

METZGER/McGUIRE

GUIDE TO BASIC FLOOR REPAIRS

**Basic Repair Guidelines for Common Floor Defects
Including RANDOM CRACKS, SPALLED JOINTS,
GOUGES, JOINT FILLER SEPARATION AND MORE...**



A Note about Metzger/McGuire Floor Joint Protection Systems

For nearly 50 years, Metzger/McGuire has been the industry leader in developing joint protection systems for trafficked concrete floors. Our Heavy Duty Semi-Rigid Epoxy Joint Filler, MM-80, was the industry's first semi-rigid epoxy joint filler and set the standards by which all joint fillers are evaluated today.

Prior to the development of semi-rigid filler concept, the widely accepted joint treatment practice was to "seal" joints with an elastomeric sealant such as a polyurethane. Elastomeric sealants were well suited for preventing the intrusion of moisture and dirt into the joint cavity, but lacked sufficient rigidity to protect the joint edge itself. Over time some contractors and designers recognized the protection limitations of sealants and accordingly some moved instead towards the use of high strength epoxies to provide joint edge protection. Unfortunately, such products often brought their own potential issues, including brittleness and joint restraint.

As a caulking contractor struggling with these imperfect options, Steve Metzger developed a notion that what was really needed was a product that was both "firm and flexible." Steve retained a chemist and began field trials on some of his projects using multiple formulations with varying adhesive, tensile and hardness properties until he found a product with the ideal balance of these properties. The result was a product with a Shore Hardness of A 80 and accordingly he named it MM-80. For the next several years the product was tested and monitored in some of the most demanding floors in the country, showing excellent results. Based on this proven success, in the late 1970's the American Concrete Institute (ACI), the Portland Cement Association (PCA) and other industry organizations began recommending A 80+ semi-rigid fillers as the best known solution to prevent joint edge deterioration. These same standards remain in place today.

Since the creation of our MM-80 Semi-Rigid Joint Filler, many industry changes have occurred which have had a direct impact on semi-rigid fillers. Changes in the material handling industry - to smaller wheels and heavier loading - changes in floor construction techniques such as joint spacing and finishing practices, and changes in construction schedules, including fast track buildings and multi-use spaces, have all lead to the need for continual evolution and innovation in floor joint filler technology.

At Metzger/McGuire, we have always done our best to anticipate, monitor and evaluate change and to adjust our products or develop new ones to meet the industry's ever evolving needs. As a recognized industry leader with a singular focus on joint fillers and joint edge protection, we take our obligation to the industry seriously. Providing "industry standard" products is the foundation of our company. Pairing these products with unequalled technical support, field support and customer service is the only way we know how to do things. Satisfying the building owner's long term floor protection needs is critical to our ongoing success and to ensuring that we remain "Known by the Floors We Protect."

If allowed the opportunity to partner with you on your next concrete floor project, rest assured you can place your confidence and trust in the entire Metzger/McGuire team to do everything in our power to meet or exceed your expectations and to provide you with the best floor joint protection systems the industry has to offer.

Your Partner in Floor Protection,

Scott Metzger

4 CRITICAL STEPS TOWARDS ACHIEVING PERMANENT, DURABLE FLOOR REPAIRS

1. DETERMINE CAUSE(S) OF FLOOR DETERIORATION

Before you begin repairing floor defects, it's important to identify their underlying causes in order to determine the best long-term repair strategy.

Example: Joint spalling may be the result of an improper joint filler installation (i.e. low filler profile or poor joint cleaning prior to filling), the wrong joint filler (i.e. urethane that is too soft to support traffic), or no joint filler at all. These are material problems. Joint spalling could also result from differing slab elevations (slab curl) or rocking slab conditions (subgrade deficiencies or voids). These are structural problems that need to be corrected prior to performing standard joint repair.

2. SELECT APPROPRIATE FLOOR REPAIR MATERIAL(S)

It's important to choose the repair material(s) best suited to meet the requirements of the facility's operations. Considerations may include frequency of traffic, vehicle loading and types, building temperature, time allowed to perform repairs, defect width, etc.

Example: The repair material best suited for repairing a spalled joint may be heavy-duty, semi-rigid epoxy or polyurea or a structural epoxy mortar... depending upon the width of the spalled joint (wider exposures require more rigid products), the access time required (will an epoxy take too long to cure?), structural condition of the floor (are the joints still opening?), is the defect in a freezer/cooler (polyurea is likely best)...

3. PREPARE DEFECT FOR REPAIR MATERIAL

The key to achieving long-lasting repairs is making sure the edges of the defect are defined and the defect is cleaned properly prior to filling with repair material.

Failure to properly clean and prepare a floor defect is probably the #1 cause of ultimate failure. Even the best possible repair material will not function properly if it's placed into a poorly cleaned joint or crack, or if the repair material is "feather-edged" along the outside of the defect. The edges of joints, cracks, and surface spalls all should be at least 1/2" deep vertically, and clean and dry prior to filling, to ensure the long term durability and structural stability of any repair.

4. FINISHED REPAIR SHOULD BE FLUSH WITH FLOOR

The goal in any floor defect repair is to restore a smooth, continuous transition across the floor surface. To achieve a flush profile, repair materials should be placed slightly higher than the floor, then shaved or ground flush with the surface.

The finished profile of any repair should be "flush" with the floor's surface. Simply filling a defect "even" with material generally results in a finished profile that is concave or dished, as repair materials typically settle a bit during cure. Repair materials should always be placed slightly higher than the floor surface and be allowed to cure. Once cured, excess material can be shaved or ground flush with the surface.

(I) = INDUSTRIAL OR HEAVY DUTY APPLICATION
(D) = DECORATIVE OR RETAIL APPLICATION

JOINT FILLER SEPARATION

Minor to Severe

Difficulty Of Repair



Adhesive Separation

Separation less than 1/32" (.75mm) typically requires no correction.

Cohesive Separation

REPAIR MATERIAL OPTIONS

Semi-Rigid Epoxy or Polyurea Joint Filler

MM-80 (I)

MM-80P (I)

Rapid Access

Edge-Pro 90 (I)

Spal-Pro RS-88 (I)

Edge-Pro 80 (D)

Spal-Pro RS-65 (D)

Freezer/Cooler

Spal-Pro 2000 or RSF (I)

TOOLS & EQUIPMENT NEEDED

Preferred:

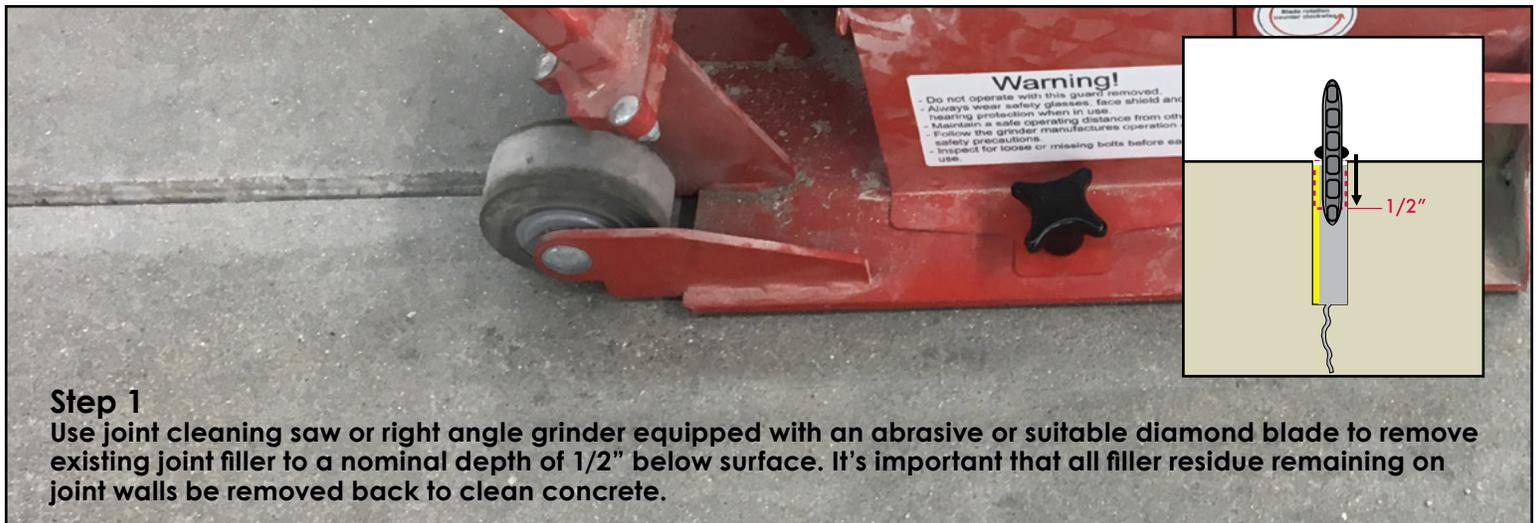
Joint clean-out saw with dustless shroud, Abrasive Blade, Diamond blade, Vacuum system, Razor scraper/heat (**MM-80/MM-80P**)

Minimal:

Right angle grinder, Nyalox wheel, Shop vacuum, Razor scraper/heat (**MM-80/MM-80P**)

OPTION 1 Partial Removal of Existing Filler

Before choosing this option, ensure that existing filler is well bonded structurally to one or both sides of the joint, and exhibits signs of being properly installed originally (i.e. flush with floor, proper depth, etc). If filler is not well bonded or original installation appears deficient, remove filler completely and re-apply with new material.



