

## SECTION 6

### CONCRETE

#### OBJECTIVE

Many factors interact to affect the ultimate quality of concrete. To deal properly with these factors, quality assurance is divided into two recognized phases.

The first involves collecting evidence from standard tests to verify that the delivered concrete was produced to the standards specified.

The second involves verifying that proper construction practices are followed during placement, finishing, and curing.

The Statement of Special Inspections, prepared by the responsible design professional, will define the special inspection task(s) required. Qualified special inspectors who diligently perform the duties listed below while under the direct supervision of the materials engineering laboratory can best achieve this objective.

#### OBSERVATION DUTIES

##### A. Documents

1. Review the approved plans and specifications.
2. Verify that the class of concrete ordered is being delivered and conforms to specifications, drawings, and/or code requirements and approved mix design.

##### B. Observation Procedures

1. Verify formwork is of proper size and shape.
2. Verify that the location and preparation of construction joints comply to approved plans, specifications, and building code requirements.
3. Check forms for cleanliness and proper treatment prior to placement.
4. Visually estimate the slump of each batch delivered and perform slump tests regularly.
5. Determine concrete temperature, number of mixing revolutions, and/or length of time since batching.
6. Observe placement procedures for evidence of segregation, possible cold joints, displacement of reinforcing or forms, and proper support of embedded items, anchor bolts, etc.
7. Observe methods used for compaction/consolidation.
8. When specified, verify that concrete is protected from temperature extremes, and that proper curing is initiated.
9. When specified, verify maintenance of cure temperature and techniques.

##### C. Sampling and Testing Duties

1. Sample and test fresh concrete for the following (or as stipulated by plans and specifications):
  - a) Slump
  - b) Temperature
  - c) Entrained air, when required
  - d) Wet unit weight, when required
2. Sample concrete and prepare test cylinders in accordance with ASTM C31.
3. Field sampling and testing of concrete should be performed by a qualified technician, certified by ACI as a Concrete Field Testing Technician – Grade 1 (or approved equal)

##### D. Reports

1. Submit written progress reports describing the tests and observations made and showing the action taken to correct nonconforming work. Itemize any changes authorized by architect/engineer. Report all uncorrected deviations from plans or specifications.