A modern, clean restroom with white tiled walls, white urinals and sinks, and blue stall dividers. The text "Focusing on Hygiene for K-12 and Higher Education Facilities" is overlaid in the center.

Focusing on Hygiene for K-12 and Higher Education Facilities

Presenters



Andrew Warnes
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Sloan Valve Company
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Sloan Valve Company
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Agenda

This presentation will cover:

- Why Sloan in K-12 and Higher Education?
- The importance of hygiene in educational facilities
- How design can impact hygiene in an educational setting
- Restroom options for improved hygiene
- Education facility restroom case studies
- Maintenance
 - Cleaning and disinfection for hygiene – recommendations for best practice
 - State and Provincial Educational Facility Guidance
- Summary



Why Sloan in K-12 and Higher Education?

Sloan invented the flushometer in 1906

- Global leader in smart, sustainable restroom design
- Serving educational institutions for more than 100 years and focused strictly upon the unique needs of the commercial customer
- Most frequently specified commercial restroom equipment with the world's largest installed base of commercial restroom products
- The go-to source for hands free restroom products to convert facilities from manual to automatic touch-free operation



THE ART OF
SUSTAINABLE
INNOVATION

Sloan Leads the Evolution of Commercial Restroom Options

Manual Technology

1906 – Sloan invented the manual diaphragm flushometer
1928 – Sloan invented the manual piston flushometer



Hardwired Technology

1974 – Sloan invented the automatic sensor faucet
1980 – Sloan launched the automatic sensor flushometer



Battery Technology

1992 – Optima Plus battery-powered faucets and flushometers



Hybrid Energy Technologies

2005 – EAF-275 SOLIS solar power harvesting faucet
2008 – SOLIS solar power harvesting flushometer
2012 – BASYS solar power harvesting faucet
2012 – BASYS 380 turbine capacitance faucet
2015 – BASYS 280 turbine IR faucet
2018 – Optima BT turbine faucet



How Many Schools in the USA?



K-12

- 56.6 million elementary, middle, and high school students
- 3.7 million teachers
- 132,853 schools
- \$680 Billion in annual expenditures



Higher Education

- 19.9 million college and university students
- 1.7 million teachers
- 5,300 schools
- \$584 Billion in annual expenditures

Source: National Center for Education Statistics (Fall 2019)

The Importance of Hygiene in Schools

Nearly 22 million school days are lost annually due to the common cold.

More than two-thirds (32 million) of school-aged children (aged 5-17 years) in the United States missed school in the past 12 months due to illness or injury.

Infectious disease accounts for millions of lost school days and cost the U.S. \$120 billion a year.

One study found that teacher illness-related absences averaged 5.3 days a year, in contrast to an average of 4.5 days a year for students.

One study involving Detroit school children showed that scheduled handwashing at least four times a day can reduce gastrointestinal illness and related absences by more than 50%.



Source: US Centers for Disease Control and Prevention (Healthy Schools, Healthy People, it's a SNAP)

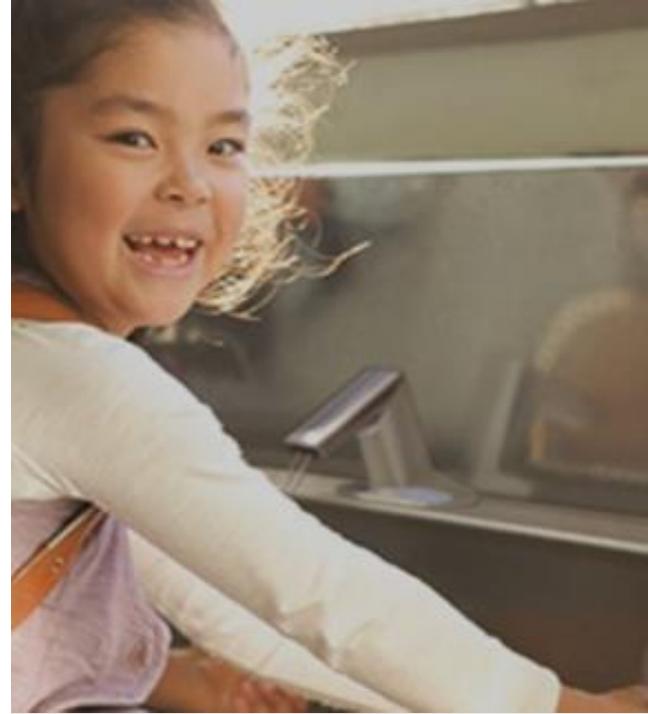
Challenging operating conditions...



