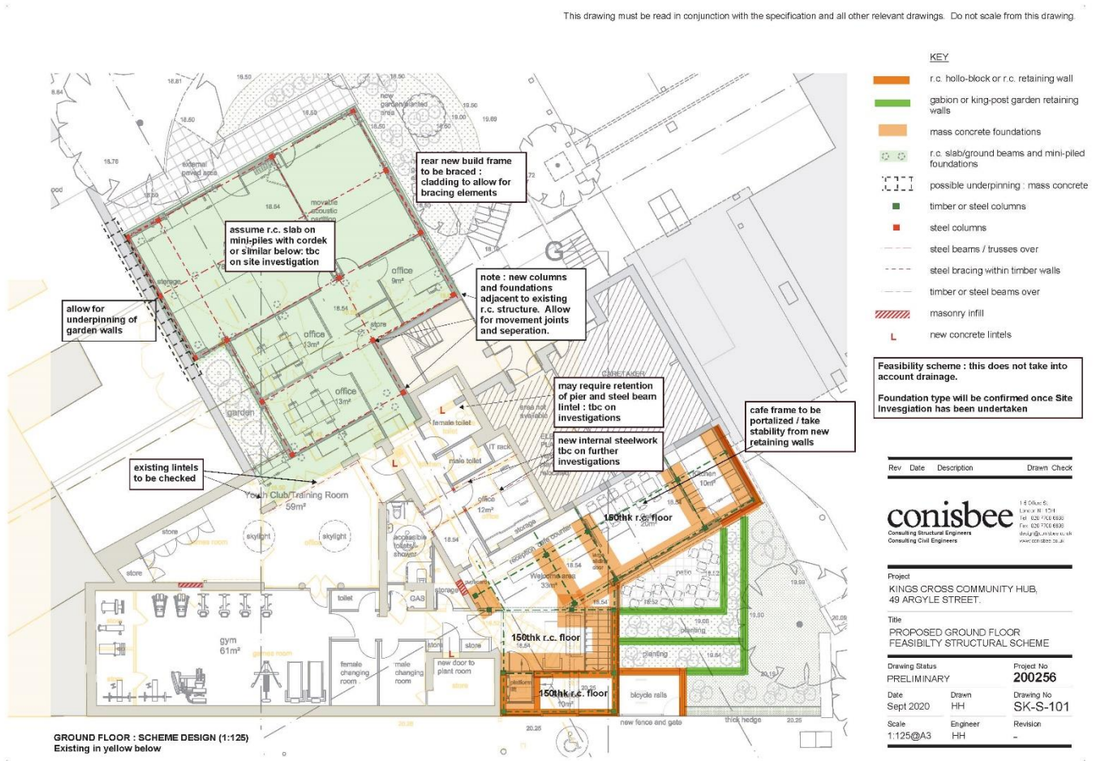
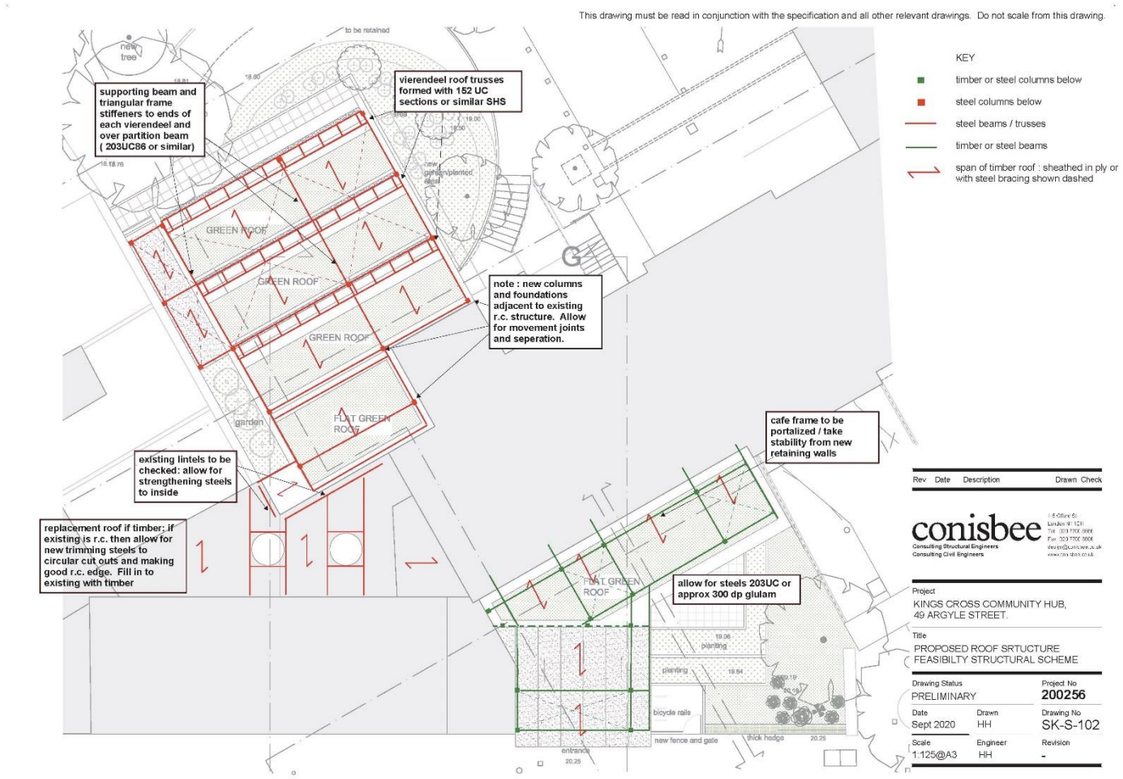
CONCLUSION

