



# How to Successfully Prepare, Profile, and Protect a Concrete Slab with the Creteseal® MAX System™



## **Tools and Materials Checklist:**

### **Slab Preparation**

- ☑ Shot Blasters (+ Magnetic Broom) / Grinders
- Hand Grinder
- Walk-Behind Crack Chaser / Angle Grinder
- Generator
- ☑ Vacuums / Dust Extractor
- Rapid-Set Concrete or Hydraulic Cement
- White Silica Sand
- PPE (N95 Dust Masks, Gloves, Hard Hats, Ear-Buds, Glasses, Protective Clothing)

### Creteseal® MAX and Perfect Patch® Installation

- Polyurea Pump (Optional)
- 22 oz. Dual-Component Dispensing Tool / Epoxy Gun (OBEX Provides)
- ☑ Perfect Patch® (OBEX Provides)
- ☑ Creteseal® MAX (OBEX Provides)
- ☑ Jiffy Mix Paddle (OBEX Provides)
- ☑ Low-RPM or Variable Speed Drill

- 18" Roller Covers 1/4 nap (OBEX Provides)
- ☑ Epoxy Shoes or Cleats
- ☑ Epoxy Wet-Film Thickness Gauge for Mil Thickness Readings

### **Underlayment Installation and Finishing**

- ☑ Non-Porous Primer
- ☑ Cementitious Skim Topping and/or Self-Level Underlayment
- ☑ Razor Scraper(s)
- Wear Surface Cementitious Topping (Project Specific)
- ☑ Disc Sander / Floor Polisher

### **OVERVIEW & TIMELINE:**

- Step 1 (Day 1): Shot Blasting and/or Grinding<sup>1</sup>
- ◆ Step 2 (Day 2): Joint and Crack Chasing
- ◆ Step 3 (Day 3): Perfect Patch® and Creteseal® MAX Installation
- ◆ Step 4 (Day 4): Non-Porous Primer and Cementitious Skim Topping or Self-Level Underlayment Installation
  - Alternate Step 4: Decorative Coatings and Finished Epoxy Flooring Installation

### **OBEX WARRANTY CERTIFICATION PROCESS:**

- ◆ Fill out Creteseal® MAX Installation Record (located at the end of this document) for every installation phase
- ◆ Photograph for every installation phase:
  - 1. CSP profile(s)
  - 2. Perfect Patch® installation/installed
  - 3. Creteseal® MAX installation/installed
  - 4. Creteseal® MAX wet film thickness measurements
  - 5. Non-porous primer installation
  - 6. Cementitious topping installation
- ◆ Within 72 hours of the Creteseal® MAX System™ installation, email the signed Creteseal® MAX Installation Record and project photographs to: <a href="mailto:techservices@obexco.com">techservices@obexco.com</a>, or upload online at <a href="mailto:www.obexco.com">www.obexco.com</a>
- Payment in full to OBEX

Come visit us at <a href="www.obexco.com">www.obexco.com</a> for product literature, information, news, and updates! Feel free to call 844-265-3535 and ask to speak to a Technical Services representative if you have any questions about OBEX products or installation steps.

# **OBEX**

740 N 5th Street
Jacksonville, OR 97530
Ph: 844-265-3535
techservices@obexco.com
www.obexco.com

<sup>&</sup>lt;sup>1</sup> Larger Projects may Require Additional Time for Shot Blasting and/or Grinding

# Step 1 (Day 1): Shot Blasting and/or Grinding

If an existing floor covering is present, it will need to be demolished and removed utilizing a terminator machine, or for smaller areas, a power stripper. Mechanically demolish and dispose of all existing adhesive, underlayment, and tile to get down to bare concrete. Existing mud beds or quarry-tile beds that are low-PSI should be removed and poured back with concrete for large areas, or rapid-setting concrete for smaller areas.

Next, achieve an ICRI Concrete Surface Profile (CSP) of 2, 3, or 4 over the existing substrate that will be treated with Creteseal® MAX. The requisite profile can be accomplished via shot blasting or by grinding.<sup>2</sup> Grinding will typically produce a CSP of 2-3 after 1-2 passes, while shot blasting will typically produce a CSP of 3-4 after 1-2 passes.





