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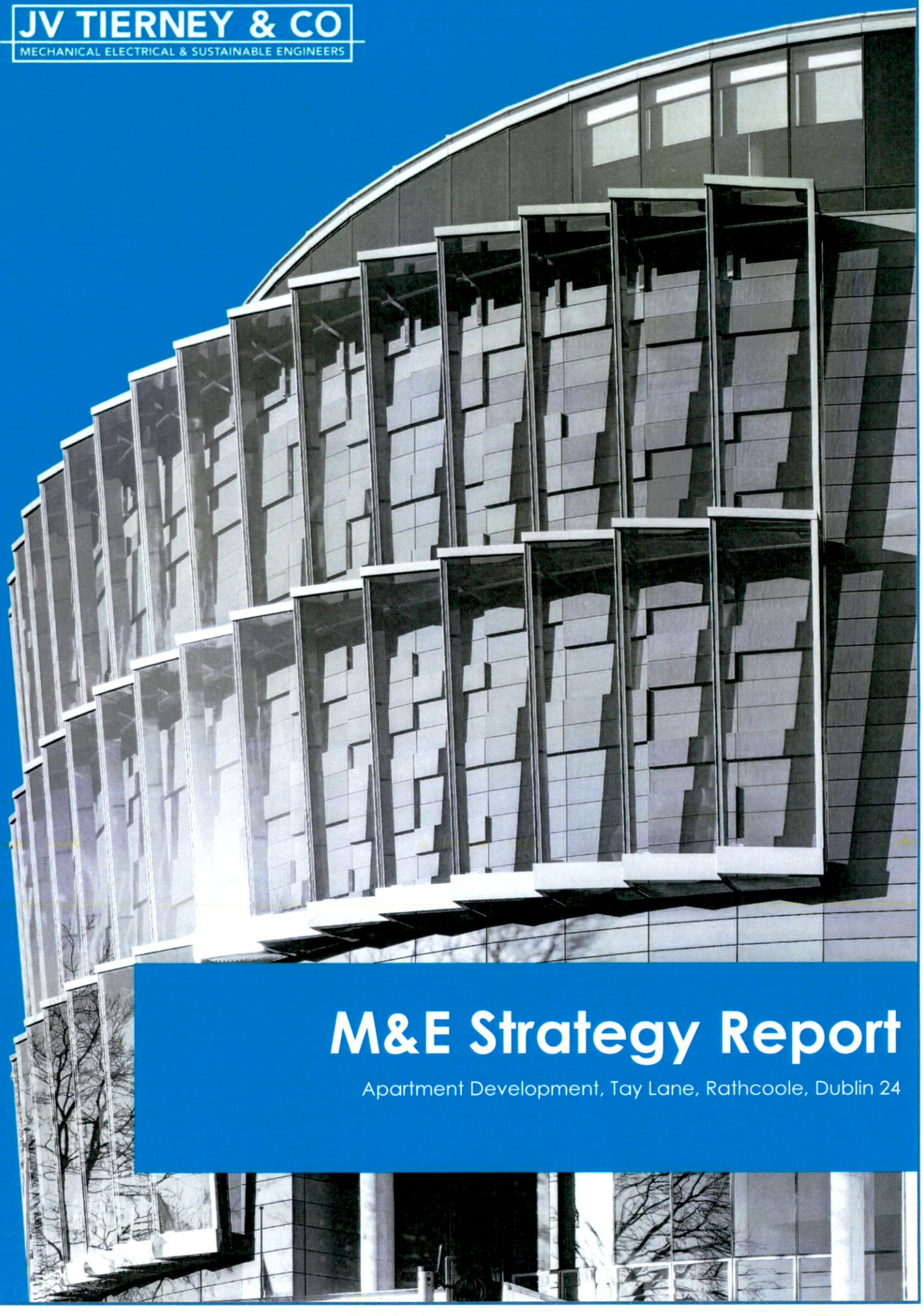

M&E Strategy Report

Apartment Development, Tay Lane, Rathcoole, Dublin 24

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APARTMENT DEVELOPMENT

TAY LANE

RATHCOOLE

DUBLIN 24

MECHANICAL & ELECTRICAL SERVICES

STRATEGY REPORT

Revision	Date	Prepared By:	Checked By:
0	15-08-2022	RC/SM	NT

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Introduction:

The report summarizes the M&E approach for the apartment scheme at Rathcoole, Co. Dublin. The report discusses the mechanical and electrical design elements to meet the criteria to create a sustainable approach to M&E design. The design requirements are developed to achieve a minimum A3 BER rating.

