

Five Attachment Details

- Flush Attachment
- “L” and “T” Support Steel
- Integrated Planters
- Steel Structure
- Perpendicular Steel Structure

Design Guidelines for Green Facades on Parking Structures



greenscreen®

Parking structure design places an emphasis on the integration of functional, efficient, attractive, and cost-effective solutions. The inclusion of sustainable products such as **greenscreen**[®] modular panels can be an important component in achieving these goals.

The following pages illustrate five typical **greenscreen**[®] attachment details that have proven successful when incorporating green facades into parking structure design.

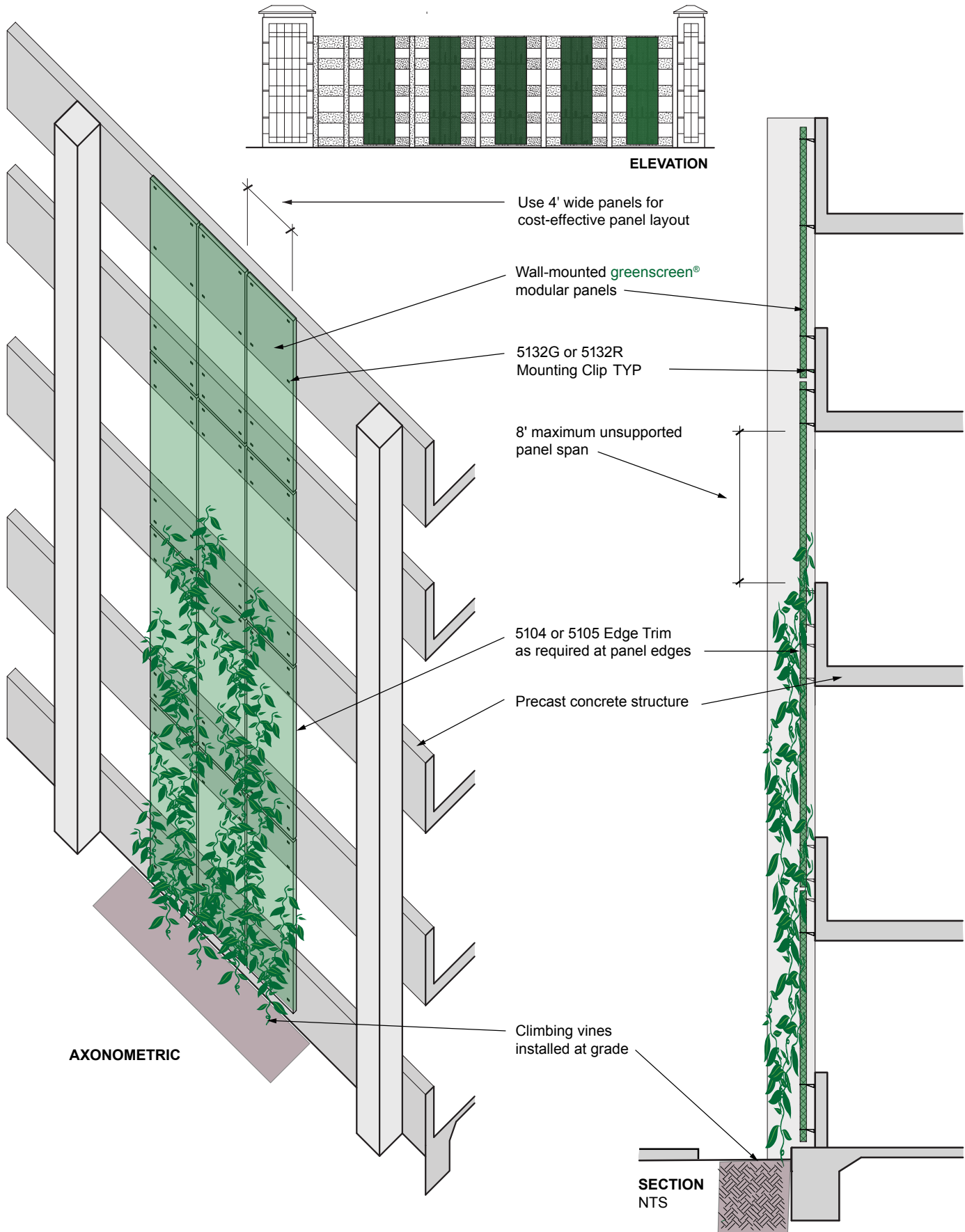
For more information related to your particular project, please give us a call at 800.450.3494 or visit our website at greenscreen.com.



