Pilot Actions to Develop a Functioning Market for Energy Performance Certificates

(BUDI)

MARKET ANALYSIS RESULTS & EXPERIENCE IN GREATER DUBLIN AREA

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1 Introduction

1.1 Region Summary

The Greater Dublin Area (GDA) is located on the east/east midlands of Ireland. GDA includes County Dublin and its 3 neighbouring counties Meath, Wicklow and Kildare. Dublin comprises of 4 Local Authority areas: Dublin City Council, Fingal County Council, South Dublin County Council and Dun Laoghaire Rathdown County Council. The population of the GDA is approximately 1.4 million and the area coverage is 6,982 km^2, it breaks down as follows according to Local Authority areas (2002 census):

- **Dublin City Council**: 481,854 population & 117.61 km^2 area
- **Fingal Co. Council**: 167,683 population & 453.09 km^2 area
- **South Dublin Co. Council**: 218,728 population & 223.01 km^2 area
- **Dun Laoghaire-Rathdown Co. Council**: 189,999 population & 126.95 km^2 area
- **Meath Co. Council**: 109,732 population & 2,334.54 km^2 area
- **Kildare Co. Council**: 134,992 population & 1,694.2 km^2 area
- **Wicklow Co. Council**: 102,683 population & 2,032.6 km^2 area

2 Market Analysis

2.1 Procedures for Building – Erection, Renovation, Selling and Renting

2.1.1 Erection of new buildings

The law governing the planning system is set out in the Planning and Development Acts 2000 and 2001 and the Planning and Development Regulations 2001 to 2002. The *Building Control Act, 1990 (No. 3 of 1990)* covers the responsibility of enforcement and inspection of the Building Regulations.

Planning permission is required from the Local Authority for the development of land or property unless the development is specifically exempt from this need. Development includes the carrying out of works (building, demolition, alteration) on land or buildings and the making of a material change of use of land or buildings. A summery of the timescale and procedures follow:

Timescale	Action
Start	Notice published in newspaper and site notice erected
2 weeks later	Latest date for lodging application
Between 2 weeks and 5 weeks	The planning authority validates application. Submissions or objections are considered.
Between 5 and 8 weeks	Planning authority issue notice of their decision on the application. (Alternatively, later they may request further information.)
4 weeks after issue of notice of decision.	If no appeal is made, the planning authority will issue grant of permission, or outline permission, except where they have already indicated a decision to refuse.

The standard duration for planning permission for which it is valid, is five years from the date of the grant of the permission by the Planning Authority or An Bord Pleanála. If a planning permission expires, a new permission for the same development is required.

Additional controls may also apply to commercial buildings, depending on their function, e.g. the Local Government (Water Pollution) Acts, 1977 and 1990, Air Pollution Act, 1987, Integrated Pollution Control License, Environment Impact Assessment etc.

2.1.2 Renovation of larger buildings

The renovation of larger buildings is governed by the same legislation for the development of new buildings. However, not all renovation work requires planning permission. Development can be exempt if it is of a minor nature or where certain thresholds, e.g. height or size are not exceeded. Categories of exempted development are set out in the planning law. For commercial buildings where there is a change of use or function, additional controls will apply where appropriate.

2.1.3 Selling and renting of buildings and dwellings

Property Sales

Most property sold in Ireland is sold by private treaty. Real estate agents, auctioneers and property advisors offer professional assistance to both the purchaser and seller.

The purchasing of a building is normally facilitated by a financial institute (bank). A solicitor is also employed by the seller and purchaser to manage the legal formalities. The bank normally seeks a valuation of the property and a structural survey if necessary. The purchaser is normally required to have property Insurance and Life Assurance as a condition of the bank loan. The seller's solicitor will draw up a contract, which, on agreement, requires signatures from both the purchaser and seller. The sale of the property is registered at the Land Registry or noted at the Registry of Deeds office, depending on the type of title the property has. The

solicitor will then send the bank the completed deeds, which the bank will hold as security for the loan.

