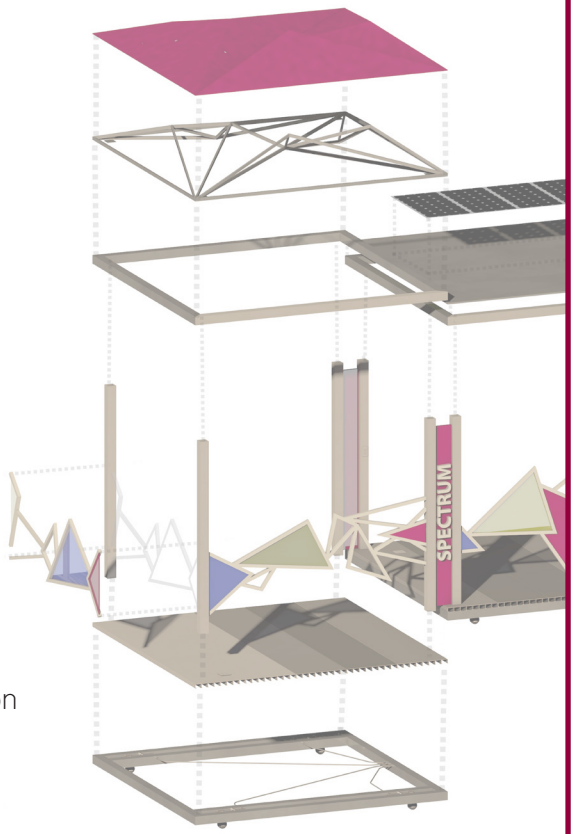


Activating the Urban Streetscape

SPECTRUM

PROJECT: Demountable Modular Outdoor Office Structure

LOCATION: Ellsworth Drive, Silver Spring, Maryland

CATEGORY: Community College – Competition, Design Project

SYNOPSIS: The Peterson Companies, clients for the design competition, asked each design team to synthesize a solution that creates an alternative environment for office clientele in Downtown Silver Spring. The space must be a demountable unit that can be transported from a nearby storage location daily. Other requirements by the client included an estimated budget under $100,000 and size requirement that would allow emergency vehicles to drive along Ellsworth Drive. We sought to design an outdoor working environment that would inspire those who utilize it while activating the urban streetscape of downtown Silver Spring. The architecture will provide an alternative work space that sponsors a diverse, dynamic, and vibrant outdoor environment. Increased daylight and an informal setting promotes effective group communication to "synthesize" ideas for work and project solutions. Design development began with site analysis which included multiple visits to understand the diverse patron background and activity. We clarified the challenges we faced and began research regarding construction. The design developed from a complex-daily assembly in parts to pre-assembled units ready to connect and mount for daily usage. The project cost is estimated under the recommended budget including material, construction, and labor costs. Besides the structure itself, the units include adaptability to solar power charging stations, ADA compliant furnished space, and stock furniture to enhance the clients space. The initial program was broad in order to permit elaboration during design development as the clients vision evolved to promote a colorful and animated public node to activate Ellsworth. Our design approach engages a novel concept in working environments allowing the opportunity for office clientele to escape the cubicle.

DESIGN CHALLENGES

- simple transport and assembly
- protection from elements
- accessibility and safety
- appropriate public environment
- provision of essential services
- durable structure

PRIMARY GOAL

To synthesis a solution that creates an alternative working environment for office clientele in a public environment.

TRANSFORMATIVE

DESIGN OBJECTIVES

USABILITY:

Design an adaptive environment for office users as well as public patrons. Accommodates individual, peer, and group settings.

PRACTICALITY:

Produce a unit that makes daily transport and assembly manageable for the assigned workers.

VERSATILITY:

Create a multipurpose work environment for public patrons. Provisions for display, sponsorship, and exhibitions.

ACCESSIBILITY:

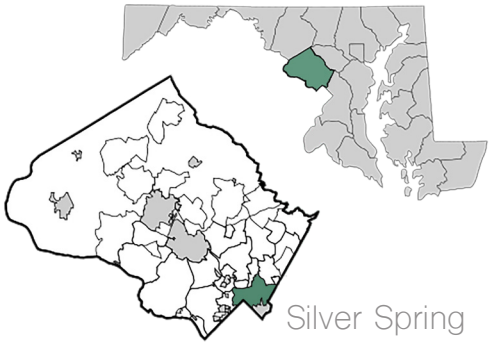
Provide ADA compliant solutions for space and furnishings.

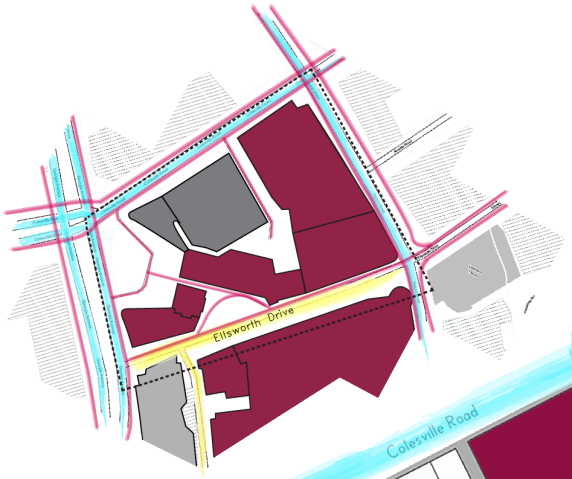
SIMPLICITY:

Design a sophisticated yet joyful outdoor office space.