<sup>&</sup>lt;sup>2</sup> Note: if compliance with ASTM F3010 is desired or required by project specifications, the concrete preparation method should be shot blasting or scarifying to a CSP of 3, with grinding limited to perimeter areas where shot blasting cannot reach.



For smaller rooms and spaces, a walk-behind shot blaster or grinder is recommended. For larger open projects, ride-on shot blasters, or larger planetary grinders, are more efficient.

All old underlayment, spalled areas, rubble, and loose concrete should be removed during this process to produce a sound, clean, bare substrate. A CSP greater than 4 (for example surfaces that have been scarified or severely damaged following mastic removal) will need to be ground to remove deep ridges and jagged edges. This task must be performed to ensure Creteseal® MAX coverage produces a monolithic, uniform coating at the requisite 16 mil thickness.

At this time, all drains, metal, piping, plastic, wiring, Relative Humidity testing sleeves, and any other residual building materials embedded in the concrete slab must be removed and poured back with a high-PSI rapid-set concrete or hydraulic cementitious product. For terrazzo substrates, the metal strip, or Schluter bar, should be left embedded in the concrete

as it forms an integral part of the concrete substrate. All other metal should be removed completely or ground down at least 1/8" below the substrate plane. Confirm with the project superintendent that any metal or piping that remains embedded in the slab is part of the renovation scope.



All perimeter areas, and smaller rooms where a larger ride-on or walk behind machines cannot reach will need to be ground utilizing a hand grinder to remove residual adhesive and achieve a CSP of 2-3.

Certain adhesives can be difficult to remove, and two passes with a shot blaster may leave behind residual adhesive. Adhesive that is extremely well-bonded to the slab should be removed using a combination of shot blasting and grinding.

Following shot blasting, go over the entire slab with a magnetic broom to pick up the steel shot. Utilize a commercial-grade shop vacuum for cleaning steel shot out of all cracks and joints. Clean the entire slab with a dust extractor or commercial-grade shop vacuum to remove dust, adhesive residue, rubble, and construction debris from the concrete surface and pores. Failure to adequately clean the slab or vacuum dust and adhesive debris from the concrete surface can lead to contamination issues with Creteseal® MAX. If the slab contains polymer fiber reinforcement, after shot blasting and or grinding, all fibers need to be burned off the slab surface with a blowtorch prior to installation of the Creteseal® MAX.

Do not use acids, chemical strippers, cleaning solvents, or clean sweep/petroleum-based sweeping compounds as they will contaminate and leave deleterious residues in the concrete surface which can cause issues with the Creteseal® MAX installation.

During slab preparation, confirm with the General Contractor that the facility is dried-in, with no roof leaks prior to the Creteseal® MAX System™ installation. Any standing water will need to be removed and the slab dried out prior to Creteseal® MAX System™ installation. If the facility or slab is under 50 degrees Fahrenheit, space heaters will need to be utilized to increase the ambient and slab temperature prior to the Creteseal® MAX System™ installation.



# Step 2 (Day 2): Joint and Crack Chasing

In most cases, generators are necessary, as the construction site may not have permanent power available to run multiple tools simultaneously, and attempting to do so will trip most breakers and overload house power. Use of a walk behind crack-chaser is recommended for all cracks and control joints, but a concrete saw, and/or angle grinder with a concrete or masonry diamond blade may also be used.



After, or in conjunction with blasting/grinding operations, cut and vacuum out all cracks and control joints. This includes all trench joints, cold joints, and expansion joints. Cracks that a standard business card fits into, .02 inches (.50 mm) or greater, at the widest point of the crack, should be opened up for the entire length of the crack. If there is any question about what constitutes a hairline crack or a crack that needs to be remediated, evaluate the crack using a crack comparator card or standard business card. All expansion joints should be honored up through the finished flooring system to prevent cracking or telegraphing of cracks through the finished flooring as the slab expands/contracts after the Creteseal® MAX installation.

