

Scope of Construction

To place a concrete, variable thickness overlay and insert pavement. And to utilize different types of construction joints and saw depths.

In addition to the pour, two different structural fiber content concrete mixtures will be investigated. The amount of fibers will be based on the thickness of overlay and not on cement content. The fiber content will be 4 lb/cu yd for the 2 and 3 inch overlays and 7.5 lbs/cu yd for the 4 inch and 6 inch insert. This is a change compare to the two previous specifications of 758 lb/cu yd and 833 lb/cu yd

1. The mixture will be 515 lb/cu yd of cement and 140 lbs/cu yd of flyash.
2. The joint spacing:
 - a. 2" overlay: 2' transversely tooled x 2' longitudinal soft cut (T/4).
 - b. 3" overlay: 4' x 4' soft cut (T/4)
 - c. 4" overlay: 4' x 4' soft cut (T/4)
 - d. 6" (insert): 5' x 5' soft cut (T/4)
3. The curing will be a three days – A type III white curing compound, with membrane, will be used.
4. Strength tests:
 - a. Compressive: 1, 2, 3, 5, 7, 14, 28 days
 - b. Flexural: 1, 2, 5, 7, and 14 days
5. Salt Scaling (ponding method) in accordance with current IDOT practices.
6. The freeze thaw test will be done as per the IDOT modified method.
7. Gradation will be performed in accordance to IDOT's A.G.C.S. procedures.
8. Air content & slump in accordance with IDOT's QC/QA procedures.
9. Set times in accordance with ASTM procedures.

Visual observation by the department for defect will consist of the following:

1. Shrinkage cracking (wet and dry)
2. Curling of pavement
3. Corner cracking
4. Punch outs
5. Effect of Type III curing compound (stripping and cleaning.)

Mix Design Criteria

1. IDOT Mortar/Void Method – current QC/QA Level III
 - a. Voids - .36% Gravel (Non Crushed CA11)
 - b. Mortar factor = .86
2. Sand Type B – round with some crushed particles (FA02)
3. Original cement (z): 6.05 cwt
4. 15 percent flyash Replacement at a 1:1.5 replacement ratio.
5. Water reducer reduction: 8%
6. Water/Cementitious Ratio: 0.42 maximum.

Proposed Mix Design

- Air Content Target: 6.5%
- Cement: 515 lbs/cu yd
- Flyash: 140 lb/cu yd
- Coarse Aggregate: 1972 lbs/cu yd
- Fine Aggregate: 1005 lbs/cu yd
- Water: 32.1 gal/cu yd
- Water reducer: (to be determined later) oz/cu yd
- Fibers content – 4 lbs/cu yd and 7.5 lbs/cu yd