



# TOP COMPLIANCE (Pty) Ltd

Your Business' Safety Is Our Concern

QSE B-BBEE - Level Four

[www.topcompliance.co.za](http://www.topcompliance.co.za)

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## Air conditioners and good ventilation in winter during COVID-19.

Most organisations aim to maintain a comfortable office environment in summer and winter with the use of an air conditioning systems.

These systems could be described as the control of the temperature, humidity, air movement and cleaning of air in a confined space. The air conditioning system draws in outside air, filters it, heats, cools or humidifies it, circulates it around the building, then expels a portion of it to the outside environment.

There are two risks associated with the use of and air conditioning systems in the workplace namely general comfort of the employees and the spread of disease.

Most common complaints relating to air conditioning are associated with the comfort level either being too hot or too cold. The way people feel temperature depends on various factors such as clothing, body type, preferences etc.

A reasonable temperature for a workplace largely depends on the type of work being done and the other environmental conditions of the specific workplace. Hygienists generally recommend that temperatures should preferably be between 21°C and 26°C. In summer temperature range should be between 21-24 °C and in winter between 24-26 °C.

Should there be disagreements in the workplace it should be investigated and addressed by the workplaces health and safety committee, which should have a baseline risk assessment and policy or procedure regarding the various work areas temperature controls.

Employees usually spend eight hours a day indoors in an air-conditioned building. If the air conditioning system is not maintained as specified by the manufacturer and serviced by a competent servicing company some illnesses may occur.

## How is it regulated in South Africa?

In accordance with Section 8 of the Occupational Health and Safety Act (Act 85 of 1993) stipulates that the employer must provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.

The same section stipulates that the employer is duty-bound to establish, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed.

This includes risks associated with air conditioning systems. Risks associated with air conditioning should thus be identified and reduced as much as possible.

The quality of the air many employees breathe at work will largely be dependent on the operation of the building's air conditioning system. Indoor air quality is an important concern to most businesses because it can negatively impact on the health, comfort, wellbeing, and productivity of all the employees. Inferior air conditioning may lead to poor indoor air quality resulting in possible irritable and potentially sick employees, which in turn have a financial impact on the organisation.

Microorganisms are considered among the most important sources of poor quality of indoor air, and contamination of this air by microbial pollutants is being increasingly recognized as a public health problem. Recent research has demonstrated that certain microorganisms are able to colonize panel filter surfaces. Studies on selected microbes isolated from the most commonly used filters have revealed that the bacterial and fungal moist masses carried on sponge-type filters are greater than those carried on polyester and high-efficiency particulate air (HEPA) filters. Additionally, microbial moist mass has been found to increase with increasing incubation time. Research has shown that certain microorganisms, particularly fungi, can colonize the materials used in heating, ventilation, and air-conditioning systems (HVAC).

Bioaerosols, such as those comprising fungi, bacteria, and viruses, in indoor air can cause allergic and infectious diseases, respiratory problems, and hypersensitivity reactions. People who are sensitive to indoor environmental problems complain of a wide variety of symptoms, ranging from headache, tiredness, nausea, and sinus congestion to eye, nose, and throat irritations.

It is widely acknowledged that air-conditioning filters do not remove all the particles from the air. Even the use of HEPA filters will not completely eliminate the problem of microbial contamination, as this material will only retain particles of a minimum of 3 microns in size. Thus, dust particles with sizes smaller than 3 microns will pass through unhindered. Furthermore, when the filters become excessively wet, they can provide a fertile environment for the proliferation of moulds and bacteria.

Understanding the type of air conditioning system your company uses and the type of filtration system is vital during this COVID-19 pandemic.

### **Common types of HVAC filters**

**Flat fiberglass filters** - The main advantage of fiberglass filters is they are cheap, easy to install, and readily available in stores. They have a lifespan of only 1 month, replacing them on a monthly basis would not pose an inordinate financial burden. Unfortunately, they are not particularly effective in terms of trapping particles.

**Pleated filters** - These filters are more effective with regard to trapping dust than fiberglass filters. They can trap approximately 45% of airborne debris. They also have a 1-month lifespan but tend to be more expensive than fiberglass filters.

**Electrostatic air filters** - These filters use electricity to attract charged particles, which are trapped internally. They are very efficient at trapping dust particles and debris and have a 6-month lifespan.

**Washable filters** - They are the most economical type of filter, which can be removed and cleaned as directed, dried, and then reinstalled. They do not need replacing at monthly intervals.

**Disposable filters** - These filters comprise a cardboard frame and filter material. As their name implies, it is necessary to replace them when they become dirty.

**HEPA filters** - are considered the best type of filter because they trap even the smallest particles and keep premises smelling fresh. They can capture up to 97% of all particulate matter and remove all allergens from indoor air.

