

Mayor
Clay Koplin

Council Members
Tom Bailer
Cathy Sherman
Jeff Guard
Melina Meyer
Anne Schaefer
David Allison
David Glasen

City Manager
Helen Howarth

City Clerk
Susan Bourgeois

Deputy Clerk
Tina Hammer

Student Council
Summer vacation

Special City Council Meeting
July 15, 2020 @ 12:15 pm
Cordova Center Community Rooms
and via YouTube and Teleconference
Agenda

- A. Call to order**
- B. Roll call**
Mayor Clay Koplin, Council members Tom Bailer, Cathy Sherman, Jeff Guard, Melina Meyer, Anne Schaefer, David Allison and David Glasen
- C. Approval of agenda..... (voice vote)**
- D. Disclosures of Conflicts of Interest and Ex Parte Communications**
 - conflicts as defined in 3.10.010 https://library.municode.com/ak/cordova/codes/code_of_ordinances should be declared, then Mayor rules on whether member should be recused, Council can overrule
 - ex parte should be declared here, the content of the ex parte should be explained when the item comes before Council, ex parte does not recuse a member, it is required that ex parte is declared and explained

E. Communications by and petitions from visitors

- 1. Guest Speakers
 - a. IMT Report, incident: COVID-19
- 2. Audience Comments regarding agenda items..... **(3 minutes per speaker)**
- 3. Staff reports, PWD, Sam Greenwood, HVAC System Report..... **(page 1)**

F. Unfinished Business and New Business

- 4. Emergency Ordinance 1190..... **(roll call vote)(page 26)**
An emergency ordinance of the Council of the City of Cordova, Alaska continuing the City's declaration of a local emergency and acknowledgement of a state-wide emergency resulting from Covid-19; adopting the City of Cordova Covid-19 Health Advisory Plan; and ratifying Emergency Order 2020-09
- 5. Council approval of CARES funded purchase of Portable Restroom Unit..... **(roll call vote)(page 44)**
- 6. Discussion of COVID-19 Emergency Response

G. Audience participation

H. Council comments

I. Executive Session

City Council is permitted to enter into an executive session if an explicit motion is made to do so calling out the subject to be discussed and if that subject falls into one of the 4 categories noted below. Therefore, even if specific agenda items are not listed under the Executive Session on the agenda, any item on the agenda may trigger discussion on that item that is appropriate for or legally requires an executive session. In the event executive session is appropriate or required, Council may make a motion to enter executive session during debate on that agenda item or could move to do so later in the meeting.

J. Adjournment

Public Call-in number 907-253-6202, each call is placed on hold, calls will ring through in the order received, stay on the phone until you've been addressed or thanked by the Chair or Council, then hang up, comments limited to 3 minutes

Executive Sessions per Cordova Municipal Code 3.14.030

- **subjects which may be considered are:** (1) matters the immediate knowledge of which would clearly have an adverse effect upon the finances of the government; (2) subjects that tend to prejudice the reputation and character of any person; provided that the person may request a public discussion; (3) matters which by law, municipal charter or code are required to be confidential; (4) matters involving consideration of governmental records that by law are not subject to public disclosure.
- **subjects may not be considered in the executive session except those mentioned in the motion calling for the executive session, unless they are auxiliary to the main question**
- **action may not be taken in an executive session except to give direction to an attorney or labor negotiator regarding the handling of a specific legal matter or pending labor negotiations**

if you have a disability that makes it difficult to attend city-sponsored functions, you may contact 424-6200 for assistance.
full City Council agendas and packets available online at www.cityofcordova.net



AGENDA ITEM 3
City Council Meeting Date: 07/15/2020
CITY COUNCIL COMMUNICATION FORM

FROM: Samantha Greenwood, Public Works Director
DATE: 07/06/20
ITEM: HVAC Report from Quality Controls and ASHRAE

ORDINANCE RESOLUTION
 MOTION INFORMATION

I. REQUEST OR ISSUE: As part of the COVID cares funding the Cordova Center’s HVAC system was evaluated by Quality Controls using the ASHARE guidelines and steps have been taken to mitigate the spread of COVID.

II. RECOMMENDED ACTION/NEXT STEP: Attached is the report and recommendations by ASHRAE. No council action is needed.

III. FISCAL IMPACTS: Any funds spent to implement COVID related recommendations will be coded to the Cares funds.

IV. BACKGROUND INFORMATION: Quality Controls Inc. has provided the ASHRAE (referenced by the CDC) that defines guidance on managing the spread of COVID-19 with respect to the operation and maintenance of HVAC systems (attached). From that document Malvin and Quality Controls are working through the following recommendations.

- Increase outdoor air ventilation (disable demand-controlled ventilation and open outdoor air dampers to 100% as indoor and outdoor conditions permit). **Done**
- Improve central air and other HVAC filtration to MERV-13 (ASHRAE 2017b) or the highest level achievable. **On order. Expected arrival date is sometime in October.**
- Keep systems running longer hours (24/7 if possible). **Running HVAC 24/7**
- Add portable room air cleaners with HEPA or high-MERV filters with due consideration to the clean air delivery rate (AHAM 2015). **Researching.**
- Add duct- or air-handling-unit-mounted, upper room, and/or portable UVGI devices in connection to in-room fans in high-density spaces such as waiting rooms, prisons, and shelters. **N/A**
- Bypass energy recovery ventilation systems that leak potentially contaminated exhaust air back into the outdoor air supply. **Done**

V. SUMMARY AND ALTERNATIVES: Staff will continue to work with Quality Controls to implement best practices for the HVAC system.



ASHRAE Position Document on Infectious Aerosols

Approved by ASHRAE Board of Directors
April 14, 2020

Expires
April 14, 2023

COMMITTEE ROSTERS

The ASHRAE Position Document on Infectious Aerosols was developed by the Society's Environmental Health Position Document Committee formed on April 24, 2017, with Erica Stewart as its chair.

Erica J. Stewart
Kaiser Permanente
Pasadena, CA, USA

Lawrence J. Schoen
Schoen Engineering Inc.
Columbia, MD, USA

Kenneth Mead
National Institute for Occupational Safety and Health
Cincinnati, OH, USA

Chandra Sekhar
National University of Singapore
Singapore, Singapore

Russell N. Olmsted
Trinity Health
Livonia, MI, USA

Walter Vernon
Mazzetti
San Francisco, CA, USA

Jovan Pantelic
University of California at Berkeley
Berkeley, CA, USA

Former members and contributors:

Yuguo Li
The University of Hong Kong
Hong Kong, China

Zuraimi M. Sultan
Berkeley Education Alliance for Research
in Singapore (BEARS) Ltd.
Singapore, Singapore

The chairpersons of Environmental Health Committee also served as ex-officio members.

Wade Conlan
Environmental Health Committee
Hanson Professional Services
Maitland, FL, USA

ASHRAE is a registered trademark in the U.S. Patent and Trademark Office, owned by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

HISTORY OF REVISION/REAFFIRMATION/WITHDRAWAL DATES

The following summarizes this document's revision, reaffirmation, and withdrawal dates:

6/24/2009—BOD approves Position Document titled *Airborne Infectious Diseases*

1/25/2012—Technology Council approves reaffirmation of Position Document titled *Airborne Infectious Diseases*

1/19/2014—BOD approves revised Position Document titled *Airborne Infectious Diseases*

1/31/2017—Technology Council approves reaffirmation of Position Document titled *Airborne Infectious Diseases*

2/5/2020—Technology Council approves reaffirmation of Position Document titled *Airborne Infectious Diseases*

4/14/2020—BOD approves revised Position Document titled *Infectious Aerosols*

Note: ASHRAE's Technology Council and the cognizant committee recommend revision, reaffirmation, or withdrawal every 30 months.

Note: ASHRAE position documents are approved by the Board of Directors and express the views of the Society on a specific issue. The purpose of these documents is to provide objective, authoritative background information to persons interested in issues within ASHRAE's expertise, particularly in areas where such information will be helpful in drafting sound public policy. A related purpose is also to serve as an educational tool clarifying ASHRAE's position for its members and professionals, in general, advancing the arts and sciences of HVAC&R.

CONTENTS

ASHRAE Position Document on Infectious Aerosols

SECTION	PAGE
Abstract	1
Executive Summary	2
1 The Issue.	4
2 Background	4
2.1 Airborne Dissemination.	4
3 Practical Implications for Building Owners, Operators, and Engineers.	5
3.1 Varying Approaches for Facility Type	6
3.2 Ventilation and Air-Cleaning Strategies	6
3.3 Temperature and Humidity	8
3.4 Emerging Pathogens and Emergency Preparedness.	8
4 Conclusions and Recommendations.	9
4.1 ASHRAE's Positions	9
4.2 ASHRAE's Commitments	11
5 References	11
6 Bibliography.	15

ABSTRACT

The pathogens that cause infectious diseases are spread from a primary host to secondary hosts via several different routes. Some diseases are known to spread by infectious aerosols; for other diseases, the route of transmission is uncertain. The risk of pathogen spread, and therefore the number of people exposed, can be affected both positively and negatively by the airflow patterns in a space and by heating, ventilating, and air-conditioning (HVAC) and local exhaust ventilation (LEV) systems. ASHRAE is the global leader and foremost source of technical and educational information on the design, installation, operation, and maintenance of these systems. Although the principles discussed in this position document apply primarily to buildings, they may also be applicable to other occupancies, such as planes, trains, and automobiles.

ASHRAE will continue to support research that advances the knowledge base of indoor air-management strategies aimed to reduce occupant exposure to infectious aerosols. Chief among these ventilation-related strategies are dilution, airflow patterns, pressurization, temperature and humidity distribution and control, filtration, and other strategies such as ultra-violet germicidal irradiation (UVGI). While the exact level of ventilation effectiveness varies with local conditions and the pathogens involved, ASHRAE believes that these techniques, when properly applied, can reduce the risk of transmission of infectious diseases through aerosols.

To better specify the levels of certainty behind ASHRAE's policy positions stated herein, we have chosen to adopt the Agency for Healthcare Research and Quality (AHRQ) rubric for expressing the scientific certainty behind our recommendations (Burns et al. 2011). These levels of certainty, as adapted for this position document, are as follows:

Evidence Level	Description
A	Strongly recommend; good evidence
B	Recommend; at least fair evidence
C	No recommendation for or against; balance of benefits and harms too close to justify a recommendation
D	Recommend against; fair evidence is ineffective or the harm outweighs the benefit
E	Evidence is insufficient to recommend for or against routinely; evidence is lacking or of poor quality; benefits and harms cannot be determined

ASHRAE's position is that facilities of all types should follow, as a minimum, the latest published standards and guidelines and good engineering practice. ANSI/ASHRAE Standards 62.1 and 62.2 (ASHRAE 2019a, 2019b) include requirements for outdoor air ventilation in most residential and nonresidential spaces, and ANSI/ASHRAE/ASHE Standard 170 (ASHRAE 2017a) covers both outdoor and total air ventilation in healthcare facilities. Based on risk assessments or owner project requirements, designers of new and existing facilities could go beyond the minimum requirements of these standards, using techniques covered in various ASHRAE publications, including the ASHRAE Handbook volumes, Research Project final reports, papers and articles, and design guides, to be even better prepared to control the dissemination of infectious aerosols.

EXECUTIVE SUMMARY

With infectious diseases transmitted through aerosols, HVAC systems can have a major effect on the transmission from the primary host to secondary hosts. Decreasing exposure of secondary hosts is an important step in curtailing the spread of infectious diseases.

Designers of mechanical systems should be aware that ventilation is not capable of addressing all aspects of infection control. HVAC systems,¹ however, do impact the distribution and bio-burden of infectious aerosols. Small aerosols may persist in the breathing zone, available for inhalation directly into the upper and lower respiratory tracts or for settling onto surfaces, where they can be indirectly transmitted by resuspension or fomite² contact.

Infectious aerosols can pose an exposure risk, regardless of whether a disease is classically defined as an “airborne infectious disease.” This position document covers strategies through which HVAC systems modulate aerosol³ distribution and can therefore increase or decrease exposure to infectious droplets,⁴ droplet nuclei,⁵ surfaces, and intermediary fomites⁶ in a variety of environments.

This position document provides recommendations on the following:

- The design, installation, and operation of heating, ventilating, and air-conditioning (HVAC) systems, including air-cleaning, and local exhaust ventilation (LEV) systems, to decrease the risk of infection transmission.
- Non-HVAC control strategies to decrease disease risk.
- Strategies to support facilities management for both everyday operation and emergencies.

Infectious diseases can be controlled by interrupting the transmission routes used by a pathogen. HVAC professionals play an important role in protecting building occupants by interrupting the indoor dissemination of infectious aerosols with HVAC and LEV systems.

COVID-19 Statements

Separate from the approval of this position document, ASHRAE’s Executive Committee and Epidemic Task Force approved the following statements specific to the ongoing response to the COVID-19 pandemic. The two statements are appended here due to the unique relationship between the statements and the protective design strategies discussed in this position document:

Statement on airborne transmission of SARS-CoV-2: Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.

Statement on operation of heating, ventilating, and air-conditioning systems to reduce SARS-CoV-2 transmission: Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus

¹ Different HVAC systems are described in *ASHRAE Handbook—HVAC Systems and Equipment* (ASHRAE 2020).

² An object (such as a dish or a doorknob) that may be contaminated with infectious organisms and serve in their transmission.

³ An aerosol is a system of liquid or solid particles uniformly distributed in a finely divided state through a gas, usually air. They are small and buoyant enough to behave much like a gas.

