

Address Work-Related Injuries Through Ergonomics

The importance of preventing workplace injuries is growing, so extra attention needs to be paid to ergonomic design. Manufacturers detail the many modifications made to brooms, brushes and mops

By Nick Bragg
Email the SM editors

Remember working on penmanship exercises in school as a youngster?

Most people seem to never forget how gripping a No. 2 pencil and writing the same letter of the alphabet over and over again caused hand cramping. But after a few seconds and a little shaking it out, the cramping subsided and back to work it was — dotting i's and crossing t's.

Although penmanship drills aren't considered a physically demanding task later in life, they mark one of the first times in our lives where we experienced pain due to repetitive movement while maintaining the same grip for an extended amount of time.

Aches and pains associated with repetitive movement are common to custodians. Unlike elementary school students, hand cramps are the least of their worries — it's other injuries that can cause injuries and lead to long-term disability and even lawsuits.

The job duties of employees in the cleaning field place stress on many custodians' bodies, especially when brooms, brushes and mops enter the equation. These instruments require physical labor and constant movement for hours on end which is extremely demanding on the human body.

Josh Kerst, vice president and ergonomics engineer at [Humantech Inc.](#), Ann Arbor, Mich., says custodians face back and arm discomfort from bending and reaching each work shift.

"We definitely see primary stressors on the hands, wrists and elbows, and we see a lot of back issues associated with the bending," Kerst says. "There's a lot of activity that goes on with bending, reaching and twisting."

That's where manufacturers of brooms, brushes and mops are called upon for relief. Taking end users' needs into consideration, ergonomic and lightweight instruments are beginning to reduce fatigue rates and injuries, which, in turn, reduces lost work time and workman compensation claims.

Injured On The Job

With increased public demand for cleaner facilities, Kerst says the pressure is on custodians and BSCs to step up their game. "It puts a lot of pressure on the custodial staff to try to clean the building better, while at the same time, their workforce is getting leaner," he notes. "They're being asked to do more with less. That's where the complementary aspect of ergonomics comes in. It will really help them do more with less."

Working employees past their breaking point is not good practice. "People can't be driven beyond their capabilities," Kerst explains. "They fight through the pain until they can't and the result is poor performance and a bad-quality job, that can result in injuries and costs."

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Mark Hoyle, senior product manager for microfiber flat mops and safety for [Rubbermaid Commercial Products](#), Winchester, Va., says one of the worst aspects of these injuries is that most of the time, injuries don't become noticeable during actual mopping.

"You're going to get into a rhythm while mopping and when you go to empty the mop bucket — bam — your back goes out," Hoyle explains. "You weaken and fatigue the back during mopping and then you go and put stress on it by lifting the mop bucket to pour the water out. That's where you get hurt."

Hoyle says that in-house cleaning managers and building service contractors (BSCs) should address injuries up-front to prevent loss of worker time due to injury.

"It's a relative downward spiral that you run into," Hoyle explains. "It's not just the fact that these workers are getting injured, it's the lost time that has the largest effect."

In-house cleaning managers and BSCs have a finite number of people working, so if one person gets injured while working, other employees have to "pick up the slack."

This can lead to an increased likelihood that one of those employees gets injured as well. "It really gets to be a compounding problem if you don't address it up-front," Hoyle notes.

New Developments

Christopher Olenski, senior product manager for brooms and brushes at Rubbermaid Commercial Products, says brooms, brushes and mops are tools of great concern as far as injuries go.

"They are a concern because they are such a core to the industry and they are a high-use item," he explains. "You can be assigned a task and be using them for hours."

New innovations such as bent handles, grips and lower weighted materials have been implemented within broom and mop design in order to prevent end user injuries. "As far as the hardware, in the past it was more about how sturdy you could build something," he explains. "Now we're looking at aluminums and vinyl-coated metals to reduce the weight of the hardware, the handle and the frame, to make it more ergonomic," says Steve Lewis, vice president of sales at [Golden Star Inc.](#), North Kansas City, Mo.

Hoyle says Rubbermaid goes a little further by looking at the diameters of the handles on their brooms, brushes and mops.

"We look at matching hand shape and hand size," he explains. "In our microfiber line we have some ergonomic bends that are built into the handles to accommodate the mopping style used with flat mopping. It's more of a comfortable grip, more of a natural piece for the hand."

Lewis says telescopic mop handles are starting to hit the market. "They can be custom fitted for each user," he explains. "If you have a short person, these handles address the problem of a stick that is too long for them to use comfortably."