(I) = Industrial (D) = Decorative

JOINT FILLER SEPARATION

Minor to Severe (Continued)

Difficulty Of Repair



[Click to watch Joint Filler Replacement using Spal-Pro RS-88 or scan →](#)



Step 3

Overfill joint with appropriate semi-rigid filler. Monitor carefully during initial material placement as filler may run through joint bottom and leave filler profile low when cured.

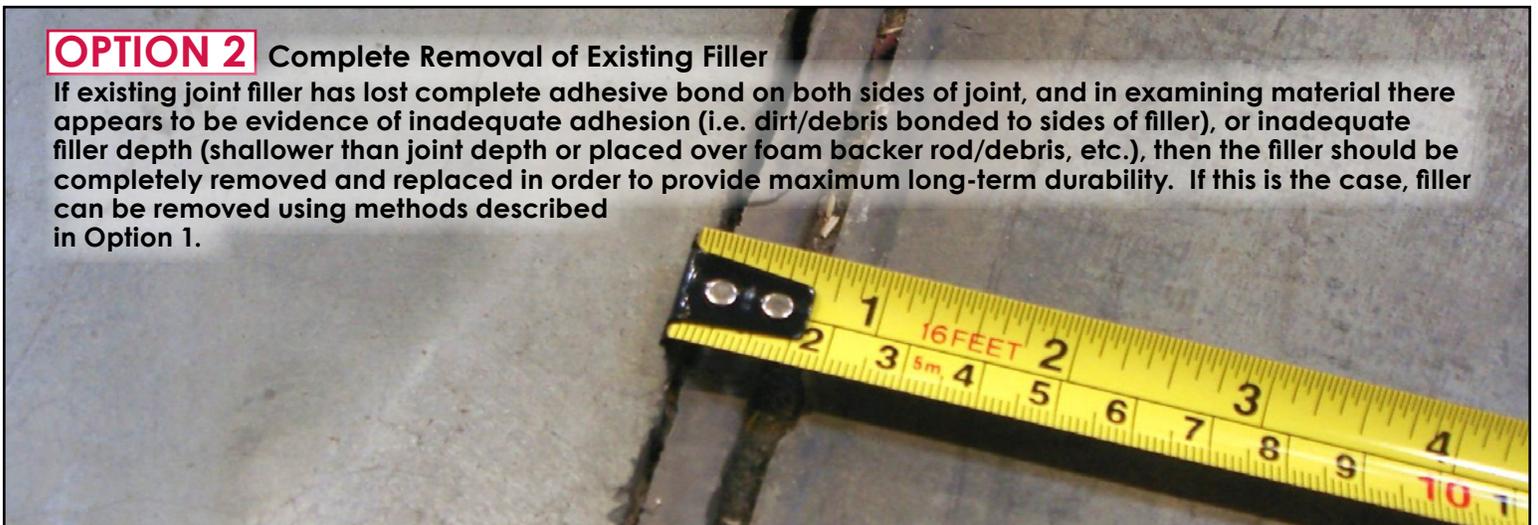


Step 4

Allow filler to cure, then razor flush with floor surface (MM-80/MM-80P heat, then shave).

OPTION 2 Complete Removal of Existing Filler

If existing joint filler has lost complete adhesive bond on both sides of joint, and in examining material there appears to be evidence of inadequate adhesion (i.e. dirt/debris bonded to sides of filler), or inadequate filler depth (shallower than joint depth or placed over foam backer rod/debris, etc.), then the filler should be completely removed and replaced in order to provide maximum long-term durability. If this is the case, filler can be removed using methods described in Option 1.



(I) = Industrial (D) = Decorative

JOINT SPALLING, MINOR

Up to 1" Wide

Difficulty Of Repair



REPAIR MATERIAL OPTIONS

Semi-Rigid Epoxy or Polyurea Joint Filler

MM-80/MM-80P (I)

MM-80 KRP (I)

Rapid Access

Edge-Pro 90 (I)

Spal-Pro RS-88 (I)

Edge-Pro 80 (D)

Spal-Pro RS-65 (D)

Freezer/Cooler

Spal-Pro 2000 or RSF (I)

TOOLS & EQUIPMENT NEEDED

Preferred:

Joint clean-out saw with dustless shroud, Abrasive Blade, Diamond blade, Vacuum system, Razor scraper/heat (**MM-80/MM-80P**)

Minimal:

Right angle grinder, Nyalox wheel, Shop vacuum, Razor scraper/heat (**MM-80/MM-80P**)

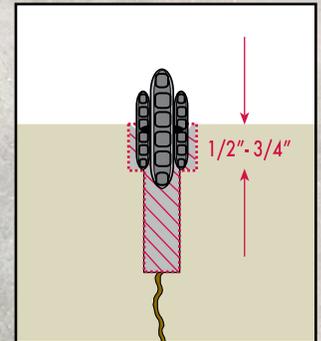
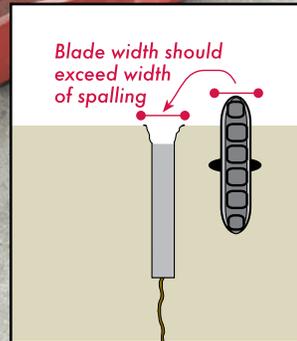
OPTION 1 Semi Rigid Filler (Neat)

The final width of a spalled joint, including the spalls, will determine the best cleaning/re-sawing method required to recreate a proper joint for filling. If spalled joint is narrow, it may be possible to use a single diamond blade to cut a "new" joint to the same depth as the original joint (or 2" minimum).

Step 1

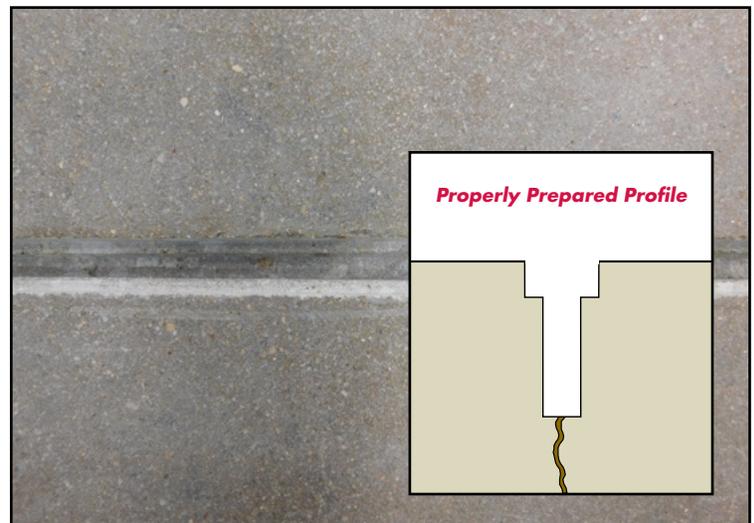
If joint spalling is wider than a single blade width can achieve, consider the use of a series of blades to reach the proper width. If using multiple blades, the center blade should reach the depth of the original joint and the outer blades should achieve a cutting depth of 1/2" - 3/4", creating a "T" shape after cutting.

[Click to watch Minor Spalled Joint Preparation Up to 1" video or scan →](#)



Step 2

Clean out any remaining debris or loose elements. Vacuum thoroughly joints should be dry.



