

# **Building Construction Technology II**

(Floor Finishes)

**Department of Architectural Engineering/2<sup>nd</sup> stage**

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# FLOORING

❑ **Floor covering** is a term to generally describe any finish material applied over a floor structure to provide a walking surface.

❑ **Flooring** is the general term for a permanent covering of a floor, or for the work of installing such a floor covering. Both terms are used interchangeably but floor covering refers more to loose-laid materials.

❑ Materials almost always classified as floor covering include [carpet](#), area [rugs](#), and resilient flooring such as [linoleum](#) or [vinyl](#) flooring. Materials commonly called [flooring](#) include [wood flooring](#), laminated wood, [ceramic tile](#), [stone](#), [terrazzo](#), and various seamless chemical floor coatings.



# STEPS OF FLOORING

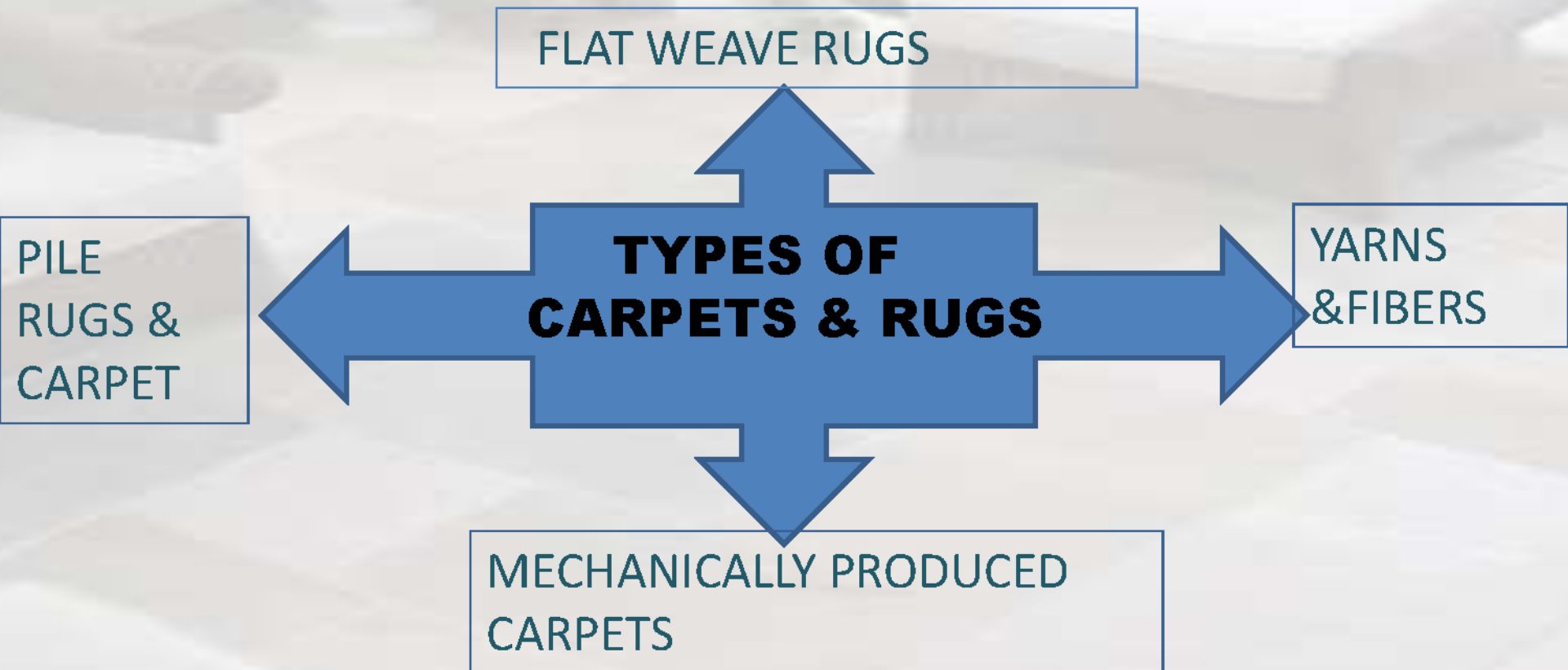
1. **BASE-** Lay Base Coat Of 100 Mm Thick In The Ratio Of Cement Concrete 1:8:16 ( 1 Part Of Cement, 8 Parts Of Fine Sand And 16 Parts Of Brick Blast) Or 1:4:8 On Compacted Earth Under The Floor. The base is same for all types of floors.
2. **FINSHING-** Then finishing of the floor is carried on, for different flooring materials. As we will discuss here the finishing of terrazzo, brick, stone and cement concrete floor.

