SPEC MIX®

04 DIVISION MORTAR

SCG
SELF CONSOLIDATING GROUT

Structurally Sound. Highly Fluid.

SPEC MIX® Self Consolidating Grout (SCG) is a dry preblended grout specifically designed to be highly fluid without segregation of the constituents. SPEC MIX SCG is used to bond together adjacent masonry units, fill bond beams and occupy all areas around steel reinforcement in the cores of the masonry assemblage without mechanical consolidation or reconsolidation, while meeting ASTM C 476 and TMS 402/602 requirements for reinforced masonry construction. SPEC MIX SCG offers significant labor saving opportunities to the masonry contractor while providing enhanced performance over standard grout products and conventional grouting techniques. SPEC MIX SCG provides superior fluidity over conventional core fill grout with increased cohesion while offering excellent resistance to segregation of the fluid grout mix. Masonry cores can be easily and completely filled with no consolidation effort (mechanical vibration), and SPEC MIX SCG produces masonry cores without voids, even around heavily congested reinforcing steel and other obstructions. Using SPEC MIX SCG will ensure high structural integrity of both reinforced and un-reinforced masonry assemblages. Only the addition of water is needed to produce a self consolidating grout with total quality control and consistency in every batch that is ready to use when it is needed.

TYPICAL MATERIALS

PORTLAND CEMENT
POZZOLANIC ADMIXTURES
PERFORMANCE ADMIXTURES
AGGREGATES

FINE (SC-02)
COARSE (SC-03)

6917109

SPEC MIX®

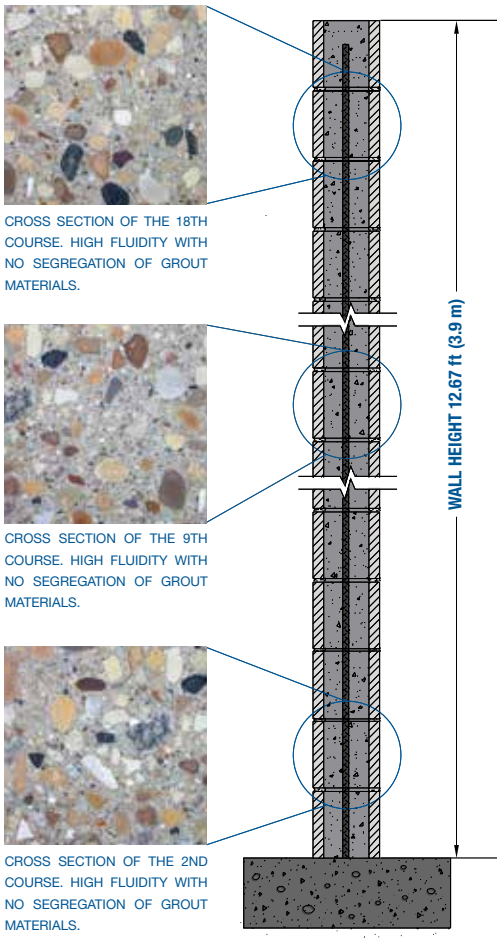
SPEC MIX Self Consolidating Grout (SCG) is designed to completely fill cores in masonry units at a higher rate of flow than standard masonry grout. All the constituents of SPEC MIX SCG are dispersed and suspended evenly throughout the masonry core; therefore, no mechanical consolidation or reconsolidation during or after placement at any lift height is required. Anytime structural reinforcement (core fill grout) is necessary, SPEC MIX SCG can be used to create a high quality structurally reinforced masonry assemblage.

