

ShopTalk

Plant Operations Support Consortium

Volume 17, Number 4

Summer 2013

Making a Positive Impact with Day Cleaning

By Sue Brown, Consortium Staff Member

The facilities operations at Community Colleges of Spokane (CCS) recently celebrated a one-year anniversary of sorts and placed themselves among the group of higher education facilities that have successfully implemented daytime cleaning with their custodial staff.

The big decision was made in April 2012. With an already tight budget, "It was a matter of laying people off, or switching to day cleaning to avoid paying shift differential and using those savings to keep the crew intact," said Dennis Dunham, district director of facilities.

The colleges serve a multicultural population of students in approximately 1,174,000 gross square feet of interior building space at the Spokane Community College main campus (SCC) and 849,000 gross square feet at the Spokane Falls Community College (SFCC) campus. Several satellite

locations are also maintained by the custodial staff.

SCC employs 24 full-time custodians and SFCC employs 22 full-time custodians. There are two leads and two supervisors on each campus. Many custodial workers have been employed by the colleges for over a decade. With the poor job market, the shift change was considered the best option for the operation of the department.

Preparing for the change to day cleaning

Making the change involved intensive planning and preparation, as well as excellent communication between employees and management. The expected changes were discussed with the custodial supervisors and, of course, the custodians, and explained to faculty, students, and administrators.



CCS custodian Paul Stazel cleans one of the many college restrooms.

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Archived issues of *Shop Talk* are available at: www.energy.wsu.edu/PublicFacilitiesSupport/PlantOperations/ShopTalk.aspx

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Shop Notes

By Edwin Valbert,
Consortium Manager

From before the Alpenhorn sounded in the morning until long after the evening piano music in the Enzian Inn lobby ended, participants at the 9th annual Energy & Facilities Connections Conference continued to learn and network. This year's conference tested the limits of the Enzian, with a record 247 people registered to attend.

The conference would not be possible without the generous support of all our sponsors and volunteers, who give of their time and money to make the conference what we believe to be one of the most affordable and useful of its kind. We thank you very much.

We also want to thank everyone who attended. The informal exchanges among participants are a valuable part of this event, but would not be possible without all the talented and dedicated facilities people who take the time to attend.

Sharing resource-saving ideas is the cornerstone of your Plant Operations Support Consortium. We are here year-round, so remember to lean on the

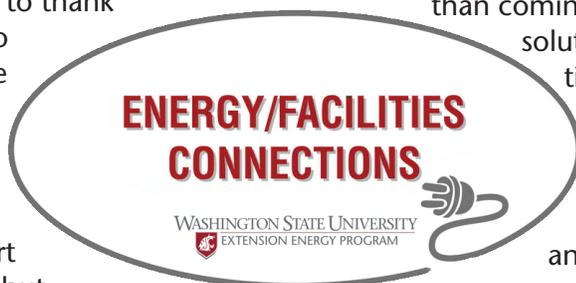


Edwin Valbert

Consortium when issues arise or you need help solving a problem.

In the continued spirit of sharing insights to enhance operational efficiency, I encourage you to submit the solutions and innovations you have developed to the new EFC Innovations Award program (www.energy.wsu.edu/PublicFacilitiesSupport/PlantOperations/EFCInnovationsAward.aspx). The only thing better than coming up with a solution or innovation is sharing it with others so its value spreads far and wide.

Thanks again for all you do for each of your organizations and for helping to keep your Consortium a strong and valuable resource. The power of one is multiplied greatly by one's willingness to share. ✖



School District Cooks Up Sustainable Idea

By Phil Partington, Consortium Staff Member

Sustainability is about more than simply finding that massive, one-time cost-saver; it's about adopting an out-of-the-box mentality and looking at facility operations through a lens of re-use and creativity. That is precisely what Pateros School District did when it considered how to dispose of an old, inefficient boiler that was being replaced.

"We looked at how big and clunky it was and felt guilty about putting it in the landfill," said Paul Harris, Operations Director at Pateros School District. Then they got creative. "We figured we could use it to make a great barbeque that could be used for district and other local events."

A welding class – directed by Lyle Blackburn, who has 30 years of

district leadership under his belt – took over the project. The resulting barbeque is far from ordinary; it is so big it needs its own trailer so it can be moved from place to place with a pick-up truck.

"Everyone was on board, so getting their buy-in wasn't a problem," added Harris. "The barbeque has been reserved by the city to use in the Pateros Apple Pie Jamboree [an annual event for the local community]. It has already been used for a year-end barbeque for the schools and at a local FFA chapter barbeque, and will be used at every Friday-night home football game next season."

