Appendix B

Assessor Evaluation
URBN Center Annex - Other

STAGE REPORT: Construction Documents (Plans and Specifications)

INTRODUCTION

URBN Center Annex, Philadelphia, Pennsylvania is a 1 story, 16,000 ft² building. The estimated construction cost is $202/sq.ft.

URBN Center Annex is described as follows:

Single story metal clad exterior 2,500 sf addition to match existing building type. the interior spaces are arranged so that two reception events can be staged simultaneously, and serve as the entry points to the Gallery, Black Box Theater and Screening room. Occupancy type assembly.

The client is Drexel University. The architect is MS&R. The mechanical engineer is PHY Engineers Inc, the electrical engineer is PHY Engineers Inc and the structural engineer is O'Donnell & Naccarato.

Summary of Your Achievement: URBN Center Annex achieved an overall rating of 59%.

To find out how the performance of URBN Center Annex compares to other buildings that have been assessed, and to obtain certification, the data must be verified by a licensed engineer or architect who has undergone the Green Globes training and certification.

Percentage of points achieved by URBN Center Annex for each module:

<table>
<thead>
<tr>
<th>Module</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Management</td>
<td>90%</td>
</tr>
<tr>
<td>Site</td>
<td>70%</td>
</tr>
<tr>
<td>Energy</td>
<td>44%</td>
</tr>
<tr>
<td>Water</td>
<td>40%</td>
</tr>
<tr>
<td>Resources</td>
<td>50%</td>
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<tr>
<td>Emissions</td>
<td>93%</td>
</tr>
<tr>
<td>Indoor Environment</td>
<td>76%</td>
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PROJECT MANAGEMENT POLICIES AND PRACTICES Rating Earned: 90%

This section evaluates the extent to which an integrated design process and a team approach have been used to generate design solutions that will meet the needs identified in previous stages of the project delivery process. It also addresses the purchasing policy and development of commissioning documentation and an emergency response plan.
URBN Center Annex achieved a score of 90% on the Green Globes™ rating scale for its integrated design process, integration of environmental purchasing, a commissioning plan and emergency response plan.

Integrated design process
Summary of Your Achievements
An integrated design process was used for the design development.
A team approach was used throughout the progressive stages of the design process. It involved collaboration of the architect, engineers, consultants, and other stakeholders.
Green design facilitation was used to support integration of energy and environmental considerations throughout the design stages.

Environmental Purchasing
Summary of Your Achievements
Aspects of green specifications have been incorporated (e.g. Re-use of existing concrete, recycling demolition debris, reuse of existing structure).
Environmental purchasing has been integrated, including the procurement of energy-saving, high-efficiency equipment.

Commissioning Plan - Documentation
Summary of Your Achievements
A best-practice, project commissioning plan is being implemented that includes the following:
• A Commissioning Authority has been engaged.
• “Design Intent” and “Basis of Design” documentation has been reviewed.
• Commissioning requirements are included in the Construction Documentation.
• A Commissioning Plan has been developed.

Emergency response plan
Opportunities for improvement
In Division 1, state the project's environmental goals and procedures with regard to emergency response. An emergency response plan should be in place prior to project start-up to mitigate the likelihood of environmental emergencies occurring on-site during site preparation or construction.

SITE Rating Earned: 70%

This section evaluates the design strategies for optimal use of the site based on information about the site, and in response to the requirements set out at the previous stages of the project delivery process.

URBN Center Annex achieved a score of 70% on the Green Globes™ rating scale for the site design and enhancement measures to minimize the building's impact on the site.

Development area
Summary of Your Achievements
The building is constructed on an existing serviced site.
The building is constructed on a site with a development density of at least 14,000 m²/ha (60,000 ft²/acre).
The building is constructed on land that is neither a wetland nor a wildlife corridor. The design accommodates the building's functions while minimizing disturbance to the site's topography, soils and vegetation.

