

Breathing Buildings e-stack R-Series

Designed specifically for rooms occupied by 10 to 35 people, the Breathing Buildings R-Series is ideal for top floor classrooms and offices, and for rooms one floor below the top floor of a multi-storey building.

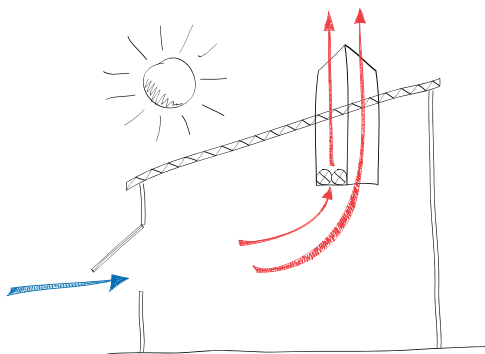


The R-Series units are perfectly suited to school and office areas with their high occupancies and heat gains.

The units are sized to conform with the BB101 criteria for typical classrooms, and meet not only summertime overheating requirements, but also the minimum daily average ventilation requirements to limit room CO₂ levels. The units can also ventilate to meet CIBSE Guide A criteria.

Summer

When the external temperature is sufficiently warm the Breathing Buildings R-Series unit operates with being introduced at low level directly on to the occupants without the need for pre-heating. Windows and/or vents can be opened, along with any additional high level windows as well as the R-Series unit itself, to maximise airflow and the system's cooling effects.



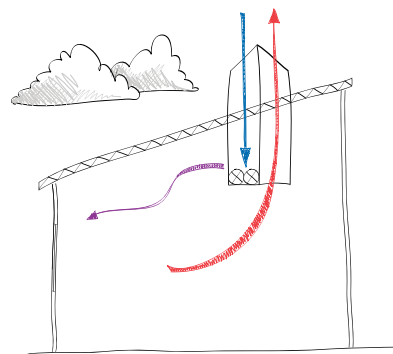
This natural ventilation system means that even on hot days without a breath of wind, the rooms will be ventilated. The technology does not need wind to drive the airflow as this is generated by the natural upwards displacement of the hot air, and low-energy fan assistance only when required.

Winter

In winter fresh air is brought down one side of the divided shaft immediately above the Breathing Buildings R-Series unit. Within the unit this cold air is mixed with hot interior air ("free" heating generated within the room by body heat, lighting, and other sources such as computer equipment), and then released into the room.

At the same time the hot, polluted air from the room is vented to the exterior via the other side of the divided shaft.

This patented solution reduces energy consumption and utility bills. This natural mixing approach is far more efficient than conventional systems, which might use a radiator or some other element to heat incoming cold air at low level.



The heat gains within heavily occupied spaces, typically classrooms, are such that additional heating is not needed until the external temperature falls to somewhere between 5 and 10°C, depending on the building.

Keeping Control

The ventilation system is fully controlled with dedicated temperature and CO₂ sensors in the space. This allows the system to optimise ventilation for maximum comfort and low energy use.

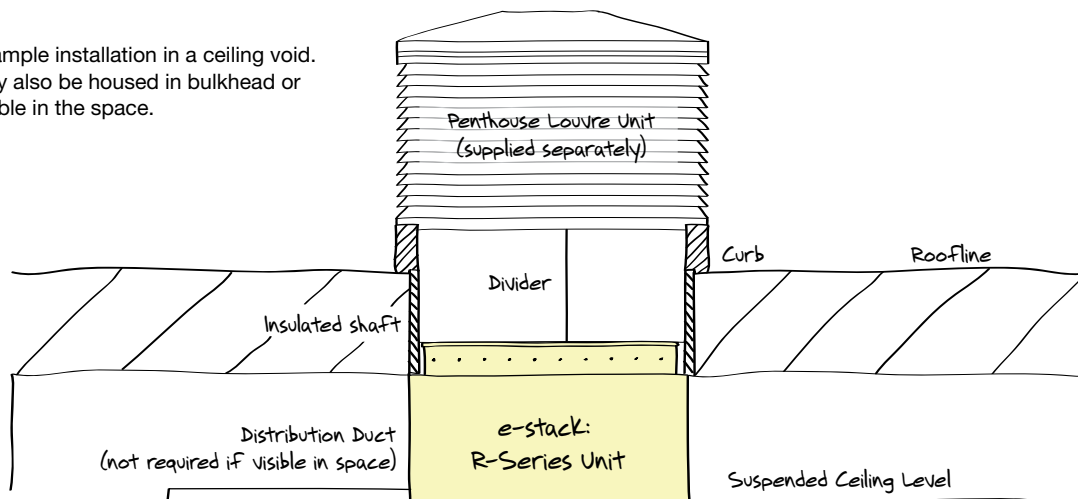
Night Cooling

After periods of warmer temperatures, the Breathing Buildings R-Series unit automatically cools the space overnight without compromising building security. After the designated occupied day, the damper in the unit opens, allowing the space to naturally exchange air with the cooler exterior. The low energy fans in the unit will assist the night cooling if required.

Mechanical and Electrical Specification

Dimensions:	1600mm (L) x 950mm (W) x 500mm (H) (630mm high incl. damper housed in shaft)
Shaft requirements:	Shaft aperture 1550mm x 900mm
Weight:	150kg
Construction:	Galvanised steel or Zintec
Recommended fixing methods:	Via drop rods and cradle arrangement (by others) or brackets Rubberised seal on top flange provides airtightness to shaft
Colour:	Standard galvanised finish or Zintec powder coated to RAL9010 at additional cost (other RAL and BS colours available)
Damper:	Actuated insulating low-leakage volume control damper with fully modulating rotary actuator
Controller:	Internal controller to operate fans and dampers in response to sensed environmental conditions. Additional control signals for automated high / low level openings can be supplied if required
Sensors:	Combined interior temperature / CO ₂ sensor. External temperature sensor
User interface:	Key switch (on / off / test mode). Red / blue "Open/Close Windows" indicator panel (for low level manually opening windows)

Example installation in a ceiling void.
May also be housed in bulkhead or visible in the space.



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