Perhaps not every organization



Pateros School District custodians Jim Field, Jason Getzin and Susie Bowls prep the new barbeque for an event.

will have the flexibility to turn an old boiler into a barbeque, but that does not change the message behind the story. Sustainability

See **Cooks** on page 8

Maximize Your Consortium Membership by Calling Today

By Tony Simon, Energy Engineer at the Washington State University Energy Program

It can be a challenge to realize the true potential of your Plant Operations Support Consortium membership because the range of services offered is wide, deep and continually growing. You have probably spoken with Ed, Larry, Sue or Phil at some point, but you might not realize that the list of folks who help Consortium members stretches far beyond those four individuals.

Behind the scenes at the WSU Energy Program, energy engineers and lighting, solar, motor and indoor air quality experts – to name only a few – support the Consortium's efforts to support you. With this team of experts working on your behalf, added to the insights shared by other Consortium members,

the resources available to support Consortium members are near endless.

The Pateros School District recently discovered the depth and richness of resources available to Consortium members while attending my Hot Shop presentation at the 2012 Energy/Facilities Connections Conference.

Paul Harris, Operations Director at Pateros School District, was in the audience as I described how data loggers could be used to monitor different pieces of equipment. After the presentation, Paul asked me if data loggers could be used to monitor electric water heaters. He said that the District's water heaters were old and he suspected that they were scaled up on the inside because they

seemed to be less efficient and were running longer than they should. Because the Pateros School District is a Consortium member, I was able to assist by lending Paul data loggers and sensors. Paul used these to plot out the operation of the equipment. He was then able to take the plots and demonstrate to management how the inefficient equipment was wasting energy and money.

While we may not always have data loggers available to loan out to every Consortium member, give the Consortium a call if you have a question or challenge. Consortium staff members are ready to put an army of resources to work for your benefit. ✖

A Baker's Dozen Energy Saving Ideas

(Part Two of Two – See Part One in Spring 2013 Shop Talk. *)

By Alan R. Mulak, PE and William A. Turner, MS, PE

7. Train and Keep Training Your Building Operators!

Would you bring your car in for service at a garage that hires untrained mechanics? Why, then, would you allow your buildings to be operated by untrained building operators? If they are trained, when is the last time they took a refresher course? Equipment changes all the time, and there is always more to learn. The stakes are high: energy costs have risen as much as 80 percent in the last decade.

While trained auto mechanics will likely deliver a complete tune up so your car operates efficiently and requires minimal maintenance, it is unlikely that untrained mechanics will deliver the same results. The same principle holds true for trained versus untrained building operators.

Wondering where to find a course? Contact your local utility or energy service company. They often promote and offer such courses. And we believe the Building Operator Certification (BOC) course is particularly effective!

8. Purchase and Populate a Computerized Maintenance Management System (CMMS).

Facilities are often maintained by knowledgeable personnel who take pride in keeping their facilities running as smoothly as possible under the budget constraints we all deal with. This is the good

news. The bad news is that all the information required to do this complex job is often stored in the head of the facility manager, so when these key personnel retire, this institutional memory is lost. A CMMS is just the ticket to prevent this. A good system should have a:

- Work order trigger for date and season.
- Record of past work completed, with details such as hours required, safety considerations, and parts required.
- Comments/notes section to add hints and “watch out for” items.
- User-friendly data entry form or screen for non-expert computer operators.
- Prioritization capability for work orders.
- Cost estimate calculator.

And remember:

Garbage in – garbage out. Someone must take the time to enter technically accurate data. Once that is done, a good CMMS will:

- Be easy to update and friendly to use,
- Issue accurate work orders,
- Have a really good memory, and
- Keep track of your yearly energy use.

9. Change Your Air Filters and Clean the Strainer!

What do good (Merv-7) filters do? They clog up with the stuff they are designed to filter, which is great because dust, pollen, and other airborne nasties have no place on coils or in buildings. But once clogged, they are no longer a filter but a dam. A clogged filter requires the fan, pump, or motor to work harder but



accomplish less, which further clogs the filter. On it goes until you hire a duct cleaner. Avoid this by changing all filters at every change of season and servicing strainers at least once a year.

10. Older Than Three Years?

Often, the objection raised when the topic of energy-efficient equipment comes up is, “We’ve done it already.” That might be true, but consider doing it again because in the last three years, electric/gas/oil rates have gone way up. As the cost of energy

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*Access www.energy.wsu.edu/plant_operations and then the Shop Talk Archives link in the upper right hand corner. The entire article is reprinted with permission from *Building Operator Certification*. Learn more about BOC online: www.theboc.info/

Ideas

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soars, the economics of an energy-related project improve. Also, as the hours of use add up, efficient products such as T8s may need to be replaced. Do this before they start failing one at a time to avoid a labor headache.