Minimization of ecological impact
Summary of Your Achievements
Erosion control measures are in place in accordance with best management practices (BMPs) to protect the site during construction as well as over the long term. At least 30% of impervious surfaces will be shaded to avoid creating a heat island. High albedo materials (reflectance of at least 0.65 and emissivity of at least 0.9) on at least 75% of the roof surface will reflect heat and avoid creating a heat island. Obtrusive aspects of exterior lighting such as, light trespass and sky glow will be avoided to preserve the nocturnal sky.

Enhancement of watershed features
Opportunities for improvement
Provide a stormwater management plan to prevent damage to project elements, including vegetation, on this and neighboring sites. Include an engineering design of the site drainage pattern, including volume calculations and site management strategies. Aim for no increase in run-off. Or, if the site already consists of more than 50% impervious surface in its pre-development state, aim for a reduction of 25% in storm water run-off.

Enhancement of site ecology
Summary of Your Achievements
The site-planning documents specify a naturalized landscape using native trees, shrubs and ground cover, with minimal lawn.

ENERGY Rating Earned: 44%

This section evaluates the design strategies to minimize the building's energy consumption using the site's features and microclimate, space optimization, the integration of energy-efficient systems and renewable energy, and alternatives to automobile transportation.

URBN Center Annex received a score of 44% based on the assessment of best-design practices and energy performance on the Green Globes™ rating scale for energy efficiency.

Building energy performance

URBN Center Annex achieved a sub-score of 0% for its energy consumption, based on the expected energy performance of 467.396 kBtu per gross square foot per year. The reported annual energy use of the building is 7,478,341 kBtu.

Summary of Your Achievements
Energy targets are reportedly being met.

Energy demand minimization
Summary of Your Achievements
Space optimization
The floor area has been optimized to efficiently fulfill the building's functional and spatial requirements while minimizing the amount of space that needs to be heated and cooled (i.e. Building serves use for gallery space, screening room and black box theater. General lobby and reception serve as shared space for the three functions. Gallery space is optimized with pivoting partitions for more display space.

Response to microclimate and topography
The building is located and oriented on the site to optimize the effect of microclimatic conditions for heating or cooling (i.e. Gallery space faces south with glazing with pivoting walls creating inside and street side display while blocking sunlight if desired. Theater and screening room spaces face north section of the building where there were no windows, taking advantage of existing condition to serve spaces that do not require natural lighting.

Opportunities offered by the site topography, and design measures – including location and orientation – are optimized to provide shelter against wind and snow deposition.

Building envelope
There are measures to prevent groundwater and/or rain penetration into the building.

The integrity of the building envelope is optimized, using best air/vapor barrier practices:
- air barrier materials meet the requirements of local and national building codes
- drawings provide air barrier detailing between components of the building envelope and around penetrations
- mock-ups and mock-up testing is required for air and vapor barrier systems

Opportunities for improvement

Space Optimization
If possible, phase the construction process.

Response to microclimate and topography

Include measures to maximize natural ventilation and cooling or to integrate hybrid ventilation. These might include, operable windows, trickle vents, openings located to catch prevailing breezes, or horizontal pivot windows. Consider the room depth and height ratios and the possibility of open floor plans to optimize cross-ventilation.

Integration of daylighting

The construction documents should include details on window placement, glazing and any design features - for example lightsheves combined with higher, reflective ceilings - that will enhance the amount of natural light penetrating perimeter spaces. Ensure that the glazing strategies do not sacrifice the thermal requirements - i.e. to provide passive solar heating and/or optimize the cooling strategy. This is best achieved through modeling (i.e. RADIANCE) and other similar analyses.

Give detailed specifications for window glazing in the construction documents. Provide the solar heat gain coefficient (SHGC), the visible transmittance VT and the ratio between SHGC and VT (the light-to-solar gain ratio (LSG)), which indicates the relative efficiency with which the glazing is transmitting daylight, while blocking heat gains.

