Exemption from Leadership in Energy and Environmental Design Silver Certification

John Fry Sports Park Pavilion, Callingwood Park Pavilion, Mill Woods Park Pavilion and Victoria Park Pavilion

Recommendation:
That Community Services Committee recommend to City Council:

> That the John Fry Sports Park Pavilion, Callingwood Park Pavilion, Mill Woods Park Pavilion and Victoria Park Pavilion, be exempted from Leadership in Energy and Environmental Design Silver certification, as per Sustainable Building Policy C532.

Report Summary

This report requests an exemption for the John Fry Sports Park Pavilion, Callingwood Park Pavilion, Mill Woods Park Pavilion and Victoria Park Pavilion from the Leadership in Energy and Environmental Design (LEED) Silver certification.

Report

- The Sustainable Building Policy C532, mandates that effective 2008, all new City-owned buildings are to be LEED Silver Certified. The Policy allows that, where this is not practical, Project Management and Maintenance Services will forward a report to City Council explaining why the project will not be formally certified.
- A preliminary review of the LEED checklist has determined that it is unlikely LEED silver certification can be achieved in a cost effective manner for the John Fry Sports Park Pavilion, Callingwood Park Pavilion, Mill Woods Park Pavilion and Victoria Park Pavilion.
- It is estimated that to achieve the required points to gain the LEED certification, the additional third party administration costs will range between $125,000 and $150,000 per facility.
- The enhanced mechanical/electrical systems required to achieve LEED Silver certification are costly and not necessary for the programming being contemplated.
- The John Fry Sports Park Pavilion is a stand-alone 550 square meter facility that will provide public washrooms, team change rooms, officials change rooms, parks operation space, a concession and covered patio area for community use.
- The Callingwood Park Pavilion is a stand-alone 350 square meter facility that will provide public and universal washrooms and change space.
- The Mill Woods Park Pavilion is a stand-alone 750 square meter facility that will provide public washrooms, team change rooms; officials change room, storage and a concession.
- The Victoria Park Pavilion is a stand-alone 450 square meter facility that will provide public washrooms, indoor skate change area, zamboni and parks operation vehicle storage, program storage space and storage space for the Edmonton Speed Skating Association.

- All of these facilities are relatively small buildings with little design complexity. There is limited material commodity to work with to achieve LEED rating system objectives.
- Attachment 1 outlines more details behind the difficulty in achieving LEED silver rating on unoccupied pavilions.
- Attachment 2 outlines more details behind the difficulty in achieving LEED silver rating on occupied pavilions.
- Attachments 3 to 6 list the sustainable features that will be incorporated into the design of the facilities independent of the LEED certification.

Policy

Sustainable Building Policy C532

Corporate Outcomes

The Way Ahead, Edmonton's Strategic Plan 2009-2018:

Preserve and Sustain Edmonton's Environment

- Partnership with citizens, communities and organizations are leveraged to improve Edmonton's environmental health.
- Edmonton strives to be a leader in environmental advocacy, stewardship, preservation and conservation.

Improving Edmonton's Livability

- Citizens use City recreation facilities and participate in services and programs that provide enjoyment and personal health benefits.
- Complete collaborative communities that are accessible, strong and inclusive with access to a full range of services.

Budget/Financial Implications

The combined budget for these four projects is $11 million. Estimated additional costs without a LEED exemption are in the order of $1.2 million.

Justification of Recommendation

These facilities are relatively small and have little design complexity and limited material commodity to work with to achieve the LEED Silver certification. If LEED Silver is determined to be necessary, then program reductions would be required to proceed.

Attachments

1. LEED Background for Mill Woods Park Pavilion, Victoria Park Pavilion and Callingwood District Park Pavilion
2. LEED Background for John Fry Sports Park Pavilion
3. Sustainable Features Designed for the John Fry Sports Park Pavilion
4. Sustainable Features Designed for the Callingwood Park Pavilion
5. Sustainable Features Designed for the Victoria Park Pavilion
6. Sustainable Features Designed for the Mill Woods Park Pavilion

Others Reviewing this Report

L. Rosen, Chief Financial Officer and Treasurer

LEED Background for Mill Woods Park Pavilion, Victoria Park Pavilion and Callingwood District Park Pavilion

Some projects lend themselves better to the LEED rating criteria than others. Occupied buildings better fit the LEED profile than non-occupied building as many prerequisites and credits throughout the LEED rating systems evaluate the impact of the LEED project building on the building users, particularly those perquisites and credits in the Indoor Environmental Quality credit category. It is; therefore, appropriate and necessary to require that a minimum number of people benefit from the strategies implemented in a LEED project building in order to consider the efforts and money spent feasible.

The Mill Woods Park Pavilion consists of washrooms for the general public and users of Mill Woods Park, change rooms for sports groups using the sports fields, a bookable concession space, and storage for the Grizzles Football club.

The Victoria Park Pavilion consists of washrooms for the general public, river valley patrons and users of the skating oval, a skate change space, zamboni storage and program storage space.

