NORTH DAKOTA
Bismarck, Fargo, Grand Forks, Minot, Williston

MINNESOTA
Bemidji, St. Paul

SOUTH DAKOTA
Sioux Falls

eapc.net/COVID-safe-schools

EAPC
ARCHITECTS ENGINEERS

COVID-19

SAFETY FOR SCHOOLS

Mitigate the spread of airborne infectious diseases

ABOUT US

EAPC Architects Engineers (EAPC) is a multi-disciplinary Architecture, Engineering, and Consulting Professional Corporation with offices in Bismarck, Fargo, Grand Forks, Minot, and Williston, ND; Bemidji and St. Paul MN; Sioux Falls, SD; Phoenix, AZ; and Fort Collins, CO.

EAPC

Teachers, cleaning staff, administration, coaches, and bus drivers all have unique scenarios to consider.

Our goal is to give them the knowledge and confidence to reopen safely this fall.

To provide guidance to schools, the NDSC and EAPC created free virtual training courses in partnership with multiple agencies, including the ND Department of Public Instruction and ND Department of Health.

OUR PRIORITY HAS ALWAYS BEEN SAFETY

EAPC Architects Engineers is no stranger to education design. We have been creatively providing 21st century design solutions for K-12 schools for over five decades. Renovations, additions, or new facilities, we have worked with districts across our region to mesh function and flexibility with innovation and style.

Safety in our schools has become a top priority over the last few years and EAPC has put a strong emphasis on how to assist districts in combatting threats. In 2018, we created an initiative called "Design for School Safety". This initiative focuses on design considerations that help mitigate violence and protect those we care about the most. Today, this initiative has expanded to include the invisible threat of COVID-19. We are collaborating with school leaders to understand their greatest challenges, then creating solutions to meet their needs, while following safety guidelines, for distant and in-person teaching.

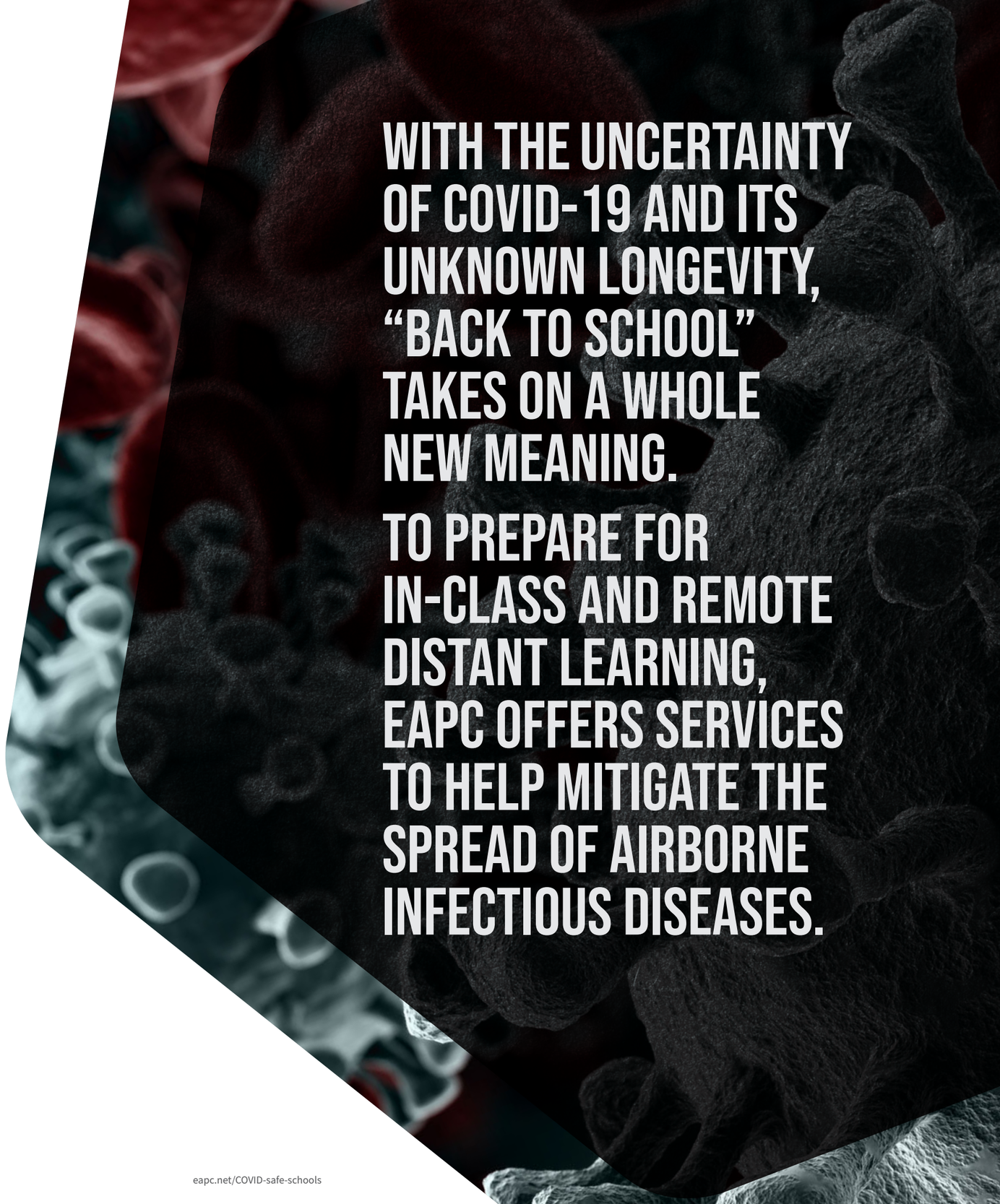
EAPC is here to help you through this time of uncertainty. We will work with you to reduce the spread of infectious airborne diseases so you and your staff can do what you do best. Educate our most treasured assets.

