

CLEANING FOR HEALTH & EFFICIENCY



The information presented in this report is designed to enable better understanding of the effects of sustainable cleaning and proper vacuuming of your facility.

Learn About:
Indoor Air Quality
Ergonomics
Productivity
Labor Savings

ProTeam is committed to

CLEANING FOR HEALTH[®]

Historically, the quality of vacuuming has been evaluated by the appearance of the carpet. However, the statistical data from expert studies in this report will demonstrate the importance of proper vacuuming in improving indoor air quality, removing and containing particulates and introducing new concepts on labor efficiencies.



The ProTeam commitment to high-quality manufacturing results in high-filtration vacuums that triumph over the challenges of Cleaning for Health.

IMPROVE CLEANING PRACTICES

Poor cleaning procedures, equipment and habits can inhibit the effective cleaning of buildings.

Workers thinking big need to

think small



when it comes to health and cleaning.

Cleaning for appearance focuses on removing “big” visible soil, while cleaning for health targets “small” invisible bacteria, dust, airborne particulates and other micro, bio- and chemical contaminants. These unseen pollutants are major contributors to unhealthy indoor environments.

High performance cleaning is important to improve the indoor air quality (IAQ) in a building. Studies have shown that cleaning, when consistently implemented, is cost effective and can help lead to measurable indoor environmental improvements. Cleaning is important to capture and remove dust and particulates to help improve the health and safety of a building’s occupants.

As we look to clean what does that mean?

The **CDC** defines as:

CLEANER



Removal of adherent soil and other debris

SANITIZER



Agent that reduces the number of bacterial contaminants

DISINFECTANT



Usually a chemical agent that destroys pathogens or other harmful microorganisms

Source — <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/glossary.html>

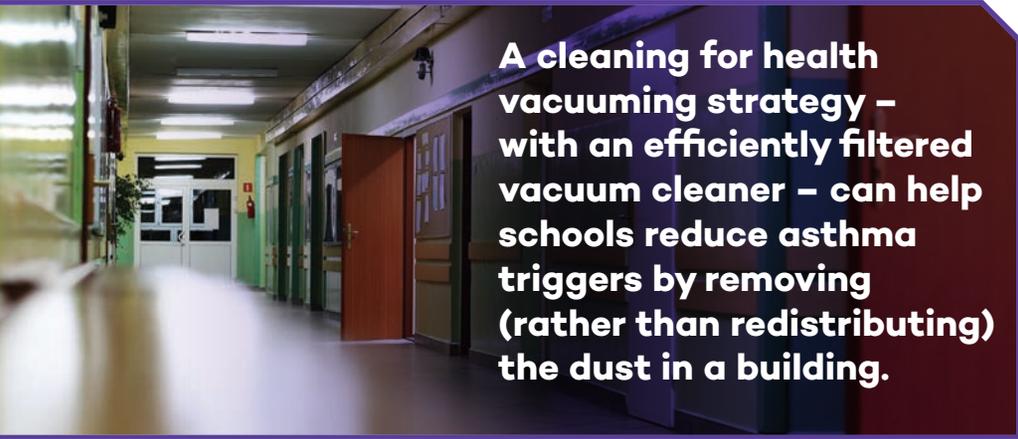
Environmental factors in schools can cause serious health problems for children.

The average American spends approximately 90 percent of his or her time indoors. Studies of human exposure to air pollutants by the EPA indicate that indoor levels of pollutants may be 2 to 5 times – and occasionally more than 100 times – higher than outdoor pollutant levels.

Children are more susceptible to air pollution because they breathe a greater volume of air relative to their body weight. To make matters worse, schools tend to be at a higher risk of poor indoor air quality, as they can accommodate 4 times the occupants of a regular office building for the same amount of floor space, yet generally receive less maintenance. This makes air quality in schools an area of particular concern.

90%
time indoors

4x
the occupants



A cleaning for health vacuuming strategy – with an efficiently filtered vacuum cleaner – can help schools reduce asthma triggers by removing (rather than redistributing) the dust in a building.

