

# Q&A on the Code of Practice on Sewerage and Sanitary Works



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Muhd Razis  
Water Reclamation Network

 **PUB** SINGAPORE'S  
NATIONAL  
WATER AGENCY

# Outline

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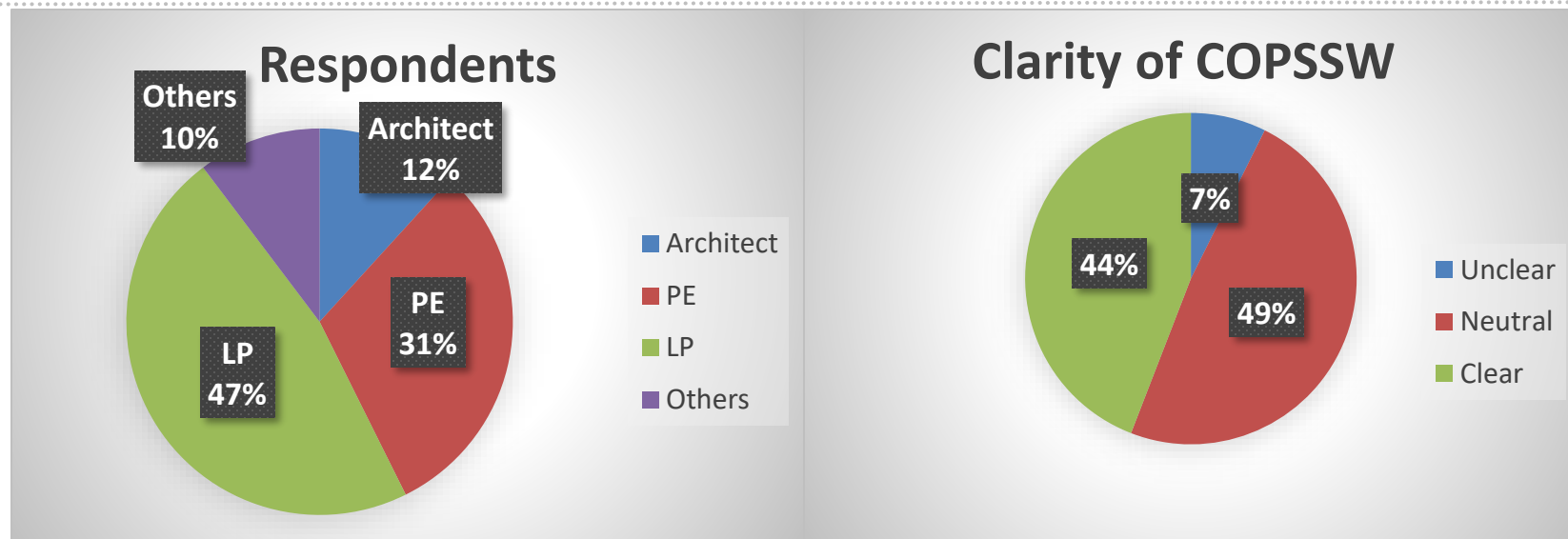
- Background and Objective
- Survey Results
- Common Queries
- AOB

# Background and Objective

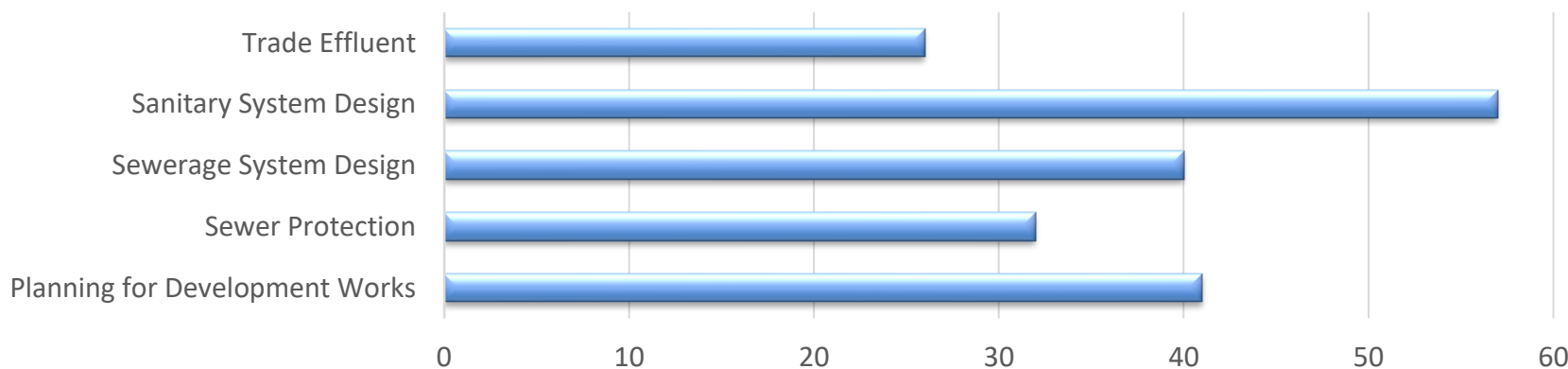
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- The Code of Practice on Sewerage and Sanitary Works (COPSSW) gives the requirements for the planning, design and construction of sewerage system and sanitary facilities for developments.
- The current edition of COPSSW and Addendum No. 1 were released in Jan 2019 and Mar 2021 respectively to incorporate changes and updates made over the years to address new technical issues.
- PUB sent out a FormSG survey on 2 Aug 2024 to garner queries from industry on the current COPSSW.
- Common queries from the survey will be covered in today's Q&A session.

