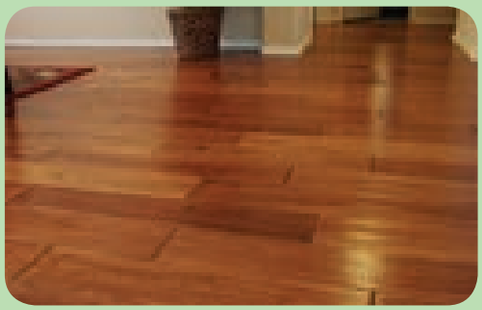
BUILDING CONSTRUCTION

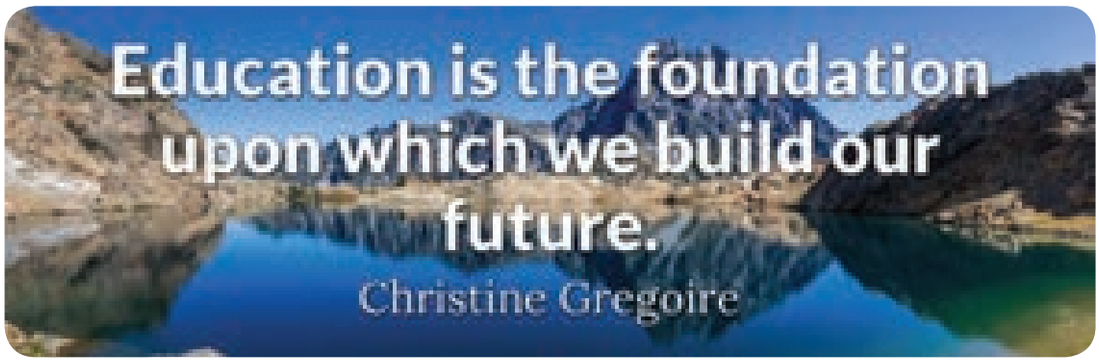
Unit - 8
Basic Civil Engineering

8.1 STAIRS AND LIFTS

8.2 ROOFS

8.3 FLOORS AND FLOORING





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8.1 STAIRS AND LIFTS

Learning Objectives

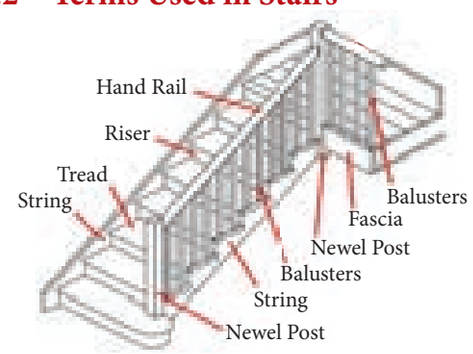
At the end of this lesson you shall be able to

- Understand the terms used in staircase.
- State the types of stairs
- Define lift and its uses.

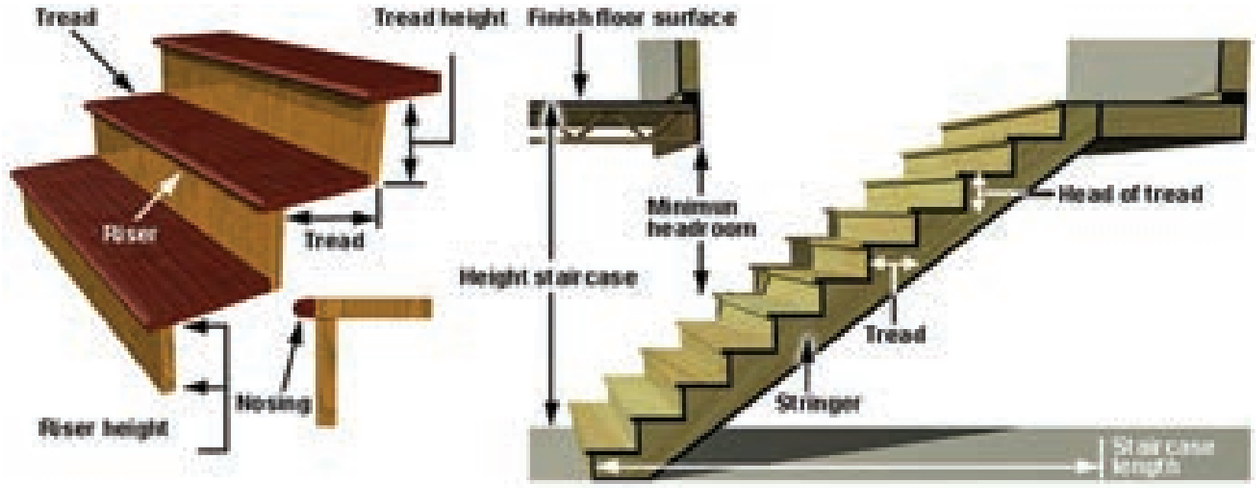
8.1.1 Introduction

A stair is defined as a series of steps and it is provided to go up or come down between the floors or landings.

8.1.2 Terms Used in Stairs



1. **Tread:** The horizontal upper part of a step which is used to rest the foot while ascending or descending the stairs.
2. **Riser:** The vertical portion of a step providing a support of the tread.
3. **Rise:** It is the vertical distance between the horizontal surfaces of two consecutive steps.
4. **Flight:** A series of steps without any platform or landing is known as flight.
5. **Nosing:** The outer projection of a tread is known as nosing.



6. **Going:** It is the horizontal distance between the faces of two consecutive steps.
7. **Landing:** A platform provided between two flights of stair is called landing.
8. **Soffit:** It is under surface of a stair.
9. **Pitch:** It is the angle which the line of nosing of the stair makes with horizontal.
10. **Winders:** They are angular or radiating steps and provided to change the direction of a stair.
11. **Baluster:** Vertical members supporting the hand rail.
12. **Hand Rail:** It is the wooden or metallic rail generally provided at convenient height over balustrades.
13. **Newel Post:** Posts set at the begining and end of a stair to support the handrail.

8.1.3 Location of Staircase

It should be centrally located such that, it is easily accessible from the various rooms of the building. In the advent of fire or any such calamity, stairs provide the only means of communication.

Sufficient light and proper ventilation should be made available in the

The longest stairway in the world:

The steps that run alongside the Niesen mountain railway in Switzerland are officially the longest stairway in the world. There are 11,674 steps in all, and it's only possible to hike them one day a year during the Niesen run. It is only 3.4 km but there is 1669 m of altitude to climb.

Search link: www.dmx.co.uk>worlds-longest-stairs

staircase for easy and safe communication between the various floors.

In public building the staircase should be located near the main entrance.

8.1.4 Types of Stairs

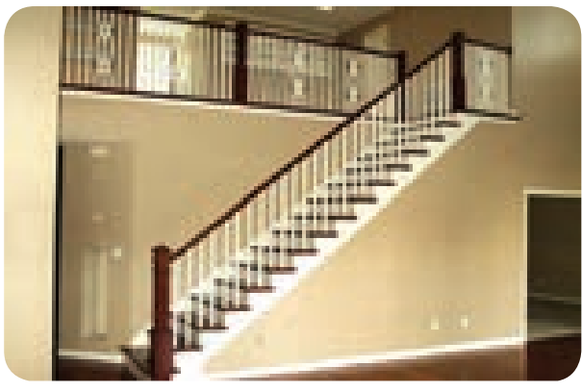
I. According to the materials used

i. Brick stairs
ii. Wooden stairs
iii. Stone stairs
iv. Steel stairs
v. Concrete stairs.
vi. Glazed stairs

II. According to the shapes

1. Straight flight stairs
2. Dog legged stairs
3. Open well stairs
4. Circular stairs or spiral stairs
5. Bifurcated stairs
6. Geometrical stairs

8.1.4.1 Straight Flight Stairs

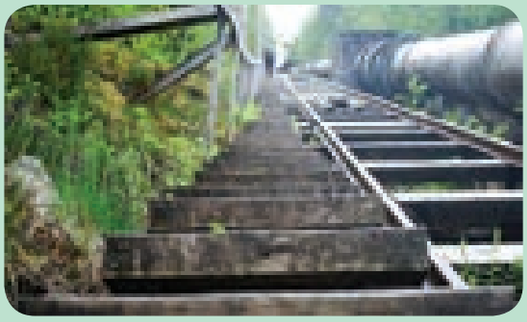


In these stairs all the steps lead in one direction. Straight stairs may be continuous with landings in between flights. This type is used for small houses, where sufficient width is not available.

