Camden Planning **Application No: 2011/5382/P**

Change of use of No. 7 Fitzroy Square from offices (Class B1) to residential (Class C3) and erection of building to rear comprising basement; lower ground, ground, first to third floor and mansard roof storey (following demolition of No. 11 Grafton Mews (Class B1) to provide 1 x studio, 3 x 1-bedroom and 2 x 2-bedroom flats and 1 x 3-bedroom (in rear building) and 1 x 4-bedroom house with staff accommodation (in front building and lower ground floor of rear building), installation of glass lift shaft on rear elevation of 7 Fitzroy Square and replacement of windows at basement and ground floor level on front elevation of 7 Fitzroy Square.

Project:
7 Fitzroy Square & 11 Grafton Mews London W1T 5HL
APPROVAL OF **CONDITIONS** IN
APPROVED PLANNING PERMISSION

3 March 2014

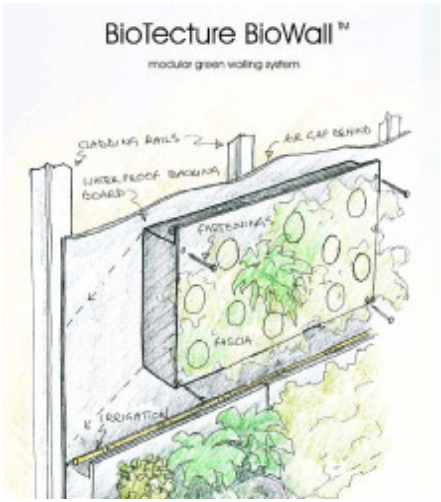
CONDITION 6

BROOKSMURRAY ARCHITECTS

Condition 6

Details, full details in respect of the green wall on the rear elevation of the new mews building (including construction, planting and maintenance) shall be submitted to and approved in writing by the Council before the development commences. The new building shall not be occupied until the approved details have been implemented, and the green wall shall be permanently retained and maintained in accordance with the approved details thereafter.

Reason: In order to ensure the development undertakes reasonable measures to take account of biodiversity and the water environment on accordance with policesCS13 and CS15 of the London Borough of Camden Local Development Framework Core Strategy and polices DP22, DP23 and DP32 of the London borough of Camden Local development Framework Development Polices.

Ref	Design	Units	Materials	Finish
LIVING WALL *11 GRAFTON MEWS*	Bio-Wall system will be used 	Ref details on the attached document from BioTecture (below)	Supplier and installer will be BioTecture Ltd The Hay Barn Old Park Farm Old Park Lane Bosham W Sussex PO18 8EX Email enquiries@biotecture.uk.com 01243 572118 Examples of work below	As per the attached document Maintenance schedule as attached by BioTecture Ltd which will be adhered to once the building is occupied.

TFL Edgare Road, London

New Street Square, New Fetter Lane, London

Plant selection information from Green wall by Biotecture:

0188 – 7 Fitzroy Square, London **LIVING WALL** **27th February 2013**

Preliminary Living Wall Plant Selection Statement

The design of the living wall will be based on a plant palette of evergreen plants. The low light level conditions further dictate the plant selection.

The planting will only be visible for a maximum distance of 4 metres away and so a definite pattern of planting is not anticipated. Rather the planting will be set out as a drifting (albeit defined) random matrix.

The current intention is to only include native plants within the plant mix. These native plants will create a native habitat. The total plant count on the wall will be in the region of 3,900.

The following UK native plants will be considered for inclusion within the planting design for the living wall:

- Asplenium scolopendrium

- Polypodium vulgare

- Hedera helix wonder

- Primula vulgaris

- Euphorbia amygdaloides Robbiae

- Polystichum setiferum

- Iris foetidessima

- Luzula sylvatica

Plant/service information from Green wall by Biotecture:

January 2014

LIVING WALL CONSTRUCTION SPECIFICATION

Cladding rails:
50mm vertical rails at maximum 1200mm centres fixed in accordance with Structural Engineer's details.

