CONCRETE FLOOR REPAIR/REMODEL SAMPLE SPECIFICATION

LIGHT TRAFFIC RETAIL/COMMERCIAL APPLICATION

METZGER/McGUIRE

Industry Standard Floor Joint Fillers and Concrete Repair Products

P.O. Box 2217
Concord, NH 03302

800-223-6680
www.metzgermcguire.com

JOINT FILLING AND CONCRETE SLAB REPAIR

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide all labor, products and equipment required to properly install semi-rigid filler in joints in the interior concrete floor slabs and low viscosity structural polymer required for narrow crack, surface spall, bolt hole, or defect repair.

Scope of Work

Fill all contraction and construction joints in the interior concrete floor slab where joints have been previously left unfilled.
Joint filler removal and replacement where existing joints have been previously filled and show signs of deficiency.
Repair of all non-moving narrow cracks with low viscosity structural repair polymer, 1/32" – ¼".
Repair of cracks greater than ¼" with rapid setting polyurea joint filler compound.
Repair of surface defects including pop-outs, chips, spalls, and surface pitting.

1.2 SUBMITTALS

Section 01330 - Submittal Procedures: Procedures for Submittals.

Contractor Qualifications

Installer shall have been trained by Metzger/McGuire in performing the types of work covered by this Section and shall have Certified Repair and Remodel certification from Metzger/McGuire.
Use only Metzger/McGuire Approved Applicators for work covered by this section.
Applicator shall use tools and equipment specifically designed for the preparation and placement of industrial joint fillers.

Product data for:

Submit Manufacturer's data describing joint filler proposed for use on the project.
Submit Manufacturer's Approved Applicator Certificate.
All products and primary equipment used for repair of existing concrete slab defects.

1.3 ENVIRONMENTAL REQUIREMENTS

Limit and control damage from excessive dust caused by demolition, preparation, and installation of all Work.
Limit and control damage from moisture.
All replaced concrete shall be cured a minimum of 28 days prior to joint filler installation.
Concrete repair area shall be closed to traffic during preparation and repair for a time as recommended by manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

Subject to compliance with project requirements, provide products as manufactured by the following:

Metzger/McGuire (800) 223-6680.

Polyurea Joint Filler: Rapid setting, two-component polyurea polymer liquid of 100% solids content,

Shore hardness 85-92, compatible with construction materials in contact.
Spal-Pro RS 88, by Metzger/McGuire.
Match color of adjacent exposed concrete slab surface.

Joint Filler Stain Preventing Film: (Where pre-installation test proves necessary)

SPF by Metzger/McGuire.

Low Viscosity Rigid Structural Polyurea/Urethane:

Rapid Refloor, by Metzger/McGuire
Rapid Refloor XP, by Metzger/McGuire.
Match color of adjacent exposed concrete slab surface.

Structural Epoxy Mortar

Armor-Hard Extreme, by Metzger/McGuire

2.2 EQUIPMENT

Subject to compliance with project requirements, provide equipment manufactured by the following:
U.S. Saws, Santa Ana, CA (866) 987-7297
PerfectTrac, Haverill, MA (978) 521-5855
Joe Due Blades & Equipment, Mauston, WI (877)563-3383.

Joint Filler Removal and Preparation
Dust Buggy, by U.S. Saws.
PerfectTrac by PerfecTrac.
Approved equal.

Crack Repair:
5" Dustmizer 007, by Joe Due.
5" Crack Attacker, by Joe Due.
7" Handheld Crack Chaser, by Joe Due.
SawTec 5" Tile Vac, by U.S. Saws.
SawTec 7" Crac-Vac, by U.S.Saws.
Approved equal.

Surface Grinder: Handheld 5"-7" electric surface grinder with dustless shroud/housing.
SASE SC 50 with appropriate grinding/polishing pads from #50 metals to #800 resins
Dust Avenger 5, by Joe Due.
Dust Avenger 7, by Joe Due.
SawTec 5" Grinder Vac, by U.S. Saws.
SawTec 7" Grinder Vac, by U.S. Saws.
Approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

An evaluation of the existing floor slab shall be conducted, identifying all defects. Scope of repairs shall be confirmed by the Owner and Architect of Record prior to commencement of work.

