Floor and wall finishes

1. Floor finishes and the Materials used in Building Construction

1.1 Introduction

A floor in building construction is a leveled surface which can support the objects, passengers etc. Different flooring types are there based on different factors.

There are various types of flooring materials used in building construction and their selection depends on the choice of user ,aesthetics and the applications that provides the most satisfying results for objective, either it may be economically or durability wise.

1.2 Types of Floor finishes

a. Hard Flooring *(durable, noisy, more expensive)*

- ✓ Cement or lime concrete
- ✓ Stone (Slate, marble, flagstone, terazzo, granite)
- ✓ Brick
- ✓ Ceramic Tile
- ✓ Wood
- ✓ Glass

b. Resilient Flooring *(durable, good acoustics, easy to maintain)*

- ✓ Sheet Vinyl (plastic)
- ✓ Cork
- ✓ Rubber
- ✓ Linoleum
- ✓ Mud

c. Soft Flooring – *(warm, quite, difficult to maintain, allergens)*

- ✓ Carpets

Following are the different types of flooring materials generally used in building construction works and their application:

1.2.1 Cement Concrete Flooring Material in Buildings

Concrete is most commonly used flooring material. It is suitable for any type of construction and is cheaper than others and durable, see Fig. (1).

Cement Concrete mix of 1:3:6 to 1:5:10 or lime concrete with 40% (1:2 lime sand mortar) and 60% coarse aggregate, is used as base course (base layer). After hardening, 1:2:4 cement concrete mixes with 40 mm thick layer is laid as topping.

In industrial buildings, granolithic finish is provided to obtain hard wearing surface. Granolithic finish can be obtained from rich concrete with tough quality coarse aggregate mix (like fine granite chipping or crushed granite).

Fig.(1): Cement Concrete Flooring

1.2.2 Bricks Flooring Material in Buildings

Bricks can also be used for flooring purposes, but they are not suitable floor materials for residential or public buildings.

Brick floorings are generally used in unimportant rooms. For this, well burnt bricks are preferable and bricks should be in uniform size and have same color, see Fig (2).

Fig.(2): Brick Flooring in Buildings

1.2.3 Flagstones Flooring Material in Buildings

Flagstone is a type of sedimentary rock which is obtained by splitting along bed planes. It consists of silica, calcite and iron oxide. Flag stone is used to manufacture tiles of different sizes in different shapes, as shown in Fig. (3)

Fig.(3): Flagstones Flooring Material

1.2.4 Marble Flooring Material in Buildings

Marble is a type of metamorphic rock and is used widely for floorings in commercial buildings, kitchens, bathrooms etc. they are stain proof and easily cleanable.

Hence, they are used where extra cleanliness is required especially in bathrooms. They are also available in different colors and designs.

Fig.(4): Marble Flooring

1.2.5 Artificial hard floor finishes (Terrazzo)

This is a composite material made up of cement and marble aggregate; it is then mixed and poured in situ onto a concrete base, then ground waxed and polished. It is available in slabs or tiles. It is very hard wearing, if it is polished or wet it is very slippery. It is very useful in commercial situations i.e. malls and shopping centers as it is very durable and easy to clean.

Fig(5):Terrazzo flooring

1.2.6 Glass Flooring Material in Buildings

Glass is used as flooring material for special conditions like to transmit light from upper floor to lower floor etc. They are available in tiles which

are fixed in closely spaced frames. Eventhough it is very costly, it provides beautiful appearance, as shown in Fig .(6).

Fig.(6): Glass Flooring

1.2.7 Ceramic Flooring Material in Buildings

Ceramic tiles are famous floor covering materials. Ceramic is inorganic material and it possess properties like good compressive resistance, brittleness and hardness etc.

Fig.(7): Ceramic Flooring

1.2.8 Wood Flooring Material

Wood or timber is one of the most common methods of flooring. It is preferred when the timber is cheaply available. Many different species of wood are fabricated into wood flooring. The two major forms are plank and parquet. Hardwoods are more durable than softwoods.

Wooden floors are most suitable for auditoriums, saloons etc. Damp proof course below the flooring is necessary for wooden floors. see Fig. (8).

Fig.(8): Wooden Flooring

1.2.9 Plastic Flooring Material in Buildings

Plastic tiles or poly vinyl chloride (PVC) tiles are widely used nowadays which are laid on concrete base. These tiles are available in different shapes, sizes and colors, as shown in Fig.(9). Plastic tiles are of slippery nature and can get easily damaged by fire.

Fig.(9): Plastic Flooring Tiles

1.2.10 Mud Flooring

Mud is nothing but moist earth which is being used as flooring material in since olden days. It has good thermal insulation property. Chopped straw is added to mud to prevent it from the cracking, see Fig.(10).

Fig.(10): Mud Flooring

1.2.11 Cork Flooring

Cork is obtained from the cork oak tree. It is used as flooring material in the form of carpets. These carpets are noiseless and are required mainly in libraries, theaters etc. Cork tiles are also available which are made from high graded cork bar using compression in moldings, see Fig.(11).

Fig.(11): Cork Flooring in Buildings

1.2.12 Linoleum Flooring

Linoleum is the product obtained by oxidizing linseed oil in gum, resins, pigments, cork dust etc. It is available in sheets which are generally used as covering for concrete or wooden flooring. The sheets may be plain or design printed, as shown in Fig. (12).

Fig.(12): Linoleum Flooring in Buildings

1.2.13 Asphalt Flooring Material

Asphalt is highly viscous liquid form of petroleum. Asphalt is used as flooring material in different ways, see Fig (13).

If asphalt and sand are mixed in 1:2 proportions then it is called asphalt mastic which is poured on concrete base as flooring cover. If sand is replaced by marble chips then it is called as asphalt mosaic. Asphalt tiles are also available which are prepared from the asphalt fibers, inert materials and mineral pigments.

Fig.(13): Asphalt Flooring

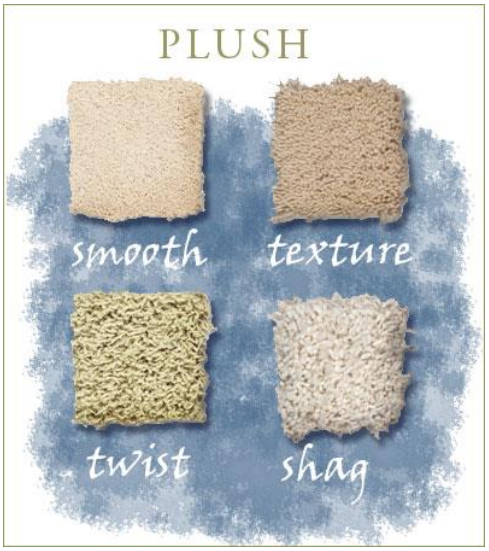
1.2.14 Rubber Flooring Material

Rubber tiles or sheets are also available in market for flooring purposes. They are made from pure rubber which is mixed with cotton fibers or asbestos fiber. Suitable adhesives are used to fix the rubber tiles with concrete or wooden base, as shown in Fig (14). Rubber flooring is noiseless and provided in libraries, offices etc.

Fig.(14): Rubber Flooring Tiles

1.2.15 Plush Carpets

There are different types of carpets used for floor finishing like:-Smooth, Texture, Twist, and Shag, as shown in Fig.(15).



Fig(15): types of Carpets

1.3 Factors Affecting Selection of Flooring Material

The selection of flooring material is done based on the following factors:

- Initial cost
- Durability
- Hardness
- Smoothness
- Cleanliness
- Appearance
- Sound insulation
- Thermal insulation
- Damp proof
- Fire resistance
- Maintenance