

as a mat for secure footing near wood-working or other machines involving serious danger to the operator if he slips and falls. Lead is heat conductive, spark resistant, and quiet. It should not be used for heavy trucking.

Zinc also is used for its spark-resistant qualities, but, compared to lead, it is attacked more readily by alkalis. Floors in compounding rooms where fire and explosion hazards exist are zinc-covered in some plants.

Asphalt-base, vinyl-base or linoleum-type tile often is used in offices, laboratories, and workrooms where cleanliness and good looks are important. The material is easily cleaned, noiseless, and a poor conductor of heat.

Magnesite is suitable for light traffic or where light oils are used. It must be laid on a rigid base and should not be used where there is excessive moisture or hydrostatic pressure, as in basements. A coating of bituminous paint is necessary to protect metals such as pipe from contact, since magnesite corrodes some metals.

Checkerboard steel plate wears well, but it is noisy and highly conductive of heat and electricity. It is relatively nonslippery unless worn smooth or wet with oil.

Metal grille floors and gratings will not collect dust, dirt, or liquids but, because of noise, are not often used where hand trucking is done regularly. This type of floor material is particularly useful in boiler rooms and over openings.

Parquet is laid on an underfloor and is suitable for offices. If the material is sealed properly, little maintenance is necessary. Parquet wears well but may be noisy.

Rubber flooring is resilient. It also has high dielectric strength, which is undesirable where static electricity is a problem. However, conductive types of rubber flooring are available. Abrasive rubber flooring can be used to overcome slipperiness.

Since terrazzo flooring has no joints in the surface, its use eliminates some of the difficulties that may be encountered with other types of flooring. It can be made electrically conductive by grounded grilles. It is a conductor of heat. Suitable sealers are necessary to make the floor impervious to most acids. The terrazzo mixture is slippery unless it includes abrasive aggregates.

Plants requiring extreme cleanliness and sanitary conditions, such as dairies, use ce-

ramic glazed tile. It should be laid in Trinidad asphalt or in cement with a low lime content. Two or three layers of asphalt roofing felt may be laid beneath the tile.

Wood floors of the proper material and construction are suitable for various services except for the obvious objection of a fire hazard. Plank or board floors of the softer woods are generally unsatisfactory and a source of numerous injuries from slipping and falling as well as from splinters and truck accidents.

A good floor for light manufacturing can be made from *matched or jointed hardwood flooring* nailed to a subfloor structure or to sleepers in concrete. The thickness of the hardwood flooring will depend on the service to which it will be subjected. It is laid with the grain parallel to the line of truck travel.

Wood blocks meet many of the requirements for a good floor. Properly made, a floor of this type is relatively noiseless and does not become slippery or cause fatigue. If the blocks are laid on a smooth, rigid base, the floor is not likely to crack and will withstand heavy service.

Blocks impregnated with creosote are necessary for floors in contact with liquids or moisture. Expansion joints are required along walls, columns, and similar places. If blocks are laid with a high melting point pitch, hot weather does not create problems. Oils and organic solvents, however, cause trouble because of their solvent effect on bituminous fillers and coatings.

To reduce tracking of mud and dirt into a building, moisture-absorbing mats or runners can be installed at entrances.

Special flooring

Special types of flooring are necessary where fires or explosions may occur. Spark-resistant and conductive flooring should be specified where flammable vapors, dusts, or gases are present.

Conductive floor resistance (as measured between two electrodes placed 3 ft apart at any points on the floor) may vary from not less than 25,000 ohms to not more than 1,000,000 ohms, according to NFPA's *Flammable Anesthetics Code* Standard No. 56, to assure protection against electric shock and still provide for removal of static. These floors can be grounded at two or more points by means of copper strips stapled to the material or copper