



GEANEY ENGINEERING CONSULTANTS

PROFESSIONAL BUILDING SERVICES & ENERGY REDUCTION CONSULTANTS

MECHANICAL EQUIPMENT SCHEDULE

***PROJECT NAME: Proposed Works at Dunhill EcoPark,
Waterford***

PROJECT REFERENCE: 0595

PROJECT STAGE: Tender

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1.1 GENERAL REQUIREMENTS

All equipment shall be supplied by manufacturers and suppliers who meet the following minimum requirements:

1. References and Proven Performance

- Suppliers shall provide, on request, a minimum of ten satisfactory references for previous installations utilising the same or similar equipment.

2. Fitness for Purpose and Environmental Suitability

- All equipment shall be demonstrably suitable for its intended function and capable of reliable operation under the environmental and weather conditions prevailing at the project site.

3. Regulatory and Standards Compliance

- All equipment and associated systems shall comply with all relevant statutory regulations, including the current Irish Building Regulations, associated Technical Guidance Documents and all applicable DoEY TGD/SDG Documents, EU directives and industry standards.
- All plant and equipment shall bear the CE mark or equivalent approved certification where applicable.

4. Technical Support

- Suppliers shall provide a technically competent representative who is fully knowledgeable in the design, installation, commissioning, and operation of the proposed equipment.

5. Triple E Scheme Compliance

- Where applicable, equipment falling under a Triple E technology category shall be listed on the Triple E Register or shall meet all criteria defined for that technology.

WARRANTIES

- The contractor shall provide manufacturer warranties or extended warranties for all equipment for a minimum period of 15 months beyond Practical Completion.
- Warranty documents shall be submitted as part of the handover documentation.

NOTES

- Schedules must be read in conjunction with relevant parts of the Mechanical Specification.

- The contractor shall ensure all proposed equipment fully complies with this specification before procurement.
- Any equipment installed that does not comply with the specification shall be removed and replaced at the contractor's cost.
- References to "equipment" include all plant, components, accessories, and materials.
- All required as-built documentation, commissioning sheets, and certification shall be submitted.
- Alternative products must be submitted for approval with full datasheets. No substitutions may be installed without prior written approval from the Engineer.

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1. Electrical Space Heaters

Reference	Description	Capacity	Max. Operating Temp.	Specification
EH-N1	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	1430W	Surface temperature limited for safe touch operation (typically $\leq 75^{\circ}\text{C}$)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - Eco Green and XANA Heaters Panel 13
EH-N2	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	990W	Surface temperature limited for safe touch operation (typically $\leq 75^{\circ}\text{C}$)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - Eco Green and XANA Heaters Panel 9
EH-N3	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	770W	Surface temperature limited for safe touch operation (typically $\leq$	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - Eco Green and XANA Heaters Panel 7

			75°C)	
EH-N4	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	2000W	Surface temperature limited for safe touch operation (typically ≤ 75°C)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - ECO Green Ultra and Victoria Panel 12
EH-N5	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	550W	Surface temperature limited for safe touch operation (typically ≤ 75°C)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - Eco Green and XANA Heaters Panel 5
EH-N6	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	2000W	Surface temperature limited for safe touch operation (typically ≤ 75°C)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls., - ECO Green Ultra and Victoria Panel 12

EH-N7	FARHO Electric Radiator – Oil filled electric radiator with digital programmable controls and WiFi capability	2000W	Surface temperature limited for safe touch operation (typically $\leq 75^{\circ}\text{C}$)	230V single phase electric radiator, aluminium body, FARHOIL thermal fluid, programmable thermostat, wall mounted complete with brackets and controls. - ECO Green Ultra and Victoria Panel 12
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2. ROOM THEROSTATS

Description	Electrical	Specification	Quantity
Mains operated programmable thermostat with digital display and lockable keypad	230V/1/50Hz	EPH Controls CDTP2 or equivalent	7

Notes

1. Room Thermostats shall Clearly display the room temperature and set point temperature.
2. Room Thermostats shall be connected to the BMS for zone control and activation.

3. MECHANICAL VENTILATION HEAT RECOVERY UNITS

Reference	Description	Required Airflow Rate	NR Level Max. (dB)	Electrical	Electrical (Integral Heater Battery)	Filter	Specification	Control
HRU-01	Mitsubishi Electric Lossnay LGH-150RX5-E / LGH-150RVXT3-E commercial heat recovery ventilation unit complete with total heat exchanger	1500m ³ /hr @ 180 Pa ESP	Approx. 40–45 dB(A) @ high speed	230V / 1Ph / 50Hz (RX5-E) or 380–415V / 3Ph / 50Hz (RVXT3-E range)	400V/3/50Hz	Standard G4 / ISO 16890 Coarse 60% washable filters with optional M6 / F8 high efficiency filters	Ceiling concealed commercial MVHR unit with simultaneous supply and extract air streams, total heat recovery core, EC fans, constant airflow / pressure control capability, bypass ventilation mode, low height casing for ceiling void installation, compatible with Mitsubishi City Multi and Mr Slim systems. Unit complete with condensate drain, access panels, filters and all controls.	Mitsubishi PZ-62DR-E digital backlit LCD controller with weekly timer, fan speed control, bypass control and CO ₂ monitoring compatibility.

Notes:

1. The contractor shall supply and install all interconnecting control wiring
2. Flexible Connections shall be provided at All Ductwork Connections to Mechanical Ventilation Heat Recovery Units. Flexible Connections shall be Class M0 Fire Resistance and Air Tightness Class B in accordance with EN1527 and EN1751.
3. MVHRU'S to be provided with all ancillary equipment for complete installation, commissioning and operation of the system in line with manufacturers' requirements.