## TYPES OF FLOORING

- CARPETS AND RUGS
- VINYL FLOORING
- WOODEN FLOORING
- STONE FLOORING
- BRICK FLOORING
- GLASS FLOORING

# CARPETS AND RUGS

- THE TERMS “CARPET” DENOTES A LARGE FLOOR COVERING THAT CAN BE CUT TO SUIT ANY ROOM.
- THE “RUG” MEANS A LOOSE-LAID PIECE OF SIZE AND DESIGN DETERMINED BY THE MAKER.





# MECHANICALLY PRODUCED CARPET

- IT IS COMBINATION OF WOOL AND SYTHETIC FIBERS.
- MADE IN HIGHEST GRADE 80/20 WOOL/NYLON BLEND.
- USE IN DIRECTIONAL MOVEMENT AREA i.e the top & bottom of stairs and in flooring in offices.
- AVAILABLE IN PLAIN & VARIEGATED COLOURS
- SIZES :-50\*50 cm.



# VINYL FLOORING

- ❑ Vinyl composition tile (VCT) is a finished [flooring](#) material used primarily in commercial and institutional applications.
- ❑ [Vinyl](#) tiles are composed of colored vinyl chips formed into solid sheets of varying thicknesses (1/8" is most common) by heat and pressure and cut into 12" squares.
- ❑ Tiles are applied to a smooth, leveled sub-floor using a specially formulated vinyl [adhesive](#) that remains tacky but does not completely dry.
- ❑ Tiles are typically waxed and buffed using special materials.

This flooring product is mostly used in INTERIOR Work and also photo laborites, airport, drg. Room, bedroom, offices water proof used in bathrooms.



Flooring in drg. room



Flooring in kitchen



Flooring in toilet



# INSTALLING VINYL FLOOR TILES

**Vinyl floor tiles** one of the most versatile floors available . It is quiet and warm underfoot, easy to clean like other hard surfaces. It is great around water easy in installing.

## MATERIALS NEEDED FOR THE JOB

Vinyl tiles, Adhesive, Trowel, Tape measure  
Utility knife, Self-leveling compound  
Floor roller, Hammer, Chalk line

**Step 1- Measure the Floor**

**Step 2- Prepare the Room**

**Step 3- Center the Tile**

**Step 4- Cut to Fit**

**Step 5- Finish Up**



# VINYL FLOORING BENEFITS

- One of the main benefits of vinyl flooring is that it is easy to install and cost effective and durable as well.
- the maintenance cost as well as effort is quite low
- vinyl flooring is that it is water resistant and provides a great support to the feet.
- It is attractive in appearance.
- This type of flooring is quick to install and replace, so you can change it as and when you so desire, without much difficulty
- Because of the wide variety available in the market today, you can choose any products.

## PRECAUTIONS

- You can indulge in regular vacuuming of your vinyl floor, to keep it free of dirt.
- Using a polish, which has been specifically made for such type of flooring,
- Do not use any abrasive scrubbing tools for cleaning a vinyl floor
- Never ever use detergents.









# TILES

❑ Tiles are often used to form wall or floor coverings, and can range from simple square tiles to complex mosaics .

❑ Tiles are most often made from ceramic with a hard glaze finish , but other materials are also commonly used, such as glass ,marble, granite ,slate and reformed ceramic slurry.