HOW SCG IS PRODUCED

SPEC MIX SCG is a dry, preblended mix containing cementitious materials, special admixtures and dried aggregates formulated for superior fluidity and cohesion that meets compressive strength requirements of reinforced masonry construction in all types of grout applications. SPEC MIX SCG is manufactured with the finest raw materials available in each geographic region. SPEC MIX SCG is available in both coarse and fine formulations. Each mix produces high quality grout providing excellent compressive and shear bond strength, increased adhesion to masonry unit cores and reinforcement steel resulting in a unified structural masonry system. Packaged completely dry, SPEC MIX SCG eliminates the inconsistencies associated with field-proportioned grouts while offering the contractor the flexibility to mix as little or as much grout as required, when needed. The SPEC MIX manufacturing process first extracts the moisture from the aggregate, since wet aggregate directly affects the quality and consistency of core fill grout. The specified mix design is entered into the computer batching system where each of the ingredients is weighed separately. A digital print out displaying proper proportions of each batch may be kept as a permanent record. Next, the product is completely preblended and packaged in the appropriate size bag. SPEC MIX SCG products are designed to meet ASTM C 476 property requirements for core fill self-consolidating grout. SPEC MIX SCG is accepted for all types of masonry construction with submittals available upon request.

HOW SCG IS USED

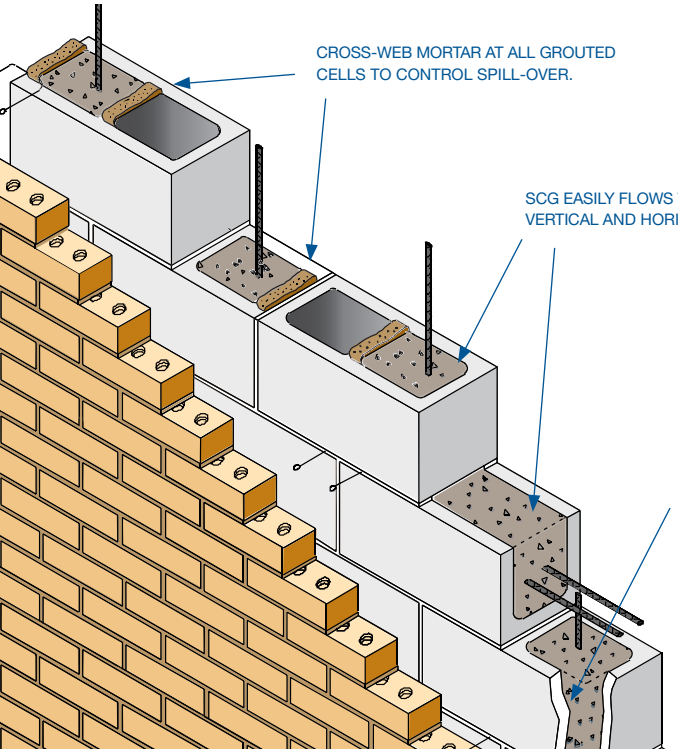
SPEC MIX SCG products are dry, preblended products that are used primarily for grouting masonry cores. Due to the high fluidity of SPEC MIX SCG, cells that are to be filled should be cross-webbed with mortar at the core of the CMU. This will prevent leakage into adjacent cells that do not require core fill grout. Like ordinary grout, SPEC MIX SCG should be installed in accordance with the provisions of the local building code, ICC, MSJC, and The American Concrete Institute's requirements and specifications TMS 402/602.1 Building Code Requirements for Masonry Structures and Specification for Masonry Structures. SPEC MIX SCG may be used in both low-lift and high-lift applications. Special consideration should be used in selecting the type of grout used for a particular application. Always check project specifications and structural notes to ensure proper product selection has been made (See TMS 402/602 Table 1.20.1). SPEC MIX SCG may be placed by hand or or by mechanical delivery. SPEC MIX SCG should be discarded after 30 minutes from the time of initial mixing. SPEC MIX products are custom packaged to project specification. Handle and store products according to SPEC MIX recommendations; they must be kept dry, covered, and protected from weather and other damage.