Architects Network Ltd Extract from Kings Cross Hub Sustainability Report including ASHP

The proposed scheme is structurally feasible and with careful design and co-ordination between the design teams will be a practical and elegant structure with the least impact on the environment.





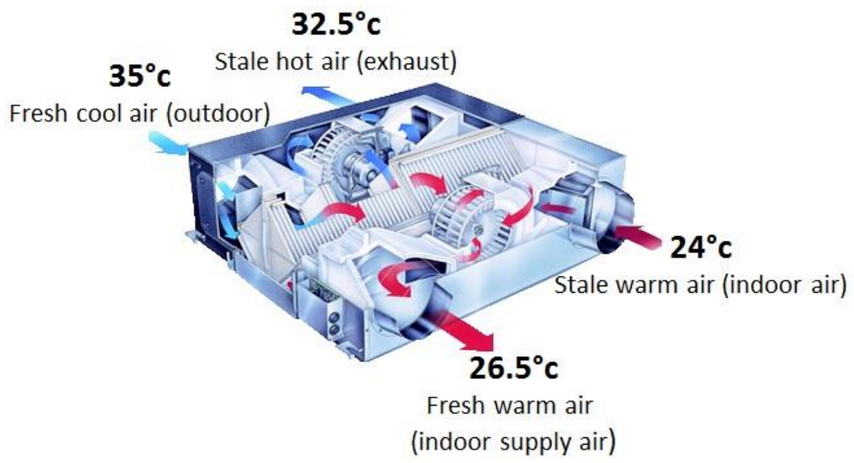
10.0 Mechanical and Electrical proposal

Ventilation:

All of the ventilation systems will be designed to fully comply with Part F and Part L of the Building Regulations and the fire strategy for the building.

It is important that the ventilation systems are efficient and incorporate equipment to allow the heat contained in the extracted air to be reclaimed before discharging to the atmosphere.

The internal areas of the project at ground floor will be provided with mechanical supply and extract ventilation from three decentralised mechanical supply and extract ventilation systems. The mechanical supply and extract ventilation will be provided by heat recovery units such as Lossnay units or VAM units. These units will be located at high level at the ground floor and will have ducted air intakes and discharges. These ducts will rise through the roof above and terminate.



