

PLUMBING NC II

TRAINING LESSON 2



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San Jose Del Monte National Trade School
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TARGETS

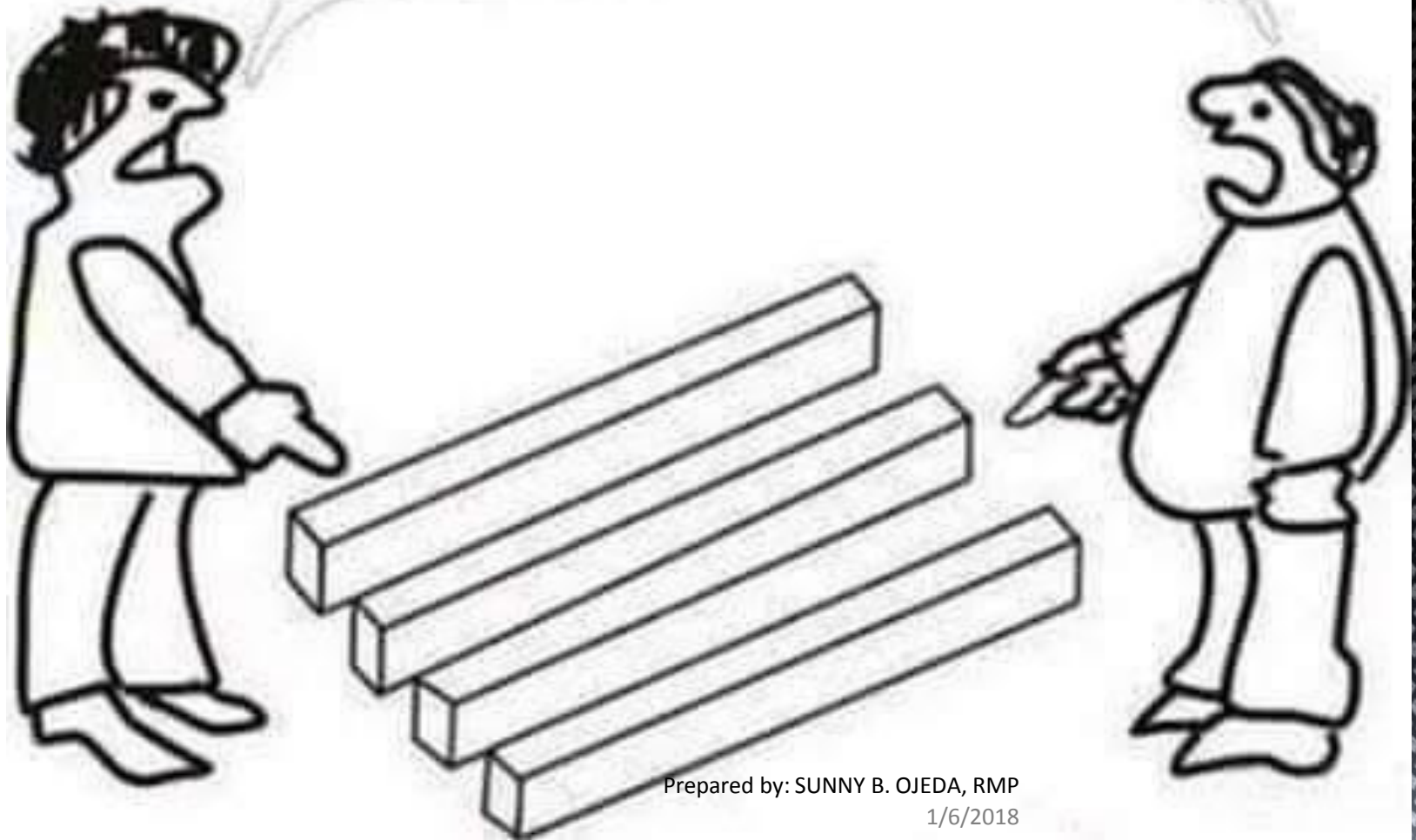
- ☐ Basic Trade Mathematics
- ☐ Pull Push Rule Reading
- ☐ Plumbing Signs and Symbols
- ☐ Application of Signs & Symbols
- ☐ Reading Water Distribution Layout
- ☐ Reading Storm and Sanitary Layout

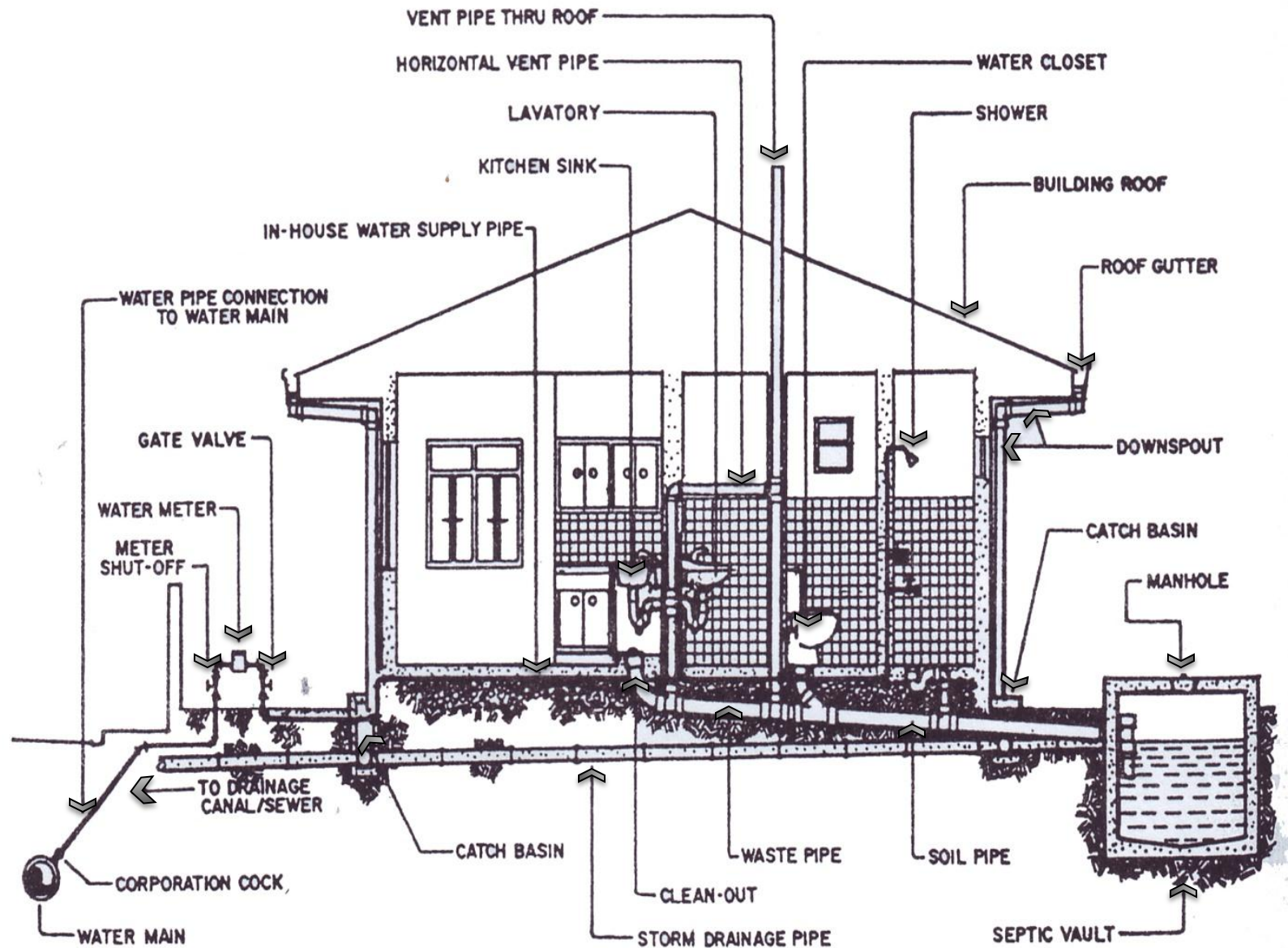
Alibaba

4 yan!

Muk Mafi

3 kaya yan





Prepared by: SUNNY B. OJEDA, RMP

1/6/2018

TRADE MATHEMATICS

❖ Basic Arithmetic

1. A plumber cuts three sections of uPVC 4" Ø pipe from a 3m standard length, the lengths of the sections are 0.54m, 1.22m and 0.10m. How long will be the remaining from the full length, if the saw cut is 3mm?
2. John's daily rate is ₱350, he worked for 2 weeks except for Sundays and received cash advance of ₱1500. How much will he receive in total?

❖ Basic Arithmetic

3. A 15m long ladder is set with its foot 5m from the house. How high on the house will it reach?

$$\text{Formula: } a = \sqrt{c^2 - b^2}$$

4. ₱4000 is borrowed for 75 days at 16% per annum in simple interest. How much will be the due at the end of 75 days?

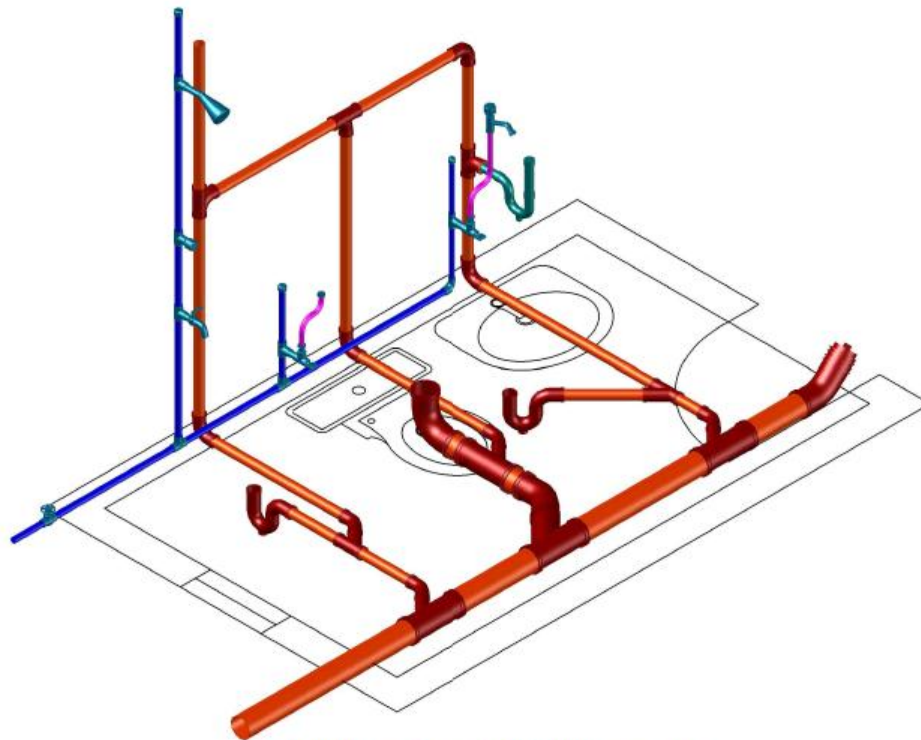
$$\text{Formula: } I = PIN \text{ and Due (F) } = P + I$$

5. A set of pipe threading machine cost ₱35,000 with an estimated life of 15 yrs and salvage value of ₱1,000. Find the book value after 6 years using straight line method?

$$\text{Formula: } \text{Dep} = \frac{Co - Cn}{n} \text{ and } BV = Co - D (\#yr)$$

❖ Basic Arithmetic

6. The plumber is laying pipes with the total length of 7.5 meters. What is the rise of the pipe in 2% inclination?
7. Greg is laying pipes with the total length of 9'-6". What is the rise of the pipe in 2% inclination?
8. Estimate the materials needed for the water installation project.



