

## Chapter 2 PLANNING AND SCHEDULING

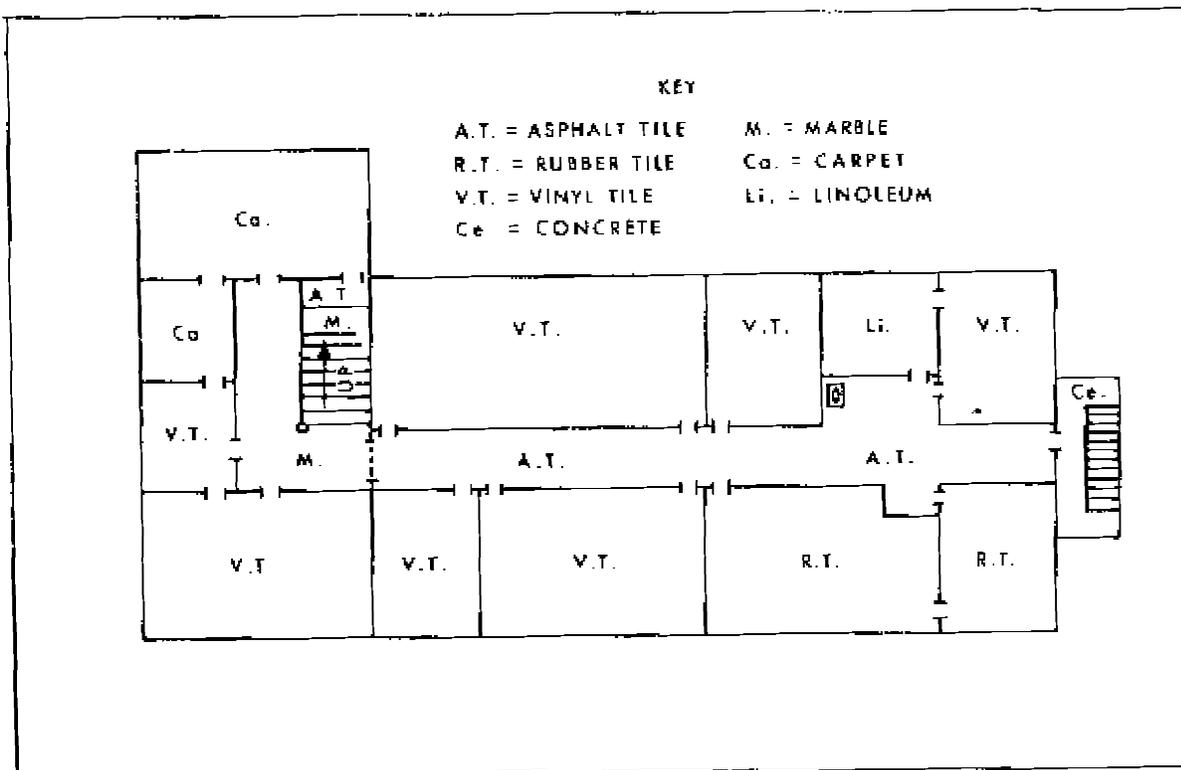
### Section 1 — DETERMINING WORKLOAD

\* **2.1.1 General.** A careful planning and analysis of custodial services is essential in the distribution of workers to provide efficient and adequate services. DA Form 5104 (Analysis of Custodial Personnel Requirements) (fig. 2) will be used by the Army for this purpose. DA Form 5104 is available through normal AG publications supply channels.

**2.1.2 Planned Operation.** Typical planning must begin with a survey to obtain complete data on all components of a building and the amount and type of traffic using each area. *Example,* a diagram (fig. 1) showing the different types of floor covering may be devised. Since each type of flooring will require different care, the chart and its accompanying information may also be used for the procurement of materials.

### 2.1.3 Reasons for Analysis.

- a. Determining workload.
- b. Determining proper distribution of workers for existing workloads and workload changes.
- c. To assure accomplishment of most essential services in all facilities for which custodial personnel are responsible when personnel authorizations are limited.
- d. Check on effectiveness of training program to determine whether each worker is carrying his share of the workload according to the standard manhour requirements resulting from the analysis.