SITE ANALYSIS

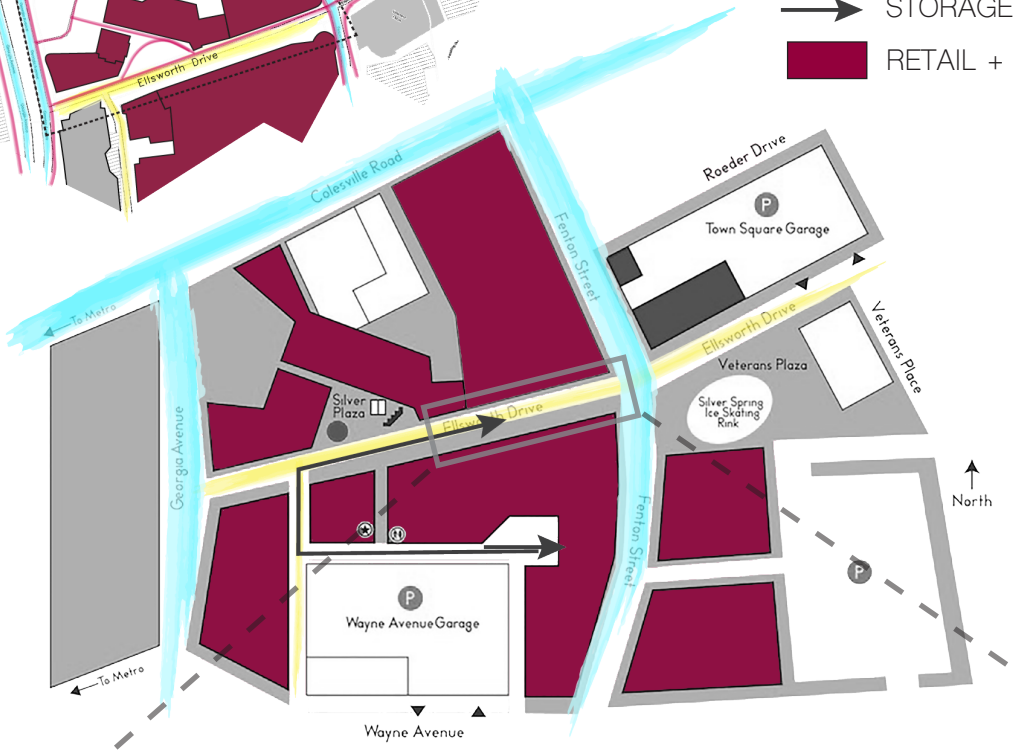
Maryland - Montgomery County



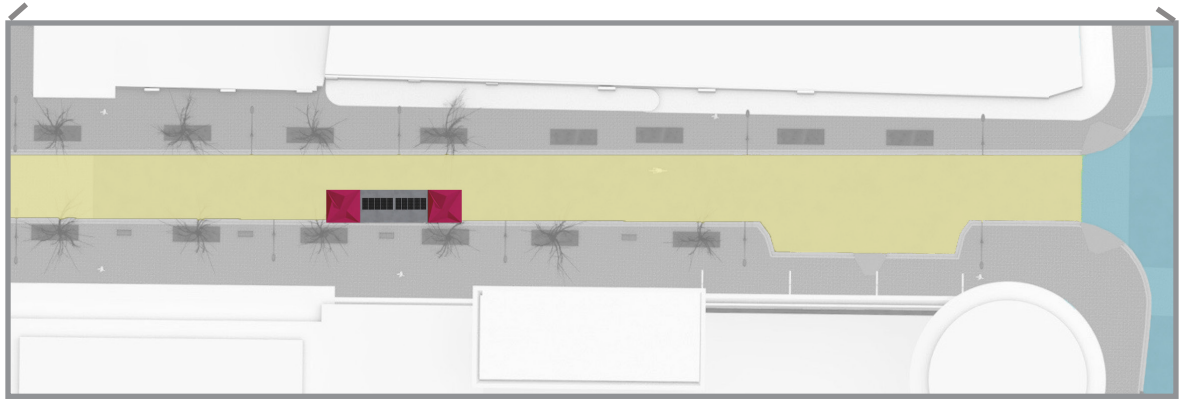


CIRCULATION DIAGRAM

- VEHICULAR PATH
- ELLSWORTH DRIVE
- PEDESTRIAN PATH
- STORAGE ROUTE
- RETAIL + DINING



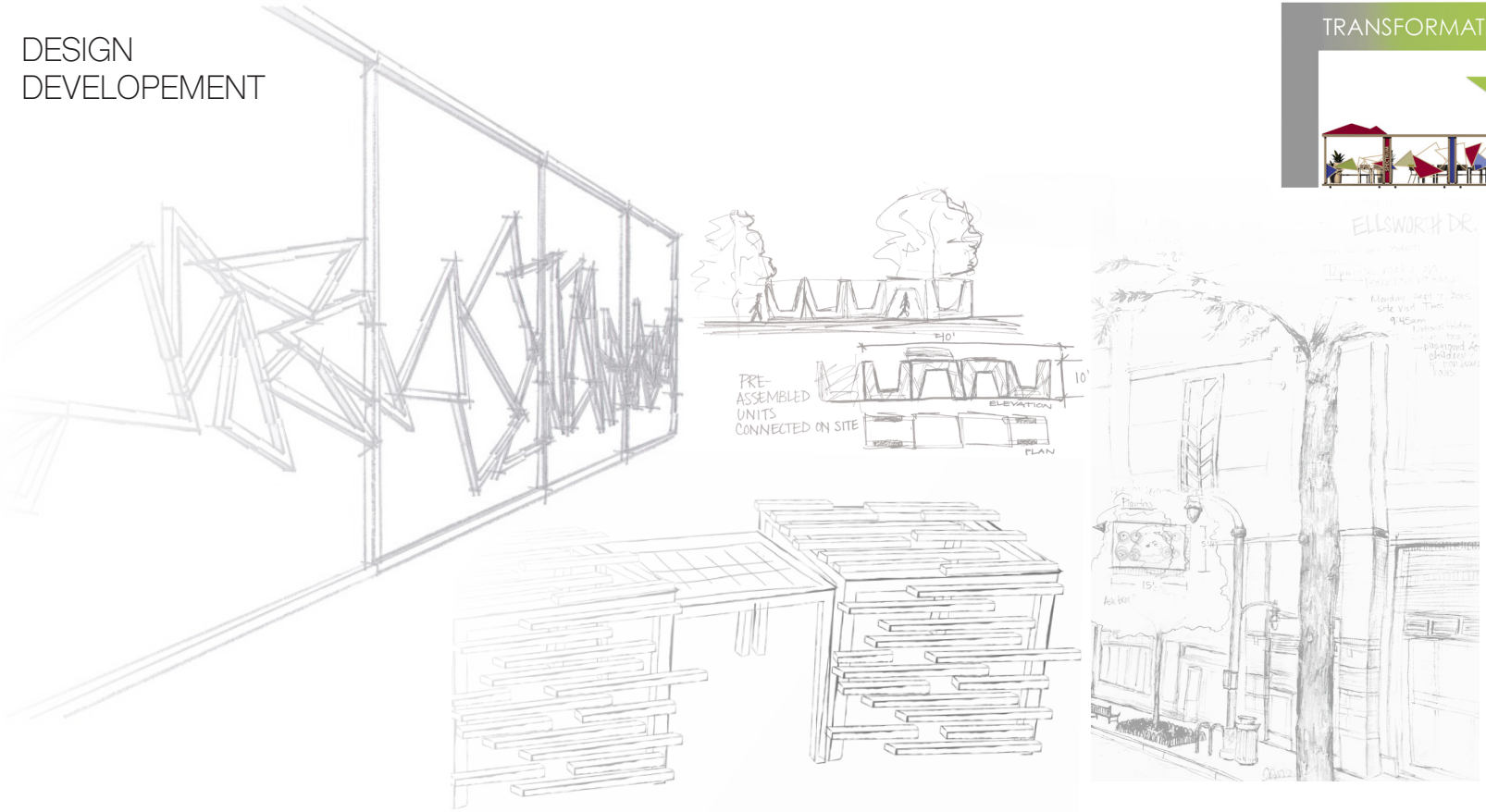
SPACE DIAGRAM



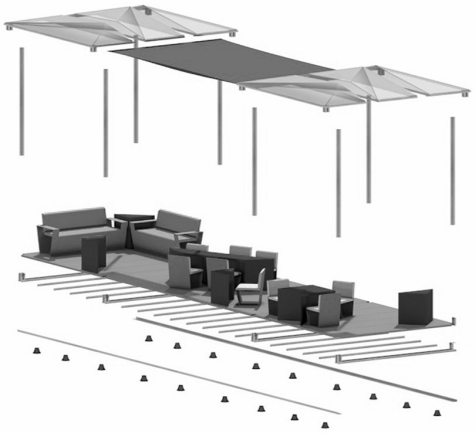
UNIT LOCATION:

- Adjacent to coffeeshop, retail, & restaurants to activate businesses downtown
- Increased circulation space to accommodate handicap patrons onto the raised unit (height of sidewalk)
- Placed between planters for efficient circulation int the unit's core and access electrial power within unit