3D REPRESENTATION OF PLUMBING SYSTEM

PULL PUSH RULE READING

MULTI MARKING

FEET MARKING



EVERY 16 INCH MARKING



INCH RULER



METRIC RULER

Measurement Conversions



LENGTH : Imperial to Metric

1 inch(in)	2.54cm	25.4mm
6 inches	15.24cm	152.4mm
1 Foot	30.48cm	304.8mm
1 Yard	91.44cm	914.4mm
1 Foot	30.48cm	0.3048m
6 Feet	182.88cm	1.828m
12 Feet	365.76cm	3.657m
30 Feet	914.40cm	9.144m
50 Feet	1524.00cm	15.240m

AREA : Imperial to Metric

1 yard ²	0.836 metres ²
2 yards ²	1.672 metres ²
5 yards ²	4.180 metres ²
10 yards ²	8.361 metres ²
25 yards ²	20.902 metres ²

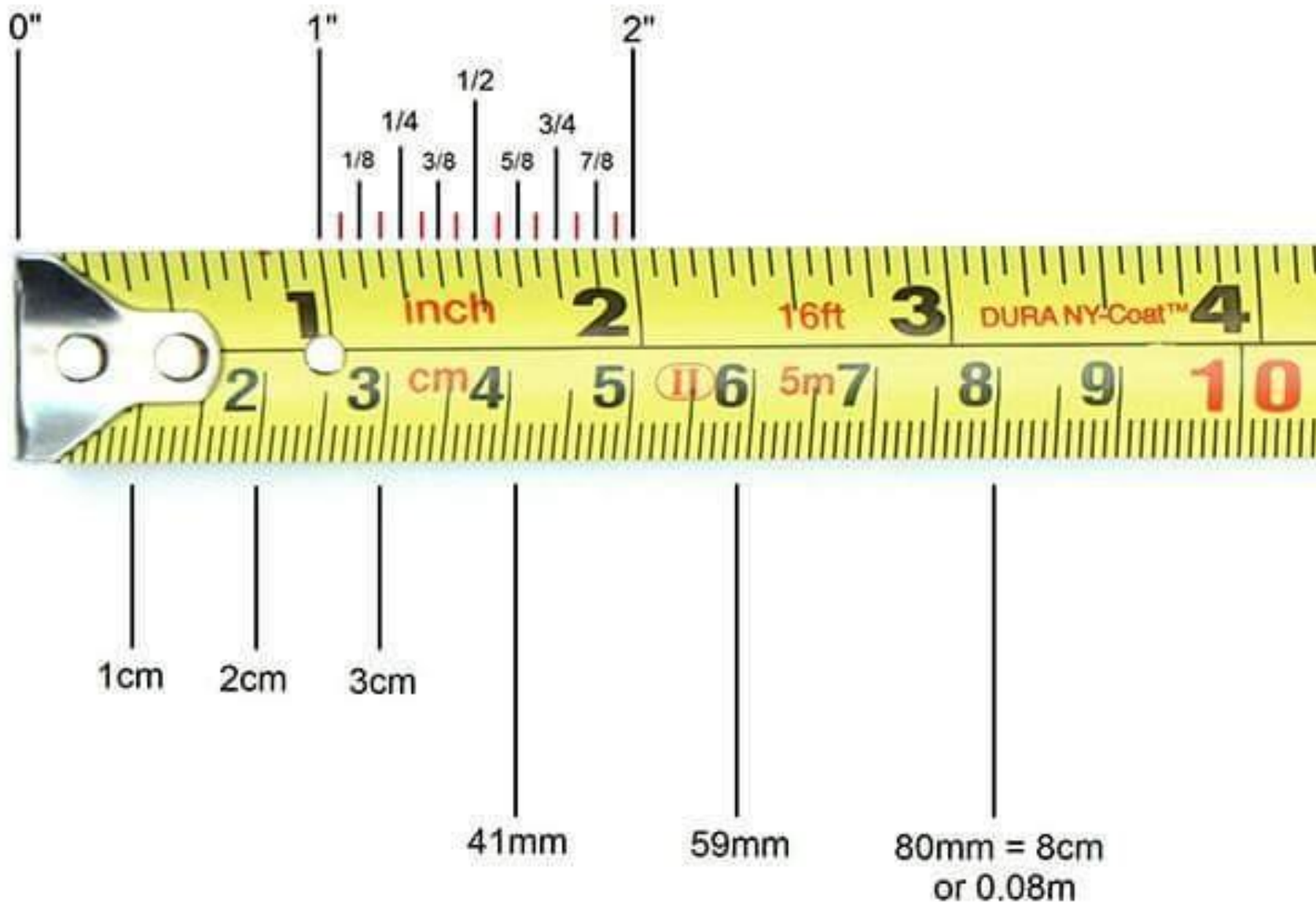
LENGTH : Metric to Imperial

1 centimetre	0.39370 in
5 centimetres	1.98850 in
10 centimetres	3.93700 in
1 metre	3.2808 ft
3 metres	9.8425 ft
5 metres	16.4042 ft
10 metres	32.8083 ft
15 metres	49.2120 ft
25 metres	82.0200 ft

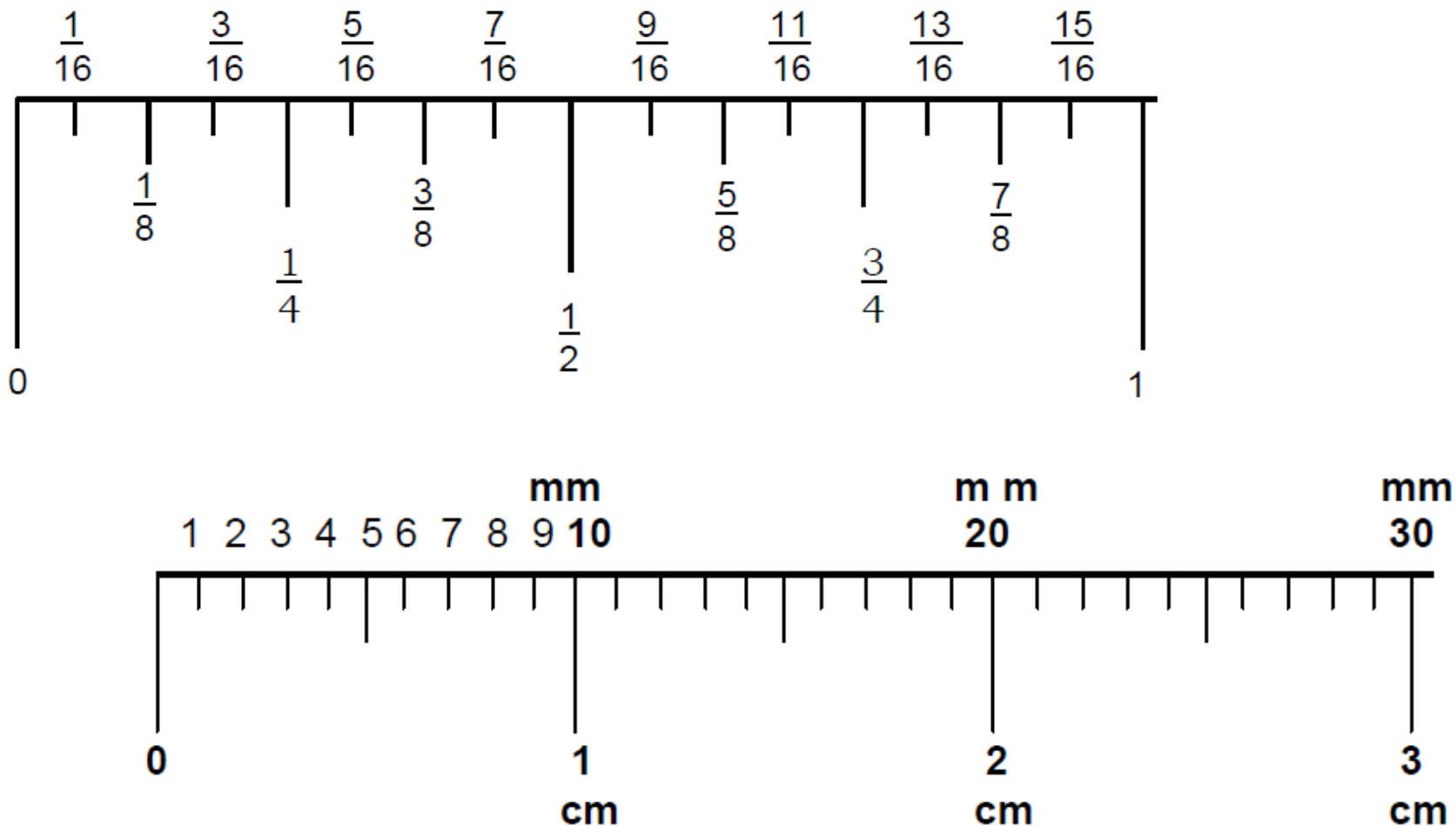
AREA : Metric to Imperial

1 metre ²	1.959 yards ²
2 metre ²	2.391 yards ²
5 metre ²	5.979 yards ²
10 metre ²	11.960 yards ²
25 metre ²	29.900 yards ²

