

# A GUIDE TO MECHANIZING YOUR CLEANING

How modern floor cleaning technologies are delivering powerful competitive advantages.



# INTRODUCTION

## **“CLEAN” BECOMES BUSINESS-CRITICAL**

The confluence of rising standards and a growing focus on public health continues to drive fundamental shifts in the commercial and industrial cleaning industries — pushing cleanliness from a “table stakes” expectation to a true competitive differentiator for organizations across all segments. Expectations of cleanliness are higher than ever, with a whopping 85 percent of consumers agreeing that visibly clean facilities are critically important — a sentiment that has been steadily growing over the last two decades.<sup>1</sup> Perhaps even more transformational, collective awareness of public health risks in everyday spaces is surging. An Ernst & Young consumer survey found that 7 in 10 people say they’re more aware of hygiene and sanitation in businesses,<sup>2</sup> and McKinsey reported that 1 in 4 people now say that cleaning and sanitation is the top factor in determining which businesses they visit.<sup>3</sup> Nearly every person entering a facility carries a smartphone, meaning a single cleanliness incident can be captured in photos or video and instantly shared on social media or online reviews, causing immense damage to an organization. Nine in 10 consumers say they will not even consider patronizing a business with negative reviews about its cleanliness.<sup>1</sup>

It’s not just consumer culture driving changes, either. Employers of all types increasingly recognize the direct connection between clean, healthy environments and employee satisfaction, retention and productivity. And regulatory requirements continue to make a significant impact in how cleaning staff work. In order to remain compliant with rules from agencies like the Occupational Safety and Health Administration (OSHA) and meet certain criteria from regulatory rating organizations like Leadership in Energy and Environmental Design (LEED), cleaning crews need to focus on using technologies, products, and processes that meet the established health and safety standards.

The brunt of these rising demands falls squarely on the cleaning operations team, tasked with creating confidence-inspiring cleanliness to bring people into businesses and facilities, and helping to prevent illnesses and injuries that can do profound damage to an organization’s reputation and bottom line. More specifically, these pressures are pushing a paradigm shift in the cleaning world: Cleaning operations need to focus not only on higher standards of cleaning for appearance — but now also on the more complex challenges of cleaning to create and protect healthier, safer environments.

Fortunately, forward-thinking business leaders are finding solutions to rising cleaning challenges through the use of mechanized cleaning technologies that help drive more reliable cleaning performance, while unlocking significant operational and labor efficiencies. Rising market pressures are opportunistically timed with significant advances that make mechanized cleaning technologies more affordable, easier to implement, and more cost-effective to use than ever before. Cleaning operations of all sizes and types are increasingly adopting a new wave of practical, modernized floor cleaning technologies — including automatic ride-on and walk-behind scrubbers and robotic floor cleaners. They're leveraging these technologies to not only reduce cleaning time and labor costs, but also drive reliable, high-performance cleaning that turns "clean" into a powerful competitive advantage that stands out to customers and employees.

People have a heightened awareness of cleanliness, and "clean" has become the visible proxy for "healthy and safe."<sup>4</sup>

#### CLEAN EXPECTATIONS IN THE AGE OF THE ANXIOUS CONSUMER

**85%**  
of consumers say that  
**VISIBLE CLEANING  
IS CRITICALLY  
IMPORTANT**<sup>1</sup>

**7 in 10**  
consumers say they're  
**MORE AWARE OF  
HYGIENE & SANITATION**  
when they visit retailers<sup>2</sup>

**1 in 4**  
consumers say  
**CLEANING & SANITATION IS  
THE TOP FACTOR**  
in choosing which businesses to visit<sup>3</sup>

# HOW MECHANIZED CLEANING SOLVES RISING CLEANING CHALLENGES

## CHALLENGE: CONTROLLING LABOR COSTS

Labor has long been one of the biggest expenses in most businesses, accounting for 75-80 percent of most janitorial budgets.<sup>5</sup> But while labor pressure is nothing new to most businesses, these pressures are seeing acute increases. The cost to hire, train and keep employees is higher than ever — and it keeps going up.



