

# Finegold Alexander Architects

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## Memo

**Date:** January 8, 2020

**To:** Sharon Sharry, Sustainability Committee (SC)

**From:** Jim Alexander, FAIA and Ellen Anselone, AIA, Finegold Alexander Architects (FA)

**Copies:** 1

**Project Name:** Jones Library

**Project No.:** P0095.00

**Subject:** **Services to Define Sustainability Goals for the Jones Library**

The purpose of this memo is to investigate sustainability goals and a Net Zero or Net Zero Ready design approach for the Jones Library. This involves numerous factors identified below which will define the sustainability program as we advance the revised Schematic design.

### 1. EUI Goal/Net Zero

- a. Committee to evaluate existing library EUI, share with FA
- b. FA to research EUIs of other energy efficient libraries to help determine appropriate baseline within context of Net Zero Energy (net EUI Zero or less). The team will determine EUIs of total building, existing after renovation, and new addition. Sample targets for baseline may include: maximizing daylight throughout, light sensors for electric lighting, triple pane glazing and/or storm windows throughout, roof insulation with R40 value, wall insulation with R38 value, 4" rigid insulation under new floor slab and at concrete lower level walls, limit plug loads with outlets only in reading tables and meeting rooms, easily accessible operable windows to limit mechanical ventilation, high efficiency HVAC system, air source heat pumps. Additional items may be included in the final recommendations. Min. Goal EUI 25-30.

**Commented [s1]:** Clarify air source heat pumps will be considered

Research / Assessment and final recommendation on above:	FA (80 Hours)	\$12,000
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- c. Investigation of On Site Renewable Source Options, Rebates, Total Power Requirement

- (1) Solar – roof capacity and % of required power provided / payback

BLW Engineers	\$ 2,500
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- (2) Geothermal wells – feasibility, site capacity, savings to HVAC system / payback. If site area available, provide soils profile test pit/boring

Test pit/boring TBD	BLW Engineers	\$ 5,500
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d. Investigation of Off Site Renewable Options: locate, determine capacity available to Jones, % of required energy, cost and rebates

BLW Engineers	\$ 3,500
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BLW Subtotal (c+d)	\$11,500

e. FA + 10% on all BLW above (c+d)

FA (10%)	\$ 1,150
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Total (c+d+e)	\$12,650

**2. Energy Model at Schematics using information above:**

BLW Engineers with	
Andelman & Lelak	\$16,500
FA (10%)	\$ 1,500
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	\$18,000

**3. Eliminating Use of Fossil Fuels**

The design team will design the project excluding the use of fossil fuels except as allowed by the Amherst Zero Energy Bylaw and as agreed to by the Sustainability Committee.

**4. Use of Low Embodied Carbon Materials**

A major component of any low carbon building is the structure. Our structural engineers (RSE) will prepare a CLT and wood structural alternative narrative for pricing by our estimator Fennessy Associates for a cost comparison to a standard structural system. Code, seismic, fire rating and procurement are among factors to be considered. We will use the Athenasmi Carbon Calculator or Tally for the embodied carbon analysis. The design team will specify low embodied carbon materials throughout the project.

RSE Associates	\$ 3,600
Fennessy Associates	\$ 1,200
FA (24 hrs.)	\$ 3,600
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	\$ 8,400

**5. Whole Building Life Cycle Analysis**

Using the Athenasmi Carbon Calculator or Tally results and the standards agreed to from the previous information, FA will prepare a life cycle analysis for the existing building, the new construction, demolition, and the whole building. This information can then be used to perform the Life Cycle Analysis (including carbon and cost analysis). This analysis will be based on the intended life span of the building.

FA (40 hours)	\$ 6,000
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**Commented [s2]:** Clarify that LCA includes cost & carbon, demolition impact, and is based on the lifespan of the building.

**Fee Breakdown**

Architects:	Finegold Alexander Architects	\$24,250
Mechanical Engineer:	BLW Engineers	\$11,500
Energy Modeler:	Andelman	\$16,500
Structural Engineer:	RSE	\$ 3,600
Cost Estimator:	Fennessy Consulting Services	\$ 1,200
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		<b>\$57,050</b>

Please note that the results of the above studies need to be incorporated into the Schematic Design in order to achieve the agreed upon targets for EUI, embodied carbon, and Net Zero goal. Information from these studies will be shared with the Jones Library as work progresses, to enable timely decision making. A final summary of design recommendations will be summarized in a report as part of the Schematic Design documents.

**Commented [s3]:** Clarify deliverable