(I) = Industrial (D) = Decorative

JOINT SPALLING, MINOR

Up to 1" Wide (Continued)

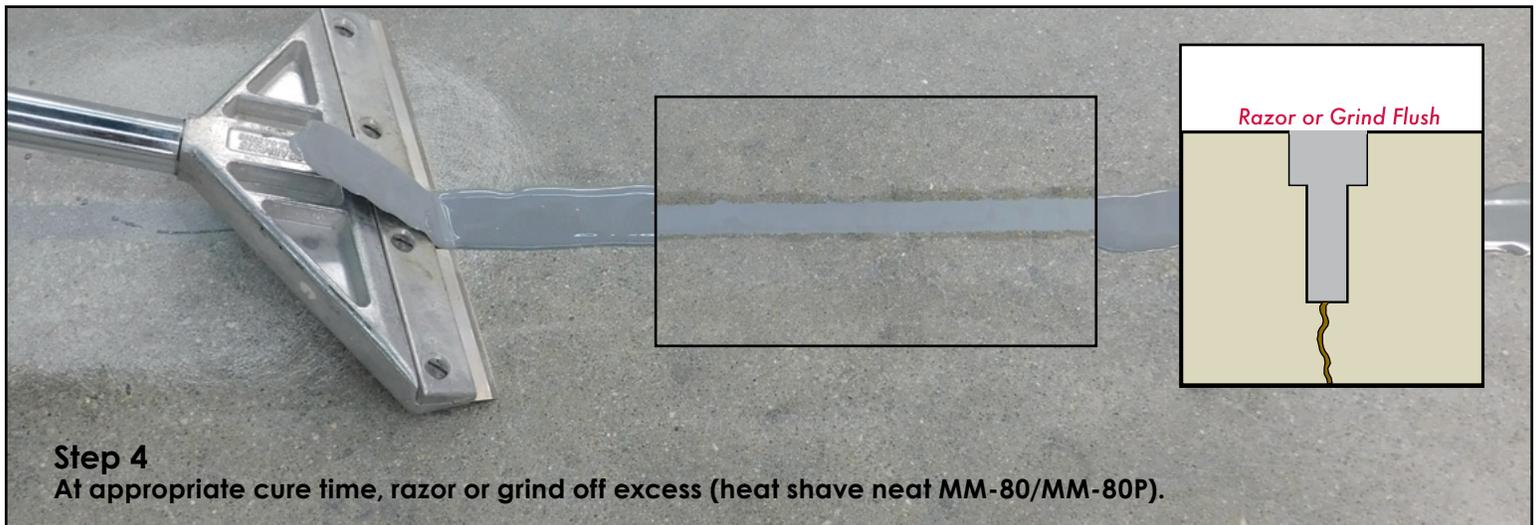
Difficulty Of Repair



[Click to watch RS-88 Cartridge Installation & Finishing video or scan →](#)



Step 3
Slightly overfill cleaned joint with semi rigid filler (several passes may be required) and allow to cure.



Step 4
At appropriate cure time, razor or grind off excess (heat shave neat MM-80/MM-80P).

OPTION 2 (I)
SAND MODIFIED MM-80/MM-80P & MM-80 KRP
(Follow Steps 1 & 2 for joint preparation)



Step 3
If using MM-80/MM-80P and joint width exceeds 1/2", it is preferable to modify the MM-80/MM-80P with silica sand. Most common ratio is 1 part mixed MM-80/MM-80P to 1 part silica, by volume. *MM-80 KRP is a premeasured kit including the silica sand.

(I) = Industrial (D) = Decorative

JOINT SPALLING, MINOR

Up to 1" Wide (Continued)

Difficulty Of Repair



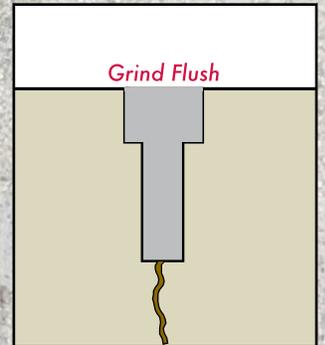
Step 4

After cure grind flush with floor surface. Grinding pad may be a diamond cup wheel, or similar silicon carbide disc.



Step 5

Re-seal/densify slab surface if necessary.



Re-sealed/Densified

(I) = Industrial (D) = Decorative

JOINT SPALLING, MAJOR

Greater than 1"

Difficulty Of Repair



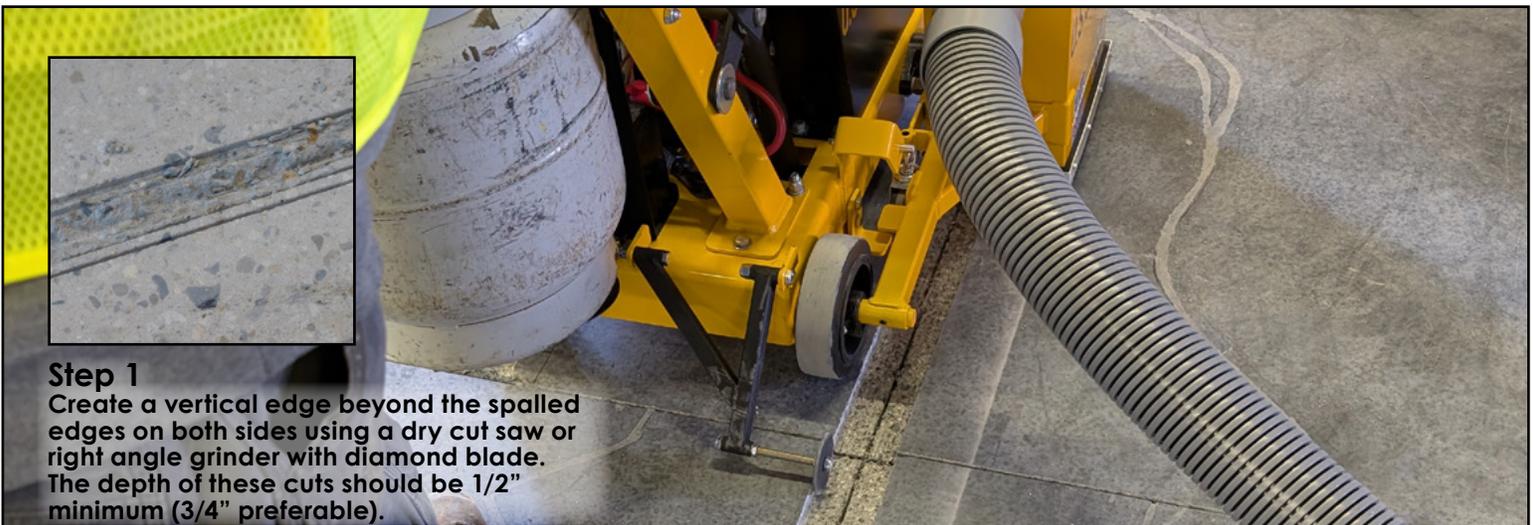
[Click to watch Spalled Joint Repair Preparation Greater Than 1" video or scan →](#)



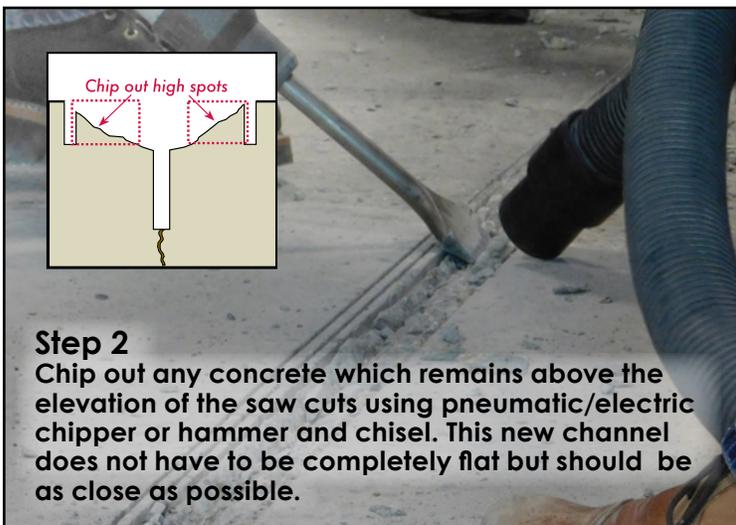
REPAIR MATERIAL OPTIONS	TOOLS & EQUIPMENT NEEDED
<p>Structural Epoxy Mortar Armor-Hard (I) Armor-Hard Extreme (I) Armor-Hard Primer (I)</p> <p>Sand Modified Semi Rigid Epoxy MM-80 KRP (I) MM-80/MM-80P (I)</p> <p>Freezer/Cooler Spal-Pro 2000 or RSF (I)</p>	<p>Preferred: Stand up walk behind dry cut saw with dustless shroud, Diamond blades, Vacuum system, Razor scraper/heat (MM-80/MM-80P), Pneumatic/electric chipper, Diamond cup wheel or similar</p> <p>Minimal: Right angle grinder with dustless shroud, Nyalox wheel, Shop vacuum, Razor scraper/heat (MM-80/MM-80P), hammer/chisel, Diamond cup wheel or similar</p>

OPTION 1 Structural Epoxy Mortar

OPTION 2 MM-80 KRP, Sand Modified MM-80/MM-80P



Step 1
 Create a vertical edge beyond the spalled edges on both sides using a dry cut saw or right angle grinder with diamond blade. The depth of these cuts should be 1/2" minimum (3/4" preferable).



Step 2
 Chip out any concrete which remains above the elevation of the saw cuts using pneumatic/electric chipper or hammer and chisel. This new channel does not have to be completely flat but should be as close as possible.



Step 3
 Vacuum new joint channel clean. Backfill original joint opening with silica sand up to the base of the newly formed channel (Skip silica sand step if doing Option 2).

