SECTION 770-130-150
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CONCRETE FLOORS—MAINTENANCE

CONTENTS PAGE

1. GENERAL

1.01 This section covers methods for treating concrete floors and cleaning garage floors.

1.02 This section combines two former Bell System Practices containing closely related subject matter pertaining to concrete floors: Section 770-265-301, "Hardening and Dustproofing Concrete Floors" and Section 770-150-311, "Cleaning Garage Floors." Whenever this section is reissued, the reason for reissue will be given in this paragraph.

1.03 Concrete is composed of sand, cement, lime, and additives. As this mixture becomes hard, friction generated by pedestrian or vehicular traffic causes constant release of these components. Proper hardening and sealing of concrete floors will eliminate dusting, reduce maintenance, and render the desired appearance level.

1.04 Hardeners may be used for interior or exterior concrete and for terrazzo floors that are porous and show signs of disintegration.

1.05 There are good quality commercial products available through reputable janitorial supply firms that harden and seal concrete floors. Instructions for the proper use of these products will be found on the labels and should be followed closely. Adequate ventilation is a prime factor when using these products.

1.06 Concrete Floor Hardener Powder (Magnesium Fluosilicate) is also intended for use in hardening concrete floors in order to minimize or eliminate excessive dusting under traffic. It may also be used as a priming treatment preliminary to painting. Magnesium fluosilicate, also known as magnesium silicofluoride, is readily soluble in cold water. While the solution is normally harmless to the skin, it is advisable to avoid prolonged contact.

2. HARDENING AND DUSTPROOFING CONCRETE FLOORS

2.01 ***Hardening and dustproofing concrete floors:*** When using magnesium fluosilicate as the hardening agent, a new concrete floor should cure for at least 10 days before applying solution. Other commerical hardeners, either powdered or liquid, may be applied according to manufacturer's instructions.

2.02 ***Hardening and dustproofing old concrete floors:*** Old floors can be hardened and sealed after the surface has been thoroughly cleaned by removal of any oil, grease, and dirt. The floor should be allowed to dry thoroughly after scrubbing before applying the solution. When appearance is a priority, painting after sealing is advisable. Enamel or latex base floor paint can be used on a sealed floor. Two coats of paint should be the minimum on a newly sealed floor. Boiler rooms and furnace rooms are also generally painted. Concrete floors in garages, cable vaults, and shop areas are not generally painted since the seal itself is transparent and paint-like in appearance.

2.03 Preparation of the floor begins by having a thoroughly clean floor. Floors which may have been in use for some time are mopped and scrubbed with C-39 Hard Surface Cleaner. Garage

floors soiled with oil deposits are scrubbed with C-19 Garage Floor Cleaner. Oil-absorbent powder, sprinkled over oil deposits some hours before scrubbing, aids in absorbing the oil and expedites scrubbing. Thorough rinsing should follow mopping and scrubbing. The floor must be thoroughly dry before application of the hardener solution. Section 770-130-055, "Floor Mopping and Scrubbing," provides details covering these procedures.

2.04 ***Preparation of the hardener:*** Powdered magnesium fluosilicate is dissolved in water in the following proportions:

(a) For initial application—One-half pound of magnesium fluosilicate to 1 gallon of water. This will treat 60 to 80 square feet.

(b) For second application—2 pounds of magnesium fluosilicate to a gallon of water. This will treat 120 to 160 square feet of floor.

The magnesium fluosilicate is added to a pail of cold water and stirred with a paddle until thoroughly dissolved. This is ready for use within 2 minutes. This solution is slightly acid and should not be stored in metal containers for more than 2 days. When using a commercial hardener, application is in accordance with manufacturer's instructions.

Caution: B Plastic Goggles should be worn during preparation and use of this solution.

2.05 ***Application of the hardener:*** The first application of magnesium fluosilicate solution is applied by flushing a full pail at a time on the dry, clean floor starting near one end of the room. The solution is spread and respread over the floor as it soaks in, using a deck scrub brush. This procedure is continued until the entire floor has been treated. The solution is usually absorbed into the floor in irregular patches due to the varying porosity of concrete floors. Any splashing of solution on equipment or trim could be damaging and must be wiped off immediately.