Lighter=Less Fatigue

Tim Hodges, president of sales, [O'Dell Corp.](#), Ware Shoals, S.C., says flat mops and microfiber mops are lightweight products that are easier to use, and have less of a fatigue factor.

"A typical wet mop will absorb about five times its dry weight," Hodges explains. "Some microfibers will absorb four to five times their dry weight but it's a much smaller and lighter tool. You're able to move it around in tighter areas and smaller areas. It's just not as heavy and you're not straining yourself going back and forth."

John Lewis, president of [Tucel Industries Inc.](#), Forestdale, Vt., agrees. His company focuses on making handles lightweight so the tool is easier for the end user to maneuver. "We've taken the weight out of all of our products," he explains. "We don't use woods or metals anymore."

Hodges also says it's a huge advantage for facilities to establish a flat mopping system. "From an ergonomic standpoint, when you think about workman's compensation claims and things of that nature, it's a huge advantage to have a lighter tool to work with," he says.

Hodges predicts that improvements to flat mopping tools and procedures are probably the biggest change coming down the pike. He says this will affect people advantageously from an ergonomic perspective.

In addition to developing lighter handles and mop heads, manufacturers are also making advancements in lightweight yarns. This has made mopping less stressful for the end user, especially when it comes to wet mopping, says John Lindstrom, president of [Zephyr Mfg., Co.](#), Inc., Sedalia, Mo.

"Particularly in the wet mopping products, today's yarns are far better than even five or 10 years ago and their quality level makes them easier to mop with," he says. "They generally generate less friction, release the water in a more controlled manner and make the task of wet mopping less fatiguing."

Rubbermaid Commercial Products stresses the importance of a less fatiguing product, in fact, it is the company's main objective while designing products. Hoyle says that Rubbermaid emphasizes that the mop be friendly to the user, and also that the ancillary equipment — such as carts and buckets — helps achieve a more ergonomic product as well.

"As you move past the mops and into the equipment that goes with it, that really shows the importance of a system," Hoyle explains. "You don't just want the mops to be ergonomic. You need the whole system to focus on the user's comfort."

Change For The Good?

With ergonomic design beginning to take hold in the jan/san industry, some manufacturers say these modifications to design may be detrimental — or perceived as detrimental — to the end product.

Kerst notes that sales of ergonomic products haven't taken off like manufacturers had hoped. The main problem is they are not being implemented into daily cleaning because in many instances, end users are not seeing great advantages in switching to these products. "The on-going engagement has been sort of two steps forward, two steps back," Kerst notes.

"An issue like this always butts heads against the effectiveness of the product," Lindstrom explains. "There's all kinds of things you might theoretically be able to do to a mop or broom or brush to make it less fatiguing, but when you get done with it you have a product that is less effective. It's a great idea on some of the products but with others it doesn't work."

Many end users continue to mop floors with a conventional cotton-blend mop with a straight handle composed of wood, says Jay Ritter, vice president of [Carolina Mop Co.](#), Anderson, S.C.

“People talk about the ergonomics of handles, but 99 percent of the handles are still your straight handle,” he says. “A lot of these mop heads and sticks have been the same for a long time.”

Even though many end users still rely on the typical straight wood bar handle, Steve Lewis says manufacturers will continue to produce lightweight products that will show measurable money and labor savings.

Carolina Mop focuses its testing on the quality of the tool because the company feels that worker fatigue is not a highly tested area in general.

“It’s more of the quality of the products,” Ritter explains. “Is it going to perform? Is it going to hold up?”

O’Dell carries out extensive product testing and duplicates workplace conditions to help foresee potential problem areas before the product goes to market.

“We do product testing in-house and we try to duplicate workplace conditions with regard to the type of floor, the type of chemical, and the type of laundry process that a product may be exposed to,” Hodges explains. “We’ll do that for a trial period usually upwards of 90 to 100 days. That way we can get the cycle down that is most often expected in a workplace.”

Right Tool

Armed with the right tool — be it a traditional or new ergonomic design — end users can reduce the chance of injury and improve the job they do.

Rory Beaudette, national sales and marketing manager, [ACS Industries Inc.](#), Woonsocket, R.I., says it is crucial that the end user is provided with the right size tool. “You don’t want to give them something too big for them or something too small for them,” he explains.

Golden Star’s Steve Lewis says small or medium size mops are typically best for females, while larger sizes are generally appropriate for a male.

The right size instrument is determined on an individual basis, but employees need to be taught about how to perform certain procedures. “It’s just like knowing to bend at your knees instead of bending at your back when you’re lifting a box,” Hoyle says. “That type of thinking applies to mopping or while using any equipment.”