The proposed development will principally consist of the construction of a four-storey apartment block consisting of 58no. age-friendly residential apartments comprising 20 no. 1-bedroom units and 38no. 2-bedroom units. The proposed development also includes the provision of an ancillary community facility, associated accommodation including refuse stores and cycle stores, car and cycle parking, landscaped communal and public open space and boundary treatment works. Planning permission is also sought for internal access roads and pedestrian / cycle pathways and linkages, public lighting, landscaping, and all associated site and development works to facilitate the proposed development.

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Mechanical Services Strategy:

51-Mechancial Plant:

Main mechanical heating &ventilation plant will be located local to each apartment, rather than a centralized system in one location. The following items are the main mechanical plant items to be located within the apartment;

- Exhaust air heat pump c/w buffer vessel
- Heating manifold
- Water services manifold

The below items are the main mechanical plant items to be centrally located for the overall development;

- Mains water break tank and booster
- Cold water storage tank and booster

See Appendix A for space requirements and proposed locations for plant for the apartment block.

52-Soils and Waste:

Drop points to be coordinated with spaces below to avoid running pipe work through areas with sensitivity to noise such as bedrooms. **The architectural design will need to take into account the following important parameters;**

- Bathrooms and toilets of different apartments should be vertically aligned.
- To avoid clashes, rain water pipe work will need to be coordinated with soils and waste pipe work.

53-Water Services:

Mains water will be run from the meter and feed the mains water break tank. The mains water break tank will need to be located in a weathered and insulated enclosure. The mains water booster pump will pump water to the Cold-water storage tank (CWST), external taps and the kitchens of each apartment. The CWST will be of a *split sectional tank* configuration. Water will be pump fed via the cold-water booster to the apartments to allow for pressurization of the cold-water system.

The exhaust air heat pump integrated buffer vessel will provide hot water to each apartment. The exhaust air heat pump will also have an electric immersion to provide for top-up of hot water during very cold weather. A mains water point will be provided at the front and rear of the development.

54-Gas Services:

No Gas will be provided to the development.

56-Heating Services:

Low Pressure Hot Water (LPHW) will be generated by an Exhaust Air Source Heat Pump located in kitchen/utility room. Each room will be heated via radiators. Each room will be controlled via a dedicated thermostat. Heat loads will be based on heat loss from a building with U-Values that comply with Part L of the Building Regulations. Towel radiators will be provided in each bathroom.

57-Ventilation Services:

An exhaust air system will extract stale air from the apartment to ensure circulation of air. Fresh air will enter the apartment through permanent vents located in the external walls.

- Permanent fresh air vents will be located in each room and will consist of a 100mm diameter duct complete with an adjustable valve.
- Extract points will be located in the kitchen, bathrooms and other wet areas.
- An air tightness target of 2.5$m^3/hr/m^2$ to be achieved.
- 2 external louvres will be provided measuring 250mm x 100mm.
- In addition, kitchen extract will be provided to the outside.

58-Protective Services:

Each apartment will be provided with a CO2 Fire Extinguisher and a Fire Blanket. Both items are to be located in the kitchen space.

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Electrical Services Strategy:

60-Site Services

An allowance should be made for locating an ESB sub-station on the site. An Off-loader/sub-distribution LV switch room measuring 4.0m (L) x 2.2m (W) x 2.8m (H) must be provided on the ground floor, adjacent to the sub-station.