Repairs are not acceptable unless specifically approved on a case-by-case basis by the Owner and/or Architect of Record.

3.2 PREPARATION

Protect surface of slab immediately adjacent to defect under repair.

3.3 JOINT FILLER REPLACEMENT

If joints have been previously filled and existing filler is loose, easily removed, or able to be forced downward with a hand tool, remove all filler material from joint.

Where potential staining from new joint filler application may be objectionable, utilize Metzger/McGuire SPF-P (Stain Preventing Film) following manufacturer installation instructions. Place SPF prior to joint cleanout process commences. An acceptable alternative method is to tape both sides of the joint with painter's tape, etc.

Clean existing joints full depth with a dry-cut, vacuum-equipped saw using a slightly oversized concrete diamond blade. The blade width should be sufficient to encapsulate the widest spall along a given contraction joint segment to produce a sharp corner on each side of the joint with a minimum of two passes through the joint.

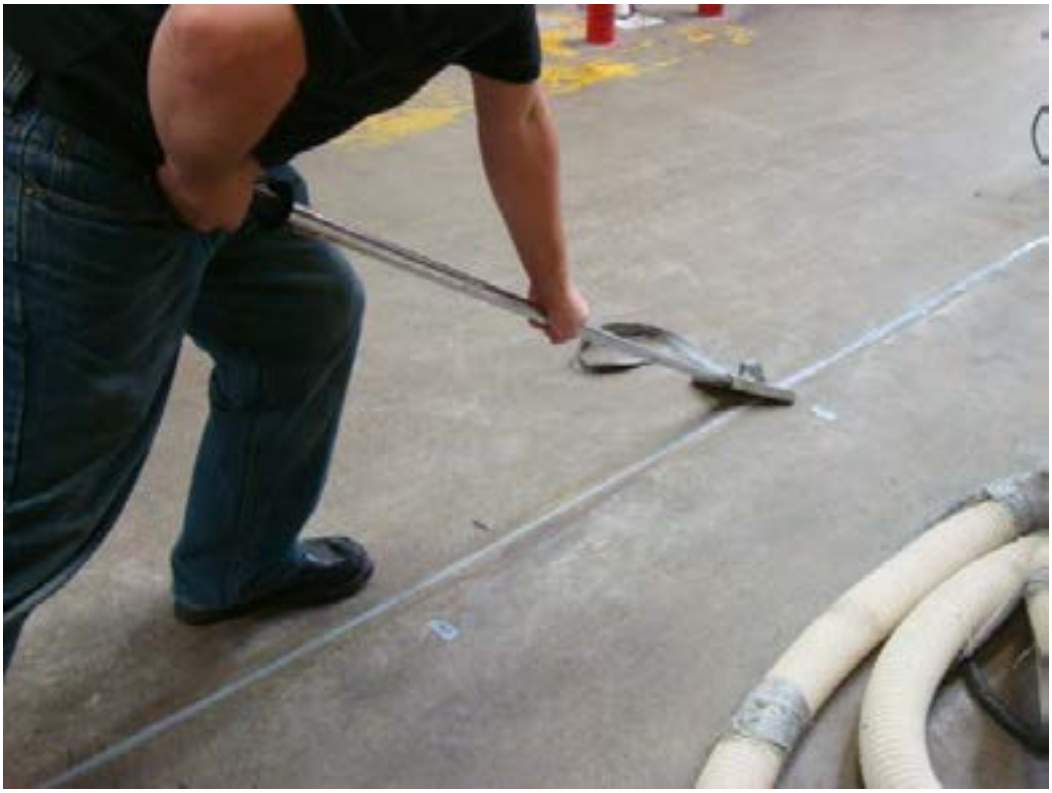
Remove all existing filler material where present. Clean joint of all debris and laitance.

Refill with Spal-Pro RS88 polyurea joint filler per manufacturer's installation guidelines. Fill joints from the bottom up taking care not to entrap large air bubbles. Slightly overfill and shave flush to the slab surface after cure, approximately 1hr – 4hrs after placement

Step 1: Saw out all existing filler to full depth of original joint.
Ensure that no residual filler remains on sides of joint walls or base of joint.

