**BASIC TECHNOLOGY JSS 1**

**SECOND TERM**

## SCHEME OF WORK

|  |  |
| --- | --- |
| **WEEK** | **TOPIC** |
| 1 | REVISION |
| 2 | DRAWING INSTRUMENTS AND MATERIALS |
| 3&4 | BOARD PRACTICE |
| 5&6 | FREEHAND SKETCHING |
| 7 | WORKBENCH FITTINGS & APPLIANCES |
| 8 | TYPES OF BUILDINGS& BUILDING MATERIALS |
| 9 | BUILDING MATERIALS(CONTD)/BUILDING COMPONENTS-WINDOWS, DOORS AND ROOFS |
| 10 | REVISION |
| 11 | EXAMINATION |

**REFERENCE MATERIALS**

1. MELRVE, Basic science and technology for JSS, Book 1
2. NERDC, Basic Technology for JSS, Book 1

**WEEK ONE**

**TOPIC: REVISION**

1. \_\_\_\_\_\_\_\_\_\_ is the processes (methods) and products (materials) that make life easy and stress-free.

(a) Machine (b) Tool (c) Equipment (d) Technology

2. Technology is derived from the Greek words tekhnē, which refers to a/an\_\_\_

(a) art or craft (b) test (c) training (d) trash.

3. The following are products of technology except

(a) stone (b) microwave (c) aircraft (d) computer

4. The following are causes of accidents except

(a) using appropriate safety devices

(b) Lack of concentration

(c) horseplay

(d) Lack of carefulness in handling machines

5. \_\_\_\_\_ are to be used to stop fire from destroying lives

(a) Extinguishers and a bucket of sand

(b) Helmets

(c) Boots

(d) Goggles

6. \_\_\_\_\_ is a place where activities such as fabrication, designing, construction, and drawing take place.

(a) Factory

(b) Hospital

(c) Hostel

(d) Workshop

7. \_\_\_\_\_\_ means protection from, or not being exposed to, the risk of harm or injury

(a) Methodology

(b) Skill

(c) Safety

(d) Technology

8. \_\_\_\_\_\_\_ is a negative experience that happens to somebody when he does not expect it

(a) An accident

(b) Disease

(c) Fire outbreak

(d) Electrical sparking

9. The materials used in technology include the following except

(a) wood

(b) metals

(c) ceramics

(d) cassava

10. The major parts of a tree are as follows except

(a) roots

(b) trunks (branches) and leaves

(c) flowers and seeds

(d) furniture

11. Examples of softwood trees include the following except

(a) spruce and vine

(b) cedar

(c) cypress

(d) Afara

12. The group of metals that contains iron is known as

(a) ferrous metals

(b) non-ferrous metals

(c) alloys

(d) terrazzo

13. The group of metals that has no iron and is not magnetic. Examples are as follows except

(a) aluminum

(b) copper

(c) steel

(d) brass

14. Glass is used to manufacture eye glasses and lenses because of this property. Choose from the options.

(a) Brittleness

(b) resistance to corrosion

(c) transparent

(d) resistance to heat.

15. Which of the following is not used in making ceramics?

(a) Lime

(b) Cement

(c) Mud

(d) Plastics

16. The following are products of ceramics, except

(a) flower vase

(b) tiles

(c) washbasin

(d) electric bulb.

17. ---------is a hard, brittle heat-resistant material made by firing a mixture of clay and chemicals at high temperature

(a) Plastic

(b) Rubber

(c) Ceramic

(d) Wood

18. The following are properties of ceramics except

(a) Ceramics are resistant to corrosion

(b) They can withstand very high temperatures

(c) They are electrical resistant

(d) Ceramics are not brittle

19. \_\_\_\_\_\_ is a light material that is produced by chemical processes and can be formed into shapes when heated

(a) Rubber

(b) Plastic

(c) Metal

(d) Wood

20. \_\_\_\_\_\_\_ are plastic materials that become soft and pliable when heated, without a change in their intrinsic properties

(a) Thermometers

(b) Thermo-engine

(c) Thermosets

(d) Thermoplastics

**WEEK TWO**

**TOPIC: DRAWING PRACTICE: DRAWING INSTRUMENTS AND MATERIALS**

CONTENT

Definition of Technical Drawing

Technical drawing is a universal language used for communication among technical professionals, including engineers, technicians, builders, and draughtsmen. It is a language expressed through graphical illustrations, conveying the shape, size, and other features of engineering components used in manufacturing and construction industries. The purpose of studying technical drawing is to enable us to visually communicate ideas, reducing the need for extensive verbal or written explanations.

