



Project:
GLL Rivermead Leisure Centre - Reading

Document:
Ventilation & Extract Statement

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Whitbread

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Executive Summary

This ventilation & extract statement produced by Thornley & Lumb Partnership provides a brief overview of the proposed ventilation strategy and plant arrangements being advanced by the design team to form part of the planning application associated with the new GLL Rivermead Leisure Centre, Reading.

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1. INTRODUCTION

The proposed site is located at Rivermead Leisure Centre, Richfield Avenue, Reading, Berkshire RG1 8EQ and has an O.S Land Ranger Grid Reference of SU 706 745.

The development will comprise of a new two storey leisure centre, constructed in the area of the existing carpark, and subsequent demolition of the existing complex once the new facility is operational. The leisure centre will provide access to mixed use sports halls, fitness suites, wet and dry changing facilities along with a 25m indoor pool complete with a separate diving pool and a public café. The site will be subject to planning conditions defined by Reading Borough Council.



Figure 1 – Proposed Site Plan

2. SYSTEMS OVERVIEW

The developments ventilation, heating and cooling requirements will be served by a variety of systems (13No. total) which have been expanded upon further on in this document for the following areas:-

- Pool Hall
- Village Change, Male Change & Female Change
- Sports Hall
- Café / Seating
- Activity Zone & Party Rooms
- Kitchen & Servery
- Lobby, Reception Area & Circulation
- Gym
- 1F Male Change, Female Change & Toilets
- Spin Studios (3No.)
- Main Office
- Staff Room

See attached 'C7403-TLP-RM-GF-DR-M-201' & 'C7403-TLP-RM-1F-DR-M-202' layouts for reference.



3. SYSTEM 01 – POOL HALL

The Pool Hall will be provided with mechanical supply and extract ventilation in accordance with Part F of building regulations. Ventilation shall be provided from 2No. Air Handling Units (AHU's) located within the first floor plant room. The AHU's will comprise of filters, heating coils, heat exchangers and will be capable of dehumidifying the pool air to maintain ideal conditions within the pool hall area. The AHU heating coils will be served via LPHW from boiler plant, also located within the first floor plant room, and will be used to maintain air temperature 1°C above pool water temperature. Fresh air to, and exhaust air from each of the AHU's will be ducted via external louvres located at high level on the first floor of the buildings east elevation. Extract air from the pool will be ducted back to the units via a single point of extract louvre and supply air will run below ground and distribute around the perimeter of the pool hall.



Figure 2 – Swimming Pool Air Handling Unit c/w Dehumidification & Heat Recovery

4. SYSTEM 02 – VILLAGE CHANGE AND MALE / FEMALE DRY CHANGE

The Village Change, Male dry Change and Female Dry Change areas will be provided with mechanical supply and extract ventilation in accordance with Part F of building regulations. Ventilation shall be provided from 1No. Air Handling Unit located within the first floor plant room. The AHU will provide supply ventilation to the changing areas and extract ventilation to the shower and toilets via ductwork running at high level within the ground floor ceiling void. The unit will also provide fresh air to the changing facilities which will be ducted from a high level external louvre at first floor level on the buildings east elevation and will provide zonal reheat (where required) via LPHW boiler plant. The AHU will comprise of filters, heating coils and a plate heat exchanger.

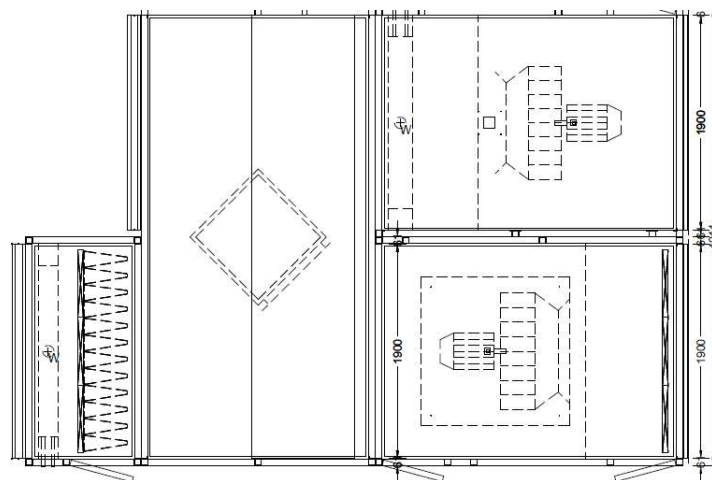


Figure 3 – Typical Diagrammatic View of an Air Handling Unit

5. SYSTEM 03 – SPORTS HALL

The Sports Hall will be provided with natural ventilation in accordance with Sport England Guidance for Sports Halls. Roof mounted natural ventilators (extract) with motorised dampers will make up air from inlet vents through the Sports Hall's external façade. Fresh air into the Sports Hall will not be pre-heated as heating to the area will be via Gas Radiant Heaters located at high level.