Backing Wall/Substrate:
Waterproof backing board: Durable water resistant 100% closed loop recycled board of nominal 12mm or 18mm thickness – R-Board or similar. Manufacturer: R3 Products or similar

Void former and waterproof backing:
Drainage geocomposite material of minimum 4.5mm thickness comprising of a geocomposite root barrier, a layer to provide sufficient free volume to allow for 15% of the applied irrigation water to be contained within it at any one time and a waterproof backing sheet. Manufacturer: ABG. Materials: Geoflow 4 or similar

Vegetated cladding panels:
'Backless' cladding panels 73mm thick containing inorganic growing medium. Manufacturer: Biotecture Limited, The Old Dairy, Ham Farm, Main Road, Bosham, West Sussex, PO18 8EH. Tel: +44 (0)1243 572 118 Email: enquiries@biotecture.uk.com Product reference: BioWall regenerated plastic vegetated cladding panels or similar

Growing medium:
Inorganic, chemically inert and dimensionally stable with a dry density > 150 kgs /m^3. Manufacturer: Gro/dan or similar approved. Product reference: BioWall PP 100/100 or similar approved

Planting:
Plant spacing to be within 10% of 75 plants per m^2

Plant Species:
All plant species are to give year round cover. Documentary evidence of the suitability of each species for the layout, aspect, elevation, light levels and the general conditions should be provided to the satisfaction of the client prior to the planting palette and design being approved. The Contractor should include for client liaison meetings and the preparation of planting design brochures to the approval of the client / architect. Species to be included in the green wall are to provide a patch work effect. The design and choice of the species is to be carried out by the Contractor and to the approval of the client and the design team.

Pre-growth period:
Plants are to be planted into final panels a minimum 8 weeks prior to installation

Pumping and Mains:
A suitably sized WRAS approved break tank normally holding 24 hours of irrigation water is required. Pumping is to be via a reliable pump set capable of delivering the correct pressure at all drip locations. Water is to be distributed from the pump through zoned solenoid valves via a ring main and header pipes with control being via a remote sensing computer controller. System is to include a fail-safe pump start relay

Fertigation:
Nutrients are to be added to the water flow by means of a Dosatron or similar impeller device. Essential macro and micro nutrients added at a rate of between 0.2% and 0.5% by volume. The nutrient mix is to be as prescribed by the vegetated cladding panel manufacturer. Nutrients are to be stored in a separate tank and fully integrated with the irrigation system

Drip Irrigation:
Irrigation water is to be precisely applied via irrigation driplines of no less than 16mm diameter. The drippers are to be in-line, self flushing & self cleaning pressure compensated drippers each operating at < 3.0 litres per hour. The system must include the ability for each dripline to be easily flushed on a regular basis.

JANUARY 2014

LIVING WALL PERFORMANCE SPECIFICATION

Design the system always in coordination with the Design Team and the Main Contractor and share the design at every stage to ensure effective integration into the facility.

Irrigation Control System

- Automated
- Capable of supplying the correct amount of nutrients
- Controlled by a central control system; easy to read and understand and accessible remotely by the operator
- Provide detailed manuals and training on the system and how to use it
- Adaption of the watering system based on actual water content readings
- Notify of blockages and/or leakages in a timely manner and with minimal intervention & searching for the problem
- Alarms sent to the central control system of the facility
- Alarm to be raised when outside parameters
- Zonal
- Critical joints and pipes easily accessible
- Pumps should have minimum life expectancy displayed
- Routine maintenance flushing should be undertaken from the ground and not at high level
- Ability to measure the amount of water delivered to the wall and also to individual sections

Key Performance Indicators

- Irrigation system function = at least 95% of the times when it should function
- Visual aspect of wall = minimum 90% wall coverage by alive plants at all times
- The actual irrigation flow rate is within 20% of the design flow rates at all times
- Water consumption requirements = a maximum fresh water consumption of 2 litres per m2 per day as an annual average
- Wastewater = a maximum waste water discharge of 0.2 litres per m2 as an annual average
- Ensure no less than 12 months after the end of the defects liability period that over 95% of the plants are healthy and well established

