



CAR BARN TRAINING CENTER

Concept Design

District of Columbia Department of Transportation
Car Barn Training Center
Streetcar Maintenance Facility

ZGF Architects / HDR Program Management Team

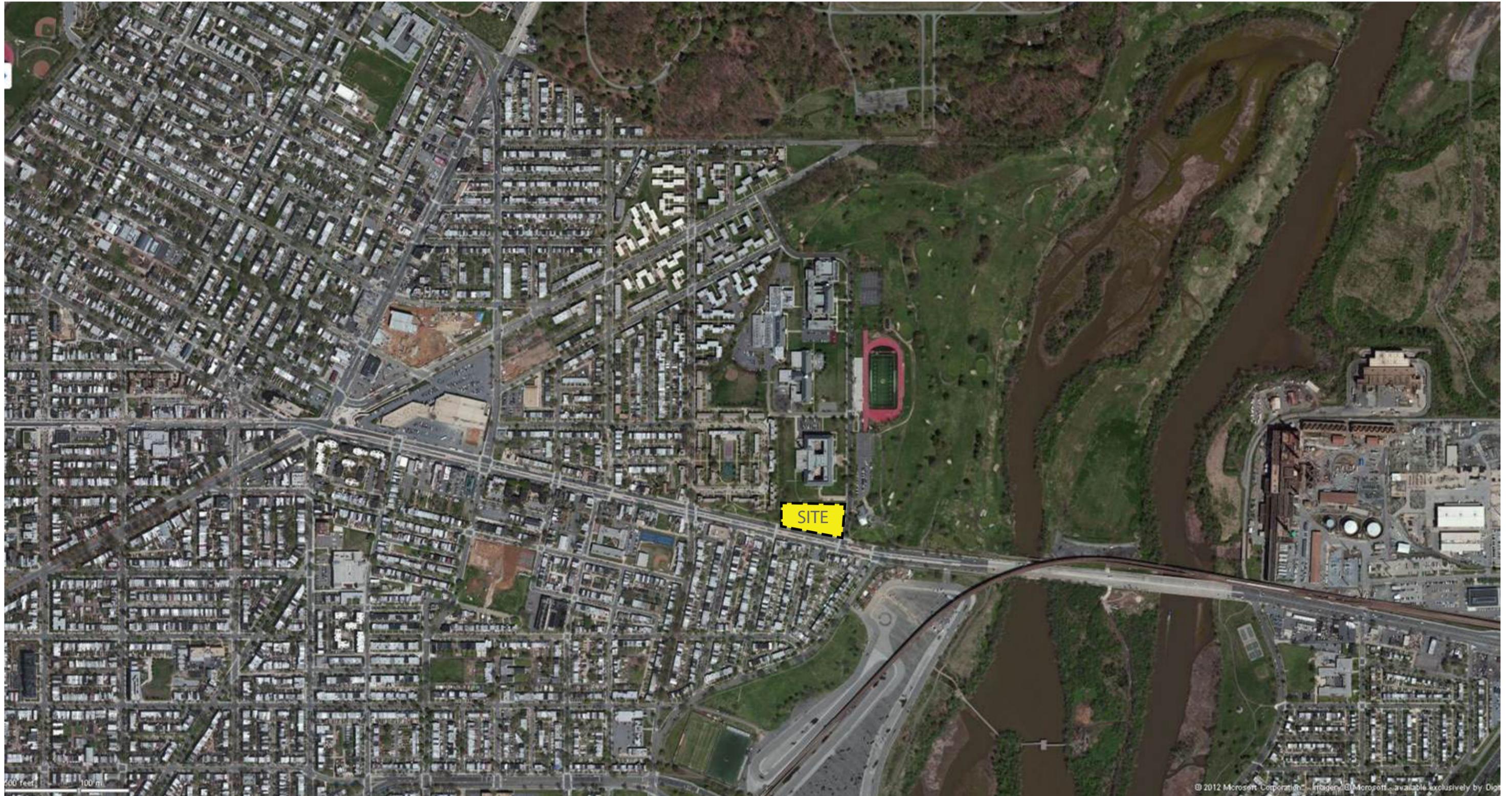
Submission to: U.S. Commission of Fine Arts
February 2013



CAR BARN TRAINING CENTER

Concept Design

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Car Barn System Design Guidelines (Draft Developed with DDOT, DCOP, SHPO, NCPC, CFA input)

Design of buildings for DC Streetcar System should be **sensitive to specific site context and in support of planning initiatives**:

Design of building should be of **highest aesthetic quality** and should promote a vision for **progressive, sustainable transportation and civic presence**.

Educational opportunities for the transit and building program should be considered in design of the site and building. This may include, but are not limited to: provision of exterior and interior public viewing areas, building transparency, efficient land use, reduction of parking.

Sustainable design features of **building and site** (energy, lighting, water management and landscape) should support a **healthy work environment**, be visible to the general public, and provide multiple benefits.

Safety and security considerations, including fencing and lighting, for both building operations and adjacent conditions should be integral to the design approach.

Public art should be integrated with site and building design.

Sensitive design of site infrastructure (such as OCS pole layout) is required.

CBTC Design Guidelines Spingarn Campus (Draft Developed with DDOT, DCOP, SHPO, NCPC, CFA input)

The **landscape / building relationship is a significant element of the campus**. The design of the building and site should consider this relationship and the design of the site, building and landscape to respect important views.

The architectural design of the building should be **complementary with the historic context**.

This does not necessarily require an historic architectural style - **compatibility** may be achieved with a **contemporary, sensitive and appropriate use of materials, scale and proportion**.



Design Issues - See C.F.A. and H.P.R.B. comments on page 6.

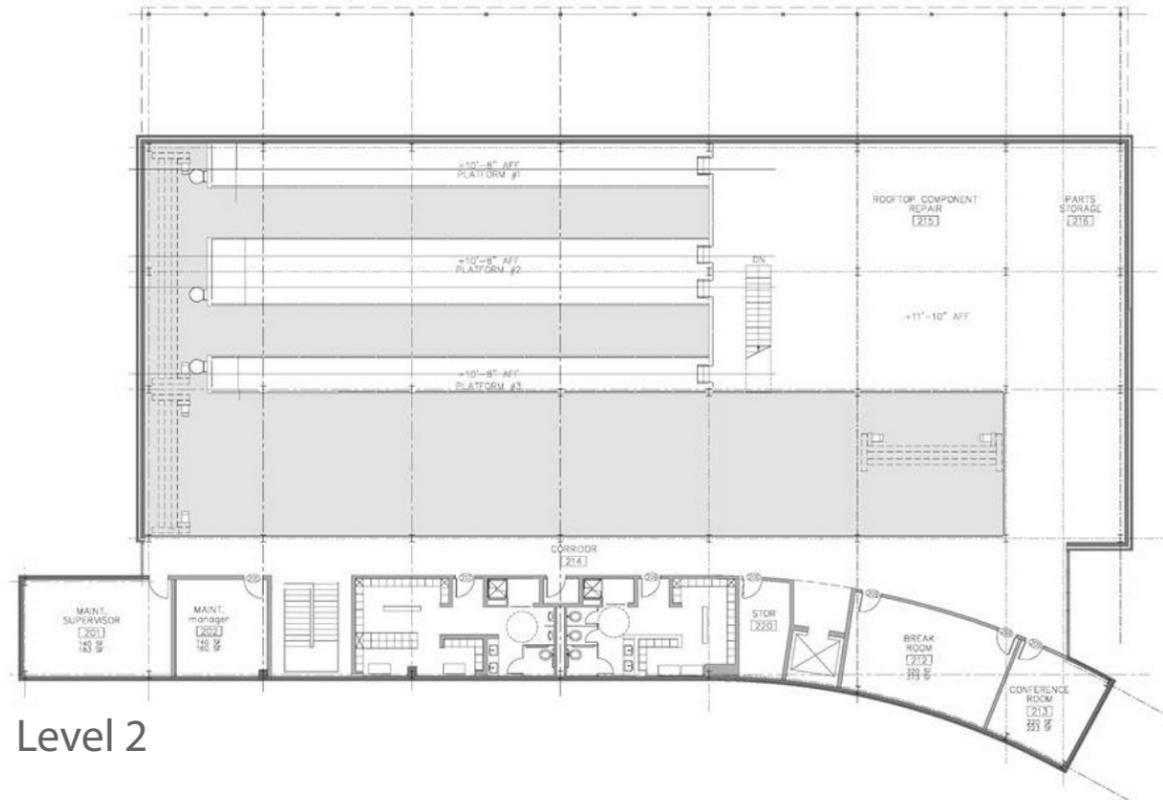
- Site development
- Landscape and site parking
- Architecture and massing
- Civic presence