Provide specifications for daylighting systems, integrated electrical lighting and daylighting control systems. An account of the daily and seasonal variations should be included in the construction documents. Provide the modeling results and manufacturers' information on the lighting controls.
Develop an operating manual to ensure that appropriate adjustments can be made to the lighting systems to account for daily and seasonal changes.

Building envelope

Achieve a whole-wall R-value appropriate to the climatic conditions of the site. While the Federal or State Building Energy Codes give regional guidance, it is recommended, as a best practice, to exceed those requirements by 25-30%. Provide product data for all thermal materials. Show on the construction drawings, details of the continuous thermal barrier.

Provide data on window thermal properties including thermal bridging at the window frames. Indicate on the construction drawings, details of window shading, thermal transmittance and continuity of the thermal barrier. Specify the U-factor and shading coefficients. These should meet, at minimum, the Federal or State Energy Building Codes.

Detail the continuous air/vapor barrier and show how it will avoid thermal bridging, provide thermal comfort to the occupants and prevent condensation in the building. Include product data on air/vapor barrier materials.

Energy metering

Specify the sub-metering of processes which are considered major energy consumers (i.e. any area, system, group or item of equipment that uses over $2,000 worth of fuel per year (typically 20,000 kWh of electricity, 25,000 ft³ of gas, or 2,000 G of oil), such as lighting, motors, hot water heaters, boilers, fans, the cooling and humidification plant, computers and catering facilities. Provide a summary of the instrumentation and controls for the equipment monitoring categories, highlighting the I/O data points. Provide manufacturers' information on sensors and the data collection system used to provide continuous metering.

Energy-efficient systems

Summary of Your Achievements

The building's energy efficiency is increased through the use of energy-efficient equipment. The design includes the following:

- Energy-efficient lighting fixtures, lamps and ballasts
- Lighting controls
- Energy-efficient HVAC equipment
- High efficiency (modulating or condensing) boilers
- High efficiency chillers
- Energy-efficient hot water service systems
- Building automation systems
- Variable speed drives
- Energy-efficient motors

Opportunities for improvement

Consider integrating the following energy efficient equipment:

- Energy-efficient elevators

Renewable sources of energy

Opportunities for improvement
Consider integrating renewable energy sources. Provide details of the complete system and calculations that demonstrate the renewable energy contribution.

Energy-efficient transportation

Summary of Your Achievements

Public transport/car-pooling
Public transport is easily accessible, within 0.3 miles and with service at least every 15 minutes during rush hours.
Carpooling and/or public transport will be accommodated on-site. There will be designated preferred parking for car/van pooling, and shelter from weather for persons waiting for a lift.

Cycling facilities
Safe, covered storage areas with fixed mountings for securing bicycles against theft are included in the design.
Changing facilities for building tenants and staff are included in the design.

Opportunities for improvement

Public transport/car-pooling
Include provision for alternative-fuel re-fueling.

WATER Rating Earned: 40%

This section evaluates the design strategies to conserve treated water and minimize the need for off-site treatment of water.

URBN Center Annex achieved a score of 40% on the Green Globes™ rating scale for water consumption and measures to minimize its use.

Water performance

Opportunities for improvement

Ensure that the projected water consumption meets the water-use targets.

Water-conserving features

Summary of Your Achievements

Minimal consumption of potable water
The design includes the following of water-efficient equipment:
• water-saving devices or proximity detectors on urinals
• low flush toilets (less than 1.6 gallons/flush)
• water-saving fixtures on faucets (less than 2.0 gallons/minute) and showerheads (less than 2.4 gallons/minute)
• other water-saving appliances

Minimal use of water for cooling towers
There are no wet cooling towers.

Minimal use of water for irrigation
A water-efficient irrigation system is specified.
The specified landscaping uses plants that are able to withstand extreme local weather conditions, and that require minimal irrigation.