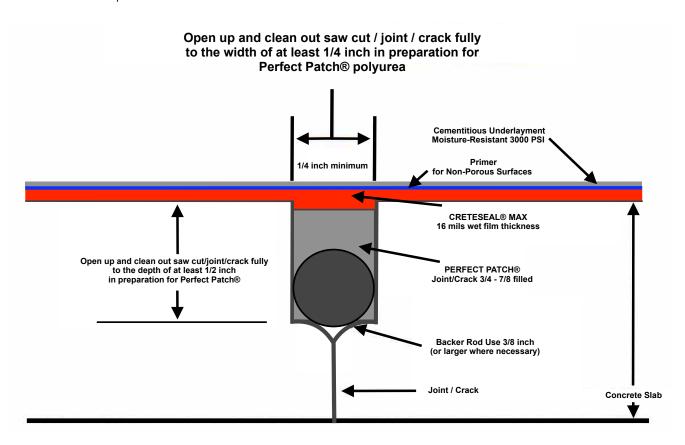
The crack or control joint should be cut at least 1/4 inch wide and 1/2 inch deep in preparation for Perfect Patch® installation. Any cracks or joints that extend to the sand/gravel fill layer will need to be filled with sand or backer rod. Trenched concrete sections often contain sawcuts that extend to the sand/gravel layer underneath the slab. These cuts will need be filled with sand or backer rod prior to installing Perfect Patch®. Broom sand into the joint or crack until sand fill is approximately 1/2 inch below slab surface and does not fall through. Alternatively, use a painters tool, or blade, to fill the joint

or crack with backer rod. Backer rod may be cut in strips where necessary if it does not fit in the crack/ joint. Note: if standing water is present in the joints/cracks of the slab, shop-vacuum and dry out the joints/ cracks prior to Perfect Patch® installation in order for Perfect Patch® to bond to the vertical sides of the joint/crack.





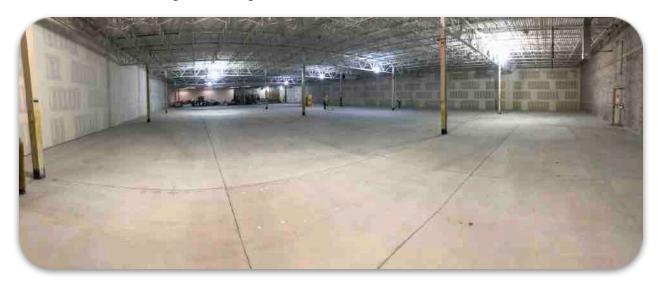
Below is a cross-section detail of the crack and control joint procedure along with Creteseal® MAX and Perfect Patch® product installation details.



# Step 3 (Day 3): Perfect Patch® and Creteseal® MAX Installation

At this point, the concrete slab should be:

- 1) Profiled: ICRI Concrete Surface Profile (CSP) of 2-4
- 2) Sound: cracks and spalled areas repaired and ground with a high-PSI rapid-patch concrete
- 3) Chased: All cracks and joints cut, cleaned, and filled with backer rod where necessary
- 4) Clean: contaminants, grease, foreign matter and construction debris removed and vacuumed



Check the ambient job site conditions with a pen thermometer or hygrometer, and note on the Creteseal® MAX System™ Installation Record. Ambient temperature needs to be above 50 degrees Fahrenheit prior to installation of Creteseal® MAX.

Next, take a photo of project plans and confirm areas to be sealed with Creteseal® MAX System™. Measure the slab or area to be sealed using a square footage hand roller, or alternatively a distance laser measurement tool, and compare the SF measured is accurate relative to project plans or a previously prepared material takeoff.

Break the slab up into 550 SF increments to confirm material order amounts are correct. When using a stationary mixing station, a movable visual marker (i.e. square footage rollers, clean pail lids, or epoxy wet film gauges) is strongly recommended to confirm 550 SF per kit is treated. CSP areas higher than 4 will utilize more Creteseal® MAX material, decreasing SF coverage per kit. DO NOT USE SHARPIE OR PERMANENT MARKERS to mark the slab as the pen marking can telegraph into the finished flooring.