Drawing Instruments and Materials I

Creating accurate drawings requires consistent practice with the aid of drawing instruments and materials. Here are some examples:

1. Drawing board

2. Tee square

3. Compass

4. Divider

5. Drawing paper

6. Sharpener

7. Drawing pencil

8. Adhesive tape

9. Eraser

10. Emery cloth

11. Glass paper

Drawing Instruments and Materials II

Additional lists of drawing instruments and materials made from acrylic (transparent plastic) include:

1. Set squares (300 by 600 and 450 by 450)

2. Protractor

3. Scale rule

4. Metric rule

5. French curve

6. Template

7. Lettering set

EVALUATION

1. Define technical drawing and list five examples of technical professionals.

2. List five examples of (a) acrylic materials (b) non-acrylic materials.

CARE AND STORAGE OF DRAWING INSTRUMENTS AND MATERIALS

Drawing Board

1. Avoid using pins to fasten your paper to the board; instead, use tapes or clips.

2. Never use a razor blade on the board's surface.

3. Always cover the surface with cardboard.

4. Store the drawing board in a safe place.

Tee Square

1. Never use the tee square as a walking stick.

2. Avoid using a pen knife or blade along the edge of the tee square.

3. Always hang your tee square after use.

4. Keep your tee square clean.

Set Square, Scale Rule, Protractor

1. Do not use sharp objects on them.

2. Keep them away from fire.

3. Always store them safely after use.

Pair of Compass or Divider

1. Do not sit or step on them.

2. When not in use, keep them in a safe container.

3. Never use a compass or divider as a paper holder.

4. Avoid using their needle points to punch holes.

EVALUATION

1. Mention two ways to care for a drawing board.

2. Mention two ways to care for set squares and a protractor.

WEEKEND ASSIGNMENT

1. \_\_\_\_\_\_\_ is a universal language used for communication among technical people.

(a) Scaling

(b) Technical drawing

(c) Sketching

(d) Oblique

2. Technical people include the following except

(a) engineers

(b) technicians

(c) builders and draughtsmen

(d) lawyers

3. Which of the following is not a drawing instrument?

(a) Set squares

(b) French curve

(c) Microscope

(d) Pencil

4. The following are ways to care for a tee square except

(a) Use it as a toy gun

(b) Never use the tee square as a walking stick

(c) Do not use a pen knife or blade along the edge of the tee square

(d) Always hang your tee square after use

5. Set squares are used to draw the following inclined angles except

(a) 300

(b) 600

(c) 450

(d) 700

THEORY

1. Define technical drawing.

2. List five (5) drawing instruments and materials.

3. State five (5) drawing instruments and materials made of acrylic (transparent plastic).

4. Describe how to care for (a) a drawing board, (b) a tee square, and (c) a set square.

**WEEK THREE AND FOUR**

**TOPIC: BOARD PRACTICES AND SCALE DRAW**

CONTENT

Definition of Board Practice

Board practice involves the skill of using drawing instruments on a drawing board to create various types of lines, including vertical, horizontal, and inclined lines. To achieve good board practice, it's essential to utilize the appropriate drawing instruments. These instruments typically include:

1. Drawing board

2. Tee-square

3. Set-square

4. Pair of compasses

5. Divider

6. Protractor

7. HB and 2H pencils

8. Eraser

Setting Up the Board

Step 1: Position the drawing board on the table with the square edge on the left-hand side.

Step 2: Place the drawing paper on the board, ensuring there is an equal margin around all sides.

Step 3: Position the tee-square on the paper and gently slide it to align with the top edge of the paper.

Step 4: Align the top edge of the paper parallel to the tee-square's edge, with the stock of the tee-square securely against the left-hand side of the drawing board.

Step 5: Slide the tee-square down without shifting the paper.

Step 6: Secure the paper in place by using adhesive tape at all four corners.

EVALUATION

. Define board practice.

Outline the steps involved in setting up the board.