4. CONDENSATE PUMPS

Reference	Description	Electrical	Specification	Notes
CP-01	Condensate Pump with submersible secondary reservoir c/w anti siphon device Flow rate 6L/h @ 10m head 2m Max suction lift 19dB(A) @ 1m	230V/1/50Hz	Aspen Silent + Mini Orange or Equivalent	All Condensate Pumps shall be c/w Filters, 6mm Vinyl Braided Tube and Adaptors to connect to Gravity Drainage

5. EXTRACT FANS

Reference	Description	Required Airflow Rate	NR Level Max. (dB)	Electrical	Specification	Control
EF-01	150mm Diameter Inline mixed flow Extract Fan with Brushless DC Motor. Fan shall be c/w 100% adjustable Speed Control and adjustable Run on Timer Set at 15mins	250m3/hr @ 50 Pa ESP	35	220V-240V/1/50Hz	S&P TD-450/100 SILENT Ecowatt or Equivalent	PIR
EF-02	125mm Diameter Inline mixed flow Extract Fan with Brushless DC Motor. Fan shall be c/w 100% adjustable Speed Control and adjustable Run on Timer Set at 15mins	150m3/hr @ 50 Pa ESP	35	220V-240V/1/50Hz	S&P TD-350/100 SILENT Ecowatt or Equivalent	PIR

Notes:

1. Fans must have their own isolators and speed controllers.
2. Fan is to be complete with all necessary mounting arrangements, anti-vibration pads and flanges etc.
3. Contractor shall verify all equipment electrical loads. Where loads differ from the electrical design the Contractor shall be responsible for re-design of electrical requirement
4. Fans shall be selected mid-curve.

6. GRILLES

Reference	Description	Finish	Dimensions (mm)	NR Level Max. (dB)	Specification	Quantity
EG-A	Extract Air Disc valve with adjustable core constructed from galvanised steel with invisible fixing clips and mounting neck	White RAL9010	100Ø	30	Madel BWC-N or equivalent	1
EG-C	Extract Air Disc valve with adjustable core constructed from galvanised steel with invisible fixing clips and mounting neck	White RAL9010	150Ø	30	Madel BWC-N or equivalent	2
RG-D	4-way type return air grille with removable core constructed from extruded aluminium	Selected RAL (Contractor to confirm with Architect)	450x450	30	Madel DBQ or equivalent	2
SG-D	Multi-directional type supply air diffuser with 4 adjustable sectors constructed from galvanised steel and nylon bearings	Selected RAL (Contractor to confirm with Architect)	450X450	30	Madel Play or equivalent	2
RG-B	4-way type return air grille with removable core constructed from extruded aluminium	Selected RAL (Contractor to confirm with Architect)	600x600	30	Madel DBQ or equivalent	3
SG-B	Multi-directional type supply air diffuser with 4 adjustable sectors constructed from galvanised steel and nylon bearings	Selected RAL (Contractor to confirm with Architect)	600x600	30	Madel Play or equivalent	4

Notes:

1. All grilles shall have independent duct mounted volume control dampers.
2. All grilles to be mounted & supported independently of the ceiling grid.
3. All Grilles to be supplied with c/w insulated galvanized steel plenum box with spigot to suit branch duct connection

7. **ATTENUATORS**

Reference	Description	Weight	Attenuation at 1000Hz	Specification	Quantity
ATT-A	900mm Long Sound attenuator Constructed from galvanised steel to suit 200 Diameter Duct, C/W Rock wool (mineral wool) with a density of 70 kg/m ³ . Fire Resistance: Class M0.	8.63kg	22dB	S&P SIL200 or equivalent	6

8. VOLUME CONTROL DAMPERS

Reference	Description	Nominal Diameter (mm)	Specification	Quantity
VCD-B	Circular Manual Volume Control Damper constructed from galvanised Steel casing and 1.2mm galvanised steel blade Circular and f it and anti-tamper locking screw. Class C air tightness up to 1000Pa conforming to HVCA ductwork specification DW144	200	Swegon Actionair CB-200 or equivalent	11

9. CO2 SENSORS

Description	Carbon Dioxide Measurement	Operating Temp.	Analogue Outputs	Digital Outputs	Electrical	Quantity
Carbon Dioxide Sensor	0 to 2000 ppm	0 to 50°C	0 to 10V	RS485, Modbus	24V	4

10. DOOR TRANSFER GRILLE

Reference	Description	Finish	Dimensions (mm)	Specification	Quantity
DTG-FA	Door transfer grille c/w covering steel grilles, 1 hour fire rated to BS476 Part 22	Selected RAL (Contractor to confirm with Architect)	600x300	Waterloo WFVG or equivalent	1

11. THERMOSTATIC MIXING VALVES

Reference	Description	Finish	Max. Operating Pressure	Connections	Specification	Quantity
TMV-A	Thermostatic Mixing Valve suitable for potable water c/w integral strainers, check valves, isolation valves, flow regulator (8 L/min) and wall mounting bracket .TMV3 Approved	Chromium plated	10 bar	15mmØ	Horne H15-22C or equivalent	2
TMV-B	Thermostatic Mixing Valve suitable for potable water c/w integral strainers, check valves, isolation valves, flow regulator (8 L/min) and wall mounting bracket .TMV3 Approved	Chromium plated	10 bar	22mmØ	Horne H20-22C or equivalent	1