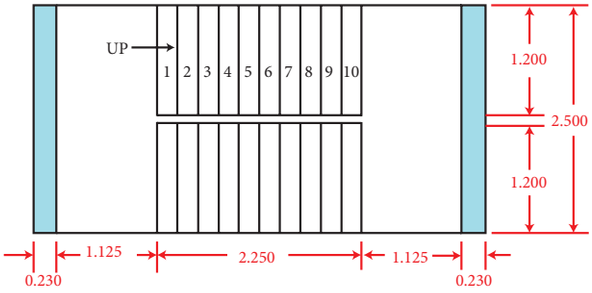
DO YOU KNOW?

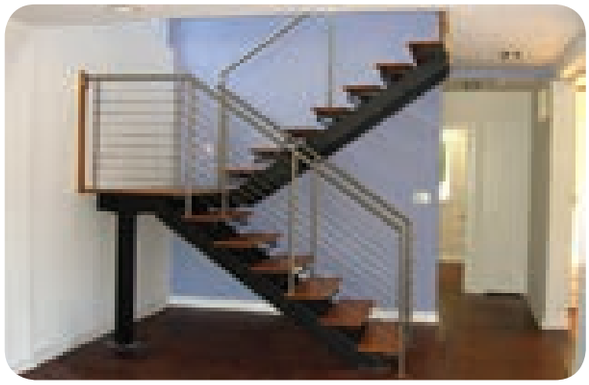
The world's longest wooden stairs

The longest wooden stairs in the world, 4444 steps, is in Florli, Norway.



8.1.4.2 Dog Legged Stairs



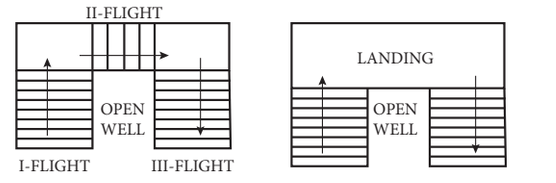


Heaven's gate, China:

The stairway consists of 999 steps. It passes through the hole in the rock to the temple situated at the top of the mountain.

It consists of two straight flights of steps with abrupt turn between them. Usually, a level landing is placed across the two flights at the change of direction. This type of stair is useful where the width of the staircase hall is just sufficient to accommodate two widths of stair.

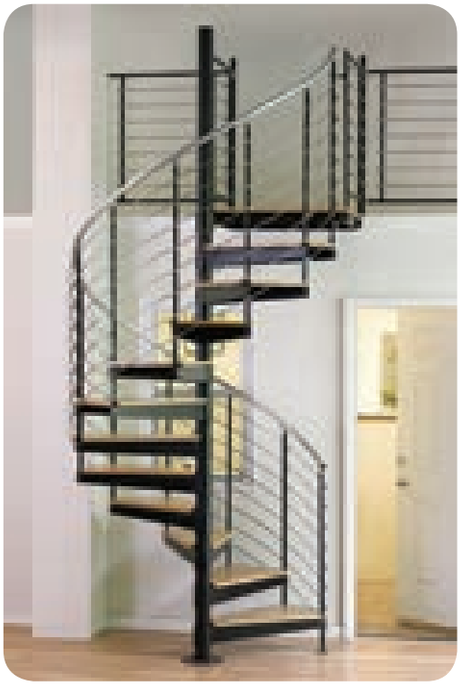
8.1.4.3 Open Well Stairs



WITH INTERMEDIATE FLIGHT WITHOUT INTERMEDIATE FLIGHT

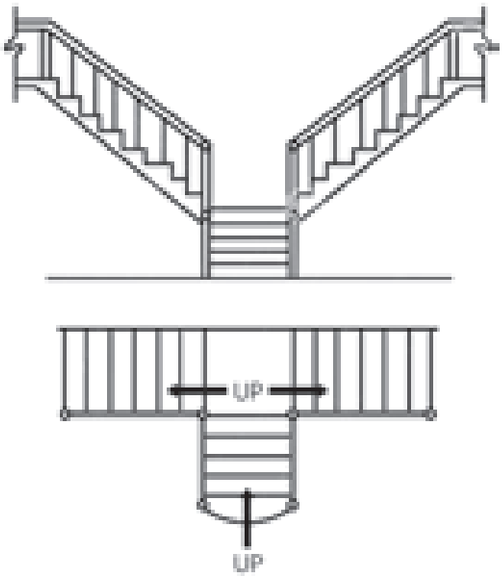
It is similar to dog legged stair but there is a rectangular well or opening between the backward and forward flights. The total width of stair would be sum of twice the width of one flight and well hole. The well hole allows lighting.

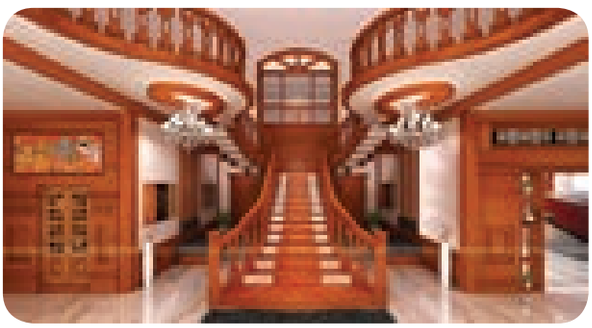
8.1.4.4 Circular Stairs or Spiral Stairs



These stairs are circular in shape. In spiral stair the radius of curvature is small and the stairs may be supported by a centre post. Over all diameter of such stairs may range from 2 to 2.5 metre.

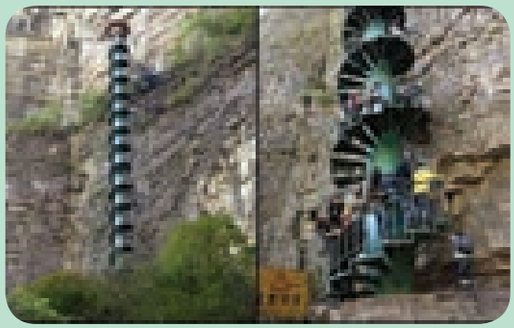
8.1.4.5 Bifurcated Stairs





Stairway to heaven:

The 300 feet spiral staircase has been installed on the wall of the Taihang Mountains in Linzhou to offer the thrill of mountaineering without the danger.



Search link:

http://inhabitat.com> architecture
http://www.alux.com>most-luxurious staircase

ACTIVITY 1

Collect the pictures of the most luxurious unique and spectacular staircase in the word and make an album.

These stairs are so arranged that there is a wide flight at the starting which is sub divided into two narrow flights at the mid landing.

Generally, these stairs are more suitable for modern public buildings.

8.1.5 Moving Stairs or Escalators

Escalators are a sort of moving stairway between two successive floors driven by power.