Plant Choice

- Plants to be selected not only to satisfy the design requirements but also because they are generally available from wholesalers and are relatively interchangeable
- The species used should be chosen such that they can survive in the conditions and in a hydroponic system and can be maintained at height

Draft O&M

- Produced 6 months prior to service commencement
- Calendar and detail all standard maintenance tasks
- Plant maintenance
- Irrigation maintenance and overhaul requirements
- Remote monitoring requirements
- Pro-active timing of additives to the irrigation system to prevent pests and diseases
- Inspection procedure for structural elements
- Detail measures to be taken in the event of non-routine occurrences

Maintenance

- The living wall is to be designed and assembled to enable safe and easy access for cleaning, maintenance and parts exchange.
- The maximum frequency of inspection of the wall as part of a is to be 28 days
- Wherever possible maintenance tasked shall be designed and engineered to be conducted from ground level
- Wherever possible natural biological controls are to be used

- Provide all operating and maintenance information (maintenance plan) in both hard copy format and on a searchable CD
- Provide the details of any specialist equipment (platforms, lifting equipment and specialist tools) required for maintenance, pruning or cleaning.
- Details on the estimated costs of replacement parts (mechanical and biological) and frequency as well as all other costs associated with maintaining the wall
- Routine should be to replace individual plants rather than replacing whole panels
- Irrigation system – remote monitoring + bi-annaul inspection + annual maintenance, overhaul and replacement of dosing system seals
- Drainage System – Bi-annual inspection including removing any debris / litter

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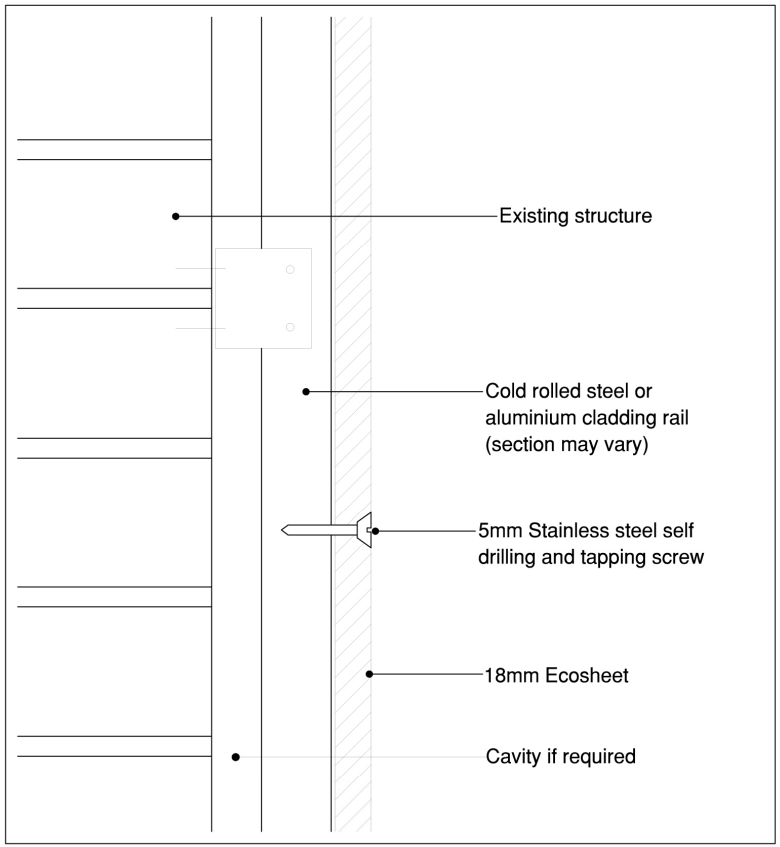
sustainable living walls

Green wall details by Biotecture:



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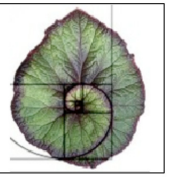
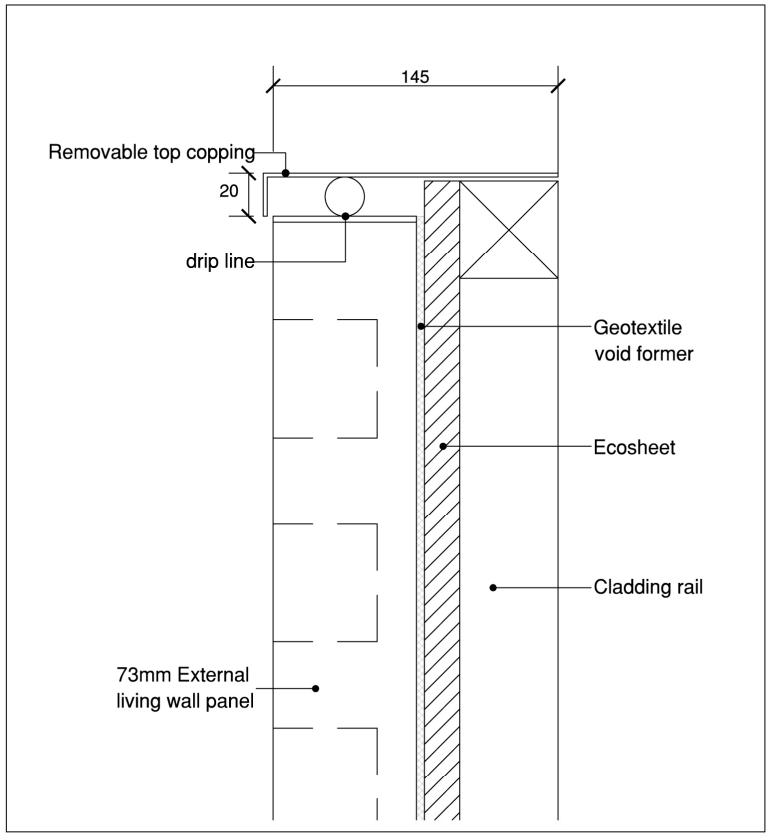
www.biotecture.uk.com

Drawing Title:
Typical Metal Cladding Rail Fixing
Drawing No:
001 / 03
Drawing Revision:
A
Scale: 1:2 @ A4
Date: November 2012





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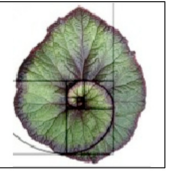
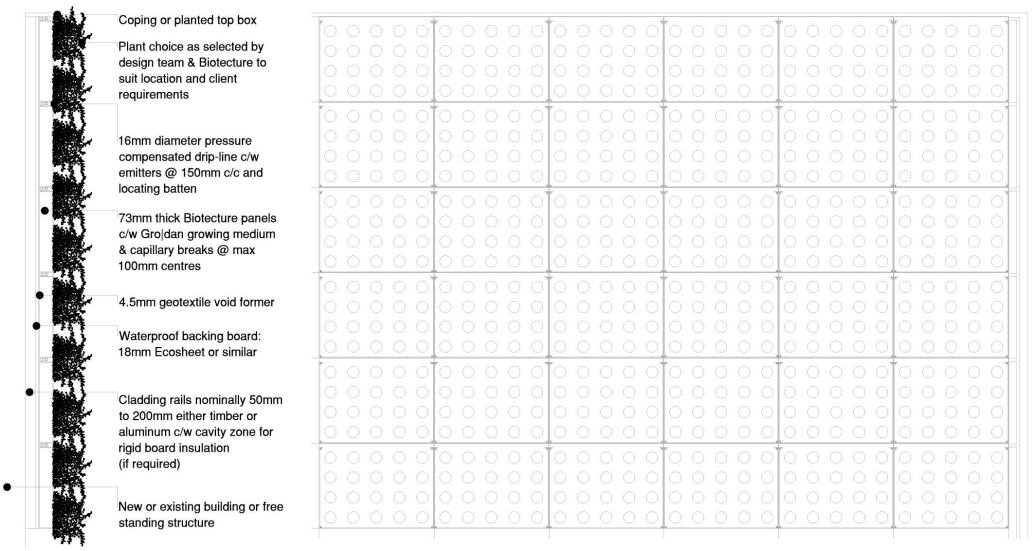
Drawing Title:
Typical External Removable Top Copping (by others)
Drawing No:
002 / 02
Drawing Revision:
A
Scale: 1:2 @ A4
Date: November 2012