**Figure 1. Planning Work by Floor Types.**



Table 1 — Frequency Guide For Custodial Services — Continued

Item and cleaning operations	Frequency areas		
	(1)	(2)	(3)
<i>Floors—(1,000 sq ft) obstructed</i>			
Sweep	D	D	2M
Dust mop	D	D	
Vacuum	W	W	
Damp mop	W	W	2M
Buff	M		
Strip and re wax	M6		
<i>Floors (1,000 sq ft) Heavily Obstructed</i>			
Sweep	D	D	2M
Dust mop	D	D	
Vacuum	W	W	
Damp mop	W	W	2M
Buff	M		
Strip and re wax	M6		
<i>Cleaning Toilet and Fixtures</i>			
Water closets, each	D	D	D
Urinals, each	D	D	D
Wash basins, sinks, each	D	D	D
Walls, partitions, woodwork	M	M	M
Floors	(See Floors, Finished)		
Dispensers, fill and clean each	D	D	D
Drinking fountains, each	D	D	D
Shower walls	D	D	D
<i>Glass Cleaning</i>			
Windows, each	M6	M6	M6
Mirror, damp wash; dry:			
49" x 25" each	W	W	W
88" x 31" each	W	W	W
<i>Dusting, averages:</i>			
Desks, each	D	D	D
Chairs, office, each	D	D	D
Bookcases, per section	2W	2W	2W
Files, four drawer, single, each	2W	2W	2W
Venetian blinds, shades, each	M2	M2	M2
Light fixtures			
Incandescent, each	M3	M3	M3
Fluorescent, each	M6	M6	M6
Walls, ceilings, pipes, screens	M6	M6	Y
<i>Washing, averages:</i>			
Wall, partitions (100 sq. ft.) (with ladder)	Y	Y	
Ceilings (100 sq. ft.) with scaffold)	Y	Y	
Baseboards, sills (100 lin. ft.)	Y	Y	
Glass partitions (100 sq. ft.) (with ladder)	Y	Y	
Tile (100 sq. ft.) (without ladder)	M6	M6	
Wash door (2 sides and frames)	Y	Y	
<i>Miscellaneous cleaning, averages:</i>			
Venetian blinds, wash-rinse, each	Y	Y	Y
Light fixtures, damp wipe:			
Incandescent, each	Y	Y	
Incandescent inclosed, each	Y	Y	
Fluorescent, each	Y	Y	
Radiators, with heaters	M6	M	M6
Air Conditioning grills	M6	M6	
Vacuuming carpets, 1000 sq. ft.	W	W	
Walls, partitions, woodwork:			
Hand, wash-rinse, average, 1000 sq. ft.	Y	Y	
Spot clean	D		

Table 1 — Frequency Guide For Custodial Services — Continued

Item and cleaning operations	Frequency areas		
	(1)	(2)	(3)
Furniture, clean, wax, polish	M6	M6	M6
Stairways, sweep or mop	3W	3W	
Entrances, sweep or mop	3W	3W	3W
Sand Urns, clean, each	D	D	
Ashtrays, empty, clean, each	D	D	
Wastebaskets, empty, each	D	D	D
Trash removal	D	D	D
Classroom Blackboards, 100 sq. ft.	D		
Carpet shampooing, 1000 sq. ft.	Y		

d. Enter the number of fixtures, square feet of walls, partitions, and floors cleaned opposite each building area listed in the appropriate columns under toilet and fixture cleaning.

e. Enter the number or area in square feet of each item cleaned in the appropriate columns under glass and miscellaneous cleaning.

\* f. Using the frequency guides in table 1, and unit times in TB 420-10, enter the frequencies and manhour requirements for each cleaning operation to be performed. Manhour requirements should be either all on a monthly basis, or all on an annual basis for each analysis.

g. Enter the total manhours for each type of cleaning operation at the bottom line of each column, and the totals for each building in the right hand column. The grand totals across the bottom line, and of the right hand column should be equal. These totals indicate productive manhours using Engineering Performance Standards.

\* h. Enter total productive manhours under Manhour and Personnel Requirements at top of form in item No. 1. Figure 2 is a sample analysis of DA Form 5104 and is an example only. Items 2 and 3 will be filled out according to TB 420-2 and TB 420-10.

will be used to determine manpower requirements for individual jobs and for total adjustments in consideration of non-productive time. Use DA Form 5104 to complete total manpower requirements. Since 87 percent of the custodial budget is expended for labor, any reduction in custodial services can only be established by reduction of frequency cycles or improvement in production rates. Proper scheduling should result in increased coverage and achieve noticeable savings in labor costs. Remember that each floor covering, hard and soft, is different and custodians must know floor limitations to apply the correct cleaning procedures. Under a properly established custodial services program, each man will be able to see the results of his own work.

