Mobile Home Owners

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Upgrades

Importance of Selecting the Right Units for Upgrades

When considering upgrades for mobile home HVAC systems, the importance of selecting the right units cannot be overstated. Mobile homes present unique challenges and requirements when it comes to heating, ventilation, and air conditioning. These dwellings often have limited space, different insulation standards, and specific energy efficiency needs that must be addressed to ensure comfort and cost-effectiveness.

One of the primary reasons selecting the appropriate units is crucial is due to the spatial constraints inherent in mobile homes. Unlike traditional houses, mobile homes have a compact design with limited room for large or bulky HVAC systems. Therefore, choosing an appropriately sized unit ensures that it fits within the available space without obstructing living areas or requiring extensive modifications that could compromise the structure's integrity.

Moreover, properly sizing HVAC units for mobile homes can lead to significant energy savings. Mobile home HVAC systems must comply with local building codes **mobile home hvac duct** compressor. An oversized system might cycle on and off too frequently, leading to unnecessary wear and tear while consuming more energy than necessary. Conversely, an undersized unit may struggle to maintain desired temperatures efficiently, causing it to run continuously and increase energy bills. By selecting a unit that matches the specific heating and cooling demands of a mobile home, owners can optimize their energy usage while minimizing costs.

Additionally, mobile homes often have different insulation properties compared to permanent structures. This factor makes it essential to consider units designed specifically for such environments. Units tailored for mobile homes usually account for variations in insulation quality and are engineered to handle these differences effectively. For instance, they may include features like variable speed motors or advanced thermostatic controls that adapt more readily to fluctuating temperature demands typical in less insulated spaces.

Another critical aspect of selecting the right HVAC units involves compatibility with existing infrastructure. Many mobile homes have pre-installed ductwork or electrical setups that are not easily adaptable to every type of HVAC system on the market. Choosing units designed with such compatibility in mind can prevent costly installation headaches or the need for extensive retrofitting work.

Finally, considering environmental impact is increasingly important as well; therefore, opting for high-efficiency models can result in reduced carbon footprints while benefiting from potential rebates or incentives offered by utility companies aiming at promoting sustainable practices.

In summary, when upgrading HVAC systems in mobile homes, carefully selecting suitable units is vital not only from a practical standpoint but also economically and environmentally. It ensures efficient operation within compact spaces without straining budgets unnecessarily through excessive utility costs or equipment replacements down line due poor initial choices made during upgrade process itself-highlighting why this decision deserves thoughtful deliberation before proceeding further into implementation phase overall strategy management perspective alike!

When considering HVAC upgrades for mobile homes, it's crucial to understand the unique requirements and constraints of these structures. Mobile homes present distinct challenges when it comes to heating, ventilation, and air conditioning due to their size, construction materials, and sometimes limited space for installation. Choosing an appropriate HVAC unit involves careful consideration of several key factors to ensure efficiency, comfort, and cost-effectiveness.

The first factor to consider is the size of the HVAC unit in relation to the mobile home's square footage. An appropriately sized unit is essential for efficient operation; an undersized unit will struggle to maintain a comfortable temperature, while an oversized one may cycle on and off too frequently, leading to increased wear and tear. Conducting a load calculation or consulting with a professional can help determine the right capacity needed for effective climate control.

Energy efficiency is another critical consideration. Mobile homeowners often face higher utility costs relative to traditional homes due to less insulation and greater exposure to external temperatures. Therefore, selecting an energy-efficient HVAC system can lead not only to lower monthly energy bills but also reduce environmental impact. Look for units with high Seasonal Energy Efficiency Ratios (SEER) or Energy Star certifications as indicators of superior efficiency.

Space limitations within mobile homes necessitate considering compact HVAC solutions that fit into small spaces without sacrificing performance. Ductless mini-split systems or packaged units can be ideal choices as they are designed for such environments and offer flexibility in installation options. These systems eliminate the need for extensive ductwork which is often impractical in mobile homes.

Moreover, it's important to assess the existing infrastructure of your mobile home before making any decisions. Older models might require electrical upgrades or structural modifications to accommodate new systems safely and effectively. Ensuring that your home's wiring can handle modern HVAC demands is crucial both from safety and functionality perspectives.

Budget considerations are equally important in choosing an HVAC system. While more efficient units may have higher upfront costs, they often result in long-term savings through reduced energy consumption and maintenance needs. It's critical to evaluate these cost implications over the lifespan of the unit rather than focusing solely on initial expenses.

Finally, consider local climate conditions as they will significantly influence your choice of HVAC system features like humidity control or enhanced filtration systems if you live in areas prone to extreme weather variations or air quality issues.

In summary, selecting the right HVAC unit for a mobile home requires balancing multiple factors including sizing accuracy, energy efficiency ratings, space constraints compatibility with existing infrastructure budgetary limits along with specific regional climatic needs By taking all these aspects into account homeowners can make informed decisions that maximize comfort minimize operational costs while ensuring sustainable living solutions tailored specifically towards their unique housing circumstances

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Energy Efficiency and Environmental Impact

When it comes to mobile homes, choosing the appropriate HVAC (Heating, Ventilation, and Air Conditioning) system is more than just a matter of personal comfort-it's also a significant consideration for energy efficiency and environmental impact. As we become increasingly aware of our carbon footprint and the rising costs associated with energy consumption, selecting an efficient HVAC unit can make a substantial difference.

Mobile homes present unique challenges in terms of heating and cooling due to their smaller size and often less robust insulation compared to traditional houses. This means that any inefficiencies in an HVAC system can quickly lead to increased energy usage and higher utility bills. Therefore, selecting the right unit isn't just about immediate comfort; it's about long-term sustainability.

One of the key factors to consider when upgrading your mobile home's HVAC system is its energy efficiency rating. Look for units with high SEER (Seasonal Energy Efficiency Ratio) ratings for air conditioners or heat pumps, as well as high AFUE (Annual Fuel Utilization Efficiency) ratings for furnaces. These ratings provide a standardized measure of how efficiently these systems operate; the higher the rating, the more efficient the system.

In addition to choosing an efficient model, it's important to ensure your mobile home is properly insulated and sealed. Even the most advanced HVAC system will struggle if your home allows conditioned air to escape through poorly insulated walls or gaps around windows and doors. Investing in proper insulation not only complements your new HVAC system but also enhances its performance by maintaining desired temperatures with less effort.

Beyond personal savings on utility bills, opting for an energy-efficient HVAC upgrade has broader environmental benefits. Efficient systems consume less energy, which means fewer fossil fuels are burned in power plants that supply electricity-thus reducing greenhouse gas emissions responsible for climate change. By minimizing resource use without compromising on comfort, homeowners can contribute positively towards environmental conservation efforts.

Moreover, when selecting an HVAC unit for a mobile home upgrade, considering environmentally friendly refrigerants is crucial. Many older models still use refrigerants like R-22 that harm the ozone layer; newer units typically employ more sustainable alternatives such as R-410A or R-32 which have lower global warming potentials.