#### **PERFECT PATCH®**

All contaminants, loose material, dirt, rubber, steel shot, concrete chips, dust, and debris must be cleaned and removed prior to installation of Perfect Patch®. Any cracks or joints that extend to the sand/gravel fill layer will need to be filled with sand or backer rod. Broom sand into the joint or crack until sand fill is approximately 1/2 inch below slab surface and does not fall through.

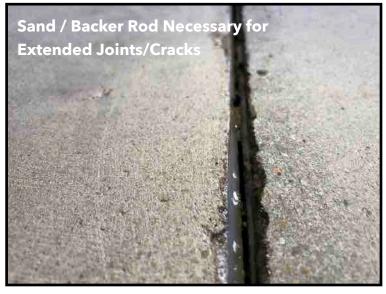


- Cartridge Installation: OBEX supplies 22 oz. dual-component dispensing tools (epoxy guns) for cartridge installations. Shake the Perfect Patch® cartridge for 60 seconds, place the white plastic
  - flow regulator into the top of the cartridge prior to screwing on the the static mixing nozzle.
- Pump Installation: Perfect Patch®
  is available in bulk package kits of 5
  GL A and 5 GL B for application
  with a polyurea pump.

Extrude a small amount of material into a waste cup until the material flows evenly through the static mixing nozzle and a uniform mix and color is achieved. Fill all joints, cracks, and voids 3/4 to 7/8 full with Perfect Patch® material by applying a constant, uniform pressure. Perfect Patch® may need multiple applications over joints/cracks, allowing material to cure between applications. If using sand to dam joints prior to material application, Perfect Patch® needs to be applied in two applications-the first application will penetrate and harden the sand fill layer, the second application will fill the joint.

After Perfect Patch® installation, check all crack and joints over the project area, ensuring the Perfect Patch® is



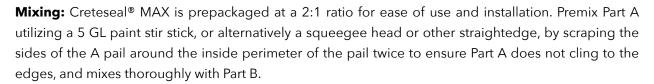


hardened, and there are no gaps or areas where material fell through the crack or joint prior to installation of Creteseal® MAX.

### CRETESEAL® MAX

**Crew Size:** Crew size will vary based on the job conditions and experience of the workers. For a smaller project (up to 10k SF) OBEX recommends a minimum of 3-4 experienced workers for a single day Creteseal® MAX installation. For medium-sized projects (up to 25k SF), OBEX recommends a crew size of 4-6 workers, and for large scale projects (i.e. 50k SF or greater), OBEX recommends a crew size of 6+ workers, or two teams, for an efficient installation process.

- Worker 1: Mix Creteseal MAX
- Worker 2: Move buckets to application location (alternatively, a mobile mixing station can be used)
- Worker 3: Lead Squeegee
- Worker 4: Secondary Squeegee
- Worker 5: Back-roll (perpendicular to squeegee direction)
- Worker 6: Back-roll (parallel to squeegee direction)



Next, pour the B container into the short-filled A pail, letting the B container drain into A for approximately 30 seconds to ensure use of all material and that the 2:1 ratio is achieved.

Using a low-RPM drill mixer and a Jiffy mixing blade, mix the combined material for 3 minutes, rotating the drill in a circular pattern, taking care not to entrain air into the material. Breaking the surface of the epoxy with the blade, or rapidly moving the blade vertically, will increase the likelihood of air bubble entrainment in the coating. Mixing uniformity is achieved when the B side is completely blended into a uniform, milky white color. Use a stopwatch or kitchen timer to ensure Creteseal® MAX is mixed for the 3 minutes. Note: Creteseal® MAX has a pot life of approximately 25 minutes, and mixing too many kits anticipating installation may lead to material curing in the pail if the mixer does not pay attention to the squeegeeing/backrolling installation progress.