125 CREATIVE PEOPLE WORKING AS A TEAM

52 REMARKABLE YEARS OF ACHIEVEMENTS

10 WHEREABOUTS THROUGHOUT THE NATION

25+ SCHOOL DISTICTS SERVED IN THE MIDWEST



WITH THE UNCERTAINTY OF COVID-19 AND ITS UNKNOWN LONGEVITY, "BACK TO SCHOOL" TAKES ON A WHOLE NEW MEANING.

TO PREPARE FOR IN-CLASS AND REMOTE DISTANT LEARNING, EAPC OFFERS SERVICES TO HELP MITIGATE THE SPREAD OF AIRBORNE INFECTIOUS DISEASES.

How can we help you
welcome students back
this fall with confidence?

SERVICES

SLOW THE SPREAD

DESIGN SPACE CONSIDERATIONS

How to best arrange and utilize spaces to avoid the spread of airborne infectious diseases.

- Entrances
- Corridors
- Classrooms
- Gymnasiums
- Cafeterias
- Other

MECHANICAL SERVICES

HVAC upgrades and building maintenance strategies to improve indoor air quality and mitigate the spread of airborne infectious diseases.

- Mechanical Systems Assessments
- HVAC Systems Controls
- Air Change Rates
- Classroom Density Analysis
- HVAC System Upgrades
- Controling Micro-Organisms
- Harmful Air Born Particles
- Maintenance
- HVAC System Operation

FACILITY ASSESSMENTS

Architectural and mechanical inspections and reporting.

- Existing Facility & Systems Review
- Reopening Options Presentation
- Immediate & Long-Term Recommendations
- NDSC Safety Assessment

