# CUTTING COSTS and IMPROVING OUTCOMES for JANITORIAL SERVICES

*By Jeffery L. Campbell, Ph.D.*

Recent research reveals that janitorial services account for nearly 30 percent of facility budgets, which translates into billions of dollars annually. With janitorial services consuming such a large share of budgets, other industry findings are alarming. Most cleaning systems: 1) have no quantifiable standards; 2) are based solely on appearance; 3) have little or no method of measuring effectiveness and performance; 4) are not based on actual research; and 5) are driven by chemical and equipment manufacturers. In an industry that has been around as long as public buildings themselves, janitorial methods have seen little progress. As a matter of fact, most janitors today use the same tools and processes that were used 50 years ago.

With the current tight economy where every facet of business has had to become more accountable, the cleaning industry continues to lag behind. However, some innovative approaches are being introduced that efficiently manages janitorial services by utilizing measurable standards and up-to-date business practices. The following case studies highlight four universities that have implemented these practices. Not only have these universities improved their overall cleanliness, but they have experienced significant savings.

## CASE STUDY 1

In 2008, the University of Massachusetts (UMass) was facing a $46 million reduction in funding campus-wide. Ashoke Ganguli, director of auxiliary services at UMass contracted a cleaning industry consultant to test a system that would reduce costs while maintaining quality. This consultant does not sell products or equipment but utilizes best practices based on research and predicted outcomes.

### Summary of Improvements:

- APPA Level of Appearance improved from Casual Inattention to Orderly Spotlessness
- Saved $360,000 in the first year
- Lost work hours decreased 89% in first two years

The pilot building selected for the test was the 360,000-square-foot Campus Center (student union building), which houses meeting and conference rooms, a hotel, special events, catering, food service and food outlets, the bookstore, and a variety of other services for students and visitors. It is the busiest hub on campus with more than 12,000 to 15,000 people passing through each day. The high foot traffic made cleaning especially challenging. Current operations included 38 FTEs (full-time equivalent staff) based on a 7-day workweek. As a measure of cleanliness UMass used the widely accepted APPA Five Levels of Appearance (see chart below). *[Editor's note: The complete APPA custodial guidelines can be found in the newly published* Operational Guidelines for Educational Facilities: Custodial, third edition, *available through the APPA Bookstore.]*

Prior to the test, the Campus Center was consistently scoring at Level 3-Casual Inattention.

| APPA Levels of Appearance | |
|---|---|
| Level 1 | Orderly Spotlessness |
| Level 2 | Ordinary Tidiness |
| Level 3 | Casual Inattention |
| Level 4 | Moderate Dinginess |
| Level 5 | Unkempt Neglect |

When UMass implemented the recommended engineered cleaning system, the first step was to perform a building profile. This profile determines exactly how much cleanable surface area there is, and what kinds of surfaces need to be cleaned. Research has shown there is a 10 to 40 percent difference in cleanable square feet than what is actually reported; this was the case for UMass. The next step was determining regular custodial functions. Because the Campus Center provides such a variety of services it was easy for costs to be incurred from duties that are not regular custodial responsibilities such as the set up of meeting rooms at all hours of the day.

Next was to workload the cleaning assignments. This includes utilizing the team-cleaning concept which assigns specialized tasks and equipment to each team member. Team-cleaning allows for simplification of the cleaning process which results in a safer, healthier, and more productive work environment. An analysis of who, what, when, where, why, and how surfaces are cleaned was detailed. This analysis included an important research study titled *ISSA's Official 540 Cleaning Times* that identified the amount of time needed to clean all types of surfaces. Prior to implementing the engineered cleaning system, custodial functions required 1,560 hours of labor per week. After the work-loading stage was completed and tested, it was determined that the building could be cleaned with 31 FTEs and 1,240 hours per week based on a 7-day work week. This was a difference of 320 direct work hours per week, with annual savings of $360,000, or a 20 percent reduction in cost.

> **"Cleaning is strategic to the university's mission."**

A major concern with the campus budget cuts was whether the quality of performance could be maintained. After implementing the new system, cleaning improved dramatically from Level 3-Casual Inattention to 1.5-Orderly Spotlessness. This improvement was clearly apparent to students, staff and visitors. Not only did appearance improve, but there was substantial savings to the budget. Director Ganguli was able to return $360,000 to the university the first year. Another benefit, not reflected in the cost savings, was the reduction of lost work hours due to accidents. Over a two-year period lost work hours decreased 89 percent.

## CASE STUDY 2

In 2009, the department of Plant Building and Grounds Services at the University of Michigan faced deep budget cuts. Director John Lawter began to investigate how other universities were dealing with this challenge. Among best practices he identified were at UMass, University of Texas, University of North Carolina, and University of New Mexico. They had all saved considerable dollars while significantly improving levels of appearance from implementing the engineered cleaning system.

