

Installation Checklist



Concrete INSTALLATION /
Concrete REPAIR



PROJECT STAGE	DATE	FIVE STAR® REPRESENTATIVE PRESENT? (CIRCLE)	
PLANNING		YES	NO
PRE-GROUT MEETING		YES	NO
GROUT INSTALLATION		YES	NO

PROJECT Name	
PROJECT Location	
CONTRACTOR Name(s)	
THIRD PARTY TESTING Name	

FIVE STAR® PRODUCT(S) USED
LOT#(S) [10-DIGITS]



Low Temperature (Cold) Environment and Material Pre-Conditioning		
1.1	Review ACI 306-R16 "Guide to Cold Weather Concreting" prior to executing repairs.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
1.2	Temperature control (tents, heaters, etc.) available and recommended to remain in place until material has fully cured (one day minimum, up to 7 days to develop strengths listed on TDS). ^{Note 1}	<input type="checkbox"/> YES <input type="checkbox"/> N/A
1.3	Material/Forms/Repair Area/Environment pre-conditioned (warmed up) for 72 hours (or as required) and monitored prior to installation.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
1.4	Temperature of repair material (check multiple bags of material and additional aggregate by inserting thermometer into middle of bag).	TEMP: _____ °F
1.6	Environment including repair area, equipment used, etc. is between 35°F - 90°F (2°C - 32°C) [Optimal 70°F (21°C)].	TEMP: _____ °F
1.7	Hot potable water available for mixing material and conditioning repair area.	<input type="checkbox"/> YES <input type="checkbox"/> N/A

^{Note 1} Temperatures must be maintained above 35°F (2°C) until repair material develops a strength of 1,000 psi (6.9 MPa) or the repair material will be compromised.

High Temperature (Hot) Environment and Material Pre-Conditioning		
2.1	Review ACI 305-R10 "Guide to Hot Weather Concreting" prior to executing repairs.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
2.2	Repair planned for coolest part of the day (during evening or early morning).	<input type="checkbox"/> YES <input type="checkbox"/> N/A
2.2	Temperature control (tents, coolers, etc.) available and recommended to remain in place until material has been placed, finished, and curing procedure has started. ^{Note 2}	<input type="checkbox"/> YES <input type="checkbox"/> N/A
2.3	Material/Forms/Repair Area/Environment pre-conditioned (cooled down) and monitored prior to installation.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
2.4	Temperature of repair material (check multiple bags of material and additional aggregate by inserting thermometer into middle of bag).	TEMP: _____ °F
2.5	Environment including repair area, equipment use, etc. is between 35°F - 90°F (2°C - 32°C) [Optimal 70°F (21°C)].	<input type="checkbox"/> YES TEMP: _____ °F
2.6	Iced Potable water available for mixing material and conditioning repair area.	<input type="checkbox"/> YES <input type="checkbox"/> N/A

^{Note 2} Temperatures above 80°F (27°C) will shorten the published working time for a repair material.

Repair Area Surface Preparation		
3.1	Repair area has reached its required strength and is fully hydrated and ready to be repaired per the project engineer/manager. Project Engineer Approval (signature): _____	<input type="checkbox"/> N/A
3.2	Repair area has been sawcut to establish a perimeter of the repair area that is uniform/rectangular in shape.	<input type="checkbox"/> YES
3.3	Perimeter of repair has a minimum ¼ inch edge/cut so that the repair material does not need to be "feathered". Sloped floors or "high traffic areas" shall have a minimum ½ inch edge/cut.	<input type="checkbox"/> YES
3.4	Bonding surface of repair is sound. All deteriorated, loose, or weak concrete has been removed.	<input type="checkbox"/> YES
3.5	Bonding surface has been mechanically roughened to expose coarse aggregate (minimum surface profile of ½ inch peak to valley profile recommended).	<input type="checkbox"/> YES
3.6	Bonding surface is clean and free of contaminants (i.e. oil, grease, dust).	<input type="checkbox"/> YES
3.7	All cracks in bonding surface repair area have been brought to the attention of the project engineer and the repair may proceed. Project Engineer Approval (signature): _____	<input type="checkbox"/> N/A
3.8	Bonding surface has been pre-soaked such that a Saturated Surface Dry (SSD) condition is achieved (8 hours of pre-soaking is recommended). ^{Note 3}	<input type="checkbox"/> YES
3.9	All standing water has been removed from holes, pockets, and low spots in repair area (vacuum or blow out with oil-free air).	<input type="checkbox"/> YES
3.10	Temperature of repair area immediately prior to installing repair material.	TEMP: _____

