

Representative Building Energy Study

- Compare Costs and CO2 Emissions of several different but typical heating systems including (heat pumps) in two representative types of housing in Tompkins County
- Study conducted by Taitem Engineering
- Funding from The Park Foundation and CCE-Tompkins

Heating Systems and Housing Types

| | Townhouse (1500 Sq. Ft.) | Custom Home 4,000 Sq.Ft.) |
|--|-----------------------------|------------------------------|
| Conv'l Gas Furnace // Air Conditioning | | |
| Conv'l Propane Furnace // Air Conditioning | | |
| Air Source Heat Pump | | |
| Ground Source Heat Pump | | |

Annual CO2 Emissions

| | Townhouse (1500 Sq. Ft.) | Custom Home 4,000 Sq.Ft.) |
|--|-----------------------------|------------------------------|
| Conv'l Gas Furnace // Air Conditioning | 5.8 Tons | 11.7 Tons |
| Conv'l Propane Furnace // Air Conditioning | 6.8 Tons | 12.6 Tons |
| Air Source Heat Pump | 2.6 Tons | 6.5 Tons |
| Ground Source Heat Pump | 2.6 Tons | 6.1 Tons |

Energy Costs

| | Townhouse (1500 Sq. Ft.) | Custom Home 4,000 Sq.Ft.) |
|--|-----------------------------|------------------------------|
| Conv'l Gas Furnace // Air Conditioning | \$1,537 | \$2,919 |
| Conv'l Propane Furnace // Air Conditioning | \$2,707 | \$5,060 |
| Air Source Heat Pump | \$1,172 | \$2,708 |
| Ground Source Heat Pump | \$1,173 | \$2,527 |

Equivalent Annual Costs

| | Townhouse (1500 Sq. Ft.) | Custom Home 4,000 Sq.Ft.) |
|--|-----------------------------|------------------------------|
| Conv'l Gas Furnace // Air Conditioning | \$2,300 | \$4,820 |
| Conv'l Propane Furnace // Air Conditioning | \$3,470 | \$6,960 |
| Air Source Heat Pump | \$1,930 | \$4,990 |
| Ground Source Heat Pump | <u>\$2,800</u> | <u>\$5,980</u> |

Installation Costs

| | Townhouse (1500 Sq. Ft.) | Custom Home 4,000 Sq.Ft.) |
|--|----------------------------------|---|
| Conv'l Gas Furnace // Air Conditioning | \$10,000 | \$25,000 |
| Conv'l Propane Furnace // Air Conditioning | \$10,000 | \$25,000 |
| Air Source Heat Pump | \$10,000 (\$6,000) | \$30,000 (\$20,000) |
| Ground Source Heat Pump | \$30,000 (\$6-\$8k/T)—\$4,500 | \$60,000 (\$10k/T) (\$6-\$8k/T) -- \$9,000 |

Heat Pump Installations in Tompkins County