Example of properly cleaned/prepared joint.
All edges should be sharp and clean and joint base should be visible. Joint must be dry.

Step 2: Protect slab surface along joints using removable tape or Metzger/McGuire's SPF-P (stain prevention film). Slightly overfill joint with Spal-Pro RS 88 (color to match adjacent surface). Monitor regularly for seepage and re-apply if needed.



Step 3: After cure razor off excess using razor scraper equipped with disposable blades. Monitor curing to test for optimal shave timing that yields flush material profile-typically between 35 mins. – 2 hours. Blades should be changed often to ensure smooth cutting/profile.

3.4 SPALLED JOINT REPAIR (LESS THAN 1")

For joints that are spalled or have radius tooled edges not exceeding 1" in width at slab surface.

Where potential staining from new joint filler application may be objectionable, utilize Metzger/McGuire SPF-P (Stain Preventing Film) following manufacturer installation instructions.

Re-saw the joint edge to a minimum depth of 3/4" with a dry-cut, vacuum-equipped saw allowing removal of the widest spall along a given joint segment to produce a sharp corner on each side of the joint with a minimum of two passes through joint.

Clean joint of loose concrete, joint filler, laitance, dirt, debris, backer rod, etc.

Joints must be free of all moisture.

Fill joint cavity per manufacturer's instructions, taking care not to entrap large air bubbles. Overfill joint slightly and shave flush to slab surface prior to grinding process. It may be necessary to place a trace layer (1/8"-1/4") of clean dry silica sand at the joint base to prevent material seepage down through the shrinkage crack.

Step 1: Saw cut behind outside of any joint edge spalling to a minimum depth of ¾".

Example of properly cleaned joint. Edges should be clean and crisp.

Step 2: Slightly overfill joint with Spal-Pro RS 88.
Monitor joint for seepage/material loss and re-apply as needed.

Step 3: After cure razor off excess using razor scraper equipped with disposable blades.
Monitor curing to test for optimpal shave timing that yields flush material profile-typically between 35 mins. – 2 hours. Blades should be changed often to ensure smooth cutting/profile.

3.5 SPALLED JOINT REPAIR (GREATER THAN 1") OR LARGE SURFACE REPAIR

For joints that are spalled or have radius tooled edges exceeding 1" in width at slab surface.

Where potential staining from new joint filler application may be objectionable, utilize Metzger/McGuire SPF (Stain Preventing Film) following manufacturer installation instructions.

Saw lines behind the joint edge or surface spall to a minimum depth of 3/4" with a dry-cut, vacuum-equipped saw allowing removal of the widest spall along a given joint segment to produce a sharp corner on each side of the joint repair. Vacuum newly formed channel clean.

If repairing joint, place backer rod or sand in original joint below the newly formed shelf to prevent Armor-Hard from running into existing joint.

Mix and place Armor-Hard Extreme mortar into repair cavity

Trowel Armor-Hard Extreme mortar flush with floor surface.

If repairing joint only:

Snap a chalk line over existing joint

Re-saw cut completely through Armor-Hard Extreme repair to the depth of original joint.

Fill newly created joint with Spal-Pro RS 88

After Spal-Pro RS 88 cures razor off overfill flush with floor surface.

If large surface repair or joint repair, for best match to surrounding polished concrete surface:

