

SECTION 03317

CONCRETE FLOOR JOINT FILLERS: FREEZER/COOLER ENVIRONMENT

PART 1 – GENERAL

- 1.01 GENERAL DESCRIPTION OF WORK
- A. Provide all labor, products and equipment required to properly install semi-rigid filler in joints in the interior concrete floor slabs.
- 1.02 SCOPE OF WORK
- A. Areas of work include freezers, coolers and ambient temperature areas.
B. Fill all contraction (control) and construction (formed) joints in the interior concrete floor slab where the joints will be exposed to material handling vehicle wheels.
C. Refer to drawings for additional joints possibly requiring filler, such as joints under racks, joints at column diamonds and pads, etc.
- 1.03 RELATED WORK
- A. Division 3, Section 03300 – “Cast-In-Place Concrete”
B. Division 3, Section 03930 – “Concrete Floor Crack and Joint Repair”
C. Division 7, Section 07900 – “Joint Sealants”
- 1.04 APPLICABLE STANDARDS
- A. Products and installation shall be in compliance or exceed the joint filling criteria established in the latest ACI 302 and ACI 360 Committee published documents.
- 1.05 CONTRACTOR QUALIFICATIONS
- A. Installer shall have a minimum of three (3) years experience in the installation of semi-rigid fillers on industrial floors.
B. Use only Metzger/McGuire Approved Applicators for work covered by this section.
C. Approved Applicator shall use tools and equipment specifically designed for the preparation and placement of industrial joint fillers.
- 1.06 SUBMITTALS
- A. Joint Filler Materials: Submit Manufacturer’s data describing joint filler proposed for use on the project.
B. Submit Manufacturer’s Approved Applicator Certificate.

PART 2 – PRODUCTS

- 2.01 CONTROL JOINT FILLER:

- A. Provide semi-rigid, two-part, self-leveling, 100% solids content polyurea control and construction joint fillers intended for each condition listed.
- B. Utilize products with physical properties meeting the following minimum values.

PROPERTY	TEST METHOD	PROPERTY VALUE
Shore A Hardness.....	ASTM D2240.....	88 or greater
Tensile Strength.....	ASTM D638.....	500 psi “
Adhesion to Concrete	ASTM D4541.....	350 psi “
Solids Content.....		100%
Acceptable for use in USDA/FDA regulated facilities		

- C. Products: Subject to compliance with requirements, utilize products manufactured by Metzger/McGuire Co., Concord, NH (800)223-6680.
 - 1. Joint filler for all areas with operating temperatures of 45°F or lower, including freezers to -25°F, shall be **“SPAL-PRO RSF Rapid Set Freezer Polyurea Joint Filler”**.
- D. No joint filler substitutions will be allowed.

2.02 ACCESSORIES

- A. The use of compressible foam backer rod is strictly prohibited in ALL saw-cut control joints less than 2” in depth.
- B. Compressible foam backer rod may be used in through slab construction joints only but MUST be placed at a minimum depth of 2”. No other use of backer rod will be allowed. Refer to installation section and product technical data for additional information.

2.01 DUST FREE PREPARATION EQUIPMENT

- A. Subject to compliance with project requirements, provide equipment manufactured by the following:
 - 1. U.S. Saws
 - 2. Gorilla Concrete Tools
 - 3. Pulman-Ermator
 - 4. Diamatic
 - 5. Husqvarna
 - 7. HTC
 - 8. Perfect-Trac
- B. DUST EXTRACTION SYSTEM FOR GRINDING/SAWING:
 - 1. HEPA filtration vacuum, designed for use with all hand tools when grinding or sawing concrete (minimum 125CFM air flow).
 - 2. Provide one of the following:
 - a. S26/S36, by Pullman-Ermator
 - b. D30/D60, by HTC
 - c. Approved equal

C. JOINT FILLER REMOVAL AND PREPARATION

- 1. Dust Buggy (MKIII or Standard) by U.S. Saws
- 2. GCT-10/X Tank by Gorilla Concrete Tools
- 3. JS-130/JS-100E by U.S. Saws
- 4. Perfect-Trac Saw by Perfect-Trac.
- 5. Approved equal

PART 3 – EXECUTION

3.01 PROJECT CONDITIONS

- A. Work area should be free of obstructions and other trades.
- B. Slab should be visibly dry and all floor scrubbing/washing activities should be suspended at least 48 hours prior to filler installation.