PULL PUSH RULE READING

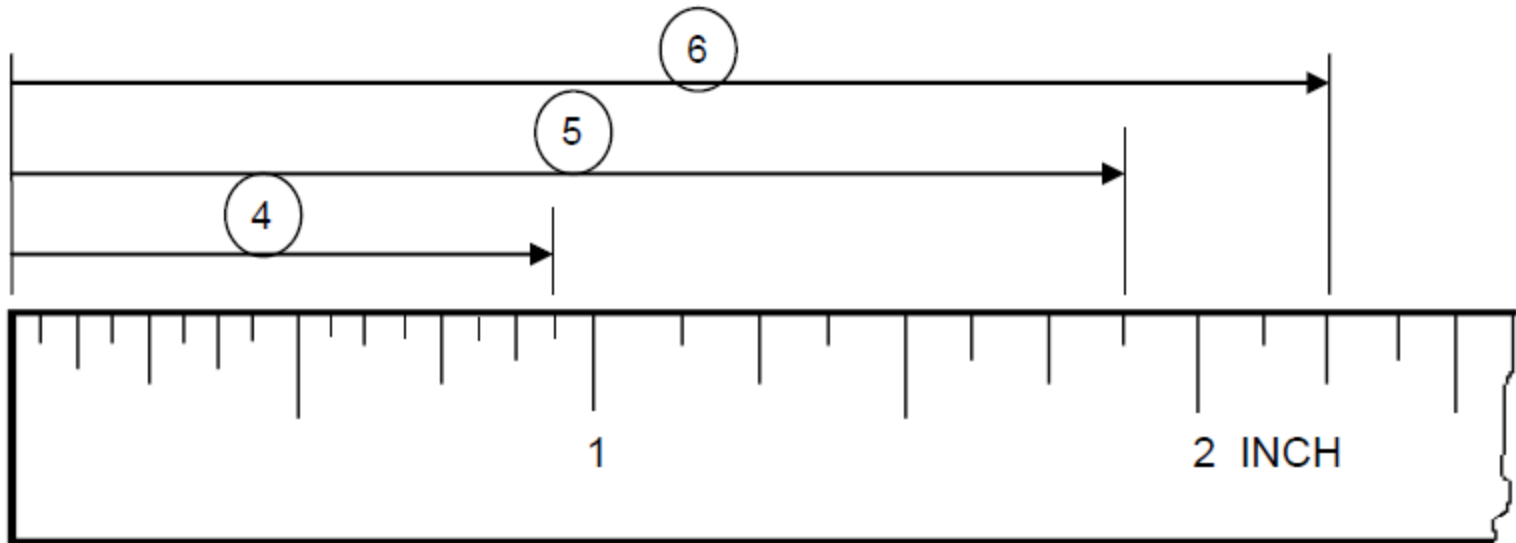
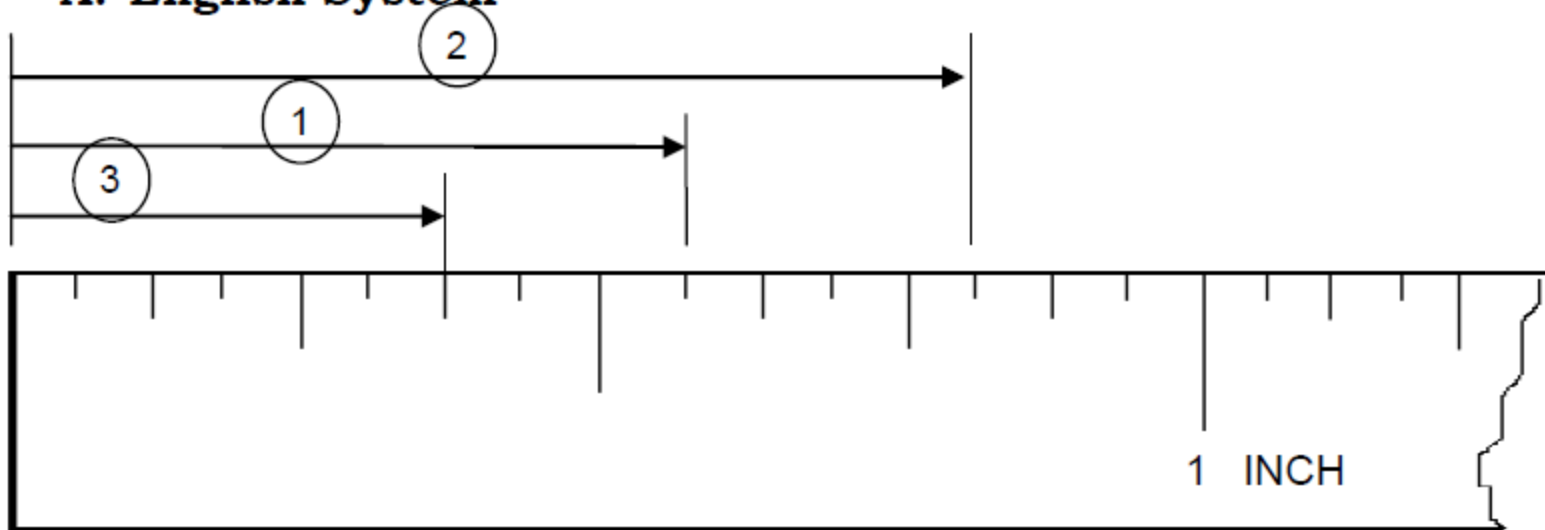