greenscreen® creates a framework for vines to flourish

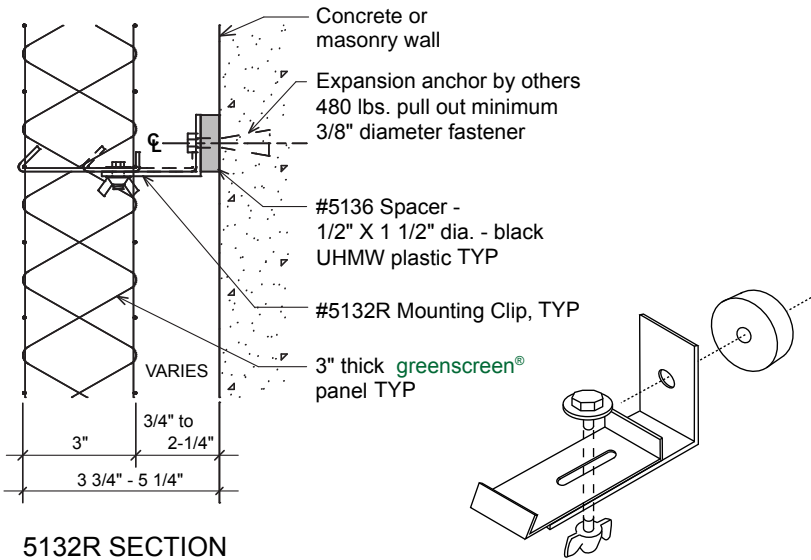
Parking Structure Green Facade Details

- Wall Mounted

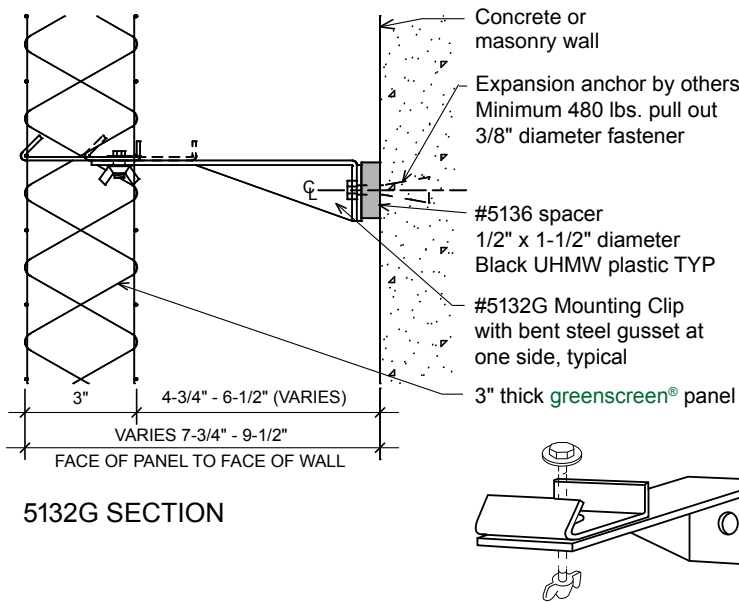


ADJUSTABLE MOUNTING CLIPS

The 5132R and 5132G adjustable clips provide panel support for both download and uplift. The clips can mount to wall surfaces or to a steel frame. The sled with slot allows for panel adjustment and ease of installation.



Fishers Place at Metro Center, Rockville, MD



NOTES:

- 4' wide greenscreen® panels mounted to precast.
- 5132R or 5132G standard mounting clips used for attachment to concrete structure.
- All precast mounting surfaces typically in the same plane.





Beverly Connection

Los Angeles, CA

A parking structure is enhanced with a **greenscreen®** green facade.

Modular panels are wall mounted and vines grow from above grade planters.

Hardiness Zone 10b / Installed 2008

Star / Confederate Jasmine

All Photos from April 2008



Horizon at Playa Vista

Los Angeles, CA

Wall mounted greenscreen® panels are used on the parking structure and store entries serving a multi-building office cluster.