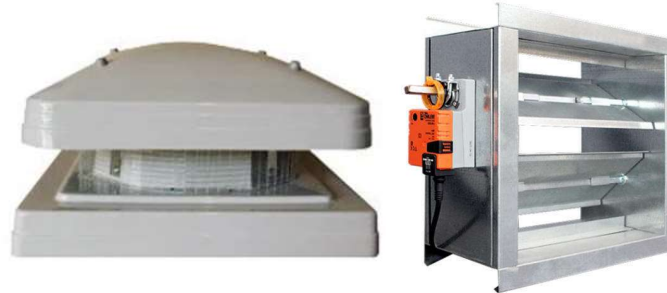


Figure 4 – Typical Roof Cowl & Motorised Damper

6. SYSTEM 04 – CAFÉ & SEATING AREA

Void mounted decentralised Lossnay AHU's will provide mechanical ventilation complete with heat recovery to the ground floor Café & Seating area in accordance with Part F of building regulations. Fresh air and exhaust air will be ducted through the Village Change Areas into the Cafe from external louvres located on the north elevation. Heating and cooling will be provided to this area via Ceiling Mounted Cassettes or Ducted Fan Coil Units served by a DX Heat Pump located within the roof level open plant deck.

7. SYSTEM 05 – ACTIVITY ZONE AND PARTY ROOMS

Void mounted decentralised Lossnay AHU's will provide mechanical ventilation complete with heat recovery to the ground floor Activity Zone and Party Rooms in accordance with Part F of building regulations. Fresh air and exhaust air will be ducted into the Activity Zone and Party Rooms from external louvres located on the west elevation. Ceiling Mounted Cassettes or Wall Mounted Units will provide heating and cooling to these areas which shall be fed from outdoor DX Heat Pumps located within the roof level open plant deck. The AC system shall also have the capability to provide simultaneous heating and cooling to allow different operation in each room.

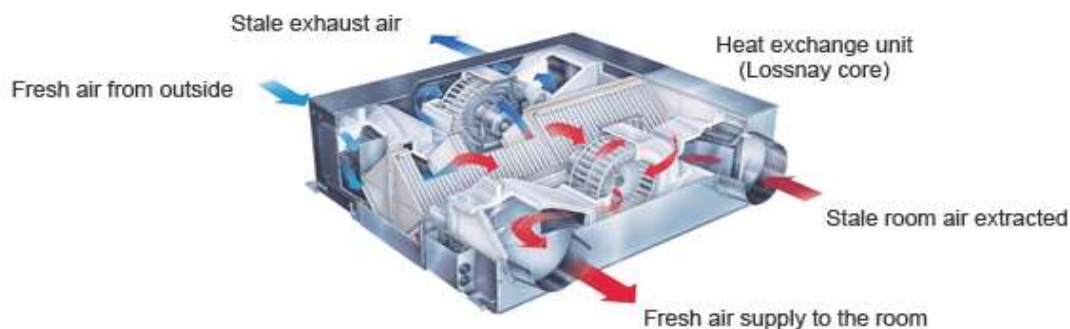


Figure 5 – Void Mounted Decentralised Lossnay Unit

8. SYSTEM 06 – KITCHEN AND SERVERY

Local mechanical extract ventilation will be provided to the ground floor kitchen via Canopy Hood or Ceiling Grilles (TBC) and will be in accordance with DW/172, DW/144, TR/19 and DEFRA guidelines. Kitchen extract air will be ducted to an external louvre on the south elevation. Make up air will also be provided to this space via mechanical supply air ducted from an external louvre on the buildings south elevation and shall be tempered by a reheat battery.