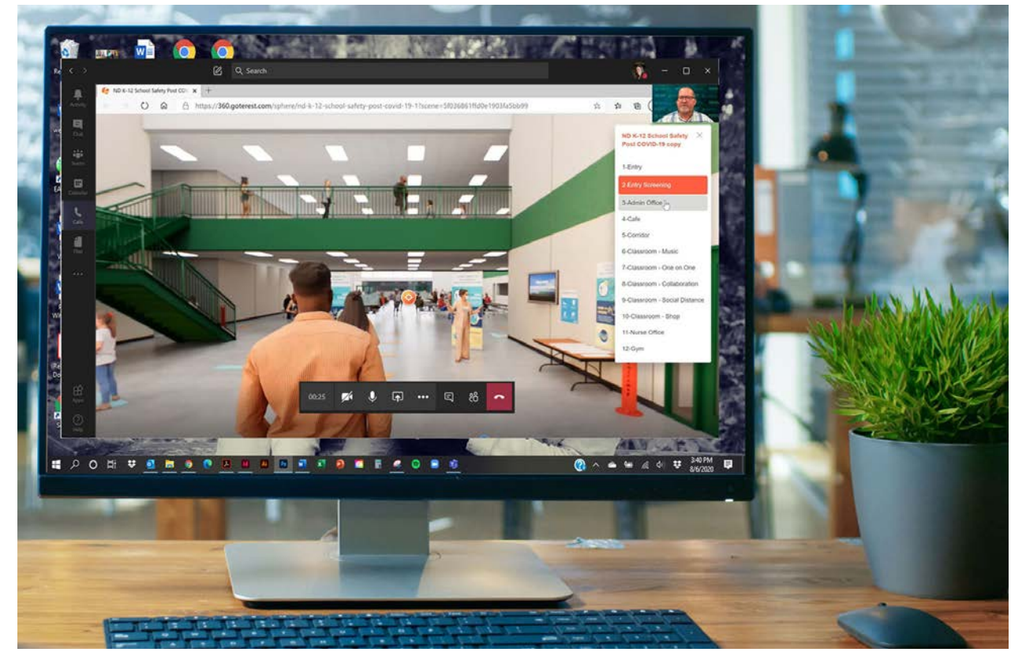
EDUCATIONAL WORKSHOPS

Free virtual training courses on cleaning procedures, hygiene, shared equipment, and more.

- Classroom Considerations
- Operations & Transporation Considerations

DESIGN SPACE CONSIDERATIONS

We know our friends in the education world are working hard to put in place systems and new processes that will help control the spread of COVID-19 and other infectious diseases.



EAPC has been listening to the concerns and needs of superintendents to best understand space and distancing concerns during the COVID-19 pandemic.

Together with their ideas, our research and use of best design practices, while following CDC guidelines, we have created a virtual walk-through to offer design considerations for a variety of spaces including entrances, corridors, classrooms, gymnasiums, cafeterias, and more.

WALK THROUGH A COVID-SAFE EXAMPLE SCHOOL

In this virtual walk-through, EAPC Educational Design Consultant, Sean Sugden explains each area with options on how to best arrange and utilize spaces to avoid the spread of airborne infectious diseases.

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MECHANICAL SERVICES

EAPC offers HVAC upgrades and building maintenance strategies to improve indoor air quality and mitigate the spread of airborne infectious diseases.

MECHANICAL SYSTEMS ASSESSMENT

Assess mechanical systems to ensure outside air quantities meet code and system capacities for incorporating more outside air.

Provide filtration upgrades and system capacities for improving the efficiency of your filters.

HVAC SYSTEMS CONTROLS

Verify current controls and provide options for improved indoor air quality.

