



**BUILDING SERVICES LIMITED.  
CONSULTING ENGINEERS**

**Address:  
Unit 6 Clondalkin Business Centre,  
Crag Crescent,  
Clondalkin,  
Dublin 22  
D22 A9X3**

**Telephone: 01 457 2025  
Facsimile 01 457 2027  
Mobile: 086 3828065  
Email: [info@medservices.ie](mailto:info@medservices.ie)**

**Development of Market Lands**

**Dublin**

**Co-Living Development**

**Mechanical and Electrical Outline**

**Part L & NZEB Report**

Project	Ref	REV	Date	Prepared	Checked
2001-005	Part L / NZEB	D	28/08/2020	OS / SD	PS

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## **Introduction**

The development will consist of:

1. Demolition of all the existing structures on the site (excluding protected archway at 16/17 Halston Street) and the construction of a Shared Accommodation development with a gross floor area of c.16,152 sq. m. set out in 4 no. blocks, ranging in height from 5 to 14 storeys, to accommodate 360 no. bedroom units on a total site area of 2,466sq.m.

i.

Block A: construction of 186 no. bedroom units (in 40 no. “cluster” apartment units), with living / kitchen space provided in each of the 40 no. apartments; shared communal space, reception, laundry and café at ground floor level, gym, games area/general amenity areas, co-working space at first floor level and bicycle parking provided at basement level (224 no. spaces provided), in a 9 to 14 storey block (c.8,025 sq. m. gross floor area) above basement (c.551 sq. m.) on a site measuring c.905 sq. m at 6 and 8 Mary’s Lane bounded by Mary’s Lane to the south and Halston Street to the west.

ii.

Block B: construction of 35 no. bedroom units (in 7 no. “cluster” apartment units), with living / kitchen space provided in each of the 7 no. apartment units, shared communal space, communal amenity space at ground floor level, rooftop garden and bicycle parking provided at ground level (35 no. spaces provided), in a nine storey block (c.1,887) sq. m. gross floor area) on a site measuring c.345 sq. m at 2 Little Green Street bounded by Little Green Street to the east.

iii.

Block C: construction of 42 no. bedroom units (7 no. “cluster” apartment units), with living / kitchen space provided in each of the 7 no. apartment units, shared communal space, communal amenity space at ground floor level, rooftop garden and bicycle parking provided at basement level (39 no. spaces provided), in a nine storey block (c.2,091 sq. m. gross floor area) above basement (c.306 sq. m.) on a site measuring c.427 sq. m. at 4/5 Little Green Street bounded by Little Green Street to the east.

iv.

Block D: the construction of 97 no. bedroom units (7 no. cluster units), with living / kitchen space provided in each of the 7 no. cluster units, shared communal space, reception/lobby, support office, co-work space, amenity areas and coffee dock at ground floor level, meeting rooms, management office, rooftop gardens/terraces provided on a number of floors, and bicycle parking provided at ground level (100 no. spaces provided), in a 5 to 8 storey block (c.4,149 sq. m. gross floor area) on a site measuring c.789 sq. m. at 16/17 Halston Street.

2. Conservation of and works to the existing protected archways located at 17 Halston Street and maintenance works to the Protected Structure with the cleaning of the Stone façade.

3. A total of 398 no. bicycle spaces are proposed to be provided

4. All ancillary site development and landscape works, including retaining walls, sub-station, provision of bin stores, boundary treatments, hard and soft landscaping and provision of foul, surface water and water services on site with connections and modifications to existing.

2. **Building Regulations - Part L 2017 / Part L 2019**

The buildings shall be built to comply with the more onerous requirements of Part L of the Building Regulations.

Part L Conservation of fuel & Energy 2019 Dwellings.

Part L Conservation of fuel & Energy 2017 Other than Dwellings.

Sustainable Energy Authority of Ireland have advised / indicated that we should treat the buildings as commercial property buildings, as all the apartments shall be rented over a long period with a central heating source, rather than individual heating source per apartment.

Non Domestic Energy Assessment Procedure - NEAP to be utilised rather than the residential / Domestic Energy Assessment Procedure – DEAP.

A sample building was assessed, based on the best available information and the result was in compliance with Part L of the Building Regulations for other than Dwellings 2017.

