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CTI FIELD REPORT 72-2-2 (R-86)

SUBJECT: TREATMENT AND CLEANING OF GLAZED AND UNGLAZED TILE

I. INTRODUCTION

- A. The tile under consideration in this field report is unglazed tile. It can be tile that will qualify under the requirements of ANSI A137.1 Standard Specification for Ceramic Tile. It can be tile that will qualify under the requirements of CTI-69-5, "Glazed and Unglazed Special Purpose - Faience Ceramic Tile Test Procedure". It can be more porous tile.
- B. The processing or treating of unglazed tile has been called many things such as sealing, waxing, etc. In this field report, we will refer to the processing which is put on the tile to prevent stains as a filler. The reason it is called a filler is because there is no film left on the surface of the tile, all excess material penetrates into the tile or is removed.
- C. Some representatives of manufacturers, marketing tile, state that their tile is stain proof without processing it with fillers. The tile manufacturers literature gives no recommendation for filling the tile.
- D. Experience in the field has taught us that the fillers are necessary with perhaps one exception, and that is for dark red colored quarry tile.
- E. Filling the tile is necessary, the question is when to do it.
 1. Fillers in the tile before installation?
 2. Fillers in both the tile and grout joints after installation?
 3. Fillers or protective coatings in the tile prior to installation and a filler over the tile and grout joints after installation?
 4. The desired result is to provide an acceptable unglazed tile floor for the owner. A floor that is acceptable in appearance and a floor that can be kept that way with regular cleaning procedures.
- F. This field report for CTI members contains information on two products. We are doing it because we feel the information is vital for you, the tile contractors. The products are Aqua Penetrating Sealer and Watco Tile and Brick Sealer. They are the only products we know of that will do the necessary job and not leave a film of sealer on the tile. With the Watco process, all of the excess material is removed. With the Aqua process, all of the material penetrates.
- G. There may be additional material available that will work the same way, but if so, the information has not been given to us to test. The Ceramic Tile Institute has done some experimental work with eleven different materials. Most have problems. **Most** leave shiny coatings on the tile. Some of the shiny coatings are then removed if grease is spilled on them. When this occurs, the tile are stained through the coatings.

II. NECESSARY STEPS FOR ACCEPTABLE UNGLAZED TILE FLOORS

- A. Floors must be kept clean prior to the time of applying the fillers. Regardless of the color of the tile, they can be kept clean if the recommendations in our reference specifications are followed. This means that they must be protected with a paper covering and it also means that other trades must not remove the paper and allow construction stains to get on the tile.

- B. Processing the tile with a treatment such as paraffin wax prior to installation will help in keeping them clean. The paraffin wax will not penetrate into the tile like a filler to provide a protective coating to prevent stains after the paraffin wax is removed.

WATCO APPLICATION

1. All loose dirt and dust must be brushed off of the clean floor and the floor must not be wet from mopping or from any other cause. The filler treatment must be done on dry floors. In addition to the usual directions to shake well, Water is not to be used in direct sunlight and it is to be used at normal room temperature.
2. The best and easiest application is with a soft brush. Put on an even saturation of Watco and let it soak in for 30 minutes. Keep to an even grout line during the application. Lapping the Watco over part of a tile will make a mark that cannot be removed. Avoid hand prints, footprints and drops of Watco. if they get on untreated tile, wipe them off immediately.
3. At the end of the 30 minutes, reapply a second light saturation of Water and let soak in another 30 minutes. Brushing it into the grout joints helps make it penetrate.
4. Within one hour, remove all surplus Water by wiping completely dry. We have found the use of turkish towels which can be purchased as select rags from a janitor supply house, makes the best wiping rag.
5. All rags that have been saturated with or have Watco on them are to be soaked in water to prevent spontaneous combustion.
6. The quarry tile floor is to be buffed after 24 hours drying time.
7. A plentiful supply of butcher paper on hand is used to cover the areas of floors that have been filled and polished dry before proceeding to other areas. If the Watco is walked in it will ruin the floor as the footprints cannot be removed.
8. The butcher paper is also used to cover the floor to protect against possible traffic during the 24 hour drying time.
9. A couple of tricks have been picked up during the time we have been working the the Watco filler.

..Shiny spots indicate that too much Watco has been left on the surface. A reapplication of Watco will soften them and then they can be wiped away.