Property Rental

The Residential Tenancies Act came into force 1st September 2004 and applies to the mainstream private rented sector and excludes amongst others, business premises and a dwelling let by; or to a public authority. The main provisions of the act include: security of tenure for tenants of certain dwellings, provisions relating to tenancy obligations of landlords and tenants, provisions relating to rent and rent reviews, the establishment of the Private Residential Tenancies Board to resolve disputes between landlords and tenants, and the registration of tenancies of certain dwellings. In cases where a tenancy lasts for 4 years, a new registration application will apply.

Commercial letting are treated very much separately and distinctly from residential lettings. The Landlord and Tenant Act 1931 provides the tenant very important tenant rights in particular reference to the duration of occupancy. If the tenant is operating a business from a premise for longer than 5 years, he can then compel the Landlord to enter into a 21-year lease. If the landlord wishes to recovery his property, beyond the 5-year threshold, he must in effect buy out the tenant, unless the tenant has no objections. Therefore, the majority of lettings in the commercial sector are short-term lettings.

As the majority of property sold and rented in the Greater Dublin Area is managed through a real estate agent, it is suggested that the Irish Auctioneers and Valuers Institute should be informed and made aware of the BUDI project, as the Institute represents the majority of real estate agents and auctioneers in Ireland with 1,800 members and associate members.

2.2 Calculation Methods for Energy Performance of Buildings

The development of calculation methods for energy performance of buildings in Ireland is still at a draft stage. A joint Working Group was established in 2003 to oversee and plan the implementation of the EPBD in Ireland. This Working Group comprises of senior officials drawn from the Department of the Environment, Heritage and Local Government (DEHLG), Department of Communications, Marine and Natural Resources and Sustainable Energy Ireland (DCMNR). The Working Group has published a Draft Action Plan for Implementation of the EPBD in Ireland. Upon publication of the relevant CEN standards relating to presentation building energy ratings and the calculation of overall building ratings, it will be necessary for the EPBD Working Group to consider whether, and in what way, to apply all or some of the procedures set out in the CEN standards as the official methodologies.

For the overall Building Energy Rating (BER) calculation, residential and non-residential will be treated differently. It is also possible that there will be further division within the non-residential category such as hotels, offices, schools, retail, and hospitals. At least four variants of technical methodology are likely to be required.

The existing methodology for calculating the energy performance of a building in Ireland is the Heat Energy Rating (HER). The HER method was first introduced in the 1997 Building regulations as one method of demonstrating compliance with Technical Guidance Document Part L of the Irish Building Regulations. The HER is based on the Standard Assessment Procedure (SAP) as used by the UK Government agencies. The latest revision to the Building Regulations (2002) retains this methodology. However, this methodology only applies in general to the residential sector and also fails to satisfy all the conditions set out in Annex of the EPBD.

The HER of a building is a measure of the annual energy output from the appliance or appliances that provide space and water heating for the building. The rating is calculated for standardized room temperatures, levels of hot water use and conditions of operation. This method takes account of the following:

- Energy requirements associated with heat loss through the fabric, including at thermal bridges
- Energy requirements associated with air infiltration and ventilation
- Energy requirements associated with the provision of domestic hot water
- Energy inputs associated with solar gains
- Energy inputs associated with occupancy including the use of energy-using appliances
- The heating system responsiveness to demand and degree of control

The rating is specified in terms of energy output of the appliances per unit floor area per year ($kWh/m^2/yr$). The HER method will possibly form the basis of the "calculation engine" on which future building energy rating calculation methods in Ireland are based on.

The BER of new buildings will be based on energy use calculations using data derived form drawings and specifications. This is recognized across Europe as an acceptable approach in the case of new buildings. For existing buildings, the BER will be based on energy use calculations using data obtained from a physical survey. Different formats for the BER certificate will be used for residential buildings and non-residential buildings (including public service buildings) and will possibly be based on the CEN standard. It is envisaged that the same format will be used for both new and existing buildings within the same functional class. The certificate will consist of a simplified rating scheme, for example; A to H with accompanying quantitative indicator, probably expressed as $kWh/m^2/yr$ of delivered energy. The BER may incorporate a CO_2 indicator.

