

MASTERTOP® 300 ANVIL-TOP®
Heavy duty metallic-aggregate floor topping

IMPORTANT: READ THIS FIRST

Master Builders, Inc. does not warrant the performance of this product unless the instructions of this document and other related Master Builders documents are adhered to in all respects.

Applications:

- Key areas subject to heavy traffic, impact, abrasion and continuous wear
- Loading docks
- Waste transfer facilities
- Truck or tractor repair areas
- Areas where safety regulatory agencies have deemed other floor surfaces hazardous because of excessive wear, dangerously buckled steel plates, etc.
- Aircraft arrestor cable slabs

NOTE:

- Do not add cement, aggregate or admixtures
- Store in a dry place
- Do not use if bag is damaged

DIRECTIONS FOR PLACING MASTERTOP 300 ANVIL-TOP :

These steps have been found to be an effective method of applying MASTERTOP 300 ANVIL-TOP to obtain a floor which is highly impact and abrasion resistant. However, ideal characteristic results of these, or any construction product, are highly dependent upon ambient conditions, adequate labor, proper equipment, surface preparation, etc.

Arrange to have a pre-job conference with your local Master Builders Representative to discuss all aspects of the MASTERTOP 300 ANVIL-TOP application, surface preparation, etc.

NOTE: Under rapid drying or hot, ambient conditions, CONFILM® evaporation retardant should be sprayed from a garden sprayer, according to label instructions, to prevent rapid moisture loss from the MASTERTOP 300 ANVIL-TOP.

Estimating Data:

One 55 lb (25 kg) bag mixed with 0.63 U.S. gallon (2.4 litre) of potable water provides approximately 0.28 ft³ (0.0079 m³) of screedable topping at a 6 inch (152 mm) slump.

The recommended dry material and the water content given above will yield 3.35 ft² (0.31 m²) at 1 inch (25.4 mm) thickness of MASTERTOP 300 ANVIL-TOP, allowing no waste.

One 3300 lb (1498 kg) bulk bag mixed with approximately 38 US gallons (144 litres) of potable water provides approximately 16.8 ft³ (.456 m³) of screedable topping at a 6 inch slump.

Mixing:

Using an appropriate mixer, add three-fourths of the mixing water followed by the MASTERTOP 300 ANVIL-TOP in a slow, steady stream, then mix for approximately two to three minutes. Add remaining water and continue mixing for a total of five minutes. Mix thoroughly for a homogenous mix at the recommended slump.

The use of ice water will reduce the amount of water necessary for a given consistency, and will result in increased working time and strength of the topping. Do not use water in an amount or at a temperature that will cause bleeding or segregation.

Discharge topping from the mixer for immediate placing and screeding. If lumps are present, remove.



There are three methods that can be used to successfully place MASTERTOP 300 ANVIL-TOP:

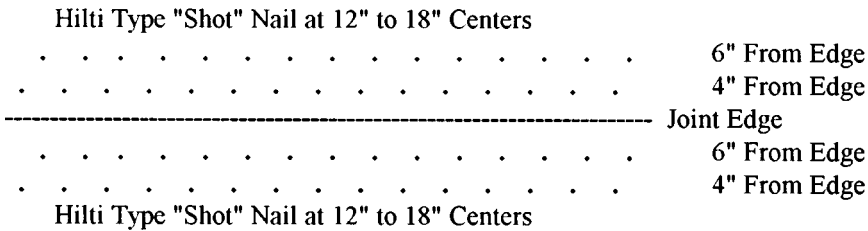
Method 1 - Suggested procedure for applying MASTERTOP 300 ANVIL-TOP over existing, properly roughened, hardened concrete.

To achieve proper bond of MASTERTOP 300 ANVIL-TOP the surface of the concrete should show a 1/4 inch (6.35 mm) amplitude. All laitance and contaminated areas must be removed, coarse and the aggregates shall be exposed. This is best achieved by multiple passes with a shot blast machine with heavy shot, bush hammer or scarifier. The concrete surface should be tested for tensile bond pulloff strengths per Master Builders recommendations. The minimum tensile bond pulloff strength shall not be less than 250 psi and substantial coarse aggregate fracture shall be revealed. The test must be performed in several locations on each slab section scheduled for placement of MASTERTOP 300 ANVIL-TOP. The temperature of the contact surfaces should be such that the bonding material can be applied and cured as per Master Builders recommendations. The base slab (substrate) surface must comply to Section 4.2 of ACI 503.5R-92. This section is specific to the surface, accessibility and temperature conditions during the application of the epoxy bonding agent.

Treatment of all joint edges and the perimeter of the pour can be performed in one of two fashions.