**Application:**<sup>3</sup> Apply the mixed Creteseal® MAX to the concrete surface by pouring out material in a ribbon. Use a 5 GL paint stick or straight edge tool to scrape the sides of the pail all the way around to dispense all material onto the substrate. DO NOT flip the pail over and leave the pail on the substrate after pouring Creteseal® MAX out—doing so may result in inconsistent curing rates.

Using a squeegee–either straight, flexible (i.e. magic trowel), or 3/32 notch edge–pull coating evenly over substrate, filling in all cracks and control joints with Creteseal® MAX. Apply appropriate pressure to achieve proper coating thickness based on the substrate surface condition.

While wearing spiked shoes, using a 1/4" nap non-shedding epoxy roller, back-roll twice: first by rolling perpendicular to the squeegee direction, and second by rolling perpendicular to the prior direction, parallel to the squeegee direction. Back-roll evenly while completely wetting out the concrete and uniformly covering the surface to flatten all ridges. Check mil thickness with a wet film gauge frequently to ensure uniform thickness is achieved.



Change out rollers after 45 minutes of back-rolling, or when the roller is overloaded with material, to maintain coating uniformity.

<sup>&</sup>lt;sup>3</sup> Note: to achieve project specification compliance with ASTM F3010, install Creteseal® MAX in a minimum 100 SF mockup area, using the same methods and equipment that will be used for the entire installation. Following ASTM D7234 (pull-off strength) test method, test tensile bond strength of Creteseal® MAX to the substrate. The results must be equal to or greater than 200 psi with failure in the concrete before proceeding with installation. Creteseal MAX is rated at >480 psi (concrete failure) under ASTM D7234.

Creteseal® MAX coverage will be approximately 100 SF per GL, or 550 SF per bulk 5.5 GL kit. Stretching the kit, or increasing the SF coverage per GL, will reduce mil thickness and increase the potential for flooring failure following installation.

Note that on smaller room-to-room installations, OBEX recommends pouring Creteseal® MAX out in a ribbon in each room, pouring all material in the mixed kit on the slab to empty the pail prior to squeegeeing and back-rolling the material.

Rough concrete surfaces, or changes in concrete surface profiles across a single installation, should be given extra attention while squeegeeing Creteseal® MAX over the concrete surface to ensure sufficient material is applied, and a uniform coating is achieved. Similarly, when squeegeeing over control joints and cracks, the squeegee applicator should pause briefly to ensure Creteseal® MAX coating flows into the joint/crack and fills completely over Perfect Patch®. Refer to the cross section diagram in Step 2 above for Creteseal® MAX installation in a joint or crack over Perfect Patch®.

Allow Creteseal® MAX to cure a minimum of four (4) hours prior to installation of any primer and cement topping. Note the lot/batch number(s) printed on the Creteseal® MAX pail labels, located adjacent to DOT information, on the Creteseal® MAX System™ Installation Record.

Photograph the CSP profile(s), Perfect Patch® installation, Creteseal® MAX installation, Creteseal® MAX wet film thickness measurements, non-porous primer installation, cementitious topping installation installation, and within 72 hours of the Creteseal® MAX System™ installation, send the photos along with the completed Installation Record to OBEX for issuance of the 15-Year Warranty.

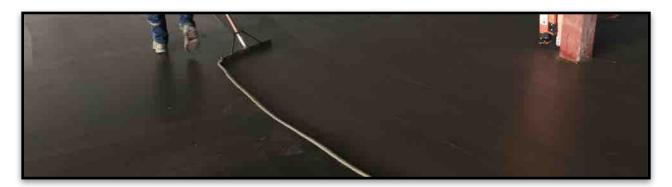


# Step 4 (Day 4): Non-Porous Primer and Cementitious Skim Topping or Self-Level Underlayment Installation

For resilient flooring applications, after the Creteseal® MAX is installed, the primer and cementitious topcoat must be installed within 24 hours. Failure to install the primer and cementitious topcoat within 24 hours may void the OBEX 15-Year Warranty. Follow all primer and cementitious manufacturer's instructions and requirements when installing the primer and cementitious topcoat for a successful installation.

