Queens Market Rhyl

Site Wide MEP Strategy - Overview

Doc No. QMR-BDP-ZZ-XX-RP-MEP-02
Issue: For Planning
Date: Aug 2020

Issue Status

Revision	Description	Issued by	Date	Checked
P01	For Planning	GK	July 2020	AR
P02	For Planning	GK	Aug 2020	AR

Contents

1 – Introduction

This Stage 2 site wide MEP strategy supports both the detailed Planning Application for the proposed Market Hall and the outline planning application for the Queens Market Rhyl development as a whole. BDP were commissioned by ION Developments to produce the design for the Queens Market re-development. The site, based in Rhyl, is a key part of the Council's regeneration strategy for Rhyl Town Centre. The project has developed a strategy for urban transformation including improvements to the public realm, economic incentives and the promotion of mixed-use development, building restoration and upgraded movement connections across the town.

A central theme of the strategy is the restoration of lost connections between the town and its spectacular beach. The design proposal is for the redevelopment of an entire seafront urban block around the historic Queens Market. It comprises the restoration of a few of the existing structures and the clearance and redevelopment of the remainder of the site.

A mixed-use development is proposed including residential accommodation, shops and restaurants, a library, offces and workplaces around a re-configured market.

A ventilation and extract statement has been issued separately and this document mainly focuses on the development of the Market/Food & Event Hall. Any additional food / beverage and retail outlets that may develop within future phases of development would also adhere to the requirements set out within the Ventilation & Extract Statement.

The purpose of this document is to provide an overview of the MEP technologies that are likely to be implemented in order to meet the requirements of a Low Carbon strategy for the scheme as a whole. The document identifies technologies that may be used within the different future phases of development on site. All technologies implemented will need to be verified as part of the development of the wider scheme / future phases whilst ensuring that the requirements of the Low Carbon strategy are met.

2 – Proposed Scheme

We understand that the Queens Market development will include the following spaces:

- Information Point
- Future Development
- 1 bed and 2 bed residential units
- Event Hall & Market / Food Hall
- Offices
- F&B Retail
- Library
- External Space

A high level description of the MEP strategy for each of the main developments in this scheme is presented below:

Residential

Strategy	Source/Plant	Description
Heating	Option I: (Preferable): Air Source Heat Pumps (ASHP) Option II : Gas Fired Condensing Boilers	Radiators – low temperature hot water
Ventilation	Mechanical ventilation with heat recovery – MVHR	Located in the utilities store can provide fresh air supply to each apartment
Fire Suppression	Sprinkler system – Sprinkler tank & pumps on the ground floor Also the residential areas of each building will be provided with a dry rising main.	All dwelling houses and apartments should be provided with an automatic fire suppression system, designed and installed in accordance with BS 9251. Any requirement to provide the non-residential areas with sprinkler protection to be reviewed with the fire engineer.
Domestic Water supply	- Water Tank - Booster Set – Boosted cold water supply	- Tank located in the water tank plantroom (potentially ground floor). - – Booster Set in the water tank plantroom
Domestic Hot Water	Option I: High Temperature ASHP – Plate heat exchanger (PHE) with how water storage. Option II : Heat Interface Units (HIUs) connected to a central gas fired condensing boiler	- HT ASHP – PHE with storage - HIU provide space heating and domestic hot water.

Event Hall & Food hall

Strategy	Source/Plant	Description
Heating	Air Source Heat Pumps (ASHP)	Low temperature hot water: - Underfloor heating - Radiators - Overdoor heaters
Heating & Cooling	Variable refrigerant flow (VRF)	Events Hall: VRF - Fan coil units
Heating & Cooling	Direct expansion air conditioning (DX)	Retail units across the glazed wall Bars, Offices & commercial units in the heritage side of the development.
Ventilation	Air Handling Units (AHUs)	Located on the ground floor external plant area. Integral heat pumps, filtration, heat recovery and attenuation is provided.
	Kitchen Extract / Supply	Kitchen extract Fan with extensive filtration: Capture Ray UV-C Grease & Odour in the canopies, Panel & bag filters, Carbon filter, run around coil, attenuation, LTHW coils (Supply Fan) etc. This is described in more detail in the Ventilation and Extract Statement.
	Mechanical ventilation with heat recovery – MVHR	MVHRs are used in the toilets, bars and commercial units on the south side of the development (Heritage side).
Fire Suppression	A sprinkler system is not required	-
Domestic Water supply	- Water Tank - Booster Set – Boosted cold water supply	- Tank located in the water tank plantroom (potentially ground floor). - – Booster Set in the water tank plantroom
Domestic Hot Water	High Temperature ASHP Electric point of use	Plate heat exchanger with hot water storage. Food units – tenant to provide.
Drainage – Food Units	Internal installation shall comply with requirements given in BS EN 12056.	- Each food unit shall be provided with a plastic waste pipe. This will be capped off for tenant's fit out. - Each unit which will intend to discharge grease into the above ground drainage system, will have to install an enzyme dosing system as part of the fit out, as no below ground drainage grease traps will be installed. - Any condensate which will be generated within the unit will be taken to a 63mm connection provided via a waterless trap.