[Click to watch Armor-Hard Application in Joint Spalling Greater Than 1" video or scan →](#)



(I) = Industrial (D) = Decorative

JOINT SPALLING, MAJOR

Greater than 1" (Continued)

Difficulty Of Repair



OPTION 1 Structural Epoxy Mortar



Step 4

Trowel *Armor-Hard*/*Armor-Hard Extreme* mortar smooth and only slightly higher than edges of the slab panels. Pending how dry of mix is used, priming repair area first with *Armor-Hard Primer* may be required.



Grind Overfill Flush

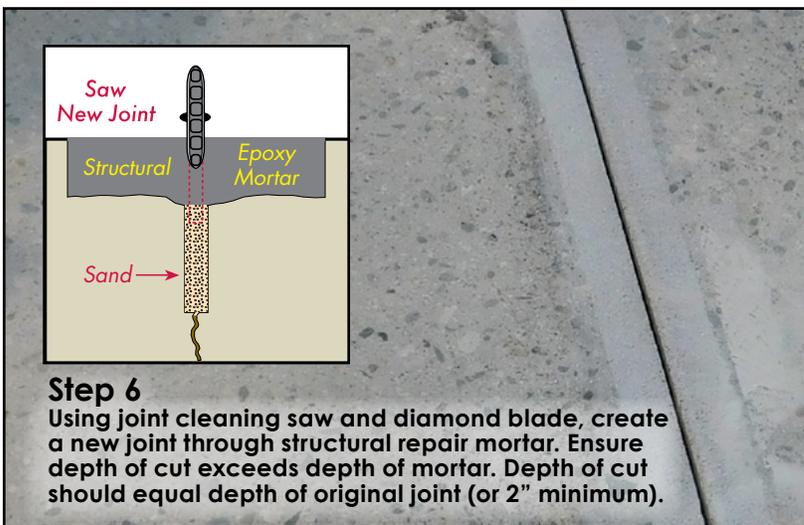
Structural Epoxy Mortar

Sand

Step 5

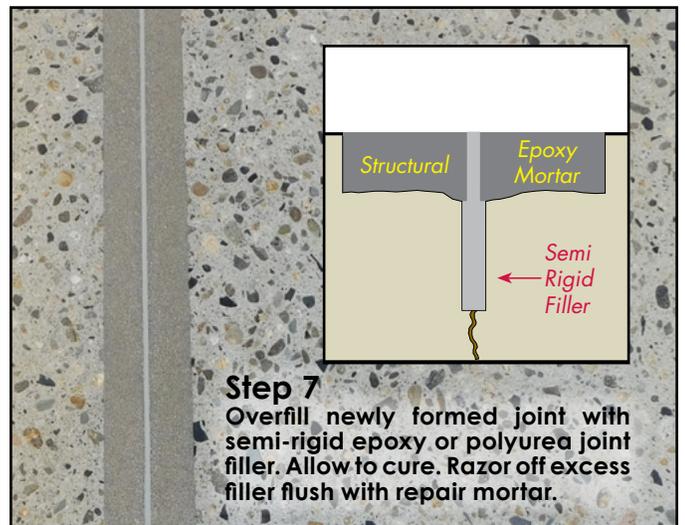
Allow mortar to cure. Grind off overfill until repair surface and edges are flush with both slab panels.

[Click to watch Edge Pro-90 Joint Filling in Armor-Hard Repair video or scan →](#)



Step 6

Using joint cleaning saw and diamond blade, create a new joint through structural repair mortar. Ensure depth of cut exceeds depth of mortar. Depth of cut should equal depth of original joint (or 2" minimum).



Step 7

Overfill newly formed joint with semi-rigid epoxy or polyurea joint filler. Allow to cure. Razor off excess filler flush with repair mortar.

(I) = Industrial (D) = Decorative

JOINT SPALLING, MAJOR

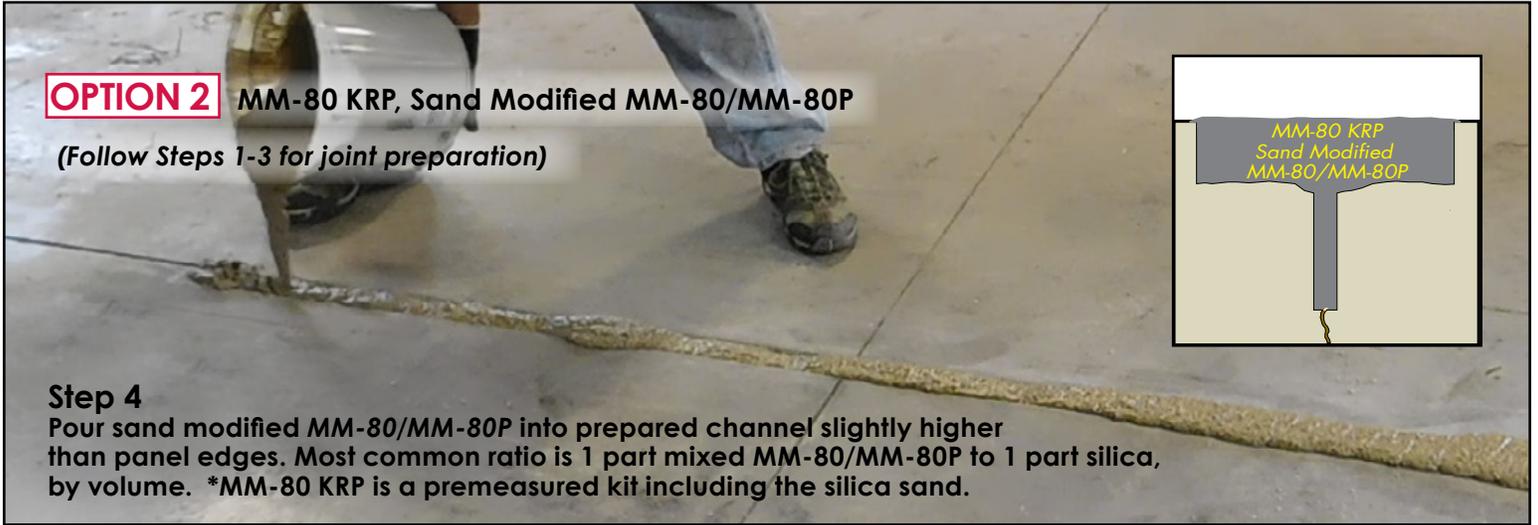
Greater than 1" (Continued)

Difficulty Of Repair



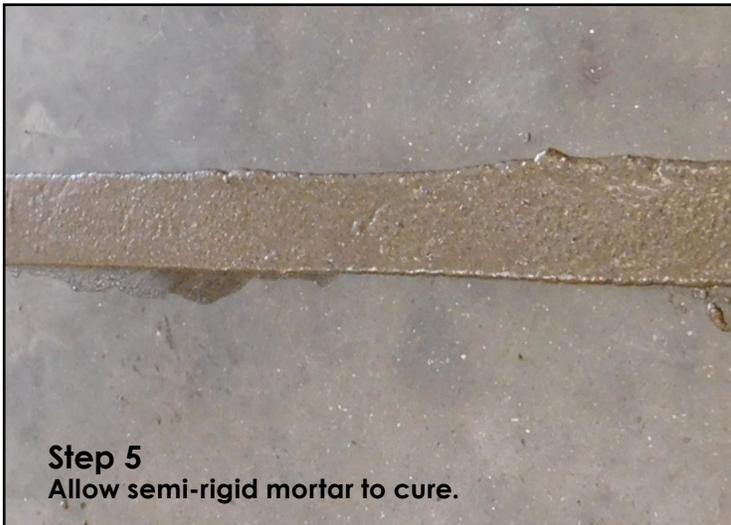
OPTION 2 MM-80 KRP, Sand Modified MM-80/MM-80P

(Follow Steps 1-3 for joint preparation)



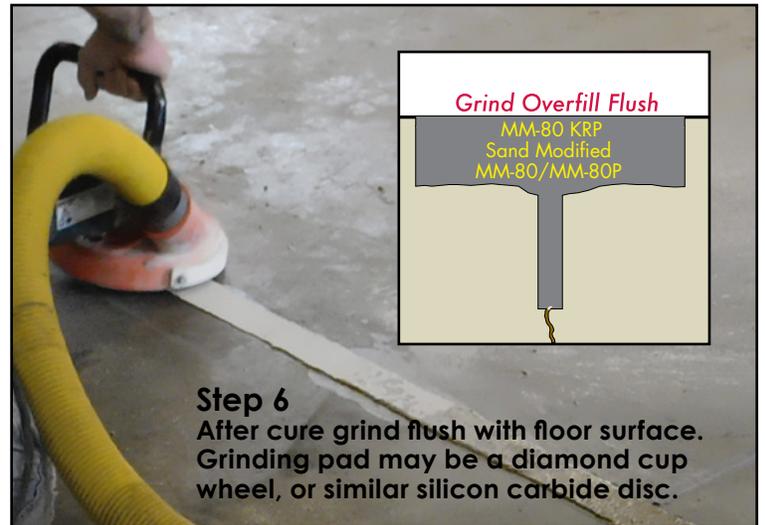
Step 4

Pour sand modified MM-80/MM-80P into prepared channel slightly higher than panel edges. Most common ratio is 1 part mixed MM-80/MM-80P to 1 part silica, by volume. *MM-80 KRP is a premeasured kit including the silica sand.



