STATE OF SOUTH CAROLINA

DEPARTMENT OF EDUCATION

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STATE SUPERINTENDENT OF EDUCATION

DRAFT: AccelerateED Task Force

Guidance and Recommendations for 2020-21 School Year

June 15, 2020

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Introduction

As a result of the COVID-19 pandemic and state of emergency declared by Governor Henry McMaster, South Carolina school facilities were closed for in-person instruction from March 16, 2020 to the end of the 2019-2020 school year. During this time, students, families, and educators across South Carolina have experienced an unprecedented disruption to learning, teaching, and daily life. While educators, parents, guardians, and caregivers across the state have partnered together to develop and deploy an incredible array of resources to meet the academic, social, and emotional needs of our students, it is undeniable that things have been lost - from learning, to moments, to the daily relationships and interactions that give so many students in South Carolina a sense of safety and wellbeing.

As we move into the 2020-21 school year, our state's education system will continue to face extraordinary, new challenges that will require unprecedented levels of cooperation and coordination among students, families, staff, and school communities.

To assist schools and districts in these efforts, State Superintendent of Education Molly Spearman convened AccelerateED, a task force composed of educators and administrators representing all aspects of the K-12 public education system. In the task force's first meeting on April 30, 2020, Superintendent Spearman charged the members with studying barriers to school operations and student learning during the COVID-19 pandemic and providing recommendations on how schools and districts can best meet the needs of struggling learners in the summer and restart the state's public education system in the fall. On May 26, 2020, AccelerateED released its first report with recommendations for how to proceed with summer learning activities. The task force then turned its full attention to the start of the 2020-21 school year, and as a result of twenty-five meetings, put forth the considerations and recommendations outlined within this document.

In making these recommendations, AccelerateED addressed school operations in the current pandemic environment with the guiding principles of first protecting the health and safety of our students, staff, and families and second fostering teaching and learning in an environment that is as close to normal as the first principle allows. Recommendations and guidance are organized into four phases: Immediate Actions, Summer Planning and Preparation, Pre Opening, and Reopening and Continuity of Operations. Within each phase, recommendations are broken down by traditional district operational areas.

The conditions, current public health landscape, and growing body of knowledge surrounding COVID-19 continue to evolve. This reality presents challenges to planning, preparing, and guiding school operations. The South Carolina Department of Education (SCDE) will continue to coordinate with the South Carolina Department of Health and Environmental Control (DHEC) and other relevant governing bodies to provide guidance and best practices to districts to inform their decision making for reopening schools and ensuring a successful 2020-21 school year. Districts and schools are encouraged to communicate with local authorities and always adhere to the most recent recommendations from the Centers for Disease Control and Prevention (CDC) and DHEC. This guidance is not mandated nor state required. Local school districts continue to have the authority and flexibility to address their individual needs and be responsive to their local communities.

Phase 1: Immediate Actions
In addition to conducting existing summer operations and instructional opportunities, it is imperative for districts to use the early summer to establish the frameworks and processes necessary to lay the foundation to be fully prepared for the resumption of school in the fall.

State Government and Agencies

1. **Health and Safety Infrastructure Grants-** Many school buildings will need physical enhancements in order to improve health and safety for students and staff. Some of these could include installing plexiglass in front offices to separate staff and visitors, dividers in nurses' areas to create isolation areas; permanently mounted hand sanitizer stations, HVAC filtering systems, or creating spaces for telehealth evaluations. However, these types of facilities improvements are likely to stretch beyond the financial resources of many districts. As a result, the General Assembly should consider the creation of a Health and Safety Infrastructure Grant to make additional resources available to districts.

2. **Purchase of PPE-** The AccelerateSC task force has recommended (Recommendation 19 and 21) that the Department of Administration and the Emergency Management Division take the lead in PPE procurement and state implementation plan for a state stockpile of PPE. This action will take advantage of the state's buying power to get the best possible pricing and quantities of PPE. While SCDE has already taken steps to provide cloth face masks for all teachers in the fall, it should be noted that cloth face coverings are not PPE, as they are intended to protect others from the wearer with any protection to the wearer being highly variable. As a result, face shields may be necessary for some staff at higher risk from COVID-19, and these masks may be preferable to teachers (especially of younger students) so their full face is visible to students.

Communications

1. **Local Task Force for Reopening Schools-** If a district has not already done so, it should establish a reopening "team" or "task force." This team should consist of a diverse representation of the community, which should include (but is not limited to) administrators, staff, parents (especially PTA and SIC members) and students (where age-appropriate). In addition to developing district plans for reopening school in the fall, the group should develop protocols to keep the community regularly updated on district planning.

2. **Establishing Two-Way Communications-** In addition to sharing information, districts should provide opportunities for meaningful feedback from the community. This includes opportunities for the community to share feedback on their experience with distance learning in spring 2020, new safety protocols, and the potential impact of proposed school operations in the fall on families and businesses.

Human Resources, Finance, and Administration

1. **Survey of Staff-** At the earliest practical time, districts should survey staff to identify those with conditions that could prevent their return to normal in-person job duties in fall 2020. These conditions could include, but are not limited to, underlying health conditions that increase risk from exposure to COVID-19 or living with and caring for individuals

with underlying health considerations. Districts should use this information to develop plans for how to meet the instructional needs of students while accounting for the health needs of staff. The collection of survey data should maintain confidentiality consistent with the ADA as well as other applicable state and federal privacy laws.

2. **Staffing Needs Assessment-** Districts should conduct a needs assessment for school counselors, school psychologists and social workers, including a comparison of current caseloads versus the standards of national association guidelines (Appendix A).

3. **Preparing for Staff Social and Emotional Needs-** In addition to preparing for the social and emotional needs of students, districts should develop plans to make available and deploy resources to meet the needs of staff members that have experienced trauma as a result of COVID-19. These resources could include:

    a. **Mental Health Crisis Response Teams-** Schools and districts should also consider establishing a mental health crisis response team focused on student and staff mental health and wellness. The team could include, but not be limited to: a school counselor, special education staff, outside agency therapist, a teacher, school nurse, and administrator trained in trauma awareness. The team would develop a referral system for students and provide resources for staff self-care in efforts to provide ongoing support after COVID-19. A district liaison could be appointed to communicate directly with the SCDE to gather and access newly available resources for student and staff mental health and wellness support.

    b. **Triage Protocol-** A triage protocol is needed to assist in identifying individuals (staff and students) requiring interventions at various levels (beyond the initial corporate "check-in"). Those identified needing additional support will process through the protocol for referral to the crisis response team or student support services personnel (e.g. nurses, school counselors, school-based mental health counselors, social workers, school psychologists, referrals to community-based mental health services.)

    c. **Resources-** Districts should evaluate their capacity to provide resources to staff that include- but are not limited to- Employee Assistance Programs or district-provided counseling and mental health resources.

Facilities, Transportation, and Operations (including food services)

1. **Addressing the Digital Divide-** The SCDE and districts should work throughout the summer to use available resources to provide digital access (devices and broadband) for as many students and staff as possible by the start of the 2020-21 school year. Districts should also review and revise technology plans to determine potential steps to expand the number of students with access to devices and broadband outside of school.

2. **Continuance of Wraparound Supports-** Throughout the summer, districts should seek the continuation of wraparound supports for students, such as school meals and access to counseling.

Instruction and Student Services

1. **Determining Student Attendance-** According to recent surveys, there is a strong possibility that some parents will not allow their children to return to school even in the event of the resumption of "normal" operations in August. For example, a May 26th USA Today poll found that nearly 30 percent of parents are "very likely" to choose a home option for instruction in the fall, even if schools reopen. Similarly, the poll found approximately 20 percent of teachers are hesitant to return to campus, with an even higher percentage among older teachers. Given this data, it is imperative that districts enter the start of the 2020-21 school year with a plan in place to address the likelihood that a portion of students and staff will not return to campus due to the increased health risk posed by COVID-19. At the earliest possible point in the summer, districts should either complete or begin the following actions:

    a. **Early Survey of Parent/Family Preferences-** Given the wide variation of COVID-19 conditions by locality, each district should seek to assess student and parent/guardian thoughts on returning to in-person instruction in the fall at the earliest possible moment during the summer. In taking this step it is important for districts to provide clear, consistent, and transparent communications to families about district efforts to plan for multiple contingencies in order to best meet student needs in the fall. In addition to gathering family preferences on returning to school, districts should also seek to determine the rationale for family preference, with a specific focus on determining if a family has a COVID-19 related rationale for not wanting to send a child back to in-person instruction. Such reasons could include an underlying health condition that increases the risk posed by COVID-19 for a child or for a caregiver at home. Districts should clearly communicate to families that the purpose of this survey is to determine general preferences in the community and *not* for families to declare intent for fall learning formats. To reinforce this purpose, districts should consider setting this survey to collect responses anonymously. While the results of an early survey could be out-of-date in August due to changes in health conditions, the results of the early survey can equip districts with essential information for planning for the fall. The collection of survey data should maintain confidentiality consistent with the ADA as well as other applicable state and federal privacy laws.

    b. **Development of District Policy for Distance Learning Access-** During the summer, districts will need to develop policies on criteria to determine student eligibility to participate in a distance learning environment as a result of COVID-19 related reasons. In the same way districts have criteria for determining student eligibility for Homebound services, they will need criteria for determining eligibility for distance learning as a result of COVID-19. Such criteria could include a child or caregiver/family member falling in a higher-risk category for COVID-19. To enhance consistency across the state, districts should work in close association with SCDE and South Carolina School Boards Association (SCSBA) on the development of their policies.

Phase 2: Summer Planning and Preparation
The unique challenges posed by COVID-19 to resume new-normal school operations will require districts to adjust their traditional planning routines for the opening of the school year. To best prepare for instruction in the fall, districts should work to address the following recommendations during the mid-summer period (approximately the entire month of July after the July 4th holiday).

State Government and Agencies

1. **Removing Earnings Cap for Retired Educators**- Districts are likely to face staffing shortages across all positions as a result of a variety of COVID-19 related factors, a fact that is complicated by existing difficulties for districts in finding sufficient numbers of schools nurses, school counselors, special education personnel, and others who may provide essential student services. Districts are also likely to face challenges in finding qualified individuals to serve as long-term substitutes in cases of illness or resignation. To help districts address these challenges, the General Assembly should consider removing the cap on earnings for retirees.

2. **Addressing Shortages of Student Services Providers-** Most schools in our state have struggled to provide sufficient levels of staffing for key student services positions. This shortage poses an on-going threat to our schools' abilities to meet the needs of our students during and after the pandemic. As a result, the General Assembly and the SCDE should consider taking actions to address this structural problem, including:

    a. Development of an alternative pathway for certification of school counselors, such as additional certification track programs for individuals who already have other types of counseling degrees (see Appendix A).

    b. Providing a salary incentive program that would sunset in 3-5 years to fill critical needs positions. This would provide time to better identify permanent funding solutions.

    c. Establishing a goal of funding elementary school counseling positions to reduce the current ratio of 1:800 students to 1:300 students pursuant to SC Code of Laws 59-59-100 (Appendix A).

    d. Creating a caseload requirement for school psychologists based on recommendations by the National Association of School Psychologists of 500-700:1 (see Appendix A).

3. **Review of Emergency Drill Procedures-** New school procedures resulting from COVID-19 will require a thorough review of all emergency drills (active shooter, fire, tornado, earthquake, bus evacuation, etc.) and shelter-in-place procedures in order to make modifications to encompass social distancing and other health guidance when possible. State agencies having jurisdiction over such drills should relax standards and send out revised protocols to make such accommodations. In conducting their review of procedures, state agencies should also carefully consider potential undue burden on the

instructional operations of a school due to potential execution of a drill within the parameters of existing health guidelines.

4. **Development of School Health and Safety Sharing Website**- The SCDE should develop and host a website for districts and schools to share best practices and ideas related to reopening schools. This resource could potentially develop over the long-term into a School Health and Safety Resource Center, potentially in partnership with an institution of higher learning.

5. **Development of Distance Learning Resources-** To best meet the needs of all learners, the SCDE and VirtualSC should continue to develop resources for K-8 learners. In addition, the SCDE should work with districts to build learning object repositories to provide access to resources that can enhance the capacity of teachers to provide distance learning.

Communications

1. **Review of School Calendar-** In response to the continuing threat of COVID-19, districts should, at the earliest possible time, re-evaluate their published calendar for the 2020-21 school year. In doing so, districts should carefully consider potential calendar adjustments that could reduce the risk posed by COVID-19 to student health and learning while allowing for 180 days of instruction. These considerations should include:

    a. **Start Date-** Districts should determine the start date that is best aligned to their local situation. In making this determination, districts should consider the best placement of the five additional LEAP days for grades 4K-8 (discussed in the Pre-Opening Phase) as well as their local health situation. In some cases, this may require districts to seek a waiver from the SCDE to move their start date to earlier than the 3rd Monday in August, but in others, districts may want to consider pushing their start date back to after Labor Day. Districts should seek to finalize and communicate any alterations to their start date to families and staff at the earliest possible date.

    b. **School Calendar-** In addition to evaluating the start date for the 2020-21 school year, districts- in consultation with staff, families, and community partners- may want to re-evaluate the calendar for the entire year. Calendar alterations designed to address the past and potential future impact of COVID-19 could include plans such as:

        i. **A "year round" calendar of nine weeks of instruction followed by a two week break**. This could prove beneficial, both as a tool for remediation practices and to provide greater schedule flexibility in the event of a second wave of COVID-19 in an area.

        ii. **Extended winter break**. This model is similar to what some universities in the state are planning to implement, with the elimination of all holidays prior to Thanksgiving and students not reporting back to campus from

Thanksgiving through the start of the second semester in January 2021. For use in K-12 education, this would most likely require a period of distance learning during December 2020. The benefits of this schedule would allow for increased social distancing during a time of year that is most susceptible to a resurgence of COVID. The costs to be considered by districts prior to moving to this calendar must include an analysis of the childcare impact on families in December.

iii. **Scheduling by Semester-** Districts may find it useful to engage in semester calendar discussions and/or approval, rather than passing an entire school year calendar.

c. **Scheduling of Distance Learning Practice Days-** All districts should include in their calendar one or two "distance learning practice days" during the first nine weeks of the 2020-2021 school year. These days should be used to implement their Distance Learning Contingency Plan (see #2 below). On these days, the district should shift to full distance learning, even if health conditions allow for school buildings to be open and fully operational. Research and guidance on "continuity of learning" has shown that opportunities to practice distance learning prior to a crisis requiring a prolonged period of school closure has positive effects on student learning. Scheduled practice days in the early part of the coming school year will help students, staff, and families be prepared to respond to any shift to distance learning that could be required due to health conditions. Districts should clearly and widely communicate plans for distance learning practice days to families and community partners far in advance to aid in their planning for those days.

2. **Distance Learning Contingency Plan-** Districts should enter the new school year with a clear Distance Learning Contingency Plan to implement in the event of a return to full distance learning due to a resurgence of COVID-19. This plan should be accessible in multiple languages and should include specific expectations and procedures that differ by grade level and could be presented in a distance learning handbook or other format. ***The development of an effective plan will require the engagement of representatives from most district departments as well as administrative and teacher representatives from elementary, middle, and high schools in the district.*** Districts should begin communicating this plan to families and community partners prior to the start of the 2020-2021 school year in order to increase the effectiveness of distance learning protocols if it becomes necessary for them to be enacted. While many of the items listed below may already be included in normal school operations, the Distance Learning Contingency Plan should include, at minimum, the following:

a. Daily schedules for students indicating expectations for hours of engagement, with special focus on times protected for synchronous or live instruction (when resources permit). This schedule should be built in such a way that students with multiple classes on their schedule never have synchronous sessions for different classes at the same time. These schedules should include instruction in all content

areas on a student's schedule. To the extent possible, districts should also seek to construct grade-level schedules to have minimal overlap for periods of synchronous instruction. This step can help facilitate family support of learning from home and reduce the burden on a family's internet access caused by multiple simultaneous video conference sessions.

b. Clear instructions and tutorials on how to access core tools of distance learning, including learning management systems.

c. A plan for students without digital access, either due to a lack of broadband or a lack of devices. This plan may also be necessary for younger learners, with consideration that rich distance learning can also be achieved without having to be delivered completely online.

d. Expectations for communication to families and students, including frequency and format.

e. Expectations for when work and materials will be posted for students (could be daily or weekly).

f. Expectations for due dates and timelines for submission of student work.

g. Plans for how to track and document student engagement and "attendance" during a prolonged period of distance learning.

h. Expectations for feedback and grading for student work.

i. Contingency plans for IEP teams on how to access, services, and supports will be provided in the event of a resurgence of COVID-19 (The OSES is developing a form that can be used to assist with this that can be an attachment to the IEP).

j. Plans for how to provide substitute instruction in the event that a teacher becomes ill during a period of distance learning.

k. Plans for how to resume in-person school operations (with all or a portion of students) when it becomes safe and appropriate to do so based on public health guidance.

l. Plans for working with IHEs to meet the needs of high school students enrolled in dual enrollment courses.

3. **Update on Planning for Reopening-** *In order to provide as much clarity as possible for students, families, and staff, districts should seek to provide an update and overview of their scheduling and operational plans to their community at least 20 days in advance of the scheduled first day of the 2020-21 school year.* Districts can, and should, communicate that plans can and likely will change as new information becomes

available, but this July update will help the community with planning for school in the fall.

Human Resources, Finance, and Administration

This summer will present an exceptional challenge for Human Resources departments. In addition to their traditional summer work of filling existing vacancies in classrooms and other positions, HR teams will need to determine how to address several unique staffing needs resulting from COVID-19.

1. **School Nurses**- According to a recent survey that did not include responses from all districts, preliminary data showed 166 schools/programs that did not have a full-time equivalent nurse. Given the ongoing risk posed by COVID-19, it is critically important for districts to seek to staff each school with a full-time equivalent nurse. In the short term, this could most likely be achieved by using CARES or other federal funding sources to provide for a temporary or substitute nurse when funding does not permit the creation of a permanent hire. However, moving forward, the General Assembly and districts should carefully consider budget priorities to provide for a permanent, full time nurse position at each school.

2. **Supporting and Partnering with Educator Preparation Programs-** In addition to preparing for instruction in the fall of 2020, districts should consider their ongoing role in preparing the future educators of our state. While health protocols are likely to limit access of visitors to school building for the foreseeable future, it is imperative for districts to partner with our educator preparation programs in order to provide the type of field-based, clinical experiences that are essential to effective educator preparation. Failure to do so could lead to long-term negative consequences for our future teachers and for their students. To meet this need, district HR departments (or whichever office oversees educator preparation partnerships) should consider the following:

    a. **Access to Clinical Experiences-** Districts should develop protocols and procedures that allow for clinical experiences for pre-service educators both prior to their student teaching placement, as well as full time student teaching. These experiences include practicums and supervised clinical experiences with collegiate faculty. As such, collegiate faculty access to school facilities is equally important for the purposes of supervision and facilitation of these experiences. To the greatest extent possible, these experiences should be in-person, but districts could also work with IHEs to develop virtual models if necessary based on local health conditions.

    b. **Technology Access-** Due to the possibility of a return to distance learning during the year, districts (if they do not already do so) should develop procedures to provide student teachers with access to essential instructional technology platforms such as learning management and student data management platforms. Having these procedures in place will equip student teachers with a more robust preparation experience and to meaningfully assist with instruction, planning, and evaluation of student work in the event of distance learning.

c. **Waiver on Instructional Hours Requirement-** As it did in spring 2020, the SCDE should be ready to evaluate and, if necessary, waive, instructional hours requirements for student teachers in the event of a prolonged period of distance learning.

d. **Teacher Cadets-** High school students participating in Teacher Cadets courses should be afforded access to other schools in their district by following the same sign-in protocols in place for school staff when a Cadet is working in a school other than their home high school.

e. **Waiver for Student Teachers Working with Students-** The SCDE and districts should consider waiving restrictions preventing full-time student teachers from working in a classroom without the presence of a school employee or substitute teacher. Removing this restriction can provide schools with greater flexibility to meet the needs of small groups of students when the school deems the student teacher is ready for the task. This restriction should only be waived for student teachers completing their final full-time student teaching experience and who have passed all appropriate background checks required by the SCDE.

f. **Facilitation of Ongoing Partnerships-** Many school districts maintain ongoing partnerships with educator preparation programs. To the extent possible, districts are encouraged to explore ways of maintaining these partnerships to maintain professional learning opportunities and support student academic achievement.

3. **Preparing for Waivers-** Districts should adopt a blanket local resolution suspending future policies that conflict with statutory waivers or extensions granted by the Governor and/or the SCDE.

4. **Insurance Coverage-** Contact district/school insurance carrier to discuss specifics of liability coverage.

5. **Updates to Leave Policies-** Districts should revise posted leave policies to align with changes in federal leave policies resulting from COVID-19 related legislation like the Families First Coronavirus Response Act, as well as conducting a review of current DHEC Guidance for Employers During COVID-19 concerning COVID-19 related Workman's Compensation. Districts should also make sure to post and disseminate the U.S. Department of Labor's Employee Rights information. Districts should also work with SCSBA when making updates to leave policies related to COVID-19 and use of sick leave.

6. **Staff Emergency Contact Information-** Encourage staff to update contact information, verify the health and safety of employee and employee families, and communicate to staff a return-to-work plan at the beginning of the school year and/or at other necessary returns. Work with your human resources department and/or local school attorneys.

7. **Budget Review-** Districts should review and potentially revise their budget planning for the 2020-21 school year and build in contingencies that address funding or lack of state funding for cleaning, supplies, PPE, etc. Districts should also exercise discretion and caution with budgeting and expenditures given uncertainty about the available revenues the General Assembly will have when it reconvenes in September to finalize the 2020-21 state budget.

8. **Contingency Leadership Planning-** Districts should develop an alternative command structure that can be implemented if administrative and/or key employees are unable to work.

9. **Review of Attendance Incentives and Penalties-** Districts should review and consider discontinuing attendance incentive programs for staff and students in order to diminish pressure for an individual to report to school when feeling ill. Similarly, districts should review policies and procedures included in handbooks and athletic codes of conduct to remove punitive measures for absences when a student is experiencing symptoms of or has potentially been exposed to COVID-19.

10. **Health Reporting-** Districts should develop a health reporting process for the fall to ensure that the superintendent and district office are informed about daily health conditions in schools. This plan should place special emphasis on identifying reasons for student and staff absences.

11. **Job Description Review-** As able, districts should seek to review and revise job descriptions to better account for duties and expectations for future prolonged periods of school closure and distance learning.

Facilities, Transportation, and Operations (including food services)

1. **Cleaning Protocols-** Districts should develop cleaning protocols based on the latest DHEC, CDC and OSHA guidance and determine if it can be handled by staff or should be supplemented with contracted services. These protocols should include routinely cleaning and disinfecting surfaces and objects that are frequently touched following the manufacturer's instructions for products used (see Appendix B). Also ventilation (air exchange rates) and the percentage of outdoor air should be increased when possible (see Appendix C).

2. **Utilization of Resources for Classroom and Facilities Configurations-** The South Carolina chapters of the American Institute of Architects (AIA) and the Association for Learning Environments (A4LE) have offered to host a series of webinars on how to reconfigure classrooms and other spaces within buildings to create more distance between students. These resources would also offer ways to restructure health and facilities spaces to allow for separation between those seeking help for illness from those seeking first aid and medicine administration. Districts and schools should take advantage of this free resource when available.

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3. **Cleaning and Facility Preparation-** Review the plan and supply inventory to thoroughly clean and disinfect all buildings, desks, buses, equipment, and other surfaces prior to students and/or staff returning and after return, using CDC, Environmental Protection Agency (EPA), and Occupational Safety and Health Administration (OSHA) guidelines.

4. **Safety Plans-** Districts and schools should Review and revise School Safety Plans to account for new risks associated with COVID-19.

5. **Review of Potential Costs of Changes to Food Service-** Social distancing guidelines and other health requirements are likely to require schools to revise the way meals are served and eaten. As a result, districts should conduct an analysis of the potential increased costs related to required changes to supplies, packing, and cleaning.

6. **Visitation Policies-** Districts should engage in a comprehensive review of school visitation policies. These policies should seek to minimize outside guests from entering the instructional areas of the building while maintaining plans for ensuring safe access to the building for essential non-employees such as student interns. To the extent possible, districts should seek to utilize technology and video conferencing to reduce the need for traditional activities like parent-teacher conferences that require outside guests to access the school. Whenever a visitor does arrive at school, districts should maintain thorough records, including the individual visiting, contact information, the time of the visit, and the locations in the building visited. These records can assist local health authorities in the event they need to conduct contact tracing. Vendor access to the school should be restricted to hours when students are not present.

7. **Facilities Usage Plan-** Districts should engage in a comprehensive review of policies regarding use of school facilities by outside groups. Revised policies should reduce or eliminate the use of facilities for anything beyond school operations in order to reduce the potential spread of COVID-19 in a building.

8. **Review of Transportation Capacity-** Districts should conduct an analysis of their capacity to meet projected transportation needs in the fall. This planning should include running practice bus routes based on the most current guidance from DHEC about maximum occupancy on a bus.

Instruction and Student Services

1. **Plan for Fall Distance Learning Groups-** Districts should use the data from their surveys of parents/guardians and staff during the Early Summer Phase to project potential distance learning needs for the start of the 2020-21 school year. **(Note- this projection is necessary for conditions where at least some portion of students can return to school in August. Districts will also need to plan for a situation where *no* students can return, which is addressed later in these recommendations)**. The actions a district takes will be inherently localized based on factors like survey results, staffing, available resources, etc, but in any scenario, it is ***imperative that districts avoid situations where teachers are required to plan and implement instruction for students via in-person and***

distance settings during the same day. To prevent that scenario, potential courses of action could include planning to develop and/or utilize the following:

a. **Existing Virtual Learning Platforms-** Districts should first seek to meet the needs of students that can not return to school through existing virtual learning platforms and resources. Many districts already have virtual school options available, especially at the high school level. VirtualSC can also provide a good resource for students at the high school level. However, if a district lacks virtual learning resources for all learners and all grade levels, the following options may be considered as other possible formats for distance learning.

b. **Distance Learning Sections-** If staffing permits, districts could choose to assign staff to a fully distance learning schedule of students that will not return to in-person instruction. Districts should seek first to staff distance learning "classes" with teachers that are uncomfortable returning to work, but districts should also consider teacher aptitude and skill in leading distance learning. In this model, teachers would interact exclusively with students via in-person or distance learning instruction. To achieve this, schools would build their master schedules with distinct in-person and distance learning sections. In addition to staff availability, the feasibility of this option will be largely dependent on a sufficient number of students in a grade level/course that need distance learning access (recommendations for determining this number of students is addressed in the Pre-Opening Phase).

c. **Live Streaming of Classes-** Districts could equip classrooms with the equipment necessary to livestream instruction daily to students that are participating from home. This option could be especially valuable for districts with insufficient staffing to provide for full "distance learning sections." In those instances, it may also be necessary for the SCDE to facilitate sharing of services across districts. For example, a livestream of a teacher's classroom could be made available to students across multiple districts. For areas with insufficient broadband access or sufficient numbers of computing devices, this type of instruction could also be made possible through installation of the necessary equipment for datacasting by ETV. In the event of live streaming, districts should identify teachers with the aptitude and skills to create a rich learning environment for both students in-class and those participating via live stream. In this scenario, districts would also need to assign additional staff to a live streamed classroom to assist the instructor with tasks like parent and student communication, evaluation of student work, and data entry. In effect, the district would need to create "classes within a class" for the purposes of all classroom-related activities beyond planning and delivery of direct instruction. Live streaming options should not be used to increase a teacher's student load beyond normal class size limits.

d. **Asynchronous Learning-** Districts could provide instruction through asynchronous means as necessary. In the event of insufficient technology for effective distance learning, hard copies of materials can be provided, but this

should be viewed as a last resort. Instead, districts should prioritize getting needed technology to students in order to access the wealth of asynchronous learning materials online. Districts could utilize adaptive learning platforms or pull from existing resources from the SCDE. Another asynchronous resource could be recordings of instruction by teachers in the district, but districts should not ask teachers to record materials for students beyond those on their roster without additional resources to support instructional development (could be additional planning time, instructional materials, compensation, etc.).

2. **Declaration of Intent-** By late July, districts should have guidelines in place to determine student eligibility for distance learning as a result of COVID-19. At this point, districts should share these guidelines with families as well as the district's safety protocols and anticipated scheduling model for opening in the fall (for more on scheduling models, see Phase 4). Based on the guidelines and scheduling model selected by the district, interested families should be allowed to apply for distance learning services as a result of COVID-19. These applications should be used to finalize distance learning sections in master schedules, and districts should set clear deadlines for the return of applications to give schools sufficient time to make any necessary adjustments to their master schedules. ***Districts should clearly communicate to parents that those applying for a fully distance-learning experience would only be able to return to in-person instruction in the event of space availability for in-person sections.*** In effect, districts would not be able to increase the size of an in-person section beyond the recommended student-to-teacher ratio in order to accommodate requests by parents to return their child to in-person instruction. Availability for students to return to in-person instruction should be re-evaluated at the end of nine-week grading periods based on in-person student enrollment numbers as well as any adjustments to instructional practice resulting from updated health guidance from DHEC. The collection of survey data should maintain confidentiality consistent with the ADA as well as other applicable state and federal privacy laws.

