

# PLUMBING NC II

## TRAINING LESSON 6

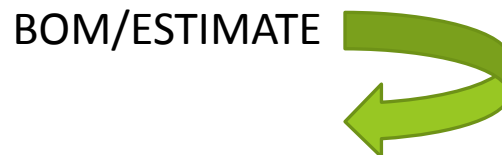


**SUNNY B. OJEDA, RMP**

Technical Drafting / Plumbing Trainer  
San Jose Del Monte National Trade School  
SJDM City, Bulacan

# TARGETS

- ☐ Roughing-in Procedure
- ❖ [Water Closet](#)
- ❖ [Lavatory](#)
- ❖ [Kitchen Sink](#)
- ❖ [Urinal](#)
- ☐ BOM or Bill of Materials (Estimate)
- ☐ Plumbing NC Common Job Interview



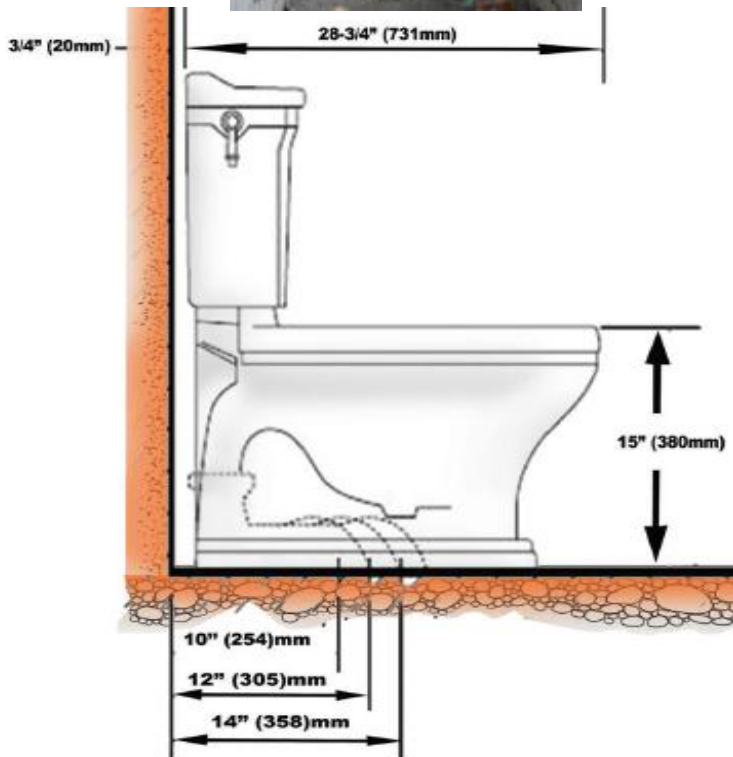
# ROUGHING-IN PROCEDURE OF WATER CLOSET



- ❑ Determine the rough-in measurement of the water closet to be installed based on the manufacturer's manual specification. Suppose the distance required from the finished wall is 30.5 cm add 4 cm to its actual distance from the rough wall.

- ❑ From the rough wall line behind the water closet to be installed, mark the center of the outlet with the actual distance of 35 cm (as per example) on the target floor level.

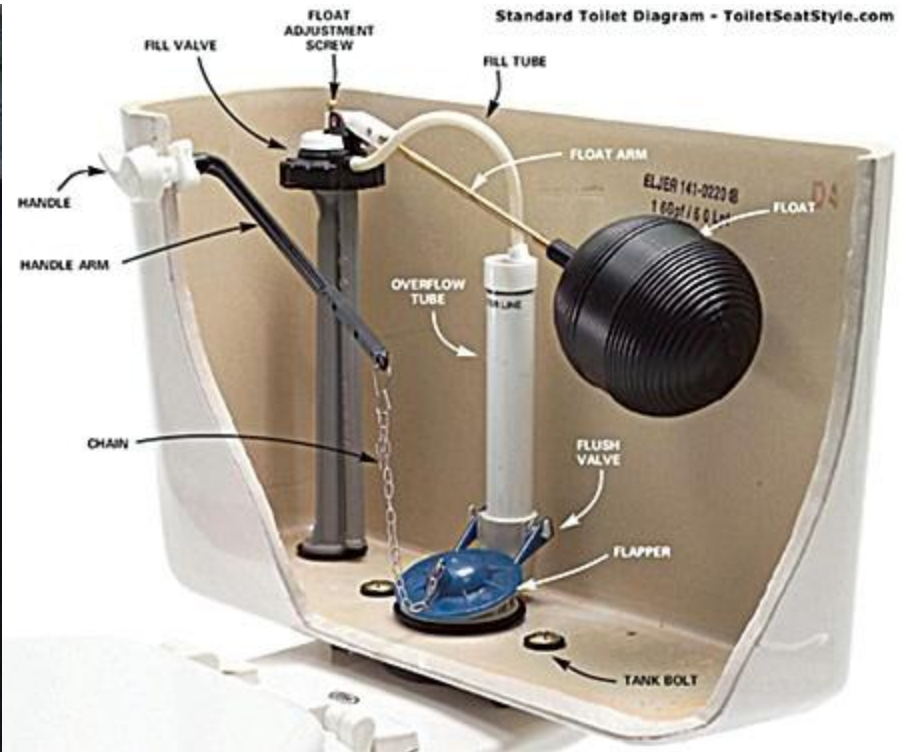
- ❑ Cut pipe by considering the laying length, engagement length, sanitary elbow length and distance to main soil pipe.



