

# Reflections of a ‘Ceiling Fan’ Fan

By Joel GREER

Although now just a distant memory, the heat and humidity of the past summer in Tokyo prompted me to begin considering an appliance that I had not thought about in a long time – ceiling fans. I am told that desk or stand-up fans are familiar items at home and workplace alike in Japan. But an admittedly limited and very informal survey in Tokyo has revealed to me only a few places equipped with ceiling fans – all restaurants that are mainly tropical-themed establishments where the ceiling fans appear meant to complement the décor as much as circulate air. I also understand from Japanese acquaintances that ceiling fans are not a customary fixture in households here. I began to reflect on this circumstance and my own recollection of ceiling fans’ utility.

## Ceiling Fan Memories

Electric-powered ceiling fans were developed in the late 19th century in the United States, where they have enjoyed considerable popularity and are present in an estimated two-thirds of people’s homes today. I first remember ceiling fans from my childhood in south Florida, where my parents installed them in our house to supplement and at times replace use of the air conditioner. But I developed a real appreciation for ceiling fans in an even hotter climate – India – where I did not have air conditioning. There ceiling fans were *the* difference between being able to work and otherwise function normally, and being relegated to miserable torpor because it was too sweltering to move.

These recollections did not emerge immediately upon my arrival in Japan. My wife and I moved to Tokyo two years ago, and it was only during this past, second summer here that I began to wonder about the apparent scarcity of ceiling fans. My focus on this issue was driven not by my inherent devotion to air conditioning, but by the different tolerance for the summer heat between my wife and me: she is more comfortable than I with opening windows and turning up (or off) the air conditioner when possible during the warm weather. Remembering my revelation in India I began to consider, between our differing perspectives, the possibility of compromise, the road to which seemed to lead to ceiling fans.

## Why Not in Japan?

Tokyo’s climate, of course, is not as sultry as India’s, or even that of south Florida. Still, residents do seek relief from Tokyo’s warm and muggy summers with the help of other types of electric fans. In August the *Nikkei Weekly* announced that “Heat Wave Ignites Sales of Electric Fans” (*Nikkei Weekly*, August 18, 2008). This article described strong demand for various kinds of electric fans, such as stand-up models or those that can be mounted to shelves. But there was no mention of ceiling fans.

Further, when it was launched several years ago, I recall admiring the Cool Biz campaign and its aim to reduce summertime energy consumption and lower carbon dioxide emissions by raising thermostats and turning up (or off) air conditioners. While I gather it has been quite successful, I also understand that some people find Cool Biz’s prescribed indoor temperature setting of 82 degrees Fahrenheit (28 degrees Celsius) to be uncomfortable. Personally, I would have to agree that 82 F is not an optimal indoor temperature in which to do office work (or other activities, for that matter). It seemed to me that ceiling fans could have a useful role to play in this regard.

Consequently, I decided to conduct a little research on ceiling fans. What I learned has indicated persuasively to me that use of ceiling fans could make our life at home during summer much more comfortable as we try to reduce our reliance on air conditioning. It also made me think that greater use of ceiling fans in the workplace could permit the prescribed Cool Biz temperature level to become tolerable and even pleasant for most people, which presumably would help enhance the Cool Biz campaign. Moreover, ceiling fans are very energy-efficient, so they complement Cool Biz’s conservation goals well.



## Ceiling Fans Highly Effective

Like many other types of electric fans, ceiling fans create a cooling effect not because they lower ambient air temperature, but because they circulate air, which hastens the evaporation of moisture on skin and thereby makes people feel cooler. When used in conjunction with air conditioning, ceiling fans permit one to raise the thermostat by at least 4 F (2.2 C) without loss in comfort. So a room in which the thermostat is set at the 82 F level prescribed by Cool Biz would actually feel like 78 F (25.5 C). I, at least, find this temperature level comfortable.

Among different varieties of electric fans designed to circulate air – for example, table fans, floor fans, or fans mounted to poles or walls – ceiling fans are particularly good at dispersing air throughout a room to even out temperature discrepancies due to the fact that warmer air rises and cooler air stays closer to the floor. According to the US Department of Energy, ceiling fans “are considered the most effective of (the various types of) fans, since they effectively circulate the air in a room to create a draft in the room.” (See <http://apps1.eere.energy.gov/consumer/>).

As a result, although the cooling effect of a ceiling fan will be felt most when directly beneath it, people elsewhere in the room will benefit from the air circulation created more generally by the ceiling fan. In an office space where a number of people might work, this means that one good ceiling fan could reduce or obviate the need for multiple desk or mounted fans (which also saves space in the office).

## Energy-Efficient, Too

Not only do they promote energy conservation by allowing higher thermostat settings in the summer, ceiling fans are themselves extremely energy-efficient. Many ceiling fans use less energy than a 100-watt light bulb (more energy-efficient models use even fewer watts), which is a very small fraction of the power typically required by air conditioners. Operating costs of a ceiling fan are proportionally far lower than those of air conditioning. Indeed, the main expense of a ceiling fan is the purchase price (Japanese retailers I have seen list models ranging from about ¥10,000–¥60,000). But this initial expenditure can be recouped from the operating savings derived over the life of the ceiling fan.

Thus, by using ceiling fans, a pleasant indoor temperature can be maintained, and air conditioner bills significantly reduced, while accomplishing the Cool Biz aim of saving energy and lowering carbon dioxide emissions by raising the thermostat.

## Potential Concerns

There are several potential concerns that I imagine might be raised about ceiling fans. In our apartment, and I gather this is often the case in other homes in Japan, there are light fixtures in the center ceiling of each room – precisely where a ceiling fan would be located. Does one have to sacrifice light for better air circulation? Fortunately, the answer is no because ceiling fans today typically include, or come with the option of using, lights along with the fan itself. Therefore, ceiling fans can be installed in place of overhead lighting where desired. Whether or not used as part of a ceiling fan kit, it is important that light bulbs are chosen for their energy (and thus cost) efficiency.



Another concern is the possible danger caused by ceiling fans being too close to the floor (this concern may be more pertinent to Japanese households than offices). So they are not in harm's way, ceiling fan blades should be between 7–9 feet (213–274 cm) above the floor, and for optimal performance they should be 25–30 cm from the ceiling. For lower ceilings that may not always be able to safely accommodate these distances, there are so-called “hugger” ceiling fans. As the name suggests, hugger fans are designed to allow for less distance between the fan blades and ceiling in order to permit more clearance between the blades and the floor. Closer proximity to the ceiling reduces the effectiveness of the ceiling fan, but it is of course necessary to balance a ceiling fan's performance with safety. Further, where ceiling fans are placed can determine how much clearance between the blades and floor actually is needed (for instance, less clearance may be required over bedding than over space where people regularly walk or go about other activities of daily life).

## Next Summer

These thoughts on ceiling fans did not crystallize for me until summer had mostly passed and the issue, at least for 2008, was moot. But my wife and I are using the cooler months to look into acquiring ceiling fans for our apartment, and as indicated above we have already found ceiling fan retailers to visit. Next summer, we look forward to less air conditioning and lower utility bills as we do our small part for the environment. **JS**

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