Building in Green: Field Experience in Whole Building—Document Review and Project Field Monitoring

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ABSTRACT

This paper describes a green building technical support project conducted during 1999-2000. The directors of a Washington, D.C.- based "eco-village" 43-unit co-housing project selected us to provide multiphase technical support, including design-phase documentation review, on-site project monitoring, and residential commissioning. This project was also supported by additional designers, engineers, and consultants via the federal PATH initiative.

Working as a project team member with the architect/developer and general contractor from prior to construction through later building commissioning and "punch list" inspections, we acted as an impartial third party but did not have supervisory "stop-work" powers on site. We developed and executed a rolling "field diagnostic and quality assessment process" and successfully identified several potentially damaging construction problems for repair.

An important task was tracking and reporting potential energy and monetary savings from our recommended actions. Findings were communicated via the eco-village design team, whose responsibility it was to evaluate our reports and inform the architect/developer and building firm of recommendations to enhance the project's environmental characteristics. Also, through early intervention, we believe some potential added costs were controlled, durability problems averted, and better long-term performance assured to owners.

We evaluated building systems and provided comments and process information concerning

- *building thermal envelope energy-efficiency and indoor air quality measures, including moisture management, windows, insulation, proper air-barrier and vapor-retarder applications, foundation design, and HVAC equipment and distribution;*
- *environmental ("green") building materials, designs, and approaches proposed by the architect/developer in the construction manual and building plans;*
- *diagnosis of potential construction trades interferences that could occur on the job site, which frequently lead to poorer than expected building performance or system failures; and*
- *field assessments (at minimum bi-weekly intervals), whole-building inspections, and residential commissioning to ensure delivery of a high-quality product to buyers.*

Results are summarized in a modular format, including how problems were detected, what costs were avoided, and how whole building performance was enhanced using our repeatable team-oriented "green building" field supervisory technical approach.

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