⁴ In this document, *droplets* are understood to be large enough to fall to a surface in 3–7 ft (1–2 m) and thus not become aerosols.

⁵ Droplet nuclei are formed from droplets that become less massive by evaporation and thus may become aerosols.

⁶ Fomite transmission is a form of indirect contact that occurs through touching a contaminated inanimate object such as a doorknob, bed rail, television remote, or bathroom surface.

the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus.

1. THE ISSUE

The potential for airborne dissemination of infectious pathogens is widely recognized, although there remains uncertainty about the relative importance of the various disease transmission routes, such as airborne, droplet, direct or indirect contact, and multimodal (a combination of mechanisms). Transmission of disease varies by pathogen infectivity, reservoirs, routes, and secondary host susceptibility (Roy and Milton 2004; Shaman and Kohn 2009; Li 2011). The variable most relevant for HVAC design and control is disrupting the transmission pathways of infectious aerosols.

Infection control professionals describe the chain of infection as a process in which a pathogen (a microbe that causes disease) is carried in an initial host or reservoir, gains access to a route of ongoing transmission, and with sufficient virulence finds a secondary susceptible host. Ventilation, filtration, and air distribution systems and disinfection technologies have the potential to limit airborne pathogen transmission through the air and thus break the chain of infection.

Building science professionals must recognize the importance of facility operations and ventilation systems in interrupting disease transmission. Non-HVAC measures for breaking the chain of infection, such as effective surface cleaning, contact and isolation precautions mandated by employee and student policies, and vaccination regimens, are effective strategies that are beyond the scope of this document. Dilution and extraction ventilation, pressurization, airflow distribution and optimization, mechanical filtration, ultraviolet germicidal irradiation (UVGI), and humidity control are effective strategies for reducing the risk of dissemination of infectious aerosols in buildings and transportation environments.

Although this position document is primarily applicable to viral and bacterial diseases that can use the airborne route for transmission from person to person, the principles of containment may also apply to infection from building reservoirs such as water systems with *Legionella spp.* and organic matter containing spores from mold (to the extent that the microorganisms are spread by the air). The first step in control of such diseases is to eliminate the source before it becomes airborne.

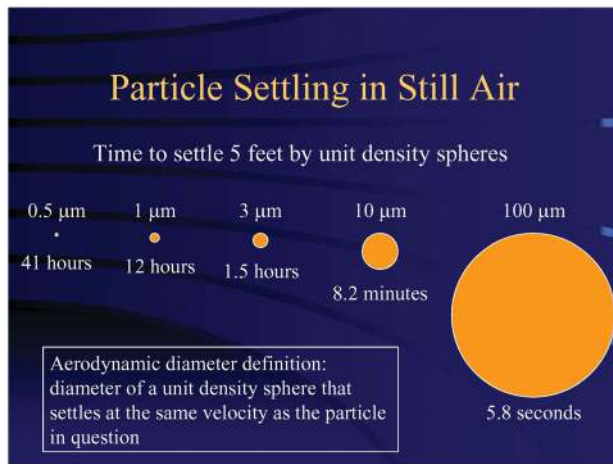
2. BACKGROUND

ASHRAE provides guidance and develop standards intended to mitigate the risk of infectious disease transmission in the built environment. Such documents provide engineering strategies for reducing the risk of disease transmission and therefore could be employed in a variety of other spaces, such as planes, trains, and automobiles.

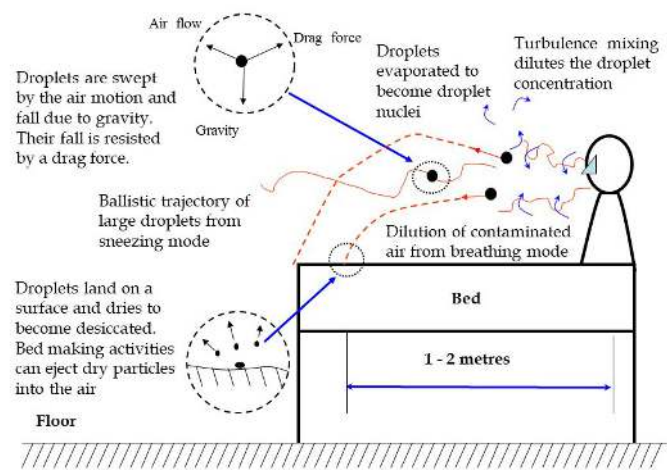
This position document covers the dissemination of infectious aerosols and indirect transmission by resuspension but not direct-contact routes of transmission. *Direct contact* generally refers to bodily contact such as touching, kissing, sexual contact, contact with oral secretions or skin lesions and routes such as blood transfusions or intravenous injections.

2.1 Airborne Dissemination

Pathogen dissemination through the air occurs through droplets and aerosols typically generated by coughing, sneezing, shouting, breathing, toilet flushing, some medical procedures, singing, and talking (Bischoff et al. 2013; Yan et al. 2018). The majority of larger emitted droplets are drawn by gravity to land on surfaces within about 3–7 ft (1–2 m) from the source (see Figure 1). General dilution ventilation and pressure differentials do not significantly influ-



(a)



(b)

Figure 1 (a) Comparative settling times by particle diameter for particles settling in still air (Baron n.d.) and (b) theoretical aerobiology of transmission of droplets and small airborne particles produced by an infected patient with an acute infection (courtesy Yuguo Li).

ence short-range transmission. Conversely, dissemination of smaller infectious aerosols, including droplet nuclei resulting from desiccation, can be affected by airflow patterns in a space in general and airflow patterns surrounding the source in particular. Of special interest are small aerosols ($<10 \mu\text{m}$), which can stay airborne and infectious for extended periods (several minutes, hours, or days) and thus can travel longer distances and infect secondary hosts who had no contact with the primary host.

Many diseases are known to have high transmission rates via larger droplets when susceptible individuals are within close proximity, about 3–7 ft (1–2 m) (Nicas 2009; Li 2011). Depending on environmental factors, these large (100 μm diameter) droplets may shrink by evaporation before they settle, thus becoming an aerosol (approximately $<10 \mu\text{m}$). The term *droplet nuclei* has been used to describe such desiccation of droplets into aerosols (Siegel et al. 2007). While ventilation systems cannot interrupt the rapid settling of large droplets, they can influence the transmission of droplet nuclei infectious aerosols. Directional airflow can create clean-to-dirty flow patterns and move infectious aerosols to be captured or exhausted.

3. PRACTICAL IMPLICATIONS FOR BUILDING OWNERS, OPERATORS, AND ENGINEERS

Even the most robust HVAC system cannot control all airflows and completely prevent dissemination of an infectious aerosol or disease transmission by droplets or aerosols. An HVAC system's impact will depend on source location, strength of the source, distribution of the released aerosol, droplet size, air distribution, temperature, relative humidity, and filtration. Furthermore, there are multiple modes and circumstances under which disease transmission occurs. Thus, strategies for prevention and risk mitigation require collaboration among designers, owners, operators, industrial hygienists, and infection prevention specialists.

3.1 Varying Approaches for Facility Type

Healthcare facilities have criteria for ventilation design to mitigate airborne transmission of infectious diseases (ASHRAE 2013, 2017a, 2019a; FGI 2010); however, infections are also transmitted in ordinary occupancies in the community and not only in industrial or healthcare occupancies. ASHRAE provides general ventilation and air quality requirements in Standards 62.1, 62.2, and 170 (ASHRAE 2019a, 2019b, 2017a); ASHRAE does not provide specific requirements for infectious disease control in homes, schools, prisons, shelters, transportation, or other public facilities.

In healthcare facilities, most infection control interventions are geared at reducing direct or indirect contact transmission of pathogens. These interventions for limiting airborne transmission (Aliabadi et al. 2011) emphasize personnel education and surveillance of behaviors such as hand hygiene and compliance with checklist protocols and have largely been restricted to a relatively small list of diseases from pathogens that spread only through the air. Now that microbiologists understand that many pathogens can travel through both contact and airborne routes, the role of indoor air management has become critical to successful prevention efforts. In view of the broader understanding of flexible pathogen transmission modes, healthcare facilities now use multiple modalities simultaneously (measures that are referred to as *infection control bundles*) (Apisarnthanarak et al. 2009, 2010a, 2010b; Cheng et al. 2010). For example, in the cases of two diseases that clearly utilize airborne transmission, tuberculosis and measles, bundling includes administrative regulations, environmental controls, and personal protective equipment protocols in healthcare settings. This more comprehensive approach is needed to control pathogens, which can use both contact and airborne transmission pathways. Similar strategies may be appropriate for non-healthcare spaces, such as public transit and airplanes, schools, shelters, and prisons, that may also be subject to close contact of occupants.

Many buildings are fully or partially naturally ventilated. They may use operable windows and rely on intentional and unintentional openings in the building envelope. These strategies create different risks and benefits. Obviously, the airflow in these buildings is variable and unpredictable, as are the resulting air distribution patterns, so the ability to actively manage risk in such buildings is much reduced. However, naturally ventilated buildings can go beyond random opening of windows and be engineered intentionally to achieve ventilation strategies and thereby reduce risk from infectious aerosols. Generally speaking, designs that achieve higher ventilation rates will reduce risk. However, such buildings will be more affected by local outdoor air quality, including the level of allergens and pollutants within the outdoor air, varying temperature and humidity conditions, and flying insects. The World Health Organization has published guidelines for naturally ventilated buildings that should be consulted in such projects (Atkinson et al. 2009).

3.2 Ventilation and Air-Cleaning Strategies

The design and operation of HVAC systems can affect infectious aerosol transport, but they are only one part of an infection control bundle. The following HVAC strategies have the potential to reduce the risks of infectious aerosol dissemination: air distribution patterns, differential room pressurization, personalized ventilation, source capture ventilation, filtration (central or local), and controlling temperature and relative humidity. While UVGI is well researched and validated, many new technologies are not (ASHRAE 2018). (Evidence Level B)

Ventilation with effective airflow patterns (Pantelic and Tham 2013) is a primary infectious disease control strategy through dilution of room air around a source and removal of infectious

agents (CDC 2005). However, it remains unclear by how much infectious particle loads must be reduced to achieve a measurable reduction in disease transmissions (infectious doses vary widely among different pathogens) and whether these reductions warrant the associated costs (Pantelic and Tham 2011; Pantelic and Tham 2012). (Evidence Level B)

Room pressure differentials and directional airflow are important for controlling airflow between zones in a building (CDC 2005; Siegel et al. 2007) (Evidence Level B). Some designs for airborne infection isolation rooms (AIIRs) incorporate supplemental dilution or exhaust/capture ventilation (CDC 2005). Interestingly, criteria for AIIRs differ substantially between regions and countries in several ways, including air supply into anterooms, exhaust from space, and required amounts of ventilation air (Fusco et al. 2012; Subhash et al. 2013). A recent ASHRAE Research Project found convincing evidence that a properly configured and operated anteroom is an effective means to maintain pressure differentials and create containment in hospital rooms (Siegel et al. 2007; Mousavi et al. 2019). Where a significant risk of transmission of aerosols has been identified by infection control risk assessments, design of AIIRs should include anterooms. (Evidence Level A)

The use of highly efficient particle filtration in centralized HVAC systems reduces the airborne load of infectious particles (Azimi and Stephens 2013). This strategy reduces the transport of infectious agents from one area to another when these areas share the same central HVAC system through supply of recirculated air. When appropriately selected and deployed, single-space high-efficiency filtration units (either ceiling mounted or portable) can be highly effective in reducing/lowering concentrations of infectious aerosols in a single space. They also achieve directional airflow source control that provides exposure protection at the patient bedside (Miller-Leiden et al. 1996; Mead and Johnson 2004; Kujundzic et al. 2006; Mead et al. 2012; Dungi et al. 2015). Filtration will not eliminate all risk of transmission of airborne particulates because many other factors besides infectious aerosol concentration contribute to disease transmission. (Evidence Level A)

The entire ultraviolet (UV) spectrum can kill or inactivate microorganisms, but UV-C energy (in the wavelengths from 200 to 280 nm) provides the most germicidal effect, with 265 nm being the optimum wavelength. The majority of modern UVGI lamps create UV-C energy at a near-optimum 254 nm wavelength. UVGI inactivates microorganisms by damaging the structure of nucleic acids and proteins with the effectiveness dependent upon the UV dose and the susceptibility of the microorganism. The safety of UV-C is well known. It does not penetrate deeply into human tissue, but it can penetrate the very outer surfaces of the eyes and skin, with the eyes being most susceptible to damage. Therefore, shielding is needed to prevent direct exposure to the eyes. While *ASHRAE Position Document on Filtration and Air Cleaning* (2018) does not make a recommendation for or against the use of UV energy in air systems for minimizing the risks from infectious aerosols, Centers for Disease Control and Prevention (CDC) has approved UVGI as an adjunct to filtration for reduction of tuberculosis risk and has published a guideline on its application (CDC 2005, 2009).⁷ (Evidence Level A)

Personalized ventilation systems that provide local exhaust source control and/or supply 100% outdoor, highly filtered, or UV-disinfected air directly to the occupant's breathing zone (Cermak et al. 2006; Bolashikov et al., 2009; Pantelic et al. 2009, 2015; Licina et al. 2015a, 2015b) may offer protection against exposure to contaminated air. Personalized ventilation may be effective against aerosols that travel both long distances as well as short ranges (Li 2011).

⁷ In addition to UVGI, optical radiation in longer wavelengths as high as 405 nm is an emerging disinfection technology that may also have useful germicidal effectiveness.