In conclusion, making informed decisions about upgrading your mobile home's HVAC system is essential not only from an economic standpoint but also from an ecological perspective. By prioritizing energy efficiency through proper selection of units and ensuring adequate home insulation alongside environmentally responsible refrigerant choices-you can enjoy enhanced comfort while contributing positively toward reducing environmental impacts associated with increased energy demands today-and into future generations' tomorrow too!

Cost-Effectiveness and Budget Considerations

When contemplating upgrades to the HVAC system in a mobile home, it's crucial to consider not only the immediate benefits of improved temperature regulation and air quality but also the long-term financial implications. The concept of cost-effectiveness necessitates a careful analysis of both initial investment and ongoing expenses, ensuring that the chosen units deliver optimal performance without overextending the homeowner's budget.

Mobile homes often present unique challenges for heating, ventilation, and air conditioning due to their structural characteristics and space limitations. Therefore, selecting appropriately sized units is essential. Oversized units may lead to higher upfront costs, increased energy consumption, and reduced efficiency due to frequent cycling on and off. Conversely, undersized units might struggle to maintain comfortable temperatures, resulting in excessive wear and tear as they work overtime to meet demands.

From a budgetary perspective, it's important for homeowners to evaluate the total cost of ownership when choosing an HVAC system. This includes not only the purchase price but also installation fees, potential modifications needed for ductwork or electrical systems, maintenance requirements, and energy consumption over time. Energy-efficient models might come with a higher price tag initially but can offer significant savings through reduced utility bills and possible tax incentives or rebates.

A strategic approach involves assessing the specific heating and cooling needs based on geographic location, local climate conditions, and the mobile home's insulation quality. Engaging with professional HVAC contractors who specialize in mobile home systems can provide valuable insights into appropriate unit sizes while helping homeowners navigate available options that align with their budget constraints.

Moreover, financing options should be explored as part of the planning process. Many manufacturers offer flexible payment plans or partnerships with financial institutions that can make upgrading more accessible without compromising on quality or efficiency. It's also wise to investigate community programs or government initiatives designed to assist low-income households in improving energy efficiency at reduced costs.

Ultimately, cost-effectiveness in mobile home HVAC upgrades is about striking a balance between affordability and functionality. By prioritizing energy-efficient solutions tailored to their specific living environment-and leveraging available financial resources-homeowners can achieve enhanced comfort while safeguarding their economic well-being for years to come.

Sizing and Compatibility with Mobile Home Structures

When considering HVAC upgrades for mobile homes, one critical aspect is ensuring the appropriate sizing and compatibility of the units with the unique structure of these homes. Mobile homes, often referred to as manufactured homes, present specific challenges and considerations that differ from traditional site-built houses. Thus, selecting the right HVAC system is not just about comfort but also about efficiency and safety.

First and foremost, understanding the structural characteristics of mobile homes is essential. These homes typically have a smaller footprint and lower ceilings compared to conventional houses. This means that an HVAC system must be adequately sized to provide optimal performance without overburdening the home's electrical system or compromising space. An incorrectly sized unit can lead to inefficiencies; an oversized unit may cycle on and off too frequently, leading to unnecessary wear and tear, while an undersized unit may struggle to maintain desired temperatures.

Compatibility with existing ductwork is another key consideration. Mobile homes often have different ductwork configurations than traditional homes, which can affect airflow and distribution throughout the space. When upgrading an HVAC system, it's vital to assess whether the new unit will integrate seamlessly with the current setup or if modifications are necessary. In some cases, retrofitting might be required to accommodate newer systems designed for higher energy efficiency standards.

In addition to size and ductwork compatibility, it's crucial to consider how environmental factors impact mobile home HVAC requirements. Due to their construction materials and design, mobile homes can be more susceptible to temperature fluctuations caused by external weather conditions. Therefore, opting for units with advanced climate control features or those specifically designed for manufactured housing can significantly enhance indoor comfort levels.

Furthermore, energy efficiency should be a priority when choosing an HVAC upgrade for a mobile home. With rising energy costs and increasing awareness of environmental impacts, selecting units that offer high Seasonal Energy Efficiency Ratios (SEER) can result in significant savings on utility bills while reducing carbon footprints.

Lastly, professional consultation cannot be overstated in this process. Engaging with certified HVAC professionals who understand the nuances of mobile home structures ensures that homeowners receive tailored advice that aligns with both their comfort needs and structural realities.

In conclusion, sizing and compatibility are paramount when upgrading HVAC systems in mobile homes. By focusing on these elements-considering structural constraints, ductwork integration, environmental influences, energy efficiency-and seeking expert guidance where necessary-homeowners can achieve effective climate control solutions tailored specifically for their unique living spaces.

Installation Challenges and Solutions

When it comes to upgrading the HVAC system in a mobile home, choosing the appropriate units can present unique installation challenges. These challenges stem from the distinctive structure and space limitations inherent in mobile homes, which differ significantly from traditional houses. To ensure a successful upgrade, it is essential to understand these challenges and explore suitable solutions.

One of the primary installation challenges is space constraints. Mobile homes typically have limited square footage, which means there is less room for large HVAC units. This can make it difficult to find equipment that fits comfortably within the available space while still providing adequate heating and cooling capacity. The solution lies in selecting compact or ductless systems that are specifically designed for smaller living areas. Mini-split systems, for instance, offer an excellent option as they require minimal space for installation and can effectively heat or cool individual rooms without extensive ductwork.

Another challenge is ensuring proper airflow throughout the mobile home. Traditional duct systems can be impractical due to limited crawlspace or attic access in mobile homes, often leading to inefficient air distribution and energy loss. To address this issue, homeowners might consider high-velocity mini-duct systems that use smaller ducts capable of fitting into tighter spaces without compromising air delivery efficiency. Additionally, zoned HVAC systems allow for customized temperature settings in different areas of the home, optimizing comfort while conserving energy.

Energy efficiency is another significant factor when upgrading HVAC units in mobile homes. Many older models consume more power than necessary, leading to higher utility bills and environmental impact. Upgrading to Energy Star-rated appliances can mitigate this problem by offering improved performance with reduced energy consumption. Moreover, incorporating programmable thermostats allows homeowners to set specific temperature schedules tailored to their lifestyle needs, further enhancing energy savings.

Installation logistics pose yet another challenge since mobile homes often have different structural elements compared to site-built houses. For instance, exterior walls may not be able to support heavy outdoor condenser units associated with central air conditioning systems. In such cases, ground-mounted units or rooftop installations might be viable alternatives depending on the home's design.

The process of upgrading an HVAC system also involves evaluating existing electrical infrastructure within the mobile home. Older electrical panels may not support newer high-efficiency models due to increased voltage requirements; thus upgrading wiring or panels could be necessary prior completing any installations successfully.

In conclusion,the task of selecting appropriate HVAC units for mobile home upgrades requires careful consideration given unique spatial constraints along with other structural differences compared against conventional housing types .By opting compact designs ,ensuring optimal airflow through innovative solutions like mini-ducts ,focusing on energy-efficient technologies,and addressing logistical concerns regarding weight distribution,electrical compatibility among others,mobile homeowners achieve comfortable living environments alongside reduced operational costs over time .

