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SUBMITTED TO = ENGR, MADEEM ULLAH

SUBJECT # CIVIL ENGR DRAWING
AND GRAPHICS

SECTION # A

DATE # 26/09/2020

QUESTION NO = 01

COMPONENTS OF PLUMBING:-HOUSE SEWER:-

- ⇒ It extends from public sewer to private sewage disposal tank to the wall of the structure and is entirely outside the building.
- ⇒ Glazed vitrified clay.
- ⇒ Copper 12' to 20' long.
- ⇒ Plastic pipe 10' to 20' long.

SOIL AND WASTE STACK:-

- ⇒ The soil and waste stack collect the sewage from the fixture through their branches.
- ⇒ Should rest slidingly at the bottom on masonry piers or heavy posts.
- ⇒ The upper end should extend through the roof for ventilation.
- ⇒ Made of heavy cast iron, copper, plastic.

FIXTURE BRANCHES:

- ⇒ Connect Fixture branch with the stack.
- ⇒ Waste or Soil branches are connected to the trap of each.

LOCAL VENT:-

- ⇒ A vent without connection with the plumbing system.
- ⇒ It terminates all the roofs and connected to the fixture at point below the seat.

UTILITY VENT:-

- ⇒ used for under ground public Restrooms.

WET VENT:-

- ⇒ A WET vent method of ventilation used rather extensively for small group of bathrooms fixture.
- ⇒ A portion of the 'wet system' vent system through which liquid wastes flow.

LOOPEd VENT:-

- ⇒ used on fixture which are located at the room away from partition that might be utilized to connect the waste and vent.
- ⇒ A bleed or drip connection must be made between the waste pipe and the lowest point of the vent line to avoid accumulation of water in the loop vent.

MAIn SOIL AND WASTE VENT:-

- ⇒ Is that portion of the soil pipe stack above the highest installed fixture branch extended through the roof.
- ⇒ The same diameter as the waste - carrying portion of the soil or waste pipe.

MAIN VENTI-

IS that portion of the vent pipe system which serves as terminal for the smaller tributary form of individually and group fixture trap ventilation (connecting vent line.)

INTERCEPTORS-

Device installed so as to separate and retain deleterious, hazardous or undesirable matter from normal waste and permit normal sewage or liquid waste to discharge into disposal terminal by gravity.

SUMP AND EJECTOR S-

A sump is a tank or pit which receive sewage or liquid waste, located below the normal grade of the gravity system and must be emptied by a mechanical means.

EJECTOR PUMP for submersible system Ejector for vertical lift submerged pump.

ROOTS DRAIN

It is a Receptable design to collect surface OR Rain water from an open area and discharge. to catch basin.

VENTS :-

vent are the extension of soil and waste stack through the Roof and system of pipe largely paralleling the drainage system for the the admission of air and discharge of gases.

TRAPS :-

⇒ Traps catch water after each discharge from a fixture so as not to allow unpleasant and obnoxious gases in a Sanitary drainage system to escape through the fixture.

⇒ All fixture are to be provided with it's own trap except for those laudry and kitchen sink connected to a single trap.

HOUSE DRAIN:-

The horizontal main into which the vertical soil and waste stack discharge. It connects directly to the house sewer.

- ⇒ Sanitary drain.
- ⇒ Leader Drain
- ⇒ Copper
- ⇒ Plastic
- ⇒ Extra heavy cast iron.

FRESH AIR INLET:-

It is intended to admit fresh air to the drainage system so that there will be a free circulation without compression.

Throughout the house drain and stack discharging above the roof.

A necessary adjunct to the house trap.

PRECAUTION SHOULD BE ENSURED OF PLUMBING OF MULTI STORY BUILDINGS-

WATER STORAGE VESSELS:-

Separate water storage vessels are integral part of many dual supply system.

This section deal with Requirements for the storage of water supply from the water main or other drinking water.

Water storage tank are appropriate for use in the following substance.

- ⇒ Sanitary flushing.
- ⇒ Supply of water.
- ⇒ Air conditioning
- ⇒ Fire fighting.
- ⇒ Ablution.
- ⇒ Make up water

REQUIREMENTS RELATING INSTALLATION AND PROTECTION OF WATER STORAGE:-

- ⇒ Tanks must be installed on bases, platforms, or supports design to bear the weight of the tank when it is filled with maximum capacity

without undue distortion taking place.