# Survey Results



## Most Useful Section of COPSSW



# Common Queries

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## Question 1

*What is the gradient for sewer for differences pipe sizes?*

## PUB's Response

The guideline for sewer gradient is stated in clause 3.2.1.e of COPSSW.

- e. Sewer Gradient and Flow Velocities
- i. Sewers shall be designed to achieve a velocity of approximately 1.5m/s at design peak flow.
  - ii. The minimum and maximum velocity for design peak flow in the constructed sewers shall not be less than 0.9m/s or more than 2.4m/s respectively.
  - iii. For small development using the minimum pipe size of 200mm diameter, new sewers should be laid at a minimum grade of 1 in 50 where possible.

The boundary condition to decide a suitable gradient for a sewer is the minimum and maximum velocity of 0.9m/s and 2.4m/s respectively. You may use Manning's or Cole-brook White equation.

For small development, new sewer shall be laid at a minimum grade of 1 in 50 where possible.

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# Common Queries

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## Question 2

*Soil waste pipe connected to IC with acute angle, but provide with channel that follow the flow of IC.*

## **PUB's Response**

To avoid acute angle connection (against flow direction) where possible to reduce flow impediment or risk of choke at the turning point before connecting to drain-line. Explore alternative solutions to comply first such as relocate IC or reconfiguration layout of sanitary facilities.

Where the abovementioned options have been exhausted and acute angle is still unavoidable, the constraint is usually overcome by providing a large radius bend within the IC to the channel. Do consult/highlight to PUB before implementing at site.



# Common Queries

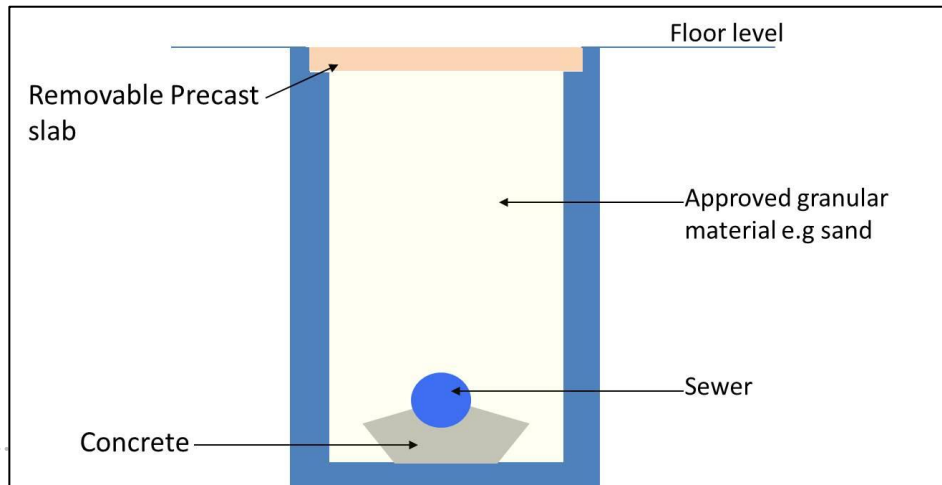
## Question 3

*What are the allowed items to be constructed/installed above RC trench?*

## PUB's Response

If a building/structure cannot meet the minimum setback requirement from a public sewer, a reinforced concrete trench (RCT) shall be constructed to ensure PUB's access to sewer is not hampered so that repairs can be carried out swiftly and minimise disruptive work to be carried out within owner's premises. The RCT shall be covered with removable slabs or other hard covers with lifting feature.