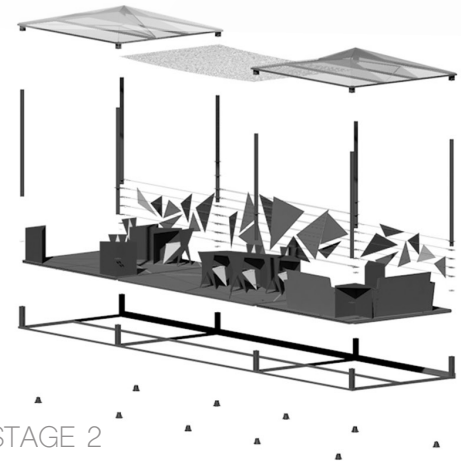
DESIGN DEVELOPEMENT



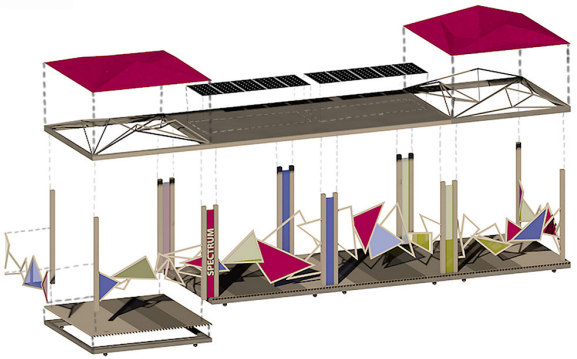
DESIGN DEVELOPS WITH CLIENT INPUT



STAGE 1



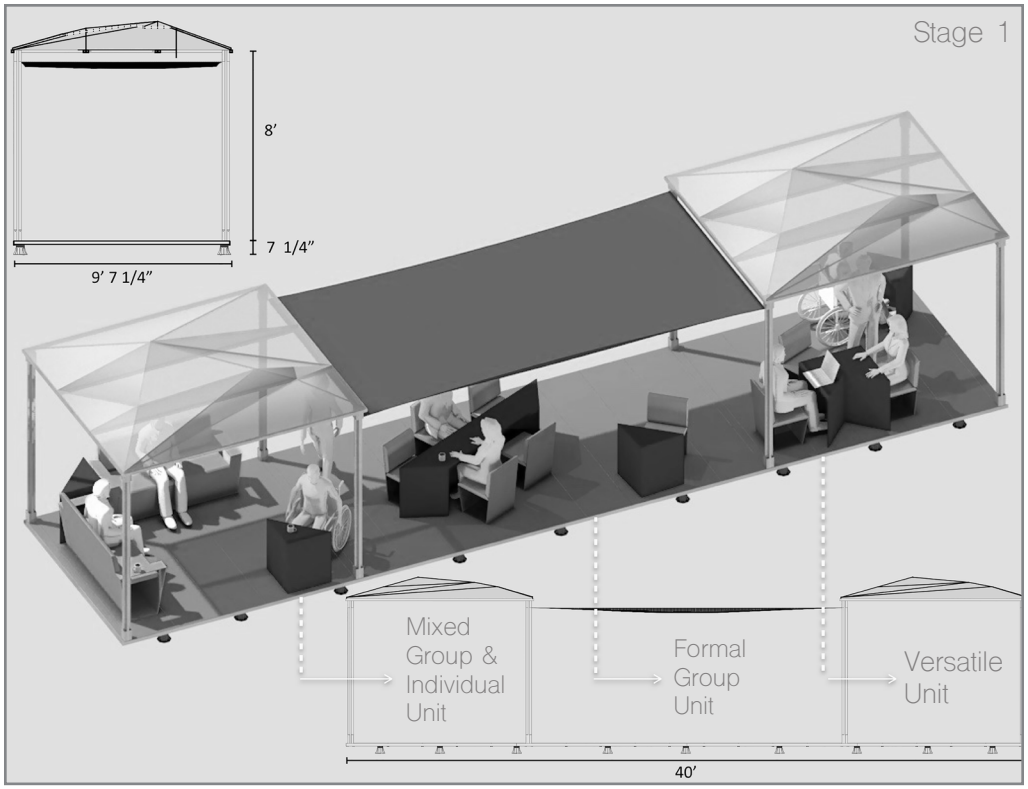
STAGE 2



STAGE 3

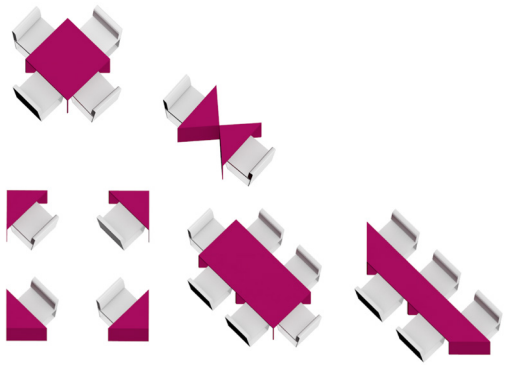
DESIGN CONSISTENCY

PROPOSED ZONING



FURNISHING ARRANGEMENT IMPACTING DESIGN

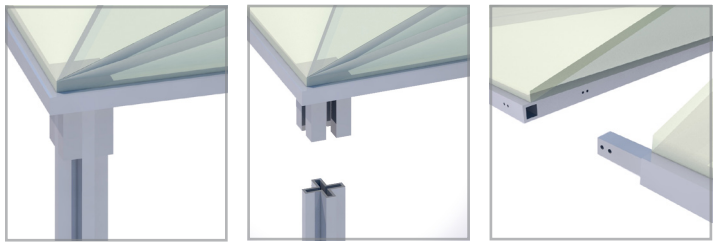
We designed modular chairs and tables that would provide a productive working environment and recall details of the structure. Modular makes for an adaptable working space and responds to the clients desire that the space be flexible and vibrant.



Stage One: "Kit of Parts" Assembly

Design Developement

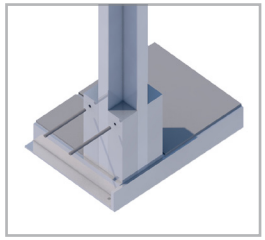
- Parts transported by truck from storage location
- Pedestals-Platform-Frame-Canopy
  - Screwjack pedestals placed on pre-marked site location
  - Floor platform "puzzle" assembly (series of beams)
  - Columns are mounted and pinned into bay system
  - Canopy shell and mesh assembled last prior to furnishing



