

7/30/2020 10:28 Cami Brumley Sorry to all of you how are waiting, we will get started OFFICIALLY at 11 am  
The panelist will be discussing COVID-19 and HVAC. If you have any initial questions, please type them in the chat box before we get started.

7/30/2020 10:51 Ashley Williams You will also be able to type them during the session.

7/30/2020 10:51 Ashley Williams Good Morning! Hope you are all staying safe and well during this crazy Covid time.

7/30/2020 10:57 Tracy Avery Good morning everyone! I see lots of familiar names & I sure do miss your seeing ya'!!!

7/30/2020 10:59 Melissa Crizer I miss you Melissa!

7/30/2020 10:59 David Ledbetter Hey Dave!

7/30/2020 11:00 Melissa Crizer Good morning!

7/30/2020 11:00 Mike Franco I miss you too Melissa :)

7/30/2020 11:00 Glen Rhoden\_1 GLEN RHODEN!!!

7/30/2020 11:01 Melissa Crizer She just wants to be me today :)

7/30/2020 11:01 Ashley Williams Yep

7/30/2020 11:01 Kelly Campbell Yes!

7/30/2020 11:01 Selina Tovar yep

7/30/2020 11:01 David Ledbetter yes

7/30/2020 11:01 Mike Franco Yes

7/30/2020 11:01 Jay Bonham Yes

7/30/2020 11:01 Zach Fade Good Morning fine people

7/30/2020 11:02 Tracy Avery Yes, good morning Cami

7/30/2020 11:02 Andy Elmore yes

7/30/2020 11:02 Andy Elmore yes

7/30/2020 11:02 Marcia Coker Hi Jim and David! Greetings from Wylie!

7/30/2020 11:03 Keith Ordeneaux Hello everyone.

7/30/2020 11:03 Jonathan Hansen Good morning!

7/30/2020 11:03 Paige Maher Good Morning!!

7/30/2020 11:04 Alfredo Concha Good morning everyone.  
If you are a speaker, you should have heard from me (Ashley) last week. If you did not, please let me know.

7/30/2020 11:04 Ashley Williams Danny Helm and I are still awaiting your call Ashley

7/30/2020 11:06 Glen Rhoden\_1 I know, in the middle of Illinois right now :) ...travelling still. I will call tomorrow when I am home in St. Louis

7/30/2020 11:06 Ashley Williams Hello all

7/30/2020 11:07 Reagon Rich Good morning!

7/30/2020 11:08 mike prigmore

7/30/2020 11:09 Ashley Williams Each virtual course time will be split to cover 2-days, so a typical 4 hour course will be 2-hours each day

7/30/2020 11:09 Ashley Williams All of this is on the website for registration

7/30/2020 11:11 Ashley Williams haha

7/30/2020 11:13 Mary Scaggs Thanks for recording!

7/30/2020 11:17 Ashley Williams <https://www.ashrae.org/technical-resources/resources>  
TVA is offering rebates for UV-C sanitizing added using mercury arc lamps. I believe these are readily available for standard HVAC equipment.

7/30/2020 11:18 David Ledbetter Does a "two-hour flush" assume the fan being set on "continuous"? If it's set on "cycle

7/30/2020 11:19 Kelly Campbell Amen David!

7/30/2020 11:19 Danny Helm thank you

7/30/2020 11:21 Kelly Campbell David I think your question was more related to portable HEPA units in a classroom rather than putting HEPAs in the air handler? Depending on the size of the unit, you can effectively "scrub" the air with portable units

7/30/2020 11:21 Trey Fly Building Air Flush Requirements: CDC - 48 hours & ASHRAE 2 hours before and after occupancy? Which one should ISD follow?

7/30/2020 11:21 Aijaz Khan "purge cycle" we're not plumbers....just sayin

7/30/2020 11:21 Christopher Lay Can you post the ASHRAE article?

7/30/2020 11:22 David O BPI?

7/30/2020 11:22 Zach Fade Good morning all.  
<https://www.ashrae.org/about/news/2020/ashrae-offers-covid-19-building-readiness-reopening-guidance>

7/30/2020 11:22 Manny Villalobos Thanks, Ashley.

7/30/2020 11:22 Ashley Williams Thanks for the link

7/30/2020 11:23 Kelly Campbell <https://www.ashrae.org/about/news/2020/ashrae-introduces-updated-reopening-guide-for-schools-and-universities>

7/30/2020 11:23 Tracy Avery

7/30/2020 11:23 Ashley Williams

7/30/2020 11:23 Ashley Williams this one is newer  
7/30/2020 11:23 Ashley Williams I would search their resources, they have several

ASHRAE updated this release on 7/22/20 (<https://www.ashrae.org/about/news/2020/ashrae-introduces-updated-reopening-guide-for-schools-and-universities>)  
7/30/2020 11:24 Matt Yeilding  
7/30/2020 11:24 Ashley Williams Thank you, Matt

