



**Achieving Code for
Sustainable Homes credits
with advanced glazing
products from NSG Group**

Introduction

The Code for Sustainable Homes is based on the Ecohomes system developed by Building Research Establishment (BRE). The code aims to protect the environment by providing guidance on the construction of high performance homes built with sustainability in mind.

It has six levels and uses a sustainability rating system to evaluate the overall sustainability performance of a dwelling. The Code was introduced in 2007 on a voluntary basis, but from 1st May 2008 it became mandatory for all new homes to have a rating against the Code. Since April 2007, all new government-funded housing and English Partnership/Housing Corporation developments have been required to meet Code Level 3.

The Code was updated in October 2010 to take account of changes to Part L of the Building Regulations (England and Wales).

Note 1. The Code originally only applied in England. The Welsh Assembly Government has also adopted the Code for Sustainable Homes, which replaces the Ecohomes standard and applies to all new housing promoted or supported by the Welsh Assembly Government or Assembly Government Sponsored Bodies (AGSBs). Ecohomes 2006 will continue to be used for refurbished housing in England and for all housing in Scotland.

Note 2. Many elements in the Code are common with BREEAM multi-residential. A NSG Group information sheet on how NSG Group products can help to achieve credits in BREEAM is also available.

Ene 1 – Dwelling Emission Rate (Maximum 10 credits available)

Aim: To limit CO₂ emissions arising from the operation of a dwelling and its services in line with current policy on the future direction of regulations.

This aim can be achieved by the use of energy saving glass that combines high light transmittance, high g value and low U-value. Pilkington **K Glass**[™] with its high g value will generally result in a dwelling having a similar emissions rate to one with soft coat low-emissivity (low-e) glass. Adding low-iron glass, such as Pilkington **Optiwhite**[™], increases the g value of the glazing and improves the Dwelling Emission Rate. Triple glazing such as Pilkington **energiKare**[™] Triple can help dwellings to achieve even lower Dwelling Emission Rates, and potentially more credits, demonstrated by its prevalence in low energy houses.

Ene 2 – Building Fabric (Maximum 2 credits)

Aim: To improve fabric energy efficiency performance thus future-proofing reductions in CO₂ for the life of the dwelling.

As fabric energy efficiency is quantified in terms of the energy demand for space heating and cooling, the total energy performance of glazing is taken into account. This aim can be met by the use of Pilkington **energiKare**[™] incorporating Pilkington **K Glass**[™] and Pilkington **Optiwhite**[™]. Triple glazing such as Pilkington **energiKare**[™] Triple can further help in meeting lower requirements for the fabric energy efficiency.

Ene 7 – Low or Zero Carbon Technologies (Maximum 2 credits)

Aim: To limit CO₂ emissions and running costs arising from the operation of a dwelling and its services by encouraging the specification of low and zero carbon energy sources to supply a significant proportion of energy demand.

This aim can be met by the use of renewable energy sources such as solar water heating and photovoltaic modules. We manufacture a range of glass for these applications, including NSG **TEC**[™]; Pilkington **Optiwhite**[™] and Pilkington **Sunplus**[™].



Wat 2 – External Water Use (Maximum 1 credit)

Aim: To promote the recycling of rainwater and reduce the amount of mains potable water used for external water uses.

A BRE report³ quantifies the potential operational benefits from using Pilkington **Activ**[™] self-cleaning glass, taking into account social, economic and environmental aspects. The report quantifies the annual and lifetime savings in water for a range of buildings.

For domestic dwellings, the anticipated annual water saved through the reduced washing frequency associated with Pilkington **Activ**[™] results in between 76 to 270 litres of water (depending on the type of dwelling and corresponding m² of glazing area). This can be quantified as;

- 0.5 to 1.7 days of an average UK persons daily water consumption; or
- 0.9 to 3.4 average baths; or
- 2 to 7.2 average showers.

Over the lifetime of the building (60 years), the anticipated quantity of water saved is between 4554 to 16236 litres (depending on the dwelling type and corresponding m² of glazing area). This can be quantified as;

- 30 to 100 days of an average UK persons daily water consumption; or
- 57 to 203 average baths; or
- 121 to 433 average showers.