3. **Professional Learning**- As noted in the AccelerateED Summer Learning and Operations Recommendations, districts should seek to streamline professional learning opportunities to align to those topics most necessary to address the unique challenges staff will face in the new school year. The Summer Recommendations specifically noted two central topics for summer professional learning: ***distance learning and instruction and implementation of multi-tiered systems of support.*** Summer professional learning can be based on a variety of district or SCDE developed resources. Districts should also seek to prioritize in-district professional learning over learning that requires travel (for cost and health reasons), and districts should seek to build the capacity of their own building-level experts in order to decrease reliance on outside facilitators when possible. To the greatest extent possible, professional learning related to distance learning should be led and facilitated by those who gained experience planning and implementing instruction during the spring 2020 closure period. These actions will promote teacher leadership and career advancement and give all staff ongoing access to a local expert that can facilitate sustained professional learning through formats like coaching or PLCs. Districts should offer professional learning on an ongoing basis throughout the month of July to give

teachers the most possible time to reflect on and apply learning to their instructional practices. In determining topics for professional learning, highest priority should be placed on the following topics:

a. **Distance Learning and Instruction-** The continued threat posed by COVID-19 increases the likelihood that some or all students will experience distance learning during a portion of the 2020-21 school year. As a result, districts should provide staff with professional learning opportunities on distance learning topics such as promoting student engagement, assessment design and delivery, providing rich feedback to students, and how to maximize available instructional technology and platforms.

b. **Multi-Tiered Systems of Support-** While most districts have provided professional learning on MTSS in recent years, focusing on these concepts will be especially important in an environment where most students have experienced or are still experiencing trauma associated with the pandemic. As a result, special attention should be focused on learning in the areas of Tier 1 intervention and support for all students as well as trauma-informed instructional practices.

c. **Effective Communication and School-Home Relationships:** Given uncertainty about the health situation in 2020-21, effective communication with parents, guardians, and community partners will be more important than ever. As a result, districts should establish a consistent delivery system and set of expectations for school-home communications, with, at minimum, consistency in communication methods, platforms, and schedules within a school. Based on this communication plan, districts should consider providing professional learning on tools and strategies for effective communication with students' families.

d. **Implementation of Learning Progressions and Essential Readiness Standards-** During the summer of 2020, the SCDE will be developing learning progressions and essential readiness standards. The purpose of this work is to support teachers in determining the greatest areas of instructional priority during the 2020-21 school year in light of the disruptions to learning caused by spring 2020 school closures. Instructional staff will need collaborative professional learning opportunities to unpack these progressions and standards in order to best inform instructional practices in the fall. ***Note- these learning progressions and essential readiness standards will be released as they are finalized throughout the summer. The SCDE is developing professional learning resources to accompany the release of the learning progressions and readiness standards.***

4. **Completion of Student Evaluations-** With the sudden closure of schools in spring 2020, many evaluations of student needs were not completed. In order to best prepare for the opening of school operations in fall 2020, districts should seek to complete as many of these evaluations as possible. In particular, high priority should be placed on completing evaluations for:

a. **Special Education-** Once it is safe to do so, districts should complete the components of initial evaluations and reevaluations that could not be completed due to the COVID-19 school closures and the restrictions of social distancing. When able, districts should begin conducting eligibility meetings, IEP meetings, and other meetings once all required components have been gathered. This time should also be spent planning for the assessment of impact on all students and particularly on how special educators will help facilitate this assessment for students with disabilities. For students with disabilities for whom it would not be safe to return to school, the IEP team will need to determine how services might be delivered in an environment that would be safe for the student.

b. **English Learners-** The existing screening tool for English learners under federal (ESSA) requirements is an in-person tool. As a result, districts must make sure to comply with existing DHEC regulations regarding physical distance when using the identification screener and properly sanitize all technology used. Districts should seek to screen students that were provisionally identified during the spring school closure as well as any recommendations for evaluation that are still in progress. Districts should also continue to communicate with parents and family members in their home language.

5. **Preparing for the Social and Emotional Needs of Students-** Schools and districts should review their current state-mandated MTSS implementation plans and results of their Self-Assessment of MTSS (SAM) to create a committee focused on embedding SEL (see Appendix D). The committee would work to identify all available resources in the district and how those resources can be combined to provide the best possible SEL programming for students and staff. Districts can also utilize resources like the guidance from NASAP in Appendix E.

6. **Prevention of Bullying and Harassment-** While schools have focused on bullying prevention a great deal in recent years, the impact of the pandemic on society will necessitate that districts and schools revisit their policies and procedures to account for potential new sources of bullying and harassment in schools. Addressing these new potential areas of bullying requires the same vigilance and consistency as what schools apply for other forms of bullying- both in person and digitally. These possibile new areas could include bullying or harassment based on:

    a. Students who have personally contracted COVID-19 or are related to someone who has contracted COVD-19;

    b. Accusations or taunting of students about alleged exposure to COVID-19;

    c. Taunting or harassment against students that utilize additional protective measures, such as wearing of masks, avoiding close proximity to others, etc.; and

    d. Threats by students to expose peers or staff to COVID-19, regardless of whether the threat has substance.

7. **Supply Lists-** Schools should conduct a review of standard student supplies list and make adjustments that are sensitive and responsive to current economic conditions. A review of supply lists should also account for restrictions on shared use of resources and materials by students.

Phase 3: Pre-Opening

While there is no way our students can gain back everything lost during the final months of the 2019-2020 school year, South Carolina can and should take steps to ensure students are as prepared for learning as possible when the 2020-21 school year begins. Districts must keep in mind that any efforts to prepare students for the coming school year need to be focused on increasing student learning rather than simply making up lost days and time. As a result, the Pre-Opening Phase (approximately the two weeks prior to the scheduled start of the school year) will be critically important for a successful return to school.

Communications

In order for instruction to effectively resume in the fall, it is imperative for districts to strategically develop communications for families and community partners prior to the reopening of schools. In particular, these plans should include the following:

1. **Procedures and Safety Protocols-** Clear communication about new safety protocols and procedures is essential for their success. These communications should include both the procedures and clear explanation for the rationale for new procedures, and the communications should be available in diverse formats and languages to ensure accessibility for all. In addition to use of traditional communications via email, websites, and social media, districts should seek to work with community partners to enhance dissemination of information. These groups could include, but are not limited to, business advisory groups, Chambers of Commerce, or faith-based groups. Districts should also seek to produce a diverse array of print and visual communications, including videos demonstrating physical facility changes and implementation of new school procedures.

2. **Back-to-School Events-** Due to health conditions, schools may be unlikely to host traditional in-person back-to-school events for large groups of students and community members. In this event, districts should develop plans for how to deliver these same types of experiences through digital, TV, and print resources. Districts may also opt, if health conditions permit, to conduct smaller group events or home visits.

Human Resources, Finance, and Administration

1. **Staff Training-** Many of the new operating procedures for the 2020-21 school year will require additional staff training beyond topics typically addressed at the start of the school year. The specific topics necessary will vary based on district procedures and resources, but regardless of the topics, districts should plan in order to deliver training in the most efficient manner to ensure effective operations and minimal time burden on staff. Districts should also evaluate existing annual training to determine if training in some topics can be streamlined or eliminated in order to increase available time for addressing new COVID-related procedures. Topics for new training include (but are not limited to):

a. New safety protocols and procedures, especially those related to the health protocols necessary to reduce the potential spread of COVID-19, including recognizing symptoms and prevention techniques;

b. Accessing and basic operations of new computer systems and processes developed to prepare for potential distance learning, including Learning Management Systems; and

c. Training for custodial staff on the latest information on effective methods of cleaning and disinfecting school facilities.

Facilities, Transportation, and Operations (including food services)

1. **Allocation of Classroom Furniture and Materials-** In the weeks leading to the start of school, districts and schools should evaluate furniture and materials in all classrooms to ensure that rooms are equipped to comply with health requirements. This includes ensuring that rooms do not have more student desks/seats than a room can accommodate based on existing social distancing guidelines of 6 feet between desks.

Instruction and Student Services

1. **LEAP Days-** The South Carolina General Assembly is currently debating appropriating a significant portion of funding through the CARES Act to allow for ***five additional "LEAP" (Learn, Evaluate, Analyze, Prepare) days at the start of the 2020-2021 school year for students in grades 4K-8.*** While the CARES Act funding appropriated by the General Assembly would be limited to instruction for students in grades 4K-8, this does not preclude districts from providing similar additional days for students in grades 9-12 if district-level funding is available. The additional LEAP days at the start of the year are not intended to address all instructional content missed in the spring of 2020; instead, these days should be used to prepare schools to return to operations and to assess where students are in order to open the school year with a plan for how to strategically engage in interventions and facilitate student learning. Districts should plan for and implement LEAP days according to the following recommended guidelines:

    a. **When should the days be placed?-** In our state, school calendars are determined by local districts within state law, which remains the case for the learning preparation days. As a result, districts may schedule the LEAP days *prior* to the typical days allocated for teacher preparation at the start of a year or *after* the teacher preparation days. However, due to funding restrictions, these days must occur at the ***start*** of the 2020-21 school year rather than at the end of the year. This is because all funds appropriated for this purpose must be expended and reimbursed by December 30, 2020.

    b. **Which students should attend?-** The funding provided to districts is specifically for all students in grades 4K-8. However, this does not mean that ALL 4K-8 students in a district must be involved in all five learning preparation days. Those students deemed critical to attend, as well as how many days they will need to attend, should be determined based on the identified needs of students in a

district. Districts should place the highest priority on engaging students that have demonstrated significant learning gaps or specialized needs, such as students that:

i. Experienced low engagement during the 2020 distance learning period.
ii. Have demonstrated learning gaps on prior assessments and diagnostic tools.
iii. Are in process for evaluation related to special education or English learner status.
iv. Are homeless or migrant.

c. **What activities should occur during learning preparation days?** In planning for LEAP days, districts should develop a clear plan to document and communicate activities and desired outcomes. These activities may include:

i. **Revisiting Prior Content and Skills-** While an additional five days of instruction can not fully gain back everything that was lost during the period of school closure, districts may use learning preparation days to provide a head start on learning in the new year by giving students opportunities to revisit prior content and skills. These activities should be especially targeted to students identified as in greatest need for additional learning time by districts, and these efforts could be facilitated and enhanced by district use of adaptive learning platforms.

ii. **Diagnostic Activities-** The disruption of the 2019-2020 school year led to diminished availability and reliability of traditional tools for assessing student readiness and learning such as grades and test scores. As a result, districts may use learning preparation days to engage in diagnosis of student readiness in small groups. These activities can include those traditionally mandated at the start of the year (KRA, etc.) or those selected by a district to meet specific needs. Districts can also consider using existing MTSS-screening tools. Finally, districts could use these days to complete in-progress evaluation of students for eligibility for services as an English learner or under the Individuals with Disabilities Education Act (as described in greater detail under #4 of Step 2 of this section).

iii. **Data Analysis-** Time during learning preparation days can be used to give staff the chance to engage in collaborative analysis of existing data sources, including data on student engagement levels and grades from spring 2020, Literacy Assessment Portfolios, and formative assessment data from tools like MAP and district benchmarks. This work is especially important for teachers of courses with "looping" standards (i.e.- Algebra 1 standards "loop" from pre-Algebra standards). The establishment of collaborative data analysis can also afford teachers the opportunity to garner authentic and meaningful data and feedback from a student's prior teachers that can provide invaluable insights that are unlikely to be captured by diagnostic test instruments alone.

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iv. **Social and Emotional Preparation-** Districts may use learning preparation days to help students with building social and emotional readiness for a return to school. This can include opportunities to experience closure with last year's teachers, build relationships with new teachers, and work with counselors and other staff to address student feelings about the disruptions caused by COVID-19 and by the return to school. Schools should also provide opportunities for students to discuss and process the shared experience of the pandemic. SCDE is engaging with the SC Department of Mental Health and other partners to identify braided/blended mental health supports to address both students' and teachers' physical and emotional wellness needs, and these resources could be wonderful tools for learning preparation days.

v. **Review of Individualized Education Programs (IEPs)-** Decisions about lack of progress and additional needs for students with disabilities depend on data about progress and needs for all students. If an IEP team determines supplemental services are needed, this may mean a change in the student's least restrictive environment or a change in the intensity or amount of services and supports. Some decisions about compensatory services, particularly for students with more significant disabilities, can be made as soon as the team has gap data. Other decisions about supplemental services will be made after remediation/recovery services have been provided for all and additional data have been gathered. Once remediation/recovery services have been provided for all students, the IEP team should consider the following questions:

    1. What was the student's rate of progress from August 2019 to March 2020?
    2. Where was the student performing at the end of in-person services in March 2020?
    3. Where is the student performing at the beginning of the school year?
    4. If there is a gap, how much of the gap is due to the impact of the closure on all students and how much of the gap is due to student's disability?

vi. **Establishing Routines and Procedures-** All educators know the value of establishing clear and consistent routines at the start of the school year, and that will be critically important in the coming year due to the introduction of routines and procedures that will be new for all staff and learners. As a result, districts could use learning preparation days to introduce and acclimate students to school procedures and expectations (especially those instituted in response to COVID-19) as well as finalizing student schedules. This, in turn, will accelerate the capacity of schools to focus on instruction of content and skills when the regular school year begins.

vii. **Professional Development-** Since districts do not have to bring in every student on every learning preparation day, districts could schedule time for teachers to engage in extended professional learning opportunities. This professional learning should be specifically designed to help teachers meet the unique challenges of re-starting school in the fall. Priority should be given to topics such as developing instruction aligned to learning progressions and essential readiness standards, developing and delivering engaging distance learning experiences, and meeting the social-emotional needs of students, including the use of trauma-informed practices. Some of these resources are currently available through VirtualSC, but districts can also develop their own resources based on their staffing and localized needs.

2. **Social-emotional check-in/SEL Plan-** Starting with LEAP days, students should have access to ongoing SEL and support in a school-wide program/plan embedded inside classrooms. All school staff and all students need an initial "check-in" to process the trauma of COVID-19 and school closures. There are free resources available from a number of sources which can be vetted and posted by the SCDE. Guidance should also be provided on appropriate community partnerships to support mental and emotional health for all school stakeholders.

Phase 4: Reopening and Continuity of Operations

The reopen and continuity of operations phase outlines those recommended procedures and protocols that should be implemented and followed as students and staff return for the 2020-21 school year. These recommendations should not only be considered at the start but also throughout the school year to ensure successful continuation of teaching and learning.

Communications

1. **Preventative Measures-** In order to prevent the spread of COVID-19 and other illness, districts and schools must have plans in place to ensure that sick employees and students stay home. This plan should also extend to encouraging and insisting that students and employees remain home if someone in the household has COVID-19 symptoms or is being tested for COVID-19. The importance of communicating this message is a central and essential component of a district's capacity to prevent the spread of COVID-19. Districts should have plans in place to communicate this message prior to the start and during the school year. This communication should share district policies on health requirements for exclusion from and return to school. For guidance in this area, see Appendix B.

Human Resources, Finance, and Administration

1. **Class Coverage due to Staff Absences-** Districts and schools should have clearly defined plans for how to address any staffing shortages on a day-to-day basis resulting from an insufficient number of available substitute teachers. This plan should not necessitate "sprinkling" students to different classrooms if doing so would put a classroom out of compliance with existing regulations for room capacity and social distancing. If funding and staffing resources are available, districts could help schools

prepare for this possibility by assigning a full-time, permanent substitute teacher to each school.

2. **Reporting Protocol-** Districts should develop a clear protocol of responsibilities for reporting positive cases of COVID-19 (one or more) in schools to the district office, the SCDE, and the local health department.

Facilities, Transportation, and Operations (including food services)

In the event that all or some students can report to school for in-person instruction, the following recommendations should be considered:

1. **Building Considerations:** To comply with health regulations, districts should consider implementation of alterations to ordinary operations and facilities usage, including (but not limited to) the following:

    a. Exterior and interior signage communicating how to stop the spread and describing symptoms of COVID-19, good hygiene and school/district specific protocols. Signage should give clear simple instructions for any actions required by the reader, including reminders not to enter the school if experiencing symptoms of COVID-19 or illness.

    b. Increasing areas where students are received to reduce bottlenecks.

    c. Stagger entry and release times to reduce crowd movement. This may require extending the school day.

    d. Turn off water fountains and provide bottled water or allow students and staff to bring water bottles from home.

    e. Mark spaced lines and traffic directions in hallways to designate flow paths.

    f. Increase spaces between desks and have them facing the same direction maintaining 6 feet of distance to the extent possible.

    g. Mark social distancing spaces on floors in areas where lines form such as cafeterias or restrooms.

    h. Spaced seating in the cafeteria and longer meal periods if other options such as pre-packaged meals served in classrooms are not feasible.

2. **Transportation-** *Under current DHEC guidance in our state, buses should not be filled beyond 50 percent capacity, where practical.* In addition, districts should implement health and safety protocols such as:

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a. Establishing protocols to promote social distancing of students from different families at bus stops, during loading, during transport, and while unloading the bus.

b. Providing hand sanitizers for students and drivers.

c. Providing face masks for drivers, and allowing for masks and face coverings for students.

d. Cleaning and disinfection of high touch areas at least once per day.

e. Recommendations contained in the CDC Guidance for Bus Transit Operators.

For guidance on bus operations, see Appendix F.

3. **Student Arrival and Dismissal-** The start of the school day presents unique challenges to ensuring social distancing and compliance with health requirements. As a result, districts should carefully review school arrival procedures and enact policies such as:

   a. Providing hand sanitizer for students and staff;
   b. Establishing a staggered schedule for student drop off;
   c. Minimizing or eliminating student congregation in common areas prior to the start of instruction; and
   d. Discouraging and preventing students from congregating in parking lots.

4. **Student and Staff Health Protocols-** Schools should have clearly established health protocols for student and staff attendance in a school building. These protocols should be clearly communicated in advance of the start of school to students, families, and staff. State statute gives public school districts the authority to exclude students who have a contagious disease such as COVID-19 or are liable to transmit it after exposure. In addition, the local health department has the authority to exclude students from school and may order students and others to isolate or quarantine. (S.C. Code of Regulations R. 61-20) As such, districts/schools are encouraged to work closely with their local health departments. **For guidance on developing steps for screening and related health protocols, see Appendix B.** Districts should also remain informed of the latest guidance from DHEC and/or the CDC regarding symptoms of COVID-19 and recommended health protocols for exclusions of students or staff from a school building due to factors related to COVID-19.

5. **COVID-19 Case on Campus-** Districts should establish predetermined thresholds for mitigation strategies for the event of a reported case of COVID-19 on campus by following DHEC's recommendation in conjunction with CDC guidance. This protocol should establish clear steps for responding to positive cases (either student or staff) on campus. For additional guidance in this area, see the CDC's Mitigation Strategies for Communities with Local COVID-19 Transmission.

6. **Meal Service-** Districts should develop plans for student meals for any scheduling model under consideration (see the end of this Phase for more detail on scheduling models). Depending on the scheduling model, these plans should consider the following:

    a. **Full Distance Learning (no one in the building)**
        i. Provide PPE and establish social distancing protocols to ensure the safety of any staff involved in the preparation of meals or in the delivery or pick-up of meals;
        ii. Develop capacity to provide a week's worth of meals at a time to students, either at a designated date and time for pick-up or delivery; and
        iii. Evaluate how meal distribution can working in conjunction with distribution of instructional resources and district communications.

    b. **Hybrid or "Traditional" Models**
        i. Provide hand sanitizer for all students and staff;
        ii. Position hand sanitizer near operational vending machines and clean vending machines regularly;
        iii. Provide PPE for all food service staff;
        iv. Conduct cleaning of cafeterias and high-touch areas throughout the day;
        v. Consider alternative meal serving models that enhance capacity for social distancing, such as staggered lunch periods or service of meals in classrooms;
        vi. In the event of an A/B schedule where students do not report to campus each day, develop a plan to provide to-go meals for students to cover needs prior to next day on campus;
        vii. Eliminate serving procedures similar to "family style meals" or prohibit food sharing;
        viii. To the extent possible, seek to provide meals that are bagged or boxed with all necessary utensils, condiments, etc. to minimize handling of meals;
        ix. Eliminate self-serve food items;
        x. Install sneeze guards or similar measures in serving lines;
        xi. Develop plans to serve students that are medically fragile or at heightened medical risk separately from other students;
        xii. Limit cash transactions, and if they must occur, ensure that staff that are managing registers are not also handling food; and
        xiii. Allow students and staff to wear face masks in halls and large gathering areas.

7. **Face Masks and PPE for Students-** Districts should review dress code and other relevant policies to ensure students and staff can wear cloth face masks and other PPE. Recommendations for the use of masks and other PPE should be determined by districts in accordance with the latest guidance from DHEC and/or the CDC. The latest DHEC guidance is attached to this report as Appendix E, but districts should review the most recent guidance released closer to the start of school. Some students may be required to wear additional PPE (i.e. health-related, special conditions, etc.) when directed to do so

by a health care provider. In this event, it may be necessary for schools to provide masks for those students, and additional accommodations may need to be developed for students based on their health needs.

8. **Face Masks and PPE for Staff-** Recommendations for the use of masks and other PPE should be determined by districts in accordance with the latest guidance from DHEC and/or the CDC. The SCDE has purchased cloth face masks for all teachers for the coming school year. Some staff may be required to wear additional PPE due to health-related concerns while others may be directed to do so by district or school policy for certain job duties (i.e.-custodial staff, specialized positions, etc.) In the event additional PPE is required for job duties, it may be necessary for schools to provide the required PPE.

9. **Nurses Stations and Clinical Spaces-** Students that do not display symptoms of COVID-19 should continue to be seen and treated according to standard school protocols in the nurse's room/clinic. However, students or staff that are displaying symptoms of COVID-19 should ***not*** be treated in the same space used for all other non-COVID medical conditions. As a result, schools should develop a separate room where students or staff that are displaying symptoms of COVID-19 can be evaluated and/or wait for pick-up. This room should adhere to guidelines including:

    a. All individuals in the room should wear, at minimum, a cloth face covering;
    b. Equipment for the room should include (at minimum) touch-free thermometers, hand sanitizer, hand soap, and tissues;
    c. PPE should be available for staff that are engaged in the evaluation and care of individuals displaying symptoms of COVID-19;
    d. Access to the room should be restricted to only those staff essential for response to an individual displaying symptoms of COVID-19;
    e. Strict social distancing guidelines will be maintained;
    f. Records should be maintained of all person who entered the clinical space for COVID-19;
    g. This clinical space should be disinfected several times daily;
    h. At the earliest time that is safe, staff displaying symptoms of COVID-19 should go home and students should be walked out to their parents for pick-up; and
    i. Anyone that displaying symptoms of COVID-19 should be encouraged to seek medical attention and evaluation.

10. **Playgrounds and Recess-** Districts should evaluate recess procedures to maximize social distancing and reduce touching of shared surfaces. These procedures could include alternate recess schedules to reduce the number of students on the playground at one time, providing for time to disinfect equipment between uses, or, if disinfection is not possible, restricting use of playground equipment.

11. **Cleaning Protocols-** Districts and schools should implement protocols for daily routine cleaning of school facilities consistent with the most recent guidance from DHEC and/or

the CDC. Priority areas for cleaning should include classrooms, large group gathering areas, restrooms, hallways, and high-touch surfaces.

12. **Staff Meetings-** Districts and schools should evaluate policies on staff meetings, especially those that require large groups that make social distancing difficult. Whenever possible, schools should seek to leverage video conferencing or other resources to reduce the need for groups to gather.

13. **Staff Work Space-** Districts and schools should evaluate shared teacher workspaces to ensure adequate social distancing. Consideration should also be given to limit capacity for staff common areas to provide for social distancing.

Instruction and Student Support Services

1. **Extending Learning-** Some of the federal recovery dollars for COVID-19 or federal funds that have been allowed to be carried forward from the 2019-2020 school year could be purposed for extending learning activities for students throughout the 2020-21 school year. Specifically, districts may use these funds to pay for staffing and resources to deliver interventions for students in reading and math throughout the year. Districts should prioritize these activities to meet the needs of learners from populations of focus, including (but not limited to) literacy for students in grades 1-3, students with demonstrated learning loss or limited engagement during the spring 2020 school closure period, English learners, migrant or homeless students, and students with Individual Education Plans. To employ extended learning opportunities for these students, districts could consider activities such as:

    a. **Extended School Day-** Districts could extend the ordinary school day to provide for enrichment and remediation opportunities for all students. This extended school day may also be necessary to allow for increased transition periods required by health guidelines.

    b. **Before and After School Programs-** Instead of extending the school day for all students, districts could also provide before or after school learning opportunities to targeted groups of students.

    c. **"Double blocking"-** At the elementary level, districts could hire additional, temporary staff to provide a double block of reading or math for students during the day.

    d. **Saturday Learning-** Districts could provide enrichment programs for students in all grade levels in literacy and math on Saturday.

    e. **"Looping"-** While it would not necessarily require use of federal funds, "looping" of students to work with the same teacher as last school year could be a powerful strategy for supporting student learning, especially at the elementary level. Districts should consider this possibility based on available staffing and staff training and expertise. When using looping for the first time, districts should

ensure teachers have sufficient advance notice of their schedule as well as planning and collaboration time to prepare instructional materials for a new grade level.

2. **Grading Practices-** Students will be entering the 2020-21 school year after experiencing disruption to one quarter of the prior school year. As a result, districts should re-evaluate grading policies in order to utilize policies that are best aligned to promote student remediation, growth, and mastery of essential content and skills. Priority in grading policies should be placed on utilization of practices that do not simply seek to "quantify" learning; instead, they seek to promote and drive learning. To reach this goal, districts could consider policies such as:

    a. **Increased reliance on formative assessment tools-** While heavy reliance on formative assessment tools may result in fewer "grades in the gradebook," districts should seek to use assessment tools that provide students meaningful and quick feedback that is part of a learning progression rather than only utilizing final, summative assessments.

    b. **Greater use of mastery learning-** Given last year's disruption to schooling, students may enter the fall semester with learning gaps. As a result, districts should seek to incorporate mastery learning practices that allow students opportunities for remediation, growth, and recovery.

    c. **Provision for student choice-** Early incorporation of increased student choice in assessment formats will help districts have greater flexibility in the event of a temporary shift to distance learning due to health conditions.

    d. **Greater reliance on authentic assessment practices-** High priority should be placed on grading and assessment practices that provide students with authentic opportunities to demonstrate mastery of content and skills. These approaches could include practices such as project-based learning, portfolio-based assessments, or student-led conferences.

    e. **Standards-based grading-** When possible, schools should seek to incorporate standards-based grading practices in place of traditional "unit" approaches to instruction. Doing so will provide students with more opportunities to demonstrate growth and mastery of essential standards and skills over the full course of the school year.

    f. **Elimination of term-weighting-** Heavy reliance on term-weighting of grades could result in significant challenges for students that enter the first grading period of the school year with the largest learning gaps. A shift to a cumulative grading practice (similar to the combination of Q3 and Q4 during the second semester of 2019-2020) will decrease the chances of a student being unable to "catch up" from lower performance during the first grading period.

3. **Ensuring a Well-Rounded Education-** As our state learned during the spring 2020 closures, certain courses and content face unique challenges for delivery via distance learning. These same courses are likely to be the ones that face the greatest instructional challenges due to new health and safety requirements like social distancing or wearing of masks. ***However, in spite of those challenges, it is unanimously the recommendation of this task force that districts continue to ensure students have access to a well-rounded education in both in-person and distance learning environments this fall.*** These courses are an essential component of the world-class education identified in the *Profile of the SC Graduate*, and access to a well-rounded education has documented benefits for the social and emotional wellness of students through promotion of attributes like hope and engagement. In determining how to ensure student access, districts should refer to the guidance provided by the relevant state and national professional organizations. Specifically, students in South Carolina should have continued opportunities to participate in or access:

    a. **The Arts (visual and performing)**- In order to ensure student access to the arts, districts should consider the following:

        i. Instruction in the arts focuses on core standards of creation, connection, presentation/performance, and response. While new health and safety protocols in schools may present challenges for instruction focused on the domain of presentation/performance, arts teachers have the capacity to shift instructional focus to the other domains in ways that are consistent with health requirements.

        ii. Districts should seek to partner with the SCDE and state and local arts organizations to enhance student access to the arts. For example, while new school guidelines prohibiting use of shared materials could complicate efforts for scene shop construction in a theater class, students could partner with a local arts organization that might be able to translate student design into finished product. Arts organizations like the SC Arts Alliance for Everyone and the Arts in the Basic Curriculum Project are strong examples of partners that can assist with the development of a depository of instructional resources and materials for teacher use within health guidelines. These organizations can also be important providers of professional learning opportunities in districts that lack staffing capacity for district-led opportunities for teachers in the arts.

        iii. Districts should look to state and national arts organizations for guidance on how to safely ensure student access to the arts for in-person instruction and meaningful access for distance learning. For a list of organizations and existing resources, see Appendices H and I.

    b. **Physical Education (including ROTC)-** In determining how to best ensure ongoing student access to physical education, ROTC, and Dance, districts should consult the guidance developed by the SCDE in Appendix I. Districts should also

be ready to consult resources and guidance being developed by the South Carolina Alliance for Health, Physical Education, Recreation, and Dance (SCAHPERD).

c. **Media Centers and Media Specialists-** In determining how to best ensure ongoing student access to media centers and instruction from media specialists, districts should consult the guidance developed by the South Carolina Association of School Librarians in Appendix J.

d. **Career and Technical Education (CATE)-** In determining how to ensure student access to CATE coursework and resources, districts should consult the guidance developed by CTEA and OCTE in Appendix K.

In order to best implement the recommendations from state and national professional organizations, districts may find it useful to:

1. Evaluate existing resources and equipment and then purchase additional necessary resources through federal or state recovery funds in order to ensure instruction can comply with existing health guidance and requirements. For example, districts could consider purchasing and providing "art kits" for elementary students to reduce sharing of art materials.

2. Develop greater opportunities for cross-curricular and interdisciplinary planning and instruction by teachers. For example, art and music can incorporate and enhance instruction in math, science, social studies, and English language arts.