**2.1.6 Flexible Two-Part System.** Workload, staffing, evaluation, and accomplishment, based on actual requirements, presents an ideal flexible method for a custodial program. This method indicates what can be done

**2.1.5 Preparation and Scheduling.** \*The next important step is to prepare floor or crew schedules. The schedule should show areas to be cleaned, waxed, and polished each day of the month. Such schedules must be flexible, of course, to meet changing needs and special requests. Applicable "Service Work Performance Standards" for custodial services

Located in Back of Manual

locally when an on-site and thorough review of the facts is made. Reasonable frequencies and levels of services are put into effect, area by area, and floor by floor, and then evaluated. The salient feature of the system developed is a two-part plan of personnel utilization for: (1) mandatory or daily routine services, and (2) variable or flexible services that can be changed in frequency. *For example*, while waxing might be a monthly assignment in a given area, a day or even a week slippage will not hurt. By using this system, one group of employees has continual assigned duties and the second group has variable duties. Thus when unexpected absences occur a second group employee can step into the first group and carry on the firm routine schedules. In fact,

the second group functions as an augmentation or cushion group of employees. This system is efficient and should be considered.

## Section 2 — SUPPLIES AND EQUIPMENT

**2.2.1 General.** Custodial supplies consist of materials used in performing custodial services, except tools and equipment. Purpose of this section is to describe these supplies, their function, and usage. Supplies and equipment most commonly used are listed in table 2. Principal cleaning and stain removal agents are described in the following paragraphs of this section. Their use and the use and care of equipment are discussed in chapter 2 and chapter 3 of this manual.

Table 2—Supplies and Equipment Commonly Used

Item	Specification	Federal Stock No.
Acid, Muriatic 1 lb	O-A-86	6810-222-9660
Alcohol, Denatured	O-E-760 (TR-1R)	6810-205-0786
Ammonia, Diluted Solution, Household qt Bottle	O-A-451	681-527-2476
Belt, Safety	KK-R-151	4240-752-0716
Broom, Upright, 32 lb per doz	H-B-51	7920-292-4372
Broom, Push, 18"	H-B-271	7920-246-8500
Broom, Push, 24"	H-B-271	7920-246-8499
Brush, Floor Sweeping 18", 100% Horsehair	H-B-651	7920-243-3407
Brush, Floor Sweeping 24", 100% Horsehair	H-B-651	7920-238-2442
Brush, Floor Sweeping 30", 100% Horsehair	H-B-651	7920-292-2363
Brush, Floor, Sweeping Sidewalk 24"	H-B-00646	7920-292-2360
Brush, Scrub, Hand 8"	H-R-00541	7920-240-7174
Brush, Scrub, 10" for Handle	H-B-531	7920-240-7171
Brush, Dusting, Bench	H-B-190	7920-178-8315
Brush, Dusting, Radiator, Horsehair	H-B-190	7920-232-3737
Brush, Dusting, Radiator, Tampico Fiber	H-B-190	7920-286-6811
Brush, Sanitary (Horsehair)	H-B-481	7920-141-5450
Brush, Sanitary (Tampico Fiber)	H-B-481	7920-240-7178
Cabinet, Storage, Steel	AA-C-31	7125-641-5436
Cleaning Compound, Toilet Bowl	P-C-447	7930-550-9431
Cleaner, Vacuum, Household, Tank Type	WC-421	7910-254-4966
Cleaner, Vacuum, Industrial	W-C-421	7910-132-5352
Cleaning Compound syn detergent, non abrasive	P-D-220	7930-634-1962
Cloth, Polishing (Oil Treated)	DDD-C-411	7920-205-3170
Cloth, Polishing (Untreated)	DDD-C-411	7920-654-0103
Chamois, Leather, Sheepskin, 16" x 21"	KK-C-300	8330-257-2494
Compound, Sweeping	P-S-00863	7930-633-9850
Detergent, Sanitizer, concentrate	P-D-00235	7930-985-8896
Detergent, Sanitizer, super concentrate	P-D-001038	7930-973-2196
Detergent, Painted Surface, All Purpose, Liquid (Also for Floor Cleaner)		
5 gal, 10% Active	P-D-220	7930-634-3441
55 gal, 10% Active	P-D-220	7930-634-3442
5 gal, 20% Active	P-D-220	7930-527-1207
55 gal, 20% Active	P-D-220	7930-527-1273