Personalized ventilation systems, when coupled with localized or personalized exhaust devices, further enhance the overall ability to mitigate exposure in breathing zones, as seen from both experimental and computational fluid dynamics (CFD) studies in healthcare settings (Yang et al. 2013, 2014, 2015a, 2015b; Bolashikov et al. 2015; Bivolarova et al. 2016). However, there are no known epidemiological studies that demonstrate a reduction in infectious disease transmission. (Evidence Level B)

Advanced techniques such as computational fluid dynamics (CFD) analysis, if performed properly with adequate expertise, can predict airflow patterns and probable flow paths of airborne contaminants in a space. Such analyses can be employed as a guiding tool during the early stages of a design cycle (Khankari 2016, 2018a, 2018b, 2018c).

3.3 Temperature and Humidity

HVAC systems are typically designed to control temperature and humidity, which can in turn influence transmissibility of infectious agents. Although HVAC systems can be designed to control relative humidity (RH), there are practical challenges and potential negative effects of maintaining certain RH set points in all climate zones. However, while the weight of evidence at this time (Derby et al. 2016), including recent evidence using metagenomic analysis (Taylor and Tasi 2018), suggests that controlling RH reduces transmission of certain airborne infectious organisms, including some strains of influenza, this position document encourages designers to give careful consideration to temperature and RH.

In addition, immunobiologists have correlated mid-range humidity levels with improved mammalian immunity against respiratory infections (Taylor and Tasi 2018). Mousavi et al. (2019) report that the scientific literature generally reflects the most unfavorable survival for microorganisms when the RH is between 40% and 60% (Evidence Level B). Introduction of water vapor to the indoor environment to achieve the mid-range humidity levels associated with decreased infections requires proper selection, operation, and maintenance of humidification equipment. Cold winter climates require proper building insulation to prevent thermal bridges that can lead to condensation and mold growth (ASHRAE 2009). Other recent studies (Taylor and Tasi 2018) identified RH as a significant driver of patient infections. These studies showed that RH below 40% is associated with three factors that increase infections. First, as discussed previously, infectious aerosols emitted from a primary host shrink rapidly to become droplet nuclei, and these dormant yet infectious pathogens remain suspended in the air and are capable of traveling great distances. When they encounter a hydrated secondary host, they rehydrate and are able to propagate the infection. Second, many viruses and bacteria are anhydrous resistant (Goffau et al. 2009; Stone et al. 2016) and actually have increased viability in low-RH conditions. And finally, immunobiologists have now clarified the mechanisms through which ambient RH below 40% impairs mucus membrane barriers and other steps in immune system protection (Kudo et al. 2019). (Evidence Level B)

This position document does not make a definitive recommendation on indoor temperature and humidity set points for the purpose of controlling infectious aerosol transmission. Practitioners may use the information herein to make building design and operation decisions on a case-by-case basis.

3.4 Emerging Pathogens and Emergency Preparedness

Disease outbreaks (i.e., epidemics and pandemics) are increasing in frequency and reach. Pandemics of the past have had devastating effects on affected populations. Novel microor-

ganisms that can be disseminated by infectious aerosols necessitate good design, construction, commissioning, maintenance, advanced planning, and emergency drills to facilitate fast action to mitigate exposure. In many countries, common strategies include naturally ventilated buildings and isolation. Control banding is a risk management strategy that should be considered for applying the hierarchy of controls to emerging pathogens, based on the likelihood and duration of exposure and the infectivity and virulence of the pathogen (Sietsema 2019) (Evidence Level B). Biological agents that may be used in terrorist attacks are addressed elsewhere (USDHHS 2002, 2003).

4. CONCLUSIONS AND RECOMMENDATIONS

Infectious aerosols can be disseminated through buildings by pathways that include air distribution systems and interzone airflows. Various strategies have been found to be effective at controlling transmission, including optimized airflow patterns, directional airflow, zone pressurization, dilution ventilation, in-room air-cleaning systems, general exhaust ventilation, personalized ventilation, local exhaust ventilation at the source, central system filtration, UVGI, and controlling indoor temperature and relative humidity. Design engineers can make an essential contribution to reducing infectious aerosol transmission through the application of these strategies. Research on the role of airborne dissemination and resuspension from surfaces in pathogen transmission is rapidly evolving. Managing indoor air to control distribution of infectious aerosols is an effective intervention which adds another strategy to medical treatments and behavioral interventions in disease prevention.

4.1 ASHRAE's Positions

- HVAC design teams for facilities of all types should follow, as a minimum, the latest published standards and guidelines and good engineering practice. Based on risk assessments or owner project requirements, designers of new and existing facilities could go beyond the minimum requirements of these standards, using techniques covered in various ASHRAE publications, including the ASHRAE Handbook volumes, Research Project final reports, papers and articles, and design guides, to be even better prepared to control the dissemination of infectious aerosols.
- Mitigation of infectious aerosol dissemination should be a consideration in the design of all facilities, and in those identified as high-risk facilities the appropriate mitigation design should be incorporated.
- The design and construction team, including HVAC designers, should engage in an integrated design process in order to incorporate the appropriate infection control bundle in the early stages of design.
- Based on risk assessments, buildings and transportation vehicles should consider designs that promote cleaner airflow patterns for providing effective flow paths for airborne particulates to exit spaces to less clean zones and use appropriate air-cleaning systems. (Evidence Level A)
- Where a significant risk of transmission of aerosols has been identified by infection control risk assessments, design of AIIRs should include anterooms. (Evidence Level A)

- Based on risk assessments, the use of specific HVAC strategies supported by the evidence-based literature should be considered, including the following:
 - Enhanced filtration (higher minimum efficiency reporting value [MERV] filters over code minimums in occupant-dense and/or higher-risk spaces) (Evidence Level A)
 - Upper-room UVGI (with possible in-room fans) as a supplement to supply airflow (Evidence Level A)
 - Local exhaust ventilation for source control (Evidence Level A)
 - Personalized ventilation systems for certain high-risk tasks (Evidence Level B)
 - Portable, free-standing high-efficiency particulate air (HEPA) filters (Evidence Level B)
 - Temperature and humidity control (Evidence Level B)
- Healthcare buildings⁸ should consider design and operation to do the following:
 - Capture expiratory aerosols with headwall exhaust, tent or snorkel with exhaust, floor-to-ceiling partitions with door supply and patient exhaust, local air HEPA-grade filtration.
 - Exhaust toilets and bed pans (a must).
 - Maintain temperature and humidity as applicable to the infectious aerosol of concern.
 - Deliver clean air to caregivers.
 - Maintain negatively pressurized intensive care units (ICUs) where infectious aerosols may be present.
 - Maintain rooms with infectious aerosol concerns at negative pressure.
 - Provide 100% exhaust of patient rooms.
 - Use UVGI.
 - Increase the outdoor air change rate (e.g., increase patient rooms from 2 to 6 ach).
 - Establish HVAC contributions to a patient room turnover plan before reoccupancy.
- Non-healthcare buildings should have a plan for an emergency response. The following modifications to building HVAC system operation should be considered:
 - Increase outdoor air ventilation (disable demand-controlled ventilation and open outdoor air dampers to 100% as indoor and outdoor conditions permit).
 - Improve central air and other HVAC filtration to MERV-13 (ASHRAE 2017b) or the highest level achievable.
 - Keep systems running longer hours (24/7 if possible).
 - Add portable room air cleaners with HEPA or high-MERV filters with due consideration to the clean air delivery rate (AHAM 2015).
 - Add duct- or air-handling-unit-mounted, upper room, and/or portable UVGI devices in connection to in-room fans in high-density spaces such as waiting rooms, prisons, and shelters.
 - Maintain temperature and humidity as applicable to the infectious aerosol of concern.
 - Bypass energy recovery ventilation systems that leak potentially contaminated exhaust air back into the outdoor air supply.
- Design and build inherent capabilities to respond to emerging threats and plan and practice for them. (Evidence Level B)

⁸ It is assumed that healthcare facilities already have emergency response plans.

4.2 ASHRAE's Commitments

- Address research gaps with future research projects, including those on the following topics:
 - Investigating and developing source generation variables for use in an updated ventilation rate procedure
 - Understanding the impacts of air change rates in operating rooms on patient outcomes
 - Determining the effectiveness of location of supply, return, and exhaust registers in patient rooms
 - Conducting controlled interventional studies to quantify the relative airborne infection control performance and cost-effectiveness of specific engineering strategies, individually and in combination, in field applications of high-risk occupancies
 - Evaluating and comparing options to create surge airborne isolation space and temporary negative pressure isolation space and the impacts on overall building operation
 - Understanding the appropriate application of humidity and temperature control strategies across climate zones on infectious aerosol transmission
 - Investigating how control banding techniques can be applied to manage the risk of infectious aerosol dissemination
- Partner with infection prevention, infectious disease, and occupational health experts and building owners to evaluate emerging control strategies and provide evidence-based recommendations.
- Educate stakeholders and disseminate best practices.
- Create a database to track and share knowledge on effective, protective engineering design strategies.
- Update standards and guidelines to reflect protective evidence-based strategies.

5. REFERENCES

- AHAM. 2015. ANSI/AHAM AC-1-2015, *Method For Measuring Performance Of Portable Household Electric Room Air Cleaners*. Washington, DC: Association of Home Appliance Manufacturers.
- Aliabadi, A.A., S.N. Rogak, K.H. Bartlett, and S.I. Green. 2011. Preventing airborne disease transmission: Review of methods for ventilation design in health care facilities. *Advances in Preventive Medicine*. Article ID 12406. DOI: 10.4061/2011/124064.
- Apisarnthanarak, A., P. Apisarnthanarak, B. Cheevakumjorn, and L.M. Mundy. 2009. Intervention with an infection control bundle to reduce transmission of influenza-like illnesses in a Thai preschool. *Infection Control and Hospital Epidemiology* 30(9):817–22. DOI: 10.1086/599773.
- Apisarnthanarak, A., P. Apisarnthanarak, B. Cheevakumjorn, and L.M. Mundy. 2010a. Implementation of an infection control bundle in a school to reduce transmission of influenza-like illness during the novel influenza A 2009 H1N1 pandemic. *Infection Control and Hospital Epidemiology* 31(3):310–11. DOI: 10.1086/651063.
- Apisarnthanarak, A., T.M. Uyeki, P. Puthavathana, R. Kitphati, and L.M. Mundy. 2010b. Reduction of seasonal influenza transmission among healthcare workers in an intensive care unit: A 4-year intervention study in Thailand. *Infection Control and Hospital Epidemiology* 31(10):996–1003. DOI: 10.1086/656565.
- ASHRAE. 2009. *Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning*. Atlanta: ASHRAE.

- ASHRAE. 2013. *HVAC Design Manual for Hospitals and Clinics*, 2d ed. Atlanta: ASHRAE.
- ASHRAE. 2017a. ANSI/ASHRAE/ASHE Standard 170-2017, *Ventilation of Health Care Facilities*. Atlanta: ASHRAE.
- ASHRAE. 2017b. ANSI/ASHRAE Standard 52.2-2017, *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. Atlanta: ASHRAE.
- ASHRAE. 2018. *ASHRAE Position Document on Filtration and Air-Cleaning*. Atlanta: ASHRAE. www.ashrae.org/file%20library/about/position%20documents/filtration-and-air-cleaning-pd.pdf.
- ASHRAE. 2019a. ANSI/ASHRAE Standard 62.1-2019, *Ventilation for Acceptable Indoor Air Quality*. Atlanta: ASHRAE.
- ASHRAE. 2019b. ANSI/ASHRAE Standard 62.2-2019, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*. Atlanta: ASHRAE.
- ASHRAE. 2020. *ASHRAE Handbook—HVAC Systems and Equipment*. Atlanta: ASHRAE.
- Atkinson J., Y. Chartier, C.L. Pessoa-Silva, P. Jensen, and W.H. Seto. 2009. *Natural Ventilation for Infection Control in Health-Care Settings*. Geneva: World Health Organization. www.who.int/water_sanitation_health/publications/natural_ventilation/en.
- Azimi, P., and B. Stephens. 2013. HVAC filtration for controlling infectious airborne disease transmission in indoor environments: Predicting risk reductions and operational costs. *Building and Environment* 70:150–60.
- Baron, P. n.d. Generation and Behavior of Airborne Particles (Aerosols). Presentation published at CDC/NIOSH Topic Page: Aerosols, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services, Cincinnati, OH. www.cdc.gov/niosh/topics/aerosols/pdfs/Aerosol_101.pdf.
- Bischoff, W.E., K. Swett, I. Leng, and T.R. Peters. 2013. Exposure to influenza virus aerosols during routine patient care. *Journal of Infectious Diseases* 207(7):1037–46. DOI: 10.1093/infdis/jis773.
- Bivolarova, M.P., A.K. Melikov, C. Mizutani, K. Kajiwara, and Z.D. Bolashikov. 2016. Bed-integrated local exhaust ventilation system combined with local air cleaning for improved IAQ in hospital patient rooms. *Building and Environment* 100:10–18.
- Bolashikov, Z.D., A.K. Melikov, and M. Krenek. 2009. Improved performance of personalized ventilation by control of the convection flow around occupant body. *ASHRAE Transactions* 115(2):421–31.
- Bolashikov, Z.D., M. Barova, and A.K. Melikov. 2015. Wearable personal exhaust ventilation: Improved indoor air quality and reduced exposure to air exhaled from a sick doctor. *Science and Technology for the Built Environment* 21(8):1117–25.
- Burns, P.B., R.J. Rohrich, and K.C. Chung. 2011. Levels of evidence and their role in evidence-based medicine. *Plast Reconstr Surg* 128(1):305–10.
- CDC. 2005. *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings*. Morbidity and Mortality Weekly Report (MMWR) 54(RR17):1–140. Atlanta: Centers for Disease Control and Prevention. www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm.
- CDC. 2009. *Environmental Control for Tuberculosis: Basic Upper-Room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings*. Atlanta: Centers for Disease Control and Prevention. www.cdc.gov/niosh/docs/2009-105/pdfs/2009-105.pdf.