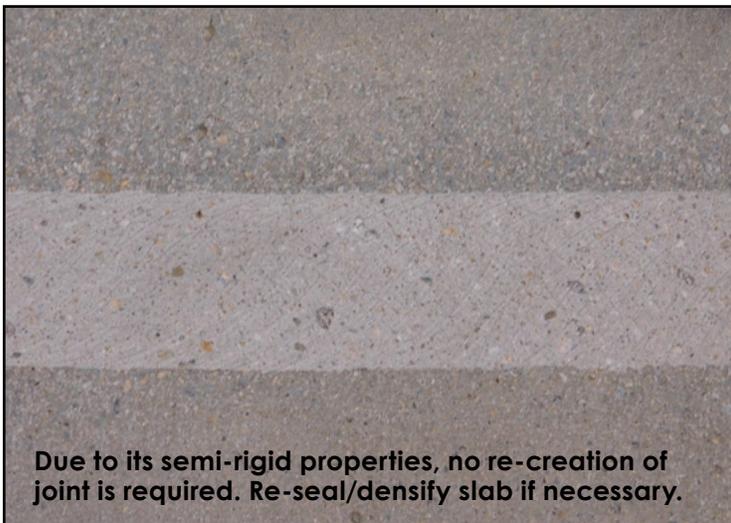
Step 5

Allow semi-rigid mortar to cure.

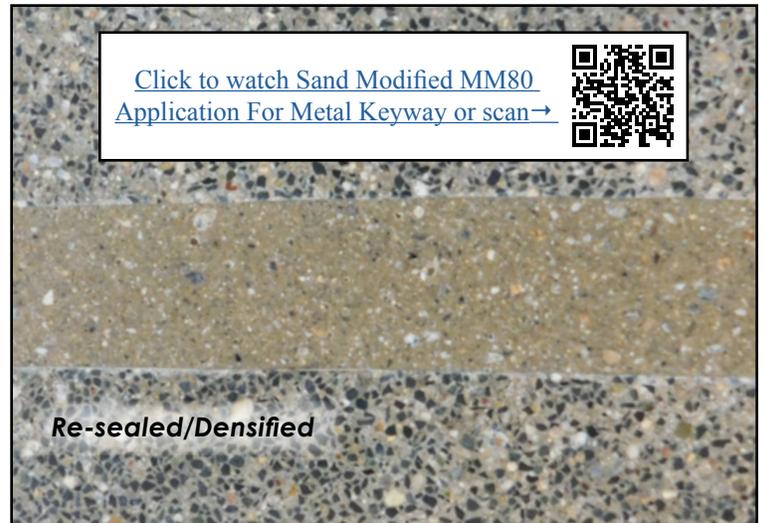


Step 6

After cure grind flush with floor surface. Grinding pad may be a diamond cup wheel, or similar silicon carbide disc.



Due to its semi-rigid properties, no re-creation of joint is required. Re-seal/densify slab if necessary.



[Click to watch Sand Modified MM80 Application For Metal Keyway or scan →](#)



Re-sealed/Densified

(I) = Industrial (D) = Decorative



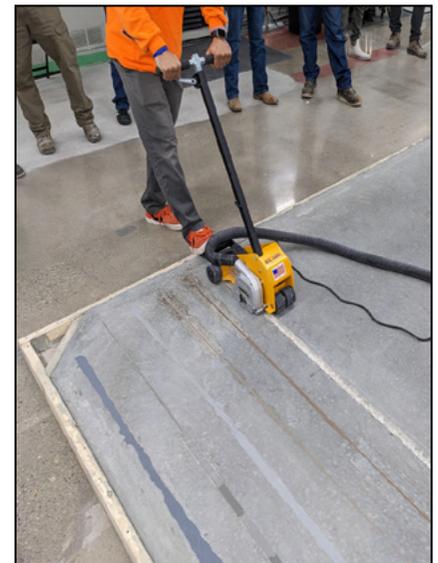
You are cordially invited to attend...

Who should attend Metzger/McGuire Academy?

Installation contractors, concrete polishing contractors, architects/engineers, general contractors, facility owners – basically anyone interested in learning more about the proper preparation and installation of concrete floor joint fillers and repair products both for industrial and stained/polished concrete floors.

Why should you plan to attend Metzger/McGuire Academy?

Metzger/McGuire Academy was established to provide hands-on and classroom training on all aspects of concrete joint filling and repair including optimal use of Metzger/McGuire products, typical jobsite conditions, best practices and equipment for preparing and finishing joints and floor defect repairs and much, much more. During the course many aspects of a typical joint filling or repair project are covered including bidding and planning, handling variable jobsite conditions, troubleshooting concrete floors and more. Whether you are new to the industry, have new personnel to train, or would just like a refresher and exposure to new products or techniques, we guarantee you will leave Metzger/McGuire Academy with new knowledge that can help you improve the efficiency and quality of your concrete joint filling and floor repair work. Metzger/McGuire Academy graduates will receive an Academy certification card and are eligible for any of the individual manufacturer certification cards required by many national specifications to do work on retail and other concrete repair joint filling projects. The number of employees a company has with certification cards can also be an important factor in helping a company achieve **Metzger/McGuire Approved Applicator** or **Approved Repair Contractor Status**.



Visit www.metzgermcguire.com for upcoming Academy dates, for more information and to register.



Class size is limited to 24 attendees to ensure personalized attention and hands on opportunities.

DURING THE ACADEMY YOU WILL LEARN:

- All aspects of floor joint filling in both industrial and stained/polished concrete floors
- All aspects of floor joint repair from the repair of minor edge spalling or routine joint maintenance to complete joint edge rebuilding and joint restoration
- Identification, material selection and repair methods for different types of cracks
- Material selection and repair methods for surface defects like pop-outs, spalls and micro-pitting
- How to identify potential joint or surface problems in new concrete floors
- How to troubleshoot post-installation issues which can result from floor factors beyond the installer's control
- Best equipment options to tackle joint filling and repair operations.
- Proper sequencing of repair and/or joint filling operations on stained/polished concrete floor projects; how to handle these operations after the fact
- How to adjust for project conditions which can adversely impact material finishing
- Proper installation and finishing techniques for Metzger/McGuire materials, including:
 - MM-80 Heavy Duty, Semi-Rigid Epoxy Joint Filler
 - Edge-Pro 90 and Spal-Pro RS 88 Semi-Rigid Polyurea Joint Fillers
 - Edge-Pro 80 Moisture Tolerant Polyurea Joint Filler
 - SPF Stain Prevention Film
 - Spal-Pro 2000 Rapid Set Polyurea Repair Polymer
 - Armor Hard Structural Epoxy Repair Mortar
 - Rapid Refloor/RRXP Concrete Repair Products
 - SRG Surface Refinement Grout and more..



HANDS-ON TRAINING IN THE BEST CONCRETE REPAIR METHODS INCLUDING:

- | | |
|--------------------------------------|------------------------------|
| • Joints | • Random Cracks |
| • Structural Joint Rebuild | • Surface Gouges and Defects |
| • Delamination/Resurfacing and More! | |

RANDOM CRACKS

1/8" Width or Less

Difficulty Of Repair



[Click to watch Random Crack Repair Preparation Up to 1/4" video or scan →](#)



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer
Rapid Refloor (I, D)
Rapid Refloor XP (I, D)
SRG (D)
Freezer/Cooler
Rapid Refloor (I, D)

TOOLS & EQUIPMENT NEEDED

Preferred:
Drill with Nyalox wheel, Medium grit grinding pad, Vacuum
Minimal:
Wire Brush, Vacuum

If crack is approximately 1/8" wide or less and slab cure time is over 1 year, we recommend not to rout the crack wider. If future movement is anticipated, 1/8"-1" crack repair detail may be a better option.



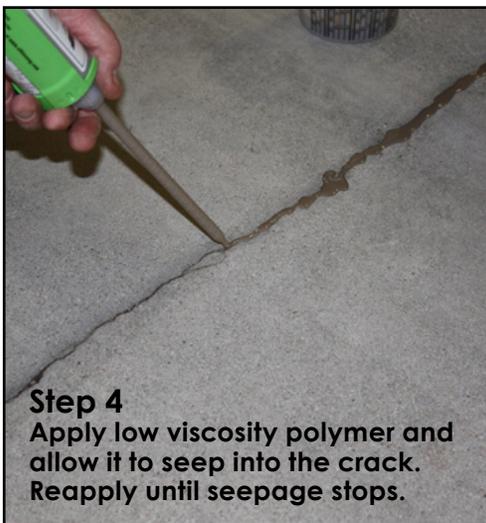
Step 1
Use narrow tool to loosen debris in voids.