Green wall details by Biotecture:



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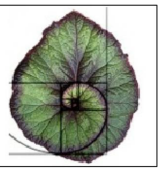
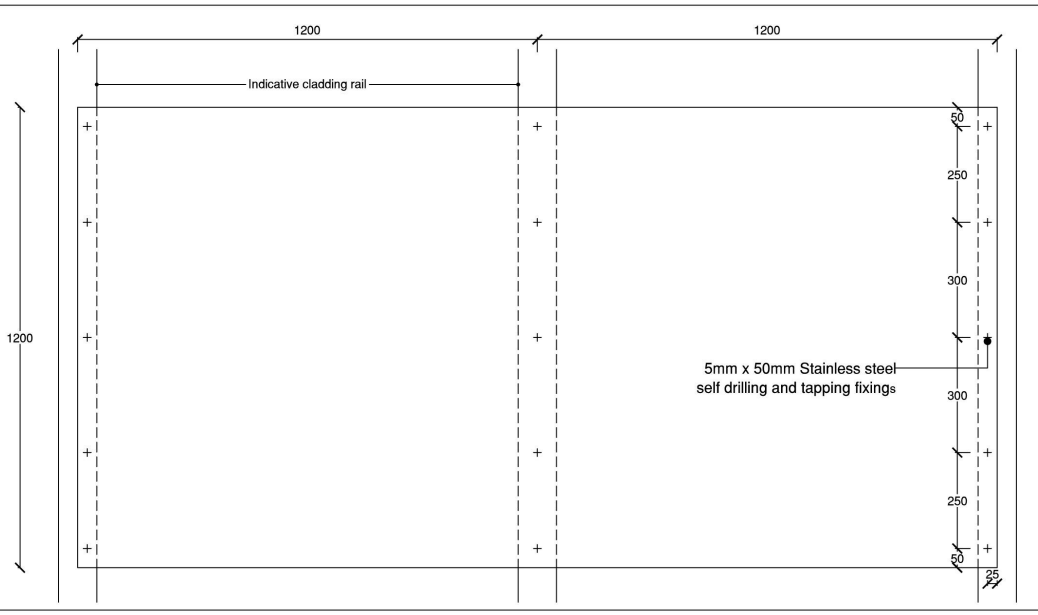
Drawing Title:
Standard Living Wall Setup
Drawing No:
002 / 01
Drawing Revision:
A
Scale: 1:10 @ A4
Date: November 2012





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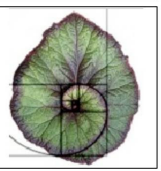
Drawing Title:
Typical Board Fixing Layout to Metal Cladding Rails (by others)
Drawing No:
001 / 05
Drawing Revision:
A
Scale: 1:10 @ A4
Date: November 2012



