

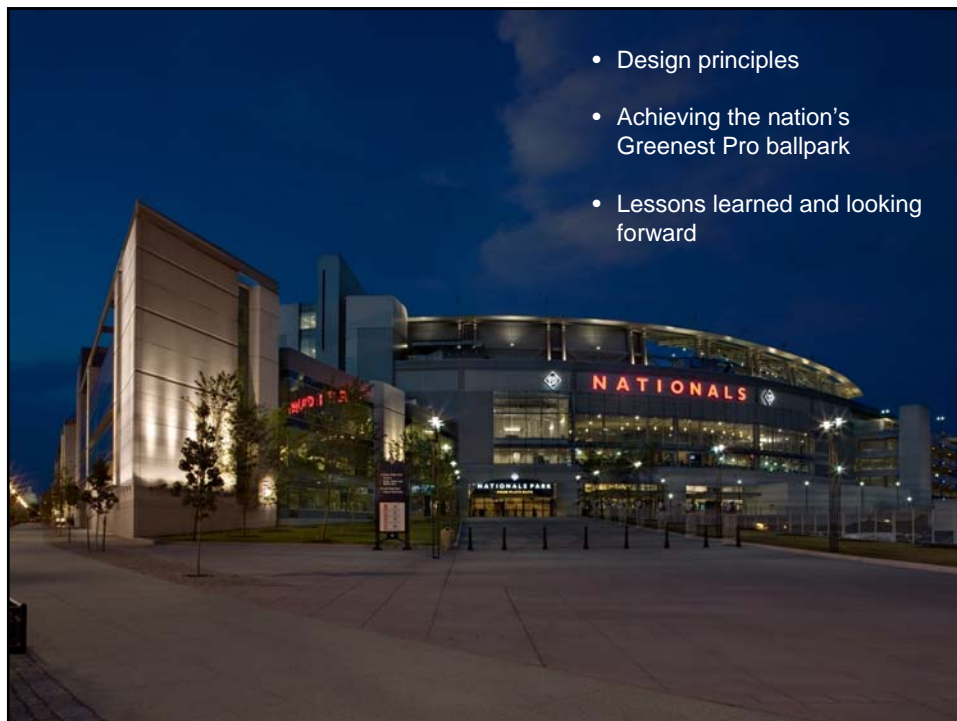
# NATIONALS PARK

America's Greenest Ballpark



Joe Spear, FAIA  
HOK Sport

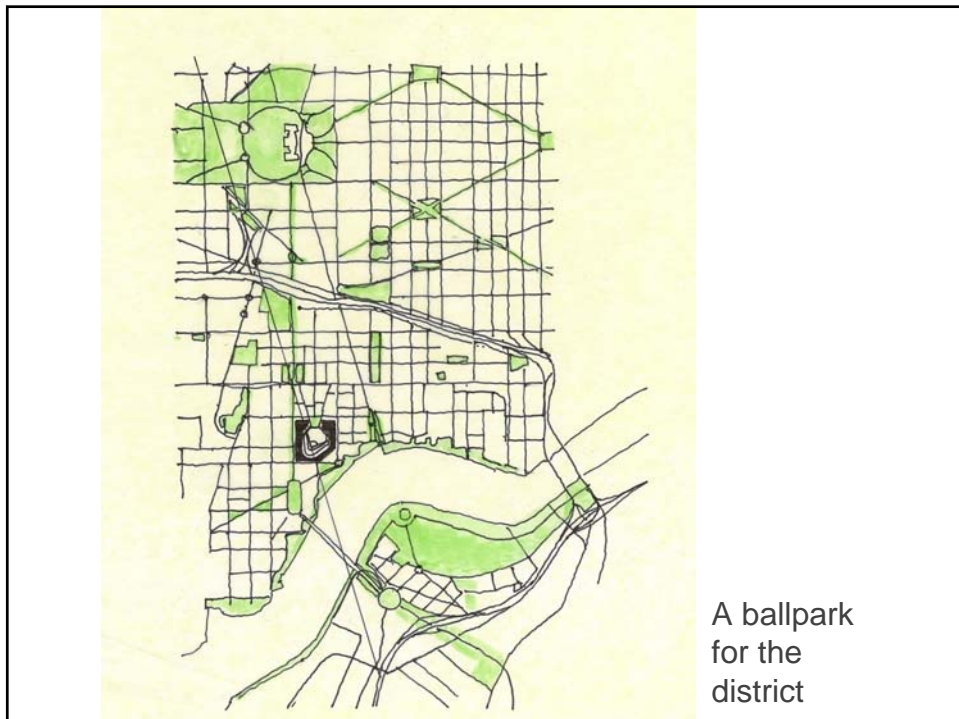
