



## HYDRAULIC CEMENT GROUTS

### GENERAL

Acceptance of hydraulic cement grouts will be on the basis of approved brands and satisfactory certifications. These materials are approved for use when the plans or specifications permit their use for grouting purposes. Brand names must be identifiable on the containers. Approved brands are listed in Appendices A and B.

### ACCEPTANCE

Prior to being placed on the list of approved brands, one or more products per manufacturer will be evaluated by the Office of Materials. The evaluation will consist of testing the grout for strength, time of set, durability, consistency and shrinkage. Approval of products shall consist of the following:

#### Appendix A:

##### Pull-out Test

Bond size No. 6 (20 metric) reinforcing bar in a 4 in. (100 mm) deep, 2 in. (50 mm) diameter hole in concrete. A 9000 lb. (40 kN) minimum load is required after the grouting material has cured for seven days.

#### Appendix A & B:

<u>Compressive Strength</u>	ASTM C-109	
Plastic State	1 day	3000 psi (20.7 MPa)
	7 days	5000 psi (34.5 MPa)
High Flow State	1 day	800 psi (5.5 MPa)
	7 days	3000 psi (20.7 MPa)
<u>Time of Set</u>	ASTM C-266	
Initial	Not more than one hour	
Final	30 minutes (Minimum)	

Shrinkage

Plastic State	ASTM C-827	In plastic state, the grout must not shrink (0) and the grout must not expand by more than 2%.
Hardened State	ASTM C157	0.20% Maximum

Consistency

Plastic State	ASTM C-109	110 ± 5%
High Flow State	IM 375	20 ± 5 seconds

**CERTIFICATION**

The manufacturer shall file a certification with the Office of Materials at the beginning of each calendar year stating that the material supplied during that year is identical with the formulation previously tested and approved by the Office of Materials.

**MONITOR SAMPLING & TESTING**

The Office of Materials may sample and test hydraulic cement grouts to verify their capability of meeting the approval requirements.