Maintenance and Long-term Performance

When considering HVAC upgrades for mobile homes, one of the most crucial factors is ensuring both maintenance and long-term performance. Mobile homes present unique challenges due to their compact structure and often limited insulation, making the choice of appropriate HVAC units pivotal not only for immediate comfort but also for sustained efficiency and reliability over time.

Maintenance plays a vital role in the longevity and effectiveness of any HVAC system. For mobile homes, selecting units that are easy to maintain can significantly reduce long-term costs. Units should have accessible components for routine checks and cleaning, as these actions prevent common issues like dust buildup or mechanical wear from escalating into major problems. Regular maintenance ensures that the system operates at peak efficiency, which is particularly important in confined spaces where even minor inefficiencies can lead to noticeable discomfort or higher energy bills.

In terms of long-term performance, choosing an HVAC unit with suitable capacity is essential. Systems that are too small will struggle to maintain desired temperatures, leading to increased wear as they work harder than intended. Conversely, overly large systems may cycle on and off too frequently, causing additional stress on the components and resulting in premature failure. It's about finding a balance-units tailored specifically for mobile home dimensions often provide optimal performance because they're designed with this scale in mind.

Energy efficiency is another critical aspect of long-term performance. Investing in units with high SEER (Seasonal Energy Efficiency Ratio) ratings can pay dividends over time through reduced energy consumption. While such units might require a higher initial investment, they tend to lower utility costs significantly throughout their lifespan.

Furthermore, it's important to consider technological advancements when selecting an HVAC system for a mobile home. Modern smart thermostats allow precise control over heating and cooling settings and offer insights into energy usage patterns, helping homeowners make informed decisions about maintaining comfort efficiently.

In conclusion, when upgrading HVAC systems in mobile homes, prioritizing ease of maintenance alongside robust long-term performance is key. By carefully considering unit size, energy efficiency ratings, and modern technological features during selection, homeowners can ensure consistent comfort while minimizing both operational costs and environmental impact over time.

About Mixed-mode ventilation

Mixed-mode ventilation is a hybrid approach to space conditioning that uses a combination of natural ventilation from operable windows (either manually or automatically controlled), and mechanical systems that include air distribution equipment and refrigeration equipment for cooling. A well-designed mixed-mode building begins with intelligent facade design to minimize cooling loads. It then integrates the use of air conditioning when and where it is necessary, with the use of natural ventilation whenever it is feasible or desirable, to maximize comfort while avoiding the significant energy use and operating costs of year-round air conditioning.[1][2]

References

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Heating, ventilation, and air conditioning

Fundamental concepts	○ Air changes per hour ○ Bake-out ○ Building envelope ○ Convection ○ Dilution ○ Domestic energy consumption ○ Enthalpy ○ Fluid dynamics ○ Gas compressor ○ Heat pump and refrigeration cycle ○ Heat transfer ○ Humidity ○ Infiltration ○ Latent heat ○ Noise control ○ Outgassing ○ Particulates ○ Psychrometrics ○ Sensible heat ○ Stack effect ○ Thermal comfort ○ Thermal destratification ○ Thermal mass ○ Thermodynamics ○ Vapour pressure of water

Technology	○ Absorption-compression heat pump ○ Absorption refrigerator ○ Air barrier ○ Air conditioning ○ Antifreeze ○ Automobile air conditioning ○ Autonomous building ○ Building insulation materials ○ Central heating ○ Central solar heating ○ Chilled beam ○ Chilled water ○ Constant air volume (CAV) ○ Coolant ○ Cross ventilation ○ Dedicated outdoor air system (DOAS) ○ Deep water source cooling ○ Demand controlled ventilation (DCV) ○ Displacement ventilation ○ District cooling ○ District heating ○ Electric heating ○ Energy recovery ventilation (ERV) ○ Firestop ○ Forced-air ○ Forced-air gas ○ Free cooling ○ Heat recovery ventilation (HRV) ○ Hybrid heat ○ Hydronics ○ Ice storage air conditioning ○ Kitchen ventilation ○ Mixed-mode ventilation ○ Microgeneration ○ Passive cooling ○ Passive daytime radiative cooling ○ Passive house ○ Passive ventilation ○ Radiant heating and cooling ○ Radiant cooling ○ Radiant heating ○ Radon mitigation ○ Refrigeration ○ Renewable heat ○ Room air distribution ○ Solar air heat ○ Solar combisystem ○ Solar cooling ○ Solar heating ○ Thermal insulation

- Air conditioner inverter
- Air door
- Air filter
- Air handler
- Air ionizer
- Air-mixing plenum
- Air purifier
- Air source heat pump
- Attic fan
- Automatic balancing valve
- Back boiler
- Barrier pipe
- Blast damper
- Boiler
- Centrifugal fan
- Ceramic heater
- Chiller
- Condensate pump
- Condenser
- Condensing boiler
- Convection heater
- Compressor
- Cooling tower
- Damper
- Dehumidifier
- Duct
- Economizer
- Electrostatic precipitator
- Evaporative cooler
- Evaporator
- Exhaust hood
- Expansion tank
- Fan
- Fan coil unit
- Fan filter unit
- Fan heater
- Fire damper
- Fireplace
- Fireplace insert
- Freeze stat
- Flue
- Freon
- Fume hood
- Furnace
- Gas compressor
- Gas heater
- Gasoline heater
- Grease duct

Components

- Grille
- Ground-coupled heat exchanger

Measurement and control	○ Air flow meter ○ Aquastat ○ BACnet ○ Blower door ○ Building automation ○ Carbon dioxide sensor ○ Clean air delivery rate (CADR) ○ Control valve ○ Gas detector ○ Home energy monitor ○ Humidistat ○ HVAC control system ○ Infrared thermometer ○ Intelligent buildings ○ LonWorks ○ Minimum efficiency reporting value (MERV) ○ Normal temperature and pressure (NTP) ○ OpenTherm ○ Programmable communicating thermostat ○ Programmable thermostat ○ Psychrometrics ○ Room temperature ○ Smart thermostat ○ Standard temperature and pressure (STP) ○ Thermographic camera ○ Thermostat ○ Thermostatic radiator valve
Professions, trades, and services	○ Architectural acoustics ○ Architectural engineering ○ Architectural technologist ○ Building services engineering ○ Building information modeling (BIM) ○ Deep energy retrofit ○ Duct cleaning ○ Duct leakage testing ○ Environmental engineering ○ Hydronic balancing ○ Kitchen exhaust cleaning ○ Mechanical engineering ○ Mechanical, electrical, and plumbing ○ Mold growth, assessment, and remediation ○ Refrigerant reclamation ○ Testing, adjusting, balancing

Industry organizations	○ AHRI ○ AMCA ○ ASHRAE ○ ASTM International ○ BRE ○ BSRIA ○ CIBSE ○ Institute of Refrigeration ○ IIR ○ LEED ○ SMACNA ○ UMC
Health and safety	○ Indoor air quality (IAQ) ○ Passive smoking ○ Sick building syndrome (SBS) ○ Volatile organic compound (VOC)
See also	○ ASHRAE Handbook ○ Building science ○ Fireproofing ○ Glossary of HVAC terms ○ Warm Spaces ○ World Refrigeration Day ○ Template:Home automation ○ Template:Solar energy

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About Sick building syndrome

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Sick building syndrome	
Specialty	Environmental medicine, immunology Image not found or type unknown Edit this on Wikidata

Sick building syndrome (**SBS**) is a condition in which people develop symptoms of illness or become infected with chronic disease from the building in which they work or reside.[1] In scientific literature, SBS is also known as **building-related illness (BRI)**, **building-related symptoms (BRS)**, or **idiopathic environmental intolerance (IEI)**.