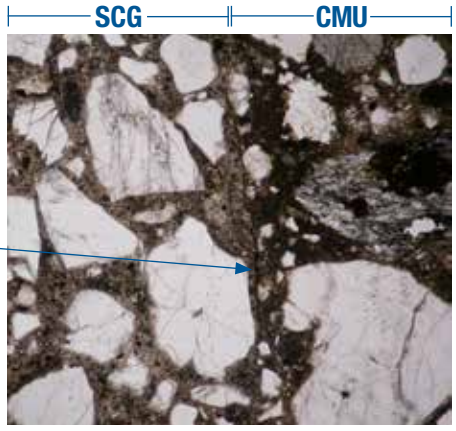


CROSS SECTION OF THE 18TH COURSE. HIGH FLUIDITY WITH NO SEGREGATION OF GROUT MATERIALS.

CROSS SECTION OF THE 9TH COURSE. HIGH FLUIDITY WITH NO SEGREGATION OF GROUT MATERIALS.

CROSS SECTION OF THE 2ND COURSE. HIGH FLUIDITY WITH NO SEGREGATION OF GROUT MATERIALS.





THIN SECTION PHOTOMICROGRAPH: MAGNIFICATION 50X

Engineering Data

Our Engineers focus on superior product performance through constant research and use of advanced technology to develop innovative materials for better masonry wall systems. Following that protocol, SPEC MIX SCG is specifically engineered to create a highly fluid, cohesive, masonry grout. Unlike standard core fill grout, SPEC MIX SCG is a homogeneous product that eliminates the need for mechanical consolidation or reconsolidation because it evenly disperses and suspends the specially graded aggregates in the mix. SPEC MIX SCG is formulated with the newest generation of water reducing and viscosity modifying admixtures to achieve the properties reported below. The aggregate gradations have been optimized to meet ASTM C 404 requirements.

TYPICAL PRODUCT TEST DATA

PROPERTIES	COARSE SCG	FINE SCG
COMPRESSIVE STRENGTH (ASTM C 1019), 28-DAY	3,000 PSI (20.6 MPa) Minimum*	3,000 PSI (20.6 MPa) Minimum*
SLUMP FLOW (ASTM C 1611)	24 to 28 in (610 mm to 710 mm)	24 to 28 in (610 mm to 710 mm)
T_{50}	2 to 5 seconds	2 to 5 seconds
VISUAL STABILITY INDEX (VSI)	0	0

* Mix designs are available with a minimum compressive strength ranging from 3,000 PSI (20.6 MPa) to 5,000 PSI (34.4 MPa). Contact your local SPEC MIX Representative for more information.

GROUT SELECTION & LIFT HEIGHT REQUIREMENTS TMS 402/602 TABLE 1.20.1

GROUT TYPE	MINIMUM WIDTH OF GROUT SPACE, [2,3]	MAXIMUM GROUT POUR HEIGHT ft (m)	MINIMUM GROUT SPACE DIMENSIONS FOR GROUTING CELLS OF HOLLOW UNITS, [3,4]
FINE	¾ in (19.1 mm)	1 ft (0.30 m)	1½ x 2 in (38.1 x 50.8 mm)
FINE	2 in (50.8 mm)	5.33 ft (1.63 m)	2 x 3 in (50.8 x 76.2 mm)
FINE	2½ in (63.5 mm)	12.67 ft (3.86 m)	2½ x 3 in (63.5 x 76.2 mm)
FINE	3 in (76.2 mm)	24 ft (7.32 m)	3 x 3 in (76.2 x 76.2 mm)
COARSE	1½ in (38.1 mm)	1 ft (0.30 m)	1½ x 3 in (38.1 x 76.2 mm)
COARSE	2 in (50.8 mm)	5.33 ft (1.63 m)	2½ x 3 in (63.5 x 76.2 mm)
COARSE	2½ in (63.5 mm)	12.67 ft (3.86 m)	3 x 3 in (76.2 x 76.2 mm)
COARSE	3 in (76.2 mm)	24 ft (7.32 m)	3 x 4 in (76.2 x 102 mm)

1 Fine and coarse grouts are defined in ASTM C 476.

2 For grouting between masonry wythes.

3 Grout space dimension is the clear dimension between any masonry protrusion and shall be increased by the diameters of the horizontal bars within the cross section of the grout space.

