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## **Choosing the Right Vacuum Cleaner for Performance, Health, and Safety**

By Robert Kravitz

Chalk is to a teacher as vacuum cleaners are to the school custodian: the basic tools needed to complete their respective jobs. However, although chalk is available in various colors and sizes, its rudimentary function remains the same. This cannot be said about vacuum cleaners, which are available in different shapes and each have a variety of specific features and benefits. For example, there are backpacks, uprights, canisters, one-motor or two-motor machines, three and four stage vacuums, HEPA-filtered, and now even bagless models are offered.

Studies indicate that

cleaning professionals can decide in just two minutes of operation whether or not a vacuum cleaner fits their specific needs or if it is too heavy, noisy, or uncomfortable to use. Unfortunately, by the time most school custodians are given the machine to use, the vacuum has already been purchased whether it fits the worker's needs—or not.



Since vacuum cleaners are such an important investment, they must be carefully selected. The wrong machine can cause worker fatigue, injuries, and negatively affect productivity. In the long-term, an unfit vacuum can prove costly to the district and lower the overall level of cleanliness in the school's facilities.

The actual layout of the area to be vacuumed, the models of vacuum cleaners on the market, ergonomic issues, and ways to improve productivity are all variables to consider when selecting a new vacuum cleaner.

### **Layout and Design**

Before deciding on a machine, it is vital to consider the overall size of the area to be cleaned including the length of the hallways, the density of cubicles, number of desks in the classrooms, and the soil to be removed. Additionally, how the area is used also plays a significant role in the selection process.

For instance, a straight suction vacuum *without* a brush roll or beater bar may perform better in a department store, which often has an abundance of pins and threads to remove. This type of vacuum will also hold up better in this setting and result in a lower cost of ownership compared to using a more typical upright model, for example.

In a school setting, the opposite may be true since a vacuum cleaner *with* a brush roll is preferred in the heavily trafficked hallways. The brush roll contains rows of bristles that agitate the carpet and this effectively helps remove dirt and soil.

Another consideration, as there are usually many desks, tables, and obstacles in a school setting, is the vacuum's maneuverability. Therefore, a backpack or canister vacuum, which are popular in Europe and becoming increasingly popular in the U.S., may be a better choice.

### **Types of Vacuum Cleaners**

Most school facilities have more than one type or style of vacuum cleaner because of all the variables in building design and layout. The four major types of vacuum cleaners popular among schools include:

### **Uprights Vacuums**

Uprights, the most common vacuum design, have been manufactured for a century. In 1978, the first “two-motor” uprights were introduced—one motor used for suction and another to drive the brush roll, which tremendously improved performance. However, today’s one-motor uprights, which are lighter and easier to use, offer equal performance compared to their two-motor counterparts. Additionally, although changed very little over the decades, major technological changes have re-shaped the upright in just the past few years including:

- Sophisticated electronic circuitry
- Automatic clutches to release the brush roll preventing large objects from entering the machine
- Bag status indicator lights
- Adjustable handles
- On-board tools

Vacuum cleaner filtration systems have also significantly improved and are helping to reduce airborne dust and contaminants. And, with the advent of a self-contained removable hose, workers now have the ability to perform detail work with the same machine.

### **Canister Vacuums**

As mentioned earlier, these compact vacuums are making a come back, especially in specialty application settings and where Day Cleaning is performed. Cleaning professionals prefer these machines because they are relatively quiet, lightweight, and easy to maneuver. They are usually equipped with an array of tools for cleaning upholstery, partitions, chalkboard trays, and dusting

blinds. And, they are adaptable, easily moving from carpeted to hard surface floors.

### **Backpack / Hip-style Vacuums**

Twenty-five years ago, the first backpack vacuums weighed as much as 30 lbs, often had “skin-cutting” shoulder straps, and were very uncomfortable. Moreover, when operated even after just short periods, their casing became warm and along with their loud operation, many backpacks found a permanent home in the back of the janitor’s closet. However, today’s models are quieter, more user-friendly, and often the vacuum of choice when cleaning congested areas.

### **Wide-area Vacuums**

As facilities grew in size so did the acres of carpeting, which presented a daunting vacuum cleaning task. The first wide-area vacuums were actually two uprights welded together for additional cleaning width; these units were wide, but not very effective. Today, some units have multiple brush height positions, stainless steel and rotational molded components, a safety handle, and a fold-up design for easier storage and transport. Many wide-area machines can vacuum 20,000 to 30,000 square feet of carpeted area per hour with excellent results.

### **Vacuum Cleaner Ergonomics**

Cleaning, especially when using a vacuum cleaner, can cause considerable stress to the body. This stress eventually results in a variety of work-related musculoskeletal disorders (WMSDs). In fact, research shows that of the ten occupations with the most WMSDs, janitors and cleaning professionals are ranked number five.