^{Note 3} Bonding agents are not recommended. Contact Five Star Products if a bonding agent will be used.



Repair Area Surface Preparation – Dowel and Anchor Holes

4.1	Bonding surface has been mechanically roughened to the greatest extent possible (ideal roughening will expose coarse aggregate).	<input type="checkbox"/> YES
4.2	Bonding surface is clean and free of contaminants (i.e. oil, grease, dust).	<input type="checkbox"/> YES
4.3	Bonding surface has been pre-soaked such that a Saturated Surface Dry (SSD) condition is achieved (8 hours of pre-soaking is recommended). ^{Note 3}	<input type="checkbox"/> YES
4.4	All standing water has been vacuumed or blown out of holes with oil free air.	<input type="checkbox"/> YES
4.5	Temperature of repair area immediately prior to installing repair material.	TEMP: _____ °F

^{Note 3} Bonding agents are not recommended. Contact Five Star Products if a bonding agent will be used.

Rebar

5.1	Damaged or deteriorated rebar has been repaired/removed.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
5.2	Replaced rebar has minimum lap splice length per ICRI & ACI.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
5.3	Rebar in repair area is tightly bonded to existing concrete and/or any unbonded rebar has enough material removed behind the rebar to allow material to flow behind and around the rebar.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
5.4	Rebar cleaned of all oxidation.	<input type="checkbox"/> YES
5.5	If rebar has been coated with a bonding agent, bonding agent's application instructions have been followed and bonding agent is "open" and ready to be covered by repair material.	<input type="checkbox"/> YES <input type="checkbox"/> N/A

Forms

6.1	Forms are constructed from rigid nonabsorbent materials and are securely anchored.	<input type="checkbox"/> YES
6.2	Formwork has been caulked and tested to be liquid tight.	<input type="checkbox"/> YES
6.3	Interior of forms have been treated with a bond-breaker material (i.e. two coats of paste wax, polyethylene film, etc.).	<input type="checkbox"/> YES
6.4	Enough clearance has been left in forms for pouring material and venting of air where "Form and Pour" installations are planned.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
6.5	Inlet and outlet ports along with high point vents have been incorporated into forms where "Form and Pump" installations are planned.	<input type="checkbox"/> YES <input type="checkbox"/> N/A

Control/Expansion/Isolation Joints

7.1	Control joints/expansion joints are planned and in place where required.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
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Mixing

8.1	Mortar mixer required OR multiple mortar mixers required.	<input type="checkbox"/> YES TOTAL #: _____ <input type="checkbox"/> N/A
8.2	Cement mixer required (only allowed to be used when adding a large volume or size of aggregate to the mix). ^{Note 4}	<input type="checkbox"/> YES <input type="checkbox"/> N/A
8.4	Mixer(s) is/are clean, dry, and in good working order and mixing paddles are in direct contact with inside walls of mixer (mixer inspected and tested).	<input type="checkbox"/> YES
8.3	Mixer(s) is/are sized appropriate for job (mixed repair material volume should not exceed half the capacity of the mixer).	<input type="checkbox"/> YES
8.4	Adequate supply of cold or hot potable water available for mixing.	<input type="checkbox"/> YES
8.5	Containers for precise water measurement available and used.	<input type="checkbox"/> YES
8.6	Mixing instructions available, reviewed, and understood.	<input type="checkbox"/> YES
8.7	Mixer pre-wetted and drained.	<input type="checkbox"/> YES
8.8	Test batch mixed and consistency verified.	<input type="checkbox"/> YES <input type="checkbox"/> N/A

^{Note 4} Contact Five Star Products for special mixing instructions.