When a public sewer is not functional, it will affect many premises served by the sewer. As sewer repair is usually carried out via open-cut, it is paramount that access to the sewer from the top of the RCT is not hindered by immovable objects or structures. Movable objects such as table or chairs are allowed to be placed above the RCT.



# Common Queries

## Question 4

Sewer setback distance maximum height wherein no structures are allowed? Currently, COP on Sew-Sanitary Works does not state the minimum height.

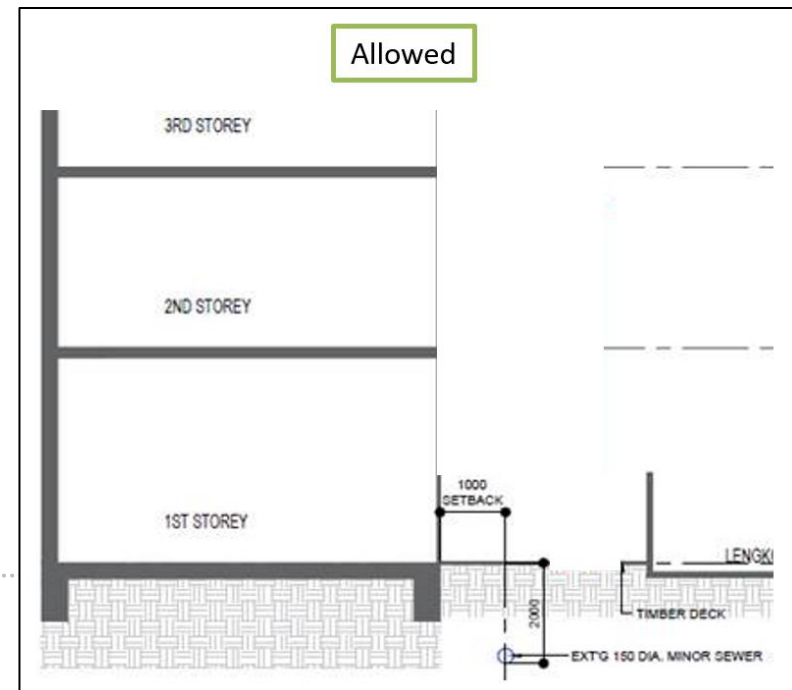
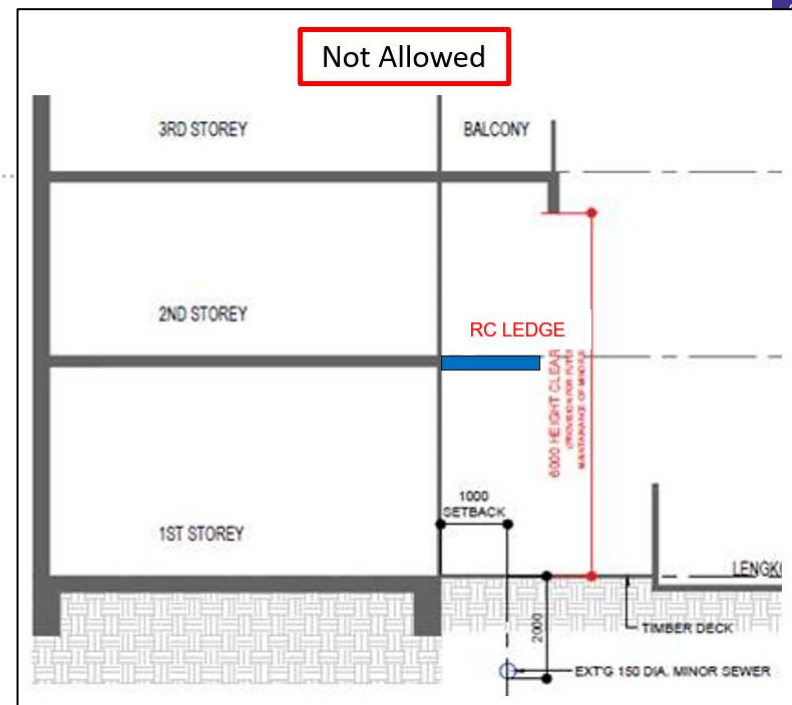
## PUB's Response

Sewer setback is measured from centreline of public sewer to **outermost edge** of building/structure, **including footings and overhangs** such as cantilevered slabs or RC ledges.

No structure or building shall be placed over or across any public sewer without PUB's approval. This is to ensure adequate working space for PUB to carry out repair works on affected sewer.

Non-structural elements (e.g. awnings) are allowed to be placed above sewer provided they are lightweight and easily demountable.