AIR CHANGE RATES

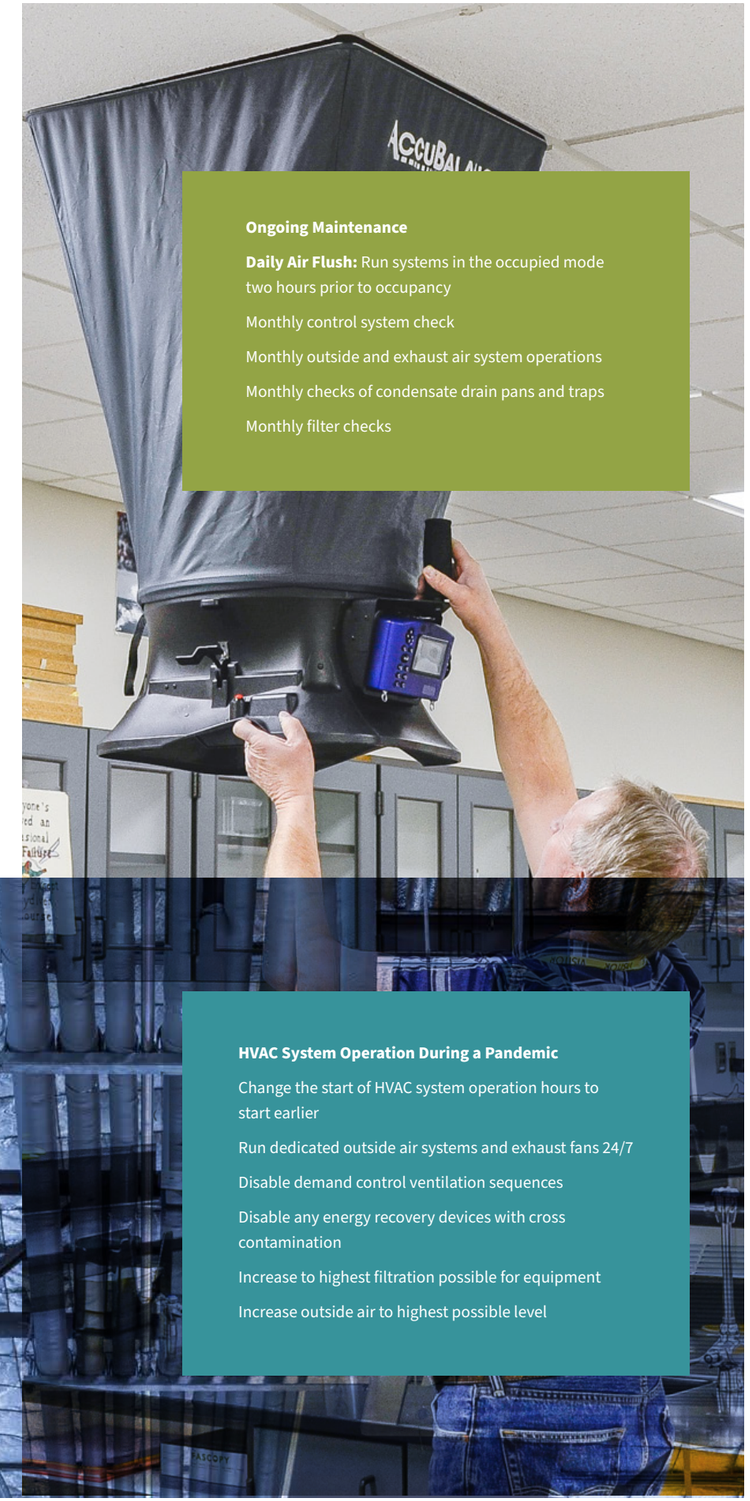
Verify that occupied spaces have the recommended air change rates.

CLASSROOM DENSITY ANALYSIS

Determine the density based on outside air flow rates and current code requirements.

HVAC SYSTEM UPGRADES

Offer product solutions such as UV lights, Ionization, filtration, etc. to help mitigate virus spread.



Ongoing Maintenance

Daily Air Flush: Run systems in the occupied mode two hours prior to occupancy

Monthly control system check

Monthly outside and exhaust air system operations

Monthly checks of condensate drain pans and traps

Monthly filter checks

MAINTENANCE ITEMS CHECKLIST PRIOR TO OCCUPANCY

Check supply, return, exhaust, and outside air louvers for blockages

Address any areas of complaints or deficiencies from staff

Complete any preventative or deferred maintenance items that could improve indoor air quality

Review all control sequences and verify operation

ASHRAE checklists 1 and 2

Air Flush: Operate HVAC systems in occupied mode for 1 week prior to occupancy

Water Flush: Flush cold-water system for 5 minutes and hot-water system for 15 minutes

Verify filter installation

Verify outside air rates and increase to code minimums

Verify temperatures

HVAC System Operation During a Pandemic

Change the start of HVAC system operation hours to start earlier

Run dedicated outside air systems and exhaust fans 24/7

Disable demand control ventilation sequences

Disable any energy recovery devices with cross contamination

Increase to highest filtration possible for equipment

Increase outside air to highest possible level

UNDERSTANDING HVAC SYSTEMS TO CONTROL MICRO-ORGANISMS

There are three basic approaches to using HVAC to control micro-organisms and other fine particulates. Generally, a combination of these is required for effective hazard control, and schools are doing these already. This is a time to thoughtfully review and adjust for the added hazard of COVID-19 as addressing one hazard may unintentionally create another.

