

## Variation No.1



Adopted 6<sup>th</sup> November 2007

### 3.5.4 Sustainability and Energy Efficiency

It is the policy of the Council to promote sustainable building design incorporating the use of materials that optimise the energy efficiency of the structure

The Council recognises the importance of promoting sustainable development within the built environment. Improvements in the design and construction of modern developments can, through the utilisation of available technologies, lead to significant energy savings for the property owner. These savings may be augmented by the use of renewable energy sources leading to a further reduction in attributable CO2 emissions. Appropriate design decisions in relation to layout, levels of insulation, amount and orientation of glazing, utilisation of solar energy heating systems and fuel type, construction materials and measures to limit the use of potable water can therefore contribute greatly towards ensuring sustainability.

All new developments shall be required to demonstrate how they intend to integrate best practice in the form of a written submission accompanying planning applications. Each submission shall include a report on the buildings energy performance rating to be demonstrated on the basis of a simple approved method carried out by a qualified or accredited expert. For example it is expected that in line with the EU Energy Performance of Buildings Directive (EPBD) 2002/9/EC, all new developments shall be designed to achieve a high Building Energy Rating (BER) and that renewable energy sources will contribute towards a buildings total energy demand. The minimum energy performance criteria for new developments are set out in further detail in Chapter 12: Development Control Standards and Guidelines, Section 12.18

The Council encourages the minimisation of waste production during the construction process and the recycling of construction waste.

## 12.18 Energy Performance Criteria

In order to achieve the policy objectives set out in Chapter 3, Section 3.5.4, and improve the energy performance of new developments within Bray the Council will:

- Encourage responsible environmental management in construction.
- Promote sustainable approaches to housing developments through spatial planning, layout, design and detailed specification.
- Ensure high standards of energy efficiency in all housing developments under its remit, and encourage developers, owners, and tenants to improve the environmental performance of the building stock, including the deployment of renewable energy
- For all developments, apply an improvement of either of 40% or 60% (depending on certain criteria) relative to prevailing norms as represented by the Building Regulations Part L
- Anticipate the operational implementation of the EU Directive on the Energy performance of Buildings (EPBD) by encouraging the energy rating and labelling of building energy performance, so as to give visible recognition to such improvements.

The specific approach proposed for developers is to set a target, accompanied by a menu of design and technology options (including renewable energy technologies) as a means of offering flexibility towards meeting that target in the most technically and economically feasible manner on a case-by-case basis.

### 12.18.1 Targets

All applicable new buildings will represent a significant improvement in energy and associated environmental performance relative to prevailing practice. The following conditions shall apply:

#### Housing

Seek a reduction of at least 40% in CO<sub>2</sub> emissions within the housing development, relative to a baseline of prevailing regulatory and design practice. This initial baseline of comparison is to be represented by the provisions of Technical Guidance Document L (TGD L) to the Building Regulations, 2002 using a conventional gas fired heating boiler with an assumed seasonal efficiency of 75%. The calculation is to be carried out for the time being using the Heat Energy Rating Method in TGD L, pending adoption of the official national methodology for determining energy performance of housing for the purposes of the EU Energy Performance of Buildings Directive (EPBD).

In meeting this CO2 performance target, the development shall include:

### For Housing Schemes of between 1 & 9 units

- A collective average reduction of at least 40% in energy consumption for space and water heating, relative to the baseline of existing regulatory and design practice and using the methodology outlined above; and
- A contribution of 20% by renewable energy supply systems to meet the collective space and water heating requirements within the housing development.

### For Housing Schemes of 10 or more units

- A collective average reduction of at least 60% in energy consumption for space and water heating, relative to the baseline of existing regulatory and design practice and using the methodology outlined above; and
- A contribution of 30% by renewable energy supply systems to meet the collective space and water heating requirements within the housing development.

The above criteria shall not be applicable in the case of domestic extensions or renovation works carried out to existing buildings where the structural fabric of the building is to be retained.

## Non Residential

A collective reduction of at least 40% in CO2 emissions deriving from total energy usage (space heating, water heating, lighting, other) arising from all services within the development, relative to a baseline of existing regulatory and design practice. This initial baseline of comparison is to be represented by the provisions of TGD L to the Building Regulations, 2006. In the absence of an official national methodology for determining the energy performance of non-domestic buildings, this calculation is to be carried out using a method compliant with the draft European Standard pr EN 13790.

In meeting this CO2 performance target, the development shall include:

### For developments having a floor area < 1000m<sup>2</sup>

- A collective average reduction of at least 40% in energy consumption for all services, relative to the baseline of existing regulatory and design practice and using a methodology as outlined above; and
- A contribution of 20% by renewable energy supply systems to meet the collective energy requirements within the development.

### For developments having a floor area > 1000m<sup>2</sup>

- A collective average reduction of at least 60% in energy consumption for all services, relative to the baseline of existing regulatory and design practice and using a methodology as outlined above; and
- A contribution of 30% by renewable energy supply systems to meet the collective energy requirements within the development.

To illustrate the above, using the Heat Energy Rating methodology, the baseline energy performance of new housing is typically 125 kWh/m<sup>2</sup>/year for space and water heating when constructed to the minimum requirements of Building Regulations, 2002, and using a boiler with a seasonal efficiency of 75%. This translates into a CO<sub>2</sub> performance of 23.7 kg/m<sup>2</sup>/ year using a gas fired heating system.

It is proposed that all new housing developments within Bray Town Council's functional area should aim to achieve a 40% reduction in CO<sub>2</sub> emissions associated with space and water heating (i.e. to below 14.2 kg/m<sup>2</sup>/year), which must include a reduction in energy use for this purpose (i.e. to below 75 kWh/ m<sup>2</sup>/year) and a contribution of at least 20% by renewable energy systems to meet the collective space and water heating requirements within the development.

## Menu of Options

In pursuit of these targets, a strong menu of superior design and specification options will include the following:

- Site layout and associated bio-climatic/ passive solar design measures
- Enhanced levels of insulation in walls, roofs, floors, glazing and doors
- Reduced uncontrolled air infiltration losses
- Use of healthy and controllable ventilation systems
- Heat recovery systems
- Use of daylight
- Water conservation measures
- More sustainable building materials
- Improved heat generation appliance efficiency, e.g. condensing boilers
- Intelligent heating system configuration and time/ temperature/ zone/ function controls

- Efficient provision of domestic hot water
- Fuel switching to low or zero CO2 emitting fuels
- Energy efficient lighting systems
- Incorporation of renewable energy systems, e.g. active solar, heat pumps, biomass
- Provision of appropriate group or district heating systems.
- In the case of non-domestic buildings, additional options include:
- Heating, ventilation and air conditioning systems and controls
- Electrical energy use including motive power
- Efficient lighting systems and controls
- Building Energy Management Systems
- Occupancy controls
- Monitoring and Targeting systems
- Combined Heat and Power (CHP)

Other measures which can contribute to the energy efficiency and renewable energy targets can also be considered. This menu approach enables specifiers and developers to adopt approaches which are responsive to site and client circumstances and constraints. It also offers the flexibility to explore and employ different mixes of options on a case-by-case basis, to maximise technical and economic feasibility.

Further Information on the methodology for calculating a dwellings energy performance is available from Sustainable Energy Ireland (SEI), in a publication entitled Dwelling Energy Assessment Procedure (DEAP). This publication is available in both electronic and printed form and is accompanied by a spreadsheet dealing with the calculation procedure