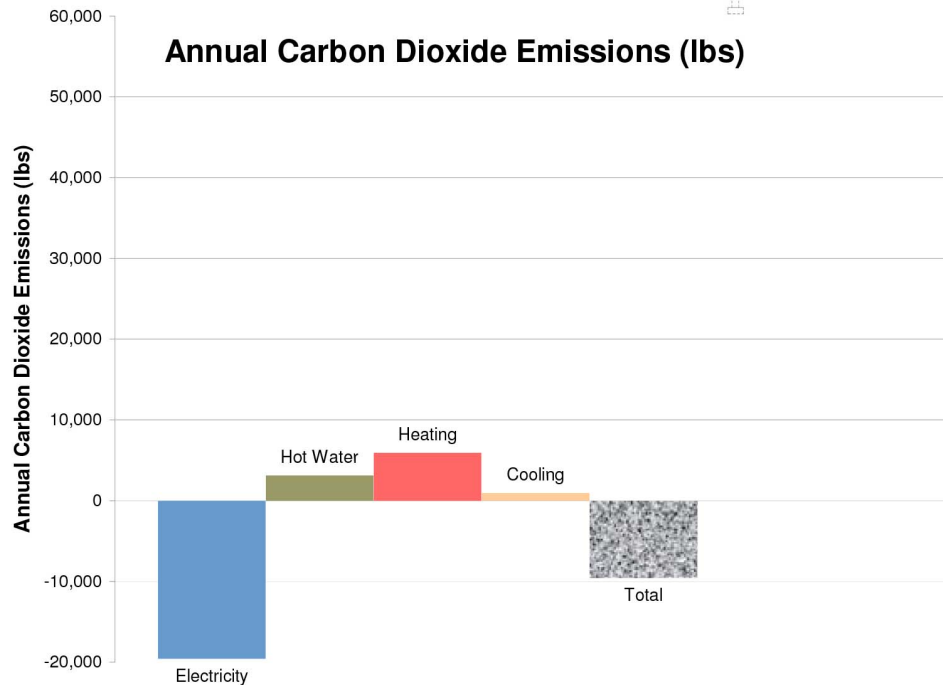


CASE STUDIES



429 SPRUCE ST.

3890 sq. ft. (2757 sq. ft. above ground, 1133 sq. ft. basement)

429 Spruce St. is a demonstration of state-of-the-art renewable energy technology in a traditional design context. Located in a historic district, it was designed to seamlessly integrate the photovoltaic panels into its three south-facing roofs. Its 10 kW SunPower PV system supplies all its electric loads and sells electricity back to the grid in the summertime. Cooling, backup heat, and water heating are accommodated by the ground-source heat pump, which increases the efficiency of the electric boiler. The house is insulated by urethane foam in the roof and walls, and in the structural insulated panels (SIPS) which make up the first floor. High-placed double Low-E windows maximize daylighting while preventing heat loss. Polystyrene foam concrete forms insulate the basement, and gaps in the framing are sealed with foam. A heat-recovery ventilator brings fresh air into this extremely tight envelope. This house offsets over 6,400 lbs of carbon dioxide annually as a net producer of electricity.

ENERGY SUMMARY

429 SPRUCE ST.