Hardiness Zone 10b / Installed 2009

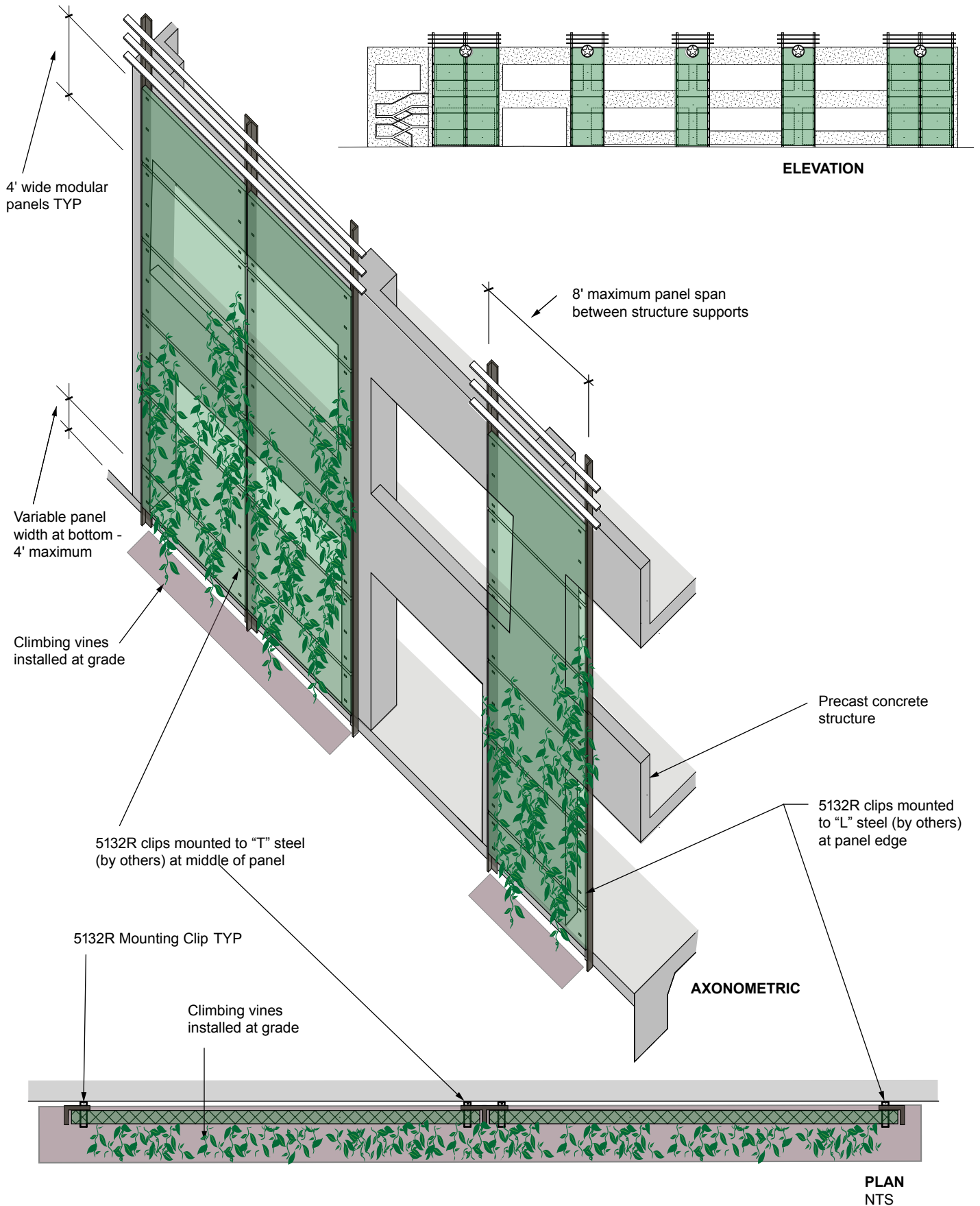
Royal Trumpet Vine

All Photos from March 2011



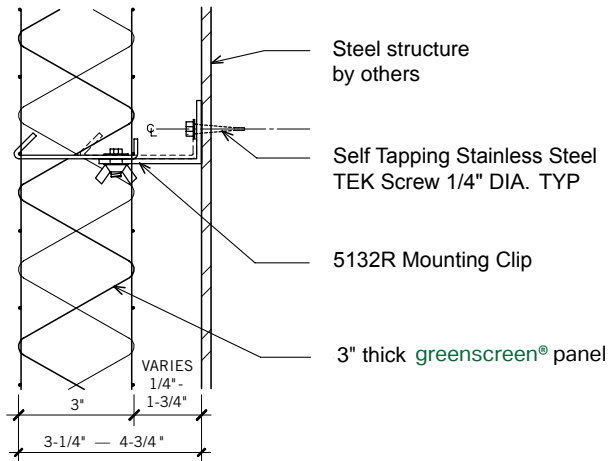
Parking Structure Green Facade Details

• "L" & "T" Support Steel

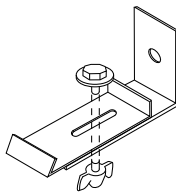


5132R ADJUSTABLE CLIP

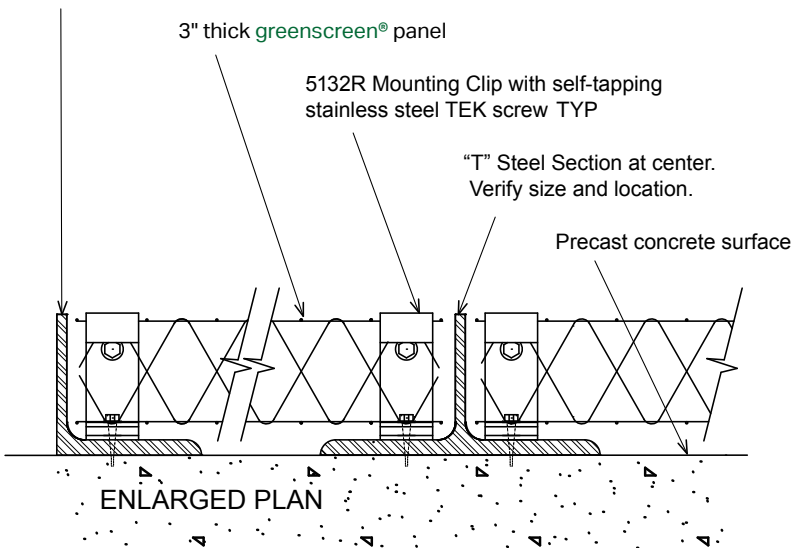
The 5132R adjustable clip provides panel support for both download and uplift. The clip can mount to wall surfaces or to a steel frame. The sled with slot allows for panel adjustment and ease of installation.



SECTION



“L” Steel Section at outside edges. Verify size and location.



NOTES:

- 4' wide greenscreen® panels mounted horizontally to steel “L” and “T” sections.
- 5132R used for attachment to steel support structure.
- Steel “L” and “T” sections are sized, provided and installed by others.



Memorial City Mall, Houston, TX





Houston Memorial Hospital Houston, TX

Tall sections of **greenscreen®** panels mounted to "T" and "L" steel (by others) with Star Jasmine at the parking structure adjacent to the hospital.

*Hardiness Zone 9a / Installed 2002
Star / Confederate Jasmine
All Photos from April 2011*



August 2009



April 2011

Memorial Mall

Houston, TX

Large, modular, wall mounted sections provide a landscaped transition from parking to the retail core. Square columns of greenscreen® mounted to structural steel (by others) wrap concrete supports for the covered walkway that provides safe access over a busy street from the multi-story parking structure.

