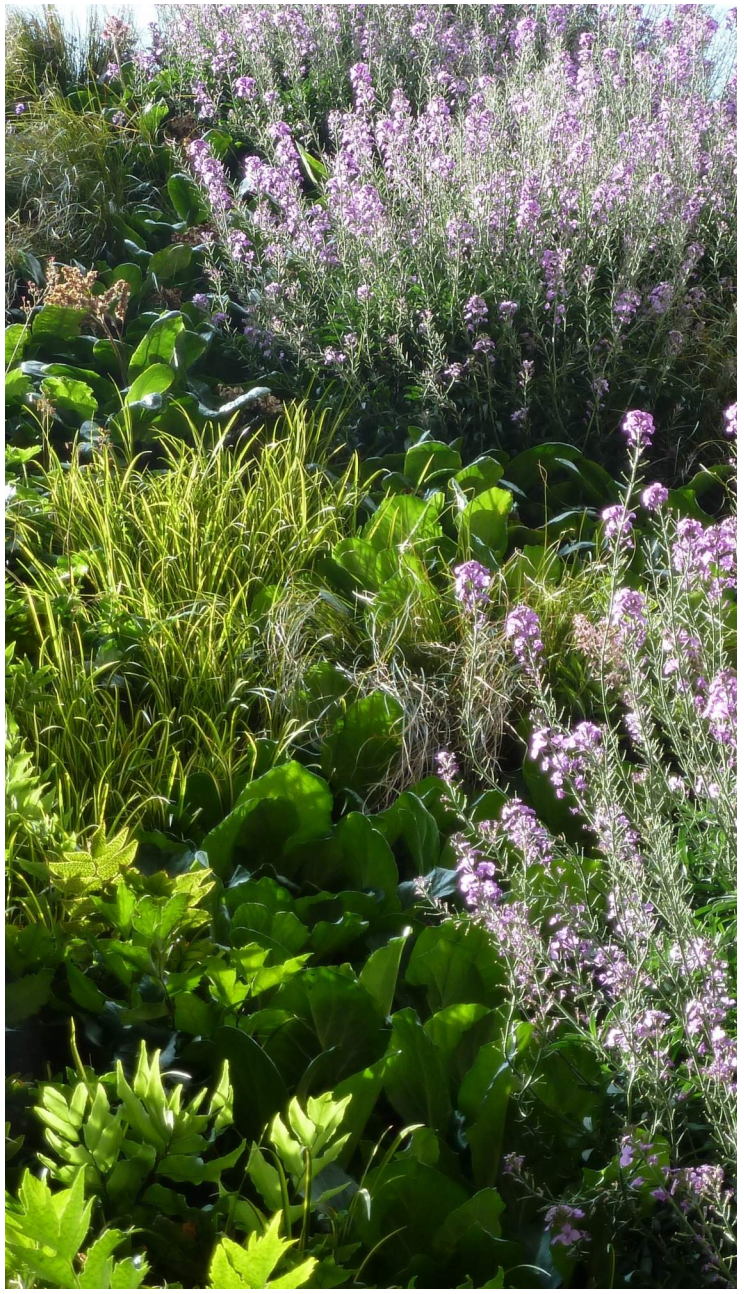
Condition 5: Landscape and equipment maintenance

Contents

Section 5—Schedule of Landscape and equipment maintenance



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Condition 5—Landscape and Equipment maintenance

5a) Maintenance schedules for all landscaping

Maintenance Agreement

As well as the Performance Specification, which guarantees the long-term health of the wall, Biotecture will work to the following Maintenance Agreement. The key points within the maintenance agreement are as follows:

Summary:

Maintenance, monitoring and upkeep of the green wall elements and ancillary plant

1. Statement of Intent

To signify the commitment of all parties both to this agreement and to the provision of sufficient resources to maintain the living green wall to a good standard at all times

2. Inspection & Reporting

Biotecture will make regular visual and photographic inspections of the green wall areas (all from ground level). These will be carried out at suitable prescribed intervals throughout the year. The maximum frequency of visual inspections of the wall is to be 28 days.

Biotecture will carry out an annual close-up detailed inspection of all the areas of the green wall using access equipment. Biotecture will produce reports on standard forms of all inspections carried out. These will be formally issued to all parties.

3. Maintenance & Upkeep

Biotecture will carry out an annual maintenance of the green wall elements. This includes:

- Replacing (up to) 100% of the plants as necessary.
- Topping up the nutrients tank
- Tending of plants as necessary
- Maintaining the irrigation system

4. Pump(s) & Irrigation / Dosing System:

It will be the responsibility of Biotecture to ensure that the pumps and irrigation system are inspected and (where required) serviced at regular prescribed intervals as necessary.