For initial grind, use #50 metals

After #50 metals, polish repair using the following resin steps: 100, 200, 400

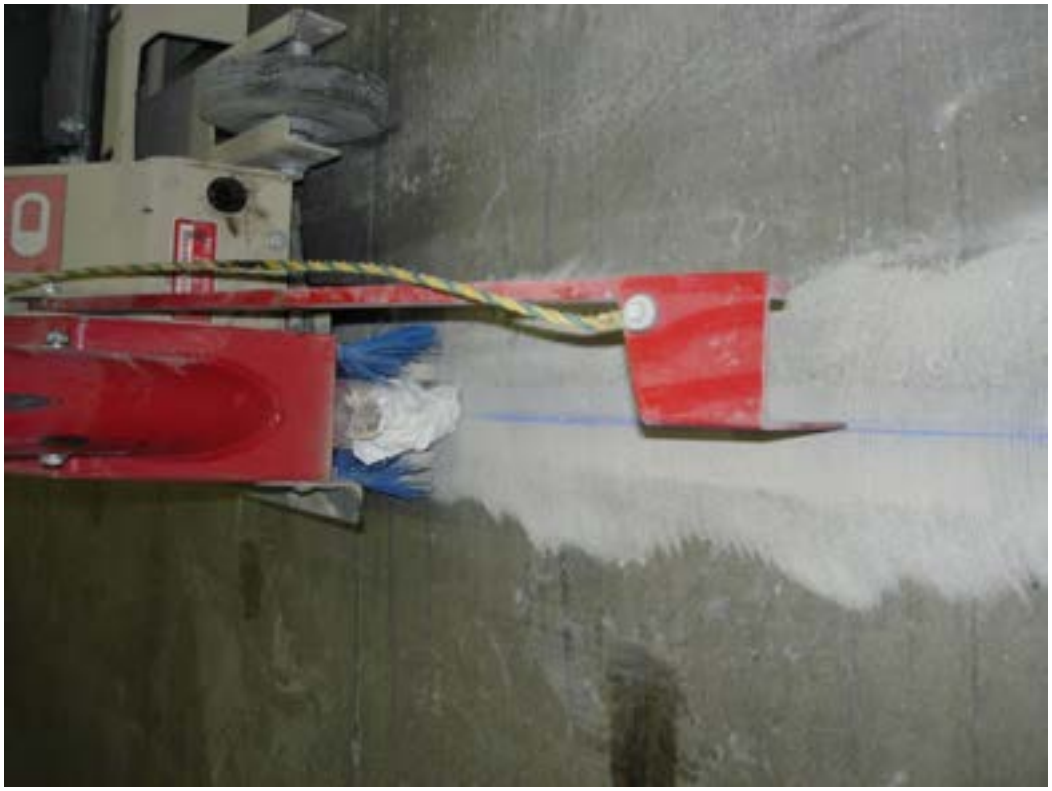
Apply thin coat of lithium densifier (Consolideck LS or Ameripolish 3DHSL), then do final polish with 800 resin disc

Step 1: Saw cut lines behind outside of joint spalling to a nominal depth of ¾"

Step 2: Prime newly cut repair channel with neat liquid Armor Hard Extreme

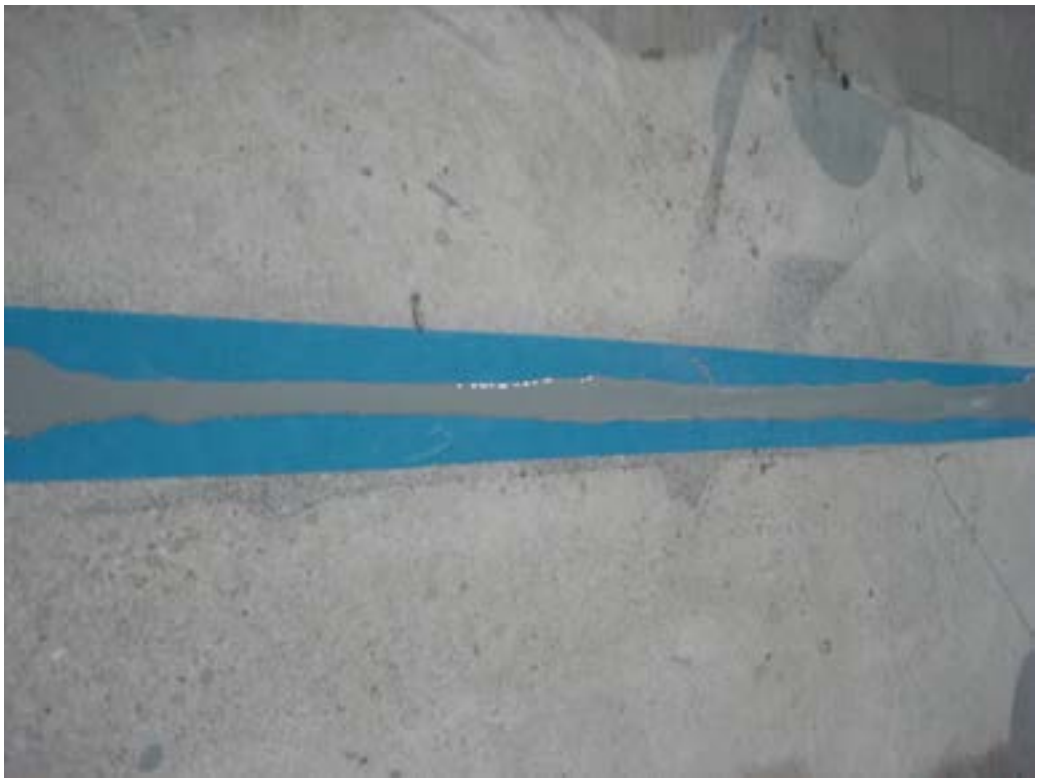
Step 3: Fill channel with Armor Hard Extreme mortar, trowel flush with floor surface