An LV switch board measuring 2.5m (L) x 1.0m (W) x 2.8m (H) must be provided adjacent to the substation, in an easily accessible location of the corridor, and where it cannot be accessed from a protected corridor/ staircore. A fallback of 1200mm must be maintained directly in front of all switchboards. Therefore, this room size must measure 2.5m (L) x 2.2m (W) x 2.8m (H).

Switchboards should be located in a fire rated enclosure. Site services power should run out from a landlord switch board to service items such as the site lighting etc.

A telecoms room measuring 2m x 2m should also be provided at ground level to allow data providers to terminate their cables. Data ducting to be provided as per the utility providers requirements.

An intercom shall be provided at the entrance which will allow for audio and visual communication.

61-Electrical Plant:

The consumer unit will be located within 2 meters of the entrance of each apartment. The security panel and patch panel will also be located in close proximity to the entrance. LV and ELV tray will be used to distribute cables down the spine of the house. Plastic and steel conduit will be used throughout and all switches/sockets outlets, etc. are white plastic.

See Appendix A for electrical plant requirements.

62-General & Data Services:

MK type or similar sockets and switches will be provided throughout. TV Co-axial cables will be provided to main living room/sitting room and main bedroom. 2 no. data points will be provided to the living spaces and main bedroom. Data cables will be CAT6a to ensure internet speeds and to future proof for improvements in the data network. Outlets are summarized below:

Electrical Outlet Quantities	
Kitchen	5 twin sockets
Main Bedroom	4 twin sockets, 1 co-axial
Bedroom	3 twin sockets
Living Room	4 twin sockets, 1 co-axial, 1 telecom outlet
Bathroom	1 Shaver Socket
Hallway	1 twin socket

63-Lighting Services:

All fitting shall be LED. Plain ceiling roses will be installed to allow the future occupant to fit their desired pendants. Switching will be provided to control the lighting. Lighting on the core stairs will be provided using wall mounted fittings generally.

Lighting	
Kitchen	Ceiling rose
Main Bedroom	Ceiling rose
Bedroom	Ceiling rose

Living Room	Ceiling rose
Bathroom	IP65 rated light
Hallway	Ceiling rose

68-Protective Services:

Smoke/Heat/Carbon monoxide detectors will be fitted to ensure compliance with IS3218 and Part B of the Building Regulations. Smoke Detectors will be provided every 7.5m in corridor and within 3m of all bedroom doors to ensure compliance with an LD1 or LD2 system. A heat detector in each apartment corridor, a sounder in each bedroom and a sounder on any balcony connected back to the landlord system will also be provided. Detectors will be mains fed to ensure compliance with the ETCI. Wiring for an intruder alarm will be provided.

69-Renewable Services:

PV panels located on the roof will be provided to allow for contribution towards part L compliance. This will be in addition to the renewable contribution via the exhaust air heat pump. Renewable Energy will be required for both the apartments and landlord area.

See Appendix A for space requirements for PV Panels.

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Appendix A:

Apartment Services Requirements	
Local:	
Exhaust Air Heat Pump c/w ductwork:	1000mm x 1000mm x 2400mm (h) space for unit to be located. 800mm clearance required in front of unit for full height.
Heating Manifold:	900mm (W) x 400mm x 100mm deep manifold to be located centrally within the apartment (Store Room is acceptable).
Water services manifold:	550mm (W) x 400mm x 100mm deep manifold to be located in kitchen and bathrooms.
Cold & Hot Water Pump:	To be located in utility room due to noise generated.
Exhaust air:	90mm deep ductwork to run to all wet rooms. Extract valve to be located at ceiling. 254mm x 110mm supply and exhaust duct to external.
Consumer Unit:	4 row electric consumer unit to be located within 2 meters of the main entrance.
Ceiling Void:	200mm ceiling void required throughout. 350mm ceiling void required in bathroom, corridor and storerooms.