Scheduling Models for Reopening

Scheduling for the 2020-21 school year poses unique challenges that have never before been faced in our schools. Schools are faced with the task of building schedules that are aligned to best practice and research on student learning while also adhering to new health and safety protocols implemented due to COVID-19. This task is further complicated by the impossibility of projecting with certainty the health conditions in August 2020 as well as the possibility of a resurgence of the virus in the fall. As a result of these factors, this section provides a menu of three potential scheduling models for districts to consider.

The determination of which scheduling option to choose is best made by a district based on local conditions, including local health conditions and available staffing and resources. In making scheduling decisions, districts should be **guided by the following three principles**:

1. *While scheduling should always seek to provide students with the best possible learning experiences, greatest priority must be given to ensuring the health, safety, and wellness of students and staff. This requires aligning all scheduling decisions with the latest recommendation and guidance from public health officials about best practices for preventing the spread of COVID-19.*

2. *Districts should avoid any scheduling scenario where the burden falls on a classroom teacher to simultaneously create and implement traditional and distance instruction for students in the same class at the same time.*

3. *While the optimal learning environment for most students would be in-person instruction, districts and schools should have plans in place to adjust scheduling models during the school year in the event of a decline or second wave of COVID-19 in their area. It must be acknowledged that the scheduling model that works in August may not be the model that works best throughout the year.*

In addition to these guiding principles, districts should carefully weigh the most up-to-date guidance from public health agencies like the CDC and DHEC. Schools are encouraged to review the CDC's Decision Tree, the CDC Considerations for Schools, the CDC FAQ's for Administrators, and the CDC's Community Mitigation Strategies in order to determine their preparedness for reopening. With these recommendations in mind, three possible scheduling models are proposed for districts. For each model, recommendations and questions to be considered are offered to guide districts in selection and implementation of the appropriate model.

Model 1: "Traditional" Scheduling

In this scenario, health guidelines and facility considerations allow for all students and staff to return to a school building to open the school year ***due to low or no spread of COVID-19 in the area***. From a learning perspective this should be a district's ideal scheduling scenario for the fall, but this option can only be selected if it is possible to do so based on guidelines provided by public health authorities (DHEC and CDC) and available facilities and staffing. Even in the event that schools can return in a "traditional" fashion in August, districts should still seek to make modifications to their scheduling and instructional practices to mitigate continued risks related to COVID-19. These modifications should include:

1. **Communications-** Districts should engage in early, clear, and consistent communications to students, families, and the community about changes in standard school operations necessitated by COVID-19. This communication should include direct instruction to all students on the first day of school concerning new protocols and expectations.

2. **Class Size Caps-** Any class size cap established by health authorities should ***not*** be exceeded in building school schedules. Exceptions that have been used in the past to justify exceeding existing class caps in a building's master schedule are not sufficient grounds for exceeding guidelines based on health considerations. In order to facilitate these efforts, schools should seek to utilize the following measures (these also apply to classes that meet in-person for Model 2: Hybrid):

    a. Schools should remove any classroom furniture beyond what is needed to accommodate the maximum number of students assigned to a room.

b. Teachers should limit or eliminate use of partner or group activities that require close physical proximity of students. Teachers should instead seek to create the collaborative learning benefits of partner and group work through tools like Socratic Seminars with appropriate physical spacing or collaboration through online documents and platforms.

c. Schools should increase utilization of large spaces throughout the entire school day. These spaces include atriums, auditoriums, cafeterias, gyms, and- when weather permits- outside spaces.

d. Master schedules must continue to prioritize inclusion of students with IEPs. In efforts to design smaller classes, districts should make every effort to ensure that students with IEPs are not isolated from their peers that do not have IEPs.

3. **Reduction of Transitions-** To the greatest extent possible, districts and schools should seek to minimize student transitions during the day. Doing so may require alterations to the traditional instructional schedule, which could include:

    a. Staggered class dismissal to prevent all students in the hallways simultaneously;

    b. Redesigning student arrival in the morning to prevent congregations of large groups. This may include a necessity for students to report directly to classrooms rather than meeting in common spaces;

    c. Scheduling restroom breaks;

    d. If possible, schools should consider scheduling "cohorts" of students with common courses so teachers, rather than students, rotate between classes;

    e. As long as health guidelines recommend maintaining distance between individuals, schools should seek to minimize or eliminate large group gatherings such as assemblies, pep rallies, spirit nights, or other similar activities; and

    f. In addition to focusing on transitions *within* a school, districts should seek to minimize student transitions *beyond* the school during the instructional day. This will require a careful review of field studies and other activities requiring student travel. This includes developing procedures to allow high school students opportunities to safely engage in career center opportunities if available. Whenever possible, schools should seek to use virtual activities and experiences to reduce the necessity for students to travel off campus during the school day. Schools should also make sure to provide an equal level of access to off-campus opportunities for curricular activities as is provided for co-curricular activities.

4. **Modified School Day (High School)-** When possible, high schools should seek to provide upperclassmen with late arrival or early dismissal in place of study hall periods. Schools should still place priority on building full student schedules for students that do

not have the 24 credits required to graduate and for students requiring additional course work to achieve CTE completer status. However, for students that have met these requirements, schools should seek to either provide late arrival or early dismissal when possible. For students desiring to take courses beyond the 24 credits required for graduation, schools should consider VirtualSC when it provides a desired course. However, this recommendation should not be construed as a reason to reduce student access to taking multiple years and credits of an academic program such as performing arts, CTE, etc.

5. **Planning for Potential Self-Isolation Periods**- Based on current health guidance, the possibility exists in the fall that significant numbers of staff or students could be required to complete a period of self-isolation or quarantine due to potential exposure to COVID-19 without contracting the illness. As a result, districts must plan for how instruction will be conducted for students and by staff that are required to self-isolate without being ill. This could include ensuring that teachers have the resources to conduct distance learning from home and students can access instructional materials and resources from home.

Model 2: Hybrid Scheduling

This situation is most likely to be experienced during a period of ***medium spread of COVID-19 in the area.*** In this scenario, only a portion of staff and students can report to a physical school building due to a combination of health requirements and facility/space limitations. As a result, some students will be able to report to school while others will have to engage in distance learning. In this situation, districts should place the highest priority on ensuring in-person instruction for the following groups while complying with prevailing health and safety requirements:

1. Pre-K and Elementary;
2. Students with Individual Education Plans (IEPs), especially those with occupational and other physical therapy needs;
3. English learners; and/or
4. High school students in CTE programs that require hands-on experiences or access to specialized equipment.

In order to maximize access to school facilities for these groups, districts may need to consider alternative placement of classes to comply with health guidelines (i.e.- elementary classes meeting on a high school campus). As a result, a district may consider an option where certain groups (example- elementary) report to a school building daily while other groups (middle and high) engage in distance learning.

District could also consider split-schedule models for all students such as:

1. **AM/PM Model,** where half of the student body attends class in the morning and then engages in distance learning in the afternoon while the other half of the student body engages in distance learning in the morning before attending in-class sessions in the afternoon.

2. **Alternating Days,** where cohorts of students attend school for the entire day for a portion of the week. For example, half of the students could attend school on Monday and Wednesday while the other half attend on Tuesday and Thursday. On Fridays, students engage in distance learning, teachers have opportunities for planning and grading, and districts can engage in deep cleaning of school buildings.

Before adopting any hybrid schedule, districts should consider the following questions:

1. *Does the district have a plan in place for how to provide clear, consistent, and advanced communications to students, families, and the communities to help them understand the hybrid scheduling model?*

2. *Does the district have sufficient transportation resources (buses and drivers) to execute a split-schedule?*

3. *Does the area have sufficient childcare options to support families that will be unable to have an adult at home for days/times of day where students are engaged in distance learning?*

4. *What is the educational impact of split scheduling on different student groups? For example, districts should consider the additional challenge presented to younger learners by inconsistent schedules and routines throughout the week. A split schedule could also pose unique challenges for student groups such as English learners or students on an IEP.*

5. *How can districts minimize the burden of split-scheduling on families with multiple children in school? For example, districts should consider ways to cluster and schedule students by last name or sibling indication in PowerSchool to ensure children in the same family attend school at the same time of day or on the same days each week, even if they attend different schools within the district. Districts could also consider allowing families to "register" for a specific schedule to ensure all children in the same family have the same schedule throughout the week.*

6. *How can districts support teachers in building relationships with students? Similar to the second point under the "full distance learning" model, districts must be mindful of the need to strategically facilitate the development of relationships with families and students in the event that a portion of students are unable to start the school year in a building.*

Model 3: Full Distance Learning

In this scenario, all students and staff are unable to return to a physical school building due to ***high spread of COVID-19 in the area***. In this event, districts should rely on a full distance learning schedule until the health situation permits a return to in-person instruction for all or part of the students in a school. While this is similar in concept to what districts implemented in spring 2020, use of full distance learning in the 2020-21 school year should consider the following:

1. **Distance Learning Plan-** Districts using distance learning for students should have a clearly defined plan that is communicated to all stakeholders and includes what should be expected by and from students, teachers, and families. This plan should be responsive to lessons learned by the districts in the spring of 2020 and contain the same elements described in the "Distance Learning Contingency Plan" section earlier in this document.

2. **Building Relationships-** In the event of distance learning at the start of the year, districts must carefully consider ways to build relationships with students and families. This is a unique challenge compared to the spring 2020 distance learning experience where teachers already had established relationships with students and families. Ideas in this area could include scheduling digital "open house" events prior to the start of the school year or giving teachers dedicated and unencumbered work time to engage in outreach to their new students/families.

3. **Establishment of Advisory Groups-** Districts should consider assigning a "mentoring or advisory" group of students to all staff in a building. To be effective, these groups should be kept small (no more than 12 students). For schools with existing advisory sections in their schedule, all building staff should be included to reduce the size of existing advisory sections. As mentors, staff would be responsible for regularly communicating with and checking in on their assigned students, both in terms of academic progress and social and emotional wellbeing.

4. **Opportunities for Two-Way Communication:** In addition to providing regular and detailed communication to families, staff, and students, districts should provide regular opportunities for collecting feedback from families, staff, and students to identify areas of strength and concern regarding the distance learning format.

5. **Reducing Transport of School Materials-** Districts should review instructional practices to determine steps that can be taken to minimize the amount of materials that are routinely being transported by students and staff between school and staff. While it is impossible to eliminate all transport of materials, finding ways to reduce transport should be emphasized and encouraged.

6. **Technology Assistance Hubs-** Districts should maintain physical locations with regular business hours where students and staff can have access to technology support. Districts should also consider ways to provide support for students and families without available transportation to these locations.

7. **Meeting the Needs of Special Populations:** In the event of full distance learning, districts should be especially mindful of meeting the needs of special populations of students such as:

    a. **Students with IEPs-** Consideration of how to best meet the needs of a child with an IEP through distance learning should be determined on a child-by-child basis by IEP teams. In some cases, these may necessitate the development of compensatory services for students with pronounced needs that can not be

adequately addressed through a district's existing distance learning platform and procedures.

b. **English learners-** In delivering distance learning for English learners, to the extent possible, districts should:

   i. Reduce the ratio of ESOL instructors to students;
   ii. Continue to provide instructional support aligned to the student's ELP;
   iii. In the event a student's ELP has not been determined, the results of the provisional EL screening interview should be used to guide the level of support;
   iv. Provide both synchronous and asynchronous resources and instruction;
   v. Increase access to translators and/or software that assist with translation;
   vi. Continue use of a co-teaching model; and
   vii. Ensure that all materials are also accessible in a student's home language to facilitate family engagement.

In order to best support districts that require a full distance learning model, the SCDE should consider the following:

1. **Waivers from Defined Minimum Program and Seat Time Requirements-** As noted in the AccelerateED summer recommendations, districts that are required to shift to a hybrid or full-time distance learning model will need the flexibility provided by waivers to defined minimum program and seat time requirements.

2. **Facilitating District Collaboration-** The SCDE should continue to facilitate collaboration among districts that are engaged in full distance learning. Such support includes continued development of the resources at scremotelearning.com.

DRAFT

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Appendix A – NASP COVID-19 Parental Resource

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NATIONAL ASSOCIATION OF School Psychologists

National Association of School Nurses

Updated March 25, 2020

Helping Children Cope With Changes Resulting From COVID-19

Families across the country are adapting to the evolving changes in daily life caused by the COVID-19 pandemic. Most schools, places of public gathering, and nonessential businesses are closed, and parents and other caregivers are faced with helping their families adjust to the new normal. This includes trying to keep children occupied, feeling safe, and attempting to keep up with schoolwork as best as possible. None of this easy, but it helps to stay focused on what is possible in order to reinforce a sense of control and to reassure children that they are okay, and that the situation will get better.

It is very important to remember that children look to adults for guidance on how to react to stressful events. Acknowledging some level of concern, without panicking, is appropriate and can result in taking the necessary actions that reduce the risk of illness. Teaching children positive preventive measures, talking with them about their fears, and giving them a sense of some control over their risk of infection can help reduce anxiety. This is also a tremendous opportunity for adults to model for children problem-solving, flexibility, and compassion as we all work through adjustmenting daily schedules, balancing work and other activities, getting creative about how we spend time, processing new information from authorities, and connecting and supporting friends and family members in new ways. The following tips can help.

STAY CALM, LISTEN, AND OFFER REASSURANCE

- **Be a role model.** Children will react to and follow your reactions. They learn from your example.
- **Be aware of how you talk about COVID-19.** Your discussion about COVID-19 can increase or decrease your child's fear. If true, remind your child that your family is healthy, and you are going to do everything within your power to keep loved ones safe and well. Carefully listen or have them draw or write out their thoughts and feelings and respond with truth and reassurance.
- **Explain social distancing.** Children probably don't fully understand why parents/guardians aren't allowing them to be with friends. Tell your child that your family is following the guidelines of the Centers for Disease Control and Prevention (CDC), which include social distancing. Social distancing means staying away from others until the risk of contracting COVID-19 is under control. Showing older children the "flatten the curve" charts will help them grasp the significance of social distancing. Explain that while we don't know how long it will take to "flatten the curve" to reduce the number of those infected, we do know that this is a critical time—we must follow the guidelines of health experts to do our part.
- **Demonstrate deep breathing.** Deep breathing is a valuable tool for calming the nervous system. Do breathing exercises with your children.
- **Focus on the positive.** Celebrate having more time to spend as a family. Make it as fun as possible. Do family projects. Organize belongings, create masterpieces. Sing, laugh, and go outside, if possible, to connect with nature and get needed exercise. Allow older children to connect with their friends virtually.

- **Establish and maintain a daily routine.** Keeping a regular schedule provides a sense of control, predictability, calm, and well-being. It also helps children and other family members respect others' need for quiet or uninterrupted time and when they can connect with friends virtually.
- **Identify projects that might help others.** This could include: writing letters to the neighbors or others who might be stuck at home alone or to healthcare workers; sending positive messages over social media; or reading a favorite children's book on a social media platform for younger children to hear.
- **Offer lots of love and affection.**

MONITOR TELEVISION VIEWING AND SOCIAL MEDIA

- Parents/guardians should monitor television, internet, and social media viewing—both for themselves and their children. Watching continual updates on COVID-19 may increase fear and anxiety. Developmentally inappropriate information, or information designed for adults, can also cause anxiety or confusion, particularly in young children.
- Dispel rumors and inaccurate information. Explain to your child that many stories about COVID-19 on the internet may include rumors and inaccurate information. Older children, in particular, may be accessing a great deal of information online and from friends that contains inaccuracies. Talk to your child about factual disease information.
- Provide alternatives. Engage your child in games or other exciting activities instead.

TAKE TIME TO TALK

- **Let your children's questions guide you.** Answer their questions truthfully, but don't offer unnecessary details or facts. Don't avoid giving them the information that experts indicate as crucial to your children's well-being. Often, children and youth do not talk about their concerns because they are confused or don't want to worry loved ones. Younger children absorb scary information in waves. They ask questions, listen, play, and then repeat the cycle. Children always feel empowered if they can control some aspects of their life. A sense of control reduces fear.

BE HONEST AND ACCURATE

- **Correct misinformation.** Children often imagine situations worse than reality; therefore, offering developmentally appropriate facts can reduce fears.
- **Explain simple safety steps.** Tell your child this disease spreads between people who are in close contact with one another, when an infected person coughs or sneezes, or when one touches infected objects or surfaces.
- **Stay up-to-date on the facts.** Go to https://www.cdc.gov/coronavirus/2019-ncov/index.html for additional factual information.

KEEP EXPLANATIONS AGE-APPROPRIATE

- **Early elementary school children.** Provide brief, simple information that balances COVID-19 facts with appropriate reassurances that adults are there to help keep them healthy and to take care of them if they do get sick. Give simple examples of the steps people make every day to stop germs and stay healthy, such as washing hands. Use language such as "adults are working hard to keep you safe."

- **Upper elementary and early middle school children.** This age group often is more vocal in asking questions about whether they indeed are safe and what will happen if COVID-19 spreads in their area. They may need assistance separating reality from rumor and fantasy. Discuss the efforts national, state, and community leaders are doing to prevent germs from spreading.
- **Upper middle and high school students.** Issues can be discussed in more depth. Refer them to appropriate sources of COVID-19 facts. Provide honest, accurate, and factual information about the current status of COVID-19. Engage them in decision-making about family plans, scheduling, and helping with chores at home.
- **For all children, encourage them to verbalize their thoughts and feelings. Be a good listener!**

STAY CONNECTED TO SCHOOL

- **Locate learning resources.** Schools' capacity to conduct virtual learning experiences will vary greatly, but most schools are providing lessons and learning activities for children to do. Take advantage of the many companies and online platforms currently offering free learning opportunities.
- **Identify additional resources.** Know if your school or district is providing additional resources, such meals, or technology, such as a laptop or tablet.
- **Stay in touch.** Find out how the school is communicating with families and students. Be sure to read any communications you receive. Check with you children, particularly older ones, as they may be receiving information directly that would be helpful for you to know.
- **Connect with school staff.** Reach out to your child's teacher and other relevant school staff if you have concerns about their coping and keeping up with assignments or activities.

KNOW THE SYMPTOMS OF COVID-19

- According to the CDC, symptoms of fever, cough, and/or shortness of breath appear within 14 days after being exposed to the disease.
- For some people, the symptoms are similar to having a cold; for others, they are more severe or even life threatening.

MODEL BASIC HYGIENE AND HEALTHY LIFESTYLE PRACTICES

- **Practice daily good hygiene.** Encourage your child to practice these simple steps to prevent spreading the virus.
    - Wash your hands multiple times a day for 20 seconds. Signing "Twinkle, Twinkle Little Star" or "Happy Birthday" twice is about 20 seconds.
    - Compliment your children when they use a Kleenex or sneeze or cough into the bend of their elbow. Teach them the importance of throwing away used tissues immediately after sneezing or coughing.
    - Sadly, handshakes and hugs need to be limited to immediate family members, at least for now.
- **Foster a sense of control.** Offering guidance on what your child/children can do to prevent infection offers them a greater sense of control, which reduces anxiety.
- **Build the immune system.** Encourage your child to eat a balanced diet, get enough sleep, and exercise regularly; this will help them develop a robust immune system to fight off illness.

BE AWARE OF YOUR CHILDREN'S MENTAL HEALTH

Most children will manage well with the support of parents and other family members, even if showing signs of some anxiety or concerns, such as difficulty sleeping or concentrating. Some children, however, may have risk factors for more intense reactions, including severe anxiety, depression, and suicidal behaviors. Risk factors can include a pre-existing mental health problem, prior traumatic experiences or abuse, family instability, or the loss of a loved one. Parents and caregivers should contact a professional if children exhibit significant changes in behavior or any of the following symptoms for more than 2 weeks.

Preschoolers—thumb sucking, bedwetting, clinging to parents, sleep disturbances, loss of appetite, fear of the dark, regression in behavior, and withdrawal.

Elementary school children—irritability, aggressiveness, clinginess, nightmares, school avoidance, poor concentration, and withdrawal from activities and friends.

Adolescents—sleeping and eating disturbances, agitation, increase in conflicts, physical complaints, delinquent behavior, and poor concentration.

ADDITIONAL RESOURCES

- Coping With Stress During Infectious Disease Outbreaks, https://store.samhsa.gov/product/Coping-with-Stress-During-Infectious-Disease-Outbreaks/sma14-4885
- Centers for Disease Control and Prevention, Coronavirus Disease 2019 (COVID-19), https://www.cdc.gov/coronavirus/2019-ncov/prepare/children.html
- Handwashing and Hand Sanitizer Use at Home, at Play, and Out and About, https://www.cdc.gov/handwashing/pdf/hand-sanitizer-factsheet.pdf
- NASP COVID-19 Resource Center, https://www.nasponline.org/COVID-19

For more information related to schools and physical and mental health, visit www.nasponline.org and www.nasn.org.

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Appendix B – DHEC School Operations COVID-19 Interim Guidance

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COVID-19 Interim Guidance for School Operations

Screening

- Screening testing of all incoming students and staff is not recommended because the tests available at this time cannot provide assurance that someone will not become sick after the test is performed.
    - The best available test, called a PCR, is a snapshot in time that only tells whether the individual is infected at that exact time. Antibody tests currently available have variable accuracy and positive results cannot guarantee protection from becoming infected again.
    - DHEC does recommend that individuals with even mild symptoms consistent with COVID-19 be tested for the disease.
- Educate students and their parents on the symptoms of COVID-19 and the importance of the student staying home if they have any of the symptoms or if anyone in the household tests positive for the disease.
    - Require sick students and staff to stay home as per the School and Child Care Exclusion List. Establish procedures for those who are sick at school to be sent home as soon as possible and kept separate from others until they can leave.
- Place signs such as this one on the exterior of entrances to the building to ask individuals entering to not enter if they have symptoms of COVID-19.
- Perform daily morning screenings by asking students if they have any symptoms of COVID-19. This could be done on an individual basis by asking each student as they enter their first classroom or on a group basis via morning announcements reminding students that they should alert their teacher if they feel sick.
    - Routine temperature screening of all persons entering the school is not recommended, except for in classrooms or schools dedicated to medically fragile students.
    - There is currently no method to screen daily for asymptomatic infected people, so proper social distancing must be performed.

Social Distancing Practices

- To the extent possible, maintain at least six feet of distance between each person.
    - If desks are used, increase the space between them**.** Rearrange them to maximize the space between students. Make desks face in the same direction (rather than facing each other).
- Stagger arrival and dismissal times.
- Avoid students congregating in common areas. For example, have students eat meals in their classrooms rather than mixing in the cafeteria or other common area.
    - If it is not possible to suspend use of common areas, try to limit the extent to which students mix with each other, and particularly with students from other classes.
    - Restrict hallway use through staggered release of classes.
- Limit people present to only students and essential faculty and staff.
- Avoid assemblies or other congregate events.

- Encourage frequent handwashing with soap and water for at least 20 seconds. If soap and water are not available and hands are not visibly dirty, use an alcohol-based hand sanitizer that contains at least 60% alcohol.
    - Ensure adequate supplies (e.g., soap, paper towels, hand sanitizer).
    - Put up posters in key locations (e.g., bathrooms) encouraging hand hygiene.
- Strongly encourage faculty and staff to wear masks or cloth face coverings as much as possible. Consideration may be given to recommending them for students. Cloth face coverings should not be used on children under two years old, anyone who has trouble breathing, or anyone unable to remove the face covering without assistance. The CDC has a pattern and a video available demonstrating how to make a cloth one.

Cleaning and Disinfection

- Routinely clean and disinfect surfaces and objects that are frequently touched (e.g., doorknobs, light switches, classroom sink handles, countertops). Using an appropriate disinfectant, wipe down items (e.g., desks, chairs) and equipment before each use.
    - Clean with soap and water or a cleaner typically used. Use all cleaning products according to the directions on the label.
    - After cleaning, disinfect with a product that is EPA-approved for use against the virus that causes COVID-19 (a list of these is available here) or with diluted bleach solution (5 tablespoons, or 1/3 cup, bleach per gallon of water or 4 teaspoons bleach per quart of water).
- For electronics such as tablets, touch screens, keyboards, and remote controls, remove visible contamination if present.
    - Consider use of wipeable covers for electronics.
    - Follow the manufacturer's instructions for all cleaning and disinfection products.
    - If no manufacturer guidance is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol to disinfect touch screens. Dry surfaces thoroughly to avoid pooling of liquids.
- Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time).
- Ensure adequate supplies to support frequent cleaning and disinfection practices.
- The CDC provides additional information on Cleaning and Disinfecting a Facility, including guidance on appropriate personal protective equipment to wear while cleaning and disinfecting.
- Increase the ventilation (air exchange) rate and the percent outdoor air in ventilation.

References

- DHEC COVID-19 webpage: scdhec.gov/covid19
- CDC COVID-19 webpage: cdc.gov/covid19

This is consistent with guidance available as of May 18, 2020 and may be updated as new information on this novel virus and evolving situation become available.

Appendix C – ASHRAE Epidemic Task Force Building Readiness

DRAFT

ASHRAE EPIDEMIC TASK FORCE

BUILDING READINESS | Updated 05-21-2020

General Information

- Building Readiness Intent
- Building Readiness Team

Epidemic Conditions in Place (ECiP)

- Systems Evaluation
- Building Automation Systems (BAS)
- Increased Ventilation
- Ventilation Control
- Upgrading and Improving Filtration
- Energy Savings Considerations
- Exhaust Air Re-entrainment
- Energy Recovery Ventilation Systems Operation Considerations
- UVGI Systems
- Domestic Water Systems
- Maintenance Checks
- Shutdown a Building Temporarily-FWQ
- System Manual

Post-Epidemic Conditions in Place (P-ECiP)

- Re-starting a building-FAQ P-ECiP: Prior to Occupancy
- P-ECiP: Operational Considerations once Occupied
- P-ECiP: Ventilation
- P-ECiP: Filtration
- P-ECiP: Building Maintenance Program
- P-ECiP: Systems Manual

Additional Information

- Acknowledgements
- References
- Disclaimer

Information in this document is provided as a service to the public. While every effort is made to provide accurate and reliable information, this is advisory, is provided for informational purposes only, and may represent only one person's view. They are not intended and should not be relied upon as official statements of ASHRAE.

General Information

Building Readiness Intent

The following Building Readiness information is meant to provide practical information and checklists for how your building should be operating and how to practically check its operation. Actual conditions at any specific building will vary, and the adjustments that should be made will depend on many factors such as local climate, complexity of systems involved and the use, occupancy and activities that occur in and around your building.

Building Readiness modes of operation for the building should include the following:

- Epidemic Operating Conditions in Place (ECiP)
  - Occupied- at pre-epidemic capacity
  - Occupied- at reduced capacity
  - Unoccupied temporarily, and
  - Operation during building closure for indefinite periods

- Post-Epidemic Conditions in Place (P-ECiP)
  - Prior to Occupancy
  - Operational Considerations once Occupied

General Information

Building Readiness Intent Continued

This document will provide some of the practical guidance on operating your building systems in these different modes. The suggested mode of operation during the Epidemic periods are detailed in the Buildings Guidance on the ASHRAE Covid-19 Website.

- Healthcare
- Residential
- Commercial
- Schools
- Transportation

In addition, this document will cover specific recommendations from the Building Guidelines such as:

- Increased ventilation
- Increased filtration
- Energy recovery ventilation systems operation considerations
- Building exhaust air re-entrainment

This document assumes that the Owner and Facility Operators have completed their Epidemic Preparedness Plan and are ready to shut down, operate, and re-open their building. This can be done in either mode, ECiP or P-ECiP.

The following guide is to provide practical guidance for the Mechanical Systems for those scenarios.

Keep in mind, that for the P-ECiP mode, there are really two phases to consider; Prior to Occupying, and Operational Considerations once Occupied.

General Information

Building Readiness Team

The Building Readiness Team could include professionals and licensed and certified individuals and companies that can perform the analysis, testing, design, construction, control programming, balancing, commissioning, maintenance and operation services required to make the adjustments and achieve the performance included in these recommendations. The following are the typical service providers that may be required:

- **Commissioning Provider (CxP)** – engage a CxP that has a recognized certification from ASHRAE (BCxP), ACG (CxA), BCA (CCP), NEBB (BSC and RCx), or others. They should also have completed several Retro-Commissioning or New Building Commissioning projects in the building type in question.
- **Test and Balance Company (TAB)** – engage a TAB that has recognized certification from Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB) and Testing Adjusting and Balancing Bureau (TABB) or another certifying body. The TAB agent or service provider should have experience with the building type and systems being evaluated. These certifying bodies require a TAB company operator to have been trained and certified and requires the use of calibrated instruments.
- **Building Automation Systems (BAS) Company** – the Owner should engage the company currently providing service and support for the control system(s) that are installed in the building. If a new service provider is required, finding a local company that has experience working with and operating the building's existing control systems and preferably certified by the manufacturer to provide services for their equipment.
- **Contractors** – the Owner should engage, if necessary, the appropriate contractors to install or repair equipment or systems identified by the CxP, TAB, or BAS providers. This could include the following:
  - General Contractors (GC)
  - Mechanical Contractor (MC)
  - Electrical Contractor (EC)
  - Specialty contractors for fire alarm and smoke control systems and interfaces.
- **Architect and/or Engineer (AE)** – the Owner should engage a design team for any issues that might require permit drawings. It is preferred that the original Engineer or Architect of Record that was involved with the original construction or the latest renovation or addition to the facility be engaged if possible. Those professionals should be most familiar with the building's current operation.
- **Owner's Facility Staff** – the Owner should make sure that their facility staff are involved in the process. This allows for the information transfer on how systems might be altered to operate.