DRAWING OF LINES

Horizontal lines are drawn using the tee-square, moving from left to right while rotating the pencil to ensure a consistent line thickness. To draw vertical lines, the set-square is placed on the tee-square and used to create upright lines. Angled lines can also be drawn by adjusting the set-square's position accordingly.

POSITIONING OF THE TITLE BLOCK\*\*

The title block is positioned at the bottom right-hand corner of the drawing and typically includes the following information:

(a) Title of Drawing

(b) Name of Object

(c) School

(d) Scale

(e) Date

Lettering in the title block should be done freehand in single-stroke capitals. There are two types of lettering: vertical and inclined. It's important to use only one method of lettering consistently.

EVALUATION

Describe how horizontal and vertical lines should be drawn.

List the information that should be included in the title block.

WEEKEND ASSIGNMENT

1. The title block is positioned at the……...hand corner of the drawing.

(a) left

(b) right

(c) right-left

(d) left-right

2. Which of the following is not a drawing instrument used in board practice?

(a) Tee-square

(b) Protractor

(c) Set-square

(d) 5H pencil

3. The types of lettering are:

(a) horizontal & vertical

(b) vertical & vertical

(c) vertical & inclined

(d) horizontal & inclined

4. How many methods of lettering should be used?

(a) one

(b) two

(c) three

(d) four

5. Horizontal lines should be drawn using:

(a) set-square

(b) tee-square

(c) freehand

(d) none of the above

THEORY

1. Define board practice.

2. List the information that should be included in the title block..

**WEEK FIVE AND SIX**

**TOPIC: FREEHAND SKETCHING**

Definition of Freehand Sketching

Freehand Sketching is a rapid method for conveying the shape of an object using a pen or pencil. It is a skill valuable to architects, enabling them to visually express their ideas without the need for extensive written descriptions. A proficient freehand sketch can significantly reduce the necessity for detailed explanations.

Sketching a Straight Line

A straight line, the shortest distance between two points, can be sketched as follows:

1. Place a dash or dot slightly to the right of the paper.

2. Begin drawing the line from the left side, keeping your eyes focused on the point.

3. Continue drawing until you reach the dash or dot.

VALUATION

1. Define freehand sketching.

2. Explain the process of sketching a straight line.

Sketching a Curve and a Circle

A. Curve: To sketch a curve freehand, plot several points relatively close to each other at different levels. Once the points are in place, connect them with curves.

B. Circle: Drawing circles freehand can be achieved by first drawing lines equal in diameter to the circle in various directions. Each line should be drawn lightly and intersect with others at a point. Then, join these points with small curves originating from the tip of each line.

Sketching a Square and an Irregular Edge

These can be sketched in isometric or oblique views. Isometric view occurs at a 30-degree angle to the horizontal on both sides, while oblique view is at a 45-degree angle to the horizontal on one side.

Definition of Scale Drawing

Scale drawing is the precise representation of objects at a determined proportion. It differs from regular drawings in that it either reduces or enlarges the object's size. Scale drawings are categorized as either for reduction or enlargement.

Materials and Instruments for Scale Drawing

A. Metric rule: This 30cm long rule features two flat straight edges, with each main division representing one centimeter (1cm = 10mm). Each division is further subdivided into 10 units, each measuring 1mm.

B. Scale rule: These triangular rules have three straight edges, each graduated and labeled with various scale designations.

EVALUATION

1. Define scale drawing.

2. List the materials and instruments used in scale drawing.

Scale

Objects too large or too small to fit on a drawing paper at their actual size should be drawn to scale. Scales are usually expressed as ratios and are indicated in the title block.

Types of Scale Drawing

1. Full Scale Drawing:The object is drawn at its actual size, represented as 1:1.

2. Reduced Scale Drawing: The object's actual size is proportionally reduced for the drawing. Examples include 1:2, 1:5, 1:10, 1:50, and 1:100. For instance, a 1800mm cupboard can be drawn as 18mm in a 1:100 reduced scale drawing.

3. Enlarged Scale Drawing: Used when an object is too small to be clearly seen, this type enlarges the object in relation to the drawing. Examples include 2:1, 10:1, and 100:1.

