

CRITICAL STEPS TOWARDS ACHIEVING PERMANENT, DURABLE FLOOR REPAIRS

Determine Cause of Problem

Is defect a result of inadequate initial/existing protection?
i.e. No joint filler/poor installation

Are there underlying structural issues that must be addressed?
i.e. Subgrade deficiencies, rocking slabs, structural issues

Select Appropriate Repair Material

Is product proper for application?
i.e. Heavy duty for heavy loads

Is repair subject to movement?
i.e. Use semi-rigid material in moving joints, cracks. Ensure structural materials don't restrain slab movement and cause further defects

Defect Preparation is Critical!

Never feather edge repair!

Always establish a vertical edge at edges of repair area

Remove all dirt, debris, laitance and unsound concrete to ensure proper adhesion and performance

Finished Profile Should Be Flush

Concave filler profile provides no protection for repaired area

Use proper grinding and/or shaving tools to ensure that repaired area is completely flush with floor surface and provides seamless transition for vehicle traffic



TYPICAL SPALLED JOINTS (Up to 1.5" Wide)

TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Joint:

Preferred: Dustless concrete saw (SawTec® or similar) diamond blade & vacuum

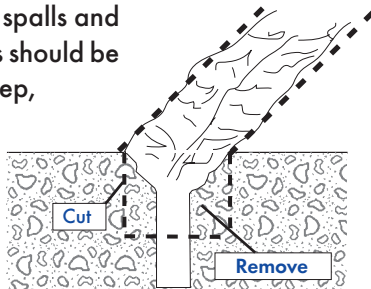
Minimal: Hammer and chisel, vacuum

To Finish Repair:

Semi-Rigid Pure - tile scraper/razor and/or grinder with ZEC® pad
Semi-Rigid/Rigid Sand-Modified - grinder with ZEC® pad

STEP 1

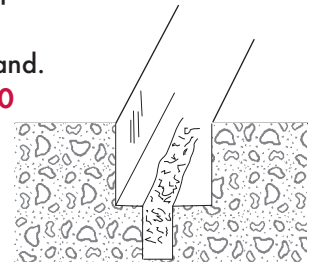
Make cuts at edges of spalls and remove as shown. Cuts should be a minimum of 1/2" deep, 3/4" is preferred.



STEP 2

Clear out debris and any loose elements. Vacuum or blow clean with compressed air.

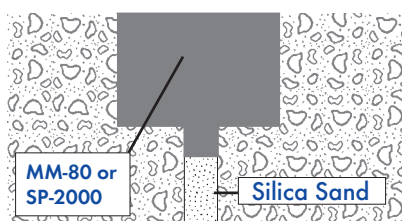
Choke off base with dry silica sand. Install **MM-80** or **Spal-Pro 2000** flush with floor or slightly crowned and monitor to ensure profile stays level.



STEP 3

After cure (15-30 mins. **SP-2000**, 6-8 hours **MM-80**), razor down to flush profile. If razoring proves difficult, grind flush (as outlined in Severely Spalled Joints).

NOTE: Shaving **MM-80** is best done by heating material first with propane torch (lightly, 2-3 seconds). Grind **MM-80** with 36 grit ZEC® pad.



If grinding, **Spal-Pro 2000** should only be ground lightly with a 40 grit radial flap disc, 5 hours + after installation.



SURFACE SPALLING / POP-OUTS, GOUGES



TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Crack:

Preferred: Dustless grinder (SawTec® or similar) square cut or "v" diamond blade & vacuum

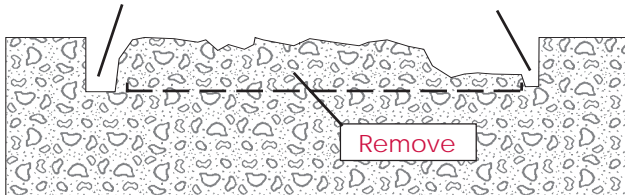
Minimal: Hammer and chisel

To Finish Repair:

Semi-Rigid/Rigid Sand-Modified - grinder with ZEC® pad

STEP 1

Make cuts at outer edges of spalling, 1/2" minimum, 3/4" preferred, using right angle grinder with blade or chisel. Remove any high spots remaining within defect.