PULL PUSH RULE READING



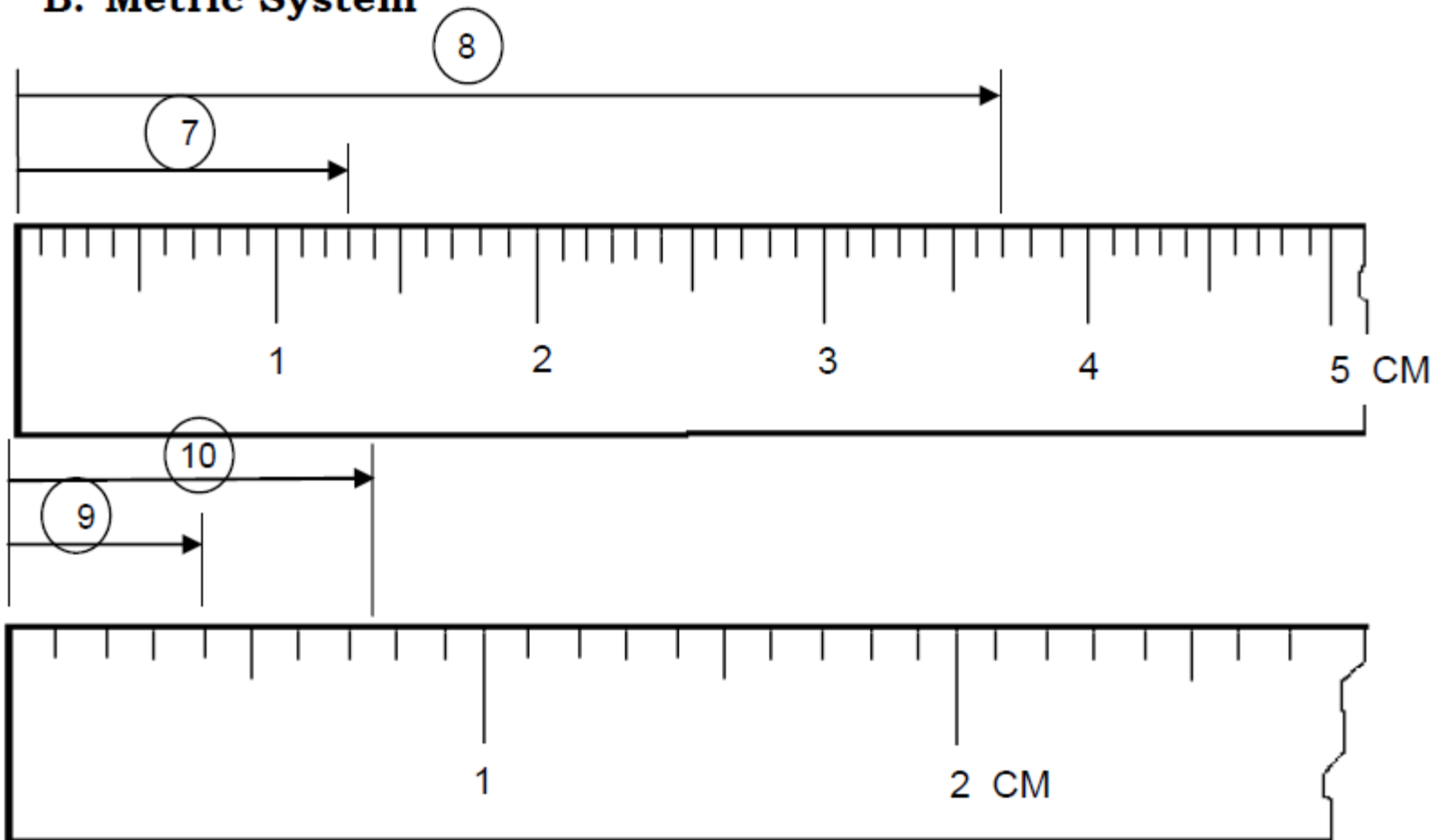
PULL PUSH RULE READING

A. English System



PULL PUSH RULE READING

B. Metric System



PLUMBING SIGNS AND SYMBOLS



CWL

COLD WATER LINE



HWL

HOT WATER LINE



GV

GATE VALVE NORMALLY OPEN



GV

GATE VALVE NORMALLY CLOSED



CV

CHECK VALVE



LSV

LOCK SHIELD VALVE



AV

ANGLE VALVE



ACC

AIR CHAMBER CAP



SV

SHOWER VALVE



CR

CONCENTRIC REDUCER

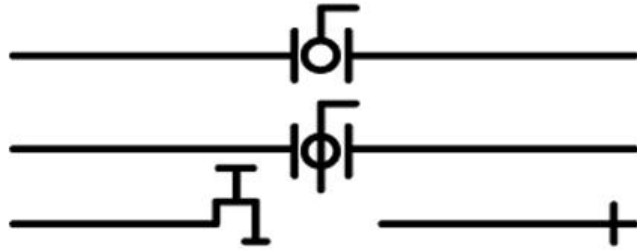


PRV

PRESSURE RELIEF/REDUCING VALVE

GLOBE VALVE

PLUMBING SIGNS AND SYMBOLS

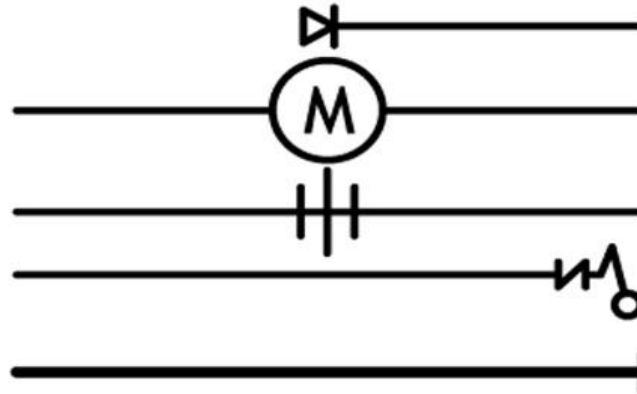


HB/F

BALL VALVE

BUTTERFLY VALVE

HOSE BIBB/FAUCET



WM/SWM

PLUG

WATER METER/SUB-WATER METER

UP

UNION PATENTE

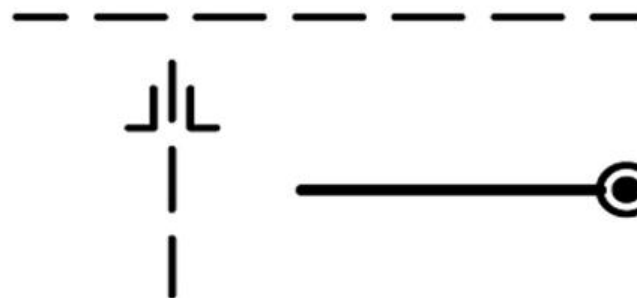
FV

FLOAT VALVE



CO

CLEAN OUT



V/VAC

VENT/VENT ABOVE CEILING

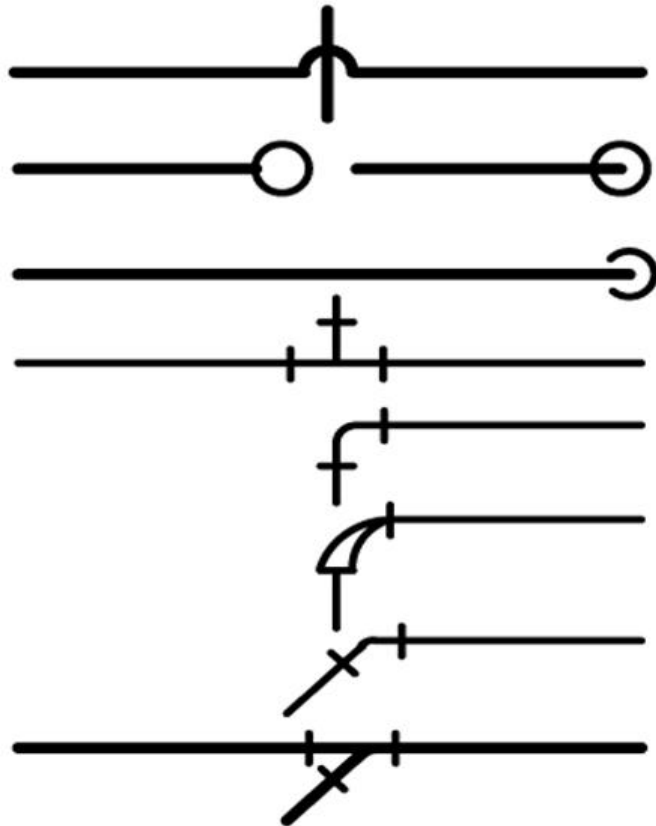
VSTR

VENT STACK THRU ROOF

B/PH/C

BRACKET/PIPE HANGER/COUPLING

PLUMBING SIGNS AND SYMBOLS



CROSS OVER

PIPE UP

PIPE DOWN

TEE

90° ELBOW OR 1/4 BEND

ELBOW REDUCER

45° ELBOW OR 1/8 BEND

WYE

PLUMBING SIGNS AND SYMBOLS



LAV

LAVATORY



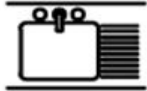
WC

WATER CLOSET (TANK TYPE)



WC

WATER CLOSET (FLUSH VALVE)



KS/US

KITCHEN SINK / UTILITY SINK



UR

URINAL



SH

SHOWER HEAD



EWH

ELECTRIC WATER HEATER



OIL INTERCEPTOR

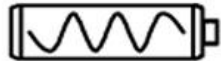
PLUMBING SIGNS AND SYMBOLS



STUDOR MAXI-VENT



STUDOR MINI-VENT



STUDOR P.A.P.A.



