Learn From the Leaders: Wellesley Public Schools

August 6, 2018

Logistics

- Webinar will run approximately one hour.
- A recording of the webinar will be available online.
- Please take two minutes to complete the survey at the end.

Q&A Session

- Q&A will be held during the final 15 minutes.
- Ask questions through the “chat” in the lower right side of your screen.

Polls

- We’ll have audience polls during each speaker introduction.
- Please participate so we can get a better idea of our audience.

About Healthy Schools Campaign

HEALTHY SCHOOLS
CAMPAIGN

About Green Clean Schools

Green Clean Schools
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LEARN ABOUT THE

5 Steps to Green Cleaning

What is Green Cleaning? Our 5 Step Approach

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HEALTHY SCHOOLS
CAMPAIGN

Today's Panelists

- Michael Andersen, Custodial Service Manager, Wellesley Facilities Management Department
- Antonios Vassiliadis, Custodial Supervisor, Wellesley High School
- Jeff Johnson, Director of Marketing and Product Management for Orbio Technologies, a Tennant Company Group

Town of Wellesley

Green Cleaning Program Overview

Wellesley Public Schools

- Wellesley, Massachusetts
- 7 elementary schools, a middle school, a high school, a preschool
- Over 5,000 students
- Buildings managed by the Wellesley **Facilities Management Department**
- Green Cleaning program started in 2012 (when FMD was created)
- Sustainability is part of our mission statement
    - Green Products, Equipment, and Practices
    - Energy Conservation

Why a Green Cleaning Program?

- Facilities Management Department (FMD) Goals:
  - Safety and Health
    - Staff and Students
  - Improve Custodial Services
    - Efficiency
  - Increase Facility Lifespans
  - Sustainability
  - Energy Conservation

A successful green cleaning program can help us reach these goals

Implementing our Green Cleaning program

- Started researching and purchasing greener chemicals and equipment
- Implemented “team cleaning” at our High School and Middle School
- Training for all staff
  - New chemicals, equipment, techniques and procedures
- Working with school staff, parents, and students
  - Keeping everyone informed and involved in the program
- Monitoring and assessing the results with each change
- Continue to research - green cleaning is always evolving
  - Technologies
  - Techniques
  - Strategies
  - Equipment

Green Cleaning Products

- Our program switched to greener products over time:
  - Went from mixing from bottles, to “pack-it”, then to portion control

- Continued research lead to discovery of On-site Generation (OSG) products
  - Green aspects of on-site generation match our green cleaning goals

On-site Generation Eliminates

On-site Generated Cleaning Products

- Advocated for funding
  - Will help the FMD achieve our sustainability goals
    - Very green and safe chemicals for staff and children in the schools
  - Save money over time
    - No more buying chemicals – just salt pellets and maintenance on systems
- Started with a pilot system at our high school
  - Went very well, great cleaning results and Custodians approved
- Invested in OSG systems in all schools
- Generate both a Multi-Surface Cleaner and Disinfectant/Sanitizer
  - All on-site by our Orbio os3 systems
  - Covers the majority of our cleaning chemical needs

On-site Generated Cleaning Products

General Purpose Cleaner

Multi-surface *Cleaner*

- Active ingredient: 0.05% Sodium Hydroxide
- Colorless
- Odorless
- No VOCs
- Non-Irritating to Skin + Eyes

Hospital Grade Disinfectant/Sanitizer

Multi-micro™ *200*

- Active Ingredient: <0.02%

Hypochlorous Acid

- Food Contact Surface Sanitizer
- Non-Food Contact Surface Sanitizer
- Colorless
- Slight “pool smell”
- Non-Irritating to Skin
- pH Neutral

Specialty Green Products

- Microfiber Cloths
  - Microfibers act like a scraper while they lift and trap dirt and moisture in the nooks and crannies of the individual fibers
    - Traditional cloth fiber just pushes the dirt from one point to another
  - Color coded: blue for glass, red for counters, green for bathrooms, etc.
  - Machine washable
- Walk-Off Mats
  - Waterhog ECO Premier Entrance Mats
    - Made from 100% PET post-consumer recycled drink bottles and 15% post-consumer recycled tires
  - Properly functioning mats can trap up to 80% of dirt and moisture at the entrance
    - Lessen the cleaning load on staff–more efficient

Green Cleaning Equipment

- Backpack vacuums with HEPA filters
- Floor machines with on-board nano-clean technology
- Kaivac no-touch cleaning system

