

Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2007.

- Utilize tree plantings to shade buildings and reduce cooling loads.
- Design for daylight access and view.
- Exterior building materials shall be selected to prevent glare.
- Zone outdoor condition spaces (temporary during winter).
- Ensure efficient end use of energy and reduce peak demand and load shaving.
- Right-size mechanical equipment.
- Specify high performance building system/heat recovery/air side economizers.
- Install building controls and metering to encourage conservation and comfort.
- Install efficient appliances (i.e. Energy Star Rating) and equipment.
- Optimize site lighting design by installing energy efficient interior light fixtures and exterior lighting which minimizes glare and is controlled by automatic timers.
- Purchase electricity power from renewable sources.

Indoor Environmental Quality

Indoor environmental quality is an important component of sustainability because it contributes to the wellness and comfort of building occupants. Studies have shown that improved air quality through use of strategies such as low-emitting materials, personal control systems such as operable windows and programmable thermostats, and exposure to natural light can benefit the health and productivity of building occupants. Indoor environmental quality concerns are addressed in the building design and in the selection of materials. For example, ventilation should be designed to best practice standards to ensure adequate circulation of fresh air. Also, incorporating carbon dioxide monitoring in densely occupied spaces would ensure improved air quality while minimizing energy use.

At Canal Side, building characteristics and indoor environments could be designed to reduce occupant exposure to potentially harmful chemical and biological agents such as carbon dioxide, volatile organic compounds (VOCs), molds, allergens and infectious agents. These improvements may result in health benefits as well as monetary savings due to increased productivity. Office, residential and retail spaces at Canal Side could be designed to maximize exposure to natural daylight. Use of natural light requires less electric light energy, contributes less to internal heat loads requiring cooling and produces the most desirable quality of light, creating an inviting atmosphere.

Suggested Strategies:

- Adopt natural daylighting strategies.
- Design for view access from regularly occupied spaces.
- Provide occupants with local control of temperature and air movement as well as lighting.
- Provide operable windows where possible on the building perimeter away from possible sources of contamination such as loading and service areas and building exhaust fans.
- Use natural ventilation strategies where possible. See ASHRAE 62.1-2007.
- Develop and implement an Indoor Air Quality (IAQ) plan. See Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction.
- Provide air quality testing or building flush-out prior to occupancy.
- Provide indoor pollutant and source control and MERV 13 (a measure of filter efficiency) filtration.
- Institute a development-wide green-cleaning program using 100% non-toxic cleaning products.
- Use adhesives and sealants consistent with Green Seal standard GS-36.
- Use paints and coatings with VOC levels specified in Green Seal Standard GS-11.
- Use carpets and pads consistent with American National Standards Institute (ANSI) NSF 140-2007 and the Carpets and Rug Institute (CRI)'s Green Label Plus Program.
- Use composite wood and agrifiber products with no added urea-formaldehyde or adhesives.

Water Management

A sustainable water infrastructure conserves potable water, reuses non-potable water whenever possible, directs and captures stormwater and allows solid settling before discharge to a water body or sewer system. By managing water on-site, the Project can relieve stress on the City's aging water infrastructure.

Water is a significant design feature of the Project, linking activities on-site to those on the Buffalo River. It is important to employ best practice management for the conservation, reuse and quality of water on-site. All buildings at Canal Side should aim to decrease the demand for potable water through efficient plumbing equipment and policies that encourage conservation. For example, reducing impervious surfaces would help stormwater infiltration within the Project Area. Also, metering could be used to help motivate tenants to reduce their potable water demand.

The variety of water-related components within Canal Side, such as the aquarium, boating activities, and canals require special attention to stormwater collection and runoff. It is suggested that Canal Side incorporate stormwater harvesting on-site to collect the water before it mixes with the water used for recreation. The collected rainwater could be treated and stored under the canal or in stormwater tanks throughout the development to be reused for non-potable uses such as irrigation or toilet flushing.

Suggested Strategies:

- Reduce potable water consumption through plumbing fixtures that conserve water for laundry, dishwashing, and restrooms and activated controls on lavatories and sinks. See Energy Policy Act of 1992.
- Reuse grey water, storm water, and condensate water for appropriate non-potable uses such as refilled canal water, toilet flushing, and irrigation.
- Enhance storm water management through the reduction and slowing of runoff water.
- Mitigate storm water runoff from the development.
- Employ drip irrigation where appropriate and utilize highly efficiency irrigation systems.
- Minimize the use of chlorine-based chemicals in all water treatment.
- Meter tenant water use.

Outdoor Environment and Site Construction

Integrating aesthetics with functional responsive design of outdoor areas at Canal Side would offer both environmental and economic benefits, while addressing potential adverse environmental impacts such as stormwater runoff, urban heat island effect, localized air pollution, light trespass, and noise. Also, the development of the landscape by providing ample access to outdoor amenities would enable Canal Side to act as a hub for outdoor and waterfront recreation in Buffalo.