- => Tanks must be accessible for inspection, repairs, maintenance and replacement.
- => Insulation from heat and cold be provided.

REQUIREMENTS RELATING TO MATERIAL

USED IN WATER STORAGE TANKS:-

- => The internal surface of tank should be coated with a protective coating.
- => Storage cylinder should be made of non-corrosive material.
- => If steel is used for the tank and piping, it should always be heavily galvanized.

HEALTH AND SANITARY SERVICE:-

Council sanitary deposit: cross connection between the water service and sanitary pan washer truck and pan dumping machine.

Hospital and nursing homes: submerged outlet of the water at bed pan washers, bed bottle washer, sterilizer steam instrument washer and cross connection with the water service and steam pipes.

INDUSTRIAL AND COMMERCIAL INSTALLATION

- ⇒ ABATTOIRS: CROSS CONNECTION b/w the water service and steam pipes. Steam boilers and the washing sprays in contact with animal carcasses.
- ⇒ CHEMICAL PLANTS: cross connection b/w the water service and chemical pipelines are submerged water service outlets as drums washer and process tanks.
- ⇒ DRY-CLEANERS: cross section b/w the water service and solvent stills.

QUESTION NO = 02

IMPORTANCE OF SYMBOL IN DRAWING

⇒ A symbol is a mark, sign or word that indicates signifies or is understood as representing an idea object or relationship sign allow people to go beyond what is known or seen by creating linkage between otherwise very difficult concept and experience. All communication and data processing is achieved through the use of symbol.

⇒ Architecture drawing symbol form an important role in any architecture drawing and help to define elements such as floor levels, lightening types and service location. Electrical layout in particular, require many different item and

and abbreviation and accompanied by a key symbol provide a clear and tidy method of identifying their placement type and use.

Following are the categories of symbol in drawing.

- 1) Service drawing symbol
- 2) Lighting symbol
- 3) Electrical symbol
- 4) Plan, Elevation and Section symbol.

SERVICE SYMBOL:-

Service symbols represent the mechanisms of a building and help to identify such elements as mechanical ventilation, soil pipe and in coming pipes for example they should show the location and direction in which they are travelling and highlight

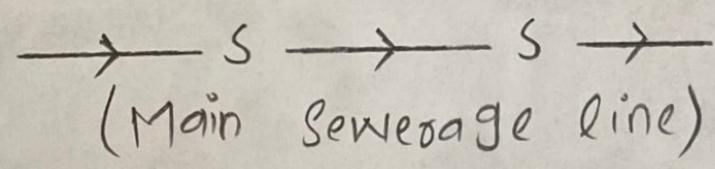
Where new and old infrastructure are combined or replaced.

LIGHTING SYMBOL

Architecture lighting is a huge subject with many variation lighting symbol provide a simple and clear means of identifying position, type, amount and power output without the need to litter a drawing with labels.

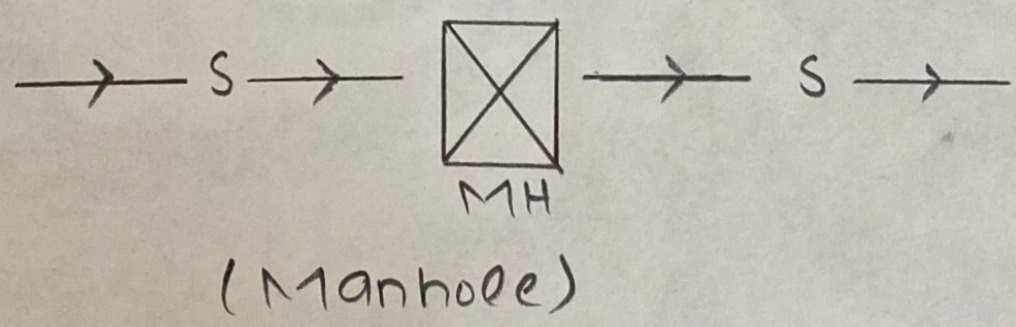
SEWERAGE SYMBOLS:-

1)