Opportunities for improvement
Minimal consumption of potable water
In addition to a water meter to measure the total amount of water supplied to the building, major water consumption operations such as boilers, cooling tower make-up lines, water-cooled air-conditioning units or special laboratory operations, should also be individually monitored.

Minimal use of water for irrigation
Specify irrigation using non-potable water (i.e. captured rainwater or recycled site water). If rainwater will be used, ensure that there is a system for catchment, storage and distribution.

**RESOURCES, BUILDING MATERIALS AND SOLID WASTE** Rating Earned: 50%

This section evaluates the selection and specification of environmental requirements for construction materials. Documentation to ascertain the environmental sourcing of materials such as timber and timber products, blocks, bricks, plasterboards, paints etc. used on the project should be available.

URBN Center Annex achieved a score of 50% on the Green Globes™ rating scale for managing resources through waste reduction and site stewardship.

Systems and materials with low environmental impact

Summary of Your Achievements
The selection and specification process of the following assemblies and materials included a life cycle assessment of their environmental burden and embodied energy:

- the foundations and floor assembly
- the column and beam, or post and beam combinations, and the walls

Opportunities for improvement
Specify materials with low embodied energy. Provide evidence that the foundations, floor, structural system (column and beam, or post and beam combinations), roof and envelope (cladding, windows etc.) assembly materials have undergone a life cycle assessment. The specifications should reflect the results of the “best run” life cycle assessment of the building's materials. “Best run” here means the specification with the lowest life cycle impact out of the number of the alternatives investigated. In Division 1, state the project's environmental goals and the general environmental procedures with regards to material selection and specification.

Materials that minimize consumption resources

Summary of Your Achievements
Building materials with recycled content will be used in the construction (i.e. Steel).

Tropical hardwoods will not be used and solid lumber and timber panel products will originate from certified and sustainable sources.

Opportunities for improvement
Specify the reuse of building materials and components such as, bricks, flooring, paneling, hardware, doors and frames, fixtures, cabinetry, and large-dimension structural lumber (beams and posts) or steel. Highlight reused items in drawings so that they receive special attention. Avoid older components that may contain hazards such as lead paint, older toilets and showerheads that do not
meet current water consumption standards, and older windows that do not insulate well. In Division 1, state the project's environmental goals and the general environmental procedures that address reused materials and re-manufactured products. Identify reused and re-manufactured items in appropriate CSI/Masterformat specification sections.

Maximize the use of locally manufactured products and materials (produced within 500 miles of the site) as they generally require less energy for transportation and should therefore be cost competitive over materials from a more distant source. A target of 25% of the total percentage of products or materials should be locally manufactured or be from renewable sources. Documentation of locally manufactured materials should reflect the results of their life cycle assessment.

Where feasible, specify renewable materials such as cork, and bamboo. Before making the final selection, conduct a life cycle assessment using a tool such as Athena™ Environmental Resource Guide or BEESTM™.

Reuse of existing buildings
Summary of Your Achievements
The design integrates existing façades in fully renovated buildings.
Opportunities for improvement
Reuse at least 50% of the existing façades and/or major structures. Detail exactly how they will be reused. Provide pre-construction and post-construction plans and elevation drawings showing the incorporation of the reused structure and shell elements as well as the strategy for disassembly. Determine the deconstruction or demolition contractor's requirements for storage on site and transportation.

Building durability, adaptability and disassembly
Summary of Your Achievements
Building assemblies and materials have been specified for their durability and low maintenance (i.e. Polished concrete flooring, painted gypsum wall board, painted wood flooring, tile ).

The construction documents indicate that the design promotes building adaptability (i.e. Shared multi use spaces, multi functioning theater space, screening room and gallery space with pivoting walls- can be used for visiting exhibits, student work, university functions ).

Opportunities for improvement
Specify structural, cladding and detailing materials, mechanical systems, and components that facilitate building disassembly. Where possible, use standard sized construction materials. The use of adhesives should be minimized and reversible mechanical fasteners used wherever practical. Show evidence in the design report, design drawings and specifications documentation that the building design allows for easy disassembly.

