

THE 2010 ICRI CAROLINA'S CHAPTER STUDENT SCHOLARSHIP WINNER



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The Winning Essay:

During June of 2008, while working at Dominion Energy as an intern, my task was to develop an on-site database to track previous and potential safety hazards. First, I coordinated several conferences regarding the management of the database. Then, I analyzed the current safety standard operating procedure manual. Finally, along with my mentor, I was able to create a computer program to organize and catalog the various safety hazards. As a result, 168 hazardous conditions were tracked within three months and I presented a status update of the hazards to the project managers on a weekly basis. This database will be implemented as a segment of the standard operating procedure until the completion of the power plant's construction in 2012.

Primarily, parking garages endure multiple weathering conditions that cause structural deformation. With carbonation and moisture problems wherein water penetrates the concrete and causes rust on the rebar, a divisive inspection plan must be devised to keep parking infrastructures safe. Recently in May of 2008, the top two floors of a parking deck collapsed near SouthPark Mall in south Charlotte North Carolina. After analysis, experts said that the county inspected it after construction in 1987 and legally there was no need for an annual inspection. I believe that a basic as well as advanced inspection plan for parking garages would be effective.

Thus, the basic inspection plan would be initiated every six months. A quality control official as well as a professional engineer would perform a walk-through inspection throughout the facility. During the basic inspection, the tools would include a camera for microscopic analysis to see interior cracking, a hammer and a pactometer to find rebar, and lastly a simple camera for photographs. The results should identify any corrosion, rust, spalling, cracking, and other visible defects.

In addition, the previously mentioned safety hazard database that I helped to develop would be influential to the inspection process. An annual advanced inspection would include checking deteriorated expansion joints and replacing the sealant material, and sounding the garage to locate deteriorating concrete. This database would organize all documented issues for tracking purposes. Any problem found during the advanced inspection should be resolved immediately.

In the end, from analyzing past parking garage disasters we now have advanced technology and new scientific methods to locate possible structural mishaps. Although the condition of the parking garage may seem nominal to store-keepers and property managers, these garages are a large part of our urban lifestyle. Using my proposed inspection plan both basic and advanced, proper maintenance procedures must also be implemented. Throughout the next few years, the level of safety of our parking garages will be in the hands of engineers, property managers, and even us.