Step 4. Allow mortar to cure into solid (2 hrs plus) and grind flush with floor surface.



Step 5: Snap chalk line over existing joint.

Step 6: Saw cut along chalk line over existing joint. Cut should go completely into original joint.



Step 8: Mask joint edge with tape of SPF-P. Slightly overfill joint with Spal-Pro RS 88.

Step 9: Razor off Spal-Pro RS 88 overfill flush with repair/floor surface.

Example sequence of photos showing additional required steps to best blend repair area to surrounding concrete

3.6 CRACK REPAIR

Cracks from 1/32" to 1/4" in width.

a. Clean crack cavity
b. Remove loose concrete, dirt and debris from crack with a wire brush or hand grinder with wire or Nylalox wheel.
c. Remove any loose segments, including islands formed by crack, with sharp tool.
d. Use methods that will not widen existing crack if possible.
e. Vacuum crack to remove all dirt, debris and other laitance.
f. Mask slab surface along crack as necessary to minimize overfill.
g. Choose material color that closely matches the adjacent floor.
h. Install Rapid Refloor in accordance with manufacturer's instructions.
i. Repeat until all voids are filled and material crowns slab surface.
j. Watch for bubble formation and off gassing as that would indicate that moisture is present in crack cavity and steps will need to be taken to dry area prior to further repairs.
k. Do not allow material to gel before adding additional material.
l. Grind material flush to surface upon full cure, approximately 30 minutes – 1 hour.

Step 1: Chase crack using small grinder equipped with Nyalox or soft wire wheel brush.

Step 2: Vacuum clean, ensuring crack is free of all loose debris and dust.

Step 3: Gradually overfill crack with Rapid Refloor.
Monitor crack for seepage and refill as needed prior to material cure.

Step 4: After material cure (approximately 30 mins. or more) grind overfill flush with floor surface using specified finishing pads.

Cracks from ¼" – ¾" in width

Saw along crack to provide square edge, minimum ½" in depth

Use small hand grinder with maximum 5" diameter blade with dust attachment.

Take care to minimize overall crack width.

Clean crack cavity.

Vacuum crack to remove all dirt, debris and other laitance.

Remove all visible moisture.

Mask slab surface along crack as necessary to minimize overfill or utilize Metzger/McGuire SPF-P (Stain Preventing Film) to prevent residual staining from overfill.

