

## Daisy Positive Pressurisation Ventilation

### Technical Data Sheet



The Daisy Positive Pressurisation Venting (PPV) Unit has been designed to provide an alternative mechanical approach to the natural 0.4m<sup>2</sup> permanent ventilation within basement lobbies.

Section 3.75 of Approved Document B V1 2019 (ADB) and previous ADB's identifies that where lobby ventilation is required for B1 means of escape, to protect the stair this can be achieved by natural ventilation or mechanical smoke control. Section 7.6 of the Smoke Control Association (SCA) Guidance document on Residential Buildings – 2020 provides guidance on how to meet the mechanical smoke control requirements using pressure differential which the PPV follows. The PPV unit injects air into the protected lobby to raise to a higher pressure to prevent the ingress of smoke from the car park or places of fire hazard such as refuse or bike stores when the doors remain closed.

The PPV unit incorporates duty and standby fans, duty and standby fire dampers, fire detector interface, single phase automatic electrical change over switch, controls, status LED and a volt free contact for 3<sup>rd</sup> party monitoring. All the above is located within the decorative PPV enclosure box.

The system is operated by a 3rd party fire detector located in the car park or place of special fire hazard side of the lobby door. The system continues to run until the fire detector is reset.

#### Advantages

- PPV unit prevents smoke entering the stairs when door is closed.
- PPV unit occupies minimum space.
- The 0.4m<sup>2</sup> expensive fire rated duct can be omitted.
- Low car park heights or stepping services around the duct are not a concern.
- The car park smoke clearance system does not need to be enhanced and can remain at 10 air changes per hour.
- Can be used with natural ventilated car parks.
- No expensive fire shutters required on car ramp or control of inlet air paths for enhanced system.
- Can also be used with ventilated bin/cycle store lobby protection.
- Cost effective solution to meet the ADB & SCA Guidance.

PPV Feb23



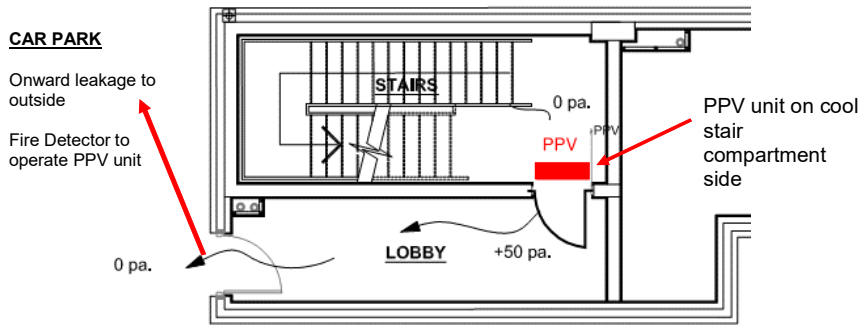
#### Features

- Fire dampers tested & certified to BS EN1366-2
- ISO 5801:2008 single phase duty and standby fan.
- Operated from 3rd party IO volt free contacts (NC) .
- Single phase power supply 230v, 0.5 kw.
- The constant fan speed to develop 50pa is set up during commissioning by turning a voltage regulator switch.
- No specialist knowledge or systems required to set up.
- Fan is capable of developing 0.5m<sup>3</sup>/s at a static pressure of 50 pa.
- Casing finish to white RAL 9003.
- Health/Fault LED.
- Fault mode relay.
- Allows lobby to be pressurised with British Standard fitted fire doors in an air tight lobby.
- Onward leakage required from risk space.
- Unit should be selected in accordance with guidance note DMS-DN01A design criteria.



### PPV Concept

The PPV concept involves pressurising the basement lobby to a higher pressure to the car park or places of special fire hazard. The inlet air needs to come from the sterile stair side of the pressurised lobby with the air leakage into the car park or special fire hazard. This is achieved by locating a PPV unit on the stair wall side which would inject the air into the lobby raising the space to a higher pressure with onward leakage of air into the ventilated car park or ventilated place of special fire hazard. Leakage is required from the risk space such as the car park or stores to the external to ensure the pressure difference is maintained. In order to ensure the pressurised air is kept in the protected lobby, it is always recommended the doors open into the protected pressurised lobby ensuring they remain closed when the PPV unit is running as shown below.



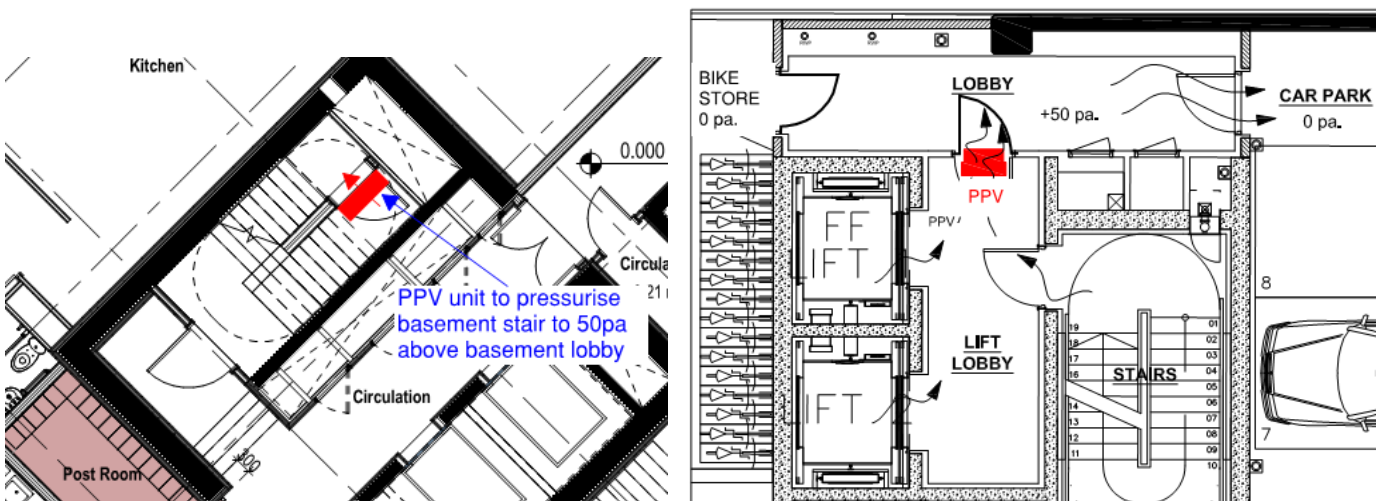
The PPV unit is capable of delivering 0.5m<sup>3</sup>/s at an operating pressure of 50pa. This will provide a pressure difference of 50 pa across a total leakage area of 0.08m<sup>2</sup> assuming an air tight fire compartment with doors closed.