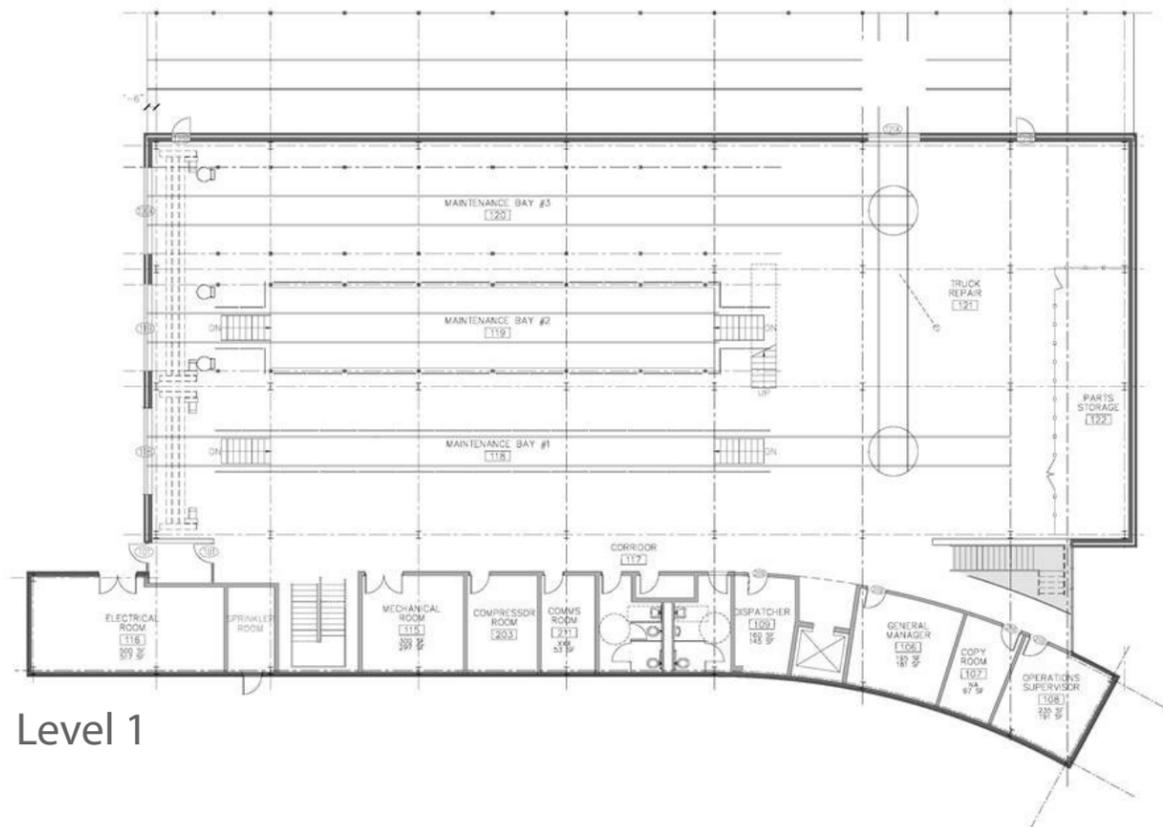
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C0.01

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION



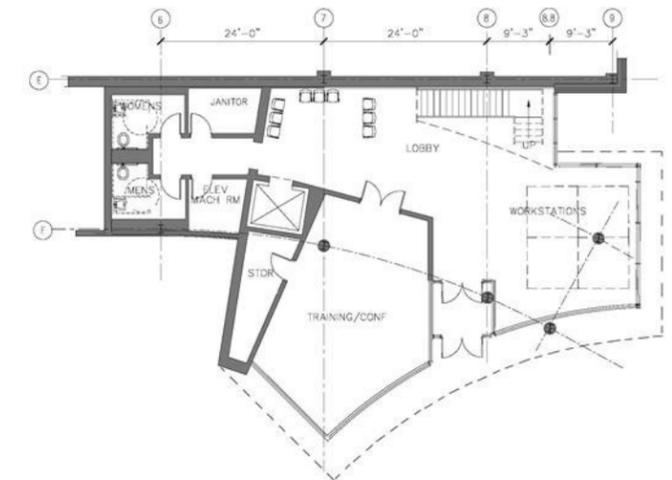
Level 2



Level 1



Entry Options





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U.S. COMMISSION OF FINE ARTS

ESTABLISHED BY CONGRESS 17 MAY 1910

401 F STREET NW SUITE 312 WASHINGTON DC 20001-2728 202-504-2200 FAX 202-504-2195 WWW.CIA.GOV

21 November 2012

Dear Mr. Bellamy:

In its meeting of 15 November, the Commission of Fine Arts reviewed a concept submission for a new streetcar maintenance barn and training center to be located at the intersection of 26th Street and Benning Road, NE, and did not take action on the proposal, offering the following comments for the development of the design.

The Commission members supported the siting of the building at the street intersection and the intent to develop a relationship with the Spingarn campus, balancing the massing of the complex of schools fronting 26th Street. Noting the potential strength of the design in the juxtaposition of the utilitarian car barn with the training center, they recommended that the building design be further developed as a simpler composition of two volumes, not three as presented. They criticized the overly complex configuration of curving elements at the proposed corner lobby, suggesting that the one-story volume be simplified and the facade of the training center be straightened and parallel the main volume of the building to achieve a more harmonious design. They also recommended development of the relationship of the training center to the sidewalk to create a more urban and civic condition of a public building along an ample sidewalk with optimal conditions for street trees.

The Commission looks forward to the review of a more developed concept proposal and as always, the staff is available to assist you with the next submission.

Sincerely,

Thomas E. Luebke, FAIA
Secretary

Terry Bellamy, Director
D.C. Department of Transportation
55 M Street, SE, Suite 400
Washington, DC 20003

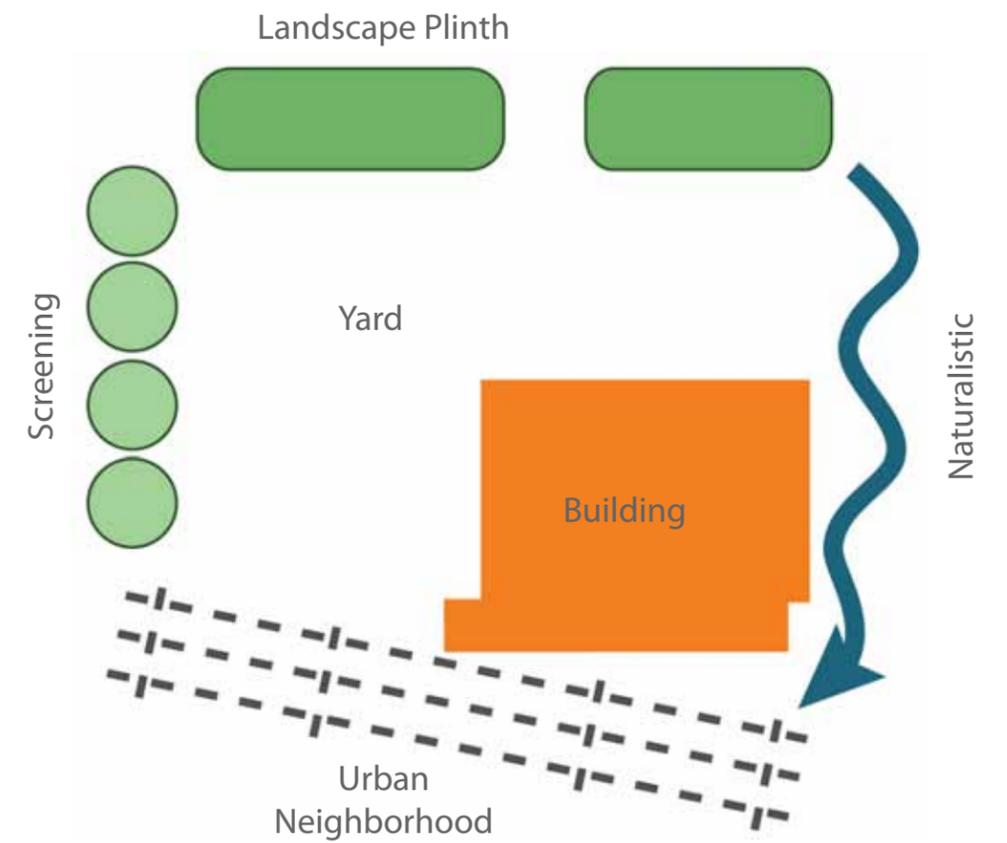
Historic Preservation Review Board

Spingarn High School [pending landmark], 2500 Benning Road, NE, HPA #13-004, courtesy review for proposed streetcar car barn.

The Board accepted the location of the car barn on the proposed site but emphasized the valuable contribution of the green space to the Spingarn campus and determined that the new facility would result in ~~adverse impacts that needed to be more effectively mitigated~~. The proposed building was found to be insufficiently civic in nature, and needed to be reduced in size and more contextually related to the open space and the other buildings on the site. The Board suggested looking at whether certain functions (outdoor rail yards, parking) could be reduced in size, concealed through berming and landscaping, or located elsewhere, and whether certain site elements (fencing, poles, wires) could be simplified, revised to minimize the loss of green space and reduced in visual impact. The comments were provided as preliminary to a follow-up review; no formal action was taken.



Landscape Character



Site Understanding

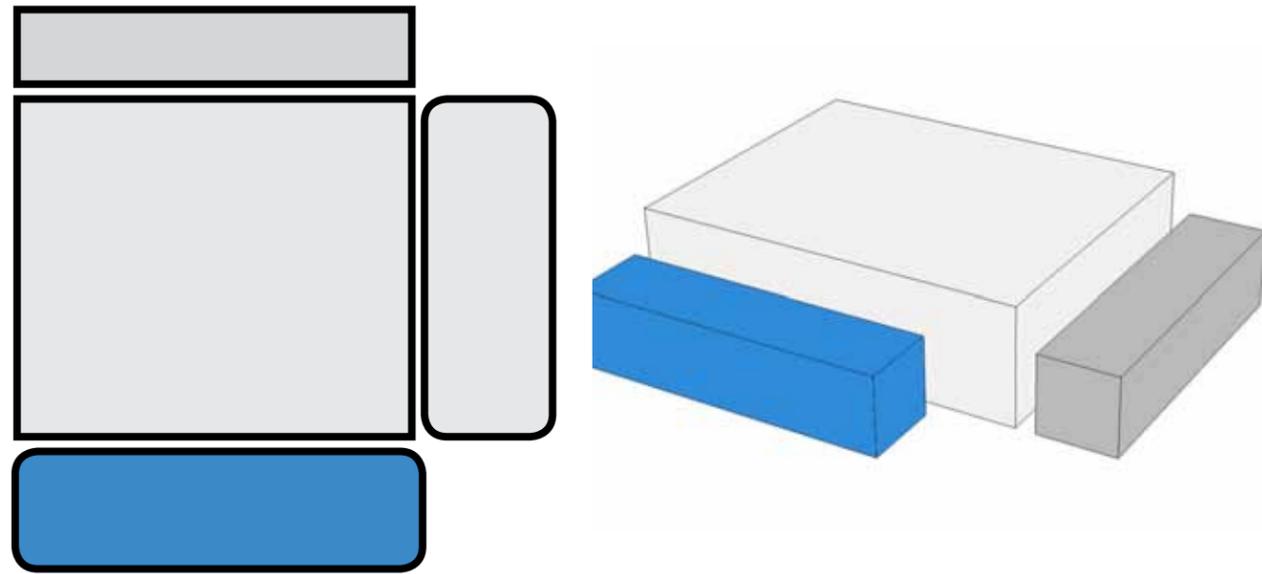


26th Street NE- East Elevation (Campus)
(for clarity, street trees not shown)