In summary, the use of Pilkington **Activ**[™] self-cleaning glass can help to reduce the amount of mains water used for cleaning windows.

³BRE Report 'Pilkington **Activ**[™] Research Project: The quantification and evaluation of the benefits of self-cleaning glass – Final Report – Issue 2' Client (Report number 229724, September 2006)

Mat 1 – Environmental Impact of Materials (Maximum 15 credits)

Aim: To specify materials with lower environmental impacts over their lifecycle.

The BRE environmental profiles scheme calculates embodied environmental impacts for elements for which credits are available. The use of Pilkington **Insulight™** Therm Insulating Glass Units in domestic windows can help to achieve a Green Guide rating of up to A+ (dependent upon frame material).

Mat 2 – Responsible Sourcing of Materials – Basic Building Elements (Maximum 6 credits)

Aim: To promote the specification of responsibly sourced materials for the basic building elements.

Windows are excluded from this section.

Mat 3 – Responsible Sourcing of Materials – Finishing Elements (Maximum 3 credits)

Aim: To promote the specification of responsibly sourced materials for the finishing elements.

All our glass manufacturing and commercial processing sites have an environmental management system certified to ISO 14001. This meets the requirements of tier level 4. Sand and soda ash raw material suppliers to Halmstad (in Sweden) and all of the UK sites are certified to ISO 14001. This meets the requirements of tier level 3.

Note. The ISO 14001 certificate for our manufacturing sites is available on our website at www.nsg.com/iso14001.



Was 2 – Construction Site Waste Management (Maximum 3 credits)

Aim: To promote resource efficiency via the effective and appropriate management of construction site waste.

We aim to eliminate or minimise the amount of packaging used to deliver products to customers. Specialised floatliner vehicles are used where possible to eliminate the need for packaging. Returnable metal and a small proportion of recyclable wooden stillages are used where this is not possible. Cardboard spacers can be returned to us and reused. Glass delivered to the construction site is already cut-to-size meaning that there is no additional contribution to waste at site (other than any breakage that may occur at site).

Pol 1 – Global Warming Potential (GWP) of Insulants (Maximum 1 credit)

Aim: To promote the reduction of emissions of gases with high global warming potential associated with the manufacture, installation, use and disposal of thermal and acoustic insulating materials.

Credits are awarded where all insulating materials in the elements of the dwelling listed below only use substances that have a GWP <5. As we ensure that the blowing agent (cyclo pentane mix) used in foamed thermal insulating panels for Pilkington Spandrel Glass has a Global Warming Potential of <5, credits can be achieved.



Hea 1 – Daylighting (Maximum 3 credits)

Aim: To promote good daylighting and thereby improve quality of life and reduce the need for energy to light the home.

One credit is available if 80% of the working plane in study, kitchen, living & dining rooms receive direct light from sky and additional credits available for satisfying requirements for minimum daylight factors for kitchens and several other living spaces. Increased glazed areas can help to achieve this aim.

We manufacture several glass products with high light transmittance to maximise daylight, including Pilkington **Optifloat™** Clear and, for even higher transmittance and clarity, Pilkington **Optiwhite™**.

Furthermore, low-e glass such as Pilkington **K Glass™** also has a high light transmittance, in addition to its high g value and low U-value. High performance solar control glass Pilkington **Suncool™** and Pilkington **Suncool™** OW (on low-iron substrate) are high selectivity products offering high light transmittance too.

The use of Pilkington **Activ™** in vertical glazing, rooflights and skylights can help to ensure high levels of daylight transmittance, through ensuring that the external surface of the glazing is free from dirt for longer periods than is the case for ordinary glass.

