INTRODUCTION

URBN Center Annex, Philadelphia, Pennsylvania is a 1 story, 16,000 ft² building. The projected 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.

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

<table>
<thead>
<tr>
<th>Module</th>
<th>Percentage Score</th>
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</thead>
<tbody>
<tr>
<td>Management</td>
<td>100%</td>
</tr>
<tr>
<td>Site</td>
<td>83%</td>
</tr>
<tr>
<td>Energy</td>
<td>51%</td>
</tr>
<tr>
<td>Water</td>
<td>36%</td>
</tr>
<tr>
<td>Resources</td>
<td>48%</td>
</tr>
<tr>
<td>Emissions</td>
<td>73%</td>
</tr>
<tr>
<td>Indoor Environment</td>
<td>85%</td>
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Summary of Your Achievement: URBN Center Annex achieved an overall rating of 65%.

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.

PROJECT MANAGEMENT POLICIES AND PRACTICES

This section evaluates the extent to which an integrated design process and a team approach are being used to generate design solutions that will meet the needs identified in previous stages, as well as the purchasing policy and the commissioning plan.
URBN Center Annex achieved a score of 100% on the Green Globes™ rating scale for its integrated design process, integration of environmental purchasing and commissioning plan.

Integrated design process
Summary of Your Achievements
  - An integrated design process is being used for site selection and the building design concept.
  - The design process uses a team approach.
  - Green design facilitation is being used to support green integration.

Integration of environmental purchasing
Summary of Your Achievements
  - Environmental purchasing, including the procurement of energy-efficient equipment is being addressed.

Commissioning plan - documentation
Summary of Your Achievements
  - The Designer has produced a Schematic Design Report which includes Design Intents, Basis of Design, Design criteria, an O&M Report and budget, and a description of the service contracts that will be needed.
  - Basis of Design documentation is being prepared.
  - The Designer has established design criteria to meet the functional and operational requirements of the building.

**SITE** Rating Earned: 83%

This section evaluates design strategies for optimal use of the site based on information gathered during the Predesign - Site Analysis Stage, and in response to the requirements set out at the Predesign - Project Initiation Stage and further outlined in the Predesign - Programming Stage.

URBN Center Annex achieved a score of 83% on the Green Globes™ rating scale for site design and measures to minimize the impact of the building on the site and/or the site enhancement.

Analysis of development area
Summary of Your Achievements
  - The site is an existing serviced site.

The site has been verified as not being a wetland or a wildlife corridor.

Opportunities for improvement
Apply the site analysis results to the development of the site plan. Review historical land use records and consider the cumulative environmental impact of other nearby existing facilities. Conduct an environmental or an ecological risk assessment for new construction as well as major building renovations where required.

Development of strategies to minimize ecological impact
Summary of Your Achievements
The design recommends that undeveloped areas on the site, that is areas which will not be build upon or used for parking or access roads, remain undisturbed.
The Schematic Design proposes the integration of native planting and landscape naturalization.
There are strategies to avoid creating heat islands.
The design proposes exterior lighting that avoids glare, light trespass and night sky glow.

Integration and enhancement of watershed features
Summary of Your Achievements
Site grading will be used to increase infiltration, reduce run-off and divert water from the building.
The design proposes that hardscapes be minimized and pervious material and vegetated areas be maximized on the site.

Opportunities for improvement
Maintain existing water courses and use plants and trees to anchor the soil along drainage courses, to retain and/or treat stormwater on-site as needed.

Design a strategy to capture rainwater from the building and/or impervious areas of the site for groundwater recharge or for reuse in the building. Where applicable, consider integrating a natural or human-engineered pond or drywell and direct the flow of water towards it.

Strategies to enhance site ecology
Summary of Your Achievements
There are plans to remediate the contaminated site.
There are strategies to enhance the site’s natural features.

**ENERGY** Rating Earned: 51%
This section evaluates strategies that are being considered to reduce the energy consumption of the building. The proposed solutions should be developed using an integrated design process that considers a wide range of factors such as the site’s microclimate, space optimization, the integration of energy-efficient systems and transportation.

Building systems such as HVAC, lighting and heating of water use large amounts of energy. Energy is an important environmental parameter because it relates directly to climate change and global warming as well as a variety of air emissions. These include sulfur dioxide and oxides of nitrogen, which produce acid rain; as well as hydrocarbons and airborne particles. There is also a direct relationship between energy savings and cost savings.

URBN Center Annex achieved a score of 51% on the Green Globes™ rating scale for energy efficiency. This represents the weighted integration of the sub-scores for: modeling and simulation of the building energy performance, energy demand minimization strategies, integration of energy-efficient systems, integration of renewable energy sources, and planning energy-efficient transportation.