Benning Road - South Elevation (Langston Terrace)
(for clarity, street trees not shown)

Concept 1 - Wrapped

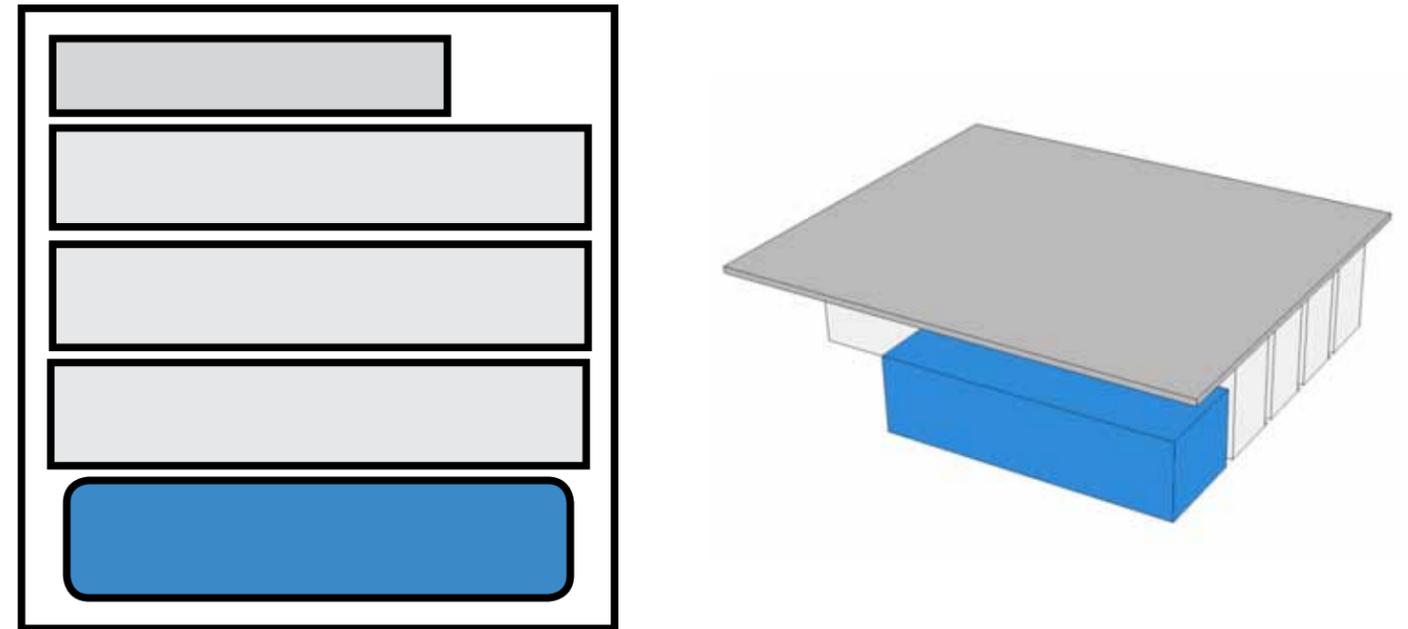


Plan

3D Diagram

- Simplified massing
- Maintenance area wrapped with building volumes
- Expressed roof over maintenance bays

Concept 2 - Contained



Plan

3D Diagram

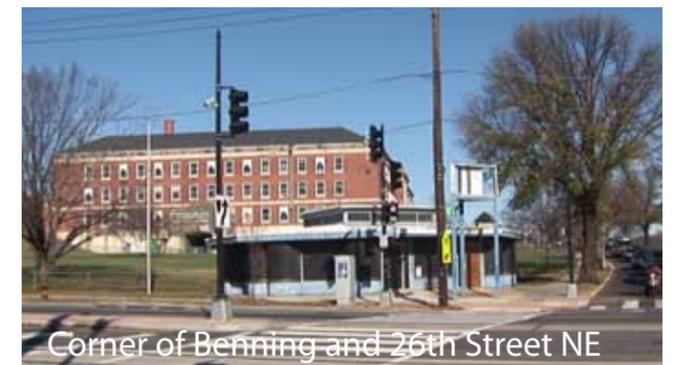
- Singular massing
- Volume contained under roof
- Skylights over indoor maintenance