Steve Lewis says that no matter how “advanced” ergonomic design becomes, the key to reducing worker fatigue is reducing resistance at the point where the tool makes contact with the floor.

“The main point you need to pay attention to is the drag and the friction on the floor. Other than the act of picking up a wet mop, putting it into a bucket and wringing it out, that’s really your most fatiguing factor.”

Steve Lewis says that end users need to look for products that minimize the amount of drag but can still perform. He recommends finish mops that are made of 100 percent nylon because they have a reduced amount of drag.

Whether you're a proponent of ergonomic design or not, it all comes down to the end user's preference. In the long run, many manufacturers feel that in-house cleaning managers and BSCs can greatly benefit from ergonomic tools and lightweight tools — as long as they are used correctly.

Training Distributors

Training distributors how to use brooms, brushes and mops — and having them pass the information on — is one way to reduce end user injuries.

"Manufacturers must train jan/san distributors on the proper use of our products," says Rory Beaudette, national sales and marketing manager, ACS Industries Inc., Woonsocket, R.I. "The distributor can then provide end user training through sales meetings, workshops, and on-site demonstrations."

Rubbermaid Commercial Products, Winchester, Va., makes it a priority to offer training classes for distributors whether it's through online courses, salesman visits, or having customers visit their training facility in Huntersville, N.C.

Mayo Jones, senior product manager for retail cleaning and mops at Rubbermaid Commercial Products says the company offers a one-day course in "mopology," a training course where distributors are trained on how to select the right mop for the job and also how to match the right sized mop to the end user.

"We also take them through proper mopping techniques," Jones notes. "A lot of people think of it as something simple and easy but if you don't mop properly, you could wind up hurting yourself."

Mark Hoyle, senior product manager for microfiber flat mops and safety, says Rubbermaid Commercial Products reaches out to its customers and trains them on the correct way to clean and use the tools.

"The whole focus is on proper use of the tools and trying to have the proper processes in place so that as you clean, you're cleaning in the most efficient and safest manner possible," Hoyle explains.

Steve Lewis, vice president of sales at Golden Star Inc., North Kansas City, Mo., says his company trains distributors on matching tools with

end users. "It's very important to know the end users because mops are made in different sizes based on the user," Lewis explains.

Matching the right tool to a certain application is Zephyr Mfg. Co., Inc.'s main focus, says president John Lindstrom.

"We, as a manufacturer, tend to train our distributors on how to choose the right material for specific applications, not necessarily on how to operate the equipment," he explains. "Operating the equipment, whether it be a broom or a power sweeper, it could be very different from one end user to the next. We stress our activities on helping people be educated about choosing the right wet mop, or the right dry mop or the right brush fiber for the application because that makes a difference."

In On The Act

Humantech Inc., an Ann Arbor, Mich.-based workplace ergonomics consulting firm, is also training end users in the jan/san industry says Josh Kerst, vice president and ergonomics engineer. Kerst says Humantech offers courses to end users that teach the basic elements of risk factor identification.

“People don’t know what they don’t know,” he says. “They may be doing a task and not know what the long-term risk might be to their body and to their productivity.”

Kerst says Humantech provides customers with assessment tools that allow them to critically evaluate the work that’s being done. The firm also teaches end users how to look for proper ergonomic products.

“When someone says a product is ergonomic, it’s usually a red flag for me,” Kerst says. “Our field really needs to ensure that when a product says it’s ergonomic, it really meets the criteria. We teach end users to know the details behind the measurements and what the features and functions should look like.”

— *N.B.*

Ergonomics: Less Pain, More Gain

If your back doesn't ache, how do you know the floor is clean?

By Mary Erpenbach
Email the HS editors

New and innovative products enter the marketplace every day and mopping systems are no exception. One of the most recent trends in mopping is the push towards safer and more ergonomic products. These new-and-improved mopping systems are often substantially lighter than traditional products and they're more ergonomically designed than ever. They've earned high praise — and, surprisingly, also cause a bit of trepidation. Could something this easy, workers wonder, be too good to be true?

"Some of my people still want the standard, 60-inch, screw-top wooden mop handles, and they'll use them until the paint is worn off," says Gary Brezinski, director of buildings and grounds for the West Ottawa Public Schools in Holland, Mich. "We have to go on raids periodically and replace them with updated products."

Some managers might wonder why there is so much resistance to using the newer, ergonomically designed handles.