Unhealthy, repetitive movements, such as stooping, bending, leaning, and extreme hand/wrist angles, are common when vacuuming and these actions increase the risk of workers getting WMSDs. As a result, manufacturers have been ergonomically redesigning their vacuum cleaners. Today’s vacuum cleaners conform to the custodian and make it easier for the user to

operate. When selecting a vacuum cleaner, look for some of the following design modifications:

- Adjustable handles that can better accommodate tall and short cleaning workers to reduce stooping or bending.
- A reduced weight of the machine.
- Grip handles designed so that they fit comfortably in the user's hand.
- Larger wheels to absorb vibrations and improve the maneuverability of the vacuum cleaner.
- The location of the on/off switch is readily accessible.
- The machine is adequately insulated, decreasing the amount of noise the motor makes.

### **Productivity**

Worker productivity is a critical issue in the cleaning industry, especially for school districts where budget cuts have seriously taken their toll on cleaning departments. Improving productivity rates, in terms of vacuum cleaning, involves both the cleaning worker as well as the design of the machine—a close relation to ergonomics.

In order to improve productivity, cleaning workers must be motivated. Often, it is a good idea to establish benchmarks to increase productivity. Light, moderate, and heavy soiling should all be considered as well as how long it should take to vacuum a specific area or building under varying conditions.

However, improved productivity can also come from the machine's design. As previously mentioned, since new one-motor uprights are as effective—and lighter—than two-motor machines, they should be considered when making a selection. A lighter machine will reduce fatigue and is easier to use. Additionally, a one-motor

machine usually has a handle weight of 1.5 pounds, about half that of a two-motor machine. This slight weight difference is rather meaningful, especially since the cleaning worker uses the machine for several hours each night.

Also, since canister and backpack models are easier to maneuver in congested or highly obstructed areas, these machines may prove more productive in the education market. In fact, some studies indicate that in a classroom setting, these machines can cut vacuuming time almost in half.

Proper vacuum cleaner selection is imperative for not only the health and safety of the cleaning worker, but also to improve productivity, which can reduce maintenance costs. When it comes to choosing a vacuum cleaner, school administrators are faced with innumerable decisions. In addition, as the needs of their facilities change, so too will the user's vacuum cleaner needs.

With increasing pressure to reduce the costs of cleaning operations, school districts are challenged to not only select the best vacuum cleaners, but also to select a machine that simultaneously increases service levels and satisfy increasingly demanding cleaning requirements.

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### **Sidebar: 10 Steps to Successful Spot Removal**

1. Remove the excess, scrape, blot or vacuum.
2. Test the spotting chemical and blot. If the color doesn't come out and the fiber doesn't melt, continue.

3. Apply the spotter; mist on a small amount. Be careful, don't over wet.
4. Gently massage the fibers in a circle, toward the center of the spot.
5. Allow dwell time (30 seconds) to let the chemical work.
6. Blot to remove with a dry cloth. Do not rub or scrub.
7. Inspect the rag to see if it's working. If it is, the spot will be on the rag.
8. If it is working, continue the process. You may have to repeat the process several times to completely remove the spot.
9. If it's not working, try a dry solvent chemical and repeat the process. If this works, continue. If not, go to 10.
10. Try a specialized **carpet-spotting** chemical. If it works, continue, if it doesn't work--STOP. It's a permanent stain. Continuing will only make it worse. As a professional **cleaner**, you must also know when to STOP.

Source: Wm R. Griffin, cleaning consultant.

### Good Vacuum **Cleaner** Practices

Follow the vacuum **cleaner** manufacturer's instructions for proper use of their product. For the best **cleaning** results, no matter which type of vacuum **cleaner** you purchase:

- \* Inspect it periodically to be sure it is functioning properly.

- \* Keep brushes **clean** and replace when worn.
- \* Keep hoses and attachments free of obstructions that restrict airflow.
- \* Inspect your vacuum for rough edges or bent metal that may damage **carpet**.
- \* Inspect belts frequently to make certain they are working properly.
- \* Always keep a spare belt for replacement when needed.
- \* Follow the vacuum **cleaner** manufacturer's instructions, and change the vacuum bag when it becomes more than half full. As the bag becomes full, soil removal efficiency is reduced.
- \* If unusual noise, vibration or odor is present, inspect vacuum for damage or needed repairs.
- \* Wipe vacuum **clean** after each use and return to proper storage.
- \* Unplug electrical cord by firmly gripping the plug; do not pull on cord.
- \* When using a backpack vacuum, every 30 minutes, turn off and tap sides to dislodge soil for better filtration and air movement.

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