Bangor City Centre Energy Efficiency Guide

CYNGOR GWYNEDD COUNCIL

CYNGOR DINAS BANGOR CITY COUNCIL

Llywodraeth Cymru
Welsh Government

bid
BANGOR MEANS BUSINESS
BANGOR MEWN BUSNES

Bangor City Centre Energy Efficiency Guide

Contents

1.0 Introduction and Context

Bangor is one of Wales's oldest cities and is the principle retail centre for North West Wales. Despite this it currently faces a number of challenges including high vacancy rates; empty upper floors and limited evening economy.

Gwynedd Council, Bangor City Council, Business Improvement District, Welsh Government and other key strategic partners have developed the Bangor City Centre Strategy in response to this.

Funding has been obtained from the Welsh Government Targeted Regeneration Investment Programme to provide gap funding to allow building owners and occupiers to enhance their buildings.

The key elements of this strategy are the need to respond to the conditions placed by Welsh Government on Gwynedd Council to work towards their commitment to reduce carbon emissions by 50% by 2050. One of the primary aims of the scheme is to deliver carbon reductions through sustainable energy efficiency measures. This guide will provide the processes to follow for best practice for evaluating and selecting the most suitable energy efficiency measures to incorporate within your scheme. We are looking for the most cost-effective intervention to support the move to lower carbon systems and improving energy efficiency.

The overarching benefits of which will be lower costs for businesses, home cost savings for residential properties, and addressing fuel poverty. Resulting in major savings being made from minor improvements – low cost/low tech solutions.

Two Documents have been produced; these documents being the '**Bangor City Centre Design Guide'** and the second document entitled **'Bangor City Centre Energy Efficiency Guide'**. The purpose of these documents is to provide guidance as to how individual projects can be developed in such a way as to both satisfy the requirements of the above scheme, and hence become eligible for a grant.

1.1 How to Use this Guide

The purpose of this guide is to help: -

- **Building owners** develop a scheme to be sustainable through energy efficiency measures by reducing their energy usage. Providing information on how to achieve lower carbon emissions into the atmosphere and the benefits that can be gained in energy cost savings for their buildings.

- **Professional agents**, such as architects and project managers to successfully design schemes which meet the aspirations of specifically the Grant issuing body as well as wider council aspirations. It will include detailed guidance on energy efficiency measures to be considered throughout the design process to achieve the necessary outcomes required by the grant scheme.

- **Council officers** to understand and administer the scheme, and make decisions in line with an agreed framework.

The guide first considers the wider aspects of energy efficiency, before considering individual building elements, with advice tailored to the specific requirements of this particular scheme and area.

1.2 Brief background to climate change and carbon emissions

The United Nations State:

The Human Fingerprint on Greenhouse Gases - Greenhouse gases occur naturally and are essential to the survival of humans and millions of other living things, by keeping some of the sun's warmth from reflecting back into space and making Earth liveable. But after more than a century and a half of industrialization, deforestation, and large-scale agriculture, quantities of greenhouse gases in the atmosphere have risen to record levels not seen in three million years. As populations, economies and standards of living grow, so do the cumulative level of greenhouse gases (GHGs) emissions.

There are some basic well-established scientific links:

- *The concentration of GHGs in the earth's atmosphere is directly linked to the average global temperature on Earth;*
- *The concentration has been rising steadily, and mean global temperatures along with it, since the time of the Industrial Revolution;*
- *The most abundant GHG, accounting for about two-thirds of GHGs, is carbon dioxide (CO2), is largely the product of burning fossil fuels.*

The Carbonfund.org state:

Since the Industrial Revolution started in the middle of the 19th century, carbon dioxide emissions in our atmosphere have increased steadily and dramatically from the burning of fossil fuels, namely coal, oil and gas, and to a lesser degree from methane and industrial gases.

This increase in CO2 from roughly 280 parts per million (ppm) prior to the Industrial Revolution to about 392 ppm today is having a dramatic impact on our climate, both warming our climate and altering our weather with more droughts and more very extreme weather events. Our sea levels are rising and entire countries are at risk of disappearing.

Climate Change is the defining issue of our time and we are at a defining moment. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly.

As can be seen by the statements above we all have a role to play in reducing carbon emissions. This document will explain how you can easily achieve a lowering of emissions by introducing measures that provide long term benefits for the environment and building owners. The Property Renovation and Investment Scheme will help toward achieving these goals.