Training

- The program needs more than just green products and equipment, the custodians need to know how to use them and why
  - Training demo provided with each piece of new equipment
  - New cleaning products are put into place with a full set of instructions how and where to use each product
  - Quarterly professional development meetings
    - Topics include: Safety, techniques, awareness, ergonomics, minor-maintenance
    - General updates to our program

Training

Wellesley Public Schools

Cleaning Locations

Where to use the MSC

Multi-Surface Cleaner

- ✓ Floors
  - Autoscrubbers
  - Mop Buckets
- ✓ Carpets
  - Extractors, Shampoo's
- ✓ Glass
  - Mirrors
- ✓ Stainless Steel
- ✓ Upholstery
- ✓ Grease

Where to use the MM200

Disinfectant

- ✓ Restrooms
  - Toilets
  - Toilet Bowls
  - Sink
  - Floors
  - Tile Walls
  - Fixtures

Sanitize

- ✓ Food Areas
  - Cafeteria
    - Tables
    - Chairs
    - Floor
  - Prep Area
  - Cutting Block
  - Coolers
  - Freezers
- ✓ Grease

Food Contact & Non-Food Contact Surface Sanitizer

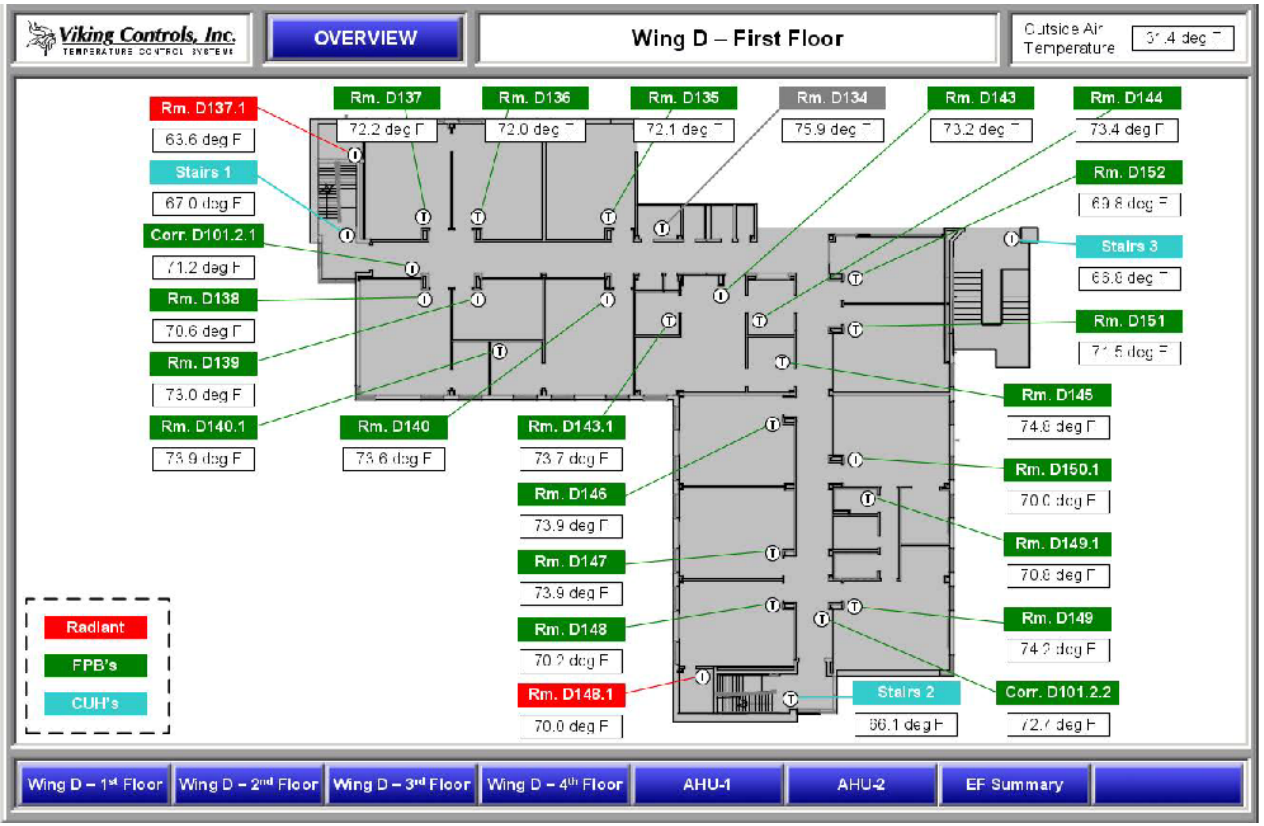
