T5 Partnership Ltd
Consulting Engineers

T5 PARTNERSHIP LTD.

Summary report on Sustainability Measures

Document 1 of 1

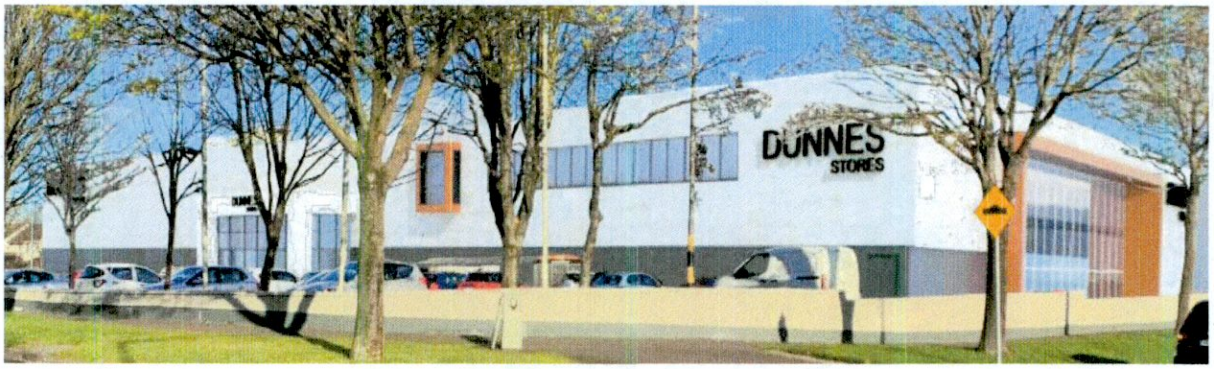
FOR

Proposed Extension to
Dunnes Stores
Kilnamanagh shopping centre
Kilnamanagh
Dublin 24

On behalf of

Client:

Dunnes Stores



July 2022

Introduction:

T5 Partnership have been engaged by Dunnes Stores as Mechanical and Electrical Consulting Engineers for the design of mechanical and electrical service for the proposed new extension at Dunnes Stores, Kilnamanagh Shopping Centre.

The scope of this project provides for a new extension on the east elevation to the existing Dunnes Retail unit at Kilnamanagh Shopping Centre, modifications to the existing car parking arrangement to suit the extension and new finishes to the existing elevation as indicated on Project Design Architects drawings.

T5 Partnership worked closely with the design team lead consultants, PDA Architects, in terms of overall elemental construction details (external floors, walls, roofs, and glazing) to ensure insulation levels and resulting elemental U-Values meet the minimum values required under Part L 2021.

Building Regulations – Part L Requirements [Existing Buildings other than dwellings]:

T5 Partnership will work closely with the design team lead consultants, PDA Architects, in terms of overall elemental construction details (external floors, walls, roofs, and glazing) to ensure insulation levels and resulting elemental U-Values meet the minimum values required under Part L 2021.

The requirements regarding conservation of fuel and energy for buildings other than dwellings are laid out in Part L of the second schedule to the building regulations (Part L Amendment) Regulations (S.I. No. 538 of 2017) and the European Union (Energy performance of buildings) Regulations 2021 (S.I. No. 393 of 2021.

The second schedule, insofar as it relates to works relating to buildings others than dwellings, provides as follows:

A building shall be designed and constructed to ensure that the energy performance of the building is such as to limit the amount of energy required for the operation of the building and the amount of carbon dioxide (C02) emissions associated with this energy use insofar as is reasonably practicable.

For existing buildings other than dwellings, the requirements shall be met by:

(a) Limiting the heat loss and, where appropriate, availing of the heat gains through the fabric of the building.

(b) Providing energy efficient space heating and cooling systems, heating and cooling equipment, water heating systems, and ventilation systems, with effective controls.

(c) Ensuring that the building is appropriately designed to limit need for cooling and, where air-conditioning or mechanical ventilation is installed, that installed systems are energy efficient, appropriately sized, and adequately controlled.

(d) Limiting the heat loss from pipes, ducts and vessels used for the transport or storage of heated water or air.

(e) Limiting the heat gains by chilled water and refrigerant vessels, and by pipes and ducts that serve air conditioning systems.

(f) Providing energy efficient artificial lighting systems and adequate control of these systems.

(g) Providing to the building owner sufficient information about the building fabric, the fixed building services, controls, and their maintenance requirements when replaced so that the building can be operated in such a manner as to use no more fuel and energy than is reasonable; and

(h) when a building undergoes major renovation, the minimum energy performance requirement of the building or the renovated part thereof is upgraded to meet the cost optimal level of energy performance insofar as this is technically, functionally and economically feasible.

Thermal Transmittance of the new building elements [Extension]:

Proposed Fabric U-Values:

Item:	Description:	Part L 2021: [Extensions]	Min. Proposed:	Comment:
1	Pitched Roof U-Value (W/m2.K)	0.25	0.25	
2	Flat Roof U-Value (W/m2.k)	0.25	0.25	
3	Wall U-Value (W/m2.K)	0.35	0.35	
4	Floor U-Value (W/m2.k)	0.25	0.25	
5	Window U-Value (W/m2.k)	1.60	1.60	

Building Envelope Air Permeability [Extension]:

To avoid excessive heat loss, it is proposed to limit the air permeability of the envelope of the new building extension elements as follows:

(a) Identify the primary air barrier elements, (e.g., sheathing, plaster, vapour control layer, breather membrane) at early design stage.

(b) Develop appropriate details and performance specification to ensure continuity of the air barrier. Communicate these to all those involved in the construction process. Responsibility for construction of details should be established.

(c) Provide on-site inspection regime and related quality control procedures to ensure that the design intention is achieved in practice

Building Services [Extension]:

Primary Energy & Heating/Cooling Generator Efficiency:

It is proposed to heat and cool the new extension with a constant volume air system delivered from a packaged air handling unit. The air handling unit will comprise both supply and return air fans and will include heat recovery [plate heat exchanger or run around coil] to pre-heat the supply air using recovered heat from the extract air. Specific fan power for both fans will not exceed 1.6 (W/l/s).

The primary heat generator will be an electrically driven air to water heat-pump with full invertor technology for independent and simultaneous cooling and heating. The system will be complete with a controls package in accordance with Section 1.4.2.6 Table 4 Part L 2021.

Low Energy LED lighting:

One of the largest energy consumers within a building is lighting. Retail area lighting for the new extension will comprise good quality high efficiency LED lighting system c\w an automatic switching system.

Low Energy Electronically Controlled Primary Pumps:

We propose to select primary circulation pumps (where required) with electronically controlled motors based on permanent magnet and compact stator technology. They will continually adjust operation to meet changes within the system demand.

EV Charging

It is proposed to provide 4No. EV charging spaces in the locations as indicated on PDA drawing DS-69-PL-09 with infrastructure being provided for a further 11 future EV charging spaces.