Hardiness Zone 5b / Installed 2008
Star / Confederate Jasmine



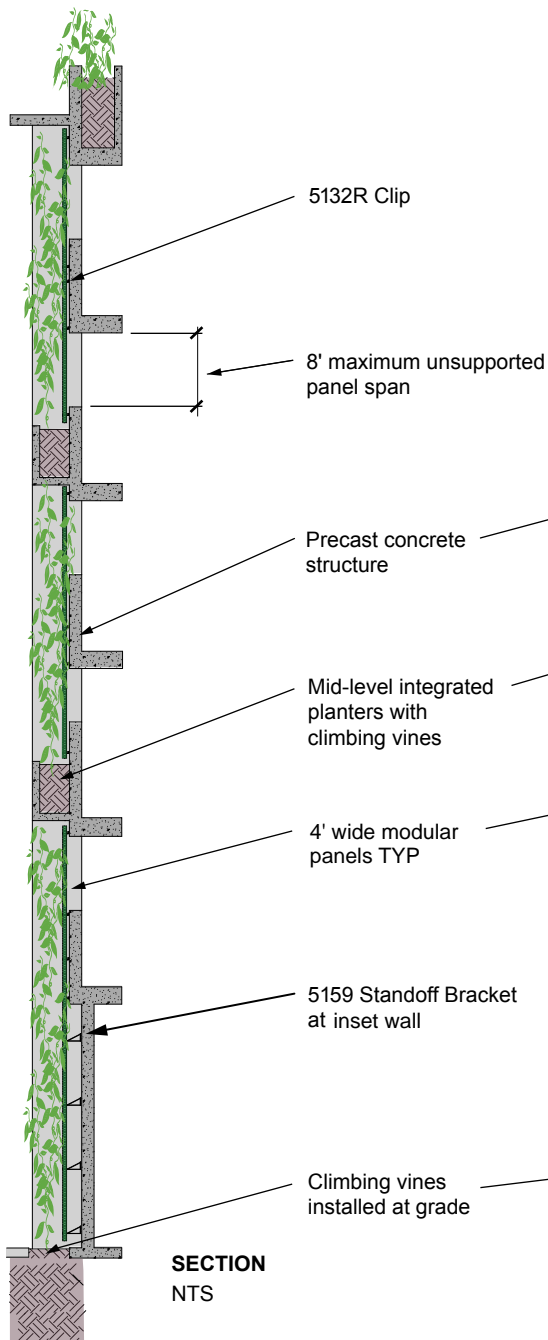
April 2011

Parking Structure Green Facade Details

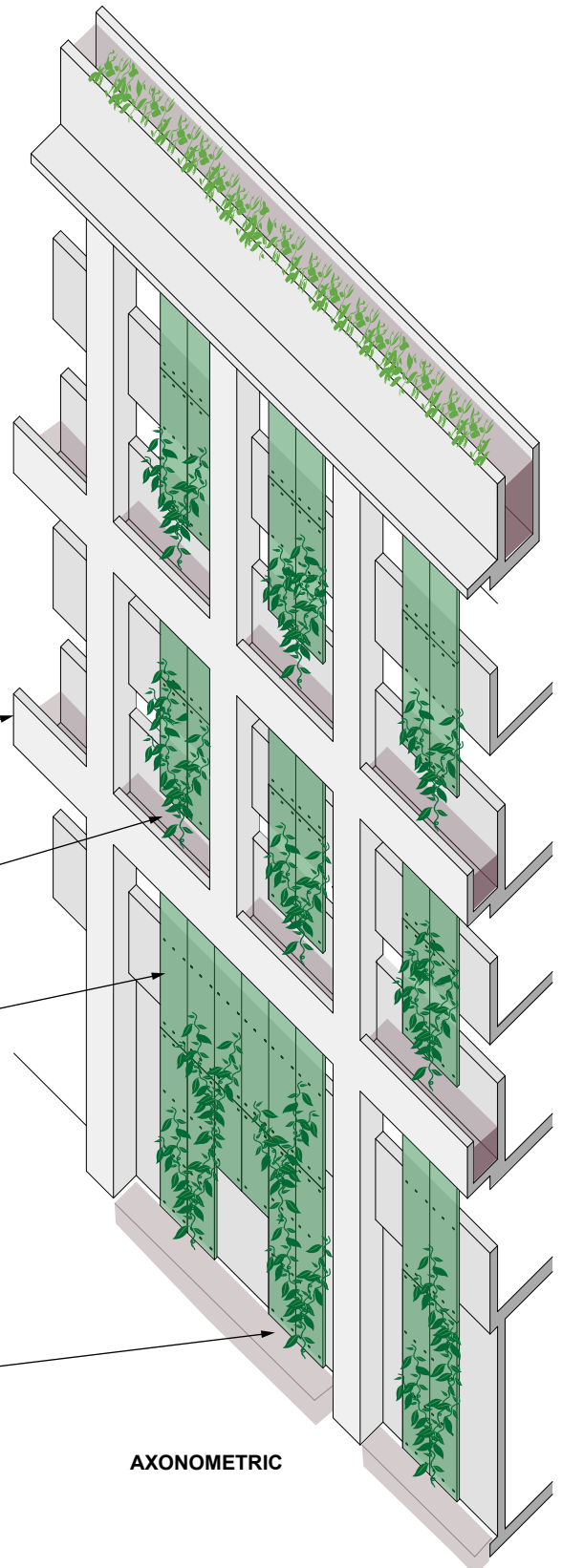
- Integrated Precast Planters



ELEVATION



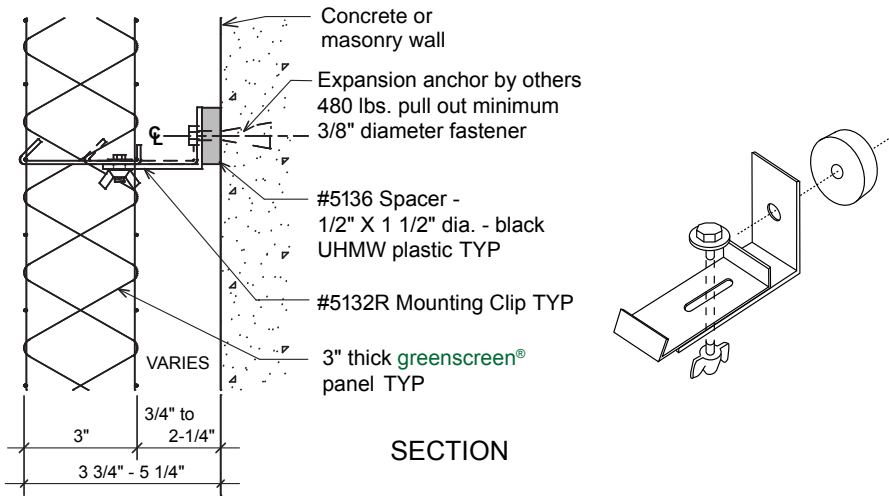
SECTION
NTS



AXONOMETRIC

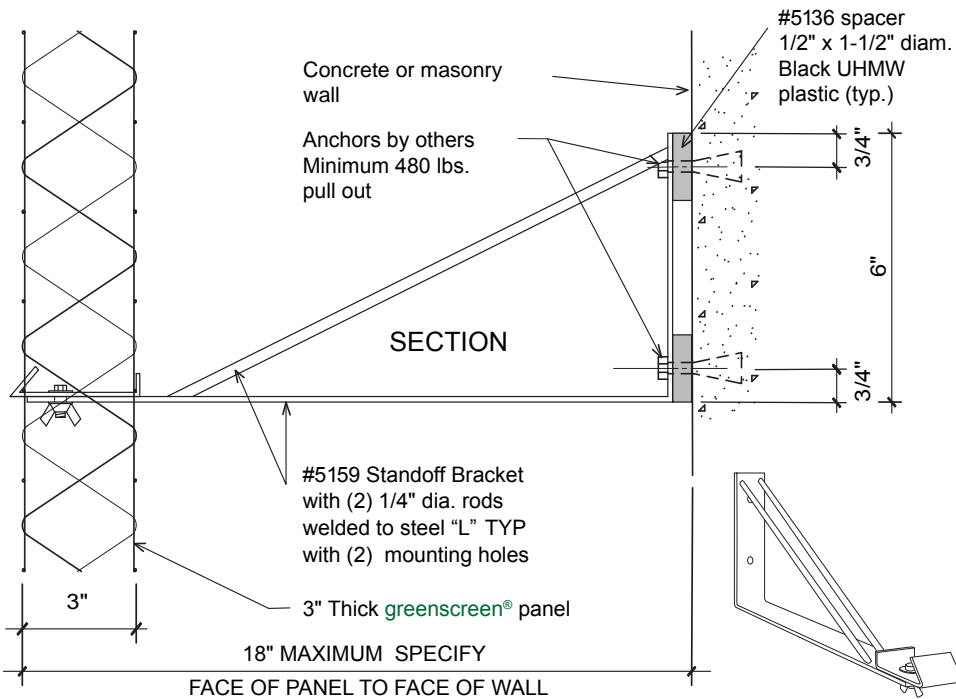
5132R ADJUSTABLE CLIP

The 5132R adjustable clip provides panel support for both download and uplift. The clip can mount to wall surfaces or to a steel frame. The sled with slot allows for panel adjustment and ease of installation.



