

New standards for building energy use.

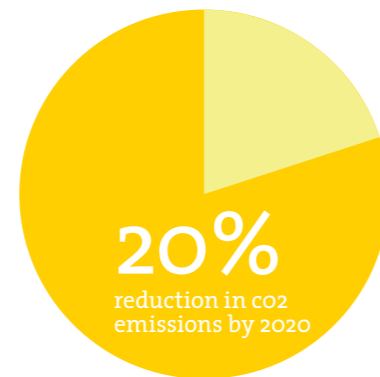
On the 23rd January 2008 the EU commission imposed new onerous CO2 targets on Ireland.

The new requirement is for a reduction of 20% from 2005 CO2 emissions by 2020. This is the equivalent of a drop from 70 million tons to 55 million tons. Minister for Local Government John Gormley is targeting a reduction in building energy use as a central plank of CO2 emission strategy. Taking into account the building boom of the past ten years there are many who consider that we have already 'missed the boat' in respect of making energy efficient buildings.

At present Part L of the Building Regulations is being revised to achieve the Ministers intention of achieving a 40% improvement in energy efficiency. It is also anticipated that in spring the Government will launch an ambitious plan to retrofit insulation and improve energy efficiency in the existing housing stock. In the long term it is expected that domestic energy use will have to drop to a quarter of its present use.

Whereas the emphasis to date has been on domestic energy use, the likelihood is that any revision of Part L will include stringent energy requirements for all other building types. The Government is expected to lead the way in this regard and is committed to assessing and improving its own building stock whilst all new State buildings will be required to achieve high energy efficiency standards.

The R.I.A.I. and C.I.F. have met with Government and stressed the need for a lead-in period for the introduction of new regulations. This is particularly relevant when one considers that the DEAP software which is the design and assessment tool for compliance with Part L and Building Energy Rating was only introduced in May of 2007 long after both the new Part L and Building Energy Ratings became a legal requirement. Indeed DEAP is as yet only available to those who have taken the Building Energy Assessors Course approved by Sustainable Energy Ireland (S.E.I.).



Improving BER—Case Study.

Deaton Lysaght analysed a typical end-of terrace local authority house to assess its compliance with the Maximum Permitted Carbon Dioxide Emission Rating (MPCDER) of Part L and its Building Energy Rating (BER):

- Building fabric to minimum Part L standards, open fire in livingroom, oil fired boiler with indirect cylinder efficiency 85%. No low energy lights.
CDER 41.78 MPCDER 46.75 BER C1
- Improve U Value of walls to 0.16 instead of 0.27. Low energy lights.
CDER 37.49 MPCDER 44.94 BER B3
- As '2' but fit oil fired condensing combi-boiler with 94% efficiency and thermostatic radiator valves.
CDER 36.3 MPCDER 46.63 BER B3
- As '3' but with no open fireplace.
CDER 27.96 MPCDER 37.5 BER B2

The following options for improvement options were then examined:

- As '4' but with a porch 2M x 2M.
CDER 27.64 MPCDER 37.11 BER B2
- As '4' but with 9 SqM of solar collector for water heating.
CDER 24.42 MPCDER 37.5 BER B1
- As '3' but with wood pellet stove.
CDER 5.73 MPCDER 30.05 BER B1

Deaton Lysaght Architects are proud to announce that they have been awarded certification under the ISO 9001 - Quality Assurance scheme.

Our thanks to our quality manager, Elizabeth Churchard and all the staff who worked with us to achieve certification. ISO 9001 is an important part of DeatonLysaght's ongoing commitment to provide a quality service to our clients.

RESULTS FROM BER ASSESSMENT

It will be clear from these figures that the most important factors are:

Airtightness: When the open fire is eliminated there is a significant improvement.

Insulation: The improvement by upgrading the wall U Value (by dry-lining) is significant.

Heating system: The boiler efficiency, control system and water heating system have significant effects upon the BER.

Because they are low carbon elements both solar collectors and wood pellet heating systems achieve very significant improvements to BER and CDER.

