COVID-19 and the Impacts to Long-Term Care Facilities
Bala Consulting Engineers COVID-19 Task Force
May 1, 2020 *(updates will follow as necessary)*

This report is a continuation of our research on COVID-19 and how it impacts facilities across all market sectors. This paper focuses on strategies and recommendations for long-term care facilities, as well as some general information on the COVID-19 virus and building systems recommendations that are applicable for many types of facilities.

EXECUTIVE SUMMARY

The COVID-19 Virus is infecting people of all ages with the elderly being most vulnerable. Long-term care facilities house millions of seniors across the country. We must plan now to identify solutions to manage current and future pandemics so that long-term care facilities are better prepared to respond and keep their facilities "healthy". From filters and air changes in HVAC systems to Isolation Wings and germicidal ultra-violet (GUV) lights as well as technology integrations for access control and bio-scanning, there are short and long-term strategies owners can implement to increase the safety of their long-term care facilities.

THE VIRUS

COVID-19 (or 2019-nCoV), as named by the World Health Organization (WHO), is the disease caused by the new coronavirus that emerged in China in December 2019. COVID-19 is caused by the SARS-CoV-2 virus. As a result, parallels are being drawn between the 2003 SARS outbreak and the spread of COVID-19.

Researchers know that the new coronavirus is spread through direct contact with an infected person or by touching a surface or object that has the virus on it and then touching your eyes, nose, or mouth. It can also be spread through larger droplets released into the air when an infected person coughs, sneezes or talks. The droplets generally do not travel more than six feet, and they fall to the ground (or onto surfaces) in a few seconds. Although a study by NHK Japan and its researchers found that resultant micro-droplets can stay suspended in the air for a long time, researchers from John Hopkins Health System are not 100% sure if these smaller droplets can carry the virus and suspend it in the air for longer distances. Therefore, some experts are recommending a more conservative approach that includes maintaining longer distances between people.

According to a new study from National Institutes of Health, CDC, UCLA and Princeton University scientists in The New England Journal of Medicine, scientists found that severe acute respiratory syndrome coronavirus (SARS-CoV-2) was detectable for up to three hours in aerosols, up to four hours on copper, up to 24 hours on cardboard and up to two to three days on plastic and stainless steel. The incubation period (or when symptoms appear) is within 14 days of exposure. As a result, staff and residents in the facility may not know that they are infected. Additionally, new research from China indicates that the novel coronavirus is also spread by fecal-oral transmission.

Early information out of China, where the COVID-19 outbreak began, shows that some people are at higher risk of becoming very sick from this illness. Those include:

- Older adults, with risk increasing by age.
- People who have serious chronic medical conditions such as:
    - Heart disease
    - Diabetes
    - People with compromised immune system
    - Lung disease

In summary, COVID-19 is a new highly contagious virus that predominantly spreads through contact and dispersion of droplets between people and nearby surfaces. Because of this contagion level, we will need to take these precautionary steps for personnel, furniture, and HVAC and plumbing systems. These measures will need to be put in place until a vaccine is discovered, but possibly beyond due to the aggressive nature of the virus.

HVAC SOLUTIONS

Controlled access, separation and cleaning represent some of the primary defenses against the spread of the virus. However, protections may also be applied to existing and new HVAC systems to minimize the spread of the virus within long-term care (LTC) facilities.

When an LTC facility faces a crisis, they must act quick and often need to use the tools and equipment they have readily available. Several ways a facility can plan for the future and/or quickly adapt their current program include:

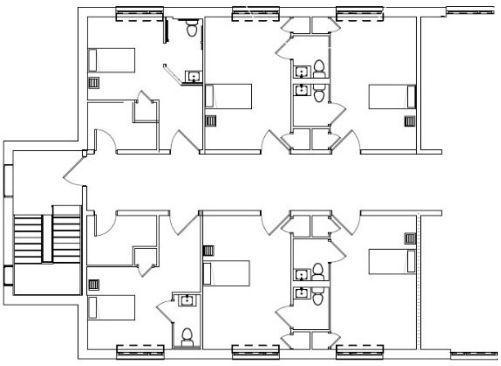
- Identifying an area, wing, or block of rooms that can be blocked off from the rest of the facility to provide proper isolation of infected residents.
- Installing filtration (antimicrobial filters, HEPA), bi-polar ionization and UVC lights in the return air main prior to connecting to the central unit
- Implementing pressurization control and/or enhance current practices
- Increasing airflow (recirculated and outside air) to the common areas