1.3 Welsh Government and Gwynedd Council Policies

Welsh Government - The Environment (Wales) Act 2016 sets out the approach to reduce greenhouse gas emissions in Wales. The Environment (Wales) Act places a duty on the Welsh Ministers to ensure that in 2050 net emissions are at least 80% lower than the baseline. Targets for 2020, 2030 and 2040, and 5-yearly carbon budgets create a trajectory towards the 2050 target.

The Climate Change (Wales) Regulations 2018 were passed by the National Assembly for Wales in December 2018. The Regulations:

•set the interim targets and first two carbon budgets

•include our share of emissions from international shipping and international aviation

•set out how the Welsh Ministers can utilise international carbon credits (offsets)

•set a limit of 10% on the use of carbon credits for the first carbon budget

We are not planning to use carbon credits to meet the first carbon budget but accept the UKCCC's advice that they provide flexibility for unforeseen circumstances, such as significantly increased industrial output.

The interim targets are:

•2020: 27% reduction against the baseline
•2030: 45% reduction
•2040: 67% reduction

Local Government - On a local level The Council has written their Cyngor Gwynedd Carbon Management Plan (CMP). The Carbon Management Plan was produced with the assistance of the Carbon Trust in response to the challenges of climate change. The Council has a key role to play in ensuring that our communities are prepared for the future.

As part of the Gwynedd Local Services Board, Gwynedd Council is committed to an ambitious target of reducing carbon emissions by 60% by 2021. The first step of the Plan is to try to reduce the Council's carbon emissions by 30% by 2014/15.

The wider aim of Gwynedd Council is to reduce the general carbon emissions of the county. This Scheme is the first step on the road to achieving a low carbon County.

Full details of the above policy documents can be found at:

Document/Website	Location
United Nations and Climate Change	http://www.un.org/en/sections/issues-depth/climate-change/
Carbonfund.com toward a ZeroCarbon™ world	https://carbonfund.org/climate-change/
The Climate Group - Partner region profile – Wales Energy Transition Platform May 2016	https://www.theclimategroup.org/sites/default/files/etp_partnerprofile_wales.pdf
Gwynedd Council Carbon Management Plan	https://www.gwynedd.llyw.cymru/en/Council/Strategies-and-policies/Environment-and-planning/Carbon-Management-Plan.aspx
Welsh Government Technical Advice Note: TAN 24 The Historic Environment	https://beta.gov.wales/sites/default/files/publications/2018-09/tan24-historic-environment.pdf
Welsh Government Energy Efficiency Strategy and NAfW Fuel Poverty and Energy – A Constituents Guide	https://www.assembly.wales/research%20documents/19-010%20-%20fuel%20poverty/19-010%20-%20web%20-%20english.pdf

1.4 The Difference Between Modern, Historic and Traditional Buildings.

Historic and Modern Properties are designed to function in two completely different ways, and this has very important consequences for anyone intending to retrofit them.

Historic buildings fall under the classification of: -

- Listed buildings.
- Buildings situated in conservation areas.
- Buildings which are of architectural and historical interest and which are referred to as a material consideration in a local authority's development plan.
- Buildings of architectural and historical interest within national parks, areas of outstanding natural beauty and world heritage sites.
- Vernacular buildings of traditional form and construction.

Traditional Buildings are buildings constructed mainly before 1919 - these buildings were largely of a vernacular construction, mainly solid exterior wall construction built with stone, brick or a combination of the two materials. Natural lime mortar was used in the construction process for building the walls and for external render and internal plaster finishes. The Welsh climate being predominantly wet and windy, buildings had to withstand these conditions of driving rain penetrating the external walls. The ability of the solid masonry structures to breathe (permeable) allowed the moisture to be partly absorbed during these rainy conditions and when the rain stopped the moisture would move back through to the external face, the effects of wind and evaporation dried out the wall creating a steady state for the structure and a healthy environment for its inhabitants. These conditions that created the moisture movement within the walls occurred due to the use of natural lime mortar and natural building materials with their ability to be breathable materials individually and collectively as a whole. Other factors also contributed to the ability of the structure to maintain a healthy internal environment, and example being how natural stone flags with no damp proof membrane were kept dry. This was achieved by the less than air tight windows and doors combined with the use of open fires maintaining an acceptable living environmental equilibrium through heating and ventilating internal spaces. Suspended timber floors where kept dry by vents positioned in external walls providing cross ventilation below the floorboards maintaining a steady environment to prevent wood rot and insect infestation.