Water Softener Pellets

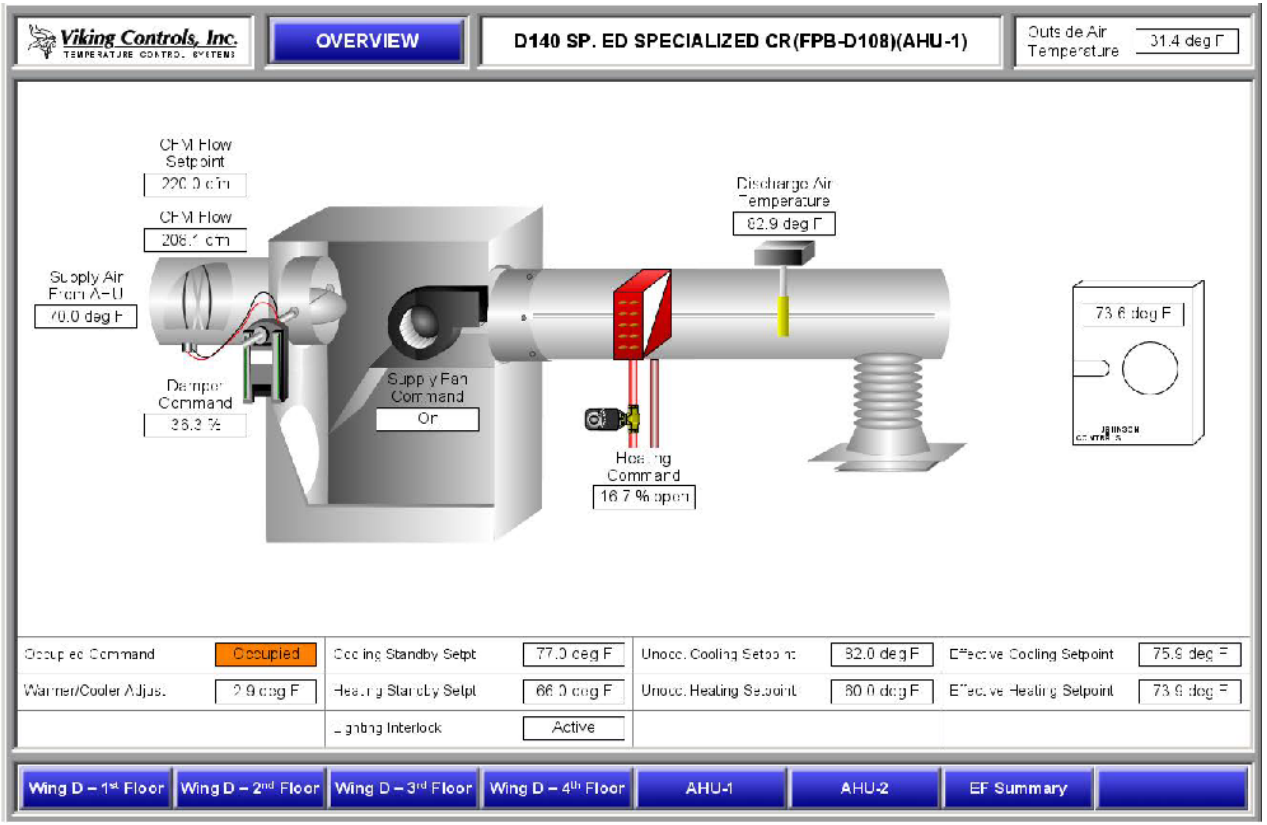
ONLY

Building Control System

- Metasys
  - District-wide building automation system
  - remotely track and gather data on items such as temperatures, ventilation, and equipment functionality
  - By adjusting temperature set points, including night-setbacks and vacation periods, we minimize heating and cooling loads to save energy
  - Also has lighting controls in some buildings to create energy efficient schedules

Building Control System





Recycling

- School staff, parents, and students all involved
  - Single-stream recycling in every school (started in 2011)
  - Lunch programs:
    - Liquid waste diversion in elementary schools
      - Liquids (such as milk and juice) poured out into buckets, then cartons recycled
    - Recyclable food trays used and cleaned off for recycling
    - Food recovery
      - Pre-packaged unused food stored in a share cooler on a weekly basis
      - Prepared food that does not get served stored in a freezer and donated at the end of the week