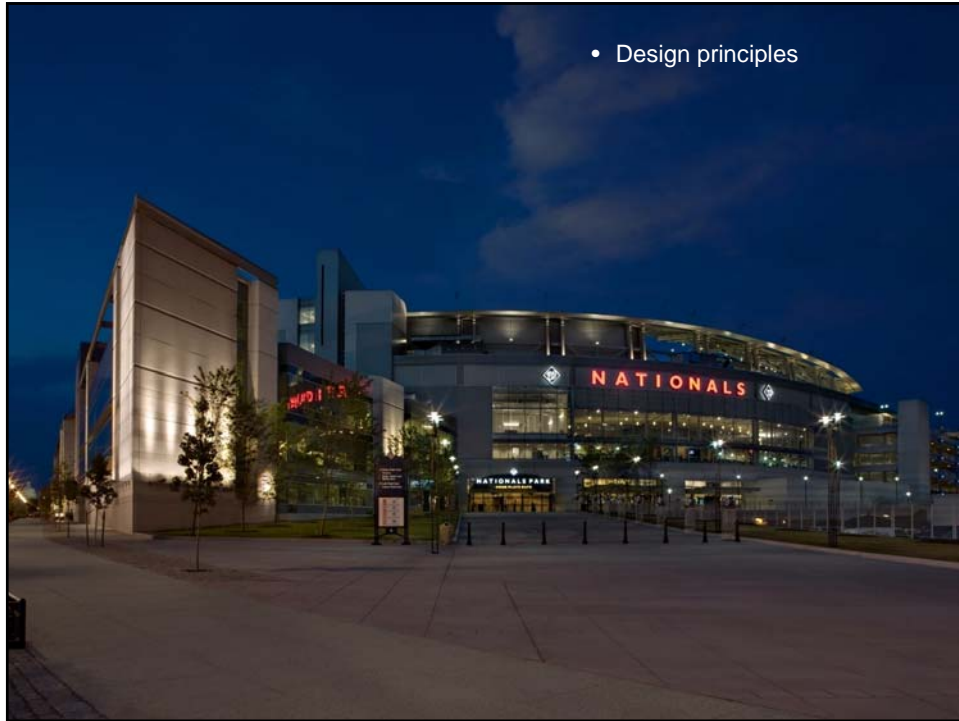
Susan Klumpp, AIA, LEED AP  
HOK



- Design principles
- Achieving the nation's Greenest Pro ballpark
- Lessons learned and looking forward

