

Example Victorian property, Tynemouth

Our Objective

Macoun-Eco is the energy performance division of the Macoun Group tasked specifically with enabling customers to optimise the performance of their homes using traditional and new technological methods to produce, store and retain energy, while keeping an eye on the project costs.

The Master Plan

Our "Master Plan" for your home is constructed using scientific measurement of your house's energy usage coupled with a theoretical assessment of the building Energy Performance Measurement or EPC.

Theoretical energy assessment



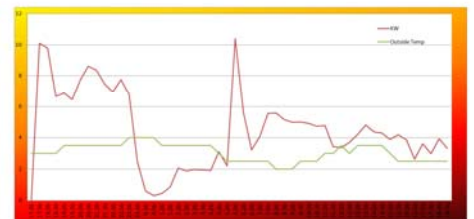
The Green Deal Cash back Scheme worth over £1000



Actual energy usage



Domestic KWh Usage versus Outside Temperature



Higher performing domestic residence



Building quality in Tyneside since 1979



Macoun Energy Performance Master Plan

optimising energy usage for life

The Measures

After the initial assessment and measurement of the building's actual usage we can identify the areas where heat energy is lost to the environment or building fabric. Our main focus in a property of this age would be the walls, floor, roof insulation and air currents.

Wall insulation

Properties built before 1980 were limited in the amount of cavity wall insulation applied. Building built before the War were traditionally solid wall construction and therefore had no cavity and no insulation. The heat loss through a traditional solid wall is around $2.0\text{W}/\text{M}^2\text{K}$. With the current building regulations stating that the required heat loss of new walls being $0.28\text{W}/\text{M}^2\text{K}$ we can see that the existing walls significantly contribute to the heating costs and the production of CO_2 .

Floors and ceilings

The next focal area is the study of the heat losses through the floors and roof. For many years now we have understood the benefits of loft insulation in order to keep our homes warm. We will examine this in greater detail in order to ensure that areas such as dormer roofs, eaves and cold bridging areas are adequately covered. The floors in the new extension will be brought up to the new Building Regulations standards of $0.22\text{W}/\text{M}^2\text{K}$. However the heat losses through the existing floors will be in the order of $1\text{-}2\text{W}/\text{M}^2\text{K}$ and these can be improved with various low cost technologies.

Windows

Included in most walls are windows; most of the windows in the property are double glazed windows with moderate efficiency in good condition. Although minor savings would result from replacing them with more modern units, this saving would be very small indeed compared with the cost of replacement. However the installation of better than standard windows in the new extension could prove to be a better investment. Triple glazed windows are a more affordable option these days and would reduce the heat losses through the windows from the current building

Building quality in
Tyneside since 1979



Macoun Energy Performance Master Plan

optimising energy usage for life

regulations standard of $1.6\text{W}/\text{m}^2\text{K}$ to less than $0.8\text{W}/\text{m}^2\text{K}$. Well fitting thick curtains can reduce the losses through windows by 10%. They can also increase thermal comfort by reducing radiation losses from people – that chill you get when next to a window.

Ventilation and air flow management

If substantial upgrades are being planned to most of the other building fabric elements i.e. the walls, windows and floor, then consideration will need to be given to reducing condensation. In an older building water vapour would either be lost through the draughts and air passages (chimneys) or condense on the cool walls and windows. We will need to examine the air flows within the house to ensure the building is allowed to breath in the way it was designed but without having excessive air changes and managing the air changes so that the warm moist air can be used to heat the incoming fresh air via a heat exchanger. Technology has moved on considerably since air tightness and pressure testing became part of the Building Regulations in 2010. There are now very reasonably priced mechanical heat recovery units available which can improve the building and payback in a reasonable period.

Building quality in
Tyneside since 1979



Macoun Energy Performance Master Plan

optimising energy usage for life



Macoun advanced technology

Heating controls

Boiler heating controls have been on the market for many years with users able to alter individual room temperatures via thermostatic radiator valves and time the boiler to come on and off via 24 hour and 7 day times. Technology has moved on considerably since those days and it is now possible to add additional controls to the boiler to optimise the combustion process and maximise the latent heat from the products of combustion. In addition to the boiler controls, it is also now possible to manage these controls over a local area network and the world wide web.

Micro energy generation

Feed-in Tariffs

The Feed-in Tariff (FIT) scheme is designed to support the take-up of renewable, electricity-generating technologies. Under the scheme, if you install solar PV panels, a wind turbine, a micro combined heat and power (CHP) system or other such technology, you can claim payment for the electricity you generate, with an additional amount paid for any surplus that you export to the grid. On top of this, you save money through not having to pay for the electricity that you actually use. To be eligible for the scheme, systems must be installed by an MCS accredited installer and your property must have a EPC greater than band D.

Photovoltaic cells



The work proposed to the house will include the erection of scaffolding front and back and the replacement of the roof covering, this is an ideal

Building quality in
Tyneside since 1979



Macoun Energy Performance Master Plan

optimising energy usage for life

time to benefit from the lower capital cost of installing a PV system and would potentially have a payback of less than 11 years assuming the following figures:-

Investment in 3.00kW System:	£6,000.00
First Year: Income from Feed-In Generation Tariff @ 15.44p/kWh:	£375.28
Income from exporting energy @ 4.50p/kWh:	£71.09
Electricity Saving:	£122.50
Total Benefit:	£568.87
Payback Time:	10.5 Years

The Renewable Heat Incentive (RHI)

Like F-I-T, RHI, is a payment made to home owners who are generating their own renewable heat. This can be through a solar process such as "solar thermal" where the sun's energy is used to heat water which is used as domestic water in the property or via a solid fuel process (Bio-mass / log burners) or via a heat recovery process such as an air or ground source heat pump. Unfortunately the Government hasn't yet set the levels of subsidy and has only an outline idea of how the heat energy will be measured. We would also need to further discuss your hot water usage needs.

Building quality in
Tyneside since 1979



Macoun Energy Performance Master Plan

optimising energy usage for life

Project management and specification

Project management is a vital part of the retrofit process, particularly where you are thinking of a "whole house" approach. In any construction project, the project manager's role is to make sure that the works are delivered on time and on budget, and that they achieve the anticipated outcome. Some are confident taking on this role themselves, whereas others choose to employ a professional to take on this role.

Key tasks that may be performed by a project manager include:

- ✓ Identifying the key tasks involved in the project then sequencing them along with the deadlines
- ✓ Specifying the work content
- ✓ Liaising with the planning department and building control
- ✓ Select the appropriate sub-contractors to carry out the work
- ✓ Collating together tender documents and responses
- ✓ Selecting and appointing the project team
- ✓ Co-ordinating the activities of the sub contractors
- ✓ Monitor, report and correct progress vs the plan

In essence the process is to deal with the building fabric then apply the new technology. We look forward to completing the work on your behalf.

Building quality in
Tyneside since 1979