



Eastern Plaza, Merrion Road.

# Specifications



**LEED:** Targeting LEED V4 Platinum certification.

**ENERGY CENTRE:** The primary energy source to heat and cool the building is from water to water heat pumps located at basement -2 level with dry air coolers located at roof level. LPHW (low pressure hot water) and CHW (chilled water) is circulated and distributed up throughout the building by risers from basement -2 to the top floors.

Heating and cooling to all tenant areas is provided by 4-pipe fan coil units (FCU's). The energy centre also serves heat emitters throughout the landlord areas and the air handling units (AHU's). These have independent, dedicated secondary circuits, connected to a low loss header.

**ABOVE GROUND SOILS AND WASTES:** The above ground soils and waste installation is designed in general as a primary ventilated Type I system, as defined in IS EN 12056- 2:2000 and shall comply with local/national codes and regulations.



**RAINWATER HARVESTING / IRRIGATION:**

A rainwater harvesting systems is included and consists of a network of uPVC pipework appropriately labelled, rainwater collection tank, filtration system, booster pumping system, integrated controls with links to the BMS for fault monitoring and water usage all designed in accordance with BS8515: 2009 + A1 2013. The rainwater collected is reused in the irrigation system and internal WC's and urinals.

**MAINS WATER:** Mains is provided from the incoming mains which runs to the basement of the site. The mains water supply shall serve drinking outlets throughout the buildings by way of a break tank and booster pump(s). Each office tenant is provided with an individual valve connection. This is linked to the BMS system for future billing purposes. The gym and restaurant/café units are provided with metered capped mains water connections.

**COLD WATER:** The main cold water tank is located at basement -2 level. The capacity of the tank will be equivalent to 24 hours interruption to supply and will be served from the incoming mains water in line with Irish Water and Dublin City Council (DCC) requirements (45L per person). Boosted cold water is distributed throughout the building by way of dedicated booster pump to be installed adjacent to the storage tank. Water storage capacity is based on 1 person/10 square meter.

**HOT WATER:** Hot water generation is provided by the water to water heat pumps and a roof mounted ASHP (air source heat pump) with centralised high efficiency calorifiers located at basement -2. This is distributed with a flow and return pipe of 60°C and 55°C respectively.



**LIGHTING:**

**Offices:**  
300 lux maintained illuminance at working place. Additional lighting required for any paper based tasks.

**Main stairs:**  
100 lux maintained illuminance on all treads.

**Secondary stairs:**  
100 lux maintained illuminance on all treads.

**Toilets:**  
150 lux maintained illuminance at floor level.

**SPACE HEATING/COOLING SERVICES:** Heating and chilled water will be provided by water source heat pumps located at basement -2 level with dry air coolers located at roof level. The water to water heat pumps will have associated headers, duty/standby pumping circuits, buffer vessels, pressurisation & expansion equipment, etc.

Heating and chilled water is distributed via a network of insulated pipework throughout the building to serve ceiling mounted water side 4-pipe fan coil units. These shall be controlled via 2-port differential pressure control valves with local temperature sensors. Chilled water is generated at 6.0 °C and returned at 12.0 °C and heating water is generated at 45 °C and returned at 40 °C.



#### **AIR CONDITIONING AND VENTILATION SERVICES:**

A system of forced mechanical ventilation with waterside 4-Pipe Fan Coil Units is provided to serve all occupied areas of the office buildings in accordance with CIBSE guidelines, TGD part F and in accordance with the Sustainability credential of the development.

General office spaces are served by two Heat-Recovery AHU's located in Basement-2 with one serving the tenants on the north side floors and the other serving the south side floors.

Fresh air will be supplied at a rate of 12.0 (dm<sup>3</sup>/s) per person and at an occupancy of 1 person per 10m<sup>2</sup> to the general office spaces with a 10% design margin to allow for meeting rooms/conference rooms etc.

Supply and Return air insulated ductwork are brought to each floor delivering fresh air to the rear of the FCU's and removing stale air via a return air ceiling plenum with return air grilles in the ceiling grid.

4 pipe waterside FCU's provide heating and cooling of the offices facilitating optimum zoning and comfort conditions. The zoning of the FCU system will be in accordance with the BCO standard of 1 nr. FCU/27 sq. floor area in perimeter zones, while internal zones will be provided by FCU's at a range between 50 – 70 sq. per zone. The average ratio of FCU's would be circa. 1/45sq.m.

Sanitary accommodation is supplied at a rate of 8 AC/hr and will be extracted at a rate of 10 AC/hr by a roof mounted supply and extract air handling unit.



**ELECTRICAL DISTRIBUTION SYSTEM:** The Electrical Distribution System in the offices shall be divided between Landlord and Tenant Services with the Landlord system serving all primary plant and common areas. The tenant supplies will serve only the services in the tenant's demise and any dedicated air conditioning systems installed by the tenant for IT rooms.