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Central:	
Ceiling Void:	350mm ceiling void required in landlord corridors.
Mains Water Storage Tank:	Located in Water Services Plant Room. 5,000 litres required. Sample tank size = 3.15m X 1.15m X 2m(H).
Mains Water Booster Pump:	Required. Footprint TBC.
Cold Water Booster Pump:	Required. Footprint TBC.
Cold Water Storage Tank:	227 litres per apartment. For 58 No. Apartments, this amounts to 13,116 litres. Sample tank size = 4.15m X 2.15m X 2m(H).
Water Treatment:	1000mm x 1000mm x 1000mm water treatment plant to be located. Dependant on water quality in the area.
Sprinkler Tank.	Not Required
Lift Overrun:	Refuge space required at lift overrun. Size as per EN81-20.
Sprinkler Booster.	Not Required
Diesel Generator:	Not Required
Lift Overrun:	Refuge space required at lift overrun. Size as per EN81-20.
Mechanical Riser:	One per core. Mains Water Pipework, Cold Water pipework, and Water meters necessary. 1400mm (W) X 600MM (D). Riser to open directly in landlord space.
Electrical Riser	1700mm x 600mm deep void required for transfer of electrical containment. Riser to open directly in landlord space.
PV Panels:	Assume 1 number 1.635m² panel per apartment to be located on roof.
Car charging point	TBC – Numerous options available.
Communications & Incomer:	2000mm x 2000mm x 2200mm (H) main equipment room to be provided.
Sub Station	4.0m (L) x 3.5m (W) x 2.8m (H).
Sub distribution board LV switch room	3.0m (L) x 3.5m (W) x 2.8m (H).

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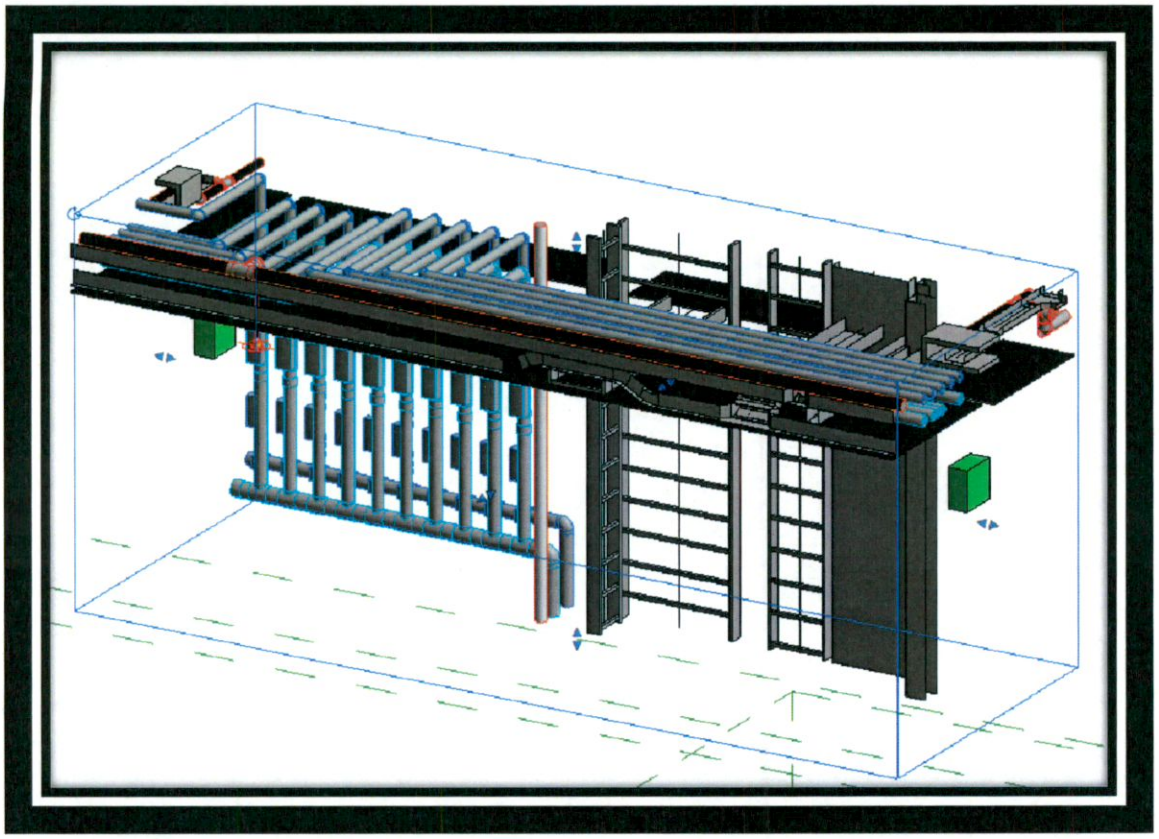