Modern Buildings were constructed post 1919 and predominantly they have external cavity walls. These walls consist of an outer leaf of stone, brick, concrete block or some other material (glass, steel, concrete etc). Then an air cavity of variable width (nowadays partly filled with insulation) fixed to the inner leaf of cavity wall with wall ties. The inner leaf constructed of blockwork timberwork or some other material. Cavity walls constructed off damp proof courses to prevent moisture from the ground infiltrating the structure. The mortar will be mostly Portland cement or some other variant of hard impermeable (cementitious) mortar. Solid floors (mainly concrete) constructed over damp proof membranes to prevent moisture penetration. Windows and doors providing considerable air tightness preventing air infiltration (drafts). Modern heating systems without open fires preventing heat loss. More recent buildings today also have a number of renewable energy sources build into them with solar and wind power, ground source/air heat pumps etc. Additionally, energy efficient lighting, ventilation with heat recovery units, double glazing and high levels of insulation all contribute to a low energy use building.

These buildings also have the ability to shed most rain off the external leaf. Moisture that penetrates through the outer skin runs down the inner surface of the outer skin within the cavity draining away below damp proof level causing no damp problems for the structure.

Water penetration affects everything in buildings from the health or decay of building fabric, through to the thermal performance of the building and to the health of occupants. Particularly as we try to increase the air-tightness, thermal performance and indoor air quality of our buildings, breathability has become a critical issue, affecting all areas both of new build and of renovation.

The use of these cementitious mortars inhibits the movement of moisture and whilst they are suitable for modern cavity construction are totally unsuitable for solid masonry structures, trapping water within the structure causing damp walls and the building becomes detrimental to the health of occupants and the building fabric. Another consequence is that it drives up the energy use for heating, struggling to keep the building warm and dry.

1.5 Overarching Principles and the Energy Efficiency Design Process

The Historic environment is a limited resource, and it is essential that historic fabric be retained whenever possible. With the particular emphasis on the designated area within Bangor City Centre, a key aim is to reduce the Carbon footprint of the buildings within this area.

Within the UK, Wales has the oldest housing stock of all constituent nations. Approximately 30% of dwellings in Wales were built prior to 1919 and of these 90% have solid exterior walls. Identical small commercial units the scheme is aimed at similarly fall into this group.

Bangor City Centre has within in its boundaries Historic, Traditional and Modern buildings ranging from different periods; Georgian, Victorian, Edwardian and of course current day buildings. Designers must firstly take into account the type of building that they are planning to repair, renovate or retrofit for a new use, It has been seen that buildings are constructed out of a variety of materials (natural and manmade), particular attention must be made to solid masonry construction (many evident in the area) and an informed approach to introduce energy efficiency within the design must be taken.

When approaching the design process from a sustainability perspective, thought must be given to working with what is inherent within a structure, to be utilised within the new design or recycled in

some way. A thorough survey of the building noting its external and internal elements that have the potential for re-use must be considered. The Building Regulations will be applicable to mostly all works being considered and compliance with the Approved Documents must be demonstrated. Some of the regulations can be relaxed. The new Part L makes it clear that the special characteristics of a historic building must be recognised. The aim of this revised part of the Building Regulations is to improve energy efficiency where practically possible, provided that this does not harm the character of the building or increase the risk of long-term deterioration to fabric or fittings. It is noted that the two main shopping centres are already quite thermally efficient and the opportunities for increasing the thermal performance of these are very limited.

If building works is to be considered for historic then Listed Building Consent may be required to implement grant funded work internally and externally on Listed Buildings, whilst Planning Consent may be required for external works on unlisted buildings. The legal requirement for any alterations to preserve or enhance the character of the conservation area will be a material consideration in the determination of such applications. Designers who are involved with the above process will be required to follow the guidance in BS 7913:2013 Guide to the conservation of historic buildings, as a condition of the grant.

This Energy Efficiency Design Guide does not deal with 'U' Values in any particular element and your Design professional will evaluate the values holistically to achieve requirements with the Building Regulations. Thought must also be given to the fact that the Building Regulations state the minimum 'U' values required to achieve compliance and that you are able to reduce 'U' values even further by specifying products and installation over and above what is the minimum legal standard and therefore make greater energy efficiency savings. Paradoxically, strict compliance with these 'U' values is not necessary for Listed building or historic buildings within a conservation area.