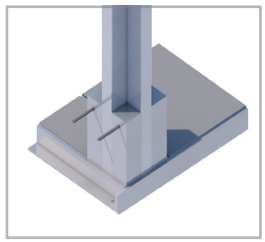
Canopy Connections

Collumns-to-Base
Pin Connection

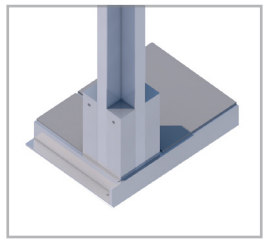
1



2



3



(2) Canopy Shell Systems
Three parts pinned together

(8) Custom Aluminum Columns
4" x 4" x 1/4" Wall

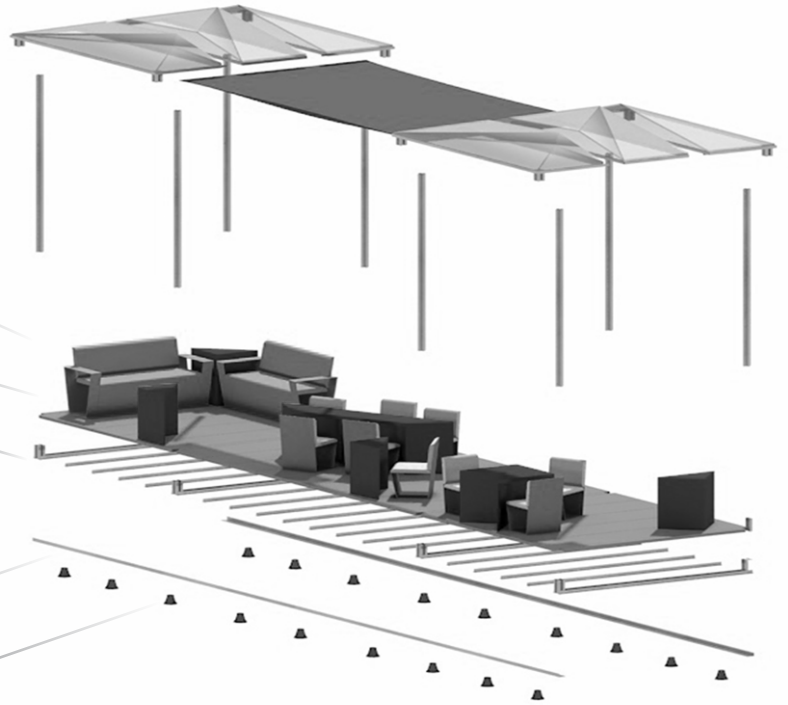
(23) Furniture Modules
(2) Sofa Modules
(9) Chair modules
(12) Table Modules

(23) Stress Skin Floor Panel
(16) Aluminum T-Beams
(4) Aluminum T-Beam Bay Units

(2) T-Beams Welded to
4"x4" Aluminum Plate wall
W/ Column Base Connection

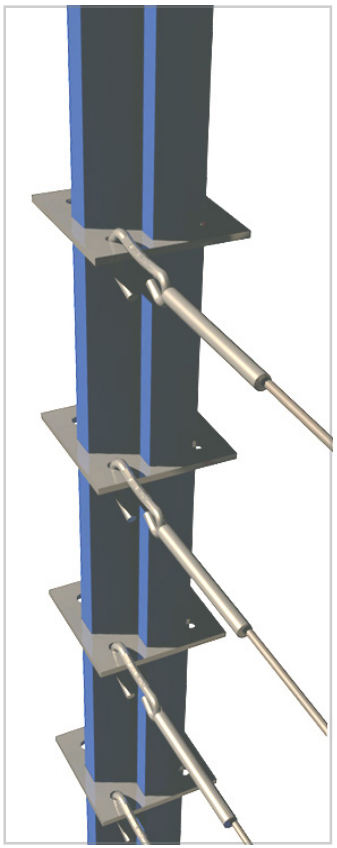
(8) Aluminum L-Beams
10' Span per beam

(18) Screw-jack Pedestals



Stage Two: Refined "Kit of Parts" Assembly

Design Developement

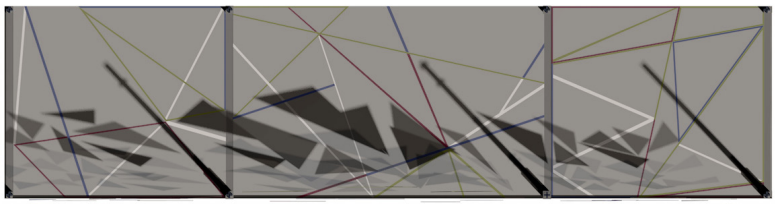


- Pre-fabricated part are transported by truck from storage location
- Pedestals-Floor Frame-Column-Canopy
  - Screwjack pedestals placed on pre-marked site location
  - Pre-fabricated platform "puzzle" assembly (series of beams welded)
  - Columns are mounted and pinned into bay system
  - Canopy shell and mesh assembled last prior to furnishing

