

Concrete Restoration Systems

Polishing *Ultratop*[®]

The following polishing guidelines are provided to the artisans of *Ultratop*, MAPEI's decorative topping material. These guidelines serve as an outline for each artisan's skills.

Within this industry, many avenues are taken to achieve a polished surface. For this reason, whether using the following outline as a guide, or another known acceptable method, always perform a substantially sized mockup test to adequately demonstrate the desired polished surface. In addition, the owner's acceptance should be obtained before installation.

Note: This guide is a template that must be reviewed and adapted by specifiers to comply with project requirements. This guide is not to be copied directly into a project specification manual without review.

Substrate preparation

1. All substrates must be structurally sound, stable, clean, and free of any bond-inhibiting or bond-breaking materials such as adhesives, tar, cure-and-seal compounds, curing compounds and mastics.
2. Mechanically prepare the surface by engineer-approved methods to obtain an International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #3. Construction, expansion, control and isolation joints must be honored through the finished flooring system.
3. To ensure product performance, repair all cracks greater than 1/32" (1 mm) in width and treat joints using engineer-approved methods.
4. Concrete substrates should have a minimum tensile pull-off strength of 200 psi (1.38 MPa) and a minimum compressive strength of 3,000 psi (20.7 MPa) for pedestrian traffic and 4,000 psi (27.6 MPa) for vehicular traffic.

Application of *Primer SN*[™]

Utilize *Primer SN* as a bonding agent for *Ultratop*. Contact MAPEI's CRS Technical Services Department at CRS@mapei.com if alternative primers *Planibond*[™] *EBA* or *Primer SN Fast* are required in a project's specification.

1. Apply *Primer SN* at a thickness of 20 mils in wet film thickness (WFT) uniformly and continuously over a sound, clean and profiled concrete substrate (reference ICRI CSP #3 to #5 standards for acceptable profile height). Apply *Primer SN* with a squeegee and back-roll it with a 3/8" (10 mm) short-nap roller evenly over the entire prepared substrate. Immediately after application of *Primer SN*, broadcast clean and dry #20 to #40 mesh sand, using a technique often referred to as "chicken feeding," until the surface is covered completely to rejection.

2. Once *Primer SN* has cured completely (for 16 to 24 hours at 75°F [24°C]), the excess sand can be removed by sweeping. Once the surface has been swept clean of all unbonded sand, run an industrial vacuum over the surface to remove any debris or remaining unbonded sand.
3. Apply *Ultratop* over the prepared substrate.
4. Apply *Primer SN* and *Ultratop* in accordance with the current respective Technical Data Sheet (TDS) of each, which can be found online at www.mapei.com.

Polishing *Ultratop*

Dry polishing of a topping material demands a high degree of experience and craftsmanship. Several variables can affect the finished results, including the following:

- Proper mix ratio and application of the topping material
- Methodology, timing of polishing, equipment used, speed, etc.
- Diamonds used, grit values and stages of grit values in polishing. Some diamond disks perform much better than others on toppings. Consult with your equipment manufacturer for recommendations.
- The selected hardener as well as its concentration and application

Consult the polishing machine manufacturer as well as the diamond tooling manufacturer before polishing. These manufacturers may be able to give important tips on what has worked best for them when polishing *Ultratop*.

Full mechanical polish (dry polish only)

The following outline is a guide for using the Xtreme Polishing System:

1. After application of *Ultratop*, allow it to cure for at least 24 hours at 75°F (24°C) before polishing.
2. If *Ultratop* has cured for longer than 7 days or a lightweight polishing machine is being used, begin the grinding process by using 30- to 40-grit metal-bonded diamond pads (XPS 30). Polish with this gritted pad first in a north-south direction, and then in an east-west direction, to achieve an even scratch pattern.
3. If *Ultratop* has cured for less than 7 days or a heavier polishing machine is being used, begin the grinding process with 60- to 80-grit metal-bonded diamond pads (XPS 70). If this is the first cut of the *Ultratop*, polish with this gritted pad twice first in a north-south direction, and then in an east-west direction, to achieve an even scratch pattern.