4 Area of vertical reinforcement shall not exceed 6 percent of the area of the grout space.

SCG Use Guidelines

GROUT LIFT HEIGHT REQUIREMENTS

MSJC SPECIFICATION FOR MASONRY CONSTRUCTION SECTION 3.5 D GROUT LIFT HEIGHT FOR SELF-CONSOLIDATING GROUT:

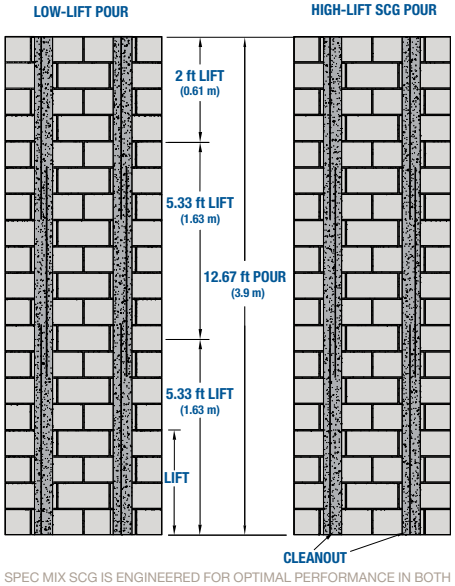
1. WHEN PLACED IN MASONRY THAT HAS CURED FOR AT LEAST 4 HOURS, PLACE IN LIFTS NOT EXCEEDING THE GROUT POUR HEIGHT
2. WHEN PLACED IN MASONRY THAT HAS NOT CURED FOR AT LEAST 4 HOURS, PLACE IN LIFTS NOT EXCEEDING 5 ft 4 in (1.63 m).

MSJC SPECIFICATION FOR MASONRY CONSTRUCTION SECTION 3.5 E CONSOLIDATION

CONVENTIONAL GROUTS NEED TO BE CONSOLIDATED AT THE TIME OF PLACEMENT ACCORDING TO THE FOLLOWING

1. CONSOLIDATE GROUT POURS 12 in (300 mm) OR LESS IN HEIGHT BY MECHANICAL VIBRATION OR BY PUDDLING
2. CONSOLIDATE POURS EXCEEDING 12 in (300 mm) IN HEIGHT BY MECHANICAL VIBRATION, AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.

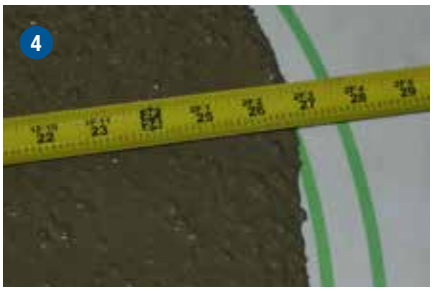
SCG MIXES NEED NOT BE CONSOLIDATED OR RECONSOLIDATED. SEE TABLE AT LEFT FOR GROUT LIFT MAXIMUMS.



SPEC MIX SCG IS ENGINEERED FOR OPTIMAL PERFORMANCE IN BOTH LOW-LIFT AND HIGH-LIFT GROUT POURS.

Field Testing and Handling

Sampling and testing SPEC MIX SCG in accordance with applicable ASTM standards should be performed to ensure that the proper consistency is achieved. Slump flow, T_{50}, and the VSI of the SPEC MIX SCG should be checked first following the instructions indicated below. Casting prisms from the sample should be conducted according to the instructions in the "Casting SCG Prisms" section below. Procedures for curing and testing the specimens for compressive strength should follow ASTM C 1019 specifications as outlined below under "CASTING SPEC MIX SCG PRISMS." On the job site, SPEC MIX SCG should be discarded after 30 minutes from initial mixing to ensure product quality and performance. SPEC MIX SCG must be kept dry, covered, and protected from weather and other damage at all times. Visit www.specmix.com for further information and a video demonstration of testing procedures.