Office Space

Strategy	Source/Plant	Description
Heating	Option I: (Preferable): Air Source Heat Pumps (ASHP) Option II : Gas Fired Condensing Boilers	Terminal Units: Trench heaters Radiators FCUs or Chilled Beams
Ventilation	Air Handling Units (AHUs)	Located on the roof plant. Integral heat pumps, filtration, heat recovery and attenuation shall be included.
Fire Suppression	A sprinkler system is not required	-
Domestic Water supply	- Water Tank - Booster Set – Boosted cold water supply	- Tank located in the water tank plantroom (potentially ground floor). - Booster Set in the water tank plantroom
Domestic Hot Water	Option I (Preferable): High Temperature ASHP Option II : Gas Fired Condensing Boilers with plate heat exchanger and DHW storage	Plate heat exchanger with hot water storage. Plate heat exchanger with hot water storage.

Food and Beverage / Retail

Strategy	Source/Plant	Description
Heating & Cooling	Option I: Air Source Heat Pumps (ASHP) Option II: Variable refrigerant flow (VRF)	Fan coil units
Ventilation	Air Handling Units (AHUs)	Located on the roof plant area of the building. Integral heat pumps, filtration, heat recovery and attenuation is provided.
	Kitchen Extract / Supply	Kitchen extract Fan with extensive filtration: Capture Ray UV-C Grease & Odour in the canopies, Panel & bag filters, Carbon filter, run around coil, attenuation, LTHW coils (Supply Fan) etc. This is described in more detail in the Ventilation and Extract Statement. Provision of equipment tbc as part of tenancy agreement where required.
	Mechanical ventilation with heat recovery – MVHR	If there is not sufficient riser space for a centralised ventilation system then MVHRs could be utilised to provide decentralised ventilation to each commercial unit.
Fire Suppression	A sprinkler system is not required	-
Domestic Water supply	- Water Tank - Booster Set – Boosted cold water supply	- Tank located in the water tank plantroom (potentially ground floor). - – Booster Set in the water tank plantroom
Domestic Hot Water	High Temperature ASHP Electric point of use	Plate heat exchanger with hot water storage. Food units – tenant to provide.
Drainage – Food Units	Internal installation shall comply with requirements given in BS EN 12056.	- Each food unit shall be provided with a plastic waste pipe. This will be capped off for tenant's fit out. - Each unit which will intend to discharge grease into the above ground drainage system, will have to install an enzyme dosing system as part of the fit out, as no below ground drainage grease traps will be installed. - Any condensate which will be generated within the unit will be taken to a 63mm connection provided via a waterless trap.

Library

Strategy	Source/Plant	Description
Heating	Option I: (Preferable): Air Source Heat Pumps (ASHP)	Perimeter heating : Radiators/ Trench heaters or Underfloor heating
Ventilation	Air Handling Units (AHUs)	Located on the roof plant area of the building. Integral heat pumps, filtration, heat recovery and attenuation is provided. Potential displacement ventilation strategy
Fire Suppression	A sprinkler system is not required	-
Domestic Water supply	- Water Tank - Booster Set – Boosted cold water supply	- Tank located in the water tank plantroom (potentially ground floor). - Booster Set in the water tank plantroom
Domestic Hot Water	Option I (Preferable): High Temperature ASHP Option II : Gas Fired Condensing Boilers with plate heat exchanger and DHW storage	Plate heat exchanger with hot water storage. Plate heat exchanger with hot water storage.