Design & Hygiene are Linked

Design facilitates “standard precaution” best practices

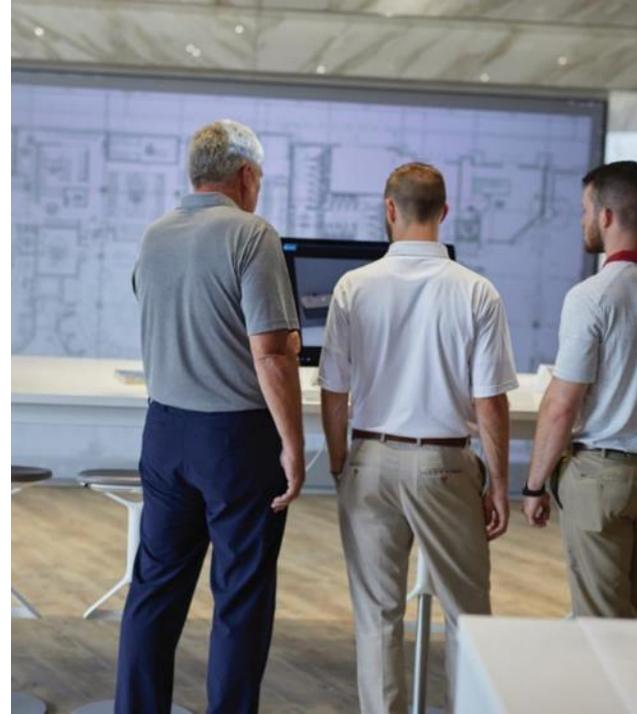
- Supports proper hand hygiene
 - Sufficient water volume and flow duration
 - Soap supply
 - Drying procedure
- Incorporates “touch-free” interaction
- Minimizes stagnant water supplies
- Minimizes potential injury or “slip and fall” risk
- Use is intuitive and enjoyable



Design & Hygiene are Linked

Design facilitates proper cleaning

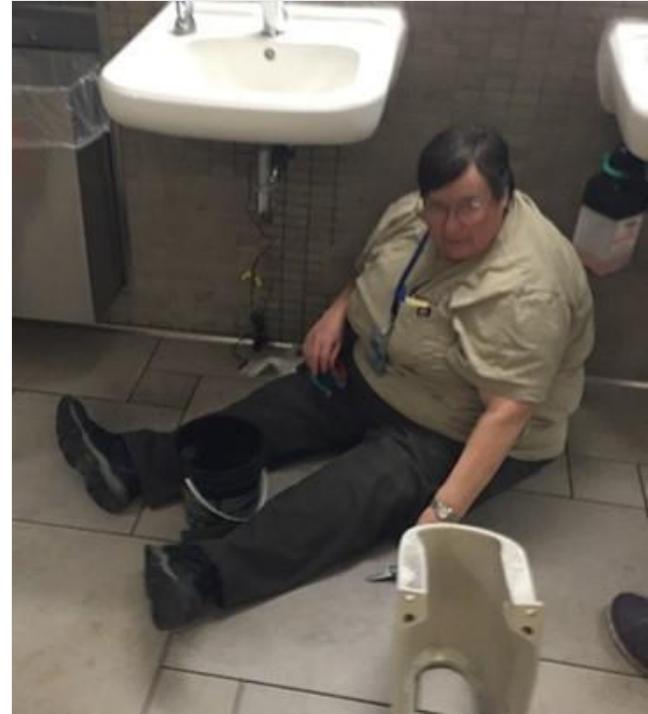
- Minimizes hard-to-clean surfaces
- Utilizes resilient surface materials
- Does not require complex cleaning procedures
- Minimizes cleaning time
- Minimizes cleaning labor



Design & Hygiene are Linked

Design facilitates proper maintenance

- Materials support ease-of-repair
- Capable of quick on-site seamless sink repair
- Ease of access to key components
- Standardized components
- Common power supplies with back-up if required



Design Considerations for Educational Restrooms

K-12 restroom locations:

- Student restrooms
- Teachers' lounge restrooms
- Locker rooms
- Nurse's office
- Athletic facilities
- Cafeterias
- Stadiums

Higher Education restroom locations:

- Student restrooms
- Student center
- Lecture halls
- Medical center
- Research facilities
- Dormitories
- Cafeterias
- Exercise facilities
- Stadiums

Most schools use manual flushometers, faucets, and standard ADA fixtures in most locations



Design Considerations for Educational Restrooms

K-12 restrooms

- Students leave water running
- Clog toilets by flushing improper items
- Don't throw away trash
- Deface walls and equipment
- Public K-12 facilities can be reluctant to step outside boundaries of traditional manual fixtures

Higher Education restrooms

- Same usage issues as K-12
- Universities more concerned about aesthetics than K-12
- Director of Sustainability advocates for sustainability of campus – concern with water conservation in retrofits or new construction
- More opportunities to step outside of traditional restroom design

Both need to work with increasingly sophisticated products but have fewer, less experienced personnel



Restroom Options for Improved Hygiene

Flushometer Activation Options

Manual Activation

- Most popular
- Simple, intuitive, and durable
- Requires physical hand touch



Sensor Activation

- Sensor activated flushometers use infrared (IR) technology
 - Detects user and flushes when they leave
- Flushes as programmed
- Touch not required



[Sloan Manual to Automatic Flushometer Conversion Training Webinar](#)

Flushometer Mounting Options

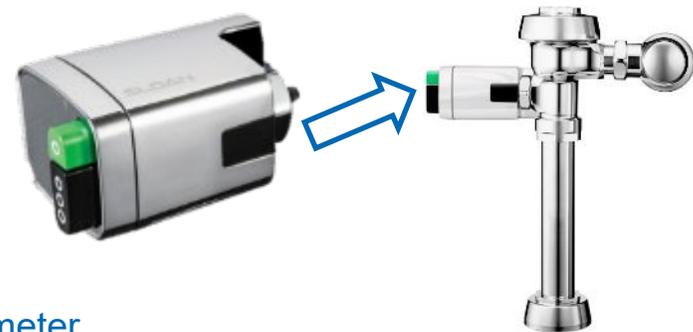
Top Mount

- More options
- Replaces cover and diaphragm assembly
- Water supply shut-off required
- Flush volume can be changed
- Battery or solar powered (4 “AA” batteries)
- **5-7 minute conversion time**



Side Mount

- Most popular
- Replaces or fits over handle assembly
- Water supply shut-off not required
- Flush volume stays the same
- Battery powered (4 “C” batteries)
- **1-5 minute conversion time** (depending on model)



[Sloan Manual to Automatic Flushometer Conversion Training Webinar](#)

CuVerro Flushometer Handles

Laboratory testing shows that, when cleaned regularly, CuVerro surfaces kill greater than 99.9% of the following bacteria within 2 hours of exposure:

- Methicillin-Resistant Staphylococcus aureus
- Enterobacter aerogenes,
- Pseudomonas aeruginosa
- E. coli O157:H7
- Vancomycin-resistant Enterococcus faecalis (VRE).



Side Mount Retrofit Kits



	SMO	SMOOTH	SFSM/DFSM
Model	EBV-89-A	EBV-200-A	EBV-500-A/550-A
4 “C” Alkaline Batteries	X	X	X
Battery Life	3 yrs	2-3 yrs	3 yrs
Override	Electronic	TMO	TMO
Dual Flush	-	-	DFSM
Installation	Replaces handle	Over the handle	Replaces handle
Low Battery Indicator	X	X	X
Estimated Installation Time	3 – 5 Min.	1 – 3 Min.	3 – 5 Min.

[Sloan Flushometer Retrofit Kit Brochure](#)

What is TMO?