# INSTALLATION DETAILS

- ☐ Fit the cut pipe and fitting with solvent cement connecting to the main soil pipe.
- ☐ Check the 2% inclination of the pipe using a spirit level.
- ☐ Secure the pipe properly by using tie wire around it underneath.
- ☐ Cover the top of the pipe to avoid the entrance of foreign objects.
- ☐ Do the concreting process but be careful not to damage or misalign the pipes.

# Perform Piping Lay out Rough-in Procedure



Installation Video



Prepared by: SUNNY B. OJEDA, RMP  
1/7/2018

# BILL OF MATERIALS for WATER LINE

No.	NAME OF ITEM	QUAN	UNIT COST	COST
1	PPR PN16-32mm Ø x 4m for cold water line			
2	PPR PN16-25mm Ø x 4m for cold water line			
3	PPR PN20-20mm Ø x 4m for hot water line			
4	PPR Gate Valve 25mm Ø			
5	PPR Equal Tee 32mm Ø			
6	PPR Equal Tee 20mm Ø			
7	PPR Tee Reducer 32mm x 20mm Ø			
8	PPR Equal Elbow 32mm Ø			
9	PPR Elbow Reducer 32mm x 25mm Ø			
10	PPR Female Tee 20mm Ø			
11	PPR Coupling 32mm Ø			
12	PPR Coupling 25mm Ø			
13	PPR Coupling 20mm Ø			
14	PPR Elbow 25mm x 20mm Ø			
15	PPR Female Elbow 20mm Ø		6	

# BILL OF MATERIALS for WATER LINE

No.	NAME OF ITEM	QUAN	UNIT COST	COST
15	PPR Male Elbow 20mm Ø			
16	PPR Elbow Reducer 25mm x 20mm			
17	PPR End Cap 32mm Ø			
18	PPR End Cap 25mm Ø			
19	PPR End Cap 20mm Ø			
20	PPR Male Threaded Adapter 20mm Ø			
21	PPR Female Threaded Adapter 20mm Ø			
22	Check Valve 20mm Ø (Cast Bronze)			
TOTAL				



# BILL OF MATERIALS for SANITARY/STORM

No.	NAME OF ITEM	QUAN	UNIT COST	COST
1	UPCV Pipe 6" Ø x 3m			
2	UPCV Pipe 4" Ø x 3m			
3	UPCV Pipe 3" Ø x 3m			
4	UPCV Pipe 2" Ø x 3m			
5	Sanitary Wye 6" x 4" Ø			
6	Sanitary Wye 4" x 4" Ø			
7	Sanitary Wye 4" x 2" Ø			
8	Sanitary Wye 3" x 2" Ø			
9	Sanitary Wye 2" x 2" Ø			
10	Sanitary Tee 4" x 2" Ø			
11	Sanitary Tee 3" x 2" Ø			
12	Sanitary Tee 2" x 2" Ø			
13	Sanitary 90° Elbow 4" Ø			
14	Sanitary 90° Elbow 3" Ø			
15	Sanitary 90° Elbow 2" Ø		8	