Recycling

Program Challenges

- Getting others to “buy-in”
  - Investing in new green equipment and chemicals
  - Training seasoned Custodians to change their ways
- Frequent training and updating
  - Staying current with chemicals, equipment, and techniques
    - Training required with each change
    - Sometimes confusion over what is currently correct

Program Benefits

- FMD goals are being met
  - Improved health and safety efforts
    - Custodians, school staff and students no longer exposed to harsh chemicals
    - Air quality is improved through the building management system
  - Improved Custodial services
    - More efficient
      - Team cleaning, new equipment, correct chemicals, training
  - Improved sustainability and energy conservation efforts
    - Generating majority of cleaning chemicals on-site
    - Building management system creating HVAC and lighting schedules
    - School recycling programs

Highlighting Key Aspects of Our Program

- **Team Cleaning**
  - High School
- **On-site Generation**
  - Generating cleaning chemicals on-site

Team Cleaning

At Wellesley High School

What is Team Cleaning?

- How does a landscaping crew work when they show up at a job?
  - Each person on a specific piece of equipment until entire job is done
    - Mower
    - Weed-whacker
    - Blower
    - Clean-up
- Why not clean the same way?
  - Each Custodian has an assignment
    - Bathrooms
    - Hallways
    - Stairwells
    - Trash
    - Vacuuming
    - Rotate assignments weekly

Benefits

- Efficient use of time
- Less total equipment needed
- Take pride and ownership over the whole building
  - Not just “my section”
- Employee familiarity with all techniques, equipment, and building tasks
- Can allow for changes and coverage when short-staffed

Challenges

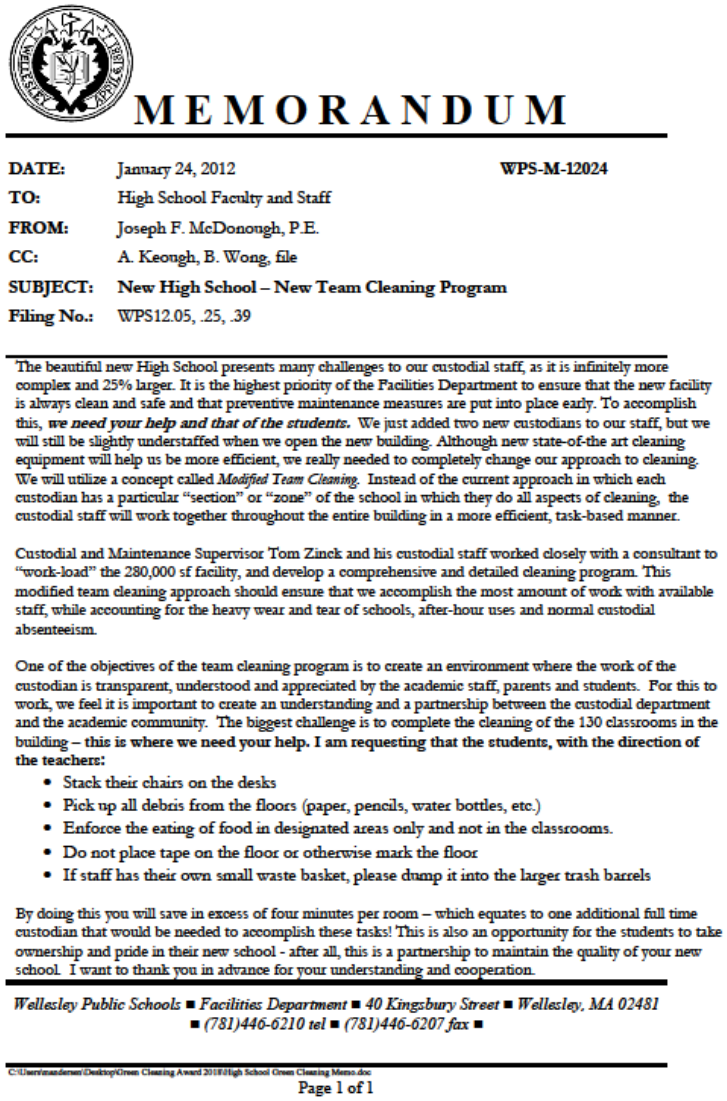
- Getting buy-in from employees
  - Some stuck in their “old-school” mentality
- School staff and student engagement
  - Need support to operate efficiently
- Altering the program to fit your building and staffing levels
  - Had help from a vendor sizing the workload
  - Adapted based on real cleaning times, building schedules, etc.