GT / OI

GREASE TRAP/OIL INTERCEPTOR



PUMP



DP / DJB

DRAIN PIPE / DRAINAGE JUNCTION BOX



AD/CB

AREA DRAIN/CATCH BASIN

PLUMBING SIGNS AND SYMBOLS



CD/PBD

CANOPY DRAIN/PLANTERS BOX DRAIN



GD/DD/LD

GUTTER DRAIN/DECK DRAIN/LEDGE DRAIN



FD/SD/PSD

FLOOR DRAIN/SHOWER DRAIN/PARKING SLOT DRAIN



TD / PD

TRENCH DRAIN/POOL/PROMENADE DRAIN



SI / CB

STREET INLET/CATCH BASIN



TDG

TRENCH DRAIN & GRATING



MH

MANHOLE

PLUMBING SIGNS AND SYMBOLS

CONVENTIONAL CONNECTIONS



SCREW ENDS



FLANGED ENDS



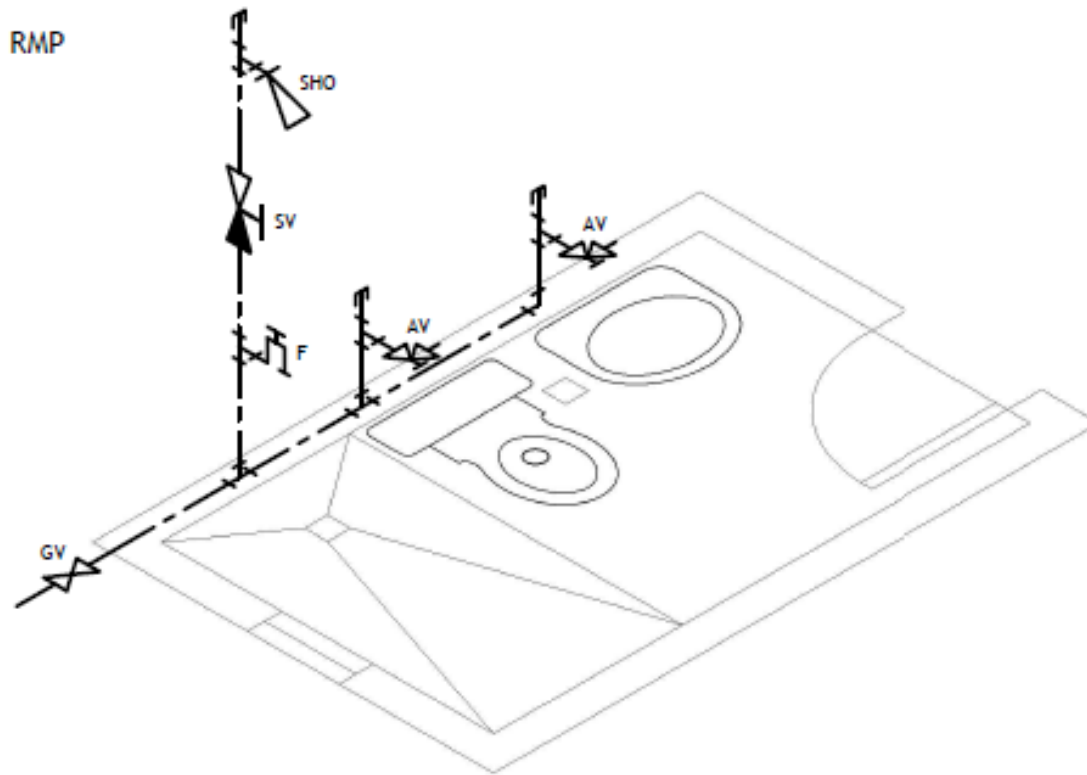
BELL & SPIGOT ENDS



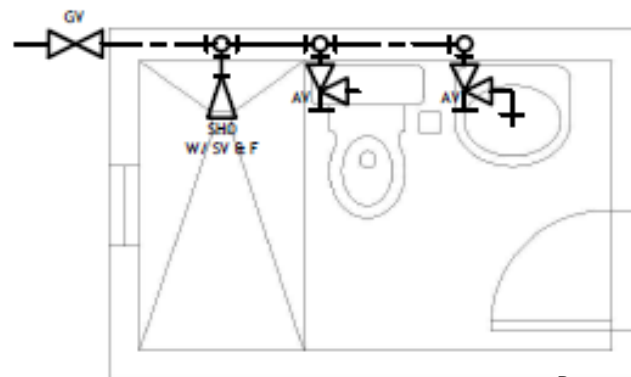
WELDED/BRAZED ENDS



SOLDERED ENDS



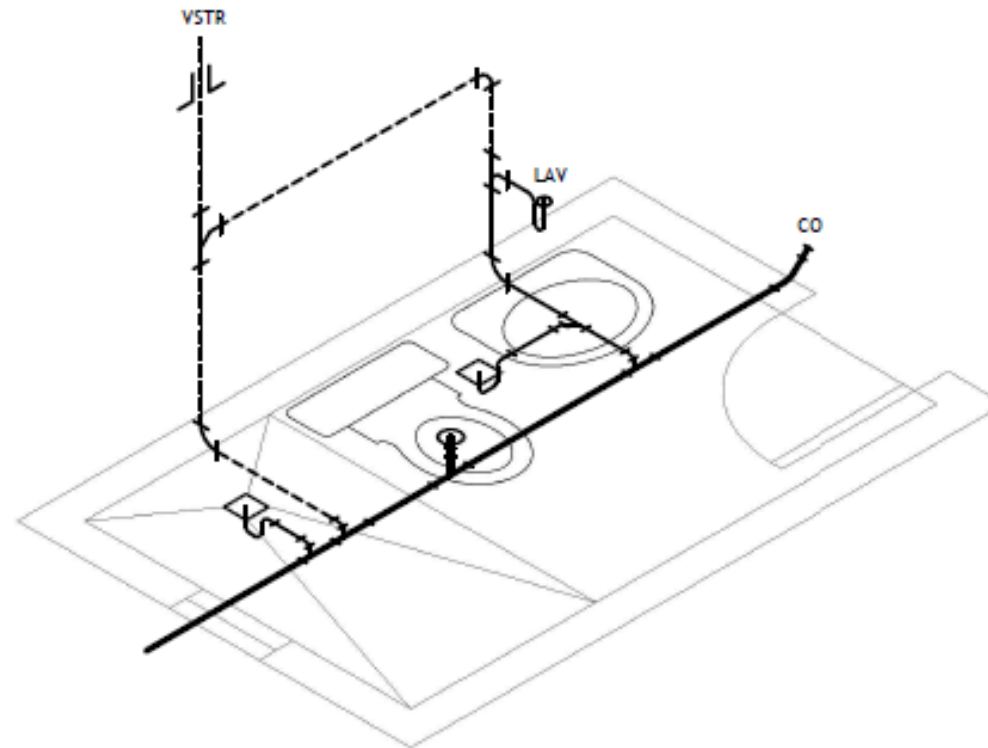
ISOMETRIC REPRESENTATION



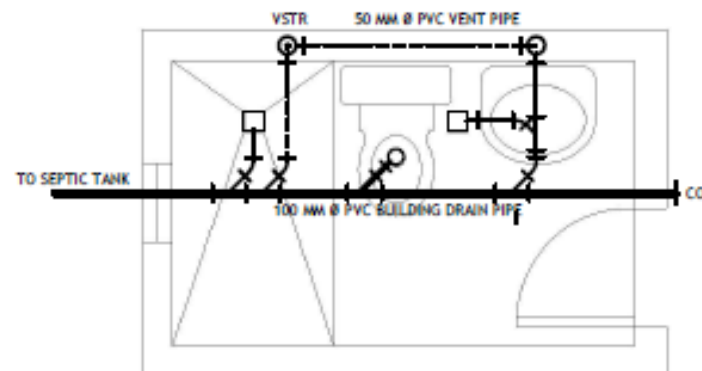
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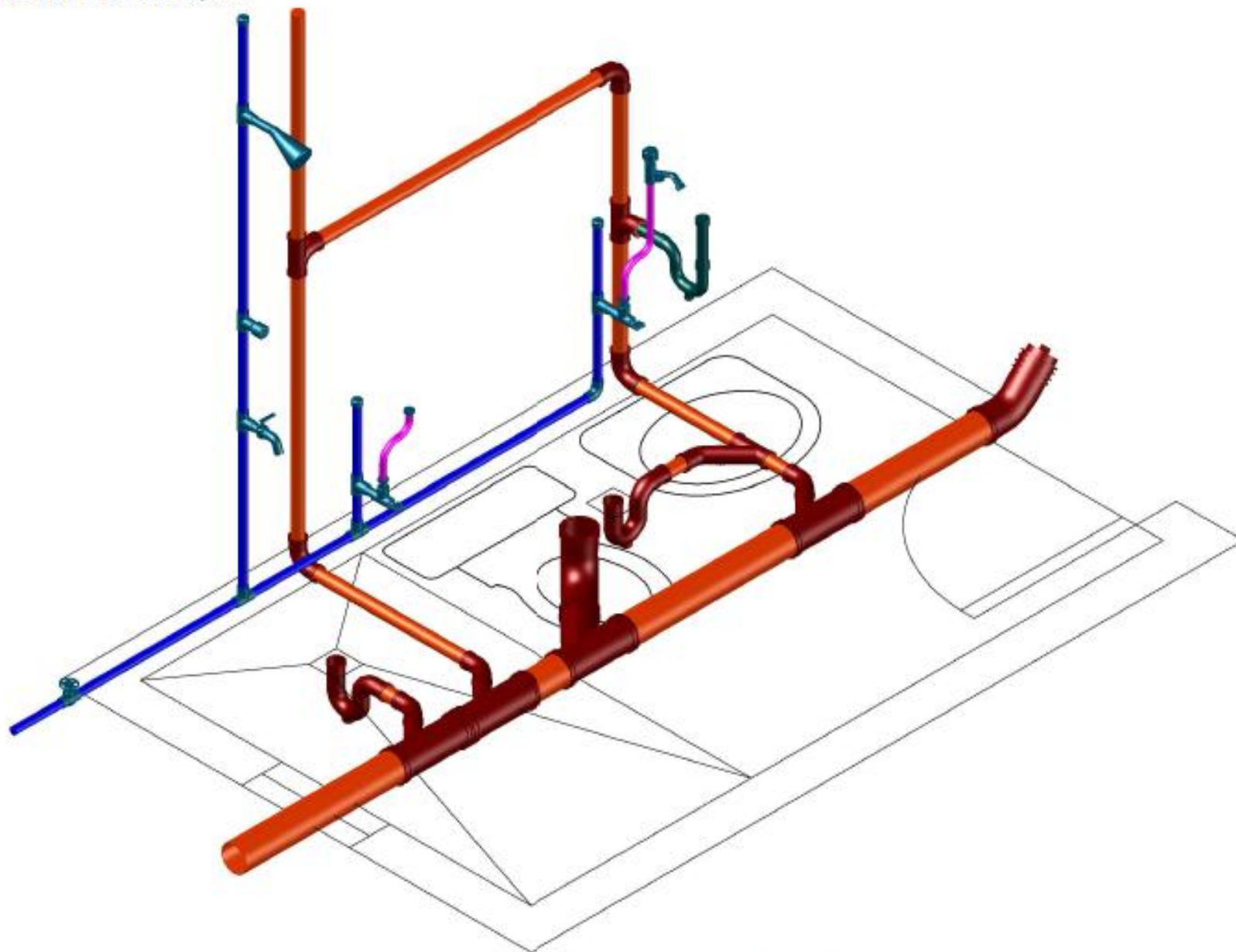
PARTIAL WATER DISTRIBUTION LAYOUT