T rue M echanical O verride

- When batteries are depleted and the sensor no longer operates the units can still be flushed manually
- “Non-Hold Open” design prevents intentional flooding



SMOOTH



SF5M



DF5M

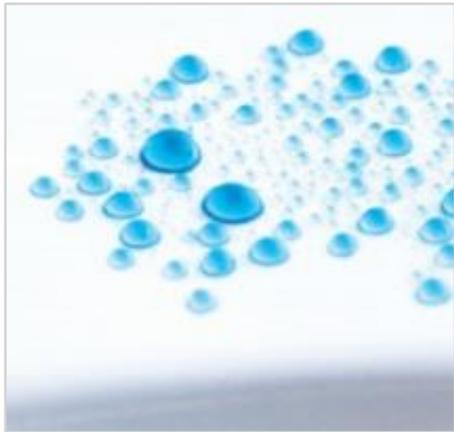
Top Mount Retrofit Kits

Average 5 – 7 min installation time



	SLOAN	MC	G2	ECOS	SOLIS
Flush volume – Closet (gpf)	1.28 to 4.5	1.28 to 1.6	1.6 to 4.5	1.28 & 1.6/1.1	1.28 to 3.5
Flush volume – Urinal (gpf)	0.125 to 1.5	0.125 to 1.0	0.25 to 1.5	0.125 to 0.5	0.125 to 1.5
“Stadium Flush” (urinals)				X	X
Cover Material	Plastic	Metal	Metal/Plastic		Metal/Plastic
Power					
4 AA Alkaline Batteries	X	X	X		X
Override Button	X	X	X		X
Diaphragm Bypass Filter	Linear	Dual	Dual		Dual
Battery Life	4 - 6 yrs	4 - 6 yrs	4 - 6 yrs		6 - 8 yrs

Sloan Fixtures with SloanTec® Glaze



SloanTec Hydrophobic
Glaze

[SloanTec Glaze Sell Sheet](#)



Water Closets



Urinals



Hybrid and Water-free



Lavatories

[Sloan Full Line Fixture Brochure](#)

Sloan Faucet Finder

Browse automatic sensor faucets by style, features, options, or certifications with the [Sloan Faucet Finder](#). Find your faucet, and easily drill down to individual spec sheets.

The screenshot displays the Sloan Faucet Finder interface with the following sections:

- Spout Design:** A grid of 20 faucet spout design icons.
- Finish:** Radio button options for Polished Chrome, Brushed Stainless, Brushed Nickel, Graphite, and Polished Brass.
- Power Type:** Four icons representing different power source options.
- Flow Rate:** A toggle switch between gpm and Lpm, with buttons for 0.35, 0.5, 1.0, 1.5, and 2.2.
- Mixer:** Five icons representing different faucet mixer configurations.
- Product Line:** Radio button options for BASYS*, Sloan*, and Optima*.
- Trim Plate (in):** Radio button options for 4 and 8.
- Mounting Type:** Radio button options for Deck and Wall.
- Compliances:** A list of 15 certification checkboxes, including ADA Compliant, ASME A112.18.1 Compliant, BAA Compliant, BREEAM Materials Credit, BREEAM Water Credit, CEC Compliant, CalGreen Compliant, Carbon Neutral, EPD, GPC 0.25 or less, Green Globes Materials & Resources Credit, Green Globes Water Credit, HPD, LEED Materials & Resources EPD Credit, LEED Materials & Resources HPD Credit, and LEED V4 Water Efficiency Credit.

Options for Touch-free Sensing Types



Infrared Sensor

- Senses the reflection of infrared light when a valid “target” is within range
- Range can be adjusted



Capacitance (Proximity) Sensor

- Senses the electrical field surrounding a valid “target” when within range
- Range can be adjusted
- **Cannot be used on metal sinks** (including enamel coated cast iron) or near large metal objects

Options for Key Component Access



Above Deck Access

- Service without having to work under the sink deck
- Spouts are larger and wider



Below Deck Access

- Spouts are thinner and sleeker controls can be mounted behind chases or in ceilings
- Service work is under the sink deck

What to Know before Selecting the Right Sensor Faucet

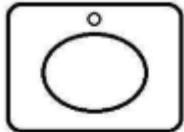
Site-specific details that will impact your choices