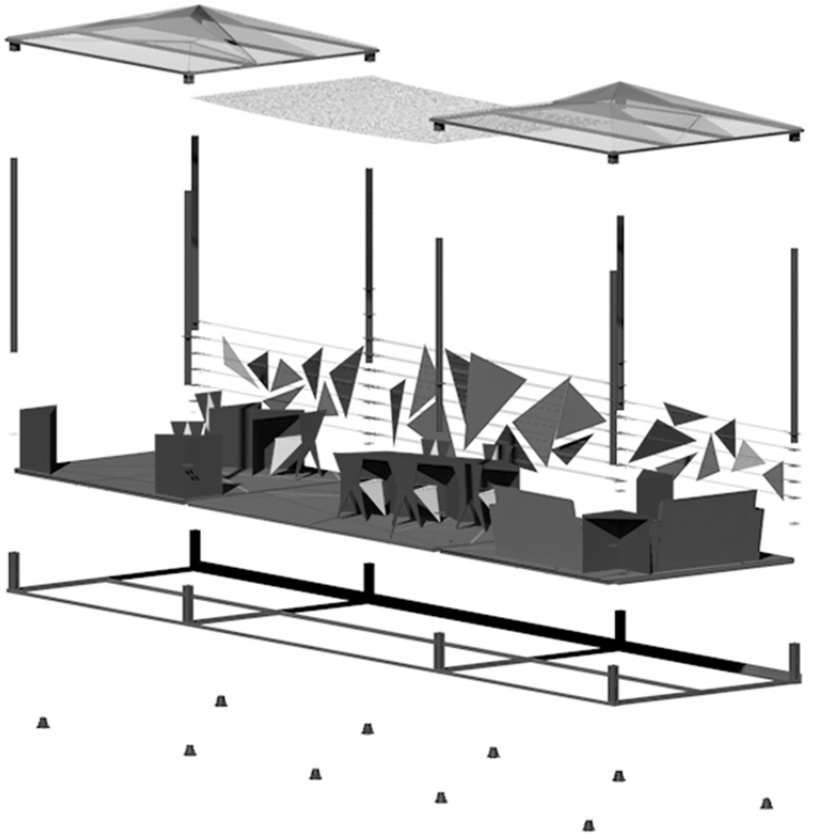
GENERAL CONSTRUCTION:

(2) Canopy System "Prisms"
Three Part Assembly
(1) UV Protective Mesh
(8) Custom "Mies" Aluminum Columns
(17) Coated Stainless Cables/Formed Hooks
(22) Furniture Modules
(34) Stress Skin Floor Panels
(4) Aluminum T-Beam Bay Units
(6) Aluminum L-Beams
(10) Screw-jack Pedestals

DESIGN ADAPTATION: PRIVACY SCREEN



LIGHT STUDY



Stage Three: Connecting Pre-Assembled Units

Design Developement

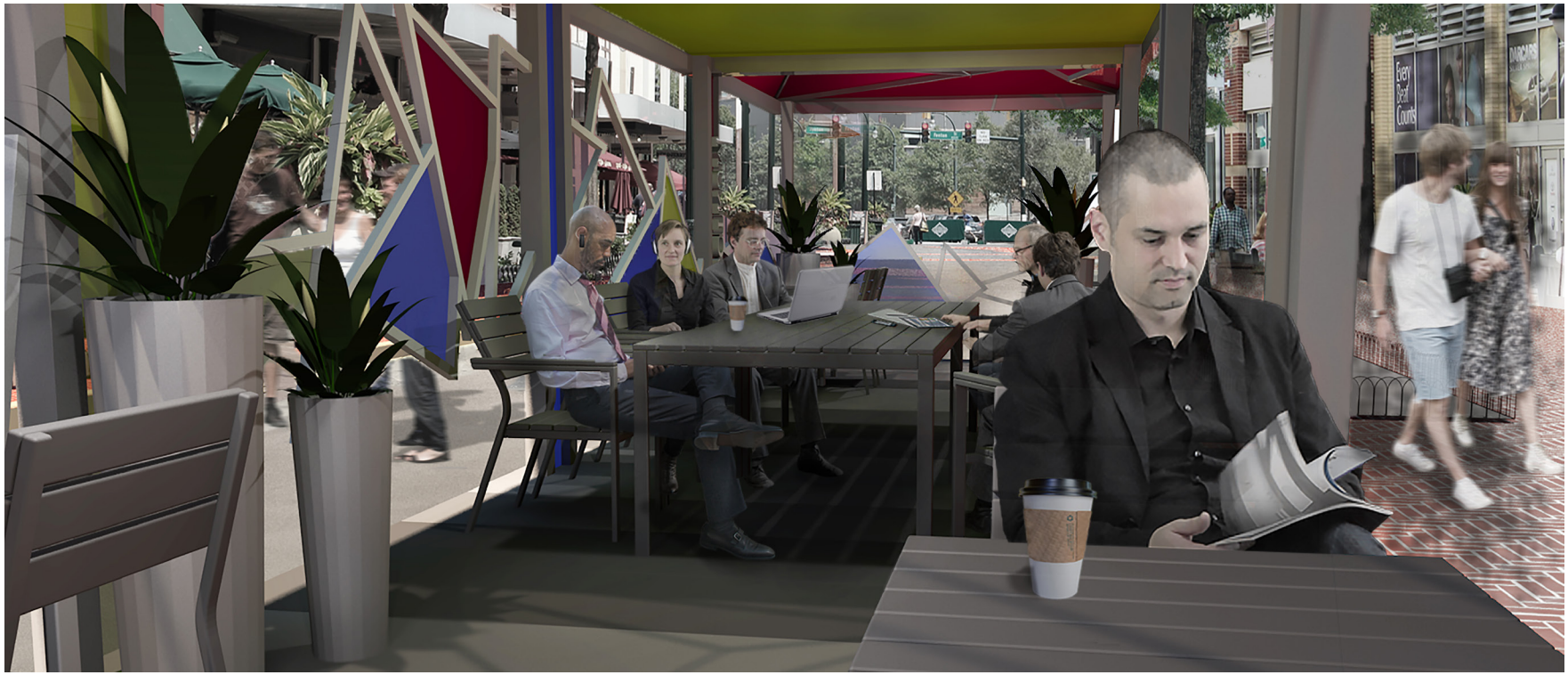
THE UNIT

A space that activates the street and embraces the office community in Downtown Silver Spring. Daylight illuminates the canopy, like a prism, shedding light on the array of color within the unit.

