

Planning and Design of Drainage Works

This practice note sets out the Building Authority's requirements as regards the planning and design of common drains for new buildings.

Introduction

2. In the course of carrying out drainage repair and maintenance, difficulties have often been encountered in obtaining access to both the underground drains and above ground drainage pipes which run under/inside private premises such as shops (in particular restaurants and restaurant kitchens) and domestic flats. Both investigation and repair works, which may necessitate entry into private premises, opening up of floor slabs, and trench excavations, will cause much inconvenience to occupants. In the worst cases, the premises may have to be closed to effect the repair works.

Improvement

3. In order to obviate such access difficulties and to facilitate the future maintenance of common drains, I shall require under section 28(1) of the Buildings Ordinance that the following be complied with: -

- (a) Except drains in car-parking floors, all common underground drains for all new developments shall run in a space or land which is 'sterilized' or otherwise designated as common area of the development;
- (b) Where internal common soil and waste stacks are proposed in residential buildings not intended for single ownership, such stacks shall be located in the common area of the development. Where pipe-ducts or pipe wells are proposed to house common soil and waste stacks, they shall satisfy the following criteria respectively.

(I) Pipe Ducts

- (i) These pipe-ducts shall be accessible from a common area;
- (ii) An unobstructed working space, of not less than 700 mm in front of the pipes, shall be provided for maintenance and repair of the pipeworks.
- (iii) The size of doors or panels providing access to the pipe-ducts shall not be less than 600 mm by 2000 mm.

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(II) Pipe Wells


- (i) The size of pipe well shall not be less than 1200 mm x 1500 mm.
- (ii) No opening will be allowed in a pipe well other than access points for inspection and maintenance, which shall be from common areas. Access points shall be provided to the pipe well at not more than 21 storeys apart.
- (iii) Cat ladder with proper guard rings shall be installed in the full height of the pipe well for inspection and maintenance purposes.
- (iv) Grating platforms shall be provided at intervals of not more than 4 floors.
- (v) The size of opening at every intermediate access point shall not be less than 600 mm wide by 2000 mm high. Such opening shall be protected by a door having a FRP not less than half of the enclosure wall.
- (vi) A ventilation opening having a minimum net area of $1/10^{\text{th}}$ of the horizontal area of the pipe well shall be provided at both the top and bottom of the pipe well.

The area of pipe ducts and pipe wells could be exempted from plot ratio/gross floor area calculations. Open pipe wells may also be exempted from site coverage calculations. A sample illustration of the design of a pipe well is attached at Appendix A for general reference.

- (c) The lowest level of re-entrants and light wells housing external soil and waste stacks shall be designated as common areas and such areas shall be provided with adequate access which could be in the form of cat-ladder where necessary, for carrying out maintenance work and cleansing;
- (d) For residential premises other than single family residence, no pipeworks shall protrude into the private premises of the floor below;
- (e) Except for buildings not more than three storeys high, a separate stack, connected direct to a manhole, shall be provided to serve for the sanitary fitments at the floor, which is at the same level as the bottom of the waste/foul water stack;
- (f) The nominal diameter of every soil pipe from water closet fitments or slop sinks shall be not less than the diameter of the outlet of any of the fitments it serves; and

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- (g) Soil and wastewater pipes shall only have bends when a change in direction is unavoidable. The radius of the bends at the bottom of stacks shall under no circumstances be less than four times the radius of the stack measured from the centerline whenever practicably possible, but under no circumstances be less than 200 mm measured from the centerline.
4. With immediate effect, all newly submitted drainage plans which do not comply with the requirement of paragraph 3(a) may be disapproved under section 16(1)(d) and 28(1) of the Buildings Ordinance. All new drainage plans after 1 September 2004 shall comply with all the requirements set out in paragraphs 3(a) to (g).
5. To provide flexibility in the design of pipeworks to satisfy the requirement set out in paragraph 3(d) above, the Building Authority is prepared to consider an application for modification of Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulation 25(1) to permit the total length of pipeworks from a bathtub or shower tray to a trap up to 750 mm at a minimum gradient of 1:40.
6. Reference shall also be made to PNAP 218 on the facilities for the maintenance of external building drainage pipes. Consideration for separate pipes in zones for high rise buildings shall also be made in the design stage for future maintenance and repair.
7. While the requirement set out in paragraph 3(d) does not apply to non-domestic premises, authorized persons are encouraged to adopt the same arrangement, wherever possible, for drainage pipes in such premises.