Table 2—Supplies and Equipment Commonly Used—Continued

Item	Specification	Federal Stock No.
Finish, Resin Emulsion	POD-BM-22	7980-782-3875
Glycerin, USP 1 lb Bottle		8505-153-8220
Glycol, Polyethylene		8810-245-0259
Gloves, Gauntlet, Work		8415-634-4557
Gloves, Rubber	GSA-223	8415-634-4585
		to 8415-634-4643
		8415-634-5021
Gloves, Short, Work		7920-263-0328
Handle, Wood, Acme, Threaded End 72" Brush Broom	NN-H-104	7920-205-1170
Handle, Wet Mop, 60", Screw Type	NN-H-101	7920-243-7100
Handle, Dust Mop, 72"	NN-H-104	5120-221-1536
Knife, Putty, 1½"	GGG-K-481	5440-531-8116
Ladder, Step, Wood, Safety Type, 6 ft	LLL-S-710	5440-514-4487
Ladder, Step Bucket Shelf, 8 ft Aluminum	RR-S-00720	5440-081-8897
Ladder, Safety, Fiber Glass, 12 ft		5540-081-8898
Ladder, Safety, Fiber Glass, 8 ft		
Machine, Wall Washing	MIL-M-2400	
Machine, Scrubbing 28" Twin Brush	F.S. W-G-856	
Bucket, 14 qt, Galv	RR-P-0030	7240-684-0487
Disinfectant, Germicidal and Fungicidal	O-D-405	8440-530-7109
Mophead, Dusting, Cotton	T-M-587	7920-245-8289
Mop Bucket, 26 qt	RR-R-300	7920-205-0479
Mop-Treating Compound, Dust, Liquid	P-D-800	6850-664-6536
Mop Wringer, Squeeze Type	RR-W-670	7920-205-0408
Mop Truck, Two-Tank, 28 gal Capacity per Tank, 3 in Diameter Wringer Rolls		
Mop, Dusting, Cotton, 17", Straight	T-M-587	7920-205-1092
Mop, Dusting, Cotton, 27", Straight	T-M-567	7920-171-1149
Mop, Cellulose, Sponge, Yarn, 24 oz	V-B-S-12	7920-634-0203
Mop, Cellulose, Sponge, Yarn, 12 oz	V-B-S-12	7920-634-0202
Mophead, Wet, Cotton, 1½ lb	T-M-581	7920-141-5550
Mophead, Dusting, Cotton	GSA-407	7920-205-1092
Mop Treatment Compound	P-D-800b	6850-664-6536
Pad Steel Wool Floor Polishing	00-P-0065	7910-550-5250
		to 5285
Polish, Metal, pint	P-P-556	7980-266-7187
Polish, Furniture, quart	P-P-553	7980-266-7121
Polisher, Floor, Electric, 11", Disk Type	W-M-45	7910-224-7985
Polisher, Floor, Electric, 15", Disk Type	W-M-46	7910-375-2428
		7910-375-2429
		7910-287-5580
		7910-383-5538
		7910-281-3680
		7910-391-0507
		7910-393-0108
		7910-224-7986
Polisher, Floor, Electric, 18", Disk Type		7910-364-7246
Coarse 15"	00-P-570	7910-286-6812
Medium 15"		7910-224-7983
Fine 15"		7910-224-7982
Polisher-Scrubber, Vacuum, Floor Electric	00-P-00580	7910-537-342
Sealer, Terrazzo (5 gal Can)		8110-598-5719
Sealer, Terrazzo (55 gal Drum)		8110-598-5720
Scouring Powder, lb Can	P-S-311	7980-205-0442
Scrubbing Machine, Floor Electric, Power battery	00-S-00255	7910-918-6487
		to 8490
Soap, Toilet, Liquid, Gallon	P-S-624	8520-228-0598
Soap, Toilet, Paste, 10 lb. Can	P-S-624	8520-634-2784