FIELD TESTING FOR SLUMP FLOW, T_{50} & VISUAL STABILITY INDEX (VSI):

Testing the plastic properties of SPEC MIX SGC requires the following tools:

1. **SLUMP CONE**
2. **NON-ABSORPTIVE SCG SLUMP-FLOW TARGET**
3. **TAPE MEASURE**
4. **STOP WATCH OR TIMER (IN SECONDS)**

There are three tests conducted in the field to measure the plastic properties of SPEC MIX SCG:
Slump Flow, T_{50} and Visual Stability Index (VSI).

SLUMP FLOW is the measurement of the fluidity of the grout mix. The slump flow is measured in accordance with ASTM C 1611. It is tested using an upright or inverted slump cone filled with SPEC MIX SCG and then released on a level surface containing the Non-absorptive SCG Slump-Flow Target. The spread (diameter) of the slump flow is measured once it stops moving. SPEC MIX SCG mixtures are specially formulated to produce a cohesive material with a flow of between 24 in to 28 in (610 mm to 710 mm) with no segregation. If the slump flow is not in the 24 in to 28 in (610 mm to 710 mm) range, it is likely that the water or dry SPEC MIX SCG material quantity needs to be adjusted to either increase or reduce fluidity.

T_{50} is the next test which is performed during the slump flow procedure. T_{50} is the time, in seconds, in which the slump flow reaches a diameter of 20 inches (50 cm). The T_{50} measurement is an indicator of the relative viscosity of the SPEC MIX SCG. T_{50} values should be between 2 and 5 seconds. If the T_{50} is not in the 2 to 5 seconds range, it is likely that the water or dry SPEC MIX SCG material quantity needs to be adjusted to either increase or reduce fluidity.

VISUAL STABILITY INDEX (VSI) is an indication of the stability and/or resistance to segregation of the fluid SCG mixture or material. The VSI of fresh SPEC MIX SCG is visually estimated by observing the SPEC MIX SCG for signs of segregation and bleeding. VSI observations can be made during the slump flow test and are recorded as a value between 0 and 3. Segregation can be identified as a halo of paste along the perimeter of the SPEC MIX SCG slump flow sample. Bleed water can be identified by water pooling at the surface or edges of the SCG sample. Correctly mixed SPEC MIX SCG shows a VSI of 0 to 1. If the VSI is above 1, it is likely that the water or dry SPEC MIX SCG material quantity needs to be adjusted to improve stability.

STABLE		UNSTABLE	
VSI - 0	VSI - 1	VSI - 2	VSI - 3
NO BLEED WATER, NO MATERIAL SEGREGATION	SLIGHT BLEED WATER, NO MATERIAL SEGREGATION	SIGNIFICANT BLEED WATER OR MATERIAL SEGREGATION	SIGNIFICANT BLEED WATER PRESENT AND MATERIAL SEGREGATION

CASTING SPEC MIX SCG PRISMS

In comparison to casting normal grout prisms, note the following:

1. **PRIOR TO CASTING THE GROUT PRISMS, THE SLUMP FLOW, T_{50} AND VSI TESTS MUST BE COMPLETED.**
2. **POUR SPEC MIX SCG INTO THE MOLD IN ONE LIFT, NOT MULTIPLE LIFTS.**
3. **SPEC MIX SCG SHOULD NOT BE RODDED IN THE GROUT MOLD.**

IN PHOTOS 1-4, THE SLUMP FLOW TEST IS BEING CONDUCTED IN ACCORDANCE WITH ASTM C 1611 PROCEDURES.
1 FILLING AN INVERTED SLUMP CONE WITH SPEC MIX SCG IN ONE LIFT AND RAISING 6 TO 12 in (150 TO 300 mm). 2 MEASURING THE TIME IT TAKES FOR THE SCG TO REACH 20 in (50 cm) (T_{50}). 3 MEASURING THE DIAMETER OF THE SCG. 4 RECORDING THE FINAL SLUMP FLOW MEASUREMENT AND CHECKING THE VSI. 5 PREPARING THE SCG CMU MOLDS PER ASTM C 1019. NOTE THAT MOLDS ARE BEING FILLED IN A SINGLE LIFT. DO NOT ROD SPECIMENS.