2.06 Where puddles form, respreading is done from time-to-time for a period of up to 1 hour. Any puddles remaining are then mopped up and the floor allowed to dry. The first application takes 8 to 24 hours to dry, depending on humidity conditions. The second application is applied as above. The coverage per gallon will be approximately twice that of the first application. The solution is spread and respread as in the first application. The floor can be used after it is thoroughly dry. If the floor continues to show appreciable dusting when sweeping, a third application may be made, using a concentration of 2 pounds of magnesium fluosilicate to a gallon of water.

2.07 ***Care of tools:*** Wash the pails, wringers, mops, and brushes promptly to remove the magnesium fluosilicate solution. Any solution left in metal containers will cause rusting and also deterioration of the solution.

3. GARAGE FLOOR MAINTENANCE

3.01 This part describes the procedures for sweeping, hosing, and removing oil and grease deposits, mud, sand, etc, from concrete garage floors.

3.02 Garage Floor Cleaner, C-19, which is the detergent used for cleaning garage floors, is a granular powder comprised of 92 percent sodium metasilicate and 8 percent powdered soap. This combination is a strongly alkaline cleaner that is highly effective for oil and grease removal. Its continued use is not harmful to the concrete floor as are some of the other forms of alkaline cleaning materials. However, the material will remove any paint markings that may be on the floor.

3.03 The oil-absorbent powder is a specially treated, coarsely ground, Fuller's earth which is applied over oil deposits. It has no detergent properties, but it is very effective in absorbing motor oil deposits. The special treatment of the powder prevents the material from caking when wet. In the course of subsequent over-all manual sweeping, the oil-impregnated oil-absorbent powder serves as a sweeping compound tending to minimize the raising of dust. Its oil-absorbing properties continue for several days and the powder is usually left on the floor for the period between "over-all" sweeping or hosing.

3.04 Sweeping compounds are used where necessary for reducing dust when manually sweeping garage floors. If it is necessary to use sweeping compound, only a nonflammable type should be used. Type I described in Federal Specification P-S 863 is preferred. Since this compound contains mineral oil, it should not be used on asphalt tile

floors such as are commonly used in garage office space.

4. SAFETY PRECAUTIONS

4.01 Precautions should be taken to eliminate the hazard of slipping and falling by covering deposits of oil or grease on the floor as soon as they are observed.

4.02 When hosing or scrubbing operations are being performed, warning signs bearing the legend "Floor Being Cleaned" are to be placed at points where they will prevent vehicles or persons from entering the work area.

4.03 Close garage entrance doors and doors leading to offices, washrooms, etc, in the area to be swept or cleaned.

4.04 When operating a power-driven sweeping machine, it should be slowed down when passing near doors that may be opened unexpectedly.

4.05 Gasoline, kerosene, or other flammable materials must not be used for cleaning garage floors.

4.06 When mopping or scrubbing with garage floor cleaner or when sprinkling it on the floor, care should be taken to avoid contact with the skin or clothing. It should not be used for any cleaning operation which involves contact with the skin. Care should be taken that none of this solution will be splashed on walls, doors, or automotive equipment.

Caution: B Plastic Goggles should be worn when using this compound.

4.07 No tools or material should be left even temporarily on garage floors where a motor vehicle can run over them.

4.08 When garage floors are wet from melted snow or floor washing operations, cleaning forces should wear boots or rubbers with antislip soles.

5. APPLICATION OF OIL-ABSORBENT POWDER

5.01 Tools and supplies necessary for this procedure are:

Oil-absorbent powder

Putty knife or long-handled scraper.

5.02 Oil-absorbent powder is sprinkled over oil and grease deposits. Hard deposits should be scraped before applying the powder.

5.03 The powder is spread uniformly to cover each deposit. It is allowed to remain on the deposits for several hours and, if practical, until the next over-all sweeping operation.

5.04 Oil-absorbent powder is removed by sweeping and placing in a waste receptacle. It should not be hosed into drains.

6. SWEEPING PROCEDURE

6.01 Tools and supplies used in sweeping concrete floors are:

Palmyra floor brush or power-driven floor sweeping machine

Counter dustbrush

Dustpan

Lobby brush and pan for spot sweeping

Putty knife or long-handled scraper

Sweeping compound, if required.

6.02 Sweeping, as covered in this section, is divided into two classifications as follows:

(a) "Pickup" sweeping for removal of light, random, visible debris. This can serve as an alternate method to "over-all" sweeping when dirt accumulation is not general and is of light quantity.

(b) "Over-all" sweeping for removal of general dirt, including the oil-absorbent powder, may be done manually or by means of a sweeping machine.