EVALUATION QUESTIONS

1. Define scale drawing.

2. List three types of scale drawing.

WEEKEND ASSIGNMENT

1. Freehand sketching is one of the quickest methods for communicating the shape of an object. (a) True (b) False

2. The shortest distance between two points can be defined as: (a) A curve (b) A circle (c) A straight line (d) A square

3. Isometric view occurs at what angle to the horizontal on both sides? (a) 30 degrees (b) 45 degrees (c) 60 degrees (d) 90 degrees

4. Which of the following is NOT an advantage of freehand sketches? (a) A good sketch reduces the need for written descriptions. (b) The ability to make freehand sketches is valuable for engineering work. (c) Laypersons can express themselves through freehand sketches. (d) Materials are wasted in freehand sketches.

5. What is the purpose of a scale drawing? (a) To create a larger version of an object (b) To accurately represent an object's actual size (c) To proportionally reduce an object's size for drawing (d) To make objects look smaller than they are

THEORY

1. Define freehand sketching.

2. Explain how to sketch a straight line, curve, and circle.

3. Define scale drawing.

4. (a) Describe the materials and instruments used in scale drawing. (b) List three types of scale drawing.

**WEEK SEVEN**

**TOPIC: WORKBENCH FITTINGS & APPLIANCES**

**CONTENTS**

**WORKBENCH**

A workbench is a foundational platform for woodworkers to perform various woodworking activities. Typically, it measures 2.0m in length, 0.80m in width, and 0.90m in height. A distinctive feature of the workbench is its well, a recessed central area that serves as a practical space for storing tools during woodworking tasks. The well's lower elevation prevents tools from falling or rolling onto the floor or onto workers' feet.

**WOODWORK BENCH FITTINGS**

Woodwork bench fittings are essential tools and accessories that are attached to the workbench before commencing any woodworking operation. These fittings enhance the functionality and safety of the workbench.

**EVALUATION QUESTIONS**

1. Define a workbench.

2. Describe the function of a well on a workbench.

3. Explain the concept of woodwork bench fittings.

**Workbench fittings include the following:**

**VICE**

A bench vice, typically constructed from cast iron, features a release lever for quick adjustments and secure gripping. It is affixed to the side of the workbench and is primarily used to firmly hold wooden workpieces in place during woodworking tasks.

**BENCH STOP**

A bench stop is a small strip of wood or metal installed on top of the workbench. Its purpose is to prevent wooden materials from sliding off the bench's surface while being planed or worked on.

**BENCH HOOK**

A bench hook is a tool used to secure workpieces during cutting and chiseling operations on the workbench. It not only holds the workpiece in place but also safeguards the bench's surface from damage.

**G-CLAMP**

The G-clamp is a metal clamp employed for securing small workpieces to the workbench while sawing or chiseling. It is also suitable for holding multiple small workpieces together. Its name is derived from its distinctive "G" shape. To prevent marks on the workpiece, it is advisable to insert a piece of scrap wood between the clamp's jaws and the workpiece.

**SASH CLAMP**

A sash clamp is a larger clamp designed for assembling or gluing woodwork by drawing pieces together. There are both light-duty and heavy-duty variants available. When using a sash clamp, it is essential to insert a piece of waste wood between the clamp's jaws and the workpiece to prevent indentation or damage.

**F-CLAMP**

The F-clamp functions similarly to the G-clamp but features a quick-action adjustment mechanism. Its shape resembles the letter "F."

**EVALUATION QUESTIONS**

1. List five examples of woodwork bench fittings.

2. Describe the functions of both a bench stop and a G-clamp.

3. What precautions should be taken when using a sash clamp in the workshop?

4. Highlight the primary difference between an F-clamp and a sash clamp.

WEEKEND ASSIGNMENT

1. A woodwork bench serves as a platform for conducting which type of activities? (a) Metalwork (b) Woodworking (c) Electrical work (d) All workshop activities

2. What are the dimensions of a typical woodwork bench? (a) 2.0m x 0.80m x 0.09m (b) 9.0m x 0.09m x 0.90m (c) 0.90m x 0.80m x 2.0m (d) 900m x 80m x 90m

3. To prevent wood from slipping off the bench top during smoothing, which device is used? (a) Bench hook (b) Bench stop (c) Bench vice (d) Bench fitting

4. In woodworking, what is defined as the shortest distance between two points? (a) Box (b) Square (c) Straight line (d) Curve

5. In isometric drawing, at what angle are the base lines inclined to the horizontal? (a) 20 degrees (b) 80 degrees (c) 45 degrees (d) 30 degrees

