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March 2025 NEWSLETTER

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Air conditioner safety in the workplace: Ensuring comfort without compromising health

Air conditioners play a crucial role in maintaining a comfortable and productive work environment, especially in South Africa, where extreme temperatures can affect employee well-being and efficiency. However, if not properly maintained and used, air conditioning systems can pose significant health and safety risks, including poor air quality, respiratory illnesses, electrical hazards, and even fire risks. To ensure that workplace air conditioners contribute positively to health and safety, employers must prioritize regular maintenance, proper usage, and employee awareness of potential hazards.

A poorly maintained air conditioning system can significantly impact employees' health. Accumulated dust, mould, viruses and bacteria in filters and ducts can lead to respiratory problems, allergies, and infections. In South Africa, where tuberculosis (TB) and respiratory conditions such as asthma are prevalent, unclean air conditioning units can exacerbate these conditions. Employees working in enclosed spaces like call centres, schools, and retail stores are particularly at risk if air circulation is inadequate.

Another risk is the spread of airborne viruses. Poor ventilation can contribute to the transmission of diseases such as influenza, Swine Flu, TB, common cold and COVID-19, especially in offices, schools, and public buildings. Furthermore, air conditioners that do not regulate humidity effectively can create an environment conducive to mould growth, which can cause skin irritation, headaches, and sinus congestion, increasing absenteeism and presenteeism.

Routine maintenance is essential to keep air conditioning units functioning efficiently and safely. Employers should schedule professional servicing at least twice a year, particularly before peak summer and winter seasons when usage is highest. Filters must be cleaned or replaced regularly to prevent the circulation of dust and harmful pathogens as specified by the manufacturer safety data sheet or the site [hazard identification and risk assessment](#).

In workplaces such as hospitals and clinics, where air quality is critical, High-Efficiency Particulate Air (HEPA) filters should be used to minimize airborne contaminants. In schools and offices, regular duct cleaning can prevent the buildup of allergens and bacteria, reducing the likelihood of sick building syndrome (SBS), which leads to fatigue, headaches, and respiratory distress.

Air conditioners are high-power electrical appliances, and incorrect installation or use can lead to electrical fires or electrocutions. In South Africa, load shedding has increased the reliance on alternative power sources, such as generators and inverters, which, if not properly managed, can create additional [fire hazards](#).

Employers should ensure that air conditioning units are installed by qualified professionals and that power sources are correctly rated for the equipment. Avoid overloading electrical circuits by plugging multiple devices into a single power outlet. In many office environments, employees use extension cords for additional plug points, increasing the risk of overheating and electrical faults. All power cords should be regularly inspected for fraying or loose connections, and any unusual smells or sounds from air conditioning units should be reported and investigated immediately. [Checklist available on this link.](#)

Air conditioning directly affects indoor air quality, which has a profound impact on employee health. Poor ventilation can result in the accumulation of carbon dioxide, dust, and other pollutants, leading to symptoms such as dizziness, fatigue, and reduced concentration. In high-density workplaces like manufacturing plants, schools and commercial offices, ensuring proper air exchange is critical for employee well-being.

Employers can improve indoor air quality by maintaining adequate ventilation, opening windows periodically for fresh air circulation, and using air purifiers where necessary. Humidity levels should be maintained between 40-60% to prevent dryness, which can cause skin irritation and respiratory discomfort, or excessive moisture, which promotes mould growth.

Maintaining an appropriate workplace temperature is essential for comfort and productivity. In South Africa, where summer temperatures can exceed 33°C in some regions, an efficient air conditioning system is crucial to prevent heat exhaustion and dehydration. Conversely, excessive cooling can lead to muscle stiffness, colds, and discomfort.

Employers can mitigate temperature-related disputes by setting thermostats between 22-24°C, allowing employees to dress in layers, and positioning workstations away from direct airflow. In open-plan offices, using zone-controlled air conditioning can help balance different temperature preferences among employees.

Like all electrical appliances, air conditioners pose a fire risk if not properly maintained. Dust buildup, overheating, and faulty wiring are common causes of fires in commercial settings. In South African workplaces, where compliance with fire safety regulations is mandatory, ensuring that air conditioning units are not placed near flammable materials is essential. In environments such as warehouses and school computer labs, proper ventilation is crucial to prevent overheating of electronic equipment.

Employers must conduct [regular fire safety drills](#), ensure that smoke detectors and [fire extinguishers](#) are in place, and train employees on emergency procedures. Additionally, air conditioning units should have automatic shut-off mechanisms to prevent fire hazards in case of electrical surges or system malfunctions.