- Cermak, R., A.K. Melikov, L. Forejt, and O. Kovar. 2006. Performance of personalized ventilation in conjunction with mixing and displacement ventilation. *HVAC&R Research* 12(2):295–311.
- Cheng, V.C., J.W. Tai, L.M. Wong, J.F. Chan, I.W. Li, K.K. To, I.F. Hung, K.H. Chan, P.L. Ho, and K.Y. Yuen. 2010. Prevention of nosocomial transmission of swine-origin pandemic influenza virus A/H1N1 by infection control bundle. *Journal of Hospital Infection* 74(3):271–77. DOI: 10.1016/j.jhin.2009.09.009.
- Derby, M., S. Eckels, G. Hwang, B. Jones, R. Maghirang, and D. Shulan. 2016. *Update the Scientific Evidence for Specifying Lower Limit Relative Humidity Levels for Comfort, Health and IEQ in Occupied Spaces*. ASHRAE Research Report 1630. Atlanta: ASHRAE.
- Dungi, S.R., U. Ghia, K.R. Mead, and M. Gressel. 2015. Effectiveness of a local ventilation/filtration intervention for health-care worker exposure reduction to airborne infection in a hospital room. Paper no. CH-15-C017. *2015 ASHRAE Winter Conference—Papers* [download].
- FGI. 2010. *Guidelines for Design and Construction of Health Care Facilities*. St Louis, MO: Facility Guidelines Institute.
- Fusco, F.M., S. Schilling, G. De Iaco, H.R. Brodt, P. Brouqui, H.C. Maltezou, B. Bannister, R. Gottschalk, G. Thomson, V. Puro, and G. Ippolito. 2012. Infection control management of patients with suspected highly infectious diseases in emergency departments: Data from a survey in 41 facilities in 14 European countries. *BMC Infectious Diseases* January 28:12–27.
- de Goffau, M.C., X. Yang, J.M. van Dijn, and H.J. Harmsen. 2009. Bacterial pleomorphism and competition in a relative humidity gradient. *Environmental Microbiology* 11(4):809–22. DOI: 10.1111/j.1462-2920.2008.01802.x.
- Khankari, K. 2016. Airflow path matters: Patient room HVAC. *ASHRAE Journal* 58(6).
- Khankari, K. 2018a. Analysis of spread index: A measure of laboratory ventilation effectiveness. Paper no. HO-18-C043. *2018 ASHRAE Annual Conference—Papers* [download].
- Khankari, K. 2018b. CFD analysis of hospital operating room ventilation system part I: Analysis of air change rates. *ASHRAE Journal* 60(5).
- Khankari, K. 2018c. CFD analysis of hospital operating room ventilation system part II: Analyses of HVAC configurations. *ASHRAE Journal* 60(6).
- Kudo, E., E. Song, L.J. Yockey, T. Rakib, P.W. Wong, R.J. Homer, and A. Iwasaki. 2019. Low ambient humidity impairs barrier function, innate resistance against influenza infection. *PNAS* 116(22):10905–10. <https://doi.org/10.1073/pnas.1902840116>.
- Kujundzic, E., F. Matalkah, D.J. Howard, M. Hernandez, and S.L. Miller. 2006. Air cleaners and upper-room air UV germicidal irradiation for controlling airborne bacteria and fungal spores. *Journal of Occupational and Environmental Hygiene* 3:536–46.
- Lax, S., and J.A. Gilbert. 2015. Hospital-associated microbiota and implications for nosocomial infections. *Trends in Molecular Medicine* 21(7):427–32. www.sciencedirect.com/science/article/abs/pii/S147149141500074X.
- Lax, S., D. Smith, N. Sangwan, K. Handley, P. Larsen, M. Richardson, S. Taylor, E. Landon, J. Alverdy, J. Siegel, B. Stephens, R. Knight, and J.A. Gilbert. 2017. Colonization and Succession of Hospital-Associated Microbiota. *Sci Transl Med*. 9(391):eaah6500. DOI: 10.1126/scitranslmed.aah6500. www.ncbi.nlm.nih.gov/pmc/articles/PMC5706123.

- Licina, D., A. Melikov, C. Sekhar, and K.W. Tham. 2015a. Human convective boundary layer and its interaction with room ventilation flow. *Indoor Air* 25(1):21–35. DOI:10.1111/ina.12120.
- Licina, D., A. Melikov, J. Pantelic, C. Sekhar, and K.W. Tham. 2015b. Human convection flow in spaces with and without ventilation: Personal exposure to floor-released particles and cough-released droplets. *Indoor Air* 25(6):672–82. DOI:10.1111/ina.12177.
- Li, Y. 2011. The secret behind the mask. (Editorial.) *Indoor Air* 21(2):89–91.
- Mead, K., and D. Johnson. 2004. An evaluation of portable high-efficiency particulate air filtration for expedient patient isolation in epidemic and emergency response. *Annals of Emergency Medicine* 44(6):635–45.
- Mead, K.R., A. Feng, D. Hammond, and S. Shulman. 2012. *In-depth report: Expedient methods for surge airborne isolation within healthcare settings during response to a natural or manmade epidemic*. EPHB Report no. 301-05f. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. www.cdc.gov/niosh/surveyreports/pdfs/301-05f.pdf.
- Miller-Leiden, S., C. Lobascio, J.M. Macher, and W.W. Nazaroff. 1996. Effectiveness of in-room air filtration for tuberculosis control in healthcare settings. *Journal of the Air & Waste Management Association* 46:869–82.
- Mousavi, E., R. Lautz, F. Betz, and K. Grosskopf. 2019. *Academic Research to Support Facility Guidelines Institute & ANSI/ASHRAE/ASHE Standard 170*. ASHRAE Research Project CO-RP3. Atlanta: ASHRAE.
- Nicas, M., and R.M. Jones. 2009. Relative contributions of four exposure pathways to influenza infection risk. *Risk Analysis* 29:1292–303.
- Pantelic, J., and K.W. Tham. 2011. Assessment of the ability of different ventilation systems to serve as a control measure against airborne infectious disease transmission using Wells-Riley approach. *IAQ 2010: Airborne Infection Control—Ventilation, IAQ, and Energy* [CD]. Atlanta: ASHRAE.
- Pantelic, J., G.N. Sze-To, K.W. Tham, C.Y. Chao, and Y.C.M. Khoo. 2009. Personalized ventilation as a control measure for airborne transmissible disease spread. *Journal of the Royal Society Interface* 6(suppl_6):S715–S726.
- Pantelic, J., and K.W. Tham. 2012. Assessment of the mixing air delivery system ability to protect occupants from the airborne infectious disease transmission using Wells-Riley approach. *HVAC&R Research* 18(4):562–74.
- Pantelic, J., and K.W. Tham. 2013. Adequacy of air change rate as the sole indicator of an air distribution system's effectiveness to mitigate airborne infectious disease transmission caused by a cough release in the room with overhead mixing ventilation: A case study. *HVAC&R Research* 19(8):947–61.
- Pantelic, J., K.W. Tham, and D. Licina. 2015. Effectiveness of a personalized ventilation system in reducing personal exposure against directly released simulated cough droplets. *Indoor Air* 25(6):683–93.
- Roy, C.J., and D.K. Milton. 2004. Airborne transmission of communicable infection—The elusive pathway. *New England Journal of Medicine* 350:17.
- Shaman, J., and M. Kohn. 2009. Absolute humidity modulates influenza survival, transmission, and seasonality. *Proceedings of the National Academy of Sciences* 106(0):3243–48.

- Siegel J.D., E. Rhinehart, M. Jackson, and L. Chiarello. 2007. *2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings*. Atlanta: Centers for Disease Control and Prevention, The Healthcare Infection Control Practices Advisory Committee.
- Sietsema, M., L. Radonovich, F.J. Hearl, E.M. Fisher, L.M. Brosseau, R.E. Shaffer, and L.M. Koonin. 2019. A control banding framework for protecting the US workforce from aerosol transmissible infectious disease outbreaks with high public health consequences. *Health Security* 17(2):124–32. <http://doi.org/10.1089/hs.2018.0103>.
- Stone, W., O. Kroukamp, D.R. Korber, J. McKelvie, and G.M. Wolfaardt. 2016. Microbes at surface-air interfaces: The metabolic harnessing of relative humidity, surface hygroscopicity, and oligotrophy for resilience. *Frontiers in Microbiology* 7:1563. DOI: 10.3389/fmicb.2016.01563.
- Subhash, S.S., G. Baracco, K.P. Fennelly, M. Hodgson, and L.J. Radonovich, Jr. 2013. Isolation anterooms: Important components of airborne infection control. *American Journal of Infection Control* 41(5):452–55. DOI: 10.1016/j.ajic.2012.06.004.
- Taylor, S., and M. Tasi. 2018. Low indoor-air humidity in an assisted living facility is correlated with increased patient illness and cognitive decline. *Proceedings, Indoor Air 2018* 744:1–8.
- USDHHS. 2002. *Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks*. NIOSH Publication No. 2002-139. Washington, DC: United States Department of Health and Human Services.
- USDHHS. 2003. *Guidance for Filtration and Air-Cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks*. NIOSH Publication No. 2003-136. Washington, DC: United States Department of Health and Human Services.
- Yan, J., M. Grantham, J. Pantelic, P.J.B. de Mesquita, B. Albert, F. Liu, S. Ehrman, D.K. Milton, and EMIT Consortium. 2018. Infectious virus in exhaled breath of symptomatic seasonal influenza cases from a college community. *Proceedings of the National Academy of Sciences* 115(5):1081–86. DOI: 10.1073/pnas.1716561115.
- Yang, J., C. Sekhar, D. Cheong Kok Wai, and B. Raphael. 2013. CFD study and evaluation of different personalized exhaust devices. *HVAC&R Research* 19(8):934–46.
- Yang, J., C. Sekhar, D. Cheong, and B. Raphael. 2014. Performance evaluation of an integrated personalized ventilation-personalized exhaust system in conjunction with two background ventilation systems. *Building and Environment* 78:103–10. DOI:10.1016/j.buildenv.2014.04.015.
- Yang, J., S.C. Sekhar, K.W. Cheong, and B. Raphael. 2015a. Performance evaluation of a novel personalized ventilation-personalized exhaust system for airborne infection control. *Indoor Air* 25(2):176–87. DOI:10.1111/ina.12127.
- Yang, J., C. Sekhar, D.K.W. Cheong, and B. Raphael. 2015b. A time-based analysis of the personalized exhaust system for airborne infection control in healthcare settings. *Science and Technology for the Built Environment* 21(2):172–78. DOI:10.1080/10789669.2014.976511.

6. BIBLIOGRAPHY

ASHRAE. 2000. ASHRAE Guideline 12-2000, *Minimizing the Risk of Legionellosis Associated with Building Water Systems*. Atlanta: ASHRAE.

- ASHRAE. 2010. ASHRAE Research Strategic Plan 2010–2018. Atlanta: ASHRAE. www.ashrae.org/technical-resources/research/research-strategic-plan.
- ASHRAE. 2018. *ASHRAE Position Document on Limiting Indoor Mold and Dampness in Buildings*. Atlanta: ASHRAE. www.ashrae.org/file%20library/about/position%20documents/ashrae---limiting-indoor-mold-and-dampness-in-buildings.pdf.
- ASHRAE. 2017. ANSI/ASHRAE Standard 55-2017, *Thermal Environmental Conditions for Human Occupancy*. Atlanta: ASHRAE.
- Belongia, E.A., B.A. Kieke, J.G. Donahue, R.T. Greenlee, A. Balish, A. Foust, S. Lindstrom, and D.K. Shay. 2009. Effectiveness of inactivated influenza vaccines varied substantially with antigenic match from the 2004–2005 season to the 2006–2007 season. *Journal of Infectious Diseases* 199(2):159–67. DOI: 10.1086/595861.
- BOMA. 2012. *Emergency Preparedness Guidebook: The Property Professional's Resource for Developing Emergency Plans for Natural and Human-Based Threats*. Washington, DC: Building Owners and Managers Association International.
- Brankston, G., L. Gitterman, Z. Hirji, C. Lemieux, and M. Gardam. 2007. Transmission of influenza A in human beings. *Lancet Infectious Disease* 7:257–65.
- Bucher, S.J., P.W. Brickner, C. Wang, R.L. Vincent, K. Becan-McBride, M.A. James, M. Michael, and J.D. Wright. 2008. Safety of upper-room ultraviolet germicidal air disinfection for room occupants: Results from the tuberculosis ultraviolet shelter study. *Public Health Reports* 123:52–60.
- Catanzaro, A. 1982. Nosocomial tuberculosis. *American Review of Respiratory Diseases* 125:559–62.
- CDC. 2001. Recognition of illness associated with the intentional release of a biologic agent. *Journal of the American Medical Association* 286:2088–90.
- CDC. 2003. *Guidelines for Environmental Infection Control in Health-Care Facilities*. Atlanta: Center for Disease Control and Prevention.
- CDC. 2014. NIOSH-approved N95 particulate filtering facepiece respirators. Atlanta: Center for Disease Control and Prevention. www.cdc.gov/niosh/npptl/topics/respirators/disp_part/n95list1.html.
- Chu, C.M., V.C. Cheng, I.F. Hung, K.S. Chan, B.S. Tang, T.H. Tsang, K.H. Chan, and K.Y. Yuen. 2005. Viral load distribution in SARS outbreak. *Emerging Infectious Diseases* 11(12):1882–86.
- Cole, E.C., and C.E. Cook. 1998. Characterization of infectious aerosols in health care facilities: An aid to effective engineering controls and preventive strategies. *American Journal of Infection Control* 26(4):453–64.
- D'Alessio, D.J., C.K. Meschievitz, J.A. Peterson, C.R. Dick, and E.C. Dick. 1984. Short-duration exposure and the transmission of rhinoviral colds. *Journal of Infectious Diseases* 150(2):189–94.
- Dick, E.C., C.R. Blumer, and A.S. Evans. 1967. Epidemiology of infections with rhinovirus types 43 and 55 in a group of University of Wisconsin student families. *American Journal of Epidemiology* 86(2):386–400.
- Dick, E.C., L.C. Jennings, K.A. Mink, C.D. Wartgow, and S.L. Inhorn. 1987. Aerosol transmission of rhinovirus colds. *Journal of Infectious Diseases* 156:442–8.
- Duguid, J.P. 1946. The size and duration of air-carriage of respiratory droplets and droplet nuclei. *The Journal of Hygiene (London)* 44:471–79.