Wellesley High School

- Opened in 2012
- 280,000 square feet
- Typical High School things to work around:
  - After school programs, music lessons, athletics, staff staying late, banquets, concerts, plays, rentals
- Team Cleaning
  - 8 or 9 staff involved depending on the day
  - 8 different roles that rotate weekly

Staff and Student Engagement

- Memo sent out when team cleaning started
  - To both the Principals and the Superintendent
  - Asking for support
- Need help from students and staff to increase efficiency:
  - Chairs put up in each classroom at the end of the day
  - Teachers and students pick up larger items off the floo
  - One trash and one recycle barrel per room, both left near the exit door



MEMORANDUM

DATE: January 24, 2012 **WPS-M-12024**
TO: High School Faculty and Staff
FROM: Joseph F. McDonough, P.E.
CC: A. Keough, B. Wong, file
SUBJECT: **New High School – New Team Cleaning Program**
Filing No.: WPS12.05, .25, .39

The beautiful new High School presents many challenges to our custodial staff, as it is infinitely more complex and 25% larger. It is the highest priority of the Facilities Department to ensure that the new facility is always clean and safe and that preventive maintenance measures are put into place early. To accomplish this, ***we need your help and that of the students.*** We just added two new custodians to our staff, but we will still be slightly understaffed when we open the new building. Although new state-of-the art cleaning equipment will help us be more efficient, we really needed to completely change our approach to cleaning. We will utilize a concept called *Modified Team Cleaning*. Instead of the current approach in which each custodian has a particular "section" or "zone" of the school in which they do all aspects of cleaning, the custodial staff will work together throughout the entire building in a more efficient, task-based manner.

Custodial and Maintenance Supervisor Tom Zinck and his custodial staff worked closely with a consultant to "work-load" the 280,000 sf facility, and develop a comprehensive and detailed cleaning program. This modified team cleaning approach should ensure that we accomplish the most amount of work with available staff, while accounting for the heavy wear and tear of schools, after-hour uses and normal custodial absenteeism.

One of the objectives of the team cleaning program is to create an environment where the work of the custodian is transparent, understood and appreciated by the academic staff, parents and students. For this to work, we feel it is important to create an understanding and a partnership between the custodial department and the academic community. The biggest challenge is to complete the cleaning of the 130 classrooms in the building – **this is where we need your help. I am requesting that the students, with the direction of the teachers:**

- Stack their chairs on the desks
- Pick up all debris from the floors (paper, pencils, water bottles, etc.)
- Enforce the eating of food in designated areas only and not in the classrooms.
- Do not place tape on the floor or otherwise mark the floor
- If staff has their own small waste basket, please dump it into the larger trash barrels

By doing this you will save in excess of four minutes per room – which equates to one additional full time custodian that would be needed to accomplish these tasks! This is also an opportunity for the students to take ownership and pride in their new school - after all, this is a partnership to maintain the quality of your new school. I want to thank you in advance for your understanding and cooperation.

Wellesley Public Schools ■ Facilities Department ■ 40 Kingsbury Street ■ Wellesley, MA 02481 ■ (781)446-6210 tel ■ (781)446-6207 fax ■

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How We Made it Fit

- First started with a program based on square footage for assignments
  - Worked with a vendor who analyzed a building layout
  - Used our current staffing levels to help determine assignments
- Monitored cleaning times, “runs”
  - Performed each assignment several times, taking into account the type of square footage being cleaned
- Made changes to the size of each assignment
  - Make all assignments equal based on time
  - Most efficient use of the time each custodian is on the clock