THEORY

1. Explain the significance of freehand sketching.

2. List and describe five woodwork bench fittings.

WEEK EIGHT

**TOPIC: TYPES OF BUILDINGS& BUILDING MATERIALS**

**CONTENT**

**Types of Buildings**

1. Bungalow: A bungalow is a style of dwelling that originated from rural houses in India. Typically, a bungalow features a single story with a limited number of rooms. It is designed to maximize cross drafts for ventilation, boasting high ceilings, exceptionally large window and door openings, and verandas on all sides to provide shade from intense sunlight and tropical heat. In essence, a bungalow is a one-story house.

2. One-Storey Building:A one-storey building is a house that comprises a ground floor and no additional upper levels. It is a single-level structure.

3. Multi-Storey Building: A multi-storey building is a house that consists of several levels or floors. These buildings offer multiple stories for various purposes.

4. Skyscrapers:Skyscrapers are exceptionally tall buildings that often dominate city skylines. They are characterized by their impressive height and numerous floors.

5. Detached Building: A detached building is a house that stands alone and is not physically connected to any other structure. It is separate and distinct.

6. Semi-Detached Building: A semi-detached building is a house that shares one side with another building. It is connected to another structure at one side while retaining its own identity.

**Common Building Materials**

The choice of building materials plays a significant role in construction. Common building materials include:

1. Bricks:Bricks are commonly used construction materials made from fired clay. They come in various sizes and shapes and are used for walls, pavements, and other structural elements.

2. Concrete: Concrete is a versatile construction material made from cement, sand, aggregate, and water. It is used in the construction of foundations, walls, and more.

3. Wood: Wood is used for various purposes in construction, from framing to finishing. It is valued for its versatility and aesthetic appeal.

4. Steel: Steel is a robust construction material known for its strength and durability. It is often used in the construction of structural elements such as beams and columns.

5. Glass: Glass is employed in building construction to create transparent windows and facades, allowing natural light into the interior.

**Doors**

Doors are essential components of buildings, providing access and security. They come in various types, including hinged doors, sliding doors, revolving doors, and more. The choice of door depends on the building's purpose and design.

**Windows**

Windows serve multiple functions in buildings, such as allowing light and ventilation. They vary in style and design, including casement windows, sliding windows, bay windows, and more. Window selection is influenced by energy efficiency, aesthetics, and functionality.

TOPIC: VARIETIES OF BUILDINGS AND COMMON BUILDING MATERIALS

CONTENT

Varieties of Buildings

1. Bungalow: The bungalow architectural style finds its origins in rural Indian houses. Typically, it consists of a single-story structure with a limited number of rooms. Bungalows are designed for excellent ventilation, featuring high ceilings, generously sized windows and doors, and verandas on all sides to shield rooms from intense sunlight and tropical heat. In essence, a bungalow is a one-story house.

2. One-Storey Building:A one-storey building comprises a ground floor and lacks additional upper levels. It is a single-level structure.

3. Multi-Storey Building:Multi-storey buildings encompass numerous levels or floors, offering space for various purposes.

4. Skyscrapers:Skyscrapers are towering buildings that often dominate urban skylines due to their remarkable height and multiple floors.

5. Detached Building: A detached building stands independently and is not physically connected to any other structure. It maintains its own separate identity.

6. Semi-Detached Building:A semi-detached building shares one side with another structure, maintaining a connection on one side while retaining individuality.

Common Building Materials

The selection of building materials significantly impacts construction. Common building materials include:

1. Bricks: Bricks, made from fired clay, are widely used in construction for building walls, pavements, and other structural elements. They come in various sizes and shapes.

2. Concrete: Concrete, a versatile material composed of cement, sand, aggregate, and water, is employed in foundations, walls, and more.

3. Wood: Wood serves various purposes in construction, from framing to finishing, offering versatility and aesthetic appeal.

4. Steel: Known for its strength and durability, steel is often used for structural components like beams and columns.

5. Glass: Glass is utilized in building construction to create transparent windows and facades, allowing natural light into interior spaces.

Doors

Doors are essential building components, providing access and security. They come in various types, including hinged doors, sliding doors, revolving doors, and more. The choice of door depends on the building's function and design.