5159 STANDOFF BRACKET

The greenscreen® 5159 bracket extends off of the wall or mounting surface when conditions require added space. The bracket provides panel support for both download and uplift. The bracket can mount to wall surfaces or to a steel frame. The sled with slot allows for panel adjustment and ease of installation. Wall/post attachment sized for (2) 3/8" diameter fasteners.



Seminole Casino Coconut Creek, FL

NOTES:

- 4' wide greenscreen® panels mounted to precast.
- 5132R or 5159 Standoff Bracket used for attachment to concrete structure.
- Two different Mounting Clips accommodate the varied mounting surface





September 2006

U.S. Census Bureau HQ Suitland, MD

greenscreen® panels with structural steel (by others) are used to create green facades for two large GSA parking structures.

*Hardiness Zone 7a / Installed 2006
Virginia Creeper*



June 2008



3rd Street Parking Structure
Beverly Hills, CA

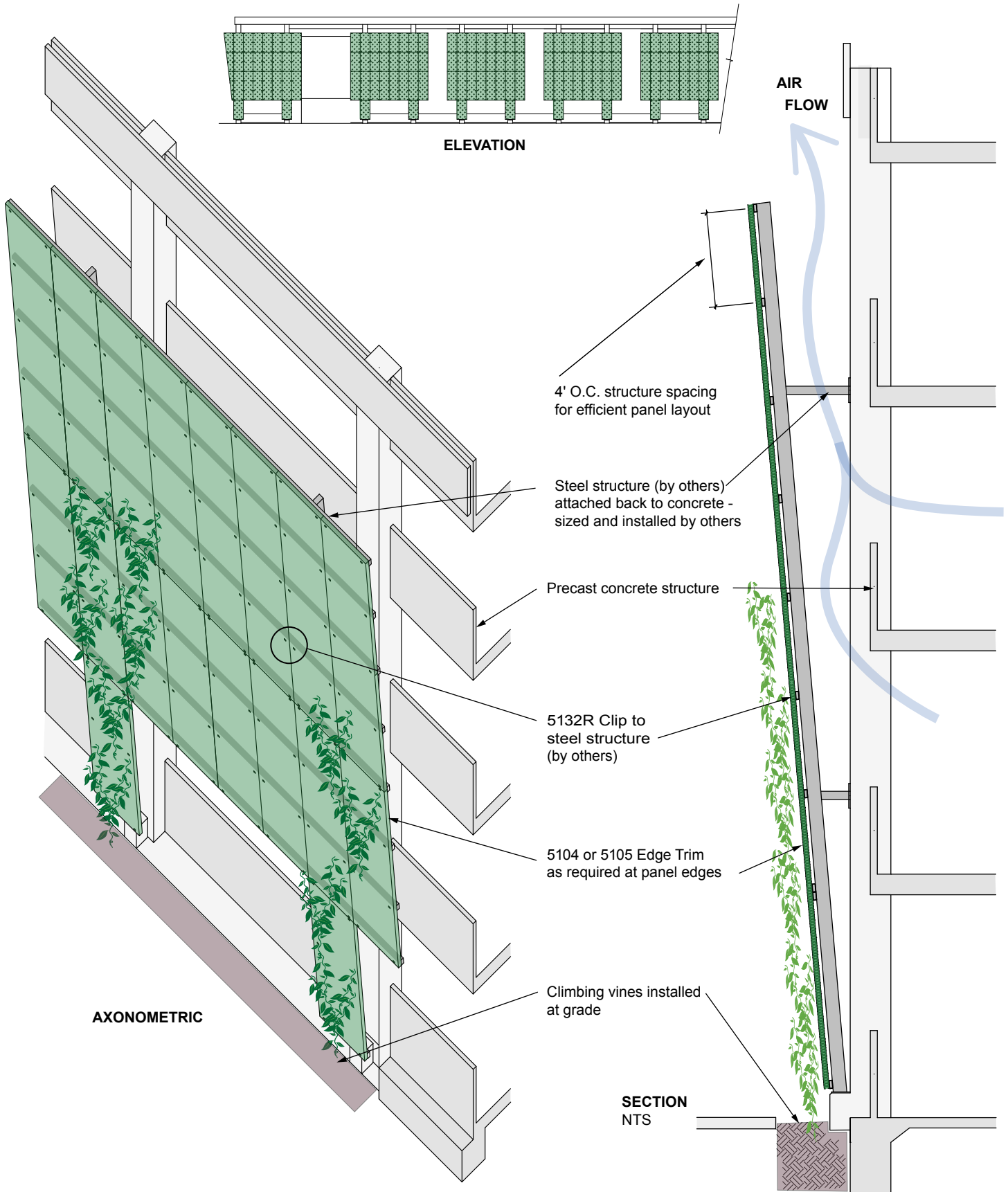
Precast planters integrated into the façade and planted with a mix of Bougainvillea and Jasmine.