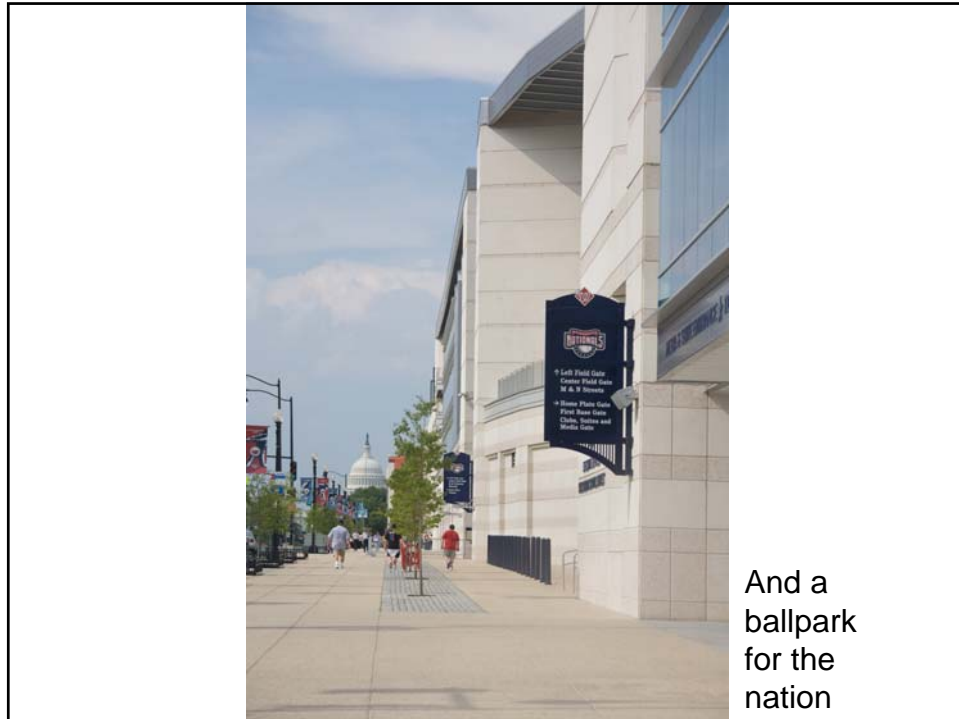
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- Design principles

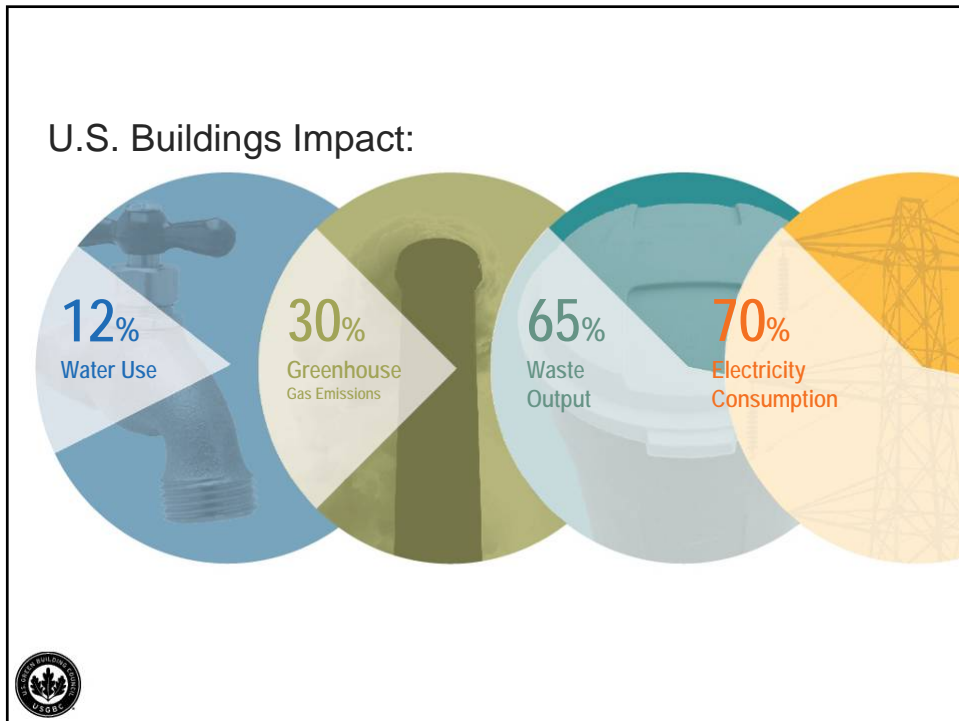
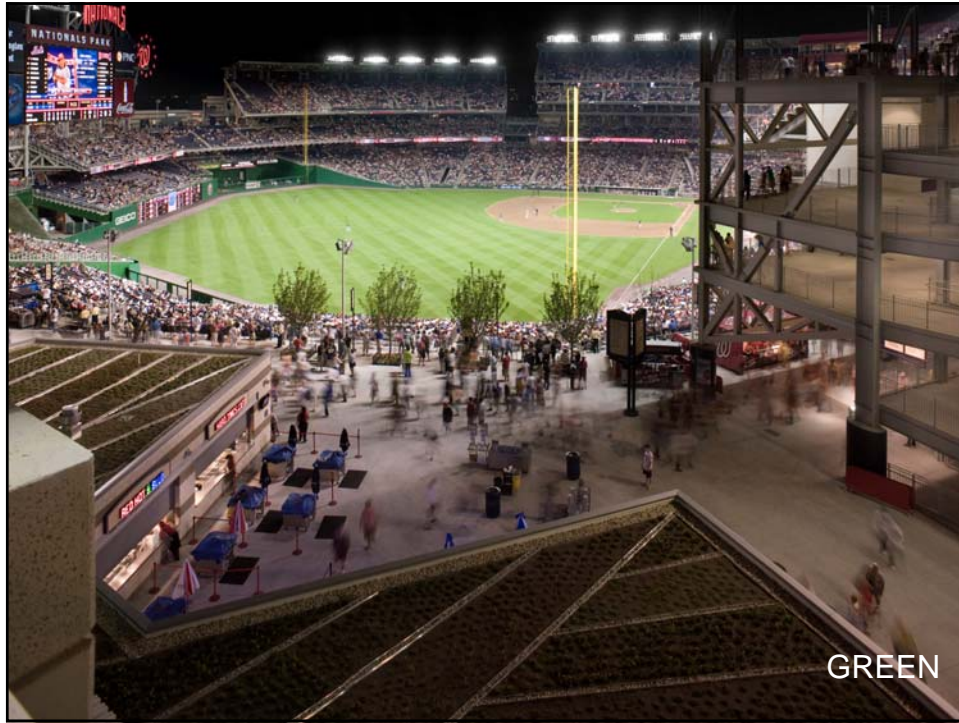