Step 2
Use drill with a Nyalox wheel or soft wire wheel to clean crack.



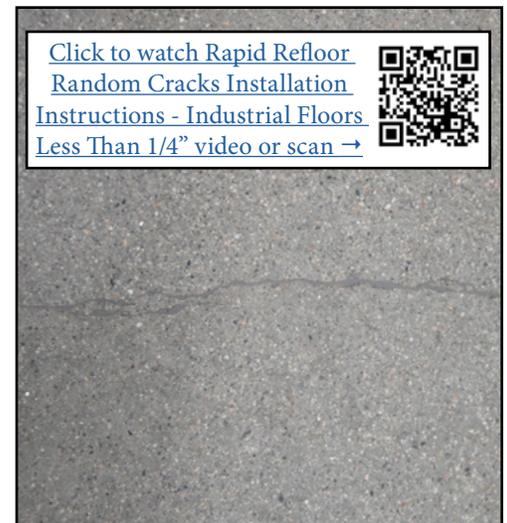
Step 3
Vacuum crack thoroughly. Crack must be dry prior to application of product.



Step 4
Apply low viscosity polymer and allow it to seep into the crack. Reapply until seepage stops.



Step 5
Allow to cure, use medium grit pad to remove excess flush to floor surface.



[Click to watch Rapid Refloor Random Cracks Installation Instructions - Industrial Floors Less Than 1/4" video or scan →](#)



(I) = Industrial (D) = Decorative

RANDOM CRACKS

1/8 - 1" Wide

Difficulty Of Repair



REPAIR MATERIAL OPTIONS

- Semi-Rigid Epoxy or Polyurea Filler**
- MM-80/MM-80P (I)**
(Neat or Sand Modified)
- MM-80 KRP (I)**
- Spal-Pro 2000 (I)**
- Edge-Pro 90 (I)**
- RS-88 (I/D)**
- EP-80 (D)**
- RS-65 (D)**
- Freezer/Cooler**
- Spal-Pro 2000 or RSF (I)**

TOOLS & EQUIPMENT NEEDED

- Preferred:**
Right angle grinder, with dustless shroud, Crack chasing saw, Diamond blades "U" or "V" shaped, Vacuum system, Razor scraper / heat (**MM-80/MM-80P**)
- Minimal:**
Right angle grinder, Diamond blades "U" or "V" shaped, shop vacuum, Razor scraper / heat (**MM-80/MM-80P**)

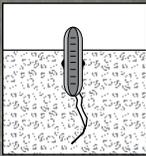
[Click to watch Industrial Random Cracks 1/4" to 1" Preparation video or scan →](#)



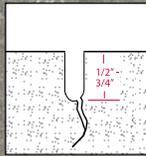
[RS-88 for Retail Cracks 1/4" to 1" Installation Instructions](#)




Step 1
Use a right angle grinder with a diamond "U" or "V" blade to rout out crack to a depth of 1/2" minimum, (3/4" preferred) creating a vertical edge. Be sure that remaining concrete along edge is structurally sound.




Step 2
Clean out any remaining debris or loose elements. Vacuum thoroughly.

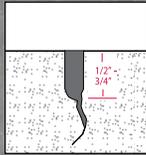
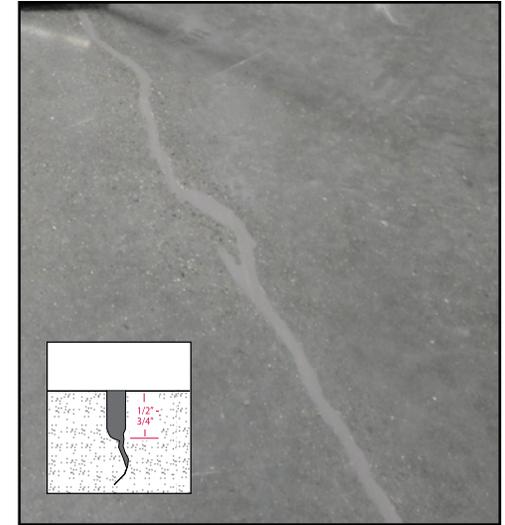




Step 3
Apply joint filler and allow to seep into the crack. Reapply until seepage stops.



Step 4
Allow to cure. Razor off excess. (If using neat MM-80/MM-80P, apply heat prior to shaving). Grind flush if using sand modified MM-80/MM-80P.

(I) = Industrial (D) = Decorative

SURFACE SPALLS/DEFECTS

Less than 6" Unmodified

Difficulty Of Repair



[Click to watch Surface Repair Preparation Less Than 6" video or scan →](#)



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer (Neat)
Rapid Refloor (I, D)
Rapid Refloor XP (D)
SRG (D)

Freezer/Cooler
Rapid Refloor (I, D)

TOOLS & EQUIPMENT NEEDED

Preferred:

Drill with Nyalox or soft wire wheel, Chipping hammer/hammer & chisel, Medium grit grinding pad, Vacuum

Minimal:

Wire brush, Vacuum, Medium grit grinding pad

Note: These repairs do not need to be "squared up" (such as structural epoxy/mortar repair) These products are designed to adhere in a "feathered edge" application.



Step 1

Remove any unsound or loose concrete. Run drill with Nyalox or soft wire wheel over defects twice (in opposite directions). If bolt is present pound/cut down to allow 1/2" material cover.



Step 2

Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry.



Step 3

Slightly overfill defect with repair polymer material and allow to cure.



Step 4

Grind off overfill flush to floor surface with Norton Rapid strip pad or similar medium grit grinding pad.



[Click to watch Rapid Refloor Unmodified in Spalls/Defects Less Than 6" Install Instructions video or scan →](#)



(I) = Industrial (D) = Decorative

SURFACE SPALLS/DEFECTS

Less than 6" Modified



Difficulty Of Repair



[SRG Aggregate Modified 6" Surface Repair Installation Instructions video or scan →](#)



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer
Rapid Refloor (I, D)
Rapid Refloor Pit Grout (I, D)
Rapid Refloor XP (D)
SRG (D)

TOOLS & EQUIPMENT NEEDED

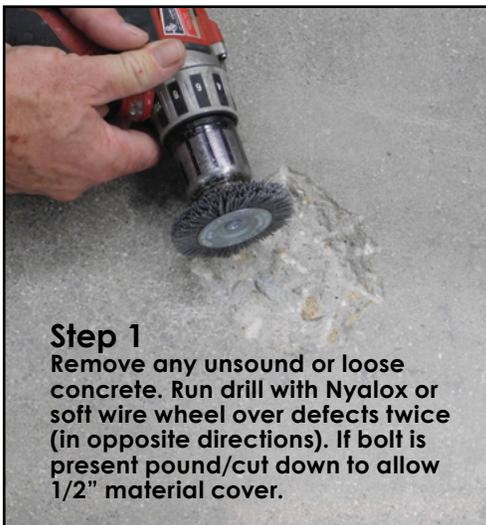
Preferred:

Drill with Nyalox or soft wire wheel, Chipping hammer/hammer & chisel, Vacuum, Diamond cup wheel or similar

Minimal:

Wire brush, Hammer & Chisel, Vacuum, Diamond cup wheel or similar

Note: Polymer modification will depend highly on which product is chosen. Polymers with very rapid initial set times (Rapid Refloor & Rapid Refloor Pit Grout, 1-1^{1/2} minutes) may allow a quick sprinkling/mixing of dry sand/aggregate. Polymers with a slower initial set time (Rapid Refloor XP & SRG, 3-5 minutes) allow for a more customized blend to be added.



Step 1

Remove any unsound or loose concrete. Run drill with Nyalox or soft wire wheel over defects twice (in opposite directions). If bolt is present pound/cut down to allow 1/2" material cover.



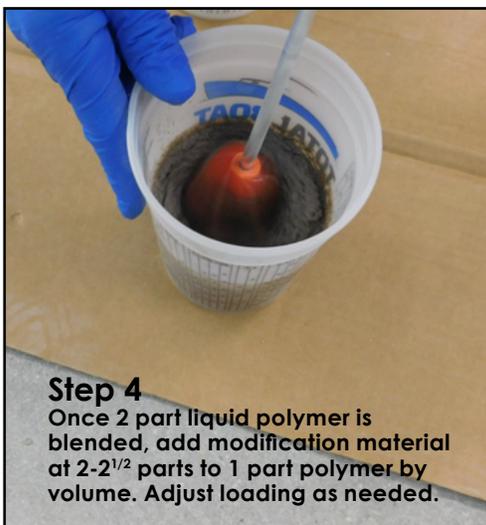
Step 2

Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry.



Step 3

If a dry mix is preferred, pre-prime repair with mixed polymer liquid.