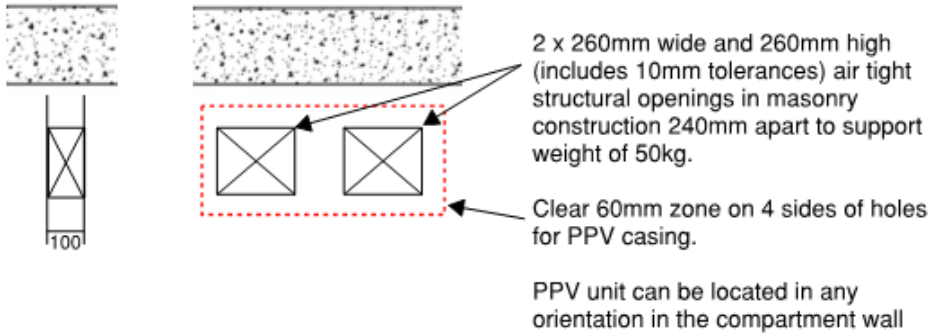
It is critical the protected lobby is an air tight compartment as the pressure difference will not be achieved from a leaky enclosure as the fan is developing a volume to overcome the British Standard fitted fire door leakage only. The Table shows the typical leakage areas for British Standard tested and fitted fire and lift doors and is an extract from BS EN 12101: Part 6 (Table A.3).

Element	Leakage area (m <sup>2</sup> )	Volume to achieve 50pa (m <sup>3</sup> /s)
PPV unit capability	0.08	0.500
Single leaf door in rebated frame opening into a pressurised space (2m high, 0.8m wide)	0.01	0.060
Single leaf door in rebated frame opening outwards from a pressurised space (2m high, 0.8m wide)	0.02	0.120
Double leaf door (2m high, 1.6m wide)	0.03	0.180
Lift landing doors (2m high, 1.6m wide)	0.06	0.350

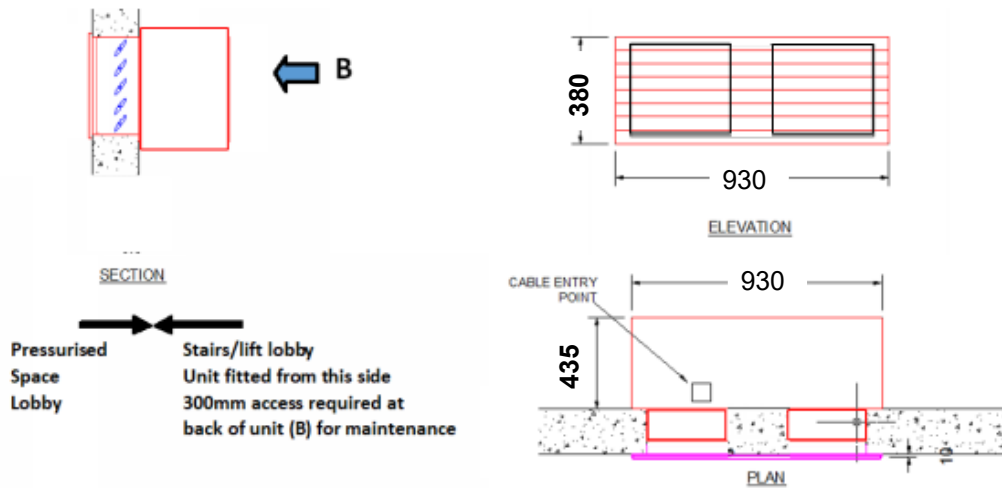
### Door Leakage Rates

We recommend the fire doors open into the pressurised lobby space preventing the door being pushed out as the pressure builds up. We also recommend lifts are not included in the pressurised lobby as their leakage is close to the operating capability of the PPV unit.

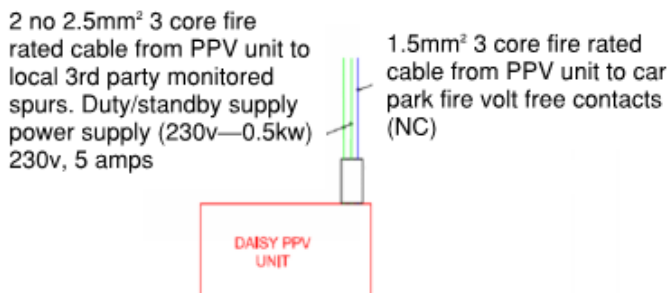




### PPV Builders Works



### PPV Casing Size



### PPV Electrical Interface

### Stock Codes

DMS/PPV/2022B - Injecting air into pressurised space (unit located outside pressurised space)