- Fennelly, K.P., J.W. Martyny, K.E. Fulton, I.M. Orme, D.M. Cave, and L.B. Heifets. 2004. Cough-generated aerosols of *Mycobacterium tuberculosis*: A new method to study infectiousness. *American Journal of Respiratory and Critical Care Medicine* 169:604–609.
- Gao, N.P., and J.L. Niu. 2004. CFD study on micro-environment around human body and personalized ventilation. *Building and Environment* 39:795–805.
- Gao, X., Y. Li, P. Xu, and B.J. Cowling. 2012. Evaluation of intervention strategies in schools including ventilation for influenza transmission control. *Building Simulation* 5(1):29, 37.
- Gwaltney, J., and J.O. Hendley. 1978. Rhinovirus transmission: One if by air, two if by hand. *American Journal of Epidemiology* 107(5):357–61.
- Han, K., X. Zhu, F. He, L. Liu, L. Zhang, H. Ma, X. Tang, T. Huang, G. Zeng, and B.P. Zhu. 2009. Lack of airborne transmission during outbreak of pandemic (H1N1) 2009 among tour group members, China, June 2009. *Emerging Infectious Diseases* 15(10):1578–81.
- Harriman, L., G. Brundrett, and R. Kittler. 2006. *Humidity Control Design Guide for Commercial and Institutional Buildings*. Atlanta: ASHRAE.
- Hoge, C.W., M.R. Reichler, E.A. Dominguez, J.C. Bremer, T.D. Mastro, K.A. Hendricks, D.M. Musher, J.A. Elliott, R.R. Facklam, and R.F. Breiman. 1994. An epidemic of pneumococcal disease in an overcrowded, inadequately ventilated jail. *New England Journal of Medicine* 331(10):643–8.
- Klontz, K.C., N.A. Hynes, R.A. Gunn, M.H. Wilder, M.W. Harmon, and A.P. Kendal. 1989. An outbreak of influenza A/Taiwan/1/86 (H1N1) infections at a naval base and its association with airplane travel. *American Journal of Epidemiology* 129:341–48.
- Ko, G., M.W. First, and H.A. Burge. 2002. The characterization of upper-room ultraviolet germicidal irradiation in inactivating airborne microorganisms. *Environmental Health Perspectives* 110:95–101.
- Kujundzic, E., M. Hernandez, and S.L. Miller. 2007. Ultraviolet germicidal irradiation inactivation of airborne fungal spores and bacteria in upper-room air and in-duct configurations. *Journal of Environmental Engineering and Science* 6:1–9.
- Li, Y., G.M. Leung, J.W. Tang, X. Yang, C.Y.H. Chao, J.Z. Lin, J.W. Lu, P.V. Nielsen, J. Niu, H. Qian, A.C. Sleight, H-J. J. Su, J. Sundell, T.W. Wong, and P.L. Yuen. 2007. Role of ventilation in airborne transmission of infectious agents in the built environment—A multi-disciplinary systematic review. *Indoor Air* 17(1):2–18.
- Li, Y., H. Qian, I.T.S. Yu, and T.W. Wong. 2005. Probable roles of bio-aerosol dispersion in the SARS outbreak in Amoy Gardens, Hong Kong. Chapter 16. In *Population Dynamics and Infectious Disease in the Asia-Pacific*. Singapore: World Scientific Publishing.
- Li, Y., X. Huang, I.T.S. Yu, T.W. Wong, and H. Qian. 2005. Role of air distribution in SARS transmission during the largest nosocomial outbreak in Hong Kong. *Indoor Air* 15:83–95.
- Lowen, A.C., S. Mubareka, J. Steel, and P. Palese. 2007. Influenza virus transmission is dependent on relative humidity and temperature. *PLOS Pathogens* 3:1470–76.
- Mahida, N., N. Vaughan, and T. Boswell. 2013. First UK evaluation of an automated ultraviolet-C room decontamination device (Tru-D). *Journal of Hospital Infection* <http://dx.doi.org/10.1016/j.jhin.2013.05.005>.
- Mandell, G. 2010. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, 7th ed. London: Churchill Livingstone.
- McLean, R.L. 1961. The effect of ultraviolet radiation upon the transmission of epidemic influenza in long-term hospital patients. *American Review of Respiratory Diseases* 83(2):36–8.

- MDH. 2013. *Airborne Infectious Disease Management Manual: Methods for Temporary Negative Pressure Isolation*. St Paul, MN: Minnesota Department of Health.
- Memarzadeh, F. 2011. Literature review of the effect of temperature and humidity on viruses. *ASHRAE Transactions* 117(2).
- Memarzadeh, F., R.M. Olmsted, and J.M. Bartley. 2010. Applications of ultraviolet germicidal irradiation disinfection in healthcare facilities: Effective adjunct, but not stand-alone technology. *American Journal of Infection Control* 38:S13–24.
- Miller, S.L., J. Linnes, and J. Luongo. 2013. Ultraviolet germicidal irradiation: Future directions for air disinfection and building applications. *Photochemistry and Photobiology* 89:777–81.
- Moser, M.R., T.R. Bender, H.S. Margolis, G.R. Noble, A.P. Kendal, and D.G. Ritter. 1979. An outbreak of influenza aboard a commercial airliner. *American Journal of Epidemiology* 110(1):1–6.
- Myatt, T.A., S.L. Johnston, Z. Zuo, M. Wand, T. Kebabze, S. Rudnick, and D.K. Milton. 2004. Detection of airborne rhinovirus and its relation to outdoor air supply in office environments. *American Journal of Respiratory and Critical Care Medicine* 169:1187–90.
- Nardell, E.A., S.J. Bucher, P.W. Brickner, C. Wang, R.L. Vincent, K. Becan-McBride, M.A. James, M. Michael, and J.D. Wright. 2008. Safety of upper-room ultraviolet germicidal air disinfection for room occupants: Results from the tuberculosis ultraviolet shelter study. *Public Health Reports* 123:52–60.
- Nicas, M., W.W. Nazaroff, and A. Hubbard. 2005. Toward understanding the risk of secondary airborne infection: Emission of respirable pathogens. *Journal of Occupational and Environmental Hygiene* 2:143–54.
- NIOSH. 2009. *Environmental Control for Tuberculosis: Basic Upper-Room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings*. DHHS (NIOSH) Publication No. 2009-105. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. www.cdc.gov/niosh/docs/2009-105.
- Noti, J.D., F.M. Blachere, C.M. McMillen, W.G. Lindsley, M.L. Kashon, D.R. Slaughter, and D.H. Beezhold. 2013. High humidity leads to loss of infectious influenza virus from simulated coughs. *PLOS ONE* 8(2):e57485.
- OSHA. 1999. *OSHA Technical Manual*. Washington, DC: Occupational Safety & Health Administration.
- Osterholm, M.T., N.S. Kelley, A. Sommer, and E.A. Belongia. 2012. Efficacy and effectiveness of influenza vaccines: A systematic review and meta-analysis. *Lancet Infectious Diseases*. 12(1):36–44. DOI: 10.1016/S1473-3099(11)70295-X.
- Peccia, J., H. Werth, S.L. Miller, and M. Hernandez. 2001. Effects of relative humidity on the ultraviolet-induced inactivation of airborne bacteria. *Aerosol Science & Technology* 35:728–40.
- Reed, N.G. 2010. The history of ultraviolet germicidal irradiation for air disinfection. *Public Health Reports* 125(1):15–27.
- Riley, R.L., and E.A. Nardell. 1989. Clearing the air: The theory and application of ultraviolet air disinfection. *American Review of Respiratory Diseases* 139(5):1286–94.
- Riley, R.L., C.C. Mills, F. O’Grady, L.U. Sultan, F. Wittstadt, and D.N. Shivpuri. 1962. Infectiousness of air from a tuberculosis ward—Ultraviolet irradiation of infected air: Com-

- parative infectiousness of different patients. *American Review of Respiratory Diseases* 85:511–25.
- Riley, E.C., G. Murphy, and R.L. Riley. 1978. Airborne spread of measles in a suburban elementary school. *American Journal of Epidemiology* 107:421–32.
- SA Health. 2013. *Guidelines for Control of Legionella in Manufactured Water Systems in South Australia*. Rundle Mall, South Australia: SA Health.
- Schaffer, F.L., M.E. Soergel, and D.C. Straube. 1976. Survival of airborne influenza virus: Effects of propagating host, relative humidity, and composition of spray fluids. *Archives of Virology* 51:263–73.
- Schoen, L.J. 2020. Guidance for building operations during the COVID-19 pandemic. *ASHRAE Journal Newsletter*, March 24, 2020. www.ashrae.org/news/ashraejournal/guidance-for-building-operations-during-the-covid-19-pandemic.
- Sun, Y., Z. Wang, Y. Zhang, and J. Sundell. 2011. In China, students in crowded dormitories with a low ventilation rate have more common colds: Evidence for airborne transmission. *PLOS ONE* 6(11):e27140.
- Sylvain, D., and L. Tapp. 2009. UV-C exposure and health effects in surgical suite personnel. Health hazard evaluation report: HETA-2007-0257-3082. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. www.cdc.gov/niosh/nioshtic-2/20035372.html.
- Tang, J.W. 2009. The effect of environmental parameters on the survival of airborne infectious agents. *Journal of the Royal Society Interface* 6:S737–S746.
- Tang, J.W., Y. Li, I. Eames, P.K.S. Chan, and G.L. Ridgway. 2006. Factors involved in the aerosol transmission of infection and control of ventilation in healthcare premises. *Journal of Hospital Infection* 64(2):100–14.
- Tellier, R. 2006. Review of aerosol transmission of influenza a virus. *Emerging Infectious Disease* 12(11):1657–62.
- VanOsdell, D., and K. Foarde. 2002. *Defining the Effectiveness of UV Lamps Installed in Circulating Air Ductwork—Final Report*. Arlington, VA: Air-Conditioning and Refrigeration Technology Institute.
- Wainwright, C.E., M.W. Frances, P. O'Rourke, S. Anuj, T.J. Kidd, M.D. Nissen, T.P. Sloots, C. Coulter, Z. Ristovski, M. Hargreaves, B.R. Rose, C. Harbour, S.C. Bell, and K.P. Fennelly. 2009. Cough-generated aerosols of *Pseudomonas aeruginosa* and other gram-negative bacteria from patients with cystic fibrosis. *Thorax* 64:926–31.
- Wang, B., A. Zhang, J.L. Sun, H. Liu, J. Hu, and L.X. Xu. 2005. Study of SARS transmission via liquid droplets in air. *Journal of Biomechanical Engineering* 127:32–8.
- Wang, Y., C. Sekhar, W.P. Bahnfleth, K. W. Cheong, and J. Firrantello. 2016. Effectiveness of an ultraviolet germicidal irradiation system in enhancing cooling coil energy performance in a hot and humid climate. *Energy and Buildings* 130, pp. 321–29. DOI: 10.1016/j.enbuild.2016.08.063.
- Wat, D. 2004. The common cold: A review of the literature. *European Journal of Internal Medicine* 15:79–88.
- Wells, W.F. 1948. On the mechanics of droplet nuclei infection; Apparatus for the quantitative study of droplet nuclei infection of animals. *Am J Hyg.* 47(1):1–10. DOI: 10.1093/oxfordjournals.aje.a119176.

