



SPECTOR ASSOCIATES ARCHITECTS

SUSTAINABLE BUILDING SOLUTIONS



Architecture - Planning - Sustainable Design

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ENERGY ANALYSIS REPORT

HELIOS - PASSIVE SOLAR HOME

Lafayette, New Jersey

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This report presents the results of a computerized analysis of actual energy use in your building compared with energy use in facilities of a similar size.

Since your building utilizes various energy efficient measures, your facility saves approximately 80 percent vs. a conventional building of similar size. The items which contribute to your efficiency include a two-story sunspace, partial earth sheltering, high thermal mass, solar hot water system, and a highly insulated thermal envelope. These excellent savings are clearly depicted on the attached "Energy Use Comparison" graph (Figure 1).

Using "Energy-10" software, we created two computerized models of a building of your size: one built with conventional construction and HVAC systems, and another with various energy saving measures to create a low energy use structure. Energy saving items included in this low energy simulation are: heavy insulation, quality windows, efficient lighting, and high efficiency HVAC systems. The attached graphs clearly compare the conventional (reference case) with the as-built building. Next, we analyzed your actual invoices for energy consumption, and compared that with the computer models.

For your actual energy use, we made assumptions about the number of kilowatt-hours (kwh) apportioned to heating, cooling, and all other uses based on your electric consumption in April and October (assuming very little heating and cooling was needed during those months, we took those kwh as “all other” use and applied the same quantity to the other months of the year). This information is shown on the attached “Actual Energy Use” and “Electrical Energy Use” spreadsheets.

The “Energy Use Comparison” spreadsheet and graph provide a summary of the projected and actual use, with your percentage savings. The energy cost differences are also shown, using averaged current utility costs. As shown clearly on the graph, your actual energy use is less than that of the simulated low energy building.

FIGURE 1

HELIOS PASSIVE SOLAR HOME - ENERGY USE COMPARISON