Site Diagram



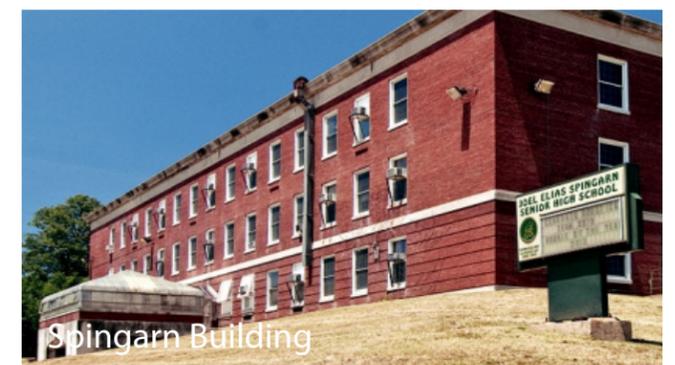
View of site and Langston Terrace



Corner of Benning and 26th Street NE



View near streetcar platform

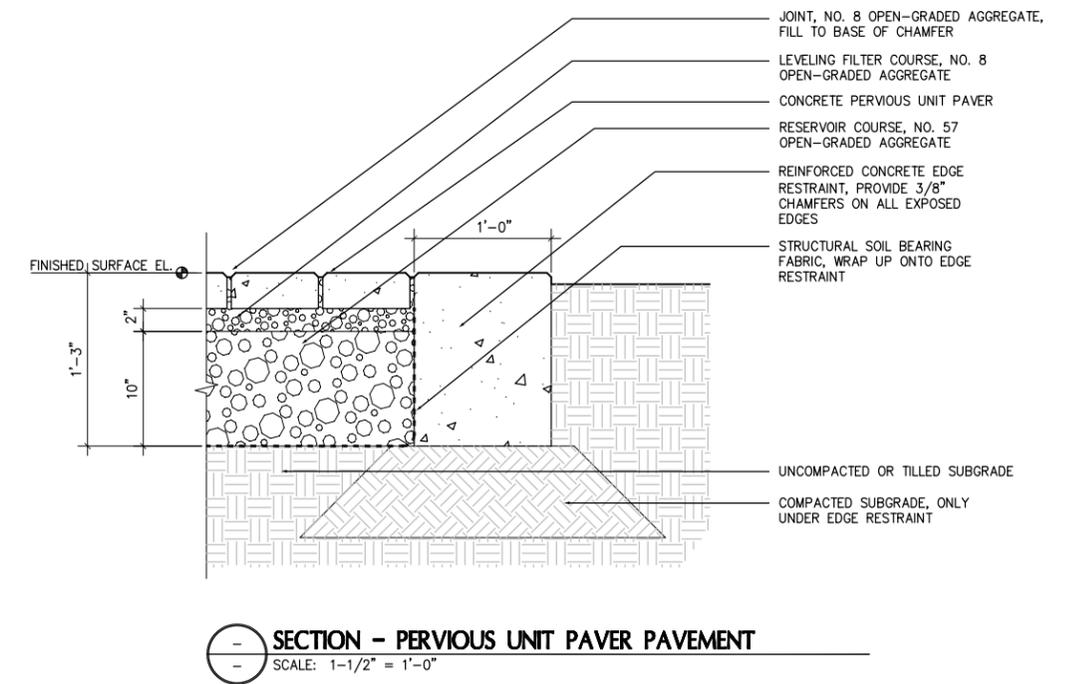


Spingarn Building

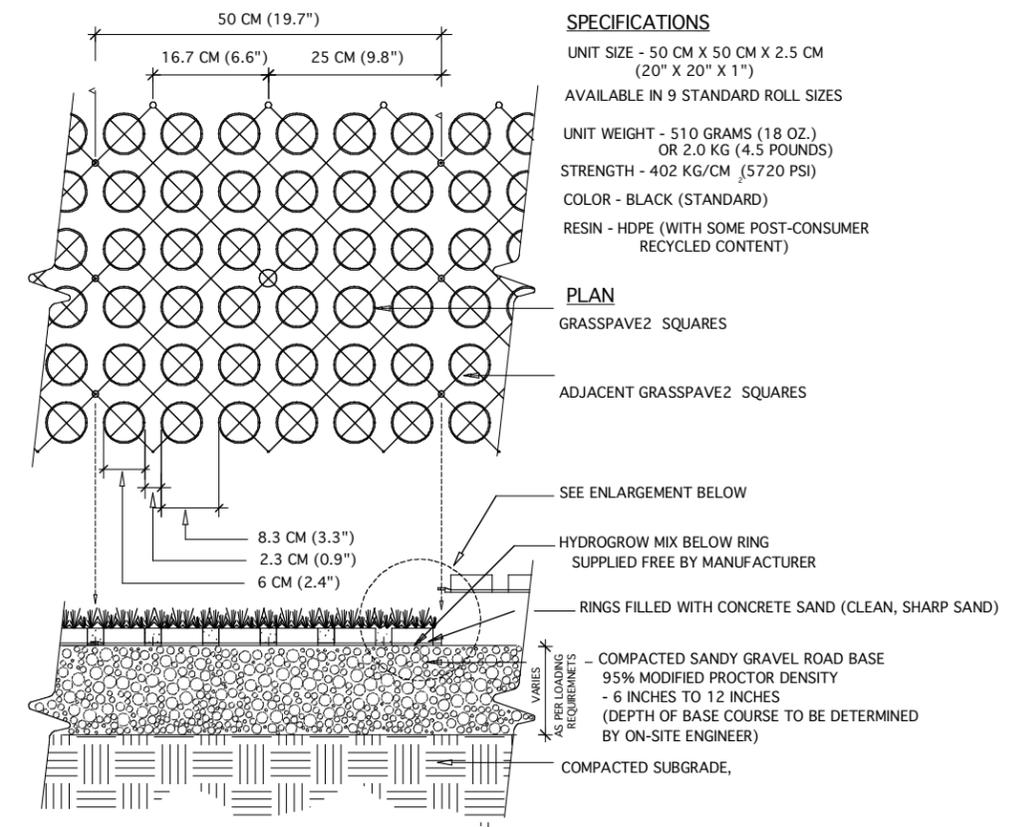


Site Revisions and Refinements

- Parking reduction along 26th Street NE and Benning Road to allow landscape treatment
- Incorporate "green track" strategies
- 26th Street NE landscape to be more naturalistic
- Spingarn building to be framed with landscape
- Langston Terrace views to be screened and framed
- Entry oriented to Benning Road



SHOP TRACK CONCEPT - PERMEABLE PAVERS

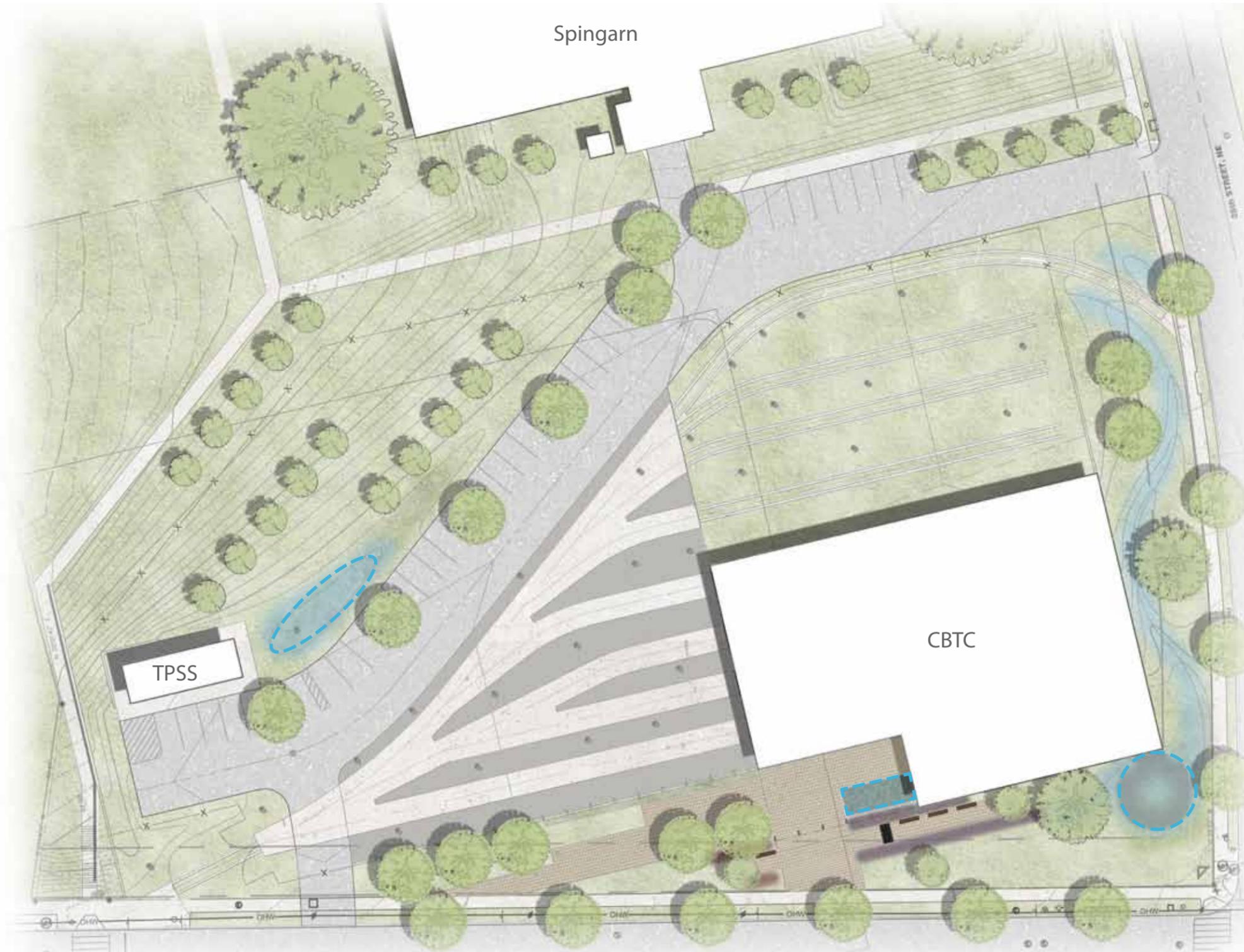


YARD TRACK CONCEPT - REINFORCED TURF

Stormwater Collection

**Wet
Condition**

----- water collection areas



Roof

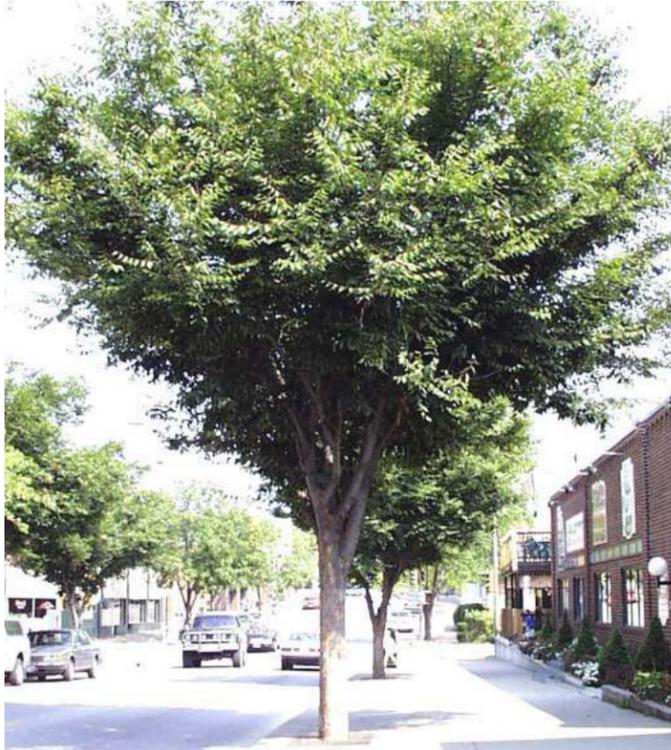
- Annual collection of approximately 400,000 gallons of water that can be used for streetcar washing

Landscape

- 100,000 square foot site would require approximately 6,000 square feet of bioretention landscaping



