

GEORGE HOTEL, HUDDERSFIELD

Justification.

Façade Ventilation Strategy

24th April 2026

Contents

1. Background	page 2
2. Concept Presentation	page 3
3. Issues with Chimney Ventilation Strategy	page 3
4. Summary of Schemes Development	page 5
5. Hybrid Systems	page 6
6. Summary – current scheme – Façade Ventilation	page 8

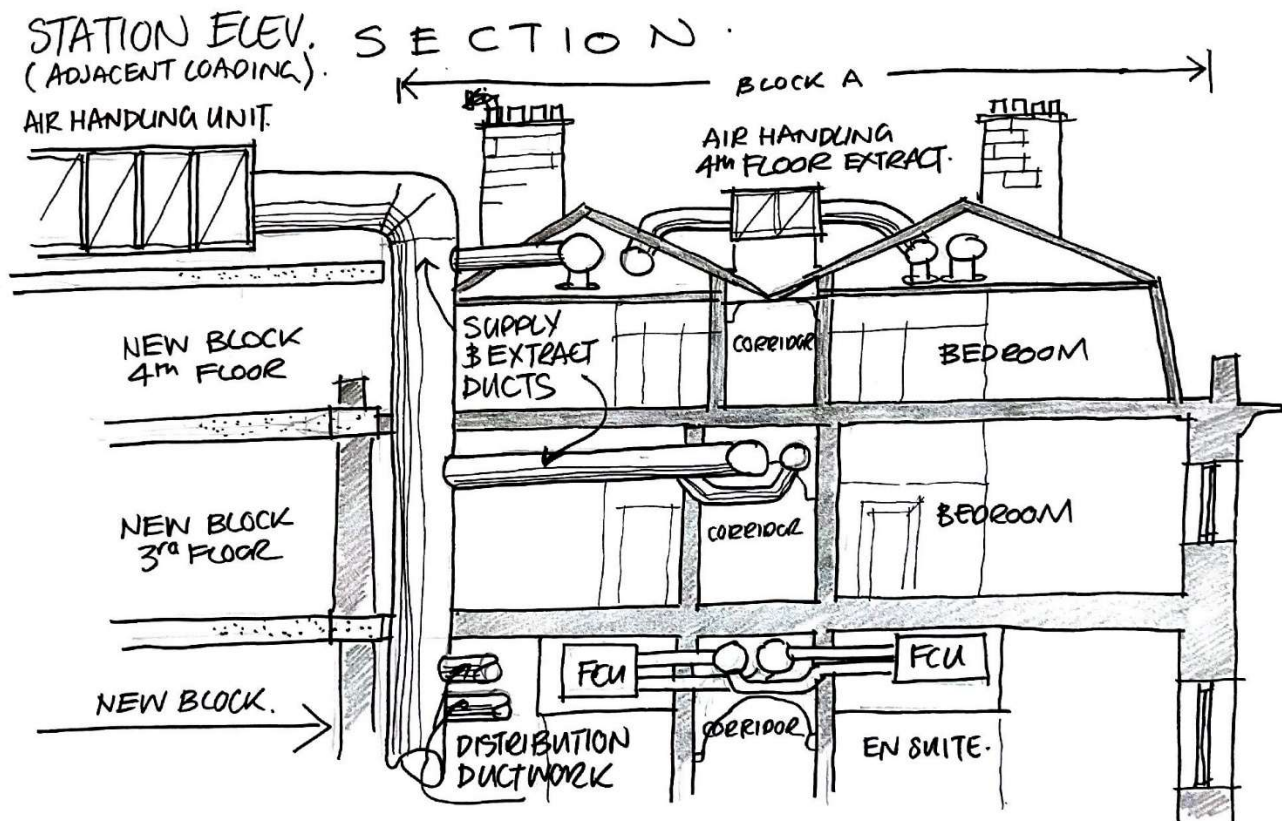
1. Background

The project achieved planning approval in January 2023 for a 90+ room hotel which extended to the rear of the original George hotel on the existing footprint and retaining the façade to John William Street.

