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30 October 2014

To: Recipients of FSD Circular Letters
and Members of the VILG

Dear Sirs/Madams,

FSD Circular Letter No. 1/2014

Use of Pre-insulated Panels for the Construction of Air Ducts in Mechanical Ventilating Systems

The Building (Ventilating Systems) Regulations, Cap 123J, Laws of Hong Kong, require that every air duct shall be wholly constructed of non-combustible material with a strength and durability not less than that of galvanized sheet-iron or steel.

With the advent in technology, there are pre-insulated panels specifically designed for the construction of air ducts in mechanical ventilating / air-conditioning systems. Having regard to the performance under fire condition and strength of the available pre-insulated panels in the market, the Ventilation Installation Liaison Group proposed that pre-insulated panels satisfying the fire safety requirements stipulated in the Appendix to this Letter can be used as an alternative material for air duct construction in mechanical ventilating systems under the Building (Ventilating Systems) Regulations, Cap 123J. This new arrangement will take immediate effect for an initial trial period of two years, after which a review will be conducted to assess the suitability for long term adoption.

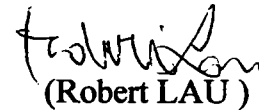
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To allow practitioners in the mechanical ventilation industry to acquaint themselves with the techniques and build up practical experience in using such panels for the construction of air duct systems, its application is initially limited to within a single fire compartment and restrictions on use as depicted in the Appendix shall be observed.

For the avoidance of doubt, galvanized sheet-iron or steel remains an acceptable material for the construction of air ducts. This Circular Letter is not applicable to any ventilating system in scheduled premises under the Ventilation of Scheduled Premises Regulation, Cap 132CE.

Yours faithfully,



(Robert LAU)
for Director of Fire Services

Encl.

**Pre-insulated Panels Used for the Construction of Air Ducts
in Mechanical Ventilating Systems under the
the Building (Ventilating Systems) Regulations, Cap 123J**

1. **General**

- 1.1 The pre-insulated panels, which shall be specifically designed for the fabrication of air ducts, shall be manufactured by reputable manufacturers with not less than three years of experience in the production of such materials. The manufacturer shall also be able to supply a complete range of tools and accessories including duct jointing system, stiffening rod system, duct supports and consumables etc., which are necessary for the construction of air ducts that can perform adequately in the conveyance of air.
- 1.2 Construction of air ducts shall follow the methods and procedures recommended by respective panel manufacturers using the appropriate tools, accessories and consumables.

2. **Performance Standard**

- 2.1 The pre-insulated panels shall comprise a rigid insulation foam (polyurethane, polyisocyanurate or phenolic) board with aluminium/stainless steel foils permanently bonded on both sides. The panel shall comply with the following standards or other international standards acceptable to the Fire Services Department:
 - (a) BS 476: Part 6 (Fire Propagation Test) with indices of performance $I \leq 12$ and $i_1 \leq 6$
and
 - (b) BS 476: Part 7 (Surface Spread of Flame Test), Class 1
- 2.2 The minimum stiffness in terms of flexural rigidity of these pre-insulated panels shall be Class R3 when tested to BS EN 13403.

3. **Application**

The use of pre-insulated panels for the construction of air ducts shall conform to the following conditions:

- 3.1 If the floor area of the fire compartment is greater than 230 m², the use of pre-insulated panels for air ducts shall not be permitted without sprinkler protection.

- 3.2 The use of pre-insulated panels for air ducts shall not be permitted in protected areas, fireman's lift lobby, plant rooms, dangerous goods stores and rooms with high temperature activities, e.g. boiler room.
- 3.3 Such air ducts shall not be used for the conveyance of toxic or corrosive gases or grease/air mixtures e.g. fume cupboard and exhaust hood for cooking activities.
- 3.4 The air duct shall not have a cross sectional area greater than 0.35 m². The whole air duct, including its supports, and the fan or fan coil unit to which the duct is connected shall be located within the same fire compartment, i.e. the duct shall not pass through any fire resisting walls, floors, ceilings and partitions.
- 3.5 In air-conditioning installation, the use of pre-insulated panels shall be limited to the fabrication of final air distribution ducts (i.e. ducts with air diffusers/grilles directly attached) connected directly to fan coil units having a maximum air volume flow rate of 1,000 litres/second and installed within a single fire compartment. However, to facilitate inspection and maintenance, duct offering direct access to the blower of fan coil unit can have a cross sectional area of not greater than 0.7 m², provided that no part of the duct can be used as a support for the inspection / maintenance personnel.
- 3.6 In any case, the aspect ratio of air ducts shall be such that the entrance of a person is not possible except for the circumstance stated in clause 3.5 above.