

Concrete Overlay: Protection, Maintenance, and Care

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Cement-based polishable overlays for interior applications continue to grow in popularity due to their ability to create durable, beautiful walking surfaces. An overlay is a final floor finish that is poured and placed on top of existing substrate.

When an overlay is installed properly and has been expertly refined, it can last for many years, even under heavy use. Retail markets in urban areas have particularly seen a rise in this type of topping solution where retrofits are the norm and floor traffic demands a more resilient floor than similar polymer-based flooring solutions. However, when dealing with cement-based products, it is important to remember that many of the same procedures for creating a concrete slab also need to be used in successfully creating and installing a concrete overlay.

Reviews and Expectations

Unlike tile, carpet, and other prefabricated flooring solutions, concrete overlays are engineered on site. This means that the team must not only think of the project as the site of their future facility but also as the factory that produces the final finished floor. Quality control, scheduling, and protection are needed to allow for proper curing and installation, and they all have a direct impact on the quality of floor that will be handed over to the owner. Again, think of your jobsite as a factory.

For the overlay to have the best chance at succeeding, the floor surface that will receive the overlay must be cleaned and prepared. Cracks will need to be cleaned and filled, and the floor must be leveled sufficiently to create a final flat floor surface. This will help avoid gradual change from one area to the next and will eliminate unwanted physical features of the substrate from telegraphing to the final floor finish. Remember to add details for existing joints and cracks if they



An overlay is a floor finish that's poured and placed on top of an existing substrate. It is important to prep, prime, and clean the floor prior to pouring an overlay.

are missing from the drawings or construction documents because they will have to be honored with the new floor topping. Honoring a joint/crack means that it is cleaned and filled to be flush with the rest of the substrate to avoid telegraphing that joint/crack into the final floor finish. On your site walk with the owner's representative and the architect, make sure you set the expectation for why these floor voids need to be honored and how that can affect where zinc strips are placed when honoring.

Overlays are designed to go down thinly while still maintaining a resilient surface for walkability. Therefore, it is important that the underlying base is structurally sound. A floor runs the risk of delamination if it's installed on top of an unsound surface. It is also crucial to treat the subbase with some type of moisture mitigation system that will control moisture/vapor movement from the existing concrete slab to the new cement overlay floor. A simple test for the presence of moisture vapor transmission can help you decide on how to treat the floor, but it is standard to use an epoxy system to stop vapor transmission and then broadcast sand to create a texture for the overlay itself to adhere to.

Tips and Tricks

Once it's time to install the overlay, be sure to use best practices. All manufacturers will have their specific requirements for mixing and placing concrete. After all, no manufacturer wants its products to fail. Follow the instructions for



When applied properly, cement-based overlays can come in a variety of colors and textures and provide beautiful walking spaces.

mix time, water and cement ratios, and cure times. Make sure that the floor will be free of other trades while the concrete cures. General contractors may not understand the idea that the facility is the factory and may insist on placing the schedule ahead of the curing needs of the floor you are fabricating. While different overlay products may require slightly different circumstances or timing for full curing, it is imperative that the owner's entire team understands the importance of the cure time in the creation of the final concrete overlay floor.

How you protect your floor is just as important as how you create your floor. Some overlays can cure within 48 hours of pour and can accept light foot traffic, but you should always avoid using scissor lifts and other heavy equipment on top of curing cement-based overlays. The change in pressure due to heavy loads will affect how the concrete cures underneath it, impacting the color, consistency, and even integrity of the overlay itself.

Similar to normal concrete slabs, avoid using tapes and adhesives that prevent vapor transmission through the top of the curing overlay. This will help to avoid discoloration

and tape lines from becoming a legacy feature of the floor. There are also protective products available for architectural finished floors that will allow for heavier foot traffic and even framing activity, if necessary. They can add a great deal of protection and peace of mind through the construction schedule when used.

Many people enjoy creating a range of gloss levels for their overlays. Cement-based systems can be polished to a matte, semigloss, or glossy surface. Unlike a "plastic" or polymer floor, an overlay with cement can also have a densifier used to further strengthen the walking surface. However, the floor must be fully refined (aka mechanically processed to achieve the required surface texture grade) to create adequate protection against staining and foot traffic. Without completely processing your surface, the overlay will require constant reapplication of sealers and guards throughout its life cycle. This is not only unsustainable or environmentally friendly, but it also has a direct impact on the floor's performance. Wear patterns can begin to show, especially in floors that have received color applications, and the floor will lose its original aesthetic.

For a floor surface to be fully processed, it will have to be refined wet, turning the top layer of the overlay into a slurry

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