Green Build Hub – design brief - January 2012

The Green Build Hub will be a ground breaking building demonstrating everything that is best in sustainable building in the South-West and far beyond. This will be an ultra low carbon building achieving BREEAM Outstanding and function as a place where the public can visit and see the best available building systems under monitored and displayed conditions. In order to achieve this and be permanently relevant to improvements in construction, it is proposed that the building should be designed as a test-bed type framework, capable of replacing structural elements at regular intervals as improved systems evolve.

- The building must be fully accessible and ideally this should be achieved with ramps instead of stairs or lifts.
- The building will be naturally ventilated and daylit with high degrees of air-tightness, insulation and low energy efficient mechanical and electrical systems.
- Benign and non toxic materials will be used with alternatives to PVC for electrical systems
- The foundations will be non cement and a carbon sink. They will be innovative and monitored as a replicable carbon saving foundation system.
- Within a permanent structural framework the south to south-westerly segmented wall will echo the site footprint and provide a visually stimulating and evolving main façade, rather like a Billboard. Within this façade the best performing structural wall systems will be manufactured off site and delivered, installed and monitored.
- The internal and external sides of these panels will be subjected to condition and performance monitoring by academia and the public will be able to inspect them from an access ramp within the building. Wherever possible visual panels will be included within elements.
- There will be a high performance permanent structural element to the Northern rear elevation that will accommodate meeting room and offices at first floor and flexible training rooms, toilets, reception and kitchen area on the ground floor.
- High performance timber windows will be included to all north facing rooms to provide natural ventilation and good working daylight.
- The front elevation will also accommodate high performance windows fitted within the structural nodes between the replaceable wall panels; these will initially be permanent fixtures but will also be replaceable as advances in glazing systems evolve.

- Rainwater recycling will be incorporated and interpreted for the public. R&D will be included to improve the quality of the rainwater towards potable standards.
- The South-westerly demonstration area ramp and its supporting wall, along with the insulated ground floor will be used to provide thermal mass to the building. Local recycled aggregates will be incorporated into the polished stone floor.
- At first floor level the ramp will become a landing running east to west the full length of the offices and providing an internal viewing platform to the public gallery space in the core of the building.
- At the Eastern end the landing will return as a bridge to the front of the building to a sociable rest area above the entrance vestibule, with full viewing capacity to the entrance and all points East to West.
- The rear roof will slope gently from North to South into a valley over the ramp wall. The front of the roof will also slope gently to the north into the same valley where the rainwater will be collected and directed to a storage facility for recycling.
- The roof will be designed to accommodate replaceable pallets of green roofing alternatives, which will be performance monitored and changed periodically for alternatives. The roof will therefore be designed to be accessed and man safe for maintenance and monitoring.
- The roof will accommodate North light fenestration at 60 degrees with a 30 degree south facing provision for solar panels. These windows will be accessible from the landing and able to provide either manual or automatic purge ventilation. There will also be a rear upstand to the roof to accommodate a further solar panel array.
- The building will avoid thermal bridges and be very airtight.
- The central public area on the ground floor will provide an adaptable display and gathering space where construction performance and product data will be displayed.
- There will be additional fire exits on both ground and first floors, the higher one will be via a ramp to the north of the building.
- External rain-screen finishes to the North and Eastern walls will be chosen from locally available low impact materials
- The site will be sensitively and low maintenance landscaped following the principles of permaculture, as a natural extension of the building's low impact setting.