

INSULATE GARAGE DOORS

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Uninsulated garage doors allow a garage to become very cold in winter, and if the garage is attached to the house it fails to serve as an efficient buffer against ambient cold. Also, cold can be hard on a car battery, and entering a cold car in winter is miserable.

Furthermore, if the door(s) faces east or west the garage can become very hot during summer. Instead of buffering the house from exterior heat, the garage without insulated east or west doors heats the house in summer.

Figure 1 is an infrared photograph of an uninsulated east facing door taken from inside a Reno garage on an August morning (10 am). The door temperature (red area) is 145°F and the air temperature inside the garage is above 90°F (higher than outside) and rising.

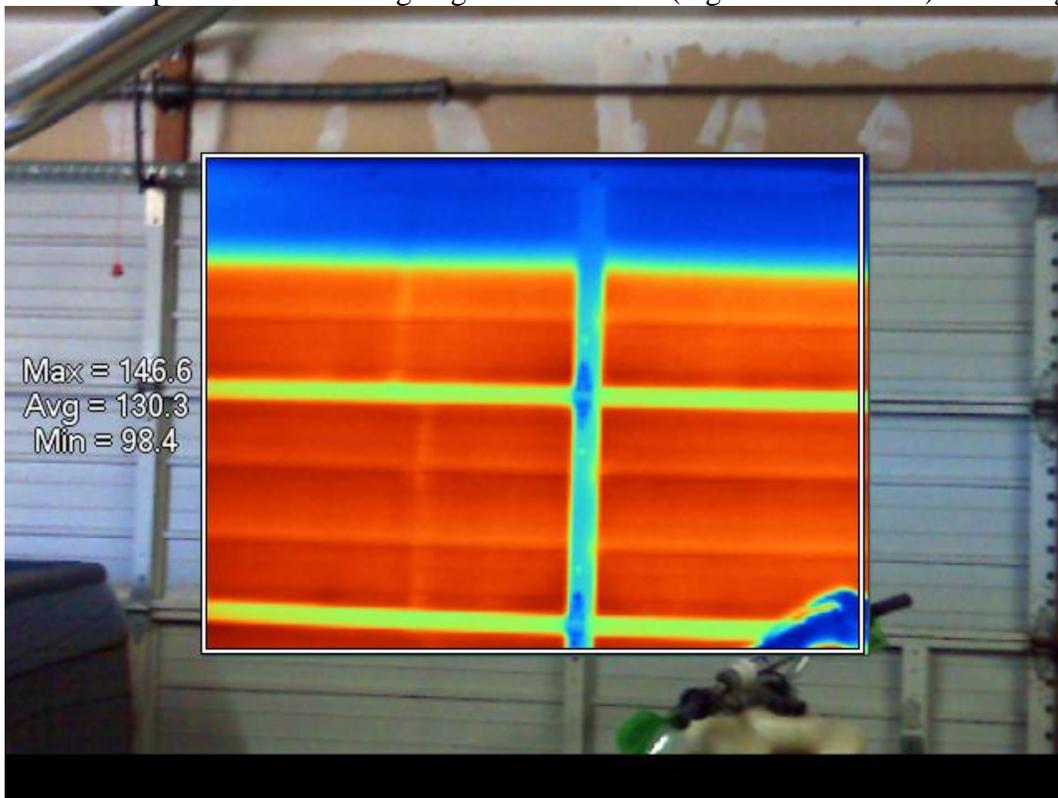


FIGURE 1 This uninsulated east facing garage door heats the garage to 100°F every sunny morning in summer, which in turn heats the attached house. The freezer in the garage also works harder and consumes more electricity as the temperature rises.

The solution for both winter and summer conditions is to insulate the garage door. This is within the skill capability of most homeowners. The first step is to measure the thickness of the garage door ribs, since the rigid insulation slabs will be cut to size and forced between the ribs and outer door. Rigid insulation is available from home improvement hardware stores, and it is important to buy the proper thickness such that the door ribs will hold it with a tight squeeze.

Figure 2 shows a garage door in Reno that was insulated by the owner, who used mostly foil backed insulation. Prior to insulation, every sunny summer afternoon the air temperature inside the garage would reach 105-110°F. After insulation the garage high temperature reaches 85°F. The insulation cost for the three car garage was about \$60 for materials ~ the homeowner required about 3 hours total labor. An ancillary benefit is the garage door opens more quietly because the insulation absorbs rattle.



FIGURE 2 The foil-backed insulation cuts cleanly with a razor knife, whereas the compressed (white) styrofoam tended to crumble into messy electrostatic crumbs. The insulated garage is much more comfortable both winter and summer, and helps moderate the temperature of the attached living space.

However, for garage door insulation to be effective, the garage roof must also be insulated. If roof insulation is missing then the summer sun shining on the roof will heat the garage regardless of door insulation (just as an attic gets hot in summer), and in winter the heat loss through the roof will bypass the effect of door insulation. At a minimum R-19 (R-30 is better) fiberglass blanket insulation should be applied between the roof joists.