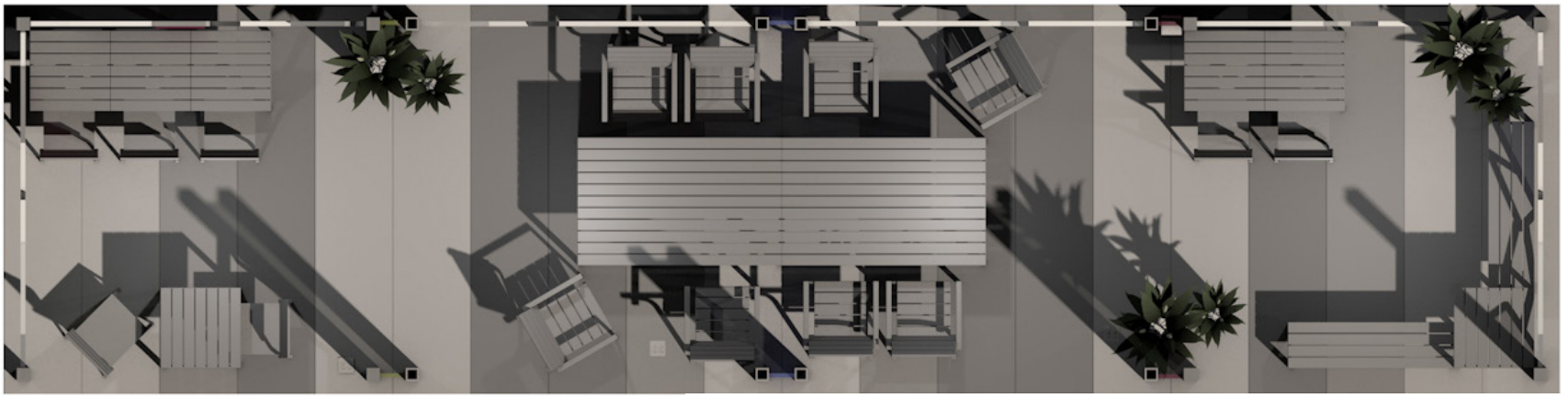
THE USERS

The architecture will provide an alternative work space that sponsors a diverse, dynamic, and vibrant outdoor environment. Increased daylight and opportunity for an alternative work setting provides effective group communication for the “synthesis ” of ideas efficiently.

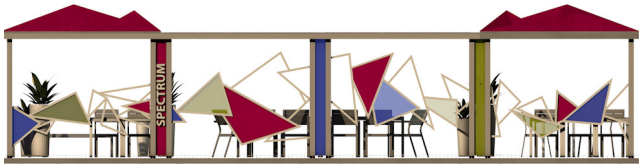
Light. Airy. Open. Colorful. Inviting. Comfortable.



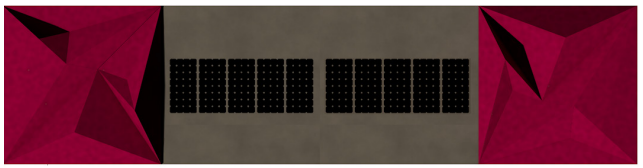
SECTIONAL FLOOR PLAN



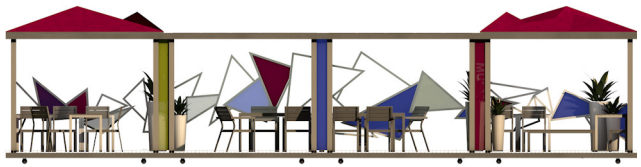
PROPOSED ZONING: remains consistant stage one except for designed modular furnishing to affordable stock furniture.