**Part L U-Value requirements 2017 - Other than Dwellings**      **Proposed U Values**

Flat Roof	0.20 W/m <sup>2</sup> k	0.16 W/m <sup>2</sup> k
External Walls	0.21 W/m <sup>2</sup> k	0.13 W/m <sup>2</sup> k
Ground floor	0.21 W/m <sup>2</sup> k	0.15 W/m <sup>2</sup> k
Glazing	1.40 W/m <sup>2</sup> k	0.70 W/m <sup>2</sup> k Triple.

**Part L U-Value requirements 2019 – Dwellings**      **Proposed U Values**

Flat Roof	0.20 W/m <sup>2</sup> k	0.16 W/m <sup>2</sup> k
External Walls	0.18 W/m <sup>2</sup> k	0.13 W/m <sup>2</sup> k
Ground floor	0.18 W/m <sup>2</sup> k	0.15 W/m <sup>2</sup> k
Glazing	1.40 W/m <sup>2</sup> k	0.70 W/m <sup>2</sup> k Triple.

Air tightness requirements for each building shall be 3.0 m<sup>3</sup>/m<sup>2</sup>/hr @ 50 Pa, not the default value of 5.0 m<sup>3</sup>/m<sup>2</sup>/Hr @ 50 Pascal.

The buildings shall be pressure tested to ensure the Main Contractor works complies with the Building Regulation requirements for air tightness and the specification set in the tender.

### 3. **Mechanical Services**

#### **Heating Installation.**

Based on the initial review of the various options available for the central heating source and the heat distribution pipework, to serve the heat interface unit within each apartment, we chose to utilise Air to Water / Water to Water Heat pumps, to provide the heating within the building.

This arrangement will meet the minimum 20% Renewable Energy Ratio requirement.

Based on discussions with SEAI regards the development, central heating plant and the distribution network. SEAI advised the Energy Assessor to utilise the NEAP assessment and not the DEAP assessment for Dwellings.

The NEAP assessment for the Block B confirmed that the selection would meet the Part L requirements and would pass all the requirements.

Items	Min Part L 2017 requirements	Proposed / Actual Calculated
EPC	Less than 1.0	0.99
CPC	Less than 1.15	1.04
RER	Min 20%	27%
Air tightness	5 m3/m2/Hr	3 m3/m2/Hr

#### **Water Services Installation.**

The mains water / drinking water shall be provided by a break tank located at Basement or Ground level connected to variable speed booster pump set (duty / standby) to provide the pressurised rising main to each “cluster” apartment unit.

The water services shall be provided by central cold water storage tanks located at Basement or Ground Level, that shall be connected to variable speed booster pump set (duty / standby) to provide pressurised rising main to each apartment.

The hot water shall be provided within each “cluster” apartment unit by the heat interface unit.

#### **Soils and waste installation.**

The soils and waste installation shall serve all the “cluster” apartment units / sanitary ware within the buildings, the uPVC vertical pipes shall drop to the lower level and shall be connected into the cast iron horizontal pipework run at high level in the Retail units and shall drop into the main drain connection.

### **Mechanical Ventilation Heat Recovery installation.**

Each “cluster” apartment units, within each block shall have a MVHR ventilation installation, to supply fresh air into the bedrooms / living room and extract air from the En-suite adjacent each bedroom.

The kitchen extract shall exhaust direct to atmosphere.

### **Smoke Ventilation installation.**

The protected lobbies shall be provided with 1.5 m<sup>2</sup> smoke vent shaft to atmosphere and an 1.0 m<sup>2</sup> Ventilation louvre / smoke damper, to ensure the protected lobbies, are free of smoke, to allow all the residents escape the building safely.

The smoke dampers, shall be activated by the local smoke detector within the protected lobbies.

A central control panel shall monitor, each smoke damper position and allow the operation of each smoke damper remotely by fire officer, from the ground floor.

The Escape Stairs in each building, shall have also smoke ventilation installation.

### **Dry riser installation**

The four buildings shall have a 100 mm dry riser from basement / ground to roof level, complete with a landing valve at each floor level, within each building and the inlet breeching piece located close to the entrance of each building.

The dry risers are required where the building floor levels exceed 20 meter in height above the ground level. Part B Section 5.