The particular methods of introducing insulation improvements to modern properties with cavity wall structures are well known and your Designer will be able to specify these modern materials without difficulty. The approach of this guide is to address the energy efficiency measures applicable to the typical solid masonry structures that are found in the area.

2.0 Energy Efficiency Design Considerations

This should commence with a desk top study of the building to identify its past through historic environmental records and other resources. This study will produce an understanding of the original functionality of the building to allow an assessment to be made of its needs and best practice approach to planning and developing energy efficient measures within the project. The work above should be supplemented with a building condition survey along with a photographic record with due consideration of its environs.

Care must be taken in identifying the building type in particular solid wall construction and its material coatings, as recognition of external and internal cementitious coatings need to be prioritised for removal and replacement with natural lime mortars to enable the structure to breathe and function as it was intentionally designed for. It must be emphasized that if the existing coatings are not displaying defects (cracking, damp patches, internal environmental problems, etc) then there is a good case for it to remain in place, not to remove sound materials at this time.

The supply chain and materials specified for the works must be considered from a sustainability point of view. Using local suppliers and contractors to carry out the works reduces transport and travel costs, using materials from sustainable resources reduces the impact on the environment therefore saving on carbon emissions. Any work undertaken will need to comply with specific industry standards (PAS 2030:2017), Improving the energy efficiency of existing buildings. Also, (PAS 2035:2018) Specification for the energy retrofit of domestic buildings. Specification for installation process, process management and service provision or installers will need to possess the appropriate accreditation. Today, a number of building suppliers only provide timber from sustainable forest sources and they provide a Chain of Custody. The Chain of Custody certification is a mechanism for tracking certified material from the forest to the final product to ensure that the wood, wood fibre or non-wood forest produce contained in the product or product line can be traced back to certified forests. Due consideration should be given for specifying such products.

With all these measures discussed below its important that the ventilation requirements for the building are maintained to preserve a healthy environment for the inhabitants and the structure.

Energy efficiency measures can be achieved in many ways and the following will be considered outlining their particular strengths and weaknesses in employing them.

2.1 Renewables

Renewable energy is developed from sources which are naturally replaced or are practically infinite. They are often described as 'clean', 'green' or 'sustainable' forms of energy because of their minimal environmental impact compared to fossil fuels. Below is a list of the conventional renewables that can be employed in retrofit projects, this list is not exhaustive.

- Solar – this can take the form of photovoltaic (PV) which are cells that convert the suns energy into electricity and can be in panels of various sizes or incorporated into roof slates, tiles or other building materials. It's more economical with good source of source of sunlight and large-scale areas, its disadvantages are installation that suffers shading and the storage of the energy produced. The same can be said of thermal solar panels for domestic hot water heating systems. Given the orientation and size of properties within the conservation area these solutions may not be suitable and would require suitable surveys from specialists to ascertain initial investment cost versus the life cycle costing. Solar panels on a front elevation or roof may require planning consent within a conservation area. Such schemes are often not viewed as enhancing or preserving the character of the Conservation area, and it is advised that your Designer discusses this with the local planning team at an early stage.

- Wind Power – can be a source of generating electricity through wind turbines. The Energy Saving Trust points out that for a wind turbine to be economically valuable, you need an average wind speed of at least five meters per second (5m/s) in an area free from turbulence caused by surrounding obstacles such as trees or buildings.

- Heat Pumps – can be either ground source or air source. The ground source heat pump extracts small amounts of heat through a refrigerant in a pipe and transfers this heat to a hot water tank. Less heat energy is then required to raise the water to the required temperature for heating and hot water. The air source heat pump works on a similar principle by extracting heat from the external air.

- Biomass – this is organic matter used as fuel and usually come in the form of wood chips or pellets. Biomass is deemed to be carbon neutral (trees absorb CO_2 out of the environment and then it's released when used as fuel). Providing sufficient storage of the fuel can be a problem as can the height of the flue required to function correctly.

