



TECHNICAL BULLETIN 105
Aggregate Extension Guidelines
Cementitious Grouting

AGGREGATE EXTENSION GUIDELINES - CEMENTITIOUS GROUTING

Normal setting Five Star® cement based grouts such as Five Star® Grout, Five Star® Fluid Grout 100*, Five Star® High Strength Grout and Five Star® Special Grouts 110, 120, 150, and 550 may be placed up to 6 inches (150 mm) in depth neat without coarse aggregate extension.

For placement depths exceeding 6 inches (150 mm) with these products, the grout should be extended with a clean, washed coarse aggregate or pea gravel meeting the requirements of ASTM C 33. When mixing grout in a mortar mixer, coarse aggregate should be added after initial mixing of 3-4 minutes. Mix until coarse aggregate is uniformly and completely wetted with grout.

For mixes using a concrete mixer (rotating drum mixer) add water and coarse aggregate to mixer first with mixer running followed by grout. Concrete mixers are only acceptable when extending grout with coarse aggregate.

Depth of Pour	% By Weight Aggregate Extension (per 50 lb (22.7 kg) bag of grout)	Actual Weight Aggregate Extension (per 50 lb (22.7 kg) bag of grout)
Up to 6 inches (150 mm)	0%	0 lbs/kg
6 to 9 Inches (150 - 225 mm)	35% to 50%	17.5 to 25 lbs (7.9 - 11.3 kg)
9 to 12 inches (225 - 300 mm)	50% to 60%	25 to 30 lbs (11.3 - 13.6 kg)
12 to 18 inches (300 - 450 mm)	60% to 80%	30 to 40 lbs (13.6 - 18.1 kg)
Over 18 inches (over 450 mm)	Contact Five Star Products	

Grout yields will increase with coarse aggregate extension depending upon aggregate size, extension level and specific gravity of aggregate. Typically 50% (by weight) aggregate extension will increase grout yield approximately 30%. Actual yields attained in the field will vary and should be verified where greater accuracy is required.

- Five Star Fluid Grout 100 should only be extended when mixed to less than a fluid consistency (flowable).
- For extension guidance using Five Star HTR Grout and Five Star Instant Grout contact the Five Star Products Engineering & Technical Center at (800) 243-2206

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