

Constant Pressure Systems

Commissioning Guide

Constant pressure systems are ideally suited to multiple room extracts (for example hotels or apartment blocks) where the occupancy level of these rooms during the day may vary, potentially wasting energy through unnecessary heat loss from the building.

Using sensor-driven room occupancy terminals along with constant pressure fans, the system will automatically adjust the extract fan's speed to maintain the designed pressure in the system; so as the rooms become vacant, the constant pressure system is regulated to ensure that the system is running as efficiently as possible.

The information given here is intended as guidance only and does not in anyway relieve the relevant Engineer of their responsibilities. Electrical work should be carried out in accordance with the current edition of the I.E.E.Regulations and only competent Electricians should be allowed to affect any electrical work to our units. System commissioning should be carried out in accordance with normal good practice (HVAC, CIBSE etc.) recommendations.

Constant Pressure System Design Guide

Design the extract system using normal good practice duct velocities (5m/s for main riser, 3m/s for branch) including a balancing damper at each branch/riser junction.

Calculate the system pressure loss and add the appropriate extract terminal resistance to match with your selected room extract flow rate see VES Ref: ID628

Select your constant pressure fan to suit your overall system static pressure and flow rate assuming a maximum system duty (all vents open).

Constant Pressure System Commissioning Guide

- Activate all the room terminals so that they are in the open position. Note: it may be necessary to use the flap activation test as per VES Ref: ID628 in order to maintain the open position on multiple terminals.
- Check the duct system reliability and proportionally balance the system against the designed system flow rate specifications using normal commissioning techniques.
- If appropriate adjust the occupancy rate via the face mounted slider switch.
- Adjust the fan pressure setting to match the 'set target pressure' using the appropriate control for the fan (dip-switch, potentiometer etc.). For full details refer to the appropriate unit O&M.
- Carry out a random sample flow rate check at the room terminals.
- Adjust the flow rate as appropriate, at either the terminal, branch damper or fan.
- Deactivate all dampers and check that the measured static pressure is maintained at the target level. Note: again it may be necessary to use the flap activation test as per VES Ref: ID628.
- Reactivate all dampers as required and upon completion ensure the room terminals are operational by triggering the terminal PIRs.

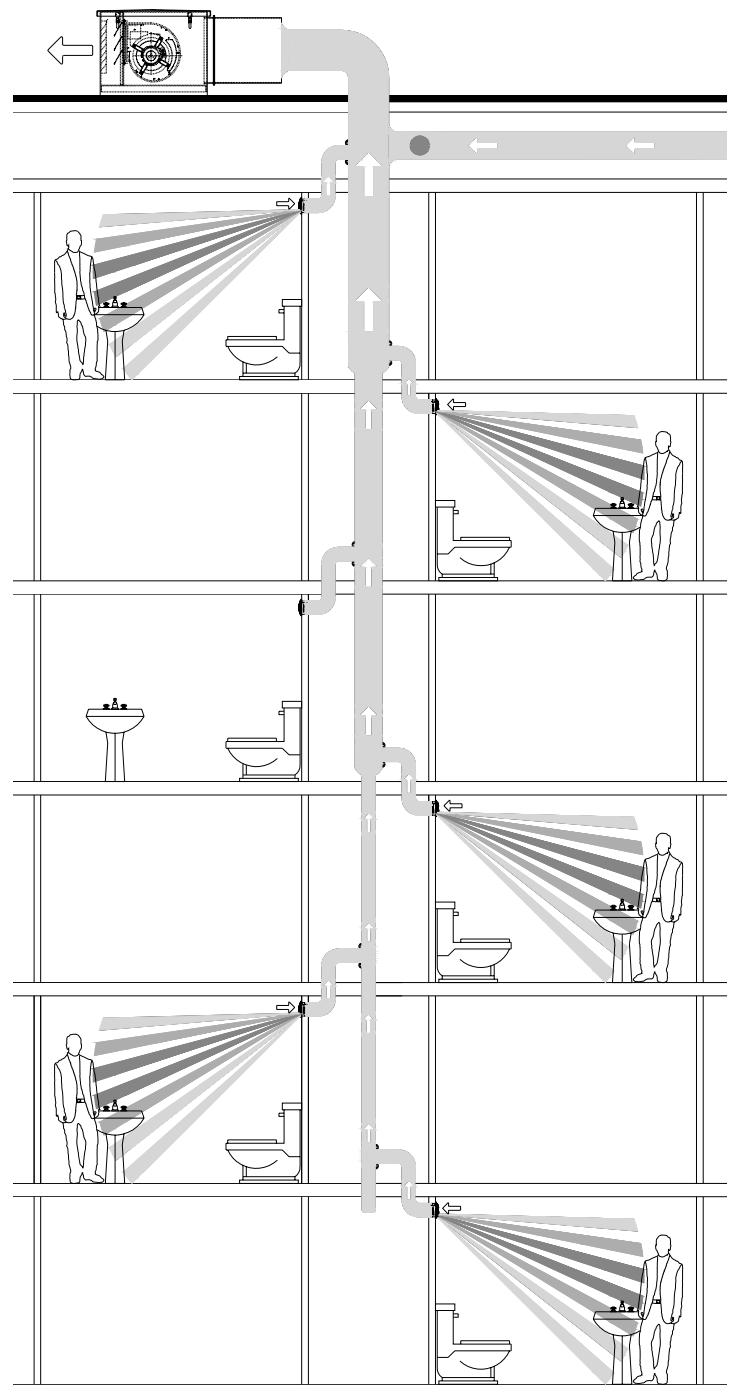


Fig.1 Typical layout

For further information contact VES Technical Department, quoting the sales order (SO) number and unit type as found on the unit nameplate.

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