7/30/2020 11:25 Danny Helm There is no one solution. It will probably a combination of several options wouldn't you agree?  
You bet. This one is specific to Schools & Universities. Ashley, I'll email you their 41-page preso if you'd like to distribute.  
7/30/2020 11:25 Matt Yeilding  
7/30/2020 11:25 Ashley Williams Matt, that would be great

Just like Energy Conservation, starting with low hanging fruit. 1) Make sure your OAHU systems are operating correctly, 2) Commission your OA Dampers and controls. 3) Increase your MERV filter rating in your PM program. Agree with Mr. Brow with 2hrs of ventilation mode. before start of school.  
7/30/2020 11:26 Manny Villalobos From a filtration standpoint, I recommend that fans should be run 100% of the time even when the units are not cooling. Filters only work when air is moving through them.  
7/30/2020 11:27 Trey Fly What are your thoughts on the installation of Needle Point Bi-polar Ionization devices within AC, AHU's along with effective filtering? Research seems to show they are low maintenance and have effectiveness against COVID-19 within the air and it seems to be a solution to excessive outdoor air entry. Been hearing a lot about NPBI lately.

7/30/2020 11:28 Don Johnson  
7/30/2020 11:30 Andy Elmore it works Don.  
7/30/2020 11:31 Trey Fly This is a great and very relative study done by NAFA comparing the cost of filtration to the cost of added ventilation (outside air).  
<https://www.yumpu.com/en/document/read/33214963/nafa-wells-riley-hvac-filtration-for-infectious-airborne-aerosols>  
7/30/2020 11:31 Trey Fly  
7/30/2020 11:31 Steve Hanner To my knowledge, bi-polar ionization has not been proven to be effective on COVID-19.  
7/30/2020 11:32 Don Johnson Hi Andy. If you have invested n NPBI, how costly? Maybe on a per ton or a CFM basis?  
7/30/2020 11:33 Sean Holder When considering any NPBI product, make sure the particular product is not Ozone producing. UL 2998 certification should be required.  
7/30/2020 11:34 Manny Villalobos Tim/David - could you share your toughs about a 6-9 month filter & 9-12 month replacement filter vs the common standard 3-4 month filter. Do charged filter really decrease MERV rating shortly after installed?  
7/30/2020 11:34 Andy Elmore Don, give me a shout when done and i will send you some information on this and another similar product.....832-985-3130  
7/30/2020 11:36 Christopher Lay excellent point  
7/30/2020 11:36 Sean Holder ASHRAE recommends 1500 microwatts/cm2 for intensity as well.  
Standard BI is ozone producing. NPBI is reported as not. Ther my be an uptick in C)2, but I think that may be address with CO2 sensors and outdoor air control. I'm thinking still a lot less OA than what may be needed without NPBI.  
7/30/2020 11:36 Don Johnson  
7/30/2020 11:36 Don Johnson I will, Andy.

Most UV lights in the market are made to shine on the coil and kill anything there. Most of those do not have enough dwell time to kill the virus as it passes in the air. There are UV products out there that go in the duct parallel to the air flow to give the proper amount of dwell time.  
7/30/2020 11:37 Trey Fly

7/30/2020 11:37 Zach Fade reoccurring operations costs need to be identified because of yearly change out of bulbs by maintenance  
7/30/2020 11:38 David Ledbetter Currently the mercury arc lamp life is around 12000  
7/30/2020 11:39 David Ledbetter hours.  
7/30/2020 11:39 Don Johnson ongoing maintenance \$ an budgets. Good point, David.  
All these technologies and maintenance upgrades are a great start for a first line of defense, but what recommendations do you have related to the process for removing and replacing filters. PPE requirements? Disposal plan? Coil cleanings? How much risk are you placing on the maintenance staff that is responsible for fixing and maintaining the units?  
7/30/2020 11:39 Erik Gonzalez  
7/30/2020 11:39 David Ledbetter The LED lamp is not there with any consistency and the lamp life is much less so far.  
What safety measures or PPE are you going to use for the PM or HVAC Techs when they start changing filters after we start occupying the buildings again?  
7/30/2020 11:39 Steve Hanner  
7/30/2020 11:39 Trey Fly This is an in-duct UV system with 2 year bulbs. <https://sanuvox.com/product/biowall/>  
7/30/2020 11:43 Manny Villalobos Thank you all. Very Insightful!

7/30/2020 11:43 Trey Fly All of the synthetic MERV 13 filters that are in high demand right now, from all manufacturers, do not test at MERV 13A. They all can lose their efficiency over time. If you want a guaranteed MERV 13, you need to be looking at the Mini-Pleat style (typically made of fiberglass media)

7/30/2020 11:46 Trey Fly To add to what Tim said - We require gloves and N95 masks. In cases where we know COVID is present, we will wear HEPA respirators and take different measures for disposal, including disinfecting the filters and double bagging them before they are taken out of the mechanical room/roof

7/30/2020 11:48 Erik Gonzalez I think any disinfectant that is sprayed on a filter will require a "sit time". Check the chemical's label for the sit time before you remove and dispose the filters.