Installed 2008



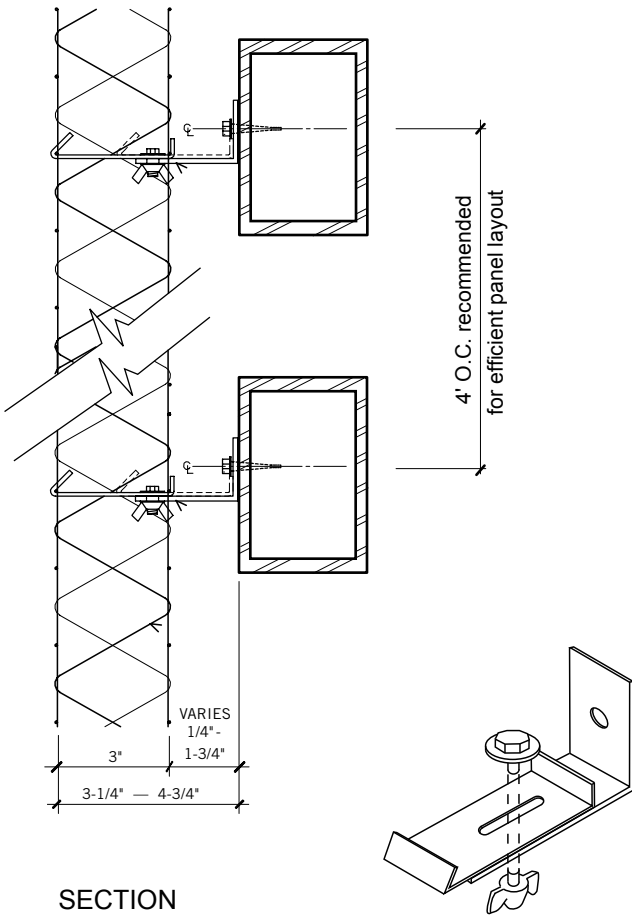
Green Facade Parking Structure Details

- Steel Structure Attached to Precast



5132R ADJUSTABLE CLIP

The 5132R adjustable clip provides panel support for both download and uplift. The clip can mount to wall surfaces or to a steel frame. The sled with slot allows for panel adjustment and ease of installation.



California State University, Fullerton, CA

NOTES:

- 4' wide greenscreen® panels mounted to structure by others.
- 5132R mounting clip used for attachment to steel structure.
- Steel support structure sized, provided and installed by others.
- Horizontal steel supports placed at 4' O.C. to work efficiently with modular panels.





November 2011



November 2011

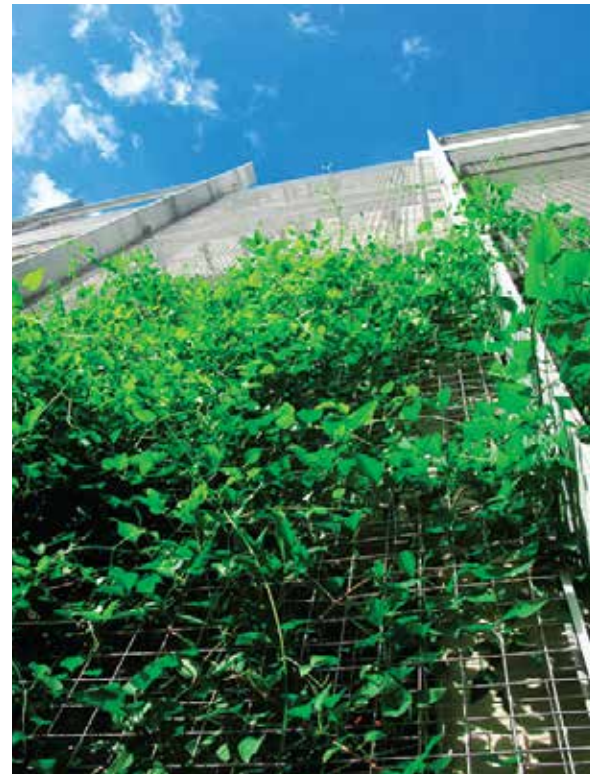
RTD Lightrail Jeffco Station Golden, CO

Light weight greenscreen® panels attach to a steel frame (by others) with adjustable clips on a three story park and ride for a light rail station.

*Hardiness Zone 5b / Installed 2011
Virginia Creeper (Parthenocissus quinquefolia)*



October 2014



Staten Island Courthouse Parking

Staten Island, NY

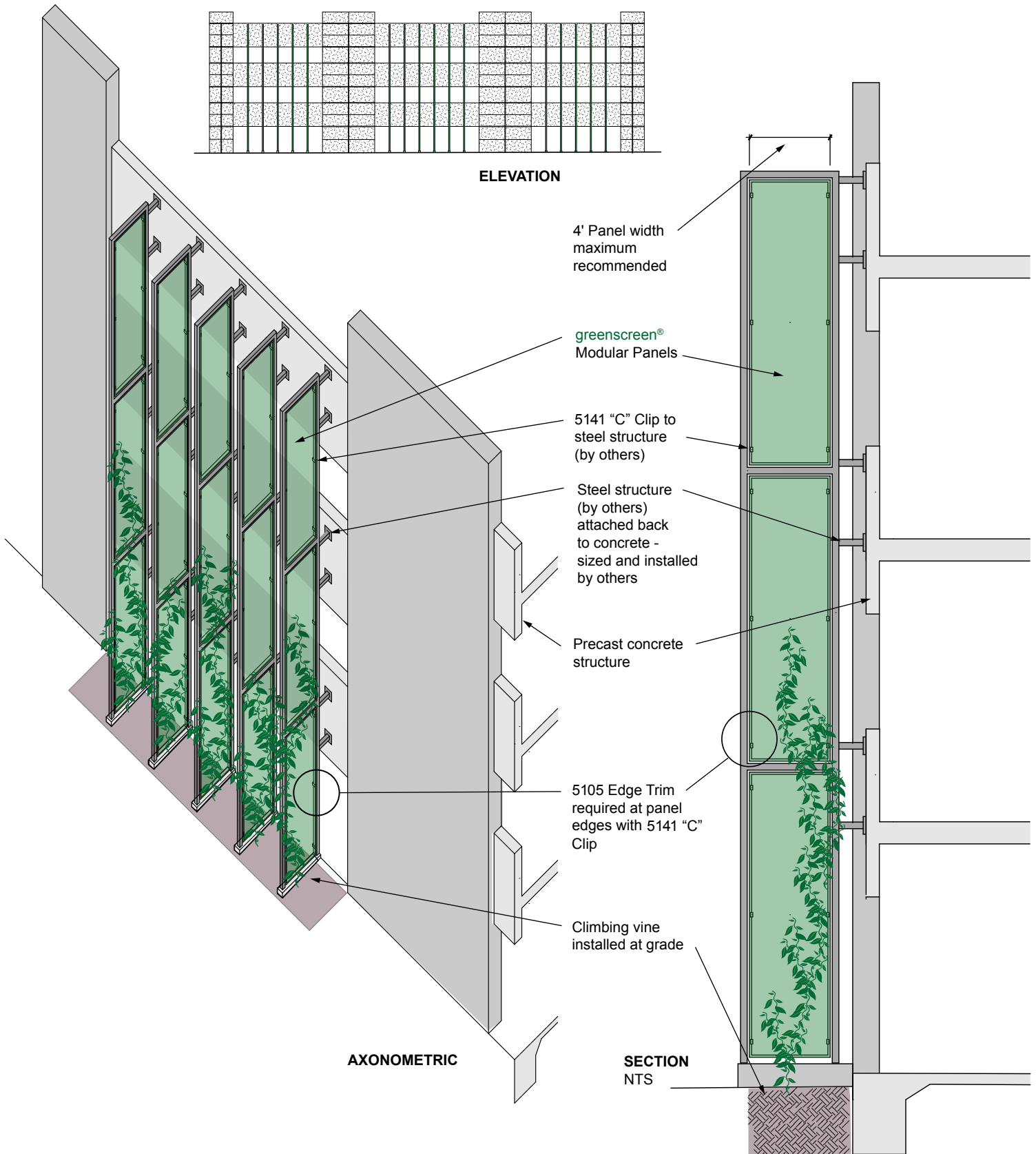
An overlapping rhythm of greenscreen® panels alternately mount to vertical steel supports (by others) and span wall openings on this large scale public parking structure.