Programs that promote healthy indoor air quality (IAQ) can:

- Improve Health
- Increase Students' Ability to Learn
- Improve Test Scores
- Improve Adult Productivity in the School System

Maintaining healthy physical conditions and good environmental quality in schools can yield a high rate of return on academic outcomes.

Sources—
<https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>
<https://www.epa.gov/indoor-air-quality-iaq/schools-and-indoor-air-quality>



FACTS

to know about indoor air quality

Carpets

Daily vacuuming is more important than interim deep-cleaning methods.

Dry soil is abrasive; when ground into your carpet, it cuts into carpet fibers—dulling appearance and reducing the longevity.

1. Carpets cover 48% of the floors in the United States.
2. Carpet can hold more than its weight in soil.
3. 70–80% of dirt and debris in a building comes through the front door.
4. 30% of dirt is deposited in the first 3 feet, while 90% is tracked off in the first 25 feet.
5. Carpet soil generally consists of 80% sandy or dry soil and 20% oily soil.
6. Carpet also acts as a reservoir for dust, dirt, pollen, mold spores, pesticides and other materials which may originate indoors or be brought into the indoor environment from outside.

Hard Floors

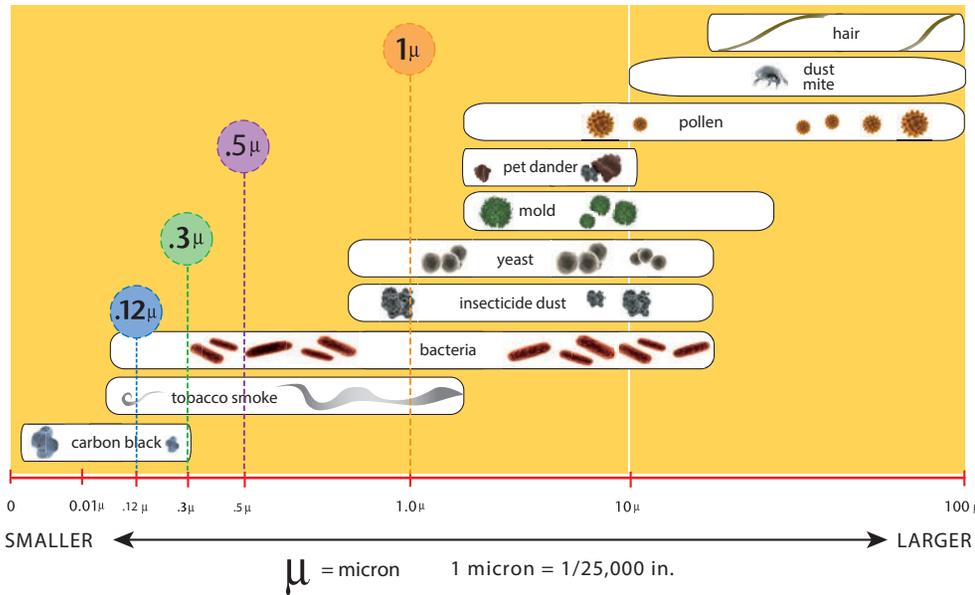
When using the correct tools, ProTeam backpack vacuums clean 52% faster than a dust mop in crowded classrooms and congested areas.

1. Using traditional dust mopping methods requires extensive time to train employees.
2. Vacuuming is a faster, healthier and more efficient way to clean hard floors.
3. Dust and dirt are immediately contained within the ProLevel Filtration in ProTeam vacuums.
4. Dust mopping continually redistributes dirt and fine particulate on and into the floor, leaving scratches and dulling a high-gloss finish.
5. Dust bunnies reappear in 24 hours when a floor has been dust mopped as compared to 72 hours when cleaned with a ProTeam backpack vacuum.

Sources— Carpet and Rug Institute, Dalton GA; ISSA: International Sanitary Supply Association; CleanLink, Matting; Leaving Dirt at the Door; IREC: Institute of Inspection Cleaning and Restoration; CleanLink, Soil's Damage on Floors and Carpets; EPA: Does carpet cause IAQ problems in schools?