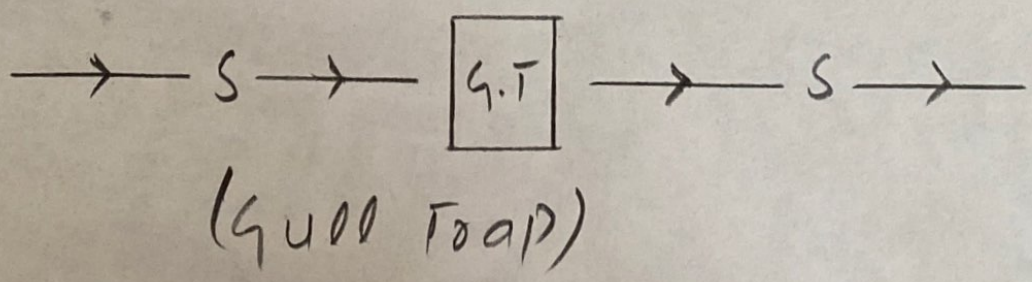


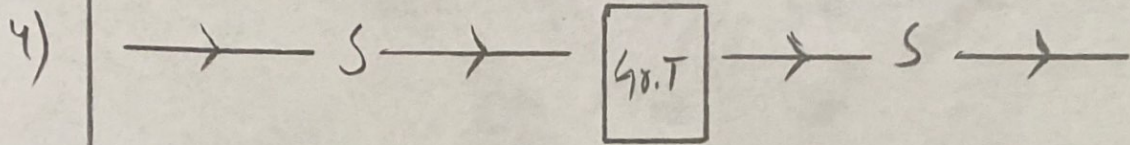
1)

2)

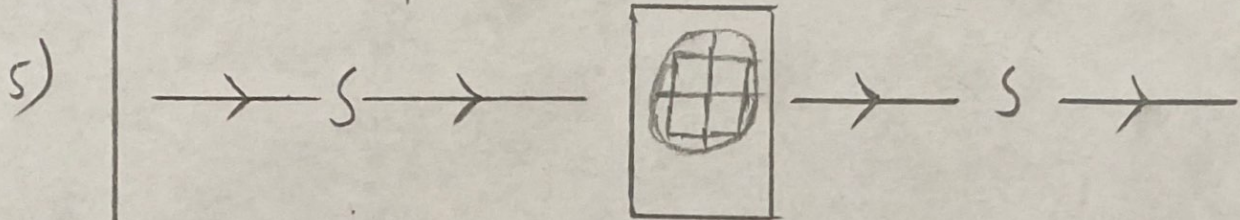


3)

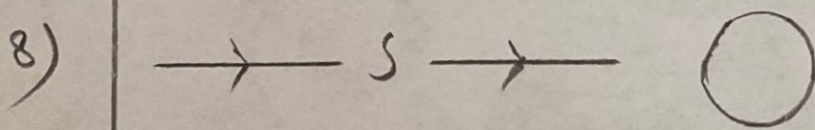
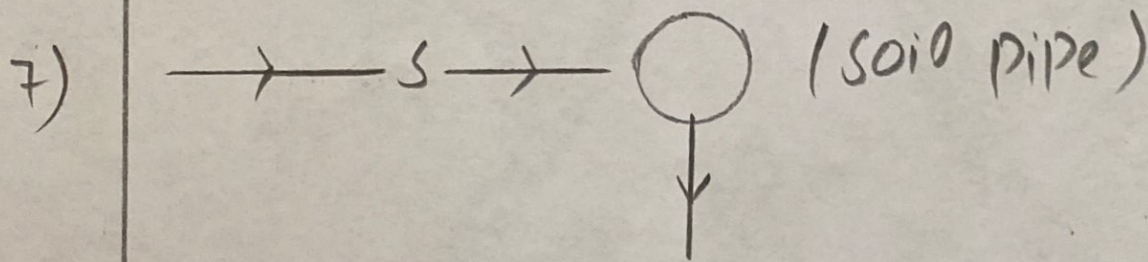
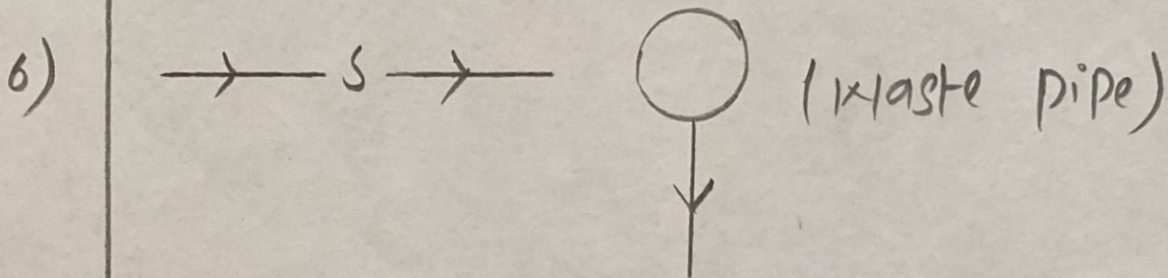