A ballpark  
for the  
district

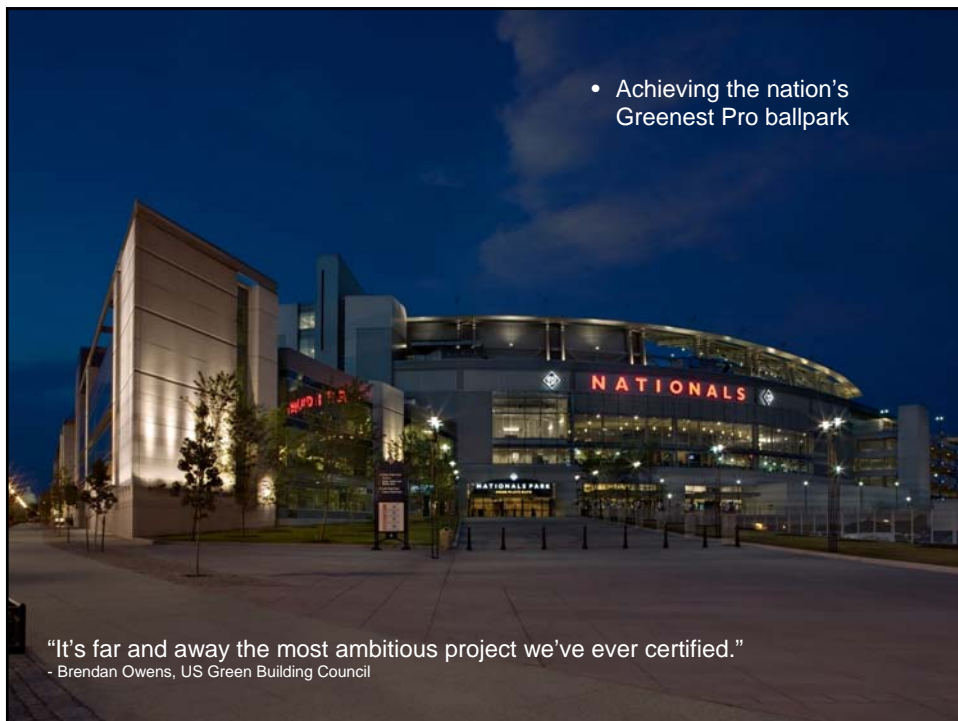
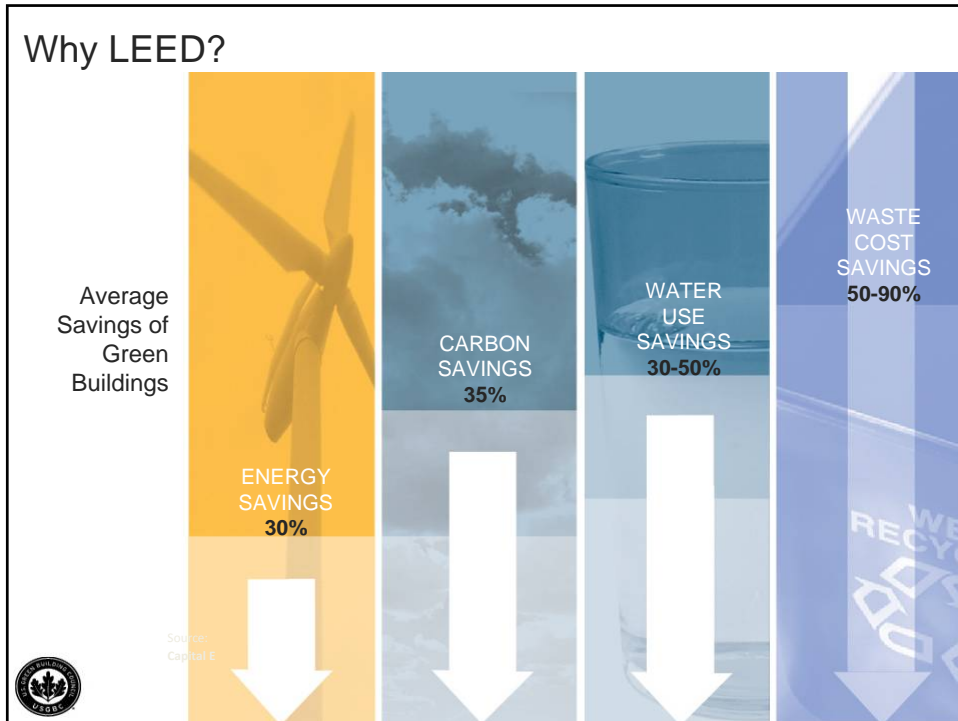
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