**Non-porous Primer:** Back-roll the non-porous primer at the recommended coverage rate using new roller covers. Allow the primer to cure according to manufacturer recommendations, or 2-3 hours prior to the installation of the cementitious topping.

**Cementitious Skim Topping:** Skim toppings can be applied at a true featheredge, less than 1/8 of an inch overall, over Creteseal® MAX System™ to cost-effectively provide a cementitious bond layer beneath resilient flooring. Do not use gypsum-based products, and always verify with OBEX technical services that the cementitious underlayment planned for a project meets the project's specifications



and requirements, including load-bearing requirements, prior to installing over Creteseal  $^{\otimes}$  MAX System $^{\top}$ M.

Verify the cementitious skim topping material is mixed at the appropriate ratio of water to cement powder, or liquid polymer to cement powder. Skim topping products installed over Creteseal® MAX should be a minimum of 3000 PSI compressive strength at 28 days and resistant to moisture. Skim topping products that are not resistant to moisture may break down due to surface / cleaning / topside moisture that penetrates the resilient flooring system joints. The skim topping should be troweled or squeegeed on in 2-3 coats. The first coat will cover the the primed surface of Creteseal® MAX, and all trowel/squeegee ridge marks should be knocked down and removed with a razor scraper when the material is walkable in order to smooth the surface for the second coat. Sweep or vacuum the residual material from ridge removal prior to installation of the second coat.

If Creteseal® MAX is visible through the skim topping (common after a single troweled coat), or the skim topping is not opaque, additional coats of cementitious skim topping need to be applied.

For hot weather installations, and to help prevent the cementitious skim topping from firing off before it is applied to the slab, mixing water should be kept in a cool, shaded space or chilled with bags of ice. Addition of ice to the mixing water will extend the pot life and allow the material to be squeegeed or troweled. DO NOT ADD ADDITIONAL MIXING WATER TO EXTEND THE POT LIFE. DISCARD ALL CEMENTITIOUS MATERIAL THAT HAS FIRED OFF IN THE MIXING CONTAINER. OBEX recommends always using clean buckets or mixing containers when mixing and pouring cementitious materials; reuse of the same mixing container will potentially contaminate future batches when the mix paddle scrapes loose material that has previously set up on the edges of containers.

After installation of the second coat, and/or third coat to smooth any blemishes from the second coat installation, the topcoat should be sanded smooth using a disc sander/polisher to remove any residual trowel marks or squeegee lines in

anticipation of the resilient flooring installation. Depending on the product and compressive strength, the second / third coat may be sanded the same day as installation after the product dries, or the following day.

**Cementitious Self-Level Underlayment:** For flat and level slabs, thin self-level coatings may be applied at 1/16 of an inch to 1/8 of an inch over Creteseal® MAX when self-level is preferable to a skim topping material. For some projects, additional self-level material will be necessary when the existing slab does not meet the project's specified flatness/levelness tolerances. In these circumstances, skim topping is not an acceptable method to building up slab level after Creteseal® MAX has been installed. DO NOT USE SHARPIE OR PERMANENT MARKERS to mark the slab for level amounts to be





poured as the pen marking can potentially cause issues with the coatings or telegraph into the finished flooring.

Install self-level using a gauge rake designed for self-level, and optionally a spiked roller if excessive pinholes and air bubbles are experienced after pouring self-level onto the surface of the slab. Always verify the self-level is mixed at the appropriate ratios, and allow to cure for the manufacturer's recommended timeframe prior to allowing trade traffic on the slab, or installing the resilient flooring system.

**Cementitious Wear Surface:** For wear surface coats in areas not scheduled to receive resilient flooring, ensure the material used is traffic-grade and capable of withstanding topside moisture and wear and tear for the facility's intended use. Install by following manufacturer instructions in conjunction with OBEX's instructions for skim topping / self-level installation procedures. Interior-grade cementitious skim topping products are not designed to be left exposed, and should not be used in areas that will be exposed to traffic or not be covered by resilient flooring.