How We Made It Fit

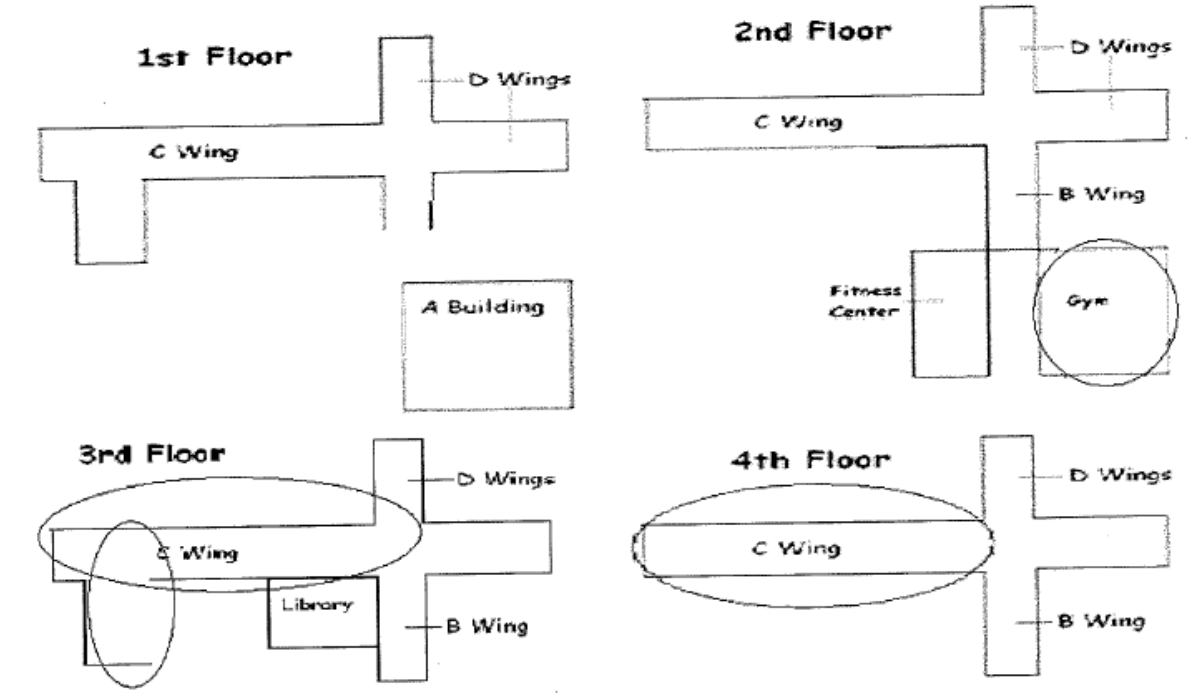
- **Assignment #1: On Call/Trash**
  - Be on call for school staff
  - Collect all classroom, office, and hallway trash
  - Help out where needed
- **Assignment #2: Vacuum 1**
  - Vacuum assigned areas
  - Spot mop classrooms
  - Clean assigned areas water fountains
  - Clean assigned areas glass and walls
  - Remove classroom black marks
- **Assignment #3: Bathrooms**
  - Clean and stock all gang bathrooms and faculty bathrooms
    - Use Kaivac when possible
  - Dust or Vacuum ceiling vents in Bathrooms (1-2 times/week)
- **Assignment #4: Hallways**
  - Remove hallway scuff marks
  - Sweep all hallways
  - Machine wash 1st floor halls (nightly)
  - Machine-Wash 2nd 3rd and 4th floor halls (rotating)
    - Spot mop halls that are not washed
  - Buff 2nd 3rd and 4th floor halls (rotating)
- **Assignment #5: Stairs**
  - Dust stairway rails and ledges (1-2 times/week)
  - Vacuum all stairs and entryways
  - Mop stairs (when needed/rotation)
    - Main Stairs and Lobby Stairs Nightly
  - Clean stairwell and entryway glass

Also have Vac 2, 3, and 4 roles

How We Made It Fit

VAC3 8 Min

3C, 4C, Locker Rooms, and Gym



Vacuum all classrooms and hall edges of the 3rd and 4th floor C Wings.

Vacuum the Locker Rooms (assist with other locker room cleaning if needed).

Sweep the gym.

Custodian's Opinion

- Started working as a Custodian in this team cleaning program
  - Started in 2012
- Now runs the operation
  - Starting in 2016
- Observations

