Appendix B

Assessor Evaluation
INTRODUCTION

THE URBN CENTER, Philadelphia, Pennsylvania is a 4 story, 134,000 ft², Office building. The estimated construction cost is $139/sq.ft.

THE URBN CENTER is described as follows:

3501 Market Street is a four story, 130,000 sq. ft. structure that was designed by iconic Philadelphia architect Robert Venturi in the mid-1970s and features a notable tiled mosaic Market Street façade. The property is sited on over 3 acres of land immediately adjoining the Drexel campus to the west on Market Street. The design objective is to turn the existing office building into light filled studios, exhibition and performance spaces that will foster student and faculty collaborations across the varied disciplines under the College of Media Arts and Design. Included in the move are Fashion Design, Design & Merchandising, the Historic Costume Collection, Architecture and Interiors, Graphic Design, Digital Media and Product Design, some aspects of the Music Industry group, as well as a new Art Gallery, a black box Theater, and the College's administrative offices. Key underlying guiding principles that will inform the design process are outlined as follows: - Transformational for both the College and University. - Dynamic: Transformation of spaces to be more accommodating, responsive and playful. - Provocative: Provision of spaces that enable and support interactions and engagements. - Heliotropic: Enrichment of the space through the harvesting of daylight through physical and technological means. - Social: The spaces will foster the necessary intersections between socialization and education. - Flexible: Through Modularity provide Flexibility for each of the departments. - Urban Connectedness: The building will be interconnected to the sidewalk, university, district, city and region. The design will also be consistent with and elaborate on the principles of University master planning. - Sustainable: The building will have as minimum an impact on the environment as possible. - Inspirational: The spaces will support learning and idea exchange by being inspirational. - Fiscally responsible. Construction type 2B Type B occupancy Steel Frame construction

The client is Drexel University. The architect is Meyer Scherer & Rockcastle, Ltd. 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:** THE URBN CENTER achieved an overall rating of 69%.

To find out how the performance of THE URBN CENTER 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 THE URBN CENTER for each module:

<table>
<thead>
<tr>
<th>Module</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Management</td>
<td>90%</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.

THE URBN CENTER 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. Chilled beam system, re-used wood flooring, low e glazing, reuse of existing structure, toilet rooms, exposed existing concrete flooring, recycling demolition debris).
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: 46%

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.

THE URBN CENTER achieved a score of 46% 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.
- Obtrusive aspects of exterior lighting such as, light trespass and sky glow will be avoided to preserve the nocturnal sky.

Opportunities for improvement

Specify measures to minimize heat build-up on the roof, such as a green roof or high-albedo roofing materials. Use Energy Star compliant, high-reflectance and high-emissivity roofing (initial reflectance of at least 0.65, a three-year-aged reflectance of at least 0.5 when tested according to ASTM E903, and an emissivity of at least 0.9 when tested according to ASTM 408). Provide details of the roofing construction, annotated to show compliance with the requirements.

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
Opportunities for improvement
Specify a naturalized landscape using native trees, shrubs and ground cover, with minimal lawn.

ENERGY Rating Earned: 65%

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.

THE URBN CENTER received a score of 65% based on the assessment of best-design practices and energy performance on the Green Globes™ rating scale for energy efficiency.

Building energy performance

THE URBN CENTER achieved a sub-score of 40% for its energy consumption, based on the projection that the building will be 20% more energy efficient than the reference building, with an annual energy use of 8,663,986 kBtu (64.657 kBtu per gross square foot per year).

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 has 4 floors, additional spaced added in mezzanines, shared spaces and minimal circulation 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. Studio space is situated to take advantage of natural light; mechanical rooms, server rooms, workshop areas are situated in lower level where no windows occur.).
Opportunities offered by the site topography, and design measures – including location and orientation – are optimized to provide shelter against wind and snow deposition.
Integration of daylighting
The amount of daylighting is optimized through building orientation and window-to-wall size ratios (i.e. The existing fenestration was maintained and additional windows added to optimize daylighting.).
The indicated visible transmittance (VT) of the window glazing is 0.64.
Building envelope
The thermal resistance of the exterior enclosure meets Building Energy Code levels. The reported thermal resistance (R) of the exterior wall is 9 and of the roof is 5.
Window glazing with a low U value and window treatments that enhance interior thermal comfort are specified. The indicated U value of the window glazing is 0.3.
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

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
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
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
- 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.