The main identifying observation is an increased incidence of complaints of such symptoms as headache, eye, nose, and throat irritation, fatigue, dizziness, and nausea. The 1989 Oxford English Dictionary defines SBS in that way.[2] The World Health Organization created a 484-page tome on indoor air quality 1984, when SBS was attributed only to non-organic causes, and suggested that the book might form a basis for legislation or litigation.[3]

The outbreaks may or may not be a direct result of inadequate or inappropriate cleaning.[2] SBS has also been used to describe staff concerns in post-war buildings with faulty building aerodynamics, construction materials, construction process, and maintenance.[2] Some symptoms tend to increase in severity with the time people spend in the building, often improving or even disappearing when people are away from the building.[2][4] The term *SBS* is also used interchangeably with "**building-related symptoms**", which orients the name of the condition around patients' symptoms rather than a "sick" building.[5]

Attempts have been made to connect sick building syndrome to various causes, such as contaminants produced by outgassing of some building materials, volatile organic compounds (VOC), improper exhaust ventilation of ozone (produced by the operation of some office machines), light industrial chemicals used within, and insufficient fresh-air intake or air filtration (*see* "Minimum efficiency reporting value").[2] Sick building syndrome has also been attributed to heating, ventilation, and air conditioning (HVAC) systems, an attribution about which there are inconsistent findings.[6]

Signs and symptoms

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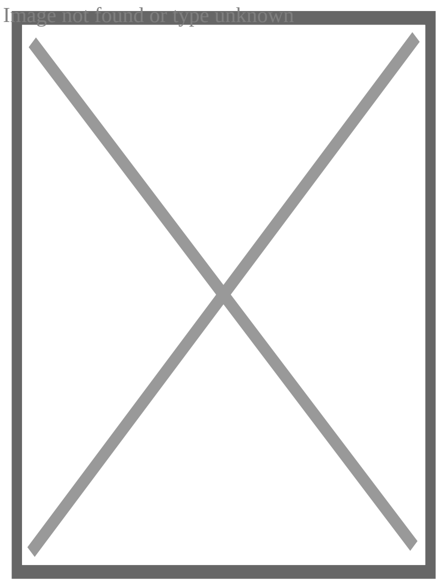

An air quality monitor

Human exposure to aerosols has a variety of adverse health effects.[7] Building occupants complain of symptoms such as sensory irritation of the eyes, nose, or throat; neurotoxic or general health problems; skin irritation; nonspecific hypersensitivity reactions; infectious diseases;[8] and odor and taste sensations.[9] Poor lighting has caused general malaise.[10]

Extrinsic allergic alveolitis has been associated with the presence of fungi and bacteria in the moist air of residential houses and commercial offices.[11] A study in 2017 correlated several inflammatory diseases of the respiratory tract with objective evidence of damp-caused damage in homes.[12]

The WHO has classified the reported symptoms into broad categories, including mucous-membrane irritation (eye, nose, and throat irritation), neurotoxic effects (headaches, fatigue, and irritability), asthma and asthma-like symptoms (chest tightness and wheezing), skin dryness and irritation, and gastrointestinal complaints.[13]

Several sick occupants may report individual symptoms that do not seem connected. The key to discovery is the increased incidence of illnesses in general with onset or exacerbation in a short period, usually weeks. In most cases, SBS symptoms are relieved soon after the occupants leave the particular room or zone.[14] However, there can be lingering effects of various neurotoxins, which may not clear up when the occupant leaves the building. In some cases, including those of sensitive people, there are long-term health effects.[15]

Cause

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ASHRAE has recognized that polluted urban air, designated within the United States Environmental Protection Agency (EPA)'s air quality ratings as unacceptable, requires the installation of treatment such as filtration for which the HVAC practitioners generally apply carbon-impregnated filters and their likes. Different toxins will aggravate the human body in different ways. Some people are more allergic to mold, while others are highly sensitive to dust. Inadequate ventilation will exaggerate small problems (such as deteriorating fiberglass insulation or cooking fumes) into a much more serious indoor air quality problem.[10]

Common products such as paint, insulation, rigid foam, particle board, plywood, duct liners, exhaust fumes and other chemical contaminants from indoor or outdoor sources, and biological contaminants can be trapped inside by the HVAC AC system. As this air is recycled using fan coils the overall oxygenation ratio drops and becomes harmful. When combined with other stress factors such as traffic noise and poor lighting, inhabitants of buildings located in a polluted urban area can quickly become ill as their immune system is overwhelmed.[10]

Certain VOCs, considered toxic chemical contaminants to humans, are used as adhesives in many common building construction products. These aromatic carbon rings / VOCs can cause acute and chronic health effects in the occupants of a building, including cancer, paralysis, lung failure, and others. Bacterial spores, fungal spores, mold spores, pollen, and viruses are types of biological contaminants and can all cause allergic reactions or illness described as SBS. In addition, pollution from outdoors, such as motor vehicle exhaust, can enter buildings, worsen indoor air quality, and increase the indoor concentration of carbon monoxide and carbon dioxide.[16] Adult SBS symptoms were associated with a history of allergic rhinitis, eczema and asthma.[17]

A 2015 study concerning the association of SBS and indoor air pollutants in office buildings in Iran found that, as carbon dioxide increased in a building, nausea, headaches, nasal irritation, dyspnea, and throat dryness also rose.[10] Some work conditions have been correlated with specific symptoms: brighter light, for example was significantly related to skin dryness, eye pain, and malaise.[10] Higher temperature is correlated with sneezing, skin redness, itchy eyes, and headache; lower relative humidity has been associated with sneezing, skin redness, and eye pain.[10]

In 1973, in response to the oil crisis and conservation concerns, ASHRAE Standards 62-73 and 62-81 reduced required ventilation from 10 cubic feet per minute (4.7 L/s) per person to 5 cubic feet per minute (2.4 L/s) per person, but this was found to be a contributing factor to sick building syndrome.[18] As of the 2016 revision, ASHRAE ventilation standards call for 5 to 10 cubic feet per minute of ventilation per occupant (depending on the occupancy type) in addition to ventilation based on the zone floor area delivered to the breathing zone.[19]

Workplace

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Excessive work stress or dissatisfaction, poor interpersonal relationships and poor communication are often seen to be associated with SBS, recent[*when?*] studies show that a combination of environmental sensitivity and stress can greatly contribute to sick building syndrome.[15][*citation needed*]

