Planning and Design of Drainage Works

This practice note sets out the requirements for the planning and design of drainage works 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 units under separate occupancies. 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 buildings shall run in a space or land which is 'sterilized' or otherwise designated as common parts of the building;

(b) Where internal common soil and waste stacks are proposed in domestic buildings not intended for single occupancy, such stacks shall be located in the common parts of the building. 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 the common parts of the building;

(ii) .....

(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 doors or panels providing access to the pipe-ducts shall not be less than 600 mm wide by 2000 mm high and shall comply with Part C of the Code of Practice for Fire Safety in Buildings 2011;

(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 the common parts of the building. 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 storeys;

(v) The opening at every access point shall not be less than 600 mm wide by 2000 mm high and shall comply with Part C of the Code of Practice for Fire Safety in Buildings 2011;

(vi) A ventilation opening having a minimum net area of $1/10^{th}$ of the horizontal area of the pipe well shall be provided at both the top and bottom of the pipe well;

Subject to paragraph 4 below, the area of pipe ducts and pipe wells could be exempted from the gross floor area (GFA) 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 parts of the building and such parts 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) .....

(d) For domestic buildings other than that intended for single occupancy or single family residence, no pipeworks for a unit shall protrude into the unit under separate occupancy on 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 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

(g) Soil and wastewater pipes shall only have bends where 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. If the pipe ducts and/or pipe wells are proposed to house pipes for rainwater, soil and wastewater disposal, as well as other pipeworks which are part of the distribution network for non-mandatory feature / non-essential plant room[1], the exemption described in paragraph 3(b) above may only be granted subject to compliance with the pre-requisites and the overall cap on GFA concessions stipulated in PNAP APP-151 on Building Design to Foster a Quality and Sustainable Built Environment.

5. To provide flexibility in the design of pipeworks to satisfy the requirement set out in paragraph 3(d) above, the Building Authority (BA) 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. If sunken slab design is adopted for accommodating pipeworks (including both vertical and horizontal pipes) associated with bathroom/lavatory/kitchen in domestic units, the void space between the floor finish and the sunken slab shall not be backfilled with concrete or similar materials which may cause obstruction to future repair and maintenance of the pipeworks. On occasions where backfilling of such void space is unavoidable, sufficient access points (such as by means of access panels of appropriate size and/or cleaning eyes extended to the finished floor level from such pipeworks) should be provided to facilitate inspection of every part of such pipeworks and clearance of any blockage thereof. To cater for inspection of such pipeworks in the void

/space .....

[1] See PNAP APP-151 on examples of non-mandatory feature / non-essential plant room.

space in future, arrangement can be made for such inspection to be carried out with the assistance of appropriate device (such as portable type camera or CCTV imaging device) through the access points. Authorized Persons (APs) are also advised to draw the attention of building owners that the floor finish of the sunken slab design may need to be opened up and subsequently reinstated for the carrying out of pipe repair and maintenance works (such as pipe replacement or repairing of leaking joints) as necessary in future.

6. Reference shall also be made to PNAP ADV-14 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, APs are encouraged to adopt the same arrangement, wherever possible, for drainage pipes in such premises.

Application of Previous Versions of This Practice Note

8. The "May 2004" and "January 2011" versions of this practice note as appropriate are applicable to building plans submitted/approved under the scenarios as stated in paragraphs 8 & 9 of the "January 2011" version of the practice note.

(AU Choi-kai)
Building Authority

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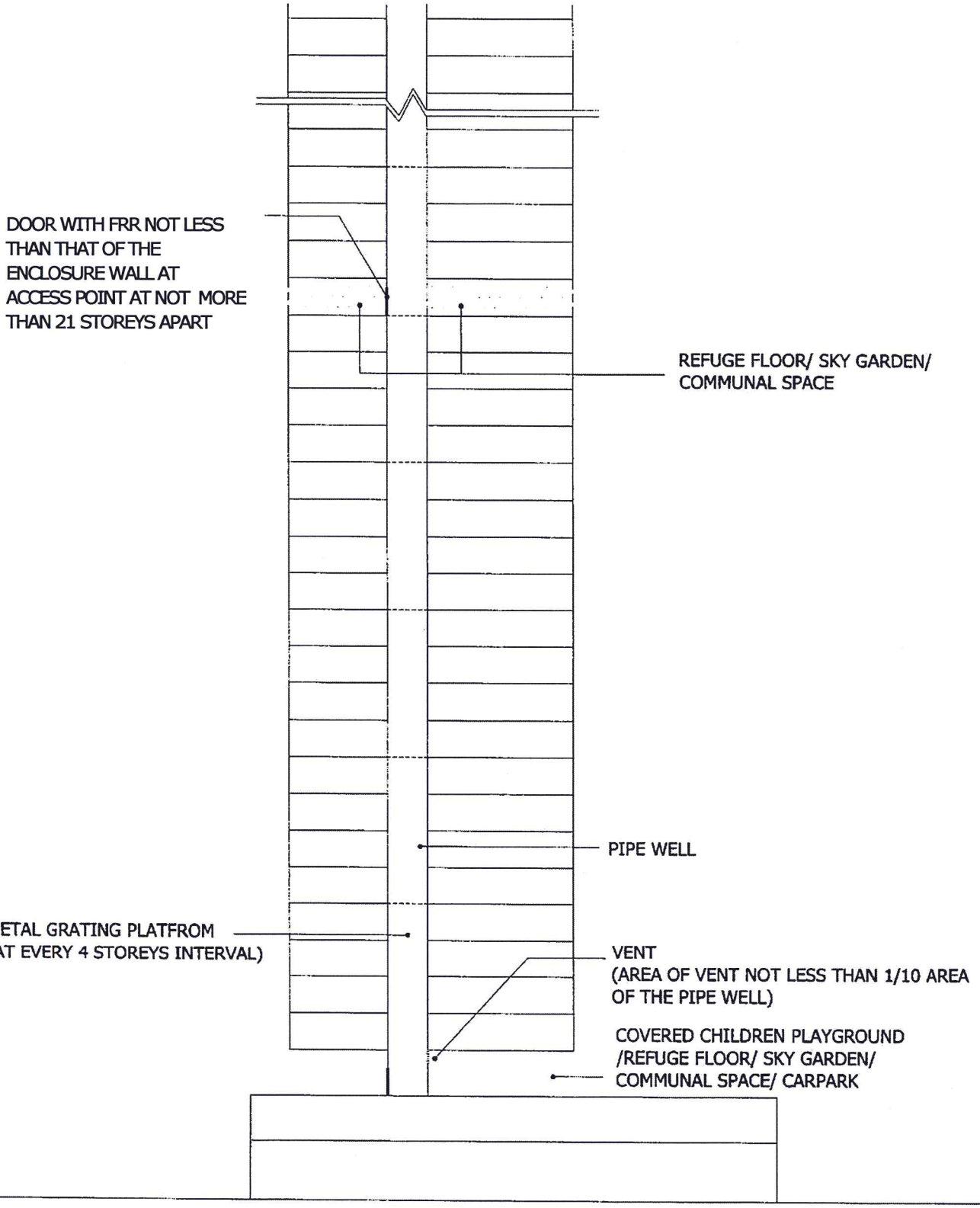
Appendix A