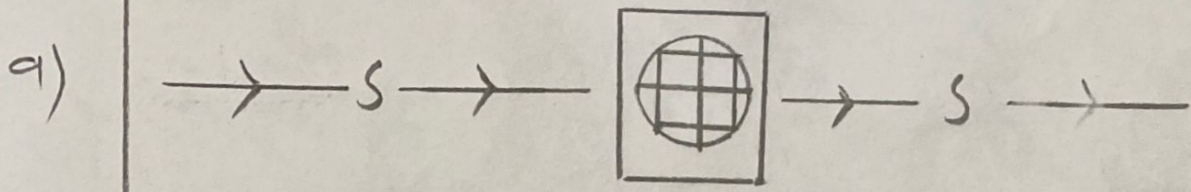
(Grease Trap)



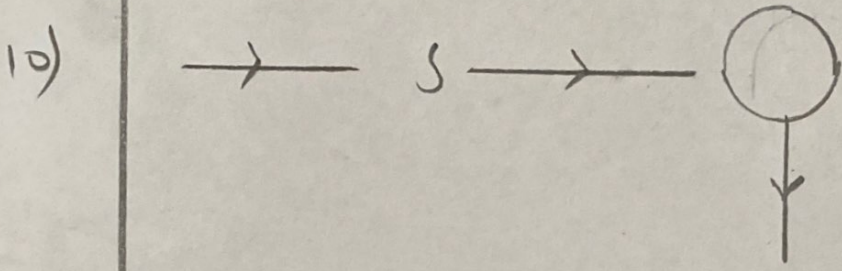
(Floor Drain)



(Vent through the Roof)

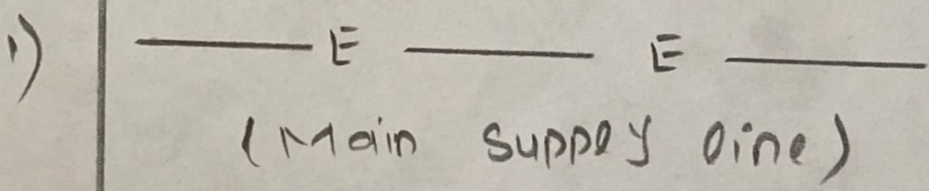


(Roof Drain)

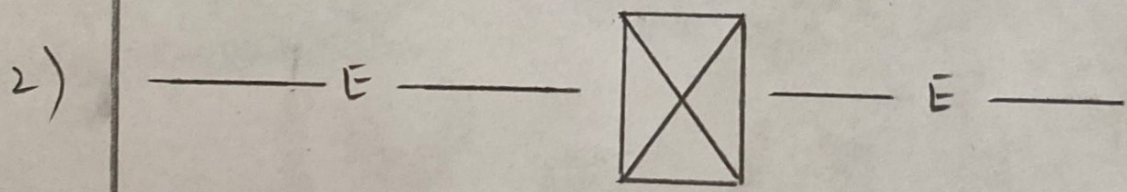


(Down Pipe for Rain Water)