- Wells, W.F. 1955. *Airborne Contagion and Air Hygiene*. Cambridge: Harvard University Press, pp. 191.
- WHO. 2007. *Legionella and the prevention of Legionellosis*. Geneva: World Health Organization.
- WHO. 2009. *Natural Ventilation for Infection Control in Health-Care Settings*. Geneva: World Health Organization.
- WHO. 2014. Influenza: Public health preparedness. Geneva: World Health Organization. www.who.int/influenza/preparedness/en.
- Wong, B.X., N. Lee, Y. Li, P.X. Chan, H. Qiu, Z. Luo, R.X. Lai, K.X. Ngai, D.X. Hui, K.X. Choi, and I.X. Yu. 2010. Possible role of aerosol transmission in a hospital outbreak of influenza. *Clinical Infectious Diseases* 51(10):1176–83.
- Xie, X.J., Y.G. Li, H.Q. Sun, and L. Liu. 2009. Exhaled droplets due to talking and coughing. *Journal of The Royal Society Interface* 6:S703–S714.
- Xie, X., Y. Li, A.T.Y. Chwang, P.L. Ho, and H. Seto. 2007. How far droplets can move in indoor environments—Revisiting the Wells evaporation-falling curve. *Indoor Air* 17:211–25.
- Xu, P., E. Kujundzic, J. Peccia, M.P. Schafer, G. Moss, M. Hernandez, and S.L. Miller. 2005. Impact of environmental factors on efficacy of upper-room air ultraviolet germicidal irradiation for inactivating airborne mycobacteria. *Environmental Science & Technology* 39:9656–64.
- Xu, P., J. Peccia, P. Fabian, J.W. Martyny, K. Fennelly, M. Hernandez, and S.L. Miller. 2003. Efficacy of ultraviolet germicidal irradiation of upper-room air in inactivating bacterial spores and mycobacteria in full-scale studies. *Atmospheric Environment* 37:405–19.
- Xu, P., N. Fisher, and S.L. Miller. 2013. Using computational fluid dynamics modeling to evaluate the design of hospital ultraviolet germicidal irradiation systems for inactivating airborne mycobacteria. *Photochemistry and Photobiology* 89(4):792–8.
- Yang, W., and L. Marr. 2012b. Mechanisms by which ambient humidity may affect viruses in aerosols. *Applied and Environmental Microbiology* 78(19):6781. DOI: 10.1128/AEM.01658–12.
- Yang, W., S. Elankumaran, and L.C. Marr. 2012. Relationship between humidity and influenza A viability in droplets and implications for influenza's seasonality. *PLOS ONE* 7(10):e46789. DOI:10.1371/journal.pone.0046789.
- Yu, I.T., Y. Li, T.W. Wong, W. Tam, A.T. Chan, J.H. Lee, D.Y. Leung, and T. Ho. 2004. Evidence of airborne transmission of the severe acute respiratory syndrome virus. *N Engl J Med* 350:1731–39.

**CITY OF CORDOVA, ALASKA
EMERGENCY ORDINANCE 1190**

**AN EMERGENCY ORDINANCE OF THE COUNCIL OF THE CITY OF CORDOVA,
ALASKA CONTINUING THE CITY’S DECLARATION OF A LOCAL EMERGENCY AND
ACKNOWLEDGEMENT OF A STATE-WIDE EMERGENCY RESULTING FROM COVID-
19; ADOPTING THE CTY OF CORDOVA COVID-19 HEALTH ADVISORY PLAN; AND
RATIFYING EMERGENCY ORDER 2020-09**

WHEREAS, the United States Center for Disease Control and Prevention (CDC) has identified COVID-19 as a significant public risk; and

WHEREAS, on March 11, 2020, Governor Dunleavy issued a declaration of public health disaster emergency in response to the anticipated outbreak of COVID-19 within Alaska’s communities; and

WHEREAS, on March 11, 2020, The World Health Organization designated the COVID-19 outbreak a pandemic; and

WHEREAS, various organizations, agencies, and local governments throughout the State of Alaska continue to restrict public gatherings, school sessions and programs, and other activities as well as non-essential travel in efforts to contain the virus; and

WHEREAS, the recommendations of global, federal, state, and local organizations and government entities are changing almost daily in response to new information regarding COVID-19, which requires the City to be able to act swiftly to comply with these recommendations in its emergency operations; and

WHEREAS, the City continues to be in a state of emergency but is also making efforts to ensure that business operations are able to resume as quickly as responsible in light of the COVID-19 outbreak within the State of Alaska and the City; and

WHEREAS, the City Manager has authority to implement temporary rules and procedures regarding City government organization and operations during an emergency under the City’s Emergency Operation Plan but has presented Emergency Order 2020-09 and its proposed revisions to COVID-19 Emergency Rules to Council to ensure public commentary and Council guidance regarding the revisions before adoption; and

WHEREAS, Council is eagerly moving towards recovery but wants to ensure that the City has a comprehensive health advisory plan that allows the City to quickly protect its residents and visitors from a future “localized” COVID-19 outbreak.

NOW, THEREFORE, THE CITY OF CORDOVA ORDAINS:

Section 1. Emergency Declaration. This emergency order renews and reiterates the Mayor's declaration of local emergency ratified by Council and its acknowledgement of state-wide emergency declared by Governor Dunleavy on March 11, 2020.

Section 2. Ratification. Council hereby ratifies Emergency Order 2020-09, which is incorporated into this Emergency Ordinance as it appears in Exhibit A.

Section 3. Health Advisory Plan Adoption. Council hereby adopts the City of Cordova COVID-19 Health Advisory Plan in substantially the same format as attached to this Emergency Ordinance as Exhibit B.

Section 4. Request for Assistance. Council hereby reiterates its acknowledgement of the City's need for financial assistance from the United States and the State of Alaska to protect the City from a COVID-19 outbreak within the City and to recover from the economic and health impacts of the threat and outbreak of COVID-19 within the City.

Section 5. Codification. This ordinance is an emergency ordinance, is not permanent in nature, and shall not be codified.

Section 6. Effective Date. This ordinance shall take effect on the day it is enacted and shall remain in effect until it is repealed by Council or the declaration of emergency regarding COVID-19 expires without renewal. The declaration of emergency reiterated in this Emergency Ordinance shall expire on September 1, 2020 if not renewed by Council on or before that date.

Public Hearing and only reading: July 15, 2020

PASSED AND APPROVED THIS 15th DAY OF JULY 2020.

Clay R. Koplín, Mayor

ATTEST:

Susan Bourgeois, CMC, City Clerk

[Affirmative vote of 5 Council members required for passage]

EMERGENCY ORDER 2020-09

**AN EMERGENCY ORDER REPEALING CORDOVA EMERGENCY COVID-19
RULE 17 ENTITLED “LOCAL MEDICAL ASSESSMENT” AND INCORPORATING
THE CITY OF CORDOVA “HEALTH ALERT SYSTEM” ADOPTED VIA THE
CORDOVA COVID-19 HEALTH ADVISORY PLAN**

WHEREAS, City Council adopted the City of Cordova COVID-19 HEALTH ADVISORY Plan (the “Plan”); and

WHEREAS, the Plan adopts the State of Alaska Reopen Alaska Responsibly Plan but supplements the State approach with a five level “local alert” system, ensuring the City’s Incident Command Team has the ability to deviate from the State of Alaska social distancing phases when the spread and/or risk of COVID-19 within the City differs from the Statewide risk and/or spread; and

WHEREAS, adoption of the Plan’s “local health alert” system provides the Incident Command Team the tools it needs to implement more restrictive social distancing and business operation rules when necessary, eliminating the need to delay local implementation of revisions and repeals to the Alaska public health mandates,

Section 1. Amendment to COVID-19 Emergency Rule 16. City Manager Helen Howarth, in collaboration with Mayor Clay Koplín and Cordova’s Emergency Operations Center, hereby repeals Rule 17 entitled “Local Medical Assessment” and amends Rule 16 entitled “Public Health Mandate Compliance” as follows (new language highlighted and bolded):

Rule 16. Public Health Mandate Compliance. All individuals and entities shall comply with all COVID-19 State of Alaska public health mandates. **In the event the City Manager issues a “Local Outbreak Warning,” all individuals entering the City must comply with the City’s “Community Outbreak Rules” while the “Level 4” remains in effect. While in effect, the City’s Community Outbreak Rules preempt any other less-restrictive local or state rules regarding social distancing or business operations.**

Section 2. All the Emergency COVID-19 Rules shall remain in effect until repealed by City Council or the City Manager. In the event the declared state of emergency is repealed, the rules will automatically terminate on the effective date of that repeal.

Section 3. This Emergency Order 2020-09 and the revisions to Rule 16 adopted within it shall be effective at 8:00am on July __, 2020. This Order shall be posted on the City website and the City Clerk shall provide City Council members notice of this Emergency Order 2020-09 and the revisions to the COVID-19 Emergency Rules within five (5) days of their adoption.

Date

Helen Howarth
City Manager

CITY OF CORDOVA

DRAFT COVID-19 HEALTH ADVISORY PLAN

Presented to Council July 15, 2020

This document is a working draft. The Cordova City Council and Cordova City Administration are working together to create a plan that protects City residents and visitors from COVID-19 to the greatest extent possible while preserving the economic well-being of City businesses and residents. This Plan includes proposed rules and metrics adapted from other communities, the State of Alaska, and other Alaska government agencies as well as procedures and rules unique to Cordova. The purpose of this Draft Plan is to provide Council, the Administration, and members of the public a starting place in developing a COVID-19 health advisory plan that incorporates commentary, insight, and guidance from the Cordova community as a whole.

CORDOVA'S COVID-19 LOCAL HEALTH ADVISORY PLAN

The City of Cordova has actively monitored the COVID-19 outbreak in the State of Alaska and established a rigorous response to prevent local spread.

Cordova's Incident Management Team has been tasked with protecting the health and safety of the community from impacts of the COVID-19 pandemic. The Team recognizes that any and all protective measures come at a cost and the Team must ensure that any cost is a necessary one.

City acknowledges that social distancing restrictions separate friends and loved ones in times of need. Limitations on business operations have very real economic consequences for local businesses and industries that form Cordova's cornerstones. Personal sanitation and hygiene mandates may interfere with an individual's personal autonomy and freedom of choice. For the reasons, the City and its Incident Management Team are dedicated to ensuring that the adoption of any regulations or laws to protect against the spread of the coronavirus within Cordova are necessary and carefully tailored to reduce the transmission of COVID-19 in Cordova's residents and visitors.

Alaska Governor "Reopen Alaska Responsibly Plan" articulates a path towards reopening the State's economy with strong protective measures. The Governor's plan is intended to be enacted by all communities in Alaska but acknowledges that local jurisdictions may need to implement more restrictive rules based upon unique local risks and available resources.

Cordova's Plan ensures that the City's response to COVID-19, both in the short and long term, is medically based, flexible and adaptable, and narrowly tailored. Additionally, the Plan is designed to be easily understood by and communicated to Cordova community members and visitors. The Plan ensures that to the greatest extent possible, local mandates mirror State mandates but that local needs are considered first and foremost at all times.

Cordova's Plan adopts easy to follow rules that are based upon: (1) medical and epidemiological data regarding COVID-19; and (2) the City's resources to prepare and respond to a COVID-19 outbreak.

THE STATE APPROACH: A 5-STEP SYSTEM TO RECOVERY

The State Plan anticipates a 5-phase climb to recovery for Alaska. In order to climb from one phase to the next, the State's emergency management team, led by the Governor, will employ a color-coded status – red, yellow or green - to indicate whether it's safe to move forward to a less restrictive phase or if a "roll-back" to red is needed. While the State has not yet identified each phase of its Plan, The State Plan establishes four basic metrics that will be tracked by Alaska Department of Health and Social Services (DHSS) in determining when to move forward or "roll back." The Four Basic Metrics are as follows:

1. *Epidemiology*

Tracking disease trends and trend forecasting.

2. *Testing*

Monitoring overall testing volume and changes in the percentage of positive tests at the community, regional, and statewide levels. Ensuring fast turnaround of tests and reporting of results. The goal is to maintain COVID-19 positive tests at less than one per one-thousand.

3. *Public health capacity*

Monitoring cases and conducting necessary contact investigations for positive cases.

4. *Health care capacity*

Ensuring hospitals have adequate capacity and supplies (such as PPE and ventilators) to care for COVID-19 patients and other patients needing urgent care.

TAILORING THE STATE'S APPROACH TO THE CITY: CLIMBING TO RECOVERY

In this Plan, the City adopts the State's four metrics and five-phase approach to recovery. To this end, the City's COVID-19 Rules have been revised to impose lock-step social distancing restrictions with the State while also maintaining local requirements regarding the submission of plans and protocols to local authorities, local business postings, and mutual aid agreements. These postings and submissions ensure that the City, its residents, and its visitors have the information needed to ensure the public's awareness and compliance with State mandates.

Although the City embraces the State Plan, it also recognizes the need to provide the Incident Management Team the flexibility to respond when the local situation worsens but State COVID-19 metrics remain unchanged. **To this end, the City Plan adopts the State's red, yellow, and green alerts but adds to that plan a five-level "local health alert" system, ensuring the City can "roll back" reopening efforts in the event the City's metrics fall out of line with the State.** In an effort to ensure that every citizen and visitor knows exactly what local rules apply in each phase, the City has taken several steps, including adopting this local health advisory plan, revising the COVID-19 Emergency Rules to eliminate social distancing provisions more restrictive than those adopted by the State,¹ and adopting COVID-19 "Community Outbreak Rules." The City's COVID-19 Community Outbreak Rules will only become effective when the City Manager, in collaboration with the Incident Command Team, declares an Alert Phase triggering the

¹ The COVID-19 Health Advisory Plan retains posting and filing as well as facial covering and mutual aid agreement requirements to ensure the City and the public have the tools and information necessary to monitor compliance with State mandates and best practices.

need for the implementation of stricter restrictions on the local level. These rules “rollback” to social distancing and business operation restrictions previously imposed by the State of Alaska and/or the City.

CORDOVA’S “LOCAL HEALTH ALERT” SYSTEM
When and How is Cordova’s “Local Health Alert” Triggered?

