PROBLEM
A cold bedroom.

PURPOSE
To find an easy and cheap solution for improving the bedroom’s heat retention.

HYPOTHESIS
Caulking cracks in the exterior masonry wall will reduce infiltration through the cracks, increasing wintertime room temperatures by an average of three degrees Fahrenheit through a week.

THE HOUSE: A mid-century rental house full of ECS blunders. The study room is located on the lower story of the home.

THE ROOM: A concrete masonry unit (CMU) wall is the coldest element in the room. Low insulation and large cracks let a large amount of heat escape from the room.

THE PROBLEM: The large cracks pictured let a considerable amount of heat out of the room. When a hand is placed over the cracks, cold air movement can be easily detected.

PROCESS
A blower door test was performed before and after caulking the CMU wall in order to find the caulk’s effect on infiltration levels.

BLOWER DOOR TEST RESULTS:
CAULKING REDUCED INFILTRATION BY 4.4 CFM

In one year, the caulking will save 268 lbs of CO₂ from being emitted. According to the EPA, one gallon of gasoline emits 19.4 lbs of CO₂ into the atmosphere. By caulking the walls, emissions savings will be equivalent to the use of 13.8 gallons of gasoline. Furthermore, the U.S. Bureau of Transportation Statistics states the average fuel efficiency of cars in the U.S. is 22.6 mpg. The reduction in CO₂e as a result of caulking the room’s walls is equal to the CO₂ emitted from a car on a drive from Portland, OR to Vancouver, BC: 313 miles.