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8 May 2009

Chairman, External Affairs & PR Committee  
Chartered Institute of Housing Asia Pacific Branch  
Unit 2709-11, Shui On Centre,  
No.6-8 Harbour Road,  
Wanchai, Hong Kong.  
(Attn: Mr LUK Wai Lun, Stanley)

Dear Mr/Ms

## **Enhanced Cleansing of Air-Conditioning Systems On Outbreak of Human Swine Influenza**

With the swine flu looming as an immediate concern around the globe, we must stay vigilant and put in our outmost efforts. As such, I would like to appeal for your support in taking measures against swine flu in premises and other facilities, in particular, the air-conditioning systems under your management and your trade members.

You may know that the proper maintenance of good air indoor quality is a key way to maintain a healthy and pleasant indoor environment. There are many factors affecting the indoor air quality. Most indoor environmental problems can be prevented and corrected easily by the proper management, maintenance and operation of mechanical ventilation and air conditioning (MVAC) systems. There are things that can be done easily to achieve good indoor air quality. Here are a few tips, which can be carried out by those who are responsible for the management, operation and maintenance, such as :

- (a) Ensure the implementation of the scheduled cleaning and maintenance programme for the MVAC system;
- (b) Make sure fresh air intakes are adequate by not blocking their inlets and positioning them away from places where the air is likely to be polluted;
- (c) Establish clear procedures for responding to indoor air-related complaints, etc.

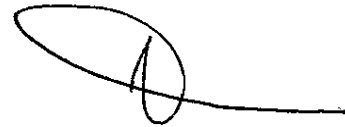
I believe that your trade members should have such MVAC system maintenance and cleansing procedures readily in hand. With the activation of the Emergency Response Level under the Government's Preparedness Plan for Influenza Pandemic, you may consider to encourage them to arrange one extra round of cleansing, including the ventilation ducts, on top of any scheduled maintenance work. While there may have some cost implications, it would benefit all by maintaining good air indoor quality in this turbulent times. I have extracted the part on operation and maintenance of MVAC system in the "Guidance Notes for the Management of Indoor Air Quality in Offices and Public Places" and enclosed herewith for your reference. You may also make reference to the booklet of "Improve the Indoor Air Quality in Your Building" that provides some useful tips for enhancing the indoor environment of the premises. This information can also be found in the website: [www.epd.gov.hk](http://www.epd.gov.hk)

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Enhanced cleansing effort in every aspect contributes to a healthy and comfortable indoor environment. I hereby earnestly request you and your trade members to join us and step up cleansing of the MVAC system in all premises and facilities. Please help to disseminate our appeal to your trade members, as well as your staff and business associates.

For any enquiry, please feel free to contact me at 2808 3818 or Mr. E.C. VY, Senior Engineer of Energy Efficiency Office of the Electrical and Mechanical Services Department, at 2808 3220.

Yours sincerely,

A handwritten signature in black ink, consisting of a large, stylized loop followed by a horizontal line extending to the right.

(Alfred W. H. SIT)  
for Director of Electrical and Mechanical Services

Encl.

**Guidance Notes  
for  
the Management of Indoor Air Quality in  
Offices and Public Places**

**The Government of the  
Hong Kong Special Administrative Region  
Indoor Air Quality Management Group**

**September 2003**

#### **4.4.2 Operation and Maintenance of MVAC System**

In order to ensure proper operation and maintenance of the MVAC systems, it is important that the tasks are carried out by properly trained personnel.

##### **4.4.2.1 Operation**

MVAC systems of specific area should be switched on whenever and as long as it is occupied<sup>12</sup>. It is also a good practice to switch the system on before the occupants return to an area, to minimise the effects of accumulated pollutants over unoccupied periods. For buildings or areas which are particularly vulnerable to condensation and fungal growth, e.g. libraries and computer rooms, the dehumidification system may need to remain in operation during extended unoccupied periods.

Occupants themselves can have an important influence on the effectiveness of the MVAC system and should be shown how to operate thermostat and ventilation controls responsibly. Operators should ensure the outside air controls and dampers to be functioning properly and that an appropriate minimum damper opening should be set, commonly at 15%.