The City’s Health Alert System will be triggered when one or a combination of the following occurs:

1. *Epidemiology*

A review of COVID-19 trends and trend forecasting suggests that there is an increase in the transmission of COVID-19 in Cordova or a substantial increase in neighboring communities within Cordova’s industry markets, fisheries or transportation lines that has not triggered a change in the State’s alert level.

2. *Testing*

The City’s testing capacity diminishes or testing becomes unavailable at the community level. At the time this Plan was adopted, there was one positive COVID-19 case reported in Cordova. The State’s goal for testing is to maintain COVID-19 positive tests at less than one per 1,000. While Cordova’s size does not lend itself to analysis under the State’s goal, the City’s goal is to ensure it has appropriate testing capabilities to detect COVID-19 in the City and take steps to curb its spread before the pandemic overwhelms the City’s limited medical resources. Accordingly, the City will rely upon recommendations from the State and its Incident Management Team Medical Unit of Medical Directors (“Cordova Medical Team”) in assessing the testing capacity and availability and the impact of such capacity and availability on the City’s response to COVID-19.

3. *Public health capacity*

The City’s public health capacity is significantly impacted by the commercial fishing industry and the influx of intrastate and interstate workers and visitors at certain periods. During these periods, any COVID-19 positive test may warrant temporary imposition of greater social distancing restrictions, depending upon the conditions and circumstances surrounding the positive COVID-19 result.

4. *Health care capacity*

The City’s limited ability to care for COVID-19 patients alongside other patients reaches its limited capacity or the City exhausts or is at risk of exhausting its minimal PPE supplies.

This “local metric analysis” will be conducted by the Incident Command Team, and shall include substantial input from the Cordova Medical Team.

CORDOVA'S HEALTH ALERT SYSTEM

Once the "Local Health Alert" is Triggered, How Does it Work?

In the event the City Manager declares an "Local Health Alert," they **must** work with the Incident Command Team to:

1. Post Notice on the City website and Local Radio and in at least three other City locations of the COVID-19 Alert Status;
2. Post a copy of the "Community Outbreak Rules" and the effective date and time of these rules on the City website;
3. Send the Notice electronically or via hand delivery to Council members within 24 hours of issuing the declaration. No more than five days after the City Manager declares "Alert" Status, City Council shall hold an emergency meeting and shall approve or deny the declaration of "Local Alert" status;
4. The Council meeting regarding the "Plan" status shall include a telephonic or videoconference public hearing in which members of the public may sign-up to comment on the City's declaration of a "Local Alert Status" and/or implementation of the Community Outbreak Rules;
5. Notice of "Local Alert" status and the reasons for the deviation from the State's code level will be sent to the State of Alaska; and
6. If practicable, the City will notify all businesses registered with the City of the "Plan" status and provide a copy of the "Community Outbreak Rules."

"The Community Outbreak Rules" and the "Local Alert Levels" shall be submitted to Council for review and approved by Council before or contemporaneously with the adoption of this Local Health Advisory Plan. Unlike promulgated City COVID-19 Rules, Council may amend, revise or supplement the Community Outbreak Rules. Any Council revisions or amendments to the Community Outbreak Rules must be reviewed by the City Attorney for legality before becoming effective.

APPENDICES

There are numerous documents attached to this Plan in the appendices. While some of these documents are included for informational purposes only, Appendix A, Appendix B, and Appendix C are all incorporated into this Plan. Any updates to Appendices A-C should result in an update to this Plan to reflect and incorporate those revisions.

Appendix A: Cordova's Health Alert System

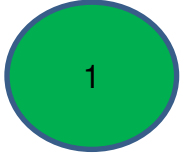
Appendix B: Cordova's Revised Temporary COVID-19 Emergency Rules

Appendix C: Cordova's "Community Outbreak" Rules

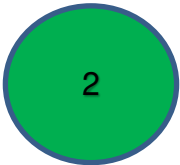
Appendix D: Municipal Resources Regarding Alaska's COVID-19 Recovery

Appendix E: State Resources Regarding Alaska's COVID-19 Recovery

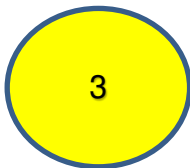
UNDERSTANDING CORDOVA'S COVID-19 HEALTH ALERT SYSTEM



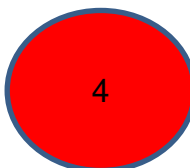
LEVEL 1 - OPEN: No restrictions/mandates or rules.



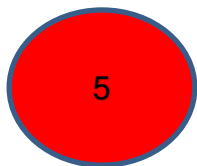
LEVEL 2 – ADVISORY: Local City Emergency declarations may be requested by the Mayor/City Council/City Manager with Local Medical Team's recommendations. Incident Management Team and Emergency Operations Center may be implemented. If we are seeing downward trends and all is going well, we will methodically move to lift restrictions. Cordova may follow the State's lead after the Cordova Medical Team and City Council confirms transition is justified using metrics recommended by the State of Alaska. May include City Rules.



LEVEL 3 – WATCH: PROCEED WITH CAUTION: Local City Emergency Declarations implemented. Incident Management Team and Emergency Operations Center standing up. If the situation is stable or we are seeing a slow increase in cases, we may ask for voluntary measures to flatten the curve. Cordova follows the State's lead after the Cordova Medical Team and City Council confirms transition is justified using metrics recommended by the State of Alaska. Prepare Community for closing of public spaces and implement City Rules and Mandates.



LEVEL 4 - LOCAL OUTBREAK WARNING: *Local Community Outbreak Rules Triggered:* Consistent or rapid increase in cases within the City. Consistent rapid increase in cases in the community, in the City market places or community with direct lines of transportation with the City, or the City is running out of capacity to care for Covid-19 patients. Temporary Closing of Public Spaces not to include Critical Services and Essential Business as determined by City Council with recommendations by the Incident Management Team.



LEVEL 5 - STOP: Uncontrollable Outbreaks, Imminent Life Danger, Critical Emergency Services unable to handle situation. Hunker down order Issued, closing of all public and private spaces, not to include Critical Emergency Services.

UNDERSTANDING CORDOVA'S COVID-19 HEALTH ALERT SYSTEM

Level 1

City of Cordova OPEN.

No restrictions/mandates or rules.

Level 2

Local level ADVISORY

Local City Emergency declarations may be requested by the Mayor/City Council/City Manager with Local Medical Team's recommendations. Incident Management Team and Emergency Operations Center may be implemented. If we are seeing downward trends and all is going well, we will methodically move to lift restrictions. Cordova may follow the State's lead after the Cordova Medical Team and City Council confirms transition is justified using metrics recommended by the State of Alaska. May include City Rules.

Level 3

Local Level WATCH: PROCEED WITH CAUTION

Local City Emergency Declarations implemented. Incident Management Team and Emergency Operations Center standing up. If the situation is stable or we are seeing a slow increase in cases, we may ask for voluntary measures to flatten the curve. Cordova follows the State's lead after the Cordova Medical Team and City Council confirms transition is justified using metrics recommended by the State of Alaska. Prepare Community for closing of public spaces and implement City Rules and Mandates.

Level 4

Local Level OUTBREAK WARNING: *Local Community Outbreak Rules Triggered*

Consistent or rapid increase in cases within the City. Consistent rapid increase in cases in the community, in the City market places or community with direct lines of transportation with the City, or the City is running out of capacity to care for Covid-19 patients. Temporary Closing of Public Spaces not to include Critical Services and Essential Business as determined by City Council with recommendations by the Incident Management Team.

Level 5

Uncontrollable Outbreaks, Imminent Life Danger, Critical Emergency Services unable to handle situation. Hunker down order Issued, closing of all public and private spaces, not to include Critical Emergency Services.

CITY OF CORDOVA TEMPORARY EMERGENCY COVID-19 RULES July 15, 2020

The following are the Cordova Temporary Emergency COVID-19 Rules as reenacted by the City effective 8:00am July 16, 2020. These rules will be updated by emergency order and all emergency orders issued by the City are posted on the City website. Please be aware that some previously enacted rules have been renumbered or moved but remain in effect. If you have any questions regarding the application of these rules to you, your business or the community as a whole please email cordovaprepared@yahoo.com.

Rule 1. Electronic City Council Meetings. Any regular or special meetings of the City Council may be conducted via electronic means, including audio or video conference and the Mayor may chair these meetings via electronic presence, unless the Mayor determines that a meeting must be conducted at City Hall and that doing so does not pose a risk to the public health, safety, and welfare. The City Clerk shall post telephone number(s) to call into telephonic or video conference meetings on the City of Cordova website and on the written agenda for all regularly scheduled and special meetings. Council shall ensure that reasonable accommodations are made to afford the public a right to be heard telephonically. Telephonic participation by the public is not ideal but is reasonable when weighed against the substantial risk to public health, welfare, and safety posed by group gatherings during the COVID-19 outbreak. In the event the Mayor determines an in-person meeting is necessary and does not pose a risk to public health, welfare, and safety, no more than five (5) members of the public shall enter the same space to make comments at one time. The public may also submit written public comments for all telephonic or video conference Council meetings. The public written comments shall be read into the record during the public comment period at all Council meetings held electronically, except Council work sessions. If written public comments exceed three (3) minutes, the first three (3) minutes of the written comment shall be read during the meeting. Written comments must include the name of the contributor in order to be read publicly during telephonic or video conference meetings. Current time limits placed on public comments and testimony shall apply to telephonic and written public comments submitted under this rule. The City must continue to comply with meeting attendance and scheduling requirements under the Cordova Municipal Charter Section 2.7.

Rule 2. Council Meeting Notice and Packet Materials. The City Clerk shall provide the public and media notice that is reasonable under the circumstances for all emergency special meetings held by Council. All special meetings and agenda items shall be posted on the City website no less than six (6) hours before a special meeting. Failure to post the meeting materials shall not invalidate the actions taken by Council during an emergency meeting if Council states the reason for the failure to post adequate notice or provide materials and clearly finds that the notice and material access provided during the meeting was sufficient and reasonable in light of the emergency circumstances underlying the meeting.

Rule 3. Meetings of Boards and Commissions. The City Manager may cancel meetings of any board or commission if she finds that cancellation is necessary to protect public health, safety, and welfare. Any such cancellation shall automatically extend such deadlines for required actions by such board or commission as is specified in the cancellation notice. All board and commission meetings may be held electronically in the same manner proscribed for Council meetings in Rule 1.

Rule 4. Suspension of All Non-Essential Meetings and Agenda Items. All non-essential government meetings maybe postponed until the declared state of emergency regarding COVID-19 is repealed or expires. Non-essential action items may also be postponed until the declared state of emergency regarding COVID-19 is repealed or expires. unless doing so would pose substantial financial harm on the City or another party. Any person objecting to the postponement of an action item may notify the City Manager in writing regarding his or her objection. The City Manager shall review any written objections received and shall determine if the objection warrants consideration of an action item by Council or the appropriate commission or board before the expiration or repeal of the declaration of emergency. The City Manager shall notify the Mayor of all written objections received and her determination. Upon receipt of a written objection, City Council may override the City Manager's decision to postpone an action item.

Rule 5. Licensed or Permitted Activities. The City Manager may suspend licenses or permits for special events or any other licenses or permits issued by the City which in the judgment of the City Manager could impact the public health or well-being of residents or visitors to the community and suspension of such licenses or permits is not prohibited by State of Alaska law or mandate.

Rule 6. Personnel Policies. The City Manager may adjust any personnel policies related to leave time, other benefits or terms and conditions of employment as are reasonably related to providing sufficient staffing during the term of the emergency while protecting City employees and the community from COVID-19.

Rule 7. Bargaining Units. The City Manager is hereby authorized to enter into such temporary agreements, including memoranda of understanding with the City's bargaining units in order to promote the provision of City services and the health and safety of the public and employees during the emergency.

Rule 8. City Facilities. The City Manager may close City facilities or limit hours of operation as is reasonably required to protect the health of the public and employees of the City.

Rule 9. Local Business Protective Measures and Policies. All businesses open to more than five (5) customers at one time at a physical site within the City shall post a “COVID-19 Protective Measures and Policies” on-site detailing the measures taken by that business to protect employees and customers from COVID-19 exposure. Businesses subject to this requirement shall file a copy of their COVID-19 Protective Measures and Policies with the City’s Incident Management team at forms@cityofcordova.net no more than five (5) working days after the effective date of these rules or within five days of resuming operations. COVID-19 Protective Measures and Policies must include:

1. Notice of any limits on the number of individuals permitted on-site at a given time;
2. Identification of healthcare and sanitization measures taken to minimize the exposure of customers and employees to COVID-19; and
3. Description of a means for individuals in quarantine to obtain essential personal goods from the local business and a telephone number or website where these individuals can place an order for such goods. Businesses may prohibit entry of quarantined individuals from their premises and offer delivery or establish a pick-up location for orders of essential personal goods sold by the business, but may not ban individuals from obtaining such goods because the individual is subject to quarantine; and
4. A telephone number or email address of the individual owner, manager or his or her designee so that persons may report violations of the business’s protective measures and policies.

Businesses may post a State of Alaska COVID-19 mitigation plan in place of the COVID-19 Protective Measures and Policies so long as the mitigation plan contains the information required in this rule. An example “COVID-19 Protective Measures and Policies” is available on the City website.