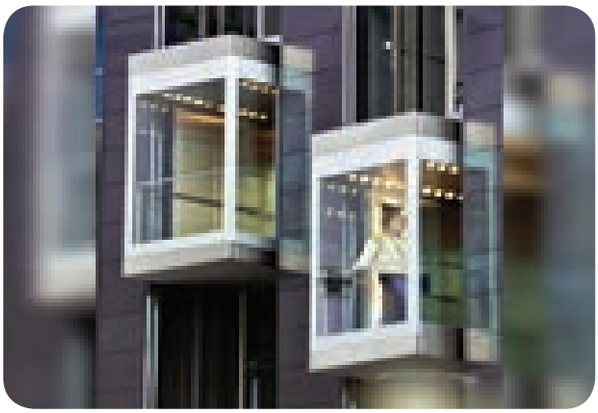
In place of staircase, escalators may be used in building where there is a continuous heavy traffic flow, such as departmental stores, exhibition halls, railway stations, office buildings, airports, etc.

It is a power driven inclined continuous stairway. Stair users are not required to walk but, stairs themselves keep on moving.

8.1.6 Lift or Elevators

ACTIVITY 2

Visit the buildings with lifts and escalators around your town and prepare a report with photos.



This is an appliance designed to transport persons or goods between two or more floors in a vertical direction by means of a guided car or platform.

For efficient use of lifts, they should be provided near the centre of building also it should be easily accessible from all entrances of the building.

A lift is designed for the transport of passengers is known as passenger lift. Whereas, a lift designed for the transport of goods, is termed as goods lift. It occupies least space.

Model Questions

PART I (1 Mark)

Choose the correct answer

1. The vertical distance between two consecutive steps is …..
   a. Going
   b. Pitch
   c. Tread
   d. Rise

2. …….. are provided to change the direction of geometrical stairs.
   a. Going
   b. Winders
   c. Riser
   d. Baluster

3. Posts set at the top and bottom of a stair supporting the hand rail is ……..
   a. Baluster
   b. Head rail
   c. Newel post
   d. Flight

4. The angle which the line of nosing of the stair makes with the horizontal is …….
   a. Soffit
   b. Pitch
   c. Rise
   d. Tread

5. The outer projection of a tread is known as ……
   a. Landing
   b. Going
   c. Nosing
   d. Winder

PART II (3 Marks)

Answer in one or two sentences

6. Define stair.
7. Distinguish between rise and riser.
8. List any three types of stairs according to the materials used.
9. List any three types of stairs according to the shapes.

PART III (5 Marks)

Answer shortly

10. Explain bifurcated stairs.
11. Write short notes on any five terms used in staircase.
12. Explain the location of staircase.

PART IV (10 Marks)

Answer in detail

13. Explain dog legged staircase with sketch.
14. Explain open well stair case with sketch.

Answers

1. (d) 2. (b) 3. (c) 4. (b) 5. (c)

8.2 ROOFS

Learning Objectives

At the end of this lesson you shall be able to

- State the classification of roofs and its requirements.
- List the advantages of flat roof.
- Understand the modern roofing sheets.

8.2.1 Introduction

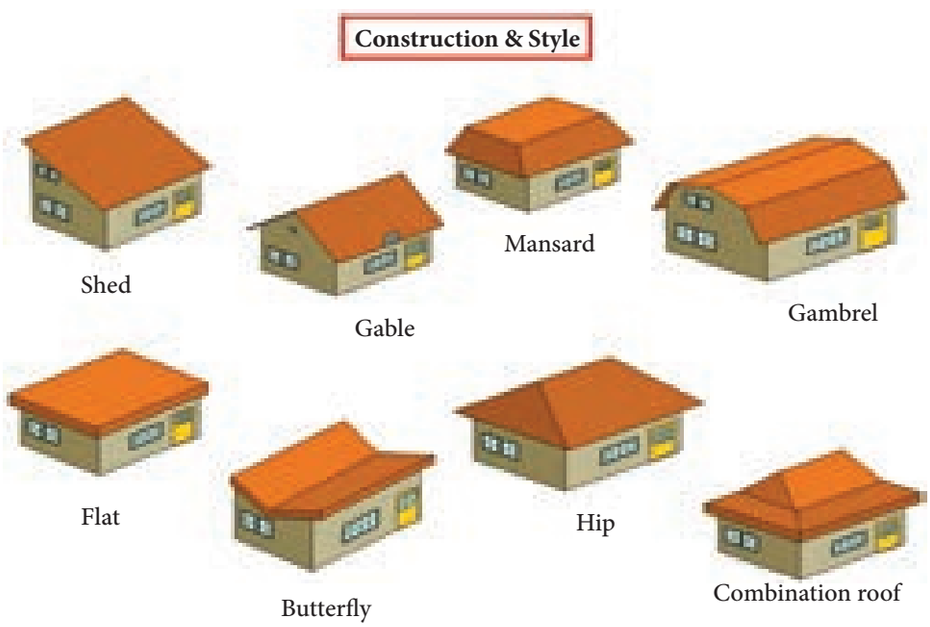
A roof is the uppermost part of a building, provided as a structural covering to protect the building from rain, sun, wind, etc. Roof protects the building from the damages starting from the top.

8.2.2 Requirements of a Good Roof

The following requirements are to be satisfied by a well planned roof.

i. It should be durable against the adverse effects of wind, sun, rain, etc.

ii. It should give good insulation against heat and sound.



Matrimandir, Auroville.

The Matri mandir is an edifice of spiritual significance for practitioners of Integral yoga, situated at the center of Auroville initiated by the Mother of the Sri Aurobindo Ashram.

It is in the form of a huge sphere surrounded by twelve petals. It took 37 years to built this structure (from Feb. 1971 to Feb. 2008).

iii. It should be structurally sound and stable.

iv. It should permit good drainage.

v. It should have good water proofing arrangement.

vi. It should be fire resistant.

8.2.3 Classification of Roofs

1. Sloping / Pitched Roof
2. Flat Roof
3. Curved or Shell Roof

8.2.3.1 Sloping / Pitched Roof

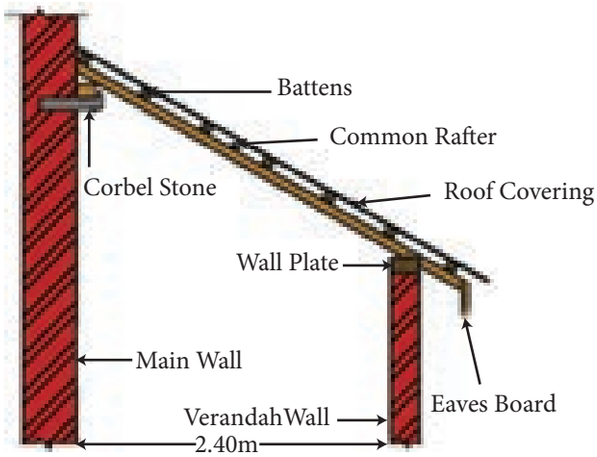
Roofs with sloping surfaces are known as pitched roofs. These roofs are constructed out of wood, steel or combinations of both and the edges are supported by walls. The slope of the roof depends upon the span (distance between the two supporting walls). Covering materials are selected according to the climatic conditions in that locality.