**2.4%  
INCREASE**  
in the overall cost of labor in  
2020<sup>6</sup>



Businesses in 25 states will  
see **INCREASED  
MINIMUM WAGE**  
in 2021<sup>7</sup>



**NEW OVERTIME  
RULES**  
went into effect in 2020<sup>8</sup>



**\$1,000**  
Average cost to train  
a new employee<sup>9</sup>

## Solution: Leveraging mechanization to enhance — not replace — human staff

From the simple broom, which dates to 2300 B.C., to the invention of the first mechanized “carpet sweeper” in 1858, we have continually leveraged mechanization to improve cleaning.<sup>10</sup> But while mechanization is often thought of as a replacement for human labor, it’s more accurate and useful to think of mechanization making human staff more efficient, so they can spend more time on their growing list of facility cleaning responsibilities.

Take the Tennant T390 Walk-Behind Floor Scrubber, for example — a cleaning machine designed to deliver dependable high-performance cleaning while enhancing productivity. The intuitive controls and straightforward operation of the T390 means faster training and easier use. The machine's low sound levels and consistent water recovery mean it can safely be used around building visitors, enabling reliable cleaning while reducing safety risks and boosting labor productivity.

Another labor efficiency opportunity centers on small and tight spaces that are commonly cleaned manually using a mop and bucket — and considered too difficult for an automatic scrubber. However, innovative machines like the Tennant CS5 Micro-Scrubber feature a narrow scrub path and adjustable handle that make it easy to use in small, tight spaces. The CS5 can clean in both forward and reverse motion while ensuring nearly 100 percent water recovery, enabling more effective cleaning thanks to separate solution and water-recovery tanks. The cleanliness results are impressive, but the impact on labor cost is even more remarkable: When switching from your manual mop and bucket to a CS5, you can save approximately 300 hours of labor and nearly \$4,500 in labor costs every year.<sup>11</sup>

Perhaps even more promising, a new generation of simple and practical robotic floor cleaning machines are enabling some of the most innovative cleaning operations to leave the frequent, methodical floor scrubbing to the robots — freeing up more time for staff to focus on tasks only humans can do, such as wipe-downs, disinfection, and other higher-touch cleaning tasks. These robotic floor cleaning machines allow cleaning teams to increase cleaning frequency and expand cleaning protocols — without increasing labor costs.

Finally, modernized mechanical floor cleaning can drive rapid increases in employee satisfaction — ultimately helping to increase retention and reduce the labor costs associated with turnover, hiring and training new employees. Cleaning machines like the CS5, T390 and other commercial scrubbers can significantly reduce the physical burden of floor cleaning, allowing workers to stand upright and clean with the push of a button. Workers also appreciate that modern cleaning equipment empowers them to do a more consistent and thorough job — and they're more loyal to employers that empower them with the tools to succeed.

## **CHALLENGE: ENSURING CONSISTENCY AND QUALITY OF CLEAN**

Amid rising expectations for facility cleanliness, many cleaning employees are finding it difficult to consistently achieve the higher standards of cleaning performance that their businesses (and the public) demand. Managers are increasingly focused on cleaning consistency challenges, from ensuring easily missed spaces get cleaned daily, to addressing decreased cleaning performance during overnight hours, and more. To help achieve these goals, more and more cleaning teams are collecting and using data on cleaning performance to evaluate and improve their operations.

## **Solution: Leveraging advanced mechanized cleaning capabilities to ensure the best clean, every time**

Let's be real: No one wants to see a dirty mop and bucket. But today, building visitors increasingly do want to know that cleaning is being done, and showing continuous cleaning can provide customers and other building visitors with invaluable peace of mind. Basic, routine floor cleaning can play a big role in creating healthy, safe spaces and mitigating public health risks in a business.

Today's advanced automatic scrubbers, like the T500 Walk-Behind and the T581 Micro Ride-On Scrubbers, are able to clean a wide range of hard surfaces — and can handle everything from light-duty applications to the most rigorous needs. Whether it's routine cleaning of the aisles of a convenience store, or more difficult cleaning demands of restrooms, or even back-of-house food service applications, automatic scrubbers combine high-pressure scrubbing with the precise use of detergents to deliver improved cleaning performance over manual mop-and-bucket floor cleaning. For example, the Tennant i-mop® XL Plus and i-mop® XXL Plus can deliver up to 90 percent cleaner surfaces compared to conventional mopping, as confirmed with ATP (adenosine tri-phosphate) testing.<sup>12</sup> One reason for this improved cleaning performance: mechanized floor scrubbers apply a powerful scrubbing action that cleans deep. For example, the i-mop can remove up to 4x as much soil, compared to conventional wet-mop cleaning.