Opportunities for improvement
Public transport/car-pooling
Include provision for alternative-fuel re-fueling.
Cycling facilities
Indicate in the construction documents, changing facilities or separate or enlarged washroom facilities for building tenants and staff. Locate the facilities near the route to the bicycle storage area. Provide facilities for hanging and drying clothes.

WATER Rating Earned: 26%

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

THE URBN CENTER achieved a score of 26% 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
• other water-saving appliances
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.

Consider integrating the following water efficient equipment:
• low-flush toilets (less than 1.6 gallons/flush)
• water saving fixtures on faucets (2.0 gallons/minute or less) and shower heads (2.4 gallons/minute or less)

Provide manufacturers' data and proven-in-use documentation.

Minimal use of water for cooling towers

If air-conditioning is to be used, specify air-cooling towers where feasible. Alternatively, select cooling towers that minimize the need for make-up water, and features that will conserve water such as an automatic control (to shut off the unit when the facility is unoccupied such as at night or on weekends, or to operate it concurrently with chillers); automated blowdown systems (so that blowdown is done only as needed, rather than routinely); conductivity probes (to measure the total dissolved solids so as to minimize the blowdown cycle); delimiters (to reduce drift and evaporation); and water meters (to measure water that is not discharged to sewage system, such as water that has evaporated from the cooling tower). Provide manufacturers' data and proven-in-use documentation.

RESOURCES, BUILDING MATERIALS AND SOLID WASTE

Rating Earned: 79%

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.

THE URBN CENTER achieved a score of 79% 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
• the roof assembly
Materials that minimize consumption resources

Summary of Your Achievements

Used building materials and components will be integrated in the construction (i.e. reuse of existing concrete flooring, wood flooring is recycled lumber).

Building materials with recycled content will be used in the construction (i.e. Wood flooring is recycled lumber).

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

Opportunities for improvement

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 BEES™.

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. Existing concrete flooring, aluminum and glass storefront system walls, recycled wood flooring).

The construction documents indicate that the design promotes building adaptability (i.e. Sliding walls, moveable display walls, shared multi use spaces).

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
Summary of Your Achievements
The construction documents indicate that there will be 300 ft² of space designated for the storage of recyclable waste.

EMISSIONS, EFFLUENTS AND OTHER IMPACTS
Rating Earned: 92%

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.

THE URBN CENTER achieved a score of 92% 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 750,000 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. HFC-134A).
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)
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: 88%

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.

THE URBN CENTER achieved a score of 88% on the Green Globes™ rating scale for measures to provide a healthy, productive and comfortable environment.

Effective ventilation system

Summary of Your Achievements

To avoid re-entrainment, air intakes and outlets will be positioned at least 10 m apart, and inlets will not be downwind of outlets.

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 20 cfm/person.

The mechanical systems will provide effective air exchange (i.e. Ceiling supply of cool and warm air through chilled beam is an effective form of air exchange).

There will be electronic airflow indoor air quality monitoring.

The filters have a minimum efficiency of 65% arrestance, or 40% atmospheric dust-spot efficiency for air distributed to occupied spaces.

Opportunities for improvement

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.

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.

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. Concrete and linoleum flooring, mold resistant GWB and tile 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.

Humidifiers that are specified to avoid the growth of microorganisms (i.e. Humidifiers on Liebert CRAC units are designed to avoid growth).
There are measures to avoid pollution at-source (i.e. Fume hoods and exhaust fans).
Wet cooling towers are designed and located in such a way as to avoid the risk of *Legionella*.
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 and finishes, floor coatings).

**Lighting**

**Summary of Your Achievements**

**Daylighting**
The construction documents indicate that the building provides direct ambient daylight to 80% of the primary spaces.
The building will provide ambient natural lighting, achieving a daylight factor of 0.2 for work places and or living/dining areas requiring moderate daylighting, and 0.5 for well day-lit work areas.
The construction documents indicate that there will be views to the building exterior, or to atria from all primary interior 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.

**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 design provides acoustic controls to meet the acoustic privacy requirements (i.e. Acoustic panels at ceiling, asoustic doors and insulation within 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.

**Opportunities for improvement**
Specify the permitted sound level transmission through the building envelope.
Provide noise attenuation of the structural systems, and include measures to insulate primary spaces from impact noise.

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