Greater effects were found with features of the psycho-social work environment including high job demands and low support. The report concluded that the physical environment of office buildings appears to be less important than features of the psycho-social work environment in explaining differences in the prevalence of symptoms. However, there is still a relationship between sick building syndrome and symptoms of workers regardless of workplace stress.[20]

Specific work-related stressors are related with specific SBS symptoms. Workload and work conflict are significantly associated with general symptoms (headache, abnormal tiredness, sensation of cold or nausea). While crowded workspaces and low work satisfaction are associated with upper respiratory symptoms.[21] Work productivity has been associated with ventilation rates, a contributing factor to SBS, and there's a significant increase in production as ventilation rates increase, by 1.7% for every two-fold increase of ventilation rate.[22] Printer effluent, released into the office air as ultra-fine particles (UFPs) as toner is burned during the printing process, may lead to certain SBS symptoms.[23][24] Printer effluent may contain a variety of toxins to which a subset of office workers are sensitive, triggering SBS symptoms.[25]

Specific careers are also associated with specific SBS symptoms. Transport, communication, healthcare, and social workers have highest prevalence of general symptoms. Skin symptoms such as eczema, itching, and rashes on hands and face are associated with technical work. Forestry, agriculture, and sales workers have the lowest rates of sick building syndrome symptoms.[26]

From the assessment done by Fisk and Mudarri, 21% of asthma cases in the United States were caused by wet environments with mold that exist in all indoor environments, such as schools, office buildings, houses and apartments. Fisk and Berkeley Laboratory colleagues also found that the exposure to the mold increases the chances of respiratory issues by 30 to 50 percent.[27] Additionally, studies showing that health effects with dampness and mold in indoor environments found that increased risk of adverse health effects occurs with dampness or visible mold environments.[28]

Milton et al. determined the cost of sick leave specific for one business was an estimated $480 per employee, and about five days of sick leave per year could be attributed to low ventilation rates. When comparing low ventilation rate areas of the building to higher ventilation rate areas, the relative risk of short-term sick leave was 1.53 times greater in the low ventilation areas.[29]

Home

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Sick building syndrome can be caused by one's home. Laminate flooring may release more SBS-causing chemicals than do stone, tile, and concrete floors.[17] Recent redecorating and new furnishings within the last year are associated with increased symptoms; so are dampness and related factors, having pets, and cockroaches.[17] Mosquitoes are related to more symptoms, but it is unclear whether the immediate cause of the symptoms is the mosquitoes or the repellents used against them.[17]

Mold

[edit]
Main article: Mold health issues

Sick building syndrome may be associated with indoor mold or mycotoxin contamination. However, the attribution of sick building syndrome to mold is controversial and supported by little evidence.[30][31][32]

Indoor temperature

[edit]
Main article: Room temperature § Health effects

Indoor temperature under 18 °C (64 °F) has been shown to be associated with increased respiratory and cardiovascular diseases, increased blood levels, and increased hospitalization.[33]

Diagnosis

[edit]

While sick building syndrome (SBS) encompasses a multitude of non-specific symptoms, building-related illness (BRI) comprises specific, diagnosable symptoms caused by certain agents (chemicals, bacteria, fungi, etc.). These can typically be identified, measured, and quantified.[34] There are usually four causal agents in BRi: immunologic, infectious, toxic, and irritant.[34] For instance, Legionnaire's disease, usually caused by *Legionella pneumophila*, involves a specific organism which could be ascertained through clinical findings as the source of contamination within a building.[34]

Prevention

[edit]

- Reduction of time spent in the building
- If living in the building, moving to a new place
- Fixing any deteriorated paint or concrete deterioration
- Regular inspections to indicate for presence of mold or other toxins
- Adequate maintenance of all building mechanical systems
- Toxin-absorbing plants, such as sansevieria[35][36][37][38][39][40][41][*excessive citations*]
- Roof shingle non-pressure cleaning for removal of algae, mold, and *Gloeocapsa magma*
- Using ozone to eliminate the many sources, such as VOCs, molds, mildews, bacteria, viruses, and even odors. However, numerous studies identify high-ozone shock treatment as ineffective despite commercial popularity and popular belief.
- Replacement of water-stained ceiling tiles and carpeting
- Only using paints, adhesives, solvents, and pesticides in well-ventilated areas or only using these pollutant sources during periods of non-occupancy
- Increasing the number of air exchanges; the American Society of Heating, Refrigeration and Air-Conditioning Engineers recommend a minimum of 8.4 air exchanges per 24-hour period
- Increased ventilation rates that are above the minimum guidelines[22]
- Proper and frequent maintenance of HVAC systems
- UV-C light in the HVAC plenum
- Installation of HVAC air cleaning systems or devices to remove VOCs and bioeffluents (people odors)
- Central vacuums that completely remove all particles from the house including the ultrafine particles (UFPs) which are less than 0.1 ?m
- Regular vacuuming with a HEPA filter vacuum cleaner to collect and retain 99.97% of particles down to and including 0.3 micrometers
- Placing bedding in sunshine, which is related to a study done in a high-humidity area where damp bedding was common and associated with SBS[17]
- Lighting in the workplace should be designed to give individuals control, and be natural when possible[42]
- Relocating office printers outside the air conditioning boundary, perhaps to another building
- Replacing current office printers with lower emission rate printers[43]
- Identification and removal of products containing harmful ingredients

Management

[edit]

SBS, as a non-specific blanket term, does not have any specific cause or cure. Any known cure would be associated with the specific eventual disease that was cause by exposure to known contaminants. In all cases, alleviation consists of removing the affected person from the building associated. BRI, on the other hand, utilizes treatment appropriate for the contaminant identified within the building (e.g., antibiotics for Legionnaire's disease).[*citation needed*

Improving the indoor air quality (IAQ) of a particular building can attenuate, or even eliminate, the continued exposure to toxins. However, a Cochrane review of 12 mold and dampness remediation studies in private homes, workplaces and schools by two independent authors were deemed to be very low to moderate quality of evidence in reducing adult asthma symptoms and results were inconsistent among children.[44] For the individual, the recovery may be a process involved with targeting the acute symptoms of a specific illness, as in the case of mold toxins.[45] Treating various building-related illnesses is vital to the overall understanding of SBS. Careful analysis by certified building professionals and physicians can help to identify the exact cause of the BRI, and help to illustrate a causal path to infection. With this knowledge one can, theoretically, remediate a building of contaminants and rebuild the structure with new materials. Office BRI may more likely than not be explained by three events: "Wide range in the threshold of response in any population (susceptibility), a spectrum of response to any given agent, or variability in exposure within large office buildings."[46]

Isolating any one of the three aspects of office BRI can be a great challenge, which is why those who find themselves with BRI should take three steps, history, examinations, and interventions. History describes the action of continually monitoring and recording the health of workers experiencing BRI, as well as obtaining records of previous building alterations or related activity. Examinations go hand in hand with monitoring employee health. This step is done by physically examining the entire workspace and evaluating possible threats to health status among employees. Interventions follow accordingly based on the results of the Examination and History report.[46]

Epidemiology

[edit]

Some studies have found that women have higher reports of SBS symptoms than men.[17][10] It is not entirely clear, however, if this is due to biological, social, or occupational factors.

