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Garage maintenance, repairs

Maintenance and repair of parking structures is often a low priority for building owners. Garage maintenance routinely falls to the bottom of the necessity list for a number of reasons. First and foremost, in today's economy, budgetary constraints limit the amount of funding available to an owner. Often, the owner is faced with the decision to direct the limited funds that are available toward interior finish improvements or space build-outs that are readily recognized by prospective tenants or to the parking structure that rarely influences a potential lease. Additionally, the unoccupied nature of a garage makes it relatively easy to overlook, and water leakage and deterioration may go unnoticed and unreported for quite some time. Unfortunately, deferred maintenance usually results in costly structural repairs and significant disruptions to the tenants.

Routine maintenance and repairs will help preserve a parking structure and extend its service life. The type of routine maintenance and the repairs necessary depend on the original design of the garage, the original concrete materials and their proportions, and the quality of the original construction. In an ideal parking garage, the original design and construction provides slope to promote drainage from the parking decks and incorporates drains as necessary to limit the amount of ponding water on the concrete surfaces. Additionally, a properly proportioned concrete mix design successfully placed and finished provides a dense, durable concrete surface free of



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scaling and pitting. The placement of the reinforcing steel and the proper concrete cover over the reinforcing steel minimizes reflective cracking above the reinforcement and typically lengthens the time until corrosion of the steel reinforcement initiates.

Unfortunately, very few garages have all three of these attributes working in their favor. Whether you own a parking structure comprised of precast concrete double tees, post-tensioned concrete slabs or mild reinforced concrete slabs, the following briefly discusses the use of drains, sealants and coatings to maintain a garage and overcome the original design and construction imperfections, extend the service life of the parking structure, and minimize the need for costly structural repairs in the future.

Water infiltration, which often is laden with deicing salts, is one of the leading causes in the Denver metro area of corrosion of the reinforcing steel and the associated concrete deterioration. That is why it is critical for the parking structure to promote drainage from the parking deck surfaces. On a parking deck with inadequate slope resulting in ponding water, installation of new drains where water accumulates is an economical approach to allow the water to

drain from the deck without making significant modifications to the structure.

Well-maintained sealants and coatings also help minimize water infiltration through the concrete decks. Coatings can improve the performance of a poorly finished concrete surface by significantly reducing the rate of chloride penetration through the concrete and, depending on the coating, reduce wear on the concrete surface. Even a durable concrete surface in an ideal garage eventually will exhibit areas of abraded concrete in heavily used turning areas. Application of a coating can extend the service life of these areas; however, selection of the correct type of coating for the application is critical to ensuring every dollar is spent wisely.

Often, routine maintenance is adequately performed by a qualified contractor without repair documents. However, without a set of contract documents, comparing bids between different contractors will be similar to comparing apples and oranges. The quality of the products used and the installation methods implemented will not necessarily be comparable. To receive comparable bids, a qualified engineer should prepare a set of construction documents or, at a minimum, a performance specification for the work to be completed. If deferred maintenance has resulted in repair work that becomes significant, a qualified engineer should be retained to design and detail the repairs to ensure comparable bids are obtained and that the structural repair work is properly completed.▲