The supply air to the spaces will be provided by ceiling based supply air grilles and connections to the comfort cooling/heating cassette units. The extract ventilation will be taken from the spaces via ceiling based extract grilles.

Each of the ductwork connections to the heat recovery unit will be provided with attenuators to ensure that the discharge and intake achieve a rating of 5dB (LAeq), below the typical background (LA90) level at the nearest noise sensitive location.

All of the ventilation plant will also be provided with flexible connections and anti-vibration mounts to avoid transmission of noise and vibration to the building fabric.

The size of the MVHR units will be calculated on the number of occupants within the various areas being served.

The toilet and changing areas will be provided with supply air either by ceiling grilles or supply air to the adjacent corridor area with air being induced into the toilet area by undercut doors or air transfer grilles in the doors.

The proposed kitchen area is relatively small and will be provided with mechanical supply and extract ventilation for background ventilation plus a dedicated kitchen extract system.

Heating & Cooling:

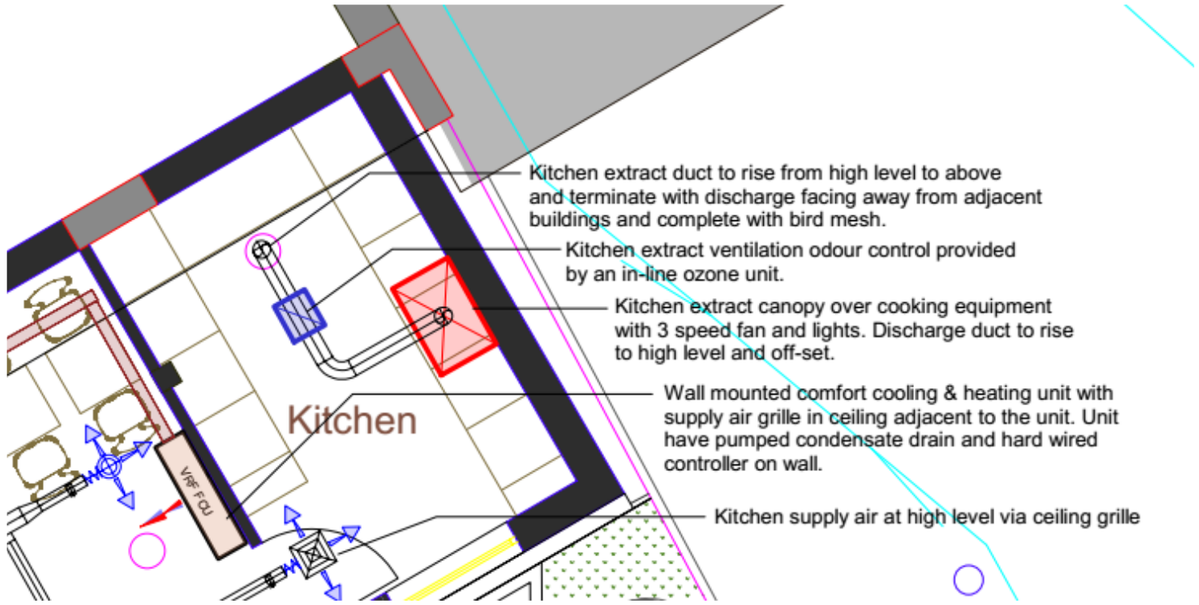
The heating and cooling to all the main areas of the project will be provided from a VRF comfort cooling & heating system. The system will consist of an **air source heat pump** condenser unit located in the garden area at ground floor.

The VRF system will be very energy efficient and will form part of the energy and sustainability strategy for the project.