- Operating systems with higher outside air content to flush spaces due to increased use of cleaners
- Maintaining minimum relative humidity levels
- Cleaning common touch points and sanitizing ductwork and HVAC equipment with aerosol sprays, UV light, and/or ultra-low volume fogging
- Using portable air purifiers
- Installing UVC lights for upper room disinfection
- Implementing in-room surface disinfection strategies

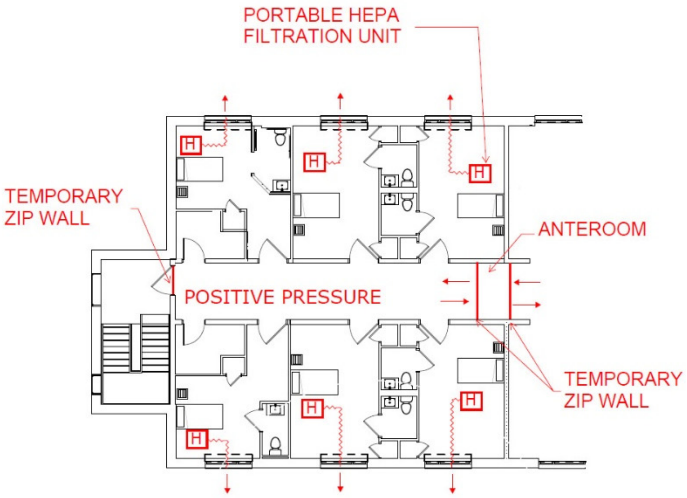
Isolation Wings

In a long-term care facility, one of the most effective way an HVAC system can be used to help stop the spread of a virus is to keep it contained to a specific area and utilize pressure zones. If residents within the facility become infected with a virus, moving them away from others who are not infected as quickly as possible will help reduce the spread of the virus.

Airborne Infection Isolation (AII) rooms are utilized in healthcare and long-term care facilities to help keep airborne pathogenic organisms from spreading throughout the facility and infecting others. The 2018 FGI Guidelines for Design and Construction of Residential Health, Care, and Support Facilities provides requirements for the construction of an AII room including requiring 2 air changes per hour (ACH) of outside air and a total of 12 ACH. The elevated air changes are implemented to capture and contain contaminants with proper filtration.



Typical Resident Wing



Typical Resident Wing Converted to Isolation Wing

Anterooms for AII rooms, while not required by the 2018 FGI Guidelines, provide multiple advantages. First, they provide an airlock chamber that can be used to help maintain pressure control between the corridor and the resident room. Second, they provide a location for the healthcare worker to don personal protective equipment (PPE) prior to entering the room as well as remove the PPE when leaving.

In most LTC facilities there are few true AII rooms. The current COVID-19 pandemic has prompted many LTC facilities to develop plans to either quickly turn a block of rooms or an entire wing into an AII area. Some important considerations for identifying potential AII spaces include:

- Identify an area of the facility whose HVAC system is either already separate or can be easily segregated from other areas.
- Evaluate the system(s) that could be utilized to provide outside air in sufficient amounts to address the planned operations. Central and/or local systems that supply outside air will need to be reviewed to verify their ability to accommodate increased outside air during peak cooling and heating seasons.
- Dedicated outside air systems (DOAS) may need to be rebalanced to distribute air in sufficient quantities to all spaces. A review of occupants and usage may be performed to verify minimum outside air quantities and how air may be shifted around the system to areas that require additional amounts of outside air for the new or temporary operations planned. Note, DOAS systems that serve multiple spaces, including new temporary AII rooms, may continue to remain in operation without the need to separate the systems. However, to maintain pressurization and potential for cross contamination, the system must operate 24/7. Positive airflow through the duct system will prevent possible cross contamination through the duct system.
- Balancing will need to be adjusted to make the resident rooms negative to the corridor or anteroom if one exists or is provided as a temporary measure.
- If recirculating HVAC systems, such as fan coil units or water source heat pumps, are being used within the AII room to provide heating and cooling to the space and these are the sole source of outside air to the room, they will likely be required to operate continuously. In this scenario, the exhaust from the room will likely need to be increased to make the room negative with respect to the corridor. In systems where the exhaust fan airflow cannot be increased by balancing, a separate exhaust system will need to be investigated.
- Equipping the isolation wing with provisions for medical-gases will provide future flexibility to treat residents who become infected with a contagious disease. Providing medical-gas connections in the resident rooms as well as a location outside for bulk oxygen tanks to quickly connect to will make switching an area into an AII area quicker and easier. As an immediate solution, local gas cylinders may be utilized, but code compliance for stored oxidizing material quantities must be verified. In some cases it may be necessary to locate cylinders outside. To comply with code requirements, stored oxygen cylinders should be located within ventilated enclosures.

