Proposal to: U-Vic ENGR 400 – Sustainable Energy Systems Design
Date: March 30, 2008

Project Title: Smart Home Design
Maximize LEED rating for New Home

Company Information:
Our company provides amazing heavy timber design, production and installation services for new construction and conservation work around the world. The focus of our shop is working with large timbers/logs, but the scope of our design and logistics efforts include whole house specification and professional project management and assistance to associated architects and builders.

Background Information:
A small home in the Shawnigan Lake / Cobble Hill area is in the planning stage slated for construction in the summer of 2008 with an anticipated completion date in the fall. The home requires refinement/specification of the energy and utility systems. Design objectives include maximizing the LEED rating of the resulting home – an indicator of its efficiency and performance. Heating requirements, losses and power consumption must be balanced with generation (such as solar, wind or micro-hydro). Sacrificing some LEED points may be recommended to increase aesthetics and owner comfort per other design requests, the kind of compromise every building project undergoes. Recycled materials will be mixed (preferred) with new supplies for construction.

The structure of the home will be heavy timbers, with ‘green’ walls formed of yet to be specified insulating materials and makeup – maybe wool or a sawdust/clay mix. A radiant slab will be the heating element and a woodstove is desired as a ‘lifestyle’ consideration.

This is the first in a series of homes for the designer’s portfolio and a commercial facility is to be designed with similar emphases in 2009.

Objectives:
The desired outcome of this project is the complete design and specification of insulation, mechanical, power, and utility systems for the home. Concise drawings, appropriate for construction, are required in addition to the equipment schedules and installation instructions. Support documentation & calculations to justify the design decisions shall be appended for review and inclusion in the home’s Owner’s Manual.
Construction of prototypes or final systems is not expected to be part of this project, however this is an option for an especially effective team and would indicate outstanding performance.

**Resources:**
The student team is encouraged to use all legal means to arrive at the best possible design solutions. Sustainable home construction basics can be obtained largely with a web-based study of contemporary concepts and alternatives. Suppliers can be visited and interviewed to receive practical information about contemporary best practices – good and inappropriate. Similar projects in the area can be visited to evaluate design vs. actual performance and cost implications (OUR Eco-Village, Eco-Sense model home, others).

It is anticipated that multiple trips be made to the Shawnigan Lake / Cobble Hill area where the design team will visit the construction site of the home, other similar buildings in the area, and the M&L shop.

A weekly progress meeting will be conducted with the Project Manager to relate this groups work/results with the other construction team members.

The coordinator for this academically related project is Randy Churchill, PhD (Mechanical Engineering) who is a Project Manager for M&L, and the designer of the home under study. Thanks in advance for your interest.

Some references of interest:
- [http://www.cagbc.org/](http://www.cagbc.org/)
- [http://greenbuilding.ca/](http://greenbuilding.ca/)
- [http://www.builtgreencanada.ca/](http://www.builtgreencanada.ca/)
- [http://www.kansasenergy.org/green_homes.htm](http://www.kansasenergy.org/green_homes.htm)