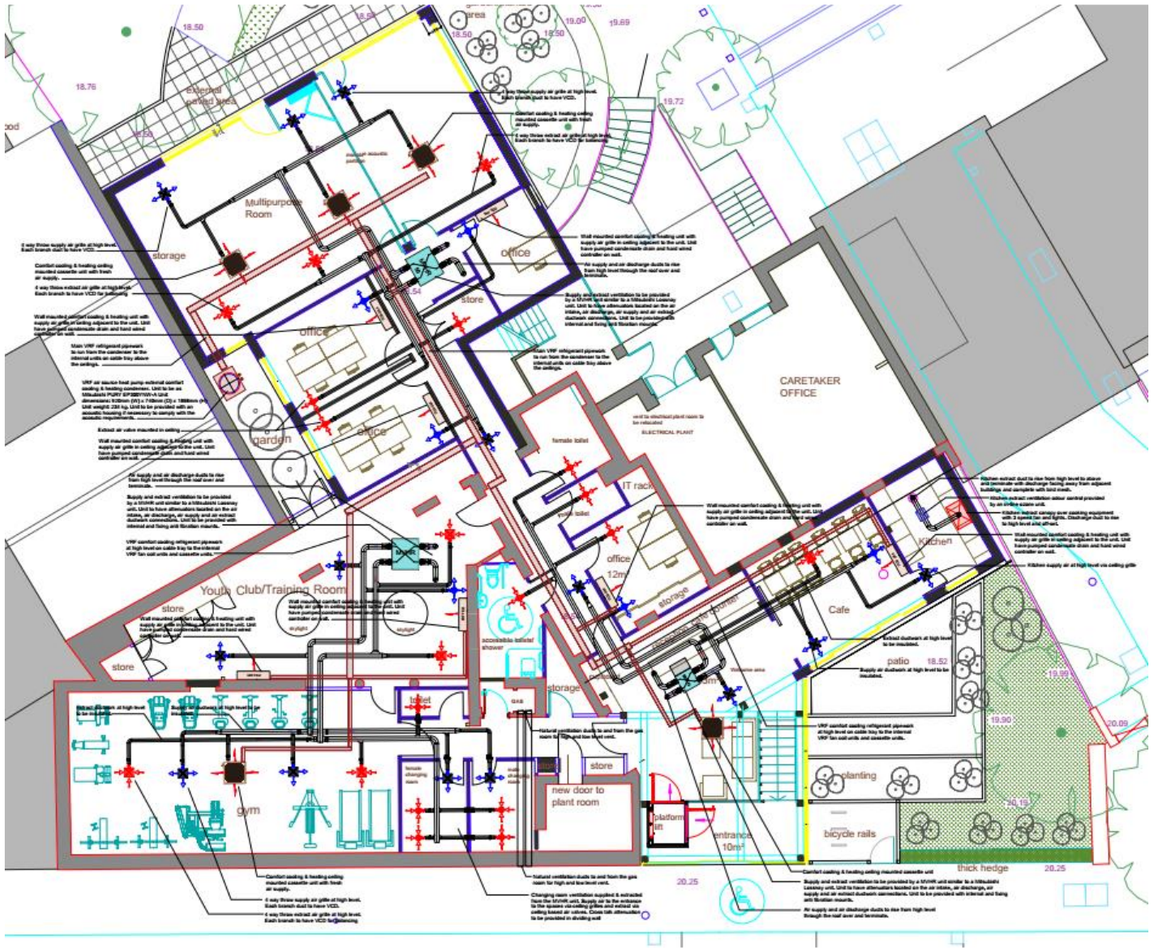
The refrigerant pipework will be installed from the condenser to a number of internal comfort cooling/heating units. The internal units will be either ceiling based cassette units or wall mounted fan coil units. The system will be able to provide simultaneous heating or cooling to the various spaces dependent on the space temperature settings and heating and cooling requirements.

The controls of the VRF system will consist of individual room controllers plus a central controller that will have the facility for the setting of the times for operation, monitoring of the temperatures plus fault identification with any element of the system.

The system will include the facility for each of the areas to be shut down automatically if the areas are not occupied. There will be a setback temperature to ensure that the areas neither cool down too much nor overheat.