On-Site Generation

An Overview

OSG – On-site Generation

Barrels with Uncontrolled Dilution

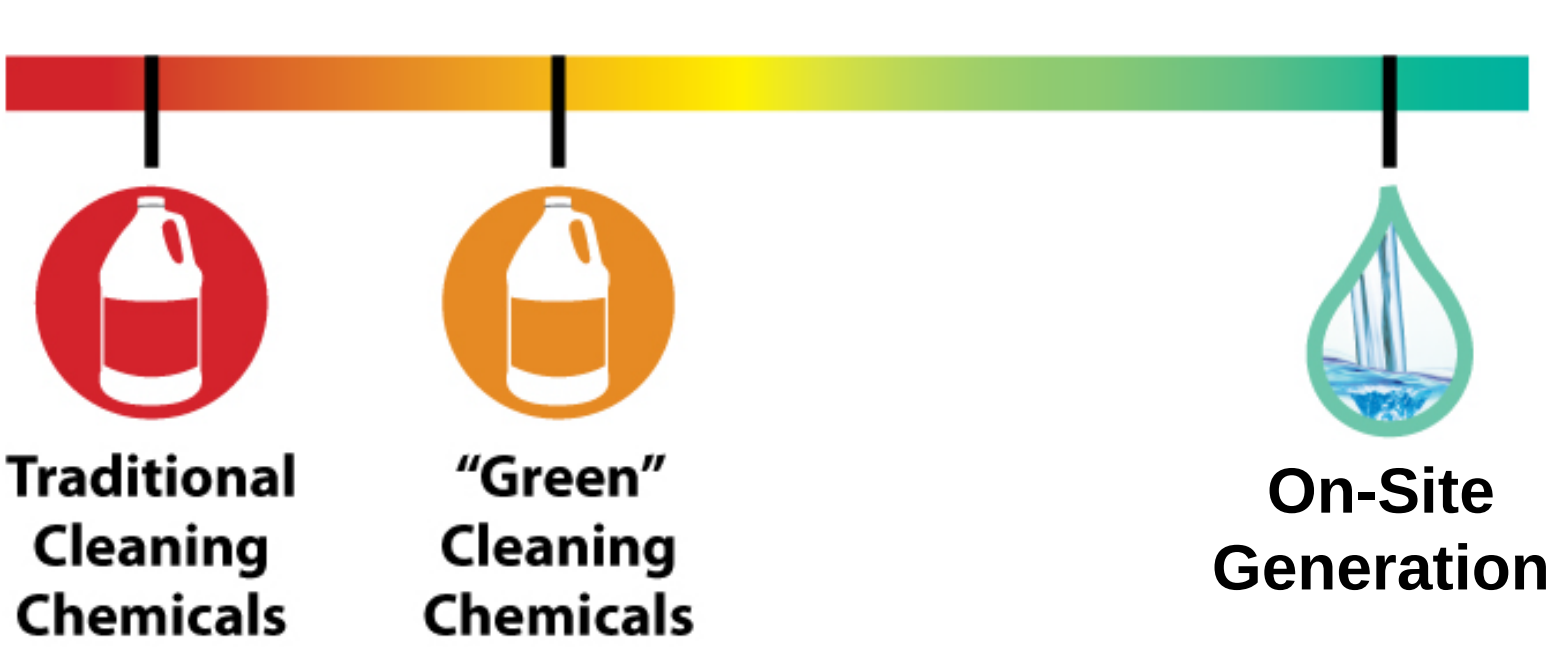
Concentrates with Dilution Control

On-Site Generation

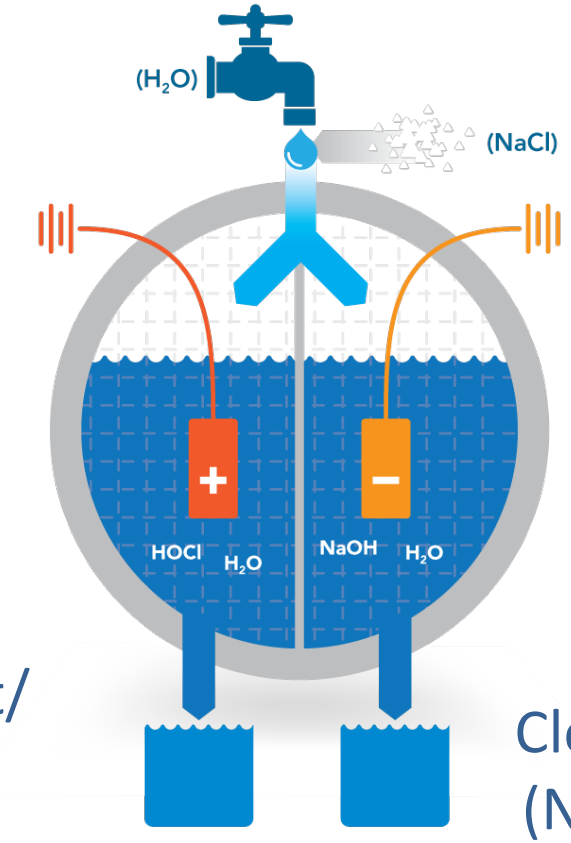
Evolution of Cleaning Chemicals

- Ordering
- Shipping
- Inventory
- Packaging

Evolution of Cleaning Chemicals



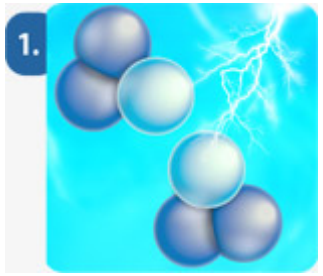
OSG Technologies – EAW Water Electrolysis