PARTICULATE CHART

This chart illustrates the relative size of different common particulate.



Source— Derived from MERV Rating Chart and EPA Residential Air Cleaners guidance. - <https://www.epa.gov/indoor-air-quality-iaq/guide-air-cleaners-home>

ProTeam backpacks with ProLevel Filtration® are up to 99.9% effective at capturing and containing particles measuring 1 μ or larger.

ProLevel Filtration is a multi-layer filtration system, including a HEPA media filter, that is tested within the vacuum by an independent lab pursuant ASTM F3150.

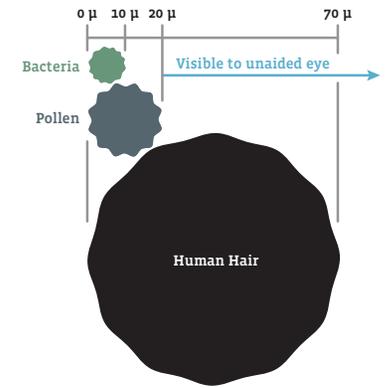
HEPA

A HEPA (High Efficient Particulate Air) filter is a throwaway, extended-medium, dry type filter in a rigid frame having a minimum particle collection efficiency of 99.97% (that is, a maximum particle penetration of 0.03%) for 0.3-μ particles.

Source— EPA Air Pollution Control Technology Fact Sheet - <https://www3.epa.gov/ttn/catc/dir1/ff-hepa.pdf>

Micron (μ):

This measurement of particles (1 micron = 1 millionth of a meter) is often used in promoting particle removal. To put things in perspective, your hair is about 70 microns in diameter and, without magnification, you can only see particles that are about 10 microns or larger.



FILTRATION:

- Noun
1. the process of filtering
 2. the act or process of removing something unwanted from a liquid, gas, etc., by using a filter

People can inhale particles 10 microns and smaller.

Housekeeping is probably the most common means of removing potential allergens, and vacuum cleaners are the most commonly used tool.

Vacuum cleaning removes some fungus and spores from carpeting, but it also reintroduces them into the air, either through the action of the vacuum's beater bar or through conventional bags.

Vacuums without proper filtration is one of the main causes of the reintroduction of allergens and harmful particles into the air.



Vacuums with high filtration collection systems retrieve soil and safely contain harmful particles, preventing them from being reintroduced into the built environment.

Sources— JW Vaughan, JA Woodfolk, TA Platts-mills. "Assessment of vacuum cleaners and vacuum cleaner bags recommended for allergic subjects". Journal of Allergy and Clinical Immunology, November 1999. 104(5):914-16. Ibid. Popplewell EJ, Innes VA, et al. Pediatr Allergy Immunol. 2000 Aug;11(3):142-8. "Indoor Allergens: Assessing and Controlling Adverse Health Effects", Educational Committee on the Health Effects of Indoor Allergens. Division of Health Promotion and Disease Prevention. National Academy Press, Washington, D.C. pp 37-39, 86-117, 222-225

ERGONOMIC DESIGN

FAST AND EASY TO USE

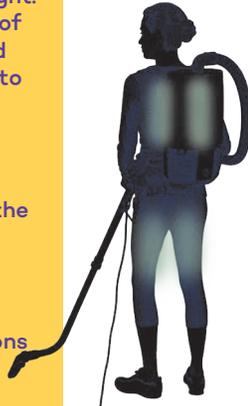
The results of two studies by the Department of Surgery, Division of Orthopedics, at Ohio State University and the Battelle Memorial Institute, determined that the ProTeam backpack vacuum cleaner's ease-of-use and ergonomic design allowed workers to vacuum more than twice the area in half the time with less fatigue and body strain (a figure backed by the ISSA official timetables for cleaning).