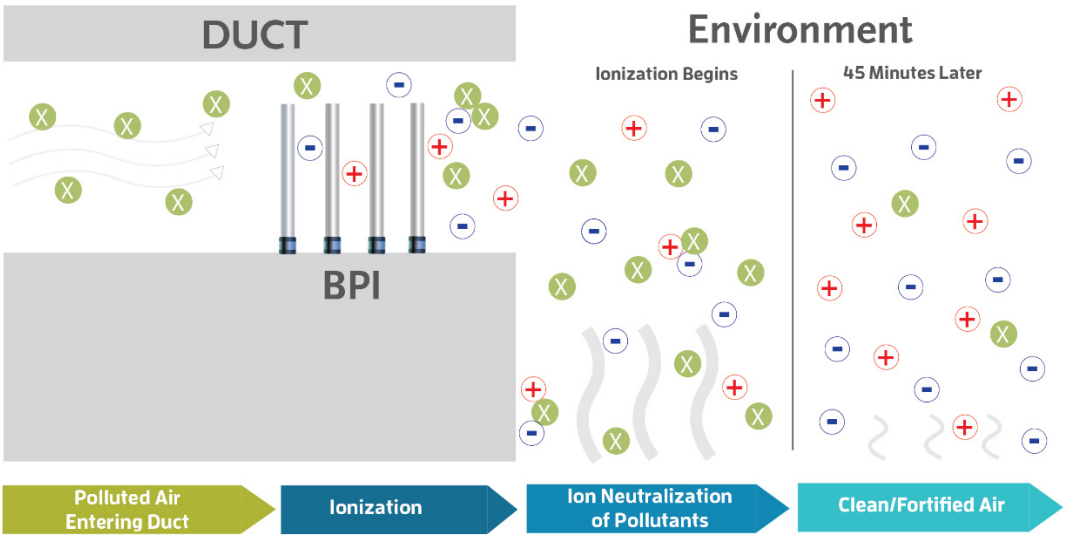
Filtration

For any particulate that is captured and pulled into the HVAC system, filtration may be effective if properly applied. Each system should be analyzed to determine if the air-handling unit has sufficient capacity to add filtration or increase the MERV rating of existing filters. Since the virus is transmitted and carried by occupants, installing HEPA and ULPA filtrations on 100% outside air equipment (i.e. makeup air units) will not reduce the spread of the virus. In common areas and amenity spaces supplemental recirculation equipment can be installed to filter and recirculate the air. Depending on the systems type, additional levels of filtration may also be added to equipment serving the common areas.

To further enhance the effectiveness of filters, it is advisable to utilize filters with antimicrobial coatings. Filters may be treated with antimicrobial coatings to kill dangerous microbes on contact.