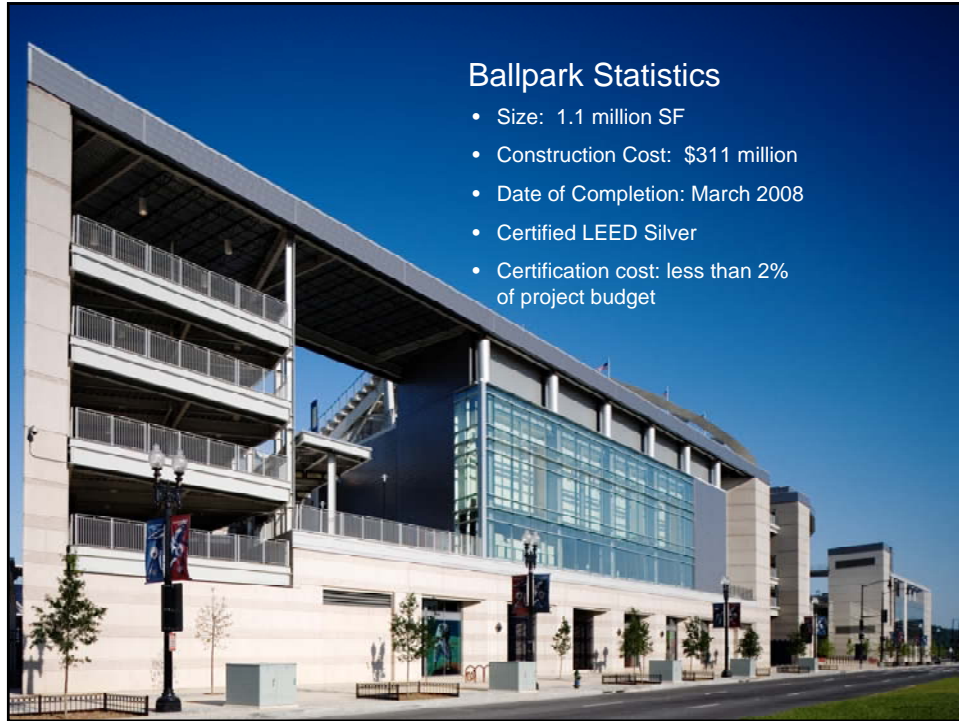
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**Nationals Park :  
America's Greenest Ballpark**