Table 2—Supplies and Equipment Commonly Used—Continued

Item	Specification	Federal Stock No
Soap, Toilet, Powdered Form, 5#	P-S-825	8520-222-0985
Sponge, Cellulose, 3-13/16" x 6" Laminated	L-S-00626	7920-834-1116
Sponge, Natural	C-S-831	7920-237-8731
Squeegee 12", Window	ZZ-S-658	7920-577-4745
Squeegee 18", Floor, with Handle	ZZ-S-866	7920-237-2971
Sodium Hydrosulfite, 1 lb		6810-226-6021
Sodium Citrate, 1/2 lb. Bottle		6505-153-8199
Steel Wool, Grade 0, 1 lb	FF-S-740	5350-242-4405
Steel Wool, Grade 1, 1 lb	FF-S-740	5350-242-4404
Steel Wool, Grade 2, 1 lb	FF-S-740	5350-242-4406
Steel Wool, Grade 3, 1 lb	FF-S-740	5350-242-4403
Towels, Paper	UU-T-591	8540-262-7178
Toilet Tissue	UU-P-556	8640-530-3770
Trisodium Phosphate, 1 lb	O-S-00642	6810-220-1398
Truck, 2 Wheel, Hand, General Utility Type		3920-222-1024
Truck, Platform, Hand, Non-Tilt, Type Wood, 60" Long		3920-229-4288
Wax Applicator	II-A-00600	7920-633-8774
Wax, Applicator Pad	H-A-00600	7920-632-9274
Wax, Floor, Water Emulsion (12% Solids), 5 Gal	P-W-155	7930-274-8252
Wax, Floor, Water Emulsion (12% Solids) 55 Gal	P-W-155	7930-274-8253
Wax, Floor, Water Emulsion (16% Solids) 1 Gal	P-W-155	7930-205-2870
Wax, Floor, Water Emulsion (16% Solids), 5 Gal	P-W-155	7930-141-5888
Wax, Floor, Water Emulsion (16% Solids), 55 Gal	P-W-155	7930-205-2871
Wax Remover and Cleaner, Regular Concentration, Add 8 Parts Water, 5 Gal	P-R-201	7930-664-7053
Wax Remover and Cleaner, Regular Concentration, Add 8 Parts Water, 55 Gal	P-R-201	7920-664-7054
Wax Remover and Cleaner, High Concentration, 5 Gal	P-R-201	7930-664-7050
Floor Finish, Water Emulsion, 5 gal	P-F-00430	7930-664-7053
Wringer & Bucket, Mop	RR-M-1075	7920-527-2498
Glass Cleaner, Liquid	P-G-406	7930-664-6909
Pad, Steel Wool, Grade D		
Pad, Steel Wool, Grade 1		
Pad, Steel Wool, Grade 2		
Pad, Steel Wool, Grade 3		
Pad, Lambswool Polishing		
Pad, Synthetic, Fine, Polishing		
Pad, Synthetic, Medium, Scrubbing		
Pad, Synthetic, Coarse, Stripping		
Pads, Floor polishing machine, nonwoven nylon web, for maint. cleaning of resilient tile, terrazzo, marble, ceramic and wooden floors	00 P-0040 Class 79	7910-685-4249 7910-685-6859 7910-685-6671 7910-985-6870 7910-985-6861 7910-985-6861 7910-820-9917
Pads, floor, curled hair, extra thick durable, washable and reversible		7910-820-9904 7910-820-7984
Pad, thick nylon for rotary polisher—Coarse 15"		
Pad, thick nylon for rotary polisher—Medium "		
Pad, thick nylon for rotary polisher—Fine "		
Baseboard pad-holder for floor machine brush		
Wallwasher, pressure tank system		
Sponges & nylon web hand pads		
Window washer, telescopic		

**2.2.2 Cleaning Agents.** Cleaning agents commonly used in custodial services may be divided into two general classes; those emulsifying dirt with water, and those removing it by abrasive action. Some cleaning agents combine these actions.

#### *2.2.2.1 Emulsifying Agents:*

(1) Soaps—Consist of fats or oils combined with an alkali of sodium, or potassium. Strong soaps, such as yellow Gl, are made from an alkali of sodium and fat and have an excess of free alkali. Toilet and hand soaps are usually made with palm, coconut, or cottonseed oils and alkali of sodium or potassium and have a low free alkali content.

(2) Liquid Hand Soap—is similar to toilet soaps but is in solution with water. The soap content varies from 15 to 42 percent.

(3) Soap Substitutes:

(a) Detergents—Detergents have largely replaced soaps for the various cleaning processes in custodial services. The standard detergent for these processes is known as "All Purpose Synthetic Detergent Cleaning Compound" meeting the requirements of Federal Specification No. P-D-00223. The detergent comes in powder or flakes, liquid and paste and contains no abrasives or fatty acid soaps and is not irritating to the skin. It is excellent for cleaning painted surfaces, asphalt and rubber tile, and sheet floor coverings.

(b) Trisodium Phosphate—is an inexpensive, strong cleaning agent. It is especially effective for removing grease and oil. It should not be used for cleaning painted surfaces, except for heavily soiled areas that cannot be cleaned with detergents, and then in only weak solutions. Trisodium phosphate should not be used on wood, linoleum, asphalt or rubber tile, or oxychloride floors.

*2.2.2.2. Scouring Powder.* Scouring powder is a combination of soap powder and abrasives, such as powdered quartz, feldspar, marble, lava, or pumice. In order to prevent serious scratching of surfaces, these abrasives should pass through a number 100 sieve. Trisodium phosphate may be added to improve the cleaning properties of the powder. Abrasives and trisodium phosphate

should not be used on marble, terrazzo, asphalt tile, rubber tile, linoleum, wood floors, painted surfaces, or as metal polish, and should be used with care on ceramic and quarry tile.

