

PROGRESSIVE DAIRYMAN

Repairing milking parlor flooring: What are the options?

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At first blush, the floors of milking parlors would seem to be one of the last areas of concern for dairymen. Typical milking parlor floors are generally concrete slabs designed to withstand the heavy loads of the milking cycle. Unfortunately, concrete is by no means the perfect long-term solution to safe, hygienic floors.

Lactic acid will attack unprotected concrete, as will chemical cleaners. Over time the surface “cream” will be eaten away, leaving larger stone exposed, which will only accelerate the deterioration. Hastening this process is the constant impact of cows’ hooves which gradually breaks down even higher-strength concrete, and constant thermal shock from hot water sanitary washdowns can result in spalling of the concrete, particularly if cracks have formed from ground settlement. This inevitable deterioration not only presents a safety hazard for the cows as holes deepen but presents a serious challenge to effective sanitation, as the concrete skin is eroded by chemicals and impact. Once exposed aggregate appears, it is time for repairs.



A most effective repair involves installation of a chemical-resistant, heavy-duty polymer topping, usually applied a minimum of one quarter-inch or considerably thicker if concrete erosion is significant. Flexibilized epoxies or urethane cements are the most commonly accepted materials to use, as they present the best combination of longevity, ease of application and cost. Acid brick is another alternative, as it will provide many years of use with minimal repairs; however, its lengthy installation process and high cost must also be considered. Once the decision has been made to make the repair, the selection of the exact material to use becomes of paramount importance. There are of course many available materials but certain criteria should be followed to ensure a satisfactory flooring repair:

- The material should be a resin-rich, fast-cure material that can be applied in any thickness in a single step, enabling the floor to be returned to service in a matter of hours, not days.

Typical turnaround time should not exceed 24 hours, including prep, installation and cure, at 70°F (curing times lengthen as temperatures drop)

- It must be impact-resistant. Typical sand-filled mortars will not provide the long-term impact resistance needed; instead, an iron-filled aggregate must be used.

- The system should provide the necessary anti-slip resistance under wet conditions to ensure the animals’ and employees’ safety. A harder aluminum oxide or silicon carbide material should be used at the surface to provide such safety.

- The system should have zero odor upon installation so as not to adversely affect the animals in nearby milking parlors.

- The material must have good damp adhesion, as conditions rarely assure totally dry floors can be guaranteed.

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Selection of material is only one of the factors that the dairyman must consider before undertaking the repair. For example, maximum allowable downtimes must be established.

As mentioned earlier, for the relatively small areas involved (generally 500 to 1,000 square feet), a 24-hour downtime is reasonable so long as the right material and contractor are selected.

This time period can be compressed somewhat by higher-than-ambient temperatures, use of very fast cure materials and a larger installation crew, but in no case must the new floor be placed in service before it has cured hard.

The area should be turned over to the contractor in a serviceable condition, meaning all loose equipment should be removed, leaks stopped and entry to the area prohibited during the installation/cure process.

Cost of material and installation must be considered, as well. These systems can easily run \$10 per square foot installed, the exact amount depending on the condition of the concrete, the environment and size of the area.

Selection of the installer must be coordinated closely with the material supplier to ensure that the former is knowledgeable in that material selected and that the material supplier's material warranty fully backs the installer's warranty.

This is a highly skilled profession and the success of the entire operation hinges on the selection of a contractor who is a proven performer in such short windows of operation.

We highly recommend taking the time to review not only the entire operation but also agree on sample texture before the start of the job. Avoiding surprises is key to a successful transaction.

While we have concentrated on repair of concrete parlors, the far-sighted operator will build into his construction budget (when planning to expand his operation) the cost of a polymer floor before starting operations. This can reduce the installation cost, as well as saving valuable milking time down the road.

Waiting for the inevitable erosion of the concrete only increases the complexity (and cost) of the job but will result in more costly downtime if delayed too long, where deterioration is so severe that an entire concrete slab must be replaced. **PD**

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