7/30/2020 11:49 Erik Gonzalez The sit time is also known as the contact time.

7/30/2020 11:50 Jay Bonham Do you have any good ideas for busses?

7/30/2020 11:51 Steve Hanner We are going to spray the buses between each route

7/30/2020 11:51 Steve Hanner Using electrostatic sprayers with virex

7/30/2020 11:51 Melissa Crizer PE credit !

7/30/2020 11:51 Jay Bonham Thanks!

7/30/2020 11:52 Glen Rhoden\_1 Kennedy was a good Democrat

7/30/2020 11:52 Steve Hanner We are going to open the windows too.

7/30/2020 11:53 julio Alonzo has anyone used uv wands

7/30/2020 11:54 Manny Villalobos Buses- Mostly likely we will increase bell schedules to allow time to mist in-between routes. Electrostatic sprayers for buses would be a great practice. We use accelerated hydrogen peroxide which has a 5 minute dwell time. It stays wet for 5 minutes then dries safely, no need to wipe it. Very quick to disinfect a bus, less than 5 minutes

7/30/2020 11:54 Trey Fly All great filtration points. Any Districts in the Houston area, interested in learning more about the HVAC Filtration options available to them can contact Camfil -Houston. Cade Blackwell 713-305-2641 or Brandon Stepp 832-250-9402

7/30/2020 11:55 Cade Blackwell The chat log will be included in the TEMA Can Help section, as well as the recording, given all of the links.

7/30/2020 11:56 Ashley Williams <https://texasema.org/tema-can-help.aspx>

7/30/2020 11:57 Ashley Williams This is also where past recordings are

7/30/2020 11:57 Ashley Williams No later than Monday, but probably tomorrow

7/30/2020 11:57 Zach Fade Galena Park ISD Custodial has purchased portable UV light stations to respond to Covid quarantined spaces. We are actively doing a study with engineers to present all best options.

7/30/2020 11:57 mike prigmore great job!!!

7/30/2020 11:58 Steve Hanner Is anyone else setting up separate clinics for covid?

7/30/2020 11:59 David Ledbetter There are several major lighting companies that offer both static and portable lighting equipment, including Hubbell lighting and Puro.

7/30/2020 11:59 David Ledbetter UV-C products.

7/30/2020 12:00 Sean Holder ASHRAE does include some guidelines specifically for Clinics within the previously mentioned guideline document.

7/30/2020 12:03 Ryan Boyce Thank for this amazing expert panel discussion. I am a risk solution professional for schools(in Houston area) and this discussion provides practical information and aids me in pointing frontline staff to possible solutions with a better understanding of cost, what you may incur in the future and what this benefits beyond CVOID-19. Thank you for the refocus on majoring on the major! This truly was an excellent discussion

7/30/2020 12:04 Ashley Williams Thank you! We were excited to offer this session.

7/30/2020 12:04 Trey Fly If anyone needs help with filters, UV, or electrostatic sprayers, we are happy to help. Have some stock, but we have never seen demand like this before. Everyone stay safe! [www.joeflyco.com](http://www.joeflyco.com)

7/30/2020 12:04 Don Johnson Good informative and educational session.

7/30/2020 12:05 Zach Fade Great Discussion Group

7/30/2020 12:05 Melissa Crizer THank you Jim, David, Chris, and Tim! Great information!

7/30/2020 12:05 Mary Scaggs\_1 UV lighting - door barrier units can complement the whole program. American Ultraviolet is one of our lines that addresses disinfection with light. HCSSupplies.com. A number of options.

7/30/2020 12:05 Trey Fly Thank you all, great presentation

7/30/2020 12:05 Kelly Campbell Thanks, folks.

7/30/2020 12:05 Marcia Coker	Thank you all. Great discussion!
7/30/2020 12:05 Paul Buckner	Thank you everyone!
7/30/2020 12:05 Mike Franco	Thank you!
7/30/2020 12:05 Tim Cantrell	Thank you everyone.
7/30/2020 12:06 Selina Tovar	Thank you for all the information!
7/30/2020 12:06 Jay Bonham	Than you very much for this rountable!
7/30/2020 12:06 Cade Blackwell	Thanks everyone!
7/30/2020 12:06 Manny Villalobos	Thank you hope to see you all in person soon! Be safe.
7/30/2020 12:06 Brandon Stepp	Thank you everyone!
7/30/2020 12:06 Tracy Avery	Thank you for the information and attention to detail in this crises. Great job, everyone. I do not envy the choices you K-12 districts have to make. There is a constant overflow of information, and obviously an immeasurable amount of responsibility. Best of luck to you all, and I hope we are supporting you well.
7/30/2020 12:06 Matt Yeilding	
7/30/2020 12:07 Ashley Williams	TO finalize schedule, if you are a speaker, please complete the speaker form.
7/30/2020 12:07 Chris Roberson	Thank you. Stay safe everyone