Brezinski, who began transitioning his workforce to the new mopping systems more than a year ago, can think of two reasons: the learning curve that typically accompanies any kind of change, and the fact that some of his workers aren't comfortable letting the mop — not their backs — do the work.

"There's a feeling of 'the floor can't be clean because I didn't put enough muscle into it,'" he explains.

An Ounce of Prevention

Still, Brezinski and other cleaning professionals continue to encourage workers to switch to newer, ergonomically-designed tools whenever possible. They point out that the advanced technology cleans as well, if not better, than the older equipment.

More important, though, managers know that tools and equipment designed to maximize human comfort, as well as productivity, simply make certain jobs safer to perform. That's because tools which reduce the amount of "muscle" needed for a job, in turn decrease the likelihood of injury — particularly the variety of back injuries that are often associated with tasks such as mopping a floor.

In fact, back strain is the cleaning industry's most reported injury, according to statistics kept by the [U.S. Occupational Safety and Health Administration \(OSHA\)](#). It's a widespread injury north of the border, as well.

"Overexertion, sprain and strain injuries are so common ...they are thought to be just part of the job," according to a 2006 report issued by Canada's British Columbia School Safety Association.

Regardless of the type, size or age of a tool, training workers to use it correctly is a vital component of on-the-job safety. Caring for floors is a large part of many cleaning programs, and

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mopping a floor incorrectly — making mistakes when lifting, reaching and turning — puts workers at a higher risk of injury.

An employee who bends at the same time he or she lifts an object, such as bucket, for example, is automatically at risk for a back injury. Heavier objects pose an even greater risk of injury. But some danger exists whenever a worker incorrectly uses a mop, whether a traditional string mop or a newer microfiber flat mop.

“Bending while lifting places strain on the back, even when lifting something as light as a screwdriver,” reports an OSHA training publication.

Training employees on these dangers is essential. Every cleaning professional knows that injured workers are unproductive workers.

“You lose a lot of time when you have employees out on Worker’s Comp,” says Sandra Harshman, materials controller at the McCarran International Airport in Las Vegas.

In an effort to keep workers safe, housekeeping supervisors have long trained workers on job safety, paying special attention to helping employees avoid injuries when a task requires flexibility or force. Mopping requires varying degrees of both.

“We train from the beginning,” notes Brezinski, “because safety is also learning how to stretch and [warm up] even before you mop.”

Other effective training typically includes teaching workers to keep elbows close to the body when lifting buckets and moving mops, or to alternate hands at the top of the mop. Stress that workers should bend at the knees, walk with the mop, avoid over-reaching and mop in a “neutral-spine” position.

Proper training, though, is only part of the equation. Better equipment, especially tools that make it easier and faster for workers to perform tasks, can play a key role in enhancing on-the-job safety.

The Ergonomics of Safety

Enter ergonomics, which is the science of designing a product to work in harmony with safe body movements. Many scrub and wire brushes, for example, have been ergonomically redesigned over the years for a more comfortable grip and easier use. The handles are longer, wider, contoured to the palms or fingers, slightly bent instead of straight, or any combination of such changes. They often feature a softer rubber over-molding for even more comfort. All of these improvements work to distribute pressure more evenly.

Over the past few years, ergonomic improvements have also been made to both traditional string and microfiber flat-mopping systems. Cleaning departments and agencies all over the country are increasingly adopting new ergonomic technologies and report, overall, very positive results.

“We’ve had a lot of success with mop trolleys that are designed more ergonomically for transport,” says Roger Vance, custodial coordinator for the Del Norte Unified School in Crescent City, Cal. “They have a platform and a higher mop-wringing handle, and they reduce the need for bending, torquing and twisting of the torso in order to maneuver.”

Vance also points out that the trolleys offer additional next-generation safety upgrades that are

not strictly ergonomic but that nevertheless reduce the risk of a variety of injuries.

"The trolley is safer in reducing fatigue, because it's lighter and smaller, so it's easier to maneuver," he notes. "When you reduce overall fatigue the benefits extend to other areas of the work day."

At least one major manufacturer recently stopped making its best-selling bucket-and-wringer combination altogether, instead replacing it with an ergonomically enhanced version. The wringer handle on the new product is longer, requiring less bending on the part of the worker, and features an ergonomic bend that puts it at a more natural angle to the wrist. The system's bucket-within-a-bucket feature reduces splashing and divides the lift-load of water needed for mopping.

"We like it because it also separates the water so you're not mopping with dirty water," says Harshman.

