



# City of Portland Green Purchasing Case Study

## High Speed Energy Efficient Hand Dryers

### Purchasing Green

In December 2012, after a steady stream of issues and complaints about the mess paper towels were leaving in the restrooms, Facilities Services installed high speed energy efficiency (HSEE) hand dryers in the restrooms of the Portland Building, a 15-story municipal office building that houses many of the City's municipal bureaus and departments.

When it was built in the 1980s, the Portland Building's restrooms were equipped with conventional electric hand dryers. However, because of the length of time it took for a user's hands to dry under the electric hand dryers, most occupants opted to use paper towels instead.

Prior to installing the HSEE hand dryers, the City tried different types of paper towel dispensers, since complaints of paper towel mess were due to the dispensers not functioning well. The City also piloted composting the paper towel waste and consequently, were astounded as to how much the building's recycling rate increased. After looking at how much the building was spending on paper towels every year, the City made the decision to install the HSEE hand dryers as a way to reduce mess, cost, and the amount of waste going to landfills.

The City tested and piloted three different brands of HSEE hand dryers (Dyson Airblade, Mitsubishi Jet Towel, and the Xlerator) and decided to install the Airblades because they have HEPA filters and a zinc ion coating, both of which are supposed to prevent the spread of germs. The 2012 installation of the Airblades was the first mass installation at City offices, and additional HSEE hand dryers are scheduled for installation at other City buildings in 2013-2014.

### Benefits

Conventional hand dryers have less efficient motors and energy heating elements, which means it takes longer to dry your hands and more energy is consumed during the process. HSEE hand dryers use high speed motors to produce high velocity airflow, which use up to 80 percent less energy and offer a more rapid dry time of 8-10 seconds in comparison to the typical 30-45 seconds for conventional models.

The Massachusetts Institute of Technology conducted a [Life Cycle Assessment study in 2011](#) and found that new HSEE hand dryer models produced 70% fewer CO<sub>2</sub> emissions than either older dryer models or the use of paper towels (whether recycled content or virgin).

By using these latest hand dryers in place of paper towels, businesses could not only reduce their environmental impact through lower carbon emissions, but also benefit from a substantial cost saving of up to 95% by eliminating the financial costs that arise from the purchase, maintenance, and disposal of paper towels.



*HSEE hand dryers like the Dyson Airblade can dry hands in 8-10 seconds.*

### At a glance –

#### Who –

- Facilities Services

#### Product –

- Dyson Airblade Electric Hand Dryers

#### Cost –

- \$1,200-\$1,400 per dryer

#### Benefits –

- Reduces janitorial supplies costs
- Reduces garbage costs
- Reduces volume of waste sent to landfills

*“Decreasing trash sent to the landfill, while saving \$1,200 a month on janitorial fees, makes this replacement a success in my mind.”*

Wendy Gibson,  
Sustainable Operations and  
Maintenance Manager,  
Facilities Services

## Cost

The HSEE hand dryers were \$1,200-\$1,400 per unit; about 3-4 times more expensive than the conventional electric hand dryers previously installed. However, due to the HSEE dryers, the City experienced a decrease of \$1,200 per month in the Portland Building's janitorial fee (which includes supply costs), and the building's trash costs also decreased by about \$300 per month. While the City expects to see a slight increase in energy consumption costs, Facilities Services feels it will be offset by the decrease in paper towel costs.

## Performance

Overall, the complaints regarding paper towel waste and mess have diminished since the installation of the HSEE hand dryers. Of the three models tested, the City found the Xlerator to be very loud, and the blowing air from the dryer was so powerful it actually sprayed the water from wet hands onto the ground. The Dyson Airblade was slightly louder than the Mitsubishi Jet Towel, but the Airblade dried hands faster and came equipped with a HEPA filter and zinc ion coating to reduce the spread of germs. The challenge with the Dyson Airblade design, however, is that it requires hands to be placed in the dryer from over the top and are not ADA compliant. Because of this issue, the City still uses the existing conventional electric hand dryers (which are ADA acceptable) along with the Airblade.

## Lessons Learned

When the paper towels were removed from the restrooms, a new complaint was raised – users did not want to touch restroom door handles with bare hands, and had been accustomed to using paper towels for that purpose when exiting. To solve this problem, the City placed small tissues, which are not durable enough to dry hands, in the restroom to use when opening the doors.

Users of the new HSEE hand dryers also reported complaints about the sound level and pitch of the Airblades. City staff investigated the sound and found that the noise level was within safe decibel levels. However, the City may consider pitch when selecting future HSEEs as there is some variance in pitch among the different brands and models, and some pitches are found to be more annoying to human ears than others.

Overall, the City is pleased with the HSEE hand dryers and is expanding their use to other buildings. For others looking to install HSEE hand dryers, the City recommends piloting different models to determine any user issues/complaints before doing a large installation. In general, the HSEE hand dryers are great way to reduce paper towel waste and quickly dry hands.

■ November 2013

## About Facilities Services

*Facilities Services is a program of Business Operations within the Office of Management and Finance. The program is responsible for the construction, operation, and maintenance of many of the City's buildings, including City Hall, the Portland Building, Police facilities, the Record Center, the Portland Communications Center, and the City's seven downtown parking garages. In total, the program has responsibility for 70 buildings totaling 3 million square feet, approximately two-thirds of the City's total building inventory.*

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