9. SYSTEM 07 – LOBBY, RECEPTION AREA AND CIRCULATION

The Lobby, Reception Area & Circulation spaces located on the ground floor will be naturally ventilated via infiltration through the external doors. Heating to the Lobby and Reception areas will be provided by an Overdoor heater.



10. SYSTEMS 08 to 13 – GYM, DRY CHANGE, SPIN STUDIOS, OFFICE & STAFF ROOM

The entire first floor will be served from a central AHU located within the roof open plant deck and will provide supply and extract ventilation in accordance with Part F of building regulations. Ducts will run at high level within the ceiling void and connect on to grilles which are sized to suit occupancy within each space. Heating and cooling to the Gym and Dry Change areas will be via multi-stage DX coils within the central AHU. Heating and cooling to the Spin Studios will be via Ceiling Mounted Cassettes served by DX Heat pumps located within the roof level open plant deck. Local heaters will be provided to the Office and staff room.



Figure 6 – Ceiling Mounted Cassette & Outdoor Heat Pump

11. OTHER PLANT ITEMS – BOILER FLUES

A common flue header from the proposed LPHW Gas Condensing boilers located within the first floor plant room will run at high level and terminate above roof level to comply with the requirements of the clean air act.

The condensing boilers shall be low NO_x type achieving 35mg/kWh NO_x emissions.

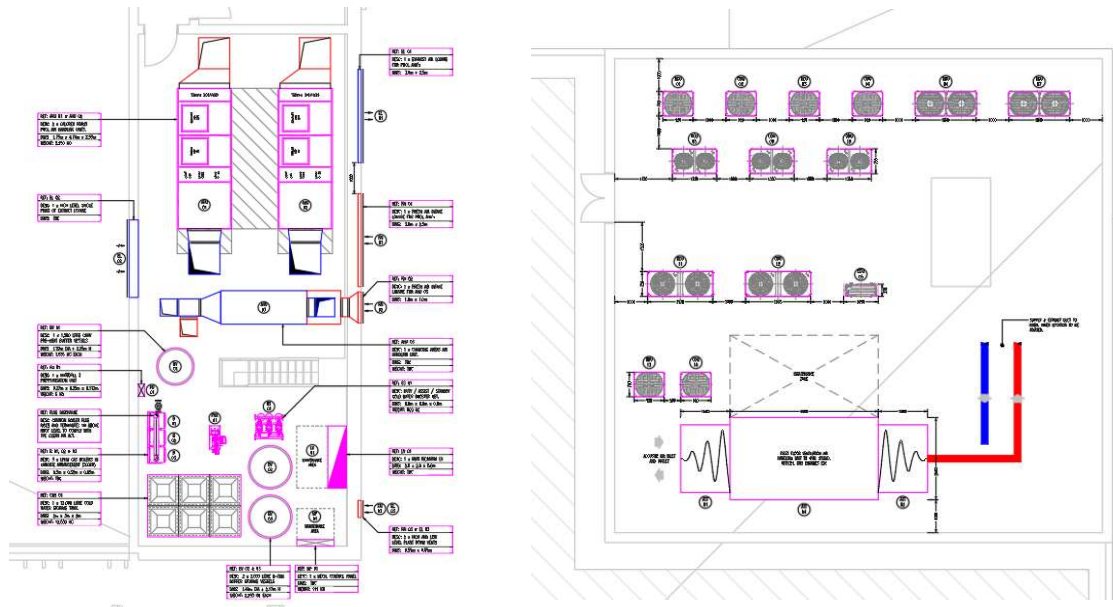
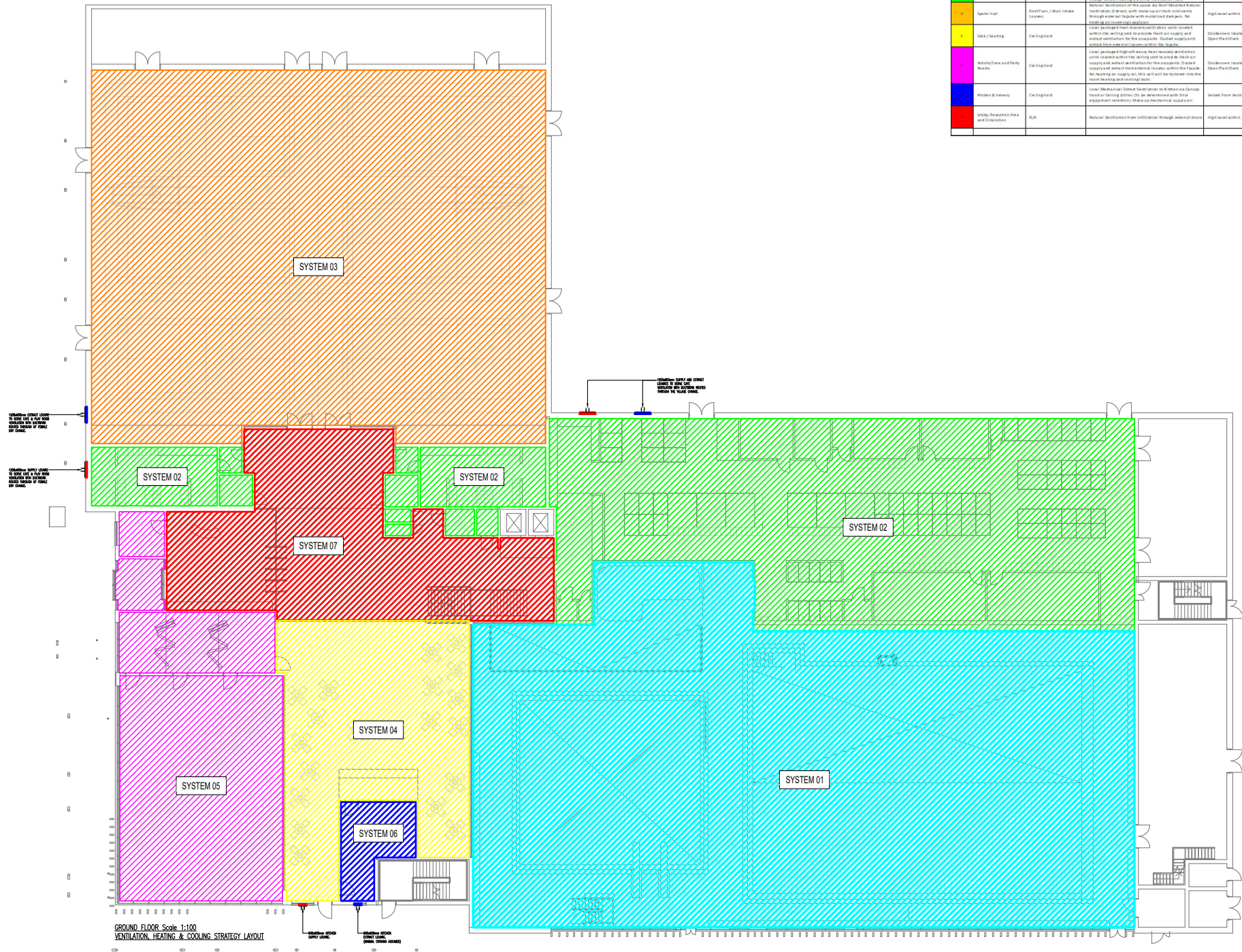