## Types of tiles:

❖ CEREMIC TILE

❖ VETIFIED TILES

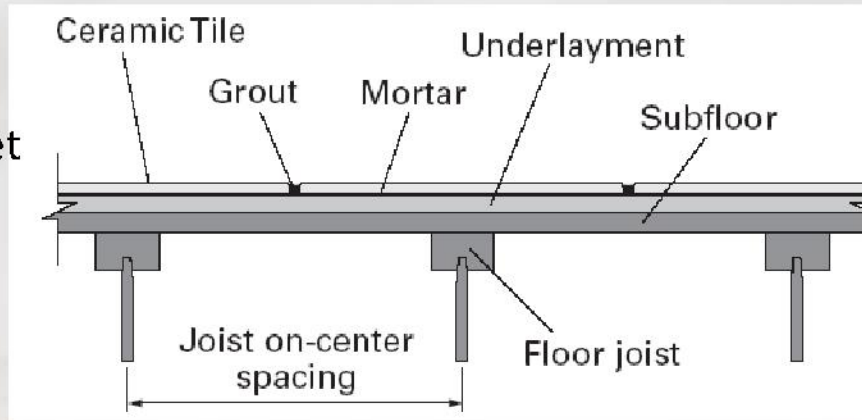
❖ PORCELAIN TILE





# INSTALLATION

- Remove any baseboards and shoe molding.
- Level the subfloor.
- Install the underlayment.
- Spread the adhesive with the smooth side of the trowel. Make sure it covers the area evenly and does not cover your reference lines.
- Lightly press and twist the ceramic when setting to make sure the adhesive sticks. Don't push so hard that the adhesive is forced out from under the ceramic.
- Once a row is in place, level the tile with a rubber mallet and level.
- Grouting
- Finishing Touches



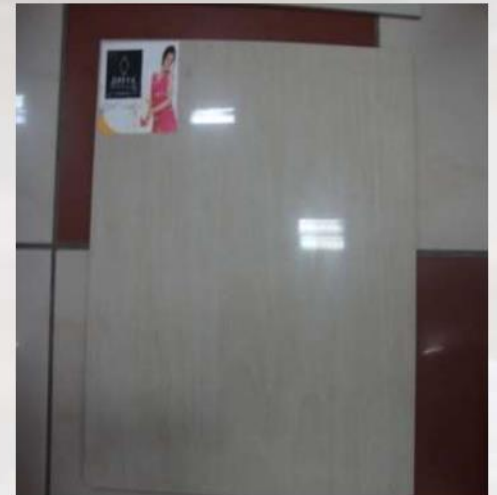
# CERAMIC TILES



- ☐ High wear resistance with low density.
- ☐ Corrosion resistance at high temperatures.
- ☐ Resistance to plastic deformation.
- ☐ Easy to clean and water-proof.
- ☐ Harder and stiffer than steel, more heat and corrosion resistant than metals and polymers.
- ☐ Resistant to stains and spillages.
- ☐ Their incombustibility prevents spread of fire.

# ADVANTAGES OF CERAMIC TILES

- Aesthetically far much more better than any other flooring, as it is available in various shades and textures.
- Easy to maintain.
- Laying is easy and less time taking.
- Available in various sizes thus no cutting required.
- Tiles are fire resistant.





# VITRIFIED TILES

Vitrified tiles are ceramic tiles with high percentage of vitrification and less amount of water absorption. Vitrification is nothing but a development of glass phase inside the tile during firing process. This is mainly due to melting of some constituent in the body.



*Porcelain Rustic Tile*



*Crystalline Double Loading Porcelain Tile*



*Glazed Porcelain Tile*



*Porcelain polished tiles*

# MARKET SURVEY

BRAND	SIZE/SQ FEET	RATE/SQ FEET
KAJARIA	2×2,3×3,4×4	42/-
OREVA	2×2,3×3,4×4	35/-
MICRO	2×2,3×3,4×4	36/-
REGENT	2×2,3×3,4×4	38/-
ORIENT	2×2,3×3,4×4	35/-
CENGRES	2×2,3×3,4×4	40/-



# TYPES OF WOODEN FLOORING

This type of flooring is generally use for special purpose floor example auditorium, hospital etc. There are different type of wooden flooring:-

- **STRIP FLOORING** :- this type of flooring consists of narrow and thin strip of wood joined to each other by tongue and groove joint.
- **PLANKED FLOORING** :- in this type of flooring , wider planks are used and these are also tongued and grooved.



- **HEAVY WOOD BLOCK FLOORING :-**

- these are made up of thicker pieces of wood cut in short lengths ranging from 5 to 10 cm. So as form block which are set with the ends of the grains exposed.



**FABRICATED WOOD BLOCK :-**

- these consist of small square of rectangular block with tongue and groove joints all side.





- All these style are available in solid wood and in laminated wood, which is a thin veneer layer laminated to layer of wood so that it can be sanded and refined several times.
- Laminated wooden flooring is better suited to moisture – prone area such as the kitchen.
- Wood being a natural material, it expands and contracts with changes in temperature and humidity. Therefore proper installation leaves a margin for this movement.
- We have many pre-laminated inter locking panel flooring in smooth, matt and rough finishing. It is a high quality interior product, which is most effectively being used in interiors.
- Hardness of wooden flooring is comparable to marble and the former is available in up to 45 different colours and shades.