The majority of the new build portion of the building was to be served by individual Fan Coil units and Mechanical Heat Recovery Units. These would give the benefit of reactive and specific heating and cooling to each room dependant on occupation.

Block A and the bedrooms adjoining the John William Street elevation were to be serviced on a centralised system which resulted in quite a full roof occupied with building services.

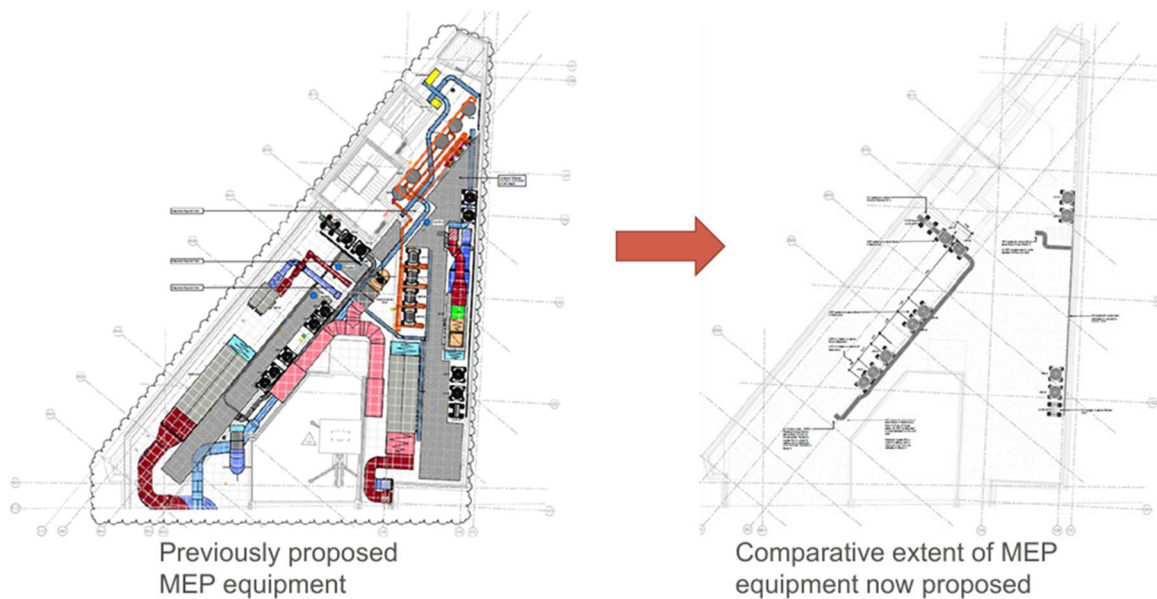
The scheme was found to be too costly and too complex to construct and as a result a re-appraisal was made to make the project viable and to facilitate the retention of the most significant aspects of the Listed Building within the Conservation area.



Sketch illustrating the potential "interventions" and resultant harm to the perceived volumes of the more public areas such as the corridors with the introduction of supply and extract ductwork together with associated roof top plant and ductwork penetrations on the Station Elevation roof.

This re-appraised scheme for 2025 included the removal of a basement, rebuilding rather than retaining of the John William Street façade and a simplification of the building services to include individual mechanical services to most bedrooms in both the new and refurbishment sections of the building.

A revised scheme was presented in concept form to the Local Authority in December 2024 following an initial redesign and then Submitted for formal planning approval in April 2025. The scheme involved more of Block A and the rooms adjacent to John William Street being serviced individually. This would mean a lessening of the overall impact of the roof top plant as was described in the concept shown below.



2. Concept Presentation

Initially as described in the concept presentation the scheme was pursuing two options;

Firstly, for a utilisation of the chimneys for ventilation where the team were exploring whether the existing chimney stacks could be innovatively repurposed to ventilate the rooms.