..After completion of the Watco filler, some grout joints may be more absorptive and will have a lighter appearance. This means that those joints must be given an additional complete cycle treatment. That is, apply Watco, let stand 30 minutes, reapply and remove the surplus. We have had some joints that have taken three applications before they obtain the uniform appearance. it must be realized that all grout joints are considerably darkened by the Watco filler.

AQUA PENETRATING SEALER APPLICATION

10. The surface of the material to be sealed must be thoroughly cleaned to get a good bond. Aqua Penetrating Sealer may be applied by sprayer, brush, sponge applicator or roller.
11. Under certain conditions, a white precipitate or residue of sodium carbonate may be deposited as the sealer dries. To avoid the white precipitate, which is especially noticeable on dark surfaces, wipe off any excess and observe the following precautions:

..Read the Instructions thoroughly.

..Avoid rundown, overlapping or second coating. Especially do not allow the sealer to stand in puddles on the surface to be sealed, either on the tile or grout joints. The resin in Aqua Penetrating Sealer has a very high resistance to oil solvents (lacquer thinner). Either Aqua Mix Tile Cleaner, a cleaning agent with phosphoric acid, or chlorinated hydrocarbons (paint stripper) may be tried for removal of this white residue.

12. Do not allow sealer to come in contact with glass or aluminum. If contact is made, wash thoroughly before sealer dries to avoid staining or etching. If sealer is allowed to dry in glass or aluminum, it may be necessary to scrape or use an aluminum sponge to remove it.
13. When stored in air tight, sealed containers at or below 77°F (25°C), Aqua Penetrating Sealer has a shelf life of twelve months from the date of shipment. If the temperature is allowed to drop below freezing, a crystalline structure may develop. This does not permanently impair the effectiveness of the material. When reheated to room

III. FOR QUARRY TILE STAINED BEFORE IT IS FILLED

- A. It depends on what the stains are. Some grease stains on some colors will defy removal, and it is often necessary to tear out the tile and replace it. It is always best to take a trial area and use the following cleaning procedure before doing the entire floor.
- B. Grease and oil stains are most difficult to remove, but sometimes they can be lightened and then with the application of the filler, they are not so apparent. It should be understood, however, that once the grease and oil stains are in the untreated tile, they cannot be removed.
- C. If the tile and grout joints have been burnt from too strong or improper acid cleaning, they are most difficult, and sometimes impossible, to correct. The best results can be obtained by the following scrubbing procedure.
- D. The cleaning procedure is used over the entire floor if the sample area indicates that it will do the necessary clean up.
 - 1. Wet the quarry tile floor with clean water.
 - 2. Paint on an application of liquid cleaner, which has not been diluted with water. Leave on as long as possible before additional cleaning, hours will help, and over night is even better. A good product for this cleaning is Aqua Miracle Cleaner.
 - 3. Make up additional mop water that has the proper amount of cleaner, with the unglazed tile floor, going right over the full strength coat that has been applied.
 - 4. Sprinkle on white scouring powder, such as Bon Ami.
 - 5. Use a hand activated scrub brush for the sample area, use a janitorial scrubbing machine with a stiff brush that does not collapse when wet for cleaning the entire floor. The soap and scouring powder is mixed into a wet slurry during the cleaning operation, Scrub thoroughly.
 - 6. Rinse and remove all of the cleaning slurry. A wet vacuum will help with the removal.
 - 7. Do not allow the tile to dry without buffing. Use turkish towels to buff the tile dry.
 - 8. Cover the floor with butcher paper to keep clean until the filler is applied. The butcher paper is used because it will protect the floor and still let the water from the mopping evaporate through it.

IV. CONCLUSIONS

- A. Protection of the quarry tile before installation, by the application of a filler or coating such as paraffin wax, will keep the tile clean. There are also grout releases on the market to protect the tile, but it is strongly recommended that they be first tried on some uninstalled tile.
- B. Paraffin wax will keep the tile clean during installation, but does not provide a penetrating filler to prevent stains after the paraffin wax has been removed.
- C. It is quite evident that the protective coating to the tile before installation will not provide the filler protecting that might be desired for the grout joints. Grout joints that are properly formulated with graded sand and cement, cover cured and kept clean, do not necessarily need a filler.
- D. The ideal installation would be to coat the quarry tile with paraffin wax before the quarry tile is installed. Leave it on and remove it at the final cleaning. Then give the floor the filler as outlined above.
- E. Most stains on unfilled quarry tile will defy removal on all colors other than red. Grease and oil such as cooking greases and hydraulic oil cannot be removed.
- F. Unglazed tile, kept clean during construction, can be filled and provide an acceptable floor.