Reuse and recycling of construction/demolition waste
Summary of Your Achievements
The construction documents indicate that a construction, demolition and renovation waste management plan is incorporated into the project. The management of all construction waste will be carried out according to the plan.

Facilities for recycling and composting
Opportunities for improvement
Detail the facility's waste handling and recycling facilities. Include the locations for the collection and storage of materials separated for recycling. Ensure that adequate space for their handling and storage is provided, preferably close by or en-route to the loading dock. Provide details of facilities for collecting and composting food waste. There should be space for temporary storage at collection points near the source.

**EMISSIONS, EFFLUENTS AND OTHER IMPACTS**

Rating Earned: 93%

This section evaluates the strategies to avoid or minimize air emissions, ozone-depleting substances, effluents, pesticides, and hazardous materials. Note that it is assumed that halon-containing materials will not be introduced into the building.

URBN Center Annex achieved a score of 93% on the Green Globes™ rating scale for emissions, effluents and other environmental impacts.

Minimization of air emissions

Summary of Your Achievements

Low-NOx boilers and furnaces are specified (i.e. heat input of 500,000 BTU/hour and emissions of 20 ppm).

Minimization of ozone-depletion

Summary of Your Achievements

A refrigeration system has been specified that avoids ozone-depleting substances (ODS) and potent industrial greenhouse gases (PIGG) (i.e. R410A).

The ozone-depleting potential of the refrigerant is equal to 0.


Control of surface run-off and prevention of sewer contamination

Opportunities for improvement

Ensure that storm water and waste water discharges are free of toxic waste by incorporating measures to intercept and/or treat contaminated water such as oil-grit separators, which remove sediment, screen debris, and separate oil from storm water.

Pollution minimization

Summary of Your Achievements

Control of other pollutants (PCBs, asbestos, radon)

All PCBs present in the building meet applicable regulatory requirements.

The construction documents require that the removal or abatement of asbestos and asbestos-containing materials meets all applicable regulations.

Integrated pest management

Components, materials and the protection of structural openings are specified to avoid infestation by pests.

Storage and control of hazardous materials

There will be secure, appropriately-ventilated storage areas for occupants to store hazardous and flammable materials.
INDOOR ENVIRONMENT Rating Earned: 76%

This section evaluates the implementation of strategies used to ensure that the indoor environment is healthy and comfortable, in terms of providing a high level of indoor air quality, effective lighting, thermal comfort and suitable acoustic conditions.

URBN Center Annex achieved a score of 76% on the Green Globes™ rating scale for measures to provide a healthy, productive and comfortable environment.

Effective ventilation system

Summary of Your Achievements

Vent openings will be suitably protected.

Systems and components are specified that will avoid the release of pollution and fibers into the ventilation air path.

Sufficient ventilation will be provided to obtain an acceptable IAQ, in accordance with ANSI/ASHRAE 62.1-2004 using the Ventilation Rate Design Procedure. The reported design ventilation rate is 6 cfm/person.

There will be CO₂ indoor air quality monitoring.

Opportunities for improvement

To avoid re-entrainment, position air intakes and outlets at least 33 ft apart, and ensure that inlets will not be downwind of outlets.

Locate air intakes at least 66 ft from major sources of pollution (and/or for naturally ventilated buildings, the windows must be at least 33 ft from major sources of pollution), and at least the minimum recommended distances from lesser sources of pollution.

Ensure that the mechanical systems will provide effective air exchange. One way of determining effective mechanical ventilation is through measurements of air exchange effectiveness (E) as determined by ASHRAE 129 - 1997 Measuring Air-Change Effectiveness. This compares the age of the air the occupants breathe to the age of the air that would reach the occupants throughout the test space if the indoor air were perfectly mixed. For mechanically ventilated buildings, well-designed ventilation systems should result in an E-value greater than or equal to 0.9. For naturally ventilated spaces, demonstrate a distribution and laminar flow pattern that involves not less than 90% of the room or zone area in the direction of airflow for at least 95% of the hours of occupancy. In the case of standard HVAC systems, the construction documents should summarize all the calculations, indicating that the ventilation systems will be capable of achieving these requirements.