STEP 2

Clean out any remaining debris or loose elements. Vacuum area and wipe with solvent if oil or other residues are present. Tape edges if filling flush.

Slightly overfill defect with sand modified **MM-80** or **BINDER 3** epoxy. If using **Spal-Pro 2000**, fill flush or slightly higher.



STEP 3

IF SAND MODIFIED EPOXY WAS USED

Allow material to cure for 12-24 hours. Use a dustless grinder (or have another person hold vacuum near grinder) and gradually grind overfilled material until flush with floor surface.

IF SPAL-PRO 2000 WAS USED

Once cured, if grinding is required to achieve flush profile, **Spal-Pro 2000** should be ground lightly at slow speed with a 40 grit radial flap disc, 5+ hours after initial installation.



JOINT FILLER SEPARATION / CONCAVE FILLER



TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Joint:

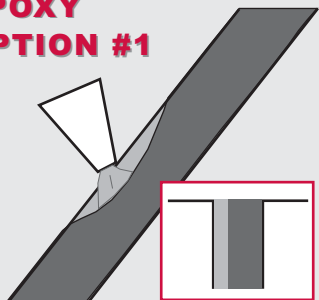
Preferred: Grinder with wire brush, vacuum

Minimal: Compressed air, vacuum

To Finish Repair:

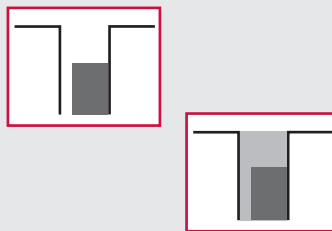
Tile scraper/razor

EPOXY OPTION #1



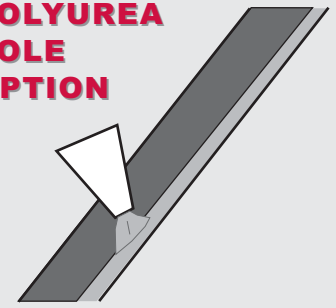
Use knife or narrow or narrow tool to loosen debris. Blow/vacuum clean. Fill (overfill) voids with Spal-Pro RS 88 Polyurea and allow to set into solid. Razor off flush.

EPOXY OPTION #2 - CONCAVE PROFILE



Saw cut out top 1/2" of epoxy. Blow/vacuum clean. Fill (overfill) channel with same epoxy or Spal-Pro RS 88. Allow to set into solid and razor off flush.

POLYUREA SOLE OPTION



Use knife or narrow or narrow tool to loosen debris. Blow/vacuum clean. Fill (overfill) voids with Spal-Pro RS 88 Polyurea and allow to set into solid. Razor off flush.



RANDOM CRACKS (Credit Card Width or Greater)

TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Crack:

Preferred: Dustless right angle grinder (SawTec® or similar) square cut (preferable) or "v" diamond blade & vacuum

Minimal: Right angle grinder, "v" blade, vacuum

To Finish Repair:

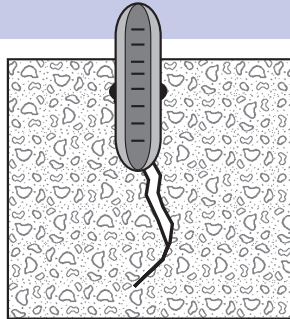
Tile scraper/razor

Propane Torch (if using **MM-80**)

STEP 1

Use a right angle grinder with with a diamond square cut or "V" blade to rout out crack to a nominal depth of 1/2" minimum, 3/4" preferred.

Be sure that remaining concrete along edge is structurally sound.

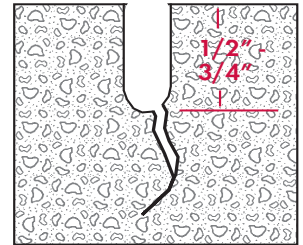


STEP 2

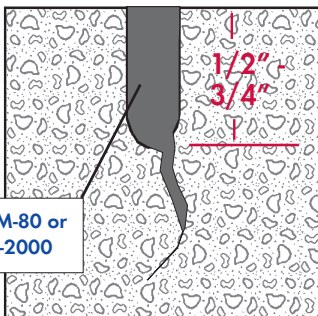
Clean out any remaining debris or loose elements.