Secondly for façade ventilation such as had been used on a recent redevelopment of The Estates Building.

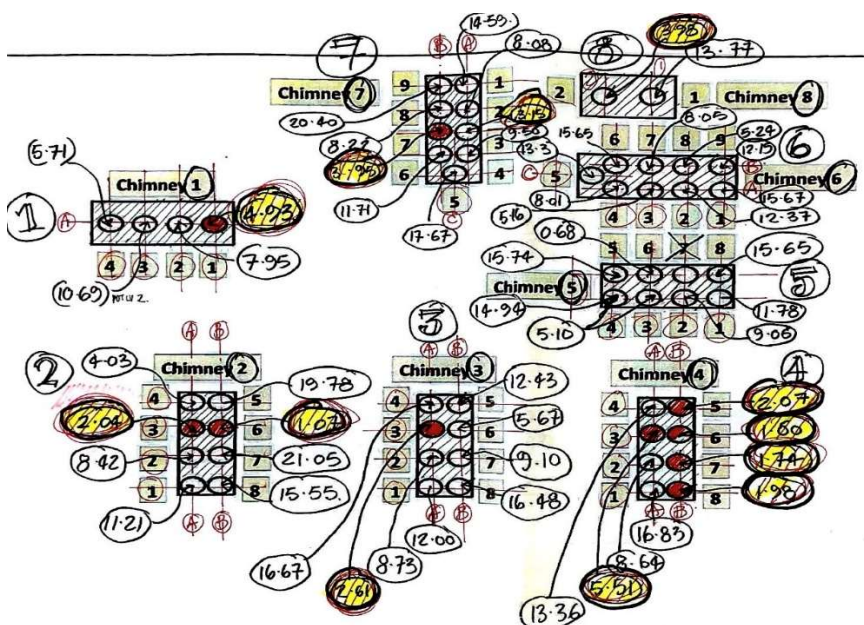
The proposed MVHR ventilation strategy was seen as a more efficient and sustainable solution that has an overall reduction in impact to the existing building with reduced need for rooftop plant and equipment, thereby significantly reducing rooftop mass and associated screening. There is less internal impact / harm, where large ducts would have been installed within existing corridors, reducing ceiling heights and concealing original features. The proposed grilles would be discretely and bespoke designed to work in harmony with the existing façade

3. Issues with Chimney Ventilation Strategy.

The strategy of supply and extract ventilation being taken through the chimneys was therefore perused as a design strategy and submitted as part of the planning application.

However, this design hit a stumbling block with further investigations taking place on site. Whilst it was understood that the stacks extended to all levels further analysis by AHR and the chimney surveys revealed that not all of the stacks were available for use and those that had potential would require substantial works to form openings in order to provide a connection

The individual chimney shafts that were to serve as ducts for each room were found not to be sufficient as generally each room had a solid fuel fire as was normal practice in the 19th century, but each room generally would have only one chimney or flue. Further to this some stacks did not penetrate through enough levels as can be seen on the plan below with low stack penetration being highlighted yellow.