Specify a mechanical system that has the capability to allow the building to be flushed-out with 100% outside air at ambient temperatures above 32°F.

Specify that personal control over the ventilation rates will be provided for a maximum of four to six occupants, either through personalized HVAC controls or, for naturally ventilated buildings, operable windows or operable trickle vents.

Specify that the air distributed to occupied spaces will be filtered through filters complying with Minimum Efficiency Reporting Value (MERV) of at least 13 as determined by ASHRAE 52.2-1999 (80-90% Dust Spot Efficiency), and that filter racks shall minimize the bypass of air around the filter media or the filter cartridge frames. Provide specifications and filtration media information with the minimum efficiency reporting values (MERV) highlighted.
Source control of indoor pollutants

Summary of Your Achievements

There are measures to minimize the accumulation of moisture within the building and prevent the growth of fungus, mold, and bacteria on building surfaces and in concealed spaces (i.e. Use of building materials that are resistant to mold, such as concrete flooring, mold resistant GWB in toilet room areas).

There will be easy access to the air-handling units (AHUs) to facilitate their maintenance and drainage and avoid the accumulation of debris.

There are measures to avoid pollution at-source (i.e. Dedicated custodial and kitchenette exhausts).

The domestic hot water system is designed in such a way as to prevent the occurrence of Legionella.

Interior materials are specified that are low-VOC emitting, non-toxic, and chemically inert (i.e. Paint).

Lighting

Summary of Your Achievements

Daylighting

The construction documents indicate that the building provides direct ambient daylight to 80% of the primary spaces.

Solar shading devices are specified to enable occupants to control brightness and glare from direct daylighting.

Lighting design

Lighting levels will meet those recommended in IESNA Lighting Handbook, 2000 for the types of tasks to be anticipated in the various building spaces.

There are measures to ensure that the spaces will be free of excessive direct or reflected glare, as defined in IESNA RP-5, 1999, Recommended Practice of Daylighting.

The building design integrates local lighting controls related to room occupancy, circulation space, daylighting and the number of workstations in office areas.

Opportunities for improvement

Daylighting

Provide specifications, design drawings, documentation and lighting calculations for representative spaces to ensure that the required daylight factor is being achieved. The design should aim for an average daylight factor of 5%, for a well daylit work place. For a partially daylit workplace or a living/dining area aim for at least 2%.

Provide design and construction drawings and details of proven-in-use or proven mock-up designs demonstrating how 90% of all regularly occupied primary interior spaces will achieve a direct line of sight to the building exterior or to atria.

Thermal comfort

Summary of Your Achievements

The building design appears to conform to the ASHRAE 55-2004 for thermal comfort.

Acoustic comfort
Summary of Your Achievements

The building is sited, and spaces within the building are zoned so as to provide optimum protection from undesirable outside noise, and fall within acceptable noise criteria (NC) ranges.

The construction documents specify the sound level transmission through the building envelope. The sound transmission class (STC) rating of the exterior walls is 60.

The construction documents specify noise attenuation of the structural systems, and measures to insulate primary spaces from impact noise.

The design provides acoustic controls to meet the acoustic privacy requirements (i.e. Acoustic control for screening room with vibration isolation at the ceiling, sound lock doors and insulated ceiling and walls).

Speech intelligibility requirements are met for the various spaces and activities such as face-to-face communication and conferences.

There are measures to mitigate acoustic problems associated with mechanical equipment noise and vibration, and plumbing systems.

If you need assistance, please contact Customer Service: 1.877.424.4241 | info@thegbi.org