Lawter decided to implement the engineered cleaning system; the rollout began in July 2009. The scope of the project included 200 buildings comprising 15 million gross square feet. The three-year goal for the program is to cut 10 percent, or $2.1 million of their budget. After the first nine months

## Summary of Improvements (after 9 months):

- Reduced 11 FTEs
- APPA Level of Appearance improved from Ordinary Tidiness to Orderly Spotlessness
- Facility quality assurance scores improved 30%; defects decreased 70%

(reported March 2010) their objective was to be achieve 10 percent of this cut. Surprisingly, they achieved 11 percent, which represented a reduction of 11 FTEs. In addition, the APPA Level of Appearance improved from 2.22-Ordinary Tidiness to 1.87-Orderly Spotlessness.

It is important to note that these scores take into account more than just appearance. When the independent auditors from the university's quality assurance department grade the space, they are not only looking at cleaning appearance but also maintenance issues (regardless of who is responsible). If a room scores a 4/5-Moderate Dinginess/Unkempt Neglect due to maintenance problems, it is considered a defect and must be investigated. The month before the rollout, 180 defects were identified. In month nine of the rollout only 43 defects were reported. Overall, after nine months, facility quality assurance scores improved 30 percent and defects decreased 70 percent.

### CASE STUDY 3

In 2006, Dr. Michael Berry, an industrial hygienist and researcher at the University of North Carolina, tested the cleanliness of two adjacent halls that were being cleaned with two different systems. Carroll Hall was using the engineered cleaning system at an 80 percent audit level, and Dey Hall was using traditional zone cleaning. The tests included measuring dust removal, presence of fungal spores, restroom bacteria count, and indoor air quality.

The results were as follows:

- The engineered cleaning system in Carroll Hall showed a 31 percent reduction in carpet dust, 120 percent average reduction in hard floor dust, and 342 percent average reduction in counter dust. Dey Hall showed six times the carpet dust, twice the hard floor dust, and almost twice the counter dust.
- The engineered cleaning system produced a measurable cleaning result that is a factor of two to five times more effective in removing unwanted dust from the building envelope.
- Carroll Hall showed a significant fungal spore reduction from the pre-engineered cleaning system test of 15 to 3 percent after one month measurement of post-engineered cleaning system implementation. Overall, Dey Hall had higher levels of fungal spores.
- For the aerobic bacteria test in restrooms, samples were taken in both buildings. Bacteria samples taken from door handles, sink basins, sink faucets, and toilet seats rims showed that post-engineered cleaning system samples decreased by 94 percent. This score was 6.2 percent lower than Day Hall.
- Air quality was measured at approximately PM10 (airborne dusts in the size range less than 10 microns). Both halls measured similarly, with Carroll Hall averaging 11-30 ug/m3 and Dey Hall averaging 15-40 ug/m3.

Amazingly, the restrooms had higher pathogen counts after the traditional housekeepers finished "cleaning" than before the entered the restroom. Dr. Berry observed they were actually polluting the area—not cleaning it. In the engineered cleaning system cleaned restrooms, the housekeepers left the area at healthy pathogen levels. Dr. Berry strongly suggests that janitors and cleaners be more concerned about indoor environmental quality, thus changing their mindset to consider themselves as healthcare workers. Dr. Berry feels cleaning for health must be more important than cleaning for appearance. Unfortunately, most cleaning processes pollute indoor environments more than clean them.

## Summary of Improvements

- Chemical usage and repairs declined, saving thousands each month
- Reworks decreased 76% after nine months
- Janitorial Services began leading the university in sustainability and green practices

### CASE STUDY 4

The University of Texas at Austin (UT) began working with the engineered cleaning system process in 2000. At the time, the university had a total population on campus of 74,366. Janitorial services cleaned 110 buildings consisting of 8.6 million square feet. As an initial step, UT implemented a new mindset towards their cleaning staff. They determined to treat all janitors like first-class citizens, and provide the right training, equipment, and environment in which they could succeed. Dr. Pat Clubb, UT's vice president of employee and campus services, championed this mindset change by stating that cleaning is "strategic to the university's mission as it has a large role in maintaining the physical environment of this world-class institution. It is the single largest service division; provides for the health, cleanliness, and safety of

university students, staff, faculty, and visitors; touches virtually all campus clients daily; has access to almost every part of the campus; is a highly visible group; and strongly supported by clients."

Next UT began to track progress and put measurable metrics in place. Chemical usage, equipment repair costs, and reworks (defects) by type, how often, and where were all tracked. All results showed significant improvement. Chemical usage and repair costs initially decreased dramatically then leveled out, ultimately saving thousands of dollars each month. After nine months, reworks dropped from 212 to 49, a 76 percent decrease. Other tracking included consistency of emptied trash, floors mopped, detailed cleaning, vacuuming, locking doors, restrooms, glass specialty areas, and chalk boards. One additional benefit was the department began to lead the university in sustainability and green practices.

## SUMMARY

These four case studies provide a business model worthy of further investigation. They illustrate the benefits that can occur when janitorial services are carefully managed. By implementing a measurable cleaning system that is based on solid business practices, research, and engineering, businesses and educational facilities will eliminate needless costs and significantly improve quality.

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