HEMP BLOCK CONSTRUCTION - HEMP CONSTRUCT

Design

Construction

A CASE STUDY

The Hemp Construct HC eco-block has a net negative carbon footprint, and has been given a A+ rating by the BRE.

The HC Block is made using entirely UK sourced sustainable hemp, lime and natural materials. The blocks have a U-value of 0.18 W/m^{2}K. Once manufactured the blocks are then dried naturally in the factory, thus allowing minimum water use on-site. This consideration allows for a fast build and consequently reduces the labour costs and results in a cleaner site.

- Hemp lime products permit architects and their clients to have free reign in terms of building layout and design. They can be used with the structural framing system to provide the support for the wall in both new build and extension applications. The detailing is straightforward and air-tightness is readily achieved due to the nature of the hemp block.
- A normal house may have 30-40 tonnes of embodied carbon. As hemp absorbs carbon dioxide as the plant grows, building with hemp saves, on an average residential build, 50 tonnes of CO2, providing a negative carbon footprint. Replacing embodied energy with negative embodied energy is a very exciting prospect indeed, especially with the advent of Zero Carbon Homes from 2016.
- The lightweight nature of the wall means fewer supports and lighter foundations, saving cost and time. The structural frame is made from timber and the vapour permeable hemp block.

- Hemp lime is a low energy building product. Construction costs can be lower than current traditional building materials. The products are lightweight, low density and this allows greater efficiency in transportation and handling as well as requiring shallower foundations. The ductility of hemp lime means that costly movement joints may also be avoided.
- The enhanced insulation and low U-value characteristics of hemp lime can deliver lower operational costs through reduced heating and cooling requirements. The vapour permeability of the hemp lime products also means a reduction in the requirements for forced ventilation and de-humidification through the use of air-conditioning installations. The inherent durability of the lime binders means that the buildings will require less ongoing maintenance.
- Hemp Lime products have a high thermal insulation, which radiates warmth in a building. Their high vapour permeability that facilitates the through transfer of humidity avoids condensation and trapped moisture within the building. This improves the building's air quality and controls humidity, as well as reduces the potential for growth of moulds and fungi that may affect occupant health. The complete absence of solvents from the product range protects the construction workforce, occupants, and the environment.
- Hemp blocks have the ability to absorb and hold heat (thermal mass) during sunny periods when heat is not needed for internal living or work spaces. The heat is then released when it is required, such as during overcast periods or at night, to provide substantial energy and cost savings.

Case study provided by N London Construction Ltd.