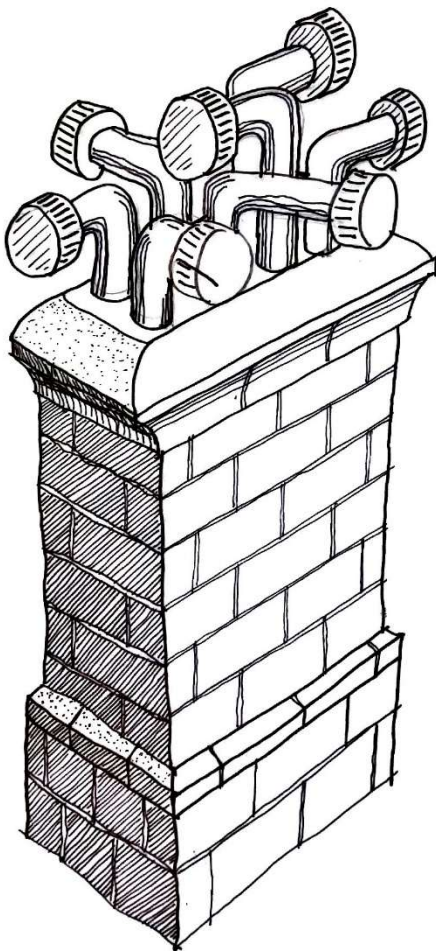
Further investigation by AHR unfortunately confirmed this and indeed found that subsequent works had often compromised even this situation. Therefore, at best each room had half the availability of chimneys to utilise as ducts. Both supply and extract ducts would be required.

Other issues were also found with the chimney ventilation strategy.

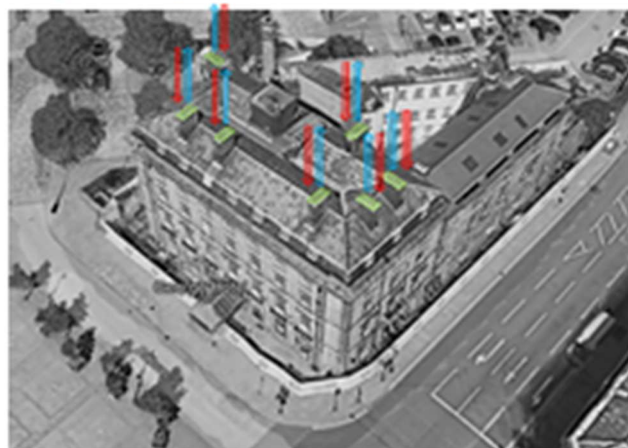
These included issues with;

- Fire compartmentation,
- Noise transfer
- Available fan power. The Fan coil units could not provide the required distribution.

The termination of the ducts at the head of the chimney with angled stainless-steel pipework and cowls would possibly have caused concern and been a little striking visually.



Project Analysis — Utilising existing chimneys for ventilation



The proposed MHR ventilation strategy is a more efficient and sustainable solution resulting in:

- Providing smaller localised MHR equipment concealed within each room.
- Reduced need for ceiling space and equipment.
- Significantly reducing ceiling mass and associated servicing.
- There is less internal impact / harm, where large ducts would have been installed within existing corridors, reducing ceiling heights and concealing original features.

Chimney strategy has been undertaken and we are exploring whether the existing chimney stacks can be immediately repurposed to ventilate the rooms.

The lack of available duct routes without the issues with technical requirements of fans and visually intrusive duct terminals mean that this strategy has unfortunately been **abandoned**.

4. Summary of the scheme's development

The revised scheme addressed the oversized floor to floor heights of the previous scheme and removed a basement level out of the development. This assisted in the practicality of construction and helped achieved the viability by costing less and assisting with plan simplification leading to an overall increase in bedrooms.

The strategy of having mechanical heating and ventilation individual to each bedroom was thus integral to the scheme. The reduced size of individual ducts as opposed to centralised ductwork to a remote plantroom meaning that the more economic floor heights could be used.

Therefore, the amount of plant to the roof could be consolidated and moved to the centre to offer a reduced massing effect as viewed from the station, square and surrounding areas.

The operation of bedrooms independently reacting to the hotel's occupation helps the hotel operator to achieve a greater efficiency and gives the occupant greater control over their own comfort which is a pre-requisite within the modern hotel environment.

In this way we can see how the design decisions concerning operator requirements and rationalisation of plan and mass have set the constraints to which the solution of the more sustainable approach of individual room mechanical services was established for the large portion of new build development.

Of the rooms that are new construction though are faced with the reconstructed stone façade on John William Street the restrictions of height from floor to floor are the same as the rest of the new build and therefore the same servicing strategy needs to be adopted.