# BILL OF MATERIALS for SANITARY/STORM

No.	NAME OF ITEM	QUAN	UNIT COST	COST
16	Sanitary 45° Elbow 4" Ø			
17	Sanitary 45° Elbow 3" Ø			
18	Sanitary 45° Elbow 2" Ø			
19	P-trap with Clean Out 2" Ø			
20	Sanitary Bushing Reducer 6" x 4" Ø			
21	Sanitary Bushing Reducer 4" x 3" Ø			
22	Sanitary Bushing Reducer 4" x 2" Ø			
23	Sanitary Bushing Reducer 3" x 2" Ø			
24	Clean Out 4" Ø			
25	Solvent Cement 400cc			
TOTAL				

## JOB INTERVIEW

**❑ If you see unstable condition, what will you do?**

**❖ *Report to your supervisor.***

## JOB INTERVIEW

**❑ What is the equivalent of 1.00 meter in centimeters and millimeters?**

**❖ *1 m = 100 cm / 1000 mm***

## JOB INTERVIEW

- ❑ **What remedy would you apply if the structure of the building will be affected in the piping installation?**
- ❖ *We have to redesign the piping layout or installation so that the stability of the structure will not be compromised but it must be done with proper consultation to the master plumber / project engineer.*

## JOB INTERVIEW

**❑ If you are in doubt of the proper procedure for the assigned work, what will you do?**

**❖ *Do not hesitate to ask your supervisor!!!***

## JOB INTERVIEW

- ❑ **How will you know the condition of power tools?**
- ❖ *Check the rotating parts like shaft, drill bit, grinding disk /or cutting disk.*
- ❖ *Check the wiring and male plug.*



## JOB INTERVIEW

**❑ What is the appropriate inclination of waste or sanitary pipeline?**

**❖ *As per NPC we have to provide 2% inclination or the value of 2 centimeters per 1 meter of the waste/sanitary pipeline.***

*–Sec 707*

*--But if the assessor tell you that the inclination is just 1% 😊 never argue with him for you might compromise the group from passing the assessment.*



## JOB INTERVIEW

**❑ Is it possible to use PVC pipes as substitute to steel pipes that are passing through the structure (beam or column) of the building? Why?**

**❖ *Possible but we have to provide metal sleeve to protect the PVC pipes from tensions or stresses.***

*--RNPCP Sec. 314*

## JOB INTERVIEW

- ❑ **How would you restore the affected floor slab in your piping installation?**
- ❖ *I will apply my basic knowledge in masonry that is through proper mixture of cement, sand & gravel .  
(Class A mixture 1:2:4)*

## JOB INTERVIEW

- ❑ **What would you do if your superior found out that the bill of materials that you presented is incomplete?**
- ❖ *I will accept my fault and ask for forgiveness for my inconsistency then I will try to complete the bill of materials.*

## JOB INTERVIEW

☐ **What is the proper cutting tools for PPR pipes?**

❖ *Plastic pipe scissor or cutter*

☐ **What is the proper cutting tools for PVC blue pipes?**

❖ *Hacksaw*

## JOB INTERVIEW

**❑ What is the ready indication of PPR fusion machine?**

**❖ *Once the red color indicator turns into green or off.***

**❑ What is the curing time of solvent cement on PVC blue pipes? PPR pipes?**

**❖ *24 hours for PVC blue pipes***

*although in 2 hours is enough 😊 never ever argue with the assessor*

**❖ *3-5 minutes for PPR pipes***

## JOB INTERVIEW

- ❑ **What is the difference between apprentice plumber from journeyman plumber?**
- ❖ *An apprentice plumber is the beginner in the plumbing trade whereas the journeyman plumber is competent to perform the tasks of installing and repairing plumbing system.*

# JOB INTERVIEW

## ❑ Name the different methods of pipe leak testing?

- ❖ Infra Red Camera
- ❖ Radio Detection
- ❖ Pressure Test Kit
- ❖ Pressure Test Pump
- ❖ Dye Technique
- ❖ Liquid Soap Technique





## JOB INTERVIEW

- ❑ **While conducting the pipe leak testing the system broke down, how would you address the problem?**
- ❖ *I will immediately shut off the gate valve, check the leaking part/s and think of possible remedy for the piping system.*

## JOB INTERVIEW

- ❑ **What would you do if the sanitary pipeline burst out during repair works?**
- ❖ *I will immediately clean the mess from the sanitary pipeline and continue the repairing work but we have to protect ourselves by using appropriate PPE.*

## JOB INTERVIEW

- ❑ **What will you do if the tools provided for the job is not appropriate?**
- ❖ *I will explain the danger of not using the right tool for the job...*