The provision of a porch has a negligible effect. This is probably because the front door is deemed to comply with the air infiltration standards, obviating the need for a porch.

It will be noted that the Maximum Permitted Carbon Dioxide Emission Rating is not a fixed amount and varies depending on the dimensions and other characteristics of the subject dwelling. For example the MPCDER increases if an open fire is included in the house design. The criteria are set out in Appendix C of part L of the Building Regulations.

Clearly it is obligatory to comply with Part L of the Regulations. When this is determined using DEAP there is then the opportunity to examine the BER rating comparing the cost of improvement measures with the long and short term returns to the client.

IMPROVING THE EXISTING HOUSING STOCK

After 2008 all housing offered for sale or rent must have a Building Energy Rating certificate. This will include local authority housing. The implications of this have yet to be fully realised by the stakeholders in the industry. In particular it will have implications for Local Authorities who will need to upgrade existing stocks of energy inefficient housing units prior to re-renting. Government is set to launch a major grant scheme for upgrading existing housing. It is likely that local authority housing will have a similar scheme. A version of the DEAP software dealing with the energy rating of existing housing is being prepared. Any such ratings should include recommendations for improvements.

Deaton Lysaght are currently examining the most cost efficient ways of improving existing dwellings.

BER FOR OTHER BUILDING TYPES

Subject to transitional arrangements outlined in Article 7 (5)(b) of S.I. No. 666 of 2006, BER rating for new buildings other than dwellings will be mandatory from 1st July 2008.

DEAP SOFTWARE

The revisions to the regulations are such that the current version of the DEAP software cannot be used for determining compliance with the new Part L.

The new DEAP software has not yet been designed or user tested and is not expected until Autumn 2008.

DEATON LYSAGHT BUILDING ENERGY ASSESSORS

Deaton Lysaght are pleased to announce that the following personnel have successfully completed the Sustainable Energy Ireland Building Energy Rating Assessors' training course:

Elizabeth Churchard
Michael Lysaght
John Deaton

NOTE

The advice in this newsletter is qualified and is published without prejudice. It is recommended that you seek further professional advice in respect of the matters covered in this newsletter.

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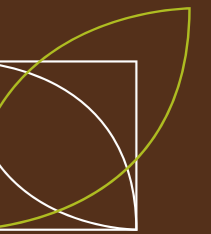
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Deaton Lysaght Architects

Progress Report 1

JOE DALY CYCLES



The spectacular new LUAS suspension at Dundrum has a neighbour that is attracting attention in its midst.

The new premises represents a dramatic move from a modest single-storey over basement shop to a modern high tech facility.

This is the second time that Joe Daly has been compulsory purchased, this time due to the Luas Bridge and Dundrum bypass.

Clearly a landmark building was required on the site which is cheek-by-jowl with the new Luas Bridge.

The project encountered a number of serious technical challenges. The main Dundrum drain runs under the building and this had to be enclosed in an accessible shaft. The riverbank wall had disappeared and had to be re-built