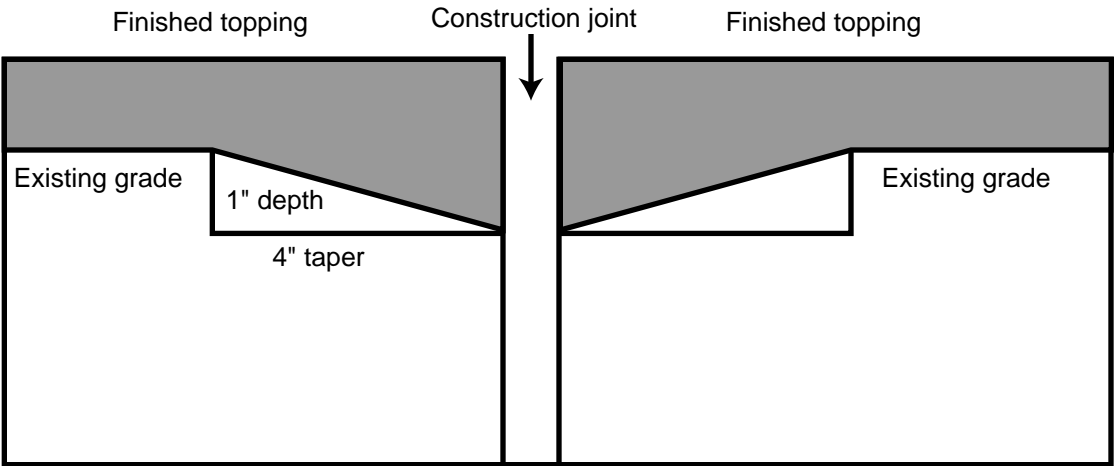
- (1) The fasteners should be staggered 4 inches to 6 inches (101 to 152 mm) from the edge, 12 inches to 18 inches (305 to 457 mm) on center, as shown in Diagram 1.

DIAGRAM 1



- (2) Mechanically remove the substrate concrete 1 inch (25.4 mm) deeper than the specified topping thickness, tapered over a 4 inch (101 mm) width as shown in Diagram 2. Rough texture of the substrate must be provided.

Diagram 2



The anchors shall be tested for solid embedment.

Method 1, continued

Prior to the MASTERTOP 300 ANVIL-TOP placement the concrete shall be tested in accordance with ASTM D-4263, Indicating Moisture in Concrete by the Plastic Sheet Method. Excessive moisture must be force-dried to produce a condition suitable to where the bonding material will achieve proper bond strength. Internally moist concrete may cause vapor pressure upon curing and delaminate the topping.

Master Builders ANVIL-BOND™ liquid epoxy bonding agent shall be used to bond the topping to the existing concrete. Mix according to label instructions and brush or roll onto the concrete surface. Place the topping while the epoxy is still tacky, like fly paper. If the ANVIL-BOND has already set, brush more of the ANVIL-BOND over the hardened surface, do not attempt to retemper with solvents. Cover only enough surface that can be topped with topping while the epoxy is still tacky.

Method 2 - Suggested procedure for placing MASTERTOP 300 ANVIL-TOP over recently placed (less than 3 days), hardened, properly roughened concrete with a slurry bond coat.

The concrete shall have a minimum of 4000 psi at 28 days as per ACI 302 recommendations, and be poured at a maximum slump of 4 inches (101 mm).

After placing, screeding and floating the base concrete, roughen the surface with a nail rake by raking in one direction only. The minimum profile amplitude shall be 1/4 inch (6.35 mm). Avoid a criss cross pattern. Take care to roughen the edges. Alternately, a chemical texturing agent may be used to provide the needed profile without dislodging the coarse aggregate in the base slab. Note: discuss this application with a Master Builders representative.

Do not use liquid type curing compounds for curing the concrete if Method 2 will be used. Substrate slab must be moist cured and kept wet prior to application of MASTERTOP 300 ANVIL-TOP and slurry.

The concrete surface should be saturated prior to placing the MASTERTOP 300 ANVIL-TOP. Remove standing water immediately prior to the application of the bond coat.

A neat cement slurry with a creamy, paint like consistency should be mixed as needed during the application. The slurry should be scrubbed into the damp surface with a clean stiff-bristle broom just preceding the application of the MASTERTOP 300 ANVIL-TOP. The bond line should be between 1/16 inch and 1/8 inch (1.6 and 3.2 mm) in thickness with no puddles present. Mix only as much bonding slurry as can be covered with the MASTERTOP 300 ANVIL-TOP before the slurry dries out. DO NOT RETEMPER the bond coat with water.

Method 3 - Suggested procedure for continuous two-course application over fresh concrete.

MASTERTOP 300 ANVIL-TOP may be placed monolithically over fresh concrete. The concrete shall have a minimum of 3500 psi (preferably 4000 psi) at 28 days as per ACI 302 recommendations, and be poured at a maximum slump of 4 inches (101 mm).

NOTE: Discuss with your Master Builders representative suggestions on concrete compressive strength.