## JOB INTERVIEW

- ❑ **How would you prevent equipment from breaking down during leak testing?**
- ❖ *I will read first the instructions on how to use the equipment or ask my immediate supervisor on how to use it and I will not attempt to exceed the limitation of equipment.*

## JOB INTERVIEW

- ❑ **What are the safety measures that we need to consider during pipe leak testing?**
- ❖ *We need to notify other workers in the building for our leak testing activity.*
- ❖ *Check the condition of the equipment.*
- ❖ *We must not overpressure the equipment.*

## JOB INTERVIEW

**❑ What are the safety equipment and clothing we need to use in leak testing?**

- ❖ *Overall or working “maong” clothes***
- ❖ *Hard Hat***
- ❖ *Hand Gloves***
- ❖ *Safety Shoes***
- ❖ *Goggles***
- ❖ *Gas Mask***

## JOB INTERVIEW

- ❑ **Why is it not allowed to conduct pipe leak testing if the system is not yet complete or ready?**
- ❖ *To avoid water mess with dye, soap leaks, and bursting of untreated pipes with solvent cement or Teflon.*



## JOB INTERVIEW

- ❑ **What would you do if during the process of leak testing the equipment broke down?**
- ❖ *I will stop immediately the procedure and clear the area for possible water leaks.*
- ❖ *Resort to another pipe testing method.*

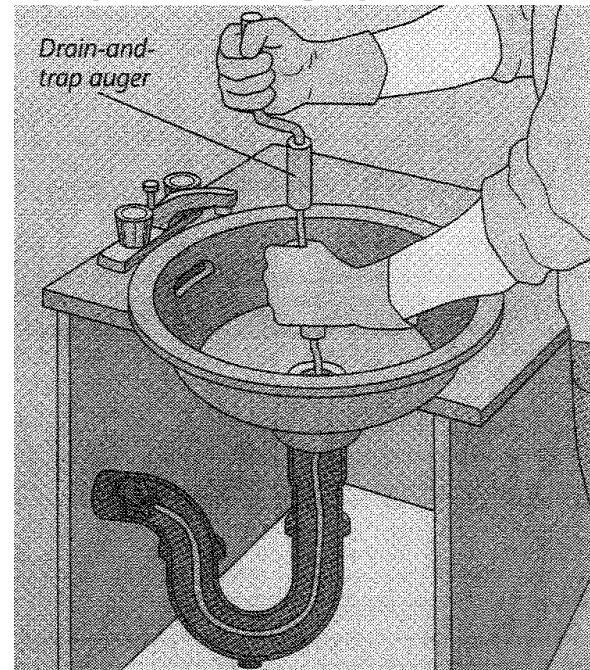
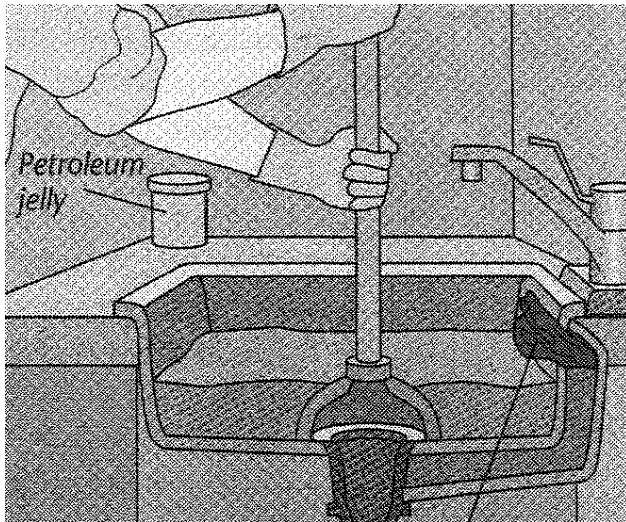
## JOB INTERVIEW

- ❑ **What regulation/code do we follow in leak testing principles?**
- ❖ *Under the basic principles of the National Plumbing Code that systems shall be subjected to leak testing.*

## JOB INTERVIEW

### ❑ How would you declog sink or lavatory?

- ❖ *The first remedy is by applying forceful stroke of plunger to sink or lavatory.*
- ❖ *The second option is by using plumbing snake or auger.*



## JOB INTERVIEW

- ❑ **You were instructed to de-clog pipeline using steel flat bar not the flexible sewer rod. Would you still follow your immediate supervisor?**
- ❖ *No... I have to explain the effect of using the right and wrong tools for the job in discreet manner.*