Type of Pitched Roof

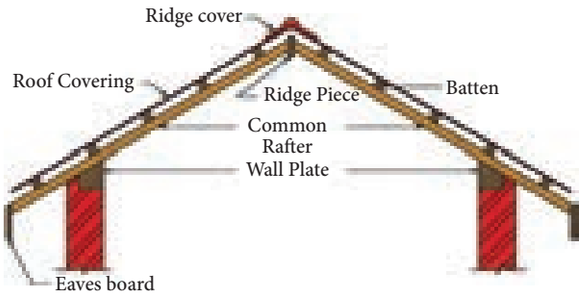
1. Single Roof
2. Double (or) Purlin Roof
3. Trussed Roof

Types of Single Roof

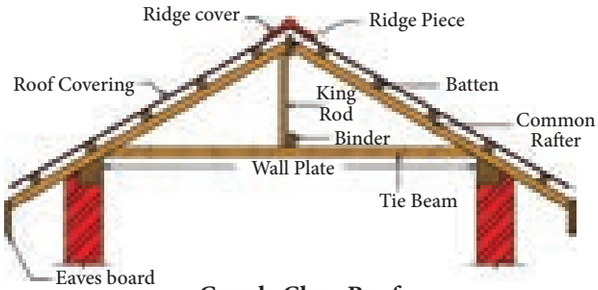
1. Lean-to-Roof
2. Couple Roof
3. Couple closed Roof
4. Collar beam Roof



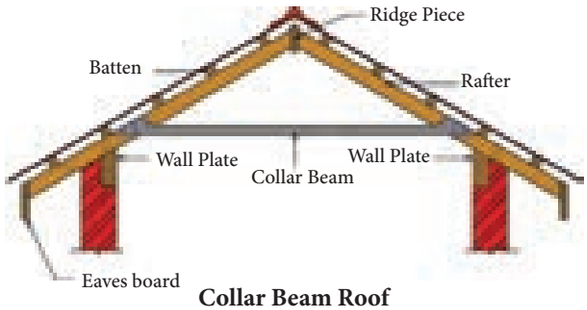
Lean-to-Roof



Couple Roof



Couple Close Roof



Collar Beam Roof

Trussed Roof

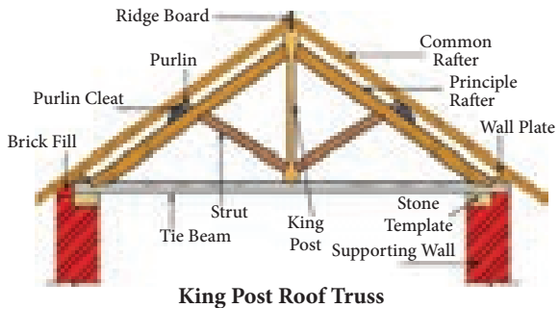
These types of roofs are constructed in triangular shape and made up of steel or timber. These are used when the span exceeds 5.5m. The spacing of trusses depends upon the load on the roof.

The following are some of important types of trussed roof

i. King post truss
ii. Queen post truss
iii. Steel truss

I. King Post Truss

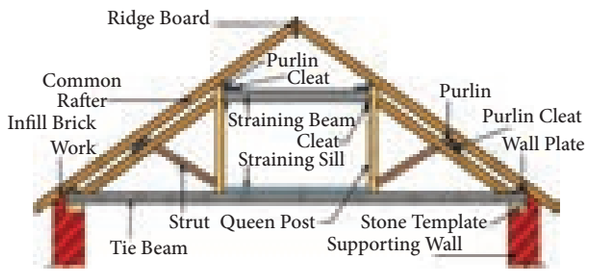
This is used for spans from 5m to 9m. In king post truss, the common rafters are supported by wooden frame work called truss at required intervals. The frame work consists of two principal rafters, a tie beam, two struts and a king post. Purlins are placed longitudinally over the principal rafters to support the common rafters. The spacing of the king post truss is generally adopted as 3m



King Post Roof Truss

ii. Queen Post Truss

This is used for spans from 9m to 14m. In queen post truss the frame work consists of two principal rafters, two queen posts, two struts, one straining beam, one straining sill and a tie beam. Common rafters are placed over the purlins which are placed over the principle rafters.



Queen Post Truss

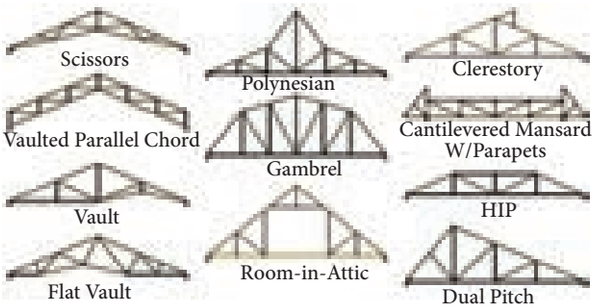
iii. Steel Roof Truss

For spans greater than 12m, steel trusses are economical. Mild steel rolled sections of standard shapes and sizes are available in the market. It facilitates the construction of steel trusses. For small spans, the steel roof trusses are made using angles connected by rivets or welds.

ACTIVITY 3

Collect pictures of different types of roof and prepare an album.

The designs of steel trusses become simple because steel can take both compression and tension. A few types of steel trusses are shown in the figure.



8.2.3.2 Flat Roof

The roof which is nearly flat or at a slope upto 10° is known as flat roof.

Types of Flat Roof

1. RCC roof
2. Madras terrace roof

1. RCC Roof

The following steps are to be adopted in the construction of Reinforced Cement Concrete (RCC) roof slab:

i) **Centering**

As the concrete is in semisolid state during placing, it is necessary to give support until it gains sufficient strength. This temporary supports which are formed by using wooden planks and props or steel plates and steel pipes is called Centering. It should be strong enough to withstand the weight of the roof concrete. Before laying the steel rods on the surface of centering, waste oil should be applied for easy removal of planks. The steel rods are then placed in position and are tied by using binding wires. Usually the concrete mix proportion of 1:1.5:3 is placed over the centering and they are compacted by using vibrator.

ii) Curing and Removal of Form Work

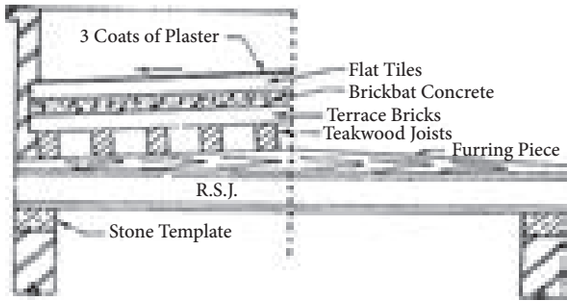
After laying of concrete, the surface of concrete should be cured for about 21 to 28 days. Only then, the concrete will attain its full strength. The form work can be removed after 14 days.

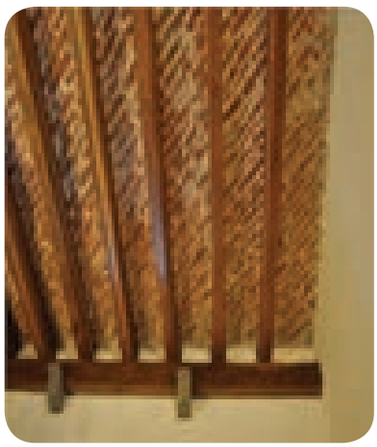
iii) Weathering Course

The weathering course will protect the surface of the roof slab from weathering actions. The surkhi mortar 1:1.5 (1 lime and 1.5 brick bats) ratio is laid on the roof surface for about 100mm thick. Above this, flat tiles are laid by using cement mortar 1:3. The joints in between the tiles are pointed by using cement mortar. Proper slope is maintained for easy drainage of rain water.

2. Madras Terrace Roof

1. Madras terrace roof was widely used in Madras Province in olden days.
2. It consists of teak wood beams placed over the steel girders with a furring piece between them. The furring piece gives necessary slope to the flat roof.
3. A course of well burnt bricks is laid in lime mortar by keeping the bricks on their edges diagonally across the beams.
4. A 10cm thick brick bat concrete is laid over it and thoroughly compacted by frequent wetting with water.
5. Flat tiles are laid in 3 layers over this using lime mortar.
6. Finally three coats of plaster are applied for finishing the surface and a slope of about 1 in 30 is given for draining of rain water.