Epidemic Conditions in Place

Systems Evaluation:

The Owner should consider evaluating their building systems to check that it is operating in proper order (per design conditions or current operational strategies), is capable of being modified to align with HVAC mitigation strategies, and to identify deficiencies that should be repaired. This could be viewed as tactical commissioning of the systems to determine risk areas for the building operating in epidemic conditions.

Systems evaluation should include the following steps:

1. Gather and review building and systems documentation, including but not limited to:
   a. Most recent design documents, specifically the HVAC and Plumbing Water systems construction documents
   b. Record documents (as-built, marked up drawings and specifications received from the Contractor at the conclusion of construction)
   c. Original, approved equipment and system submittal documents
   d. Systems manuals or turnover package
   e. Controls and Building Automation System (BAS) drawings and sequences of operation and initial system parameters
   f. Equipment control wiring diagrams and troubleshooting guidelines
   g. Service contracts and maintenance logs
   h. BAS Trend reports and alerts and notifications reports
   i. Most recent Testing, Adjusting and Balancing (TAB) reports
   j. Most recent Commissioning Reports (if available)

Epidemic Conditions in Place

Systems Evaluation Continued:

2. **Inspect equipment, systems and controls to determine where existing problems may exist. Start with components, then move to systems, finally move to the BAS and integrated, whole building operations.**

For example:

a. Components

i. Boilers
ii. Chillers
iii. Air Handling Units
iv. Control Dampers
v. Control Valves
vi. Control Sensors
vii. Airflow Measuring Stations (AFMS)
viii. Fan Coil Units
ix. Grilles, registers and diffusers
x. Variable speed drives
xi. Variable Air Volume terminal units,
xii. Water-to-water heat exchangers
xiii. Water-to-refrigerant heat exchangers
xiv. Water to air heat exchangers
xv. Steam-to-water heat exchangers

b. Systems

i. Chilled water systems
ii. Hot water systems
iii. Condenser water systems
iv. Air handling systems (Air handling equipment and air distribution networks: supply ducts, return ducts, exhaust ducts)
v. Steam distribution systems
vi. Refrigerant systems

Epidemic Conditions in Place

Systems Evaluation Continued:

c. Building Automation Systems (BAS) and Integrated Systems

i. Graphic user interfaces
ii. Set Points (Temperature, Humidity, Airflow, CO2, etc)
iii. Schedules (Occupied and Unoccupied)
iv. Trend reports
v. Alarm, alert and notification logs
vi. Remote access capabilities
vii. Life safety system interfaces and interlocks
viii. Access control interfaces
ix. Smoke control system interfaces
x. Lighting control interfaces
xi. Electronic security system interfaces

Epidemic Conditions in Place

Systems Evaluation Continued:

3. The investigators should be considering the HVAC mitigation strategies to reduce the potential bio-burden in the building that could be implemented on the systems.

4. When checking calibration, use the guidance in ASHRAE Guideline 11-2018 -Field Testing of HVAC Control Components.

5. Prepare a deficiency log and issue work orders to in-house maintenance personnel and purchase orders to qualified service providers to correct any critical issue identified in steps 1 and 2 that would prevent the system(s) from functioning in accordance with the systems' original design intent or the building's current use, occupancy and activity.

6. Prepare a report that identifies the HVAC mitigation strategies for the systems. This should include a brief work order description for the in-house maintenance personnel and qualified service providers. This should detail modifications or additions to components, systems and controls necessary so that the recommendations included in this document may be implemented.

Epidemic Conditions in Place

Building Automation Systems (BAS)

Evaluate your BAS:

You need to understand the type of BAS you have in your building. HVAC controls range from simple single zone thermostats controlling a single HVAC unit's heating and cooling modes of operation, to complex BAS that integrate the controls from large building owners and owners' with multiple large buildings in their portfolios, such as school districts, university campuses and large government installations and everything thing in between.

In addition, there are legacy HVAC systems and BAS that still use electric and pneumatic controls and time clocks that do not have modern, digital communications interfaces and therefore, do not allow building operators any insight into how their buildings are performing without being physically in the building or at the piece of HVAC equipment.

Epidemic Conditions in Place

Building Automation Systems (BAS) Continued

Remote Access:

If the building is equipped with a Building Automation System (BAS), it should have an existing method for remote access.

If the BAS does not have a method for remote access, the owner should coordinate with buildings IT provider and BAS provider for secure remote access for the required users.

- Cybersecurity must be put at the forefront of this endeavor as to not open the BAS and other building networks to unauthorized access.
- If the BAS is not on its own Virtual Local Area Network (VLAN) consider segregating the building systems (BAS, Fire Alarm, Card Access, Cameras, etc.) into a VLAN to limit remote exposure to the buildings internal networks.
- Consider two step authentication as mandatory for remote access.
- Care should be taken in granting editing access to the BAS to knowledgeable, trained operators only.
- Set up user logging such that a virtual log of all changes are documented.

These remote systems range from the simple to complex communication capabilities.

- The simple could be dial up modems transmitting alerts and notifications to cell phones and/or email addresses.
- The more complex is a BAS system that is connected to local area networks that can be accessed via VPN connections.

Depending on that connection, there are variations to the amount of data access which can range from limited data to a fully web based, graphic user interfaces connected to a host of mobile devices such as smartphones, tablets and stationary PC workstations.

Epidemic Conditions in Place

Building Automation Systems (BAS) Continued

Prior to making any changes:

- Perform a full backup of all BAS software, databases, programs, graphics, trends, schedules, etc. and store off site either physically or in the cloud.
- Consider printing them physically or to a pdf so that values can easily be returned when the epidemic is over.
- Inspect or replace any batteries in building controllers such that databases are not lost during any extended power interruptions.
- If your building is not on a scheduled BAS inspection (either by third parties or self-performed) consider performing a preventative maintenance inspection of all systems to ensure proper operation prior to any changes being made. Consider retaining the services of an independent 3rd party commissioning service provider (CxP) to help you review the scope of work for any control system modifications and who can verify the systems are functioning as intended.
- Review the access requirements with all parties that the owner wants to have remote access during the unoccupied or modified mode of operation period.
- Determine the level of access and permissions each person with access should have, such as full access to make changes in set points, schedules and system programming, schedule overrides only, alerts and notification access only and view only access.
- Confirm with company IT departments what requirements may be in place to qualify, screen and approve people for remote access to control systems and company IT networks.
- Set each person up as a unique user having unique usernames and password and permission levels so that access and changes to the system can be monitored and documented.
- Have a trained and experienced operator go over the existing systems remote access features of the system and its interface with anyone who will be given remote access to the system.
- Review all alerts, notifications, event logs and system and control point trend reports prior to making any modifications and download those reports to create a baseline for comparing the effects of any changes that may be made in the future.

Epidemic Conditions in Place

Building Automation Systems (BAS) Continued

Prior to making any changes:

- If possible, walk the facility or facilities being controlled and managed by the BAS to become familiar with the location, size and scale of the control network.
- As minimum, review system graphics for all system types and buildings to become familiar with the system(s).
- Make note of any communication issues with components, sensors, controllers, buildings, etc. and develop a list of repairs that may need to be made before the system is placed in extended shut down, unoccupied or partial occupancy modes of operation.
- Review system graphics or text-based reports to determine if temperatures, humidity, CO2, airflows (supply, return, outside air, exhaust), damper positions, control valve positions, motor speeds and status are returning or reporting reasonable values.
- Use test instruments to verify any questionable information and to spot check a representative quantity of points. Start with verifying critical sensors, such as CO2 or airflow measuring stations.
- Collaborate with the building owner, building users and building operators and create a plan for modifications to sequences, set points and system operations.
- Note who was in attendance, what was discussed, and any decisions made and implemented.
- Obtain buy-in and approval from key stakeholders before making any changes.
- Repairs to systems involved in this response should be considered mandatory as any new sequences may not be able to be implemented via the BAS.

Epidemic Conditions in Place

Building Automation Systems (BAS) Continued

Making changes to accommodate epidemic responses:

- After determining what sequence of operation changes are appropriate, make small changes to the system at a time and monitor for a few days or through some varying weather conditions to make sure the system and building(s) is responding to the changes as expected.
    - Have the CxP or Control Contractor verify and document the effect of the changes through key trend reports and physical measurements or standalone data loggers.
- Keep good records and document all meetings, agreed to repairs, maintenance and changes with written communication.
- The team should consider making the changes to include an automated response such that you may return to the original sequences (or pre and post pandemic sequences) at the push of “virtual” button.
    - Care should be taken to limit access to the initiation of these automated sequences as they may have a large energy and comfort impact on your facility.
- Existing alarm parameters may need to be adjusted during these new sequences as the original “normal” conditions may not be able to be met.
- Ensure that this team follows the guidance for the facilities Systems Manual later in this document.

Epidemic Conditions in Place

Increased Ventilation

The Building Guidance clearly encourages building operators to increase their systems outdoor air ventilation to reduce the recirculation air back to the space. The guidance indicates that this must be done as much as the system and or space conditions will allow. It is very important that these overall building systems are evaluated by a qualified TAB firm, Cx provider or design professional to ensure that the modifications for pandemic safety do not create additional issues.

One major concern is the ability to maintain space conditions. Hot and humid climates could struggle to keep the space below acceptable temperature and relative humidity for comfort. Cold climates could struggle to keep the space above acceptable space temperature and relative humidity for comfort. It is important to note that research indicates that maintaining the space relative humidity between 40% and 60% decreases the bio-burden of infectious particles in the space and decreases the infectivity of many viruses in the air. The team should consider adjusting the space comfort setpoints to increase the system's ability to use more outside air.

The ability for a coil to provide additional capacity was evaluated using a typical cooling coil at various percent of outside air. This evaluation shows the additional required cooling capacity and gpm required[1] if the same exact coil experiences the different entering air conditions while achieving constant leaving air conditions. The following shows the impact of increasing the percent of outside air:

Percent OA	EAT DB / WB	CHW GPM	Coil Pressure Drop (Ft H2O)	Total Capacity (MBH)	Sensible Capacity (MBH)
20	77.64 / 66.64	73.66	5.04	443.49	282.78
30	78.95 / 68.55	83.4	6.32	510.68	297.83
40	80.26 / 70.39	94.27	7.90	582.09	312.93
50	81.56 / 72.15	104.17	9.49	651.46	327.99
60	82.86 / 73.84	114.6	11.3	720.81	343.1
70	84.15 / 75.47	125.87	13.43	790.57	358.15
80	85.44 / 77.03	135.5	15.37	857.15	373.26
90	86.72 / 78.54	149.73	18.48	929.1	388.3

The unit was selected to be 10,000 cfm with a constant 44°F chilled water supply with a 12°F chilled water rise to make a consistent coil leaving air temperature of 52°F dry-bulb and 51.5°F wet-bulb. This assumes a return air condition of 78°F and 60% RH from the space. The coil was locked in at an 8-row coil with 126 fins per foot that is 20.45 square feet of coil face area.

Epidemic Conditions in Place

Increased Ventilation Continued:

The assessment team determining how much more a coil can handle can see that increasing from 20% outside air to 90% outside air doubles the required chilled water, triples the coil pressure drop and requires just over twice the amount of cooling source from the chiller plant. The capacity of your plant needs to be evaluated.

There are other options to increase the outside air in an AHU as much as the building automation system (BAS) will allow based on space conditions. There are two different approaches to modify a system to optimize the outside air without ignoring space comfort in hot and humid climates that is a twist on the dynamic supply air temperature reset strategy. This is assuming a typical variable air volume AHU serving multiple VAV boxes or as a single zone VAV unit. The outside air damper and return dampers could be linked or separate, but they work in opposite directions in any option presented.

Option 1: Increased OA based on Cooling Coil

If the cooling coil control valve is less than 90% AND the discharge air temperature (or space temperatures) are satisfied, OPEN the OAD [CLOSE the RAD] 3% every 15 minutes.

If the cooling coil control valve is greater than 90% OR the discharge air temperature (or space temperatures) is exceeded by 1 degree F, CLOSE the OAD [OPEN the RAD] 6% every 5 minutes.

Option 2: Increased OA based on Space Conditions

This option assumes that a coil leaving air temperature controls the CHW valve to maintain a constant setpoint.

If the space temperatures are satisfied and the relative humidity is less than 55%, OPEN the OAD [CLOSE the RAD] 3% every 15 minutes.

If the space temperatures are exceeded by 1 degree F OR the relative humidity is greater than 60%, CLOSE the OAD [OPEN the RAD] 6% every 5 minutes.

These options require different sensors to be installed in the unit to work properly. Either sequence would allow the unit to increase the outside air ventilation as much as possible without exceeding the space comfort conditions. It is also important to note that demand controlled ventilation, static pressure reset strategies and the typical supply air temperature reset strategies should be disabled.

Epidemic Conditions in Place

Increased Ventilation Continued:

Building and space pressurization is another important consideration.

Care should be taken when increasing outside air but keeping exhaust and relief air systems as designed. New problems can be created such as:

- Doors that will not close
- Excessive noise at entrance doors and between adjacent spaces
- Access / egress issues at common hallways or egress points (in extreme conditions)
- Reverse of the intended pressure required for a space

Excessive building pressurization can also affect vertical transportation systems and areas that are intended to be negatively pressurized, such as commercial kitchens, bathrooms, process areas and custodial areas.

It is very important that these overall building systems are evaluated by a qualified TAB firm, Cx provider or design professional to ensure that the modifications for pandemic safety do not create additional issues.

Epidemic Conditions in Place

Ventilation Control:

The intent is to ensure that while the building is operating, your ventilation schedule should assist in removing bioburden during, pre-, and post- occupancy of the building. Flush the building for a duration sufficient to reduce concentration of airborne infectious particles by 95%. For a well-mixed space, this would require 3 air changes of outside air as detailed in the calculation methodology.

In lieu of calculating the air change rate, pre- and post-occupancy flushing periods of 2 hours (for a total of 4 hours) may be used since this should be sufficient for most systems meeting minimum ventilation standards.

So for each mode, the control would be as follows:

- Occupied: bring in the most outside air that the systems can accommodate as described above

- Pre- and Post-: The general method is to operate the systems in Occupied Mode for “x” hours prior to, and after, daily occupancy. Use the calculation to determine “x”.

Epidemic Conditions in Place

Ventilation Control: Flushing Air Changes Calculations for Well-Mixed Spaces

1 ACH = $c / C_0 = exp^{-1} = 0.368$

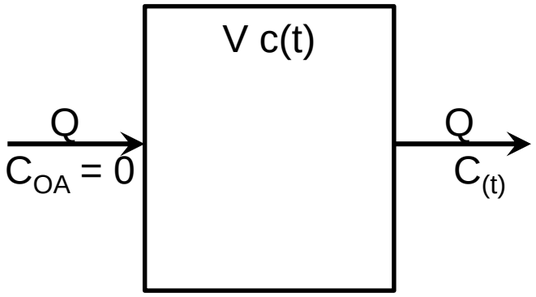
3 ACH = $c / C_0 = exp^{-3} = 0.050$

Therefor, 3 ACH results in the removal of 95% of the contaminants in the space for a well mixed system

Assumptions:
- V = Volume
- Q = OA Flowrate
- c = space concentration
- C (t=0) = C_0
- $C_{OA} = 0$
- Q = constant
- d = △

During time T, contaminant in the space is equal to

Flow in – Flow out



$V * dC = (QC_{OA} – Qc) * dt$
$V * dC = -Qc * dt$
$dC / dt = -Q / V * c$
$dc / dt = -ACH * c$
$dc / c = - ACH$
$\ln c (c \rightarrow C_0) = - ACH * t (t \rightarrow 0)$
$\ln c - \ln C_0 = -ACH * t$
$\ln c / C_0 = -ACH * t$
$c / C_0 = exp (-ACH * t)$

Epidemic Conditions in Place

Upgrading & Improving Filtration:

Building owners are encouraged to improve the efficiency of the filters serving their HVAC systems within the guidance provided for most of the building types listed on the ASHRAE COVID-19 Preparedness Resources website. Mechanical filters are the most common types of filters found in HVAC systems. According to the ASHRAE Position Document on Filtration and Air Cleaning, the term used to describe mechanical filter efficiency is MERV. MERV is an acronym for Minimum Efficiency Reporting Value. The MERV rating of a mechanical filter is determined by filter manufacturers in accordance with ASHRAE Standard 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. Standard 52.2, table 12-1 lists filter MERV rating parameters for MERV 1 through MERV 16. The higher the MERV number the better the ability of a filter to remove particles from the air ranging in sizes from 0.3 micron diameter up to 10 microns in diameter at standard airflow conditions and face velocities specified in the test standard. A more detailed discussion of the various air filtration and disinfection technologies available may be found on the ASHRAE COVID-19 Preparedness Resources main page under the **Filtration/Disinfection** tab.

ASHRAE recommends that mechanical filter efficiency be at least MERV 13 and preferable MERV 14 or better to help mitigate the transmission of infectious aerosols. Many existing HVAC systems were designed and installed to operate using MERV 6 to MERV 8 filters. While MERV 13 and greater filters are better at removing particles in the 0.3 micron to 1 micron diameter size (the size of many virus particles) the higher efficiency does not come without a penalty. Higher efficiency filters require greater air pressures to drive or force air through the filter. Care must be taken when increasing the filter efficiency in an HVAC system to verify that the capacity of the HVAC system is sufficient to accommodate the better filters without adversely affecting the system's ability to maintain the owner's required indoor temperature and humidity conditions and space pressure relationships.

Epidemic Conditions in Place

Practical Approach to Increase MERV in an AHU:

The following are practical steps an owner can take to evaluate the maximum MERV rating and HVAC system can accommodate while maintaining acceptable system performance:

1. Consider retaining the services of a qualified design professional, a certified commissioning provider (CxP) or a certified testing, adjusting and balancing (TAB) service provider especially for larger, more complex HVAC systems or for systems serving critical buildings or spaces within buildings.
2. If available, gather the documents described above under the System Evaluation section of this document. One of the most valuable documents to have on hand for analyzing filter upgrades would be the original TAB report if the building configuration, use and occupancy has not changed since the building was originally constructed. Consider having readings taken to confirm the values in the TAB report.
3. Determine the manufacturer, size and thickness and MERV rating of the existing filters. For example, 20 inches by 20 inches square, 1-inch thick, MERV 8. Obtain the filter's operating characteristics from the manufacturer or the manufacturer's website.
4. Inspect the filter frames inside the air handling equipment where the filters are installed to determine the filters fit tight within the frames and seals around the perimeter of the frame to minimize any air leakage around the filters (often called bypass air). For most filter frames, it would be wise to add silicone sealant on the upstream and downstream side of the frame as it meets with the AHU wall.
5. With the existing filters installed in the system, have the TAB agent perform and document a complete static pressure and temperature profile of the unit prior to any filter upgrades. This should be done per ASHRAE Standard 111-2008 (RA 2017) - Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation and Air-Conditioning Systems guidance. If the existing filters are dirty, have the TAB agent develop the profile with dirty filters installed, then change to clean filters of the same type as existing and develop a second profile. The profile should also document fan and motor RPM and power supply voltage and amp draw at each condition (old dirty filters, old filter type clean and new filter upgrade).

Epidemic Conditions in Place

Practical Approach to Increase MERV in an AHU Continued:

6. Obtain the airflow pressure drop of the proposed increased filter efficiency (MERV 13 or higher) and determine the appropriate “dirty filter” setpoint for the new filters. Have the TAB firm insert materials, such as cardboard pieces, to block the existing filters to achieve the upgraded filter dirty setpoint.
7. Have the TAB company develop the unit profile. The profile should also document fan and motor RPM and power supply voltage and amp draw.
8. The team should determine if this is an acceptable temporary operating point for the AHU.
    a. The TAB agent should be able to calculate the changes in airflow caused by the change in filters and determine the percentage reduction in airflow. If the unit’s airflow does not drop by more than 5% from the original TAB report airflow, unit discharge temperatures do not drop too low, or the airflow is less than the recommended CFM per ton to potentially cause coil freezing or suction pressure issues in DX equipment, then the filter upgrade may not require any further adjustments to the unit.
    b. If airflow drops to low and causes problems, then have the TAB agent evaluate the fan drive to determine if the fan motor speed may be increased for direct drive fans using variable speed drives or that a sheave change can be made to belt driven fans to get the fan back to its pre-filter change airflow without overloading motor and drive maximum amp ratings.
    c. If the new filter MERV rated filter pressure drop is too great to allow the unit to operate within 95% of the pre-filter change airflow, consider dropping to a lower MERV filter and repeat the process.
9. Once the appropriate new filter MERV level is determined, obtain a set of filters that can be inserted into this unit's filter frame. Change out the existing filters to the new filters and have the TAB agent develop unit profiles with the new filters installed. The TAB agent should be able to calculate the changes in airflow caused by the change in filters and determine the percentage reduction in airflow. If the unit’s airflow does not drop by more than 5% from the original TAB report airflow, unit discharge temperatures do not drop too low, or the airflow is less than the recommended CFM per ton to potentially cause coil freezing or suction pressure issues in DX equipment then the filter upgrade may not require any further adjustments to the unit.
10. If it is still desired to upgrade the system to a higher efficiency MERV filtration rate, consider retaining a licensed design professional to size and select new fans and motors and/or new air handler to perform to pre-filter change performance criteria with the new filter upgrade pressure drop increase. Have the engineer consider increased static pressure loads on the unit with both clean and dirty filters.
11. If an increase in filter MERV level can be accommodated using the existing air handling equipment fans and motors, consider using portable HEPA filter units in high occupancy or high bioburden (such as the building entry) spaces.

Epidemic Conditions in Place

Calculation Approach to Increase MERV in an AHU:

The following provides a simple example of how this process might work in the field [2] using the fan laws:

- AHU is equipped with MERV 8 filters.
- Following ASHRAE recommendations, the filter system will be upgraded to MERV 14.
- Commercially available filter data, yields the following information:
  - MERV 8 clean at 0.25 in w.g. and considered dirty at 0.5 in w.g.
  - MERV 14 clean at 0.3 in wg and considered dirty at 1.0 in. w.g.
- The proposed AHU is 23,000 cfm with a supply fan array using variable frequency drives (VFD) controlled to duct static setpoint.
- The analysis will be on a per fan basis.

Epidemic Conditions in Place

Calculation Approach to Increase MERV in an AHU Continued:

Filter Level	Supply Airflow CFM	Fan RPM	Static Pressure Fan (in. w.g.)	Fan Brake Horsepower	Fan Motor NamePlate Horsepower
MERV 8	23,000	2,216	5.3 Dirty	5.36	7.5
MERV 14	23,000	2,395	5.8 Dirty	6.7	7.5

Discussion on the findings of the Calculated Approach:

1. Assuming the unit is under a constant discharge duct pressure control, a static pressure profile of the unit should show a nearly constant pressure in the supply plenum and a gradually increasing negative pressure in the mixing box, filter array and coils on the inlet side of the fan.
2. Energy saving strategies such as reducing the discharge pressure of the unit to serve the VAV box with the greatest air demand should and could still be employed and continued.
3. There is commercially available software that evaluates the costs of material and labor for filter change out intervals. Good testing instrumentation should be available to trend and chart (and it desired record) filter pressure drops.
4. This is only an example. There are potential issues in maintaining airflow at design by increasing fan speeds.
    a. Fan speed cannot be upgraded because of the limits of that fan construction class is an example. In this case, manufacturers data indicate that the fan maximum rpm is 3125. Check with the fan manufacturer.
    b. If changing the motor would necessitate an electrical system upgrade, this solution may be cost prohibitive. In this case the owner may choose to operate the system at a reduced air flow. Reduced airflow in this example would be approximately 22,200 cfm.
    c. Filter bypass is a potential problem. If possible, conduct a light test to determine if there are any major cracks needing closure.
    d. Cabinet negative pressure leakage is also a potential problem. Check with the manufacturer as they will be following AHRI standards.

Epidemic Conditions in Place

Energy Savings Considerations:

The health, safety and welfare of building occupants and maintenance personnel should always come first. This means that facility operators and maintenance personnel should focus on verifying that systems are functioning properly and maintenance routines are kept as scheduled where possible during the event or crisis. However, for buildings that are experiencing temporary reduced occupancies and closures, the HVAC systems should be operated in their unoccupied modes using relaxed temperature and humidity set points to help reduce energy consumption and cost.

You might want to also consider checking your systems control strategies optimization. The typical building strategies are outlined in ASHRAE Guideline 36-2018 - High-Performance Sequences of Operation for HVAC Systems. While this document does not cover all of the systems, it does give some general guidance to recommended control strategies.

When buildings are scheduled for re-occupancy, guidance for re-starting systems is included in this document and on the ASHRAE Covid-19 Website.

Epidemic Conditions in Place

Exhaust Air Re-entrainment

Re-entrainment of contaminants from exhaust air can occur in all buildings. Re-entrainment can occur at any receptor (outside air intake, operable window, doors, etc.).

ASHRAE 62.1 recommends that Class 1 air be limited to 20% (dilution factor of 5) and Class 2 exhaust be limited to 10% (dilution factor of 10). ASHRAE Research Project (RP) 1635 and ASHRAE 62.1 Normative Appendix B provide guidance on how to calculate separation distances and modify dilution factors for specific job sites or applications that could be applicable to various designs of HVAC systems which includes, but are not limited to, energy recovery ventilator (ERV) and dedicated outside air system (DOAS).

It will be extremely difficult for an existing building operator to mitigate all re-entrainment and must be considered when evaluating the impact of any ERV.

Epidemic Conditions in Place

Exhaust Air Re-entrainment Continued

From RP 1635, dilution factor can be positively affected by some of the following basic principles:

1. an exhaust is pointed away from the supply.

2. The exhaust is not capped or redirected toward the outside air inlet

3. Exhaust outlet is on a different wall relative to (i.e. hidden from) the outdoor inlet.

Each of these can be used in conjunction with one another to improve their impact on dilution. Using the calculations in ASHRAE will allow you to calculate reasonable duct design extensions if the first 3 recommendations do not achieve the desired dilution effect.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations

Many building HVAC systems include Energy Recovery Ventilation (ERV) systems, either stand-alone or integrated with Air-Handling Units (AHUs) or Dedicated Outdoor Air Systems (DOAS). Their purpose is to (1) facilitate or provide outside air ventilation and (2) to reduce the energy use and system capacity required to condition that outside air to comfort conditions.

HVAC Systems and Equipment ASHRAE Handbook Chapter 26 “Air-to-Air Energy Recovery Equipment” describe the various types of ERVs. It is important to note that this document is focused on ERV units with exhaust and supply ducts co-located in the same cabinet. These are typically rotary wheel and fixed-plate heat or energy exchangers, but occasionally heat pipes and thermosiphon heat exchangers are used in co-located ducts in the same cabinet. Any ERV within co-located ducts and equipment casings has potential for some leakage between airstreams. The coil energy recovery (runaround) loops, heat pipes and thermosiphon heat exchangers when built to provide distance, or a physical separation (an air gap) between the two airstreams, are not.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

Leakage from the exhaust airstream to the supply airstream, if it occurs within the energy exchanger portion of the ventilation system, is referred to as Exhaust Air Transfer (EAT) (T-6). The rate of EAT being passed into the Supply Airflow is called the Exhaust Air Transfer Rate (EATR) (T-5).

In many HVAC systems air from the space also is deliberately Recirculated (T-10) into the supply airstream to the space so that the required heating and cooling can be provided.

Finally, air exhausted from the building can be pulled back into the outside air intakes through Re-entrainment (T-11).

Re-entrainment in an ERV is a specific case of a much larger issue affecting all HVAC systems.

Re-entrainment is discussed in the previous section above in this document.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

When HVAC systems include recirculation, the recirculated portion of the systems entire airflow is typically responsible for the reintroduction of more contaminated air from the space than is EAT in the ERV or from re-entrainment.

Some ERV units or sections are designed to allow for as much as 5% or 10% EATR. This is within ventilation standard allowances and is the most energy-efficient for some spaces and building types.

ERV systems for other spaces and building types such as healthcare facilities are designed to minimize EATR to negligible levels. When well-maintained and properly operated, the EAT may be similar to or an order of magnitude less than the re-entrainment amount.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

Well-designed and well-maintained air-to-air energy recovery systems should remain operating in residences, commercial buildings and medical facilities during the COVID-19 pandemic.

This is because maintaining at least normal outside air ventilation rates, with proper temperature and humidity conditioning of the inside space, is important for maintaining health and combatting infectious aerosols.

Dilution of contaminants, including infectious aerosols, by outdoor air ventilation is an integral IAQ strategy in ASHRAE Standard 62.1. A properly designed system also includes filtration in many forms, along with proper building pressurization controls.

When it is known or expected that an infectious outbreak has or will occur in a building, the ERV systems should be inspected for proper operation and condition, and be evaluated for possible contribution of bioburden to the building's supply air.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

The term “well-designed” in the context of this document means:

- The supply and exhaust fan(s) are located correctly for pressure control at the exchanger,
- the ERV is sized for an appropriate velocity and pressure drop, and
- that appropriate seals or purges have been specified (or exist) for the application.

The term “well-maintained” assumes that the well-designed ERV device was:

- installed and set-up,
- tested and balanced correctly during the construction phase, and
- has received manufacturer’s maintenance requirements.

There is much more guidance in Chapter 26 Air-to-Air Energy Recovery Equipment of the ASHRAE Handbook **(online access to the Handbooks is free during the pandemic).**

In addition, TC-5.5 has produced practical advice for inspection here. [Document is in the review process currently]

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

In a pandemic environment, it must be recognized that even if the units and systems are designed properly, they must have been constructed and maintained properly to ensure they are not allowing excess transfer of exhaust air to supply air.

It is also possible that the facility was not designed with pandemic conditions in mind.