*IMPORTANT:* If cleaning is done regularly and properly, there should be little need for use of scouring powder.

*2.2.2.3 Precautions in Use of Cleaning Agents.* Cleaning agents attack surfaces as well as dirt or grime. When cleaning agents are used, there is some damage to surfaces. In order to clean and do as little damage as possible, these rules should be followed:

(1) Never use washing solution stronger than necessary. Directions for preparing washing solutions are given in this manual.

(2) Apply washing solution only long enough to loosen dirt.

(3) Rinse cleaned surfaces with clear water.

(4) Do not spill washing solution on surfaces not to be cleaned. Particular care should be taken not to splash cleaning agents against calcimined or casein-painted walls, because it is impossible to wipe without spotting wall. In other cases, spilled solution should be wiped up immediately with clean cloth.

(5) Use steel wool, scouring powders, and abrasives only when absolutely necessary. When used, care should be taken to prevent damage to surface cleaned.

#### *2.2.2.4 Stain Removers:*

(1) Stain removers can clean in three ways; by dissolving substance causing stain, by acting as bleaching agent, or by absorbing substance causing stain. Most stains can be removed by methods recommended in Table 3.

(2) In some instances, water causes stains on washbowls, urinals, and toilet bowls. Daily cleaning with all-purpose synthetic detergent solution will remove these stains. If fixtures are badly stained, use soap-grit cake and damp cloth. If this fails, mix a weak solution of sodium bisulfate (toilet bowl cleaner) and apply with cloth attached to a stick. Leave solution on stain long enough to remove it. Wash with all-purpose

synthetic detergent solution thoroughly. Repeated use of toilet bowl cleaner will remove glaze from porcelain and porcelain enameled fixtures, making them impossible to clean satisfactorily. Do not use muriatic, oxalic, or hypochlorous acid to remove stains on porcelain. They destroy surface glaze very quickly.

**2.2.2.5 Abrasive Cleaners.** Abrasive cleaners contain sharp grit particles which vary in size and hardness. Soap-grit cake and scouring powders also contain these abrasives. Particles should be fine enough to pass through a number 100 sieve. Soap-grit cake should not be used to polish metal. If plumbing fixtures are properly cleaned daily, there should be little need for use of abrasives.

### **2.2.3 Polishing Agents:**

**2.2.3.1 Metal Polish.** Metal polish is made from fine abrasive and cleaner such as soap or soap powder. Abrasive removes tarnished surface of metal, soap helps carry it away. See paragraphs 8.5.1.10 and 3.5.1.12 for directions for polishing brass, copper, nickel, and chromium fixtures.

**2.2.3.2 Furniture Polish.** Furniture polish should remove dirt, leave a gloss or sheen, and protect surfaces. It is applied manually with a dampened cloth pad. Some polishes consist only of light oil which provides gloss as long as surfaces are wet. Others contain waxes mixed with oil which brighten and protect surfaces after oil evaporates. Polish should not leave surfaces oily or sticky, should not injure varnish or enamel, and dust should not stick to it. Good polish may be made by dissolving ½ pound of carnauba wax in one gallon of turpentine at room temperature.

**2.2.4 Waxes and Finishes.** Waxes may be made of animal, vegetable, mineral, or synthetic origin. Best known vegetable wax is carnauba. It is the hardest and most durable of waxes. Usually, all good wax products contain some carnauba. Waxes are waterproof, and may be dissolved in alcohol, turpentine, or mineral spirits. Good floor

wax has a high melting point, is hard, and takes high polish. Table 6 shows wax recommended for use on various floor surfaces.

**2.2.4.1. Mineral Spirit and Paste Wax.** These waxes, because of the fire hazard involved, are to be used only on approval by the engineer of the installation.

#### **2.2.4.2 Water Emulsion Wax:**

(1) **General.** Water emulsion wax consists of carnauba wax, resin, and emulsifying materials in 12 percent and 16 percent concentrations. Drops of wax are held in suspension. Ammonia is sometimes added to make emulsion more water-proof after drying. After application, water evaporates, leaving wax in tiny drops which have a sheen or gloss. For this reason, water emulsion wax does not need buffing to look well. However, buffing makes wax stick better, wear better and makes it more waterproof. Specification P-W-155 governs the specifications for water emulsion wax.

(2) **Precautions in Handling Water Emulsion Wax.** Water emulsion wax is a delicate solution. Adding water, freezing, or using a dirty mop or container breaks down its properties. It is important, therefore, to prevent wax from freezing, and to use clean mops and containers. Water emulsion wax should be stored in other than galvanized containers to prevent the development of an acid which eventually causes spoilage. Unused wax shall not be poured back into its regular container, but be disposed of by an approved means.