Figure 1: Riser Detail

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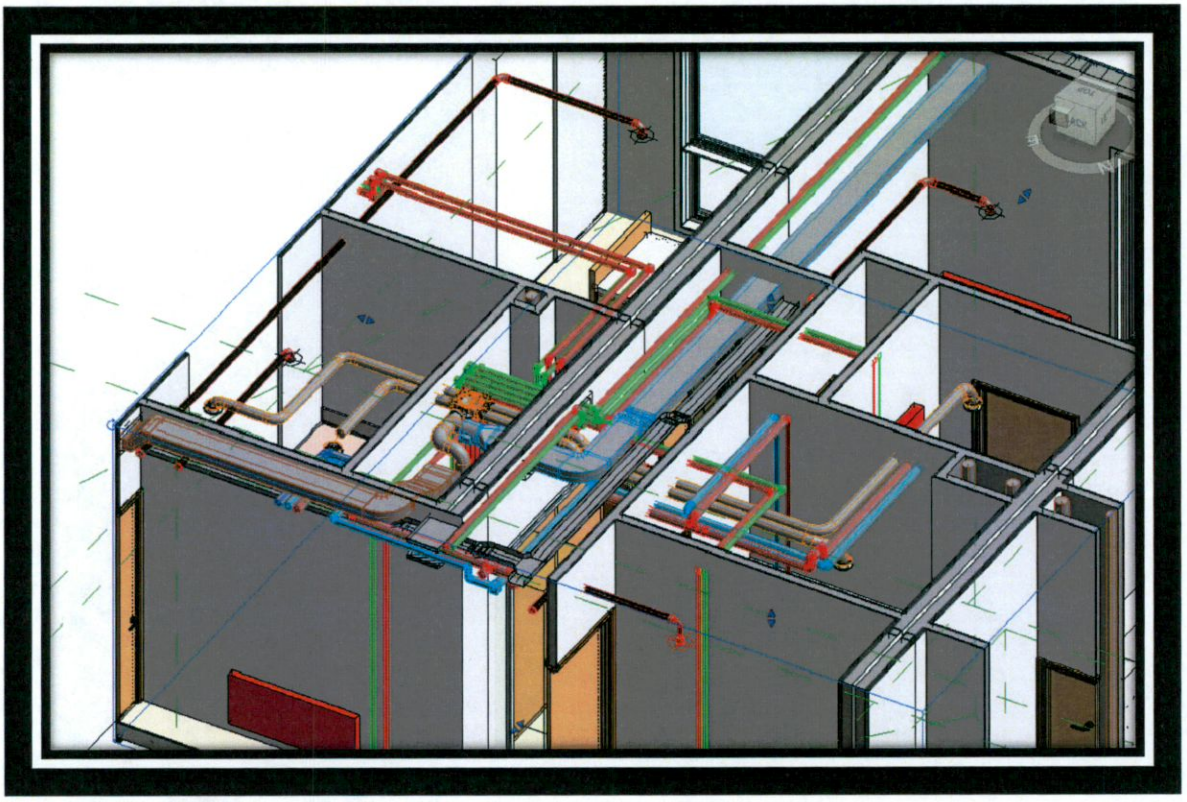

Figure 2: Typical Apartment Services

QUALITY ISO 9001:2015 NSAI Certified
ENVIRONMENT ISO 14001:2015 NSAI Certified
HEALTH & SAFETY OHSAS 18001:2007 NSAI Certified

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