Existing Mounting Types

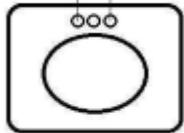
Deck Mount

Wall Mount

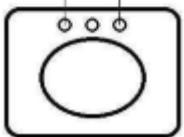
Single Hole



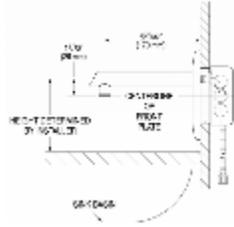
4" Center Set



8" Center Set



Deck Thickness



Wall Thickness

Chase Depth

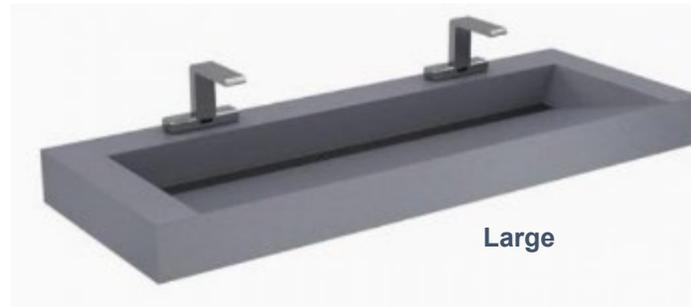
Basin type, size, depth, faucet mounting setback, mirrors, and shelves



Small



Medium



Large



Scrub



Pedestal



Vessel

Temperature Mixing Requirements

(Single or Dual Line?)



MIX60 Below Deck Manual Mixing Valve



MIX135 Below Deck Thermostatic Mixing Valve
ASSE 1070 Compliant



"ISM" Integrated Side Mixing Valve



"ITM" Integrated Thermostatic Mixing Valve
ASSE 1070 Compliant

Sink Components for Hygiene – Soap Dispensers

- Faucet-matching soap dispenser pairings
- Soap system options
 - Open systems – top fill (pour)
 - Closed systems – new bottle
- CDC, WHO, and Health Canada have issued guidelines against refillable, bulk soap dispensers



Sink Components for Hygiene – Hand Dryers

Hand Dryers vs. Paper Towels

“There are no differences in the efficiencies of removing bacteria from washed hands when hands are dried using paper towels, cloth towels, warm forced air or spontaneous evaporation.” – *Mayo Clinic Proceedings, Vol. 87, Issue 8*

“Researchers at Laval University in Quebec City evaluated bacterial contaminants found on unused paper towels and found 17 species of bacteria on the paper towels with the most common being Bacillus, which causes food poisoning.” – *American Journal of Infection Control, Vol. 40*

HEPA Filters

- Increase effectiveness of hand washing in touch-free hand dryers
- Remove 99.97% of bacteria and virus particles that pass through the hand dryer



ELWF-82000 with EAF-250 and ESD-2000

Best Sink Materials for Optimal Hygiene

- ✓ Vitreous china
 - Non-porous
 - Easy to clean
 - Inexpensive
- ✓ Solid surface (molded or fabricated)
 - Non-porous
 - Easy to clean
 - Repairable
 - Resistant to staining, scratching, and heat

[Sloan Sink Design Training Webinar](#)



DSG-83000 with PVD Graphite EFX-250, ESD-500

“The Good” Sink Options

Molded solid surface “Wash Station” sinks

- Easy access integrated head for ease of maintenance and installation.
- Sloan optima electronic sensors for hands free point of use activation
- Optional top filled gravity fed manual soap dispensers



“The Good” Sink Options

Molded solid surface sinks

- Updated styles available
- Faster lead times than fabricated
- Can upgrade the sink with faucets and soap dispenser
- Limited mounting types



“The Better” Sink Options

Fabricated Corian sinks

- Beautiful aesthetic
- Mid-range pricing
- Customizable design
- Dimension range
- Over 100 color options
- Durable
- Repairable
- Additional mounting types
- Finishes can upgrade the design