Windows

Windows serve multiple functions in buildings, such as providing light and ventilation. They come in various styles and designs, including casement windows, sliding windows, bay windows, and more. The choice

windows considers factors such as energy efficiency, aesthetics, and

functionality.



**Types of Buildings**

1. Duplex: A duplex is a housing structure consisting of two separate apartments or living spaces within a single building. Each apartment typically has its own entrance and facilities, allowing two families or households to reside side by side.

2. Mansion: A mansion is an exceptionally large and opulent house, often characterized by its grandeur and luxurious amenities. Mansions are typically associated with wealth and prestige.

3. Terraced Houses: Terraced houses are rows of interconnected buildings that share side walls. These houses are constructed in close proximity to each other, forming a continuous row or block of residences.

**Evaluation**

1. State ten (10) types of buildings and explain each one.

2. What type of building is the 'Diligence Campus of Good Shepherd School'?

**COMMON BUILDING MATERIALS**

Building materials can be categorized as natural or man-made and fall into two primary classifications:

a. Primary/Non-Conventional Materials:These materials are used in building construction in their natural state without significant processing. They are also referred to as traditional materials and include mud, stone, grass, straw, timber, and more.

b. Secondary/Conventional Materials: These materials undergo processing and structural alterations before being used in construction. They are widely utilized in modern building practices and include materials like cement, steel, bricks, precast concrete, glass, and others.

**Materials Used in Building Construction**

**Varieties of Buildings**

1. Duplex: A duplex is a residential structure consisting of two separate apartments or living spaces within the same building. Each apartment typically has its own entrance and facilities, allowing two households to coexist side by side.

2. Mansion: A mansion is an expansive and luxurious house characterized by its grandeur, spaciousness, and opulent features. Mansions are often associated with wealth and affluence.

3. Terraced Houses: Terraced houses are a series of connected buildings constructed in close proximity, sharing sidewalls. They form continuous rows or blocks of residences, creating a uniform streetscape.

**Evaluation**

1. List and provide explanations for ten (10) types of buildings.

2. Identify the type of building represented by the 'Diligence Campus of Good Shepherd School'.

**COMMON BUILDING MATERIALS**

Building materials can be broadly classified into two categories: natural or man-made. These materials are further categorized as follows:

a. Primary/Non-Conventional Materials: These are natural materials used for construction in their raw state without significant processing. They are often referred to as traditional materials and include mud, stone, grass, straw, timber, and other unprocessed resources.

b. Secondary/Conventional Materials: These materials undergo processing and modification before being utilized in construction. They are prevalent in modern building practices and include materials such as cement, steel, bricks, precast concrete, glass, and other processed substances.

Materials Used in Building Construction

It is essential to emphasize the distinction between primary and secondary materials and their respective roles in construction.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Building Element** | **Primary materials** | **Secondary material** |
| 1. | Foundation | Mud, Stone | Sand-Crete blocks |
| 2. | Wall | Mud, Stone, timber, bamboo, mud bricks | Sand-Crete blocks, red bricks |
| 3. | Wall decoration | Animal dung, local dye, cowries | Cement plaster, paints, tiles |
| 4. | Roof | Bamboo, forest wood, corrugated metal sheets | Seasoned timber, planks, nails |
| 5. | Ceiling | Mat, asbestos | Asbestos, plywood, plaster of Paris (P.O.P) |
| 6. | Floor | Mud, cement screed | Concrete |
| 7. | Window | Timber, mat | Glass, aluminum, metal, timber |
| 8 | Doors | Wood/planks | Plywood, timber, metal |
| 9. | Wall Shelve | Forest wood | Timber, plywood, glass |
| 10. | Lintel | Thick timber | Concrete with iron rod |
| 11. | Columns | Wooden posts timber, Mud bricks | Concrete poles with reinforcement |

**EVALUATION**

1. List five primary and secondary building materials.

2. Name five materials commonly used in constructing windows.

**DOORS**

Doors are movable barriers installed in the entrances of rooms or buildings, serving the purpose of restricting access and providing visual privacy. Throughout history, doors have evolved in terms of materials and design:

Early Doors: Initially, doors were crafted from hides or textiles.

Monumental Architecture: Monumental structures introduced doors made of rigid and enduring materials. Important chambers often featured doors constructed from stone or bronze.