The facility maintenance team should do a check of their systems, in accordance to the manufacturer's guidance. That should include consulting the original engineer of record, a Commissioning Provider and a Test and Balance (TAB) agent, if needed, to determine the ERV device is functioning properly based on the current situation and needs.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

Changing system settings and sequences of operation without a good understanding of the effects on system operation could result in unintended consequences. These could include reduced outdoor ventilation rates or the loss of control of indoor humidity conditions, both which could increase the potential, may themselves favor the spread of viruses.

When competent system operators are available, and the ERV has been deemed to be well-maintained, the most appropriate adjustment generally would be to continue operation of the ERV component appropriate to climate conditions and to potentially increase outside air ventilation rates.

Increasing ventilation rates is consistent with the ASHRAE Position Document – Infectious Aerosols and recommendations from REHVA.

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

Systems using Heat Pipes, Run-around loops and Thermosiphon exchangers with air gaps

When these systems are built with the supply and exhaust sides separated by a physical distance/air gap between the two airstreams, systems using coil energy recovery (runaround) loops, heat pipes, and thermosiphon heat exchangers will not have Exhaust Air Transfer into the supply airflow. They should be inspected to ensure that:

1. airflows are being maintained at design levels
2. filters are in good condition
3. fluid flow rates are per design
4. refrigerant charges are correct

Epidemic Conditions in Place

Energy Recovery Ventilation (ERV) Systems Operation Considerations Continued

Remediation of Systems with ERV Exchangers

If further inspection, than what is detailed herein, of the ventilation system is necessary, additional considerations should be added to the assessment.

Epidemic Conditions in Place

ERV Systems Design Considerations

The energy-recovery wheel or plate exchanger is a sub-component of the overall system and any analysis should be made based upon the total system configuration.

The following types will be discussed:

- Systems with Intentional Recirculation
- Systems with 100% Outside Air (No Recirculation)

Epidemic Conditions in Place

ERV Systems with Intentional Recirculation

If the ERV exchanger is installed in a system where the outdoor air portion of the total system airflow is being processed through the ERV, but a portion of the return air is being recirculated back to the space as shown in Figure 1 (as are most conventional packaged systems) then turning off the wheel would do little to improve the supply air quality since the EATR associated with the wheel could be small compared to the recirculation rate.

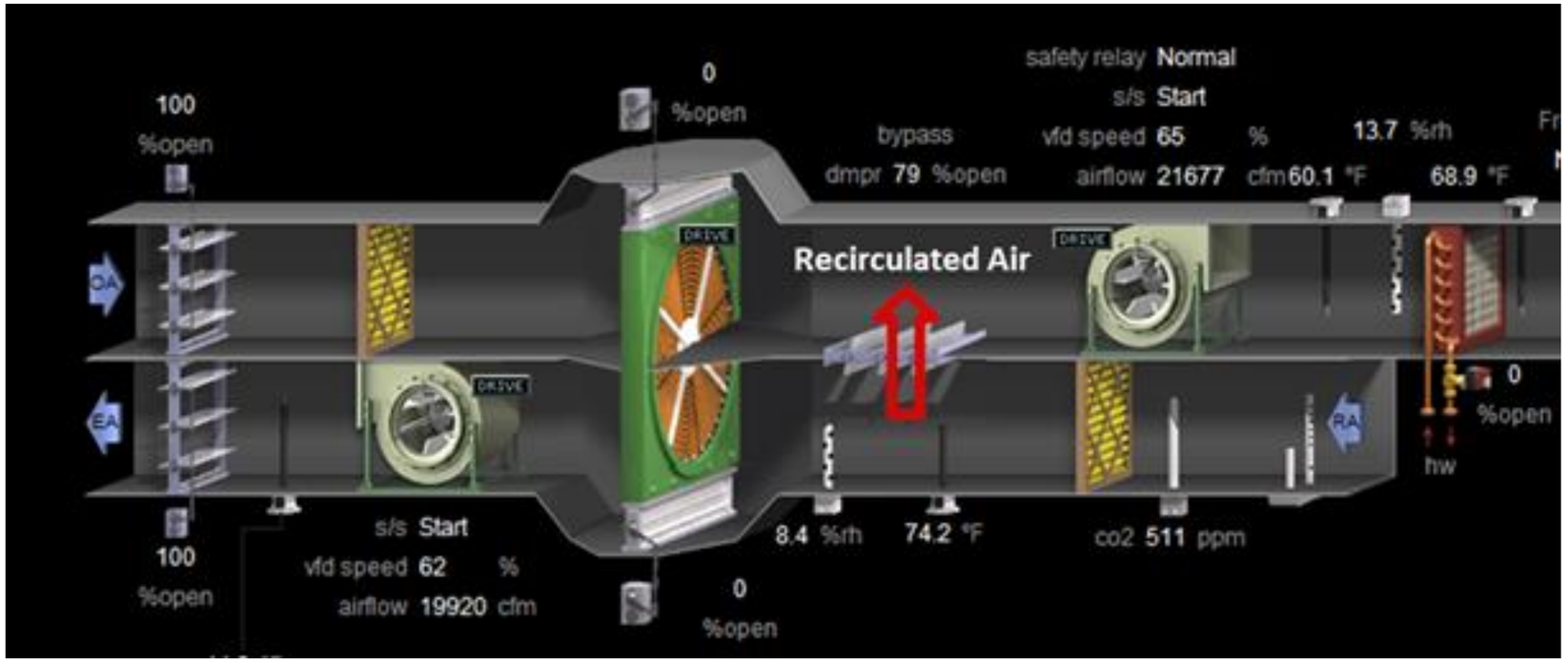


Figure 1 AHU Configuration with Recirculated Air and Energy Recovery Wheel Heat Exchanger

Epidemic Conditions in Place

ERV Systems with Intentional Recirculation Continued

However, if the unit has the capacity and capability such that the return air dampers can be closed and the system can be operated as a 100% outdoor air unit, this mode of operation might be preferred when pandemic concerns exist.

To accomplish this, the supply and return outside air ventilation rates should be increased, the recirculation damper closed, and the system balanced so that static pressures are correct for the exchanger type.

See the following section for a discussion of static pressures.

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation)

If the recovery wheel is installed in a system that is processing 100% outdoor air (no intentional recirculation of return air) then the system re-entrainment and the exchanger EAT following system operational parameters should be considered to establish and assess any relative source of cross-contamination associated with the energy recovery wheel in the system.

Whether there is EAT at an ERV is strongly determined by the fan positioning in the energy recovery unit or HVAC system.

If the static pressure in the supply side of an exchanger is at least 0.5 inches water column (often abbreviated 0.5” or 0.5 in. H2O) greater than the static pressure in the return side air entering the energy recovery wheel, then any seal leakage will move from the clean to the dirty airstream and any carry-over will be insignificant.

Under these pressures, energy wheels equipped with a properly installed purge section have an EATR less than 1% and in some cases approaching zero. This can be substantially less than the re-entrainment previously discussed.

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation) Continued

Exhaust Air Transfer can occur in ERV units or HVAC systems using plate exchangers as well. In most cases the Exhaust Air Transfer rates are lower, and the driving forces are confined to the static pressure differentials between the compartments adjacent to the exchanger.

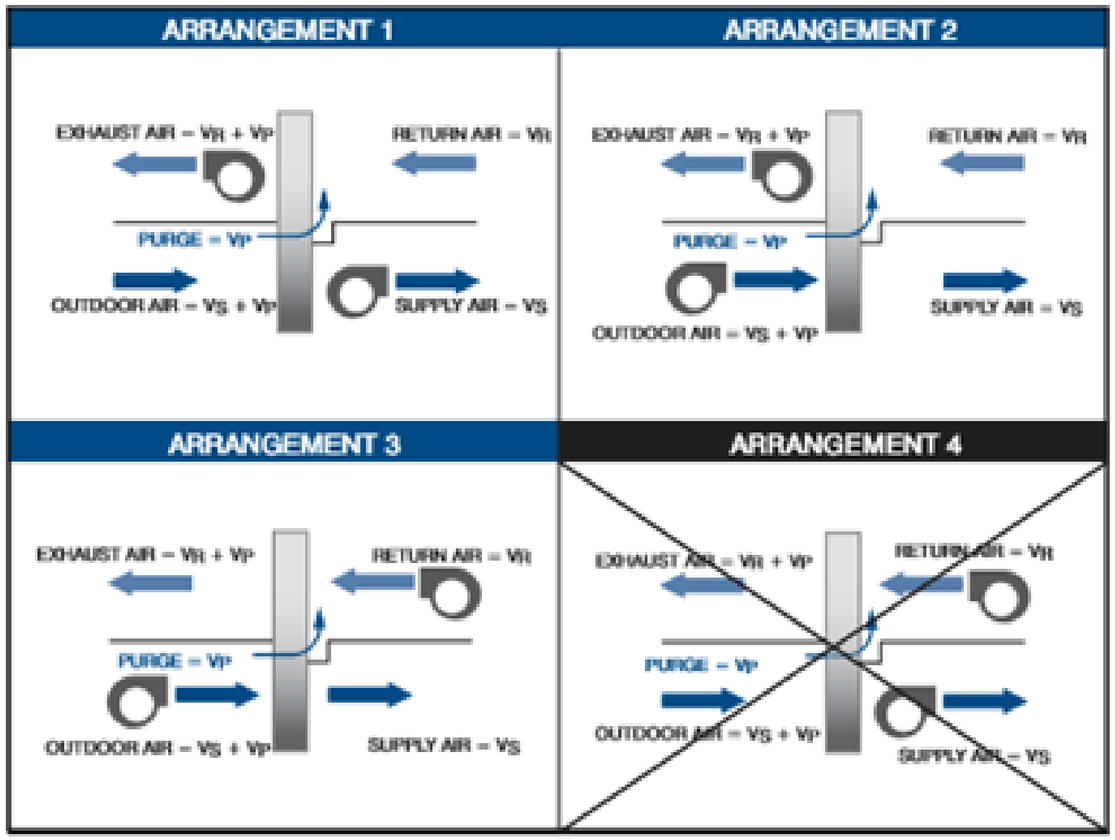


Figure 2 Fan arrangements for energy recovery exchangers

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation) Continued

Figure 2 shows the potential fan configurations used for energy recovery or DOAS systems.

Fan positioning: **Arrangement 4 should not be used** since the seal leakage will always go from the dirty to the clean airstream and the purge section will not function in this manner. Exhaust Air Transfer ratio in excess of 10% will be typical.

Almost all energy recovery systems installed will employ either Arrangement 1 or Arrangement 2, and both can be effective in limiting Exhaust Air Transfer provided that a proper minimum pressure differential exists between the return and supply airstreams.

If a system uses Arrangement 2, and if, for wheels, a purge section is in place and the wheel is rotating in the proper direction (discussed later) then it is almost certain that leakage will move from clean to dirty and the purge section will function well with air carry-over being generally less than 1%, and therefore there is no need to measure to confirm system pressures except in the most critical applications. Arrangement 2 works well for plate exchangers as well.

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation) Continued

If a system uses arrangement 1 or 3 shown in Figure 2, the static pressures at the inlets and outlets of the exchanger can be significantly impacted by the location of the supply fan being either before (blow through) or after (draw through) filters, coils and other components.

The pressure drops or rises caused by other components in the system including filters, ducts and coils can affect the pressure differential between the supply and exhaust sides of an energy wheel significantly.

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation) Continued

The direction of leakage at the exchanger cannot be predicted without an understanding of the static pressures at the exchanger, but general trends, particularly with stand-alone ERV units, are as follows:

Rooftop units: these are typically ducted only at the exhaust air inlet and supply air outlet of the unit, so static pressure at the exchanger entering exhaust airflow is usually lower than at the entering supply airflow, therefore leakage is from outside air to exhaust air;

Indoor units: these are typically ducted at both inlet and outlet:

- When pressure drop between the unit and the building's inlet and outlet grilles are low compared to those on the other side of the unit, leakage at the exchanger again tends to be from supply to exhaust, resulting in no or low EATR.
- When pressure drop between the unit and the building's inlet and outlet grilles are high compared to those on the other side of the unit, leakage at the exchanger tends to be from exhaust to supply, and Exhaust Air Transfer occurs.

Epidemic Conditions in Place

ERV Systems with 100% Outside Air (No Recirculation) Continued

The above discussion is not intended as a substitute for inspection and validation that the ERV exchanger or unit is operating effectively, but as a guide to understanding the behavior of these systems and the mechanisms by which air from the building return and exhaust systems can be reintroduced to its supply air, intentionally or unintentionally.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of All Types and Systems

This section provides the first steps in field inspection of ALL units or systems with ERV exchangers. It is assumed that the maintenance personnel is wearing the appropriate PPE for this process.

With system documentation in-hand, if possible:

1. Clean the unit with a vacuum to facilitate inspection. It may be helpful to remove filters in order to inspect the exchanger(s).
2. Clean the exchanger surface as recommended by the manufacturer, or simply clean the exchanger with a vacuum and soft brush (use a HEPA vac if possible, and always if the unit is inside a building).
   - NOTE: Some exchangers can be washed, others cannot. Confirm with the heat exchanger manufacturer that the cleaning and disinfection solutions proposed to be used are compatible with the heat exchanger's frame and heat exchange media.
3. Check for gross leak paths between compartments that might result from age or deterioration. Check inside the cabinet to see if light is coming in thru fastener holes or seams.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of All Types and Systems Continued

This section provides the first steps in field inspection of ALL units or systems with ERV exchangers. It is assumed that the maintenance personnel is wearing the appropriate PPE for this process.

With system documentation in-hand, if possible:

4. Verify that seals exist on cabinet/casing access doors and that they are in good condition to prevent air from bypassing the exchanger between the access door and the wheel's structural frame.
5. Check that the bypass and other damper are operating properly, not jammed, and that the damper seals are in good condition.
6. Determine the general layout of the system and identify the four compartments adjacent to the energy recovery exchanger, referring to Figure 6 for the standard designations. Also identify any bypasses between compartments.
7. Check filters: dirty filters affect airflow and pressure differentials.
8. Verify the outdoor air path is not obstructed (e.g. by clogged intake screen or louvers).

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels

For a person not very familiar with the energy recovery wheel device here are the very first steps to take when inspecting for proper operation.

Armed with the building systems documentation perform the following:

- Inspection with System Turned Off
- Inspection with System Operating
- Evaluation for Leakage

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Turned Off

1. **Is the wheel clean?** This can affect both flow and leakage. A dirty wheel will change the operating characteristics of the fan system.
2. **Is there visible damage or areas of wear such as loose media, damaged media or degraded structural integrity?** These will affect the operation of the wheel and system.
3. **Are the seals set properly?** The two most common types of seals are contact/non-contact seals and you would have to refer to the original manufacturer to determine the proper setting. Seals should be inspected for wear. Older wheels that rely on seals that are in contact with the wheel surface may have seals that are worn or damaged.
4. **Is the wheel equipped with a purge?**

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Turned Off

Purge sections a difficult item to provide guidance for as 90% of the purges are fixed. End users should be able to contact the wheel manufacturer using a fixed purge, and with the measured purge pressure, be given an estimate on the EATR.

Coupled with operating flows/pressures that aren’t equivalent to the scheduled values, little can be done aside to changing system operational characteristics to match the scheduled values or providing a new purge to match the buildings operational characteristics.

Static pressure is the value that is most often inconsistent with the scheduled values.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Operating

With the system running and any wheel bypasses closed, confirm and record the following information:

1. **Is the wheel turning?** Many projects rely on the building management system or some other indicator, but the only sure way is to visually inspect. This should also include a determination that the wheel rotation direction is correct. To confirm proper rotation, a spot on the wheel should rotate from the return/exhaust airstream into the supply/outdoor airstream.
2. **Is the wheel rotating at the correct speed (RPM)?** An incorrect factory speed can be attributed to a replacement motor/pulley combination being used or an improperly programmed VFD. (Note: since Exhaust Air Transfer is lower at reduced wheel rotation speeds, it is most important that actual wheel rotation speed not be higher than the designed speed).

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Operating

With the system running and any wheel bypasses closed, confirm and record the following information:

3. **Is the wheel turning in the correct direction?** When the wheel is equipped with a purge section, the wheel must rotate in a specific direction, see Figure 3.

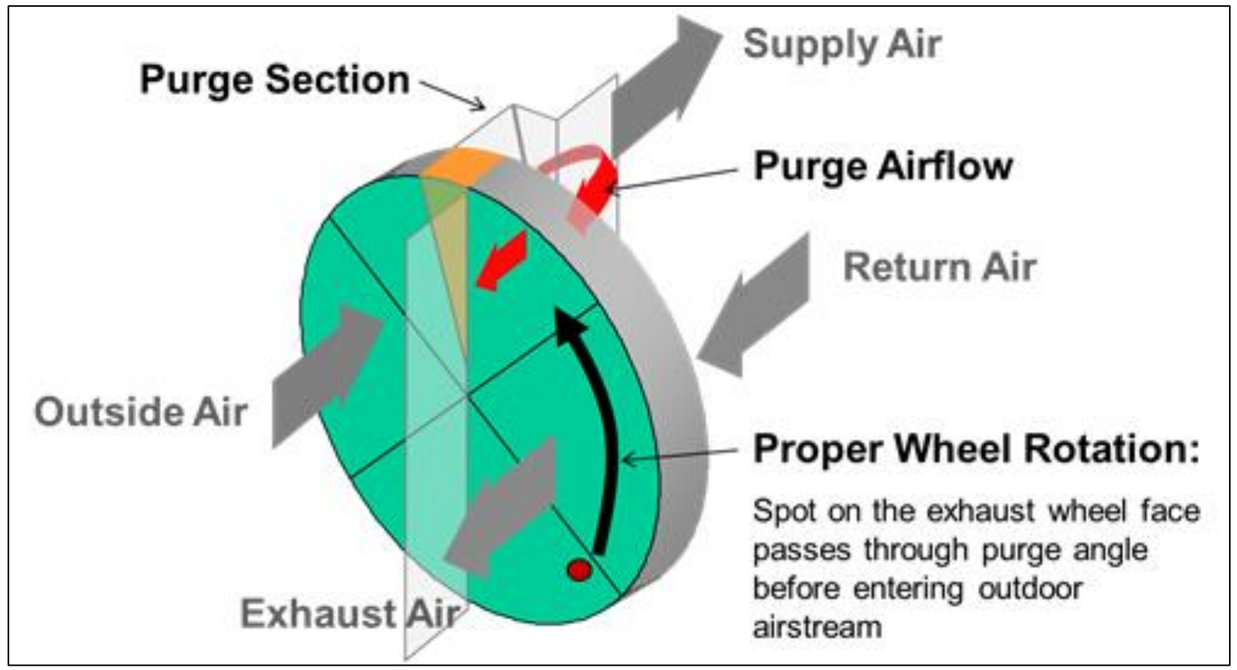


Figure 3 Illustration of the purge section and correct rotation direction for purge operation

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Operating

With the system running and any wheel bypasses closed, confirm and record the following information:

4. With the ERV system operating normally with all bypass(es) closed, measure and record the static pressures in each of the four compartments around the exchanger. If the ERV has more than one operating mode, repeat this process. Figure 4 shows the items necessary to determine this information.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Operating

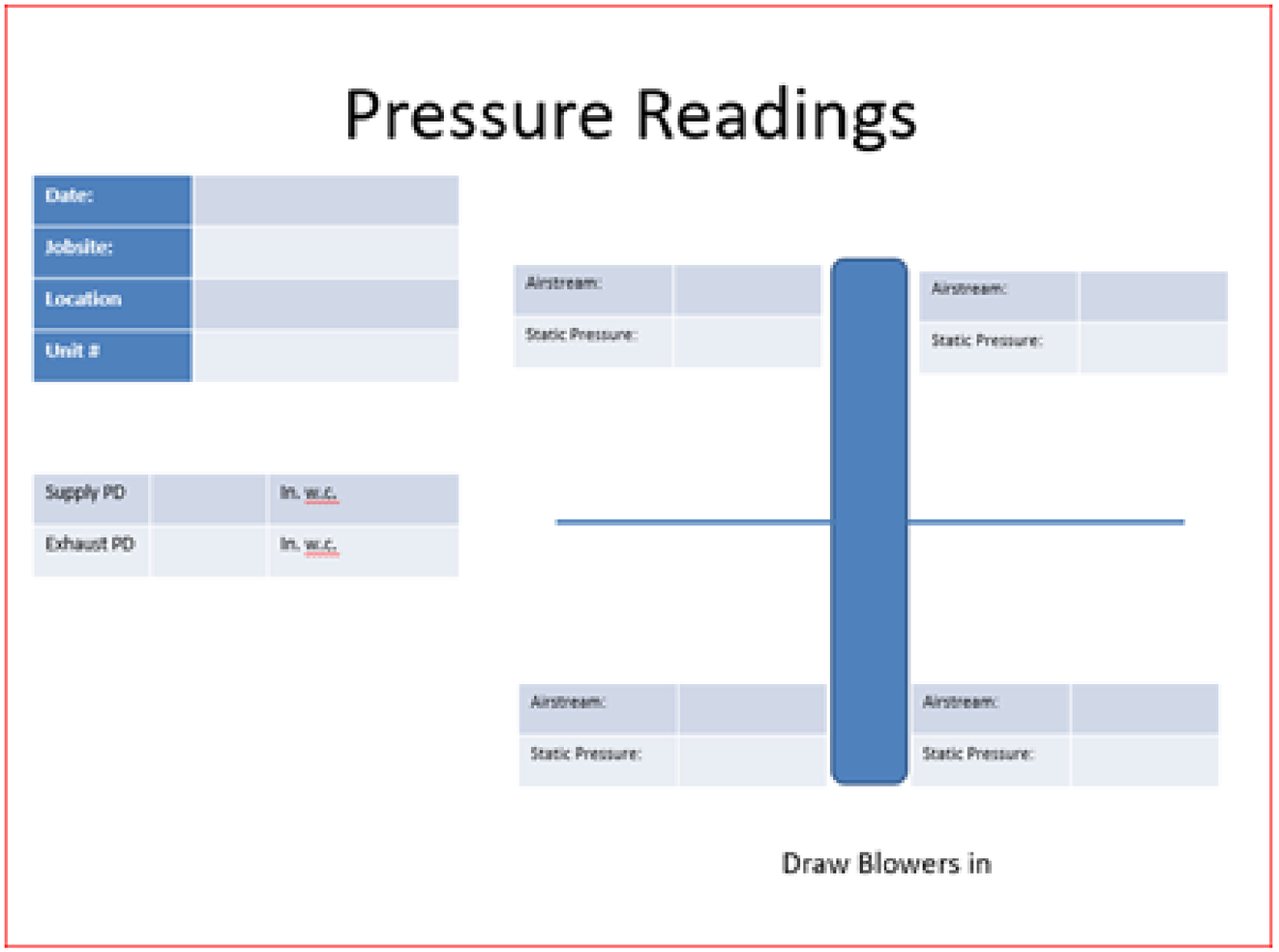


Figure 4 Field Recording Sheet for ERV Exchanger Operating Parameters

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Inspection with System Operating:

Record the following items:

SP1	Record static pressure measured at Entering Supply Airflow Compartment 1
SP2	Record static pressure measured at Leaving Supply Airflow Compartment 2
SP3	Record static pressure measured at Entering Exhaust Airflow Compartment 3
SP4	Record static pressure measured at Exhaust Air Outlet Compartment 4

Table 1 Static Pressure Designations at Compartments adjacent to Exchanger

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Evaluation for Leakage

1. Leaving Supply static pressure (P2) should be at least 0.5 in. w.g. greater than the entering return airstream static pressure (P3) measured near the wheel surfaces. This means there is a positive static pressure differential.

2. Positive pressure differential means the pressure at the supply outlet (P1) of the wheel is higher than the exhaust inlet of the wheel.

   As shown in Figure 5, this causes seal leakage in the desired direction: from supply air to return to be exhausted.

3. Pressure differential as-installed is frequently different from the original pressure differential calculated during design, refer to the original commissioning report, if available, that identified the as-installed initial pressure differential.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Evaluation for Leakage

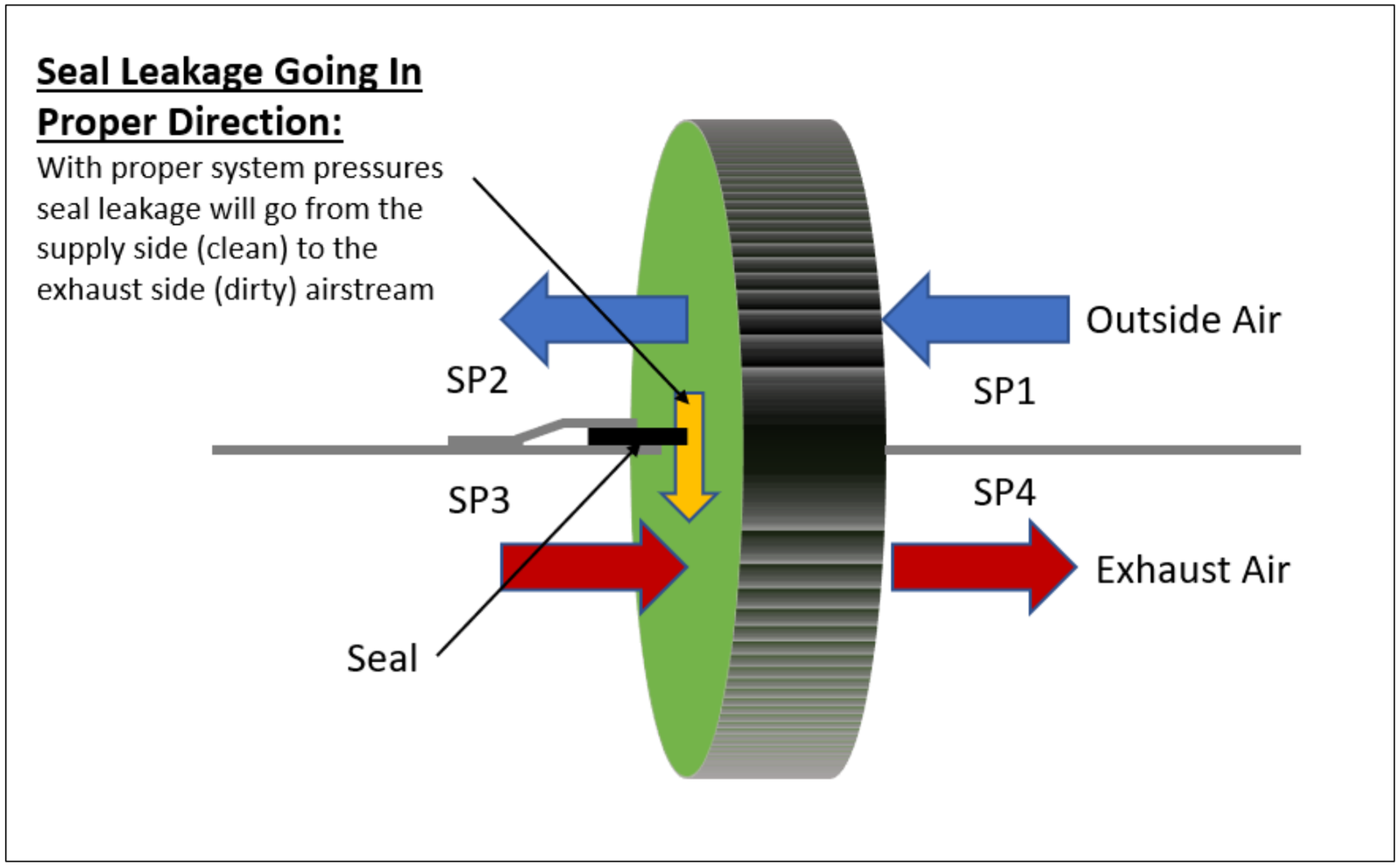


Figure 5 Supply static pressure should be higher than exhaust static pressure

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Energy Wheels Continued

Evaluation for Leakage

4. If there is a driving force for exhaust air transfer to the supply (P2 greater than P1), ask the ERV manufacturer for an EATR prediction. Provide the manufacturer the following information, at minimum: SP1, SP2, SP3, Rotation Speed, Purge Angle (if one is used) and Leaving Supply Airflow Volume.

5. Request the estimated exhaust air transfer as a volume rate (e.g. in CFM) at the specific operating condition.

6. To determine the Leaving Supply Airflow Volume, measure it directly if possible.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Plates (or Heat Pipes with co-located ducts)

For a person not very familiar with the heat plate device here are the very first steps to take when inspecting for proper operation.

Armed with the building systems documentation perform the following:

- Inspection with System Turned Off
- Inspection with System Operating
- Evaluation for Leakage

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Plates Continued (or Heat Pipes with co-located ducts)

Inspection with System Turned Off

1. Clean the exchanger surface as recommended by the manufacturer, or simply clean the exchanger with a vacuum and soft brush (use a HEPA vac if possible, and always if the unit is inside a building). Some exchangers can be washed, others cannot.

2. Check the exchanger for any splits that connect adjacent compartments, shrinkage or broken seals around the framing.

3. Determine the general layout of the system and identify the four compartments adjacent to the energy recovery exchanger. Also identify any bypasses between compartments.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Plates Continued (or Heat Pipes with co-located ducts)

Inspection with System Operating

1. With the ERV system operating normally with all bypass(es) closed, measure and record the static pressures in each of the four compartments around the exchanger. If the ERV has more than one operating mode, repeat this process.

   Refer to Table 1 Static Pressure Designations at Compartments adjacent to Exchanger for a key to the static pressure designations. See also Figure 4 Field Recording Sheet for ERV Exchanger Operating Parameters.

   Note: The original wheel design may have required bypass dampers to be partially open to allow for a certain amount of air to bypass the wheel all the time. If that is the case, the bypass dampers should be set to the position established by the original TAB agent when the unit was originally TAB'd.