**UV lights and filtration systems for cleaner indoor air** - UV lights have been widely employed in the ducts of HVAC filtration systems. These lights facilitate effective and inexpensive control and solve the problem of microbial outgrowth in HVAC systems, eliminating up to 99.9% of the microorganisms and destroying airborne viruses, bacteria, and fungi. The types and quantities of microorganisms killed depend on the length of exposure and the output of the lamps. Nowadays, more advanced UV lights, such as air scrubbers, are employed, which can kill both airborne viruses and bacteria and those growing on surfaces.

**Activated carbon air filters** - used to effectively remove odours and fumes from the air during the air recirculating process.

**Deodorizing filters** - They function by purifying the air and maintaining air fresh and show superior efficacy when used in conjunction with UV irradiation.

**Antibacterial filters** - are prepared by incorporating a bactericidal substance in the filter media. However, doubts remain regarding the effectiveness of these filters.

**High-efficiency particulate air filters** - HEPA filters have a strong particle-trapping capacity that facilitates the removal of a high percentage (99.97%) of airborne particles that pass through an air purifier and accordingly meet US government standards. This contrasts with the 60–90% efficiency of medium filters. Furthermore, HEPA filters perform significantly better than electrostatic air cleaners, in which filtering is based on ionic processes. HEPA filters are therefore often used in medical facilities and in households in which the residents suffer from severe allergies.

**Microbial filtration efficiency of HEPA filters** - Photocatalysts are nanoscale metal oxide materials (commonly titanium dioxide) that are applied to substrate surfaces, forming a film after drying under the action of light. They can also be used to effectively kill a variety of bacteria, with an antibacterial rate of 99.99%. Furthermore, toxins released during the degradation of bacteria and fungi can be rendered harmless.

## **How can ventilation prevent COVID-19 from spreading?**

Ventilation involves introducing clean air into a space while removing stale air in order to maintain or improve air quality. Ventilation can be achieved naturally (e.g. by opening a window) or by installing a mechanical system.

The spread of COVID-19 occurs most often when an infected person is in close or direct contact with another person. The risk of the spread of the virus is higher in crowded and poorly ventilated spaces where people spend long periods of time together in close proximity. Improving indoor ventilation can reduce the risk of the virus spreading indoors.

Ventilation is not a standalone measure and it should be implemented as part of a comprehensive package of measures, such as physical distancing, wearing a mask, frequent hand cleaning, and coughing or sneezing into a bent elbow. Each of these is important to protect you against COVID-19 infection.

## **How do I naturally ventilate a room?**

When you are inside with other people, open windows or doors whenever possible. For instance, try to get a cross breeze so that air coming in from one window moves across the room and exits from another window.

## **Can I use air conditioning or other ventilation systems?**

Heating, ventilation and air-conditioning (HVAC) systems are used to maintain indoor air temperature and humidity at healthy and comfortable levels. A well-maintained and operated system can reduce the spread of COVID-19 in indoor spaces by increasing the rate of air change, reducing air recirculation and increasing the amount of outdoor air coming in. Settings that recirculate the air should not be used. HVAC systems should always be regularly inspected, maintained, and cleaned.

### **Can fans be used safely inside?**

Air blowing from an infected person directly at another person in a closed space increases the risk of the virus spreading from one person to another.

If COVID-19 is circulating in your community and the use of a table or pedestal fan is unavoidable, it is important to regularly bring in air from outside by opening windows or doors, while minimizing how much air blows from one person / group to another person /group.

The use of ceiling fans can improve the circulation of air from outside and avoid pockets of stagnant air forming indoors. However, it is critical to bring in air from outside when using ceiling fans, such as by opening windows.

Ensure that a proper risk assessment is done by a competent person using the air conditioners manufacturer safety data sheet as well as that of the specific type of filtration system. Implemented policies and procedures to ensure good maintenance and use of the air conditioners to prevent employees getting ill and to increase their productivity.

<https://www.labourguide.co.za/up-to-date-safety-news/2185-managing-office-temperature>

<https://www.intechopen.com/books/low-temperature-technologies/impact-of-air-conditioning-filters-on-microbial-growth-and-indoor-air-pollution>

For more information please do not hesitate to contact us – [info@topcompliance.co.za](mailto:info@topcompliance.co.za)

*Some of our training courses can be done through our virtual classroom.*

*Certain types of Risk Assessments and audits will be done by means of virtual site visits using various means of technology to virtually visit the site.*

*For more information please contact – [info@topcompliance.co.za](mailto:info@topcompliance.co.za)*

<https://www.topcompliance.co.za/index.php/products>



			
<a href="#">Medical equipment</a>	<a href="#">SANS Signage</a>	<a href="#">Legal posters</a>	<a href="#">Personal Protective Equipment</a>

**Courses offered by Top Compliance (Pty) Ltd**

<https://www.topcompliance.co.za/index.php/skills-development-head/training-calendar>