While the summer can be mild and pleasant in Buffalo, the winter can be cold and windy, particularly at the waterfront due to the winds coming from the southwest off of Lake Erie. A variety of strategies can be implemented to create an environmentally responsive environment throughout the seasonal changes in Buffalo weather. In creating a usable outdoor space on the waterfront, it is important to develop strategies that provide comfortable microclimates for Canal Side visitors. Priority should be given to utilizing daylight in the winter months and diverting strong cold, winds from outdoor occupants, while providing strategic shading in the summer and promoting a diverse landscape. The public plaza opposite the destination retailer provides a prime opportunity to create a pleasant outdoor open space as well as create visually appealing landscape berms to protect the canal area from wind. Trees should be planted along the streets where applicable, as they can provide shade for pedestrians walking through the Project. Furthermore, trees can act as a traffic noise buffer and reduce pollution generated by cars.

Exterior lighting plays a key role in enhancing both the daytime and nighttime visitor's experience and safety throughout the Project. In order to highlight the architecture, a lantern effect may be achieved with interior lighting on ceilings and walls in retail stores. This can in turn help to illuminate part of the outdoor walkway. The overall development should specify either full cut off fixtures or set the exterior light poles not

to exceed 15 feet from the ground floor. This will ensure that there is adequate illumination for pedestrians without creating a shadow effect, especially along the canal area. Ideally, light from the exterior fixtures should be diffuse to reduce contrast and potential glare issues.

In regards to snow management, because salt can adversely affect water supply and watersheds by infiltrating surface runoff, best practice management would be to prevent chemicals used from entering watersheds and supplies. Storage of chemicals should be tightly contained and monitored. There should be receptors and drains to mitigate contaminated snow melt runoff, especially into canals or bodies of water and major landscape areas. Another strategy to consider includes installing snow fencing to reduce snow drift to areas that have already been cleaned.

Sustainable concepts for site construction and landscape planting should be implemented in an integrated manner by the engineering and design teams. Site construction operations such as grading and site clearance can have negative impacts on the natural environment. Balancing soil cut and fill on-site eliminates the need to move soil in motorized vehicles off-site. This can reduce negative impacts to air quality and natural storm water drainage patterns. Also, on-site balancing would eliminate the need for fill sites and maintaining topsoil resources.

The construction of paved areas with permeable surfaces or groundwater recharge systems would reduce the need for stormwater drainage infrastructure. Low water use plantings typically reduce the need for irrigation, which could be provided through re-claimed water facilities. Plant material waste could be reduced through the selection of lower maintenance varieties of plants in their natural form and size. Green waste could be composted on site and used for mulching to further reduce maintenance and water needs.

Suggested Strategies:

- Develop and implement an erosion and sedimentation control plan.
- Balance cut and fill on site.
- Utilize daylight access and outdoor shading.
- Reduce shadows on open space.
- Include tree canopies to provide shading.
- Improve outdoor amenities within current open space.
- Use permeable paving or groundwater recharge systems where applicable to increase infiltration and reduce storm water runoff.
- Incorporate vegetated buffers along roadways to help mitigate noise and air pollution and infiltrate storm water runoff.
- Select appropriate plant materials and use other methods to minimize the amount of landscaping waste.
- Group plant materials in hydro zones to reduce irrigation needs.
- Utilize permeable paving materials to increase rain water infiltration and reduce storm water infrastructure needs.
- Reduce or eliminate fertilization of landscape. Use compost as fertilizer rather than synthetic compounds or the least chemically based fertilizers.
- Implement best snow management.
- Minimize skyward lighting that contributes to night sky light pollution. See environmental criteria established by the Illuminating Engineering Society (IES).
- Minimize the concentration of contaminants.

Material Resources and Waste Reduction/Recycling

In general, the construction process can have short-term adverse environmental impacts as equipment, infrastructure and people are introduced to the Project Area. Construction practices and materials should be focused on minimizing the impact of building materials and recycling construction waste. The efficient use of materials and the use of recycled materials, protects the natural environment, reduces the need for

manufacturing and reduces landfill demand. While it is important to choose materials that are consistent with the historic design aesthetic, certain materials could be selected that are manufactured locally or regionally, enhance overall building performance and have the least environmental impact. The emerging standard for a regional material is anything extracted and manufactured within 500 miles of the Project Area. This area includes the Northeast region, part of the Midwest region, and Canada. The use of materials that minimize environmental impact is a key part of an overall green building strategy.

Construction waste could be reduced by developing a waste reduction plan to divert construction waste from landfills. A comprehensive recycling guideline could be developed for the entire Project Area. Also, convenient locations for the collection and storage of recyclable materials should be included in the program of all buildings and facilities in the Project Area. Storage for materials separated per local requirements could be provided. Additionally, given the windy conditions, the project could have a cleaning program in place to mitigate the potential of trash blowing onto the canals.