Kitchen plan



Floor plan layout

11.0 Design for Inclusive Access

The hotel as existing complies with planning conditions which were discharged in August 2016. The fourth floor extension is accessibility compliant being fully wheelchair Accessible and served by lifts. Both access and Emergency provision for accessibility and evacuation in accordance with the Equality Act 2010 is included in the vertical circulation and stair design.

The main access into the new King's Cross Community Hub at Argyle Street is a level threshold access to allow disabled and ambulant residents using the new entrance and access the lift or the stair down to the lower level.

Circulation will link the entrance/reception area to the café', kitchen and gym at the front; to the Youth Club and Training Room in the middle and to the offices and Multipurpose room at the rear. There are toilet facilities close to the entrance lobby and also one of the accessible toilets and shower room located within easy access of the passenger lifts.

The new king's Cross Community Hub will be fully wheelchair Accessible and emergency provision for evacuation will be included in the stair design.

In case the lift is not available due to maintenance, fully accessible access is provided by the 2 fire exits from the Multipurpose Room at the rear. The Community Hub's staff will be trained to assist and provide support to the ambulant, wheelchair and elderly people as required

12.0 Design for Sustainability

All the proposed new works will be subject to approval by an Approved Inspector or the local authority under the Current Building Regulations and any planning conditions subject to approval.

The proposed works will be in accordance with Camden Planning Guidance (CPG) on Energy and resources to support the policies in the Camden Local Plan 2017, the Camden Planning Guidance I Energy efficiency and adaptation dated January 2021, and Local Plan Policies CC1 Climate change mitigation and CC2 Adapting to climate change.

Other relevant policies in the Local Plan include:

- C1 Health and wellbeing
- A1 Open space
- A2 Biodiversity
- D1 Design
- D2 Heritage
- CC3 Water and flooding
- CC4 Air quality
- CC5 Waste

The new building will be designed in line with the energy hierarchy prioritising Natural ‘passive’ measures over active measures to reduce energy.

A new building to be:

Lean; use less energy

Clean; supply energy efficiently

Green; use renewable energy

The Building performance of the proposed Community Hub will achieve a high standard with enhanced insulation, bio diverse plant, habitat creation and renewable energy technology.

All windows and curtain walling will have high thermal performance to all facades windows.

New external walls and roof will include high specification of thermal insulation.

Self-closing taps and dual flush WCs will be used throughout. All existing windows will be replaced with double glazing units consisting of insulating glass and thermally efficient frames.

The heating and cooling to all the main areas of the project will be provided from a VRF comfort cooling & heating system. The system will consist of an air source heat pump condenser unit located in the garden area at ground floor. The building envelope will be treated to enhance air-tight -performance along with other carbon reducing measures.

Recycled waste will be sorted by the staff as they carry out the daily house-keeping. Recycled waste will be kept separate from the general waste and will be stored in bins. General waste will be collected in designated bins located in the dedicated storage.

Refurbishment and Extension of the new King’s Cross Community Hub

- Manufacturing off site of structural elements, windows, roof-lights, fit-out reduces wastage and improves build quality.
- Timber used supplied from sustainably managed forests.
- Higher thermal density of composite walls with window/doors replaced by insulated thermally broken frames etc. means that the building can be more efficient in its operational use of energy for heating and deliver greater carbon saving efficiency.

Super-insulated external walls and airtight construction

- Replacing the existing windows allows improvement of thermal performance by making the building air-tight. These elements reduce the energy required by lowering the total heat loss through leakage reducing space heating requirements. New windows will be double glazed.

Heating and cooling system with ventilation control

- The heating and cooling to all the main areas of the project will be provided from a VRF comfort cooling & heating system. The system will consist of an air source heat pump condenser unit located in the garden area at ground floor. The VRF system will be very energy efficient and will form part of the energy and sustainability strategy for the project.
- The system will be able to provide simultaneous heating or cooling to the various spaces dependent on the space temperature settings and heating and cooling requirements.