It will be the responsibility of Biotecture to ensure that the dosing of the required nutrients is carried out at suitable intervals.

5. Remote Monitoring of the Irrigation System

Biotecture will remotely monitor the irrigation controller on a regular basis during working hours with regard to expected values. Biotecture may remotely amend irrigation run times and irrigation program start times to suit the requirements of the plants.

Any exceptions to programmed or expected flows or any other observed anomalies will be investigated and resolved.

Condition 5— Landscape and Equipment maintenance

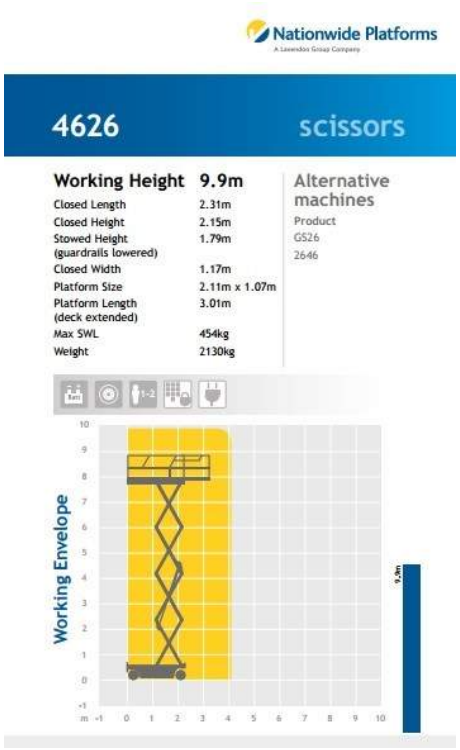
5a) Maintenance schedules for all landscaping

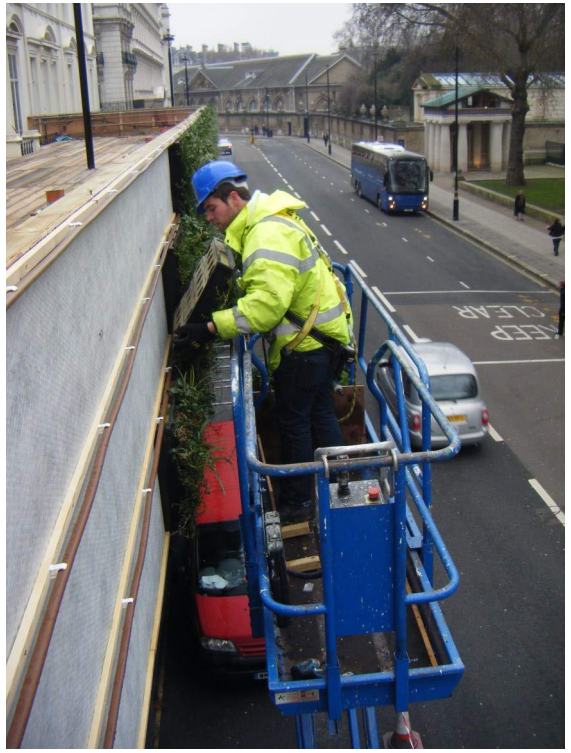
Horticultural Access

The horticultural maintenance visits to the living wall at Synergy House (GW 3 as above) will be carried out via a mobile elevated work platform (MEWP). An example of a MEWP is shown here.

Full risk assessments and method statements will be produced and complied with to ensure that these works are undertaken in a safe manner.

Only trained and experienced operatives will carry out this work.





Indicative Synergy House Living Wall Maintenance Strategy

Ref	Maintenance Operation	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
GW 1	Monthly visual and photographic inspection of the wall	●	●	●	●	●	●	●	●	●	●	●	●
GW 2	Addition of Bio-controls to the irrigation system			●							●		
GW 3	Full access visit to prune / tidy / replace background planting as necessary				●		●			●			
GW 4	Daily check of the remote sensing irrigation log and moisture meters	●	●	●	●	●	●	●	●	●	●	●	●
GW 5	Monthly visual inspection of the irrigation plant room	●	●	●	●	●	●	●	●	●	●	●	●
GW 6	Topping up nutrient tank as necessary			●			●			●			
GW 7	Pressure test irrigation system plant room components			●									
GW 8	Strip, service and re-install dosing unit including by-pass until March										●		
GW 9	Take dosing unit off by-pass system and re-engage			●									
GW 10	Flush out all irrigation lines and check										●		

Note: All timings are indicative and may vary based on climate conditions and plant maintenance requirements

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Condition 5—Schedule of Landscape and Equipment maintenance

5b) Provision for replacement planting

The purpose of the remote monitoring of irrigation system and frequent visual inspection visits is to identify any issues before failures occur. The visits look for early signs of pests, diseases or incorrect watering that might be adversely affecting the plants. By looking for early warning signs corrective measures or treatments can be taken to prevent plant failure on a large scale.

