Signer Harris Architects

Off the Grid, on the Frontier

Eclectic Design Meets Environmental Sensitivity on the Edge of Santa Fe

Located in rugged and uninterrupted terrain, Milder House, designed by Signer Harris Architects with WoodMetalConcrete Architecture, is nestled into 125 acres of the Galisteo Basin Preserve, a low-impact and resource-efficient community 15 miles southwest of Santa Fe, NM. The Preserve comprises 12,800 acres of delicate Upper Sonoran grasslands bound at a distance by mountains and foothills of the Colorado Rockies. Conventional development schemes threatened to dot these 20-square-miles with widely dispersed "ranchettes", endangering ecology, eliminating open space and disrupting wildlife habitat. Instead, Commonweal Conservancy, a non-profit conservation-based developer, earmarked fewer than 800 acres for development, conserving the remaining 12,000 as publicly accessible open space. The Preserve's remote location has numerous attractions – incomparable views of the Ortiz, Jemez and Sangre de Christo Mountains; a network of hiking trails and bridle paths; and wide open landscapes one expects of the western frontier. These attributes concealed certain challenges: living entirely off the grid and preserving vital water resources.

Although more homeowners and housing developments are turning to

Client
Fred & J.J. Milder

Location
Santa Fe, NM

Size
5,000 SF

Covered Outdoor Area
2,000 SF

Completion Date
11/2007

renewable sources of energy to offset demands for local utilities, few need or aspire to operate entirely in isolation. With its distance from Santa Fe's electrical grid, sewer systems and gas mains, tapping into the City's resources was not an option. Commonweal Conservancy challenged each property owner to design and build a modern dream home using state-of-the-art technologies, and they offered a $50,000 rebate to underwrite the integrated design effort. New England transplants, homeowners Fred and J.J. Milder happily traded up-tempo Boston for the open vistas and big sky of their slice of the Galisteo Basin Preserve. With a spirit of adventure, they reframed the site's restrictions as opportunities to live in connection with nature, and they found an ally in Signer Harris Architects of Boston, which developed a design environmentally and aesthetically suited to their unique site. "Although we could have found an architect based in Santa Fe, it was important to us to collaborate with someone connected to our lifestyle in Boston," notes J.J. Milder, "and who could help us translate and apply it to life in Santa Fe."

The architectural character of the house draws on local building forms and traditions, while its design cultivates a deep connection with the land. Signer Harris Architects' plan distributes program spaces in three separate volumes. The assemblage of buildings works within the Adobe vocabulary, but each volume becomes progressively more contemporary in its form and detailing. This strategy produces a house that seems to have grown over time and is sympathetic to the historic context and climate. The arrangement of the volumes relative to the site defines a three-sided interior courtyard; the fourth side is the distant Cerrillos Hills, a move that extends the Milder's backyard to the horizon. The volumes are linked by portals, covered walkways borrowed from the Territorial Revival style, which line the courtyard. The decision to separate the buildings – requiring the family to walk outside to move from public to private spaces – nods to traditional typologies of the American Indian in the southwest and enables the homeowners to experience physically and regularly the land, climate and views from the partial and mutable enclosure of the portal. WoodMetalConcrete Architecture, collaborators and detailers of the design, were critical in translating concepts into the regional vernacular.

Conventional wisdom and contemporary technologies combine on this project. The architects looked to traditional methods, like Adobe and Rammed Earth construction, as well as modern Aerated Autoclaved Concrete (AAC), a lightweight and easily installed precast material, to craft an energy efficient building envelope. All three materials possess a high thermal insulating value, critical for maintaining indoor comfort year round while conserving energy. Other passive strategies include a building orientation that optimizes natural ventilation and architectural details, including covered portals and deep overhangs, which shade

the building during the hottest part of the day.

State-of-the-art technology augments these passive strategies. Although conservation-minded, the Milders insisted that the house satisfy all contemporary requirements, from necessities like on-site laundry facilities and a dishwasher to the indulgence of a heated swimming pool. With this range of desires in tow, a sophisticated system of primary and back-up power supplies was devised to assure a continuous stream of energy. The plan starts with a 4.5 kWh photovoltaic array, which exploits Santa Fe's sunny conditions and stores the energy in a system of batteries. The solar panels resolve nearly all of the house's electricity and heating needs, including the heated swimming pool. If batteries are depleted during a spate of cloudy weather, the house draws on propane back-up. A well, detected by a local dowser on her first attempt, provides water which is heated by the solar panels for indoor use. All water for irrigating the landscape comes via an outdoor rain catchment system disguised as landscape sculpture or through gray water recycling. The heated pool is covered when not in use to avoid evaporative water waste. All of these systems were detailed and coordinated by WoodMetalConcrete Architecture of Santa Fe, NM.

Equipping the house with modern conveniences was not without challenges. While internet access and television service was easily arranged through two satellite service providers, installing home phone service was an exercise in creative problem solving. The Milders turned to cellular service, since the lack of cable or DSL eliminated the option of reliable VOIP (voice over IP). Using a cell phone-to-land line converter, they were able to divert calls coming into a single cell phone to a small business phone system inside the house. But here the house's innovative construction impeded them. With its high insulating values, the Aerated Autoclaved Concrete blocks dampened cell phone signals, necessitating the installation of three signal amplifiers throughout the house; a large antenna, mounted to the roof and aimed at a distant cell phone tower, strengthens the weak cell phone reception available on the prairie. "It is ironic that this entire system functions because of a very cheap cell phone we keep charging on its base in our utility closet," remarks Fred Milder.

The Milder's frontier spirit and can-do attitude is evident not only in the design and implementation, but also in original details apparent throughout the finished construction. Acting as their own general contractor, they are responsible for design features that enhance the house's character and deepen its connection to the family, their interests and values. The ornate gates which identify the entrance to the courtyard arrived from India and foreshadow the eclectic mix of southwest style shot with Asian influences found throughout the house. Their eye for the unexpected is also apparent in storage cabinets that line the car park - made from wood palettes salvaged once building materials were unloaded – which further exemplify their commitment to conservation. "Since building this house, we see waste with another set of eyes and embrace every opportunity to reduce or eliminate it," notes Fred Milder. "Although we didn't start out to build a "green" house, living here is an everyday reminder that each person makes a difference." Thus this distinctive house is expressive of the highly collaborative relationships from which it evolved. Galisteo Basin Preserve provided open spaces, striking vistas and the obstacle of life off the grid, opportunities which inspired the homeowners. Signer Harris Architects and WoodMetalConcrete Architecture subscribed to the vision and assisted the Milders in converting the ideas into beautiful and functional spaces. As craftsman/builders, the Milder's participation in the construction effort was instrumental in developing a structure reminiscent of local traditions and still precisely tailored to its inhabitants.

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