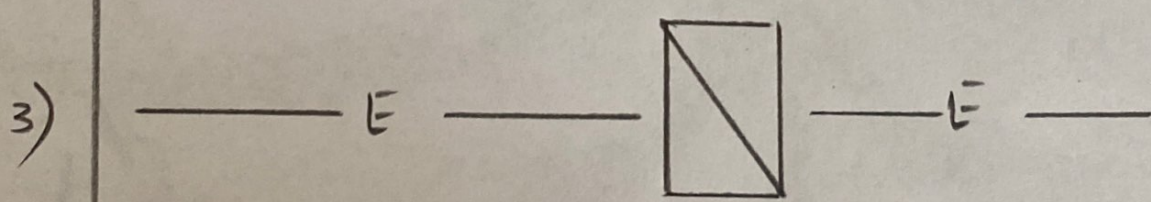
2) ELECTRICAL SYMBOLS:-



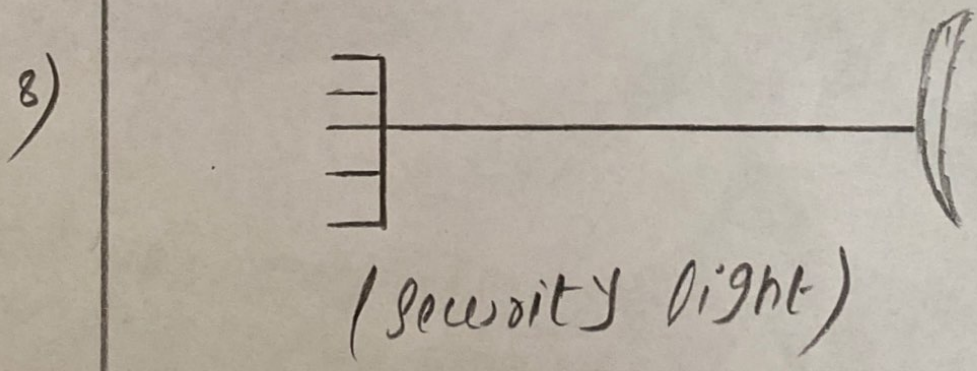
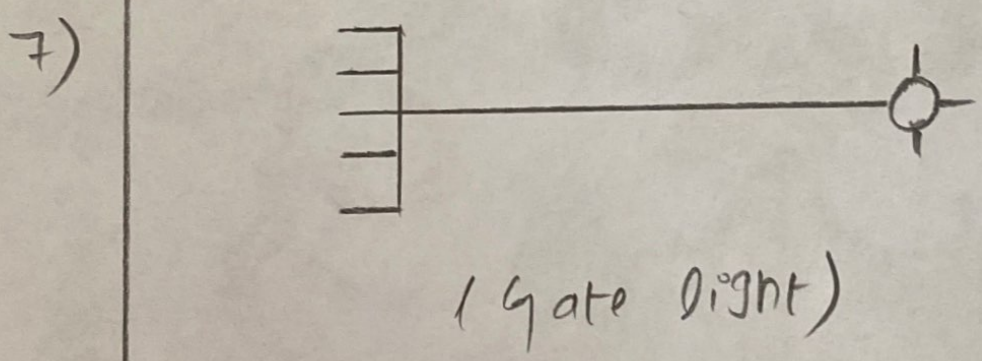
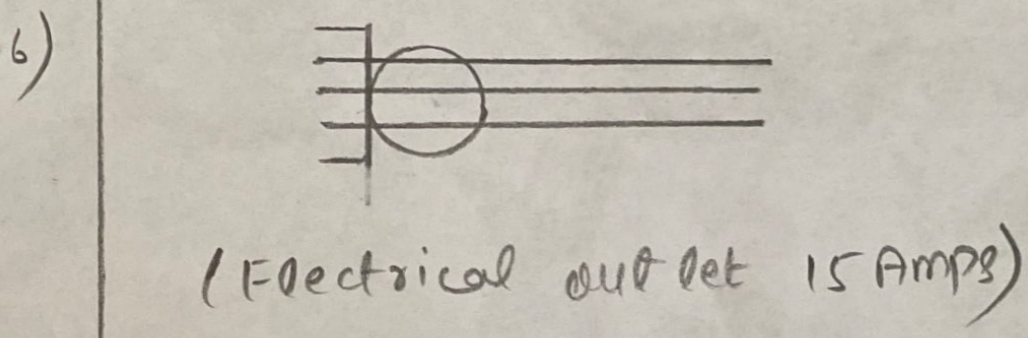
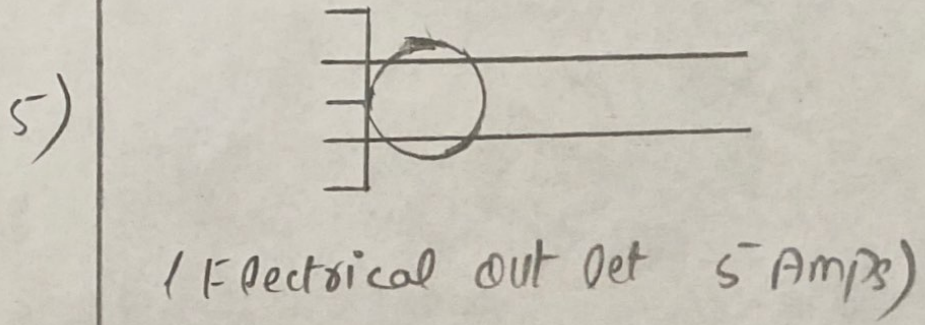
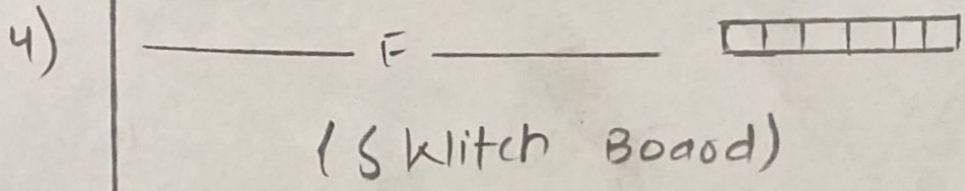
(Main Supply Line)



