

Saving Energy

by Patrick J. Galvin

Home builders know that when it comes to saving energy, it all starts with the way they build and insulate a house. But when most consumers think of saving energy, they look to the kitchen and bathroom. After all, this is where the major energy-users (appliances, plumbing fixtures and ventilating equipment) are highly visible.

But the fact is that a lot of energy can be saved in kitchens and bathrooms. And since sales of new houses relate directly to what consumers think—in other words, energy savings in kitchens and baths are big selling points—featuring energy-efficient kitchens and baths can help clinch a sale.

What the Statistics Show

According to the U.S. Department of Energy (DOE), the central space heater accounts for 34 percent of all energy used in a house, ranking No. 1, followed by the water heater, which uses 14.7 percent. Room space heaters use 11.5 percent, refrigerators 8.4 percent, lighting 6.2 percent, ranges 5.4 percent, central cooling 4 percent, and dryers 3.3 percent.

It is interesting to note that dishwashers, perceived as big consumers of energy, are lumped with disposals, radios, TVs and portable appliances in the "Other" category, accounting for 6.3 percent of a home's energy use.

Apart from central heating systems and water heaters, what does all of this matter to builders?

According to the Housing Industry Dynamics survey for 1979, the most recent "typical" year for which figures are available, builders installed disposals in 75.2 percent of their homes, electric ranges in 67.9 percent (no figure for gas ranges), dishwashers in 72.2 percent and refrigerators in 35.6 percent.

Meanwhile, the Association of Home Appliance Manufacturers (AHAM) reports that builders account for four of every 10 new-home disposals, ranges and dishwashers sold, and about one of every eight refrigerators.

For builders who equip kitchens in their new homes, new appliances boast significant (and promotable) energy savings over older models.

Refrigerators

Since 1972, the energy use of refrigerators has been reduced 32.8 percent,

and of freezers, 44.3 percent. (By using certain federally approved, and arcane, test procedures, the energy-efficiency gain can soar to 66.4 percent.)

This savings has been accomplished through the use of foam insulation and through improved condensers, evaporators, fan motors and door seals. Also helpful have been such features as anti-sweat heater switches, electronic monitoring systems and the "door within a door," by which ice or drinks can be retrieved without opening the main door.

A most interesting new development in refrigeration is Defiance's "Power Module," a built-in line with models ranging from 18 to 48 inches wide. The module sits on top of the refrigerator and super-cools a cubic foot of air, which jets down into the freezer on thermostatic demand. It not only eliminates all the coils, drip pans and so on, but it also is much more energy-efficient.

Dishwashers

Dishwashers manufactured since 1983 are 35.3 percent more energy-efficient than the models of 1972. The savings is due to improved spray arms and filtering systems that provide better water movement and wash action, the air-dry cycle, and built-in heating elements that boost water temperature, allowing the water heater to be set lower.

Ranges & Ventilation

The AHAM has no energy-use figures for ranges and ovens, but current models are presumed to be greatly improved over their earlier versions, thanks to better insulation and door seals and, in gas models, the replacement of pilot lights with electronic ignition.

For information on ventilation, I can do little better than to refer you to articles by Bill Lotz and Jon Eakes in the October 1985 issue of *NEB*.

Lighting

We have covered the energy considerations of kitchen and bathroom lighting in detail in previous issues. (For bathrooms, refer to the February 1986 issue; for kitchens, see July 1985.) In those issues, we pointed out the dramatic savings that can be realized by using fluorescent over incandescent

lighting—often at the expense of good color rendition, however.

For further savings as well as design considerations, we suggested low-voltage light. Recent gains in this area have made low-voltage lighting even more desirable.

One of the problems with low-voltage lighting is finding it. General Electric has some great low-voltage products, but all promotion of them has been geared to commercial users—stores, museums and the like.

The Task Lighting Corp. of Kearney, Neb., has put together low-voltage packages for use under wall cabinets and

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in toe spaces, soffits, display cabinets and anywhere else you might imagine. These lights work on 14 volts, requiring a transformer to reduce house current. The largest transformer is only two inches by 4½ inches, so it can be hidden anywhere. In remodeling, it is common to put the transformer behind a kitchen-cabinet drawer or in the bathroom vanity.

In a new home, the builder should consider the cost of running the wires. (Black and white wires are on the 120-volt side, and red wires are on the 14-volt side.)

The lights take dimmer switches and use three- or five-watt bulbs. True, such small bulbs don't emit much light. But if you install enough of them, they can combine to provide as many as 250 watts in a typical kitchen, making them higher in initial cost but much cheaper to run than their larger counterparts.

The trick simply is to use plenty of them in both the kitchen and the bathroom and then to promote them, along with the appliances and other energy-saving measures, to consumers.

American vs. Foreign Appliances

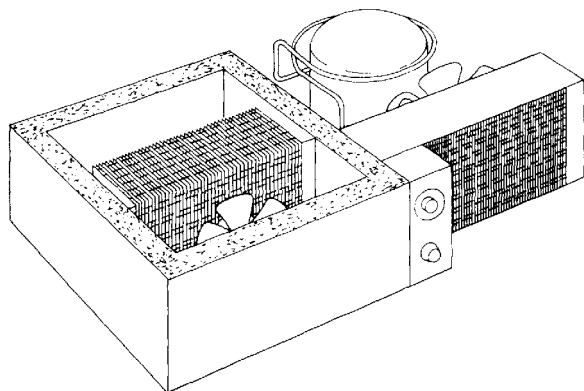
In the export-import war that is the frequent jousting ground for highbrow theoreticians, we hear recurrent pleas in favor of Japanese or European technology for more energy savings.

But when DOE test methods are applied to the foreign technologies, they seldom come out better than U.S. appliances. When they *do* come out better, it often is because of a built-in bias: foreign appliances are considerably smaller than ours. You simply can get much better efficiency with a nine-cubic-foot refrigerator than with a 17-cubic-foot model, which is what U.S. consumers demand.

Sure, we could get better insulation and reduce energy consumption by making the walls of our refrigerators and ranges thicker. But it would cut the capacity, make the shell bigger and multiply the cost—after we just spent 20 years holding down the cost and making the insulation better, the walls thinner and the shell smaller, thereby increasing storage capacity.

And, since that is what U.S. consumers want, it seems to be the right track. ■

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The "Power Module" of Defiance's built-in refrigerators and freezers is a separate unit that sits on top and forces super-cold air down into the storage areas.