(Marco M H WU)
Building Authority

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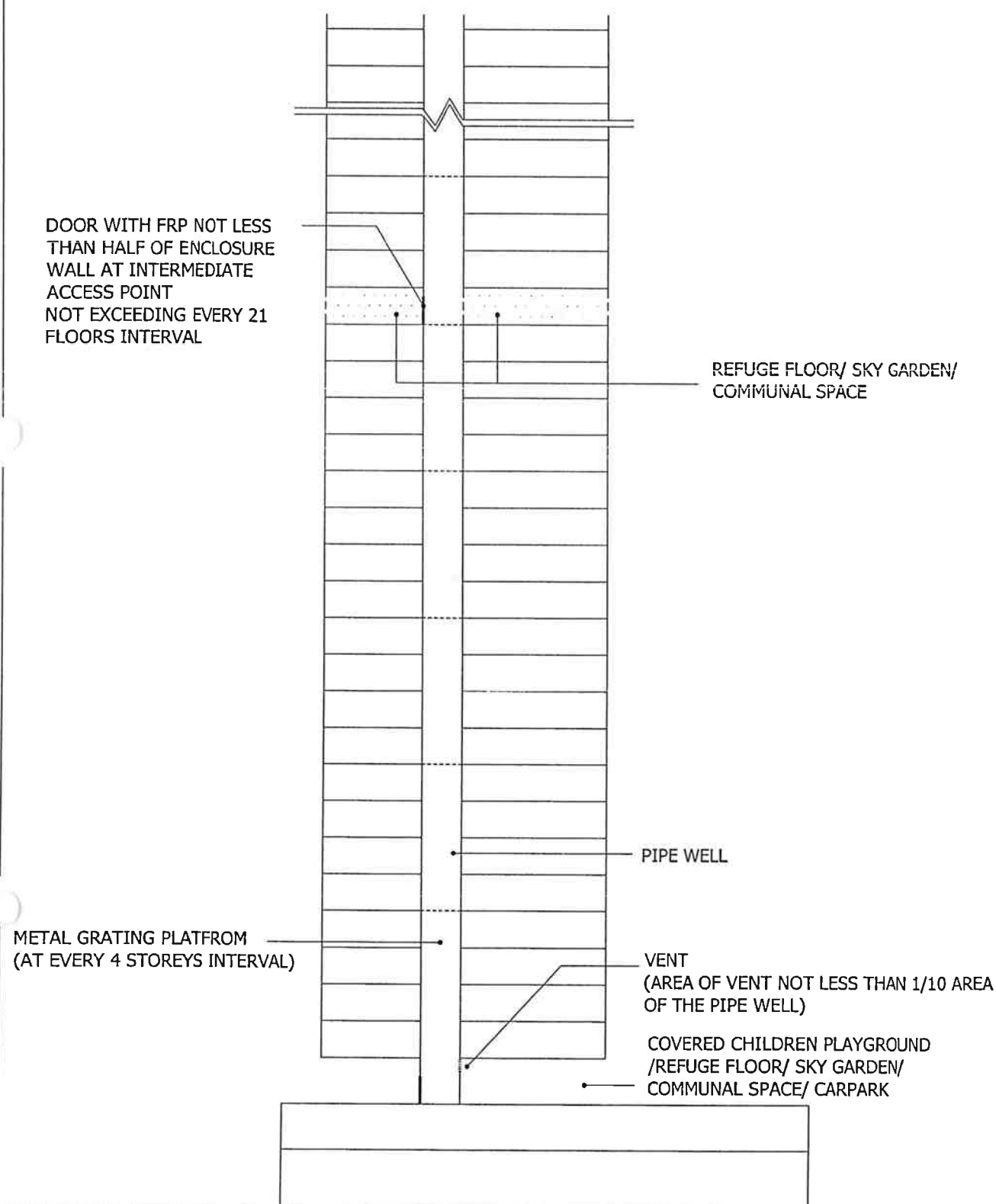
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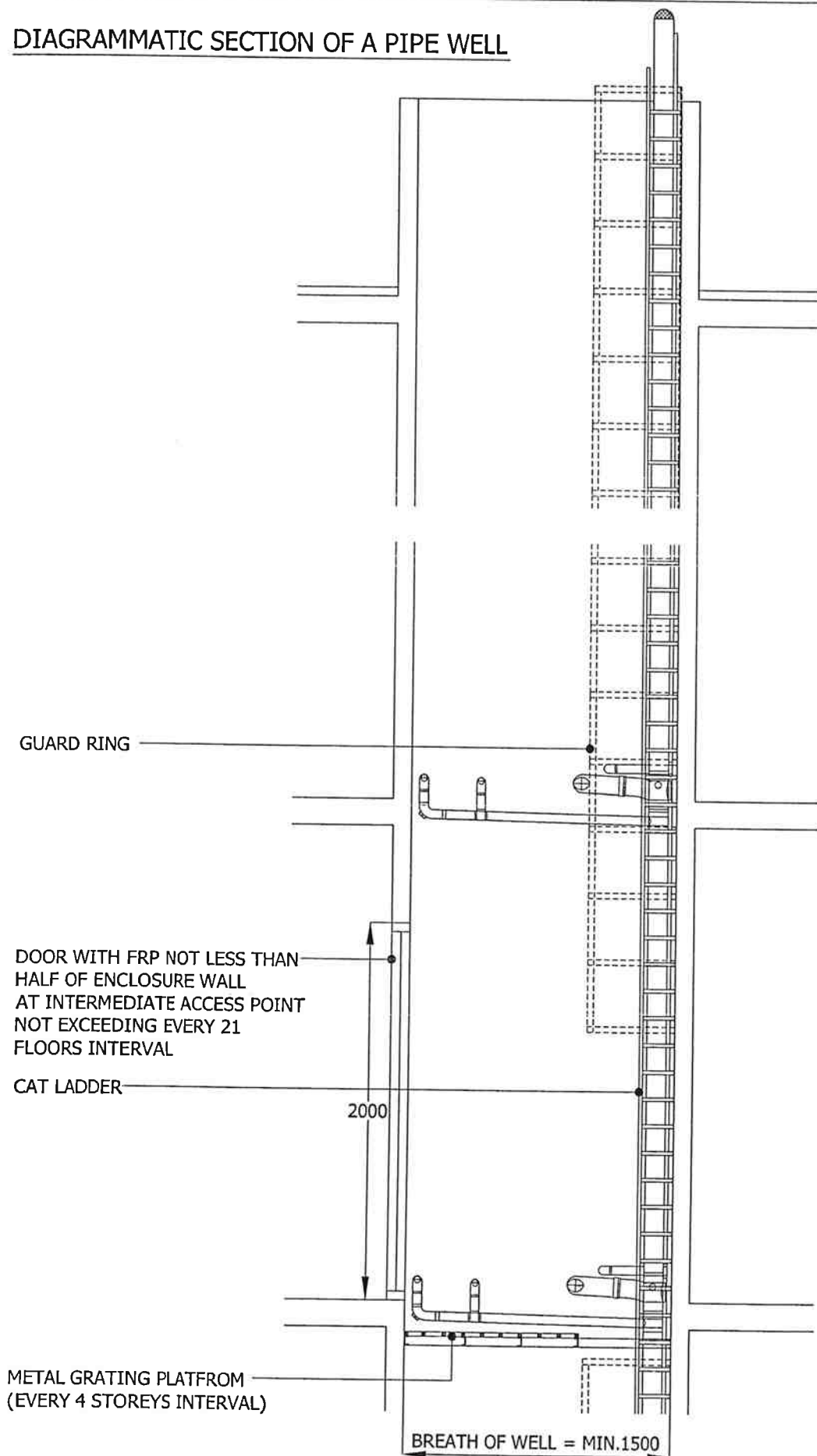
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DIAGRAMMATIC SECTION SHOWING TYPICAL PIPE WELL ARRANGEMENT



VERTICAL SECTION

DIAGRAMMATIC SECTION OF A PIPE WELL



SAMPLE ARRANGEMENT OF A PIPE WELL

DOOR WITH FRP NOT LESS THAN
HALF OF ENCLOSURE WALL
AT INTERMEDIATE ACCESS POINT
NOT EXCEEDING EVERY 21 FLOORS INTERVAL
GUARD RING
OPENING AT GRATING PLATFROM
CAT LADDER
METAL GRATING PLATFROM
(AT EVERY 4 STOREYS INTERVAL)