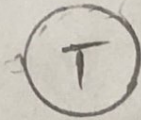
(Main Control Board)



(Distribution Board)



9)



(Telephone Socket)

10)



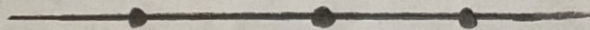
(Bell Push)

11)



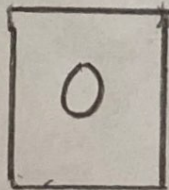
(Call Bell)

12)



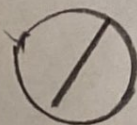
(Mirror Light)

13)



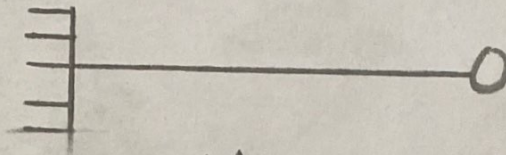
(Ceiling Mounted / Porch Light)

14)



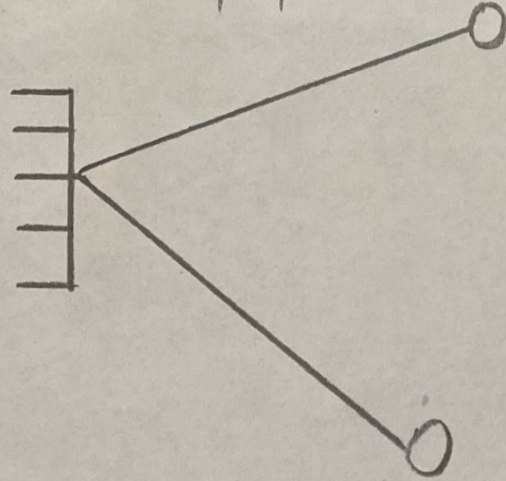
(Ceiling Mounted / Globe Light)

15)



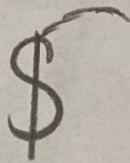
(Wall mounted / Globe light)

16)



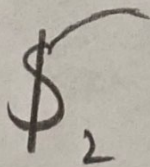
(Wall mounted / Fancy light)

17)



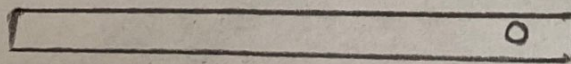
Switch (Single pole)