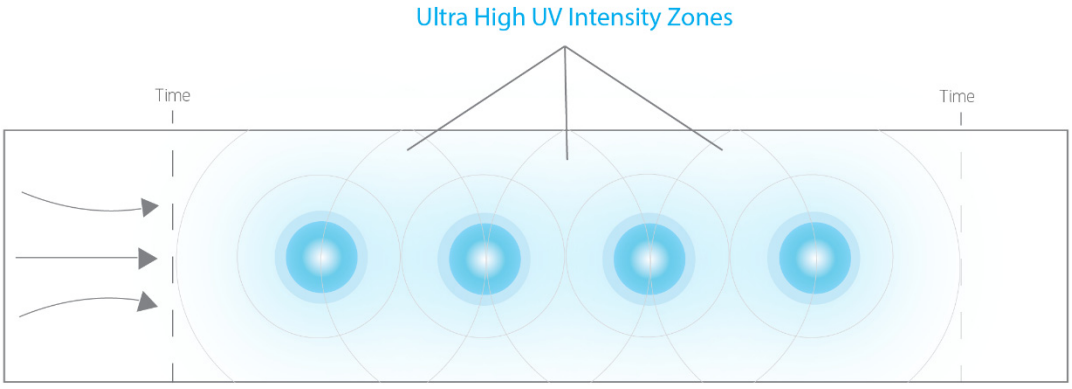
Bi-Polar Ionization

This technology releases positive and negative ions into the airstream as noted in the diagram below. Air flows along the ionization tube and oxygen from the air is charged to form ions. The ions are attracted to airborne particles like dust, smoke, VOC's, allergens and other air pollutants. The ions latch onto and neutralize any contaminants they come into contact with. Charged particles are drawn together, forming clusters, which become heavy enough to drop out of the air. These ions work to deactivate single-celled, carbon-based organisms such as fungi, viruses and bacteria, whether they're in the air or resting on surfaces. Note, this technology does not remove the contaminant but will help the enhanced filtration system capture the contaminant. This system will require vigorous cleaning procedures of all surfaces within the LTC facility environment. To be effective, it is recommended that this technology operate continuously to maximize effectiveness.



UVC Light

Application of UVC lamps at strategic locations within the duct system will kill microorganisms in the airstream. However, placement is important since the coronavirus must be exposed for a period of time, which requires multiple UVC lamps within the airstream. The air velocity inside the ductwork may require long sections of UVC light arrays to provide the proper exposure time needed to de-activate the virus. Manufacturers are recommending exposure of 10 seconds within proximity of the UVC bulb, with some suggesting spacing lamps every 12 inches.



Properly applied, UV lamps may reduce active coronavirus up to 90% as noted below.

Airstream Disinfection			
Microbe	**Type**	**Diameter**	**UV Dose for 90% Reduction**
		μm	$\mu J/cm^2$
Coronavirus (incl. SARS)	ssRNA	0.11	**611**
Influenza A virus	ssRNA	0.098	**1935**

Ref: Walker, Chris & Ko, Gwangpyo. (2007). Effect of Ultraviolet Germicidal Irradiation on Viral Aerosols. Environmental science & technology. 41. 5460-5

Since the virus must be exposed for a duration of time and be within 6 inches of lamps at all times during this deactivation period, it will be difficult to implement within duct systems. Rather than attempt to deactivate the virus as it travels in the airstream, it may be more practical to utilize UV lamps to disinfect specific surfaces within the duct system. Areas include sound attenuators, filters, energy recovery wheels, coils, and fans. However, if effectively applied, it may only be necessary and cost effective to treat one specific location within an air handling unit.

According to a 2018 report published by Scientific Reports (Volume 8, Article Number:2752), airborne-mediated microbial diseases such as influenza and tuberculosis represent major public health challenges. A direct approach to prevent airborne transmission is inactivation of airborne pathogens, and the airborne antimicrobial potential of UVC ultraviolet light has long been established. However, widespread use of UVC Light in public settings is limited because conventional UVC light sources are

both carcinogenic and cataractogenic. It has been determined that far-UVC light (207–222 nm wavelength) efficiently inactivates bacteria without harm to exposed human skin, when the proper filters are applied. This is because far-UVC light cannot penetrate even the outer (non-living) layers of human skin, due to its strong absorbance in biological materials. However, because bacteria and viruses are of micrometer or smaller dimensions, far-UVC can penetrate and inactivate them. Far-UVC efficiently inactivates airborne aerosolized viruses, with a very low dose of 2 mJ/cm2 of 222-nm light inactivating >95% of aerosolized H1N1 influenza virus. Far-UVC light is also able to penetrate and inactivate viral, bacterial, and fungal cells in a matter of minutes.