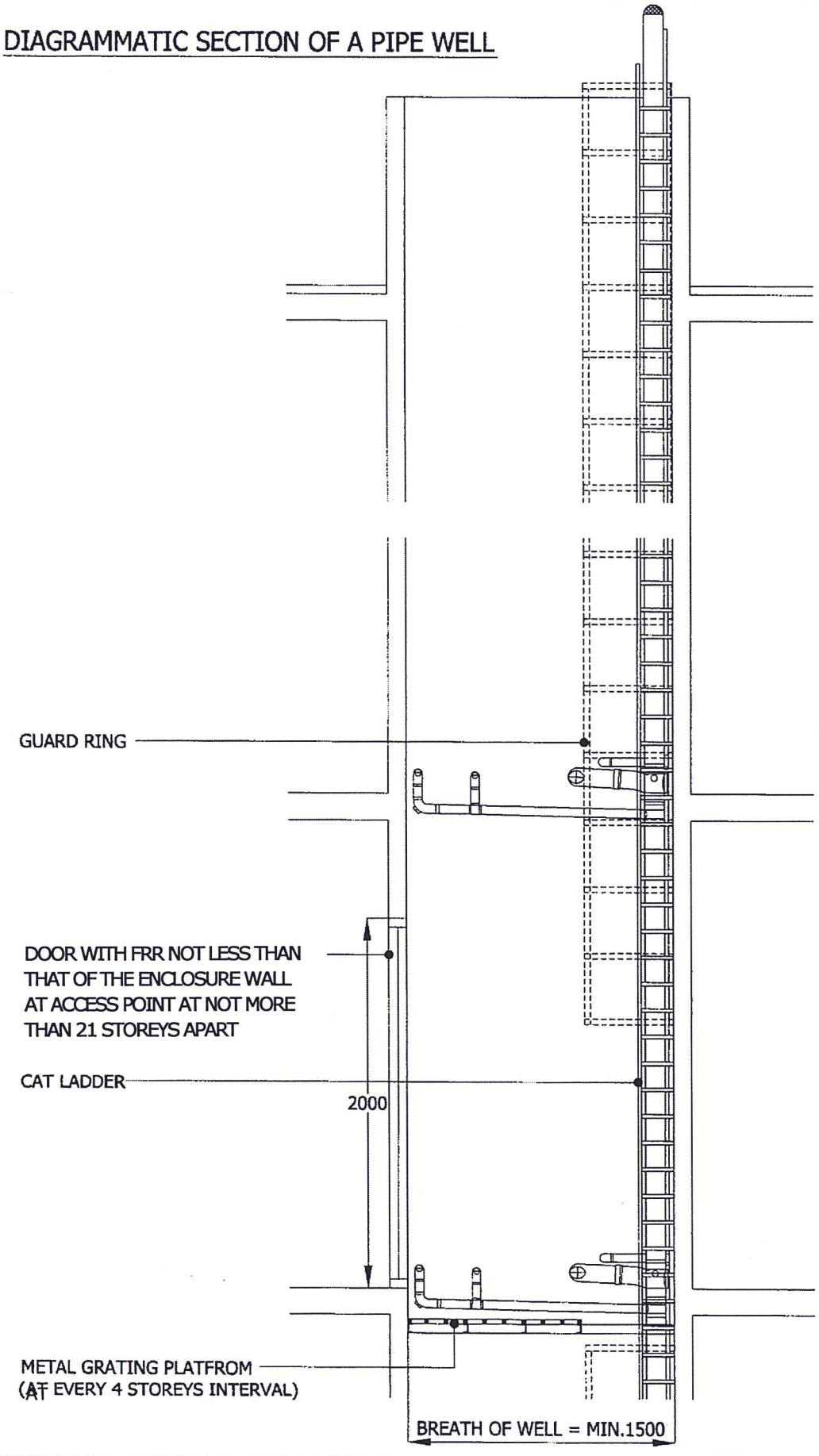
(PNAP APP-93)

DIAGRAMMATIC SECTION SHOWING TYPICAL PIPE WELL ARRANGEMENT



VERTICAL SECTION

DIAGRAMMATIC SECTION OF A PIPE WELL



SAMPLE ARRANGEMENT OF A PIPE WELL