Vanguard 6

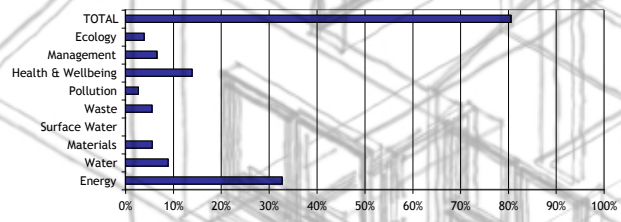
Proposal for East Midlands Housing Group

The **Vanguard 6** system is based on a tried and tested timber closed panel system developed through a join venture with a Swedish company. It has been developed as an off-site manufacturing solution specifically for use in the domestic and high code systems.

It is being developed into a patternbook of property types and elements suitable for a variety of new build and upgrading. The basic concept is that of a stud frame using the following specification for individual building elements.

Outline Technical Specification

The system meets the design, sustainability and quality standards required by Registered Providers to qualify for public sector funding, in the form of grant and / or preferential loan, and provides the necessary evidence, in the form of independent or certified assessment reports as required by funding requirements. Specifically this requires the core standard minimum scores for size, layout and service provision within the Housing Quality Indicator calculator.



The dwellings are designed to achieve a minimum of Code for Sustainable Homes (CSH) Level 4 overall, irrespective for site specifics and to achieve the minimum statutory requirement for CSH Level 6 for elements of energy and water usage as defined within the Code where these are independent from scale of development and individual site characteristics or end users. This ensures the most cost effective means of achieveing the minimum mandated requirements and allows for easy upgrading of services to provide a zero carbon property.

Energy

To meet CSH level 6 and ensure an improvement of Dwelling Emission Rate (DER) over Target Emission Rate (TER) of ≥100% we will provide an integrated design service, working with an accredited SAP assessor at project design stage. Design Stage SAP / RdSAP linked to LZC SAP BOX LC8 provision and inclusion of white goods and services will ensure predicted Net CO_2 emissions are zero. The Fabric Energy Efficiency (FEE) to have a requirement to achieve less than 46 kWh/m^2/year for the property. FEE will aim for an operational target of 15 kWh/m^2/year as validated by use of the most recent version of PassivHaus Planning Package (PHPP) software.

Primary energy demand and carbon reduction targets will be met by a mix of air source / water source heat pump; supplied by partner Dimplex; with an efficiency of no less than 300% c/w weather compensation. 2m^2 of Solar Hot water c/w 165l tank and a capacity for 80L of grey water usage will be specified.

Roof area will be sized for use of PV Cells / LZC technologies to achieve potential >15% reduction in CO_2 emissions. Typically this includes PV Panels producing KWp approx of 4.40 assuming no other electrical generation is provided. Energy display device to monitor primary fuel consumption and electricity use will be specified.

There will be provision for appropriate home office space. There will be inclusion within bathroom for appropriate fixed internal drying area where external space is unavailable for necessary fixings / drying length. Information of EU Labelling of White Goods to be included within Building User Guide.

Water

Average household water consumption ≤80 litres / person / day will be achieved through appropriate specification of fittings. Appropriate external rainwater collection system will be specified where garden provided.

Cycle storage area of 2m x 2.5m to be provided within entrance porch in parallel with any requirements from local planning / highway authority.

Materials

Minimum of 80% of materials used within key structural elements (roof, external / internal walls, upper / ground floors, windows) will be rated A+ to D within Green Guide to Specification (using bespoke rating or composite elements where necessary). Additional minimum of 80% of materials for basic building elements and finishing elements are responsibility sourced with validation of responsible sourcing of materials from a Tier 1 Compliant Scheme as defined by the CSH.

Health & Wellbeing

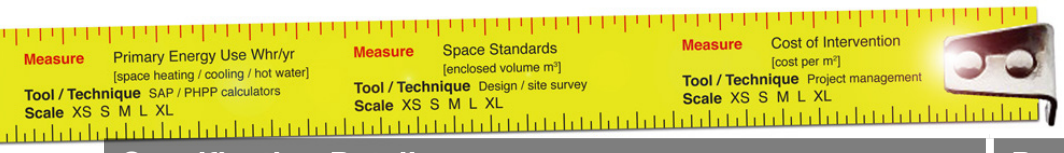
All homes are designed using Lifetime Homes Guidance notes. All party walls have an 8db improvement on standard building regulations.

Inputs required from Client brief

Any information from the CDM Project Health and Safety file which is necessary for the safe design of our structure or which relate to the Vanguard homes design. Any restrictions to access, working practices or standard methods of working. Order of build together with programme for the works showing slab construction and scaffold erection. Design contact with authority, knowledge and resource to answer queries. Site location information to determine wind speed / exposure rating for the site.

Approvals

NHBC Approved by NHBC. Complies with NHBC timber framed guides.
Zurich Approved by Zurich Building Guarantee.



Specification Detail	Performance
Walls External structural frames constructed from a min of 240 mm C16/C24 Timber. Insulated complete with thermal breaks throughout. External sheathing board c/w weatherproof sheet. Internal lining of plasterboard and particle board to facilitate easy and safe fixings of all wall hangings throughout the house.	U-Value ≤ 0.13 w/m²k Wall thickness from internal lining to external vapour barrier 284 mm
Party wall structural frames constructed of 100mm C24 Timber. Insulated. External sheathing board c/w weatherproof sheet. Internal lining of plasterboard and particle board to facilitate easy and safe fixings of all wall hangings throughout the house.	Wall thickness from internal lining to external vapour barrier 156 mm
Internal wall frames engineered to suit application. All wall frames accommodate conduit for services or Plug and Play wiring and plumbing to suit client design.	Typically non-load bearing wall 75 mm or 100 mm stud width and insulated where required. Internal load bearing wall typically 125 mm
Floors Separating cassettes are constructed typically using 225mm depth joists. This allows clear unsupported spans of approx 6m. Where larger spans are required horizontal steel joists are employed. Where required floor cassettes are insulated to suit building regulations.	Typical cassette dimension 351 mm with intermediate floors [fire] 265 mm and [non fire] 250 mm Ceiling typically 112.5 mm
Ground floor Designed to suit site.	U-Value ≤ 0.12 w/m²k
Roof Mineral wool installed to suit U Value and draft paper installed.	U-Value ≤ 0.10 w/m²k
Windows Triple glazes timber windows are supplied as standard to suit clients design.	Average U-Value ≤ 0.9 w/m²k
Doors To suit clients design.	Average U-Value ≤ 0.8 w/m²k