2.2 Roofs

Providing insulation to pitched roofs is one of the best methods of reducing energy use as typically 25% of heat loss is through the roof. The Energy Saving Trust state; A quarter of heat is lost through the roof in an uninsulated home. Insulating your loft, attic or flat roof is a simple and effective way to reduce heat loss and reduce your heating bills. The loft area can be filled with two layers of insulation quilt, laid at right angles to each other and remembering not to obstruct the eaves if you have a cold roof construction. If the attic space is used a room there are varied types of solid insulation that can installed within the rafters or overlaid internally to the rafters and plasterboard or other material over. Insulated plasterboard is also available in various thicknesses to carry out this work. It's important that the chosen method of insulating these spaces maintains the required ventilation to prevent condensation built up and the associated problems that can bring. Similarly, flat roofs can either be warm roof construction or cold roof construction and you Designer will be able to specify an insulation system suitable to make energy savings. With historic and traditional buildings when replacing roof coverings, it is not normally suitable to install insulation in between and over rafters as the consequence of this type of installation usually requires a counter batten under the slate battens whereby lifting the roof line. This can be unacceptable with the Planners and/or Conservation Officer. Careful consideration must be made when considering blocking off redundant chimney flues as this can cause condensation and damp problems if not addressed correctly. Chimney pots with vent caps are available on the market and ventilation grilles can be fitted to the redundant fireplace opening in each room, radiators or other heat emitters can be placed in front of these to prevent draughts. If the chimney is on an external wall which is not a party wall then the flue can be vented instead through the external wall.

2.3 External Walls

The biggest single problem to be encountered with solid masonry buildings has been the use of cementitious render systems internally and externally. Solid masonry structures had historically natural lime renders applied to them which allowed the walls to breathe; during wet weather moisture would travel through the wall and eventually when the rain stopped would travel back through the wall and evaporate form the external wall surface. Modern cementitious renders and plasters stop the moisture migration and prevent the solid wall construction performing correctly in wet conditions.

Therefore, due to the hardness of the render cracks appear over time as masonry walls constructed with natural lime move slightly throughout the seasons and these hard renders crack, firstly with hair line cracks and eventually with major cracking throughout. Water getting through these cracks gets trapped between the masonry wall and the hard render, in winter the water freezes and further damage to the render coat is encountered by the render separating from the masonry underneath.

Additionally, to this, the moisture gets trapped behind the internal hard wall plaster surfaces and the wall remains damp, this in turn causes environmental problems for the inhabitants where condensation can form into condensation mould and then the associated health problems can be present with condensation spores being released into the atmosphere getting into people's lungs. Walls that are damp require more energy to heat to the required temperature. If a damp wall

surface temperature is 10°C and the room temperature required is 15°C then you would have to have an increased heat input of 20°C to achieve the required ambient temperature of 15°C.

It can be seen from the above that it's important to replace these cementitious render systems with a natural lime coating to enable the walls to function as they were originally designed for. This will inevitably drive down energy use and lead to a more efficient healthy structure.

In addition to the commonly available synthetic external retrofit systems, which are often not suitable for historic buildings, there are many internal and external wall insulation systems on the market that can be considered to increase the insulation values of the structure. These are normally natural products such as cork insulated natural lime render systems externally with breathable paint which will not increase the overall thickness of any existing cementitious render coating. Internally the exposed masonry can be covered with calcium silicate insulation boards or Aerogel board, whilst thicker materials such as wood fibreboard and hemp board are best held in place with framing. Internal lime plasters with breathable paint finishes will complete the installation.

External Wall Systems will need to comply with EU and UK regulations, recognition that the added dimension to external walls will have a consequence to the existing roof line at eaves level, window and door openings.

In considering a wall insulation of any type, the situation and exposure of the building to prevailing weather, especially wind driven rain, is important. Walls with high exposure should probably not be treated without full consideration of their integrity and performance. In such cases, resources may be better spent on external detailing improvements to better manage wind driven rain.

2.4 Floors

A cold floor absorbs heat and can introduce cold air from below floorboards, significantly affecting thermal comfort. The thermal performance of both timber and concrete floors can be significantly improved as described below, although in the case of solid floors this can also involve significant disruption.

Suspended Timber floors – these typical ground floor timber structures can be insulated if flooring is able to be lifted by installing wood fibre boards between the floor joists ensuring an air gap is maintained directly below the floorboards to prevent condensation. Where the spacing between joists is not so uniform then insulation quilt installed above suspended net between the joists will be an alternative way of achieving this. There are many variations on a theme to insulate and one of those being a sprayed insulation applied by either hand applied if access is available, or a more recent innovation being machine applied by a small tracked robotic vehicle. Care must be taken to ensure that adequate underfloor ventilation is maintained and that any supporting masonry walls are repaired prior to these works.