Disinfectant/
Sanitizer
(HOCl)

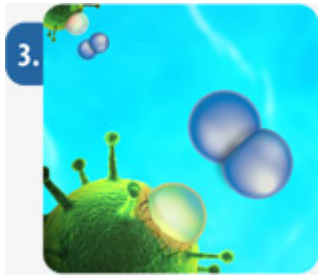
Cleaner
($NaOH$)

OSG Technologies – Liquified Ozone (O3)

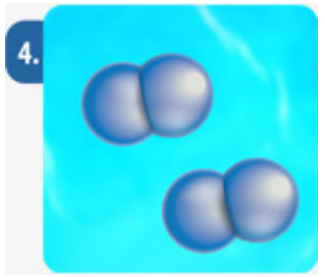


Extra Oxygen molecule added to stable O2.

Looks for a soil or bacteria to attach to.



Oxidizes



Returns to stable O2.

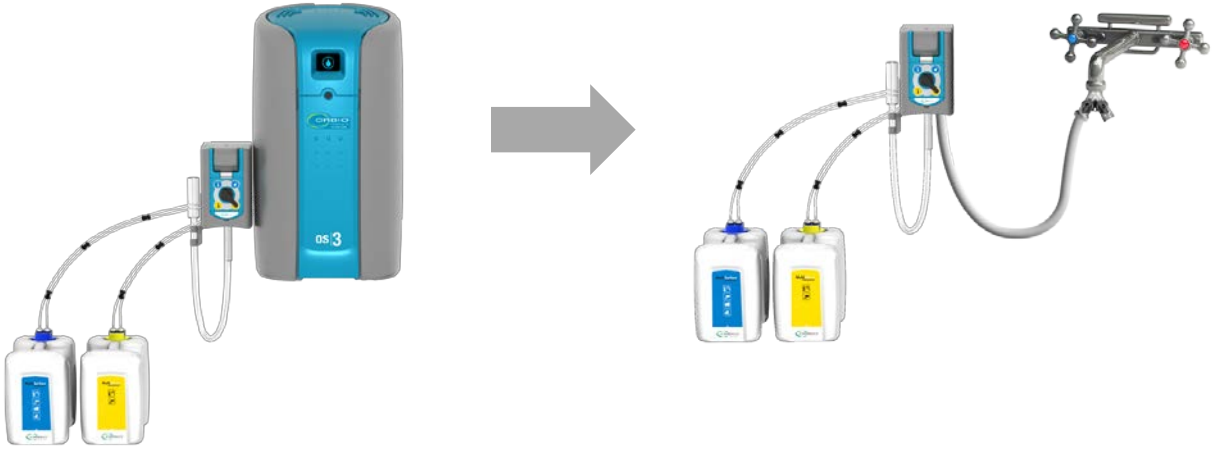
OSG Process Change

Conventional Packaged Chemicals

- Purchase concentrates, distribute, dilute to RTU
- “Dispenser in every closet”
- Expense $ budget

OSG

- Generate and Distribute
- RTU or Concentrate
- Capital $ budget



Implementation

1. Site Survey
    - Where are chemicals dispensed today? How much?
    - Locations for OSG devices (Central location)
2. ROI
    - Replaceable chemicals expense vs OSG device capital cost + wear items
3. Solution/device evaluation
4. Roll-out – install & train

OSG Supplier Questions

1. Who installs?
2. What is warranty?
3. Who services?
4. Who trains?
5. List of organism claims? (Organism Efficacy Summary)
6. What are the wear components? On-going costs?
7. What is the life expectancy of device?
8. What is the output shelf life?

Questions?

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Thank You!

- Visit **greencleanschools.org** for resources and to register for upcoming events.
- A recording of the webinar and the presentation will be posted to our website and emailed to attendees.
- Join us at Green Clean Schools ISSA/INTERCLEAN Education Track in Dallas October 29-30.