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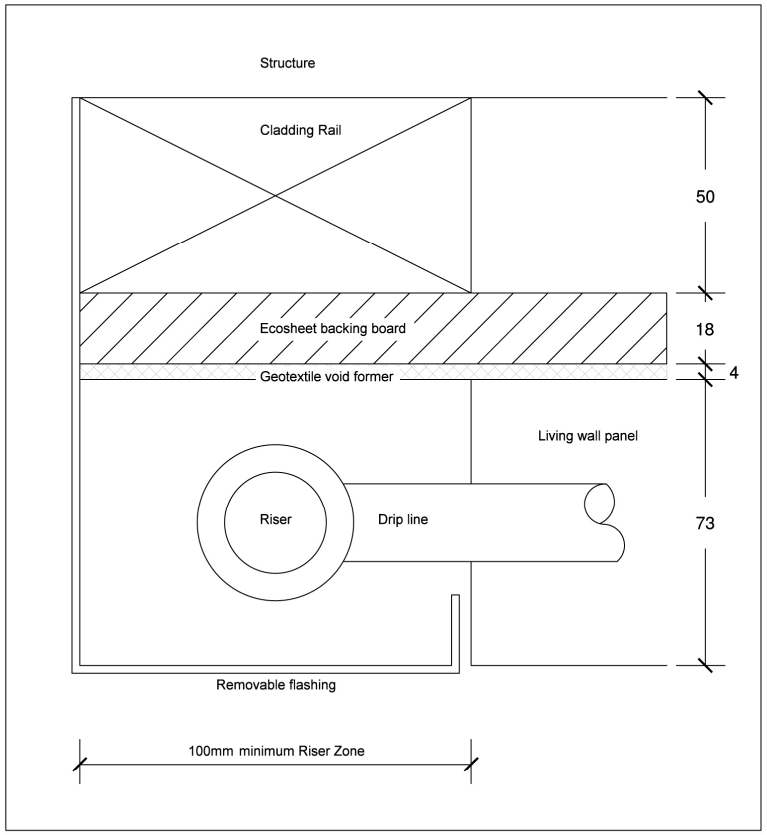

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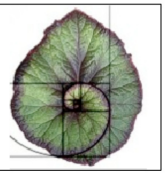
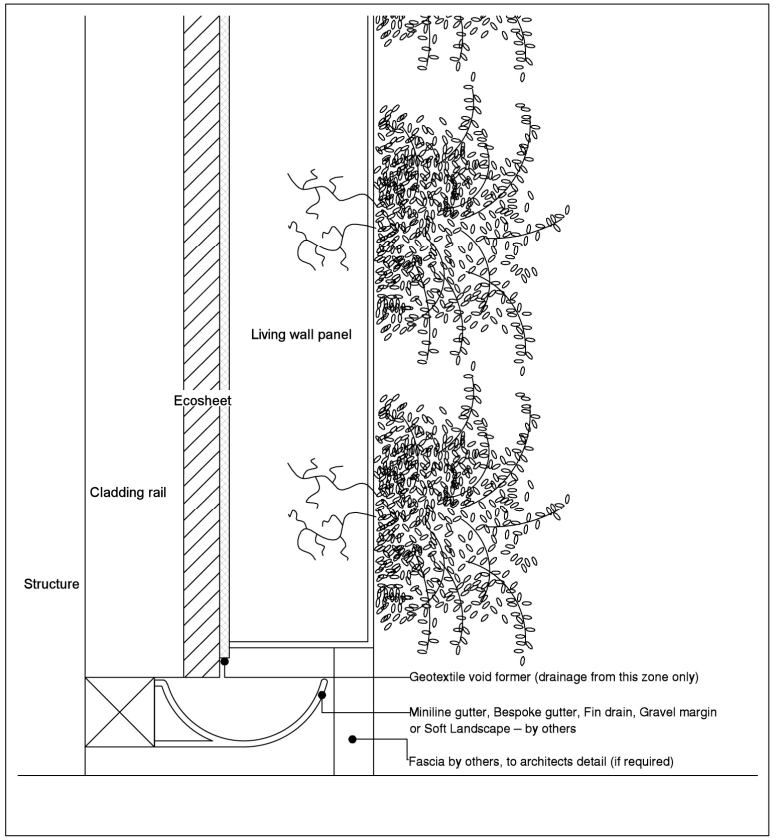
Drawing Title:
Indicative Reveal / Removable End Flashing (by others)
Drawing No:
002 / 04
Drawing Revision:
A
Scale: 1:1 @ A4
Date: November 2012





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Drawing Title:
Drainage Options
Drawing No:
002 / 06
Drawing Revision:
A
Scale: 1:2 @ A4
Date: November 2012