Plus, many Tennant scrubbers offer ec-H2O NanoClean® to help you use fewer chemicals, effectively cleaning floors using less water and less cleaning products. By cleaning with significantly cleaner water, floor scrubbers vastly reduce the cross-contamination risks that come as pathogens accumulate in dirty mop bucket water. Furthermore, automatic scrubbers enable more precise use of cleaning agents that require specific dilutions to be effective. Today's micro-scrubbers are impressively energy-efficient, as well. Many also offer sophisticated lithium-ion battery technology that eliminates reliance on nonrenewable energy sources, maintains indoor air quality, and reduces staff safety risks and time costs associated with traditional battery maintenance.

Here's an additional benefit: Reduced slip-and-fall risk, for visitors and employees. The typical slip-and-fall injury costs employers \$47,000<sup>13</sup> — and more than half of slip, trip and fall injuries stem from a problem with the walking surface. Floor scrubbers deliver nearly 100 percent water recovery and vastly faster drying times — not leaving large swaths of wet, slippery floors like mop-and-bucket cleaning. Employees also benefit from reduced risk of injury by not having to manage a heavy mop bucket. Moreover, the reduced slip-and-fall risk of mechanized floor scrubbers means floor cleaning be safely done during business hours and is much less disruptive than mop-and-bucket cleaning. This enables businesses to show customers that they're continually cleaning and protecting the health and safety of their customers and staff.

An overarching advantage is that many of these mechanized cleaning technologies provide hard data on utilization and performance, helping to provide clear proof of clean and provide managers with detailed information to drive decision-making. And research shows that data-driven cleaning fleets achieve higher productivity and higher customer satisfaction.<sup>14</sup>

One of the most promising and forward-thinking strategies to improve cleaning quality and consistency centers on the use of next-generation robotic cleaning machines. These sophisticated “co-bots” work alongside human staff, easily handling many of the repetitive cleaning tasks such as regular floor cleaning. Floor cleaning robots consistently deliver the exceptional clean of top-tier floor cleaning machines, while giving human staff more time to focus on executing other cleaning tasks at a consistently high-quality level.

## **CHALLENGE: BOOSTING PRODUCTIVITY**

Whether being tasked with cleaning more frequently or cleaning more areas, facility managers are consistently being asked to do more with less. So, it’s no surprise that 71 percent of managers say that improving labor productivity is a key priority.<sup>15</sup> Yet many have not developed clear strategies to address the goal of improving productivity. Deploying tools and technology to help employees complete cleaning tasks more effectively not only ensures consistent cleaning, but can also contribute to employee satisfaction.

## **Solution: Leveraging mechanized cleaning technologies to empower staff to do more.**

As managers try to pack more cleaning tasks into the same 24-hour days, investing in effective mechanized cleaning equipment can help boost cleaning efficiency without impacting quality. But choosing the right equipment for your cleaning needs is essential to increasing cleaning productivity. Productivity goes beyond how long it takes to clean an area; equipment uptime is also hugely important. If your equipment is broken down and not cleaning, your entire facility may suffer. Savvy managers know the value of investing in durable equipment that offers easy-to-perform preventative maintenance, ensuring equipment is ready to clean every time it’s needed.

The new generation of mechanized cleaning machines deliver another powerful productivity advantage: Machines like the Tennant T350 Stand-On Floor Scrubber feature pre-set cleaning options that allow staff to start cleaning right away without wasting time on set-up. This not only improves productivity but can also provide more consistent cleaning results. While actual efficiencies depend on the specifics of the space being cleaned, studies have found that floor scrubbers can deliver a dramatic boost in cleaning efficiency when compared to mop-and-bucket cleaning.<sup>16</sup>

Robotic automation is also becoming practical and cost-effective tool for driving productivity for cleaning operations of all sizes and types — moving from leading-edge innovation to a valuable mainstream tool. Modern robotic cleaning machines are not limited by physical tracks or magnetic beacons. Instead, these sophisticated cleaning machines utilize on-board artificial intelligence to carry out complex processes without sacrificing safety. They offer flexibility, convenience, and the ability to keep a facility clean. Tennant's lineup of robotic floor scrubbers, including the T380AMR, T7AMR and T16AMR, rapidly and significantly boosts productivity by allowing cleaning staff to focus on cleaning tasks only a human can do. Plus, they're highly maneuverable, easy to use and safe to use around all visitors and users of a facility.

