

**ROGERS WATER UTILITIES  
ROGERS, ARKANSAS**

**SPECIFICATIONS FOR  
CONCRETE MATERIAL  
REVISED AUGUST 2006**

1. **SCOPE**

This specification governs the material used, measuring, proportioning, mixing or combining such materials in producing concrete and grout for construction.

2. **GENERAL REQUIREMENTS**

- a. The cement shall be Portland cement conforming to the requirements of ASTM C150-04, Type I.
- b. Water used in mixing shall be clean and free from injurious amounts of oil, salts or other deleterious substances and shall not contain more than 1000 parts per million of chlorides.
- c. The fine aggregates shall consist of clean, durable particles of natural sand and shall conform to the requirements of ASTM C33-03.
- d. The coarse aggregates shall consist of clean, crushed stone or gravel and shall conform to the requirements of ASTM C33-03.

ASTM No. 57 (Max. Size = 1 inches) shall be used where clearances permit including in walls greater than 8 inches thick and slabs greater than 5 inches thick.

ASTM No. 67 (Max. Size = 3/4 inches) shall be used when minimum clear spacing between individual reinforcing bars is less than 1½ inches.

- e. Fly ash or natural pozzolans shall comply with the requirements of ASTM C618-05, Class C. Fly ash may be used as a partial replacement for Type 1 cement, not exceeding, 20 percent by cementations weight. Substitution shall be made at the rate of one pound of fly ash for each pound of cement replaced. Mixtures with fly ash shall meet the same requirements as mixtures without fly ash.
- f. Admixtures

(1) Chemical admixtures may be used if approved by the Engineer and RWU personnel and must conform to the requirements of ASTM C494M-05a.

**CONCRETE MATERIAL**  
**04-07 SPECIFICATIONS**

(2) Air entraining agent, when specified, shall comply with the requirements of ASTM C260-01 and shall be approved by the Engineer and RWU personnel.

(3) Retarding agent or accelerating agent may be used when the Contactor requests permission of its use and approved by the Engineer and RWU personnel. The retarding agent shall be a Type B or Type D admixture as defined in ASTM C494M-05a and the accelerating agent shall be a Type C admixture as defined in ASTM C494M-05a.

When air entrained concrete is specified, the air entraining agent and the retarding or accelerating agent shall be so incorporated that the air content of the concrete shall fall within the percentage range stipulated in these specifications.

(4) The use of other admixtures conforming to the requirements of ASTM C494M-05a may be used if approved by the Engineer and RWU personnel and if used in strict accordance with the manufacturer's recommendations.

g. The concrete shall meet the requirements of ASTM C94-05 and all concrete and/or grout shall be plant batched and transit mix.

3. **CLASSIFICATION AND PROPORTIONS**

The concrete/grout shall be classified as provided below. The strengths for each classification shall be the minimum 28 days compression strength for that class of concrete/grout.

Class	Minimum Compressive Strength @ 28 Days	Minimum Cement Factor (lb/CY)	Maximum Water/Cement Ratio (lb/lb)	Slump Range* (inch)	Air. Content (%)
A (Concrete)	3,000	470	0.58	1-4	NR
B (Concrete)	3,000	470	0.50	1-4	4.0-7.0
C (Concrete)	4,000	564	0.48	1-4	4.0-7.0
D (Grout)	2,000	600	0.58	NA	NA

\* When using admixtures to increase slump, concrete shall have a slump of 4 inches +/- 1 inch before the admixture is added and a maximum slump of 8 inches at the point of delivery after the admixture is added.

**CONCRETE MATERIAL**  
**04-07 SPECIFICATION**

The usage of each class of concrete/grout are described as follows:

Class A concrete shall be used for pipe thrust blocking.

Class B concrete shall be used in sidewalks, curb and gutter, driveways, swales, valve pads, thrust blocking, [manhole frames](#) and equipment slabs.

Class C concrete shall be used in manholes, wet wells and valve vaults.

Class D grout (pumpable) shall be used to fill the annular space (void area) between the casing pipe and the borehole and the sloped floor of a wet well.

4. **QUALITY ASSURANCE**

The Contractor shall submit the mix design from his selected batch plant to the Engineer and RWU personnel for review of compliance with this specification. The submitted mix design shall consist of the weights of all components of the proposed mix (water and admixtures may be measured by volume) and the certified test results for compression strength.