ISOMETRIC DIAGRAM

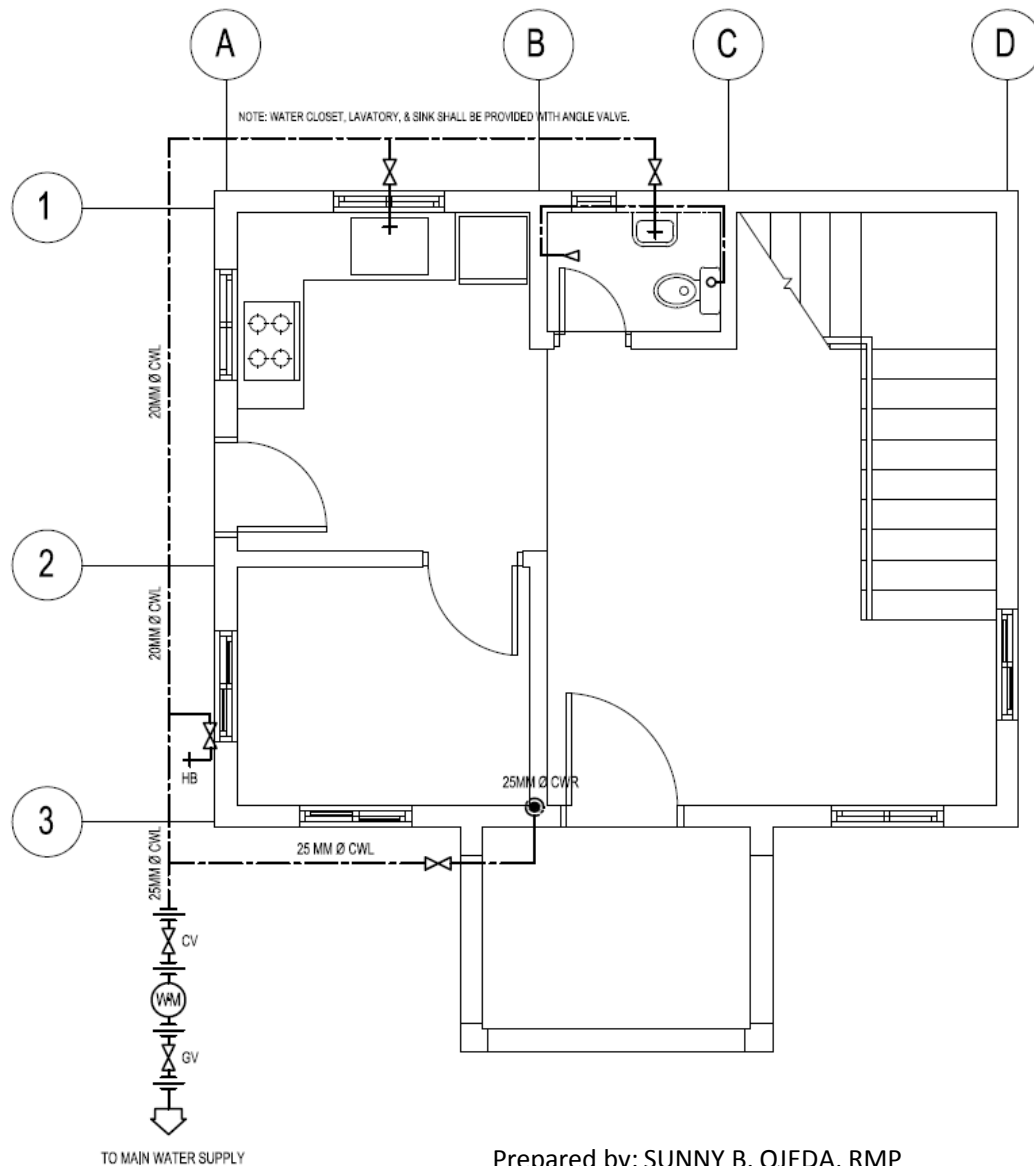


SANITARY LAYOUT

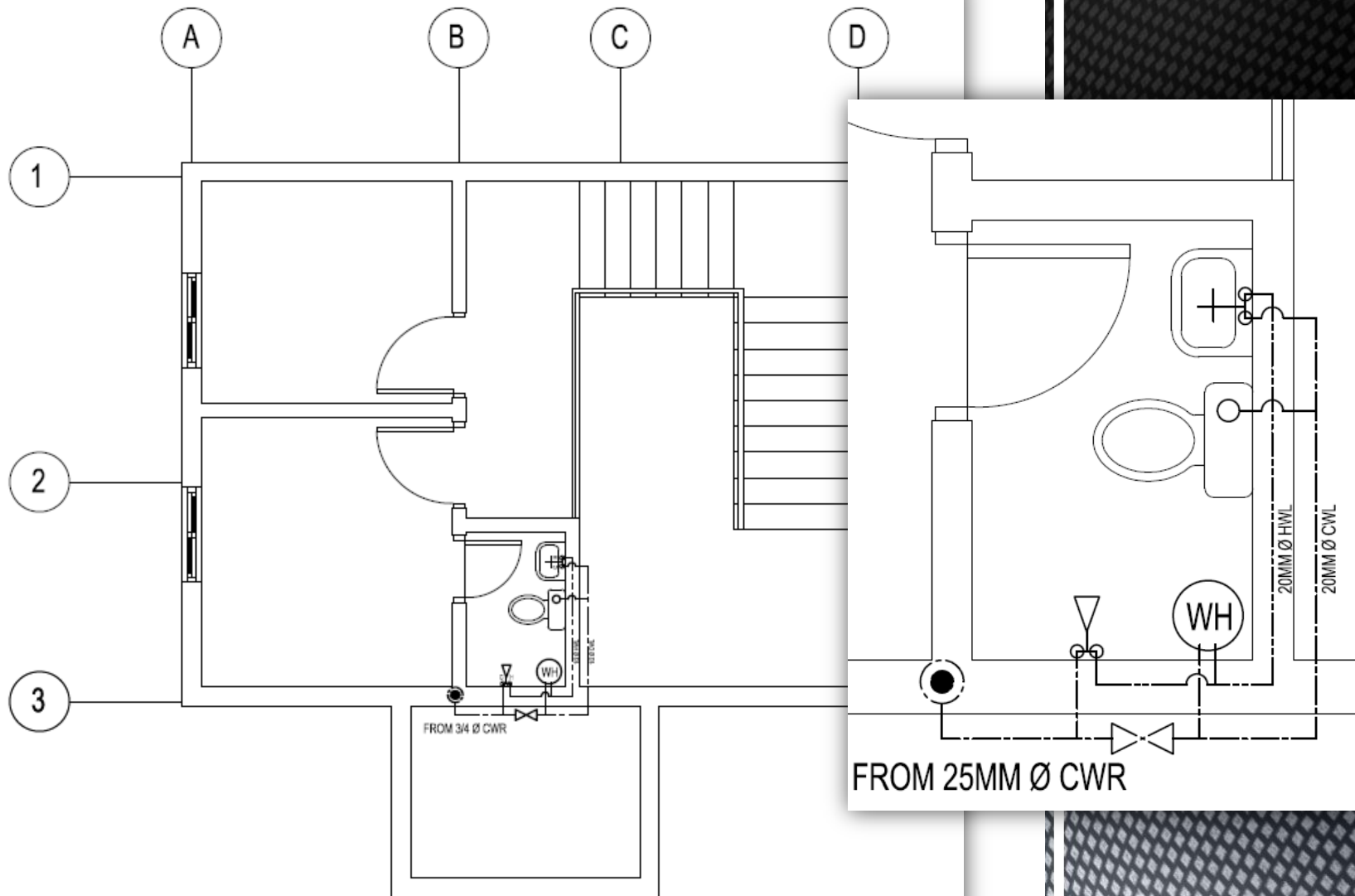


3D REPRESENTATION OF PLUMBING SYSTEM

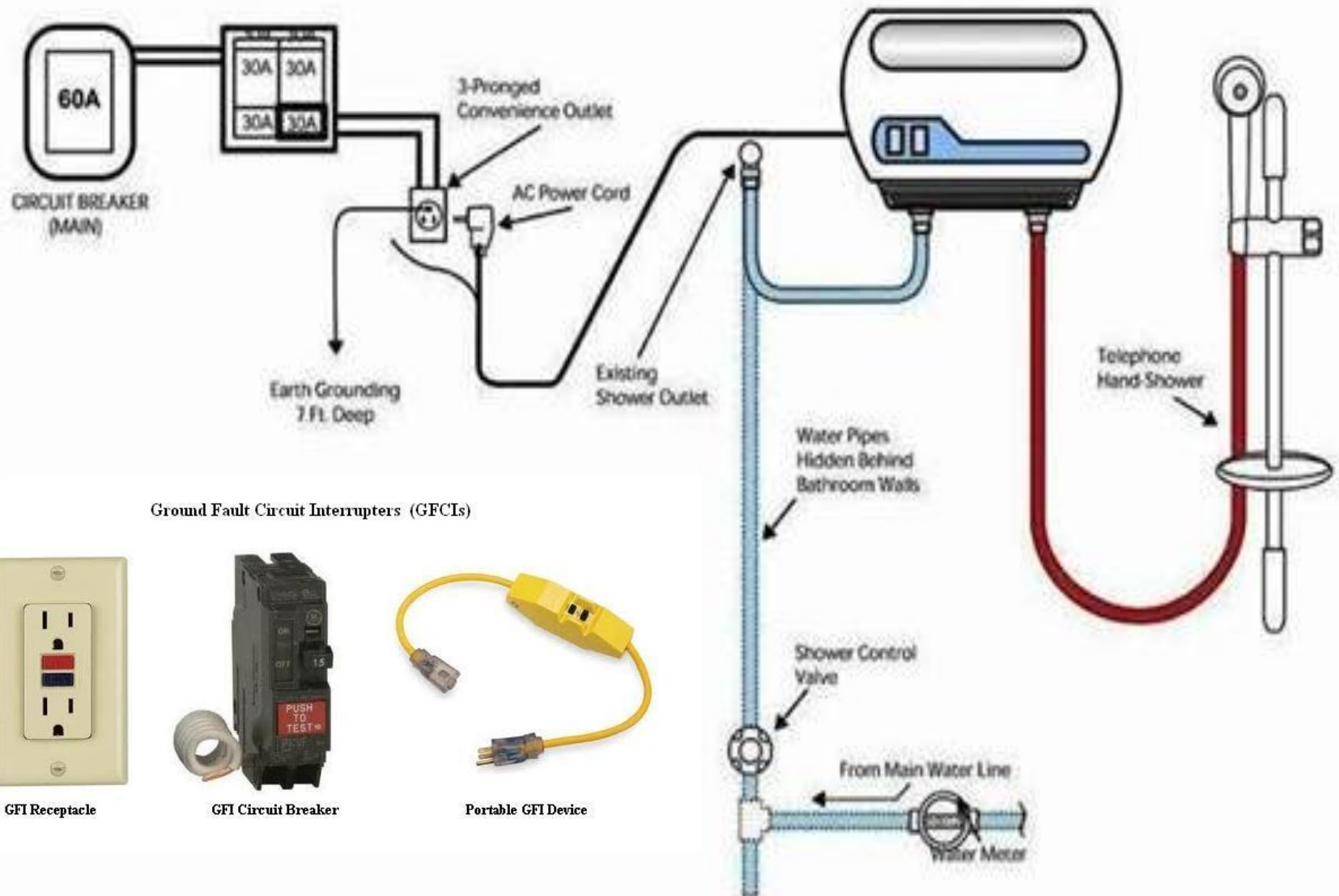
WATER DISTRIBUTION LAYOUT



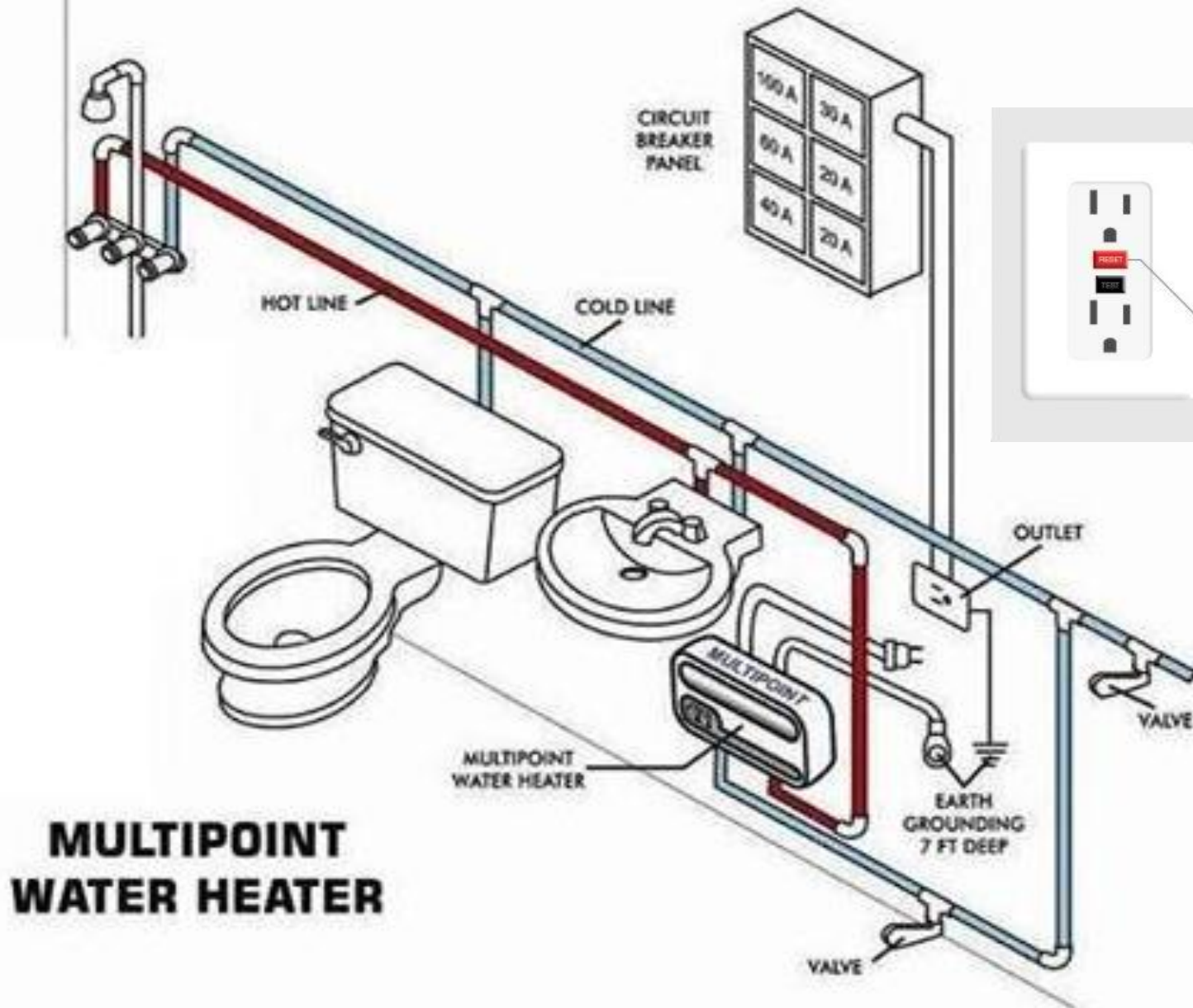
WATER DISTRIBUTION LAYOUT



WATER DISTRIBUTION LAYOUT



WATER DISTRIBUTION LAYOUT

