



**Architect's Office - Studio
Cerrillos, New Mexico**

Architect: Richard Grenfell, AIA
Solar Consultant: Herman Barkmann, P.E.

When an architect is his own client, he can be most demanding. Richard Grenfell, AIA, wanted to design his building for maximum passive energy use, and yet maintain an aesthetic appearance. The result was a highly efficient building.

The schematic of the building indicates how the solar energy is gathered, stored, and distributed. Along virtually the whole south side, acting as an entry, is located a solar gallery. The south wall is fully glazed, and immediately behind the glazing are located 14-12 inch diameter Kalwall water tubes. The water is capable of storing the energy gathered with a minimum of temperature rise. High and low transfer registers are located in the wall separating the gallery from the office area. The floor of the gallery is brick-paved for better heat retention. Above the gallery on the south wall of the office is located a large clerestory which allows direct solar gain onto a 12 inch thick filled concrete slump block wall—the back wall of the office area.

The energy gathering and storing water tubes in the gallery are aesthetically quite pleasing, and it is interesting to watch the focal line of the sun's rays move around the back side of the translucent tubes.

The lighting on the back, dark stained office wall has proven to be quite effective and pleasing. Auxiliary heating is accomplished by judicious use of electric resistance baseboard and floor drop-in heaters.

The design has proven to be quite successful. The overall design is quite attractively subdued without the use of vast expanses of glass. In the first year of use it was necessary to turn on the auxiliary heat only three days; and one day in March it was necessary to open the windows to remove some excess solar energy.

