

RMI GETS HYDRONIC RADIANT RETROFIT

BOULDER, CO — The highly instrumented residence of Amory Lovins, cofounder of Rocky Mountain Institute, which also serves as RMI headquarters, recently received a hydronic radiant heating upgrade. The building, located at an elevation of 7,100-ft. in the Rocky Mountains, serves to develop and demonstrate many earth-friendly architectural concepts. Built in the early 1980s, the super-insulated building remains highly energy-efficient. It depends primarily on passive systems, despite its extreme location.

Until recently, the building included an unconnected radiant floor heating system installed in its concrete floor slabs. During construction, the relatively inexpensive installation of six zones of hydronic tubing served as a future backup-heating source. Meanwhile, two wood-fired stoves provided supplemental heat when the passive systems could not meet demands. In 2008, Lovins decided to eliminate the wood stoves by connecting the hydronic tubing in the slabs to an

expansion of the existing active-solar, water-heating system.

The building now uses a hybrid system of passive- and active-solar heat sources coupled with thermal storage, and backed up by renewable electricity, to provide domestic hot water and hydronic radiant floor heating. The system favors solar heating, with the electric boiler operating only when thermal storage falls short.

Three integrated components work together to create the building's warmed water: a closed solar-thermal loop, a closed radiant floor loop, and an open domestic hot water (DHW) loop. Seven ABB HygienicMaster electromagnetic flowmeters serve in these new loops. The solar thermal loop feeds a 1,500-gal. stratified storage tank. The system includes four radiant heating floor zones. To provide heat for the new load required by the radiant floor system, engineers doubled the number of SunEarth solar hot-water panels from four to eight. ♻️



The Rocky Mountain Institute added solar thermal panels and connected its radiant-ready floor heating system.