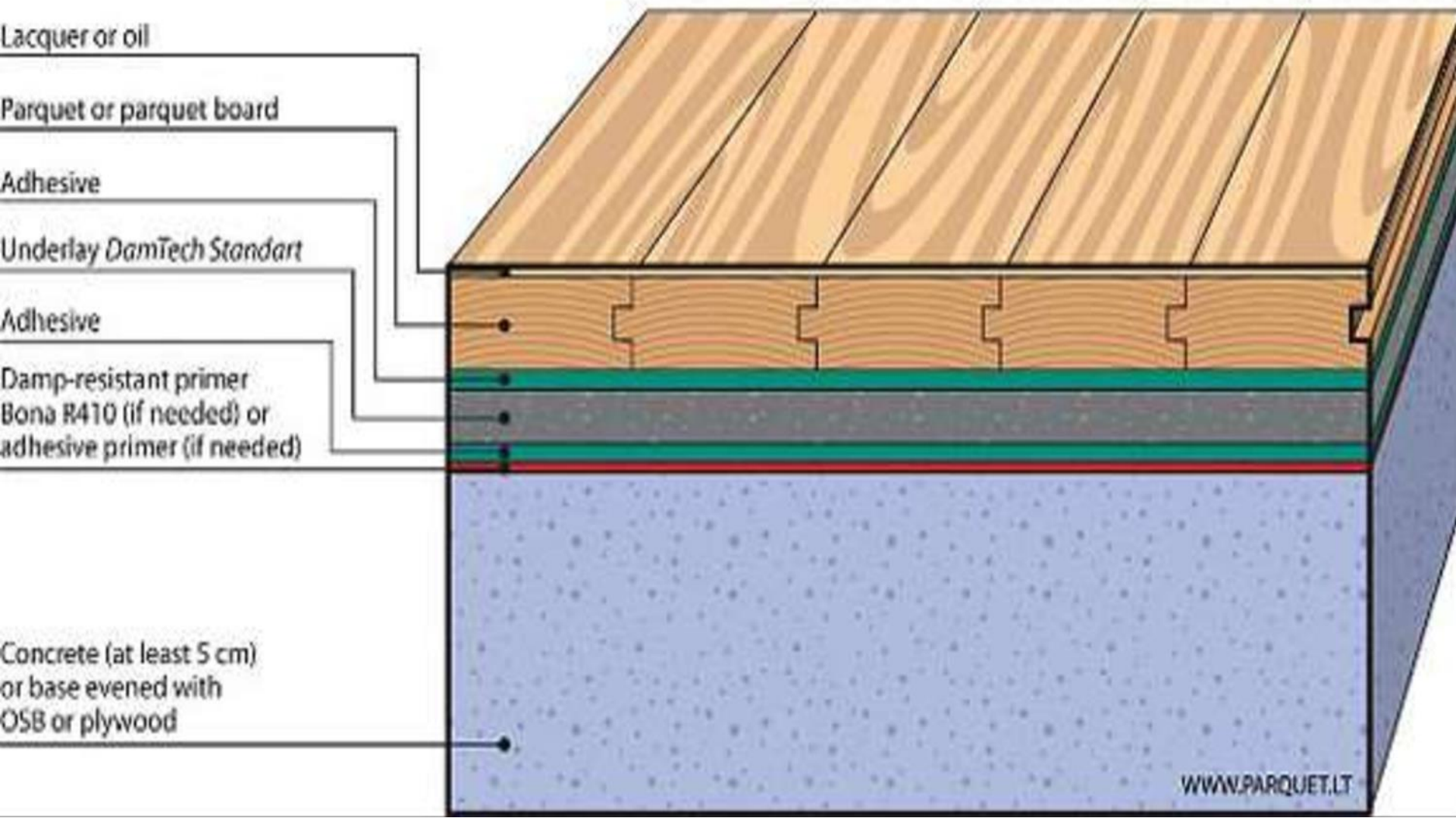


# PRECAUTIONS

- You should vacuum or sweep your wooden floor since small stone and gritty dirt will scratch your floor quickly.
- Always keep mats or rugs in the door ways leading to a room with wooden flooring. These doormats should be cleaned regularly .
- The wooden floor can be wiped with a dampened sponge. Immediately followed by wiping with a dry terry towel cloth.
- Another coat of surface finish should be applied to the wooden flooring when the cleaning the shine, or when the cleaning no longer restore the shine or when the floor has been heavily used.
- Excess water damages wood, so avoid wetting the floor.
- Exposer to the sun can cause the wooden floor to warp, or change colour. So use appropriate sun-blocking drapery in the room with wooden flooring.