© Ken Wyner

<p><b>1. Construction Materials</b> Up to 20% recycled content construction materials used in building the ballpark</p>	<p><b>5. Site Remediation</b> Brownfield redevelopment site</p>	<p><b>9. Recycling</b> Storage and recycling of glass, metal, plastic, cardboard, and paper products</p>
<p><b>2. Lighting</b> High efficiency field lighting saves a projected 21% energy cost</p>	<p><b>6. Energy Savings</b> Optimized energy performance from exterior wall design and commissioning</p>	<p><b>10. Transportation</b> Access to mass transportation - Metro Bus and Metrorail systems; unique bike valet system</p>
<p><b>3. Water Sampling</b> Playing field sampling manhole tests runoff quality</p>	<p><b>7. Suites &amp; Clubs</b> Low emitting materials - carpet, paint and adhesives used in interior design</p>	<p><b>11. Parking</b> Reserved parking for fuel efficient vehicles and carpools</p>
<p><b>4. Green Roof</b> 6,300 SF planting above concession areas minimizes heat gain</p>	<p><b>8. Rest Rooms</b> Water conserving plumbing fixtures save a projected 3.6 million gallons of water per year</p>	<p><b>12. Stormwater Management</b> Enhanced sandfilters buried throughout the ballpark screen organic debris (peanut shells, hot dogs, etc.) and re-direct bowl wash-down to sanitary system</p>

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### Sustainable Site

- Transit-oriented design
- Voluntary cleanup program
- Brownfield site remediation
- 30 acres separated storm and sewer
- Alternative transportation – parking for car pool/van pools
- Bike valet service

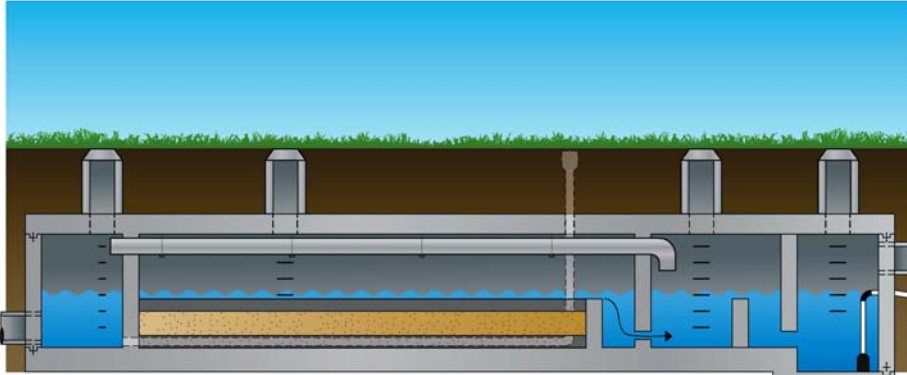


### Sustainable Site

- Reduce light pollution - conscientious design
- Reduce heat absorption - light color roof materials
- Green roof - drought resistant plants
- Reduce heat - covered parking

## Stormwater Management

- Enhanced sand filters screen stormwater runoff
- Seating bowl wash down water directed to sanitary
- Filter and screen for organic debris (i.e. peanut shells)
- Sampling manhole for playing field run-off
- Custom filtration system for groundwater constituents



## Water Efficiency

- Low flow plumbing fixtures
  - automated flow control sinks
  - dual flush water closets
- Water savings annually of 30 percent over EPACT requirements
- Baseline water use (EPACT required) is 9.6 million gallons/year
  - design case is 6M gallons/year
  - 3.6M gallons/year savings projected

Earth has 326 MILLION TRILLION gallons of water!





