“What a person ought to do is take an old trailer, gut it and foam it.” It was with this idea in mind, that one couple from South Dakota embarked on converting a 1970s trailer home into a highly energy efficient mobile home affectionately named Ruby.

The Black Hills mountain range of South Dakota is home to the world-famous Mount Rushmore, the ambitious and gargantuan Crazy Horse Memorial and the natural beauty of the northern United States.

Local couple Joe and Cheryl Schonebaum had the idea to transform an inexpensive, old trailer into a highly energy efficient mobile home that relied on little or no energy. They felt that by insulating a home with spray foam insulation, heating and cooling expenses can be significantly reduced, reliance on energy can be decreased and that using sustainable energy sources such as the sun could help create a comfortable home. The couple took an old 1970s trailer and set about converting it into a model of energy efficient mobile home living.

Converting an old trailer into a home

Based in the town of Burke in the southeast of the state, the trailer - 14’ wide and 63’ long - was completely stripped and gutted with only the frame remaining. The couple chose to have Icynene Classic™ spray foam insulation sprayed into the wall cavities and Icynene MD-C-200® sprayed on the ceiling and under the trailer’s floor. The couple hoped that the strength of the 2lb. closed-cell Icynene MD-C-200® foam would add extra stability to the trailer. This became particularly important since they aimed to transport the mobile home from Burke to Sturgis in the Black Hills, some 300 miles away.

Prior to insulting the underneath and moving the trailer home to Sturgis, cross-linked polyethylene (PEX) lines were laid as part of the solar-driven infloor heating system the couple wanted to incorporate into the new home. The home was then moved to the town of Sturgis. A thermal solar panel system was installed on the south side of the home to connect to the PEX lines as the primary heat source for infloor heating. Since there is no true furnace, only a propane tank unit provides back-up heating in case of emergency.

Overcoming Challenges

Transforming an old 1970s trailer did come with its challenges. One of the major challenges the couple faced was black mold. All walls covered with the black mold were removed allowing Joe and Cheryl to construct a two bedroom, 1.5 bath home with a massive kitchen/meals/living area. A 12’ x 12’ addition was added to the trailer and was also sprayed with spray foam insulation, allowing for an entry way and laundry room.

Living Comfortably All Year Round

The Schonebaum’s live comfortably all year round in their home affectionately called “Ruby”. The infloor heating system helps bring the home to a comfortable 74°F only aided by an occasional electric heater. The couple also used an automated fluorescent lighting system for flower pots that they bring into the mobile home’s enclosed porch during the colder months. By keeping the room at 60°F with a small electrical heater, the flowers bloom all winter long. In fact, one winter during an extremely bitter cold spell, the Schonebaum’s drove to Burke in the state’s south-east forgetting to turn the heater on for the flowers. It was two weeks before they returned to the home. The flowers were still alive and blooming as lovely as ever.

They (the flowers) were blooming just as usual. It never froze in the porch because of the Icynene spray foam insulation.

Cheryl Schonebaum, Owner

The mobile home conversion continues and despite the extreme weather conditions the Black Hills are infamous for, the couple is able to live comfortably all year round. Their sustainable solar in-floor heat source and Icynene spray foam insulation prove that transforming a old, rundown trailer into a modern, energy-efficient home is possible for anyone looking to make the change to green, sustainable living.

Footnotes:
1. Icynene Inc. would like to thank Joe and Cheryl Schonebaum of Five Star Insulating for their assistance with this document. Photos are courtesy of Joe and Cheryl Schonebaum.