Rule 10. Medical Quarantine. Individuals under a healthcare quarantine order or an individual testing positive for COVID-19 must comply with all medical quarantine orders or requirements imposed by the State of Alaska. Individuals subject to a State of Alaska medical quarantine order must notify a healthcare provider that the individual is under medical quarantine or has tested positive for COVID-19 before making any physical contact with that healthcare provider or entering the provider’s premises. Each day constitutes a separate violation under this rule punishable by a fine of up to \$500.

Appendix B to Health Advisory Plan

Rule 11. Mutual Aid Agreements. Individuals and businesses engaged in commercial operations, sales or services physically located within the City must enter into a Mutual Aid Agreement with the City. This rule applies to vessel owners engaged in commercial fishing operations, sport fishing charters, and sightseeing excursions. It also applies to retail stores, grocery stores, liquor stores, lodging facilities, hair salons, personal care service providers, restaurants, air charter operations, and all other commercial operations, sales or services within the City. This agreement identifies the measures taken by the City to protect the community and the protections provided by the operator to prevent the spread of COVID-19 amidst the operator's employees and customers and within the Cordova community at large. The Mutual Aid Agreement is available on the City website and should be completed and submitted to the City within five (5) days of the effective date of this rule. Individuals or entities subject to this rule operating an independent commercial vessel should complete the "Vessel Mutual Aid Agreement." Individuals or businesses subject to this rule but operating within the City after the effective date of this rule should submit a mutual aid agreement within 72 hours of initiating operations within the City or its waters. Individuals and businesses subject to this rule but covered by a State of Alaska approved Critical Workforce Protocol may file their protocol in place of a Mutual Aid Agreement along with the "City of Cordova Local Acknowledgement Form," which is a written statement agreeing to comply with the terms and requirements of that protocol while in the City or its waters. The City of Cordova Local Acknowledgement Form and the Model Business and Vessel Mutual Aid Agreements are available on the City website. The City Manager may accept a proposed mutual aid agreement or state protocols submitted in place of a mutual aid agreement or may request additional protocols or procedures be implemented before executing such an agreement. No mutual aid agreement shall require either party to violate state or federal law or the Cordova Municipal Charter.

Rule 12. Payment Deferrals. The City Manager, upon the recommendation of the Finance Director, is hereby authorized to extend deadlines for payment related to any amounts due and owing to the City.

Rule 13. Commercial Operations COVID-19 Document Submission. All businesses or individuals engaged in the sale of goods or services in this City or conducting commercial operations within the City shall file with the City:

1. Any protocol, acknowledgement form or plan regarding COVID-19 submitted to the State of Alaska, the United States Coast Guard or any other agency, branch or department of the federal government;
2. Any memorandum of understanding or agreement regarding COVID-19 executed by and between the business or individual and the State of Alaska or the federal government; and
3. Any enforcement orders or notices of violation involving COVID-19 filed against the individual or business by a government or military entity, including the Department of Health and Human Services and the United States Coast Guard.

Submissions required under this rule must be received by the City no more than five (5) working days after the effective date of these rules or within 72 hours after the business or individual reasonably foresees that he, she or it will operate or engage in the sale of goods or services within the City while these rules are in effect. Submissions under this rule should be emailed to the City's Incident Management team at forms@cityofcordova.net. A business or individual may be exempt from submitting a document under this rule if the government entity issuing or executing the document provides the City with a written statement identifying the document as confidential and confirming that the City cannot require production of the document.

Rule 14. Native Village of Eyak Representation and Assistance. The Mayor shall appoint at least one representative from the Native Village of Eyak to the Emergency Management Organization. The City Council and the Native Village of Eyak Tribal Council shall hold joint meeting(s) to discuss COVID-19 impacts on all residents and visitors to Cordova, including but not limited to NVE tribal members. The City Manager shall have authority to enter into agreements with the Native Village of Eyak to ensure the sharing of resources, knowledge, and information. These agreements shall become effective upon execution by both parties.

Rules 15. Facial Coverings. Except as otherwise provided in this rule, all individuals in Cordova must wear a mask, bandanna or other type of cloth protective covering over their nose and mouth when social distancing of at least six feet from another individual is not possible. Individuals under the age of four, individuals with trouble breathing, and individuals with a medical condition that prevents them from wearing a facial covering are exempt from this rule. Facial coverings need not be worn in the following circumstances:

1. An individual is alone or within six feet of only members of his or her household;
2. An individual is eating or drinking in compliance with State of Alaska public health mandates; or
3. An individual is receiving lawful services that cannot be adequately performed while the service provider or the recipient is wearing a mask.

Appendix B to Health Advisory Plan

Rule 16. Public Health Mandate Compliance. All individuals and entities shall comply with all COVID-19 State of Alaska public health mandates. In the event the City Manager issues a “Local Outbreak Warning,” all individuals entering the City must comply with the City’s “Community Outbreak Rules” while the “Level 4” remains in effect. While in effect, the City’s Community Outbreak Rules preempt any other less-restrictive local or state rules regarding social distancing or business operations.

Rules 17-19. Reserved for the adoption of future rules.

Rule 20. Penalties. Any violation of these rules shall constitute a violation of a Cordova emergency mandate and may be punishable by a fine of up to \$500. Each day of a violation of these rules constitutes a separate and distinct violation subject to a fine of up to \$500. The City also reserves the right to enforce the State of Alaska Health Mandates to the fullest extent permitted by law.

CITY OF CORDOVA COMMUNITY OUTBREAK RULES

These “Community Outbreak Rules” were adopted by Cordova City Council via Emergency Ordinance 1190 on July 15, 2020. These Rules **only** go into effect when the City Manager declares a “Local Health Alert” in Cordova in compliance with the City’s COVID-19 Health Advisory Plan. During all other recovery phases, the City’s Emergency COVID-19 Rules and the State of Alaska Health Mandates apply. To the extent State of Alaska health mandates are in effect that impose stricter restrictions or requirements, all those mandates shall apply.

Rule O-1. Reversion to State Strict Social Distancing and Travel Mandates. All individuals entering the City and all private facilities operating within the City must comply with State of Alaska Public Health Mandate 11 as it was issued March 27, 2020 (“Original State Health Mandate 11”) and attached to these Rules. Except as otherwise required in these Community Outbreak Rules, facilities and individuals shall continue to comply with all other State of Alaska Public Health Mandates that are not in direct conflict with Original State Health Mandate 11.

Rule O-2. Medical Quarantine. Individuals under a healthcare quarantine order or an individual testing positive for COVID-19 must:

1. Stay in his or her place of residence or lodging for the period of time specified in the quarantine order or for a minimum of 14 days from the date of a positive COVID-19 test if no quarantine order has been issued; and
2. Notify a healthcare provider that the individual is under medical quarantine or has tested positive for COVID-19 before making any physical contact with that healthcare provider or entering the provider’s premises.

An individual subject to this Rule may NOT leave his or her residence to attend work, obtain supplies, engage in physical exercise or any activity except as permitted by State of Alaska health mandate or permitted within the medical quarantine order issued to that individual. The City shall not physically force individuals into quarantine under this Rule but the City shall fine individuals to the maximum extent permitted by law for violations of this Rule and may obtain a court order enforcing the quarantine order against the individual. Each individual exit from quarantine constitutes a separate and distinct violation of this Rule.



AGENDA ITEM 5
City Council Meeting Date: 07/8/2020
CITY COUNCIL COMMUNICATION FORM

FROM: Samantha Greenwood, Public Works Director & Susie Herschleb, Director of Parks and Recreation

DATE: 07/06/20

ITEM: Purchase of Combo Portable Restrooms/Showers Trailer - Classic Series

NEXT STEP: Council authorizes the City Manager to negotiate this contract.

ORDINANCE
 MOTION

RESOLUTION
 INFORMATION

I. REQUEST OR ISSUE: This form constitutes the memorandum required per Code per 5.12.040 setting forth the following:

- A. Identity of Contractor: *Portable Restroom Trailers, LLC*
- B. Contract Price: *\$72,560.00 to Seattle plus \$8,200.00 freight to Cordova*
- C. Nature & quantity of the work that the City shall receive under the contract:
One restroom portable unit with 6 separate showers, sinks, & toilets
- D. Time for performance under the contract:
ETA to Cordova Late August

II. RECOMMENDED ACTION / NEXT STEP: Council approves motion “to direct the City Manager to negotiate a contract with *Portable Restroom Trailers, LLC* to provide Combo Portable Restrooms/Showers Trailer - Classic Series for a sum not to exceed Eighty thousand and seven hundred and sixty dollars (*\$80,760.00*)”.

III. FISCAL IMPACTS: The portable shower unit will be purchased with COVID Cares funding.

IV. BACKGROUND INFORMATION: This unit will be purchased under the 5.12.160 - Emergency procurements.

The city may procure supplies, services or construction without competition,

formal advertising or other formal procedure where the city manager determines in writing that an emergency threatening the public health, safety or welfare requires that the contract be awarded without delay. The award of any contract under this section shall be subject to prior council approval in accordance with Section 5.12.040.

This memo is written in accordance with section 5.12.040.

The portable shower unit qualifies for COVID cares money for multiple reasons.

It will

- Increase social distancing and provides additional hand washing facilities at the camper park.
- Increase the number of restroom facilities from 2 to 8 allowing the camper park to open more spaces providing additional capacity for campers and for campers to safely isolate if needed.
- Provides hand washing stations that do not currently exist for recreational uses occurring at baseball field and the multipurpose field

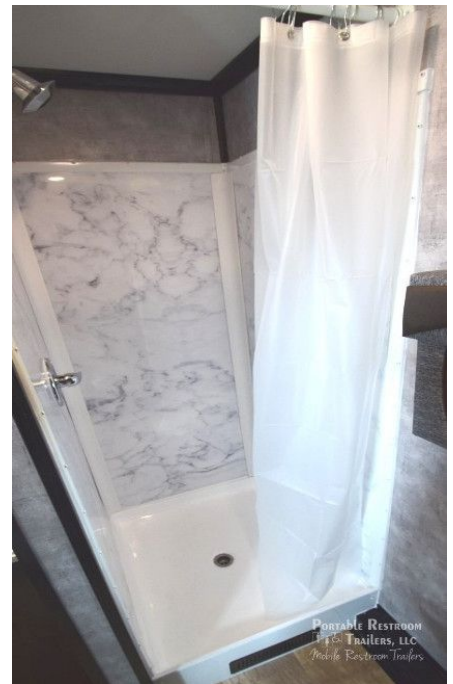
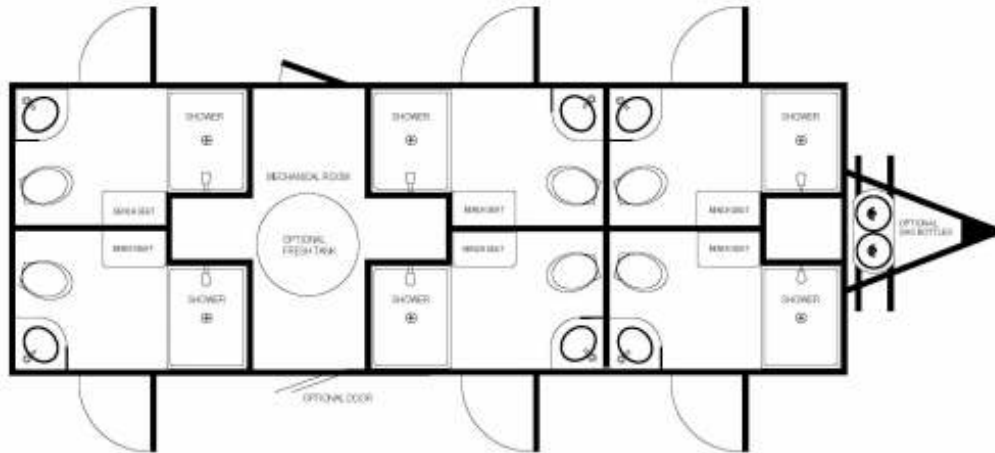
Getting the portable shower unit order and shipped is the first step in the overall project. The portable shower unit will be along the fence line between the multiuse field and the camper park. This site allows access for both campers and recreational uses. It is also located so that it will coordinate with the future redesign and upgrades to the camper park.

The construction portion of this project will also include site prep, trenching water, sewer and electricity, building a lean to type structure to protect from the unit from weather, and developing a path from the camper park and the multipurpose field to the unit.

V. LEGAL ISSUES: Contract shall be negotiated and awarded per Code sections 5.12.040 and 5.12.100 and 5.12.170.

VI. SUMMARY AND ALTERNATIVES: Council could choose not to approve the contract which would eliminate efforts to increase social distancing, provide hand washing stations and provide additional capacity at Odiak camper park.

6 Station Combo Portable Restrooms/Showers Trailer - Classic Series - Forced Air Furnace-Four Season Heat Package



5.12.040 - Council approval of contracts.

No contract for supplies, services or construction which obligates the city to pay more than twenty-five thousand dollars may be executed unless the council has approved a memorandum setting forth the following essential terms of the contract:

- A. The identity of the contractor;
- B. The contract price;
- C. The nature and quantity of the performance that the city shall receive under the contract;
and
- D. The time for performance under the contract.

(Ord. 1019 § 1, 2008; Ord. 874, 2000; Ord. 809 (part), 1998).

(Ord. No. 1093, § 1, 1-4-2012)

5.12.160 - Emergency procurements.

The city may procure supplies, services or construction without competition, formal advertising or other formal procedure where the city manager determines in writing that an emergency threatening the public health, safety or welfare requires that the contract be awarded without delay. The award of any contract under this section shall be subject to prior council approval in accordance with Section 5.12.040.

(Ord. 809 (part), 1998).