# INSTALLATION OF WOODEN FLOORING

Construction of Wooden Floors Layed on *DamTec Standart* Underlay





# STONE FLOORING

## MARBLE

- Variety of marble available is tremendous:

- Albeta
- Dungri
- Aranga
- Kumari
- Chak dungri

- Costliest and best marble is the Makrana white: Very soft, snow white and high quality finishing.

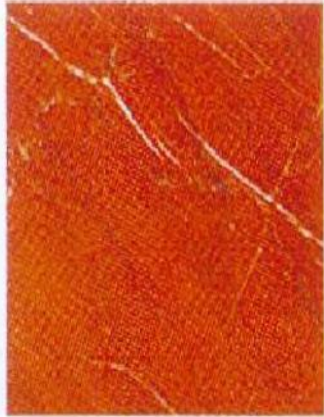
- Chittor brown, Jaisalmer Yellow, Udaipur green, Baroda green, Teak Grain marble, Banswana.

- White base marble price ranges from Rs.30/- to Rs.400/- sq. ft.





# GRANITE



*Fire Red*



*Yellow Valencia*



*Rosso Colomandino*



*Rosso Levante*



*Black Marquina*



*Golden Portoro*

- Many types and colors of granite.
- Durable and natural with visible coarse grains.
- Expensive as compares to marble.
- Slip resistant.
- Hardest type of stone- very difficult to cut and polish
- Once polished gives a mirror finish
- Can resist a lot of wear and tear.
- Available in 20 mm thick slabs and 9 mm thick tiles.
- Places in India – Rajasthan, Jhansi, Black granite from Bangalore



# SLATE

- Resistant to wearing, discoloring or fading.
- Rugged and rustic yet cool and charming
- Easily washable with water and soap.
- Less expensive than good marble.



# KOTAH AND SANDSTONE

used as hard flooring suited for pathways, factory sheds, offices and other common spaces.



# INSTALLATION

- Ensure that the tiles are of regular shape
- Base mortar 1:5 or 1:6 with low water cement ratio.
- Min. thickness of base mortar is 25mm
- Fix the marble tiles temporarily then press it using wooden handle of the hammer to bring them in a level.
- After fixing them in pattern remove the tiles and spread white cement slurry(2:1) and refix the tiles.
- Press with wooden handle.
- Fill up joints with white cement.
- First grinding min. after 5 days of fixing.
- Apply white cement slurry over marble floor after first grinding and cure for a day.
- Minimum 3 grindings required.



# Types of stones used in flooring



MARBLE



GRANITE

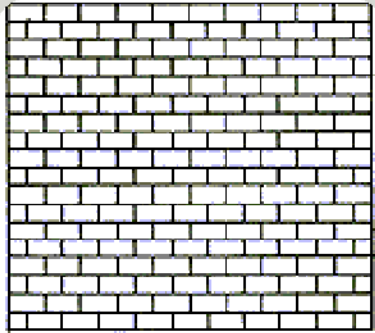




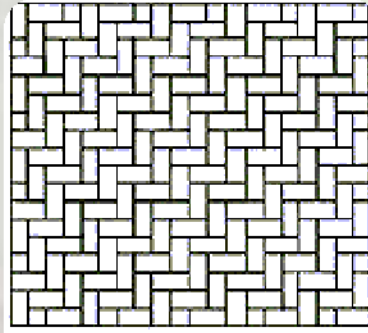
# BRICK FLOORING

- Brick products have been used for many centuries throughout the world for applications such as roads, flooring, monuments, side walks and building structures.
- Bricks are considered to be the oldest manufactured building material that has been trusted throughout history because of its durability, versatility and practical attributes.
- Here in india standard size of brick is used in flooring which is used in wall construction.