**2.2.4.3 Bar Wax. General.** Bar wax is a mixture of pure carnauba wax and nonslip resins. It is cast in bars and contains no solvents.

**2.2.4.4 Resin Emulsion Floor Finishes.** This type floor finish contains no wax and is usually composed, in whole or in part, of acrylic, polyethylene, and polyvinyl resins in emulsion with water. The finishes have not been developed sufficiently to replace water emulsion wax for general use. However, the finishes usually require no buffing and are

Table 4—Stain Removal Data

Stain	Carpets	On wood	On linoleum	On asphalt tile	On vinyl	On marble, terrazzo or oxychloride cement	On concrete
Blood	Allow household ammonia to stay on only a moment. Rinse using a cloth and cold water. Brush nap. Apply kerosene to the spot using circular motion working from edge to center to avoid a ring. Sharpen, dry and brush nap.	Rub with cloth dampened in clear cold water. When stain persists, dampen cloth with ammonia. Pour kerosene on spot. Permit to soak for a short time. Wipe dry with a clean cloth. Wash with all-purpose synthetic detergent solution, rinse and dry.	Same as for wood.	Same as for wood.	Same as for wood.	Rub with cloth dampened in clear cold water. Bleach with peroxide, when stain persists.	Same as for marble.
Grease or oil			Scrub with warm all-purpose synthetic detergent solution. Rinse with clear water.	Same as for linoleum.	Same as for wood.	Pour solvent on spot, cover with Fuller's earth and let stand for several hours. Repeat, if necessary. Scrub with mild soapy water and rinse thoroughly with clear water.	Pour alcohol on spot. Rub with clean cloth, or spray the stain with a commercial degreaser product, and flush with clear water according to manufacturer's instructions.
Ink	Remove immediately. Same as for vinyl.	Apply solution 1 part oxalic acid crystals to 9 parts warm water. Permit to stand until dry. Mop with clear water.	Use warm all-purpose synthetic detergent solution. If stain persists, mix 2 lbs sodium perborate in pint of hot water. Mix whitening to form paste. Apply to spot and let dry. Same as for wood.	Same as for linoleum.	Wash with all-purpose synthetic detergent, rinse, then dry. If stain persists, rub with cloth dampened with ammonia.	Same as for linoleum.	Same as for linoleum.
Iodine or mercuric chroma	Blot immediately. Wash with all-purpose synthetic detergent, rinse, then dry.	Apply alcohol and rub with clean cloth.		Warm neutral soap solution.	Wash with all-purpose synthetic detergent, rinse, then dry. If stain persists, scrub with—	Apply alcohol and cover with Fuller's earth.	Apply alcohol and rub with clean cloth.

Paint	Apply turpentine or mineral spirits. Wash with strong lukewarm soap-soda. Rinse with clear water, wipe with clean cloth and let dry.	Use oxalic acid solution, or 1 lb tri-sodium phosphate in 1 gal warm water.	Rub with No. 0 steel wool dipped in turpentine. Wash with all-purpose synthetic detergent solution and rinse with clear water.	Rub with steel wool and all-purpose synthetic detergent solution. If area is large, use steel wool on buffing machine.	scrubbing powder and warm water. Rub with No. 0 steel wool dipped in kerosene.	Rub with No. 00 steel wool dipped in turpentine.	Scrub with 1 lb trisodium phosphate in 1 gal hot water, rinse with clear water.
Rust	Wash with all-purpose synthetic detergent. Rinse using a cloth and cold water. Brush nap.	Wash with all-purpose synthetic detergent. Rub with No. 0 steel wool, if necessary.	Apply solution 1 part oxalic acid to 9 parts warm water. Let dry. Rinse thoroughly with clear water.	Rub with No. 0 steel wool and all-purpose synthetic detergent solution.	Same as for linoleum.	Horizontal Surfaces To 3/4 gal water add 1.9 lb sodium citrate and 1 lb sodium hydro-sulfite. Add enough water to make a gallon solution. Cover stain with solution and let stand 1/2 hr. Absorb with cloth by rubbing. Rinse with clear water.	Dissolve 1 part sodium citrate in 6 parts water. Mix with equal parts of glycerin. Make a paste with whitening and apply to stain. For bad stains, wash with sodium citrate solution 1-6 parts, add pad soaked in sodium hydro-sulfite for 10-15 min. Wash thoroughly with water.
						Vertical surfaces Make paste with whitening and 8 oz sodium citrate and 8 oz sodium hydro-sulfite. Apply with putty knife and allow to remain 1 hr. Wash with sodium citrate.	