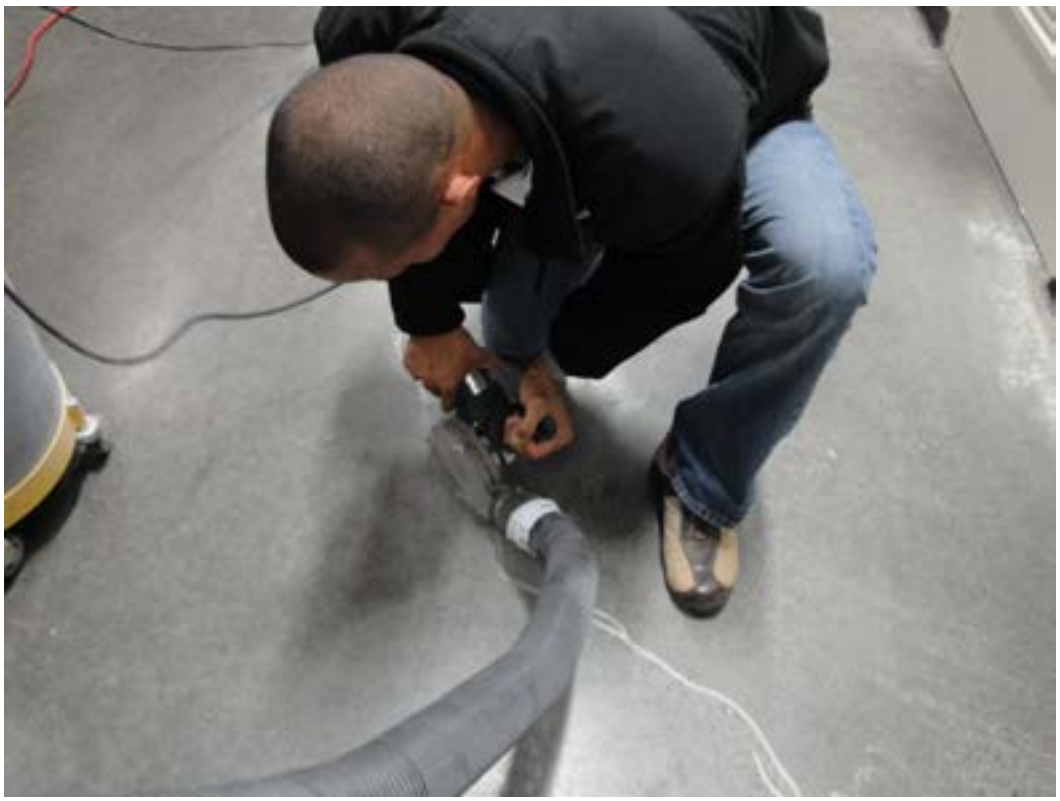
Install Spal-Pro RS 88 rapid set polyurea joint filler per installation instructions.

a. *Wait approximately 35 mins-1 hour, periodically checking for material cure.*
b. *Check condition of material by shaving with razor scraper.*
c. *Check condition of material by shaving with razor scraper.*
d. *Material will shave smooth when cured.*

Proper timing is crucial, typically 1hr to 4hrs after placement

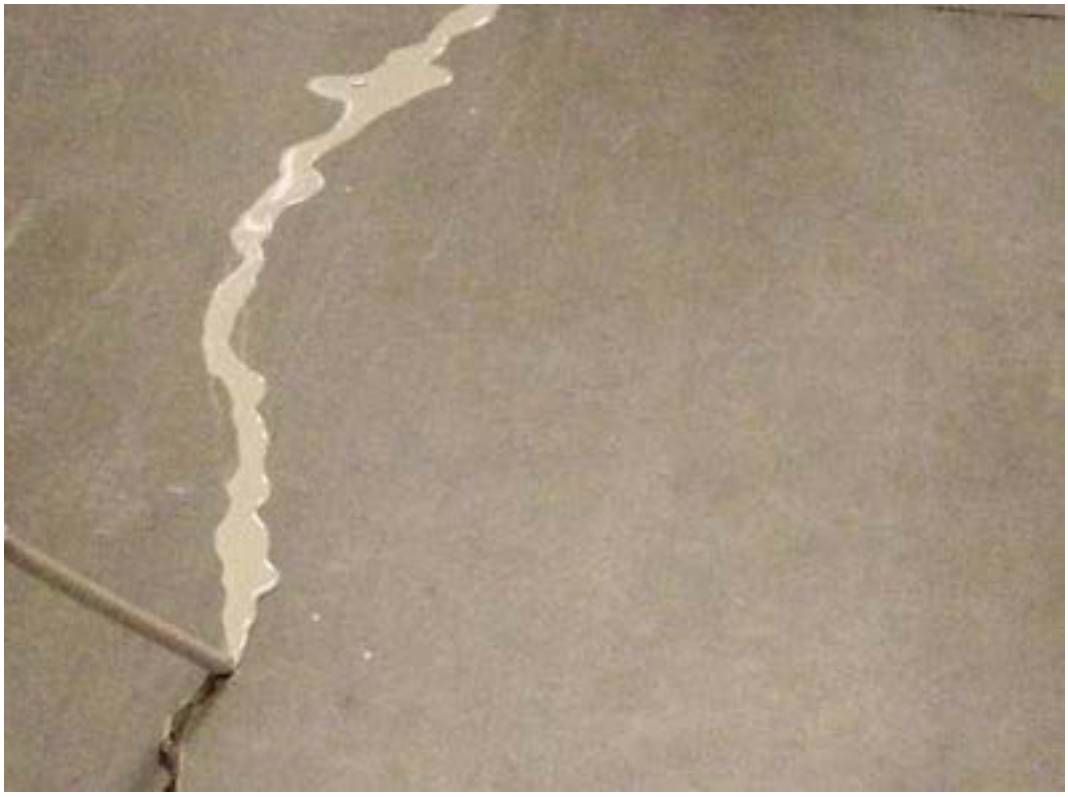
1) Too long and material will be difficult to shave
2) Too soon and material will ravel.