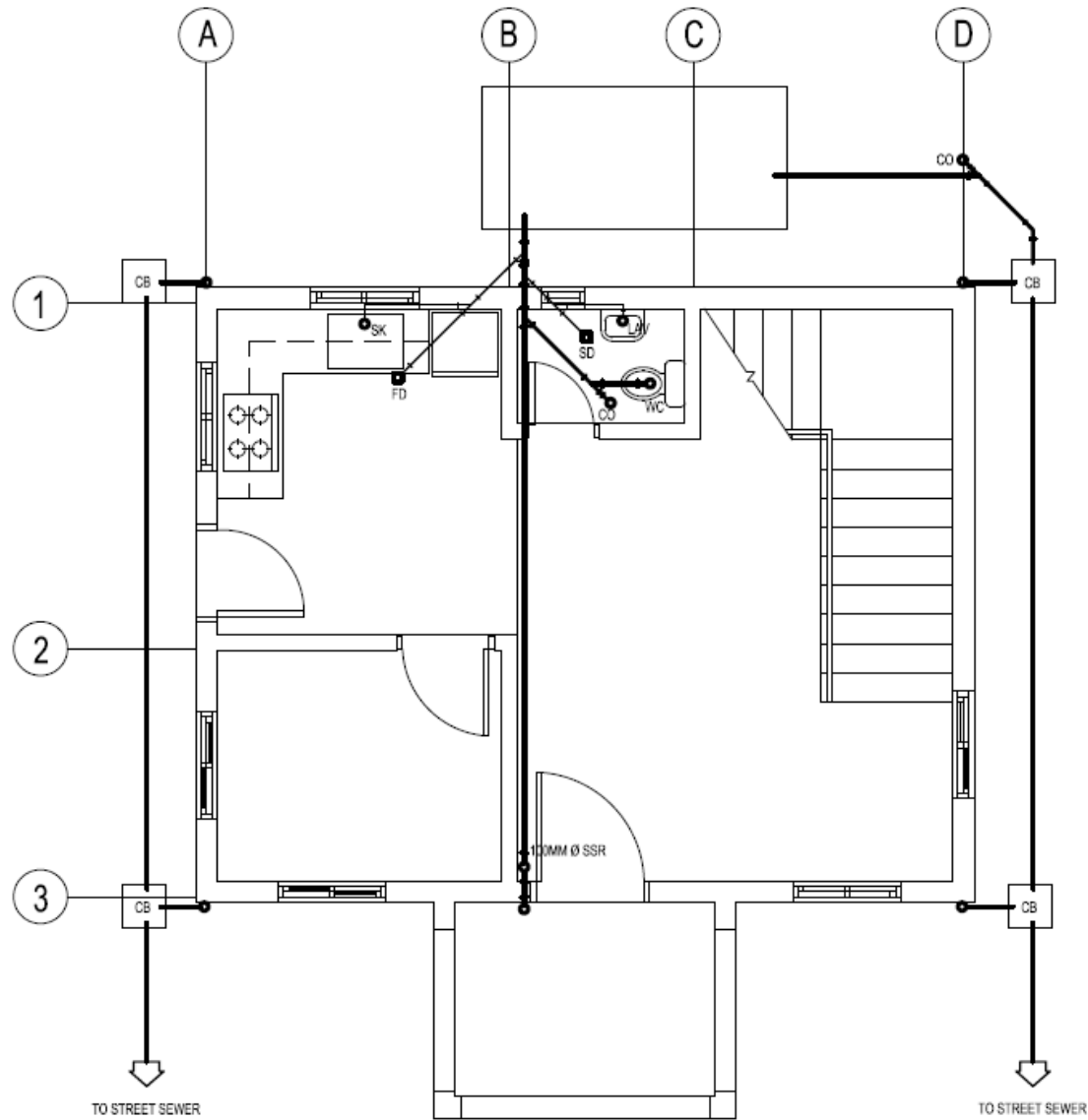


GFCI OUTLET

A ground-fault circuit interrupter detects an abnormal current flow to ground and opens the circuit, preventing a hazardous situation.

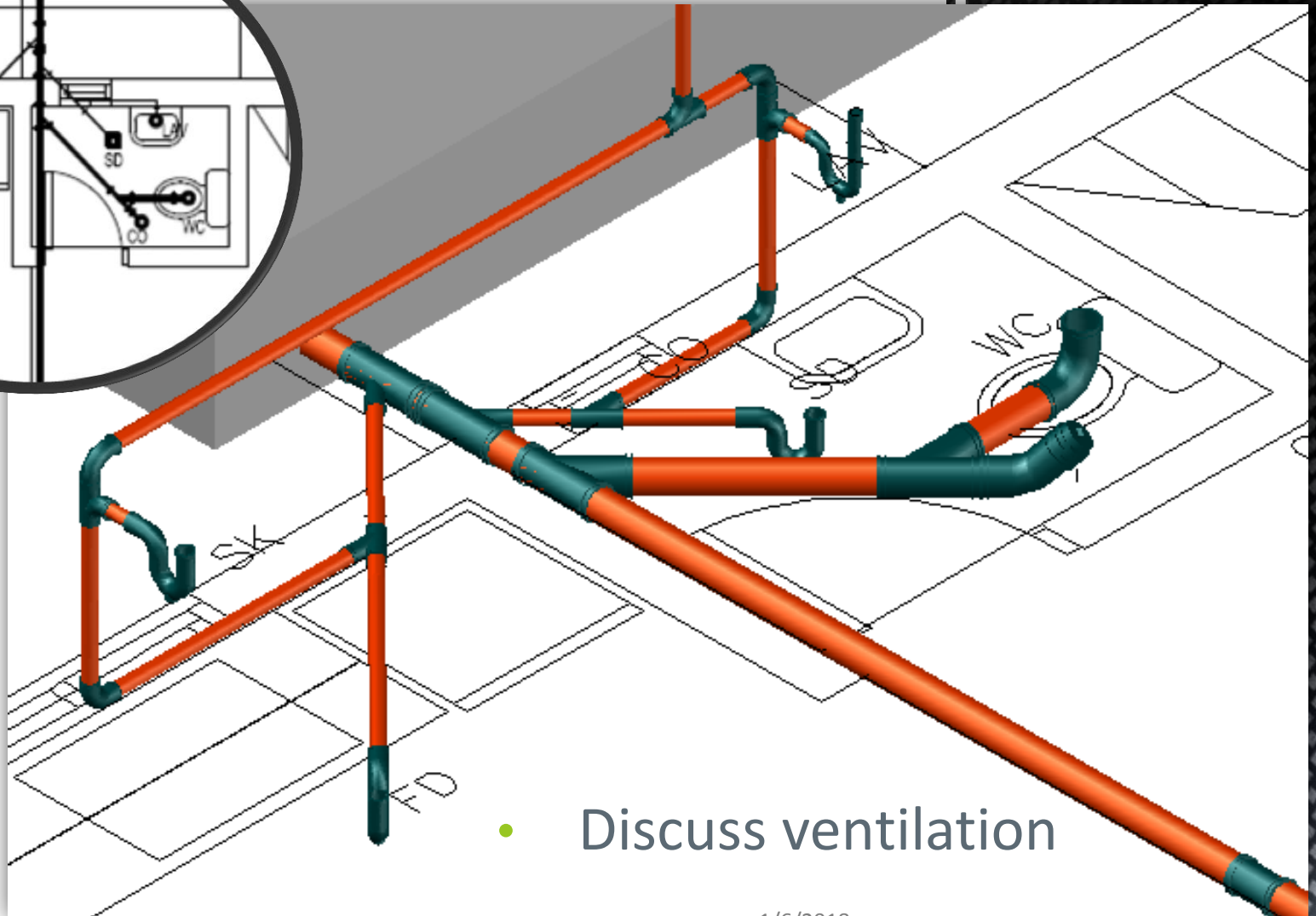
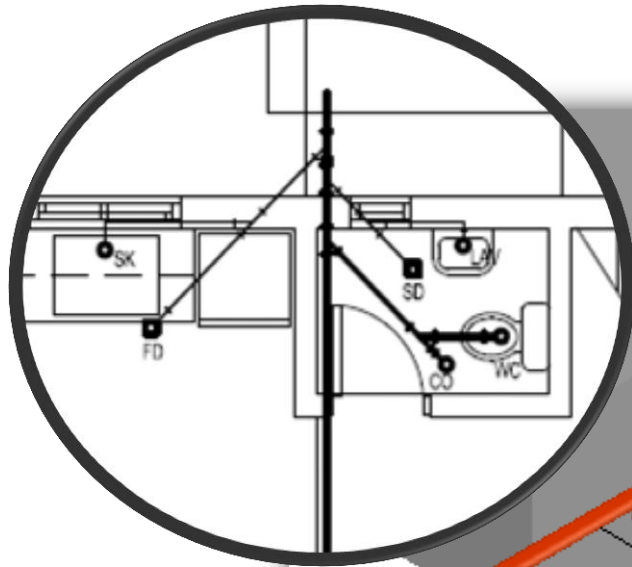
IF AN OUTLET STOPS WORKING, PUSH THIS BUTTON BACK IN TO RESET THE BREAKER.