6.03 "Pickup" sweeping is done with a lobby brush and pan. The visible debris, except oil-absorbent powder, is swept in the pan at each point noted. Special attention should be given to metallic items which may damage automobile tires. After sweeping, the debris is placed in rubbish containers.

6.04 "Over-all" manual sweeping is done with a 30-inch Palmyra floor brush or a power-driven sweeping machine. "Walk" type power machines are operated at about 4 miles per hour and "riding" type between 6 and 10 miles per hour. Upon completion of the sweeping operations, all brooms and machines are thoroughly cleaned.

7. SPOT CLEANING PROCEDURE

7.01 Tools and supplies required for spot cleaning are:

Pail, for water

Deck scrub brush or electric floor machine

Garage floor cleaner

Hose with adjustable nozzle

Squeegee, for cleaning depressed areas of water

Putty knife or long-handled scraper

Scoop shovel.

7.02 When the over-all floor does not require cleaning with a solution but it is desirable to remove oil, grease, or tar stains, these areas may be mopped or scrubbed.

7.03 The areas to be cleaned are swept and then wet with water. Garage floor cleaner is sprinkled over the soiled area. A putty knife, floor scraper, or deck scrub brush may be required to loosen certain deposits.

7.04 Excessive accumulation of deposits and garage floor cleaner are picked up with a scoop shovel and placed in refuse containers, and the balance of the deposits are hosed down the drain.

8. "OVER-ALL" CLEANING PROCEDURE

8.01 Tools and supplies required for "over-all" cleaning are:

Pail, for water

Deck scrub brush or electric floor machine

Garage floor cleaner

Putty knife or long-handled scraper

Hose with adjustable nozzle

Squeegee

Scoop shovel.

8.02 All loose debris is removed by sweeping. Any heavy deposits are scraped as clean as possible and removed before "over-all" mopping or scrubbing is started. All vehicles and movable equipment should be cleared from the area to be cleaned.

8.03 The area to be cleaned is swept and then wet with water. Garage floor cleaner is sprinkled over the area. A putty knife, floor scraper, or deck scrub brush may be required to loosen certain deposits.

8.04 After scrubbing is completed, the floor should be hosed down. Care should be exercised to prevent splashing of the solution on vehicles or other equipment during hosing operations. Any accidental splashing should be wiped off immediately to prevent possible damage to painted metal surfaces.

8.05 All tools should be thoroughly cleaned before being returned to their place of storage.

9. HOSING PROCEDURE

9.01 Tools and supplies needed for the hosing procedure are:

Lobby brush and pan or Palmyra floor brush

Putty knife or long-handled scraper

Hose equipped with adjustable nozzle

Squeegee

Deck scrub brush.

9.02 The hosing procedure described in this part is applicable when the nature of the dirt to be removed is such that it cannot be satisfactorily taken care of by sweeping. Ordinarily, such hosing does not involve the use of cleaning agents; however, Garage Floor Cleaner may be used to spot clean oil and grease deposits. Normal water pressure of 30 to 50 pounds per square inch is adequate for hosing operations.

9.03 All vehicles and equipment which can be moved should be cleared of the area to be cleaned. "Pickup" sweeping is done to remove random debris and oil-absorbent powder before the hosing operation begins.

9.04 In large garages, it is advisable to hose an area occupied by 20 vehicles at a time.

9.05 Hosing is started at the outside edges of the area to be cleaned with the stream of water directed at an angle of 45 degrees toward the nearest drain. The floor is flushed with a side-to-side pattern in an 8- to 10-foot path, always keeping the nozzle pointed toward the drain. Water that has collected in any depression is removed with a squeegee or mop, if necessary.

9.06 Precautions when using hose are:

(a) Garage floor cleaner or other cleaning solutions may damage painted surfaces if spattering occurs while hosing concrete floors.

(b) When hosing, the stream of water should be directed to prevent splashing on walls, columns, vehicles, or equipment.

(c) To clean under benches, tool racks, etc, the nozzle should be partially closed to avoid spattering.

(d) Washing of sweeping compound or excess floor cleaner into floor drains should be avoided. To prevent clogging, the drain sumps should be checked periodically to remove any dirt and trash.

9.07 After use, the hose should be disconnected, drained, neatly coiled, and returned to its storage space. Other tools used should be cleaned and returned to their proper storage places.