<b>SKILLS PROGRAMS - ONSITE TRAINING – HEALTH AND WELFARE SETA</b>		<b>Credits</b>	<b>Class days</b>
<b>First Responder - HW/SP/1508113 (First aid level 1 and 2)</b>			
US 119567	Perform basic life support and first aid procedures	5	4 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	
<b>First Aid Level 1,2 &amp; 3 - HW/SP/1601190 (First aid level 1, 2 and 3)</b>			
US 119567	Perform basic life support and first aid procedures	5	5 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	
US 376480	Provide first aid as an advanced first responder	8	
<b>First Aid Responder and HIV Awareness - HW/SP/150475</b>			
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	4 days
US 14656	Demonstrate an understanding of sexuality & sexually transmitted infections including HIV/AIDS	5	
<b>First Aider - HW/SP/1202005.</b>			
US 119567	Perform basic life support and first aid procedures	5	5 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	
US 13915	Demonstrate knowledge and understanding of HIV/AIDS in a workplace, and its effects on a business sub-sector, own organisation and a specific workplace.	4	
<b>First Aid (Basic) - HW/SP/150795.</b>			
US 119567	Perform basic life support and first aid procedures	5	4 days
US 9964	Apply health and safety to a work area	3	
<b>Emergency First Aider - HW/SP/1605377.</b>			
US 119567	Perform basic life support and first aid procedures	5	5 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	
<b>Health, Safety and Fire Combination - HW/SP/1510179</b>			
US 9964	Apply health and safety to a work area	3	5 days
US 119567	Perform basic life support and first aid procedures	5	
US 120331	Demonstrate knowledge pertaining to fires in working places.	3	

	<i>Prerequisite for US 120496 is US 14656.</i>		
<b>Workplace SHE Rep - HW/SP/1510182.</b>			
US 9964	Apply health and safety to a work area	3	3 days
US 259639	Explain basic health and safety principles in and around the workplace	4	
<b>First Aid and Safety Representative - HW/SP/1510183.</b>			
US 9964	Apply health and safety to a work area	3	4 days
US 119567	Perform basic life support and first aid procedures	5	
<b>First Aid and Firefighting - HW/SP/1511239.</b>			
US 120496	Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	5	4 days
US 13961	Demonstrate knowledge and use of hand operated firefighting equipment	4	
<b>Fire and Rescue Skills Programme - HW/SP/1604338.</b>			
US 252250	Apply firefighting techniques	3	4 days
US 119567	Perform basic life support and first aid procedures	5	
<b>Safety Management - HW/SP/1601159.</b>			
US 9964	Apply health and safety to a work area	3	3 days
US 259639	Explain basic health and safety principles in and around the workplace	4	

<b>ONSITE TRAINING</b>			
<b>First Aid Courses:</b>			<b>Accreditation</b>
<b>NEW</b> level 1 – US 119567 - Perform basic life support and first aid procedures	2 days		DEL
<b>NEW</b> level 2 – US 120496 - Provide risk-based primary emergency care/first aid in the workplace. <i>Prerequisite for US 120496 is US 14656.</i>	3 days		DEL
<b>NEW</b> level 3 – US 376480 - Provide first aid as an advanced first responder	3 days		DEL
First aid: Level 1	2 days		No longer recognised
First aid: Level 2	3 days		No longer recognised
First aid: Level 3	3 days		No longer recognised
First aid: Level 1 & 2	3 days		No longer recognised
First aid: Level 2 & 3	3 days		No longer recognised
First aid: Level 1, 2 & 3	5 days		No longer recognised
Child and infant CPR & choking	6 hours		
Adult CPR & choking	6 hours		
Adult CPR & choking and AED	1 day		
<b>Occupational Health and Safety Courses</b>			
OHS Act & SHERQ representative – Legal Liability	1 day		
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	1 day		
Safety representative course specific for COVID-19 in terms of the OHS Act and Regulation for Hazardous Biological Agents	6 hours		
Food facility health & safety course in terms of R364	6 hours		
<b>Fire Fighting and Prevention Courses</b>			
Basic firefighting (Fire marshal)	6 hours		
Basic firefighting with emergency action planning (Fire & Evacuation marshal)	1 day		

<b>ONLINE VIRTUAL CLASSROOM</b>
<b>Occupational Health and Safety Courses</b>

Safety representative course specific for COVID-19 in terms of the OHS Act and Regulation for Hazardous Biological Agents	07h45 – 11h00
OHS Act & SHERQ representative – Legal Liability	07h45 – 16h00
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	07h45 – 16h00
Food facility health & safety course in terms of R364	07h45 – 14h00
<b>Fire Fighting and Prevention Courses</b>	
Basic firefighting	07h45 – 13h00
Basic firefighting with emergency action planning	07h45 – 15h00