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TOURIST FACILITIES
EYRES SQUARE
GALWAY

MECHANICAL AND ELECTRICAL SERVICES

REVISION 1

24K192 C-06

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1. INTRODUCTION

It is proposed that the buiding achieve compliance with the Building Regulations Part L 2021. This is achievable in many forms, however the basic principle which is consistent throughout is to design and deliver sustainable buildings with:

- high performing building fabric,
- increased air tightness,
- efficient approach to space and water heating including smart controls,
- reduced electrical demand, and
- renewable technologies to reduce energy demand and carbon emissions by contributing to Part L compliance.

Renewable Energy Ratio (RER) is the ratio of the primary energy from renewable energy technologies to total primary energy as defined and calculated in DEAP.

For the purposes of this Section, "renewable energy technologies" means technology, products or equipment that supply energy derived from renewable energy sources, e.g., solar thermal systems, solar photovoltaic systems, biomass systems, systems using biofuels, heat pumps, aerogenerators and other small scale renewable systems.

Where the MPEPC of 0.3 and MPCPC of 0.35 are achieved, a RER of 0.20 represents a very significant level of energy provision from renewable energy technologies.

A RER of 0.2 represents 20% of the primary energy from renewable energy technologies to total primary energy as defined and calculated in DEAP.

1.1 Part L Compliance

The strategy for Part L compliance for Baker Street includes:

- Heat Pump systems for heating and hot water.
- PV for Part L compliance
- No heating to public toilets (unheated spaced)

1.2 Building Performance Standards

We have outlined below the minimum performance standards for set out in TGD Part L Buildings Other Than Dwellings (2022) of Building Regulations.

Minimum and proposed standards for NZEB/Part L 2022				
Element	Units	NZEB Backstop values		
Building Envelope				
External wall	W/m2K	0.21		
Pitch/flat roof	W/m2K	0.16 / 0.20		
Ground floor	W/m2K	0.18		
Windows	Thermal (W/m2K)	1.6		
	Solar factor (Fraction)	0.40		
	Light transmission (Fraction)	0.71		
Air permeability	m3/hr/m2 @ 50 Pa	5.00		
Thermal bridging at junctions	Meet or exceed standards set out in Appendix D of TGD Part L 2022			
Mechanical, Electrical and Plumbing Systems				
Energy Centre:	Air source heat pumps for heating and hot water			
Distribution system:	Domestic cold, hot water flow and return for water services to toilet facilities.			
Ventilation strategy:	**Toilets:** Extract only vent **Occupied Areas:** Natural Ventilation			
SFP:	<0.3 W/L/s			
Hot water system:	Centralized air source heat pumps generating heat for hot water cylinders			
Light power density:	<5W/m2			
Lighting controls:	All areas	Manual on off with addition of absence detection		

2. MECHANICAL SERVICES

2.1 Water Services

A complete drinking and non-drinking water distribution system will be provided. A new cold water storage tanks and pressure boosting pump will be located in the store.

The tank will be provided to serve the toilet facilities with mains water distributed to the tea room sick and external tap for washdown.

Domestic hot water production is centrally generated for the sink and basins using an air source heat pump.

A secondary circulation pump will be used to ensure delivery of hot water to outlets within the prescribed 60 seconds in Approved Code of Practise L8.

Water flow reducers should be utilised on all wash hand basins providing a saving on water consumption for hand washing compared with flows from conventional taps. These shall also provide an energy saving by reducing the hot water consumption.

Where applicable the installation shall comply with BS 8558, IS EN 806, IS EN 752 and IS EN 1610, together with the requirements of the Water Regulations. All equipment and fittings shall be suitable for use on potable supplies and shall be Water Regulations Advisory Scheme (WRAS) approved. In addition, the installation shall be compliant with the recommendations set out within the HSE Approved Code of Practice 'The Control of Legionellae Bacteria in Water Systems', together with CIBSE TM13 'Minimising the risk of Legionnaires Disease'.

2.2 Ventilation Services

Each WC will be supplied with a local extract fan with PIR controlled boost function and 15 minute run on timer. These extract fans shall be ducted to external and exhaust through façade louvre or air brick.

Extract rates will be to TGD Part F. Replacement air will be provided by background ventilators or trickle vents sized by the architect in accordance with guidance of TGD Part F. Background ventilation can be through an outside wall or included in the window package. Purge ventilation to TGD Part F will be achieved through openable windows in occupied spaces, with aperture areas provided not less than 5% of the room floor area in each case.

2.3 Heating Services

The air source heat pump will be the heating source for the occupied areas.

It is proposed that underfloor heating will be installed in these areas.

2.3.1 Above Ground Drainage Services

The soils and wastes installation throughout shall be required to comply with Part H of the Building Regulations and EN12056:2 based on a system type III with unvented branch connections.

3. ELECTRICAL SERVICES

3.1 LV Electrical Supply

ESB supply – an MIC of circa 15kVA is envisaged for the scheme. An external ESB meter cabinet is needed to house the ESB meter with a mains cable extended to a switchboard in the store.

Distribution Board feeding lighting and power circuits

3.2 Cabling

The small power & Lighting installations within the communal/amenity areas shall be wired utilising single core LSZH stranded core copper conductors run in LD galvanised trunking.

All cabling shall be minimum of Dca s2,d2,a2 as per IS 10101:2020.

3.3 Small Power

All circuits will be designed in accordance with the ETCI National Rules for Electrical Installations 4th Edition (IS 10101:2020).

