

## Green Wall System

Green Living™ Technologies, LLC

800-631-8001

www.agreenroof.com

## SPECIFICATION

### Green Wall System

This specification describes the Green Living Technologies (GLT) Green Wall system designed to provide a vegetative cover on extreme slopes and vertical surfaces. The GLT Green Wall is a series of growing media based panels designed to be mounted to a vertical space, free standing or extreme slopes for the purpose of growing vegetation.

### 1. General

#### 1.1 Related Sections

- .1 Section [02810] – [Irrigation Systems]
- .2 Section [07620] – [Sheet Metal Flashing]

#### 1.2 Installation Contractor

.1 The Green wall system must be installed either by GLT, a GLT approved agent, or by a contractor that agrees to hire a GLT Installation Supervisor at the expense of said contractor.

#### 1.3 Proof of Structural Load Bearing Capacity

.1 An engineer's report confirming the load bearing capacity of the existing structural surface that the green wall is to be mounted to must be provided to GLT by the client.

#### 1.4 Plans & Shop Drawings

- .1 The client is responsible for providing the latest accurate scale drawings to GLT for quotation and design purposes.
- .2 If acceptable scale drawings are not available, GLT or approved alternate will be required to produce said drawings at the client's expense.
- .3 GLT will provide plan and shop drawings to client showing all material terminations, transitions and penetrations prior to commencing construction.

#### 1.5 Weatherproofing Membrane for Roof Top Applications

##### Waterproofing Membrane

- .1 There must be an approved high quality waterproofing membrane in place under the GLT Green Wall system prior to installation of the green wall.
- .2 The waterproofing manufacturer must provide written approval of the GLT system for use on their membrane.
- .3 A flood test, or other approved leak detection method, is to be performed prior to installation of the GLT system to ensure the membrane is performing as per manufacturer's specifications. GLT will not accept or is responsible for existing leaks or other issues related to the membrane.
- .4 The waterproofing membrane will be covered by a separate warranty issued by the waterproofing provider and will not be covered under the GLT product warranty.
- .5 Green Living Technologies will not be held responsible if this report is not furnished. It is assumed that the client has accepted all responsibilities related to the waterproofing capabilities of the membrane.

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### 1.6 Accessories

.1 All other green wall components or accessories must be approved or provided by GLT to ensure viability and performance of the system as per the specifications.

### 1.7 Lead Time

.1 If portions of the green wall vegetation are required to be pre-grown, GLT requires a possible 4 – 6 months of growing season to produce, depending on plant species and propagation method. The decision to purchase a pre-grown system must be made 6 months prior to the installation date to allow sufficient time for production by a local GLT approved grower.

.2 Productions of green wall components can take as long as 2 months to manufacture. A lead time of 2 months should be anticipated when ordering any components.

### 1.8 Contract Documents

.1 In the case where GLT is hired to install the system, a signed contract specifying the scope of work, terms and conditions, payment scheduling, warranties, deposits and any other relevant information is required before plant propagation is started.

### 1.9 Warranties on Workmanship

.1 A five (5) year standard warranty on workmanship is to be provided by GLT and/or the contractor performing the installation. This contractor must be a GLT approved agent or have hired a GLR representative to supervise installation.

### 1.10 Warranties on Components

.1 GLT warrants all non-living components of the Green Wall system will perform as specified for minimum 15 years provided the GLT maintenance program has been followed and any work performed on the system has been done by GLT or a GLT approved agent.

.2 The 15 year warranty for the Green Wall, states that these components will not degrade due to physical, chemical or biological processes that naturally occur in a green roofing and green wall systems. The labor and material cost of any warranty work is covered in this warranty. An extended warranty is available for this portion of the system but must be used in conjunction with the GLT maintenance program and performed by GLT or a certified GLT representative.

### 1.11 Warranties on Vegetation

.1 A one (1) year warranty and maintenance contract for the approved vegetation shall be included with the initial quotation appendix and is an extra cost. This will cover all aspects of the vegetation and system performance. An extended full system warranty (including vegetation) is available as part of the on going maintenance program and can be extended for as long as a GLT maintenance program is purchased.

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### 1.12 Extended Warranty and Maintenance Program

.1 An extended warranty and maintenance program can be purchased for the Green Wall system.

.2 The warranty and maintenance program is available in the form of a renewable contract between GLT or approved agent and the client. The warranty will cover all system components including plant performance, irrigation and non-vegetative components provided that all maintenance has been performed by GLT or a GLT approved agent since the date of installation.

### 2. Products

#### 2.1 Description

.1 The Green wall system is made up of modular sections to include overlap areas (see specific dimensions for standard and custom fabricated components) of vegetation area that are delivered as a preassembled product to the site for installation. The plants may be pre-grown into the modules or planted on site. The ability to customize and accessorize the system with various options is possible provided the design has been approved by GLT or Approved Agent [see section 2.5.4.].