4. Polish with 120- to 140-grit metal-bonded diamond pads (XPS 120), first in a north-south direction, and then in an east-west direction.
5. Polish with 50-grit transitional diamond pads (STI #3) in a north-south direction.
6. Polish with 100-grit transitional diamond pads (STI #4) in an east-west direction.
7. Polish with 200-grit resin-bonded diamond pads (STI #5) in a north-south direction.
8. Polish with 400-grit resin-bonded diamond pads (STI #6) in an east-west direction.
9. Remove all dust by sweeping with a microfiber mop.
10. At this time, a liquid-silicate-based densifier can be applied. It is not critical that a densifier be applied; the decision about using a liquid densifier should be based on the results seen with the pre-job mockup.
11. Polish with 800-grit resin-bonded diamond pads (STI #7) in a north-south direction.
12. Polish with 1,500-grit resin-bonded diamond pads (STI #8) in an east-west direction.
13. Polish with 3,000-grit resin-bonded diamond pads (STI LUX) in a north-south direction.
14. Sweep the surface with a microfiber mop to remove all dust.
15. Apply an acrylic or wax-based hardener, often referred to as a "guard" or "shield" product, with a clean microfiber mop or airless sprayer to coat the entire surface.
16. Once the guard/shield product has dried (for about 20 minutes at 75°F [24°C]), use a burnishing machine at $\geq 2,000$ rpm along with a 3,000-grit burnishing pad to burnish the guard/shield into the surface of the polished slab. For details on the burnishing process, consult the manufacturer's data sheet for the guard/shield product.

Note: For large projects or when a more homogeneous appearance is required, request that the product be of the same batch when placing your order.

Topical polish (dry polish only)

1. Allow *Ultratop* to cure for about 24 hours before grinding the surface.
2. Begin grinding *Ultratop* with an HTC 80-grit C series or CA series metal-bonded diamond pad (before applying a densifier). When exposing aggregates in the mix or when removing severe marks from a gauge rake or smoother trowel, you may need to start at a lower diamond grit.
3. After grinding, apply the densifier. (Ensure that the densifier has previously been tested as part of the mockup cycle. Do not apply alternate densifiers on jobsites without testing to validate results.) In most cases, lithium-silicate-based densifiers/hardeners work well with *Ultratop*; such other silicate densifiers as sodium- or potassium-based emulsions may be used if successfully tested. Follow the manufacturer's instructions for the densifier applied. In many cases, the densifier requires waiting 2 to 24 hours after application in order to commence with the polishing.
4. After the topping has been densified, polish it progressively with the following until the desired polish is achieved:
 - a. HTC EZ-BB 80- to 100-grit resin-bonded diamond pads in a north-south direction
 - b. HTC Fenix 200-grit resin-bonded diamond pads (blue pad) in an east-west direction
 - c. HTC Fenix 800-grit resin-bonded diamond pads (white pad) in a north-south direction
 - d. HTC Fenix 3,000-grit resin-bonded diamond pads (green pad) in an east-west direction

Protecting *Ultratop*

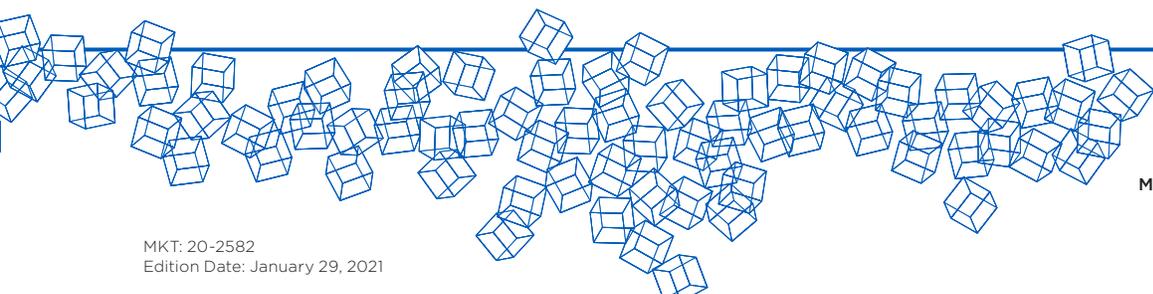
Clean the surface with a neutral-pH cleaner and water, and then allow the surface to dry completely. Polished *Ultratop* should be sealed with a commercial floor finish, which will help ensure stain-proofing of the finish and maintain a polished surface. Test with a mockup to determine acceptability of final appearance.

Apply a polish guard with a manufacturer-approved sprayer at the recommended coverage rate. Spread with a wax applicator or microfiber mop and wait 2 to 3 minutes. Then use a high-speed burnish (at a minimum 2,000 rpm) with an HTC White Twister Pad. Repeat steps if a second coat/application is desired.

For the owner of the newly polished *Ultratop*, it is crucial to understand that regular maintenance is key to the longevity and polished look of *Ultratop*.

Jobsite conditions vary and may present installation issues not covered in this technical bulletin. Please contact MAPEI's Technical Services Department for further assistance.

For MAPEI products referred to in this technical bulletin, consult the most current and appropriate TDS at www.mapei.com.



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