Less splashing is not an ergonomic safety feature, but it helps create a much safer environment for both the workers and anyone else in or around the mopping area. Reducing the amount of water on a floor reduces the chances of a slip-and-fall accident. It also shortens the time it takes employees to clean up after splashes.

Cleaning professionals who have switched to the new wave-less, bucket-and-wringer system also praise the downward-press wringer as a superior ergonomic innovation.

"It's much more user-friendly," says Vance, "because it gives you more control and it pushes down on the mop so the bucket stays stationary. With a sidepress wringer, force is applied laterally, so you have to hold the bucket and the assembly a little firmer in order to wring the mop."

When the job requires little or no liquid, microfiber flat-mopping systems offer a multitude of ergonomic safety features. Mop handles made of aluminum and not wood, for instance, are lighter and can be made with extensions or solution containers built in. Many users say these handles practically eliminate the need for workers to stoop while preparing or mopping a floor. Also, the poles themselves can be ergonomically shaped with bends built in that result in a much more effective distribution of pressure. This, in turn, reduces the amount of force needed to mop a floor or apply a finish.

The parade of safety and ergonomic improvements will no doubt continue to attract converts. Managers who have made the switch say they've seen increased productivity and reduced down-time. And workers say their muscles and backs appreciate the break.

Mary Erpenbach is a freelance writer based in Madison, Wis.

Floor Care: The Evolution Of An Old Stand-by

Traditional mops and buckets get a face-lift by adjusting to a changing jan/san market

By Corinne Zudonyi, Editor
Email the HS editors

The mop and bucket were arguably the first tools used to clean, but as the industry progresses and advances, so do the tools. The mop and bucket are no exception. In fact, in just the last couple decades, the jan/san industry has witnessed substantial advancements to this area of cleaning.

According to some reports, mops date back as early as the Roman times, but the earliest patented mop was reported in the late 1900s. Not much different from what is used today, that mop was made up of a string-style head and clamping system that secured the head to the handle, allowing release for laundering.

Roughly 50 years later, innovation came again with the introduction of the sponge mop (mostly used in households). The quick and easy wringing of this innovation made the sponge mop an instant success, but it never quite replaced the commercial benefits of the more traditional string mop.

Within the last two decades, manufacturers have unveiled one of the more substantial advancements the industry has seen thus far with the introduction of microfiber. Used as a flat mop, microfiber can absorb up to six-times its weight in liquid and grabs and holds dirt and debris better than any of its predecessors.

Mops Moving Forward

“The introduction of microfiber and flat mopping have benefited the cleaning industry immensely in the form of labor and cost savings,” says Eric Cadell, vice president of operations at [Dutch Hollow Janitorial Supply](#) in Belleville, Ill. “They leave cleaner floors, while reducing labor time and minimizing user fatigue.”

In fact, the newer mopping versions allow users to cover a larger surface area in a shorter amount of time. According to Cadell, newer systems disperse the weight of the mop more evenly, making it easier for cleaners to move around while reducing fatigue.

This is significant because user fatigue contributes to an decrease in cleaning efficiencies and a reduction in cleaning times. And as cleaning managers can attest, labor can add up to roughly 90 percent of the cleaning budget — meaning any savings on labor will be a savings for the department.

Karen Adams, owner of [The Mop Bucket](#) based in North Kansas City, Mo., mirrors Cadell's statement, commenting: “The technology in microfiber allows for better friction on flooring and ultimately better cleaning. In essence, it cleans better with less effort.”

In addition to cleaning efficiencies and labor savings, custodial managers will experience budget savings from newer mopping systems. For instance, newer mop heads come with a longer life expectancy than past models, reducing the frequency of product replacement. Specifically, these newer mop heads allow for easier and more frequent laundering before replacement is necessary.

“Flat mopping systems can be washed more and because it is easy to do so, people are more apt to wash it,” says Adams. “The older string mops are left dirty more often than not.”

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The Buzz On Buckets

In regards to the mop and bucket system, the bucket has come a long way since it was first introduced. Starting off as a simple pail used to hold water and soap, the mop bucket has steadily improved over the years to become an asset to cleaning crews.

“The mop bucket has evolved immensely in recent years,” says Cadell. “I would even go so far to say that we are to the point that they have evolved too much and have started to become too cumbersome.”

Certainly, selection has gotten difficult due to the vast varieties of buckets available in the market. There are metal or plastic buckets, buckets that offer multiple chambers and features and attachments that suit every need of the commercial cleaner.