*Hardiness Zone 7a / Installed 2010
All Photos from September 2010*



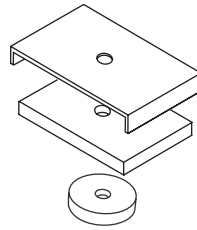
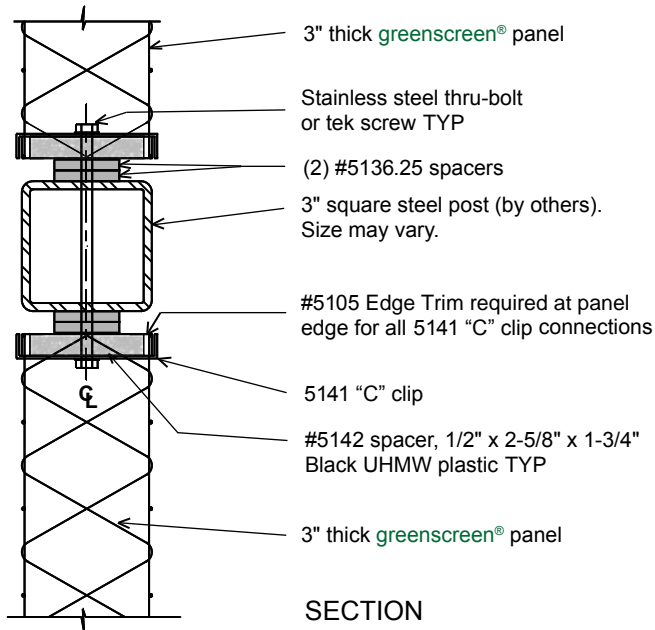
Parking Structure Green Facade Details

• Steel Fins Structure Attached to Precast



5141 "C" Clip

The greenscreen® "C" Clip can be used to mount to a concrete wall, slab, or steel frame at a head, jamb, or sill condition. This clip is always used with #5105 edge trim.