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**Sustainable : Energy**

- Commissioning of energy systems
- Enhanced commissioning review
- High efficiency field lighting
- Green power for ballpark operations
- Enhanced refrigeration management
- Optimized energy performance through exterior wall design



**Sustainable: Materials**

- 20 % building materials from recycled content
- 35% percent building materials regionally procured
- Re-use of site demolition materials
- 25,000 tons - 82 % construction waste recycled



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**Sustainable :  
Materials**

- Dedicated storage for recycling
- Collection bins for recyclables:
  - Glass
  - Aluminum
  - Plastic
  - cardboard



**Sustainable : Materials**

- Refrigerants in HVAC equipment contains no CFCs
- Refrigerants have been selected to minimize the emission of compounds that contribute to ozone depletion and global warming

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### Indoor Environmental Quality

- Low emitting flooring, millwork, carpet, adhesives, paint, sealants and coatings
- Construction indoor air quality management plan
- Thermal comfort design - humidity control
- Thermal comfort follow on survey

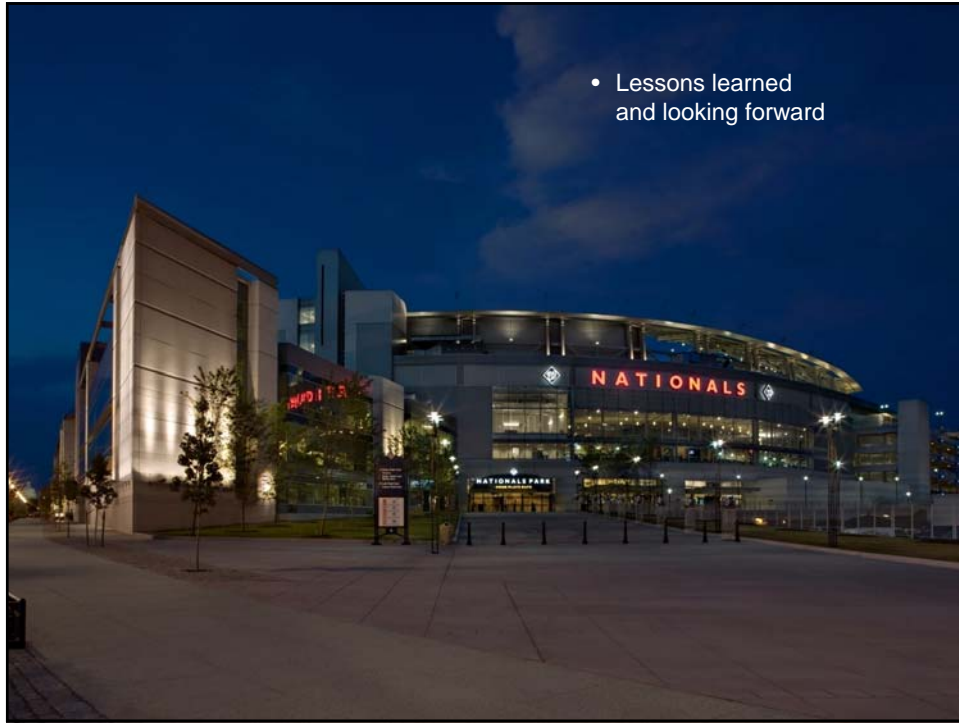


### Innovative Design Credits

- Exemplary performance in alternative transportation
- Green housekeeping program by Nationals
- Education signage in concourses

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- Lessons learned and looking forward



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