As mentioned earlier, the outcome of a modern mechanized cleaning strategy is not a reduction in staff — after all, most business have plenty of work to go around. Rather, with employees spending significantly less time juggling the mop and bucket or other manual cleaning tasks, cleaning staff can re-deploy staff to spend more time on other responsibilities. That may mean focusing on more intensive cleaning tasks like surface wipe-downs and disinfection — or it may mean freeing-up employees to spend more time delivering great service to customers.

## CHALLENGE: IMPROVING AIR QUALITY

Improving and maintaining indoor air quality (IAQ) is one of the biggest components of cleaning for health in large commercial and industrial spaces. One of the major contributors to poor indoor air quality are Volatile Organic Compounds, or VOCs. An estimated 55 million American adults suffer chemical sensitivity from exposure to common chemical products and pollutants such as paint, cleaning supplies, added fragrances, and petrochemical fumes.<sup>17</sup> And the impacts of poor indoor air quality can be seen on the bottom line: The Environmental Protection Agency (EPA) estimates that 150 million workdays are missed each year due to poor indoor air quality and the related health issues it causes, at a cost of more than \$15 billion annually.<sup>18</sup> According to the EPA, 1 in 13 children of school-age has asthma, which is the leading cause of school absenteeism due to chronic illness.<sup>19</sup> These are all contributing to more commercial and industrial facilities moving toward using greener, environmentally preferable products that don't leave behind chemical residues that can impact air quality. In fact, one study showed that thorough cleaning procedures, with the help of technologically advanced cleaning equipment and supplies, measurably improved indoor air quality.<sup>16</sup>

52%

decrease in  
airborne dust

42%

decrease in VOC  
concentrations

40%

decrease in bacteria  
found within a building

61%

decrease in fungi  
colony formations

17



## **Solution: Leveraging mechanized cleaning technologies to deliver clean spaces and clean air.**

There are numerous studies by the EPA and its Science Advisory Board (SAB), linking poor indoor air quality, which includes effects of airborne pollutants such as cleaning chemicals, to side effects such as coughing and wheezing, shortness of breath, sore throat, red (and itchy) eyes, headaches, nosebleeds, skin rashes, or even asthma. Better air filtration on vacuums, rapid-drying technology for carpet cleaning, and minimizing the use of chemicals with added fragrances or strong chemical smells can all help reduce airborne irritants. Fortunately, mechanized cleaning technologies deliver several advantages that directly support better indoor air quality.

Amid rising asthma rates and higher sensitivity to air quality, cleaning chemical smells are increasingly seen as unhealthy and being odor neutral is much more desirable — as well as a good indicator of a clean environment. Innovations like ec-H2O NanoClean enables cleaning teams to achieve the highest standards of cleanliness for floors and other surfaces without conventional chemicals, eliminating chemical smells and helping create a safer environment for all facility occupants.

The new generation of mechanized cleaning technologies leverage high efficiency particulate air (HEPA) filters to directly reduce these airborne irritants and support good indoor air quality. For example, Tennant's V-BP-6 and V-BP-6B Backpack Vacuums, equipped with HEPA filtration, can help control the levels of airborne particles including those associated with allergens. Seeking out quality equipment ensures high-performance air filtration, compared to lower quality filters that fail to capture the smallest particles stirred up by vacuuming.

Tennant's battery-powered vacuums, like the V-LWU-13B and the V-BP-6 are powered by lithium-ion batteries to offer maximum runtime and a quieter cleaning experience than traditional battery or corded options, helping reduce overall noise levels and making vacuuming much less intrusive. In addition, machines that operate at low decibels help support staff wellness and satisfaction, as well as the satisfaction of all facility visitors and users

Advances in microfiber technology in carpet cleaning deliver dramatically faster drying that leaves carpets clean, dry, and ready for use in less than 30 minutes. Rapid drying and using less water can reduce the potential for mold and odors, and create cleaner, healthier spaces by using up to 80 percent less water to clean and leaving up to 90 percent less water in the carpet compared to deep extraction.<sup>20</sup>

Choosing cleaning equipment that can help maintain good indoor air quality contributes to productive environments for all. And that means that staff, customers, students and other building visitors can breathe easier.