Modeling and simulation of building energy performance; establishing an energy target.

URBN Center Annex achieved a sub-score of 0% for its energy consumption, because the information needed is not complete.

It was not possible to obtain energy use and cost target information from the Energy Star® Target Finder because building type “Other” was specified. To obtain target information from the Target Finder the building type must be set to one of the primary space types defined by the Target Finder (in the Basic Information section) and then answers required for the building type specified must be provided in the Energy section. Opportunities for improvement

Perform a preliminary energy simulation. Develop feasible combinations of strategies to achieve levels of performance (i.e. 30%, 40% and 50%) better than those of a building that meets the ASHRAE 90.1 energy code. Determine initial and operating costs related to each strategy. Based on annual energy use calculations, compare various strategies. Confirm that the design is projected to meet or exceed a energy consumption target.

To ensure achievement of the targets, carry out an energy analysis during the design process and after occupancy.

Energy demand minimization strategies
The use of energy in buildings impacts on the environment through the consumption of non-renewable resources and by contributing to global pollution through greenhouse gas emissions. The reduction of this impact and improved comfort conditions start with the space planning of the building and consideration of microclimatic conditions. The ASHRAE 90.1-2004 standard sets out the design requirements for improving the energy performance of buildings, focusing on both the building envelope and the building systems and equipment.

URBN Center Annex achieved a sub-score of 72% based on a review of space optimization, response to microclimate and topography, daylighting and design features of the building envelope that would be expected to affect the building's energy use and hence its carbon dioxide emissions.

Summary of Your Achievements

Space optimization
The design proposes the optimization of space use to maximize energy efficiency.
Response to microclimate and topography
The design proposes that spaces and openings be configured to optimize passive solar gains.
The design proposes that the building be configured to minimize snow deposition and thermal loss due to wind.
Daylighting
The window sizing and placement are being designed to optimize energy-savings and maximize daylighting.
The design proposes that window glazing be used to optimize energy-savings and daylighting.
Integration of lighting controls is proposed in the design.
Optimization of building envelope
The design proposes that glazing with a low U-factor be used.
The design explores material selection strategies to respond to ambient conditions, including wind, precipitation and other environmental forces, which would meet or exceed the performance requirements of the Model National Energy Code for Buildings.

Measures are being proposed to prevent groundwater or driven rain from penetrating into the building.
The design proposes a continuous air barrier.

Opportunities for improvement
Response to microclimate and topography
Develop a building form that, site permitting, can benefit from natural or hybrid ventilation to provide natural cooling during the time of the year when outdoor air is cooler than indoor air. Evaluate the potential for an open floor plan. Consider room depth and height ratios.

Daylighting
Select a building form and orientation that, site permitting, maximizes opportunities for natural daylighting. Provide the window treatment for each façade that appropriately responds to the orientation surroundings. Use computer simulations of daylighting and energy to evaluate alternatives.

Explore strategies to bring natural light deeper into occupied spaces while avoiding sunlight falling directly on occupants or worktops. Consider the window size to interior space ratio. In residential applications, avoid deep, unlit spaces.

Explore opportunities for integrating exterior and/or interior shading devices to control overheating and glare.

Optimization of building envelope
Develop combinations of strategies that use the principles of thermal massing, passive solar-heating and control, and a suitable ratio of volume to surface area/glazing. Consider integrating an interior/exterior buffer zone such as an atrium, courtyard or vestibules.

Integration of energy-efficient systems
Building systems such as HVAC, lighting and heating of water use large amounts of energy. The ASHRAE 90.1 standard focuses on improving the energy consumption performance of commercial buildings based on both the building envelope and the building systems and equipment.

URBN Center Annex achieved a sub-score of 80% based on a review of individual design features of the building services that would be expected to affect the building’s energy use and hence its carbon dioxide emissions.

Summary of Your Achievements
The design proposes the integration of the following lighting features:

- high efficiency lamps
- luminaires with electronic ballasts
- task lighting where suitable
- appropriate personal lighting controls

The design proposes the integration of the following:
• variable speed drives on variable air volume distribution systems
• energy-efficient motors

The integration of building automation systems (BAS) is proposed.
The design provides for the integration of hot water saving devices.

Opportunities for improvement
Explore the possibility of other energy-saving systems measures or technologies and indicate how these would be integrated into the design.

Integration of renewable energy sources

Renewable energy sources are those that produce electricity or thermal energy without depleting resources or producing greenhouse gas. They include solar, wind, water, earth and biomass power, and energy from waste.

URBN Center Annex received a sub-score of 0% for integration of renewable energy sources.