ACTIVITY 4

Visit a construction site near your school and prepare a detailed report about the stages of construction of RCC roof slab with photos.

8.2.4 Advantages and Disadvantages of Flat Roof

Advantages

I. It is easy for construction and maintenance.

ii. Upper floor can be easily constructed.

iii. Flat roof possesses good insulation properties.

iv. It posses more fire resistance than pitched roof.

v. A flat roof provides better light, ventilation and architectural appearance to the building.

vi. False ceiling is not necessary for flat roof.

Disadvantages

i. Initial cost is higher than the pitched roof.

ii. Flat roof is not suitable for long span, without the introduction of columns and beams.

iii. Flat roof is not suitable for places of snowfall.

iv. Construction speed is slower than the pitched roof.

8.2.5 Roof Covering Materials for Pitched Roof

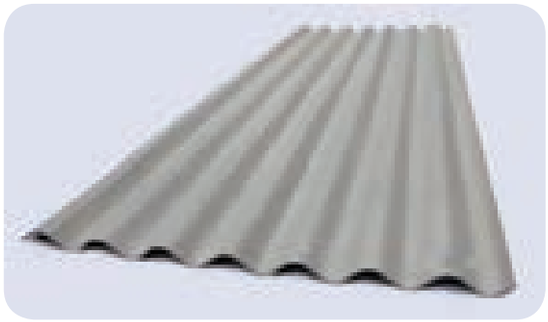
1. Thatches.
2. Wooden Shringles.
3. Mangalore Tiles.
4. A.C. Sheets.
5. G.I. Sheets.
6. Light Weight Roofing Materials.
7. Poly Vinyl Chloride Sheets.
8. Galvalume Sheets

Thatches

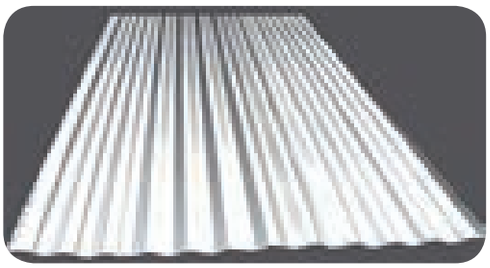
Wooden Shringles

Tiles

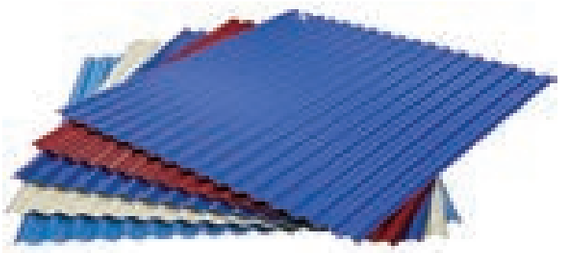
A.C.Sheets(Trafford)



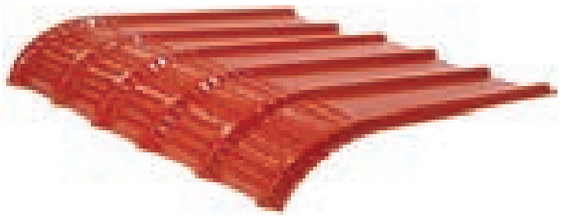
A.C. Sheets (Corrugated)



Light Weight Roofing



Poly Vinyl



Galvalume sheet

8.2.6 Points to Be Considered During the Selections of Roofing Materials

1. Climate of the Locality.
2. Slope of the Roof.
3. Type of the Building.
4. Durability.
5. Construction and Maintenance Cost of the Building.
6. Resistance to Fire and Heat.
7. Weight of the Roofing Material.
8. Appearance and Beauty of Material.

8.2.7 Types of Covering Sheets for Pitched Roof

1. Asbestos Cement Sheets.
2. Light Roofing Sheets.
3. Galvanized Iron Sheets.

8.2.7.1 Asbestos Cement Sheets (A.C. Sheets)

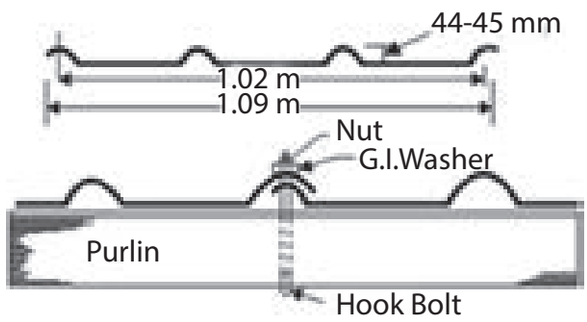
They are manufactured by mixing the cement with about 15% of asbestos fibre. The paste so formed is pressed under rollers. These fibres are so soft like silk. The corrugations helps to increase the strength and rigidity and they permit easy flow of rain water.

Types of AC Sheets

i. Trafford Sheet
ii. Corrugated Sheet

i. Trafford Sheet

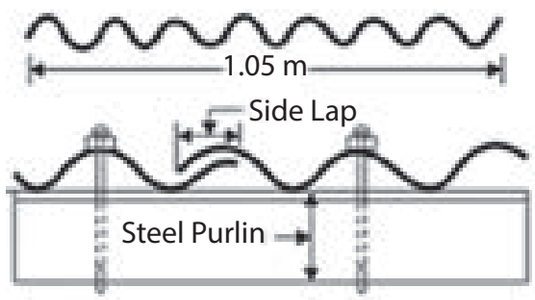
Each Trafford sheet consists of four deep corrugations alternating with flat portions. The thickness of these sheets is 6mm. They are available with a breadth of 1.02 m and length of 2.5m, 3m, 3.5m and 4m.



ii. Corrugated Sheet

These sheets are prepared by pressing plates between rollers. These sheets are manufactured with series of parallel depression (Corrugations) from one end to the other. These sheets are more resistant to fire. These sheets produce noise when rain water falls on them.

Crank bolts and 'J' hooks are used to fix these sheets with the purlins. To avoid the leakage of water through holes, bituminous washers are used. There are 7.5 corrugations in this sheet. The upper and lower corrugations are equal. The thickness of these sheets is 6mm. They are available with a breadth of 1.05m and lengths of 2.5m, 3.0, 3.5m and 4m.



Uses of AC Sheets

i. AC sheets are fairly cheap and not easily affected by fire.
ii. They need not be painted.
iii. It is not affected by insects.
iv. It is used in industries, factory buildings and workshops.

Characteristics of AC Sheet

i. Asbestos cement sheet can be sawn, nailed or punched.
ii. They are sound proof.
iii. They are not affected by acids and alkalies.
iv. The Maintenance cost is low.
v. They are used for decorative purpose.

AC Ridge Piece Cover

To avoid water entering into the roof, the cover pieces laid at the top junction of the two sloped AC sheets are known as AC ridge covers.

8.2.7.2 Light Roofing Sheets

These roof coverings are manufactured by inserting wool cloth in between the two asbestos clothes with corrugations. The thickness of these sheets is 3mm. They are available in a breadth of 1m and length of 2m, 2.5m and 3m. They are painted with aluminium paint on both sides. They are easily bendable and easy to cut and nail. These sheets are cheap in cost but has less strength. This type of roof covering is suitable for cattle sheds and temporary sheds.

Types of light roofing sheets

i. Tar sheet
ii. Plastic sheet
iii. Poly vinyl chloride sheet

8.2.7.3 Galvanized Iron Sheets

These sheets are prepared by pressing wrought iron plates between rollers. They are galvanized with a zinc coat to avoid rusting due to climatic change. They are strong due to corrugations. They are also manufactured as plain sheets.