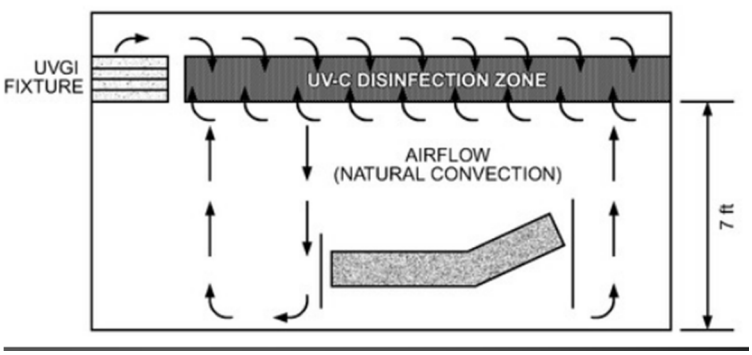
The viability of far-UVC light for direct surface disinfection within occupied spaces is still being researched. The current restrictions and concerns of far-UVC light on human eyes is under review by the governing bodies. It is possible far-UVC light will be deemed as safe for occasional direct exposure, as long as no direct light is received by the eyes.

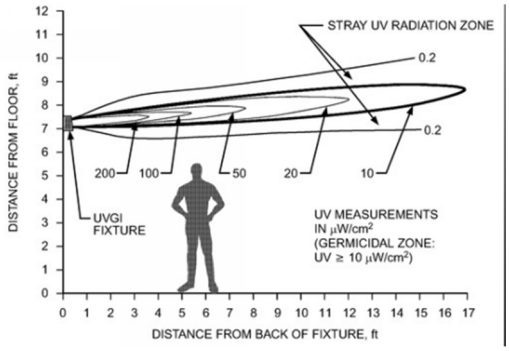
Standard UVC lights (light typically emitted at 253.7nm) may also be applied within a resident room for upper room disinfection as long as the proper precautions are taken. Upper room disinfection utilizes natural or forced air to bring contaminated air into the UVC light disinfection zone.

The disinfection zone needs to be properly planned and tested to ensure that it is above the acceptable occupied zone exposure since UVC light is very harmful to human skin and eyes. Below are the National Institute for Occupational Safety & Health UVC dosage limitations. As shown, the 8 hour limit can be considered the standard limit for continuous disinfection of an occupied space. A recent study which monitored workers and patients in a space with a continuous upper-air GUV installation demonstrated that no one exceeded 1/3 of the 8-hour limit.

NIOSH Limits for 253.7 nm UVC

- 1 s: 600 $\mu W/cm^2$
- 1 min: 100 $\mu W/cm^2$
- 1 hour: 1.7 $\mu W/cm^2$
- 8 hours: 0.2 $\mu W/cm^2$ (standard for upper-air)





ASHRAE Handbook – 2019 HVAC Applications, CH. 62, Fig 5 & 6

Common Area Pressurization and Air Flow

Application of frequent cleaning procedures within the common areas will release chemicals into the air. To improve air quality implement flush-out cycles to capture and dilute the air within the amenities and common areas overnight while these areas are typically unoccupied. Additionally, during unoccupied periods the amount of outside air may be increased beyond minimum outside air set points. If interior conditions (temperature and relative humidity) are relaxed during this flush-out period, it will be possible to further increase the amount of outside air during peak cooling and heating months when utilizing HVAC equipment that was not originally designed for these greater percentages of outdoor air. Depending upon existing controls, it may be possible to enact automatic reset of outside air volume, based on schedule or by monitoring interior conditions during these flush out cycles, with simple reprogramming of the control sequences.

Humidification

Humidification should also be considered to help minimize the spread of contagions. As noted by Dr. Stephanie Taylor, (MD, M Architect, ASHRAE DL) at a Tri-State HVAC conference, humidity above 40% inactivates almost 80% of viruses within 15 minutes. Humidification introduced by steam injection is a logical choice, but other methods, such as ultrasonic or spray injection, may be explored if sanitization of the system is maintained. Systems that rely on maintaining standing water are not recommended. Since the majority of HVAC systems in LTC facilities may not utilize humidification, these systems would need to be retrofitted, which would include a clean water source, a unit coupled with energy to heat and inject moisture, and a distribution method – either by injection into a duct system or the use of area humidifiers that inject moisture directly to the occupied spaces.

