

Executive Summary of Oxbow Architecture LEED Assessment

1.0

SUMMARY

The City of Saskatoon's High Performance Civic Building Policy requires all new buildings, as well as major renovations of existing buildings to consider LEED Silver certification. The policy defines a major renovation as one which exceeds 60% of the existing floor area or involves capital replacement, rehabilitation and retrofitting of major building systems that impact more than 60% of the floor area. Based on this definition, the renovations at the Albert Community Centre (ACC) can be considered a major renovation - primarily due to the boiler replacement - a major system which serves the entire building.

As a major renovation, we have evaluated the renovation work at the ACC under LEED v4. For Building Design and Construction. Projects involving less major rework would be evaluated under LEED v4 Operations and maintenance - this route requires more extensive evaluations for facility operations. Points required for the different levels of certification under LEED v4 for Building Design and Construction are as follows:

Certified:	40-49 points
Silver:	50-59 points
Gold	60-79 points
Platinum:	80+ points

For the purposes of this LEED feasibility assessment, the boundary of the site is assumed to be the entire block, including Albert Park. This definition provides the most favorable outcomes for credit qualification and would be considered a reasonable site boundary for this building type.

The primary finding of the assessment is that the core scope of work, as described in the RFP and further developed in the initial project meetings with C.O.S. project managers and stakeholders, does not sufficiently address the requirements of LEED to gain certification and falls well short of LEED Silver certification requirements.

The work identified as primary scope represents a significant improvement in the building's energy efficiency and meets the requirements of the GICB funding application (26.1% energy savings and 88 tonnes GHG emissions reduction). However, LEED certification requires more drastic energy reduction as well as more diverse and far reaching measures that

would extend beyond the work that is central to the proposed renovation scope.

A summary of credits that are achievable through the primary scope of work is outlined in **Table 2 – Credit Feasibility Summary – Primary Scope**. We have also investigated the additional scope of work that would be required to achieve a base level LEED certification and further measures to meet LEED Silver certification. A summary of credits required to meet LEED Silver, and associated additional work is outlined in **Table 3 - Credit Feasibility Summary - Increased Scope**. Each section identifies the additional project cost associated with meeting credit requirements, and/or prerequisites for the specific level of certification.

It is noted that the primary scope of work falls short of meeting several key requirements. The most significant shortfall is associated with the Minimum Energy Requirements prerequisite in the category of Energy and Atmosphere. In short, the proposed scope of work does not sufficiently address this requirement to allow the project to qualify for certification. As one of 12 prerequisites, it must be addressed to qualify for any level of certification. Given the magnitude of additional work required to qualify for this prerequisite (as described below) we consider it to be unachievable and as a result find that pursuit of LEED certification is not a practical option for this project.

The Minimum Energy Performance Requirement Prerequisite requires the building to perform 3% better than the NECB 2011 reference building (not an improvement against this existing ACC building). Although the window replacement and boiler replacement do represent a significant energy efficiency improvement, the remainder of the existing envelope falls well below the efficiency requirements. The NECB 2011 Reference Building features R27 walls and an R35



roof, along with energy efficient windows and building systems. The existing exterior wall of the Albert Community Centre is a load bearing masonry wall with an average thickness of 13" above grade. The exact construction of the wall has not been verified but it is our opinion that the wall is likely composed of multiple wythes of brick, possibly with a cementitious grout or mortar fill in the centre cavity. Based on this assumption we can expect that the effective R value of the exterior wall is around R7 (See Table 1 below).

Meeting a 3% improvement over the reference building would require a significant level of envelope retrofit (improvement to wall insulation) and would likely also require improvements to the HVAC system - which, although studied as part of this project, does not fit within the project budget.

Pursuit of LEED silver, or even a base LEED certification would require significant additional energy conservation measures as well additional measures across many areas of the building and site. As a result of the extent of these additional measures and their associated cost to the project, described in Table 2 - Credit Feasibility Summary - Increased Scope it is our opinion that the pursuit of LEED certification is not a practical option for the Albert Community Centre Renovation Project.

Table 1. Existing Exterior Wall R Value

RSI Continuous - Albert Community Centre Exterior Wall			
Component	mm	RSI/mm	RSI
Exterior Air Film			0.03
Clay Brick	90		0.27
Clay Brick	90		0.27
Air Space	40		0.18
Clay Brick	90		0.27
Lath & Plaster	20	0.004	0.08
Interior Air Film			0.12
Total RSI Continuous			1.22
R VALUE			6.93