



# Blowing **Hot** Air?

## Five Myths about Hand Dryers

## De**bunked**

BY DENIS GAGNON

First invented by George Clemens in 1948, hand dryers are now widely available in many public restrooms and touted as the environmentally friendly alternative to paper towels.

Because of the expense of making paper and the waste and labor involved in its maintenance and disposal, hand dryers seem like a logical choice for increasingly green-conscious (and frugal) facility owners and managers.

However, many people have reported poor experiences with hand dryers, as a result, even the facilities that do provide hand dryers may also supply paper towels to prevent irritating their patrons. Hand dryers have a mixed reputation in the industry, and deservedly so.

In some of the myths addressed in this article, there is also an element of truth; other myths are based on heavily biased, outdated and/or flawed information that received a

great deal more attention than deserved.

### **Myth 1: Hand Dryers are Not Sanitary**

The only existing study to make this claim comes from the University of Westminster in England. In 1993, K. Redway et al produced a study and two unpublished reports funded by the Association of Makers of Soft Tissue Papers. The study concluded that hand dryers dramatically increased bacteria counts. The study was widely distributed in the media but was not published nor recognized by any medical or health review.

This single study's suggestion that hand dryers blow germs onto your just-cleaned hands was enough to generate an easy sound bite that still comes up occasionally in the media. However, research indicates that this claim only amounts to a scare tactic favored by the paper industry, and not an actual, significant health

threat posed by hand dryer use.

First of all, the Westminster report has been criticized: In the 1994 paper entitled "Bacteria on Washed and Dried Hands: A Critical Review of two Unpublished Reports from the University of Westminster," Dr. Syed Saatar from the University of Ottawa reports that "certain flaws in the methodology ... compromise its value."

As for the myth that hand dryers harbor bacteria and subsequently blow microbes onto users' skin, this is nearly impossible: the interior of a hand dryer is dry, and constantly heated, creating a very poor environment for the propagation of microorganisms. In fact, according to the 1990 study by Ansari et al, the interior of a dryer has bacteria counts two to four times LOWER than other surfaces in the bathroom, such as sinks, doorknobs and soap dispensers.

Hand dryers leave no refuse behind, and hands-free models alleviate the need to

touch any surfaces at all in order to dry hands. Facility owners seeking to maximize hygiene in their restroom facilities should install as many hands-free fixtures as possible. In addition to hand dryers, auto-flush toilets, automatic faucets and soap dispensers are all readily available. The added benefits are improved hygiene, less overall product waste and significant cost savings.

### **Myth 2: Hand Dryers Don't Dry Hands Effectively**

Older generations of hand dryers have contributed to the poor reputation that challenges the industry today. Simply put, hand dryers don't do what they're supposed to: Dry hands in a reasonable amount of time.

The ineffectiveness of typical hand dryers lies in the flawed design of most early models, and those flaws continue in many existing dryers today. The idea was that a warm, steady stream of air would evaporate the water on hands, much as a hair dryer dries hair. Unfortunately, the time factor was not given adequate consideration. Most people in a public restroom are not patient enough to spend the time required for complete water evaporation to take place. Additionally, many patrons do not rub their hands vigorously below the dryers, which brush away excess water droplets.

When my company set out to improve the hand dryer, we collaborated with a research and development group to find out where most dryers went wrong. We learned that water clings to skin in two ways: as a thin film against the skin, and as loose droplets.

Naturally, the thin film is easier to evaporate than the larger droplets, but most dryers have to get through those large drops first, leaving the water film behind. People who took the time to shake loose the droplets, and who rubbed their hands vigorously below the dryer, tended to get better results than those who did not, so we factored that in as well.

We developed a more focused, streamlined nozzle that would direct high-velocity air at the hands, blowing away the loose droplets and breaking up the layer of water vapor between the air and the skin, allowing it to evaporate more rapidly. The result was a hand dryer that did its job in a very short amount of time: between 10 and 15 seconds at most.

### **Myth 3: Hand Dryers are More Expensive Than Paper Towels**

Certainly, any model of hand dryer is go-

ing to cost more than a package of paper towels, and probably more than the towel dispenser they are loaded into. However, the up-front cost is deceptive. Hand dryers are a one-time purchase: once installed, they require considerably less attention than paper towel dispensers. And unlike paper, which can cost \$15-\$30 or more per case, the energy costs of using a hand dryer amount to pennies per day.

Hand dryers cost much less overall, particularly when you consider the costs of labor. Quality hand dryers are virtually maintenance-free, except for a recommended annual cleaning. Paper towels, by comparison, require one hour of maintenance for each case of towels used. Paper towels must be replaced frequently, and picked up, damp, from floors and other surfaces to be disposed of properly. Towels are more subject to vandalism by mischievous users of public restrooms. Finally, hand dryers are virtually always available for use, while paper towel dispensers are frequently empty, jammed or otherwise non-functioning.

### **Myth 4: Paper Towels are Better for the Environment Than Hand Dryers**

Although paper towels do not consume electricity in their use, they consume a great deal of energy to be fabricated in the first place. According to the Environmental Protection Agency, every single ton of paper produced consumes many more thousands of gallons of water and tons of oil (not to mention the two to four tons of trees used to yield that single ton of finished paper).

Paper trash comprises approximately 40 percent of our municipal waste in conservative estimates. Even recycled paper products require a significant energy cost in their production. And there are also the well-documented environmental costs of paper fabrication: deforestation, pollution and contaminated sediments in nearby sources of water, air pollution from pulp and paper mills (including carbon dioxide, nitrous oxides, sulfur dioxides, carbon monoxides and particulates), and solid waste production.

In other words, though paper towels may not plug into an electrical source themselves in order to work, they consume a great deal of electricity and natural resources during production, and leave a great deal of waste behind. Cutting back on paper waste is an imperative for any organization hoping to become more environmentally sound and it is one of the

major selling points for the use of hand dryers as a source reduction alternative.

As for electricity costs to the facility owner, hand dryers that work efficiently (i.e., that dry hands in a shorter amount of time than older models) do not draw an exorbitant amount of electricity at all. To assure this, you'll want a model that requires less overall operating time to dry hands effectively. For example, new model hand dryer run on 15 amp service and uses 80 percent less energy than other models. Hands-free dryers with motion sensors cannot be "overused" by patrons, so waste is effectively minimized.

### **Myth 5: Hand Dryers are Difficult to Install and Maintain**

This of course varies from model to model, vendor to vendor, but overall, hand dryers that are properly built should install quite easily and operate virtually maintenance-free, unlike paper towel dispensers. Some older hand dryer models were designed to be recessed into the bathroom wall, requiring a significant amount of labor to install. Many modern models are instead surface-mounted and can be installed at various designated heights quite easily.

Quality dryer models do not require much mechanical attention or repair to work properly. John Donahue, the Building superintendent at the Massachusetts Convention Center Authority, is in charge of the restroom maintenance of the Hynes Convention Center, among other facilities within the MCCA. The Hynes Center has gradually phased out older models of hand dryers and replaced them entirely with the hand dryers, and Donahue has praised their lasting power and function: "To date, none of the units have failed, and they get a lot of use," Donahue says. As long as you choose a vendor with good customer service, installing and maintaining dryers should not present much of a problem.

The myths simply don't hold up: hand dryers save more money and are more environmentally sound than paper towels. With the improvements made to the technology, hand dryers are no longer as cumbersome and ineffective as popularly thought. The more people encounter efficient models, the faster the tune of popular wisdom and opinion changes. □

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