#### 4. **Electrical Services**

##### **Power supply.**

Each block shall be provided with a Three phase power supply, as agreed with the Electricity Supply Board.

Block A & D shall require MV Substation / Switch room to supply power supply to the buildings.

Block B & C shall have switch rooms only as much small than the two other buildings.

##### **Power distribution.**

The main distribution board within each building shall distribute the power supplies to each “cluster” apartment unit, lift installation and retail units.

Each “cluster” apartment unit shall have a single-phase or three phase power distribution board, to serve all the requirements within the “cluster” apartment unit.

Energy consumption shall be monitored to assess / record the energy consumption.

##### **Internal / External Lighting.**

The general lighting shall be provided by a mixture of low energy LED lighting within the common spaces, stairs, lift shafts and the apartments. (60 Lumens / watt or better)

External lighting shall be LED type, IP65 rating for external installations.

##### **Emergency Lighting.**

Each block shall be provided with an Emergency lighting installation to IS: 3217: 2013 to serve all the escape routes, corridors, protected lobbies, stairs to the final exits.

The emergency lighting shall incorporate, all low energy LED lighting for the corridor lighting, wall or ceiling lighting in the stairs and LED exit signage. All standalone emergency lighting type lighting with integrated 3-hour battery packs.

##### **Fire Alarm Installation.**

Each block shall be provided with an L 1 Addressable Fire Alarm installation to IS: 3218: 2013, to serve all the “cluster” apartment units, escape routes, lift shafts and the final exits.

Each “cluster” apartment unit, shall have a separate LD 3, fire alarm installation.

##### **General Services.**

Each “cluster” apartment unit, shall have small power and switched twin sockets, served by the power distribution board within the “cluster” unit.

##### **Television / Data.**

The television and data installation in each “cluster” apartment unit within each block, shall serve all “cluster” apartment units.

##### **HVAC Wiring.**

All HVAC equipment within each block shall be connected to the Landlord power supply within each of the buildings.

## 5. **Residential Sprinkler Installation Services.**

The four blocks A, B, C & D shall have Category 2 residential sprinkler installations to BS: 5291 :2014

Table 2 – Residential Density

The sprinklers installation shall service each “cluster” apartment unit, within each building.

The common areas, corridors and escape stairs shall not be served by the residential sprinkler installation.

The central water storage and sprinkler pumps shall be located with the Ground floor or Basement plantroom.

## 6. **Lift Services Installation.**

The duplex wheelchair accessible lifts shall serve all the floor levels within each building. 2 No 630 kg 8 Person Lifts shall be installed per building.

Block A 9-14 storey shall have a fireman lift installation. 630 kg, 8 Person.

Block B 9 storey shall have a fireman lift installation. 630 kg, 8 Person.

Block C 9 storey shall have a fireman lift installation. 630 kg, 8 Person.

Block D 4-8 Storey shall have a fireman lift installation. 630 kg, 8 Person.

A Fire-fighting lift is a very specific design of lift with many additional built in safety features. Such lifts have been a design feature of some buildings since BS: 5655-6 :2011. Their protection is covered in Approved Document B and currently the design standard for Fire-fighting lifts is covered in EN: 81 and its general requirements are:

Must conform to EN: 81-20 or 50.

Must serve every floor of a building

Minimum size is 8 persons (630 kg)

1100 mm wide x 1400 mm deep or For Evacuation, 13 person 1100 mm x 2100 mm

Door must be minimum of 800 mm wide.

Must reach furthest floor from FSAL in 60 seconds.

Must have Built-in Water protection from fire-fighting run-off.

Must have self-rescue facilities (an escape hatch and ladder)

Must have a communication system between the lift car and the FSAL.

Have fail safe (dual/backup) power supplies, installed in protected cable.

In its own dedicated protected lift shaft.



When it is activated (put into fire-fighting mode, either by the Fire alarm system or operation by Fire service personnel) the lift Control system will:

Isolates all landing calls and cancels car calls.  
Lift car returns to FSAL and parks with doors open.  
Shaft and machine room lighting is switched on.

It will now only function as:

Single call operation.  
Doors remain closed on arrival.  
Constant pressure control of doors.  
Communication device operative between Lift Car, machine room and FSAL.

7. Appendices

Brirl Report