The landlord system will be derived from the ESB Networks MV system and be metered at LV for the entire landlord areas within the building. A LV Tenant Switchboard will be provided to serve the individual tenants. ESB metering both whole current (WC) and space for CT will be located in the LV Tenant Switch room housing the LV Tenant Switchboard.

Main LV Switchboards shall comply with EN 60439 for a Form 4 type tested switchboard of sheet steel cubicle construction with powder coated finish. Sub Distribution boards shall be of similar specification but Type Form 3 with separate sections for Lighting, General Services and Power. Small panels and mcb boards shall be Type Form 2. Switchboards will come complete with 25% spare capacity in the form of additional circuit breakers and spare space. Facilities for the future installation of power factor correction equipment shall be provided on the Main Landlord LV switchboard.

The main switchboard, and outgoing ways to distribution centre switchboards, and plant control panels will be supplied complete with power metering to provide information on kW/KVA/P.F/A per phase. The meter will have a keypad with backlit LCD Display for operator interface. The meters shall be supplied and fitted by the switchgear assemblers and will be complete with BMS compatible communications interface. Surge protection devices will be provided on the main incomer of each Main LV switchboard and sub distribution board.

Sub main cabling will be distributed from the Main switchboards to Sub distribution boards located in tenant and landlord areas. Sub main cabling will comprise steel wire armoured cables with cross linked polyethylene insulation (XLPE) insulation which has a higher current rating than poly vinyl chloride (pvc) and, and an outer low smoke zero halogen (LSZH) sheath.

Primary and secondary power supplies serving fire safety systems shall comprise fire resistant cables to BS7846.

Submain cabling will be run on a system of galvanised metal cable tray and ladder.

**EMERGENCY LIGHTING:** An addressable emergency lighting installation will be provided to all areas to identify emergency escape routes in the event of loss of mains power. The system will operate for a 3-hour period. The emergency lighting installation will be designed to comply with the IS3217:2013 Standard for Emergency Lighting and the E.U Signs Directive 1996. Emergency lighting will be provided by a fully addressable system comprising self-contained LED luminaires incorporating battery packs, and self-contained exit signage as appropriate and required. Prior agreement is required with the fire consultant if emergency lighting is to be provided for BCAR purposes to restaurant/café units.

#### **POWER AND GENERAL SERVICES DISTRIBUTION:**

A complete system of general services and power will be provided as part of the office fit out and will be installed in compliance with ETCI 4th Edition on the National Rules on Electrical Installations ET101:2008. An underfloor busbar system will provide greater flexibility for tenants. This resolves the issue of trying to pre-determine fixed desk layouts prior to a future tenant's occupancy. Each future desk will be serviced by a desk top power/data module (supplied by tenant) – the busbar, grommets, and associated cable lead connections will be provided.

Cleaner's sockets will be installed at regular intervals in landlord core areas. Power supplies will be provided for ancillary electrical systems like access control, motorised doors, security systems, hand dryers, disable refuge system, disable toilet alarm, etc. Blade type hand dryers which can dry hands in approximately 15 seconds will be provided in all toilets.

20% charging points for electric cars will be provided in the car park with capacity in the ESB infrastructure to expand to 100% in the future. Electric car charge facilities can be installed in the future via Basement car park. The external ground floor spaces will have electric chargers installed. Power and control wiring will be provided for the mechanical services installation and landlord BMS system.

**ACCESS CONTROL SYSTEM:** The system will be designed and shall be installed to provide cover to the main core, main entrances, basement car park, tenant main entrance doors to floor space and entrance points to the building at ground floor level .

Access Controlled Doors shall be deemed to include and shall incorporate the following equipment; Proximity Card Reader Electro Magnetic Lock or Strike Press to Release Button, Emergency Break Glass Unit Magnetic Read Contacts.

Access controlled doors on emergency escape routes will be interfaced with the Fire Alarm system to fail-safe open. The control panels associated with the system shall be networked such that all programming and system management can take place via PC supervisor station at the ground floor reception.



**CCTV SYSTEM:** The system will be designed and shall be installed to provide cover to all main cores, main entrances, car park and entrance points to each building at ground level. Cameras will also be installed in the lift lobbies on every level.

The system provided is to be installed tested commissioned and certified to ensure the system and its respective components are in full compliance with, but not limited to the following standards:

**IS EN 50132-7:** 1998 CCTV Surveillance Systems for use in Security Applications.

**CIBSE AM4:** 1991 Security Engineering Applications Manual. The cameras shall operate on a dedicated network using POE with central monitoring and network recording equipment located in the comms room. The basement and site CCTV will be networked back to a central security office at lower ground floor.