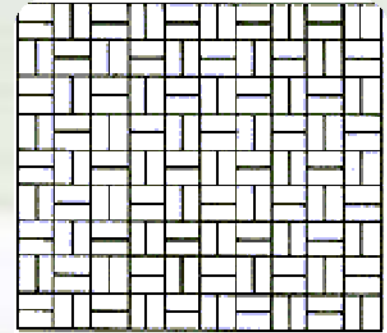
# PATTERNS FOR BRICK FLOORING



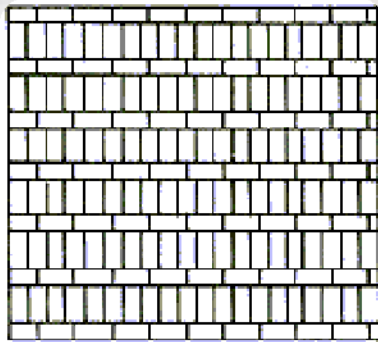
RUNNING BOND



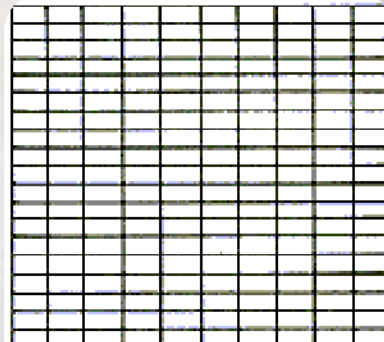
HERRINGBONE



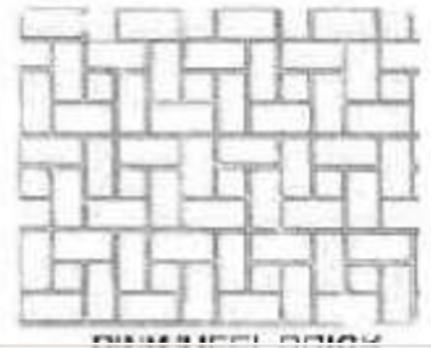
BASKET WEAVE



RUNNING ANIXED  
STACK MD



STACK BOND



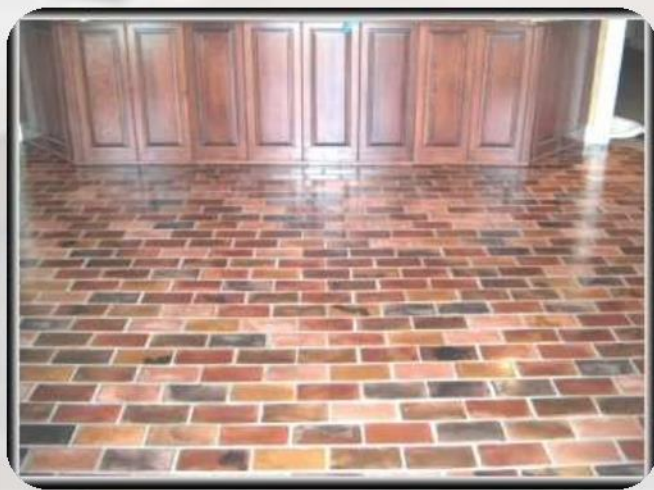
PIN WHEEL



HERRINGBONE



PROMENADE



RUNNING BOND



PIN WHEEL



# ADVANTAGES

There are various reasons for the benefits that brick flooring products provide in visual terms, their strength and ability and their practical purposes. Here are some of the benefits of what brick flooring will provide when used as paving:

- They provide elegance and character with the old world look rustic charm
- They are fade resistant
- They resist wear and tear
- They are slip resistant
- They are recycled products, so you are helping the environment
- They are very durable with long lasting attributes
- They are fire resistant
- They are maintenance free
- They will not crack or chip





# APPLICATION





# GLASS FLOORING

- **Glass floors** are made with [transparent](#) glass when it is useful to view something from above or below; whereas [translucent](#) glass is used when there is no need to view through. In either case, [toughened glass](#) is usually chosen, for its durability and resistance to breakage.
- Glass as a flooring material is used in both residential and commercial structures. Special hollow [glass blocks](#) known as "glass [pavers](#)" are often used in combination with a [metal frame](#). Glass floors are often lit from below with natural or artificial light, or may be treated as ordinary floor surfaces illuminated from above.

# INSTALLATION

- Floor panels are constructed of laminated layers of tempered, annealed, or heat-strengthened glass.
- Laminated glass flooring requires a rigid support with a deflection of  $L/500$
- Minimum support depth should be 20-30mm. joints should be more than 4mm. wide joints used of 6mm.



- Glass flooring is very expensive to replace once installed
  - To maintain the aesthetic beauty of glass flooring, it is important to keep the panel clean. A soft, clean, non-abrasive cloth and a mild detergent, or non-abrasive glass cleaning solution is suitable for cleaning.
  - After cleaning, rinse immediately with clean water and remove any excess water from the panel surface. Do not use abrasive cleaners, bleach, scouring powder or pads which can scratch and damage glass flooring.
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- As a rule of thumb heat strengthened glass is approximately twice as "strong" as annealed or ordinary float glass, and fully toughened glass is roughly four to five times as strong.
  - using fully toughened glass would dramatically reduce the thickness of the glass to be used in glass flooring laminates