Pompeiian Doors: Doors in Pompeii resembled modern wooden doors, consisting of stiles (vertical planks) and rails (horizontal planks) fastened together, occasionally equipped with locks and hinges.

Western Medieval Doors: Doors during this period were constructed with vertical planks supported by horizontal or diagonal bracing.

20th Century Doors: In the 20th century, a single hollow-core panel door became the most common type of door used.

Other Types: Various other door types include revolving doors, folding doors, sliding doors (inspired by Japanese shoji), rolling doors, and Dutch doors (which are divided horizontally, allowing the lower or upper part to be opened separately).

Doors have undergone significant evolution in terms of materials, construction methods, and design over the

centuries, reflecting the advancements in architecture and technology.



**Functions of Doors**

1. Entrance and Exit Control: Doors serve as a means of opening and closing entrances or exits.

2. Security Barriers: Doors act as barriers against potential dangers and intruders.

3. Protection of Lives and Properties:They provide protection for both lives and property.

4. Ventilation: Doors can be used to regulate airflow and serve as a means of ventilation.

Types of Doors

1. Interior Doors:

a. Panel Doors

b. Flush Doors

c. French Doors

d. Louver Doors

2. Exterior Doors: These doors are chosen for their decorative and architectural suitability for the building.

3. Sliding Doors: These space-saving doors are commonly used for closets in bedrooms.

4. Folding Doors: Easily installed, they are ideal for saving space.

5. Revolving Doors:Typically used for traffic control within buildings, especially at entrances.

Windows

In contemporary architecture, windows have evolved to become more than functional openings; they are now

integral architectural features. Floors



A floor is a flat, horizontal surface within or on a building structure that serves as a rigid assembly, dividing space into different stories or levels. It constitutes the bottom of a room and can be constructed using various materials and methods. Floors may consist of joist-supported wood planks or panels, decking supported by wood or steel beams, a stone or concrete slab at ground level, or a reinforced-concrete slab supported by concrete beams and columns. It's essential for a floor to bear its own dead load along with the live load of occupants, activities, and furnishings. The horizontal supports beneath the floor's top surface, as well as the vertical supports into which they frame, must be adequately sized and spaced to prevent sagging of the assembly.

Types of Floors

1. Solid Floors: These are typically constructed using concrete, which can have a smooth surface finish or be tiled with materials like plastic or linoleum floor tiles. These finishes are often specified based on design requirements.

2. Suspended Floors: Suspended floors are constructed using wood, which is nailed over solid lengths of timber. The ends of these timber lengths are supported by the main walls of the building.

Evaluation

1. Describe the concept of a floor.

2. Explain the different types of floors.

Types of Solid Floors

- One-way Reinforcing System: This system involves laying reinforcing elements in a single direction.

- Two-way Reinforcing System: In this system, reinforcing elements are laid in two directions.

- Concrete Slab Floor with Light Gauge Decking: This type of floor features light gauge steel decking covered with a concrete slab.

- One-way Ribbed Slab Floor: This floor consists of a series of closely spaced reinforced I-beams that frame into girders.

- Pre-cast Concrete Floor System: This method involves producing standard pre-cast members that use ordinary reinforcing bars.

General Floor Finishes

The surface finishes of floors in dwelling houses can vary, including options such as terrazzo, paint, wax, tiles, or carpets. Additionally, some floors feature design-oriented finishes like parquetry flooring.

Evaluation

1. List five types of flooring systems.

2. Mention three general floor finishes.

Roof

A roof is a structural element of a building that covers the entire structure, protecting its internal decorations and fittings from weather conditions, thereby making the building habitable.

Types of Roofing

Several types of roofs are commonly used in construction, including:

- Gambrel Roof

- Shed Roof

- Hip Roof

- Butterfly Roof

- Gable (Pitched) Roof

- Flat Roof

- Monitor Roof

- Half-Monitor Roof

- Arched Roof

- Combination Roof

- Lean-to Roof

- Collar Roof

- Mansard Roof

Common Roofs

1. Hip Roof: Features four slanting surfaces from a peak known as the ridge, shortening the building's roof length.

2. Pitched Roof (Gable): Includes two surfaces sloping away from the ridge, often with a cavity wall at the gable end and vents between the fascia and soffit to prevent rafter timber degradation.