Sanitization

Sanitization of LTC facilities is becoming more important as more information becomes available about COVID-19. The process of sanitizing HVAC equipment and ductwork should be carefully considered. When an area of the facility is turned into a temporary isolation area, it is extremely important to sanitize the walls, ceilings, handles, ductwork, HVAC equipment, etc. prior to returning the area back to normal use to reduce spread of contaminants/virus. It is not uncommon for room recirculating units, such as fan coil units or heat pumps, to be the main source of heating and cooling for resident rooms. Where room recirculating units are used in a temporary isolation wing, ultra-low volume (ULV) fogging is recommended to help disinfect the inside of the HVAC unit as the virus could fall onto the coils and other interior unit surfaces causing it to be recirculated back into the room when the unit is turned on.

At the room level, there are a few options that can be utilized. One such option is to contract with a cleaning company to periodically disinfect all surfaces of the infected areas.

Another option would be to utilize mobile GUV (germicidal UV) systems, such as UVC light towers or robots that can be placed within the unoccupied rooms and controlled remotely. The sanitization of

surfaces via GUV is best accomplished with autonomous mobile units or multiple stationary towers emitting from different angles to address the various 'shadow-zones' since UVC light cannot penetrate surfaces. High-dose intensity and/or pulsed xenon type lamp systems help achieve the desired germicidal effect in a shorter amount of time.

A third option would be to utilize ULV fogging machines to disinfect unoccupied rooms. A room treated with a ULV fogging machine should be ventilated with fresh air for at least 4 air changes or 2 hours prior to re-occupying the space.

Ductwork systems may be sanitized with aerosol sprays of disinfectant solutions or UV lamps as noted above. UVC lamps allow for continuous sanitization of the duct systems when properly applied, and may be more attractive for systems serving resident spaces or independent living units (ILUs). While aerosol cleaners can neutralize coronavirus that may be trapped within the ductwork system they should only be used in unoccupied spaces where the disinfectant can recirculate through the space.

Air Purification

Another option to increase air changes within a space while treating the airflow is the use of multiple local air purifiers. These provide the ability to increase air changes when the existing HVAC systems are unable to increase airflow. In addition, these units may include several of the technologies previously noted, such as high efficiency particulate arrestance (HEPA) filtration, antimicrobial coated filters and air ionization. Portable units are easier to deploy and may be moved as needed to accommodate changes within the LTC facility.

Air purification units can be permanently installed in the ceiling and switched on as needed or they may be portable units (purchased or rented). The units can either recirculate the air back into the room or exhaust the air to the outside. If exhausting to the outside, the surroundings should be evaluated to prevent exhausting potentially harmful air where a person could come into contact with it. The exhaust airstream may also incorporate filtration as an additional measure to protect the environment.

Applications of these technologies may be applied to various HVAC systems serving LTC facilities. Implementation of specific measures should be considered with goals, expectations and the specific systems to be applied, including:

- Centralized variable air volume (VAV) systems
- Systems that recirculate air locally, such as VRF, fan powered boxes (FPB), fan coil units (FCU), and direct outside air system fan coil units (DOAS FCU)
- Packaged thermal air conditioner (PTAC) and vertical thermal air conditioner (VTAC)
- Central DOAS systems
- Baseboard heating
- Split DX air handlers

PLUMBING SOLUTIONS

Since coronavirus may be transmitted through respiration, touch and fecal-oral transmission, restrooms will require special attention. Though surfaces may be cleaned as previously noted and HVAC systems enhanced, additional measures are recommended to maintain functional restrooms for the residents and staff. The following strategies may be applied:

- Far-UVC lamps under lids of water closets. For water closets without lids, lids would need to be added. An occupancy sensing system could be installed to deactivate the GUV system upon entry into the water closet stall.
- Spray disinfectant applied to bowl of water closet during and after each flush.
- Far-UVC lamp to disinfect stall after each usage. The GUV system could be mounted on top of the partition wall opposite toilet paper dispenser and at a height so that no portion of Far-UVC light would emit above the top of the partition to the adjacent stall. An occupancy sensing system could be installed to deactivate the GUV system upon entry into the stall.
- Hands free toilet fixtures and faucets.
- Adopt procedures to minimize the dispersion of the virus in the restroom, such as limiting use of stalls with adjacent occupancy and closing lids when flushing toilets.
- Far-UVC lamps in lids of waste bins. An occupancy sensing system could be installed to deactivate the GUV system upon opening of the lid.
- Closing lids when flushing toilets.
- Far-UVC lamps in lids of waste bins.