Solid Floors – if you are not considering insulating solid flag stone floors as part of conservation best practice would dictate leaving them in situ. Other types of floors with no historic value can be excavated and breathable limecrete floors installed in its place provide additional insulation value and maintaining the breathability of the structure. In some instances, solid concrete suspended floors can be installed and these reasons for not introducing damp proof membranes within these structures is this tends to push the water moisture towards the walls which result in rising damp in

walls that previously were dry. As mentioned previously, there are various materials available to achieve the required insulation of solid floor slabs and it's the awareness of the problems that can be introduced in the design process that can hinder its ability to function correctly.

A solution to upgrade an existing solid floor without removing it is by installing a thin high-performance insulating board (such as aerogel board) and applying a floor covering over. The board is usually some 30mm thick and some alterations to doors and skirtings will be required.

2.5 Windows and Doors

From a conservation and sustainability perspective, the existing windows and doors where they have historic value should be retained and repaired to bring them back into use. Windows can achieve an upgraded insulation value by the introduction of slim line double glazes units (inevitably the weights in sliding ashes will also need increasing to take the additional weigh of the units). The incorporation of draught strips within the frames will also reduce heat loss and prevent draughts.

Good quality secondary glazing will also increase the thermal performance of the windows and it's important to consider the design of the secondary glazing bars follow the same lines of the original windows so that they are aesthetically pleasing to look through without obstructing the visuals of the original window.

Blinds, curtains and shutters are a way of reducing heat loss with no impact on the original windows or doors.

Attention should be given to introducing a draught lobby where an original historic door needs to be retained with a new internal draught free door and frame incorporated. Other than that, replacing the glass in a door with slim line double glazed units and affixing draught strips to the door and frame will achieve a better thermal performance.

If installing window replacement then aluminium thermal break frames should be considered as an alternative to UPVC products and alike.

Where placement glazing or new windows are to be installed, due consideration should be given to specifying Solar control glass which allows sunlight to pass through a window or façade while radiating and reflecting away a large degree of the sun's heat. The indoor space stays bright and much cooler than would be the case if normal glass were used.

2.6 Services

The one area where signification reductions in carbon omissions can be achieved is with the appropriate selection of building services equipment.

Renewable Energy – The use of renewables considered earlier and the ability to employ them on a scheme will need to be assessed for suitability building by building.

Water Use – The installation of a water meter can have advantages for the property enabling you to monitor its usage and make improvements to reduce consumption. Water efficient taps are available to prevent the overuse of water through taps on a day to day basis. Consideration should

be given to rainwater harvesting (collecting rain falling on the roof areas) providing clean water for washing machines and toilets. This can considerably reduce your costs and increase the sustainability of the building.

Lighting – The specification of LED lighting will provide energy efficiency benefits and financial savings throughout the life of the building.

Heating and hot water – Depending on the energy source available and its current cost per unit, the choice will have to be determined at the appropriate design stage. The current use of gas and electric being the most economical outside of renewables. The energy saving Trust state that heating accounts for 55% of what you spend on energy bills each year.

High efficiency combination boilers are more efficient over hot water storage systems for heating and providing hot water. Many boilers today can achieve annual fuel utilization efficiency (AFUE) rating of 95%.

Economy 7 electric systems provide low cost energy overnight that is stored as energy in storage radiators for heat to be released during the day when electric is more expensive. The system also heats water in tanks overnight for use throughout the day. As a number of the electricity companies use renewable sources to generate the electricity this can seen as a very sustainable and energy efficient means of obtaining energy. The annual cost may be the deciding factor in choosing this system.

3.0 Support

3.1 Useful contacts and addresses

Information can be found at Gwynedd Council Offices and the Council Web site. Officers of the Council administrating the scheme can be found below.

Planning – Planning@gwynedd.llyw.cymru
Welsh Version: Cynllunio@gwynedd.llyw.cymru
Tel. No: 01766 771000

Business Support – Business@gwynedd.llyw.cymru
Welsh version: Busnes@gwynedd.llyw.cymru
Tel. No: 01286 679231

Website: www.gwynedd.llyw.cymru