Vacuum or blow clear with compressed air.

Choke off base with silica sand. (If necessary due to excessive material seepage).



STEP 3



Apply a bead of our **Spal-Pro 2000** polyurea or **MM-80** epoxy joint filler and allow it to seep into the crack. Reapply until seepage stops, if necessary, and seal off crack with silica sand if seepage continues. Allow to cure. Razor off excess. (If using **MM-80**, apply heat prior to shaving). After cure (15-30 mins. **SP-2000**, 6-8 hours **MM-80**), razor down to flush profile. If razoring proves difficult, grind flush (See Severely Spalled Joints).



RANDOM CRACKS (Less than Credit Card Width)

TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Joint:

Preferred: grinder with wire brush, vacuum

Minimal: compressed air, vacuum

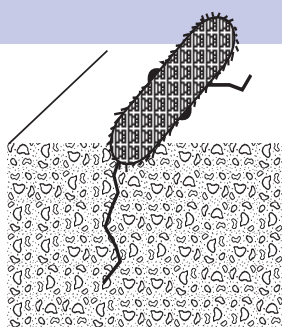
To Finish Repair:

Paint Brush

STEP 1

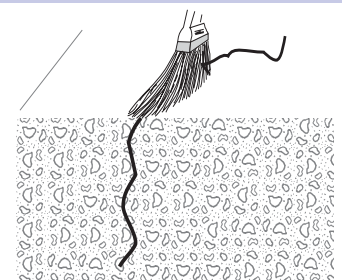
If a crack has no "islands," no chipping, and is less than credit card thickness, we recommend that it *not* be saw cut open.

Clean crack out using right angle grinder with wire brush or blow out with compressed air.



STEP 2

After crack is clean, brush-apply a protective coating of our **BINDER 3** epoxy on top of the crack to provide a protective structural surface over material and prevent further chipping.



SEVERELY SPALLED JOINTS (2" or Wider)



TOOLS & EQUIPMENT YOU WILL NEED:

To Prepare Joint:

Preferred: Dustless concrete saw (SawTec® or similar) diamond blade & vacuum, silica sand to modify material

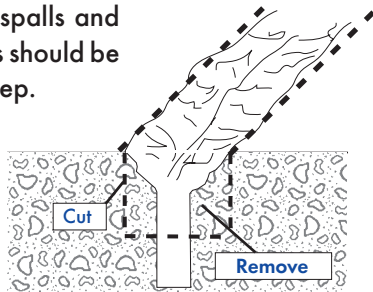
Minimal: Hammer and chisel, vacuum, silica sand

To Finish Repair:

Semi-Rigid/Rigid Pure or Sand-Modified - grinder with ZEC® pad

STEP 1

Make cuts at ends of spalls and remove as shown. Cuts should be a minimum of 1/2" deep. (3/4" is preferred)

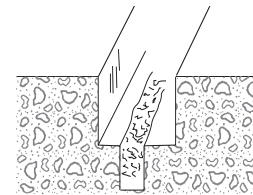


STEP 2

Clean out debris and loose elements.



Vacuum or blow clear with compressed air.

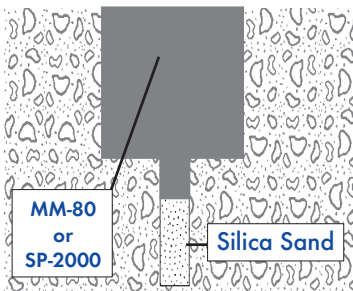


Choke off base with silica sand.

STEP 3 - OPTION 1 SEMI-RIGID REPAIR

FILL VOID WITH SAND MODIFIED SEMI-RIGID EPOXY

Add 1 gallon of dry silica sand to blended **MM-80**. Pour sand modified material into channel, leaving profile slightly higher than floor. Monitor joint to ensure profile remains stable. Allow **MM-80** to cure for 12-24 hours. Use a dustless grinder (or have another person hold vacuum near grinder) and gradually grind overfilled material flush with floor surface.