In this case the ventilation ducts must pass through the external fabric of the East elevation to ventilation grills within the newly reconstructed stone façade. Grill locations are positioned at or above window head height and have been located to avoid any of the stonework detailing and be within the more general stone walling.

Block A floor to floor heights, especially at lower level to the Existing Block A are generous and have been investigated to allow for a centralised plant system.

Whilst the circulation spaces of the ground, first and second floor could accommodate centralised ducts exposed within the corridors etc the resultant air handling plant would need to be housed somewhere.

As there is no external space available then the roofs are the most likely location. The existing roof to the main range is not suitable or of sufficient space to accommodate the required Air Handling Plant and would likely also be visible from the station, square and surrounding streets.

Therefore, this plant would need to be located on the new build roof.

Access down to the various Block A floors would require a large vertical riser and the least intrusive area for this would be the room to the East of the main stair.

Not only would this disturb the original plan form of the Hotel but also remove 3 bedrooms from the project which could affect the overall viability.

The internal ductwork required within the circulation spaces and penetrations into the bedrooms through the existing plan form fabric would be extensive and combined with the factors above have meant that the centralised plant concept has been **discounted**.

It is also noteworthy that the centralised plant system would offer less flexibility and would not be in accordance with the hotel operators' requirements.

In the same manner the exploration of a strategy where windows could provide the ventilation requirements with electric heating panels providing heating was discounted as it was against the operators' requirements. In addition, the windows would have to have restricted openings due to the possibility of falls. This was further compounded by how difficult the opening of windows is and how opening window leads to acoustic concerns for the hotel operator and guests.

5. Hybrid Systems

All versions of Hybrid systems carry the same issues as their parent systems and non has been found to be practical or viable for the main bulk of bedrooms within the refurbishment section of the development. Other areas have been developed to minimise impact on the overall aesthetic and disruption associated with the servicing strategy.

Examples of this can be seen in the following areas.

Reception and Bar Area

The reception and bar area is to have concealed services, air supply and extract ductwork together with air conditioning units within the ceiling voids. Penetrations of cross walls will be constructed above the proposed ceiling height and the whole system will be linked to a small air handling plant within the mezzanine area. Air supply will be from high level at mezzanine height from John William Street whilst extract will be via a full height riser terminating at roof level.

Restaurant

As the reception and bar area the main dining area of the new build will operate off the same system with other subsidiary areas also utilising the same system.

Ground Floor Conference Room

The conference room has background heating supplied from the basement system, see below. With the addition of floor mounted air conditioning units within the window areas which will provide the internal comfort required.

Basement

A separate basement supply and extract system is to be incorporated within a basement plant room with louvers at ground floor level on the west elevation behind the existing St George Square retaining wall and railings. The louvres will be topped by stone to conceal their presence though they are not within normal view.

The basement system will also serve the ground floor conference area.

As this is a basement then there is a requirement for smoke clearance operated by the fire service. This will be achieved through break out pavement lights to the perimeter of the existing building where there are existing lightwells. Internally the basement will incorporate automatic opening vents / windows to allow free flow of smoke clearance between rooms.

Central areas and additional heating will be by individual panels heaters of air conditioning cassettes based on the requirements of each individual room.

Fourth Floor Bedrooms.

Due to the proximity of the rooms to the internal roof valley the supply and extract ductwork can be taken through the existing roof out of sight.

6. Summary - Current Scheme – Façade Ventilation

This document summarises the decisions that have been made that have led to the design adopting a strategy that requires ventilation to be taken to the external façade.

The architect has located the positions and number of penetrations required within the external fabric of the listed building. This has been developed to discharge condition 18 of the Listed Building Consent. These are included on the elevations.

The ventilation grills are proposed to replicate the ventilation grills used on the estates building. However there is an option for smaller horizontal grills if required.