Ergonomic Motion

With a backpack – vacuum side-to-side, not front-to-back

Requires less than half the energy and effort to clean the same area as it would take with an upright

- Backpack vacuums are lightweight. When worn properly, the effect of the backpack on body joints and posture is negligible and similar to walking.
- When working near stairs, using a backpack improves mobility and is recommended to reduce the risk of falling.
- Backpack vacuum users use a more neutral posture compared to extreme arm and leg extensions seen when using an upright.
- Backpack vacuum users experience less body stress due to the use of larger muscle groups by minimizing the need to “hunch over” which is often associated with upright and canister vacuums.
- Efficiency is increased by allowing more carpet to be cleaned in a shorter amount of time due to the natural walking motion used.



Arms Getting Tired?
The arms are the main muscles used when vacuuming front-to-back.

Side-to-Side Vacuuming
uses leg and back muscles that do not fatigue as easily as the arms.

“Side-to-side vacuuming, along with a typical work-rest schedule, is one of the best ways to vacuum large areas on a regular basis.”

Jim Fullmer,
Certified Human Factors Professional

Source— Battelle Memorial Institute, Ohio State University, Columbus, Ohio, 1998.
Reviewed by Jim Fullmer, Certified Human Factors Professional, 2009.



FREEDOM OF MOVEMENT

4-Step, Quick-Adjust Articulating Harness Improves Comfort and Productivity

INTERCHANGEABLE HARNESS
attached with Velcro®, pads are simple to remove, so when users perspire, pads are easy to change out, no tools required

INCREASED BREATHABILITY
better airflow with a mix of open and closed weave fabric

ARTICULATING UPPER HARNESS
design responds to user's movement, maintaining center of gravity

USER-FRIENDLY, 4-STEP FITTING
numbered and intuitive touchpoints with wide and longer lower harness for a custom comfortable fit



CUSTOM FIT
quick-adjust system moves upper harness up and down to fit users perfectly



THE TEAM CLEANING SOLUTION

Team Cleaning® is a flexible, efficient and cost-effective cleaning system for custodial operations. Team Cleaning applies the power of systems to reduce costs and maximize productivity.

It offers solutions to the many challenges that managers face—through better deployment of labor, effective cleaning methods and simplified training, resulting in healthier environments.

Team Cleaning Tasks Are Grouped Into 4 Distinct Functions

ProTeam Education Products and Services offered:

Collection Specialist™

Dusting, emptying trash, spot cleaning, etc.



Vacuum Specialist™

Vacuums carpets and hard floors



Restroom Specialist™

Cleaning, sanitizing and restocking restrooms



Utility Specialist™

Cleaning lobbies, spot cleaning, glass, mopping and scrubbing floors, etc.



Team Cleaning results in increased productivity, less equipment, clear-cut responsibilities and easier supervision.

Team Cleaning allows flexible staffing configurations depending on the size and type of facility. The assigned tasks to each Specialist remains constant. The exception is smaller facilities where the workers may switch from one Specialist's duties to another. All workflow is driven based on a Specialist's Job Cards.

TEAM CLEANING

- *Balanced Workflow*

In a five-day program, the key to efficient, balanced workflow is to divide the cleanable square feet assigned to the Collection and Vac Specialists into four equal quadrants to manage cleaning frequencies: daily (routine), weekly (detail) and monthly (periodical).

The Collection and Vac Specialist Job Cards clearly show the starting point, a path to follow, assigned tasks and allotted time to perform. The detail is performed Monday through Thursday on a rotation basis to complete weekly requirements.

Monthly periodical frequencies are rotated over four Fridays utilizing the same designated quadrants; in this manner, the schedule has been fully met.

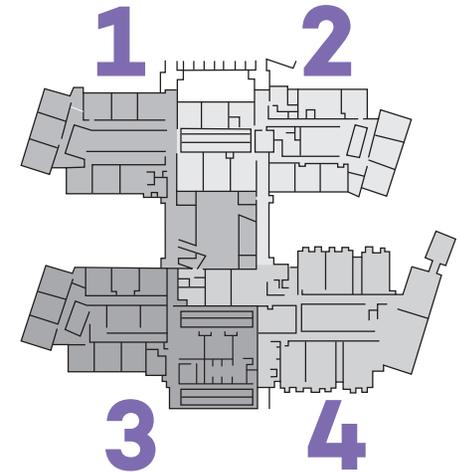
Vac Specialist as an Example:

Routine: traffic areas – Monday–Friday

Detail: square all corners – weekly by quadrant Monday–Thursday

Monthly periodical: clean vents, etc.... using four Friday quadrants

Source— Concepts4



“Thirty + years ago when the ProTeam Backpack Vacuum System was created, it represented, at the time, a technological breakthrough. In retrospect, we now know it was disruptive technology as compared to other offerings to the cleaning industry. It was initially an experiment that within time was recognized as superior to the age-old upright vacuum from the perspective of productivity, filtration, ease of use and a much lower fatigue factor. These enabled operators to extend vacuuming through a full shift and opened the door to a more efficient workflow system, attaining a new level of high performance cleaning utilizing specialists working with team interaction – Team Cleaning. This disruptive innovation is now recognized by most leading industry experts as the best practice for addressing today’s marketplace challenges.”

Jim Harris, Sr. Founder and President, Concepts4

PRODUCTIVITY IN MOTION



vs.



Backpack Vacuum Cleaning Effectiveness

Sweeping

In soil removal tests conducted at Turi Surface Solutions Laboratory:

A ProTeam Backpack vacuum removed more than 98% of the soil – a 10% increase with vacuuming compared to sweeping.

Source—Toxics Use Reduction Institute (TURI), University of Massachusetts Lowell, November 2012. Tested with the original ProVac® BP the predecessor of the ProVac FS 6.

Productivity remains as one of the top five challenges facility managers face today. More than 79% of building service contractors spend over half of their operating budget on labor. Transitioning to cordless vacuuming can dramatically increase an organization's annual labor savings.

Time needed to vacuum 100,000 SQ. FT.



CORDED UPRIGHT

32.5 hrs*



CORDED BACKPACK

12.2 hrs*

ANNUAL SAVINGS \$69,738**



CORDESS BACKPACK

6.3 hrs*

ANNUAL SAVINGS \$89,850**

*The Official ISSA Cleaning Times **Annual savings based on \$13/hr wage

VACUUM CLEANER EFFECTIVENESS

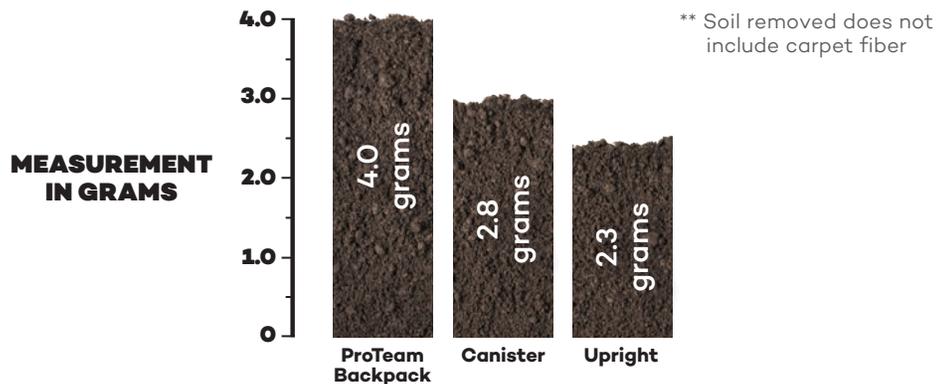
In 5 passes, the ProTeam backpack vacuum is:

43% more effective than a commercial upright vacuum and

30% more effective than a canister in removing soil.**

CORDLESS CLEANING IS 30% MORE EFFICIENT THAN A BACKPACK AND 5x FASTER THAN AN UPRIGHT

A cordless backpack vacuum increases efficiencies by saving approximately 1-1.5 hours per a 4-hour vacuum shift.



“Easy to use. No need to locate outlets in unfamiliar spaces, or in spaces that have furniture frequently moved around.”

Dana K., Carrollton, GA



Sources— Quality Environmental Services & Technologies, 1996; APC Filtration, Inc., 1996; An Evaluation of ProTeam's QuarterVac and CoachVac in a School Environment, Dr. Eric Brown, Cleaning Research International, UK, 1994

Sources – 2023 CMM In-House/Facility Management Benchmarking Survey Report. 2023 CMM Building Service Contractor Benchmarking Survey Report

ANALYSIS OF LABOR TIME

The comparison chart below shows how many hours need to be allocated to vacuuming using different vacuum types in the square feet required to be cleaned.