##### **4.4.2.2 Maintenance**

A comprehensive maintenance regime is vital to ensure that the MVAC system performs as well as it is designed to. This will involve cleaning and inspecting the various components, verifying pressure relationships, adjusting and replacing equipment as necessary. Staff involved in operation and maintenance should be trained to understand, operate and maintain the system correctly according to the designer/manufacture's instructions. An Operation and Maintenance Manual should be prepared by the installation contractor, who should be a Registered Specialist Contractor (Ventilation) under the Buildings Ordinance. The maintenance service personnel should follow the maintenance manual, manufacturers' recommendation and to make appropriate adjustment in maintenance requirements and intervals for various components, so as to suit operational needs, site conditions, maintenance standard and IAQ requirement. As a general guide:

Monthly services should be carried out on:

- fresh air intakes
- air filters
- cooling coils

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<sup>12</sup> This does not apply to occupation by cleaning personnel only or temporary occupation by patrolling security guards.

- all trays and sumps
- condensate drains and water traps
- water cooling towers
- water treatment system of the cooling towers

Three monthly services should be carried out on:

- fresh air dampers

Annual services should be carried out on:

- accessible parts of the ductwork
- fans
- fan coil units and terminal units
- supply and return air plenum systems

#### *4.4.2.3 Checklist and documentation*

Compiling a maintenance checklist can reduce the risk of items being overlooked and save time in the long run. The checklist should identify each routine maintenance activity, the frequency at which it should be performed (based on manufacturers' recommendations wherever possible), and where to find the instructions for carrying out each task. In addition, the frequency of routine maintenance should depend on the extent of equipment usage and the environment of the buildings.

The results of regular inspections, the name of the person making the inspection and the person's company, the date of the inspection and similar details of any cleaning/maintenance carried out should be recorded, and records kept for future reference. Details of any modifications such as re-balancing or re-commissioning of the system, changes to operating procedures, changes in use of space, renovation or retrofits affecting system operations, should be attached to MVAC system design documents. These documents should be kept in an accessible location for the lifetime of the MVAC system.

#### *4.4.2.4 Duct cleaning*

Duct cleaning is a delicate process which sometimes involves the use of powerful chemicals to loosen particles. Air duct cleaning can be minimised through the use of high efficiency filters, regular maintenance of filters and other components of the MVAC system, checking air flow rates and good housekeeping. Should duct work cleaning be deemed necessary, e.g. in the case if ductwork is water

damaged or shows signs of biological growth, if debris in ductwork is restricting airflow or dust coming out of supply diffusers, the following principles should be observed:

- cleaning should be scheduled outside occupied hours and carried out by experienced workers
- the air handling unit should be switched off at all times
- negative air pressure should be maintained in the duct area, e.g. with vacuum equipment to prevent particles dispersing into the indoor air
- vacuum equipment should have an outdoor collection unit, or be fitted with an HEPA (high-efficiency particulate air) filter to prevent leakage of fine particulate matter into indoor air
- duct cleaning with high (6,000 cfm or more) volume airflow should be supplemented by gentle brushing to remove loosened particles
- access holes should be carefully sealed on completion and their position noted on mechanical installation plans
- water-damaged or contaminated porous materials should be removed and replaced to prevent microbial growth
- the causes of contamination should be removed to prevent the problem recurring.

An industry standard has been developed by the US National Air Duct Cleaners Association (NADCA) using a vacuum test to measure the results of duct cleaning. The standard specifies the maximum surface debris loading of 1 mg/100 cm<sup>2</sup> on nonporous system components after completion of a duct cleaning job<sup>13</sup>.

#### 4.5 Renovation Works

Major renovation works should be undertaken outside normal working hours if practicable to reduce the impact on the occupants. If this is not possible, the renovated area should be effectively isolated (e.g. by temporary partitions or plastic sheeting) and under negative pressure so that cross contamination of the occupied areas by dust and other nuisance/toxic substances is minimised. If necessary, supply air to the renovated and occupied zones should be separated. Use of toxic substances such as solvent based paint should be scheduled outside normal working hours. The air return registers for the works area should be blocked to minimise the spread of dust and other contaminants to adjacent areas. Temporary exhaust ventilation may need to be installed in the works areas to control dust and reduce the level of contaminants. Air filters of the MVAC system where renovation works take place should be inspected and changed more frequently than usual to allow for the higher dust load.

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<sup>13</sup> National Air Duct Cleaners Association (NADCA), (1992), "Mechanical Cleaning of Non-Porous Air Conveyance System Components (Standard 1992-01)" Washington, D.C.