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A Very Special Solar House

No barriers here when it comes to efficient design for its owners—and for the sun

“What is key to me is that this house is energy efficient, attractive, and 100 percent accessible,” comments Hugh Boyle, a disabled veteran. “It meets and even goes beyond the Veteran’s Administration specifications.” He and his wife, Ellen Ladd, commissioned New York City

architect Alfredo De Vido, AIA, to build a house for them on a lot that Mr. Boyle describes as “forgotten. The parcel of land had been isolated when the railroad came through this part of northern New Jersey in 1893 and was considered unattractive by many people because of its

steep drop-off in back.” But DeVido turned a disadvantage into an advantage with a deck that has a treehouse view of the wooded slope in the rear.

From both outdoors and in, one is practically unaware that energy considerations played an important role in determining the plan — so unobtrusive is the solar space, the venting, and the north-facing earth berm. Just as unobtrusive are the wide corridors and doorways, continuous hard-surface flooring without raised jambs, knee-hole spaces under sinks, and the easily gripped lever handles and lowered electrical switches of the main floor. The master bedroom and bath are on the same level as the public spaces so that access to the upstairs is not necessary for Hugh.

The overall aesthetic harmony of the house results from a plan that took all these needs into account at the outset and from a spirit of cooperation that prevailed among owners, architect, and builder. At the architectural level, attention to scale kept the home’s special features in visual balance. An open-plan living area with generous expanses of glass easily incorporates the specified turning radii and wide doorway openings. A compromise did have to be made, however, between the most efficient orientation for the passive-solar design and the siting of the entry to best suit Hugh’s mobility needs. Extra allowances and special hardware added to building costs, but generally no more than those added extras typical in any custom house. These options would, of course, increase the price of a standard builder’s house proportionately.

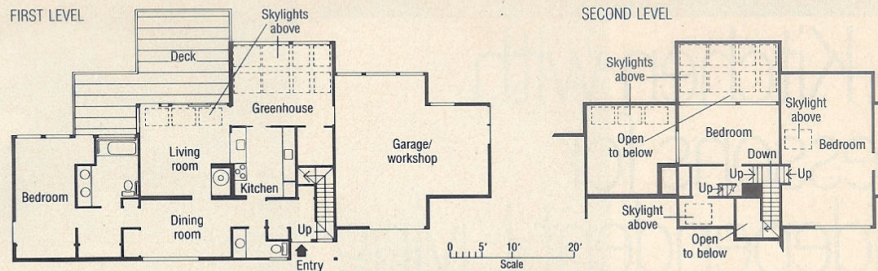
How did the non-standard specifications affect workmanship? “We easily followed the VA guidelines and architect’s

The northern New Jersey home of Hugh Boyle and Ellen Ladd is adapted for the needs of the disabled at no sacrifice in looks. A gently sloping ramp (top left) leads to the entry. The rear deck (lower left) opens up a steep, wooded slope to the wheelchair bound. Light floods through the tilt-open wood-frame skylights in the sunspace at right.









A southern exposure gives the living area (left) lots of daylight and, in the summer months, a green view. The deck makes the sloping rear available to all. A pass-through (right) brings lots of light and conversation into the kitchen from the living area. Note how the sliding pocket door needs no clearance space.



Opposite the window wall, a clean-lined Danish cast-iron stove sits in a built-in alcove. The raised hearth and walls are not only fireproof but store and radiate heat.

drawings. The job required not more constant, but more conscious supervision than others," replies the general contractor, Arpad Bogdany of Denville, N.J. The Veterans Administration not only furnished specs but helped with planning and even with some funding for the project.

One of the important underlying considerations in designing or redesigning a dwelling for a disabled person is the psychological benefit derived from creating a space over which he or she can exercise control. Someone with limited ambulatory capacity is confronted with a rigid environment outside that often takes little account of his or her problems and needs. Therefore, the ideal home environment for this individual furnishes him or her with facilities that require little more attention than others of us give any door, for example, as we come and go.

In this light, even the solar space in this house serves several purposes. The combination of ventable skylights, a color-impregnated concrete floor, and a series of pocket doors helps save and store

energy in the area. Sunlight enters to heat the concrete floor mass. When there's a cloud cover or after night falls, the heat stored in the floor radiates back to warm the space. But further, "All solar houses depend on their owners' manipulation to function correctly," says architect De Vido. And this interaction with his house seems to give added pleasure to Boyle. "When you wake up on a winter morning and it's 10 degrees outside and you see that it's 60 degrees in the greenhouse, you know it's going to be a good collecting day," he notes.

Other energy-oriented features include a ventilation system, thermal windows, a wood-burning stove, and its surrounding stucco walls. The cast-iron stove serves as an additional heat source on cold days and the stucco-faced block walls around it help store the stove's warmth and that of the winter sun, which enters diagonally across the room. The walls radiate heat in much the same way as the concrete floor.

In warm weather, hot air is vented through tilt-open skylights in both the living room and the solar area. An electrically operated vent atop the house also acts as a thermal siphon, inducing drafts.

Hugh and Ellen are thoroughly satisfied with the results of the joint efforts and expertise that went into building their home. But they are not alone in that feeling. Contractor Bogdany is also content with the extra awareness the project fostered in him and his crew. And perhaps no one appreciated the benefits of extra interior clearances more than the movers when they wheeled in the Boyles' piano.

ELIZABETH GAYNOR

FOR FURTHER INFORMATION, REFER TO THE BUYING GUIDE ON PAGE 96.

The Well-Appointed Bath



Bathroom design is a special concern for the disabled person and his or her family; a single plan must work equally well for all who use the bath. Special fixtures are available, but standard fittings can also be adapted for use.

Hugh Boyle and his wife, Ellen Ladd, (whose house appears on pages 40-43) chose to install side-by-side sinks to suit different height needs. A kitchen-

cabinet-turned-vanity stands to the left, leaving knee space under the sink to the right. In fact, neither sink was mounted at standard height; just as one was lowered a bit for easy reach from a wheelchair, the other was raised to save bending over from a standing position. The wall-mounted mirror and medicine cabinet are low enough to use while seated, and electrical outlets are

located conveniently nearby. Good-looking red-epoxy-finished faucets with single level handles stand high above sink rims for easy access.

An oversize water-jet tub in primary red brightens the room. A hand-held shower fixture can be used while seated. The tub is raised a few inches to facilitate transfer onto a seat (located behind shower curtain) from a wheelchair.



Hyggeia Home-Care, a Long Island consulting and contracting firm, has retrofitted a 50-year-old builder's house to both showcase the specially designed fixtures the company sells for use by disabled persons and serve as a model for the space-planning service they offer to those in need of barrier-free housing.

Shown here is its bathroom. An electrically powered sink with attached



stainless-steel shelf rises (above, center) and descends (above, left) in response to its user's needs. An under-sink mounting stand permits wheelchair pull up, and flexible conduit hosing substitutes for fixed plumbing to make sink movement possible.

A lightweight, waterproof commode chair is recommended for both shower and toilet use, reducing the need for



excessive transfers. The 18-inch-high toilet stands taller than usual. A roll-in shower features a "lead pan" drain, so a lip to catch water—which would act as a barrier—is unnecessary. The shower head can be either hand held or wall hung and contains water pressure and temperature controls. The marble bathing seat adds luxury to a basic and practical design.

ELIZABETH GAYNOR