11. Take a Field Trip.

Where? To your own facility... but always after hours and on weekends. A walk-thru assessment after hours can yield very interesting results. Why are the fans or pumps running? Are the boilers and AC systems really on night setback? Windows open? Lights on? Air conditioning running? All of these “not supposed to be’s” add up to wasted energy and money.

12. A Few Other Things that Save Money and Energy:

- Vending machine controls, such as Vendor Misers, turn off the machine when no one is around. Energy costs for these machines can be about \$400 per year, so turning these devices off for about one-third of the time is a simple, inexpensive, cost-effective way to save money.
- Economizers on rooftop HVAC systems take advantage of “free” cooling during those days when it is not too hot and not too cold. Yet, many rooftop units (RTUs) are not equipped with functioning economizers. And while you are at it, install a

dual enthalpy control on the economizer. This can extend your free cooling by as much as 20 percent!

- Everyone talks about improving Operations and Maintenance (O&M) and the inherent benefits of doing so. The problem is trying to figure out what superior O&M really is. A free resource that belongs on everyone’s shelf is the Federal Energy Management Program (FEMP) *O&M Best Practices Guide*, available for free from <http://eere.pnnl.gov/femp/publications/O&MBestPractices.pdf>.

There may be other O&M guides, but this one is the best we have seen and the price is right!

- A free and valuable software resource is COMcheck. This program is easy to use and generates very helpful reports. It is the only code compliance software we know of. The output can be used for a variety of purposes, such as verifying code compliance (for most states), quantifying energy power density for grant applications, and providing back up for Leadership in Energy and Environmental Design (LEED) and Advanced Building Certifications. And the price is right! COMcheck can be downloaded for free from



<http://www.energycodes.gov/comcheck>.

- Free software that quantifies energy savings when upgrading to NEMA Premium Efficiency electric motors – called MotorUp – is available from <http://www1.eere.energy.gov/industry/bestpractices/software.html#mm>.

NEMA is short for the National Electrical Manufacturers Association.

13. Plan for the Future:

Many items require budgeting and planning and, with all capital expenses, the dreaded review cycle is also required. Don’t wait to get your project rolling. Remember, the upward spiral of energy costs is here to stay. Here are some ideas for the “future upgrade” list.

- **Roofing upgrades:** Light-colored and high-quality insulation saves heating and air conditioning costs while improving occupant comfort. Further, a well-constructed roof can eliminate leaks, which will lead to all sorts of problems such as expensive mold remediation. A great reference for light-colored, energy-efficient roofs is the Florida Solar Energy Center (<http://www.fsec.ucf.edu/en/>).
- **Window upgrades:** Argon-filled windows are rated at U-0.25; single-pane windows are rated U-1.0. The problem with window upgrades is the

Day Cleaning

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Prior to the shift change, the custodians typically worked from 10 p.m. to 6:30 a.m. or 5 p.m. to 1:30 a.m. Most now start at 4:30 a.m. and work to 1 p.m. A few still work on the swing shift (2 p.m. to 10:30 p.m.) to perform tasks that need to be done after the campuses are empty at night. All shifts work Monday through Friday.

At first, there was some pushback from the custodians when they were told about switching to day shift. "We gave them plenty of planning ahead time, to make any changes to their personal life that needed to be made," said Dennis.

It was a coordinated effort to rework their schedules and make the necessary adjustments. Essentially, every part of the cleaning operation was taken apart and then put back together to fit into the daytime campus activities. Emphasis was placed on the type of cleaning that was done and where it was done, the time the cleaning took place, and the frequency and processes that were involved in cleaning.

Day cleaning is an all-round success

While many organizations roll out day cleaning as a pilot with one building or area, CCS decided to make the jump all at once with both campuses. This change has been very successful. Custodians work in teams to get cleaning done in designated areas before classes begin. After this tightly structured cleaning is finished each day, the custodians break out individually or in teams to perform their other cleaning duties in their assigned areas or zones at a more relaxed pace.

Most of the crew has adjusted well to the day routine. Working in teams has created more cooperation among staff members. Campus users can observe the custodians, which tends to encourage more interaction. And because the workers end their shift in the early afternoon, they can still enjoy daylight hours. The day shift naturally blends well with the schedules and routines of workers with families.

During winter, Spokane experiences a fair amount of snow. With the custodians working day shift, they are able to clear the parking lots, sidewalks and

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An unexpected perk of the shift to day cleaning was that the custodians take more pride in how well they clean.

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building entrances in the early morning hours before campus activities begin, making the campus safer for everyone.

An unexpected perk of the shift to day cleaning was that the custodians take more pride in how well they clean. Whereas on a swing shift they mostly worked alone, now they are observed during the day. Custodians Paul Stazel and Minh Tran and custodial supervisor Phyllis Prescott recently received the campus Classified Appreciation Award, suggesting the rest of the campus is taking more notice of the great cleaning that they are doing.