TIME SPENT VACUUMING

VACUUM TYPE	2,500 Sq. Ft.	5,000 Sq. Ft.	10,000 Sq. Ft.	25,000 Sq. Ft.	100,000 Sq. Ft.	500,000 Sq. Ft.	1,000,000 Sq. Ft.
14" Upright	48.8 mins.	1.6 hrs.	3.3 hrs.	8.1 hrs.	32.5 hrs.	162.6 hrs.	325.2 hrs.
ProTeam Backpack	18.3 mins.	36.6 mins.	1.2 hrs.	3.1 hrs.	12.2 hrs.	61 hrs.	122 hrs.
ProTeam Backpack*	11.5 mins.	23 mins.	46 mins.	1.9 hrs.	7.7 hrs.	38.3 hrs.	76.7 hrs.
ProTeam Cordless Backpack	9.5 mins.	19 mins.	38 mins.	1.6 hrs.	6.3 hrs.	31.7 hrs.	63.4 hrs.

Sources— The Official ISSA Cleaning Times (www.issa.com). Used with permission.
*used in a Team Cleaning System

With a GoFit[®], in an hour you could vacuum:

11,056 sq. ft.
of Office Space

8,660 sq. ft.
of Auditorium

5,980 sq. ft.
of Conference Rooms



Source— ManageMen Time Study Analysis, 2019

ANALYSIS OF BACKPACK VACUUM SAVINGS

CASE STUDY #1 ABC Services

Labor Rate: \$13.00/hour
Vacuuming Area: 100,000 sq. ft.
Annual Work Months: 12
Monthly Work Days: 22

VACUUM TYPE	Sq. Ft. Per Hour	Daily Cost	Monthly Cost	Annual Cost
14" Upright	3,075	\$422.76	\$9,301	\$111,609
ProTeam Backpack w/14" Tool	8,195	\$158.60	\$3,489	\$41,870
ProTeam Cordless Backpack w/14" Tool	15,785	\$82.42	\$1,813	\$21,759

Annual Savings using a ProTeam Cordless Backpack versus a 14" Upright:

\$89,850 or 80%!

Source— The Official ISSA Cleaning Times (www.issa.com). Used with permission.
Bureau of Labor Statistics (<http://www.bls.gov/ooh/>)

CASE STUDY #2

Marcis & Associates cleans the 2.4 million sq. ft. M.D. Anderson building in Texas

- 15 Elevators – 30 seconds each
- 5 Elevator Landings – 2 mins. each
- 4 Building Entrances – 3 mins. each
- Cafeteria Common Area – 10 mins. each
- Skybridge Common Area – 10 mins. each

50% REDUCTION

Takes only 45.5 minutes to clean using a battery backpack.



CARPET AND RUG INSTITUTE APPROVED

ProTeam vacuums have earned a Seal of Approval/ Green Label from the Carpet and Rug Institute (CRI), signifying the vacuum systems meet higher standards for carpet cleaning effectiveness and indoor air quality. Vacuums must pass three cleaning requirements: soil removal, dust containment and carpet fiber protection.



PROTEAM IS A MEMBER

ISSA
BSCAI
NRA
ARSCI

MRA
NWFA
CRI
IHRSA

VDTA
NPMA
PRSM
RFMA

DKI
PTN

PARTNERSHIPS

ProTeam is a proud partner of the American Lung Association. Together, we fight for clean indoor air so that we all can breathe easier. We spend the majority of our time indoors, so breathing healthy air where we live, work and play is critical.

ProTeam is committed to developing innovative cleaning technologies to address indoor air quality concerns and supporting the American Lung Association in their strategic imperative to improve the air we breathe.

For more information on indoor air quality, call 1-800-LUNG-USA or visit Lung.org.



The American Lung Association does not endorse product, device or service.



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