#### **DISABLED REFUGE/DISABLED TOILET ALARMS:**

A disabled refuge communication system shall be provided on each level to facilitate the fire brigade can communicate with a disabled person at a refuge point in an emergency situation. The disabled refuge panel shall be located adjacent to the fire alarm panel at the Reception/Entrance. The panel must remain operational during a fire scenario, so will come complete with integral batteries. The main panel shall be capable of indicating when any refuge is occupied, as well as providing two-way communication to each refuge. Each disabled toilet will be fitted with a disabled alarm system in accordance with Part M of the building regulations. A remote monitoring panel shall be located at the ground floor reception area.

**ICT SYSTEM:** The installation of a structured ICT cabling system will be carried out by individual tenants within their demise. Cable containment systems will be provided in the vertical risers to link each tenant floor to the basement comms room. Phone lines will be provided for the remote emergency monitoring of the lifts, the landlord fire alarm and intruder links to an ARC, and the remote link for the BMS system. Phone lines will also be provided for the Reception desk.

**LIGHTNING PROTECTION:** The system provided is to be installed, tested, commissioned and certified to ensure the system and its respective components are in full compliance with the following;

**EN 62305:** 2006 Protection of Structures against Lightning. Electrically continuous, reinforced concrete structural elements of the building shall serve as down conductors for the lightning protection system.

#### **FRESH AIR SUPPLY:**

##### **Offices**

12 litres/second/person based on 1 person per 10m<sup>2</sup> net office area.

##### **Toilets:**

10 air changes/hr extract 8/air changes/hr supply, mechanically ventilated.



**STRUCTURE:** The building structure consists of an in-situ reinforced concrete frame with a 275mm deep RC flat slab floor plate at each level, including the roof, supported off concrete columns, 450x450mm square typically, on a 7.5 x 7.5m grid. This grid arrangement changes at the atrium of the building to suit the proposed Architectural intent. A single column has been included within the face of the atrium to break up the structural spans and to assist transfer structure. This column is transferred below ground floor slab via a series of RC beams.

No columns have been included at the corners of the blocks to cater for fully open corners. To maintain a 275mm flat slab additional facade column have been included behind the facade to reduce the slab cantilever. These intermediate facade columns are supported on 200mm wide plate girders located under the first floor slab to maintain the ground floor layouts. Plate girders were chosen so as to fit within the inner leaf of the facade at this level.

Upstand and downstand beams are provided locally in a number locations in the concrete floor slabs to provide for additional support. Stair core & lift cores are formed with 250mm reinforced concrete walls, with concrete stairs and landings.



#### **ACOUSTIC LEVELS:**

Office:	NR 35
Toilets:	NR 50

**LIFTS:** Four 13-person passenger lifts are being installed complete with a destination control system. These lifts will travel from Basement level to the top floor. One of the passenger lifts is also a fire-fighting lift backed up by the lift safety generator. One 13-person bike lift is also being installed. This lift travels from Ground level to Basement, at the bike, store and locker station.

#### **RNAL FINISHES:**

##### **Facade:**

White Precast concrete panels with polish and etch finish

##### **Roof:**

Part sedum roof, part paved roof with insulation, Blu-Roof & pebble ballast.

##### **Main:**

Triple height glazed screen entrance.

##### **Doors:**

Boon Edam Revolving Doors Entrance

**FUEL GAS SERVICES:** Incoming natural gas is connected off the external GNI main to the internal gas meter located in the Basement. Piped natural gas services are provided via medium grade steel pipework in accordance with IS820 through the basement car park to the building complete with a gas detection system with slam shut valves, sensors and emergency shut off buttons. Provisions are made in the incoming gas mains to allow office tenants to provide their own dedicated meter for kitchen cooking services should they be required.

**ESB SERVICES:** Two ESB Medium Voltage (MV) Substations will be provided to serve Glencar House. It is proposed to locate the ESB Substations at ground level with Customer switch rooms located directly on top of the substations. There shall be one landlord CT (LV) ESN Meter which will feed landlord distribution boards on several levels for the core areas and multiple Low Voltage (LV) supplies for the tenants.

The Landlord supply will serve the primary mechanical plant, lifts, plantrooms, toilet and core areas on each level and the ground floor reception. ESB metered LV supplies via Whole Current (WC) meters will be provided on the basis of two tenants per level with the exception of the fourth and fifth floor. There will also be individually metered ESB supply provided for the potential restaurant/café.

**TELECOMS:** A system of underground ducting and cable tray will be provided from a Comms room to be located in the basement of the building to the perimeter of the site to facilitate the provision of voice and data services by multiple service providers to each level. Two separate entry points will be provided to the building so that the service providers can facilitate diverse routing for the tenants.