Advantages of Galvanised Iron Sheet

i. They need not be painted, so cost reduces.
ii. It is weightless. So, handling is easy.

iii. Low conductor of heat.

iv. Not easily corrodable.

8.2.8 Modern Roofing Sheets

The following are the different modern roofing sheets.

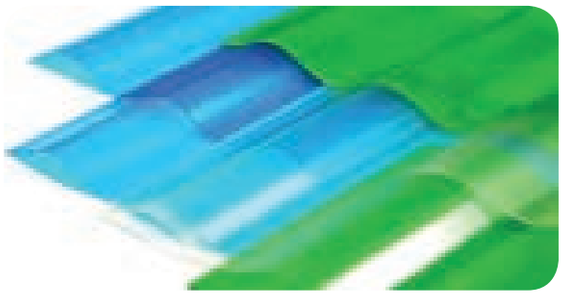
1. Corrugated aluminium sheets
2. PVC roofing sheets
3. Glass fibre reinforced plastic sheets
4. Bituminous sheets
5. Red mud corrugated roofing sheets
6. Galvalume sheets

8.2.8.1 Corrugated Aluminium Sheets

Aluminium is a light weight metal and does not corrode like steel. The thickness of corrugated sheets vary from 0.5 to 0.8 mm. They require no maintenance and also has a good resale value. The only disadvantage is that they are more expensive.

8.2.8.2 PVC Roofing Sheets

Rigid PVC Corrugated sheets are transparent with a light transmission of not less than 70 to 80 percent. So, these sheets do not perform well with direct exposure to sunlight and are also not fire proof. They are mainly used in temporary constructions, car parking, etc., where a very light roofing of pleasing appearance is required.



8.2.8.3 Glass Fibre Reinforced Plastic Sheets

Corrugated glass fibre reinforced plastic sheets with different profiles and light transmissions are used as light roofing materials. Unlike GI and aluminium sheets, these sheets have little resale value.

8.2.8.4 Bituminous Sheets

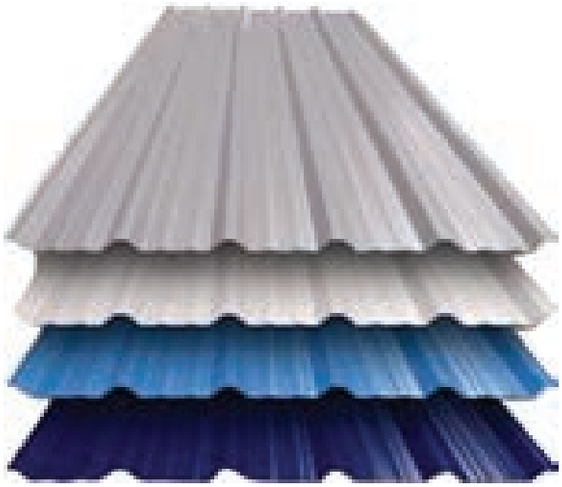
Light roofing sheets made of bitumen and paper pulp is generally used for covering of temporary sheds. They are cheap but their life is very short (3 to 5 years).They do not have resale value.

8.2.8.5 Red Mud Corrugated Roofing Sheets

Red mud is obtained from waste materials derived in aluminium industry is combined with polymers to form this corrugated roofing sheets. They are cheap and more durable. Since red mud corrugated roofing sheets are very flexible, they are extensively used as light roofing material for temporary construction.

8.2.8.6 Galvalume Sheet

Galvalume sheets are commercially available light steel roofing sheets made up of low tensile steel or mild steel. These sheets are 4 times more corrosive resistant than GI sheets and are one of the most economical and durable material. The versatility, ease of use, aesthetics and long term performance of the material makes it best preferred material for roofing now-a-days.



Model Questions

PART I (1 Mark)

Choose the correct answer

1. The upper most part of a building is ……
   a. Wall
   b. Floor
   c. Roof
   d. Door

2. King post truss is used for spans from ……
   a. 3m to 6m
   b. 5m to 9m
   c. 2m to 4m
   d. 4m to 8m

3. For spans greater than ….. steel trusses are economical.
   a. 12m
   b. 6m
   c. 10m
   d. 20m

4. Flat tiles are laid in ……layers in madras terrace roof.
   a. 4
   b. 2
   c. 3
   d. 5

5. The content of asbestos fiber in the manufacture of A.C sheet is …..
   a. 10%
   b. 15%
   c. 20%
   d. 25%

PART II (3 Marks)

Answer in one or two sentences

6. List any three types of flat roofs.
7. What are the important types of roof trusses?
8. What are the types of light roofing sheets?

PART III (5 Marks)

Answer shortly

9. What are the characteristics of A.C sheets?
10. State the requirements of a good roof.
11. List the advantages of flat roof.

PART IV (10 Marks)

Answer in detail

12. Explain king post truss with sketch.

Answers

13. Explain about modern roofing sheets.

8.3 FLOORS AND FLOORING

Learning Objectives

8.3

At the end of this lesson you shall be able to

- ➢ State the types of floors and flooring.
- ➢ Understand the materials used in flooring and its selections.

8.3.1 Introduction-Floors

Floors are the horizontal elements of a building structure. It divide the building into different levels. It provides more accommodation within a restricted space. They provide support for the occupants, furniture and equipment of a building.

Ground Floor: The floor of a building immediately above ground level is known as ground floor.

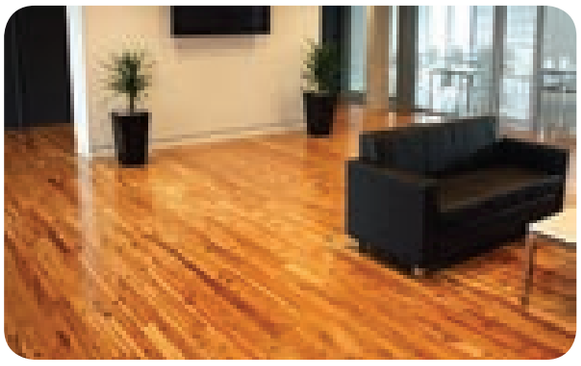
Basement Floor: In case part of the building is constructed below ground level or the building has basement, the floor is termed as basement floor.

Upper Floor: If the building is a multi-storeyed one, the floors above ground floors are called upper floors.

8.3.2 Types of Floors

Floors are classified into two categories. They are,

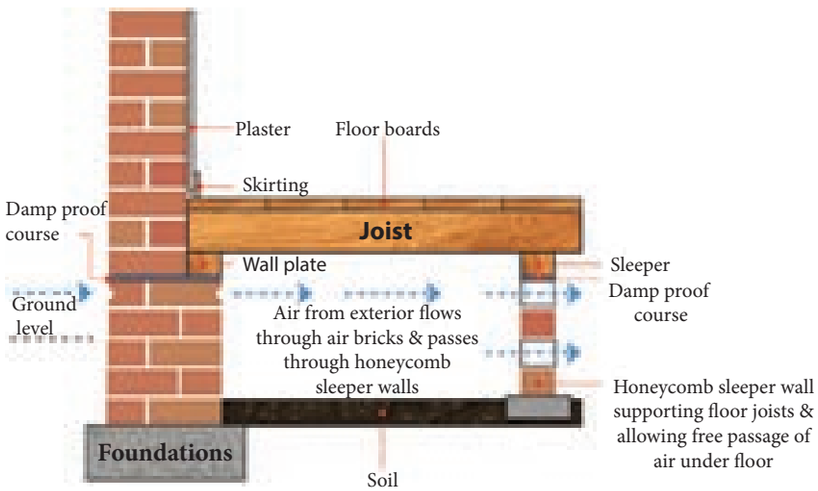
1. Timber floors
2. Composite floors
3. RCC floors



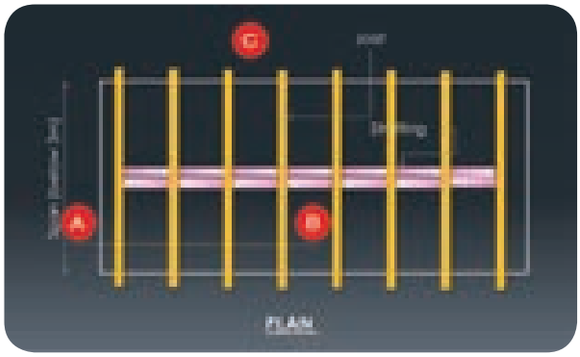
8.3.2.1 Timber Floors

In this type of floors, only timber is used as a flooring material. Following are the types of timber floors.