FILL VOID WITH SEMI-RIGID POLYUREA

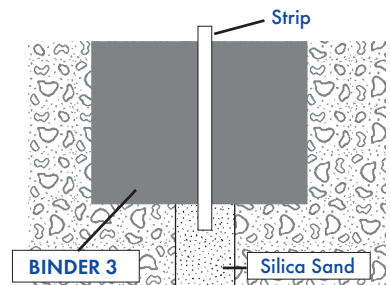
Fill open channel as close to flush as possible with **Spal-Pro 2000** Rapid Set Polyurea. If profile looks even slightly concave (low), err on the side of slightly overfilling joint. Monitor joint to ensure profile remains stable. Once cured, if grinding is required to achieve flush profile, **Spal-Pro 2000** should be ground lightly at slow speed with a 40 grit radial flap disc, 5 plus hours after initial installation.

STEP 3 - OPTION 1 STRUCTURAL REBUILD

USING DIVIDER STRIP

Insert a divider strip vertically into sand (Metzger/McGuire's **EXPANSTRIP**, PVC strip, etc.) Use sand-modified **BINDER 3** structural epoxy (at 1:1 - 1:2.5 material to sand ratio) to fill on both sides of strip at same time to keep strip vertical. Fill to top (flush with joint edge). After material cure (8-12 hours), score strip and grind material flush (if necessary) with grinder and ZEC® pad.

NOTE: Divider strip will allow for subsequent movement of joint and will prevent material from restraining slabs.



WITHOUT USE OF DIVIDER STRIP


Fill channel with sand-modified **BINDER 3**. Grind flush if necessary as outlined above. Sawcut a new joint down middle of repair (as narrow as possible) over original joint location. Overfill new joint with **MM-80** or **Spal-Pro 2000** and shave flush.





MM-80

EDGE-PRO
XL
FORMERLY SPAL-PRO XL

TECHNICAL INFORMATION	Heavy Duty, Semi-Rigid Epoxy Joint Filler		Semi-Rigid Epoxy Joint Filler
APPLICATION RANGE	Ambient	Cooler	Ambient
PRODUCT CLASSIFICATION	SEMI-RIGID EPOXY		SEMI-RIGID EPOXY
HARDNESS, SHORE "A"	A85-95 @ 70° F		A85-95 @ 70° F
HARDNESS, SHORE "D"	D50-55 @ 70° F		D50-55 @ 70° F
TENSILE STRENGTH	500 PSI		735 PSI
TENSILE ELONGATION	20-24% @ 70° F		121% @ 70° F
ADHESION TO CONCRETE	285 PSI		385 PSI
APPLICATION METHOD	BULK GUN, DUAL PUMP		BULK GUN, DUAL PUMP
POT LIFE	15-30 MINS @ 70° F		15-20 MINS @ 70° F
INITIAL CURE	6-8 HOURS @ 70° F		4-8 HOURS @ 70° F
LIGHT TRAFFIC READY	6-8 HOURS @ 70° F		4-8 HOURS @ 70° F
FULL TRAFFIC READY	8-12 HOURS @ 70° F		8-12 HOURS @ 70° F
MIX RATIO BY VOLUME	5:1		1:1
MIX RATIO BY WEIGHT	100:15		1:1
SOLIDS CONTENT	100%		100%
SHRINKAGE	NEGLIGIBLE		NEGLIGIBLE
GRINDABLE	YES		YES
USDA ACCEPTABLE	YES		YES
AVAILABLE PACKAGING	<p>1 GAL. UNIT</p>  <p>30 GAL. UNIT</p> 		<p>2 GAL. UNIT</p>  <p>10 GAL. UNIT</p> 