## JOB INTERVIEW

- ❑ **What standard procedure should be followed before repairing any pipeline?**
- ❖ *For water distribution close the nearby gate or shut-off valve.*
- ❖ *For sanitary system provide tools, equipment and storage for immediate removal of possible scum leaks in the system.*

## JOB INTERVIEW

- ❑ **What will you do if the pressurized water pipeline burst while doing repair work?**
- ❖ *Look for the nearby gate or shut-off valve and continue doing the repair work.*



## JOB INTERVIEW

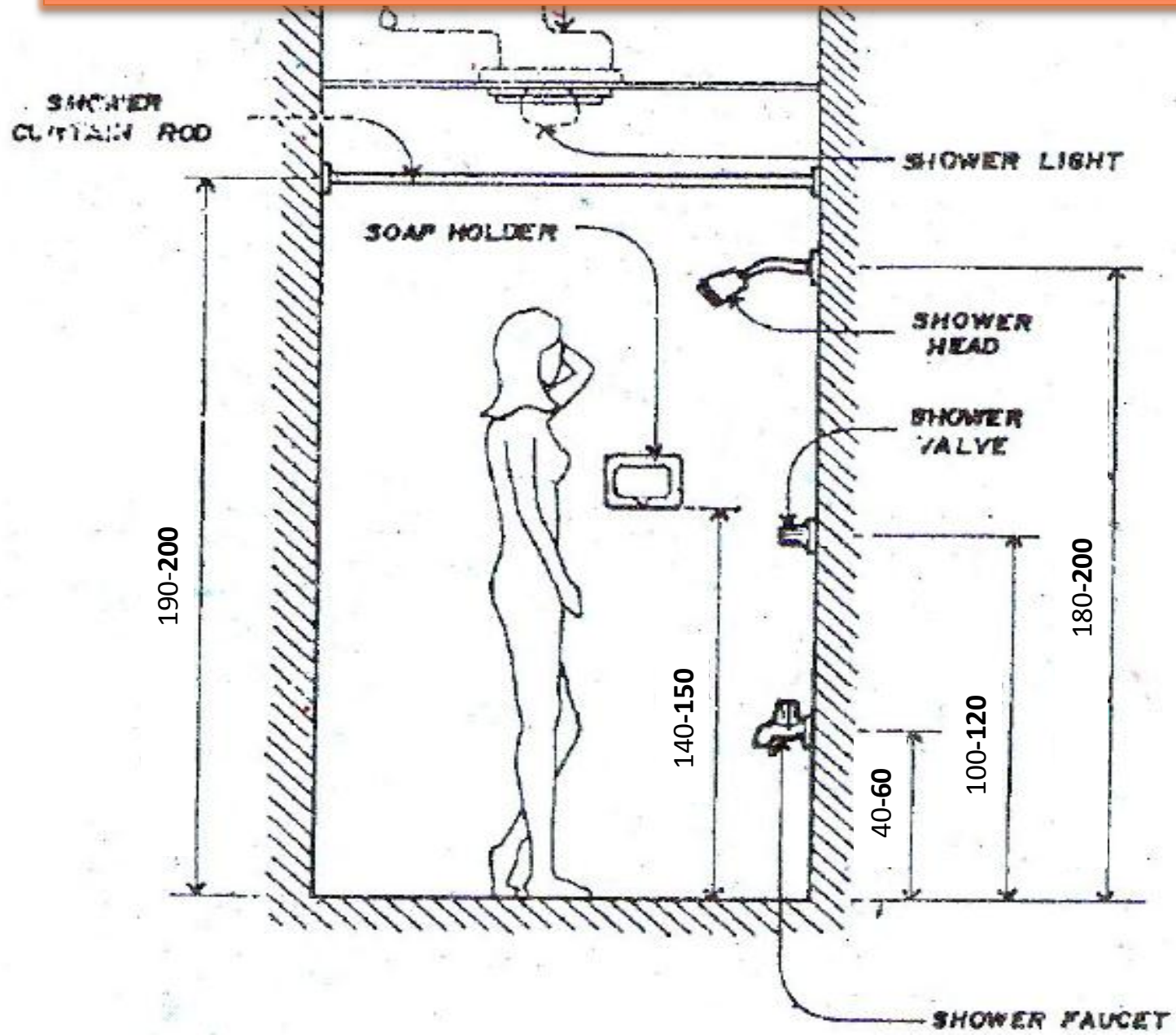
- ❑ **What regulation or code governing the repair and maintenance of pipes?**
- ❖ *We have to follow the provisions of the Revised National Plumbing Code of the Philippines 1999 (particularly under Section 104 & 303). Deviation from the code maybe permitted by the administrative authority upon submission of necessary justification thru plans and documents.*