A 2001 study published in the Journal Indoor Air, gathered 1464 office-working participants to increase the scientific understanding of gender differences under the Sick Building Syndrome phenomenon.[47] Using questionnaires, ergonomic investigations, building evaluations, as well as physical, biological, and chemical variables, the investigators obtained results that compare with past studies of SBS and gender. The study team found that across most test variables, prevalence rates were different in most areas, but there was also a deep stratification of working conditions between genders as well. For example, men's workplaces tend to be significantly larger and have all-around better job characteristics. Secondly, there was a noticeable difference in reporting rates, specifically that women have higher rates of reporting roughly 20% higher than men. This information was similar to that found in previous studies, thus indicating a potential difference in willingness to report.[47]

There might be a gender difference in reporting rates of sick building syndrome, because women tend to report more symptoms than men do. Along with this, some studies have found that women have a more responsive immune system and are more prone to mucosal dryness and facial erythema. Also, women are alleged by some to be more exposed to indoor environmental factors because they have a greater tendency to have clerical jobs, wherein they are exposed to unique office equipment and materials (example: blueprint machines, toner-based printers), whereas men often have jobs based outside of offices.[48]

History

[edit]

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This section **possibly contains original research**. Please improve it by verifying the claims made and adding inline citations. Statements consisting only of original research should be removed. *(August 2017) (Learn how and when to remove this message)*

In the late 1970s, it was noted that nonspecific symptoms were reported by tenants in newly constructed homes, offices, and nurseries. In media it was called "office illness". The term "sick building syndrome" was coined by the WHO in 1986, when they also estimated that 10–30% of newly built office buildings in the West had indoor air problems. Early Danish and British studies reported symptoms.

Poor indoor environments attracted attention. The Swedish allergy study (SOU 1989:76) designated "sick building" as a cause of the allergy epidemic as was feared. In the 1990s, therefore, extensive research into "sick building" was carried out. Various physical and chemical factors in the buildings were examined on a broad front.

The problem was highlighted increasingly in media and was described as a "ticking time bomb". Many studies were performed in individual buildings.

In the 1990s "sick buildings" were contrasted against "healthy buildings". The chemical contents of building materials were highlighted. Many building material manufacturers were actively working to gain control of the chemical content and to replace criticized additives. The ventilation industry advocated above all more well-functioning ventilation. Others perceived ecological construction, natural materials, and simple techniques as a solution.

At the end of the 1990s came an increased distrust of the concept of "sick building". A dissertation at the Karolinska Institute in Stockholm 1999 questioned the methodology of previous research, and a Danish study from 2005 showed these flaws experimentally. It was suggested that sick building syndrome was not really a coherent syndrome and was not a disease to be individually diagnosed, but a collection of as many as a dozen semi-related diseases. In 2006 the Swedish National Board of Health and Welfare recommended in the medical journal *Läkartidningen* that "sick building syndrome" should not be used as a clinical diagnosis. Thereafter, it has become increasingly less common to use terms such as *sick buildings* and *sick building syndrome* in research. However, the concept remains alive in popular culture and is used to designate the set of symptoms related to poor home or work environment engineering. *Sick building* is therefore an expression used especially in the context of workplace health.

Sick building syndrome made a rapid journey from media to courtroom where professional engineers and architects became named defendants and were represented by their respective professional practice insurers. Proceedings invariably relied on expert witnesses, medical and technical experts along with building managers, contractors and manufacturers of finishes and furnishings, testifying as to cause and effect. Most of these actions resulted in sealed settlement agreements, none of these being dramatic. The insurers needed a defense based upon Standards of Professional Practice to meet a court decision that declared that in a modern, essentially sealed building, the HVAC systems must produce breathing air for suitable human consumption. ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers, currently with over 50,000 international members) undertook the task of codifying its indoor air quality (IAQ) standard.

ASHRAE empirical research determined that "acceptability" was a function of outdoor (fresh air) ventilation rate and used carbon dioxide as an accurate measurement of occupant presence and activity. Building odors and contaminants would be suitably controlled by this dilution methodology. ASHRAE codified a level of 1,000 ppm of carbon dioxide and specified the use of widely available sense-and-control equipment to assure compliance. The 1989 issue of ASHRAE 62.1-1989 published the whys and wherefores and overrode the 1981 requirements that were aimed at a ventilation level of 5,000 ppm of carbon dioxide (the OSHA workplace limit), federally set to minimize HVAC system energy consumption. This apparently ended the SBS epidemic.

Over time, building materials changed with respect to emissions potential. Smoking vanished and dramatic improvements in ambient air quality, coupled with code compliant ventilation and maintenance, per ASHRAE standards have all contributed to the acceptability of the indoor air environment.[49][50]

See also

[edit]

- Aerotoxic syndrome
- Air purifier
- Asthmagen
- Cleanroom
- Electromagnetic hypersensitivity
- Havana syndrome

- Healthy building
- Indoor air quality
- Lead paint
- Multiple chemical sensitivity
- NASA Clean Air Study
- Nosocomial infection
- Particulates
- Power tools
- Renovation
- Somatization disorder
- Fan death

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External links

[edit]

- Best Practices for Indoor Air Quality when Remodeling Your Home, US EPA
- Renovation and Repair, Part of Indoor Air Quality Design Tools for Schools, US EPA
- Addressing Indoor Environmental Concerns During Remodeling, US EPA
- Dust FAQs, UK HSE Archived 2023-03-20 at the Wayback Machine
- CCOHS: Welding - Fumes And Gases | Health Effect of Welding Fumes

Classification External resources	
	- **MeSH**: D018877 D - **Patient UK**: Sick building syndrome

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Heating, ventilation, and air conditioning

Fundamental concepts	○ Air changes per hour ○ Bake-out ○ Building envelope ○ Convection ○ Dilution ○ Domestic energy consumption ○ Enthalpy ○ Fluid dynamics ○ Gas compressor ○ Heat pump and refrigeration cycle ○ Heat transfer ○ Humidity ○ Infiltration ○ Latent heat ○ Noise control ○ Outgassing ○ Particulates ○ Psychrometrics ○ Sensible heat ○ Stack effect ○ Thermal comfort ○ Thermal destratification ○ Thermal mass ○ Thermodynamics ○ Vapour pressure of water

