

# HOUSES

ARCHITECTURAL CHALLENGES AND SOLUTIONS

## BY DESIGN

CURATED BY JANICE ROHLF



### NEAR NET-ZERO IN NEW HAMPSHIRE

This 1100-sq.-ft. home is built as a slab-on-grade with two bedrooms, one bath, and an upstairs loft used as an office and storage area. The design/build process focused on function, cost, energy efficiency, and sustainability. The home, which meets the requirements of the Passive House standard, features all-electric appliances, an air-source heat pump, an air-exchange system, and a wood-burning Tulikivi fireplace. The house will be officially net-zero when the planned PV system is installed. The homeowners rely primarily on the Tulikivi for heat, burning one fire in the morning and one at night, allowing the large soapstone mass to emit heat evenly throughout the space for the rest of the day. Aesthetically, New England-style architecture, like the single-pitched roof, meets the simplicity and warmth of Scandinavian design, with pine panels on the interior walls instead of plaster as a cost-saver that allowed upgrades elsewhere, such as maple cabinetry. Sticking with just one bathroom also controlled overall costs. The ceiling was brought down to a manageable height over the kitchen for scale and lighting; the ceiling height then increases toward the south over the living room, a major gathering space. Unlike a larger home with an entry foyer, the front door opens directly to the main space of the house, and just off the entrance is a laundry room with storage for coats and ski equipment. The backyard fire pit provides a place to relax year-round. A custom aluminum welded sunshade system was designed to control excessive solar gain during summer months. A new shed provides storage plus a waxing room and sauna.

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