3. Shed Roof: The simplest roof form with a single slope, typically at the rear of the building.

4. Butterfly Roof: A double shed roof that slopes inwards.

5. Half Roof

6. Half Monitor Roof

7 Floors

A floor is a flat, horizontal surface within or on a building structure that serves as a rigid assembly, dividing space into different stories or levels. It constitutes the bottom of a room and can be constructed using various materials and methods. Floors may consist of joist-supported wood planks or panels, decking supported by wood or steel beams, a stone or concrete slab at ground level, or a reinforced-concrete slab supported by concrete beams and columns. It's essential for a floor to bear its own dead load along with the live load of occupants, activities, and furnishings. The horizontal supports beneath the floor's top surface, as well as the vertical supports into which they frame, must be adequately sized and spaced to prevent sagging of the assembly.

Types of Floors

1. Solid Floors: These are typically constructed using concrete, which can have a smooth surface finish or be tiled with materials like plastic or linoleum floor tiles. These finishes are often specified based on design requirements.

2. Suspended Floors: Suspended floors are constructed using wood, which is nailed over solid lengths of timber. The ends of these timber lengths are supported by the main walls of the building.

Evaluation

1. Describe the concept of a floor.

2. Explain the different types of floors.

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9. Arched Roof

10. Mansard Roof

Function of Windows

Windows serve various functions, including:

1. Admitting light and air.

2. Acting as barriers against potential dangers and attacks.

3. Facilitating ventilation.

Architectural Designed Windows

1. Bull's Eye Windows

2. Semi-circular Headed Windows

3. Cant Bay Windows

4. Dormer Windows

Evaluation

1. List four functions of windows.

2. Identify five types of windows.

Weekend Assignment

1. Which of the following is not a type of building: (a) Terraced house (b) Sheraton hotel (c) Bungalow (d) Skyscraper?

2. What is the term for blocks of buildings constructed side by side? (a) Terraced house (b) One-storey (c) Bungalow (d) Skyscraper.

3. Which of the following is not a building operation: (a) Setting out (b) Erection of walls (c) Roofing (d) Contracting?

4. What is the type of floor consisting of a series of closely spaced reinforced I-beams framing into girders? (a) One-way ribbed slab (b) One-way reinforced floors (c) Two-way reinforced floors (d) Pre-cast concrete floors.

5. Which of the following is not an example of interior doors: (a) Panel doors (b) Flush doors (c) French doors (d) Revolving doors?

Theory

1. Explain the functions of doors.

2. Describe different types of floors

Monitor Roof

8. Combination Roof

9. Arched Roof

10. Mansard Roof

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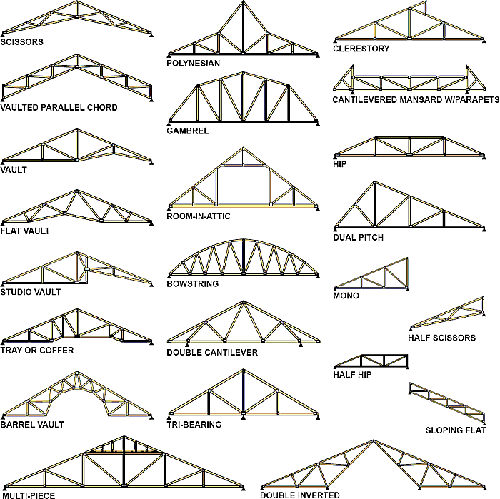
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Theory

1. Explain the functions of doors.

2. Describe different types of floors.



Evaluation

1. List five types of roofs.

2. Sketch five types of roofs.

Weekend Assignment

1. \_\_\_\_ is a building structure that provides covering for the entire building.

(a) door

(b) windows

(c) roof

(d) floor

2. Which of the following is geometrically inclined?

(a) Bull’s eye window

(b) French window

(c) panel window

(d) combination window

3. The following are functions of windows except:

(a) It is used for admitting light and air.

(b) It serves as barriers to dangers and attacks.

(c) It is used to allow ventilation.

(d) It is used for the collection of rain.

4. The following are functions of the roof except:

(a) Shed

(b) Hip

(c) Butterfly

(d) panel

5. The type of roof that is suitable for a factory is:

(a) hip roof

(b) butterfly

(c) monitor

(d) panel roof

Theory

1. Mention nine types of roofs.

2. State the functions of windows.