BioTecture Ltd

The BioTecture Living Wall – Design & Quality Statement

The beautiful, durable and functional living wall as developed by BioTecture Ltd is the result of two key elements:

- A considered system that works both in the short and long term

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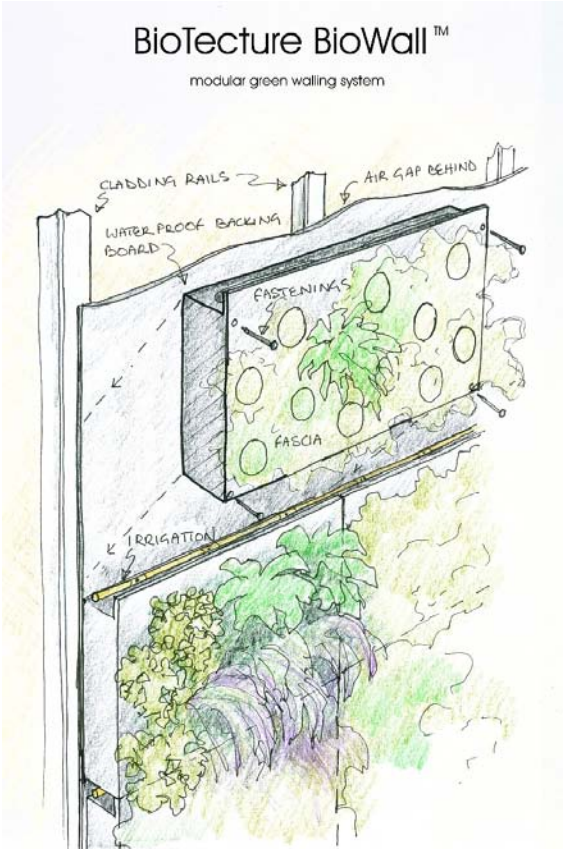
- A skills and knowledge base within the company to back it up

System

Growing Medium



To us it is clear that the growing medium must be inorganic, chemically inert and dimensionally stable. We use a dense horticultural form of Rockwool called gro/dan (GROW DANISH) which has been used for commercially growing plants for over 30 years. Gro/dan has a number of facets that make it ideal for use in vertical greening:

- Its dense inorganic nature means that it absolutely will not degrade unlike any organic mix that will lose its quality over time.
- Gro/dan is chemically inert meaning that it cannot build up salts and nutrients within its structure because it has no cationic exchange potential. We can therefore add exactly the nutrients we need as part of the irrigation system without fear of excessive build up – something that walls with organic growing medium simply cannot do.
- Gro/dan is formed from spun fibres of basalt rock. It will hold it's shape indefinitely – Soil based systems will need topping up to maintain themselves or they will start to degrade

Fascia

We are concerned about green walls that have a growing medium that is exposed directly to the elements. This will lead to excessive degradation by wind / increased risk of self-seeding species taking over and in soil based systems there is a potential for washout in wind and rain. We always ensure that our growing medium is protected from the elements

- By using a fascia panel or fabric we reduce the evaporation from the face of the wall that would vary so much according to the wind and weather. There is therefore more control over the system
- A fascia panel or fabric limits and in many cases eliminates self-seeding

Irrigation

The key to any successful green wall system is the control of the water regime. We use minimal but precise quantities of water to exact points via pressure compensated drippers that are self-flushing and self-cleaning. These irrigation hoses are the same as the ones that have been used for decades in commercial irrigation systems

- Many green wall systems use a 'leaky hose' distribution system which are just not going to last because the pipes fur up quite quickly. Gravity also plays a part with these hoses and an even spread of water cannot be guaranteed. Our system (which irrigates twice a day for approximately 5 minutes at a time) is certain of applying water and nutrients at a rate of 1.6 litres per hour. Our dripper density of 15 per m^2 ensures that the growing medium moisture content always remains within acceptable limits throughout the wall.
- Our system uses a series of capillary breaks to ensure the even distribution of water throughout the wall. Coupling this with an engineered growing medium means that we can be certain that all of the plants have access to the water and nutrients they need.
- The BioWall™ is a hydroponic system – all the nutrients needed are added to the irrigation distribution network by means of a simple impeller device – again this is not new technology since they have been used successfully for years in the horticultural industry. This allows us to provide exactly the right amount of nutrients to the wall.
- Each of our panels drains to the back and then away – there is no drip down into the next level. The living wall by BioTecture is the only system that does this. Systems that drain down internally will tend towards excessive and variable nutrient build-up which will create durability and maintenance issues

Planting

The plant density can be a key factor in the durability of a living wall. We tend to work between 60 and 75 plants per m2. We know of other systems that plant at way in excess of 100 plants per m2. This would seem to us to be unsustainable.

Whilst it will certainly provide instant impact, this high density will necessarily lead to significant plant failure after only a short period of time as the plants compete for the space.

Skills

Our company roots are 50% in landscape design and 50% in construction

Plant Choice

The BioWall™ system allows us to include a fully comprehensive palate of plants. We would argue that only our system and Patrick Blanc's are able to do this. How this range of potential planting is integrated into the system is as important as the system itself.

- All of our walls are designed by Mark Laurence who is an award winning landscape designer. In 2008 he was the keynote speaker at the Member of Society of Garden Designers Sustainability Conference in Bristol – he knows his plants! Plants are selected according to aspect, elevation and client requirements. Through experience and knowledge Mark knows which plants work well where.
- A green wall is like a living object d'art. A good one will be well designed, striking and last for years. A poor one will have poor choices, be bland and constantly need replacing. We consider that too many walls in this country fall into the latter category when this really isn't necessary.

Project Management

Our background and experience in construction ensures that the project goes smoothly and that the all important interfaces are considered at all stages

- Design
- Construction
- Maintenance.

Maintenance

All facades require an element of maintenance. Living walls are no exception – a good system with intelligent plant choice and sound project management will ensure that the maintenance regime required is minimal to keep the wall looking fantastic.