Opportunities for improvement
Explore strategies to integrate, where appropriate, the following renewable energy systems into the design:
• Solar-heating systems
• High efficiency, low emissions biomass combustion systems
• Wind energy systems
• Photovoltaics (PV)

Investigate the scope and amount of renewable energy that can be supplied either directly or indirectly to the buildings.

Planning energy-efficient transportation

A daily journey totaling as little as 5 miles by car can, over one year, emit as much CO₂ as that emitted to provide heat, light and power for a person in an office.

URBN Center Annex received a sub-score of 88% for facilitating alternatives to automobile commuting.

Summary of Your Achievements
Public transport
The site design will integrate the following features to reduce automotive commuting:
- good access to public transport
- Cycling facilities
  The design proposes secure, sheltered and accessible bicycle storage.
  The design includes staff changing facilities in the building.

**WATER** Rating Earned: 36%

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

URBN Center Annex achieved 36% on the Green Globes™ rating scale for water consumption and measures to minimize water use.

Meeting a water performance target

Water conserving strategies
Summary of Your Achievements
- Strategies to minimize consumption of potable water
  The design proposes sub-metering of water consumption.
  The following water fixtures are being considered:
  - water-saving devices or proximity detectors on urinals
  - low flush toilets (less than 1.6 gallons/flush)
  - water-saving fixtures on faucets (2.0 gallons/minute) and showerheads (2.4 gallons/minute)
  - other water-saving appliances
- Strategies to minimize water for cooling towers
  Air-cooled towers or dessicant cooling are being considered.

Opportunities for improvement
- Strategies to minimize water for irrigation
  Integrate native, drought-resistant species into the landscape.

If a rainwater catchment system is to be integrated, consider the required volume, based on regional rainfall data and plant requirements. Evaluate the availability of potential storage areas on the site (basins, cisterns, ponds, etc.).

Evaluate the site and building for opportunities for graywater reclamation and non-potable water uses (i.e. irrigation, toilets, etc.). Research and analyze systems early in the design

process to ensure successful and effective design solutions. Evaluate requirements for permits and/or variances. Graywater collection and irrigation systems must be considered early in the design process, since they will affect landscaping design and the size and placement of mechanical spaces.

Strategies to reduce off-site treatment of water

If a graywater system is to be used, evaluate how the various graywater technologies could be integrated into the design.

RESOURCES, BUILDING MATERIALS AND SOLID WASTE

This section evaluates strategies and design approaches, material selection and construction systems that use fewer resources, or enable materials to be reused or recycled. The design of facilities for storing recyclable waste is also considered.

URBN Center Annex achieved a score of 48% on the Green Globes™ rating scale for managing resources through waste reduction and site stewardship.

Integration of systems and materials with low environmental impact

Opportunities for improvement

Conduct a preliminary research and evaluation of building materials generically, such as concrete, steel, and wood. Explore the environmental effects of different design options or material mixes.

Strategies to minimize the use of non-renewable resources

Summary of Your Achievements

The Schematic Design recommends the incorporation of building materials that contain recycled content.

The utilization of locally manufactured materials is proposed for the project.

The design stipulates that tropical hardwoods be avoided and solid lumber and timber panel products originate from certified or sustainable sources.

Opportunities for improvement

Research local sources to assess the availability of construction & demolition (C&D) waste for use in the project. Avoid products that contain hazardous materials or that do not meet current performance standards.

Strategies to reuse parts of the existing building

Summary of Your Achievements
It is intended that at least 50% of the existing façade will be reused. 
It is intended that at least 50% of the existing major structures (other than the building shell) be reused.

Design strategies for building durability, adaptability and disassembly
Summary of Your Achievements
Design features to facilitate building adaptability are being considered.
The design proposes the incorporation of durable, low-maintenance building materials and components, particularly in areas likely to experience high levels of wear and tear.
Design options are being considered to facilitate building disassembly.

Strategies to reuse and recycle demolition waste
Summary of Your Achievements
A construction, demolition and renovation waste management plan is proposed.

Facilities for recycling and composting
Summary of Your Achievements
The design proposes facilities for future occupants to handle and store consumer recyclables.

EMISSIONS, EFFLUENTS AND OTHER IMPACTS Rating Earned: 73%

This section evaluates 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 73% on the Green Globes™ rating scale for emissions, effluents and other environmental impacts.

Strategies to minimize air emissions

Strategies to avoid ozone-depleting refrigerants
Summary of Your Achievements
Cooling systems using refrigerants containing ozone-depleting substances (ODS) or potent industrial greenhouse gases (PIGGs) will not be used.
Where CFC (chlorofluorocarbon), HFC (hydrofluorocarbon) or HCHFC (hydrochlorofluorocarbon) refrigerants are proposed, their ozone-depleting potential will be less than 0.05.