After the concrete has been placed and the water sheen has disappeared, just prior to initial set [when a finisher with knee boards can leave an approximate 1/4 inch (6.35 mm) impression] float the concrete with a machine fitted with float shoes. Hand float the edges with wood floats. Give special attention to the corners.

Under severe or rapid drying conditions, apply CONFILM® to both the concrete and MASTERTOP 300 ANVIL-TOP.

If free bleed water exists on the surface of the slab, remove it just prior to the floating. A rubber hose dragged slowly across the surface is the best and easiest method of removing the water. After floating the edges insert headed textured steel anchors securely into the concrete. Immediately after floating, the MASTERTOP 300 ANVIL-TOP must be placed.

Method 3, continued

Extreme skill is necessary for this type of application to achieve an integral bond between the topping and concrete. Base (substrate) slab placement and MASTERTOP 300 ANVIL-TOP must occur simultaneously during the concrete operation, and personnel coordination and equipment coordination make this a very risky method of application. If other placement options are available, this method of placement should not be used.

Placing and Finishing:

Place and screed the MASTERTOP 300 ANVIL-TOP in sections that will assure that the finished elevation is maintained. Because of the relatively high slump of MASTERTOP 300 ANVIL-TOP, a roller or pipe screed is the preferred method for obtaining a uniformly flat, dense surface without excessive segregation from vibration. Tamp the topping thoroughly with a jitterbug to consolidate and ensure contact with the bond surface.

As soon as the MASTERTOP 300 ANVIL-TOP will support an operator and machine without leaving impressions on the slab or creating excessive fines at the surface, float with a mechanical trowelling machine equipped with float shoes. For small areas, floating with hand tools is acceptable.

Following one machine floating, proceed with one or two normal trowelling operations to obtain a hard steel trowel or burnished trowel finish. Trowelling operations should be timed and blade angle adjusted to avoid blistering. Periodically measure the topping thickness, especially in the center of the slab.

Joints:

Joints and proper joint spacing is necessary to limit the cracking tendencies of the product due to shrinkage (contraction joints), movement between the floor and other structural members (isolation joints) and concluding pours from one day to another (construction joints). Procedures for base slab joint location, spacing, depth, etc. should be conducted in accordance with ACI 302.1 R-6 section 2.3. Maximum joint spacing should not exceed 20 feet. Base slab joints must be matched in the MASTERTOP 300 ANVIL-TOP topping by forming or other suitable means.

NOTE: For MASTERTOP 300 ANVIL-TOP placement on hardened slabs (Method 1) when joint spacing exceeds 20 feet, intermediary joints must utilize anchors. See your local Master Builders sales representative for further recommendations.

Curing:

Moist curing is necessary to attain the design strength, surface impermeability and wear resistance of the MASTERTOP 300 ANVIL-TOP. After finishing is complete and when the surface will not be marred by foot traffic, mist spray the surface of the topping with water and cover with weighted polyethylene sheeting for a minimum of 7 days. When mist spraying is not possible use soaker hoses with burlap, or two layers of saturated burlap or similar type material and cover with polyethylene for a minimum of 7 days.

After 7 days of wet curing, and while the MASTERTOP 300 ANVIL-TOP is still moist, remove excess water with a squeegee. Immediately apply two coats of MASTERKURE®, MASTERKURE® 200W or MB 429 in cross directions using a short nap roller (MASTERKURE 200W, one coat only). The use of a roller will ensure complete coverage of the MASTERTOP 300 ANVIL-TOP. Do not spray on a membrane curing compound. Do not allow the MASTERTOP 300 ANVIL-TOP to dry out prior to the application of the curing compound.

SUPPLEMENTAL INFORMATION ON MASTERTOP 300 ANVIL TOP:

During raised trowelling, if any blistering occurs, flatten trowel blades immediately to remove blisters. Wait until raised trowelling does not produce blisters.

For information on applications that would require special considerations, contact your local Master Builders representative .

Because MASTERTOP 300 ANVIL-TOP contains iron aggregate it is an excellent conductor of both hot and cold temperatures. It can vary in dimension much more quickly than the underlying concrete thus causing potential bond failure. For these reasons, including freeze-thaw and potential oxidation of the aggregate, special care should be taken for MASTERTOP 300 ANVIL-TOP use outdoors. Special precaution must be taken to mitigate these environmental conditions. (See your local Master Builders representative for specific details.)

CAUTION:

MASTERTOP 300 ANVIL-TOP contains portland cement, which in combination with water, may cause skin irritation, rash and alkali burns. Do not wear contact lenses when working with this product. Remove clothing and wash before reuse. Keep product out of the reach of children.

For information on personnel protective equipment, first aid and emergency procedures, and water disposal methods, refer to the product bag or Material Safety Data Sheet (MSDS) on the job site or call (216) 831-5500 in Cleveland, Ohio.

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