

**The Hong Kong Institute of Surveyors
Written Submission to Joint Meeting on 16 May 2003
Panel on Housing and Panel on Planning, Lands & Works
Legislative Council**

Design of Sewerage System of Residential Buildings of Hong Kong to Prevent Future Recurrence of Outbreak of Infection Diseases including Atypical Pneumonia

Action to be taken immediately

The Authority should issue guidelines to be implemented immediately, and of course with the full co-operation of the developers and builders, the following practices: -

- a. Stop traps (mostly from bath tubs) protruding to the ceiling of the floor below. Allow the trap of the bathtub to be placed NOT immediately underneath, but at a distance of not more than 700mm away. The trap can be hanged on the outside wall subject to provision of adequate means of maintenance access i.e. on the other side of the bathtub. This will eliminate people taking away the trap at the time of renovation. These guidelines can be applied to new buildings and buildings under renovation.
- b. Discourage the connection of too many fitments into one stack. Sometimes we have experienced the connection of the things from two bathrooms and one kitchen into one single stack of only 150mm; this is not good practice.
- c. Encourage the zoning of connections for tall buildings. For example, for a 40-storey building, it can be divided into two or more zones, one for the lower 15 floors and the other for the rest.
- d. Encourage the use of larger pipe sizes in some areas such as easy vent at bottom.
- e. Direct contractors to follow strictly the specifications of the designer and/ or (e.g.) British Standards regarding such provisions as the size of pipes, the fall of the pipes, the position of the connections and the use of the proper traps. This seems absurd, but in reality it is difficult to ensure the contractors, or their sub-contractors to observe and the designer to inspect so strictly.
- f. The use of master traps for waste pipes at the discharge point at vertical stacks should be considered.

One-pipe and Two-pipe Systems

The main principle of drainage system design is self-cleansing and a close system to prevent leakage of contents including smell. Therefore, design with automatic resealing device is preferred. Two-pipe system is naturally more hygienic than single stack system. However, there may be more frequent blockage to the soil pipe in two-pipe system owing to smaller pipe size and less frequent flow to individual pipeline. When this two-pipe system is adopted, the waste pipes should be totally separated from the sewers before the final discharge.

Pipe Ducts and External Piping

There are pro's and con's to drainage system inside or outside a building because people often neglect maintenance if they are outside a building but more serious contamination will occur if they are located inside a building (say inside pipe ducts) as bacteria and virus could spread through leakage and/ or flooding. Of course manhole should not be located inside building from maintenance and hygienic point of view.

Materials

The use of UPVC and other suitable materials for soil and waste pipes is recommended to avoid pinhole and rusting problems of cast iron pipes.

Repair and Maintenance Access

The main concern of repair and maintenance is access. Small pipe ducts provide inadequate access should always be removed or improved. System design with pipes located externally but with internal and easy access is always preferred.

Mandatory Inspection and Maintenance

Regular inspection of the above ground drainage system is recommended. A 7-year cycle of inspection is recommended. Immediate action should be taken to inspect all buildings in Hong Kong. In view of the large number of buildings without the existence of an owners' committee and a proper management, somehow the BD should find the resources to carry out the first inspections for these buildings. Then as a long term solution and as what we have discussed, the **mandatory inspection and maintenance scheme** to be funded by the owners themselves, with the support, if necessary, of the Loan Scheme.

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President
7 May 2003