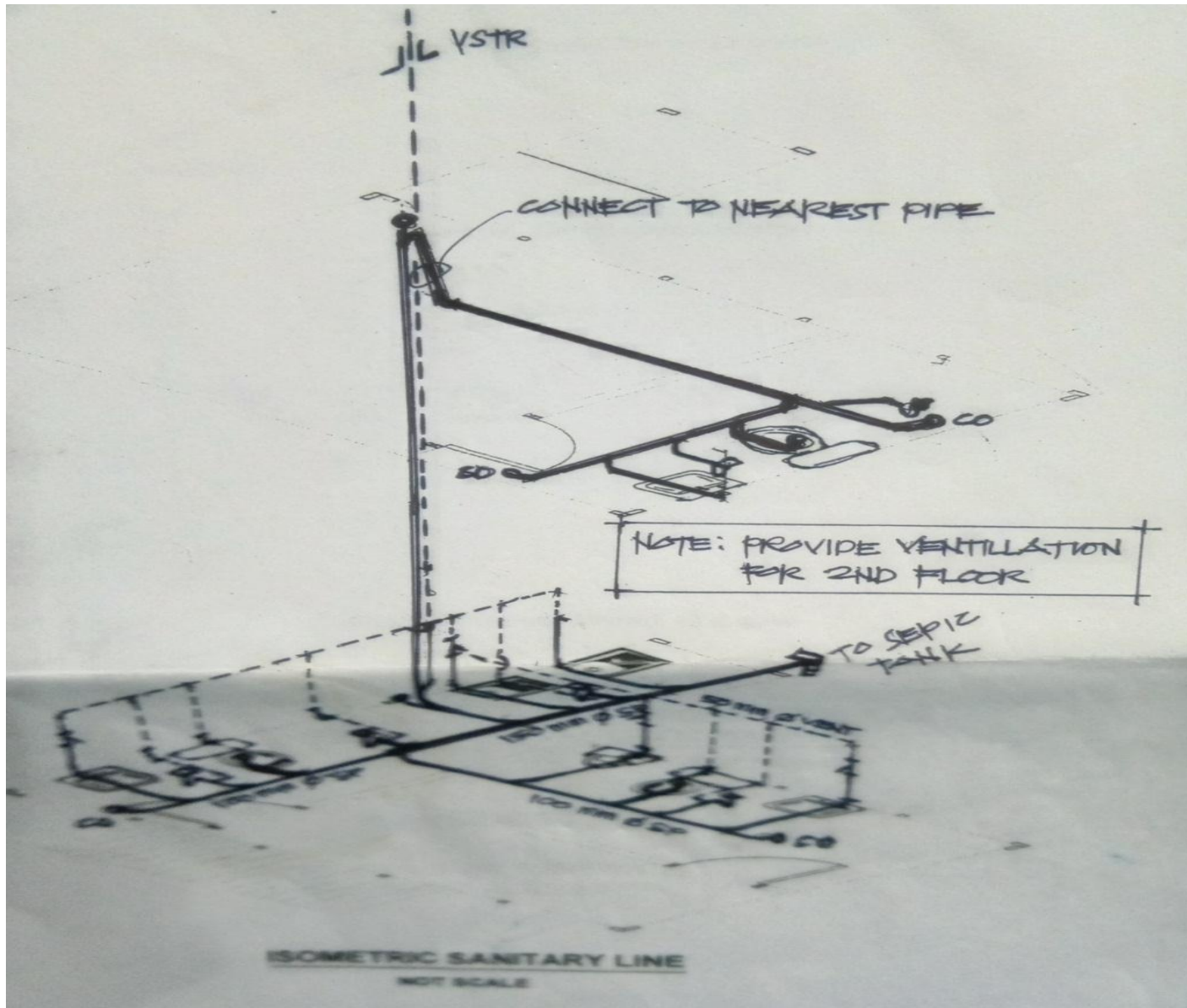
## JOB INTERVIEW

- ❑ What are the standard height of faucet (for pail), shower valve and shower head from the finished floor line?**

# JOB INTERVIEW



# Related NC Final Work



# Related NC Final Work

