A. Non-shrink cementitious grout shall be a flowable, pre-packaged, cement-based grout requiring only the addition of potable water. The grout shall not contain metallic aggregate, expansive cement, or gas generating additives such as aluminum powder. The grout shall contain an air release aggregate to generate positive expansion.

B. The manufacturer shall be ISO 9001 certified and have a minimum of 25 year's experience in the manufacture of non-shrink cementitious grouts. The manufacturer shall offer technical services and provide a representative at the jobsite upon request with sufficient notice (5 working days).

C. The grout material shall meet all the following typical performance criteria when cured at 70°F (21°C): [1]

1.	**Compressive Strength,** ASTM C942 (C109 Restrained)	
	1 Day	5,500 psi (37.9 MPa)
	7 Days	9,500 psi (65.5 MPa)
	28 Days	13,000 psi (89.6 MPa)
2.	**Early Height Change,** ASTM C827	0.0 - 4.0%
3.	**Hardened Height Change,** ASTM C1090	0.0 - 0.3%
4.	**Effective Bearing Area (EBA)**	95%
5.	**Bond Strength,** ASTM C882, 28 days	2,000 psi (13.8 MPa)
7.	**Working Time**	60 minutes
8.	**Neat Placement Depth**	1 inch – 6 inches (25 mm – 150 mm)
9.	**Application Temperature**	40°F - 95°F (4°C - 35°C)
10.	Meet performance requirements of ASTM C1107-02, Grades A, B and C; ASTM C1107/C1107M-20; CRD-C 621-93	

An acceptable product which meets these criteria is: **Five Star® High Strength 130 Grout** as manufactured by Five Star Products, Inc., Shelton, CT [203-336-7900].

D. The grout shall be installed in accordance with the grout manufacturer's installation instructions. Any deviations to the grout manufacturer's handling, mixing, and/or installation instructions that are required shall be approved in advance by the project engineer and/or the project manager.

[1] *The data shown above reflect typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result in the field. Test methods are modified where applicable.*