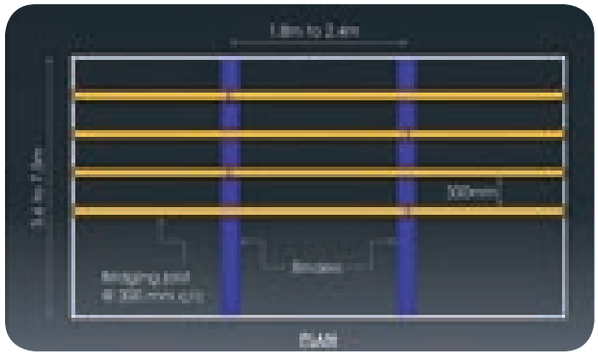
I. Sleeper Wall Timber Floors



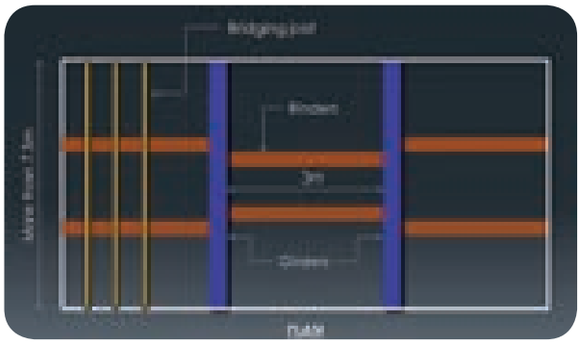
ii. Single joist timber floors



iii. Double joist timber floors



iv. Framed or triple joist timber floors.



8.3.2.2 Composite Floors

Floors composed of more than one material are known as composite floors. Following are the types of composite floors.

i. Filler joist floors
ii. Jack arch floors
iii. Double flagstone floors
iv. Hallow block and rib floors
v. RCC Floor

In the above types of floors, RCC floors are most common now-a-days.

8.3.2.3 RCC Floors

In this type of floor, steel bars and concrete are used to form the floor. This type of floor is widely used in modern construction. The slabs and beams are designed as per loading comes on the floor and proper reinforcement is placed at suitable places. The following are the advantages of RCC floors when compared to other type of floors.

- Maintenance cost is low
- Strong
- Fire proof
- Easy to construct

8.3.3 Definition of Flooring

The permanent covering of the top surface of a floor structure to provide an even and smooth walking surface is known as **"Flooring"**.

8.3.4 Materials Used for Flooring

The following are some of the materials used for flooring.

i. Brick
ii. Concrete
iii. Wood

iv. Stone
v. Tiles
vi. Terrazzo
vii. Asphalt
viii. Rubber
ix. Glass
x. Linoleum

8.3.5 Selection of Material For Flooring

Following factors are to be carefully considered before selecting the material for flooring:

1. **Appearance:** The flooring material should have desired appearance and it should produce the colour effect in conformity with the use of building.
2. **Comfort:** The flooring material should give comfort when used. Flooring material should have good thermal insulation, imparts comfort to the residents of the building to a great extent.
3. **Cost:** The cost of flooring materials should be reasonable when compared to the utility of the building.
4. **Cleaning :** The flooring materials should be such that it can be easily and effectively cleaned.
5. **Durability:** The flooring material should be durable and it should be strong enough to impart resistance to wear, tear, chemical action. etc.,
6. **Noise:** Flooring should insulate noise (i.e) it should not produce noise when users walk on it. Floor covering of wood, rubber, cork, PVC tiles are suitable for this type.
7. **Slipperiness:** Flooring material should be smooth and should have an even surface. It should not be slippery.
8. **Fire Resistant:** This quality is more important for upper floors. The material should offer sufficient fire resistance. So that fire barriers are obtained between different levels of a building. Concrete tiles, terrazo and marble have this quality

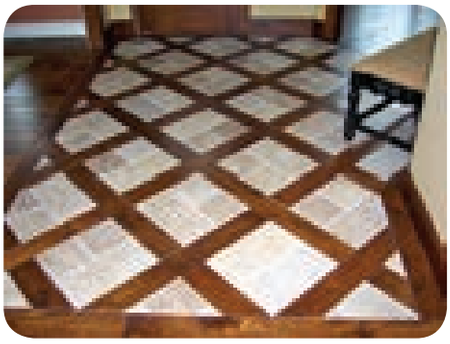
8.3.6 Types of Flooring

Following are the various types of flooring based on the materials used.

1. Tiled flooring
2. Granite flooring
3. Marble flooring
4. Precast concrete flooring
5. Plastic and PVC tile flooring
6. Carpet flooring
7. Rubber flooring

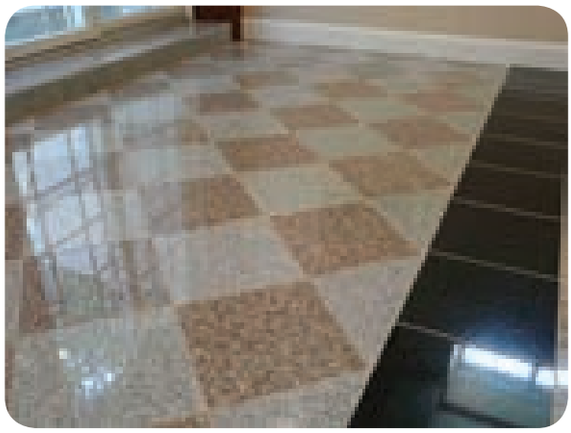
8.3.6.1 Tiled Flooring

Tiles of either clay or cement concrete or terrazzo manufactured in various shapes, size and thickness are used in this type of flooring. This flooring can be laid in shorter time.



8.3.6.2 Granite Flooring

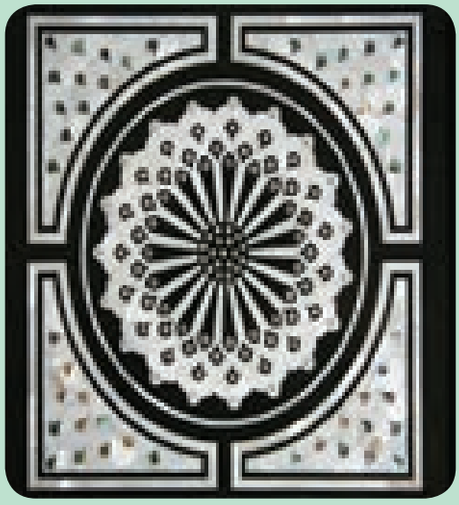
Granite flooring is similar to granolithic flooring. Here, instead of chips, hard granite stones are laid on the sub grade of concrete. The usual thickness is 20mm to 35 mm.



World's Most Expensive Flooring Tiles.

