CU I&E Submission: Retrofit Kaivac Machines [1]

Description

Environmental Services (ES) is the arm of Housing Facilities Services, Housing & Dining Services, that provides custodial and housekeeping services to the residence halls, family housing, and the Center for Community. This team of professionals uses a variety of cleaning systems to clean for health and to clean for appearance, thereby providing a clean, safe, and secure environment in which students live, learn, and thrive.

Situation: The brand of disinfectant used in the machines to clean and disinfect restrooms was causing great irritation amongst staff due to its strong odor and composition. This irritation was a predominant root cause of illness and on-the-job injuries, which resulted in lost time and expense. Employee health and welfare is extremely important to ES leadership. The team needed an alternative disinfectant-one that would be less abrasive to the staff but would not compromise the level of disinfecting effectiveness.

Challenge: Restroom cleaning machines, like the Kaivac machines use by ES staff, are proprietary in that they are designed to support only one type of chemical disinfectant which is typically provided by the manufacturer. The shape of the receptacle well for the disinfectant container, the design of the chemical cap, and the style of dilution tip required limit the machine to one brand of disinfectant. Cost/benefit analysis eliminated the option of replacing the machines and chemicals with those from another manufacturer.

Solution: ES partnered with the Housing Facilities Services Maintenance department who devised a way to retrofit the Kaivac machines, thereby allowing a variety of disinfectant brands to be used. The retrofit entailed the design and fabrication of a receptacle well "plug" that creates a platform upon which any container shape can sit, secured by an engineered strap that prevents the container from moving. The appropriate chemical cap and dilution tips can then be used with each container to ensure that the disinfectant dilutes to the appropriate ratio. ES was successful in finding a less irritating, yet equally effective, disinfectant, which has been well received and much appreciated by the staff.

How does this impact the University?

The cost to retrofit a Kaivac machine was approximately $12.00 per unit.

The impact to the university has been extremely positive. First, ES avoided an approximate $150,000.00 expense to replace its current Kaivac machines. Second, the number of sick hours taken by staff was reduced by approximately 30% within one month of piloting a new disinfectant. Third, staff morale improved dramatically after the retrofit as staff experienced no irritation with the new disinfectant.

Implementation Status

All Kaivac machines in service have been retrofitted and are thus capable of using a wide variety of disinfectant types. Future tests of alternative chemicals are now possible since we were successful in bypassing the proprietary design of the machine.

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Links
[1] https://www.cu.edu/controller/i-e-awards/past-submissions/cu-ie-submission-retrofit-kaivac-machines
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