There are several types of air conditioners available in South Africa, each designed to suit different needs, environments, and budgets. Split air conditioners are among the most popular choices for homes and offices. They consist of an indoor unit mounted on a wall and an outdoor compressor unit. These systems are energy-efficient, quiet, and aesthetically pleasing but require professional installation. A variation of this is the multi-split system, which connects multiple indoor units to a single outdoor unit, making it ideal for cooling several rooms. Window air conditioners are another option, featuring a compact all-in-one design that fits into a window or wall opening. They are affordable and easy to install but can be noisy and may obstruct part of a window.

For those needing a mobile cooling solution, portable air conditioners provide flexibility as they can be moved between rooms and require no permanent installation. However, they tend to be less energy-efficient and noisier than split systems. Cassette air conditioners, commonly used in commercial spaces, are ceiling-mounted units that distribute cool air evenly in four directions. They save floor space and blend well into interiors but require a false ceiling for installation. For larger buildings, ducted air conditioning (central air conditioning) is a high-end solution that cools multiple rooms through a network of air ducts. It provides consistent cooling and operates quietly but is expensive to install and requires ample space for ductwork.

Energy efficiency is a key consideration, and inverter air conditioners are an excellent choice. These systems use variable-speed compressors that adjust cooling output based on room temperature needs, resulting in lower electricity consumption and more stable temperature control. For those looking for an environmentally friendly option, evaporative coolers (swamp coolers) use water to cool the air instead of refrigerants. They are best suited for dry climates but are ineffective in humid conditions.

In addition to cooling capabilities, air conditioners also improve air quality through various filter types. Basic mesh filters trap large dust particles and debris, requiring regular cleaning to maintain efficiency. Electrostatic filters use an electric charge to attract fine dust, pollen, and smoke particles, making them beneficial for allergy sufferers. HEPA filters (High-Efficiency Particulate Air filters) are highly effective at removing microscopic pollutants, bacteria, viruses and allergens, making them ideal for homes with respiratory concerns. Activated carbon filters help eliminate odours, smoke, and chemical fumes by absorbing airborne contaminants. Ionizing filters, found in some high-end models, release negative ions to neutralize airborne pollutants, further improving indoor air quality.

When selecting an air conditioner, factors such as budget, room size, energy efficiency, and air filtration needs should be considered. For home use, split or portable units with HEPA or activated carbon filters provide effective cooling and cleaner air. Offices and commercial spaces may benefit from cassette or ducted systems with electrostatic or ionizing filters to ensure a healthier environment.

A well-maintained air conditioning system is crucial for workplace safety, efficiency, and employee well-being. By implementing routine maintenance, ensuring electrical safety, promoting good indoor air quality, maintaining appropriate temperature control, and preparing for emergencies, workplaces can minimize health risks and create a safer, more productive environment.

Employers and safety officers should integrate air conditioning safety into their overall occupational health and safety strategy, ensuring compliance with regulations and fostering awareness among employees. By taking these precautions, businesses can protect their workforce from preventable illnesses and hazards while ensuring a comfortable and safe work environment.

Should you require further assistance or advice feel free to email us on info@topcompliance.co.za

Yours in Health and Safety

				
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Courses offered by Top Compliance (Pty) Ltd

ONLINE ACADEMY - https://academy.topcompliance.co.za/		
Occupational Health and Safety Courses	Online	Onsite Excluding travel
Safety representative – Legal Liability	R980.00	R1300.00
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	R1250.00	R 1730.00
Hazard Identification and Risk Assessment	R735.00	R875.00
Food facility health & safety course in terms of R638	R735.00	R875.00
Basic Ladder Safety Course	R735.00	R810.00
Fire Fighting and Prevention Courses		
Fire Marshal - Basic firefighting	R735.00	R875.00
Fire & Evacuation marshal - Basic firefighting with emergency action planning	R810.00	R950.00

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ONSITE TRAINING	
First Aid Courses:	
Level 1 - US 119567 - Perform basic life support and first aid procedures	2 days
Level 2 - US 120496 - Provide risk-based primary emergency care/first aid in the workplace	3 days
Level 3 - US 376480 - Provide first aid as an advanced first responder	3 days
Level 1 & 2 - US 119567 & 120496	3 days
Level 1, 2 & 3 - US 119567, 120496 & 376480	5 days
Level 2 & 3 - US 120496 & 376480	3 days
Child and infant CPR & choking	6 hours
Adult CPR & choking	6 hours
Adult CPR & choking and AED	1 day
Occupational Health and Safety Courses	
Safety representative – Legal Liability	1 day
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	1 day
Hazard Identification and Risk Assessment	1 day
Food facility health & safety course in terms of R638	6 hours
Basic Ladder Safety	6 hours
Fire Fighting and Prevention Courses	
Fire Marshal - Basic firefighting	6 hours

