1. Proposals Summary

The Royal Free Hospital - 12 East B project involves refurbishment of the East Wing (B section) of the 12th floor of the hospital to create a 14 lobbied bed ward suitable for patients with infectious airborne diseases such as Covid 19, with an upgrade to M&E services, which will be designed to comply with current Health Building Notes and Health Technical Memoranda standards as far as possible, to provide for an adult in patient isolation facility so as to avoid the spread of infections and to keep the clinical staff safe from the exposure.

The proposed area of works occupies the 12th floor of the Royal Free Hospital building. The proposal includes the strip out of the sanitaryware with new units that comply with the current HBN and HTM regulations and are aligned with the hospital Infection Control and Prevention guidelines, replacement of the lighting with more efficient units, and upgrading the pipework and ventilation system to a more efficient and sustainable equivalent.

A new roof plant located atop the 12th floor roof (the main roof) will be required to provide for the necessary air changes and the creation of negative air pressure within the isolation lobbies of each room. The air handling unit and associated duct work have been carefully designed with the location of the plant determined specially to suit the weight bearing properties of the roof - which coincidentally, is in the centre of the roof away from the parapet - and with a layout to have minimal disruption of the view and the least impact on the appearance of the hospital façade. In addition the proposed low level duct work and the extract are joining with the current stack of existing exhausts above the roof. This design and placement is with having the same reason in mind. Acoustic survey has been carried out and indicated that the addition of the new AHU will not have any impact on the current noise levels as per the attached acoustic report.

The refurbishment will not require any work on the building envelope and no construction is to be carried out on the façade, and minimal disruptions to the existing neighbouring wards of the hospital has been considered.

2. Access

The refurbishment of the 12th floor has no significant impact on the public access within or around the hospital. Any construction works will be within the boundaries of the relevant floor with proper contractor's hoarding and protection. Most of the internal logistics are planned as out of department working hours and will be agreed with the client in advance.

The installation and lifting of the AHU and associated attachments will be through deliveries to site and lifted over the roof with crane which will be coordinated with the Hospital and the Trust Resilience team but shall not have any influence on patient access and with no, or minimal, impact on the traffic flow around the hospital.

Future maintenance access to the new roof plant is from within the existing hospital via existing restricted-access routes and will be available only to maintenance personnel.

3. Plant Summary

It is proposed to locate a supply air handling unit and an extract air handling unit on the 12th floor roof (the main hospital roof) which is directly above the space. The supply ventilation system will be around 2.3 m tall and provide comfort cooling and heating to the space and will pressurise the lobbies of the bed wards to prevent contaminated air from leaving the bed space when doors are opened, thus protecting the staff and other patients from infectious diseases.

Supply air ductwork will run across the roof to an opening where it will then drop to below. The ductwork will be running close to the roof to minimise its visibility.

The extract ventilation system will draw air from the bed spaces and exhaust it to atmosphere. This air is potentially contaminated and it is therefore necessary to discharge the air 3 m above the highest roof to ensure that it disperses effectively and does not re-enter the building via any other fresh air intake. As mentioned earlier the new exhaust duct will be running alongside existing (but out of use) flues so as to reduce its visual impact. The extract air handling unit will be located as shown on the roof plan drawing. The unit is around 1.5 m tall including its supports.

The air handling equipment will require services connections including steam pipework, chilled water pipework, cable trays, and etc. These also will be running close to the roof to minimise their visual impact.

An acoustic survey was carried out to determine the background noise level at the neighbouring properties. The ventilation plant will be designed to meet the design criteria as set out by the acoustician based on the planning requirements and the environmental health requirements. The units will be specified with casings with excellent sound reduction performance if necessary so as to minimise noise breakout. Suitable in-duct sound attenuators will be fitted similarly.