#### .2 Required Components (Preassembled by GLT)

.a Aluminum

.b Optional materials such as Stainless Steel

#### .3 Additional Required Components (Assembled on site)

.a GLT approved substrate (filling all panel void space)

.b GLT approved vegetation

#### .4 Optional Components

.a Green Wall edging details

.b Irrigation accessories

.c Multiple finishes to include but not limited to (Copper, Brass, brushed, laser engraving, painted, powder coated)

### 2.2 Green Wall Panel

.1 The Green Wall Panel must be provided by GLT and will meet or exceed the following:

.a made of aluminum or stainless steel unless otherwise noted.

.b Class "A" fire rating (aluminum or stainless steel)

.c UV resistant

.d Temperature range -40°F to 176° F+.

.2 There must be drainage slots to allow the overflow from the cells to drain from the system to the panels below.

#### 2.3 Substrate

.1 Any growing medium required must be approved or provided by GLT to ensure viability and performance of the system as per the specifications.

#### 2.4 Vegetation

.1 The plant list and design must be approved or provided by GLT to ensure viability and performance of the system as specified.

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### 2.5 Hangers/Brackets/ Support Mechanism

.1 The Green Wall System is designed to be mounted using a variety of mechanical fastening systems to be determined by the size and installation of the project.

.a **Standard bracket system** is available to enable connection of the panels to the wall

.b **Bart Rail:** This system is reduces the labor and time required for larger installations by reducing the number of lag screws/bolts and special equipment required. All panels are loaded at ground level and then raised by an internal mechanism to the required height. Panels are held securely by a cylindrical rod that nests into the vertical supports.

.2 All brackets, armatures and fastening systems used must be manufactured or approved by GLT for use with the Green Wall system.

.3 Secondary fasteners may be used to secure the modules to the wall in high wind areas or to help reduce theft and vandalism. These fasteners can take the form of screws, bolts, rivets, etc. and must be installed through the holes provided.

### 2.6 Irrigation

.1 Various irrigation solutions are available depending on the situation. All irrigation designs must be approved or designed by GLT.

.2 An irrigation water source must be provided in the area of green wall (no more than 10' from wall) with a shut-off valve installed by others. (Contact GLT for more information)

.3 Grey water or rainwater irrigation water is encouraged for use with the Green Wall System. Water quantity and quality must be approved by GLT prior to installation.

### 2.7 Edging Details

.1 The panels may be edged with wood, metal, plastic or other materials to match the proposed or existing façade of the building.

.2 All edging must be approved by GLT for use with the Green Wall system.

## 3. Execution

### 3.1 Delivery

.1 Co-ordination of delivery time lines is the responsibility of the contractor installing the system. Two (2) days advance notice of delivery to the producer is necessary to ensure there are no delays.

.2 The modules will be palletized and delivered to site for installation on the date of installation unless otherwise specified by contractor.

### 3.2 Storage

.1 Vegetation materials must be stored in a secure, cool shady environment out of direct sunlight prior to installation. Vegetation must be protected from rapid temperature changes of more than 15°C (59°F)/hour. All vegetation is to be installed within one (1) days of being delivered, if this is not possible contact GLR for further care instructions.

.2 All other materials (non-living) should be stored in a dry location out of direct sunlight with original packaging and documentation left intact prior to installation.

### 3.3 Installation

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- .1 The wall surface must be free and cleared of any obstructions prior to the installation of the green wall brackets or support structure.
- .2 The brackets or support structure must be mounted to the wall using appropriate fasteners to support the load of the green wall when fully saturated. All brackets or structures must be perfectly level to ensure even water distribution.
- .3 The modular green walls can then be picked up and hung from the leveled brackets or support structure.
- .4 The panels must be overlapped by the top and bottom of each panel.
- .5 Secondary fasteners should be installed in the holes provided.
- .6 The fasteners must be such that they can be unattached if access to the surface underneath the system becomes necessary.
- .7 All edging and accessories should be installed as per the most recent plan drawings. Report any discrepancies to GLT and/or designer immediately upon discovery.
- .8 Consult GLT or approved alternate for instructions on installing the irrigation system.

#### 3.4 Maintenance

- .6 Maintenance must be provided by a GLT approved agent.
- .7 A maintenance contract beginning from the completion of system installation and is provided with initial quotation by the installer.
- .8 Maintenance work done by an unapproved GLT agent may void any warranties made by GLT.
- .9 Additional maintenance programs and costs are subject to the type of plant species and growing mediums specified for the project.
- .10 All maintenance contracts are subject to annual renewal. Failure to renew the maintenance agreement with GLT or approved agent voids all vegetative warranties.
- .11 Every year the client renews the maintenance agreement GLT or approved agent will renew the vegetative warranty.
- .12 Upon completing the 15 year non-vegetative warranty every year the client renews the maintenance agreement GLT or approved agent will continue to warranty the non-vegetative components in addition to the plant material.