SPEC MIX
SELF CONSOLIDATING GROUT

IS MIXED ON SITE, WHERE AND WHEN IT IS NEEDED. SITE MIXING AND PLACING SPEC MIX SCG CAPTURES THE ADDED BENEFIT OF **"FLUIDITY RETENTION"** — THE SPEC MIX SCG RETAINS ITS HIGH FLOW AND STABILITY CHARACTERISTICS BECAUSE IT IS FRESHLY PLACED IMMEDIATELY AFTER COMPLETION OF MIXING. MIXING SPEC MIX SCG ON SITE WITH THE SPEC MIX SILO SYSTEM ELIMINATES LENGTHY TRANSPORTATION ROUTES AND DELAYS THAT ADVERSELY AFFECT THE PROPERTIES OF ANY SELF CONSOLIDATING MIX. ON SITE USE OF SPEC MIX SCG IN A DRY, PREBLENDED STATE WITH THE WIDE ARRAY OF SPEC MIX SILO DELIVERY SYSTEMS ENSURES THAT EACH AND EVERY GROUT PROJECT **MEETS AND EXCEEDS ENGINEERING SPECIFICATIONS AND CONTRACTOR NEEDS.**

SPEC MIX®

SCG (SELF CONSOLIDATING GROUT)

MIXING INSTRUCTIONS

Mixing SPEC MIX SCG from our silo system with 3,000 lb (1,360.7 kg) and 80 lb (36.2 kg) bags is slightly different compared to standard masonry grout. Since SCG is completely dry, preblended with aggregates and admixtures, the following steps are required:

WEAR IMPERVIOUS GLOVES, such as nitrile.

1. A mechanical batch mixer is strongly recommended. Only hand-mix upon the written approval of the project specifier or engineer.
2. Always use clean, potable water.
3. Start by adding 80 percent of the estimated water content required. The optimal amount of mixing water necessary is predetermined by SPEC MIX's engineers and is available from your local SPEC MIX representative.
4. Add the dry SCG and mix for at least two minutes.
   Note: Due to unique chemistry of the specialized admixtures in SCG, these materials need approximately two minutes to activate.
5. After two minutes of initial mixing and the mix appears fluid and consistent, temper the SCG with water as needed to achieve optimal fluidity without segregation. Total mix times are between 3 to 5 minutes and should be consistent from batch to batch. Water/SCG ratios should also be consistent. Although a visual test of the cementitious paste and aggregates will indicate when a homogenous mix is achieved, it is imperative to perform a slump-flow test, T_{50} test, and a visual stability index (VSI) assessment to ensure the mix is ready for installation. See the Field Testing and Handling section on the previous page which lists the equipment required and procedures to conduct a proper slump-flow test.

Visit www.specmix.com for additional information as well as a video demonstration of mixing procedures.

APPLICABLE STANDARDS: ASTM AND TMS

ASTM C33 STANDARD SPECIFICATION FOR CONCRETE AGGREGATES: ASTM C 150 STANDARD SPECIFICATION FOR PORTLAND CEMENT: ASTM C 260 STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE: ASTM C 404 STANDARD SPECIFICATION FOR AGGREGATES FOR MASONRY GROUT: ASTM C 476 STANDARD SPECIFICATION FOR GROUT FOR MASONRY: ASTM C 595 STANDARD SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS: ASTM C 618 STANDARD SPECIFICATION FOR COAL FLY ASH AND RAW OR CALCINED NATURAL POZZOLAN FOR USE IN CONCRETE: ASTM C 989 STANDARD SPECIFICATION FOR SLAG CEMENT FOR USE IN CONCRETE AND MORTARS: ASTM C 1019 STANDARD TEST METHOD FOR SAMPLING AND TESTING GROUT: ASTM C 1093 STANDARD PRACTICE FOR ACCREDITATION OF TESTING AGENCIES FOR MASONRY: ASTM C1157 STANDARD PERFORMANCE SPECIFICATION FOR HYDRAULIC CEMENT: ASTM C 1314 STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF MASONRY PRISMS: ASTM C 1611 STANDARD TEST METHOD FOR SLUMP FLOW OF SELF-CONSOLIDATING CONCRETE: TMS 402/602 SPECIFICATION FOR MASONRY STRUCTURES