SANITARY & STORM LAYOUT



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SANITARY & STORM LAYOUT

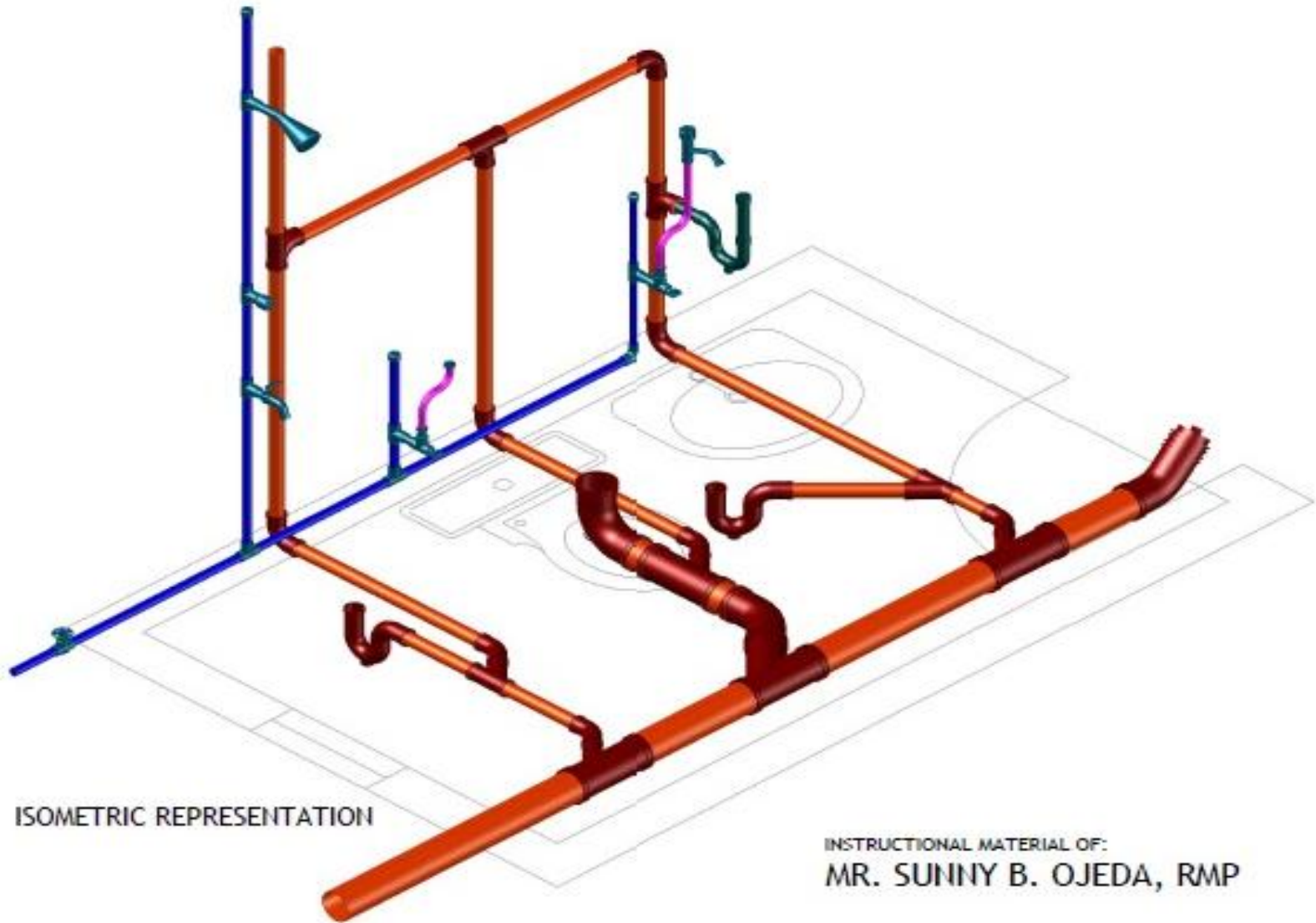


- Discuss ventilation

SANITARY & STORM LAYOUT

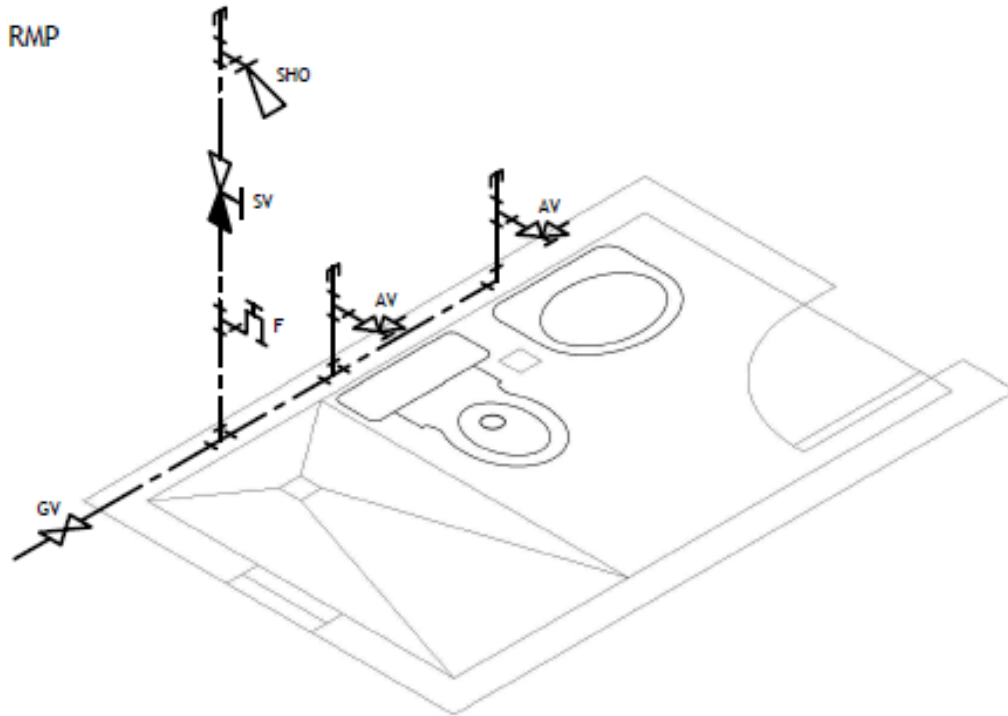


PARTIAL SANITARY & WATER DISTRIBUTION LAYOUT

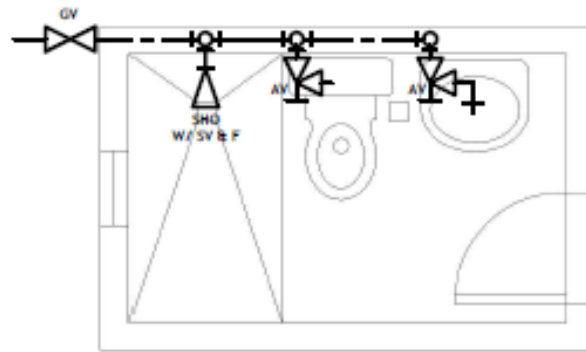


INSTRUCTIONAL MATERIAL OF:

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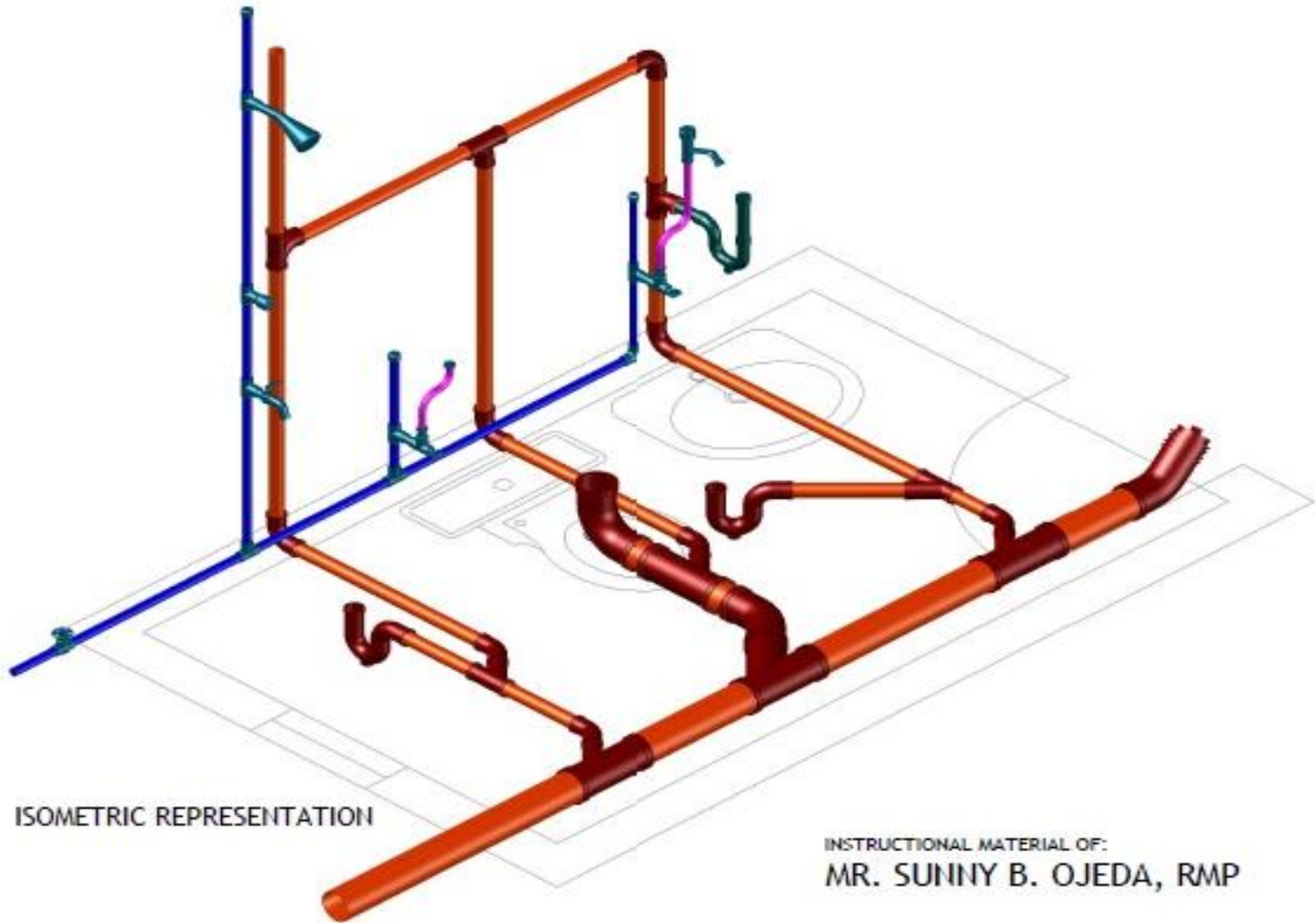


ISOMETRIC REPRESENTATION



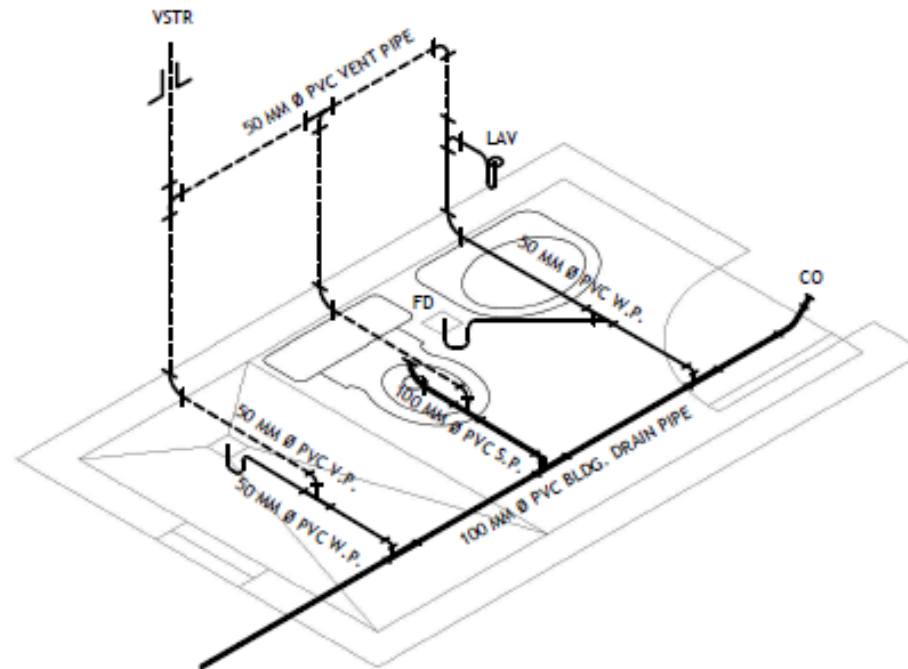
PARTIAL WATER DISTRIBUTION LAYOUT

PARTIAL SANITARY & WATER DISTRIBUTION LAYOUT

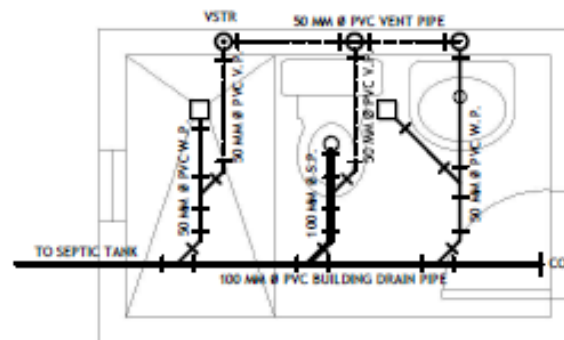


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ISOMETRIC REPRESENTATION



SANITARY LAYOUT