For Technical Questions Relating to Product Application

JOINT FILLERS AND FLOOR REPAIR PRODUCTS



Heavy Duty, Rapid Set
Polyurea Joint Filler

Heavy Duty, Rapid Set
Polyurea Joint Filler

Heavy Duty, Rapid Set
Polyurea Repair Polymer

Ambient		Cooler		Cooler		Freezer		Ambient		Cooler		Freezer	
SEMI-RIGID POLYUREA				SEMI-RIGID POLYUREA				SEMI-RIGID POLYUREA					
A88-92 @ 70° F				A92-94 @ 0° F				A95 @ 70° F					
-				-				D50 @ 70°F					
930 PSI				930 PSI				2850 PSI					
170% @ 70° F				120% @ 0° F				-					
350-400 PSI				350-400 PSI				350 PSI					
CARTRIDGE, DUAL PUMP				CARTRIDGE, DUAL PUMP				CARTRIDGE, DUAL PUMP					
NA-NO HAND MIX				NA-NO HAND MIX				NA-NO HAND MIX					
5 MINUTES @ 70° F				60 MINUTES @ 0° F				3-5 MINUTES @ 70° F					
30 MINUTES @ 70° F				90 MINUTES @ 0° F				15 MINUTES @ 70° F					
60 MINUTES @ 70° F				2 HOURS @ 0° F				30 MINUTES @ 70° F					
1:1				1:1				2:1					
1:1				1:1				-					
100%				100%				100%					
NEGLIGIBLE				NEGLIGIBLE				NEGLIGIBLE					
NO				NO				NO					
YES				YES				YES					
10 GAL. UNIT  1500 ML DUAL CARTRIDGE 				10 GAL. UNIT  1500 ML DUAL CARTRIDGE 				15 GAL. UNIT  450 & 900 ML DUAL CART. 					

For more information or Settings, Please Call Us at 1-800-223-MM80

NOT SO BASIC REPAIRS...



SLAB CORNER BREAKS



ROCKING SLABS



SLAB EDGE CURL



SURFACE DUSTING

Please Contact Metzger/McGuire's Technical Service Department for Assistance on Repairs Not Referenced in this Basic Guide or to Discuss Specific Repair Settings and Circumstances

APPROXIMATE MATERIAL COVERAGE RATES

BASED ON ONE U.S. GALLON CARTRIDGE COVERSION: 450ML 1/8 Gal. 900 ML 1/4 Gal. 1500 2/5 Gal.

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.	3/8 x 3/8" = 135 lf/gal.	1 x 1" = 20 lf/gal.
1/8 x 1" = 150 lf/gal.	3/16 x 1" = 100 lf/gal.	1/4 x 1" = 80 lf/gal.	3/8 x 1/2" = 100 lf/gal.	1 x 1/2" = 40 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.	1/2 x 1/2" = 80 lf/gal.	1 x 2" = 10 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.	3/4 x 1/2" = 50 lf/gal.	2 x 2" = 5 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.	3/4 x 3/4" = 35 lf/gal.	
1/8 x 2" = 75 lf/gal.	3/16 x 2" = 50 lf/gal.	1/4 x 2" = 40 lf/gal.	1 x 3/4" = 25 lf/gal.	

WIDER JOINTS AND CRACKS

SAND-MODIFICATION NET 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

GOUGES, HOLES, ETC.

450 ML UNIT = 28.75 cubic inches

900 ML UNIT = 57.5 cubic inches

GALLON UNIT = 230 cubic inches

PLEASE CALL AND LET US ASSIST YOU WITH COVERAGE RATES ON OTHER DIMENSIONS

ADDITIONAL SERVICES AND RESOURCES

FIRMS® Program - Floor Inspection and Maintenance Services

Metzger/McGuire offers a host of floor construction and repair services through our FIRMS® program including:

- **Corporate-Wide Floor Improvement Planning Services**
- **Facility-Specific Repair Specifications and Assistance**
- **In-House Repair Training for Maintenance Personnel**
- **Real Estate Due Diligence/Pre-Acquisition Assessments**
- **Advocacy/Start-Up Services on New Construction Projects**

EQUIPMENT RESOURCES

Metzger/McGuire inventories many of the necessary repair tools referenced in this guide and/or can provide appropriate supplier referrals where necessary.

CONTRACTOR REFERRALS

Through our nationwide network of quality repair contractors and approved installers, we can assist you in securing quality bidders for all of your floor repair contracting and joint filler installation needs.



800-223-MM80

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FAX: 603.224.6020 • E-MAIL: SPECMM80@AOL.COM

Guide to Basic

FLOOR REPAIR



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