Aggregate Extension		
9.1	Aggregate Extension Required (% by weight reviewed by Five Star Products or in accordance with Five Star® Technical Bulletin 106.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
9.2	% of aggregate required per Five Star® Technical Bulletin Aggregate Extension Guidelines-Concrete Repair. Weight per bag of repair material.	_____ % by weight _____ # per bag
9.3	Aggregate available in measured quantities in conjunction with mix design.	<input type="checkbox"/> YES
9.4	Aggregate washed (free of fines), pre-soaked, and drained (free of standing water) to have a consistent water content.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
9.5	Temperature of aggregate	TEMP: _____ °F

Placement		
10.1	Gravity Placement Planned	<input type="checkbox"/> YES <input type="checkbox"/> N/A
10.1.1	Appropriate method of transporting material to repair area in place (wheelbarrows, buggies, chutes etc.).	<input type="checkbox"/> YES
10.1.2	Enough transport equipment and labor available to place material in working time allotted.	<input type="checkbox"/> YES
10.2	Pump Placement Planned	<input type="checkbox"/> YES <input type="checkbox"/> N/A
10.2.1	Pump(s) is/are clean, dry, and in good working order (inspected and tested).	<input type="checkbox"/> YES
10.2.2	Hoses are clean, dry, and connections liquid tight (inspected and tested).	<input type="checkbox"/> YES
10.2.3	Screen available to pre-screen grout before putting in pump hopper.	<input type="checkbox"/> YES
10.2.4	Pump Operator trained on pump operation.	<input type="checkbox"/> YES
10.2.5	Pump and Hose pre-wetting procedure and material in place and understood.	<input type="checkbox"/> YES
10.3	"Scratch coat or scrub coat" of material to be applied immediately ahead of material placement (recommended).	<input type="checkbox"/> YES <input type="checkbox"/> N/A

Finishing & Curing		
11.1	Finishing method planned and equipment in place prior to installation.	<input type="checkbox"/> YES
11.2	Forms to remain in place for initial cure.	<input type="checkbox"/> YES <input type="checkbox"/> N/A
11.3	Curing method planned and equipment and materials in place prior to installation.	<input type="checkbox"/> YES

Testing		
12.1	QC Testing Plan reviewed and understood (ASTM C109 Restrained testing planned). ^{Note 5}	<input type="checkbox"/> YES
12.2	Brass cube molds with covers available and are clean, dry, and in good working order.	<input type="checkbox"/> YES
12.3	Alternate test method planned for aggregate extended material.	<input type="checkbox"/> YES
12.4	Samples taken at appropriate time during installation.	<input type="checkbox"/> YES
12.5	An area has been reserved to store cubes on-site near installation (in the same environmental conditions) for 24 hours prior to moving them to another location.	<input type="checkbox"/> YES

^{Note 5} Refer to Five Star® Technical Bulletin Cementitious Repair Mortars Testing for Compressive Strength.

THERE ARE MANY VARIABLES THAT CAN IMPACT A SUCCESSFUL CONCRETE INSTALLATION/REPAIR. THIS CHECKLIST IS PROVIDED ONLY AS A TOOL. WHILE EVERY REASONABLE EFFORT HAS BEEN MADE TO ENSURE THIS INFORMATION IS ACCURATE AND AUTHORITATIVE, FIVE STAR PRODUCTS, INC. DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. FIVE STAR PRODUCTS, INC. DOES NOT MAKE ANY GUARANTEES, EITHER EXPLICIT OR IMPLIED, ON THE OUTCOME OF YOUR INSTALLATION / REPAIR. THE USER OF THESE DOCUMENTS REMAINS SOLELY RESPONSIBLE FOR THE SPECIFICATION OF ALL METHODS, MATERIALS, AND PRACTICES.

EXCEPTIONS AND NOTES (include Inspection Step Number and applicable details)

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