

Sustainability Statement: 15% CO2 Reduction Study

Miller Homes

May 2016



Carrington Avenue, Honeywell
Lane, Barnsley



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1. Project Overview

1.1 Introduction

This report was prepared by Energy & Design Ltd on behalf of Miller Homes to support a planning application for the proposed development at Carrington Avenue, Honeywell Lane, Barnsley. The report shows that the requirement to achieve a 15% reduction in CO₂ (kgCO₂/year) across the site has been met and assesses the performance on energy demand by means of improvements to fabric, services and PV.

1.2. Description of Site

The Carrington Avenue, Honeywell Lane, Barnsley site proposes 81 plots. These plots comprise a range of detached, semi-detached and terraced housing.

The current site is shown in Appendix A.

1.3. Project Brief

The development is being designed to achieve 15% reduction in CO₂ (kgCO₂/year) across the site using L1A 2010.

2. Energy Demand

2.1 Assessment Methodology

Energy & Design Ltd have modelled each type using NHER Plan Assessor software 5.5.6 The software provides a number of outputs which can be used to assess and compare the improvements from any number of build specifications

A simple calculation has been used to show compliance extracting the data from the SAP outputs (DER Worksheets).

The calculator requires a base calculation (standard case) which is an L1a2010 pass with 0% improvement, which is created using the site worst case types achieving a pass (L1a2010) with 0% improvement, the proposed spec is then created by changing U values, heating controls and adding PV to give a minimum of 15% CO₂ (kgCO₂/year) saving across the site reduction in the calculator

2.3 Design Philosophy

During Consultation with Miller Homes, we have improved numerous elements of the specification across the site to achieve a 15% reduction in CO₂ (kgCO₂/year) across the site.

Miller Homes have adopted the good design principles endorsed and promoted by The Zero Carbon Hub, the construction industries' key advisors and partners with the Governments Communities and Local Government Department. This guidance follows the general good principles of energy efficiency as the industry moves towards zero carbon.

This is emphasised in the building Regulations L1a2010 with the following statement

3.26 Criterion 2: the performance of the building fabric and the *fixed building services* should achieve reasonable overall standards of energy efficiency following the procedure set out in paragraphs 4.18 to 4.24.

This is intended to place limits on design flexibility to discourage excessive and inappropriate trade-offs – e.g. buildings with poor insulation standards offset by renewable energy systems with uncertain service lives. This emphasises the purpose of Criterion 2.

Miller Homes have also decided to introduce PV to some of the dwellings which is classed as a true renewable

2.2 Specifications

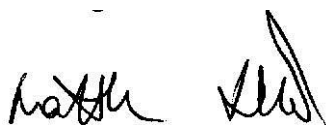
The proposed specifications are in Appendix B, these may be altered if required, but will achieve a minimum of 15% reduction in CO₂ (kgCO₂/year) across the site.

3. Evaluation

3.1 Assessment Methodology

The Results are given in Appendix C and they show that this proposed specification can achieve the 15% reduction of CO₂ (kgCO₂/year) across the site using the proposed specification in L1a2010 SAP calculations

Signed



Date

01/05/2016



Accommodation Schedule			
House type	Description	Sqft.	Number
3 Bedroom Mews			
Hawthorne	3 Bed Mews	819	13
Tolkien	3 Bed Mews	892	20
3 Bedroom Detached			
Walloway	3 Bed Detached	1,069	9
Derwent	3 Bed Detached	1,032	6
4 Bedroom Properties			
Hardy	4 Bed Townhouse	1,154	4
Marvell	4 Bed Townhouse	1,201	4
Hallam	4 Bed Detached	1,229	7
Buchan	4 Bed Detached	1,264	6
Buchan DA	4 Bed Detached	1,264	5
Ashbury	4 Bed Detached	1,283	8
Totals			81

Gross Area 6.55 Acres
Net Area 5.71 Acres
Therefore 87,711 / 5.71 = 15,361 Sq ft acre

ENCLOSURES

- 1.8M WALL AND FENCE (w.f.)
- 1.8M CLOSE BOARDED (c.b.)
- 1.2M POST AND 2 RAIL FENCE WITH 1.8M PRIVACY PANEL (p.r.)
- 1.2M METAL RAILINGS

GENERAL

- GATE
- LOCKABLE GATE (SERVING REAR GARDEN ACCESS PATHS - KEY TO ALL THOSE PLOTS WHICH IT SERVES)
- House type handing - denotes opposite

5m NO BUILD ZONE

ARBORICULTURE

- RETAINED TREE
- ROOT PROTECTION
- REMOVED TREE

Rev	Description	Drawn	Date
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Project Title
Honeywell Lane
Barnsley College
Barnsley

Drawing Title
Planning Layout

Scale	Drawn By	Checked By	Authorised By
1:500	STEN		
Job No.	Drawing No.	Date	Date
1616	01		

Original Sheet Size A1

Energy Specification Carrington Avenue, Honeywell Lane

- Ground floor – 150mm 0.038 insulation
- Semi exposed Upper floor – 0.11 U value 200mm loft roll 40 between joists (or similar 0.040w/mk) with 93mm thermaline PIR (or similar) and another layer of 12.5mm gyproc Fireline
- External cavity wall - 0.27 u value = 90mm fully filled cavity with Knauf supafill 34 (or similar 0.034 w/mk) with 100mm aircrete block (0.15 w/mk)
- Garage solid wall (Brick) – 0.28 u value = 13mm render, 215mm Brick, 13mm render and 63mm thermaline PIR
- Studded Knee Wall – 0.15 U Value – 100mm Isover frame batt (or similar 0.035 w/mk) between rafters, underlined with 93mm Thermaline super
- Party Walls – 0.0 U Value = fully filled with sealed edges
- Roof Main - 0.07 U value = Knauf loft roll 44 (or similar 0.044 w/mk) 600mm total - 100mm between joists and 500mm cross laid over
- Roof Dormers, Bays & RITR eaves area - 0.16 U value = Knauf loft roll 44 (or similar 0.044 w/mk) 270mm total - 100mm between joists and 170mm cross laid over
- Sloping Roof – 0.13 U Value – 150mm Isover frame batt (or similar 0.035 w/mk) between rafters, underlined with 93mm Thermaline PIR
- Windows / French Doors– 1.3 U value
- Entrance Doors – 1.5 U value
- Rear Doors – 1.5 U value
- delayed start Thermostat
- Time & Temperature Zone Control
- Weather Compensator
- 100% energy efficient light bulbs
- Design air permeability 4.5 (all plots tested)
- no secondary fire or flue
- Intermittent extract fans
- Selected thermal Linear bridging details (all others ACD)

Junctions with an external wall

- o E2 - Lintels (0.062 separated lintels)
- o E3 - Sill (0.009)
- o E4 - Jamb (0.014)
- o E5 - Ground Floor (0.051)
- o E6 - Intermediate floor with a dwelling (-0.001)
- o E10 – Eaves - insulation at ceiling level (0.043)
- o E12 - Gable - insulation at ceiling level (0.049)
- o E16 - Corner – normal (0.058)
- o E18 – Party wall height (0.041)

Junctions with a party wall

- o P1 - Ground Floor (0.0525)
- o P4 – Roof at ceiling level (0.072)
- PV – 15kWp (South facing at 45degrees, with no over shading)



* Data taken from TER worksheet Section 12a box 272