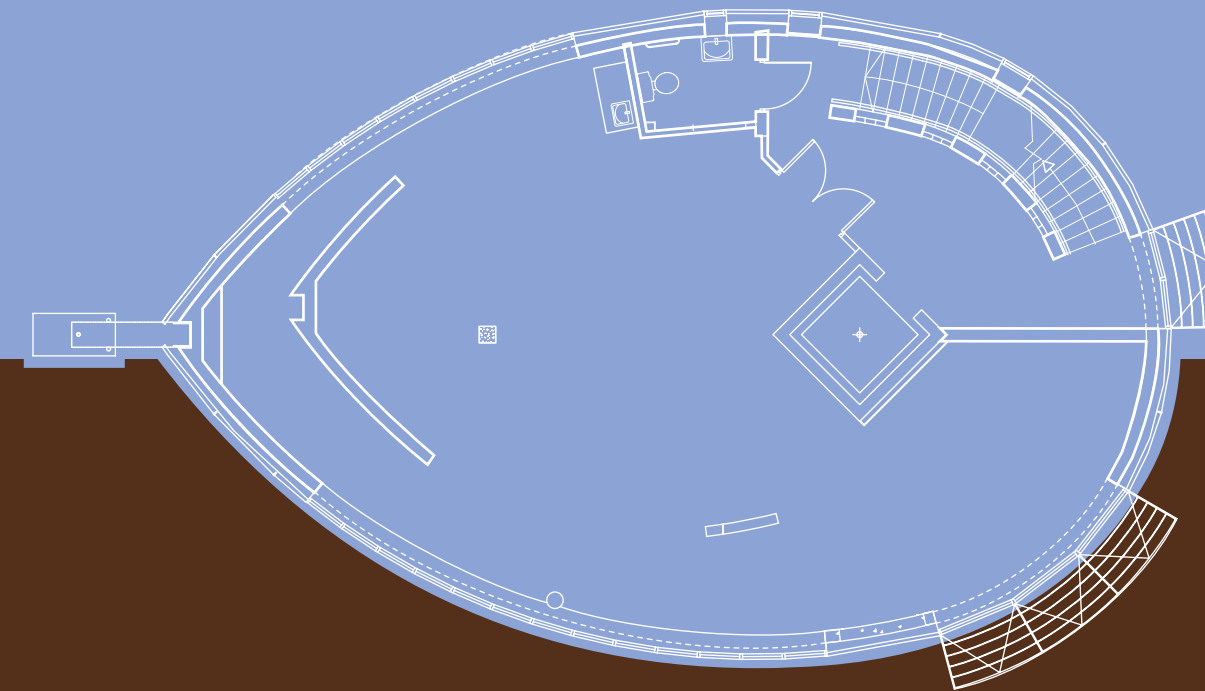
with sheet piling. The site is effectively below the level of the main road which had to be sheet-piled to facilitate the construction of a basement.

The form of the building is entirely dictated by the nature of the site with its curving boundary to the Dundrum Road and the need to provide a simple high tech landmark building in this important location.

The structure consists of a ground floor shop over a basement workshop and stores and offices at first and second floor level.

The building is reinforced concrete with in situ concrete floor slabs and a central concrete block lift shaft all founded on piles and reinforced concrete ground beams.

Below: Typical plan



The geometry of the external wall is based on two intersecting curves.

The design was set out on C.A.D and, whilst the supporting structure and block walling was being constructed on site to the agreed set outline, the metal panelling was being made in Scotland to the same line. A tolerance of 75mm was allowable on the depth of the fixing brackets for the cladding but effectively, as the cladding was almost a complete circle the tolerance for the sub-conference was virtually zero.

The walls were insulated externally and then fitted with enamelled metal rainscreen cladding. These consist of factory curved pans, secret fixed. The glazing was part of the skin although from a separate glazing system. The entire roofing, glazing and cladding package was undertaken by one sub-contractor avoiding the normal problems of interface between contractors.

The signage tower serves as a conduit for the single rainwater pipe and provides a focal point for the building avoiding excessive on-façade signage. The roof is a raised seam aluminium sheet with one central gutter and a silver clad lift shaft. It is designed to be seen from Luas trams passing on the adjacent cable-stay bridge.

The building is gas-fired, central heated on a self-contained basis for each floor. It is fully accessible containing a lift, accessible stairs, and an accessible toilet at each level.

Below: Rear view of building
Below Right: Entrance view from main street



Right: Apex view from Luas bridge

Architects

Deaton Lysaght Architects
John Deaton, Aidan McNamara,
Eddie Riley

Structural engineers

Malone O'Regan Consulting Engineers

Quantity surveyors

Erinaceous Group plc.

Main contractor

JK Building Planners

Heating contractors

Brian O'Toole Plumbing
& Heating

Electrical contractors

Hamilton Electric

Lift manufacturers

Thyssenkrupp

Right: Main street frontage

