

Heating systems and envelope considerations

Date: February 28th, 2003
Project Name: Rocky Hill Cohousing **Project No.:** 02-03
Subject: Heating systems and building envelope considerations

1. Questions and issues for consideration are as follows:
 - Does RHC want to retain the space heating option by accepting the upgrading of the exterior wall insulation in the base specification?
 - Which heating system type does RHC want to be included as the “base” condition?
2. Related questions and issues:
 - Which type of domestic water heater (DHW) does RHC want to be included as the “base” condition?
 - Which type of ventilation system does RHC want to be included as the “base” condition?
3. Space heating concept —
 - A. Basic concept: Use a single heater located in the first floor living space to provide heat for the entire first and second floors. Use some of the \$3,500+ savings over a conventional system to upgrade the exterior walls and window insulation.
 - B. Why consider this at all?:
 - It supports a “green” agenda — environmental consciousness.
 - Fuel savings (see below) — an “insurance policy” for an uncertain future.
 - Least first cost — \$2,000 to \$3,000 depending upon basement utilization.
 - C. Challenges associated:
 - The space heating option depends upon the exterior wall insulation up-grade, and on improving thermal performance of second floor windows, for its acceptability — and, whilst window performance can be addressed individually, it is NOT feasible to offer the exterior wall insulation up-grade as an option in the standard package of options (SPO).
 - The acceptability of the space heating option depends upon individual expectations of temperature differences between upper and lower floor within the house, and upon lifestyle (living patterns) particularly regarding propensities to leave bedroom doors open or closed.

BUILDING ENVELOPE ENHANCEMENTS	UP-GRADE		
	Base	Construction Option	Subsequent actions by owners
Thickened wall cavities, 2x3 strapping, and an additional 1 1/2" of cellulose insulation.	\$1,500		
Substitute casement windows for double hung windows (to improve air sealing).			
Additional insulation below first floor — in between floor joists.		\$1400	
Add night insulation to second floor bedroom windows			Variable