# Alternate Step 4 (Day 4): Decorative Coatings and Finished Epoxy Flooring Installation

Numerous decorative epoxy coatings and finished epoxy flooring systems are compatible with Creteseal® MAX-treated slabs. OBEX recommends following the manufacturer's specific installation instructions for the coating, installing any necessary primer coat(s) prior to installation of the finished coating, and installing the finished coating within Creteseal® MAX's 24-hour recoat window. Please contact OBEX's technical services team to confirm the finished coating type will bond to Creteseal® MAX within the 24-hour recoat window.



For moisture-insensitive decorative epoxy coatings including aliphatic urethanes, Creteseal® MAX will be installed using a thin 4 mil wet film thickness prime coat to seal the slab, followed by a minimum 16 mil wet film thickness moisture control coat. Install the second coat within the recoat window after Creteseal® MAX prime coat is dry (no longer tacky), typically at the 4-hour mark, up to a maximum of 24 hours. If the decorative epoxy installation occurs outside of the Creteseal MAX 24-hour recoat window, the Creteseal MAX surface will need to be sanded using 60-grit to 80-grit discs until the surface appears cloudy white, thoroughly cleaned by vacuuming all dust off the Creteseal® MAX surface, and then wiping down the surface with acetone prior to installation of the decorative coating.





### Creteseal® MAX System<sup>TM</sup> Installation Record



Project Name:	-					
Phase	of				Job Phone:	
Project Address						
Onsite Contact:					Phone:	
Owner:	_				Phone:	
Owner Address:						
Architect:						
General Contractor:	_				Phone:	
Phase Sq. Ft:			Т	otal Proj	ect Sq. Ft:	
Concrete Slab:	Below Grade	On Grade	Above Grade		Level No:	
Building Number:		_	Room Numbers:			
Slab Preparation Metho	d:	_	CSP Profile(s):_			<u> </u>
Ambient Temperature:		_	Ambient R.H. %:			<u> </u>
Perfect Patch® Units U	sed:	Boxes:	Cartridges: [		10 GL Bulk Kits:	
MAX A&B Kits Used:		_	MAX Coverage:			SF/Kit
MAX Min. Thickness:		_ mil (wet film gauge)				
MAX Install Date:		MAX Lo	ot/Batch Number(s):_			<u> </u>
Non-porous Primer Product:		Non-porous Primer Install Date:				<u> </u>
Cement Topping Product:		Topping Install Date:				<u> </u>
Topping Avg. Thickness:		Proposed Floor Covering:			<u> </u>	
Provide Photos of:	1) CSP Profile(s)	3) Cretes	seal® MAX Installat	ion	5) Non-porous Primer In	stallation
	2) Perfect Patch® Installa	tion 4) Wet F	ilm Thickness Meas	arements	6) Cementitious Topping	g Installation
Remarks:						
	_					
procedures for prope companies named be trained and supervise MAX System <sup>TM</sup> TDS failure to follow OBI	staller and Project Superviso er installation of Creteseal® M low; the undersigned Installed ad by an OBEX Technical Ser or OBEX installation proced EX installation procedures. F und all OBEX invoices paid in	MAX System <sup>TM</sup> have been er is either: 1) an Author vices Representative; and lures, the undersigned co for each installation phas	n followed; the under rized Creteseal Repre I that if the Creteseal Impanies will be liabl se, all photos and Ol	rsigned ar esentative, ® MAX S le for any BEX Insta	e authorized representatives 2) an OBEX Certified Insta lystem™ installation does not and all costs, damages, or r ullation Records must be con	on behalf of their respective dler, having been previously comply with the Creteseal® repairs that ensue due to any
Signature of Installer	Representative:		Signature of	Signature of Project Supervisor:  Project Supervisor Name:  GC/CM Company:		
Name of Installer Rep	resentative:		Project Sup			
Installation Company	·:		GC/CM Co			
Signature Date:			Signature D	Signature Date:		

For Installation and Warranty requirements please refer to the Creteseal® MAX System™ TDS, the Creteseal® MAX System™ Certified Installer Guide, or call OBEX at (844) 265-3535