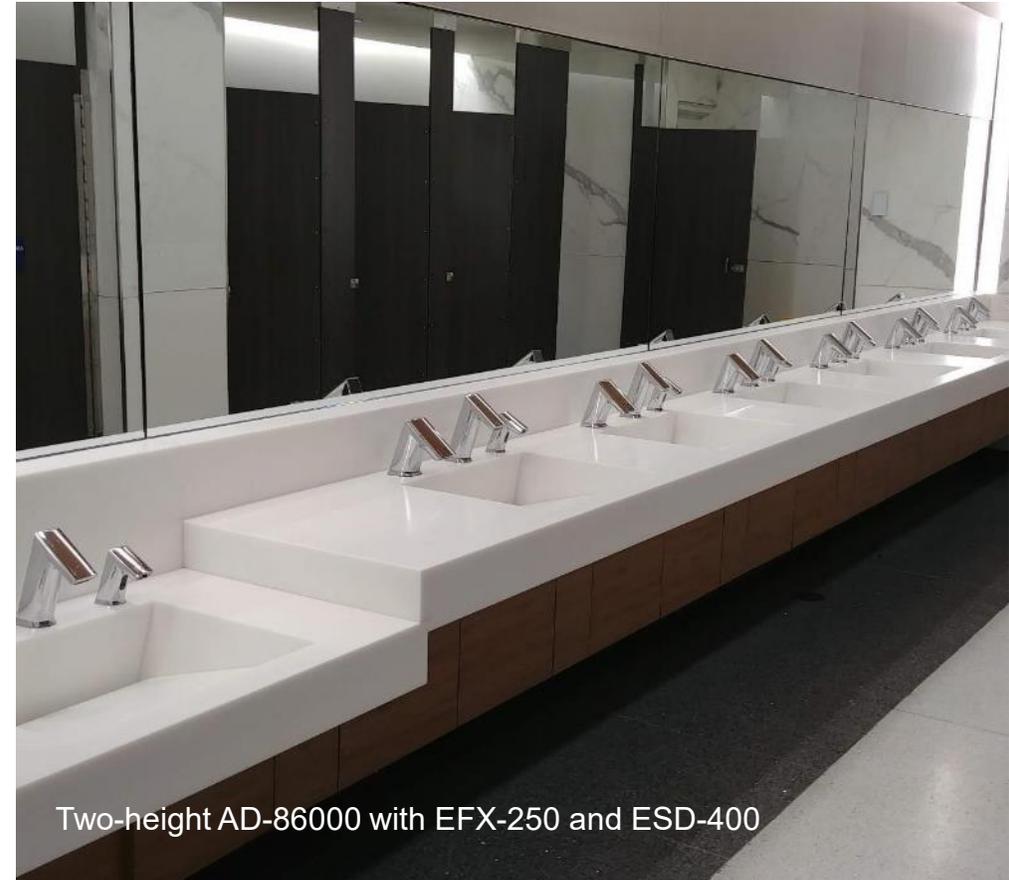


DSG-82000 with EFX-350

“The Best” Sink Options



AD-81000 with Baby Changing Station with EFX-250 and ESD-500



Two-height AD-86000 with EFX-250 and ESD-400

Case Studies

Click [HERE](#) to view Sloan case studies focused on education.



Kalamazoo Public Library
Kalamazoo, MI



University of Notre Dame
Notre Dame, IN



Corning-Painted Post Area School District
Painted Post, New York



Purdue University
West Lafayette, IN



Corona-Norco School District
Corona, CA



University of California Santa Barbara
Santa Barbara, CA



Northland Pines High School
Eagle River, WI



Yale University
New Haven, CT



Dirksen Middle School
Calumet City, IL



Benjamin Franklin High School
New Orleans, LA

Case Study – Corning-Painted Post Area School District, NY

\$100 million renovation to combine two district high schools and two middle schools

Dated buildings had been untouched since the late 1990s. The consolidation would double the student population of the high school and add almost 30% more students to the middle school, a total of approximately 4,800 students in grades K through 12.

“Sloan DSG-82000 sink [Two Station Gradient Basin] was selected for a couple reasons. One being aesthetics, since these are the first restrooms near school entrance, a visual and welcoming statement wanted to be made”



Case Study

University of Wyoming

Laramie, WY

- Selected SMOOTH
- Liked the true mechanical override and ease of install



Team Engravings



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University and the
University of Wisconsin



Courtesy of the Chicago Cubs. Cubs
logo not available for retail sale unless
approved by Major League Baseball

Training

Click [HERE](#) to access Sloan's webinar series training.



Thursday, 05/07/2020

Battery Truths & Myths

Learn how to evaluate battery-powered fixtures.

[Learn More](#)



Thursday, 04/30/2020

Commercial Restroom Recommendations for Return-to-Work & Facility Start-Up

Guidance and best practices for re-opening commercial restrooms.

[Learn More](#)



Thursday, 04/23/2020

Piston vs Diaphragm Flushometers

Learn the differences and benefits of piston and diaphragm.

[Learn More](#)



Thursday, 04/16/2020

Sloan Sinks - Designing with Hygiene, Quality and Customization

Review best practices of hygienic sink design.