- The system will include the facility for each of the areas to be shut down automatically if the areas are not occupied.
- Any areas that are not served by the VRF comfort cooling and heating system will be heated by electric panel heaters with built-in thermostatic controllers and timeclocks.
- The internal areas of the project at ground floor will be provided with mechanical supply and extract ventilation from three decentralised mechanical supply and extract ventilation systems.
- The mechanical supply and extract ventilation will be provided by heat recovery units such as Lossnay units or VAM units. These units will be located at high level at the ground floor and will have ducted air intakes and discharges. These ducts will rise through the roof above and terminate.

New Boiler

A new energy efficient condensing boiler will provide the hot water for the toilets, shower and kitchen, which will make the centre more energy efficient, reduce the fuel bills and cut the carbon footprint.

Reduction in water usage

- Low flow rated shower heads, Dual flush WC's and Automatic taps with low flow rates.

Natural Ventilation

- All the windows in the reception, café, kitchen and Youth Club/Training room are openable to allow manager users to actively over-ride and control the internal environment which in its default reset mode with regulate energy use.
- The 2 offices and the multipurpose room at the rear have openable window or skylights to allow manager users to actively over-ride and control the internal environment which in its default reset mode with regulate energy use.

Natural light

- New south facing windows and glass entrance will provide natural light to the rear extension.
- Two new skylights and a new window facing the internal garden will provide natural light in the Youth Club/Training room in the existing building.
- The form of the rear extension building with its 'north-light' roof glazing will provide high levels of daylight even in the deepest parts of the building while minimising heat gain.

Low energy lighting and robust light fittings.

- This low energy lighting is also connected to both light sensors which automatically dims the lights when the natural light levels increase and they are on time delay motion detectors to avoid lights being left on when the room is unoccupied.

Building management system and energy use monitoring.

- This low energy in use building is able achieve maximum energy efficiency by employing sensors to allow the various technologies employed to interact and thereby operate building services controls to minimize the use of energy.

Bio-diverse green roof and native planting reinstatement

- Bio-diverse planting scheme has been implemented on the roof of the front and rear extension reducing surface water run-off and creating habitats for flora and fauna.
- Around the rear extension wildflower landscape will be re-planted with ecologically bio-diverse planting promoting wildlife habitats.
- Native planting of shrubs and small trees will be used for the front garden.
- Vegetable, fruits and flowers will be grow in new allotments

The contractor qualification of tender process for selection requires the contractor to work in more sustainable way including the use of energy; management of waste and recycling.

Appendix A. List of drawings

16L12PR01A	A3	Location Plan as photos as Existing
16L12PR02	A2	Floor plan as existing
16L12PR03	A2	Section AA as existing
16L12PR04	A2	Section BB as existing
16L12PR05	A2	Section CC as existing
16L12PR06	A2	Section DD as existing
16L12 SP01	A1	Birkenhead Estate Site Plan as existing
16L12 SP02	A1	Birkenhead Estate Site Plan as proposed
16L12 AL01B	A2	Lower Ground Floor plan as proposed
16L12 AL02B	A2	Roof plan as proposed
16L12 AL03A	A2	Front elevation as proposed
16L12 AL04A	A2	Rear elevation as proposed
16L12 AL05B	A2	Section BB as proposed
16L12 AL06A	A2	Section CC as proposed
16L12 AL07A	A2	Section DD as proposed
16L12 AL08B	A2	Section EE as proposed
16L12 AL09A	A2	Section FF and GG as proposed

Appendix B. 3D CGI views

Appendix C:

Pre-Planning Advice dated 20th December 2017 ref: 2017/6154/PRE

Appendix D:

Pre-Planning Advice date: 27th April 2018 ref: 2018/1321/PRE

Appendix E:

Camden Design Review Panel

Report of Chair's Review Meeting: King's Cross Community Hub dated 14 September 2018