If the above cannot be achieved, QP to explore providing RC trench or diverting the sewer.





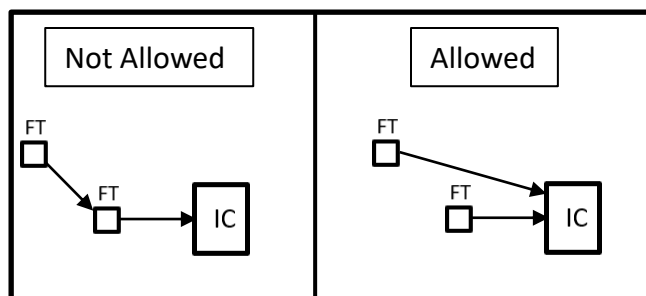
# Common Queries

## Question 5

- 1) *floor trap to floor trap connection on Ground Floor.*
- 2) *if there are water points for irrigation at balconies / terraces, if FT allowed or required?*

## PUB's Response

- 1) Floor traps on ground level shall not be interconnected and shall individually connect to an IC via separate discharge pipes.



- 2) Balconies often have floor outlets to convey rainwater to downpipes that lead to stormwater drains. A floor trap is part of sanitary system used to convey used water to sewerage system. As such, it is not required here for irrigation purposes.

# Common Queries

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## Question 6

*Clause 1.2.1 b. The top level should refer to the LAST IC (not all the ICs) top level connecting to the MH. Some developments may be constrained by the road or platform levels - thus not ICs are able meet this requirement.*

## PUB's Response

The intent is to safeguard the whole development from risk of used water overflow into the premises in the event of public sewer in surcharge condition. As such, all inlet and access points to the sanitary system, not just the last IC, shall have top level higher than that of the connecting manhole. If this cannot be achieved, QP should propose mitigating measures to address the abovementioned risk.

# Common Queries

## Question 7

*For branch drain line using 150mm pipe connect to IC, maximum can run how many meters?*

## PUB's Response

The maximum length of discharge pipe connecting to IC is 15m in most cases. Please refer to Table 6 of COPSSW (reproduced below) for more details.

Sanitary Appliance/Fitting Served	Minimum size (mm)	Maximum length (m)	Gradient
Ultra-low capacity WC (<3.5L per flush)	75	10	Minimum 1:50
Low capacity WC (3.5L to 4.5L per flush)	100	15	Minimum 1:50
Floor trap receiving flow from sanitary appliances or washing machine	100	15	Between 1:20 and 1:60
Floor trap receiving only floor washing water, i.e. no appliance connected	75	15	Between 1:20 and 1:60
Urinal trap receiving flow from:			Between 1:20 and 1:60
i. up to 3 urinals	75	15	
ii. 4 to 10 urinals	100		

# Common Queries

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## Question 8

*In an existing development with the internal ICs and Sewerage Manhole connections already done. If lets say we add another toilet on a floor or add some restaurants. Does this mean we have to check and calculate the entire developments sanitary flowrate and potentially resize the last connection and internal IC pipe diameters.*

## PUB's Response

The relevant QP or LP in charge for the additional works is required to ensure that the current sanitary drainage system (including the drain-line connection to public sewer) is adequate for the additional flow.

# Common Queries

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## Question 9

*Is it acceptable for aircon system condensate water to be drained into the nearest sanitary system floor trap? Because usually there would be GFA constraints that do not allow addition condensate water waste pipe stack (riser) to collect and drain the condensate water into open drainage system (instead of sanitary system).*

## PUB's Response

Yes, if there is no available outlet to stormwater drainage system. Please refer to the guideline "Specific Requirements for Water Discharge" in PUB website (<https://www.pub.gov.sg/Professionals/Resources/Guides-and-Handbooks>) for more information.

# Common Queries

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## Question 10

*Waste pipe from kitchen sink is separately and directly connected to a discharge stack, can this kitchen discharge stack connect to common discharge pipes at basement high level serving toilet? Also, for the common discharge serving 1st storey unit, able to combine kitchen and bath?*

## **PUB's Response**

We presume that the context of this question is a residential development. The kitchen waste stack and soil waste stack shall be separated until the IC. This is to prevent the kitchen area from experiencing any overflow of sewage from toilets in the event of choke at the common discharge pipe at basement high level.



# AOB

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- Any other query?
- Any improvements to the current COPSSW?

For further queries on COPSSW, you may reach out via email to:  
[Muhd\\_Razis\\_Rahim@pub.gov.sg](mailto:Muhd_Razis_Rahim@pub.gov.sg)

# Thank You



*MacRitchie Reservoir*