STREET TREES



ZELKOVA
Zelkova serrata



vase-shaped, feathery leaves



fall color



SWEETGUM
Liquidambar styraciflua



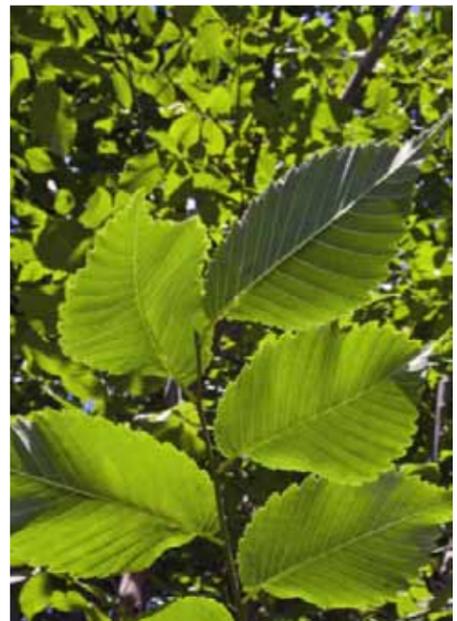
oblong shape, star-shaped leaves



fall color



ELM
Ulmus americana
Jefferson, New Harmony, Princeton and Valley Forge



vase-shaped, leathery leaves



fall color

COLUMNAR - DECIDUOUS



HORNBEAM
Carpinus betulus



GINKGO
Ginkgo biloba



PURPLE BEECH
Fagus sylvatica



COLUMNAR - EVERGREEN



ARBORVITAE
Thuja occidentalis



CYPRESS
Cupressus sempervirens



VINES



HONEYSUCKLE
Lonicera



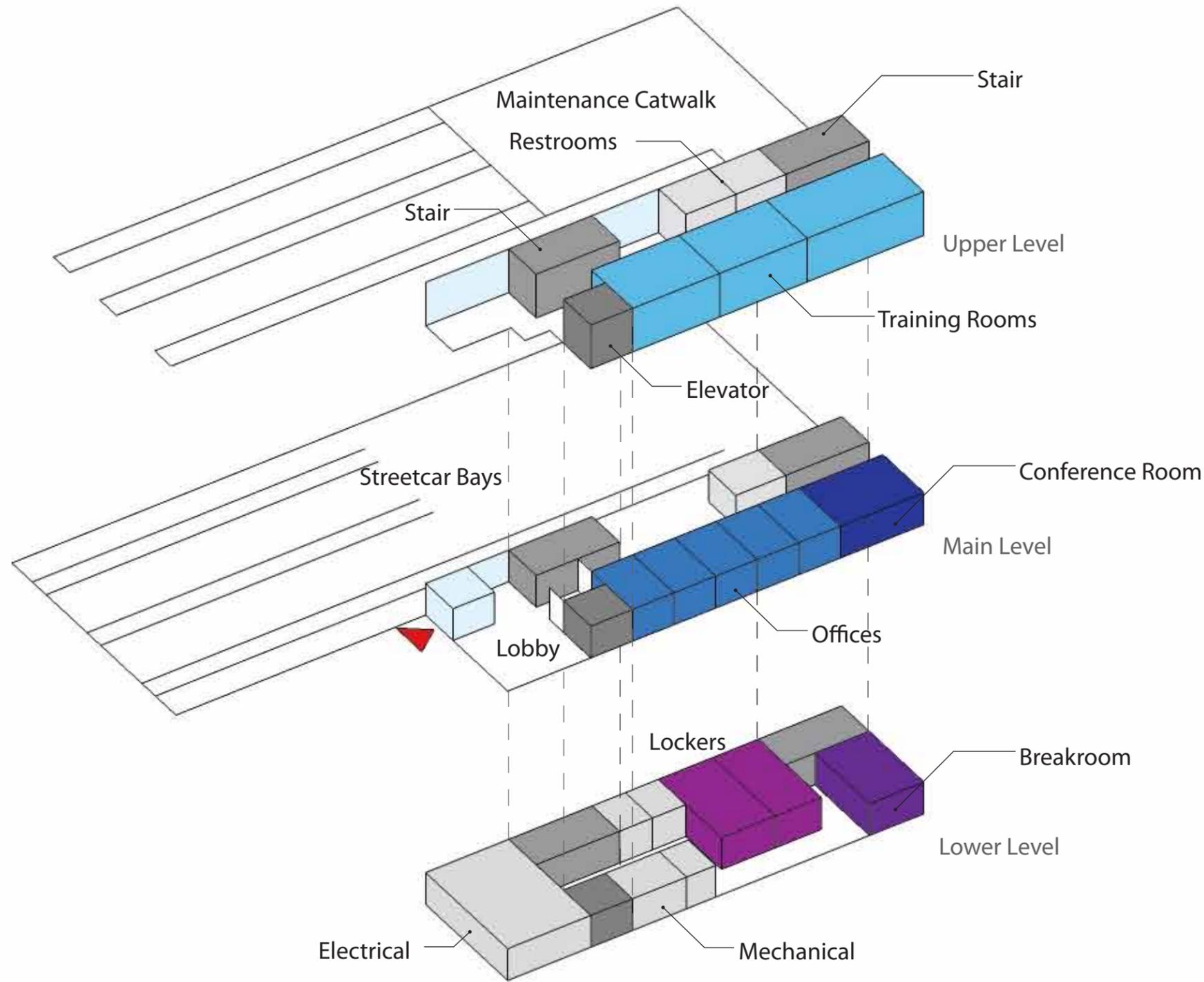
CLEMATIS
Clematis armandii, avalanche



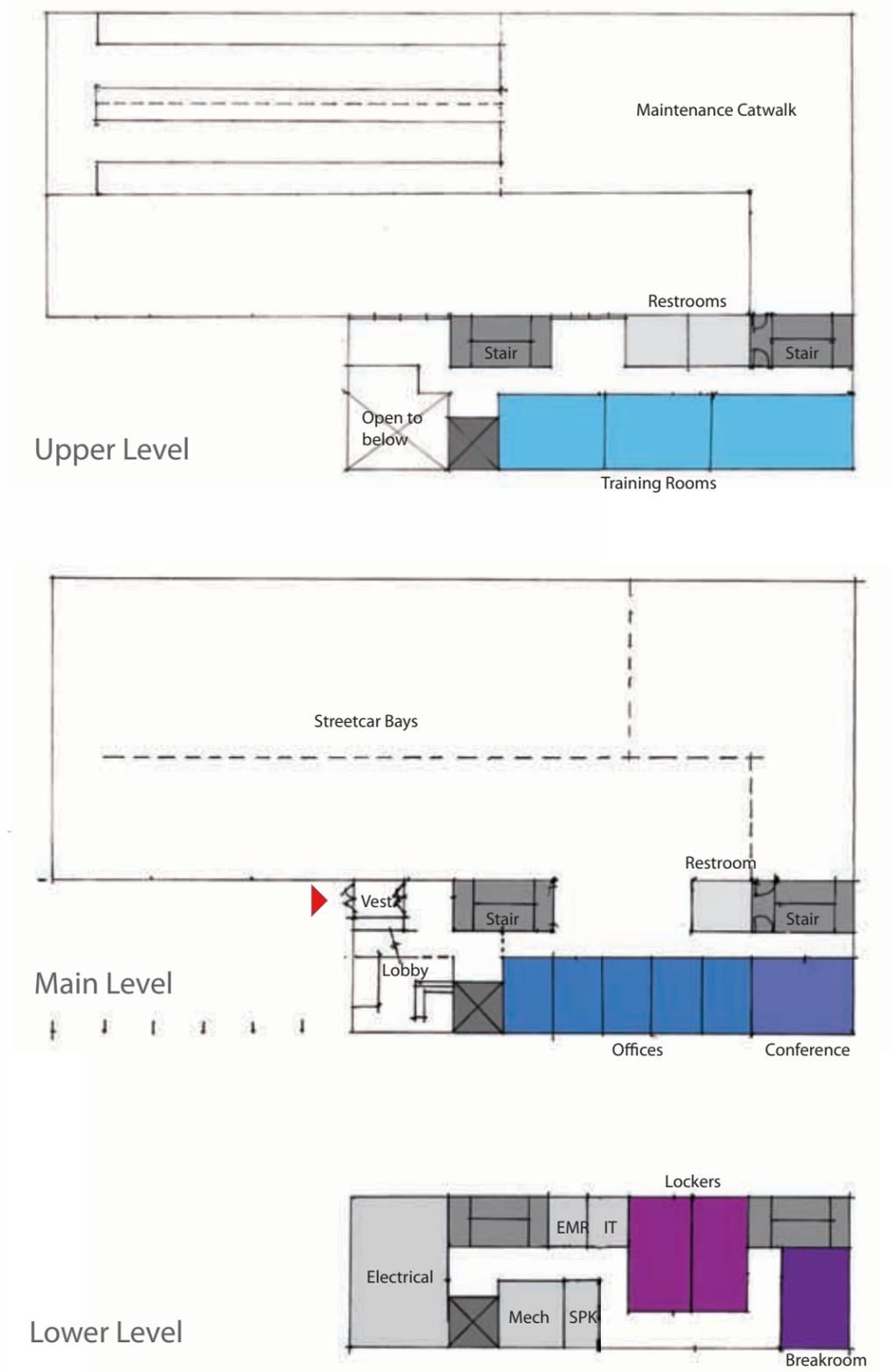
CLIMBING ROSE
Rosa

WALL SYSTEM



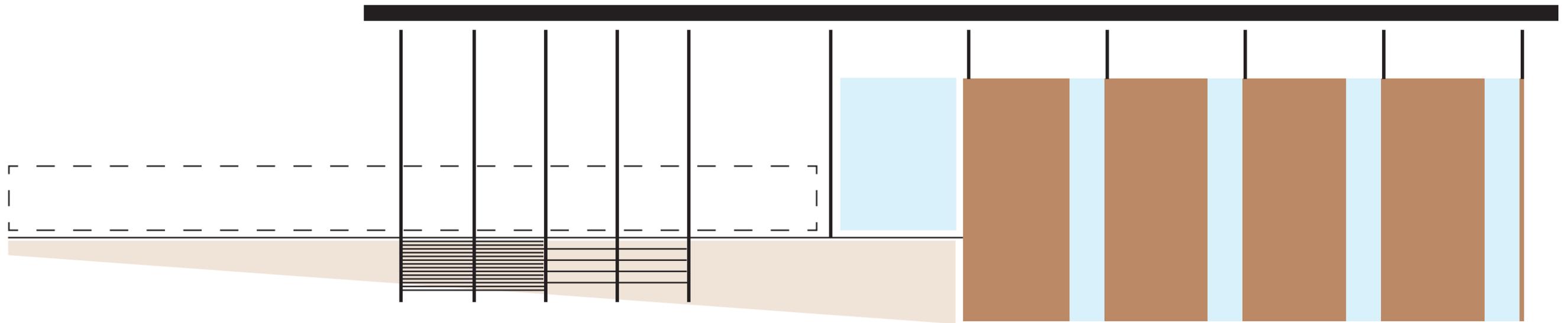


Program Stacking

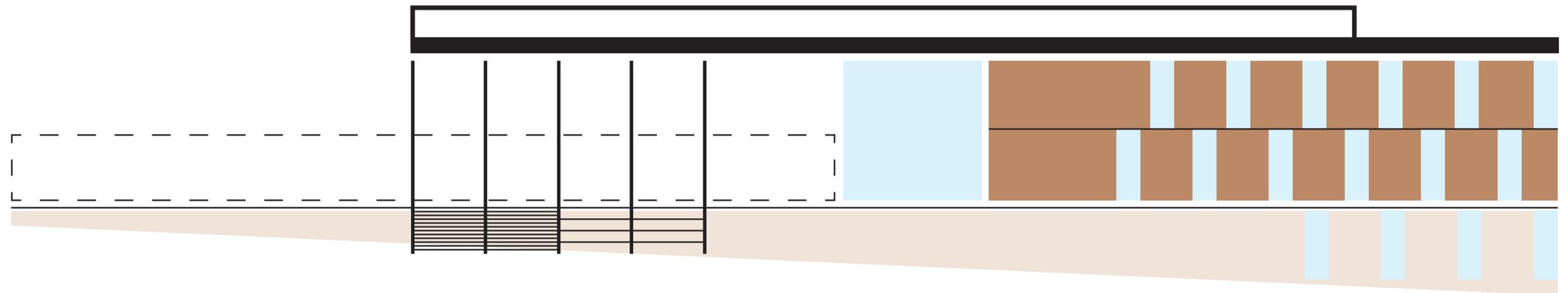


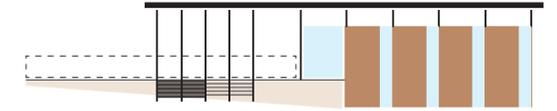
Floor Plans

Scheme 1 - Vertical / Civic

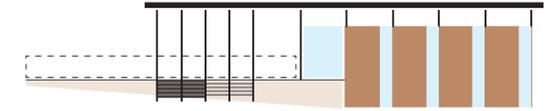


Scheme 2 - Horizontal / Podium





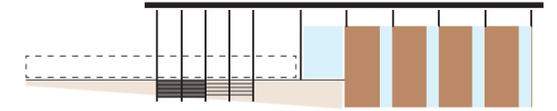
Aerial view of campus looking west



26th Street NE- East Elevation (Campus)
(for clarity, street trees are not shown)