The format/s of the BER will be drafted by Sustainable Energy Ireland following publication of the relevant CEN standards for public and industrial comment. The format of the rating will then be finalized by the EPBD Working Group. It is proposed that the BER requirement

will apply to new residential buildings from the 1 January 2007, other new buildings (including non-residential buildings and public service buildings) from 1 January 2008 and existing buildings from 1 January 2009.

2.3 Existing Minimum Energy Performance Requirements

The Irish building control system is centered on the Building Control Act, 1990 (No. 3 of 1990). The Act provides for the making of Building Regulations covering building standards and quality of construction, and sets out the works and buildings that may be the subject of Regulations and the purposes for which Regulations may be made. he Regulations apply to the construction of new buildings and to extensions and material alterations to existing buildings and certain Parts of the Regulations apply to changes of use of existing buildings.

The Technical Guidance Documents, commonly known as TGDs, give practical guidance on performance levels to be achieved, and on appropriate design and construction methods and practices. he following technical guidance documents relate to existing minimum energy performance requirements in Ireland:

1. Part L - Conservation of Fuel and Energy (1997)
   Part L - Conservation of Fuel and Energy Dwellings (2002)
2. Part F - Ventilation (2002)
3. Part J - Heat Producing Appliances (1997)
4. Building Regulations S.I. No. 260/1994 – Efficiency Requirements for new Hot Water Boilers Fired with Liquid or Gaseous Fuels is another applicable document to the Energy Performance of Buildings Directive.

2.3.1 Part L of the Building Regulations – Conservation of Fuel and Energy

Part L of the Building Regulations requires that: "a building shall be so designed and constructed as to secure, insofar as is reasonably practicable, the conservation of fuel and energy". his was amended in 2002 where it relates to dwellings. As a result, two Technical Guidance Documents exist for Part L at present:

A. *Building Regulations 2002, TGD L, Conservation of Fuel and Energy DWELLINGS*, providing guidance on how to satisfy the requirement for dwellings. This part of the Building Regulations applies to the construction of new dwellings, to extensions, material alterations and where a material change of use takes place.

The TGD L indicates three areas of energy conservation:

(1) Limiting heat loss and maximizing heat gains through building fabric. There are three methods of demonstrating compliance with this section of the Building Regulations for dwellings:
   (a) Elemental heat loss method
   (b) Overall heat loss
   (c) Heat Energy Rating
(2) Controlling space and hot water systems
(3) Limiting heat loss from services

Elemental U-values should not exceed the following limits for domestic buildings:

Roofs:	0.25W/m^2K
Walls:	0.37 W/m^2K
Ground Floors:	0.37 W/m^2K

B. *Building Regulations 1997, Technical Guidance Document L, Conservation of Fuel and Energy*, providing guidance on compliance for non-domestic buildings.

Only certain parts of this document are still current, namely those relating to non-domestic building. It is similar in layout to TGD L 2002 (above) for dwellings, except that the Heat Energy Rating does not apply to non-domestic buildings.

Elemental U-values should not exceed the following limits for non-domestic buildings:

Roofs:	0.35W/m^2K
Walls:	0.55 W/m^2K
Ground Floors:	0.45 W/m^2K

This guidance in relation to non-domestic buildings is currently being revised. It is intended to publish a copy for public, EU Commission and construction industry consultation in 2005. The revision will introduce guidance on the avoidance of solar overheating, heating plant efficiency, air conditioning and mechanical ventilation (ACMV) and artificial lighting, while updating current guidance on controls for space heating and hot water supply systems, insulation of storage vessels, pipes and ducts and recommended U-values.

Eventually, TGD L will contain recommendations for all buildings on a means of compliance with Part L of the Building Regulation on the conservation of fuel and energy.

2.3.2 Part F of the Building Regulations - Ventilation (2002)

Part F of the Building Regulations requires that "adequate means of ventilation shall be provided for people in buildings, including adequate provision for the removal of water vapour from kitchens, bathrooms and other areas where water vapour is generated" and "adequate provision shall be made to prevent excessive condensation in a roof or in a roof void above an insulated ceiling."

