



## **GREEN BUILD HUB DESIGN AND ACCESS STATEMENT JANUARY 2012**

**Our Vision :** Is of a Cornwall where hard to heat and treat homes are in the past and where all Cornwall's buildings are healthy sustainable and environmentally enhancing.

**Our Mission :** CSBT exists to influence and support decision making and to raise awareness of all aspects of sustainable building in Cornwall and the Isles of Scilly; to guide procurement and to deliver the Trust's vision and so minimize the impacts of construction on the environment.

Cornwall Sustainable Building Trust has established itself in the last decade as the catalyst in Cornwall for progressing sustainable construction. With over 1000 associates and a history of major influence on companies and organisations locally, regionally and nationally; its aim is to work with all parties towards the common aim of Sustainability. Since 2002 CSBT has been preparing the ground for this development.

### **Green Build Hub**

Run by the Cornwall Sustainable Building Trust, The Green Build Hub will be located at The Eden Project bringing together green build specialists from the charity as well as specialists from commercial and academic spheres.

The space is being designed and built as a cutting edge sustainable building exercise and will demonstrate tangibly what can and is being done in Cornwall to improve the sustainability of construction in the region and beyond. It will be University monitored and used for training, awareness raising and sharing of best practice. All collaborators will be able to use the facility to engage with the public.

CSBT wants to work with all parties in Cornwall, who are in the business of providing sustainable and replicable solutions, to demonstrate how we can effectively adapt our buildings and lifestyles to climatic changes and resource depletion.

Despite huge local expertise, there is nowhere in Cornwall where the Green Build suppliers can engage the public with this knowledge. There is still widespread ignorance of the urgent need to adapt both our existing and new buildings to





reduce their effect on the climate and dwindling finite resources. It has been difficult to reach the general public and to get them to understand that we all have to change our wasteful lifestyles and that making these changes is a life enhancing process. The latest developments will provide a shop window where the public can easily relate green techniques to their own lives and houses. CSBT will have a learning base that partners and public can share and utilise.

## **Sustainable Design rationale**

### **Design brief - Green Build Hub – 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 airtightness, insulation and low energy efficient mechanical and electrical systems.
- Benign and non toxic materials will be used with alternatives to PVC for electrical systems

### **Innovation**

- 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 as a natural extension of the building's low impact setting.

### **Access and green travel plan**

Accessible design the building and its surroundings will be fully accessible with ramps in place of stairs and sensory cues incorporated for the visually and aurally impaired.

**Visibility** – the site is very well screened from all distant views but very visible to all visitors arriving or leaving the Eden Project. It is proposed to remove the MG bund on the southern to western boundary and to provide an access path around the front and side of the building linked to a new crossing to the Strawberry car park.

**Staff and visitor parking and seasonality** – staff will be no more than five and will be incentivised to use public transport, cycle, walk or lift share and assisted to home work whenever convenient. Normally visitors will be from those already visiting the Eden Project and will use the existing parking facilities on site.

When the Green Build Hub hold separate events on site, it will be after liaison with the Eden Project to coincide with quieter public visitor times and it is anticipated that the adjacent Strawberry car-park will be used for these visitors. Cycle storage and lockers will be provided on site, as will a shower provision.

### **Landscape and ecology**

#### **Ecological assessment**

Phase 1 ecological survey was carried out by Cornwall Environmental Consultants see attached:

#### **Landscape**

We have consulted the Eden Project over landscaping the site and agreed to remove the southern boundary bund with most of the Italian Alder and silver birch saplings in order to provide a safe access path around the building from the Strawberry car park. This path will be softened and secured by the provision of some well placed deciduous standard trees, if possible from those removed from the bund. These trees will provide landscape softening and summer shading to





the southern elevation and demonstrate landscape and architectural functional complement. It has also been decided to provide a display of the green roofing panels on a safety boundary feature, which will also soften the path / road interface and provide an interpretation of the roof installations

## **Geology**

Trial Pits dug on 20/01/2012 and inspected and samples taken by Cornwall Geo-environmental following desk study of location, Peter McCann-Downes BSc (Hons) ACSM made the following comments:

The desk study should be issued within 7 working days, we have some records to follow up and confirm with the Cornwall Records Centre.

The depth to natural ground seems to decrease towards the east and the south, where a Made up Ground (MG) embankment is present. Only one Trial Pit has been excavated at the far south western end of the site, which appears to be having the greatest depth of MG, assessment based on the underlying geomorphology of the area. I did note the lack of a relict topsoil at the boundary between the MG and kaolin which of course increases the chance that there are other areas of disturbed natural/natural appearing ground in the area.

The preliminary findings are that the underlying granite is entirely weathered into kaolin. It appears from the limited exposure on the site that this kaolin is not emplaced/reworked as it displayed a relict crystalline structure, though this could be due to the emplacement of large blocks of granite waste, the probability of this is moderate to low.

Shrink swell testing will be conducted on the retained samples from the excavation carried out on 20th January at the expected foundation depth which should help inform the engineers of the risk from this movement, if any.

## **Archaeology**

There are no records of relict archaeology on the development site, however within 500 meters to the north of the site is the Charlestown Leat which is of Industrial archaeological interest being associated with the development of the Port of Charlestown. The development will not impact on this feature in any way.

## **Drainage and storm-water strategy**

Consultation with the Eden Project has allowed us to understand the sensitivity and importance of not adding to either the foul or stormwater drainage regimes extant within the greater site boundary.





The design will recognise and respond to this sensitivity by liaison with The Eden Project with the guiding principles that no more rainwater will leave the development site post development than pre development; this will be achieved by a combination of rainwater recycling and soak away provision. Foul water from site will be reduced as there will low volume and or waterless or composting toilets. There is existing link to foul sewer that will be maintained for the disabled toilet and wet room as a prudent but low volume precaution.