Step 4

Once 2 part liquid polymer is blended, add modification material at 2-2^{1/2} parts to 1 part polymer by volume. Adjust loading as needed.



Step 5

Slightly overfill area with repair material.



Step 6

Trowel smooth, slightly high.

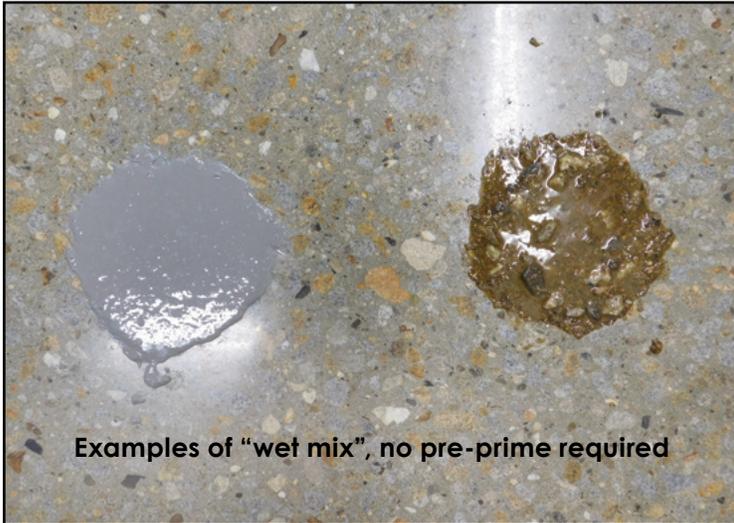
(I) = Industrial (D) = Decorative

SURFACE SPALLS/DEFECTS

Less than 6" Modified



Difficulty Of Repair



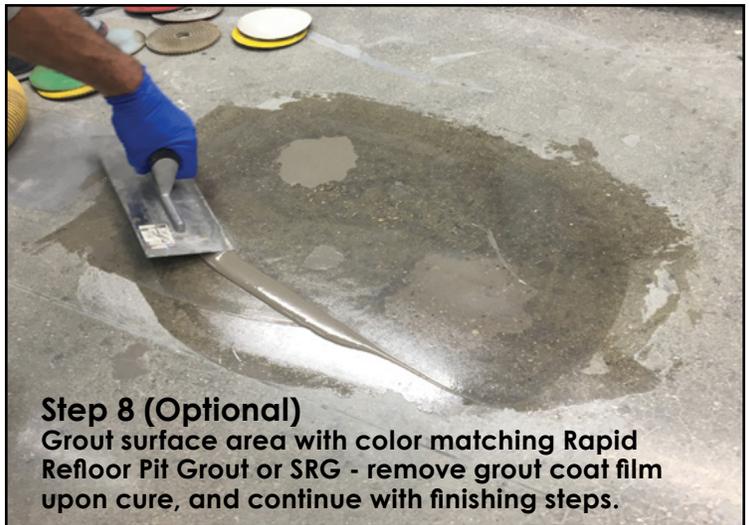
Examples of "wet mix", no pre-prime required



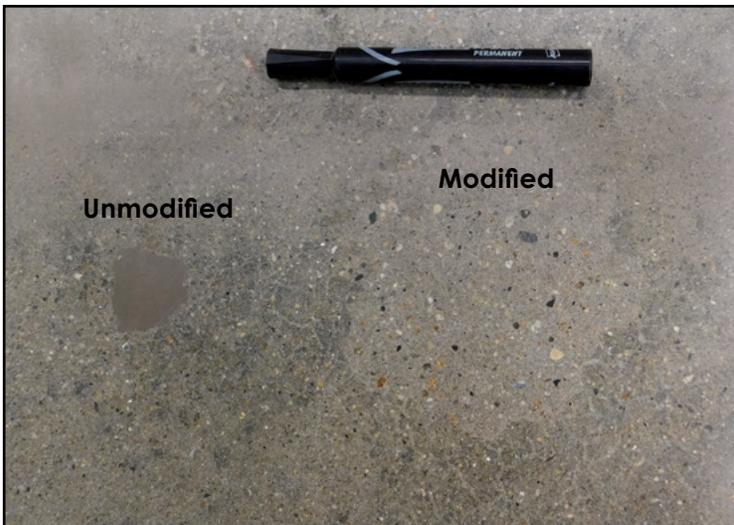
Step 7
Remove overfill to create smooth, flush surface by grinding flush with cup wheel or similar.



If "pin holes" are present at surface, a "grout coat" may be desired.



Step 8 (Optional)
Grout surface area with color matching Rapid Refloor Pit Grout or SRG - remove grout coat film upon cure, and continue with finishing steps.



Unmodified

Modified



Examples of 3 different polymer colors used with the same sand blend.

(I) = Industrial (D) = Decorative

SURFACE SPALLS/DEFECTS

Larger than 6"

Difficulty Of Repair



[Click to watch Surface Preparation Greater Than 6" video or scan →](#)



REPAIR MATERIAL OPTIONS

Structural Epoxy Mortar
Armor-Hard (I)
Armor-Hard Extreme (I)
Armor-Hard Primer (I)

Rapid Access
Rapid Refloor XP (D)
SRG (D)

Freezer/Cooler
Spal-Pro 2000 (I)
Armor-Hard Extreme (I)

TOOLS & EQUIPMENT NEEDED

Preferred:

Right angle grinder with dustless shroud, Diamond blades, Chipping hammer, Diamond cup wheel or similar, Vacuum system

Minimal:

Right angle grinder with dustless shroud, Diamond blades, 3 lb. hammer, Cold chisel, Diamond cup wheel or similar, Shop vacuum

Note: This same process can also be used for defects less than 6" in heavy trafficked floors.



Step 1
Make cuts with blade or chip out section at outer edges of spalling, 1/2" deep (minimum) to 3/4" deep (preferred). Creating a vertical edge.



Step 2
Chip or grind out any high spots above level of cuts.



Step 3
Clean out any remaining debris or loose elements. Vacuum thoroughly. Repair surface must be dry. If a dry mix is preferred, prime repair area with Armor-Hard Primer prior to placement of Armor-Hard/Armor-Hard Extreme.



Step 4
Slightly overfill area with repair material and trowel smooth, slightly high.



Step 5
Remove overfill to create smooth, flush surface by grinding flush with Diamond cup wheel or similar.



Re-seal/surface if necessary

[Click to watch Armor-Hard Kit Surface Repair Greater Than 6" Installation Instructions video or scan →](#)



(I) = Industrial (D) = Decorative

SURFACE REFINEMENT

Difficulty Of Repair



REPAIR MATERIAL OPTIONS

Low Viscosity Structural Repair Polymer
Rapid Refloor Pit Grout (I, D)
SRG (D)

Proper grinding/polishing equipment is necessary for use of these products. Please speak directly to Metzger/McGuire technical support for guidance.

TOOLS & EQUIPMENT NEEDED

Preferred:

Shot blast equipment, Drill with Nyalox or soft wire wheel, Vacuum, Steel trowel (stand up)

Minimal:

Drill with Nyalox or soft wire wheel, vacuum, Hand held steel trowel

Note: When grinding and polishing interior floors there may be small surface imperfections which need to be filled. These imperfections may vary from small air (pin) holes to larger surface deterioration. This system encapsulates surface repairs less than 1/2" in diameter.



Step 1
Perform initial grind on floor up to 70/80 metal step (or similar).
****All steps must be dry****



Step 2
Properly repair any surface defects 1/2" diameter or larger.



Step 3
Thoroughly vacuum slab surface.



Step 4
Apply pre-mixed polymer generously to floor surface and spread with either stand up hard edge tool or hand held steel trowel. Pull material down tightly to the floor surface.



(I) = Industrial (D) = Decorative

SURFACE REFINEMENT

Difficulty Of Repair



Step 5
Allow polymer to cure (approximately 45-60 minutes at 70°F).



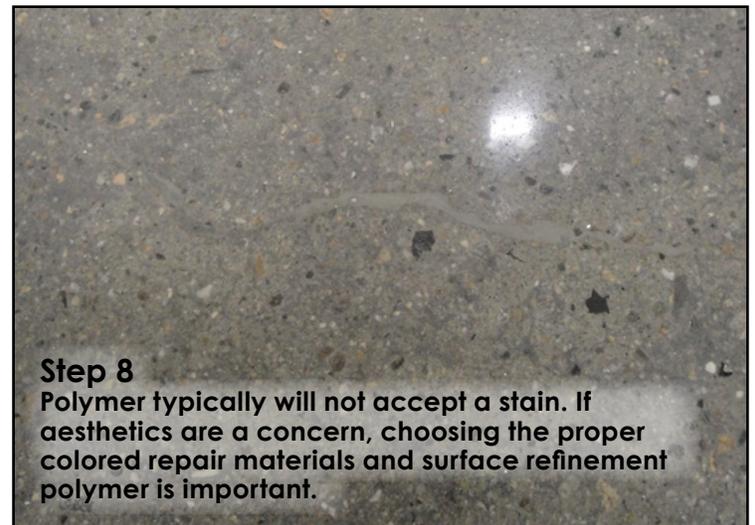
[Click to watch SRG Installation Instructions video or scan →](#)



Step 6
Use least aggressive tooling on grinder to remove surface film, typically this will be the next natural progression step in the grinding/polishing process.