“One of the key advancements to this area are the buckets that are designed not to tip over or minimize splashing and sloshing,” says Adams. “In mopping, you hit a lot of bumps and buckets have been known to tip or splash, dumping all your water and causing a safety hazard. These specialized features prevent that from happening.”

Other useful innovations include filters at the bottom of buckets allowing debris to drain away from mop heads, minimizing resoiling. The drainage plug on the bottom of buckets is also relatively new. It allows for quick, easy and ergonomic disposal of used water — assuming the facility has floor drains. Wringers, strainers and bucket caddies are also very popular additions to the traditional bucket.

“Of all the advancements in this area, the multi-chamber bucket is the best,” says Cadell. “It helps control and reduce cross-contamination and the spread of disease and dirt by keeping clean water away from dirty water.”

This feature prevents cleaners from contaminating the clean water and resoiling mops, which would ultimately transfer that back to floors. In other words, this advancement prevents cleaners from pushing around dirt.

Safety And Health Factors

As cleaning for health gains momentum and cleaners do even more to keep bacteria and grime out of their facility, products that promote healthy cleaning become top-of-mind.

“The multi-chamber systems and flat mopping are a great place to start when concentrating on reducing cross-contamination in the facility,” says Cadell.

These types of advancements have helped make safety and cleaning for health an easy and attainable reality for cleaners. Chamber buckets make separating fresh and soiled waters easy on the cleaning staff. And microfiber is easy to change out between areas, takes up less room for storage and is easily laundered.

Not only have advancements to today’s mopping systems aided in improved health, but they also assist in maintaining a safe environment for both employees and building occupants.

To aid in ergonomics and reduce workers compensation claims from heavy lifting, manufacturers have updated buckets in recent years so the majority are toilet height. This allows cleaners to empty used water easily into toilets and dump sinks using leverage instead of heavy lifting.

As mentioned earlier, buckets that feature drainage plugs come with great ergonomic benefits, but some cleaners find them to be impractical.

“Drains on the bottom of mopping systems are very popular, but many departments aren’t able to benefit from their use,” says Cadell. “Many facilities lack proper floor drains for cleaners to dump the water. Therefore, cleaners still have to pick buckets up and put them in dump sinks for

drainage.”

The idea is a great one in that minimizing lifting of heavy buckets would reduce worker fatigue and potential injury, but many cleaning departments have not yet been able to benefit from this safety advancement.

There have also been ergonomic advancements to mopping handles that make the systems easier for cleaners to use while reducing fatigue.

“The more ergonomic mop handles move with just the twist of the wrist instead of using the whole body,” says Cacell. “Managers might not realize it, but those small body movements can account for many hours of work, creating cleaning efficiencies and reducing cleaning times.”

Time Savings

Creating cleaning efficiencies and reducing cleaning times is a goal for every in-house manager. Time is money, after all, and advancements to mopping systems have resulted in dollars saved for departments.

Taking mopping systems one step further, some manufacturers offer bucketless microfiber all-in-one systems that house cleaning chemical in the mop handle and dispense at the push of a button — eliminating the bucket all together.

Advancements such as these can save cleaners time and improve safety. This tool offers freedom for cleaners to work in tight spaces or areas such as stairways where all workers have to carry is the mop.

“You can get rid of the bucket full of water,” says Adams, “and get cleaning done quicker and more effectively.”

Regardless of the system used, switching to microfiber has the potential to cut labor dollars in half, say experts. There is less back-and-forth to the custodial closet and floor cleaning is completed quicker.

Manufacturers have also added features such as the bucket caddy that provide space to carry items such as extra microfiber mops or sleeves to contain dirty microfiber. Features such as these save time by reducing trips to storage to replenish supplies as cleaners move throughout the facility.

Although these products can come with a higher price tag, with the right training from distributors, the return on investment can be great. Once this training is accomplished and the systems are used properly, departments will begin to see substantial savings. Experts comment that the process traditionally takes three to six months before savings are noticeable.

“Overall, the advancements in this category have substantially helped the end user,” says Cadell. “They don’t have to work as hard, but continue to experience elevated performance levels, reduced costs and a cleaner building.”



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KaiMotion™ Floor System

Equipment Features

The KaiMotion™ Kit (EQFFKAIMOTN) comes standard with the following items:

- KaiMotion Bucket (1)
- KaiMotion Wringer (1)
- Ergonomic Handle (1)
- Pad Holder Frame (1)
- Pad Tray (1)
- Hygrometer (1)
- Microfiber Cleaning Pads (5)
- Microfiber Finishing Pads (2)
- Instruction Sheet (1)

**1****KaiMotion Bucket**

Rotationally molded bucket with 4" front casters, 8" rear wheels and ten gallon capacity. Includes dump spout for easy emptying.