Opportunities for improvement

Where fluorocarbon-based refrigerants must be used, select those with the lowest ozone-depleting potential (ODP) and global warming potential (GWP) during the equipment lifecycle. In retro-fits, complete a comprehensive CFC phase-out conversion. Consider replacing the existing ozone-depleting system with a substitute. Where applicable, preference should be given to chilled water precincts, as opposed to split and packaged systems and unitary self-contained units. These are easier to maintain and monitor for leaks.

Strategies to control surface run-off and prevent sewer contamination

Opportunities for improvement

Review the sources of effluent contamination and include in the design, measures to either intercept contaminants before they run off into sewers or waterways, or to treat the contaminated water on-site.

Specify that roof drains should not be connected to sanitary sewers and design them to divert water from the building and into the ground. If feasible, incorporate a green roof into the building design.

Pollution reduction strategies

Summary of Your Achievements

Strategies to control other pollutants (PCBs, asbestos, radon)

Any PCBs and asbestos present in the building will be removed and/or will meet applicable regulatory requirements.

Strategies for proper storage and control of hazardous materials

The design provides proper storage of hazardous materials.

INDOOR ENVIRONMENT Rating Earned: 85%

This section evaluates the strategies that are being 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 85% on the Green Globes™ rating scale for indoor environment and the measures to provide healthy, productive and comfortable environment.

Strategies for effective ventilation

Summary of Your Achievements

The design proposes that air intakes be positioned so that they are far from sources of pollution and prevent recirculation. The openings will be protected.
A strategy for effectively delivering ventilation is being developed.
The design proposes a CO₂ monitoring system to ensure that levels do not exceed 800 ppm.
The intended control systems will allow ventilation rates to be adjusted to meet varying needs throughout the building.
The design provides for easy access for cleaning and inspecting air filters.

Opportunities for improvement
Investigate and evaluate available technologies for personal environmental controls and integrate the selected option into the design.

Strategies for the source control of indoor pollutants

Summary of Your Achievements
There are design measures for controlling moisture build-up in the building and to prevent the growth of mold.
The air-handling units will be easily accessible for regular maintenance and drainage.
The hot water design will help to avoid the occurrence of *Legionella*.

Opportunities for improvement
If smoking is to be allowed, consider the options to avoid smoke infiltration throughout the building. Provide floor to ceiling partitions and exhaust at source to remove chemical contaminants in smoking areas as well as chemical storage areas, photocopying stations or workshops, or areas where there are fossil fuel burners.

Strategies to optimize lighting

Summary of Your Achievements
Daylighting
The lighting is being designed using an integrated, sequenced approach.
The orientation and visual access of the building are being considered in terms of daylighting potential.
The heights and depths of the perimeter spaces are being designed to optimize daylighting.
The Schematic Design indicates how much of the floor plan will receive direct daylight and the approximate value.

Lighting design
The design proposes electronic ballasts fitted to luminaires.
The proposed lighting concept follows the guidelines outlined in the *IESNA Lighting Handbook for Lighting Levels* with regards to the selection of lighting levels for specific tasks. The design proposes suitable task lighting. The local lighting controls will be adjustable to meet requirements relating to room occupancy, circulation space, and daylighting.

**Opportunities for improvement**

**Daylighting**

Calculate the percentage of the floor plan that would receive the most direct daylight based on various floor plan design options.

For critical spaces, calculate the daylight factor for different times of the year for clear-sky and overcast conditions. Use various energy-efficient lighting and daylighting design strategies to maximize the daylight where necessary. Aim for an average daylight factor of 5%, in 80% of work areas, for a well day-lit work place. For a partially day-lit workplace or a living/dining area in a typical dwelling unit, aim for at least 2%.

**Strategies for thermal comfort**

**Summary of Your Achievements**

Based on thermal evaluation for critical spaces the thermal conditions will meet ASHRAE 55-2004.

**Strategies for acoustic comfort**

**Summary of Your Achievements**

The design plan includes strategies to zone acoustically sensitive occupancies far from undesirable external noise sources.

Design strategies are being developed to control noise transmission from the site through the building envelope.

There are design measures to achieve desired vibration control and prevent noise transmission throughout the building.

There are design measures, such as zoning or isolating certain spaces, to achieve the required acoustic privacy and minimize the potential for occupancy-related acoustic problems.

Design strategies exist to achieve reverberation control/acoustic absorbency, consistent with speech intelligibility requirements.

**Opportunities for improvement**

Plan the layout, size and shapes of the ductworks and acoustically zone the building to minimize noise from mechanical systems and equipment.