Technology	○ Absorption-compression heat pump ○ Absorption refrigerator ○ Air barrier ○ Air conditioning ○ Antifreeze ○ Automobile air conditioning ○ Autonomous building ○ Building insulation materials ○ Central heating ○ Central solar heating ○ Chilled beam ○ Chilled water ○ Constant air volume (CAV) ○ Coolant ○ Cross ventilation ○ Dedicated outdoor air system (DOAS) ○ Deep water source cooling ○ Demand controlled ventilation (DCV) ○ Displacement ventilation ○ District cooling ○ District heating ○ Electric heating ○ Energy recovery ventilation (ERV) ○ Firestop ○ Forced-air ○ Forced-air gas ○ Free cooling ○ Heat recovery ventilation (HRV) ○ Hybrid heat ○ Hydronics ○ Ice storage air conditioning ○ Kitchen ventilation ○ Mixed-mode ventilation ○ Microgeneration ○ Passive cooling ○ Passive daytime radiative cooling ○ Passive house ○ Passive ventilation ○ Radiant heating and cooling ○ Radiant cooling ○ Radiant heating ○ Radon mitigation ○ Refrigeration ○ Renewable heat ○ Room air distribution ○ Solar air heat ○ Solar combisystem ○ Solar cooling ○ Solar heating ○ Thermal insulation

- Air conditioner inverter
- Air door
- Air filter
- Air handler
- Air ionizer
- Air-mixing plenum
- Air purifier
- Air source heat pump
- Attic fan
- Automatic balancing valve
- Back boiler
- Barrier pipe
- Blast damper
- Boiler
- Centrifugal fan
- Ceramic heater
- Chiller
- Condensate pump
- Condenser
- Condensing boiler
- Convection heater
- Compressor
- Cooling tower
- Damper
- Dehumidifier
- Duct
- Economizer
- Electrostatic precipitator
- Evaporative cooler
- Evaporator
- Exhaust hood
- Expansion tank
- Fan
- Fan coil unit
- Fan filter unit
- Fan heater
- Fire damper
- Fireplace
- Fireplace insert
- Freeze stat
- Flue
- Freon
- Fume hood
- Furnace
- Gas compressor
- Gas heater
- Gasoline heater
- Grease duct

Components

- Grille
- Ground-coupled heat exchanger

Measurement and control	○ Air flow meter ○ Aquastat ○ BACnet ○ Blower door ○ Building automation ○ Carbon dioxide sensor ○ Clean air delivery rate (CADR) ○ Control valve ○ Gas detector ○ Home energy monitor ○ Humidistat ○ HVAC control system ○ Infrared thermometer ○ Intelligent buildings ○ LonWorks ○ Minimum efficiency reporting value (MERV) ○ Normal temperature and pressure (NTP) ○ OpenTherm ○ Programmable communicating thermostat ○ Programmable thermostat ○ Psychrometrics ○ Room temperature ○ Smart thermostat ○ Standard temperature and pressure (STP) ○ Thermographic camera ○ Thermostat ○ Thermostatic radiator valve
Professions, trades, and services	○ Architectural acoustics ○ Architectural engineering ○ Architectural technologist ○ Building services engineering ○ Building information modeling (BIM) ○ Deep energy retrofit ○ Duct cleaning ○ Duct leakage testing ○ Environmental engineering ○ Hydronic balancing ○ Kitchen exhaust cleaning ○ Mechanical engineering ○ Mechanical, electrical, and plumbing ○ Mold growth, assessment, and remediation ○ Refrigerant reclamation ○ Testing, adjusting, balancing

Industry organizations	◦ AHRI ◦ AMCA ◦ ASHRAE ◦ ASTM International ◦ BRE ◦ BSRIA ◦ CIBSE ◦ Institute of Refrigeration ◦ IIR ◦ LEED ◦ SMACNA ◦ UMC
Health and safety	◦ Indoor air quality (IAQ) ◦ Passive smoking ◦ Sick building syndrome (SBS) ◦ Volatile organic compound (VOC)
See also	◦ ASHRAE Handbook ◦ Building science ◦ Fireproofing ◦ Glossary of HVAC terms ◦ Warm Spaces ◦ World Refrigeration Day ◦ Template:Home automation ◦ Template:Solar energy

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Employment

Classifications	○ Academic tenure
	○ Casual
	○ Contingent work
	○ Full-time job
	○ Gig worker
	○ Job sharing
	○ Part-time job
	○ Self-employment
	○ Side job
	○ Skilled worker
	    ○ Journeyman
	    ○ Technician
	    ○ Tradesperson
	○ Independent contractor
	○ Labour hire
	○ Temporary work
	○ Laborer
	○ Wage labour

Hiring	○ Application ○ Background check ○ Business networking ○ Cover letter ○ Curriculum vitae ○ Drug testing ○ Employment contract ○ Employment counsellor ○ Executive search ○ list ○ Induction programme ○ Job fair ○ Job fraud ○ Job hunting ○ Job interview ○ Letter of recommendation ○ Onboarding ○ Overqualification ○ Person–environment fit ○ Personality–job fit theory ○ Personality hire ○ Probation ○ Realistic job preview ○ Recruitment ○ Résumé ○ Simultaneous recruiting of new graduates ○ Underemployment ○ Work-at-home scheme
Roles	○ Cooperative ○ Employee ○ Employer ○ Internship ○ Job ○ Labour hire ○ Permanent employment ○ Supervisor ○ Volunteering

Working class	○ Blue-collar ○ Green-collar ○ Grey-collar ○ Pink-collar ○ Precariat ○ White-collar ○ Red-collar ○ New-collar ○ No-collar ○ Orange-collar ○ Scarlet-collar ○ Black-collar ○ Gold-collar

Career and training

- Apprenticeship
- Artisan
  - Master craftsman
- Avocation
- Career assessment
- Career counseling
- Career development
- Coaching
- Creative class
- Education
  - Continuing education
  - E-learning
  - Employability
  - Further education
  - Graduate school
  - Induction training
  - Knowledge worker
  - Licensure
  - Lifelong learning
  - Overspecialization
  - Practice-based professional learning
  - Professional association
  - Professional certification
  - Professional development
  - Professional school
  - Reflective practice
  - Retraining
  - Vocational education
  - Vocational school
  - Vocational university
- Mentorship
- Occupational Outlook Handbook
- Practice firm
- Profession
  - Operator
  - Professional
- Tradesman
- Vocation

Attendance	○ Break ○ Break room ○ Career break ○ Furlough ○ Gap year ○ Leave of absence ○ Long service leave ○ No call, no show ○ Sabbatical ○ Sick leave ○ Time clock
Schedules	○ 35-hour workweek ○ Four-day week ○ Eight-hour day ○ 996 working hour system ○ Flextime ○ On-call ○ Overtime ○ Remote work ○ Six-hour day ○ Shift work ○ Working time ○ Workweek and weekend

Wages and salaries	○ Income bracket
	○ Income tax
	○ Living wage
	○ Maximum wage
	○ National average salary
	    ○ World
	    ○ Europe
	○ Minimum wage
	    ○ Canada
	    ○ Hong Kong
	    ○ Europe
	    ○ United States
	○ Progressive wage
	    ○ Singapore
	○ Overtime rate
	○ Paid time off
	○ Performance-related pay
	○ Salary cap
	○ Wage compression
	○ Working poor

Benefits	◦ Annual leave ◦ Casual Friday ◦ Child care ◦ Disability insurance ◦ Health insurance ◦ Life insurance ◦ Marriage leave ◦ Parental leave ◦ Pension ◦ Sick leave ◦ United States ◦ Take-home vehicle

