Concrete pavements have no equal in terms of durability, appearance, and ease of maintenance, if they are properly designed and constructed.

If you meet the six requirements of Quality Exterior Concrete Flatwork, you will create DURABLE, trouble-free concrete that provides true value over the life of the investment.

Follow These Six Steps for Quality, Exterior Concrete Flatwork:

1. Proper Subgrade Preparation
2. Proper Slab Design
3. Proper Concrete Mix Design
4. Proper Placing and Finishing
5. Proper Curing
6. Consumer Sealing & Aftercare

Contact your local WRMCA ready-mixed producer to find a quality contractor or use a contractor that is ACI Flatwork Finisher Certified.
Requirement #1

PROPER SUBGRADE PREPARATION

 Subgrade is the existing soil after the topsoil is removed.
 Any pockets of soft soil that cannot be uniformly compacted must be removed and replaced with suitable material such as compactable gravel.
 Slope the subgrade away from structures 1/4" per lineal foot to ensure good drainage.
 Never place concrete on a frozen or muddy subgrade.

Requirement #2

PROPER SLAB DESIGN

 Use a minimum thickness of 4 inches.
 Control joints should be placed as soon as possible with a minimum depth of 1/4 the slab thickness, never less than 1 inch.
 Joints should be spaced 2 to 2 1/2 times the thickness of the slab converted to feet (example: 4" x 2 1/2 = 10 feet). It should never be more than 15 feet.
 As with the sub-base, slope the concrete surface 1/4" per lineal foot.
 Isolation joints are required at existing slabs, structures, and objects. Isolation joints should run the full depth of the slab.

Requirement #3

PROPER CONCRETE MIX DESIGN

 The mix must be a maximum water/cementitious ratio of .45 air-entrained concrete, which would equate to a minimum 4500 psi meeting the following requirements:
  • Air content when placed: 6 percent, plus or minus 1 percent.
  • Slump: 4 inches, plus or minus 1 inch.
  • Coarse and fine aggregate shall meet Wisconsin Department of Transportation specifications.

Note: The air content and strength of the mix will be affected by any retarding or accelerating admixture used. The job is not finished yet!!!

Requirement #4

PROPER PLACING AND FINISHING

 Place the concrete as near to final position as possible.
 No finishing operations shall be performed when the temperature is 70 degrees F or colder, and water is present. Concrete must be uniformly compacted prior to finishing operations. To purchase this product, contact your local ready mix supplier.
 Preparation water retardant material is applied to keep wet concrete surface and resist the action of freezing and thawing as well as de-ice-salt.
 The concrete must be immediately after finishing.
 When the slab begins to set, the concrete surface should be mixed.
 As the slab reaches 70% of final strength, the concrete surface should be permitted to harden.
 All concrete should be placed within 90 minutes from the time the truck was loaded. Hot weather practices call for shorter placement time limits.

Requirement #5

PROPER CURING

 The concrete must be cured immediately after finishing! Curing greatly increases the strength and durability of the concrete surface and its resistance to freezing and thawing as well as de-icer salts.
 Curing is a process where a maintenance is required until the concrete has gained adequate strength and cure properly. The use of down spouts can help ensure that drain water does not undermine the slab which can cause settlement cracks.
 The use of form oil and other maintenance of the concrete are essential in creating a quality exterior flatwork project. Keep vehicles off of freshly placed concrete for at least 7 days.

Requirement #6

CONSUMER SEALING & AFTERCARE

 Freshly placed concrete should be sealed after allowing a minimum of 30 days to air dry. Consider resealing aged concrete every several years or as wear in high traffic areas begins to show. Follow the manufacturer’s recommendations directly.
 The use of down spouts can help ensure that drain water does not undermine the slab which can cause settlement cracks.
 Prevent snow and ice from accumulating on the concrete especially during the first winter.

THE JOB IS NOT FINISHED YET!!!

Requirement #7

EXTERIOR SLAB DESIGN

 The slab should be the full depth of the slab.
 As with the sub-base, slope the concrete surface 1/4" per lineal foot.
 Isolation joints are required at existing slabs, structures, and objects. Isolation joints should run the full depth of the slab.
 A minimum depth of 1/4 the slab thickness never less than 1 inch.
 Use a minimum thickness of 4 inches.

Requirement #8

CONSUMER SEALING & AFTERCARE

 Keep vehicles off of freshly placed concrete for at least 7 days.
 Freshly placed concrete should be sealed after allowing a minimum of 30 days to air dry. Consider resealing aged concrete every several years or as wear in high traffic areas begins to show. Follow the manufacturer’s recommendations directly.
 Prevent snow and ice from accumulating on the concrete especially during the first winter.
 Never place concrete on a frozen or muddy subgrade.
 Insure job to receive good drainage.
 Slope the ground away from structures 1/4" per foot.
 Never use corrosive chemicals such as sodium chloride.
 Any potholes or holes that cannot be uniformly filled with gravel should be removed.
 Insure job is the existing soil after the job is finished.