SIZES AND EQUIPMENT

SPEC MIX Self Consolidating Grout is available in 80 lb (36.2 kg) packages for easy hand loading or in 3,000 lb (1,360.7 kg) reusable bulk bags to be used with the various SPEC MIX silo systems. When using the silo system, once the bulk bags of mortar are delivered to the project site, the portable silo is loaded with a jobsite forklift and the product is dispensed into a mechanical batch mixer.

LIMITATIONS

SPEC MIX Self Consolidating Grout should be installed in accordance with the provisions of the local building code and applicable ASTM and TMS standards. Good workmanship coupled with proper detailing and design assures durable, functional, watertight construction.Follow proper cold-weather and hot-weather masonry procedures at temperatures below 40 °F (4 °C) or above 100 °F (38 °C) respectively.

LIMITED WARRANTY

IN THE UNITED STATES

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVISO: Obtenga la GARANTÍA LIMITADA correspondiente en www.specmix.com/product-warranty o envíe una solicitud por escrito a SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

IN CANADA

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVIS: Obtenez la GARANTIE LIMITÉE applicable sur www.specmix.com/produit-garantie. Ou envoyez une demande écrite à SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

How to Specify SCG

SPECIFIED GROUT MUST ACHIEVE COMPRESSIVE STRENGTHS OF AT LEAST 2,000 PSI (13.7 MPa) AT 28 DAYS. WHEN COMPRESSIVE STRENGTH IS SPECIFIED, ADMISSIBLE UNDER ASTM C 476, GROUTS ARE DESIGNED TO ACHIEVE THOSE PROPERTIES. TESTING SHOULD BE CONDUCTED FOLLOWING ASTM C 1019 AND ASTM C 1611 PROCEDURES. THERE ARE GENERALLY TWO TYPES OF GROUT USED IN MASONRY APPLICATIONS: FINE GROUT AND COARSE GROUT. FINE GROUT CONTAINS MAXIMUM SIZED AGGREGATES OF 3/8 in (9.5 mm) WHILE COARSE GROUT CANNOT HAVE AGGREGATES EXCEEDING 1/2 in (13 mm). THE TYPE OF GROUT USED WILL DEPEND ON THE DIMENSIONS OF THE VOIDS BEING FILLED. PLEASE CONSULT LOCAL BUILDING CODES FOR SPECIFIC PROVISIONS AND CONSULT WITH ACI 530-11 TABLE 1.20.1. THE CONTRACTOR ON THE SITE WILL TYPICALLY NEED TO ENSURE THAT THE GROUT IS SUFFICIENTLY FLOWABLE USING THE OUTLINED FIELD TESTING METHODS. ADDING TOO MUCH WATER CAN COMPROMISE COMPRESSIVE STRENGTH BY RAISING THE WATER/CEMENT RATIO OF THE GROUT. SPEC MIX PRODUCTS ARE REGULARLY TESTED TO ENSURE THAT PRODUCT MEETS SPECIFICATIONS.

TECHNICAL SUPPORT

- CONTACT YOUR LOCAL SPEC MIX® MANUFACTURER
- VISIT WWW.SPECMIX.COM
- CONTACT SPEC MIX®
  PHONE: 888-773-2649 FAX: 651-454-5315

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