## CONCLUSION: A STAND-OUT CLEAN — A SOLID BOTTOM LINE

For commercial and industrial cleaning operations, doing more with less has always been the demand and the goal. But today, the combination of rising expectations, rising regulatory standards, and rising public health awareness are making “clean” business-critical for every organization — and creating immense pressures for cleaning teams. Cleaning staff need to complete more — and more complex — cleaning tasks, more frequently. Managers have to demonstrate consistent achievement of higher performance requirements. And these “mores” have to be achieved without destroying margins and profitability — even as labor costs rise.

But these intensifying pressures come at the perfect time. A new wave of innovation in mechanized floor cleaning now makes mechanized cleaning technologies vastly easier to use, faster to deploy and more cost-effective than ever before. From advanced walk-behind scrubbers, to micro-scrubbers for small, tight spaces, to sophisticated-yet-simple robotic cleaning machines, these automated cleaning machines are powering next-generation cleaning strategies — driving consistent, higher-quality cleaning that delivers safer surfaces and cleaner air, while unlocking productivity and controlling labor costs by enabling powerful re-allocation of cleaning staff.

By leveraging mechanized floor cleaning technologies, cleaning operations of all sizes and types can rapidly create an experience that stands out from the crowd, turning clean into a powerful competitive differentiator, earning invaluable trust and loyalty, and driving measurable value on the top line. Just as critically, deploying these simple tools can rapidly power operational efficiency, productivity and staff satisfaction that drives the bottom line of your success.

We offer a wealth of knowledge to share regarding best practices for creating clean and safe environments for employees and visitors. We can also provide you with specific cleaning insights related to your industry.

[Contact us](#) to arrange a demonstration of our floor cleaning technologies. For more information, visit [tenantco.com](http://tenantco.com) or call **1-800-553-8033**.

### CHECK OUT THE NEXT PAGE FOR

## Tips & Tricks on How to Choose the Right Floor Cleaning Machine

## TIPS & TRICKS TO CHOOSE THE RIGHT FLOOR CLEANING MACHINE

Advanced technologies are easier to deploy and use than ever, making implementation of these tools a much lighter lift — and a practical, quick-win strategy for cleaning operations of all sizes and types. These tips and key areas of focus can help you drive a faster, smoother and more successful deployment of modernized mechanical floor cleaning in your cleaning operation:

### 1. Choose the Right Model

It's important to consider the relative advantages of different models of implementing floor cleaning machines. In general, there are three options for your floor care program:

- **Self or In-House Cleaning:** Purchase equipment and supplies; hire labor.
- **Outsourced Cleaning:** Buy “the result” through use of hired cleaning contractors.
- **Hybrid Cleaning:** Purchase equipment and supplies; outsource labor.

### 2. Right Product/Equipment

Partner with excellence when choosing a cleaning product manufacturer.

- **Application:** Choose a product that fits the specific use case(s) in your business.
- **Expected Lifespan:** How long you want to use the machine to fully realize ROI.
- **Align Price & Value:** Make sure you choose a product whose overall value (ease of use, reliability, durability, vendor support, etc.) matches its price point.

### 3. Prevention & First Impressions

95 percent of consumers say that great cleanliness can turn a good business into a great business.<sup>21</sup> To support your regular floor cleaning program, consider these tips:

- By placing mats in the entryways, you can reduce dirt by up to 80 percent.<sup>22</sup>
- Small, maneuverable scrubbers and vacuums should be used to prevent dirt from being tracked further into your business.

### 4. Spill Management

Risk increases, and image suffers when spills are left to sit.

- Put in place a spill management process to increase safety for your customers and employees.
- Utilize small, micro-scrubbers for quick cleaning and water pick-up, leaving the area dry and immediately ready for customer use.

### 5. Staff Training

Today's micro-scrubbers are easier than ever to learn and use. But allocating proper time for staff training is still the most essential component of ensuring you realize all the benefits from more effective and efficient mechanized floor cleaning.

- Build staff buy-in by communicating the “what's in it for me” around easier, faster cleaning and reduced physical burden/risk.
- Thoroughly train staff on “right way” use of micro-scrubbers, leveraging job aids like wall charts and videos.
- Build a successful on-boarding program and frequently retrain to support cleaning compliance.