18)



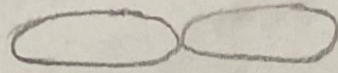
Switch (Double pole)

19)



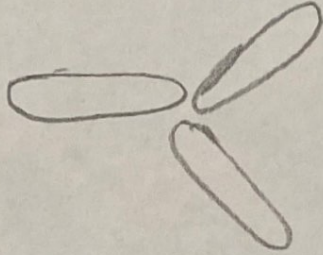
Tube light 4ft long

20)



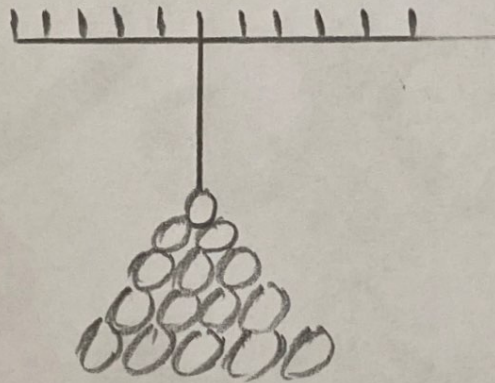
(Exhaust Fan)

21)



ceiling fan (48" - 56" dia)

22)



(Chandeliers)

QUESTION NO = 03

Following are the frame structure

1) COLUMN IN FRAME STRUCTURE:-

Column are an important structure member of a frame building. They are the vertical member which carry the load from the beam and upper column and transfer it to the footing.

The load carried may be axial. Design of column is more important than the design of beam and slab. This is because one beam falls it will be local failure of one floor. but if one column falls, it can lead the collapse of the whole structure.

2) BEAM IN FRAMED STRUCTURE:-

Beam are the horizontal load bearing members are the framed structure.

They carry the load from the slab and also direct load from masonry wall and their self weight.

The beams may be supported on other beams and may be supported by column forming an integral part of the frame. These are primarily the 'structure' flexural member. They are classified into two types

- 1) Main beam
- 2) Secondary beam.

3) SLAB IN FRAMED STRUCTURE:-

A slab is flat horizontal plate that is used for covering the building from the above and provide shelter for the inhabitants. These are the plate element and carry the load primarily by flexure. They usually carry the vertical load.

4) FOUNDATION IN FRAMED STRUCTURE:-

The sole function of the foundation is to transmit the load coming from the above columns and beams to the solid ground.

5)