Recent research findings now indicate that COVID-19 is not being found in water supplies.

TECHNOLOGY SOLUTIONS

The ability to maintain a safe distance while occupying an LTC facility requires technology support. Identifying staff, residents, and visitors who may be ill and reducing contact with common surfaces like badge readers or door hardware are important.

Consider the following upgrades or modifications to existing technologies:

- **Access Control –** Install non-contact badge readers allowing for touch-less entry of restricted spaces including loading dock areas, central laundry, and amenities areas.
- **Screening & Surveillance** – Install radiometric body temperature measurement cameras for non-contact measuring of visitors or staff with significant physical support requirements. Thermographic cameras may be used to screen persons when entering facilities to help reduce the likelihood of infected persons entering the spaces and spreading the virus. These cameras are best deployed as standalone monitoring stations and some manufacturer options allow for group screening under specific conditions. Environmental factors can greatly affect the accuracy of these devices. Guidelines for distance, number of persons being scanned, and other calibration factors must be followed.

- **Wi-Fi and Network Capabilities** –With residents confined to their rooms during quarantine, network traffic will increase as virtual hangouts and streaming services are used heavily within the resident units and ILUs to continue communicating while maintaining social distancing.
- **Virtual Meeting Spaces –** Recreate existing common spaces virtually and schedule recurring meetings that are always available for residents to drop in and out of. By naming virtual rooms to match existing common spaces existing social patterns can be partially rebuilt over video chat to help reduce feelings of isolation.
- **Technology Support –** More than ever residents will need help connecting to the outside world using technology. Provide increased options for technology support either in person or via video conference bot to reduce resident contact. While not a medical diagnostic tool, low profile bots can also help supplement wellness check-ins for residents.

LONG-TERM CARE FACILITY ENVIRONMENT SOLUTIONS

Controlled Access

Further evaluation of an LTC facility shows a pressing need for facility operators to keep their buildings "healthy" to give their residents the best chance to remain healthy. Thus far we have addressed keeping non-infected residents and other essential workers healthy when an infection is present within the facility. Now, we will discuss some strategies a facility may implement when trying to keep a building "healthy" to minimize the spread of contaminants.

The primary method for coronavirus to enter an LTC facility is people. As a result, one the most effective prevention methods is to control access to your building.

The facility's infection control planning specialist should be consulted for the proper means of control for your building; however, some examples of barrier controls may include:

- Single controlled access point for entry for the residents. It may be necessary to create separate entrances for employees, outside visitors, and residents.
- Instituting policies and procedures that prevent outside deliveries past the mail/package areas or main lobbies and wiping down the outside of packages as well as the contents within the packaging.
- Tightly regulating access to the loading dock for move-in/move-out and large parcel deliveries.
- Controlled access for materials. These may be separate from personnel or shared with limitations.
- Airlock - Simple vestibule with doors interlocked to prevent simultaneous opening and to control pressurization at the entrances and exits to the facility.

- Disinfectant spray or wipe down - Airlock with decontamination process similar to bio-safety level (BSL) or potent compound facilities but with less stringent chemical treatment
- Pressurization – The common areas should be under positive pressure with respect to adjoining areas. See the Pressurization section earlier in this report.
- Screen staff, deliveries, and maintenance personnel entering the facility by measuring for body temperature and turning away anyone experiencing a fever.
- Sticky walk-off mats may be used to capture any virus on the bottom of shoes. Proper disposal of the mats may require spraying with a sanitizing agent.

Some barrier control solutions require careful coordination and adherence to life safety codes. For example, if you create a single access point for a building secondary access points will need to be converted to exit only, self-locking type to maintain egress. An architect or other life safety professional should be consulted to ensure adherence to the applicable codes.