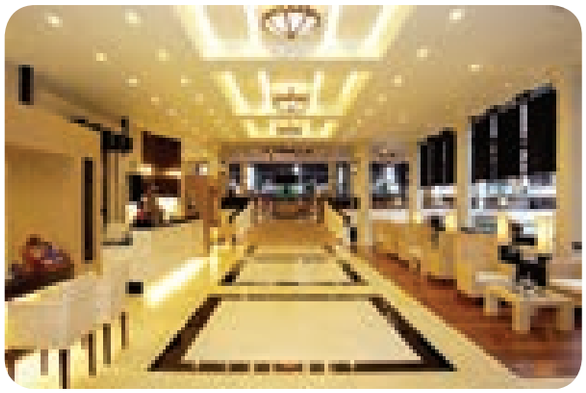
Lux Touch is a ONE MILLION US DOLLER per square meter rated DIAMOND floor, wall and ceiling tile, the most expensive in the world. Each square meter of marble tile is inlaid with over 1000 diamonds, 2400 pieces of mother of pearl, 400 pieces of abalone shell and 500 pieces of black onyx.

Search link: www.blackdiamond-lifestyle.com>diamondfloorings



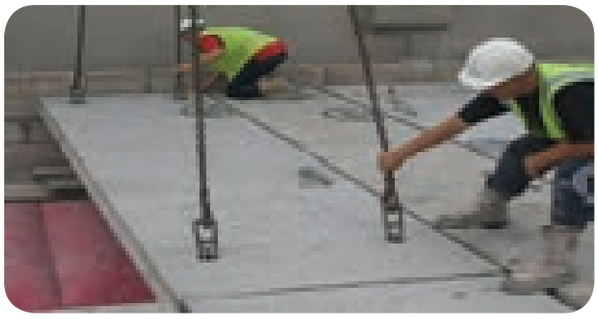
8.3.6.3 Marble Flooring

This is a superior type of flooring used in important public buildings, residential buildings etc., where extra cleanliness is essential. Marble slabs are rectangular or square in shape.



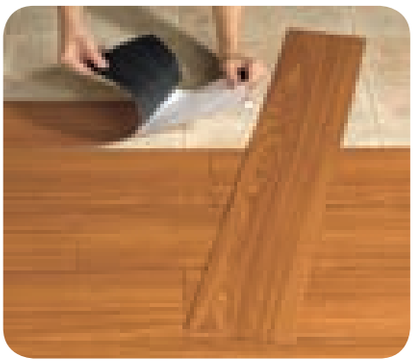
8.3.6.4 Precast Concrete Flooring

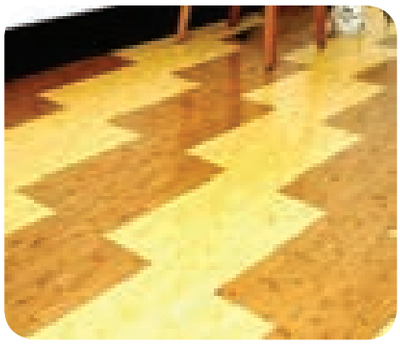
The precast slabs are available in different sizes. They are supported either on walls or rolled steel joints. The sides of each unit contain grooves which enhance good connection with adjacent joints.



8.3.6.5 Plastic and Pvc Tile Flooring

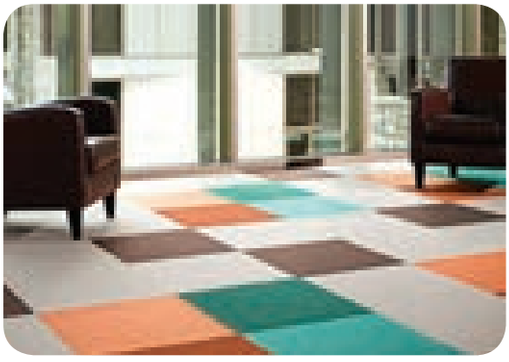
This type of flooring is a recent development in flooring construction. The material poly vinyl chloride is fabricated in the form of tiles of different size, shapes and colour.





8.3.6.6 Carpet Tile

this flooring is generally used to obtain a noiseless floor in case of libraries. Studios, prayer hall, etc.



GLASS FLOOR

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

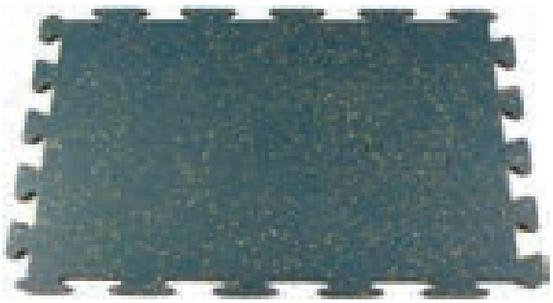
Search link: https://www.homeflooring-pros.com>8 best luxury floorings.

ACTIVITY 5

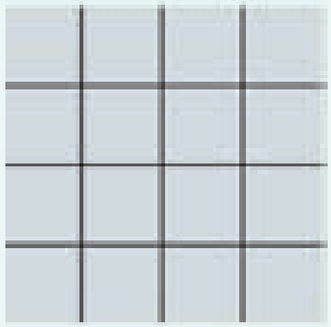
Prepare a report on Luxury and high quality flooring with pictures.

8.3.6.7 Rubber Flooring

Rubber floorings are in a large extent used in public and industrial buildings.



Tiles Laying Patterns

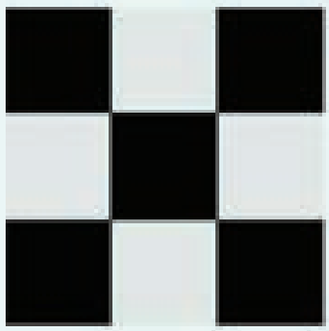


Stack Bond

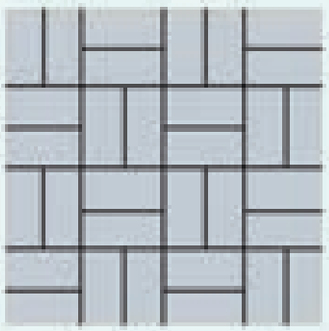
Stretcher (Half-Bond)

Brick (Half-Bond)

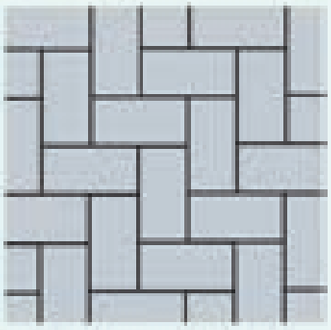
Random (Staggered)



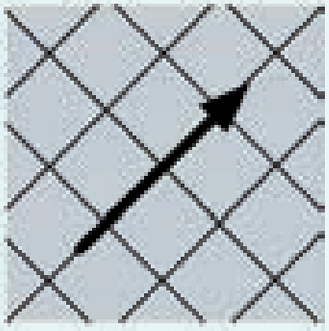
Chequer Board



Basket



Herringbone



Diagonal

Model Questions

PART I (1 Mark)

Choose the correct answer

1. The floor of a building immediately above ground level is …..
   a. First floor
   b. Basement floor
   c. Ground floor
   d. Second floor
2. The floors above ground floor are called …….
   a. Basement floors
   b. Composite floors
   c. Upper floors
   d. Jack arch floors.
3. The usual thickness of granite flooring is ……..
   a. 5mm to 10mm
   b. 10mm to 20mm
   c. 20mm to 35mm
   d. 30mm to 50mm.

PART II (3 Marks)

Answer in one or two sentences

4. List the types of timber floors.
5. Define flooring.
6. List any three types of floorings.

PART III (5 Marks)

Answer shortly

7. Explain R.C.C floor.

PART IV (10 Marks)

Answer in detail

8. What are the factors to be considered before selection of material for flooring?

Answers

1. (c) 2. (c) 3. (c)