SHEAR WALLS IN FRAME

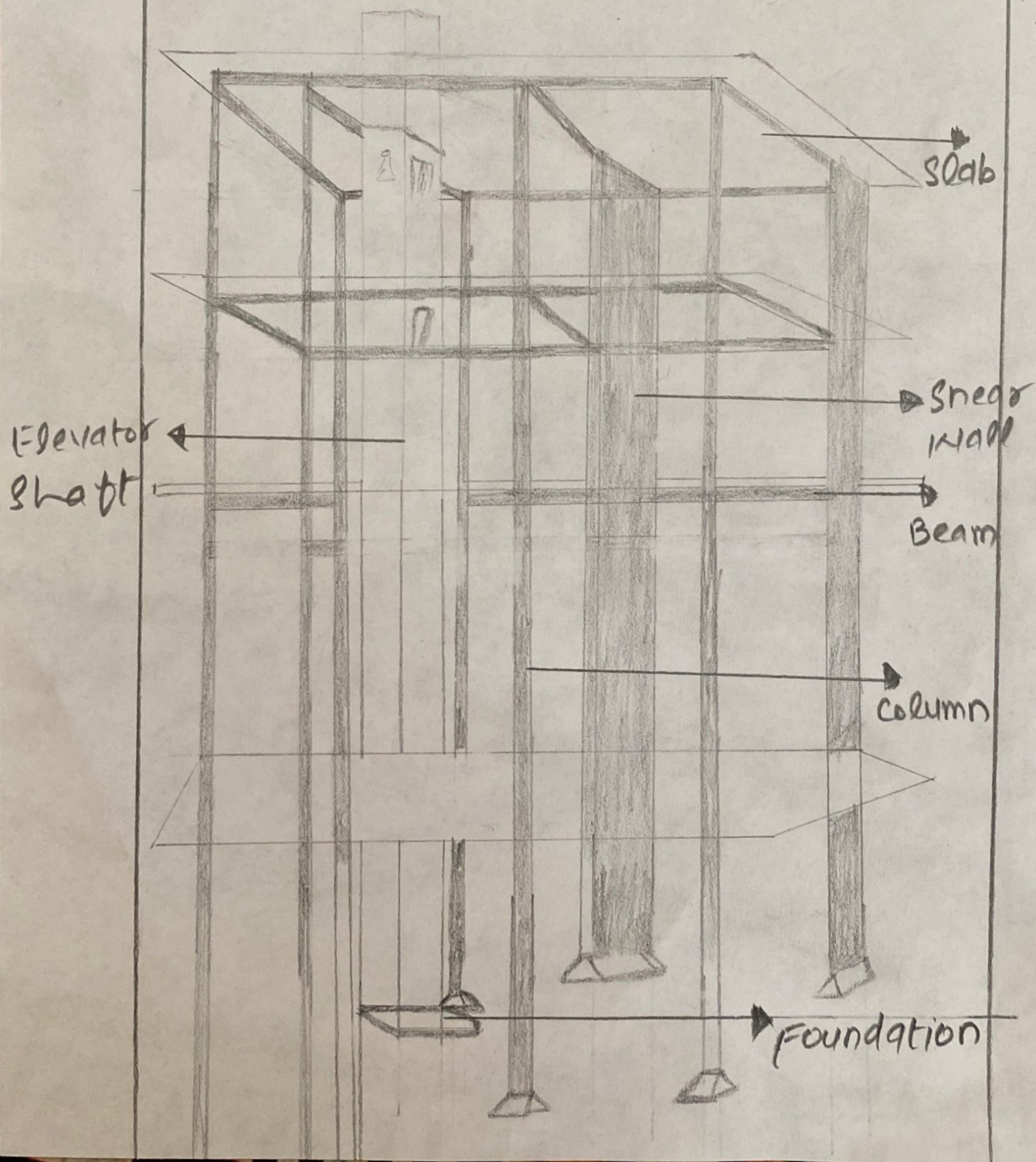
These are important structural element in high rise building. Shear walls are actually very large columns because of which they appear like walls rather than columns. They take care of horizontal load like wind and earthquake loads.

6)

ELEVATOR SHAFT IN FRAME

The elevator shaft is vertical concrete box in which the elevator is provided to move up down. These shaft help in resisting horizontal load and also carry the vertical load.

FRAMED STRUCTURE



QUESTION NO = 04

DAMP PROOFING:-

Damp proofing ensures that your walls resist this moisture hazard so that you & family can stay safe and healthy, breathing freely when condensation builds up inside your wall, or water is allowed to sit without sufficient ventilation. Mold and bacteria begin to grow. Damp proofing can help to eliminate this problem.

IMPORTANCE OF DPC:-

KEEP YOUR HOME MOULD AND MILDERS FREE:-

Mould, mildew and bacteria growth in wet damp walls, floors or ceiling are definite triggers for people suffering from asthma and other lung or breathing issues.

When water can pass through the walls of your property it can

can lead to wet Rot in your timber, which if left untreated - can have a serious impact on the integrity of your structure. Wet Rot spread slower than dry Rot but it's important to catch wet Rot when it can still be treated effectively and before it has caused irreversible damage to your timber.

Rising damp can cause all sorts of eyesores in your home from the potential peeling, cracking and blistering of your wall paper to dark patches of mould and crumbling skirting boards. Eliminating the source of damp with an effective DPC and treatment will mean that your property remains pleasing to the eye.

CHARACTERISTICS OF DPC:-

Ideal DPC should have the following qualities.

- Should be perfectly impervious.
- Should not permit moisture penetration.
- Material should be durable to life equal to building life.
- ⇒ Material should be strong to resist superimposed load/pressure.
- ⇒ Material should be flexible to accommodate the structural movements without any cracks.
- ⇒ Material should not be costly.
- ⇒ Material should remain steady in its position.