

The World's First Carbon Neutral Fire Station and "The GreenPlan©"

Context - Following the introduction of "The GreenPlan©," Kilbarrack Fire Station has been recognised as the "World's First Carbon Neutral Fire Station" by The Green Organisation. The GreenPlan© is a New System, Empowering Society to Tackle Climate Change.

The GreenPlan© is a ground breaking model for Climate Mitigation in the Built Environment, enabling Communities to practically engage with their man-made and natural environment. Communities, Buildings, Factories, State Facilities, Campuses, Districts, Towns and Villages can all take part. There is a unique approach to; **Save Money – Stop Carbon – Help Society.**

The GreenPlan© started off in Kilbarrack Fire Station in 2008 with the collecting of used batteries and the need to improve Firefighters motivation. Over that time Neil McCabe invented, The GreenPlan© and its Seven Themes - TGP7© as an accreditation and spear headed its development and implementation within the 150 year old organisation, while working as a full time Fireman. The GreenPlan© is a holistic, hands-on carbon reduction and behavioural change process designed across three phases.

Built in the early seventies Kilbarrack Fire Station is a 2 storey Fire Station manned by 40 full time personnel. Morale within the Station fell when many of the staff moved to a new Station in Swords. The remaining staff set up a new Sports and Social Committee which became a medium to deliver a lot of positive change. The GreenPlan© began as team building exercise to boost staff morale. The crew started recycling batteries simply to reduce the waste produced by the station. As they became more enthused this expanded to other small changes. Motivation and enthusiasm grew and soon staff were recycling waste produced at the Station on their own time following work shifts as part of a new drive for shared responsibility, for the waste they created. Energy consumption and carbon emission auditing began and soon the Stations Crew raised €14,000 of their own private capital and invested in the first Phase of what was to become known as The GreenPlan©.

At that stage Neil went out to the local community and built several 'start up' companies to meet the expectations and demands required. Europe's first Thermodynamic Solar Collectors were installed in the Station. The panels use wind and rain to provide space and storage heating. This involved setting up two new companies from scratch, creating employment as well as impact. The new panels offered a three year payback and greatly lessened the demand on the old boiler. Other small behavioural changes like energy awareness campaigns and building a rain water harvesting unit, started to yield results and within one year the utility bills had dropped by €10,000.

The behavioural change was kicking in and the Crew were developing altered mind sets, this led to improving the energy efficiency of the building fabric too. Now the emphasis was on implementing mitigating effects on Climate Change. This success led to the staff deciding to be more ambitious and In 2009 Neil approached Dublin Fire Brigade Management for funding to introduce The GreenPlan© Phase II and III to Kilbarrack as a flagship test bed for all of the Brigade. Energy efficiency and reducing carbon emissions to lessen impact on the environment were key priorities and Neil started researching new and alternative technologies – many not previously used in Ireland.

What was done

Over the next two years many new technologies were trialled and implemented in the Fire Station, including a major insulation project, insulation moulding, cavity insulation and a new roof; took the Station from a U Value higher than 10 to a new reading of 1.1; eradicating sick building syndrome. An Air Source Heat Pump, Micro Urban Wind Turbines and an underground waste water treatment plant were installed too.

The Station has been retrofitted using sustainable materials, a complete rainwater harvesting system and a new heat management system with advanced controllers and two new gas condensing boilers were installed too. Neil introduced a Biodiversity Action Plan, now in use across all of Dublin Fire Brigade, on the Stations grounds. Four areas of neglect were converted to new gardens with underground eco systems and an allotment. There are four working bee hives with Firemen now fully trained as bee keepers. They also piloted blended biodiesel from used cooking oil in the Stations front line emergency vehicles, to reduce reliance on standard fossil fuel.

Outcome – The Station has reduced its energy consumption by 90%, water intake by 92%, Gas consumption by 97%. 70% of Station waste is recycled and 100% organic waste is composted. It has reduced its annual running costs by €48,000. 35% of the Stations Crew now cycle to work rather than drive. They have reduced carbon emissions by 145 tonnes each year. Applying The GreenPlan accreditation more widely across its estate, Dublin Fire Brigade has saved over €11m in operation and procurement costs and reduced its energy spend by 44% as of Oct 2014. Interestingly all savings created are verified and entered into ring-fenced savings fund. As the projects grow, so too does the capital outlay yet the cost has not been burdened by the tax payer. The GreenPlan is now embedded in the Fire Brigades business plan and management systems; the Dublin City Council business plans and Dublin City development plans. Kilbarrack has also spread its enthusiasm to the internal community where retired members of staff have engaged in projects such as maintaining the newly built Commemorative Garden for Deceased Firemen – the first of its kind in the Brigades history. Neil has written a guidance document – ‘Green Public Procurement and Investing in Climate Change’, now being referenced by the European Union as best practice.

The project was highly commended in the 2012 Built Environment category of the Sustainable Energy Awards. The GreenPlan© has won numerous Environmental and Commerce awards and Neil has won many national and International awards for his work on, Climate Change, Architectural Heritage, the Built Environment and Social Change. He has been presented awards in the House of Commons London, Westminster Abbey London and the EU Parliament in Brussels. He has also been featured on The Eco Eye TV programme on RTE. Neil received the Irish Green Leader Award in 2011. At that time for working solely on The GreenPlan© for Dublin Fire Brigade and he has since received the Irish Green Leader Award a second time in 2014. This time the award was in recognition of The GreenPlans reach internationally and Neil’s thought Leadership.

The GreenPlan© has been successfully applied in other local authority premises across Dublin, including libraries and swimming pools, leisure centres and The Mansion House. The GreenPlan© has also spread throughout Ireland and has been employed in many communities with Mulranny in Co. Mayo recently receiving its Silver accreditation.

“Neil McCabe is a full-time fireman in Dublin Fire Brigade and has demonstrated a self-learnt and in-depth knowledge of energy conservation and sustainability. He has undertaken extensive research in these subject areas. Neil has used Kilbarrack Fire Station as a test bed, he has achieved significant reduction in the amount of energy used there and the money saved has been ring-fenced and re-invested in the Fire Brigade. He has proved that The GreenPlan works.”

The Sustainable Energy Authority of Ireland SEAI