Proposed Retirement Living Accommodation: Buxton Road, Leek

Design Statement - Smoke Shaft to Retained Facade

Regulation Parameters

Building Regulations Part B2 states that flats served by more than one common stair require smoke ventilation from any dead-end corridors, through wall vents or a smoke shaft. There should therefore be some means of ventilating the common corridors/ lobbies to control smoke and so protect the common stairs. This offers additional protection to that provided by the fire doors to stairs. This should be achieved by either natural or mechanical ventilation.

Smoke Control, be it by natural or mechanical ventilation, requires the corridor or lobby adjacent to the stairs to be vented, the vent is required to be as high as possible and with a free area of 1.0m2, to be located on an external wall or discharge into a vertical smoke shaft.

Design Parameters

Option 1

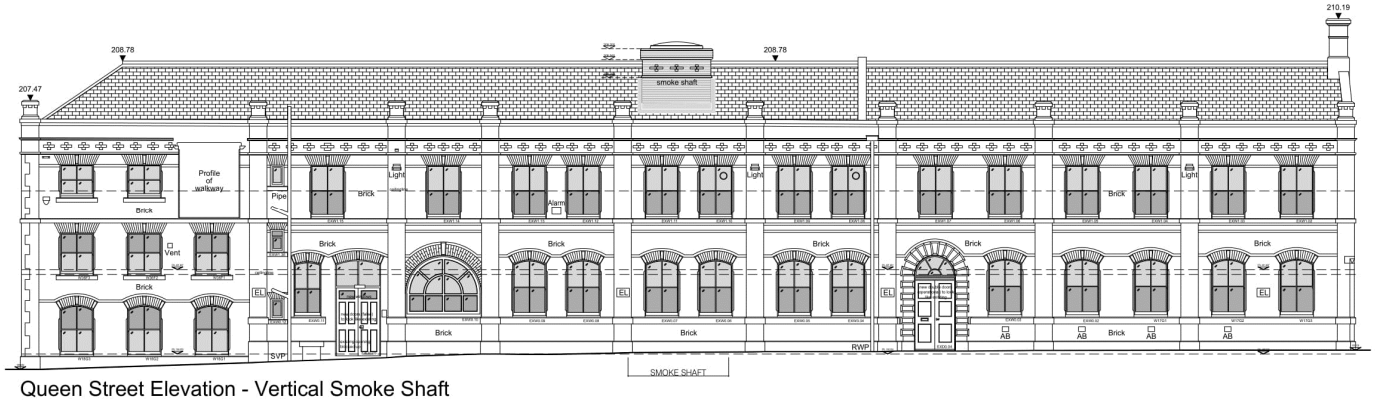
External wall vents, to achieve a free area of 1.5m2 a structural opening of 1.3 x 1.9 approx. is required, this window would have to be added into the retained façade. The existing sizes of the windows are 1.1m x 1.8m approx, but due to the new construction floors there will only be 1.1m x 0.9m approx structural opening of openable window area, thus resulting in 3 of the existing windows, per floor (ground and first floor) to be replaced with AOV (automatic opening vents) to achieve the required minimum1.5m2 free area.



Queen Street Elevation - External Wall AOVs
Scale 1:50

Option 2

A Vertical smoke shaft must have a minimum cross sectional area of 1.5m2 (minimum dimension 0.85m in any direction) opening at roof level at least 0.5m above any surrounding structures within a horizontal distance of 2.0m. The shaft should extend at least 2.5m above the ceiling of the highest storey served by the shaft. The head of the shaft should achieve 1.0m free area and be constructed from non-combustible material. On detection of smoke in the common areas the vent at the top of the shaft should open simultaneously.



Queen Street Elevation - Vertical Smoke Shaft
Scale 1:50

Design Preference

The new six modern window ventilation systems shown in Option 1 would look out of place within the existing façade character and the surrounding buildings. The character chimney proposed in Option 2 fits within the facade and compliments the many varied chimneys within the surrounding area. The chimney size is dictated by the Building Regulations Part B, as stated above and includes special bricks and corbelling to reflect the façades architectural look. The height is approx. 10m high and 2.5m in from the parapet wall, the chimney would not be a prominent feature and would sit in with other diverse chimneys within the street scene.