For habitable rooms, there is the requirement for:

- An adjustable ventilation opening of 6,500mm^2 suitable for background ventilation either in the wall or window frame is required
- A ventilation opening (window) suitable for rapid ventilation having a total area of at least 1/20th of the floor area of the room

In addition to the above, kitchens and utility rooms require:

- Specified mechanical or passive stack ventilation

For rooms with an open flued appliance (input > 7kW), there is a requirement for:

- A permanent ventilation opening of 6,500mm^2
- A ventilation opening (window) suitable for rapid ventilation having a total area of at least 1/20th of the floor area of the room

For bathrooms, there is a requirement for:

- An adjustable ventilation opening of 6,500mm^2 suitable for background ventilation either in the wall or window frame
- Specified mechanical or passive stack ventilation

2.3.3 Part J of the Building Regulations - Heat Producing Appliances (1997)

TGD (1997) Part J deals with provisions for solid fuel, oil and gas burning heat sources under several headings: 'Air supply', 'Discharge of products of combustion', 'Protection of buildings' and 'Oil storage tanks'. It comprises 5 sections as follows:

- Section 1 (J1) – General requirements applicable to all appliances
- Section 2 (J2) – Additional Provisions for Solid Fuel Burning Appliances with a rated output up to 45 kW
- Section 3 (J3) – Additional Provisions for Individually Flued (non-Fan Assisted) Gas Burning Appliances with a rated Input up to 60 kW and for Gas Burning Cooking Appliances
- Section 4 (J4) – Additional Provisions for Oil Burning Appliances with a Rated Output up to 45 kW
- Section 5 (J5) – Oil Storage Tanks

2.3.4 S.I. No. 260 of 1994: European Communities (Efficiency requirements for new hot water boilers fired with liquid or gaseous fuels) Regulations, 1994

The S.I. requires that the manufacturer or his authorised representative within the European Community shall affix the EC mark of conformity to the energy efficiency requirements on boilers in a visible, easily legible and indelible manner. The conformity mark consists of the letters 'CE', in the prescribed format, along with the last two figures of the year in which the mark was affixed.

2.4 Existing Experience with Energy Performance Certificates & Boiler/AC inspection

The concept of "energy rating" of dwellings has been in operation on a voluntary basis for several years in Ireland, in addition, it was signaled in the Government's National Climate Change Strategy in 2000. The principal voluntary methods in Ireland are the Heat Energy Rating (HER) method, the Irish Home Energy Rating (IHER) scheme, the National Home Energy Rating (NHER) and the National Irish Centre for Energy Rating Ltd (NICER).

The HER is the official Irish rating method and is freely available in the Irish Building Regulations. It was first introduced as a concept in the 1997 Building Regulations through its inclusion as an optional means of demonstrating compliance under the Technical Guidance Document to Part L. This differs from Home Energy Rating in excluding provision for the energy efficiency of the boiler installation, to honor a principle of fuel neutrality and geographical equity in the regulations, recognizing that a high proportion of households nationally do not have access to natural gas.

The IHER is a scheme for assessing and rating the energy efficiency of domestic property. The rating is based on the total cost of energy used in the property and was developed following many years of research into energy use in thousands of properties. The scheme was developed in 1998 under an EU SAVE Programme by a partnership involving National Energy Services (UK), Energy Action Limited (Dublin), the Energy Research Group (University College Dublin) and Alembic Research (Scotland). The IHER software is based on a derivation of the UK National Home Energy Rating Scheme adapted to Irish conditions. The IHER scheme is primarily a professional accreditation and development scheme. It provides companies and individual energy professionals with training, software and on-going support.

The NHER as operated in the UK by National Energy Services and which has wide market acceptance in the UK. A certificate is issued upon completion of the assessment which indicates the design performance parameters of the building. The NHER is principally concerned with the energy consumption of the dwelling when in use. It provides an estimate of likely annual expenditure on energy and, at the design stage, offers cost effective alterations to improve performance, so that these are built in.