Part M Sockets

Fused connection units and double pole switches shall be complete with switches, indicating lights and integral flex outlets as appropriate when serving mechanical or “white goods” controlled.

3.4 External Lighting

The external lighting installation shall comply with the following:

- Guidance Notes for the Reduction of Obtrusive Light GN01:2011
- BS EN 12464 -2 Lighting of outdoor workplaces
- Disabled access certificate
- BREEAM – not confirmed yet
- Planning conditions

All lighting shall be “White” light and shall be 3000K, this includes front façade, main entrance areas of the building and external lighting. All luminaires which shall be selected shall be IP65 rated in WCs and externally.

External exits from the building shall be provided with an emergency LED luminaire. All external escape routes need to be accounted for in terms of emergency lighting and signage.

Main entrance external area(s) shall be illuminated to achieve 20 Lux average on the ground and zero ULOR. Other external circulation areas around the building periphery shall be illuminated to achieve 10 Lux average on the ground and zero ULOR.

3.5 General Lighting Systems

The general lighting installation shall be wholly LED

Absence/daylight switching and standard switching shall be provided to the occupied areas .
Energy saver devices in the form of movement and luminance detection shall be provided on the lighting installations within WCs and circulation spaces.This shall allow the luminaires to dim to 10% of LED driver output when not detecting movement, switching shall be post 1 min absence.

3.6 Emergency Luminaires and Lighting Controls

Emergency lighting will be provided throughout the buildings to meet the requirements of I.S.3217- 1:2023 standards. We propose to install a standalone luminaire, self-contained system. This allows an installation to be supervised, tested and monitored from the CTU in the board.

Standalone emergency luminaires

Illuminated pictorial exit signage shall be provided along escape routes and over exit doorways, to accord with the requirements of the architect, building control and fire officer. The pictorial exit signage shall also be 3 hour maintained type and shall incorporate LED's.

The Emergency Lighting installations within the building shall be wired utilising LSZH single stranded core copper conductors run in galvanised trunking and/or utilising LSZH flat T&E stranded core copper conductors or NYMJ clipped to the soffit in cluster kitchens, bedrooms etc.

3.7 Audio-Frequency-Induction-Loop System

An induction loop system is to be located on the front reception desk. This shall be complete with microphone, amplifier and ancillary items as required.

3.8 Data Distribution Systems / Telecommunications Systems (Management Suite)

All active equipment will be provided by the client. All non-active equipment will be provided by the electrical contractor – Wiring, Cabinet, Patch panel, Cable tidies, Power supplies etc.

All wiring shall be carried out using Cat 6a UTP wiring LSZH insulated cable in uPVC conduits where routed within partition walls and routed within cable tray concealed above suspended ceilings and within service risers, all cable clips shall be fire rated.

Data outlets shall also be supplied and installed in the occupied areas following agreement of the final layout.

A Wi-Fi installation shall be provided to cover occupied parts of the building.

The installation shall be via POE switches and shall be arranged to provide suitable bandwidth for streaming of HD video content by multiple users. RJ45 outlets and power supplies shall be provided for the Wi-Fi installation.

3.9 Access Control Systems

An access control system shall be fitted at the doors to the public toilets to accommodate a payment system for use of public toilets. This system shall be agreed at a future date.

3.10 Closed Circuit Television Systems

An IP based, auto switch colour/monochrome, CCTV system will be installed discreetly both internally and externally at strategic positions around the property. The monitoring system will be in the admin office and CCTV coverage to the following areas but not limited to:

- Entrance
- Entrance foyer lounge
- Common room
- All final exits / exit lobbies
- Circulation corridors
- All external elevations of the building.

A dedicated PC and bank of monitors (3 no.) shall be provided in the office complete with software for viewing and retrieving recorded CCTV images. 32” inch monitors shall be provided displaying 8No. CCTV cameras per screen. The screens shall be set up to provide the following functions:

- Single camera viewing
- 2 and 3 to display any cameras where movement is detected.

The dedicated PC shall also contain the access control software.

Digital Network Video Recorders 30 days recording of all cameras recording shall be provided and located in the ground floor server room data cabinets, the storage capacity shall be based on 15 F/s. The recorded images are to “facial recognition” adequate to be admitted as evidence.

In the event of a power failure the CCTV system shall be provided with a UPS unit providing 30 minutes battery backup to the CCTV system.

3.11 Fire Detection and Alarm Systems

The scheme shall be designed to IS: 3218-2024 and shall be fully compliant with the Fire Strategy document and Fire Cert.

The detection shall be located so to provide coverage as described in IS: 3218 utilising addressable heat/optical smoke, the system shall be complete with sounder, VAD bases, standalone sounder/VAD units (as required), manual call points, interface units (smoke extract vents/windows etc.), zone isolators one per base.

The equipment provided shall be an open protocol type to allow competition in respect of future maintenance of the system. The main fire control panel shall be of recessed pattern, with a lockable glazed front cover, to prevent tampering.

3.12 Assistance Call Systems

A disabled toilet alarm installation shall be provided to all accessible toilet accommodation. The installations shall, include all cables, power supplies, pull cords, over door light and sounder rest units, accessories and ancillary items to ensure a complete and working installation. Activation of a pull cord shall signal to the reception and admin office control panels.

ISSUE REGISTRATION:

Project Title: TOURIST FACILITIES **Project No:** 24K192

Rev	Date	Purpose of Issue/Nature of Revision	Prepared by	Issue Authorised by
1	24-09-25	INFORMATION	RM	RM

This document takes into account the particular instructions and requirements of our Client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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