2. For each operating mode, measure or estimate the airflow rate in at least the ERV Exhaust inlet and the ERV Supply outlet.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Plates Continued (or Heat Pipes with co-located ducts)

Evaluation for Leakage

1. SP1 should be higher than SP2. If not, there is no outdoor air flow, compartments are misidentified or outdoor airflow is backwards.

2. SP3 should be higher than SP4. If not, there is no exhaust air flow, compartments are misidentified or exhaust airflow is backwards.

3. If SP3 is greater than SP1 or SP2, there is a driving force for exhaust air transfer into the supply.

4. If SP4 is greater than SP1 or SP2, there is a driving force for exhaust air transfer into the supply.

5. If SP1 is a negative pressure, check again that the outside air path is not obstructed. After cleaning or replacing filters measure the pressures again.

Epidemic Conditions in Place

ERV Systems: On-Site Inspection of Plates Continued (or Heat Pipes with co-located ducts)

Evaluation for Leakage

6. If there is a driving force for exhaust air transfer to the supply (condition 3 or 4 above), ask the ERV manufacturer for an EATR prediction. Provide at minimum: SP1, SP2, SP3, Rotation Speed, Purge Angle (if one is used) and Leaving Supply Airflow Volume.

7. Request the estimated exhaust air transfer as a volume rate (e.g. in CFM) at the specific operating condition.

8. To determine the Leaving Supply Airflow Volume, measure it directly if possible.

NOTE: Some manufacturers of plate exchanger units provide charts which correlate pressure differences between the inlet and outlet compartments to the flow rate. Describe the condition of the exchanger to the manufacturer and ask whether these charts remain valid.

Epidemic Conditions in Place

UVGI SYSTEMS

There is a lot of ASHRAE (and others) guidance on ultraviolet (UV) technology for the built environment.

Please refer to some of the documentation to determine the best application for your building or systems:

- Filtration and Disinfection Guidance on the ASHRAE COVID-19 site
- Chapters in ASHRAE Handbook
  - 2019 Applications - Chapter 62: ULTRAVIOLET AIR AND SURFACE TREATMENT
  - 2016 Systems and Equipment - Chapter 17: ULTRAVIOLET LAMP SYSTEMS
- ASHRAE Journal article: Ultraviolet Germicidal Irradiation - Current Best Practices (2008, Martin et al)
- For upper room systems – NIOSH guidelines (2009)

Epidemic Conditions in Place

Domestic Water Systems

Building owners and operators should review the following industry guidance related to building re-opening:

- Centers for Disease Control and Prevention (CDC) - Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation:
- American Water Works Association (AWWA) - Shutoffs and Return to Service Guidance
- US Environmental Protection Agency - Information on Maintaining or Restoring Water Quality in Buildings with Low or No Use
- ASHRAE Standard 188-2018: Legionellosis: Risk Management for Building Water Systems
- Guideline 12-2020 - Managing the Risk of Legionellosis Associated with Building Water Systems
- Departments of Health – Building owners and operators should be aware of information provided by their state or local Departments of Health
- Water Utility Providers – Building owners and operators should coordinate with water utility providers.

Epidemic Conditions in Place

Domestic Water Systems Continued

In general, fresh water should be drawn into building water systems and stagnant water flushed out before they are reopened.

A summary of the steps presented by CDC are below:

1. Review existing water management plan or program documents and execute steps for system start-up.
2. If this document is not available, develop a water management program for your water system and all devices that use water. Guidance to help with this process is available from CDC and others.

Epidemic Conditions in Place

Domestic Water Systems Continued

3. Ensure your water heater is properly maintained and the temperature is correctly set.
   a. Keep water above 140°F to avoid microbial incursion. Do not let it drop below 120°F. Refer to Figure 1 from ASHRAE Guideline 12-2020:

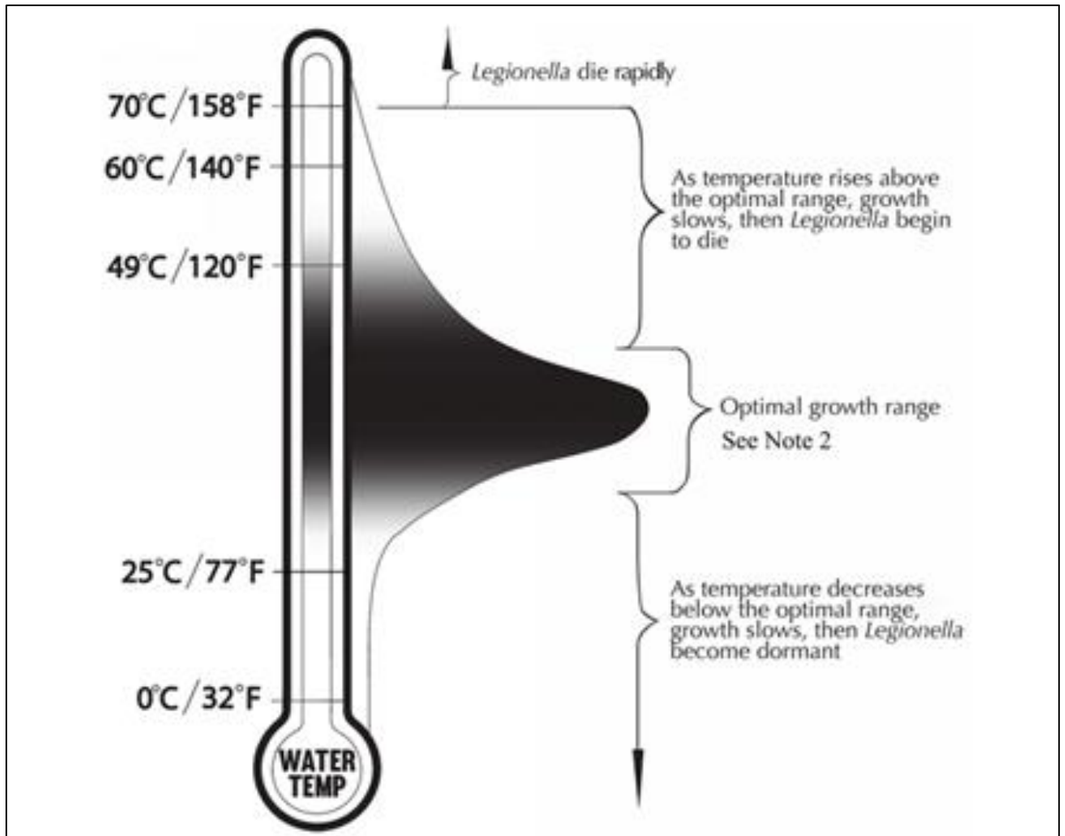


Figure 1 Temperature effects on survival and growth of *Legionella* in laboratory conditions.

Epidemic Conditions in Place

Domestic Water Systems Continued

4. Flush your water system:
   - If applicable, flush water distribution system mains to maintain water quality delivered to buildings. Coordinate with local water utility provider as needed to confirm water residual disinfectant levels are maintained.
   - Flush building hot and cold water loops through all points of use, including all water-using appliances like ice machines, humidifiers and dishwashers. Flushing may occur in segments or by zone.
5. Clean all decorative water features, such as fountains.
6. Ensure hot tubs/spas are safe for use.
7. Ensure cooling towers are clean and well-maintained.
8. Ensure safety equipment including fire sprinkler systems, eye wash stations and safety showers are clean and well-maintained.

Epidemic Conditions in Place Maintenance Checks

For equipment within a building that is not identified within this response, we recommend referring to the following documents for additional guidance:

- ASHRAE Standard 180-2018: Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems.
- ASHRAE Standard 188-2018: Legionellosis: Risk Management for Building Water Systems
- ASHRAE Guideline 12-2020: Managing the Risk of Legionellosis Associated with Building Water Systems

Epidemic Conditions in Place Maintenance Checks

General Recommendations:

- ❑ Notify Tenants of exact dates and times the building will be setback.
- ❑ Check remote or offsite access connections to the Computerized Maintenance Management System (CMMS), Building Management System (BMS), and Building Automation System (BAS) to make sure they are functioning properly and can be logged into, if any.
- ❑ Assign personnel rotation for weekly onsite rounds, provide a schedule for the rounds and trades.
- ❑ Set up a log for tracking all adjustments and trends to identify deviations from the program.
- ❑ Verify all the modes modified are working daily.

Epidemic Conditions in Place Maintenance Checks

Heating, Ventilating & Air-Conditioning

Where semi-annual / annual scheduled maintenance on the equipment can be performed safely, do not defer this maintenance cycle. Where worker safety could be at risk, consider deferment of semi-annual / annual maintenance on the equipment up to 60 days.

The following are recommended as minimum verification/checks to be performed:

Boilers (Monthly):

❑ For systems with Steam Boilers, develop a schedule that provides minimum supervision on-site.
❑ Perform chemical testing of system water. Verify water treatment target levels are being maintained.
❑ For systems using fuel oil
❑ Check fuel pump for proper operation.
❑ Inspect fuel filter; clean and verify proper operation.
❑ For systems using natural gas
❑ Check gas pressure, gas valve operation, and combustion fan operation.
❑ Check for evidence of leakage of fuel supply, heat transfer fluid, and flue gas.
❑ Verify proper operation of safety devices per manufacturer’s recommendations.

Chillers (Monthly):

❑ Perform chemical testing of system water. Verify water treatment target levels are being maintained.
❑ Check control system and devices for evidence of improper operation.
❑ Check variable-frequency drives for proper operation.

Epidemic Conditions in Place Maintenance Checks

Heating, Ventilating & Air-Conditioning Continued:

Air Cooled Chillers:

- ❑ Check refrigerant system for evidence of leaks
- ❑ Check/clean fan blades and fan housing
- ❑ Check/clean for fin damage
- ❑ Check for proper fluid flow and for fluid leaks

Water Cooled Chillers:

- ❑ Check refrigerant system for evidence of leaks
- ❑ Check for proper fluid flow and for fluid leaks
- ❑ Check compressor oil level and/or pressure on refrigerant systems having oil level and/or pressure measurement means

Cooling Towers and Evaporative-Cooled Devices (Monthly):

- ❑ Perform chemical testing of system water. Verify water treatment target levels are being maintained.
- ❑ Check chemical injector device for proper operation
- ❑ Check conductivity and other sensors for proper readings
- ❑ Check water system ultraviolet lamp, replace bulbs as needed (if applicable)
- ❑ Check control system and devices for evidence of improper operation
- ❑ Check variable-frequency drive for proper operation
- ❑ Check for proper fluid flow and for fluid leaks
- ❑ Check for proper damper operation
- ❑ Inspect pumps and associated electrical components for leaks and normal operation

Epidemic Conditions in Place Maintenance Checks

Heating, Ventilating & Air-Conditioning Continued:

Steam Distribution Systems (Monthly):
- ❑ Perform chemical testing of system condensate and feed water
- ❑ Check piping for leaks
- ❑ Check steam traps and condensate return units for proper operation
- ❑ Check safety devices per manufacturer's recommendations

HVAC Water Distribution Systems (Monthly):
- ❑ Perform chemical testing of system water. Verify water treatment target levels are being maintained.
- ❑ Check for proper fluid flow and for fluid leaks. If necessary, vent air from system high points and verify backflow preventers and pressure regulating valves on makeup water lines are functioning properly.
- ❑ Check expansion tanks and bladder type compression tanks have not become waterlogged

Pumps:
- ❑ Inspect pumps and associated electrical components for proper operation
- ❑ Check variable-frequency drive for proper operation
- ❑ Check control system and devices for evidence of improper operation

Air Handling Units (Monthly):
- ❑ Check for particulate accumulation on filters, replace filter as needed
- ❑ Check ultraviolet lamp, replace bulbs as needed (if applicable)
- ❑ Check P-trap
- ❑ Check control system and devices for evidence of improper operation
- ❑ Check variable-frequency drive for proper operation

Epidemic Conditions in Place Maintenance Checks

Heating, Ventilating & Air-Conditioning Continued:

Roof Top Units (Monthly):

- ❑ Check for particulate accumulation on outside air intake screens and filters, replace filter as needed
- ❑ Check ultraviolet lamp, replace bulbs as needed (if applicable)
- ❑ Check P-trap
- ❑ Check control system and devices for evidence of improper operation
- ❑ Check variable-frequency drive for proper operation
- ❑ Check refrigerant system for leaks
- ❑ Check for evidence of leaks on gas heat section heat-exchanger surfaces
- ❑ Check variable-frequency drives. For fans with belt drives, inspect belts and adjust, as necessary

Water-Source Heat Pumps:

- ❑ Check for particulate accumulation on filters, replace filter as needed
- ❑ Check P-trap
- ❑ Check control system and devices for evidence of improper operation

Epidemic Conditions in Place Maintenance Checks

Plumbing Systems

Follow recommended operations as outlined in the Building's Legionella Management Plan. In absence of this plan, the following are minimum recommendations.

❑ Water features and fountains - shutdown per manufacturer's instructions and drain.

Plumbing Rounds (Weekly):

❑ Flush piping systems through drinking fountains, lavatories, urinals, water closets and sinks to prevent stagnation
❑ Verify wet floor sinks and drains remain wet
❑ Check for proper fluid flow and for fluid leaks
❑ Inspect booster pumps system for proper operation
❑ Inspect Domestic Hot Water heater for production of hot water at 140°F
❑ Inspect pumps and associated electrical components for proper operation
❑ Check the recirculation system for proper flow and for fluid leaks
❑ Inspection of secondary disinfection system for proper operation (if applicable)

Epidemic Conditions in Place Maintenance Checks

Electrical Systems:

- ☐ Disconnect all non-essential appliances wherever possible from power outlets. Coordinate with building tenants or departments.
- ☐ Turn off lights, keep the emergency and egress lighting energized.

Special Systems:

- ❑ Inspect fire alarm master panels and other life safety equipment with battery backup power supplies are functioning. (Weekly)
- ❑ Inspect the battery backup power supplies for IT and IOT devices and mission critical systems. (Weekly by IT personnel)
- ❑ Run emergency or backup generators, test transfer of power, per manufacturer's recommendations. (Monthly)

Shut Down a Building Temporarily

General Recommendations:

1. Notify relevant people of the need to shut down or partially occupy the building. Include exact dates and times the building will be shut down.

2. Backups and Data Protection–Backup all necessary computer data, e.g. building control systems and servers to local and/or cloud-based backup services and media.

    a. If there are tenants that need to use the building during lockdown, they should refer to the Commercial Building Guide on www.ashrae.org/COVID19 site under the "**Buildings**" section, as the building may not be able to be shut down.

3. Check important remote or offsite access connections to the Building Management System and Building Automation System (BMS includes more than the HVAC controls in the BAS) to make sure they are functioning properly and can be logged into, if any. For example, remote observation via the security and access platforms, such as security cameras, locks, alarms and more can help monitor the building for emergencies remotely.

4. Operators should ensure that they have electronic copies of their building plans, past test and balance reports, operation and maintenance (O&M) manuals, systems manual and other pertinent information to operate the building.

5. If someone does visit the building to check, they could also be tasked with watering any of the plants.

Shut Down a Building Temporarily

Heating, Ventilating & Air-Conditioning

1. **In buildings equipped with a Building Automation Systems (BAS):**
   a. It is not recommended to completely shut off HVAC systems in a building that is being temporarily shut down or unoccupied for an undetermined amount of time during an emergency.
   b. Operate or place the HVAC systems in the Unoccupied Mode using the BAS. For example, if the system is normally controlled to a 70°F heating with 40% RH and 75°F cooling setpoint at about 55% RH when the building is occupied, then having the limits in heating at set back to 65°F, 40% RH and cooling limits up to (80°F, 60% RH) is reasonable. If the limits are exceeded while in the Unoccupied Mode, the systems should be enabled and allowed to operate, with the OA dampers at minimum and exhaust fans off, until the space returns the Unoccupied Setpoint conditions. The intent is to maintain the building within a reasonable range of temperature and humidity conditions to help avoid developing poor indoor conditions while reducing energy consumption during the shutdown.
   c. If occupants are going to be allowed to use the building on a partial or limited basis during a shutdown, it may be desirable to program an override into the BAS to allow the systems to be returned to normal Occupied modes of operations for temporary length of time, such as for two hours. After the override period expires, the system should automatically return to the Unoccupied setpoints.
   d. Check if all the setbacks and setup modes are working.

2. **A building without a BAS may require more set-up time to have the building be shuttered and may require more direct monitoring on site during the shutdown.**
   a. Recommend that the HVAC systems should not be completely shut down in any building where the building is being unoccupied for any length of time if the intent is to re-occupy the building in the future.
   b. In addition, we do not recommend extreme setbacks for heating thermostat setpoints or extreme setup for cooling thermostat setpoints. The intent is to set the individual controls on the equipment to do the following–maintain a cooling space setpoint of 80°F and less than 60% RH in cooling and 65°F and minimum 40% RH in heating.
   c. Any outside air dampers should be set to their minimum position for building pressure. The exhaust fans other than those in restrooms and critical applications should be turned off.
      i. If the OA dampers are closed, all exhaust fans shall be turned off.
   d. Monitoring the building regularly to ensure that no unexpected consequences are occurring such as condensation, moisture or fungal growth on HVAC system components or building surfaces and finishes.

Shut Down a Building Temporarily

Heating, Ventilating & Air-Conditioning Continued:

3. **Boilers and distributed hot water:**
    a. If the building has more than one boiler, reduce the number of operating boilers to bare minimum needed. If the building is going to be offline for more than 60 days, dry storage is recommended via desiccants or inert gas blanketing. If using inert gas, follow OSHA safety protocols.
    b. For boilers less than 300 hp, a heat source (light bulb) with a fan may be enough. Warm wet storage is acceptable; oxygen scavenger residuals in the boiler should be 500% of normal (i.e. if you normally run 20 to 40 ppm of sodium sulfite, maintain 100-200 ppm during mothball period).
    c. Maintain 400-600 ppm P-alkalinity during wet storage.
    d. Boilers should fire and circulate once per week for a minimum of 1 hour.
    e. Cold wet storage is discouraged! Equipment could suffer significant corrosion damage.
    f. If the boilers are offline, drain all deaerators, feed water tanks, surge/condensate receivers, superheaters and economizers. If you cannot drain them, make sure they are fully flooded, and oxygen scavenger levels are at 500% of normal.
    g. If steam lines are idle, make sure all steam traps and condensate receivers are empty. Be prepared to dump condensate for several days upon restart due to flash rusting developing on the interior surfaces of the lines.

4. **Cooling towers, chillers and chilled water distribution piping:**
    a. Many facilities have a water risk management plan such as an ANSI/ASHRAE Standard 188-2018, Legionellosis: Risk Management for Building Water Systems, to provide guidance and protocols to minimize the risk of water borne pathogens, such as *legionella pneumophila* in their utility water systems. If you have a plan and it addresses shut down and restarts of this magnitude, follow it. If you do not have a plan:
        i. Keeping systems running keeps the equipment in the best shape. Set the BAS to unoccupied temperature and humidity setbacks and monitor and adjust to preserve IAQ and building elements.
        ii. With all mechanical systems, if you do not use it, nature takes it back. If you are taking chilled water systems down for an extended period, completely drain the cooling towers, chillers, heat exchangers and associated piping. Leaving the system with stagnant water can result in severe corrosion, biofouling and contribute to transmission of Legionnaires' disease. Be prepared for rust and biological incursions when bringing branch lines back into service. Do a complete system flush to restore design water parameters and clean strainers throughout. Consider adding side stream filtration.
        iii. Try to maintain circulation in main chilled water loops, the larger the loop the greater the importance.
        iv. If operating at reduced capacities for extended duration, for HVAC hydronic loops, increase the frequency of testing and adjusting of biological control regimen by your water treatment provider.

Shut Down a Building Temporarily

Plumbing Systems:

1. Many facilities have a water risk management plan such as ANSI/ASHRAE Standard 188 to provide guidance and protocols to minimize the risk of waterborne pathogens such as *legionella pneumophila* in their utility water systems.

2. Regularly turn on the water and run the drinking fountains, lavatories, urinals, water closets and sinks. Do this once a week to avoid issues with stagnant water.

3. Make sure all plumbing P and U-traps are wet (filled with water) and check them routinely during the unoccupied times.

4. Water features should be shut down and properly drained. This should be part of the water risk management plan.

5. Distributed domestic hot water systems–if possible, keep these systems circulating. Keep water above 140°F to avoid microbial incursion. Do not let it drop below 120°F. If circulation must stop, try to circulate once every two weeks for two hours at temperature. If the hot water recirculating system goes down for extended duration, do a high temperature flush and pull the strainers before going back online.

Shut Down a Building Temporarily

Electrical Systems:

1. Unplug or disconnect non-essential appliances wherever possible– unplug any and all appliances that don't need to stay powered on to avoid "Vampire or Phantom Appliances".

These including but are not limited to:

- Computers
- Routers
- Modems
- Televisions
- Printers
- Chargers
- Microwaves
- Vending machines (remove food that may spoil before disconnecting vending machines that store food and perishables)
- Things that turn on with a remote control

2. It is important to work with your IT department because some computers and monitors will need to remain powered on to facilitate remote desktop functions for remote working employees.

Shut Down a Building Temporarily

Special Systems:

1. Check on fire alarms and other equipment with battery backup power supplies. Consider having an electrical technician come and check that everything is working properly.

2. Check on the battery backup power supplies for IT and IOT devices, especially the ones that are mission critical. These items include but are not limited to servers, BAS, communication systems, lighting control systems and security systems.

3. If the building is equipped with an emergency or backup generator, arrange to have it tested regularly as required by codes, local jurisdictions and the manufacturer’s recommendations.

ECiP - Systems Manual

A Systems Manual should already be in place for normal operations which is a system-focused composite document that includes the design and construction documentation, facility guide and operation manual, maintenance information, training information, commissioning process records and additional information of use to the Owner during occupancy and operations. If there is not an existing Systems Manual, refer to ASHRAE Guideline 1.4-2019: Preparing Systems Manuals for Facilities for guidance to build that document.

While the Systems Manual should include all modes of operation, it is unlikely that it would include a mode for Epidemic Conditions in Place. During an Epidemic, a the Systems Manual should be updated to include special operations and considerations such as:

1. Indicate which systems will remain online without alterations.
2. Indicate which systems will remain online with alterations.
   a. Detail special provisions
   b. Detail revised sequences of operations
   c. Include any BAS checks to make sure the proper mode is engaged
3. Indicate which systems will be de-energized
   a. If these include water systems, indicate how those will get water flow occasionally to avoid growth issues
4. Outline daily activities and documentation that might be different than the normal facilities checks. Include updated data logs and forms as needed.

Just as a normal Systems Manual might be used in the training of the operations and facility staff and occupants before and during normal operations, the updated Systems Manual that includes the Epidemic Conditions in Place Mode should also be used to train operations and facility staff and occupants. This training should be done prior to switching to Epidemic Conditions in Place Mode for the facility and during the event.

Post-Epidemic Conditions in Place (P-ECiP)

There are actions that should be done prior to occupying a building that has been unoccupied or shut down during the epidemic versus the continued operation after it has been made ready for occupancy. This document splits those into:

Prior to Occupying

Operational Considerations once Occupied

The following items should be done based on a Safety Benefit analysis for your system, building, occupancy and climate. These are general suggested actions that need to be applied to your specific systems in your specific building.

P-ECiP: Prior to Occupancy

Re-starting a Building

The intent of this question is for when the work-remote orders are retracted, and the threat of exposure is greatly reduced. Those are listed below for many systems in the building. If you are restarting a building still at a high-level threat of exposure, please review following information in the "**Buildings**" section on the www.ashrae.org/COVID19 site.

- Commercial Building Guide
- Schools
- Healthcare
- Transportation

P-ECiP: Prior to Occupancy

General recommendations

1. Prior to starting the building, operators may want to create a strategic plan that includes the following:
   a. Create measures to make occupants feel safer
   b. Ensure supply chain for critical items, such as filters, as confirmed for delivery
   c. Review contractual agreements with tenants with regards to building support
   d. Establish a communication protocol with tenants and include key contacts
   e. Prepare and provide training for tenants on safety measures

It is important to note, that if you are opening when PPE requirements are still in place, the Occupancy Guides should be referenced as they deal with functioning buildings during the epidemic.

2. Notify relevant people - include exact dates and times that the building will be reopened.

3. Follow all local, state and federal executive orders, statutes, regulations, guidelines, restrictions and limitations on use, occupancy and separation until they have been officially relaxed or lifted.

4. Follow CDC advice regarding PPE

5. Follow OSHA Guidelines

P-ECiP: Prior to Occupancy

General recommendations continued:

6. Ensure that custodial scope includes proper cleaning procedures built from EPA and CDC guidance on approved products and methods:
    a. Disinfect high-touch areas of HVAC and other building service systems e.g. on/off switches, thermostats
7. Review the BAS programming to adjust the systems to align with the accepted requirements in the Operational Considerations once Occupied Section.
8. Install signage to encourage tenants to use a revolving door, if any, rather than opening swing doors in the lobby area.
9. Review all procedures to consider the addition of “touchless” interactions where applicable. As an example, auto-flush valves are considered “touchless”.
10. Engage a qualified Commissioning Provider (CxP), TAB firm, and/or BAS contractor to verify sensor calibration for demand-based ventilation instrumentation, airflow measurement instrumentation and temperature control instrumentation.
11. Engage a mechanical service company, if not already under contract, to inspect and assess the operational capabilities of all mechanical refrigeration equipment (i.e. chillers and DX cooling equipment), water heaters, steam boilers, pumps and associated specialties (i.e. expansion tanks, deaerators, traps, PRVs, mixing stations, etc.).
12. Consider future renovations, to be included in the capital budget, to incorporate some of the strategies to mitigate transmission of viruses as indicated in the ASHRAE Position Document “Infectious Aerosols” as well as the Occupancy Guides at www.ashrae.org/covid19.

P-ECiP: Prior to Occupancy

Heating Ventilating & Air Conditioning:

1. ASHRAE recommends that all building owners and service professionals follow the requirements of ASHRAE Standard 180-2018 “Standard Practice for the Inspection and Maintenance of Commercial HVAC Systems which has tables to show the typical maintenance on equipment that has been in operation
2. Consider PPE when maintaining ventilation materials, including filters and condensate. Consult additional guidance before duct cleaning.
3. Confirm occupancy schedule with building tenants and review programmed operation schedule in BAS and/or HVAC components (i.e. unitary controls). Modify as needed to fit the current occupancy schedules and ventilation requirements.
4. Check if all the setbacks and setup modes are reversed back to normal.
5. Open outside air intake dampers to their maximum, 100% preferred, four hours minimum, before the reoccupation. The maximum position the outside air dampers may be opened will depend on the time of year, local climate, the temperature and humidity of the outside air and the capability of the HVAC equipment to condition the outside air so that the system is able to maintain acceptable indoor temperature and humidity. When operating in this “flush out” mode, monitor the system continuously to make sure that unexpected or unacceptable conditions inside do not develop. Upon completion of the flush, the damper positions should be corrected to provide design levels.
6. In buildings with operable windows, if the outside air temperature and humidity are moderate, consider opening all windows for two hours minimum before the reoccupation.
7. Operate the HVAC systems in Occupied mode for at least 24 hours after completing the previous steps. Trend temperature control and ventilation parameters through the BAS. If this capability is not available, request a qualified Commissioning Provider or TAB firm install monitoring equipment or measure systems to verify proper temperature and ventilation control. Be advised that equipment may be operating below design capacity, but sequencing and temperature control should function correctly.
   - Check to see that space temperature and relative humidity levels are being controlled to the acceptable setpoints.
8. Verify Occupied / Unoccupied sequencing after measurement and verification of Occupied parameters is complete.
9. Check the status of any heat recovery wheels in the systems for leakage and cross-contamination. Consider deactivating these wheels until a service technician checks the operation and condition.
10. Consult with the CxP, BAS contractor, TAB firm or Design firm to identify any areas of concern or anomalies in the monitored or measured data and compile a list of issues to be addressed to meet minimum occupancy ventilation requirements and occupant comfort / operational temperature setpoints.

P-ECiP: Prior to Occupancy

Airside Systems:

1. Check to see that the fans have turned on, and that air is moving in and out of the building.

2. Check to make sure the dampers (outside and return) are working properly as this helps control the fresh air to the building. If the building increased its outside air (OA) during the epidemic, rebalancing the dampers may be required to achieve design air flows.

3. Check overall building pressure to make sure it is positive. Do the same for any critical interior spaces.

4. Check that the filters are still in acceptable condition. Facility staff should wear PPE, assuming the system may have been contaminated prior to shut down or upon restarting.

5. Operators should consider increasing the level of filtration in the Air Handling Units (AHUs) for one or two replacement cycles upon opening the building. Make sure the air handling systems and fans can overcome the additional pressure drop of the new filters and still maintain air flow at acceptable levels. Refer to the Filtration Guidance.

If higher efficiency filtration is not available, portable units in the high-traffic areas may be used for a few months.

P-ECiP: Prior to Occupancy

Cooling systems:

1. Check the refrigerant pressures to make sure the system is adequately charged.
2. Check the water quality in the systems and add chemicals as needed.
3. Check coil leaving air temperatures to make sure the systems are providing dehumidification.
4. Check the water levels and make-up water source for cooling towers to ensure they are available.
5. Check pump operation and that water is flowing.

Heating System:

1. Check the fuel source to make sure it is on and available. Old fuel oil may need to be replaced.
2. Confirm that the flues and make-up air paths are open prior to engaging boilers.
3. Check that the coil actuators are controlling to temperature, or that heating elements are turned on at the disconnect.
4. If the boiler system(s) were shut down, follow state boiler codes and the manufacturer's written instructions for starting up, and bring hot water and steam heating systems and plants back online.

P-ECiP: Prior to Occupancy

Building Automation System:

1. Check that the devices and sensors are within an acceptable calibration for controlling space comfort and ventilation. Use the guidance in ASHRAE Guideline 11-2018 -Field Testing of HVAC Control Components.