Note, the application of controlled access will be more effective if access is limited to only residents and staff.

Separation within Common Spaces

Since people may carry the virus without showing symptoms, the virus may still enter the facility even with controlled access points. Therefore, it will be necessary to take additional precautions to minimize the spread of the virus. As such, people and surfaces remain as significant sources. The following measures may be employed to minimize risk and spread of the virus:

- De-densify people, similar to the current social distancing protective measures that have been recommended:
    - Spread out number of people in common spaces
    - Allow those employees, who are not required to interact with the residents, the ability to work remotely
    - Limit or eliminate in-person gatherings
    - Limit or prohibit deliveries past lobbies and/or mail/package rooms
    - Limit or prohibit visitors
    - Limit or prohibit access to public toilet rooms
    - Limit access to mail/package rooms
    - Limit access to stairways and elevators
- Employ mandatory PPE including masks at all times. Additional measures such as gloves or protective gowning may be deemed necessary on a case by case basis depending on the resident being attended to and potential for increased risk of contagion.

Personal Protective Equipment (PPE)

Since people are the primary source of the virus and they may be infected without presenting symptoms, it is recommended that PPE be required at all times. During an outbreak of an infectious disease such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments, and information on PPE effectiveness in preventing the spread of COVID-19. Operators should check OSHA and CDC websites regularly for updates about recommended PPE.

In many environments wearing a standard face mask will reduce the risk of further spreading the virus. Standard masks will keep droplets from leaving a person's mouth during normal talking, breathing and sneezing. To facilitate compliance, the facility may need to provide these masks so that all permitted visitors have access to one.

During this pandemic, there has been a shortage of appropriate PPE for our healthcare workers to properly replace when leaving an infected resident to care for another. The CDC has recognized this shortage and has issued guidelines for the decontamination and reuse of filtering face-piece respirators. Within the guidelines they have allowed the use of:

- Ultraviolet germicidal irradiation (UVGI)
- Vaporous Hydrogen Peroxide (VHP)
- Moist Heat

When N95 masks are being reused it is essential that the mask continue to fit properly. Researchers from universities across the country developed a website (https://www.n95decon.org/) to review, collate, publish, and disseminate scientific information about N95 decontamination to help in decisions about N95 decontamination and reuse. The studies were based on decontamination methods that have been used on previous viral and bacterial pathogens and the potential to use these methods on the novel SARS-CoV-2 virus that causes COVID-19 was assessed.

A summary of their findings shows:

- There are still risks with each decontamination method that there still may be some active virus left after the decontamination process.
- The heat and humidity method allow for less reuse cycles than the other two methods.
- While the UV-C, HPV, and HPGP methods seem to provide more usage, the ability for a standard LTC facility to be able to implement these with the equipment readily available to them are less likely than the heat and humidity method.

Their full report and most up to date guidelines can be found on the N95DCON website referenced above.

Cleaning the Facility

Once access is controlled and potential spread of the virus is minimized, it will still be necessary to clean and disinfect common areas on a regular basis. Staff should be encouraged to periodically sanitize their spaces throughout the day since accidental contamination may occur from people who are unknowingly infected, imperfectly fitting PPE, improperly disinfected materials, etc. However, it is recommended that each common area be thoroughly cleaned on a frequent basis including lobbies, elevators, stairways, corridors and mail areas. Frequency will depend upon measures employed to reduce contamination. The following actions are recommended:

- Sanitize common spaces and all surfaces.
- Wipe and disinfect front desks and lobby areas including keyboards and other utensils that are handled daily.
- Wipe all doors and handles.
- If communal spaces such as central laundry, fitness centers, conference rooms and other amenities areas remain in operation then these spaces should be cleaned more frequently throughout the day and possibly after each use.
- Due to the increased risk of transmission, special care shall be taken to disinfecting public restrooms including all fixtures, toilet paper dispensers, toilet paper, etc.
- Use sanitizing misters at entrances to spaces.

CONCLUSION

Each day we learn more about the COVID-19 virus, how it behaves, and the best recommendations and strategies for dealing with it. We will continue to monitor and evaluate this information to present our latest insights and approaches on this matter. Our goal is to provide insight to help long-term care facilities maintain safer environments and productive operations.