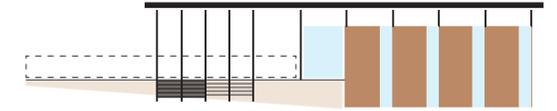
26th Street NE- Site Context Plan (Campus)



Benning Road - South Elevation (Langston Terrace)
(for clarity, street trees are not shown)



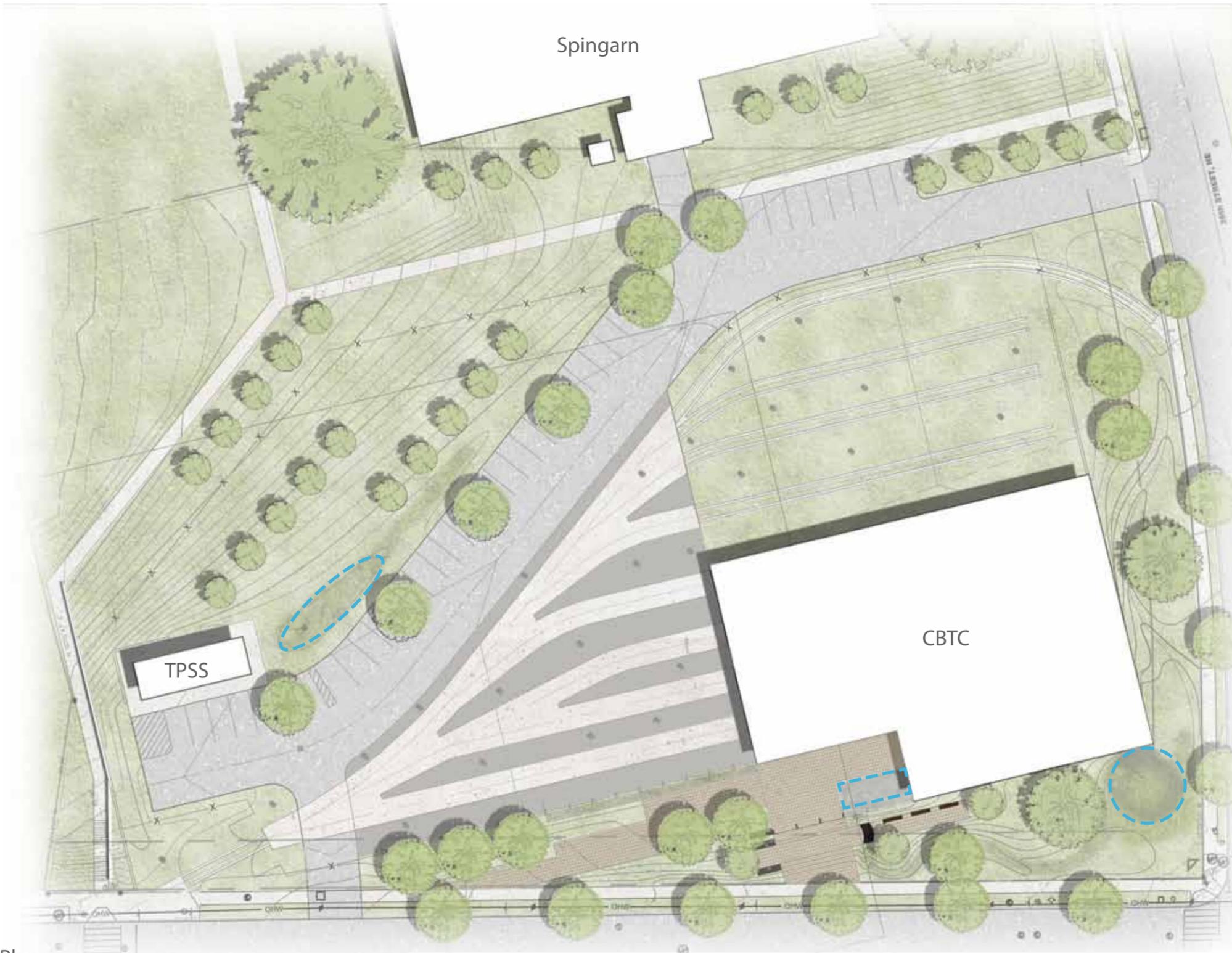
Benning Road - Site Context Plan (Langston Terrace)



Aerial view of campus looking north

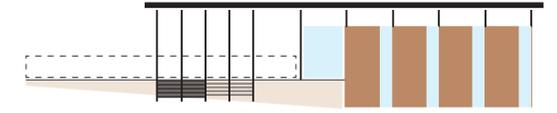
Dry
Condition

----- water collection areas



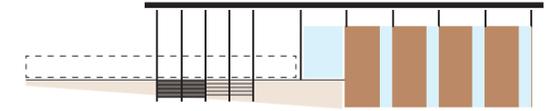
Site Plan

Scheme 1 - Vertical / Civic





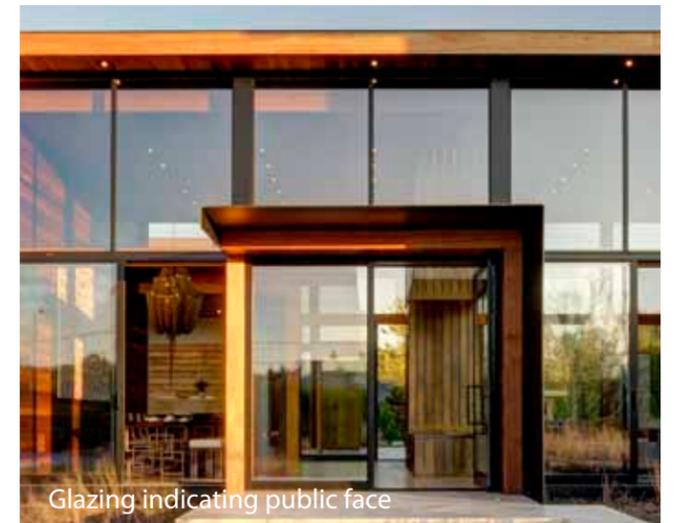
Scheme 1 - Vertical / Civic



Benning Road - South Elevation (for clarity, street trees are not shown)



Brick to match campus



Glazing indicating public face



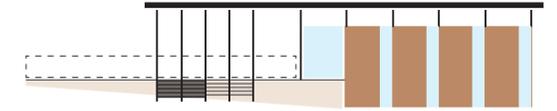
26th Street NE - East Elevation (for clarity, street trees are not shown)



Relief and detail for brick treatment



Scheme 1 - Vertical / Civic



Streetcar Yard - North Elevation



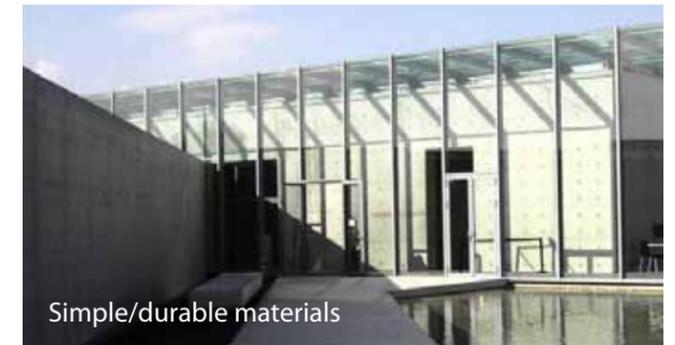
Site treatments sympathetic to existing context



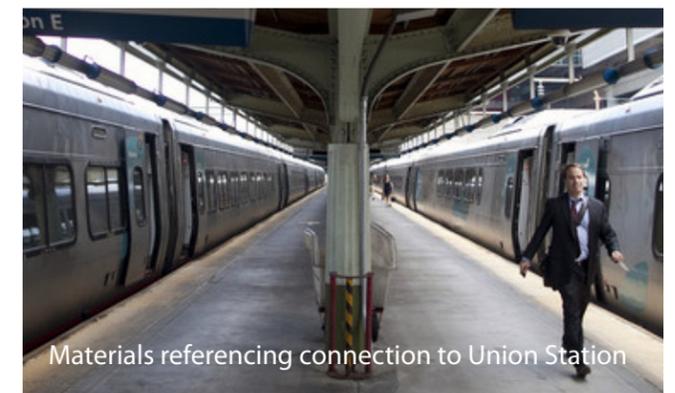
Fine grain detail and texture for simple masses