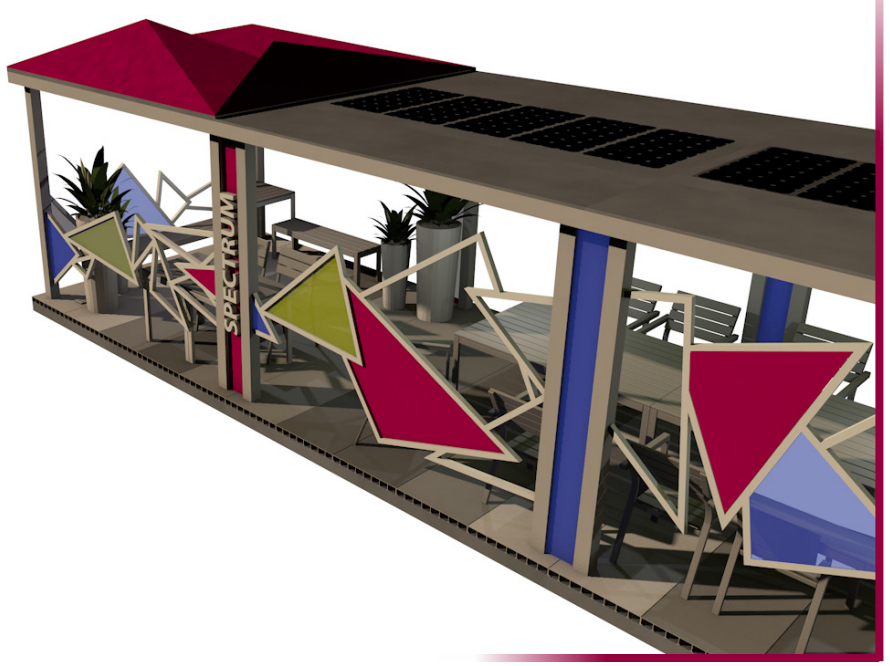
SOUTHEAST ELEVATION



ROOF PLAN



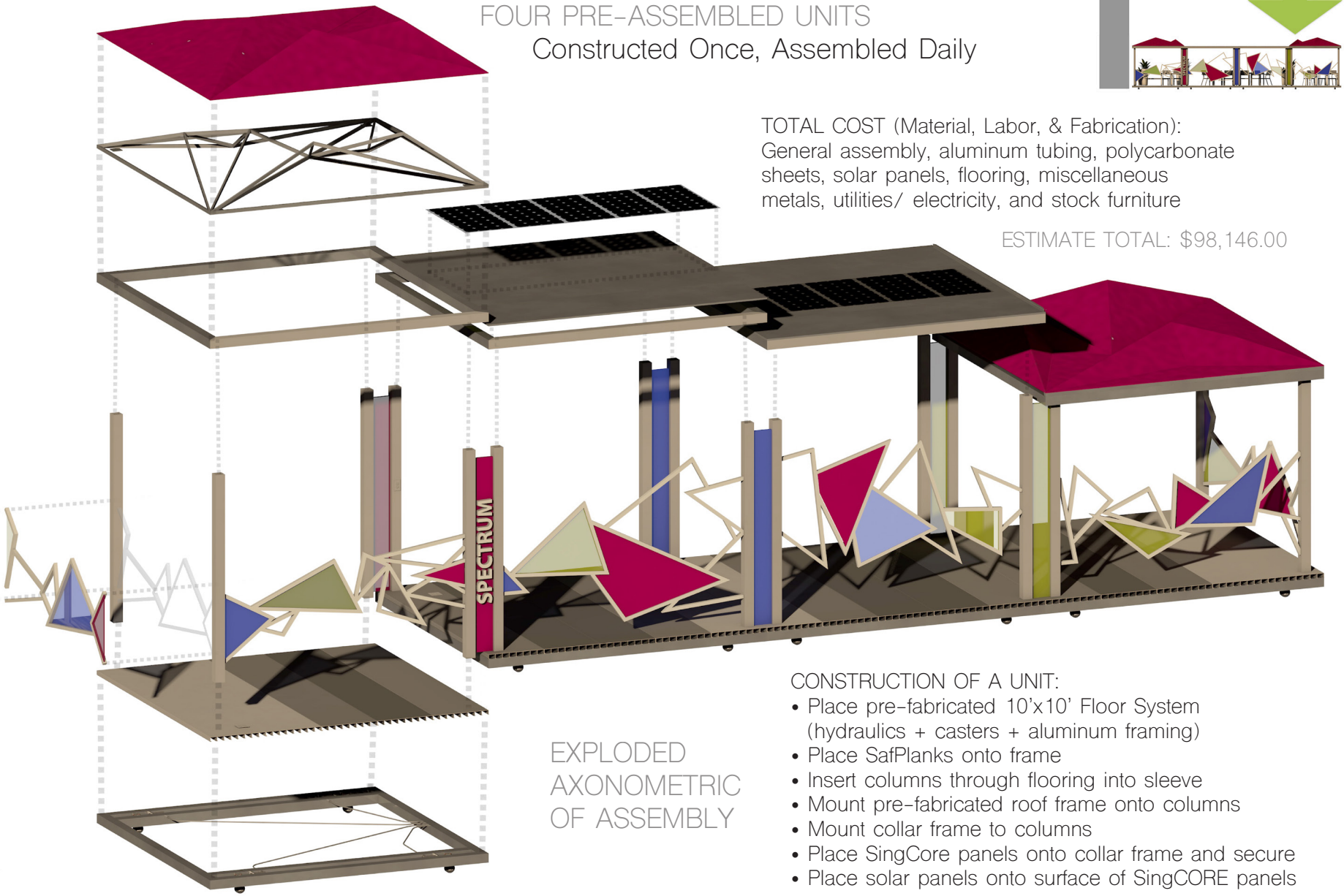
NORTHWEST ELEVATION



FOUR PRE-ASSEMBLED UNITS
Constructed Once, Assembled Daily

TOTAL COST (Material, Labor, & Fabrication):
General assembly, aluminum tubing, polycarbonate sheets, solar panels, flooring, miscellaneous metals, utilities/ electricity, and stock furniture

ESTIMATE TOTAL: $98,146.00



EXPLODED AXONOMETRIC OF ASSEMBLY

CONSTRUCTION OF A UNIT:
- Place pre-fabricated 10'x10' Floor System (hydraulics + casters + aluminum framing)
- Place SafPlanks onto frame
- Insert columns through flooring into sleeve
- Mount pre-fabricated roof frame onto columns
- Mount collar frame to columns
- Place SingCore panels onto collar frame and secure
- Place solar panels onto surface of SingCORE panels

DAILY ASSEMBLY: rolled from storage and mounted on site by controlled hyraulics on premarked pedestals

A NOVEL CONCEPT

Activating the urban streetscape in Downtown Silver Spring by engaging the office community.