Suggested Strategies:

- Promote recycling program among developments.
- Develop a comprehensive construction waste management plan.
- Divert construction waste from landfills by reusing waste on-site and recycling remaining waste.
- Utilize ultra-low sulfur diesel for construction equipment.
- Include recycled and local/regional material requirements in all material specifications. See U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines (CPG).
- Use adhesives and sealants consistent with Green Seal standard GS-36.
- Use paints and coatings with VOC levels specified in Green Seal Standard GS-11.
- Use carpets and pads consistent with American National Standards Institute (ANSI) NSF 140-2007 and the Carpets and Rug Institute (CRI)'s Green Label Plus Program.
- Use composite wood and agrifiber products with no added urea-formaldehyde or adhesives.
- Specify wood used for construction to be Forest Stewardship Council (FSC) certified.
- Specify non-mercury, non-asbestos containing materials and equipment.

11. Development Review Procedure

11.1 Canal Side Design Committee

Purpose

The purpose of the Canal Side Design Committee (“Committee”) is to assist the Erie Canal Harbor Development Corporation Board of Directors (“Board”) with the development, adoption and implementation of these Guidelines. The Committee’s role is to help ensure that the Guidelines and all development at Canal Side promote a cohesive atmosphere that is inspired by the architecture of Buffalo’s historic canal district.

Composition, Selection, and Qualifications

1. The Committee shall be comprised of three members. The Committee members shall be appointed by, and will serve at the discretion of the Board with input from the Mayor of the City of Buffalo. The members shall serve until their resignation, retirement, removal by the Board, or until their successors shall be appointed. When the Committee has completed review of all proposed permanent structures within Canal Side, the Committee shall be dissolved and have no further duties.
2. Committee members shall be prohibited from being an employee or an immediate family member of an employee of ECHDC, ESDC or any developer or tenant of a proposed permanent structure within Canal Side. In addition, neither Committee members nor their immediate family members shall engage in any private business transactions with ECHDC, ESDC or any developer or tenant of a proposed permanent structure within Canal Side or receive compensation from any private entity that has material business relationships with same.
3. The Design Committee members shall be knowledgeable in matters pertaining to architectural design and historical context as it relates to Canal Side.

11.2 Review Process

Powers of the Canal Side Design Committee

1. Prior to the adoption of the Guidelines by the Board, the Guidelines shall be referred to the Committee for review and recommendation. In addition, subsequent to the adoption of the Guidelines by the Board, any proposed modification to the Guidelines shall be referred to the Committee for review and recommendation.
2. For each proposed private development within Canal Side, the Board shall require the preparation of a site plan prepared to the specifications below and containing necessary elements as set forth in the Guidelines. Prior to accepting the site plan as complete and authorizing construction, the Board shall refer each such site plan to the Committee for review and recommendation. The Committee’s evaluation of all site plans shall be limited to consistency of a proposed site plan with the Guidelines. The following documents are requested from a proposer:
 - A Site Plan at an appropriate scale describing the proposed use of the land, buildings, walks, parking areas, driveways, and pedestrian and vehicular use, open spaces including landscaping, with square feet calculations noted.
 - Conceptual building plans, elevations, and sections showing organization of building functions/spaces, window fenestration, detailing, and façade materials, and other items to show compliance with the purpose and intent of the Guidelines. These shall include:
 - Site Plan indicating building mechanical, electrical, and plumbing systems and

connections. Minimum scale: 1/16" = 1'-0".

- Site Plan indicating building perimeter, landscaping, grading, and paving. Minimum scale: 1/16" = 1'-0".
 - Ground Floor, Roof, and Typical Floor plans. Minimum scale: 1/16" = 1'-0".
 - Building Elevations indicating planar elevation changes, bulkhead, and roof elevations. Minimum scale: 1/8" = 1'-0".
 - Building sections indicating building heights. Minimum scale: 1/8" = 1'-0".
 - Front-wall Elevation indicating material treatment, location of marquees and cornice details. Minimum scale: 1/4" = 1'-0".
 - Outline Specifications for basic mechanical systems, exterior materials, and colors.
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- An analysis of pertinent land use and building requirements in tabular form, showing how the proposed development meets each provision.
 - A written statement of the proposal including floor area, type of building construction, number of parking spaces, preliminary cost estimates, phasing when appropriate, and other data that may assist in reviewing the proposal.
 - Any other information deemed by the Committee to be necessary to render a decision on the project.
3. The Committee may at its discretion, hold a public hearing within thirty (30) days of receiving a site plan for review. Public notice of such hearing shall be made by publication in a paper of general circulation at least ten (10) days prior to the date thereof.
 4. The Committee shall provide a written recommendation to the Board within forty-five (45) days of receiving a site plan for review. The Committee shall recommend approval, approval with modifications, or disapproval of the site plan to the Board. The Committee shall include in its written recommendation its reasoning therefore and suggested modifications, if any.
 5. Upon request of the Board, the Committee shall provide guidance to the Board on issues relating to any design or planning matter associated with Canal Side, including landscaping, lighting and/or signage.
 6. The Committee shall have such powers as are necessary to carry out its duties under this Charter including but not limited to the power to meet with and obtain information it may require from ECHDC, ESDC or any developer or tenant of a proposed permanent structure within Canal Side.
 7. All recommendations of the Committee shall be determined by majority vote. If any member of the Committee disagrees with a majority recommendation, that member may submit a report to the Board detailing his or her views. Such a report shall accompany the majority's written recommendation.