspected by a state agency known as the Division of the State Architect (DSA). Thus, this structural design faced significant review and comment.

The project was bid and the total structural cost came in at around \$5 million. This was right in line with what had been estimated and budgeted for the project. It looked to be another straight forward and profitable project.

During construction, a vault was discovered on the site. The location of the vault was near the building. The building had to be moved to avoid the vault and we were required to redesign some foundations, which the owner recognized was an extra

service and for which we were paid. Unfortunately, this discovery of a vault caused a delay in the construction with the associated extra costs borne by the owner and the contractor. Of course this was not a structural issue, thus it was of little concern to our office. The incorrect location of the existing vault was provided to the architect prior to the design team starting the design of the project. The architect apparently excluded verification of the vault location and other ownerprovided information from the new civil engineer's scope, but the architect apparently did not exclude the verification of the vault location and other owner-provided information in their contract with the owner.

The project proceeded and was completed on schedule, except for the delay attributed to the discovery of the vault. There were some architectural issues, but as I sit here now, I do not know what they were. However, I do know that the effect on the structural portion of the project was non-existent.

During the course of construction, there were some minor change orders that mentioned structural. The structural contribution to the change orders was so small that the project manager for the architect did not include a structural signature on the DSA form for change orders that actually requires a struc-

tural engineer's signature. In place of the signature, the architect simply noted "NA" (not applicable).

At the conclusion of the project, the district that built the school filed suit against the architect. The suit specifically dealt with the vault discovery and architectural issues. The suit was later expanded to include change orders. Since the total of the change orders that even mentioned structure was in the \$40,000 range (0.8 of 1%) and the owner was very happy with the structural work, we did not see any exposure.

## Case Foundations for Risk Management

- 1) **Culture:** create a culture of managing risk and preventing claims.
- 2) Prevention and Proactivity: act with preventative techniques, don't just react.
- 3) **Planning:** plan to be claims free.
- 4) Communication: communicate to match expectations with perceptions.
- 5) **Education:** educate all of the players.
- 6) **Scope:** develop and manage a clearly defined scope of services.
- 7) **Compensation:** prepare and negotiate fee that allow for quality and profit.
- 8) Contracts: negotiate clear and fair agreements.
- **Contract Documents:** produce quality contract documents.
- 10) **Construction Phase:** provide services to complete the risk management process.

Sometime later we were extremely surprised to have the architect file a cross complaint against our firm. The owner refused to file suit against us. The architect, a friend for more years than we can remember, is the only reason we are in the case. The cross complaint specifies the change orders are the reason. However, the details of the claim have not been clearly stated. Whether the vault or other issues (see below) were the reason for the cross complaint being filed is unclear.

Our analysis of the \$40,000 in change orders that mentioned structure revealed that the actual cost of the change orders attributed to our work is approximately \$15,000. These change orders included a typical saw cut detail for the slab on grade that we felt was not deep enough, and extra concrete thickness and reinforcement added to a small portion of wall that was determined to be under-reinforced due to a drafting error. The interesting part on the under-reinforced wall is that we picked it up as an error on the reinforcement shop drawings, but this was not picked up by the sub-contractor.

It should be no surprise that the remaining \$25,000 in change orders were due to issues we believe unrelated to the structural design of the building. Most of this work was due to a deferred approval item, which we were given after the construction was well underway.

When we were named in the case, the architect was contacted, but we could find no one who knew why we were in on the case.

The case went to mediation. The mediator could not understand why we were in the case and subsequently we were asked to leave the mediation, probably due to our inability to contribute to a settlement. The mediation was unsuccessful and we now are proceeding toward trial and are expending our deductible, which is \$100,000. I am sure the cost of our defense already exceeds the cost of all of the change orders previously mentioned, whether justified or not.

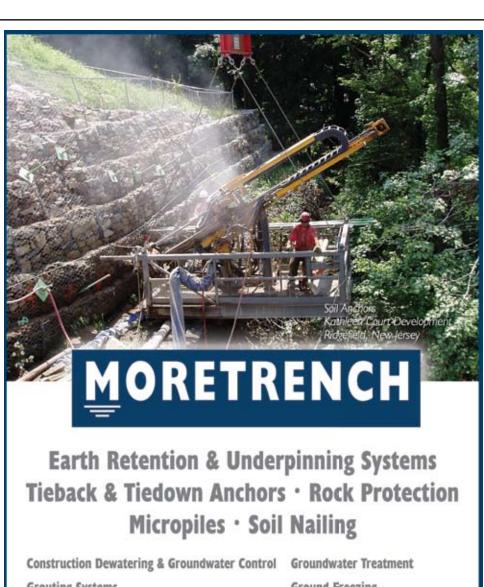
I believe we failed because of a lack of communication with the architect. We stopped communicating after what we believed was the successful completion of the project. We failed because we knew of the litigation involving the architect and the civil engineer, and we should have been actively discussing the issues with all concerned to make sure the issues did not flow toward us.

As we approach trial, and reflect on the loss of respect and friendship for a friend of long standing, I remember a line from the movie The Magnificent Seven, which slightly misquoted would be "Only the attorneys have won."■

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