2**KaiMotion Wringer**

Sturdy down pressure wringer stores pads and provides steering handle.

3**Ergonomic Handle**

Lightweight, padded adjustable handle fits any size user.

4**Pad Holder Frame**

Velcro strips on leading edge and bottom secure removable cleaning and finishing pads.

5**Pad Tray**

Black plastic tray stores soiled cleaning pads.

6**Hygrometer**

Measures humidity level to assure proper application of finish.

7**Microfiber Cleaning Pads (5)**

Microfibers lift and trap dirt and moisture for a cleaner surface. Pads can be used and laundered 300 times before replacement.

8**Microfiber Finishing Pads (2)**

Green finishing pads spread finish evenly and quickly without streaks or bubbles. Pads can be used and laundered 300 times before replacement.



Instruction Sheet

This instruction sheet has illustrations clearly showing how to assemble and use the KaiMotion Floor Finishing and Cleaning System.



NSS Production Rates

ISSA Cleaning Task Number ★	Equipment	Minutes Per 1,000 Sq. Ft	Sq. Ft. / Hr.
* (330)	Champ 3529 Ride-On Scrubber	1.23	49,587
327	Champ 2929 Ride-On Scrubber	1.5	40,000
*(322)	Wrangler 3330 Auto Scrubber	1.82	32,872
320	Wrangler 2730 Auto Scrubber	2.22	27,027
320	Wrangler 26 Auto Scrubber	2.3	25,999
314	Wrangler 2016 Auto Scrubber, Wheel-driven	3.0	20,000
* (310)	Wrangler 2016 Auto Scrubber, Pad Assit	4.0	14,960
* (310)	Wrangler 2008 Auto Scrubber	4.0	14,960
308	Wrangler 1708 Auto Scrubber	4.71	12,739
288	Charger 2717 DB Burnisher	1.85	32,432
286	Charger 2025 DB Burnisher	2.50	24,000
285	Charger 2025 AB Burnisher	3.69	16,260
	Charger 2022 DB Burnisher	2.50	24,000
	Charger 2022 AB Burnisher	3.69	16,260
284	Charger 2500	4.80	12,500
272	Charger 1500	6.60	9,091
272	Mustang 1500	6.60	9,091
267	Thoroughbred	30	2,000
269	Maverick 300	19.80	3,030
269	Mustang 300 DS	19.8	3,030
267	Mustang 300 DS, 175 RPM	30	2,000
267	Galaxy	30	2,000
373	Manta 36 Sweeper	54 secs.	66,731
* (373)	Sidewinder BP 30 Sweeper	3.18	16,544
* (370)	Sidewinder 27 MB	2	30,140

NSS Production Rates

ISSA Cleaning Task Number ★	Equipment	Minutes Per 1,000 Sq. Ft	Sq. Ft. / Hr.
	Pacer PB	2.00	30,000
217	Pacer 30 Carpet Vacuum	3.16	19,000
221	Outlaw B/V Vacuum	8.10	7,407
* (204)	Pacer 115 UE Vacuum	14.03	4,275
204	Pacer 112 UE Vacuum	17.49	3,430
211	Pacer 218 UE Vacuum	11.69	5,130
207	Pacer 214 UE Vacuum	15.00	4,000
227	Model M-1 Vacuum	9.10	6,593
187	Pony 20 SCA Extractor	14.31	4,193
184	Stallion 8SC Extractor	35.00	1,714
184	Stallion 12SC Extractor	35.00	1,714
177	Predator CXH 100 Extractor	120.00	500
177	Predator CXC 100 Extractor	120.00	500
177	Predator CXH 150 Extractor	120.00	500
177	Predator CXC 150 Extractor	120.00	500
177	Predator CX300 HP Extractor	120.00	500
★ Task Number Referenced From The Official ISSA 447 Cleaning Times 2003			
* Rates Based On ISSA 447 Task Standard Number			

Reduce Operator Injuries With Safety Tips

By Gabriel Phillips
Email the CP editors

As most building service contractors know, cleaning can be dangerous work. But BSCs don't have to clean windows 60 stories up or work with corrosive floor strippers to feel the pain and strain of cleaning. Even a seemingly simple task such as vacuuming can cause serious injuries.

Typical problems

Uprights are the most commonly used type of vacuum. But used improperly, these bulky machines can injure even the most physically fit operator.