[Learn More](#)



Thursday, 04/09/2020

Upgrading Manual Flushometers to Touch-free Sensor Operation

How touch-free can make for a more hygienic environment.

[Learn More](#)



Thursday, 04/02/2020

Replacing Manual Faucets with Touch-free Automatic Sensor Faucets

Best practices for replacing manual with touch-free faucets.

[Learn More](#)

COVID-19 Cleaning Guidance

For community facilities (schools, daycare centers, and business settings) that are visited by the general public

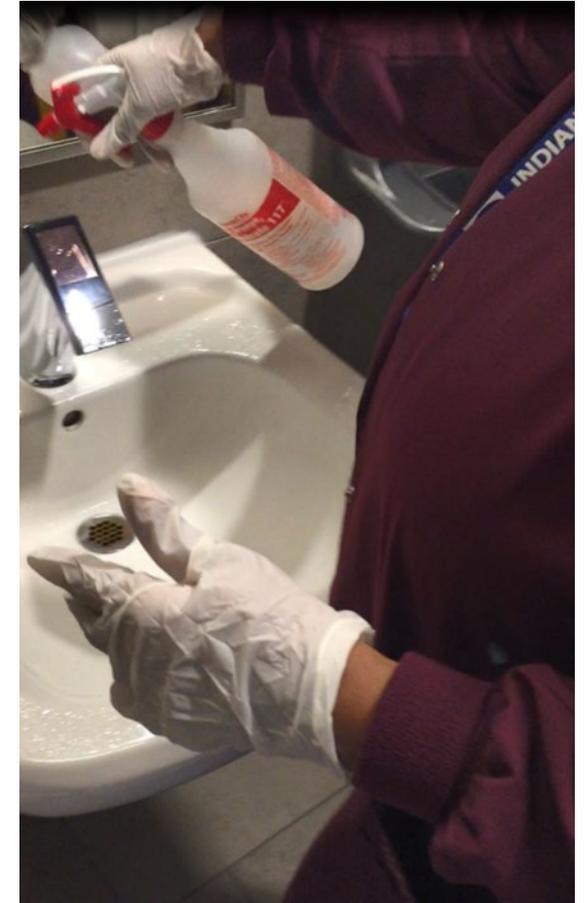
How to clean and disinfect hard (non-porous) surfaces:

- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, most common EPA-registered household disinfectants should be effective.
 - A list of products that are EPA-approved for use against the virus that causes COVID-19 is available. Follow the manufacturer's instructions for all cleaning and disinfection products for concentration, application method and contact time, etc.

[Link to Reopening Guidance](#)

[Link to CDC Cleaning Guidelines](#)

[Link to Approved Cleaning Products](#)



Facility Start-up Guidance



[US Department of Education](#)



[Centers for Disease Control and Prevention](#)



[National School Boards Association](#)



[National Association of Independent Schools](#)



[National Association of School Nurses](#)

[Sloan Commercial Restroom Recommendations for Return-to-Work & Facility Start-Up Training Webinar](#)

State & Provincial Education Guidance

USA

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[Alaska](#)

[Arizona](#)

[Arkansas](#)

[California](#)

[Colorado](#)

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Summary

- Poor indoor conditions cause:
 - Distractions
 - Health issues
- Improving the environment:
 - Enhances learning
 - Results in higher test scores
 - Increases attendance
- Proper hygiene to minimize spread of infection
- Proper and easy maintenance of restrooms is a chief concern in the education sector

There is a strong correlation between students' academic performance and a school's physical condition.



Source: US Centers for Disease Control and Prevention (*Healthy Schools, Healthy People, it's a SNAP*)

Summary

- High performance restrooms include:
 - Hygienic fittings
 - Water conserving fixtures
 - Easy to clean surfaces
 - Easy to maintain products
- The highest priorities for high performance schools are:
 - Health and safety of students, faculty and staff
 - Reduction of costs for districts

Applies to both retrofits and new construction.



Upcoming Sloan Training Webinars



May 21st

Regal vs. Sloan vs.
Royal



May 28th

PWT New Product
Launch



June 4th

Overview of Sloan
Touch-Free Faucets



June 11th

Introduction to
Sloan Touch-Free
Soap Dispensers

Questions?



Training Comments, Questions, or Suggestions?

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