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
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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.**
- Site development
- Landscape and site parking
- Architecture and massing
- Civic presence
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 framing 26th Street. Noting the potential strengths of the design in 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

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.
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Campus / Langston Terrace Context

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

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

Concept 2 - Contained

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

- **Yard Track Concept**
  - Reinforced Turf

**Specifications**
- **Unit Size**: 50 cm x 50 cm x 2.5 cm (20" x 20" x 1")
- **Unit Weight**: 510 grams (18 oz.)
- **Strength**: 402 kg/cm² (5720 PSI)
- **Color**: Black (Standard)
- **Resin**: HDPE (with some post-consumer recycled content)

**Invisible Structures**
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- Fax: 800-233-1522 or 303-233-8282
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rev. 10/05

*Not to Scale*
Stormwater Collection

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

**ELM**  
*Ulmus americana*  
vase-shaped, leathery leaves  
fall color

**SWEETGUM**  
*Liquidambar styraciflua*  
oblong shape, star-shaped leaves  
fall color
Landscape Materials - Trees

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
Scheme 1 - Vertical / Civic

Scheme 2 - Horizontal / Podium

Refined Concepts
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)
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Scheme 1 - Vertical / Civic

Natural Landscape

Aerial view of campus looking north
CAR BARN TRAINING CENTER

Concept Design

Scheme 1 - Vertical / Civic

Natural Landscape

Site Plan

Dry Condition

water collection areas

Spingarn

TPSS

CBTC

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Concept Design

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

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

Scheme 1 - Vertical / Civic

Brick to match campus

Glazing indicating public face

Relief and detail for brick treatment
Concept Design

Streetcar Yard - North Elevation

Entry - West Elevation

Scheme 1 - Vertical / Civic

Site treatments sympathetic to existing context

Natural Landscape

Materials referencing connection to Union Station

Fine grain detail and texture for simple masses

Simple/durable materials
Scheme 1 - Vertical / Civic

Natural Landscape

Potential Roof Terrace

Operating windows at lower level

Streetcar Wash Bay

Clerestory (North)

Clerestory (South)

Streetcar Bays

Maintenance Catwalk

Skylights with interior baffles

Roof aperture

Glass interior partition

Lobby

Building section looking east
View from corner of Benning Road and 26th Street NE
CAR BARN TRAINING CENTER
Concept Design

Scheme 1 - Vertical / Civic

View of Entry
CAR BARN TRAINING CENTER

Concept Design

Scheme 1 - Vertical / Civic

View from Benning Road
Aerial view of campus looking west
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Concept Design

Scheme 2 - Horizontal / Podium

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

26th Street NE- Site Context Plan (Campus)
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Benning Road - South Elevation (Langston Terrace)
(for clarity, street trees are not shown)

Benning Road - Site Context Plan (Langston Terrace)
Scheme 2 - Horizontal / Podium

Aerial view of campus looking north
CAR BARN TRAINING CENTER
Concept Design

Scheme 2 - Horizontal / Podium

Site Plan

Dry Condition

water collection areas

Spingarn

TPSS

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CAR BARN TRAINING CENTER
Concept Design

Scheme 2 - Horizontal / Podium

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

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

Concept Design

Scheme 2 - Horizontal / Podium

Structured Landscape

Materials referencing connection to Union Station

Site treatments sympathetic to existing context

Fine grain detail and texture for simple masses

Simple/durable materials

Materials referencing connection to Union station

Streetcar Yard - North Elevation

Entry - West Elevation
CAR BARN TRAINING CENTER
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Scheme 2 - Horizontal / Podium

- Lobby
- Maintenance Catwalk
- Streetcar Wash Bay
- Streetcar Bays
- Clerestory (North)
- Clerestory (South)
- Skylights with interior baffles
- Glass interior partition
- High clerestory windows at lower level
- Structured Landscape

Building section looking east
Scheme 2 - Horizontal / Podium

View from corner of Benning Road and 26th Street NE
Scheme 2 - Horizontal / Podium

View of Entry
Skylight, North, East and South Glazing, Solid Platforms, and Solid Canopy

Maintenance Main Level

Maintenance Upper Level
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 landscape.
- 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.