Air Flow & Replacement Air

Ensure proper flow of filtered/replacement air is maintained and replace as much air as is feasible with clean outside air

Consider how opening and closing doors for noise or traffic control may affect the air flow of your building and adjust accordingly

Removal/Capture of Particulates/Micro-Organisms

Increase filtration to a preferred MERV rating of 13 or higher if your system can handle it

Add in-room air exchangers with a HEPA rating for larger rooms or hallways

Maintain a relative humidity between 40% and 60%

Consider an Electronic Particle Polarizing Filtration Media (this system can be large and hard to retrofit into existing systems)

Install Bi-Polar Ionization Air Cleaning Units (be aware that some systems produce ozone which is harmful)

Sanitizing/Killing Infectious Micro-Organisms in the Air Stream

Ultraviolet light sanitizing units in the 240-280NM wavelength (UVC) have proven effective aids to reducing infectious aerosols

UV Light can be harmful to filter media if exposed

Elements need cleaning and yearly replacement

Direct UVC exposure is hazardous to humans; eye and skin damage can occur in seconds

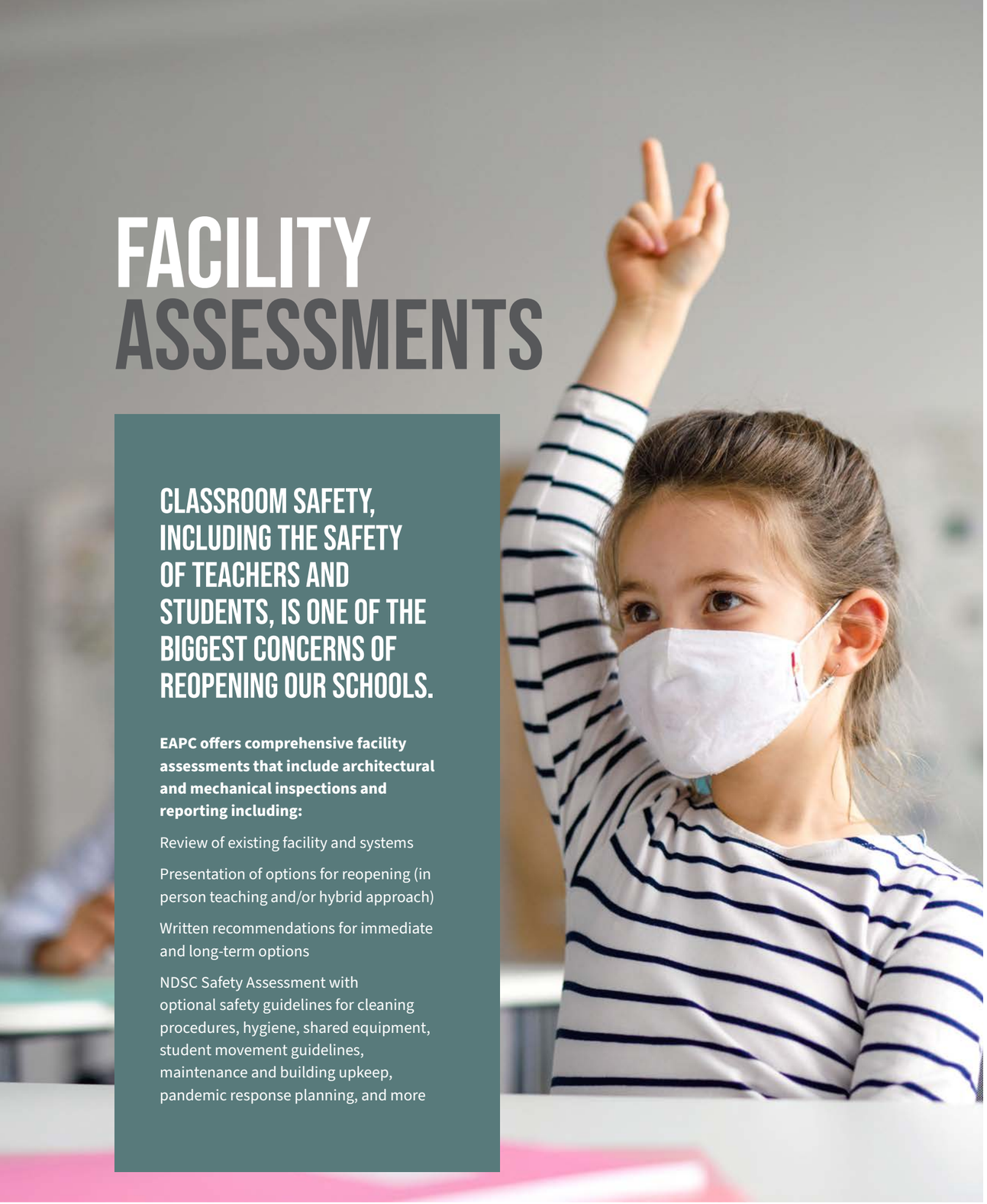
OPTIONS FOR CONTAINING HARMFUL AIR BORN PARTICLES

