

Hand Dryers or Paper Towels: Considerations for Selecting the Right Option for Your Washroom



INTRODUCTION

The debate between hand dryers and paper towels has been going on since the advent of modern sanitation technologies. However, both methods of hand drying have their benefits and there are certain environments where one may be more suitable than another. Rather than condemn one or the other, the best approach towards making a decision around sanitary products is to familiarise oneself with the relevant areas of consideration.

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HYGIENIC CONSIDERATIONS

With the transmission of bacteria “more likely to occur from wet skin than from dry skin,” proper hand drying is an imperative part of the hand washing routine as it minimises the survival and transmission of potentially disease-carrying bacteria.¹ In order to ensure best practice for hygiene, Safe Work Australia, the nation’s governing body on work health and safety, recommends that hand washing facilities contain “hygienic hand drying facilities, for example automatic air dryers or paper towels.”²

Given that, it’s important to consider the hygienic qualities of both hand dryers and paper towels. While each method is capable of drying hands, paper towels and hand dryers each do so with varying levels of efficiency. Where sanitation is paramount, multiple studies found paper towels to be the most efficient, taking into account the recommended drying times to minimise the amount of water remaining on hands and comparing those to the observed amount of time that people spent drying their hands.³ People using a high traffic washroom are unlikely to stand under hand dryers for the recommended period of time to ensure dry hands, and hence they maximise the risk of transmitting bacteria. Hand dryers are also much more likely to spread bacteria from hands that haven’t been washed properly.⁴

USAGE CONSIDERATIONS

Whether a washroom is intended for high or low traffic usage must also be considered when choosing a suitable hand drying method. High traffic washrooms, such as in airports or shopping centres, where a constant stream of traffic is expected, require regular maintenance to ensure general cleanliness regardless of the hand drying option selected. Installing paper towel dispensers requires replenishment of paper towels as well as waste disposal servicing throughout the day. Installing hand dryers requires general maintenance as part of a regular cleaning regime, but to a much lesser extent, as there is nothing to replenish or dispose of.

Low traffic washrooms, on the other hand, are not under the same demanding conditions from a maintenance or hygiene perspective. The same considerations as with high traffic washrooms still apply, but with lower frequency.

Similarly, the relationship between a washroom’s use and the number of drying facilities that may be installed within is directly related to the space available. Hand dryers generally protrude out from the wall and suffer from only being able to serve one person at a time. In a smaller space that caters for medium to high traffic, this can be a drawback. Comparatively, a paper towel dispenser can be utilised by multiple people at once and if protrusion from the wall is an issue, there are countless recessed options available.



COST CONSIDERATIONS

Basic hand dryer running costs can be approximated using the following calculations, provided that you know the **Power Rating** (KW) and **Dry Time** of the hand dryer and the **Energy Rate** being charged by your electricity supplier (found on your electricity bill). An example of how to calculate the running cost for ASI JD MacDonald's Autobeam is below (NB - the Power Rating for this model is 2.4KW and the Dry Time is 25 seconds. For the purpose of this exercise we will assume the Energy Rate is \$0.33 per kWh, which is the current average cost for peak use and that usage is for a high traffic washroom of 300 cycles per day):

Firstly, calculate the running cost for one hour:

- **(Power Rating KW x Energy Rate) x One Hour**
- $(2.4 \times \$0.33) \times 1 = \0.792

To calculate how many cycles in an hour:

- $(60 \text{ {seconds}} \div \text{Dry Time}) \times 60 \text{ {minutes}}$
- $(60 \div 25) \times 60 = 144 \text{ Cycles Per Hour}$

To calculate the cost per day for a high traffic washroom of 300 uses:

- $(\text{Running Cost Per Hour} \div \text{Cycles Per Hour}) \times \text{Uses}$
- $(\$0.792 \div 144) \times 300 = \1.65

The result of these calculations is that it costs **\$1.65 to run 300 cycles of the Autobeam hand dryer.**

The cost of paper towel usage can be approximated using the following calculations, provided that you know the cost price of

the paper towel. For this exercise we will use a cost price of \$95 for one carton of multi-fold paper towel 24 x 23.5cm, 250 sheets per pack, 16 packs per carton, 4,000 sheets in total (250 sheets x 16 packs = 4,000) and assume one use is two sheets and usage is for a high traffic washroom of 300 uses per day (to compare with our previous hand dryer calculation).