Identifying the cause of failure is important so that remedial action can be taken. Firstly, it is important to identify if the problem is localised or across the entire species on the wall, as this helps identify where the problem might be.

The daily irrigation monitoring and the regular visual inspections by horticultural specialists will reduce the likelihood and occurrence of plant failure.

However, occasionally, plants will fail or reach the end of their natural life. In this event the majority of questions in the Review Process will be answered during a specially arranged horticultural visit.

All plants selected in the planting palette are generally readily available from surplus stock lists held by commercial nurseries. Biotecture also holds a large stock of these types of plants

Should a large amount of modules suddenly perish the modules will not be replaced until the underlying cause has been identified by the horticultural specialist. The operator can replace dead, dying or diseased plants in 25 business days (assuming it is the correct season) or start treatment of plants in 10 business days from the date we become aware of the issue.

Depending on the issue causing failure, remedial action will be taken as soon as reasonably possible. Issues such as changes to irrigation rates can be implemented quickly though, for example, wide spread checking of multiple drip lines high in the wall may take a number of weeks to organise and undertake. Complex issues do take longer to resolve and in any event replanting will need to be done in the correct season to ensure the new plants establish properly.

Section 5—Schedule of Landscape and Equipment maintenance

5c) The arrangements for service and maintenance of the equipment required to support the landscaping

All access equipment for installation and maintenance is hired and so all servicing and maintenance would be carried out by others.

Living Wall

The planting within the living wall will require similar maintenance to that of a conventional garden.

Regular visual inspections will identify what maintenance is necessary and this will include:

- Cutting back of plants
- Replacement of plants that are not thriving
- Control of irrigation and nutrient levels

Irrigation System

The maintenance requirements will be carried out in accordance with manufacturers' recommendations and as required in the Maintenance Report Sheet. This includes the items as listed below.

- Cleaning or replacement of the in line filter
- Cleaning or replacement of the solenoid filters
- Replenishment of nutrient
- Checking for leaks
- Flushing of drip lines if necessary

Pump(s) & Irrigation / Dosing System

It will be the responsibility of Biotecture to ensure that the pumps and irrigation system are inspected and (where required) serviced at regular prescribed intervals as necessary. It will be the responsibility of Biotecture to ensure that the dosing of the required nutrients is carried out at suitable intervals.

Section 5—Schedule of Landscape and Equipment maintenance

5c) The arrangements for service and maintenance of the equipment required to support the landscaping

Indicative Synergy House Living Wall Maintenance Strategy

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GW 7	Pressure test irrigation system plant room components			●									
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GW 10	Flush out all irrigation lines and check										●		

Note: All timings are indicative and may vary based on climate conditions and plant maintenance requirements

Condition 5— Landscape and Equipment maintenance

5d) The arrangements for inspecting and Reporting

Access Equipment

Plant/access equipment is hired in from suppliers that have full service history/reports on the plant. Biotecture will request to see inspection/ certs prior to using the equipment, in addition out fully qualified operatives will carry out usual inspections. Each time the equipment is delivered to site prior to any works being carried out.

Maintenance Visits

Biotecture will make regular visual and photographic inspections of the green wall areas (all from ground level). These will be carried out at suitable prescribed intervals throughout the year. The maximum frequency of visual inspections of the wall is to be 28 days. At each visual inspection the maintenance team will visit the site and observe the plants, checking for any abnormalities. A maintenance visit report form will be completed and returned to the maintenance manager. If there is any evidence of banding in the plants which would indicate moisture levels are too low this would be reported to the irrigation assistant verbally on the day and the irrigation system would be adjusted as required. The plant room will be inspected and filters checked and the nutrient tank refilled if required. Lastly a photograph will be taken of the wall for Biotecture's long term records. If there are any areas of concern these would also be photographed, reported to the maintenance manager verbally immediately and a written report made.

Biotecture will carry out an annual close-up detailed inspection of all the areas of the green wall using access equipment. Biotecture will produce reports on standard forms of all inspections carried out. These will be formally issued to all parties.