Consider creating a negative pressure room for quarantining symptomatic students.

Neutralize pressure room with a negative pressure switch or continuous negative pressure room

Creating a negative pressure zone in a single small room could be as simple as adding a bathroom exhaust fan directly to the outside and blocking the air returns

FACILITY ASSESSMENTS



CLASSROOM SAFETY, INCLUDING THE SAFETY OF TEACHERS AND STUDENTS, IS ONE OF THE BIGGEST CONCERNS OF REOPENING OUR SCHOOLS.

EAPC offers comprehensive facility assessments that include architectural and mechanical inspections and reporting including:

Review of existing facility and systems

Presentation of options for reopening (in person teaching and/or hybrid approach)

Written recommendations for immediate and long-term options

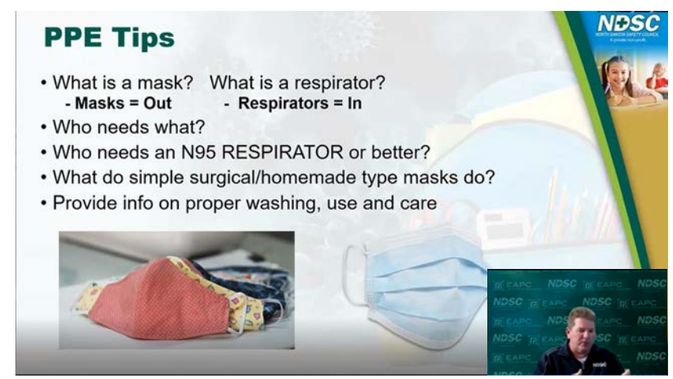
NDSC Safety Assessment with optional safety guidelines for cleaning procedures, hygiene, shared equipment, student movement guidelines, maintenance and building upkeep, pandemic response planning, and more

EDUCATIONAL WORKSHOPS

FREE VIRTUAL TRAINING COURSES

To provide guidance to schools, the North Dakota Safety Council (NDSC) and EAPC created free virtual training courses in partnership with multiple agencies, including the N.D. Department of Public Instruction (DPI) and N.D. Department of Health (NDDoH).

The free series, titled COVID-19 Safety for Schools, took place throughout June and July. The trainings included a brief overview of COVID-19 characteristics and how those characteristics impact cleaning procedures, hygiene, shared equipment, and more.



FREE ACCESS TO OUR PRE-RECORDED WEBINARS

Available to download at www.ndsc.org

The NDSC and EAPC developed these courses in partnership with DPI, NDDoH, N.D. Council of Educational Leaders, N.D. School Boards Association, N.D. United, NuVation Health Services, N.D. Small Organized Schools and Sanford OccMed.

COVID-19 Safety for Schools: Classroom Considerations Webinar

COVID-19 Safety for Schools: Operations and Transportation Considerations Webinar

If your school needs additional consultation or would like to set up a workshop or virtual webinar, contact the NDSC at 701-223-6372 or go to www.ndsc.org.

LET'S WORK TOGETHER TO MAKE SURE
YOU ARE READY FOR "BACK TO SCHOOL",
NO MATTER WHAT THAT LOOKS LIKE

MITIGATE THE SPREAD OF AIRBORNE INFECTIOUS DISEASES

We help create solutions to meet your needs, while following safety guidelines, for distant and in-person teaching.

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