### 6. Choose a Trusted Partner

Finally, look for a manufacturer that can help you deliver consistency to all your locations and employs equipment specialists who are knowledgeable about your business.

- The right specialist can perform a site survey and offer time-saving innovations, environmentally friendly products, and budget-friendly solutions
- A trusted partner offers expert service and support to ensure your machines help you achieve your goals

## NOTES:

<sup>1</sup><https://www.deloittedigital.com/content/dam/deloittedigital/us/documents/offerings/offering-20200626-safety-cleanliness-covid.pdf>

<sup>2</sup>[https://www.ey.com/en\\_gl/consumer-products-retail/how-to-serve-the-anxious-consumer-after-covid-19](https://www.ey.com/en_gl/consumer-products-retail/how-to-serve-the-anxious-consumer-after-covid-19)

<sup>3</sup><https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/survey-us-consumer-sentiment-during-the-coronavirus-crisis>

<sup>4</sup><https://www.deloittedigital.com/content/dam/deloittedigital/us/documents/offerings/offering-20200626-safety-cleanliness-covid.pdf>

<sup>5</sup>Tong, J. (2020, November 10). Calculating Janitorial Labor. CleanLink. <https://www.cleanlink.com/cp/article/CalculatingJanitorial-Labor--26255>.

<sup>6</sup>U.S. Bureau of Labor Statistics <https://www.bls.gov/opub/ted/2020/mobile/compensation-costs-in-private-industry-up-2-point-4-percent-from-september-2019-to-september-2020.htm>

<sup>7</sup>Wolters Kluwer Legal & Regulatory U.S. <https://www.wolterskluwer.com/en/about-us/organization/legal-and-regulatory>

<sup>8</sup>U.S. Department of Labor - <https://www.dol.gov/>

<sup>9</sup>Biz Library - <https://www.bizlibrary.com/>

<sup>10</sup><https://www.popularmechanics.com/technology/gadgets/a20973/history-of-the-vacuum-cleaner/>

<sup>11</sup>Based on ISSA Cleaning Times when cleaning a 2,500 sq. ft. area 5 times per week at \$15/hour

<sup>12</sup>ATP (Adenosine Tri-Phosphate) is the name of an energy molecule that is an indicator of biological contamination invisible to the naked eye. Detection of ATP is recognized as the most reliable quantitative monitoring and inspection method to measure the effectiveness of cleaning procedures.

<sup>13</sup>National Safety Council. (2020, September 10). Workers' Compensation Costs. National Council on Compensation Insurance's Workers Compensation Statistical Plan 2017-2018. <https://injuryfacts.nsc.org/work/costs/workers-compensation-costs/>

<sup>14</sup>Press Ganey. (2016). Environmental Services: Delivering on the Patient-Centered Promise. [https://www.pressganey.com/docs/default-source/default-document-library/pg\\_compass\\_one\\_whitepaper\\_final.pdf?sfvrsn](https://www.pressganey.com/docs/default-source/default-document-library/pg_compass_one_whitepaper_final.pdf?sfvrsn)

<sup>15</sup>Cleaning & Maintenance Management. (2021). In-House/Facility management Benchmarking Survey Report. [https://www.cmmonline.com/wp-content/uploads/cmm-fm-survey-2021\\_full.pdf](https://www.cmmonline.com/wp-content/uploads/cmm-fm-survey-2021_full.pdf)

<sup>16</sup>Dave Frank, American Institute for Cleaning Sciences (AICS)

<sup>17</sup>University of Melbourne. (2018, March 14). One in four Americans suffer when exposed to common chemicals. ScienceDaily. <https://www.sciencedaily.com/releases/2018/03/180314092312.htm>.

<sup>18</sup>The Science Advisory Board of the Environmental Protection Agency (EPA). Environmental Protection Agency study under the direction of Dr. Michael Berry, Research Triangle Institute, the University of North Carolina

<sup>19</sup><https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>

<sup>20</sup>[https://www.tennantco.com/en\\_us/blog/2019/01/breathe-easier.html](https://www.tennantco.com/en_us/blog/2019/01/breathe-easier.html)

<sup>21</sup><https://facilityexecutive.com/2017/11/business-cleanliness-matters-to-consumers/>

<sup>22</sup><https://www.cleanlink.com/sm/article/Proper-Matting-Keeps-Entryways-Clean--13381>