

# Historical Perspective

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*When IAQ Was OAQ*

## The Attic Fan Era

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When residential electric service became readily available, the necessities of life became a light bulb in each room, a toaster, a refrigerator and a “Cathedral” radio. The next electrical purchase was a fan. The portable fan on the floor was about as effective at providing cooling relief as was the fireplace at heating a room, you benefited only if you were directly in front of each. Carrying the fan from the living room to the kitchen, and then to the bedroom became a hassle.

When fractional horsepower motors became reliable and available at affordable prices, the possibility of cooling the whole house became an option. Any electrical device was expensive in Depression-era dollars, so motor shops sprang up to hand rewind small motors when they burned out at half the price of a new motor. Today, a small motor or appliance is a disposable item when it fails.

Manufactured whole house fans were not a hardware store item. In the years prior to World War II, my father decided to expand his plumbing business into the heating and ventilating field. One small firm in New Orleans was building 24 in. to 36 in. (0.6 to 0.9 m) diameter fans with metal blades and frame. These were reasonably efficient, but for residential use, the blade noise was objectionable at night. He decided that a fan made totally of wood and with masonite blades would be quieter.

A local foundry that made bronze plaques was able to cast brass hubs with four blade support attachment points. The shaft had to be horizontal since bearings that would last with vertical thrust forces were not affordable. A carpenter built a wooden box and cut oval blades from 0.25 in. (6.5 mm) masonite, which resulted in a quiet fan. The fan sizes ranged from 30 in. to 48 in. (0.75 to 1.2 m) in diameter. The custom installation was to build a plywood horizontal tunnel in the attic for the fan. The hall ceiling return grille was built from an egg crate made from replacement wood Venetian blind slats. The fan exhausted through the gable end of the roof. Over the ceiling return, a hinged plywood sheet with rope and pulley

served as a manual damper in cool weather.

The owners were instructed to open each window in the house 4 in. (100 mm) whenever the fan was on. The draft made the curtains stand out, providing visual reinforcement of the cooling effect. These wooden fans were not as efficient as the competitors’ metal blades, but were noticeably quieter. Sones for measuring fan noise ratings had not yet been invented.

A competition began between friends and neighbors about the size of their fans. Each new installation became larger. One “uptown” client insisted on having the largest. So the design was a stack of four, 36 in. (0.9 m) diameter fans in a room-sized tunnel in the attic. When it was turned on, the curtains stood out at a satisfying 30° angle.

One customer called, saying that his cypress door had split when it had slammed shut. It turned out that this was not a complaint, but the owner was announcing how proud he was to have such a powerful installation.

After a few weeks of use, the curtains developed a noticeable stain at the window-edge level. Dust was on the furniture and the silver became tarnished, but the breeze was worth it. People were used to the seasonable pollen and dust as a fact of life. In the office, papers tended to blow off the desk. When drawing a plan, you needed a handkerchief under your arm to keep perspiration from staining the velum. Luckily, if a mosquito blew in, the velocity carried it right out again.

During World War II and into the early '50s, the attic fan was cutting-edge technology for residential cooling. Once packaged air-conditioning systems became affordable and reliable, the old ceiling grilles became obvious returns for the attic-mounted AC system replacements.

If a client complains about summer IAQ, I can only assume he does not live in the Deep South. Southerners remember the glories of open windows for ventilation on a humid summer day when the pollen count was high. If you are fortunate enough to live in a climate with dry days and cool nights, then the attic fan may still be the thing for you.

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