2. Check that the alarms are set up and their communication path is correct (it is notifying the right person).

3. Consider an update to the programming that would incorporate HVAC strategies to reduce virus transmission prior to future events. Automate the control sequences applied as “Epidemic Mode” operations that can be manually selected by the operator with one stroke.

   – Refer to Occupancy Guides for suggested HVAC strategies to employ when operating the building in an epidemic.

P-ECiP: Prior to Occupancy

Building Automation System:

4. Reset and ventilation control strategies to increase outside air back to normal. This means to re-engage demand-controlled ventilation and potentially eliminate the pre- and post- occupancy flushing.

5. Filters should be replaced, at the normal interval, back to the previous MERV level. It makes financial sense to wait until the currently installed filter pressure drop indicates it needs to be changed. Refer to filter modification notes to determine required adjustments to the system to achieve initial operating conditions.

6. Make sure your toilet exhaust fans are now set to turn off in unoccupied mode if that is how it was previously operated.

P-ECiP: Prior to Occupancy

Plumbing Systems:

1. Many facilities have a water risk management plan such as an ASHRAE Standard 188, to provide guidance and protocols to minimize the risk of waterborne pathogens, such as legionella pneumophila in their utility water systems.

2. Turn on the water and run the drinking fountains, lavatories, urinals, water closets and pantries to ensure water quality before usage.

3. Make sure all P and U-traps on plumbing drains are wet.

4. Distributed domestic hot water systems - if possible, keep these systems circulating. Keep water above 140°F to avoid microbial incursion. Do not let it drop below 120°F. If circulation was stopped, try to circulate once every two weeks for two hours at temperature. If the hot water recirculating system goes down for extended duration, do a high temperature flush and pull the strainers before going back online.

5. Maintenance should wear epidemic-level PPE when maintaining any of the sewage ejectors and lift stations until those systems are sterilized.

P-ECiP: Prior to Occupancy

Electrical Systems:

Plug in all appliances that were unplugged to avoid phantom electrical loads, including but not limited to:

a. Computers
b. Routers
c. Modems
d. Televisions
e. Printers
f. Chargers
g. Microwaves
h. Things that turn on with a remote control

P-ECiP: Prior to Occupancy

Special Systems:

1. Check on fire alarms and other equipment with battery backup power supplies. Consider having an electrical technician come and check that everything is working properly.

2. Have fire protection sprinkler systems, fire alarm systems, emergency lighting systems and other life-safety systems inspected by local authorities having jurisdiction (AHJs), if required by state and local statutes and ordinances, and by contract service professionals who routinely maintain these systems.

3. Check on the battery backup power supplies for Information Technology (IT) and Internet of Things (IOT) devices, especially the ones that are mission critical. That would include servers, building automation systems (BAS), communication systems, lighting control systems and security systems.

4. If the building is equipped with an emergency or backup generator, arrange to have it tested as required by codes, local jurisdictions and the manufacturer’s recommendations.

P-ECiP: Operational Considerations once Occupied

The intent is to return your building to the new normal mode of operation for your facility, but what is the new normal? There are questions the facility needs to address as it modifies its systems.

In general, use the Building Readiness Plan to re-open your building. In addition, continue to follow the CDC advice regarding PPE and OSHA Guidelines for workspaces.

Next, let's capitalize on some of the lessons learned, which may adjust your new normal, that the facility has experienced with the recent COVID Pandemic by exploring the following questions:

P-ECiP: Operational Considerations once Occupied

Did your maintenance program have any scheduled preventive maintenance periods missed because the building was unoccupied?

- This would include any monthly, quarterly, semi-annual or annual inspections and service.

If the answer is yes, then get these back on schedule without putting the current and upcoming maintenance at risk.

- Current and upcoming maintenance should continue as scheduled.
- Prioritize the missed maintenance items, starting with any annual maintenance missed, for the longest period since the last annual inspection and maintenance.
- Move to the semi-annual then the quarterly.
- Start scheduling these missed service intervals on equipment over the next month to catch up.
- With the quarterly inspections, if you are a month or less to the next quarterly inspection it might make sense to just skip the missed inspection cycle.

If the answer is no, continue with the current maintenance cycle as scheduled.

P-ECiP: Operational Considerations once Occupied

Did you have issues acquiring parts or consumable maintenance materials during the pandemic period?

If the answer is yes, consider generating a stock backlog of commonly used parts or consumables. Of course, one needs to always pay attention to this by using the stock and restoring the backlog as items are used to keep items with shorter shelf life current. This can be a challenge at some locations, as space is a true premium.

If the answer is no, continue with the current program, but think forward. Is there anything in your stock that would be a problem if you could not acquire it in another event?

P-ECiP: Operational Considerations once Occupied

Were you able to continue daily or weekly rounds at the building during the shut down?

If the answer is yes, review the notes from the rounds. If issues were identified start scheduling maintenance repairs to address any issues such as filter, leaking flange, loose belts or sticking flush valves.

If the answer is no, consider going through your facility with diligence to ensure that all systems have returned to normal operations. Here is a list of easy low hanging fruit to look for, but certainly not all encompassing:

- Look closely at consumables, have any dried out and require replacement or refilling?
- Are all the filters still in the filter rack and not sucked in?
- Any visible leaks on the piping or plumbing fixtures?
- Do the batteries need to be changed in any paper towel dispensers?
- Are the sensors in the systems reading and reporting correctly?

P-ECiP: Operational Considerations once Occupied

Were there systems that were not able to be put into a setback mode?

If the answer is yes, look at these systems individually and determine a plan for the next long-term pandemic. Ask these questions:

- What prevented the setback mode from happening?
- Can the system be upgraded to have a setback mode?
- How do we implement the upgrade?

If the building is manual operations and not computerized, consider a control upgrade to the system. This could be a large undertaking so prioritize by system criticality. Remember some systems control setbacks just might not make sense.

If the answer is no, continue with the current program.

P-ECiP: Operational Considerations once Occupied

Do the building mechanical systems have reset and ventilation control strategies to increase outside air back to normal?

If the answer is yes, consider adding a schedule for times where the building can be automatically flushed with fresh air in addition to the demand-controlled ventilation increase.

If the answer is no, consider adding this to the next air handler replacement.

P-ECiP: Operational Considerations once Occupied

Are there other lessons learned that need to be addressed within the building from this experience?

Have a round table with the staff maintaining the facility, pull from their thoughts and experiences. Create a master list of the headaches and the problems that were found. Use these to help develop the new capital plan or program for the facility.

P-ECiP: Ventilation

Post-Epidemic Conditions in Place, the ventilation should be returned to normal quantity and duration prior to the epidemic.

Refer to ventilation modification notes to determine required adjustments to the system to achieve initial operating conditions.

P-ECiP: Filtration

Post-Epidemic Conditions in Place, the filtration should be returned to normal quantity and duration prior to the epidemic.

Prior to returning systems to their normal state, final measurements and data should be recorded for future use.

- Total airflow and static pressure should be recorded at a minimum, as well as filter status (clean, dirty, other).
- If temporary brackets or other modifications were made to accommodate larger or different style filters during the epidemic, a determination should be made whether or not to keep the modifications in place for possible future use, or if it needs to be removed or changed back in order to return the system to former operations.
- Any left-over filtration not used during the epidemic should be documented and stored for future use, as well as any removed modifications or materials used for modifications.

If owners/operators find that their facility operations were not reduced or hindered by the modifications or increased filtration (higher MERV rating), some facilities may opt to keep the increased filtration in place or shift to a new filtration efficiency. Whether systems are returned fully to pre-epidemic operations, returned to slightly better MERV rating than pre-epidemic operations, or kept in place, final long-term operation should be documented for record purposes (airflow, static pressures, amperages).

P-ECiP: Building Maintenance Program

Review your existing maintenance program:

- Are there systems within the program that need to be put at a higher priority than per-pandemic conditions?
- Are there systems or equipment that have more issues than per-pandemic conditions?
- If you are only doing annual or semi-annual inspections and maintenance, is it worth considering adding a more frequent maintenance interval?

We would suggest that each piece of equipment and each system be evaluated individually and don't forget to evaluate what the system serves within the building. Depending on the building, some systems may take a higher priority because of the area of service.

- ASHRAE Standard 180-2018: Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems
- ASHRAE Standard 188-2018: Legionellosis: Risk Management for Building Water Systems

P-ECiP: Building Maintenance Program

For those who have determined that a more robust maintenance program is required for the HVAC or Plumbing systems, a good resource for putting program in place are:

- ASHRAE Standard 180-2018: Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems

- ASHRAE Standard 188-2018: Legionellosis: Risk Management for Building Water Systems

- Guideline 12-2020 -- Managing the Risk of Legionellosis Associated with Building Water Systems

For electrical system programs, refer to the NFPA 70B Recommended Practice for Electrical Equipment Maintenance.

P-ECiP: Systems Manual

As stated above in the Epidemic Conditions in Place, a Systems Manual should be revised to include this new mode of operation for the facility. During an epidemic, there might be altered sequences of operations, as well as data logging information and operations for record keeping. When the epidemic is over and occupants begin to return to the workplace in a more normal capacity, systems will likely be returned to, or near, previous operations.

When returning systems to normal operations, operations staff should review the Occupied and Unoccupied Modes in normal operation to ensure that the document is current. There should be documentation kept of the change over, any anomalies encountered, as well as operational data recorded moving forward, when switching between modes.

The post-change over review should be performed so that any updates that need to be made can be made and put into action.

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TC-5.5 Committee

References

[1] Cooling coil selections provided by Trane Orlando.

[2] ASHRAE HVAC Systems and Equipment Chapter 21 page 21.6 Fan Laws

Disclaimer

Information in this document is provided as a service to the public. While every effort is made to provide accurate and reliable information, this is advisory, is provided for informational purposes only, and may represent only one person's view. They are not intended and should not be relied upon as official statements of ASHRAE.

Appendix D – Self-Assessment of MTSS (SAM) Implementation 2.0 Rubric

DRAFT

SAM 2.0 Rubric

The following was completed by the Florida Problem-Solving/Response to Intervention Project.

Self-Assessment of MTSS Implementation (SAM)

Overview of MTSS

This instrument is used to measure school-level implementation of a Multi-Tiered System of Supports (MTSS). MTSS is a term used to describe an evidence-based model of educating students that uses data and problem-solving to integrate academic, behavior, and social-emotional instruction and intervention ***to maximize the success of all students***. Instruction and intervention is provided to students across multiple tiers of intensity based on need. Staff make data-based decisions in order for resources (e.g., time, staff, and evidence-based strategies) to reach the students at the appropriate levels to increase the performance of ALL students with the goal of achieving and/or exceeding proficiency.

Quality implementation of MTSS is associated with increased likelihood of instruction and interventions leading to successful student outcomes. Thus, it is important for schools to monitor not only student outcomes, but also *how* assessments, instruction, interventions, and data-based problem-solving are put into place (i.e., the fidelity with which these elements are implemented). Successful implementation is influenced by many factors within and around the school system (e.g., professional development, administrative support, data systems, staff member perceptions, successful adaptation, etc.). As a measure of school-level implementation of an MTSS, the focus of this instrument is on the necessary actions and activities to successfully implement and sustain the critical elements of MTSS with fidelity. The critical elements of MTSS referred to throughout the instrument include:

- Curriculum standards
- Assessments used to inform instruction
- Multiple tiers of instruction and intervention
- Data-based problem-solving used to make decisions

To promote a common understanding, staff that complete the instrument are urged to discuss the elements of MTSS and how they relate to components of their school's system for educating all students. MTSS should not be thought of as a *separate* initiative or program that must be implemented. Rather, MTSS provides a framework for the integration of academic, behavior, and social-emotional supports. Other initiatives such as implementation of educational policies and regulations, new assessment systems, or new instructional strategies also should be considered in the context of how they fit within an MTSS. MTSS provides a framework for implementing educational practices to ensure academic, behavioral, and social-emotional success of all students.

Directions for Completing the Instrument and Using the Data
The school leadership team that has responsibility for allocating resources to improve student learning should complete this instrument. Completion involves a three-step process:

1. Each team member should review the SAM instrument and Endnotes independently and think how s/he, personally, would respond to each item.

2. After reviewing the SAM items independently, the team members should come together to discuss their responses and reach agreement on which answer best represents the current status of implementation at their school. Endnotes provide additional clarifying information or definitions that the team should utilize, especially as team members are first becoming familiar with the SAM instrument. Endnotes provide critical information for ensuring the SAM instrument is completed accurately and results in valid scores. Record consensus scores on the SAM Scoring Sheet. The Scoring Sheet has abbreviated language and should only be used to record responses and to provide a visual representation of items with higher and lower scores.

3. Use the SAM instrument and the Scoring Sheet data to inform your action plan (an optional planning template is provided) to improve MTSS implementation.

Rate each item on a scale from 0-3 (*0 = Not Started; 1 = Emerging/Developing; 2 = Operationalizing; 3 = Optimizing*) using the definition provided for each rating.

Superscript numbers (e.g., [2]) correspond with endnotes that provide additional clarifying information or definitions relevant to the content within the item.

There are 39 items organized into six domains:

1) Leadership

Leadership is key to successful implementation of any large-scale innovation. The building principal, assistant principal(s), and school leadership team are critical to implementing MTSS at the school level. They engage staff in ongoing professional development for implementing MTSS, plan strategically for MTSS implementation, and model a data-based problem-solving process for school improvement. The school principal also supports the implementation of MTSS by communicating a vision and mission to school staff, providing resources for planning and implementing instruction and intervention, and ensuring that staff have the data needed for data-based problem-solving.

2) Building the Capacity/Infrastructure for Implementation

School-wide capacity and infrastructure are required in order to implement and sustain MTSS. This capacity and infrastructure usually includes ongoing professional development and coaching with an emphasis on data-based problem-solving and multi-tiered instruction and intervention; scheduling that allows staff to plan and implement instruction and intervention; and processes and procedures for engaging in data-based problem-solving.

3) Communication and Collaboration

Ongoing communication and collaboration are essential for successful implementation of MTSS. Many innovations fail due to a lack of consensus, to a lack of feedback to implementers to support continuous improvement, and to not involving stakeholders in planning. In addition to including stakeholders in planning and providing continuous feedback, it is also important to build the infrastructure to communicate and work with families and other community partners. These practices increase the likelihood that innovative practices will be implemented and sustained.

4) Data-Based Problem-Solving

The use of data-based problem-solving to make educational decisions is a critical element of MTSS implementation. This includes the use of data-based problem-solving for student outcomes across content areas, grade levels, and tiers, as well as the use of problem-solving to address barriers to school wide implementation of MTSS. While several models for data-based problem-solving exist, the four-step problem-solving approach evaluated in this instrument includes: 1) defining the goals and objectives to be attained, 2) identifying possible reasons why the desired goals are not being attained, 3) developing a plan for and implementing evidence-based strategies to attain the goals, and 4) evaluating the effectiveness of the plan.

5) Three-Tiered Instructional/Intervention Model

The three-tiered instructional/intervention model is another critical element of MTSS implementation. In a typical system, Tier 1 includes the instruction delivered to all students; Tier 2 includes supplemental instruction or intervention provided to students not meeting benchmarks; and Tier 3 includes intensive, small-group or individual interventions for students facing significant barriers to learning the skills required for school success. It is important to consider academic, behavior, and social-emotional instruction and interventions when examining this domain.

6) Data-Evaluation

Given the importance of data-based problem-solving within an MTSS model, the need for a data and evaluation system is clear. In order to do data-based problem-solving, school staff need to understand and have access to data sources that align with the purposes of assessment. Procedures and protocols for administering assessments and data use allow school staff to use student data to make educational decisions. In addition to student data, data on the fidelity of MTSS implementation allow school leadership to examine the current practices and make changes to increase implementation.

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
1. Leadership Domain (Items 1–5)					
1. The principal is actively involved in and facilitates MTSS implementation	The principal does ***not*** actively support MTSS.	The principal communicates an urgent desire to implement MTSS, participates in professional development on MTSS, and is establishing an MTSS vision	***and*** The principal actively supports the leadership team and staff to build capacity for implementation	***and*** The Principal actively supports data-based problem-solving use at the school	
2. A leadership team is established that includes 6-8 members with cross-disciplinary representation (e.g., principal, general and special education teachers, content area experts, instructional support staff, student support personnel [1]) and is responsible for facilitating MTSS implementation [2]	***No*** leadership team with explicit responsibility for leading MTSS implementation exists	A leadership team exists that includes cross-disciplinary representation,	***and*** The leadership team has explicit expectations for facilitating MTSS implementation,	***and*** The leadership team members have the beliefs, knowledge, and skills to lead implementation efforts	
3. The leadership team actively engages staff in ongoing professional development and coaching [3] necessary to support MTSS implementation	The leadership team does ***not*** have a needs-based plan to provide staff with professional development or coaching to support MTSS implementation	A needs assessment is conducted to gather information on beliefs, knowledge, and skills to develop a professional development plan to support MTSS implementation	***and*** A professional development plan is created based on the needs assessment and used to engage staff in ongoing professional development and coaching	***and*** Ongoing professional development activities are informed by data collected on the outcomes of professional development and coaching for continuous improvement	
4. A strategic plan for MTSS implementation is developed and aligned with the school improvement plan	***No*** strategic plan for MTSS implementation exists	Leadership team is engaging district, family, and community partners to identify stakeholder needs, resources for, and barriers to MTSS implementation	***and*** As part of the school improvement planning process a strategic plan is developed that specifies MTSS implementation [4]	***and*** A strategic plan for MTSS implementation is updated as needed based on student outcome and implementation fidelity data as part of the school improvement planning process	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
5. The leadership team is actively facilitating implementation of MTSS [5] as part of their school improvement planning process	The leadership team is ***not*** actively engaging in efforts to facilitate MTSS implementation	The leadership team engages in action planning and has created a strategic plan to facilitate implementation of the critical elements[6] of MTSS	***and*** The leadership team provides support to educators implementing the critical elements of MTSS identified in the strategic plan	***and*** The leadership team uses data on implementation fidelity of the critical elements of MTSS to engage in data-based problem-solving for the purpose of continuous school improvement	
2. Building the Capacity/Infrastructure for Implementation Domain (Items 6–16)					
6. The critical elements [6] of MTSS are defined and understood by school staff	***No*** information on the critical elements of the school's MTSS is available	The critical elements of MTSS are being defined	***and*** The critical elements of MTSS are defined and are communicated to school staff	***and*** The curriculum, assessment, and instructional practices that define the school's critical elements of MTSS can be communicated by all school staff	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
7. The leadership team facilitates professional development and coaching [7] for all staff members on assessments and data sources used to inform decisions	Initial professional development is ***not*** provided to all staff members	The staff engages in initial, job-embedded professional development focusing on: • Purpose and administration of assessment tools • Role of assessment/data sources in making instructional decisions • Review of current assessments/data sources being utilized and those being considered • Analyzing and using assessment results to improve instruction • Using various types of data to inform instructional practices to meet the needs of diverse learners • Communicating and partnering with families about data and assessment practices	***and*** The staff engages in ongoing professional development and coaching related to the administration of assessments and interpretation of the data/data sources. Professional development includes: • Changes or updates to assessments/data sources • Changes to data collection, tracking, and analysis • Ongoing coaching on instructional practices and interpreting assessment results	***and*** The leadership team analyzes feedback from staff as well as outcomes in order to identify professional development and coaching needs in the area of assessment/data sources in support of continuous improvement	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
8. The leadership team facilitates professional development and coaching [7] for staff members on data-based problem-solving relative to their job roles/responsibilities	Professional development does ***not*** focus on data-based problem-solving	Initial professional development on data-based problem-solving is provided that includes the following elements: • Rationale for use of data-based problem-solving • Problem-solving steps to address school-wide, classroom, small-group, and individual student needs • Roles and responsibilities for team members engaging in data-based problem-solving	***and*** Ongoing professional development and coaching on data-based problem-solving is delivered that includes the following elements: • Differentiation of professional development based on staff roles/responsibilities • Coaching • Modeling, practice, and collaborative feedback on problem-solving steps • Support for collaboration and teaming skills	***and*** Data on use of problem-solving skills and application are used to inform continuous improvement of professional development and coaching efforts	
9. The leadership team facilitates professional development and coaching [7] for all staff on multi-tiered instruction and intervention relative to their job roles/responsibilities	***No*** explicit connection to multi-tiered instruction and intervention is evident in professional development provided	Initial professional development on multi-tiered instruction and intervention is provided that includes the following elements: • Rationale for and modeling of instructional and intervention design and delivery (e.g., Common Core State Standards, instructional routine, Tier 1 Positive Behavior Supports, lesson planning for active student engagement) • Connections are made regarding how the practices are aligned with and integrated into MTSS • How data informs instruction and intervention design and delivery that reflects student diversity and results in learning opportunities for all students [8]	***and*** Ongoing professional development and coaching on multi-tiered instruction and intervention is provided that includes the following elements: • Differentiation of professional development and coaching based on staff roles/responsibilities • Coaching • Modeling of, practice of, and collaborative feedback on, evidence-based practices	***and*** The leadership team regularly uses data on student needs and fidelity of how evidence-based practices are implemented to continuously improve professional development and coaching efforts	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
10. Coaching [7] is used to support MTSS implementation	***No*** coaching is provided to build staff capacity to implement the critical elements of MTSS	Initial coaching is occurring that is focused primarily on facilitating or modeling the components of MTSS	***and*** Coaching activities are expanded to include: • Opportunities to practice • Collaborative and performance feedback	***and*** Data on professional development, implementation fidelity, and student outcomes are used to refine coaching activities	
11. Schedules provide adequate time for trainings and coaching support	Schedules do ***not*** include time allocated to professional development and coaching for MTSS	Schedules include time allocated for trainings	***and*** Schedules include time for ongoing coaching support	***and*** Schedules permit personnel to access additional training and coaching support that is differentiated based on their needs	
12. Schedules provide adequate time to administer academic, behavior and social-emotional assessments needed to make data-based decisions	Schedules do ***not*** include time allocated to administering assessments needed to make decisions across tiers	Schedules include time for academic, behavior and social-emotional assessments administered to all students (e.g., universal screening)	***and*** Schedules include time to administer more frequent progress monitoring assessments to students receiving Tier 2 and 3 services as specified (e.g., weekly or monthly assessments)	***and*** Schedules permit personnel to administer additional assessment (e.g., diagnostic assessments) across content areas and tiers needed to engage in data-based problem-solving	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
13. Schedules provide adequate time for multiple tiers of evidence-based instruction and intervention to occur	The master schedule is developed ***without*** student data and does ***not*** include time for multi-tiered interventions	The master schedule is developed utilizing student data and includes time for multi-tiered interventions	***and*** The master schedule facilitates effective implementation of multi-tiered interventions matched to student needs by content area and intensity (Tier 1, Tier 2, Tier 3)	***and*** The master schedule allows for flexible student groupings	
14. Schedules provide adequate time for staff to engage in collaborative, data-based problem-solving and decision-making	The master schedule does ***not*** provide opportunities for collaborative, data-based problem-solving and decision-making to occur	The master schedule provides opportunities to engage in collaborative, data-based problem-solving and decision-making to occur	***and*** The master schedule provides sufficient time for the process to occur with fidelity	***and*** The master schedule provides opportunities for collaborative, data-based problem-solving and decision-making to occur in settings such as: • Leadership team meetings • Grade-level meetings • Cross grade-level meetings • Cross-departmental meetings • Professional Learning Community meetings	
15. Processes, procedures, and decision-rules [9] are established for data-based problem-solving	***No*** systematic processes, procedures, or decision-rules are established	Processes, procedures, and decision-rules needed to engage in data-based problem-solving are developed and existing structures and resources are incorporated	***and*** The steps of problem-solving; procedures for accessing, submitting, and using data; and decision-rules needed to make reliable decisions are communicated to staff [10]	***and*** Data-based problem-solving processes, procedures, and decision-rules are refined based on data and feedback from staff, schedule changes, and resource availability	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
16. Resources [11] available to support MTSS implementation are identified and allocated	***No*** process exists for mapping and allocating resources available to support MTSS implementation	Leadership team members are gathering information on the personnel, funding, materials, and other resources available to support MTSS implementation	***and*** Resource inventories are established using the gathered information on the personnel, funding, materials, and other resources available to support MTSS implementation and plans for allocating the resources are established	***and*** Existing resource maps and resource allocations are updated at least annually based on student need, available personnel, funding, materials, and other resources	
3. Communication and Collaboration Domain (Items 17–20)					
17. Staff [12] have consensus and engage in MTSS Implementation [13]	Staff are ***not*** provided opportunities to gain understanding of the need for MTSS	Staff are provided opportunities to gain understanding of the need for MTSS	***and*** Staff has opportunities to gain understanding of its relevance to their roles and responsibilities	***and*** Staff has opportunities to provide input on how to implement MTSS	
18. Staff are provided data on MTSS implementation fidelity and student outcomes [14]	Staff are ***not*** provided any data regarding MTSS implementation fidelity ***nor*** student outcomes	Staff are rarely (***1x/year***) provided data regarding MTSS implementation fidelity ***and*** student outcomes	Staff are regularly (***2x/year***) provided data regarding MTSS implementation fidelity ***and*** student outcomes	Staff are frequently (***3x+/year***) provided data regarding MTSS implementation fidelity ***and*** student outcomes	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
19. The infrastructure exists to support the school's goals for family and community engagement [15] in MTSS	Family and community engagement is: ***not*** defined and monitored with data; ***not*** linked to school goals in SIP/MTSS plan; ***and*** procedures for facilitating 2-way communication do ***not*** exist	Family and community engagement are ***1 of the following 3***: • defined and monitored with data • linked to school goals in SIP/MTSS plan • supported by procedures for facilitating 2-way communication	Family and community engagement are ***2 of the following 3***: • defined and monitored with data • linked to school goals in SIP/MTSS plan • supported by procedures for facilitating 2-way communication exists	Family and community engagement are ***all of the following***: • defined and monitored with data • linked to school goals in SIP/MTSS plan • supported by procedures for facilitating 2-way communication exist	
20. Educators actively engage families in MTSS	Staff do ***none* of the following**: • actively engage families that represent the diverse population of the school • engage families in problem-solving when their children need additional supports • provide intensive outreach to unresponsive families[16] • increase the skills of families to support their children's education	Staff do ***1 of the following 4***: • actively engage families that represent the diverse population of the school • engage families in problem-solving when their children need additional supports • provide intensive outreach to unresponsive families • increase the skills of families to support their children's education	Staff do ***2 or 3 of the following 4***: • actively engage families that represent the diverse population of the school • engage families in problem-solving when their children need additional supports • provide intensive outreach to unresponsive families • increase the skills of families to support their children's education	Staff do ***all of the following***: • actively engage families that represent the diverse population of the school • engage families in problem-solving when their children need additional supports • provide intensive outreach to unresponsive families • increase the skills of families to support their children's education	
4. Data-based Problem-solving Domain (Items 21–27)					
21. Integrated data-based problem-solving [17] for student academic, behavior and social-emotional outcomes occurs across content areas, grade levels, and tiers [18]	Data on academic, behavior, and social-emotional outcomes may be collected, ***but*** data-based problem-solving does ***not* occur across**:	Data-based problem-solving occurs across ***1 of the following 4***: • at least 2 content areas (e.g., reading, behavior, social-emotional) • at least 50% of grade levels	Data-based problem-solving occurs across ***2 of the following 3***: • at least 3 content areas • at least 75% of grade levels • at least two tiers	Data-based problem-solving occurs across ***all of the following***: • across all content areas • all grade levels • all tiers	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
	• academic, behavior and social-emotional content areas • any grade levels • any tier	• a single tier • only academic outcomes or only behavior and social-emotional outcomes			
22. *Across all tiers*, data are used to identify the difference or "gap" between expected and current student outcomes relative to academic, behavior and social- emotional goals	The gap between expected and current student outcomes is ***not*** identified	The gap between expected and current outcomes is identified,	***and*** The gap between expected and current outcomes is identified, and is associated with academic, behavior and social-emotional goals	***and*** The gap between expected and current outcomes is identified relative to academic, behavior and social-emotional goals and is used to identify the appropriate level (tier) of instruction/intervention	
23. Academic, behavior and social- emotional data are used to identify and verify reasons why [19] students are not meeting expectations	Reasons why students are ***not*** meeting expectations are ***not*** identified	Reasons why students are not meeting expectations are identified	***and*** Data are used to verify the reasons why students are not meeting expectations	***and*** The reasons why students are not meeting expectations span multiple reasons related to instruction and the learning environment of why students struggle and are verified using a range of assessment methods	
24. Specific instructional/intervention plans are developed and implemented based on verified reasons why students are not meeting academic, behavior and social-emotional expectations	Instructional/ intervention plans are ***not*** developed	Instructional/intervention plans are developed	***and*** Instruction/Intervention plans consistently specify what will be done, by who, when it will occur, and where with enough detail to be implemented [20]	***and*** Instructional/intervention plans consistently are developed based on verified reasons students are not meeting expectations	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
25. Student progress specific to academic, behavior and social-emotional goals specified in intervention plans are monitored	Progress monitoring does ***not*** occur and student progress is ***not*** evaluated	Plans for monitoring progress toward expected student outcomes are developed	***and*** In most cases data are collected to monitor student progress and intervention fidelity	***and*** Changes are made to instruction/intervention based on student responses	
26. Data-based problem-solving informs how patterns of student performance across diverse groups (e.g., racial/ethnic, cultural, social-economic, language proficiency, disability status) are addressed	Patterns of student performance across diverse groups are ***not*** identified	Data on student outcomes are collected	***and*** Patterns of student performance across diverse groups are identified	***and*** Data on student outcomes informs how MTSS implementation efforts are impacting different groups of students	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
27. Resources for and barriers [21] to the implementation of MTSS are addressed through a data-based problem-solving process	Data-based problem-solving of resources for and barriers to implementation of MTSS does ***not*** occur	School leadership discusses resources for and barriers to implementation of MTSS	School leadership discusses resources for and barriers to implementation of MTSS ***and*** does ***one of the following***: • collects data to assess implementation levels • develops action plans to increase implementation	School leadership discusses resources for and barriers to implementation of MTSS ***and*** does ***both of the following***: • collects data to assess implementation levels • develops action plans to increase implementation	
5. Three Tiered Instructional /Intervention Model Domain (Items 28–33) (Items in this section alternate between addressing academic, behavior and social-emotional practices.)					
28. Tier 1 (core) academic practices exist that clearly identify learning standards [22], school-wide expectations [23] for instruction that engages students, and school-wide assessments [24]	Tier 1 elements are ***not*** developed and/or clearly defined	Tier 1 elements incorporate ***1 of the following 4***: • clearly defined learning standards • school-wide expectations for instruction and engagement • link to behavior and social-emotional content/instruction • assessments/data sources	Tier 1 elements incorporate ***2 or 3 of the following 4***: • clearly defined learning standards • school-wide expectations for instruction and engagement • link to behavior and social-emotional content/instruction • assessments/data sources	Tier 1 elements incorporate ***all of the following***: • clearly defined learning standards • school-wide expectations for instruction and engagement • link to behavior and social-emotional content/instruction • assessments/data sources	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
29. Tier 1 (core) behavior and social-emotional practices exist that clearly identify school-wide expectations, social-emotional skills instruction, classroom management practices [25], and school-wide behavior and social-emotional data [26]	Tier 1 strategies are ***not*** developed and/or clearly defined	Tier 1 strategies incorporate ***1 of the following 4***: • clearly defined school-wide expectations • classroom management practices • link to Tier 1 academic content/instruction • accessing school-wide behavior and social-emotional data sources	Tier 1 strategies incorporate ***2 or 3 of the following 4***: • clearly defined school-wide expectations • classroom management practices • link to Tier 1 academic content/instruction • accessing school-wide behavior and social-emotional data	Tier 1 strategies incorporate ***all of the following***: • clearly defined school-wide expectations • classroom management practices • link to Tier 1 academic content/instruction • accessing school-wide behavior and social-emotional data	
30. Tier 2 (supplemental) academic practices exist that include strategies addressing integrated common student needs, are linked to Tier 1 instruction[27], and are monitored using assessments/data sources tied directly to the academic, behavior and social-emotional skills taught	Tier 2 strategies are ***not*** developed and/or clearly defined	Tier 2 strategies incorporate ***1 of the following 4***: • common student needs • link to Tier 1 instruction • link to behavior and social-emotional content/instruction • assessments/data sources link directly to the skills taught	Tier 2 strategies incorporate ***2 or 3 of the following 4***: • common student needs • link to Tier 1 instruction • link to behavior and social-emotional content/instruction • assessments/data sources link directly to the skills taught	Tier 2 strategies incorporate ***all of the following***: • common student needs, • link to Tier 1 instruction • link to behavior and social-emotional content/instruction • assessments/data sources link directly to the skills taught	

