Energy Saving Statement

Proposed development of 64 dwellings
Land off Wyngates, Blofield, Norwich

Report Prepared by

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PLANNING CONTROL
Introduction

As part of this application for planning permission, the Joint Core Strategy (JCS) requires that renewable energy sources be included within the scheme to equate to 10% of the scheme’s expected energy consumption.

Norfolk Homes have within the last 18 months established a whole new range of housing designs that went back to basics with a brief to consultants (including Stead Mutton Griggs Architects) and partners (including Broadland Housing Association) of a ‘clean sheet’ and no preconceptions. The outcome was that the tried and tested floor plans having evolved by site and customer comment are a great asset, and whilst traditional appearance is key a more modern and, where opportunity exists, contemporary twist will be used. However, what was found to be black and white was the desire to retain the method of construction: traditional brick and block – albeit super enhanced to maximise air tightness, insulation and energy saving, whilst achieving CfSH3 and, where applicable, Lifetime Homes [LH] requirements. These self-imposed standards also surpass what are now current BR standards and the equivalent saving in energy consumption that JCS Policy3 looks to achieve by energy generation by incorporating renewable energy sources into the scheme.

The reason to stay with this construction form is fundamentally twofold: (a) to move away from the literal building blocks of Norfolk Homes’ business would be a major re-work in every respect, and the current recession simply does not permit the time and money necessary to facilitate that; and (b) whilst such modern methods of construction [MMC] are popular with housing associations, this is a different model with tenants in need as opposed to purchasers with lots of choice: the research and wider comment left Norfolk Homes in no doubt that by and large, purchasers are fundamentally only confident and comfortable with the traditional construction methods of solid wall construction (and this is even more so in such locations as Norfolk).

Furthermore, the introduction of energy generation technology requires ongoing maintenance and eventual replacement. It is also know that the generating capacity of technologies such as photo-voltaic cells diminishes over time. The alternative approach is to build in energy saving to the equivalent of 10% expected energy consumption. This approach offers the best long term solution in both sustainable terms (as to use less energy to start with is better than to simply create more using ‘renewable’ technologies) and practically with very little maintenance for residents to worry about in future years whilst providing energy and thus monetary savings year after year. Energy efficiency should be the priority as it involves little ongoing maintenance for future occupiers, in contrast to energy generation equipment which will require maintenance and eventual replacement at capital cost to occupiers.

Therefore, with the current BR requiring a dwelling’s fabric to be of such a high standard that leaves little room for improvement on a significant basis; it leaves only the aid of renewable technology to attempt to provide the 10% of predicted energy usage alone.

GNDP Joint Core Strategy

The Greater Norwich Development Partnership Joint Core Strategy, adopted March 2011, sets out the key elements of the partnership’s planning vision and strategy for Broadland, Norwich and South Norfolk. The strategy forms a central part of the Local Development Framework, a group of documents that will guide future development and use of land in Broadland, Norwich and South Norfolk up to 2026. The GNDP Joint Core Strategy has received a legal challenge to the adoption of the Joint Core Strategy. However, despite the legal challenge, the Joint Core Strategy remains adopted and part of the Development Plans for Broadland, Norwich and
South Norfolk with planning determinations still made in accordance with the Development Plan.

GNPD JCS Policy 1 – Addressing Climate Change and Protecting Environmental Issues requires development proposals to incorporate sustainable design and construction measures, through efficient material sourcing and use, energy and water efficiency, improved biodiversity, reduced flood risk and reduced transport needs. The requirements of Policy 1 have been addressed with the Sustainability Statement, which accompanies the planning application.

GNPD Joint Core Strategy Policy 3 – Energy and Water encourages development proposals to demonstrate a reduced reliance on high-carbon energy sources, and to incorporate decentralised or renewable energy sources to provide at least 10% of the scheme’s expected energy requirements. Development proposals must also demonstrate that all viable and practicable steps have been taken to maximise opportunities for sustainable construction, including a reduction in water consumption in accordance with Code Level 4 standards with respect to water efficiency. This equates to a water consumption of 105 litres/person/day.

Norfolk Homes have confirmed their commitment to achieve Level 3 of the Code for Sustainable Homes for the social housing units. The energy requirements of level 3 of the Code for Sustainable Homes have been incorporated into the 2010 revision of the Building Regulations and are now effectively the minimum standard for compliance for all new build domestic properties. The remaining private units will achieve the minimum energy requirements of Code level 3 by achieving compliance against Part L of the 2010 Building Regulations.