The Callingwood Park Pavilion will provide washrooms and change space for users of the spray park and Skate Park as well as a service space for maintenance.

The functions of these buildings do not require a full time employee and there will not be any full time occupants; therefore, the benefits from the indoor environmental quality, and occupant comfort credits would be negligible. These indoor environmental quality credits relate to roughly 23% of the potential credits for LEED, which is a significant amount of credits not attainable.

Based on the current designs, the Mill Woods Park Pavilion could obtain between 33 - 49 LEED points, Victoria Park Pavilion could achieve between 33 – 45 points, and Callingwood Park Pavilion could obtain between 33 – 45 points. Assuming all these points are achievable, the projects would only meet the LEED Certified level, which is between 40 – 49 points. LEED Silver, which is between 50-59 points, would not be attainable. In addition, some credits would only be sought after to earn additional points, and would offer little in terms of overall benefit to the buildings. For example, some of these credits include EAc3 Enhanced Commissioning and EAc5 Measurement and Verification. EAc3 would require hiring a third party Commissioning Agent which would be a significant cost relative to the overall project budgets. EAc5 would require the installation of a significant amount of metering equipment to monitor the building's energy consumption, and this equipment is relatively expensive, and will provide little benefit for this type of building. In larger, more complex buildings, these systems are beneficial and can offer operational savings over the lifecycle of the building. On smaller, less complex projects, such as the Park Pavilions, these systems bring significant initial construction costs and the investment will most likely never be recovered over the lifecycle of the building.

Some of the factors that increase the cost of the project if LEED Certification is pursued would be higher design fees, more expensive materials in many cases, more construction management required for documentation, energy modeling requirements and added tasks such as air flush procedures and more extensive commissioning of mechanical systems. By not pursuing LEED Certification, the projects will be able to recognize as much of the required program space as possible, and critical programming elements will not have to be sacrificed to fund LEED related expenses. Although the buildings will not be pursuing LEED certification, they will still be designed and constructed with many of the same energy efficiencies and sustainable elements, but without the additional costs.

LEED Background for John Fry Sports Park Pavilion

Based on our current design and information we are on track to achieve anywhere between 34 and 46 points. The additional credits (above what has been assumed for the other pavilions) are based on the building having one full time occupant. Assuming we can reach the upper level of this range, we would be in the LEED Certified level which is 40 – 49 points. To achieve the LEED Silver level we would be required to achieve all these credits plus a minimum of 4 additional points to reach the lower end of the LEED Silver Range which is 50 – 59 points. Based on previous LEED projects; it is common that a few of these credits would prove to be very costly to attain with very little benefit to the building.

Specific to the John Fry Park Pavilion project our total based on realistic expectations amongst the design team places us midrange in the Certified Level. As mentioned above we would have to strive for an additional four points (minimum) and not lose any of the 46 credits. To attain the additional four points we could attempt EAc3 Enhanced Commissioning (two points) and EAc5 Measurement and Verification (3 points). EAc3 would require hiring an additional commissioning agent, which would be a significant cost relative to the overall project budget. EAc5 would require metering equipment to be installed to monitor the building's systems energy consumption, which will be relatively expensive and provide very little for this type of building. These items are definitely beneficial for larger, more complex building's operation. The systems at John Fry Park Pavilion are small and relatively simple. There would be little gain for the additional expense of these LEED items for this project.

By not pursuing LEED Certification or LEED Silver there are other costs that could be saved such as LEED consulting fees and additional time/charges for contractor to compile required LEED documentation. That being said, not pursuing LEED Certification or LEED Silver does not mean the building performance will be sacrificed. The architectural elements will still provide the day lighting and views that will help building occupants feel connected with the outdoors. The plumbing fixtures will be designed for water reduction. The electrical lighting system will still be designed to reduce light pollution. The building will still be designed with the same energy efficiency and occupant comfort as the primary goals in a LEED building without the additional costs associated with preparing the LEED Submission.

Sustainable Features Designed for the John Fry Sports Park Pavilion

- Natural Light: All occupied spaces in the building, including the private spaces are able to receive daylight in sufficient quantities through continuous translucent paneling along with clerestory windows to the central spaces.
- Occupancy motion sensors will be utilized to eliminate the lighting of unoccupied spaces. Lighting will be energy efficient.
- Heat recovery ventilation system will allow waste heat to be captured in order to pre-heat incoming fresh air while providing the required ventilation and exhaust for the occupied areas.
- Prevailing Winds: This is an open site with high exposure. The proposed building's shape will help in providing a type of natural shelter against the elements, especially for the public courtyard area pocketed along the south elevation – the building will protect this area from the north-westerly winds.
- Landscape Design: There will be minimal interruption to the existing landscape with the proposed design (existing site drainage patterns and water tables are respected as much as possible). All of the existing trees will remain and additional planting will be done to provide natural shade to the site.
- Building mechanical and electrical service: There is a lot of modularity and component based systems incorporated in the design, allowing for certain efficiencies. The building is easily zoned into units to allow certain areas of the building to be controlled relatively independently. If a couple bays of the building were not in use for an extended period of time, these zones could be scaled back accordingly. We expect that due to the material treatment of the envelope we will be able to reduce long term operating costs and energy use. High efficiency boilers will also be used.
- Durable, Permanent and Timeless Materials:
    - The architecture attempts to use simple materials in unique and interesting ways as well as highly durable materials.
    - The design strives to use more ephemeral and timeless qualities of architecture, such as light and shadow or solid and void to create a more timeless experience over the life of the building.
    - A more limited material palette with precise intentions will result in a high level of craftsmanship and detailing in the project as well as minimizing waste.
- External circulation: Due to the nature of the program, the building floor plan reduces internal circulation spaces to virtually nothing, allowing circulation between spaces to exist outdoors. Not only does this reduce excessive servicing, but will cut down on operating costs and energy as well as unnecessary material expenditures and up keep.

