



CLIENT: North Kesteven District Council

PROJECT: West Grove, Martin, Lincolnshire

The construction of two affordable social homes using load bearing straw bales, including low impact materials and external works.

SPECIFIC PROJECT DETAILS: This scheme is only the second development in the country of affordable homes using straw bale. The construction encapsulates the philosophy of low impact and minimal carbon living embracing the ethos of 'green construction'. These innovative and thermally efficient dwellings are currently under construction and we are working in partnership with our client to ensure these homes are designed and built to the incumbent requirements of the Homes Communities Agency.

NOTABLE FEATURES:

Straw Bale Construction:

- Load bearing straw bales 450mm wide x 1050mm long x 365mm high built in running bond affording excellent programme benefits with speed of erection.
- Pre-fabricated timber wall plates and ring beams again giving excellent programme benefits
- Lime render applied in a 3 coat application.
- Low impact granular foundations consisting of well graded granular material, no concrete.
- Timber suspended floor construction designed to achieve a high u-value, fully sealed and taped to ensure air-tightness.

LOW CARBON APPROACH

- Straw bales offer an excellent insulation to the walls with a designed U value prediction of 0.10 W/m²K.
- 300mm of cellulose recycled insulation providing a U value of 0.11 W/m²K
- Timber, triple glazed windows with low e coating and argon gas filled units providing a U value of 1.30 W/m²K
- Excellent predicted air tightness of 1.6m³/m²/hr at 50 Pa ensuring minimal heat loss through the fabric.
- The homes are heated by radiant heat from a log burning boiler. No radiators or under floor heating are required except to the bathroom.
- The log burning stove also provides the hot water requirements together with solar panels during the summer months.
- Mechanical ventilation with heat recovery allows heat energy to be recovered from out-going air while providing warm filtered fresh air to the house.

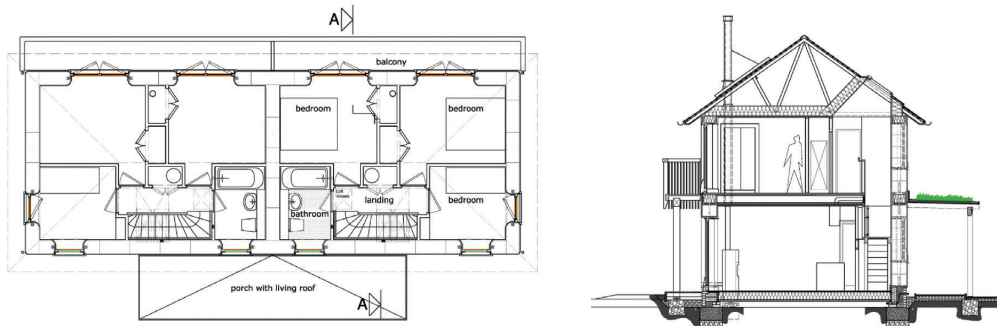
CONSTRUCTION

- We have implemented the off site manufacture of the timber wall plates and ring beams, this will ensure a controlled and uniformed compression of the straw bales.
- Inclusion of Structural scaffold with excellent weather protection to safeguard the straw bale construction stage of the project.
- Design workshops with choice of pozi joists to the first floor to ensure the whole house mechanical ventilation system can be incorporated.

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ADDED VALUE BY SHARING THE LOAD & RAISING STANDARDS

- During the construction we are committed to working with our client in providing and offering training and education to the wider construction industry. This is a partnership between all and an opportunity for us to share skills and others to understand the benefits of this form of construction.
- Seen as a local community project where open events will be provided for local people including pupils from the local school to be involved and learn the techniques. These events will encourage lifestyle change and raise awareness of the thermal performance of the houses.
- Carter Homes approach, competent management and experience of delivering affordable homes has given our client the assurance that credits under the Code assessment will be maximised. Our experience is also invaluable for achieving the standards necessary and required by the HCA.



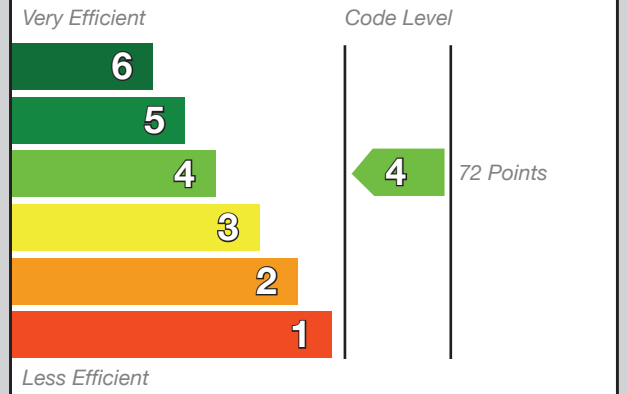
These buildings will demonstrate that straw bale houses can be built at a reasonable cost and perform significantly better than conventional build houses. They will be demonstrated to be energy efficient, of good air quality, excellent acoustic properties and homes that people feel happy and content to live in. The project has been entered into the Technology Strategy Boards competition for the Evaluation of Building Performance. The team are hoping we will be accepted onto this programme.

We will be having some open days during the construction of this project and if you would like to learn more or be involved during the construction of these innovative homes please contact Steve Forster at Carter Homes Head Office on 01205 319260 or by mail@carterhomes.co.uk

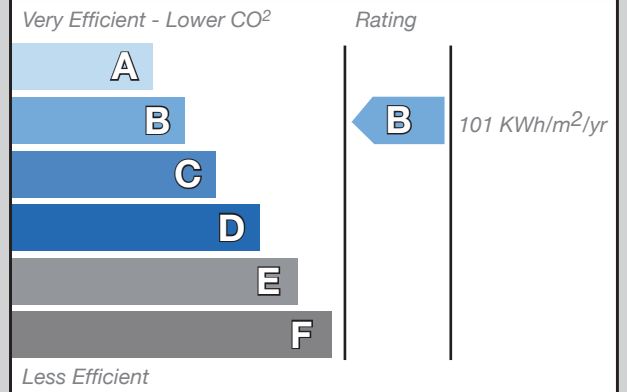
Sustainability Credentials

Project: West Grove, Martin

Code for Sustainable Homes



Lower CO² Emissions



Energy cost per unit: **£180.81 per year**

CO² Emissions: **0.45 tonne/year**

Air Permeability: **Predicted 1.6m³/m²/hr @ 50Pa**

Energy Credits: **28 of the 29 available**

Sustainability Features

- Thermally efficient fabric with excellent U-Values
- 6kw wood burning back boiler stove
- Time & temperature zone control
- Solar panels providing hot water.

