ACCIDENT PREVENTION MANUAL

FOR

BUSINESS & INDUSTRY

ADMINISTRATION & PROGRAMS

12TH EDITION

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Table 25–A. Physical Properties of Floor Finishes

	Resistance to			*Quality of*			
Types of Finish	*Abrasion*	*Impact*	*Indentation*	*Slipperiness*	*Warmth*	*Quietness*	*Ease of Cleaning*
Portland cement concrete *in situ*	VG-P	G-P	VG	G-F	P	P	F
Portland cement concrete precast	VG-G	G-F	VG	G-F	P	P	F
High-alumina cement concrete *in situ*	VG-P	G-P	VG	G-F	P	P	F
Magnesite	G-F	G-F	G	F	F	F	G
Latex-cement	G-F	G-F	F	G	F	F	G-F
Resin emulsion cement	G-F	G-F	F	G	F	F	G-F
Bitumen emulsion cement	G-F	G-F	F-P	G	F	F	F
Pitch mastic	G-F	G-F	F-P	G-F	F	F	G
Wood block (hardwood)	VG-F	VG-F	F-P	G-F	F	F	G
Mastic asphalt	VG-F	VG-F	VG-F	VG	G	G	G-F
Wood block (softwood)	F-P	F-P	F	VG	G	G	G-P
Metal tiles	VG	VG	VG	F	P	P	G-F
Clay tiles and bricks	VG-G	VG-F	VG	G-F	P	P	VG
Epoxy resin compositions	VG	VG	VG	VG	F	F	VG

Code: VG—Very Good; G—Good; F—Fair; P—Poor; VP—Very Poor.

carpet threads tend to become loose, creating a tripping and falling hazard. This condition is more of a risk in wall-to-wall carpeting. Maintenance staff should inspect carpeting regularly for potential hazards. When loose threads are found, have the carpet restretched or replaced to eliminate the hazard.

Whenever possible, provide a contrasting color on carpeted areas that meet and continue on treads and risers (or treads only) of stairways. If material such as an extruded metal runner is used to provide self-cleaning removal of snow, ice, or mud at entryways, it should be flush and not present a tripping hazard. Maintenance staff must pay careful attention to rubber mats, rug runners, and the like to prevent them from becoming tripping hazards. Often times their edges become rumpled, corners and ends are torn or do not lie flat, and excess wear causes tears. Management should replace mats and runners at the first sign of wear or other unsafe conditions.

Eliminate slips and falls on throw, oriental, and area rugs by using skid-resistant rug pads. When using rugs over carpet, attach a skid-resistant underlay to the rugs. These underlay pads can be purchased from carpet dealers. Floor mats, runners, and carpeting are used wherever water, oil, food, waste, and other material on the floor might make it slippery.

A company should establish clear procedures for placing, cleaning, removing, and storing mats. Those who put mats in place during inclement weather should have specific instructions about when and where mats should be put down and removed. If workers do not place the mats promptly and close enough to the door, the entranceways may become slippery; and patrons and others track in water and dirt beyond the entranceway, creating a hazard and maintenance problem in other locations. Maintenance staff should follow definite procedures for inspecting and checking the condition of mats and for maintaining them in a safe condition. Consider a dry mop in the entry way to help keep floors dry and free of slipping hazards.

Stair rails, treads, and surfaces should be designed per standards, codes, and regulations, and be kept in good repair and checked frequently for defects. Make sure nothing is stored on the stairways and landings that could contribute to falls. (See also Chapter 23, Office Safety.)

Merchandise Displays

Workers must construct displays so they are stable to prevent articles from falling and injuring or tripping the customers. Repair and smooth sharp or broken displays and counters so they do not cut or catch passersby.

Marketing people in some stores (like supermarkets) try to stack merchandise high on a display table to catch customers' attention. However, if these displays are stacked too high, they become a hazard for the shopper. A customer reaching for an item can set off a cascade of boxes, cans, bottles, or other items that can strike or injure the person or create a tripping hazard.

When a product is stacked too high, the customer may need to step onto a lower shelf to reach it. Staff should stack shelves evenly by layers, placing heavy items on the lower shelves and lighter items on the top shelves (Figure 25-3, left).