3.02 TIMING OF INSTALLATION

- A. The American Concrete Institute (ACI) recommends that filling be deferred as long as possible to allow for maximum slab shrinkage and joint widening. Deferring filler installation as long as possible will help to minimize the occurrence of joint filler separation due to excessive joint widening during concrete cure (and shrinkage).
- B. For ambient temperatures a 90-120 day slab cure is advisable. Deferring filling until after facility is under permanent temperature control is further recommended.
- C. Refrigerated areas (coolers, freezers) should be filled only after slab has cured a minimum of 60 days and the area is stabilized at final operating temperature for a minimum of five(5)-seven (7)days, with fourteen (14) days preferred for cooler environments (33°F to -45°F).

3.03 EXAMINATION OF CONDITIONS

- A. It is the responsibility of the installer to inspect project and joint conditions and notify on-site management in writing of any deficiencies that might adversely affect the quality or durability of the work performed or his contract price.
- B. Start of work by the installer implies acceptance of conditions.

3.04 PRE-INSTALLATION SAMPLE

- A. Before start of actual work the applicator shall install samples to demonstrate his intended procedures and finished product. Sample shall include at least 25' each of both contraction and construction joints and be performed in the presence of on-site management.
- B. If procedures and finished product are approved they will be considered a standard for the entire project.

3.05 JOINT PREPARATION

- A. Prior to installation of joint fillers, all saw-cut joints shall be thoroughly cleaned to their full original depth. Typically 1 ¼ - 1 ½" in a 6" slab, 2" in an 8" slab. Where the original saw-cut depth exceeds 2", joint preparation and filling must be performed to a minimum depth of 2".
- B. Construction (formed, through slab) joints that are not saw-cut shall be cleaned to a minimum depth of 2".
- C. Preparation shall be performed using a vacuum-equipped saw that will reach the base of the saw-cut joint or to a depth of 2" in the case of through slab construction joints, and shall be used in a manner that takes both joint walls back to bare concrete, removing all saw laitance, curing compounds, sealers, debris, etc. Joint cleaning may be performed using two cleaning passes, one along each side of the joint. Or, if only one cleaning pass is performed, the diamond blade width must be slightly wider than the joint to be cleaned.

- D. Where joints have minor edge chips, said chips shall be “squared off” and filled along with the joint itself.
- E. Keep prepared joints free of dust, moisture, and jobsite debris prior to filling.

3.06 CHOKING-OFF JOINT BOTTOM

- A. The installer may, at his option, use a maximum of 1/4” of silica sand placed at the bottom of the saw-cut joints to prevent filler run-thru into the shrinkage crack.
- B. Compressible backer rod is prohibited in saw-cut joints unless they exceed 2” deep.
- C. Compressible backer rod may be used in through-slab (non-sawn) construction joints but must be recessed at least 2” below the slab surface.

Caution: The use of backer rod in any saw-cut joints less than 2” deep will result in the rejection of all saw-cut joints work.

3.07 JOINT FILLER INSTALLATION

- A. Installation of SPAL-PRO RSF Rapid Set Freezer Polyurea Joint Filler:
 - 1. Pre-mix Part “A” component (polyol) to re-distribute any settlement that may have occurred during shipping or storage.
 - 2. Because of extremely short pot life, Spal-Pro RSF must be dispensed using dual-component power dispensing equipment or through dual-component cartridge units. Pump, reservoir tanks and dispensing wand should be heated for all freezer work.
 - 3. Fill joint in one pass, from bottom to top, slightly overfilling the joint.
 - 4. After Spal-Pro RSF has fully cured, razor off excess to leave a flush filler profile. Timing of the razoring (30 min. to 1 hour typically) can affect flushness; test for shave time that will result in flush shave.
 - 5. If low spots exist or if the finish profile is not flush, abrade the filler surface with a wire brush, wire wheel, or other means and apply an additional cap bead of RSF filler. Allow to cure, and razor flush to the floor surface.
 - 6.

PART 4 -QUALITY ASSURANCE

4.01 JOINT FILLER DEFICIENCIES:

- A. Installer is advised that significant deficiencies in workmanship, including: less than proper filler depth, inadequate joint cleaning, concave filler profile, etc., shall be removed and properly replaced.
- B. Joint filler installed to depths less than specified in this Section shall be removed and replaced at no additional cost to the General Contractor or Owner. As each sector of work is completed the general contractor, using a 1/8” drill bit, shall drill through the filler to verify filler depth. GC shall test drill at an approximate rate of 1 core every 500 lineal feet. Location of core and filler depth found shall be recorded and provided to the owner prior to project completion.

END OF SECTION

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