

Industrial Buildings and Plant Layout

These factors include:

Load	Illumination
Durability	Maintenance
Noise	Dustiness
Drainage	Heat conductivity
Resilience	Electrical conductivity
Appearance	Chemical composition

Since a principal cause of floor accidents is slipperiness, the inherent slipping hazard of various types of floor surfaces should be ascertained.

Ordinary smooth iron or steel plates are unsafe. Marble, slate, asphalt tile, linoleum, cement, and wood are reasonably safe if properly maintained and kept clean. The safest floor materials are cork, dry rubber, creosoted wood blocks, asphalt, roughened concrete, and checkered plate. The anticipated traffic and the nature of the process will influence floor choice.

Inserts of various materials can be used to reduce slipperiness in specific areas or to combat conditions that cause rapid deterioration of flooring. For example, cast metal inserts are used around woodworking machines. Sheets of soft lead may cover the floor surface where acid is spilled occasionally. Drainage is provided so that the acid can be washed away with water.

Inserts should be installed flush with the surface of the floor. An insert placed on top of the floor requires a bevel on every side from which it can be approached. The bevel should be long enough that a man will not trip or lose his balance.

Abrasive-coated fabric strips are made for use on metal floor plates, the foot of stairs, stair nosings, and other high-hazard locations. An adhesive binds the strips firmly to the walking surface.

Drainage is essential where wet processes are used. In some instances, floor gratings are installed to reduce slipperiness due to water and other liquids, especially along passageways.

The importance of selecting floor materials with suitable characteristics for the specific location is illustrated by plans for two new textile plants. In one plant, the floor in the spinning department was concrete overlaid with maple parquet for resilience and durability. The dye house floor was acid-proof brick. For the office, asphalt tile was laid

over concrete, the laboratory floor was rubber tile, also laid over concrete. Creosoted wood block floor, which is easy on the feet and withstands trucking, was used in a large machine shop.

Plans for the other plant specified a floor that would be resilient, moisture-resistant, and free of vibration. To get these qualities, 3-in. creosoted square timbers were imbedded in a base made of 3 in. of tar concrete under 1 1/2 in. of tarred sand. The subfloor was 3/4-in. salt-treated pine with a layer of waterproof paper. The floor surface was 25/32-in. hard maple.

Asphalt is used in various flooring materials. It is dustless, plastic, odorless, and warm to the feet. If the aggregate is siliceous, the mixture is resistant to acid. Ordinary grades soften in hot weather and are not recommended for heavy industrial trucking. Asphalt tile, often used in offices, may become slippery when washed or not properly waxed.

Paving brick, if laid on a solid foundation like concrete, is satisfactory for heavy traffic. Cement mortar joints make a smooth surface. Foundry floors have been made from hard-burned bricks laid face up on a concrete base with sand-filled joints.

Concrete floors are used widely in warehouses and factories. A wood float finish on a mixture of pea gravel, sand, and cement gives a roughened surface that will not crack or "dust." A smooth finish is slippery when wet. Concrete does not withstand acids, and in some types of work employees consider concrete too hard and too cold. Resilient nonslip mats with low heat conductivity can be placed over the concrete where workmen must stand in one position for considerable periods of time.

Cork tile is desirable for its insulation, resiliency, quietness, high nonslip rating, and ability to withstand light traffic for long periods. It is not suitable for wet locations or where there are heavy loadings, and it is expensive.

Cast iron plates with checkered or otherwise roughened surfaces laid in cement or asphalt are suitable for some types of rough wear such as that in warehouses. The slipping hazard at the door sills of elevators may be reduced by installing steel grating filled with concrete.

Lead is used for floors exposed to acids and