**Energy Efficiency**

The Code for Sustainable Homes incorporates several objectives in order to improve the energy efficiency of a building. These include improvements in the fabric, design and construction of the building to reduce energy loss and energy demand. Energy efficiency is also regarded as the first priority in reducing CO2 emissions and site wide energy consumption.

The energy efficiency of a dwelling design is the main factor determining the heating load of that dwelling. The rate at which heat energy is lost from a dwelling greatly influences the annual heat load and therefore the CO2 emissions of that dwelling. Energy requirements for domestic hot water applications are essentially independent of improvements to the building’s fabric efficiency as these are functions of occupancy and usage rather than rate of heat loss. The main areas where the efficiency of a building can be improved are:

- **Building fabric’s thermal transmittance** – measured by the U-value of that element in Watts/m2/K. The U-value is essentially a measure of the rate at which energy is lost through a building element. The greater the U-value, the higher the rate of energy loss.

- **Air permeability** – is a measure of infiltration. It indicates how often the entire air quantity in a building is exchanged with outside air within 1 hour without any ventilation in place. Any air exchange with outside air is carrying heat energy away from the building resulting in a higher heating load. From an efficiency perspective lower air permeability levels are desirable; however reduced air permeability, usually below 4 m3h/m2 @50Pa, can make natural ventilation ineffective, requiring the use of mechanical ventilation.
• **Thermal bridging of junctions** - is the loss of heat energy through the junction between different building elements (such as a wall and window) or where a building element changes direction (such as a corner). Such areas can result in breaks in the continuity of insulation that can form ‘bridges’ for heat energy to escape from the dwelling.

**Objective**

The core strategy fundamentally is aimed at reducing carbon in line with the government's aim of zero carbon by 2016, with the 10% of predicted energy being provided by renewables or low carbon sources. Therefore, it is a contradiction to then allow forms of renewable technology that do not provide energy, merely reduce the demand for energy to be considered. The National Planning Policy Framework [NPPF] directly refers to local planning authorities setting any local requirements for a building's sustainability in a way consistent with the government's zero carbon buildings policy, along with complying with adopted Local Plan policies on local requirements for decentralised energy supply, this would mean reducing the carbon emissions from the proposed site as a whole (i.e total energy to be provided to allow the subsequent site to operate) and therefore reduce the demand the proposed site has on energy supply.

**Proposed Energy Efficiency Construction**

The reduction in the energy consumption of dwellings across the proposed development at Wyngates, Blofield has been achieved in the main by concentrating upon improving the fabric of the dwellings. This approach offers the best long term solution in both sustainable terms (as to use less energy to start with is better than to simply create more using ‘renewable’ technologies) and practically with very little maintenance for residents to worry about in future years whilst providing energy and thus monetary savings year after year. Energy efficiency should be the priority as it involves little ongoing maintenance for future occupiers, in contrast to energy generation equipment which will require maintenance and eventual replacement at capital cost to occupiers.

The measure proposed in the houses include:

- All dwellings will be built with improved levels of air tightness to reduce heat loss through air leakage. Air leakage will be reduced from 5m3 (h.m2) to 3m3 (h.m2); this coupled with the introduction of MVHR (Mechanical ventilation with heat recovery) to create an improved living environment based around the air tight construction will allow generated heat to be reused for heating the house.
- The thickness of roof insulation (Warmcell: manufactured from recycled materials) will be increased from 350mm to 450mm.
- The use of ‘Celcon’ blocks (manufactured from recycled materials) that are market leading giving 0.11 W/m2k along with built-in Drithelm 32 Cavity insulation rather than blown insulation results in a high performance external wall that exceeds current building regulations.
- Central heating boilers on the development are all ‘A’ rated gas-fired condensing system/combination boilers.
- Aluminium clad triple glazed Upvc windows will provide extremely high performance windows at 0.8 W/m2k vastly improving the standard double glazed Upvc windows at 1.5 W/m2k.
- Water saving measures and low energy lighting throughout will also be incorporated into the development.
The measures above will reduce the energy consumed across the development site from the current building regulations compliant housing 1216050 kWh/yr down to 109445 kWh/yr (some 10% overall energy saving).