Hea 2 – Sound Insulation (Maximum 4 credits)

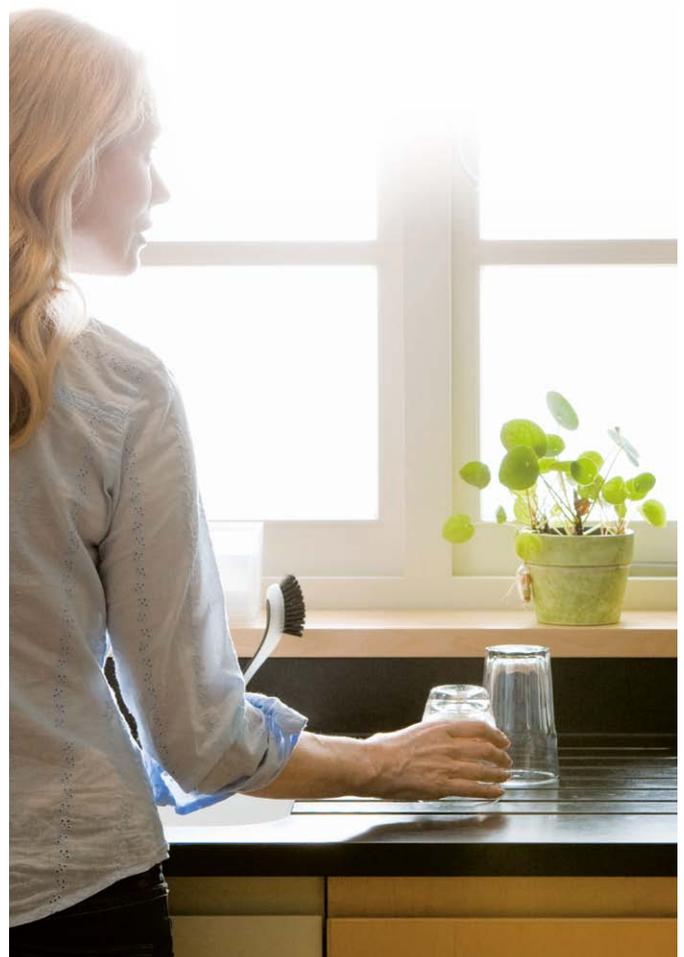
Aim: To promote the provision of improved sound insulation to reduce the likelihood of noise complaints from neighbours.

Although credits are only available for walls that perform a dwelling to dwelling separating function, Pilkington **Insulight™** Phon Insulating Glass Units can provide enhanced sound insulation to dwellings from external noise sources such as road traffic and noise from neighbouring dwellings. Even higher levels of sound insulation can be achieved by specifying Pilkington **Optiphon™**.

Man 4 – Security (Maximum 2 credits)

Aim: To promote the design of developments where people feel safe and secure; where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.

The increased use of Pilkington **Optilam™**, with its enhanced security performance, can help the development to meet the standards required in 'Section 2 – Physical Security' of 'Secured by Design – New Homes' and thus gain credits.



For more information on the products described in this document, please consult our “Product Annex: Glass for Sustainable Buildings”.

About the Code for Sustainable Homes

Aim: To protect the environment by providing guidance on the construction of high performance homes built with sustainability in mind.

The Code for Sustainable Homes is an environmental assessment method for new homes in England. It aims to protect the environment by providing guidance on the construction of high performance homes built with sustainability in mind and was developed by the Building Research Establishment (BRE) working closely with Government to ensure that it meets the latest regulatory requirements.

The code became mandatory on the 1st May 2008 and it contains the minimum levels of performance across 7 key areas and has a scoring system of six levels;

- Energy efficiency/CO₂
- Water efficiency
- Surface water management
- Site waste management
- Household waste management
- Use of materials
- Lifetime homes

Assessments are carried out in two phases:

- An initial assessment and interim certification at the design stage. This is based on detailed documentary evidence and commitments which results in interim certificate of compliance.
- Final assessment and certification after construction. Based on the design stage review, this includes a confirmation of compliance including site records and visual inspection.

For more information please visit www.breeam.org

About NSG Group

Aim: The mission of the NSG Group is to be the global leader in innovative high performance glass and glazing solutions, contributing to energy conservation and generation, working safely and ethically.

Founded in 1918, Nippon Sheet Glass Co., Ltd. acquired the leading UK-based glass manufacturer Pilkington plc in June 2006. Today, the NSG Group has combined sales of approximately JPY 600 billion, with manufacturing operations in 29 countries and sales in 130 countries, employing some 28,500 people worldwide.

The Group is one of the world's leading manufacturers of glass and glazing systems in three major business areas; Building Products, Automotive and Specialty Glass.

For more information about NSG Group please visit www.nsg.com



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