Regular team-building events for the staff take place during the day. The custodians can choose to participate in other campus activities now, too. "They feel more part of the campus and want to be involved more," said Jeff Teal, director of operations for the colleges.

Custodial practices and tools support CCS' commitment to Leadership in Energy and Environmental Design (LEED)

CCS has had a busy construction schedule in the past decade to replace older buildings and to add classroom space as enrollment increases. As buildings are demolished and replaced with LEED-certified buildings, it was essential to improve cleaning processes and efficiencies. "We have benefitted by switching to Green Seal-certified chemicals and equipment and tools that are more sustainable," said Teal. "Color-coded microfiber cleaning cloths and

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microfiber flat mops that pick up soil more efficiently is one technology that evolved in recent years. They meet the sustainability requirement of LEED by being washable and reusable.”

The colleges have also purchased more ride-on autoscrubbers. Teal states, “These have really helped on-time management and are safer for our customers because of the dry time. We use the four scrubbers to do gym floors, common areas and large building hallways. We also purchased a walk-behind scrubber for our gym floor at SFCC that belongs to that space only. We used to do the gym floor with a mop and bucket.”

High-speed hand dryers that reduce paper consumption are another complement to the LEED values of CCS. These dryers are located in many of the newer buildings. Another product is being tested that is touted as being quieter.

Backpack vacuums – proven throughout the custodial industry to clean better – are also designed to be quieter, faster and easier to use than canisters and uprights. To meet the goal of cleaning as many high-use areas on campus as possible before students and staff arrive each morning, backpack vacuums are used exclusively; the only exception is upright vacuums used to clean walk-off matting.

Another aid to sustainability came from a collegiate grant awarded in spring 2012 from the Coca Cola Corporation/Keep America Beautiful recycling project. Meant to be a partnership between faculty and staff, members of the program receive a recycling bin for their work space or classroom. When their bins are full, members empty them into one of the centralized recycling units located throughout the campus. Facilities staff empty the centralized units once they are full. “Since the program began,” states Teal, “recycling has come close to double what it used to be.” As a result of this increased recycling, CCS has reduced its waste to much lower levels and achieved substantial savings due to reduced waste collection fees.



CCS custodian Mihn Tran rounds up an extension cord.

Day cleaning is working very well for CCS

The custodians successfully met the high expectations that were placed on them when CCS decided to switch to day cleaning to save staff jobs. The custodial team has exhibited an enthusiastic team spirit and positive attitude. Kudos also go out to the diligent and focused managers, who rose to the challenge of finding a workable solution.

The managers would like to give credit to the four custodial supervisors – Phyllis Prescott, Claude DeFour, Kevin Decker and Scott Buck – who worked very hard during this process to make a successful transition. They met with their custodians daily to observe and listen to what they were saying and made changes along the way.

Way to go with adapting your custodial operations to meet new challenges, CCS!

Learn more about CCS’ change to day cleaning by contacting Dennis Dunham, 509-533-8378, or email ddunham@ccs.spokane.edu, or contact Sue Brown, 360-956-2058 or browns@energy.wsu.edu, to learn more about how the Consortium can support your custodial efforts. ✂

Ideas

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cost. They are frightfully expensive and the simple payback (cost/savings) is excessive. To pay for a window upgrade, government or utility grants are almost a must.

- **Air sealing:** Roofs often leak air where they meet the outside walls. Why heat or cool the outdoors? An infrared scan of your facility will identify the leaky areas that are costing significant dollars in wasted heating and cooling. Your local fire department may provide this service for little or no cost. *[Or you can ask the Consortium team to help you identify air leaks.]* Once the leaks are identified, a

contractor can seal the air leaks with foam.

- **Boiler upgrades:** If your boiler was installed before 1990, it is almost guaranteed to be obsolete. New boilers (and furnaces) are up to 20 percent more efficient, smaller, easier to maintain, and far more reliable. Full condensing boilers are frightfully expensive but worth every cent due to dramatically reduced O&M costs. Even some oil-fired boilers are now full condensing.

These ideas are just the tip of the energy efficiency iceberg. The most important advice is to do something – anything – and start today. Good luck! ✖

Cooks

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is about taking a fresh look at a problem and considering solutions that may seem unorthodox. As demonstrated by the Pateros School District, unusual solutions can save money and create a community asset. Harris chuckled when the Consortium asked him for the details of this story, but the bottom line is that converting their old boiler into a community barbeque saved the school district approximately \$500 in disposal fees, enabled a welding class to garner experience while contributing something tangible to the school, and avoided adding waste to the landfill.

For more on this story, contact Paul Harris, (509) 923-2751, or email pharris@pateros.org. ✖

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*Our warm welcome to new members in **bold blue** type. We look forward to serving your facility and operations needs. ✖*