Shave material flush to slab surface per manufacturer's instructions.



Step 1: Chase cracks using vacuum equipped angle grinder with diamond blade to a nominal depth of ½".

Example of properly prepared crack. Edges should be neat and crisp; nominal depth of repair ½" deep.



Step 2: Gradually overfill crack with Spal-Pro RS 88.Monitor for seepage and refill as needed prior to material cure.

Step 3: After Spal-Pro RS 88 cures (approximately 45 minutes minimum) razor off overfill leaving flush filler profile. Monitor various razoring times to find best finished profile.

3.7 SURFACE SPALLING/BOLT HOLE REPAIR – Less than 6" Diamater

a. *Use wire or Nyalox brush to remove all dirt and laitance from spalled surface.*
b. *If bolt is present, cut off or pound down at least ½" below floor surface.*
c. *Mask slab at perimeter of spall with tape or SPF-P if needed.*

d. Fill spalled cavity and finish flush with floor surface.
e. Slightly overfill defect with Rapid Refloor
f. Allow to material to cure into a hard solid (30 mins. or more)
g. Grind Rapid Refloor flush with floor surface using specified finishing pads.

NOTE: Where isolated or localized surface spalling has occurred adjacent to joints, a form material may be needed to temporarily support vertical face of spalled joint edge. Ensure that the repair material will not adhere to the form.

Step 1: Clean defect of all dirt and debris using soft wire or Nyalox wheel.

Step 2: Slightly overfill defect with Rapid Refloor, allow to cure 30 mins or more.

Step 3: Grind off cured material flush with floor surface.

Edge spall repair Step 1: Dam off area around edge spall. Slightly overfill with Rapid Refloor

Step 2: Grind off Rapid Refloor overfill flush with floor surface.

Step 3: Re-saw cut through repair along edge of joint spall repair.

Finished example of joint edge spall repair.

3.8 MULTIPLE SMALL SURFACE PITTING/PIN HOLES

For surfaces consisting of micro-deficiencies, pin holes, hairline cracks and other surface clutter that impedes the achievement of the specified overall gloss values

1. Clean pitted sections with 90-degree angle grinder equipped with wire wheel to remove all dirt/laitance. Wheel should be run over defect in multiple directions to ensure proper cleaning.

2. Vacuum prepared pitted sections and entire floor surface per installation instructions.

3. Install and disperse Rapid Refloor Pit Grout over entire floor surface area and work into the surface using a metal smoother or rigid edged trowel or screeding device.

4. Ensure a thin, uniform layer of repair material covers the pitted areas. Monitor surface for air holes resulting from entrapped air and re-apply as needed. In some cases more than one coat will be required for best results. If two coatsare desired, first coat should be ground off prior to installing

5. Grind or polish flush with metal or resin-bond diamonds, ensuring repair material is flush with slab surface.

6. Repeat repairs in areas as required if repair material pulls out of defects.

7. Per manufacturer's directions, apply required applications of densifier, specified dye and polish smooth to meet specified overall gloss values.

Existing Condition

Cleaning Defects

Spreading and Troweling Down Pit Grout

Fully coated area

Condition After Initial Metal Grind

Finishing with Resin Pad

Condition After Resin Finishing

Finished Condition After Densification

3.9 PROTECTION

Protect surfaces of finished floor. Prohibit traffic until floor repairs have received final approval by Owner.

END OF SECTION