NICER was established in 1991 to use measurement and software approach to offer energy audits and ratings for Irish houses. NICER has led or participated in 4 energy conservation projects under the EU SAVE programme, including Ireland's national pilot test of energy rating. NICER has worked with experts from, France, Germany, Italy, Poland and Slovakia in a voluntary label project called "Promenlab". This project, aided by the EU, studied and compared the calculation methods to arrive at a label and its presentation within the six countries.

It is estimated that annual sales and rental transactions of residential buildings in the GDA will require 62,700 energy certificates and approx. 230 estimated experts. This is based on full-time assessors, allowing for varying assessment times for existing and new buildings.

It is proposed in the Draft Action Plan for the Implementation of the EPBD in Ireland that assessors be drawn from the existing base of building professionals, e.g. Engineers, Surveyors, Architects, Building Services Engineers, etc. The estimated cost of Building Energy Rating is estimated to be €300 per house. This may vary; it may be lower for housing estates and apartments and may be more significant for existing buildings. The estimated turnaround time is two weeks for housing.

Boiler and AC inspection in Ireland is also voluntary. Boiler inspections were encouraged through the National Boiler Awards. The National Boiler Awards were launched by the Irish Energy Centre in 1996 with the aim of creating a greater awareness and appreciation of the key role that boilers and the people who operate, manage and service them play in creating a

cleaner environment. The reduction in emissions achieved by the competition entrants has exceeded 110,000 tonnes. Since its inception, over 200 companies have participated in the Boiler Awards and energy savings worth over €25 million have been achieved.

The Irish EPBD working group has specified in the Draft Action Plan for the Implementation of the EPBD in Ireland that it favors option (b) of Article 8 of the EPBD regarding boilers. Under option (b) the member state must provide advice to users on the replacement of boilers and modifications of heating systems. A study is to be commissioned by SEI to review the existing structures and activities in place in the area of air-conditioning systems commissioning, servicing and inspection in Ireland. The study will inform the decision on what scheme would be appropriate to introduce for the inspection of air-conditioning systems in Ireland.

2.5 Communication with Relevant Actors

In Ireland the responsibility of implementing the Energy Performance of Buildings Directive belongs to the Inter Departmental Working Group (DEHLG & DCMNR), co-ordinated by the national energy agency 'Sustainable Energy Ireland'(SEI).

CODEMA works in harmony with SEI on the local level and SEI are supportive of the BUDI project. CODEMA have carried out informal meetings with SEI and with the relevant actors in government. We hope to carry out a formal meeting in the coming months.

CODEMA has identified important target groups in the GDA.

Relevant Actors	**Names**
Housing Associations	Napco
Auctioneers Estate Agents	Irish Auctioneers and Valuers Institute DTZ - Sherry Fitzgerald Lisney Hamilton Osbourne King Gunne
Local Authority Departments	DCC Housing, Social and Community Services Department • Architects Division • Housing Management Services • Quantity Surveyors Division DCC Planning and Economic Development Department • Building Control • Planning Enforcement
Architects	Howley Harrington O Mahoney Pike Solearth Architects
Developers	Ballymore Construction
Property Managers	WYSE
Property Investors	Not yet identified

Dublin City Council (DCC) is an important target group and is very supportive of the BUDI project. DCC is Ireland's largest Local Authority and is landlord to about 25,000 social housing units.

CODEMA organised and held a 'Workshop for Public Authorities' on 20th May 2005. The Public Authority present was DCC Planning & Economic Development Department – Building Control Dept. 3 presentations were made by CODEMA staff, followed by a discussion session. Information packs, including presentation material and the BUDI information folder were distributed at the event. CODEMA hopes to hold similar workshops for the other identified Local Authority Departments and also for key Estate Agents.

CODEMA has an advert and articles booked in summer issues of 2 magazines 'Construct Ireland' and 'MOViNG iN'. We hope these adverts will attract the attention of developers and property investors in the GDA.

