

# GWR Engineering, P.C. Consulting Engineers

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April 22, 2014

Jennifer Chiodo  
Charlotte Energy Committee  
Charlotte, VT 05445

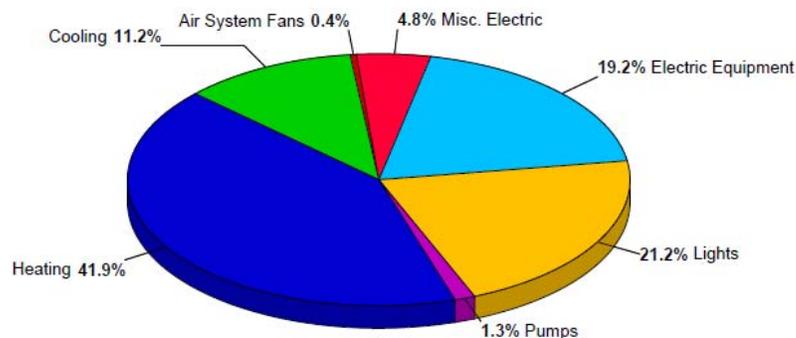
Re: **Charlotte Library Analysis - UPDATED**  
GWR # 1183CD

Dear Jennifer,

GWR Engineering is pleased to provide this UPDATE to our Professional Consulting Services proposal dated June 10, 2013 to the Town of Charlotte to provide an analysis, recommendations and report on the library concerning the following activities and objectives. This proposal removes parts A & B and only addressed parts C & D as requested. All work in this scope is to be performed by GWR Engineering, with the exception of the specific items listed below and performed by Zero by Degrees working as a sub-contractor under GWR.

## Building Model for Energy Analysis

GWR Engineering will create a building energy use computer model based on existing construction, HVAC systems, lighting, electrical loads and operating schedules. We will calibrate this model to actual use to make it as accurate as possible. The model output can provide a breakout of all areas of the building energy use. The following is an example:



This type of data can provide insight into where the focus for energy or cost savings should be made and where the greatest impact to change may exist. The energy model can then be used to modify specific building components (glazing upgrade or HVAC system change for example) and provide output that can estimate the potential energy and cost savings due to that specific change.

Additionally, to this original proposal, the following work performed by Zero by Degrees will be completed:

- Conduct an infrared scan and blower door test of the building to determine the continuity of the thermal and air barrier and to benchmark the building against other buildings of similar type.
- Locate air leaks under normal pressure and determine the functional R-value in each part of the building including windows and doors.
- Conduct all Building Performance Institute (BPI) required health and safety tests.

Having the bower door test and other data collected will help qualify the value used in the energy model for infiltration.

### **Net Zero Road Map**

Using past history, survey results and recommendations as well as energy modeling, GWR will develop plan options and suggested phasing towards achieving a Net Zero site. The challenge here is how to maximize energy efficiency to minimize energy use so as to also minimize the potential renewable energy systems required to offset that energy use.

### **FEES:**

GWR Engineering proposes the following fixed fee for this scope of work:

**Total Project Fee = \$4,150.00 (Updated from 4/21 proposal)**

GWR Engineering appreciates your request for us to provide you with Professional Engineering Services. If you have any questions or need clarifications, please call.

We will consider this proposal acceptable to the town upon receipt of a signed copy of this letter or a purchase order. Our work will begin upon receipt of this signed agreement.

Respectfully,

*Bill Root*

Bill Root PE

ASHRAE High-Performance Building Design Certified Professional



Proposal Accepted By: \_\_\_\_\_ Date: \_\_\_\_\_