Figure 7 – Proposed 1F Plant Room & Roof Level Open Plant Deck Arrangements

System	Serving	Ventilation Strategy	By which ventilation	Heating & Cooling Strategy	System Description
1	Plant Hall	IT Plant Room Room	Resealable Airtight Plant Room with Mechanical Ventilation and Heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
2	IT Data Change and IT Main & IT Service City Change	IT Plant Room Room	Resealable Airtight Plant Room with Mechanical Ventilation and Heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
3	Service Hall	Service Hall / Main Office	Resealable Airtight Plant Room with Mechanical Ventilation and Heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
4	Cafe / Bar	Café/Bar	Local packaged high with canopy heat recovery ventilation with fresh air intake and heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
5	Activity Room and Party Room	Activity Room	Local packaged high with canopy heat recovery ventilation with fresh air intake and heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
6	Workshop & Store	Workshop & Store	Local packaged high with canopy heat recovery ventilation with fresh air intake and heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.
7	Office, Reception Area and Corridor	Office	Local packaged high with canopy heat recovery ventilation with fresh air intake and heating/cooling system. Heating via a CHP Plant Room.	Sealed From Ventilation Plant	Heating via Plant Airtight to maintain system pressure at 15 Pa above plant and water temperature.



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Ground Floor
Ventilation, Heating & Cooling Strategy Layout

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Sheet 1 of 1

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