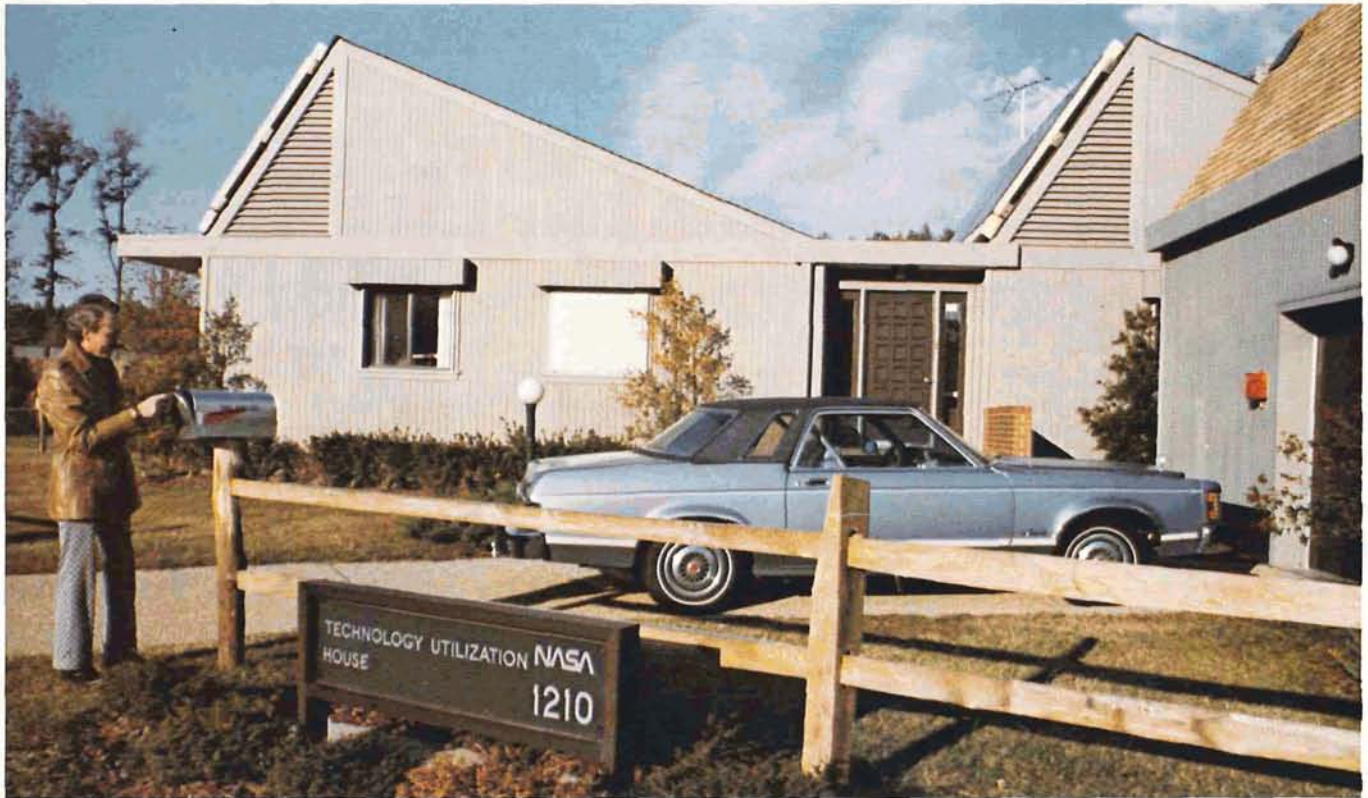


#29 66



Tech House The members of the Swain family—Dr. Charles "Bill" Swain, wife Elaine, daughter Carol, 17, son "Chuck", 12, and dog Susie—have an interesting assignment. They are active participants in an important NASA research program involving the application of space-age technology to home construction.

Transplanted Floridians, the Swains now reside in NASA's Tech House, located at Langley Research Center, Hampton, Virginia. Their job is to use and help evaluate the variety of advanced technology systems in Tech House. A contemporary three-bedroom home, Tech House incorporates NASA technology, the latest commercial building techniques and other innovations, all designed to reduce energy and water consumption and to provide new levels of comfort, convenience, security and fire safety.

Tech House equipment performed well in initial tests, but a house is not a home until it has people. That's where the Swains come in. NASA wants to see how the various systems work under actual living conditions, to confirm the effectiveness of the innovations or to determine necessary modifications for improvement. The Swains are occupying the house for a year, during which NASA engineers are computer-monitoring the equipment and assembling a record of day-to-day performance.

Tech House is a laboratory rather than a mass production prototype, but its many benefits may influence home design and construction. In a period of sharply rising utility costs, widespread adoption of Tech House features



could provide large-scale savings to homeowners and potentially enormous national benefit in resources conservation.

Most innovations are aerospace spinoffs. Some of the equipment is now commercially available; other systems are expected to be in production within a few years. Around 1980, a Tech House-type of home could be built for \$45-50,000 (1976 dollars). It is estimated that the homeowner would save well over \$20,000 (again 1976 dollars) in utility costs over the average mortgage span of 20 years.

Tech House is designed to use only one-third the energy of a comparably-sized home. Among the energy-saving features are solar collectors for heating the home and providing domestic hot water; a roof radiator system for summer cooling; super-efficient insulation, including

Puttake - #31



heat-blocking material up to six inches thick, double-paned windows and thermal shutters; exterior design features that admit or reduce sun heat, depending on the season; a high-efficiency fireplace that cuts chimney loss of heat; and a computer-directed comfort control system that heats or cools only the rooms in use at a given time.

Tech House uses less than half the water of a comparable home. It has a partial recycling system that collects waste water from the shower, bathtub and washing machine and re-uses it for toilet flushing. Special nozzle inserts in shower heads and a smaller than usual commode also trim water usage.

Security and safety measures include non-flammable insulation; fire-retardant materials in curtains, furniture and carpets; a sophisticated

fire detection system; a tornado warning device; and several innovations, including unique locks and break-in detectors.

The Tech House project is sponsored by NASA's Technology Utilization Division. The study and design for the Tech House was supported by a great many organizations, including NASA field centers, the Department of Housing and Urban Development, the National Bureau of Standards, the Consumer Products Safety Commission, the National Association of Home Builders Research Foundation, Old Dominion University, Hampton Institute, and Technology and Economics Inc. The basic Tech House design was contributed by the architectural firms of Forrest W. Coile & Associates and Charles W. Moore & Associates.

68