CODEMA plans to hold a training workshop for Public Authority personnel in Autumn 2005, the topic covered shall be the HER calculation methodology.

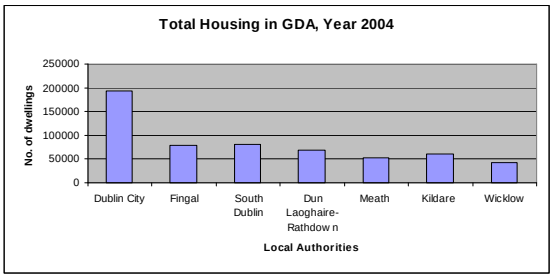
2.6 Estimation of Numbers of Certificates

A market analysis of all buildings concerned by the EPBD was carried out.

Residential Sector
The Residential Data was compiled using Census 2002 data and National Housing statistics for 2002, 2003 and 2004.

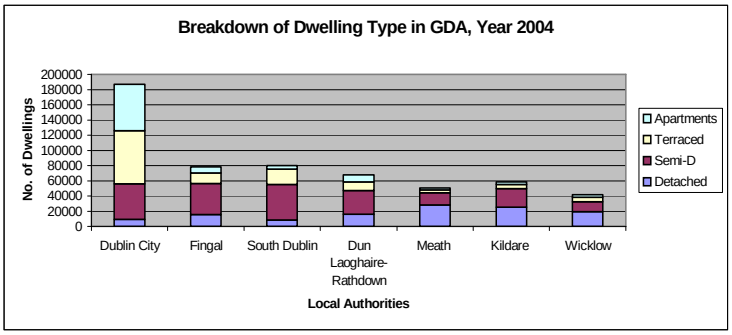
In the Greater Dublin Area there are **577,538** residential buildings (single family houses & apartments). The break down of dwellings according to Local Authority Areas is as follows:

- Dublin City Council: **192,876**
- Fingal County Council: **79,933**
- South Dublin County Council: **81,825**
- Dun Laoghaire-Rathdown County Council: **68,565**
- Meath County Council: **51,836**
- Kildare County Council: **60,053**
- Wicklow County Council: **42,450**



There are **91,529** apartments in the GDA

- Dublin City Council: **60,318**
- Fingal County council: **8,077**
- South Dublin County Council: **4,619**
- Dun Laoghaire Rathdown County Council: **9,111**
- Meath County Council: **2,641**
- Kildare County Council: **3,890**
- Wicklow County Council: **2,873**



It is estimated that annual sales and rental transactions of residential buildings in the GDA will require 62,700 energy certificates and approx. 230 estimated experts.

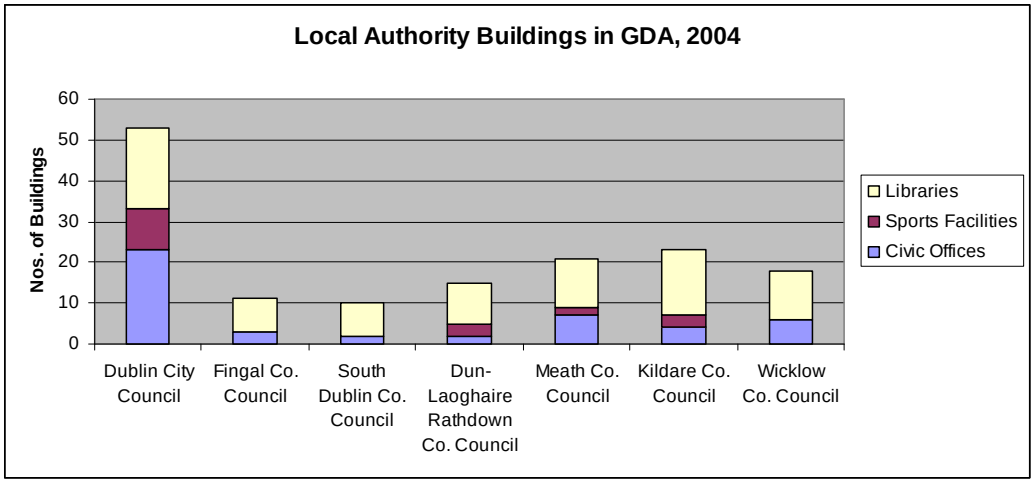
Public Buildings Sector
The definition of Public Buildings is based on Article 7.3 of the Directive 2002/91/EC:
"Buildings….occupied by public authorities and by institutions providing public services to a large number of persons and therefore frequently visited these persons"

There are **76,312** Public and Commercial buildings in the Greater Dublin Area.