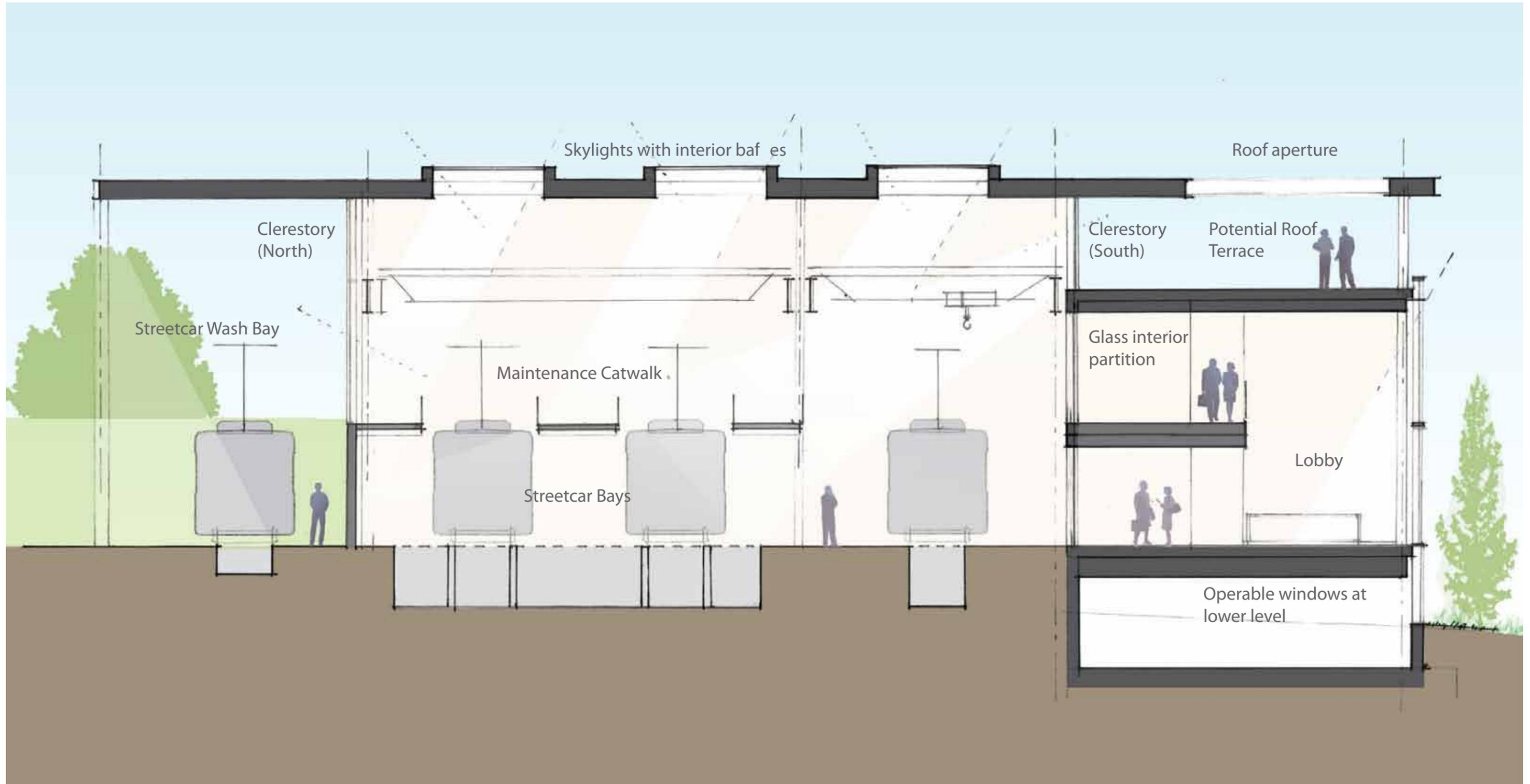
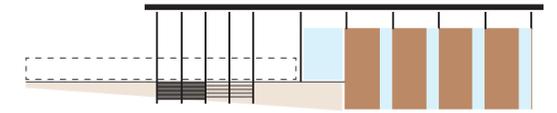
Entry - West Elevation



Simple/durable materials



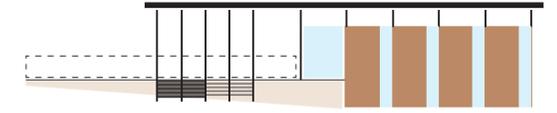
Materials referencing connection to Union Station



Building section looking east



View from corner of Benning Road and 26th Street NE



View of Entry



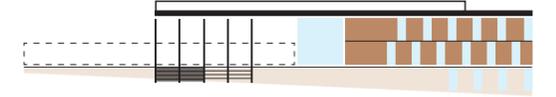
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Concept Design

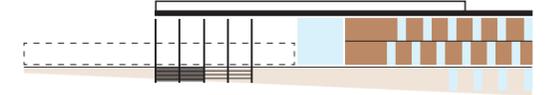
Scheme 1 - Vertical / Civic



View from Benning Road



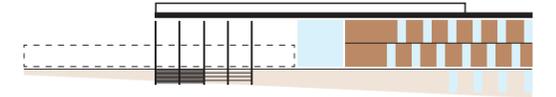
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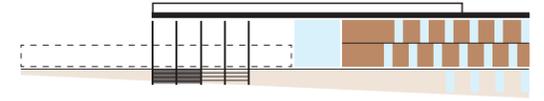
26th Street NE- Site Context Plan (Campus)



Benning Road - South Elevation (Langston Terrace)
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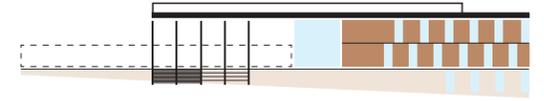
Benning Road - Site Context Plan (Langston Terrace)



Aerial view of campus looking north

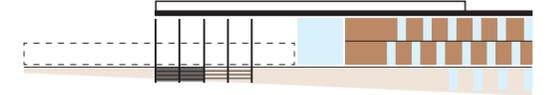
Dry
Condition

----- water collection areas



Site Plan





Benning Road - South Elevation (for clarity, street trees are not shown)



26th Street NE - East Elevation (for clarity, street trees are not shown)



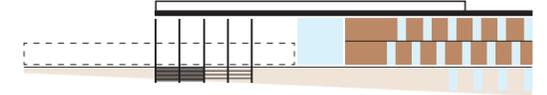
Brick to match campus



Glazing indicating public face



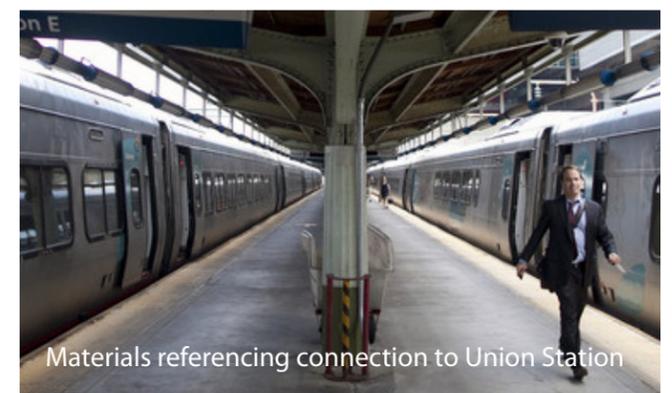
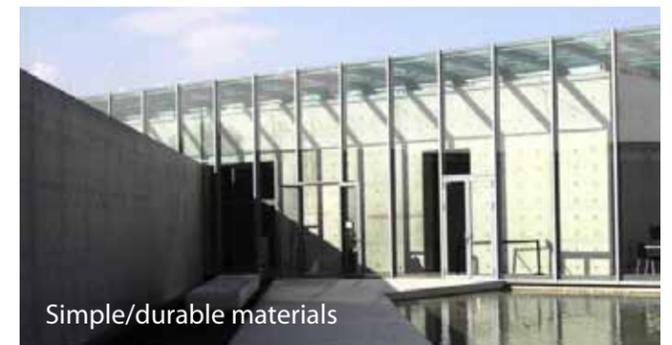
Relief and detail for brick treatment