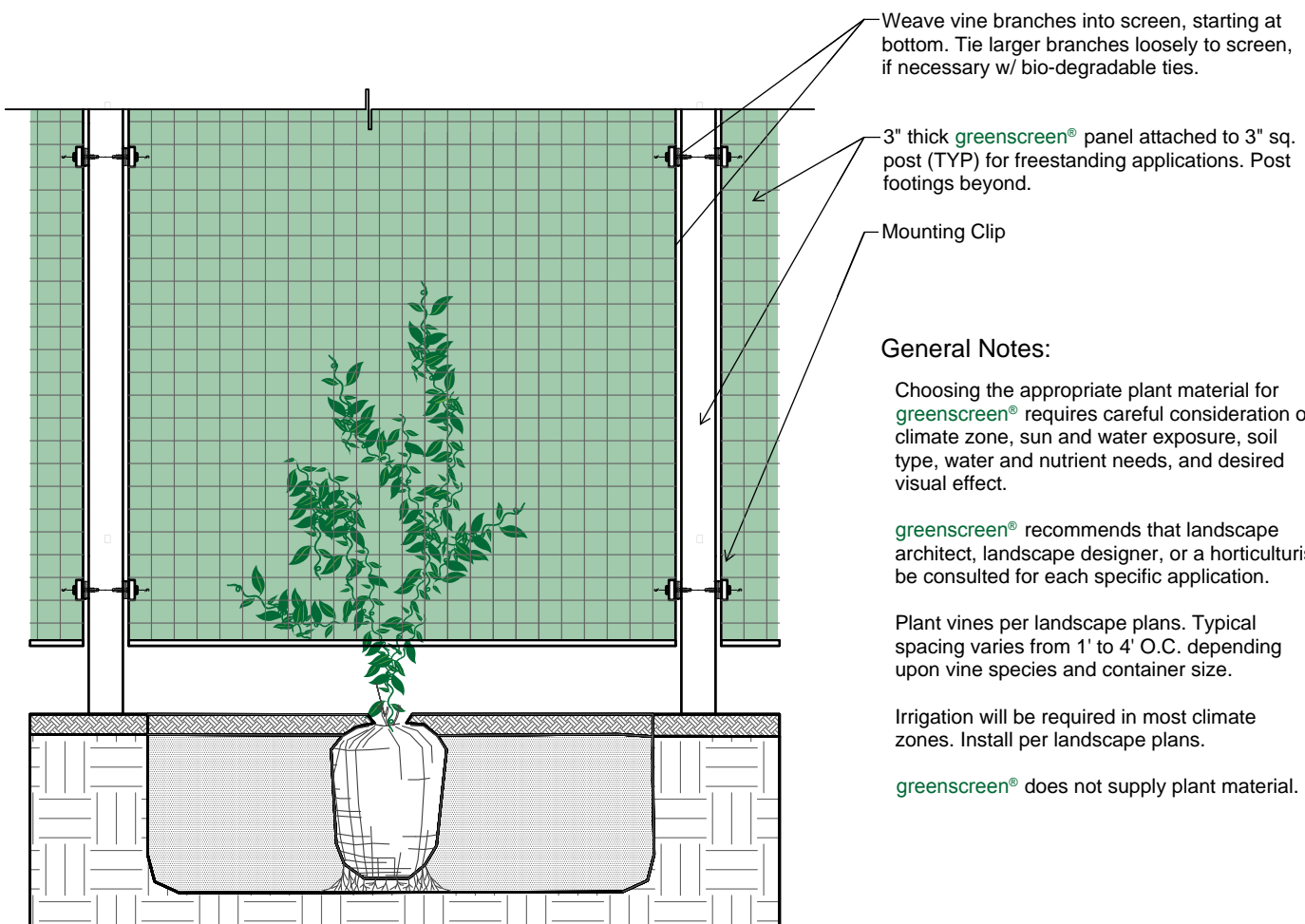
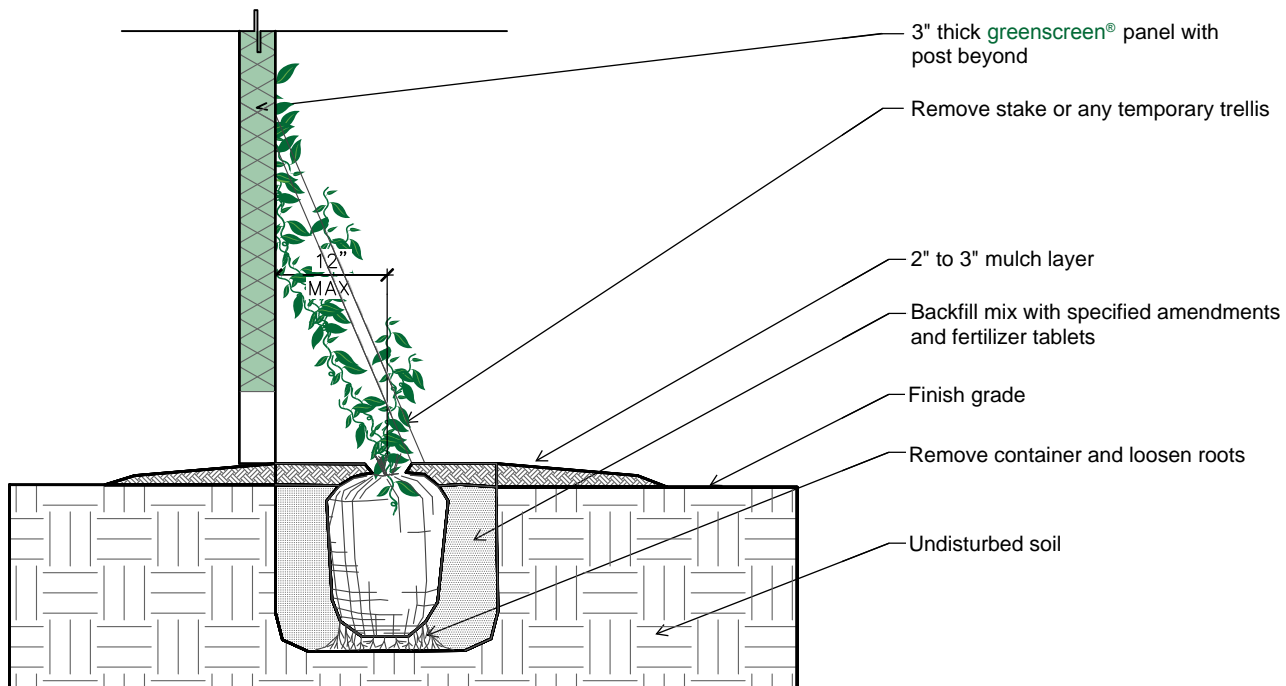
Arizona State University Parking, Tempe, AZ

NOTES:

- Modular greenscreen® panels mounted to structure by others.
- 5141 "C" Clip used for attachment to steel structure.
- Steel support structure sized, provided and installed by others.
- 5105 Edge Trim used with "C" Clip typical.
- Allows for maximum airflow.



Vine Planting Detail





*Rockville Town Square
Rockville, MD
Clematis Vine*

greenscreen® used as security screen.
No attachment to precast required.



greenscreen®

greenscreen® Green Parking Council Green Garage Certification Standard (6.1.2014) Credit Contributions

greenscreen® believes that it is important to identify and promote key initiatives that will help bring about awareness of sustainable design, green infrastructure and policy development related to green facades. To this extent, greenscreen® has been proactive in its support and participation in projects that utilize third party verified sustainability certifications such as the USGBC LEED v4 BD+C New Construction Rating System (November, 2014) and the Sustainable Sites Initiative SITES® v2 (2015). To help promote green facade inclusion in these programs, greenscreen® provides two resources for green building design disciplines:

- greenscreen® LEED v4 Applications and Credits Response
- greenscreen® Sustainable Sites Initiative™ Credit Contributions

Both of these documents are available for download on the greenscreen® website. Other important sustainability initiatives that we have undertaken and completed include the first green facade product Health Product Declaration (HPD) and third party verified, ISO Compliant, Life Cycle Assessment (LCA) model and report.

In addition to these certifications, greenscreen® recognizes and supports the potential of the Green Garage Certification Standard as a sustainable construction and management benchmark for the parking structure vertical market. The incorporation of green facades onto parking structures have proven to be successful.

The greenscreen® modular green facade/green wall trellis system is designed to be an adaptable design component that can contribute to solving multiple sustainable program requirements, such as improving energy efficiency, reducing urban heat island effects, increasing outdoor water use efficiency and restoring native vegetation to constructed sites. The following is a list of possible credit contributions of green facade technology to the standard and is presented to initiate discussion:

Section A: Management

- Measure 5 Sustainable Purchasing Program
- Measure 10 Construction Waste Management
- Measure 11 Regional Materials for New Construction, Rehabilitation and Retrofit
- Measure 13 Reused, Repurposed or Recycled Materials
- Measure 16 Life Cycle Assessment

Section B: Programs

- Measure 1 Placemaking

Section C: Technology & Structure Design

- Measure 3 No/Low VOC Products
- Measure 7 Ventilation Systems
- Measure 10 Stormwater Management
- Measure 11 Rainwater Harvesting
- Measure 12 Greywater Reuse
- Measure 14 Water Efficient Landscaping
- Measure 15 Roofing Systems

Section D:

- Measure 1 Innovative Approach



2012

Issaquah Transit Center - Issaquah, WA
greenscreen® encloses a stairwell.
Structural steel supports by others.