"When you're working with an upright vacuum you tend to be a little bent over, hunched over, your arm is extended out and you have a repetitive shoulder motion of back and forth and back and forth," says Paul Condie, director of operations for [KBM Building Services](#), San Diego.

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Common injuries associated with an upright vacuum are strains to the wrist, rotator cuffs, lower back, biceps, shoulder and elbow. The repetitive back and forth motion is responsible for giving operators carpal tunnel syndrome.

Allowing the vacuum to float out and away from the body of the operator is when strain injuries commonly occur. However, if the operator stands directly behind

the machine, he can use his body weight to help thrust the vacuum forward and pull the vacuum back toward him. This will allow the operator to use his body weight as a counter weight.

Keeping the size of the employee in mind will also help avoid injuries. Putting a taller operator on a short upright is not a good idea. The difference in height will force the operator to hunch over and lose the upper body tension he needs to keep from twisting or allowing the vacuum to float. When vacuuming, operators should be sure to stand up straight.

To help avoid repetitive stress injuries such as carpal tunnel syndrome, users should switch hands. BSCs should also rotate operators between a variety of tasks to help reduce potential for injuries. Many vacuums are now designed with ergonomic handles set at proper angles to reduce strain. Handles are also being constructed out of softer materials including foam and rubber. If BSCs employ a lot of older or smaller workers, they may want to invest in lighter-weight vacuums, walk-behind sweepers or riding machines.

Are backpacks safer?

Using a backpack vacuum can greatly reduce the strain caused by an upright vacuum. First, the majority of a backpack vacuum's weight is not being pushed by the operator's arm, it is being supported by the operator's hips.

Some janitors may be apprehensive about a switch to backpacks at first, so BSCs need to convince them it's for the best. At [A-1 Building Services Inc.](#) in Wyoming, Mich, President Jim Thompson put together a team willing to give backpacks a try while his other custodians continued to use uprights. The backpack team eventually increased their productivity and decreased their injuries. After that, and especially after watching the backpack users receive

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raises upon their increase in productivity, his upright users jumped on the backpack bandwagon.

While the strain from pushing and pulling the weight of an entire vacuum is reduced with backpack vacuums, these machines are not without their own potential problems.

"The issues with wearing a backpack vacuum are, number one, if you're putting one that's large on somebody that's small," says Paul Senecal, president of Milford, Conn.-based [United Services of America](#). "Second issue is not having the backpack harness properly fitted to your body."

Making sure to strap the harness correctly will increase the ergonomic ability of the vacuum. A backpack vacuum that hangs off the back or is not properly harnessed can put strain on the operator's back.

It is best when strapping the backpack on for the first time, to have an experienced operator help fit the harness to any new users, says Senecal. It also helps to have the same operator use the same backpack from then on.

When transitioning to backpack vacuums or when new employees are hired, it's a good idea to hold a backpack vac training seminar. BSCs may also want to invite customers, insurance carriers and medical providers to the training sessions as well, says Condie. The customers get to see the effort it takes to clean while the insurance carriers get to see the effort a BSC makes in protecting the health of their workers and customers. 

CORDS PREVENT SAFETY RISKS, TOO

The heavy weight of the machine and its repetitive motion are not the only safety risks associated with vacuums. A machine's cord can cause trip hazards for janitors and building occupants. In addition, after becoming damaged, cords can start fires or emit smoke from electrical shorts.

To prevent problems, building service contractors should routinely check cords for cracks or breaks. The most common way a cord gets damaged is by the operator pulling it out of the wall socket. Vacuum operators who clean larger facilities need to unplug and replug the cord, in some cases, up to several hundred times a week, making the temptation to yank it out of the wall even stronger. Also, when faced with lots of unplugging and replugging, custodians are tempted to stretch the cord tight in an attempt to reach those last couple of feet. However, stretching a cord across equipment or around corners will damage those objects or even the vacuum itself.

By taking a little extra time and effort, BSCs can help reduce users' temptation of stretching the cord just a bit too far.

"One of the ways we cured that is by having our managers go through the medical facility and actually use color-coded stickers to mark which wall sockets get the most efficiency out of the vacuum and the cord's reach," says Jim Thompson of A-1 Building Services Inc.

It's also a safety risk to replace the manufacturer's cord with a longer one from a retail store. The new cord might not be gauged properly to the machine, says Paul Condie of KBM Building Services. An improperly gauged cord will overheat the cord itself, the vacuum motor, or even the switch. Overheated switches also have been known to cause fires.