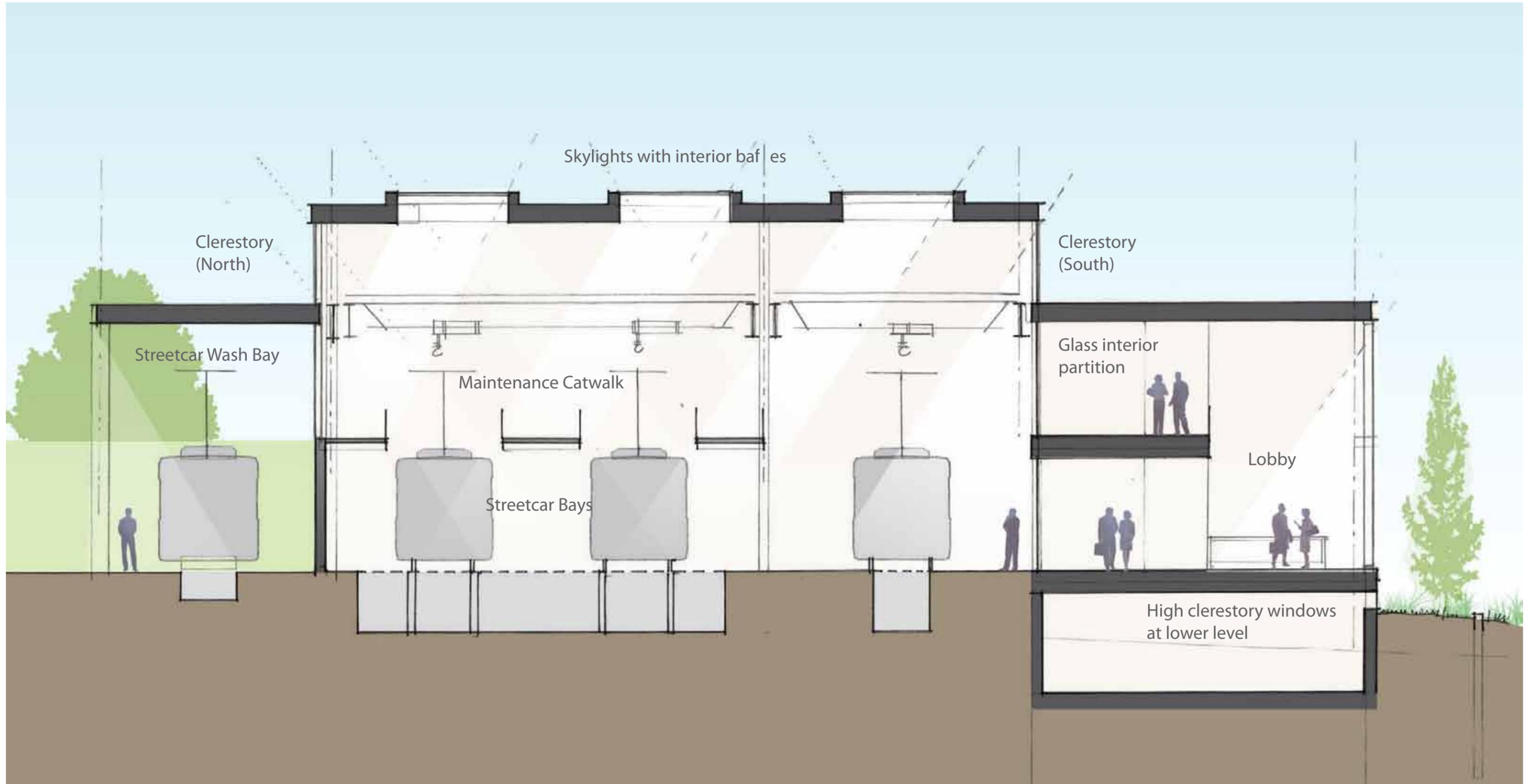


Streetcar Yard - North Elevation

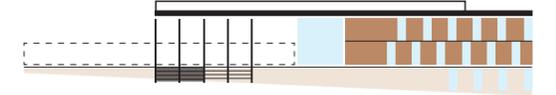


Entry - West Elevation

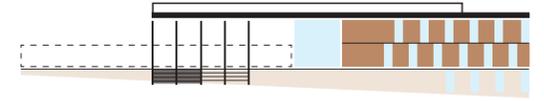




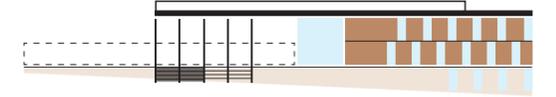
Building section looking east



View from corner of Benning Road and 26th Street NE



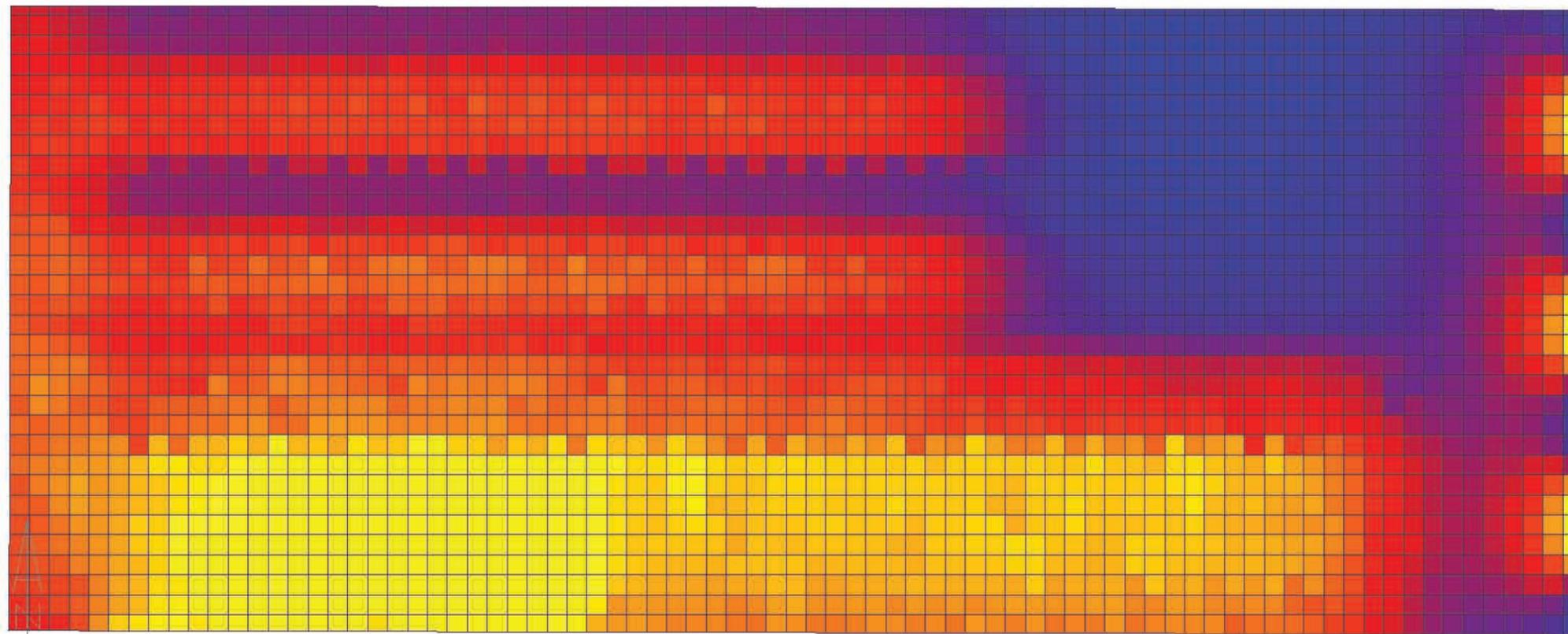
View of Entry



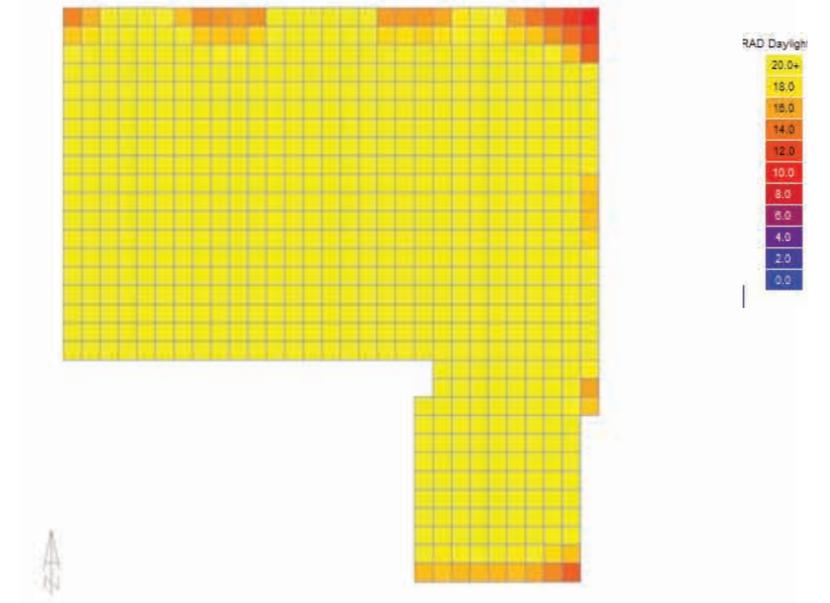
View from Benning Road

Skylight, North, East and South Glazing, Solid Platforms, and Solid Canopy

Maintenance Main Level



Maintenance Upper Level





LEED 2009 for New Construction and Major Renovations

Project Checklist

Project Name

Date

The design will implement a variety of sustainable design strategies that will be integral to the Car Barn Training Center. The LEED rating system will serve as a framework and benchmark.

In general, these sustainable design strategies can be grouped into key components – Site, Envelope, Conservation, and Management.

Site

- Treatment of stormwater on site.
- Native-like vegetation as site plantings.
- Strategic placement of plantings.
- High albedo hardscape.
- Reduction of light pollution.

Envelope

- Reduce unwanted solar gain.
- Reduce unwanted infiltration.
- Optimize building orientation and fenestration.
- Optimize natural light.
- High albedo roof.

Conservation

- Building systems shall reduce water and energy consumption via high efficiency HVAC, plumbing fixtures, and lighting.
- Maximize materials with recycled content.
- Maximize regional materials.
- Purchase renewable energy.

Management

- Reduce construction waste and debris.
- Divert construction waste from landfills.
- Protect building materials from moisture and debris through construction.
- Utilize low VOC materials.
- Building Commissioning for optimal use.
- Utilize environmentally friendly cleaning products.
- Reward alternative modes of transportation.
- Implement recycling policy.
- Utilize energy efficient appliances.

21 4 1 Sustainable Sites Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	3		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
1			Credit 5.1	Site Development—Protect or Restore Habitat	1
	1		Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

6 4 Water Efficiency Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
4			Credit 1	Water Efficient Landscaping	2 to 4
2			Credit 2	Innovative Wastewater Technologies	2
	4		Credit 3	Water Use Reduction	2 to 4

7 28 Energy and Atmosphere Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
	19		Credit 1	Optimize Energy Performance	1 to 19
	7		Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
3			Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2

5 5 4 Materials and Resources Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
	3		Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
	1		Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
	2		Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
	1		Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

12 3 Indoor Environmental Quality Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
	1		Credit 8.2	Daylight and Views—Views	1

3 3 Innovation and Design Process Possible Points: 6

Y	?	N			
1			Credit 1.1	Innovation in Design: Specific Title	1
1			Credit 1.2	Innovation in Design: Specific Title	1
	1		Credit 1.3	Innovation in Design: Specific Title	1
	1		Credit 1.4	Innovation in Design: Specific Title	1
	1		Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

3 Regional Priority Credits Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: Specific Credit	1
1			Credit 1.2	Regional Priority: Specific Credit	1
1			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1

57 47 5 Total Possible Points: 110