Sustainable Features Designed for the Callingwood Park Pavilion

- Polished concrete floor - the structural material is the floor finish material.
- Galvanized metal decking – the structural material doubles as both the roof and ceiling finish material.
- Galvanized metal decking – high albedo roof.
- Screen walls – high pressure laminate panels double as both exterior and interior finish material.
- Seasonal building - no requirement for insulation or winter heating system (other than minimal electric heat to the service room only).
- Natural ventilation – the design provides natural ventilation for the washrooms, no mechanical ventilation is required.
- Utilities – water and minimal power only, no gas; sanitary sewer connection only, no storm water sewer connection.
- Plumbing fixtures – low water consumption toilets and urinals, metered faucets at washroom sinks.
- Lighting –natural day lighting of interior, supplemented by LED lighting.
- Site – excavated material to be re-used on site.
- Site – water run-off from roof feeds landscaped area at grade with overflow to adjacent grass surface.

Sustainable Features Designed for the Victoria Park Pavilion

- A heat recovery ventilation system will provide the required ventilation and exhaust for the main level while capturing the waste heat and utilizing it to pre-heat the incoming fresh air.
- CO2 sensors located in each space will control the speed of the heat recovery ventilation and provide higher ventilation rates as CO2 levels increase.
- Passive solar design principles will be utilized. This includes south oriented glazing, which will allow for natural light and connect visitors of the building to the surrounding park, skating oval and outdoor elements. In addition, highly insulated north walls will help to conserve energy and moderate internal temperatures.
- Occupancy motion sensors will be installed on light fixtures to reduce the need to illuminate spaces when they are unoccupied.
- High efficiency boilers will provide low temperature zoned in-slab heating for the workshop, washrooms and public areas. Separate zones will allow the temperature to be controlled in each room depending on function and requirement for heat.
- Passive cooling will be used for the building. During the summer months, the in-slab system will circulate water to take advantage of the cool concrete floor temperatures to provide free cooling to the rest of the space. Operable windows will allow for natural ventilation.
- Use of instantaneous gas fired hot water heater with a recirculation loop, which will be energized only during occupied hours. This will minimize waste water and reduce energy costs.
- Use of vandal-resistant, ultra-low consumption plumbing fixtures will facilitate lower operating and maintenance costs.
- Durable and environmentally friendly materials will require low maintenance and provide long service life.
- A waste management plan will be established to ensure construction waste material is diverted from landfills and incineration facilities.
- Interruption to the existing site and landscape will be minimized. Existing site drainage patterns and water tables will be respected as much as possible.

Sustainable Features Designed for the Mill Woods Park Pavilion

- Photovoltaic modules will provide enough energy to power the entire electrical demand of the pavilion.
- Heat recovery ventilation system will provide the required ventilation and exhaust for the building while capturing the waste heat and utilizing it to pre-heat the incoming fresh air. This will optimize low energy consumption.
- High efficiency boilers will provide low temperature zoned in-slab heating for the change rooms and public areas. Separate zones will allow the temperature to be adjusted in each room depending on function and need for heat.
- Passive solar design principles will be utilized. This includes south oriented glazing to allow for natural light and reduce the electrical load. Highly insulated north walls will help to conserve energy and moderate internal temperatures.
- Occupancy motion sensors will be installed on light fixtures to reduce the need to illuminate spaces when they are unoccupied.
- Passive cooling will be used for the building. During the summer months, the in-slab system will circulate water to take advantage of the cool concrete floor temperatures to provide free cooling to the rest of the space. In addition, large overhangs will help to keep out the heat during the summer months.
- Use of vandal-resistant, ultra-low consumption plumbing fixtures will facilitate lower operating and maintenance costs.
- Durable and environmentally friendly materials will require low maintenance and provide long service life.
- The building is within walking distance of one or more bus stops allowing for users to access the building via public transportation and reducing pollution impacts from automobile use.
- A waste management plan will be established to ensure construction waste material is diverted from landfills and incineration facilities.
- Interruption to the existing site and landscape will be minimized. Existing site drainage patterns and water tables will be respected as much as possible.