Self-Assessment of MTSS Implementation (SAM)					
Item	**0 = Not Implementing**	**1 = Emerging/Developing**	**2 = Operationalizing**	**3 = Optimizing**	**Rating**
31. Tier 2 (supplemental) behavior and social-emotional practices exist that address integrated common student needs, are linked to Tier 1 instruction[28], and are monitored using assessments/data sources tied directly to the skills taught	Tier 2 strategies are ***not*** developed and/or clearly defined	Tier 2 strategies incorporate ***1 of the following 4***: • common student needs • link to Tier 1 instruction • link to academic content/instruction • assessments/data sources link directly to the skills taught	Tier 2 strategies incorporate ***2 or 3 of the following 4***: • common student needs • link to Tier 1 instruction • link to academic content/instruction • assessments/data sources link directly to the skills taught	Tier 2 strategies incorporate ***all of the following***: • common student needs • link to Tier 1 instruction • link to academic content • assessments/data sources link directly to the skills taught	
32. Tier 3 (intensive) academic practices [29] exist that include integrated strategies that are developed based on students' needs, are aligned with Tier 1 and Tier 2 instructional goals and strategies, and are monitored using assessments/data sources that link directly to skills taught	Tier 3 strategies are ***not*** developed and/or clearly defined	Tier 3 strategies incorporate ***1 of the following 4***: • developed based on students' needs across academic, behavior and social-emotional domains • aligned with Tier 1 and Tier 2 instruction • link to behavior and social-emotional content/instruction • assessments/data sources that link directly to the skills taught	Tier 3 strategies incorporate ***2 or 3 of the following 4***: • developed based on students' needs across academic, behavior and social-emotional domains • aligned with Tier 1 and Tier 2 instruction • link to behavior and social-emotional content/instruction • assessments/data sources that link directly to the skills taught	Tier 3 strategies incorporate ***all of the following***: • developed based on students' needs across academic, behavior and social-emotional domains • aligned with Tier 1 and Tier 2 instruction • linked to behavior and social-emotional content/instruction • monitored using assessments/data sources that link directly to the skills taught	

Appendix E – Counselor Recommendations

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Counselor Recommendations

Recommendation	Justification	Current Regulations
1. Reduced caseload for elementary school counselors to 300:1 to match grades 6-12 **by 2024**. This would enable additional Tier 1/Tier 2 social emotional supports to all students and staff. **Increase the time to 2024 gives district several years to build staff. We realize it can't be done in one year with no one to hire.** Provide funding to districts to reduce the ratio. Work with Universities to increase the number of students working toward the certification.	This reduced ratio will enable school counselors to provide Tier 1 and some Tier 2 Social emotional supports to students and staff. Current ratios far exceed the recommended level: https://www.schoolcounselor.org/press https://www.schoolcounselor.org/asca/media/asca/Publications/ratioreport.pdf . The American School Counselor Association recommends that schools maintain a ratio of 250 students per school counselor for K-12, and that school counselors spend at least 80 percent of their time working directly with or indirectly for students. https://schoolcounselor.org/asca/media/asca/Publications/ASCAEdTrustRHFactSheet.pdf	SECTION 59-59-100. Providing services of career specialist; qualification of specialist; career specialists currently employed by tech prep consortia. (A) By the 2006–07 school year, middle schools and by 2007–08 high schools shall provide students with the services of a career specialist who has obtained a bachelor's degree and who has successfully completed the national [Global] Career Development Facilitator ([G]CDF) certification training or certified guidance counselor having completed the Career Development Facilitator certification training. This career specialist shall work under the supervision of a certified guidance counselor. By the 2007–08 school year, each middle and high school shall have a student-to-guidance personnel ratio of three hundred to one. Guidance personnel include certified school guidance counselors and career specialists. But elementary K-5) is not included in EEDA funding. SC Reg 43–205- Administrative and Professional Personnel Qualifications, Duties, and Workloads- **Prekindergarten through Grade Five** - School Counselors and Specialists in Art, Music, and Physical Education (a) Schools having any combination of **grades one through five** must employ the full-time equivalent (FTE) of a **school counselor** and specialists in art, music, and physical

		education (PE) in the following ratios for each area: Average Daily Enrollment FTE Minimum Allotted Time Daily – **800 or more - 1.0 FTE** /300 minutes **640–799- .8 FTE** /240 minutes **480–639- .6 FTE/** 180 minutes **320–479- .4 FTE/** 120 minutes Less than 320 .2 60 minutes http://scsba.org/wp-content/uploads/2017/08/2017-schoollaw-handout-CathyHazelwood.pdf
2. Create a caseload requirement for school psychologists based on recommendations by the National Association of School Psychologists of 500-700:1**by 2024** Provide the funding to districts to meet this ratio. Work with Universities to increase the number of students working toward the certification Work with districts to develop internship programs to keep more psychologists in the state.	https://drive.google.com/file/d/1nzM09jdeZ0V9ZAC40ZNSMNt48M8zpM7k/view?usp=sharing School psychologists can provide Tier 1-Tier 3 supports students and staff. Identifying a realistic caseload would provide them the time to offer counseling. Currently, the majority of their time is spent in evaluations and meetings, but they are trained in a Master's +30 program, which includes extensive training for counseling, MTSS, crisis response and teacher consultation. Information from Dr. Scott Decker at USC from the LD Project conducted in 2016: The data we collected from the state includes the number of certified school psychs in each district. I'm not sure how the data was obtained by districts and/or its accuracy. Additionally, to estimate the ideal number of schools psychs per district, I used the upper limit of nasps recommendation which is 1 psych per 700 kids. Thus, I divided the total child count of the district by 700.	There are currently no regulations in SC for mandatory caseloads

	To make it easier to read, the two columns for the above info are in bold. With those caveats in mind, the data we have would suggest there are approximately 520 school psychs in S.C. and based on NASP recommendation there should be around 1085.	
Needs Assessment for school counselors, school psychologists, and mental health professionals **to determine status of current caseloads for each group**	A needs assessment is necessary to determine what mental health and social emotional supports are needed in each district.	N/A
A system developed by the SCDE to accept/vet exemplar plans for SEL and MTSS	There are districts offering exemplar services related to SEL, PBIS and MTSS. If we can identify who those districts are, we could begin to develop a data base of resources that can be shared across South Carolina. An example of this being done exceptionally well is The Transitional Alliance of SC.	N/A
The SCDE can make recommendations to districts for research based resources to support SEL, MTSS and the mental health of students and staff	Creating something like this for South Carolina, along with approved curriculum and funding. **UPDATE**: Most recent DMH caseload/staff report	N/A
Add counselors and school psychologists to the Critical Needs list	This would allow school psychs and counselors to get loan forgiveness and to remove the salary cap for retirees. This would increase the pool of staff within and outside of SC. Other states in around SC are offering this as an option as a recruitment tool.	
Continue to support the work of SC Create in providing the funding and collaboration with SC Universities to offer alternative certification	SC Create only overs SPED certification options since IDEA funds are used. Are there options for a similar program for other areas of need? Nurses? Counselors? Mental Health?	

pathways to special education certification.		
Alternative Pathway Certification for Counselors	Could there be a PACE type program for counselors? An alternative pathway for master's level counselors (LPC, for example) to begin working as school counselors while they are being certified as a school counselor through PACE.	
PACE ED broadened to become an ED/Autism certification	PACE ED candidates have to carry a caseload that is primarily ED, Autism, or OHI classified students. Many of these candidates end up teaching in Autism classrooms with a significant lack of Autism training. We propose adding two additional classes to the PACE ED program in order to be prepare staff to support ED and Autism students. The proposed classrooms will could be Intro to Autism and an Advanced Course on Behavior Interventions.	
Consider flexibility or restructuring of the Caseload requirements for special education teachers	Often, Districts have PACE candidates, but do not need ED teachers. Could it be considered for additional SPED certifications under PACE? Or, providing flexibility on the certifications required for each special education teacher.	
Recommend schools create an SEL committee to identify all available resources in the district and how those resources can be combined to provide the best possible SEL programming for students and staff.	Sample ppt describing the planning from Cabarrus County, NC.	

Appendix F – Bus Operations

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INTERIM GUIDANCE FOR SCHOOL BUSES

Social Distancing and Capacity

- The number of students on the bus should be a maximum of **50%** of standard capacity.
- Allow only one child on a seat at a time to the extent possible.
    - To allow up to 50% capacity, some seats may be occupied by two students. The first uses of two students on a seat should pair household members together on the seat.
    - Three students on a seat should not occur.
    - As feasible, consider increasing the number of buses in use to decrease the number of seats with double occupancy.
- Consider use of assigned seats which remain consistent, in order to facilitate the spreading out of students as much as possible and the seating of household members together as necessary. Alternately, may consider an adult monitor on the bus to ensure appropriate seating is occurring.
- As possible, load the bus back-to-front.

Cleaning and Disinfection

- Each bus shall be cleaned then disinfected using electrostatic handheld sprayer and EPA-approved disinfectant (e.g., BioTab7 disinfectant) twice per day after completion of morning and afternoon routes.
    - If a sprayer is unavailable, the disinfectant may be applied manually to seats, seat belts, portions of windows that students may touch, handrails, and driver's seat and controls.
- Frequently wipe down with disinfectant frequently touched surfaces, including those in the entrance touched by passengers, such as handrails, and those touched by the driver.
    - Disinfect with a product that is EPA-approved for use against the virus that causes COVID-19, diluted bleach solution, or alcohol solution with at least 70% alcohol.
- Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method, contact time, and personal protective equipment).
- Ensure adequate supplies to support frequent cleaning and disinfection practices.

Ventilation

- Increase air exchange on the bus and the input of outside air via available mechanisms, including opening the roof vents and some windows as weather allows.
    - For buses with air conditioning, increasing circulation of outside air should still be performed to the extent possible, since the air conditioning on these buses only recirculates interior air.
    - Recognize that frequent openings of the door will also increase air exchange.

INTERIM GUIDANCE FOR SCHOOL BUSES

Personal Prevention Practices

- Drivers should wear face masks or cloth face coverings. Consideration may be given to recommending them for students.
    - Cloth face coverings should not be used on children under two years old, anyone who has trouble breathing, or anyone unable to remove the face covering without assistance.
    - The CDC has a pattern and a video available demonstrating how to make a cloth face covering.
- Drivers may wear disposable gloves, but they should be optional and are not routinely recommended unless cleaning and disinfecting. Frequent use of hand sanitizer is more strongly recommended, with care being taken not to spill any on the floor of the bus when using.
    - If gloves are used, they should be changed when soiled or damaged or after touching something outside of the driver's controls. Used gloves should be disposed of in a lined trash can, and hands should be washed with soap and water for 20 seconds after removing them.
    - Care should be taken not to touch one's face or mask/face covering while wearing gloves, and if this occurs, the gloves should then be changed.

Messaging to Parents

- Educate drivers and students and their parents on the symptoms of COVID-19 and the importance of staying home if they have any of the symptoms or if anyone in their household tests positive for the disease.
- Frequently message to parents via a variety of methods the importance of social distancing, including not allowing students to congregate at bus stops.
- Translate messaging to appropriate languages.

References

- DHEC COVID-19 webpage: scdhec.gov/covid19
- What Bus Transit Operators Need to Know About COVID-19 (CDC): cdc.gov/coronavirus/2019-ncov/community/organizations/bus-transit-operator

This is consistent with guidance available as of June 4, 2020 and may be updated as new information on this novel virus and evolving situation become available.

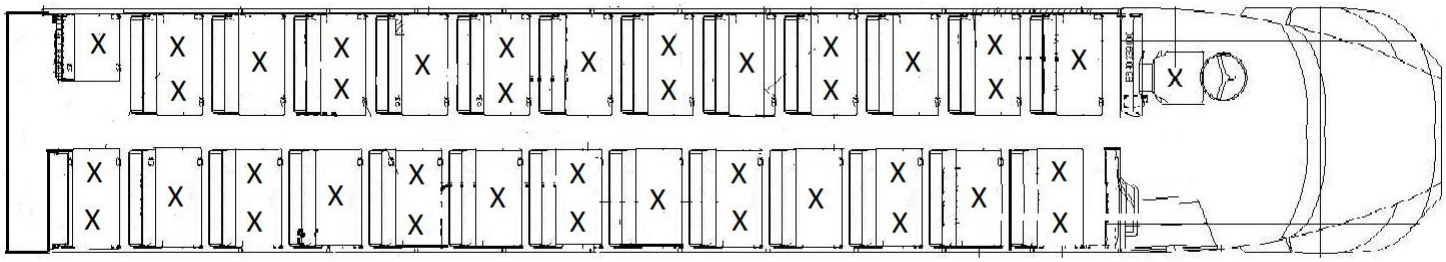
June 4, 2020

COVID-19 Pandemic
Recommended Maximum School
Bus Capacities

Listed Bus Capacity	COVID-19 Capacity
78	39
77	39
72	36
66	33
65	32
62	31
60	30
54	27
*35L	18
*33L	18
*29L	15
23	11

(*) Formulated by reducing the standard seating capacity by 50% while leaving the maximum wheelchair capacity at 100% of bus listed capacity.

COVID-19 Pandemic
Recommended Maximum School
Bus Capacities



77 passenger bus showing 39 passengers.
This represents a 50% reduction in listed capacity with elementary school aged students, and a 33% reduction in listed capacity with middle/high school aged students.

Appendix G – Guidelines for Classroom Safety and Student/Teacher Health in the Arts

DRAFT

Guidelines for classroom safety and student/teacher health

Note: This document will be revised as additional research is conducted on best practices in classroom safety for the arts.

National Arts Education Associations:

National Dance Education Organization:
Teaching Dance Online Webinar Series

National Association for Music Education COVID-19 Resources:
https://nafme.org/covid-19/

Educational Theatre Association:
Creating Online Learning

Association for Theatre in Higher Education:
Resources for Teaching Online

National Art Education Association:
NAEA Tips for Returning to the Visual Art and Design Classroom
Tips for Teaching Visual Art and Design in a Distance Learning Environment

Other National Arts Guidance:

National Federation of State High School Associations
Resources for Music and Theatre

Arts Education Partnership
COVID-19 Update: State Policy Responses and Other Executive Actions to the Coronavirus in Public Schools

Dance USA
Return to Dancing and Training Considerations Due to COVID-19
COVID-19 FAQ for dancers and dance companies returning to the studios

State Arts Education Affiliates:

South Carolina Arts Alliance- Arts Reopening Guide
Palmetto State Arts Education – not yet established
SC Music Educators Association – in process as of June 8, 2020
SC Dance Education Organization – not yet established
SC Theatre Education Association – not yet established
SC Art Education Association – in process as of June 8, 2020
SC Consortium of Gifted Education – meeting scheduled for late June

By District:

PSAE Joint Arts Administrators Institute – scheduled for late June

Richland School District Two

Orchestra in Fall 2020

By Student Developmental Range

Elementary:

Dance

- Identifying Promising Strategies: Ideas for Online Dance for Students Ages 4-8

Music – General

Music – Instrumental

- COVID-19 Instrument Cleaning Guidelines

Theatre

- Southeastern Theatre Conference COVID Resources
- Actors' Equity Association Core Principles for Safe and Healthy Theatre Productions

Visual

- NAEA Tips for Returning to the Visual Art and Design Classroom

Middle:

Dance

Music – Choral

Music – Instrumental

- COVID-19 Instrument Cleaning Guidelines
- ABA COVID-19 Student Safety

Theatre

- Southeastern Theatre Conference COVID Resources
- Actors' Equity Association Core Principles for Safe and Healthy Theatre Productions

Visual

- NAEA Tips for Returning to the Visual Art and Design Classroom

High:

Dance

Music – Choral

Music – Band/Instrumental

- COVID-19 Instrument Cleaning Guidelines
- NFHS Guidance for a Return to High School Marching Band
- ABA COVID-19 Student Safety
- SCMEA/SCBDA Returning to Marching Band- Summer Guidelines

Music – Orchestra

- COVID-19 Instrument Cleaning Guidelines

Theatre

- Southeastern Theatre Conference COVID Resources
- Actors' Equity Association Core Principles for Safe and Healthy Theatre Productions

Visual

- NAEA Tips for Returning to the Visual Art and Design Classroom

Relevant Guidance from AccelerateSC

- Reopening and Operating Attractions (including performances)

Appendix H – Resources for Teaching and Learning in and through the Arts

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Resources for Teaching and Learning in and through the Arts

National Arts Education Associations

Dance Education Organization:

Elementary:

- Identifying Promising Strategies: Ideas for Online Dance for Students Ages 4-8

Middle & High:

Junior/Secondary NHSDA Additional COVID-19 Induction Ideas

Music:

All: Virtual Learning Resources for Music Educators

Elementary General

Elementary, Choral

Elementary, Instrumental

Theatre:

EdTA Resources for Creating Online Learning

Southeastern Theatre Conference COVID Resources

National Association for Music Education

COVID-19 Resources

Social and Emotional Learning Resources

National Art Education Association

Elementary Division

Middle Level Division

Secondary Division

Higher Education Division

Preservice Division

Supervision and Administration Division

Museum Education Division

Social Emotional Learning

Equity, Diversity, and Inclusion

National Arts Organizations:

Theatre

High:

Dramatics.org

- Acting: https://dramatics.org/tag/acting/

- Stage Management: https://dramatics.org/tag/stage-managers-crew/
- Writing: https://dramatics.org/tag/writing/

National Federation of High Schools
COVID-19 aerosol research study
Guidance for a Return to High School Marching Band

SC Arts Organization:

South Carolina Arts Commission:
Curated Resources for Creative Communities, Art Education
https://www.southcarolinaarts.com/covid-19-response/

Appendix I – SCDE Recommendations for Physical Education and Physical Activity

DRAFT

South Carolina Department of Education
Recommendations for Physical Education and Physical Activity

Strategies and recommendations for schools to implement physical education and physical activity programs consistent with the recommendations provided by the CDC.
https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/index.html

Physical Education:
Planned, sequential, K-12 standards-based program of curricula and instruction designed to develop motor skills, knowledge and behaviors for active living, physical fitness, sportsmanship, self-efficacy, emotional intelligence and physical literacy. (SHAPE America, 2015)

- Students wash/disinfect hands before/after physical education class.
- Consider activities that require limited or no equipment (lifetime fitness, health-related fitness, etc.).
- If equipment is necessary, create an inventory of items that can be effectively cleaned before and after each class.
- If needed, consider non-porous equipment such as synthetic sports balls, vinyl beanbags, plastic/resin materials (striking implements, scooters, targets, hula-hoops, poly floor spots, cones, etc.).
- Incorporate movement activities that can be performed while maintaining appropriate spacing/distancing between students.
- Post signage/visuals in all physical education/physical activity areas to remind students of social distancing.
- Designate personal space spots/areas for students to use throughout the class/lesson.
- Group students and allow one group to move in a designated space while the others perform movements in their own personal space/area.
- Incorporate stations, circuits, zones to reduce amount of close contact between students.
- Consider increasing opportunities for outdoor activities (weather permitting).
- Secondary schools should consider locker room spaces and if need exists for students to dress out for physical education. If utilized, limit number of students entering at one time and develop a plan for routine cleaning of surfaces.
- Designate specific entrances and exits for all physical education/physical activity areas/facilities.
- To support students with disabilities continue to utilize the modifications and specially designed instruction contained in a student's IEP or accommodations recommended by a student's 504 plan.

Physical Activity
Opportunities before, during and after school (recess, intramurals, classroom activity/movement, walk/run clubs, etc.)

- Consider dividing the recess area or staggering recess times, rather than allowing multiple classes to use the same area/same time.
- Focus on providing activities that do not require the use of equipment.

- Incorporate multiple activity areas/stations/circuits at recess and allow students to choose area for physical activity (monitor group sizes).
- Use of larger playground equipment may need to be discontinued, if it cannot be cleaned between uses.
- Classroom physical activity/movement can be accomplished by having students staying at or near their assigned desks/areas.
- Use visual guides such as floor tape, poly spots, stations, cones, and signs to promote spacing among students.
- Consider maximizing outdoor time by scheduling group meetings, clubs, and activities outside, when possible.

Appendix J – SC School Library Media Services

DRAFT

South Carolina School Library Media Services Re-Entry

All of these recommendations are based on the premise that school libraries can modify services in order to provide equitable access to all library patrons. We recognize that school libraries are essential to teaching and learning and it is imperative that every possible effort is made to avoid eliminating library services to school communities.

- In accordance with school/district policy, staff should wear personal protective equipment when interacting with students and other staff members
- Sanitize tables, chairs, and rugs between classes and patrons
- Provide hand sanitizer stations
- Staff, volunteers, and student helpers should wash hands or use hand sanitizer before and after handling books and other materials
- Use air filtration units/systems to reduce harmful microbes that are in the air
- Spacing of chairs and tables to allow for social distancing
- Examine the library space to determine the safe number of visitors allowed in the library at one time to maintain social distancing
- Use signage throughout the library space to help patrons manage their social distance
- In order to limit touching books, student browsing can be done online (Examples: curated resource lists, Destiny collections, Youtube booktalks, etc.)
- Students can put books on hold or request a book using Google Forms or a similar tool and books can be delivered or picked up when ready
- For younger grades, librarians can display books for selection and/or bring a cart of books to the classrooms for students to choose from
- Limit student movement around school and allow the librarian to conduct instruction in the classroom
- After books, periodicals, makerspace materials, and other equipment are returned they should be quarantined for 72 hours before checking in, reshelving, or checking out to other students per CDC guidelines
- Computer labs, maker space equipment and all other non-print materials should be sanitized after each use
- Classes visiting the library for a lesson should bring their own materials/pencil boxes and staff should allow time between class visits for cleaning
- Utilize flexible scheduling to allow for safe distancing practices, collaborative teaching/learning
- Suspend overdue library fines due to possibility of e-learning days and disrupted schedules
- Use keyboard covers in computer labs and on stand alone computer stations
- Suspend use of water fountains
- Restrict use of restrooms
- Add plastic barrier/shield to circulation desk to minimize physical contact

- Suspend interlibrary loan between schools
- Remove stuffed animals and other decorative items that cannot be sanitized
- Suspend student finger scanning and self checkout stations

References

Pandemic Best Practices
Humidity Control in School Facilities
Fall 2020 and Charleston County School District Teacher Librarians
2020-21 Anderson County School Library Re-Opening Plans
The Library Community Moving Forward in the New Normal
Coping in the Time of COVID-19
Handling Library Collections and Materials During a Pandemic
CDC Cleaning and Disinfection for Community Facilities
CDC Disinfection and Sterilization
IMLS, CDC Offer Guidance for Disinfecting Returned Library Books

Appendix K – CTE Guidelines for Re-opening Facilities and Returning to In-person Instruction

DRAFT

Career and Technical Education: Guidelines for Re-opening Facilities and Returning to In-person Instruction

The following document contains specific guidance for CTE programs. Guidance is being provided by the South Carolina Career and Technical Education Association (CTEA) and the Office of Career and Technical Education (OCTE). It is essential for the local districts, business & industry, and other educational partners to work collectively to ensure the safety and health of all faculty, staff, and students in the school environment and in the community while still providing a high quality CTE program. This guidance is given to ensure districts have the proper tools and information necessary to provide safe and effective CTE programs. To consider a wide range of perspectives, the AccelerateED Instruction Sub-committee created a working group to help develop this guidance for CTE instruction. In addition to the CTEA and OCTE, the working group included representatives from schools, districts, career centers and other businesses & industries.

During the 2019-2020 academic year, CTE had the largest enrollment of students across the state of South Carolina. All CTE programs of study provide students with the opportunity for hands-on learning, industry credential attainment, work-based learning, and dual credit opportunities in partnership with one of the 16 technical colleges throughout the state. COVID-19 school closures during the school year significantly impacted the ability of CTE students to complete work-based learning, hands-on laboratory hours, along with the necessary content hours needed to earn industry credentials in specific career programs. Guidance is given in preparation for the fall semester and will be updated as is necessary with regards to the change of data and information related to the COVID-19 pandemic.

Foundational CTE Principles:

The following foundational principles have helped to inform our guidance for re-opening facilities and returning to in- person instruction and are provided to demonstrate the unique nature of CTE courses/programs in relation to other core academic courses.

1. CTE courses and programs provide a variety of opportunity for students to earn industry credentials, postsecondary certificates, and degrees. Maintaining access to credentialing throughout this time is critical for the benefit of workforce development.

2. CTE courses are most suitable for a face-to-face manner where students have the opportunity to learn and practice skills in a hands-on manner. In fact, many courses have hands-on requirements that cannot be replicated or recreated in a virtual environment.

3. The overwhelming majority of CTE courses are eligible for dual credit, and therefore it is necessary that we align secondary CTE practices to postsecondary practices.

4. Providing all students equitable access to high quality CTE programs of study that provide the opportunity to earn dual credit, industry certifications, and complete work-based learning has always been a priority for CTE programs and is even more important during this time.

SOUTH CAROLINA CTE CAREER AND TECHNICAL EDUCATION

CTE Instruction

- Consider alternate forms of instruction that fit a traditional, hybrid, and/or eLearning model to the extent possible.
- Consider synchronous and asynchronous learning options for all students participating in CTE learning.
- Establish policies that allow participation in CTE courses and programs in the event a student cannot or does not feel comfortable attending school on a regular basis.
- In the event of school closure due to COVID-19, consider continuing small group class setting options for courses that require hands-on demonstration for mastery, completion, and/or attainment of an industry credential.
- Refer to program specific guidance to determine the continuation of hands-on learning in specific programs that require a significant amount of PPE as a part of instruction (i.e. firefighting and welding)
- Districts should work closely with partnering Technical Colleges to ensure continuation of dual credit CTE courses in the event of school closure or disruption in instruction due to COVID-19.
- Districts should begin considering how they may provide virtual or remote learning opportunities for students or instructors that are medically vulnerable this fall. Districts may need to make individual time in the lab or other accommodations available to these students in order to complete hands-on requirements or performance assessments.
- State health officials have indicated that planning for potential future disruptions as a result of a second wave of COVID-19 and/or a potentially severe flu season is advisable. In anticipation of this possibility, many postsecondary institutions are moving their start dates for the fall earlier and hoping to finish their semester by fall break. Following their lead, we recommend that schools and career centers start their CTE programs as scheduled and review their syllabi to try and include as much lab time as possible early in the fall.

CTE Funding

- Prioritize a portion of additional federal and local funds to include the C.A.R.E.S Act funding for CTE instruction at local career centers, comprehensive high school CTE programs, and multi-district centers.

CTE Business & Industry Engagement

- Work with local business and industry to continue providing quality work-based learning experiences, internships, and apprenticeships for students.