To calculate the cost per sheet:

- $\text{Cost of carton} \div \text{Total Number Of Sheets In Carton}$
- $\$95 \div 4000 = \$0.02375 \text{ Per Sheet}$

To calculate the cost per day for a high traffic washroom of 300 uses:

- $(\text{Cost Per Sheet} \times 2) \times \text{Uses Per Day}$
- $(\$0.02375 \times 2) \times 300 = \14.25

The result of these calculations is that it costs **\$14.25 for 300 uses of paper towel.**

The accumulative cost of paper towels, stemming from the initial cost for the dispenser and waste bin, to the ongoing cost of paper towels, the frequent requirement for staff to refill stock and dispose of waste, as well as the cost of waste removal, results in paper towels being significantly more expensive than hand dryers. Hand dryers require significantly less regular maintenance than paper towels regardless of their placement in high or low traffic washrooms. The running costs are mostly restricted to the price of electricity, albeit varying depending on the hand dryer model installed. However, servicing costs and filter replacement costs (which can be every 3-12 months depending on the model and the usage), should also be a consideration.⁵

ACOUSTIC CONSIDERATIONS

The acoustics of hand drying methods are of key concern in noise-sensitive environments such as hospitals and aged-care facilities, where noise and noise-induced disturbances have been linked to increased recovery time, increased perception of pain and of contributing to communication errors.⁶ While paper towels are unlikely to be cause for concern, hand dryers specifically can have a negative impact, depending on the proximity of washrooms to sensitive environments. Whether or not the sound of a hand dryer in use will carry through into environments such as offices or restaurants is also an important consideration. For these reasons it is important to consider a hand dryer's noise level (generally measured in decibels) to ensure the product's suitability for the intended environment.

ENVIRONMENTAL CONSIDERATIONS

In today's climate, the environmental impacts of both hand dryers and paper towels must also be taken into account when choosing between the two. Most paper towels are manufactured using plantation timber, so as to not contribute to deforestation. However, the pulping process and transportation requirements, combined with the fact that paper towels contribute a significant amount to landfill due to their consideration as sanitary waste after use, means that paper towels are responsible for 56 grams of carbon dioxide emissions per use (assuming one use is two sheets).⁷

Contrarily, the majority of the greenhouse gas emissions produced in relation to hand dryers are derived from their lifetime energy use. As more and more regions switch to renewable energy sources such as wind and solar, the carbon emissions of dryers will only decrease. As it stands, modern high-speed dryers are the most energy efficient format, causing between 9 and 40 grams of carbon dioxide emissions per use.⁸

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ASI JD MACDONALD

The ASI JD MacDonald range of commercial washroom equipment encompasses all products imaginable, from classic hot air dryers such as their 'Autobeam' to high-speed dryers such as their 'Tri-Umph' or the 'Turbo-Slim', which is designed to be both high speed and compact. An extensive range of paper towel dispensers and waste bins are also available in a wide variety of styles and sizes, including 2-in-1 combination units comprised of a paper towel dispenser and waste bin in the one unit.

Recognising all of the considerations taken into account, ASI JD MacDonald have sought to fill gaps in the market with their own

innovative takes on otherwise familiar products. The 'Applause' is a compact hand dryer, designed for smaller washroom areas and engineered to operate at 55dB, significantly quieter than any other hand dryer. Furthermore, they also offer 3-in-1 combination units, consisting of a paper towel dispenser, waste bin and high-speed hand dryer, for when two options are preferred but space and style are still of high consideration.

Along with hundreds of other products related to commercial washrooms, the sheer breadth and depth of the ASI JD MacDonald product range makes the hand drying decision an easy one to make regardless of the environment.

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