Step 7
Continue with natural progression steps including densifying, staining, sealing.



Step 8
Polymer typically will not accept a stain. If aesthetics are a concern, choosing the proper colored repair materials and surface refinement polymer is important.



(I) = Industrial (D) = Decorative

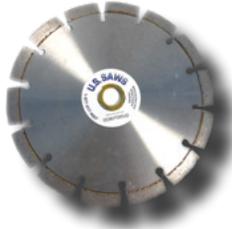
TOOLS & ACCESSORIES REFERENCED IN THIS GUIDE

— TYPICAL EXAMPLES —

DIAMOND U BLADE



**JOINT CLEANING/PREP
DIAMOND BLADE**



**STELLITE JOINT FILLER
REMOVAL BLADE**



**JOINT FILLER
REMOVAL BLADE**



HEAVY ABRASIVE PAD



**TELESCOPING FLOOR
RAZOR SCRAPER**



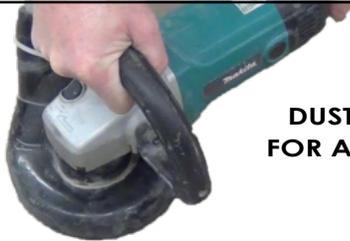
**DUAL CARTRIDGE
DISPENSING GUN**



DIAMOND CUP WHEEL



**DUSTLESS SHROUD
FOR ANGLE GRINDER**



**SINGLE CHAMBER
BULK-TYPE
CAULKING GUN**



**MEDIUM GRIT
FINISHING PAD**



**.75" NYALOX
END BRUSH**



**2.5" NYALOX
CUP BRUSH**



**3" & 4" NYALOX
WHEEL**





0" 1" 2" 3" 4" 5" 6" 7"

APPROXIMATE MATERIAL COVERAGE RATES

Narrow Joints and Cracks

1/8 x 3/4" = 200 lf/gal.	3/16 x 3/4" = 135 lf/gal.	1/4 x 3/4" = 100 lf/gal.
1/8 x 1" = 150 lf/gal.	3/16 x 1" = 100 lf/gal.	1/4 x 1" = 80 lf/gal.
1/8 x 1-1/4" = 125 lf/gal.	3/16 x 1-1/4" = 85 lf/gal.	1/4 x 1-1/4" = 60 lf/gal.
1/8 x 1-1/2" = 100 lf/gal.	3/16 x 1-1/2" = 70 lf/gal.	1/4 x 1-1/2" = 50 lf/gal.
1/8 x 1-3/4" = 85 lf/gal.	3/16 x 1-3/4" = 60 lf/gal.	1/4 x 1-3/4" = 45 lf/gal.
1/8 x 2" = 75 lf/gal.	3/16 x 2" = 50 lf/gal.	1/4 x 2" = 40 lf/gal.

Wider Joints and Cracks

3/8 x 3/8" = 135 lf/gal.	3/4 x 1/2" = 50 lf/gal.	1 x 3/4" = 25 lf/gal.
3/8 x 1/2" = 100 lf/gal.	3/4 x 3/4" = 35 lf/gal.	1 x 1" = 20 lf/gal.
1/2 x 1/2" = 80 lf/gal.	1 x 1/2" = 40 lf/gal.	1 x 2" = 10 lf/gal.

Converting Gallon Coverage Rates for Cartridge Units

To determine coverage rates for cartridge units divide the gallon rates listed above by the following factors:

450 ML Divide Gal. Yield by 8

900 ML Divide Gal. Yield by 4

600 ML Divide Gal. Yield by 6

1500 ML Divide Gal. Yield by 2.5

250 ML Divide Gal. Yield by 15

Sand Modification Yields

Defect Repair Yields

Liquid Epoxy + Silica Sand = Mortar Yield

GAL. EPOXY + GALS. SAND = GALS. MORTAR

1	1	1.6
1	1.5	1.9
1	2	2.2
1	2.5	2.5
1	3	2.8

Standard Material Kit and Cartridge Units

UNIT SIZE NET MATERIAL YIELD

250 ML UNIT	16.50 cubic inches
450 ML UNIT	28.75 cubic inches
600 ML UNIT	38.34 cubic inches
900 ML UNIT	57.50 cubic inches
1500 ML UNIT	98.83 cubic inches
GALLON UNIT	230.00 cubic inches

Note: The above figures are approximate and for estimating purposes only. The rates shown do not allow for substantial waste, overfill, etc. Results may vary due to factors including material loss at joint base, grade of silica used, etc. Metzger/McGuire assumes no liability for results from using these figures.



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[Click here or scan QR code to use our Coverage Calculator!](#)



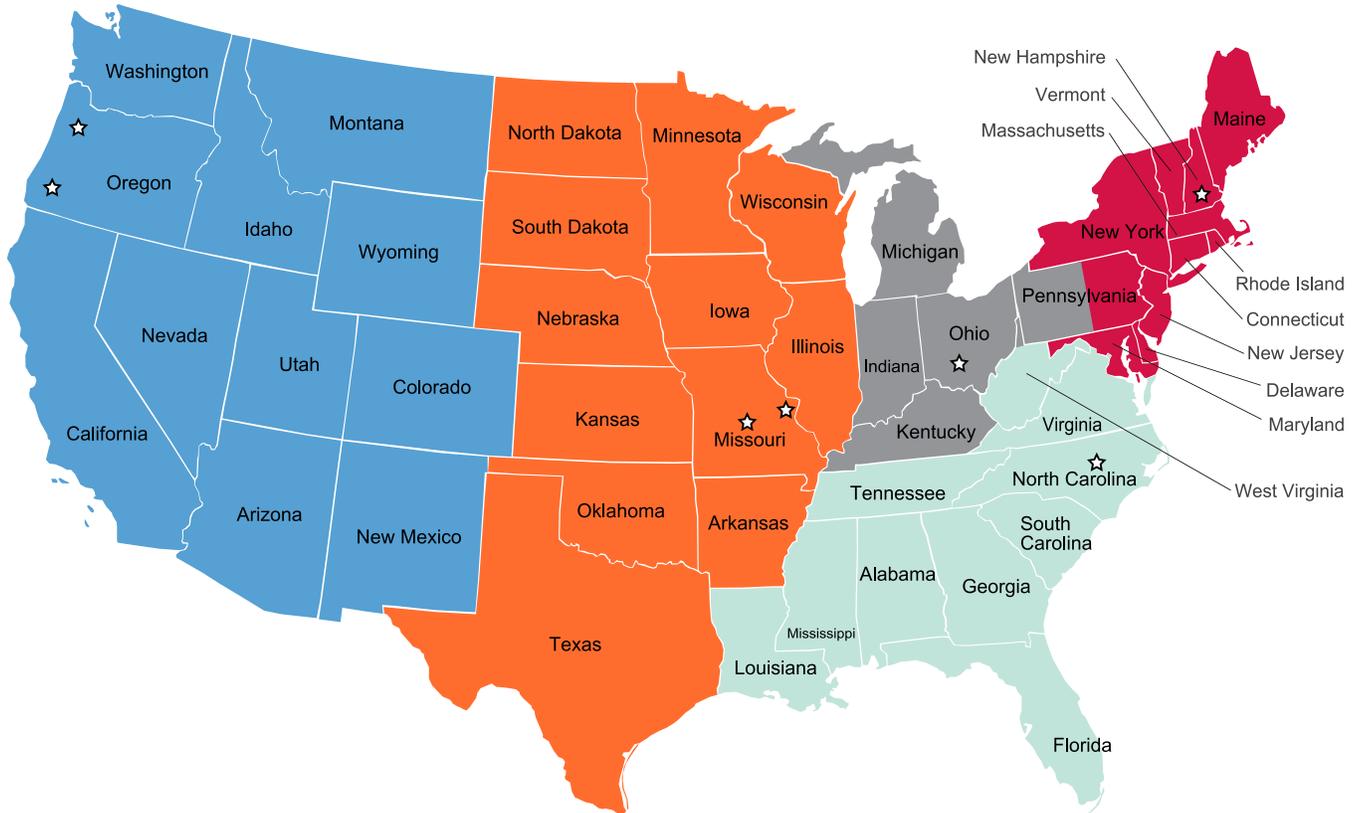
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0" 1" 2" 3" 4" 5" 6" 7" 8"



INDUSTRY STANDARD INDUSTRIAL FLOOR JOINT FILLERS AND REPAIR PRODUCTS

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