In many stores, workers may card and hang nonfood

Table 25–B. Guide to Floor Materials and Surfacings

*Floor types**	*Characteristics*	*Use of Abrasives*	*Dressing Materials*
Asphalt tile	Composed of blended asphaltic and/or resinous thermoplastic binders, asbestos fibers, and/or other inert filler materials and pigments.	Abrasive materials of various types may be used to reduce slipperiness of floors. Colloidal silica** can be incorporated in wax and synthetic resin floor coatings.	**Wax or wax-base products**—For most purposes, wax has several advantages. This is especially true of Carnauba wax, an ingredient generally used in so-called wax products. This wax, a Brazilian palm tree product, dries in place with a very hard and glossy finish, but with a characteristically slippery surface. Because of its many good qualities, it is widely used as a base for floor surface preparations, both in paste and emulsion forms. Other waxes, notably petroleum wax and beeswax, have their place in floor dressing formulas; they are softer and less slippery than Carnauba, but are still slippery to a degree depending on the formulation.
Linoleum	Cork dust, wood flour, or both, held together by binders consisting of linseed oil or resins and gum. Pigments are added for color.		
Rubber	Vulcanized, natural, synthetic, or combination rubber compound cured to a sufficient density to prevent creeping under heavy foot traffic.	Slip-resistant except when wet.	
Vinyls	Composed of inert, nonflammable, nontoxic resins compounded with other filler and stabilizing ingredients.	Adhesive fabric with ingrained abrasives can be used. They are patterned in strips, tiles, and cleats.	
Terrazzo	Consists of marble or granite chips mixed with a cement matrix.	Silicon carbide or aluminum oxide can be included in mix when floor is laid. Also an abrasive-reinforced plastic coating can be painted on.	**Slip-resistant sealant** will typically improve slip-resistant quality if renewed periodically.
Concrete	Made of portland cement mixed with sand, gravel, and water and then poured.		
Mastic	Like asphalt tile in composition but is heated on the job and troweled onto the floor to form a seamless flooring. Such floors are often used over concrete to give a new durable, resilient surface.	(Same as asphalt tile)	**Synthetic resins**—These preparations, known as "synthetics," "resins," or "polishes," are intended to supply the desirable characteristics of wax without producing the same degree of surface slipperiness. They include soaps, oils, resins, gums, and other ingredients, compounded in various ways to produce the desired result.
Wood	May be either soft or hard, in a variety of thicknesses and designs.	Metallic particles and artificial abrasives in varnish or paint give good nonslip qualities to various floors.	
Cork tile	Made of molded and compressed ground cork bark with natural resins of the cork to bind the mass together when heat cured under pressure.	(Same as asphalt tile)	**Other materials**—Paint products (paint, enamel, shellac, varnish, plastic) are semipermanent finishes used principally on wood and concrete floors. They do not materially increase the slipperiness of the base.
Steel	Iron containing carbon in any amount up to about 1.7 percent as an alloying constituent, and malleable when used under suitable conditions.	Surface can be touched up with an arc welding electrode so the shape of raised places on the surface resembles angle worms. Also an abrasive reinforced plastic coating can be painted on to any desired thickness, dries hard as cement, and has a sandpaper like finish. If a temporary nonskid surface is needed, two uses of mats can be employed: (1) flexible rubber mats made from old automobile tires; (2) rubber or vinyl runners.	
Clay and quarry tile	Kiln-dried clay products are similar to bricks and are extensively used in areas requiring wet cleaning.	Typically resistant to abrasives.	May be treated by etching. May be formulated as nonslip by adding carborundum or aluminum oxide when mixing the clay before kilning.

*Floors and stairways should be designed to have slip-resistant surfaces insofar as possible; adhesive carborundum strips may be used on stair treads or ramps and at critical concrete areas. Etching with mild hydrochloric (muriatic) acid solution will lessen slip problems.

**Colloidal silica is an opalescent, aqueous solution containing 30 percent amorphous silicon dioxide and a small amount of alkali as a stabilizer.

accessories such as hardware items, notions, and kitchen equipment on pegboard panels. These panels or sections should be adequately recessed to accommodate the extended J-hooks (with minimum J-radius of 1m). Remember, because shoppers will be bending over to reach lower items, the hooks above should not extend so far as to be a potential risk to a person's eyes or face. Specially safeguarded extenders can eliminate this problem (Figure 25-3, center).

Merchandise with sharp or cutting edges should not be in open displays unless the edges are covered or otherwise protected. Protective sleeves or plastic coatings or covers serve to guard the edges from customer handling. Likewise, all electrical and mechanical display

Figure 25–2. A heavyweight rubber or plastic mat with a nubby finish or raised design and beveled edges tends to lie flat and stay in place. Rotating the mat distributes the wear and minimizes 'bald' spots in high-traffic locations.

Figure 25–3. Point-of-purchase display hangers must be located in such a way that the human eye cannot contact them (such as shown at left where both the upper and lower shelves project beyond the hangers). Shelf hangers must be safeguarded if they project into the aisle *(center)*. Locating projections above eye level is another safe method *(right)*.

elements should have adequate protective features.

Construct display platforms using color(s) or lighting that contrasts with the floor or carpet, and do not allow them to obstruct aisles. Round or clip all corners of platforms. Displays and mannequins should be at least 6 in. (15 cm) off the floor so that no one will tip them over accidentally. Make sure the display or the mannequin is fastened to its base.

Floor displays should be at least 3 ft (0.9 m) high so they are visible without becoming a tripping hazard. They should not be at the ends of aisles where shopping carts can dislodge them.

If a company hangs its displays from the ceiling, it should be sure that ceilings are structurally sound and that all code requirements have been met. In addition, any duplex electrical receptacles should be located 18 in. from the ceiling on certain columns with another outlet 12 to 18 in. from the floor.