Local Authority Buildings:

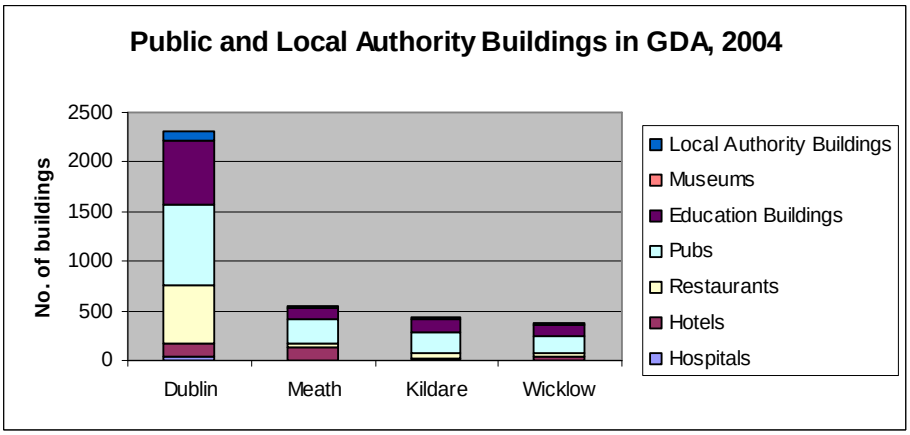
There are **151** Local Authority buildings (libraries, sports facilities, civic offices)

	Civic Offices	Sports Facilities	Libraries
Dublin City Council	23	10	20
Fingal Co. Council	3	0	8
South Dublin Co. Council	2	0	8
Dun-Laoghaire Rathdown Co. Council	2	3	10
Meath Co. Council	7	2	12
Kildare Co. Council	4	3	16
Wicklow Co. Council	6	0	12



Public & Commercial Buildings

	Dublin	Meath	Kildare	Wicklow
Hospitals	35	1	1	4
Hotels	144	140	24	33
Restaurants	578	32	44	41
Pubs	822	235	212	173
Education Buildings	633	127	128	108
Museums	4	1	8	6
Local Authority Buildings	89	21	23	18
Commercial buildings	52,600	2,500	2,800	14,700
Courts	13	4	4	6
Total	**54,829**	**3,040**	**3,221**	**15,071**



It is estimated that annual sales and rental transactions of public and commercial buildings in the GDA will require approx. 12,591 energy certificates and approx. approx. 181 estimated experts.

INDICATOR TABLES PER REGION

Table 2.6.1: Residential Buildings

Residential Building Types	No. of Existing Buildings	New Build (per annum)	Rented (per annum)	Sold (per annum)	Estimated Certs/Yr	Estimated Experts
single houses (1-2 dwellings)	471,905	17,758	5,345*	34,509	62700-	230-
multi-family houses (3-10 dwellings)	-	-	-	-		
greater residential buildings (> 11 dwellings)	91,529	8,157	8,746*	14,095		

***** There are unregistered rented houses, which are not accounted for in the above figures- as no data is available

Table 2.6.2: Non Residential Buildings (Public Buildings & Other Commercial Buildings)

Non-Residential Buildings Types	No. of Existing Buildings	% Rented (per annum)	% Sold (per annum)	No. of New Build (per annum)	Estimated Certs/Yr	Estimated Experts
Public Buildings & Other Commercial Buildings	76,161	12.5%**	4%**	300	12,591	181

**The above percentages are estimates as there are no hard data available on commercial sales and rentals