Concrete Parking in Practice

Concrete Parking in Practice is a series of publications from the Maryland Ready Mix Concrete Association (MRMCA) to help specifiers become more familiar with design and benefits of concrete parking lots.

CPIP No. 7

Elimination of Sub-base

Parking lot pavements are typically used for light traffic and less than 10 heavy trucks per day. Portland cement concrete pavements, unlike asphalt pavements, have the capacity to distribute applied loads over a wide area of the supporting materials. This allows most concrete parking lot pavements to be constructed directly on the subgrade.

The design professional determines the adequacy of the subgrade to directly support the pavement. In addition to supporting the pavement and applied loads, the subgrade provides a stable platform for construction operations. The subgrade must be dense, firm and uniformly smooth during the paving operation. When prepared to satisfy the following, most concrete parking lot pavements can be constructed directly on the subgrade.

1. The subgrade should be prepared in coordination with the installation of utilities and other excavations. Areas where excavations are performed for utilities should be filled and compacted with suitable materials to produce the required subgrade elevation. If subsidence of compacted trench backfill is evident, the backfill material should be excavated and recompacted, or use flowable fill.

2. The subgrade should provide an adequate degree of drainage beneath the pavement. A stable subgrade should not be sacrificed for the sake of drainage. A subgrade with a permeability of 200-300 ft/day provides adequate drainage that will support paving equipment, construction vehicles and the pavement. Prior to the start of work, moisture-density relationship for the subgrade material is determined. The moisture content of the subgrade material is adjusted and compacted to the required density.

3. The subgrade should be constructed to the proper and uniform elevation. Pavement performance is dependent on its thickness. Construction to the design depth is important to assure long term performance. A subgrade of uniform elevation allows contraction joints in the pavement to act as designed. Final grading should be checked to ensure proper elevation. The typical tolerance is not more than ¼ in. above or ½ in. below.

What is the next step?

The MRMCA provides an AIA-approved parking lot design class that may be used for Professional Development Hours (PDH’s). We also participate in a national Design Assistance Program (DAP) and we cover the costs of the first project within the state of Maryland. Depending on project specifics, we will offer additional DAP projects at little or no cost. All we need are the current CAD drawings and a few pieces of project information. Contact us for more details.