Table 5—Stain Removal Data—Continued

Stain	Carpets	On wood	On linoleum	On asphalt tile	On vinyl	On marble, terrazzo or oxychloride cement	On concrete
Soil and heel marks	Shampoo lightly with all-purpose synthetic solution and rinse with clean water. Wipe off and vacuum. Brush nap.	Rub with No. 0 steel wool or wash with all-purpose synthetic detergent solution.	Same as for wood.	Same as for wood.	Rub with No. 0 steel wool dipped in all-purpose synthetic detergent solution.	Wash with all-purpose synthetic detergent solution and rinse.	Same as for marble.
Chewing gum	Scrape off with dull knife. Sponge off with clear water.	Remove gum with putty knife. Apply alcohol, rub with clean cloth.	Same as for wood.	Remove gum with putty knife. Do not use alcohol on asphalt tile.	Remove as much as possible with putty knife. Rub with No. 0 steel wool dipped in all-purpose synthetic detergent solution.	Same as for wood.	Same as for wood.
Tar	Same as for grease or oil.	Remove tar with putty knife. Soak with kerosene. Rub with clean cloth. Wash with all-purpose synthetic detergent solution.	Same as for wood.	Remove surplus with putty knife. Do not put kerosene on asphalt tile. Wash with warm all-purpose synthetic detergent solution.	Same as for wood.	Remove surplus with putty knife. Soak with alcohol and cover with Fuller's earth.	Same as for wood.

slip-resistant. For these reasons they are particularly suitable for use where buffers are not available, in congested areas where the use of buffers is difficult, and where slip resistance is important, such as on ramps.

### **2.2.5 Floor Oil.**

*2.2.5.1 General.* One type of floor oil consists of linseed oil and turpentine, or mineral spirits. When applied to floor it penetrates, and dries to a fairly hard, non-oily surface. Another type, paraffin-base floor oil, penetrates wood, but does not harden. This leaves floor slippery until oil is washed off or worn away. While floor oils serve to control dust, they also present disadvantages. Oils darken wood floors, and soften fibers of many woods, thereby reducing wearing quality. When oiled floors are mopped, detergent emulsifies the oil and quickly removes the oil from the wood.

*2.2.5.2 Use of Floor Oil.* Floor oil should be used only when floors are in such condition that they cannot be sealed satisfactorily and dust control is important. Floor oils present a fire hazard, and must be used carefully. Oils must not be used where a fire hazard is inherent in the work which is done in the area.

**2.2.6 Disinfectants.** Disinfectants are designed to kill germs and may consist of phenol (carbolic acid), pine oil, cresol, creosote, iodo, or cresylic acid. They kill germs by coming in contact with them and must be applied directly. If floors are kept clean, toilet rooms at satisfactory standard of cleanliness, and waste disposed of properly, germs have small chance of breeding.

**CAUTION. DISINFECTANTS ARE POISONS.**

**2.2.7 Deodorants.** Deodorants are used to eliminate disagreeable odors. When the use

of deodorants is necessary, it is an indication the area is not properly cleaned and ventilated. Deodorants are unpleasant to many people. Odor-masking devices will not be used. They are not a substitute for thorough cleanliness of the fixtures.

**2.2.8 Sanitizer.** Chemicals used to sanitize should be approved by Natick Laboratories, Naval Civil Engineering Laboratories or the Office of The Surgeon General. Approved items are listed in the Federal Supply Catalog. The Federal Supply Catalog should be consulted first when procuring sanitizers and every attempt should be made to use the items listed. At the present time there is no universal sanitizer which is effective under all conditions. Local conditions such as water hardness or acidity will change the effectiveness of most items. Area surgeons should be consulted when the effectiveness of a sanitizer is in doubt and especially when local conditions require the use of locally procured items. The surgeon is available to assist in the evaluation of the effectiveness of sanitizers under local conditions and to make recommendations regarding the equipment, chemicals, and procedures which are appropriate.

**2.2.9 Storage of Custodial Supplies.** Custodial supplies for replenishing items are kept in a centrally located area under direct control of supervisor. Supplies are stored in ventilated, conveniently located closets or cabinets issued to workers. Cabinets should be available at all times for inspection to insure that supplies are stored safely and do not present a fire hazard. Particular caution should be exercised to insure that soiled rags, mops, etc. are stored safely; either in the open air outside of buildings or in fireproof, closed containers in well-ventilated locations. Only one day's supply of flammable cleaning materials should be kept on hand in the working area.