Safety and health	◦ Crunch
	◦ Epilepsy and employment
	◦ Human factors and ergonomics
	◦ Karoshi
	◦ List of countries by rate of fatal workplace accidents
	◦ Occupational burnout
	◦ Occupational disease
	◦ Occupational exposure limit
	◦ Occupational health psychology
	◦ Occupational injury
	◦ Occupational noise
	◦ Occupational stress
	◦ Personal protective equipment
	◦ Repetitive strain injury
	◦ Right to sit
	    ◦ United States
	◦ Sick building syndrome
	◦ Work accident
	    ◦ Occupational fatality
	◦ Workers' compensation
	◦ Workers' right to access the toilet
	◦ Workplace health promotion
	◦ Workplace phobia
	◦ Workplace wellness

Equal opportunity	◦ Affirmative action ◦ Equal pay for equal work ◦ Gender pay gap ◦ Glass ceiling

Infractions

- Corporate collapses and scandals
  - Accounting scandals
  - Control fraud
  - Corporate behaviour
  - Corporate crime
- Discrimination
- Exploitation of labour
- Dress code
- Employee handbook
- Employee monitoring
- Evaluation
- Labour law
- Sexual harassment
- Sleeping while on duty
- Wage theft
- Whistleblower
- Workplace bullying
- Workplace harassment
- Workplace incivility

Willingness

- Boreout
- Careerism
- Civil conscription
- Conscription
- Critique of work
- Dead-end job
- Job satisfaction
- McJob
- Organizational commitment
- Refusal of work
- Slavery
  - Bonded labour
  - Human trafficking
  - Labour camp
  - Penal labour
  - Peonage
  - Truck wages
  - Unfree labour
  - Wage slavery
- Work ethic
- Work–life interface
  - Downshifting
  - Slow living
- Workaholic

Termination

- At-will employment
- Dismissal
  - Banishment room
  - Constructive dismissal
  - Wrongful dismissal
- Employee offboarding
- Exit interview
- Layoff
- Notice period
- Pink slip
- Resignation
  - Letter of resignation
- Restructuring
- Retirement
  - Mandatory retirement
  - Retirement age
  - Retirement planning
- Severance package
  - Golden handshake
  - Golden parachute
- Turnover

Unemployment

- Barriers to entry
- Discouraged worker
- Economic depression
  - Great Depression
  - Long Depression
- Frictional unemployment
- Full employment
- Graduate unemployment
- Involuntary unemployment
- Jobless recovery
- Phillips curve
- Recession
  - Great Recession
  - Job losses caused by the Great Recession
  - Lists of recessions
  - Recession-proof job
- Reserve army of labour
- Structural unemployment
- Technological unemployment
- Types of unemployment
- Unemployment benefits
- Unemployment Convention, 1919
- Unemployment extension
- List of countries by unemployment rate
- Employment-to-population ratio
  - List
- Wage curve
- Youth unemployment

Public programs

- Workfare
- Unemployment insurance
- Make-work job
- Job creation program
- Job creation index
- Job guarantee
- Employer of last resort
- Guaranteed minimum income
- Right to work
- *Historical:*
- *U.S.A.:*
- Civil Works Administration
- Works Progress Administration

Comprehensive Employment and Training Act

See also

- Bullshit job
- Busy work
- Credentialism and educational inflation
- Emotional labor
- Evil corporation
- Going postal
- Kiss up kick down
- Labor rights
- Make-work job
- Narcissism in the workplace
- Post-work society
- Presenteeism
- Psychopathy in the workplace
- Sunday scaries
- Slow movement (culture)
- Toxic leader
- Toxic workplace
- Workhouse

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- Aspects of corporations
- Aspects of jobs
- Aspects of occupations
- Aspects of organizations
- Aspects of workplaces
- Corporate titles
- Critique of work
- Organized labor

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Things To Do in Oklahoma County

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Blue Whale of Catoosa

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Oklahoma Railway Museum

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Oklahoma City National Memorial & Museum

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The Cave House

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Bricktown Water Taxi

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Oklahoma State Capitol

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Driving Directions in Oklahoma County

Driving Directions From Santa Fe South High School to Durham Supply Inc

Driving Directions From Central Oklahoma City to Durham Supply Inc

Driving Directions From Texas Roadhouse to Durham Supply Inc

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Driving Directions From Oklahoma City National Memorial & Museum to Durham Supply Inc

Driving Directions From Museum of Osteology to Durham Supply Inc

Driving Directions From Beavers Bend State Park and Nature Center to Durham Supply Inc

Driving Directions From Oklahoma Railway Museum to Durham Supply Inc

Driving Directions From Oklahoma City's Adventure District to Durham Supply Inc

Driving Directions From Oklahoma National Guard Museum to Durham Supply Inc

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Reviews for Durham Supply Inc

Durham Supply Inc

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K Moore

(1)

No service after the sale. I purchased a sliding patio door and was given the wrong size sliding screen door. After speaking with the salesman and manager several times the issue is still not resolved and, I was charged full price for an incomplete door. They blamed the supplier for all the issues…and have offered me nothing to resolve this.

Durham Supply Inc

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Crystal Dawn

(1)

I would give 0 stars. This isnTHE WORST company for heating and air. I purchased a home less than one year ago and my ac has gone out twice and these people refuse to repair it although I AM UNDER WARRANTY!!!! They say it’s an environmental issue and they can’t fix it or even try to or replace my warrantied air conditioning system.

Durham Supply Inc

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Noel Vandy

(5)

Thanks to the hard work of Randy our AC finally got the service it needed. These 100 degree days definitely feel long when your house isn't getting cool anymore. We were so glad when Randy came to work on the unit, he had all the tools and products he needed with him and it was all good and running well when he left. With a long drive to get here and only few opportunities to do so, we are glad he got it done in 1 visit. Now let us hope it will keep running well for a good while.

Choosing Appropriate Units for Mobile Home HVAC Upgrades**View GBP**

Check our other pages :

- **Identifying Worn Components in Mobile Home HVAC Equipment**
- **Signs that Indicate Need for Mobile Home HVAC Replacement**
- **Overcoming Structural Challenges in Mobile Home AC Replacement**

Frequently Asked Questions

What size HVAC unit is appropriate for my mobile home?

The size of the HVAC unit should be based on the square footage of your mobile home. Generally, a 2-ton unit is suitable for homes up to 1,000 square feet, while larger homes may require a 3-ton or more. Its important to perform a proper load calculation considering factors like insulation and climate.

Are there specific HVAC systems designed for mobile homes?

Yes, there are HVAC systems specifically designed for mobile homes that take into account their unique construction and ventilation needs. These units typically feature compact designs and efficient air distribution suited for smaller spaces.

How do I determine the energy efficiency of an HVAC system for my mobile home?

Look for units with high SEER (Seasonal Energy Efficiency Ratio) ratings, ideally 14 or higher, which indicate better energy efficiency. Additionally, check if the system has an ENERGY STAR certification as it denotes compliance with strict energy performance standards.

Should I consider ductless mini-split systems for my mobile home upgrade?

Ductless mini-split systems can be excellent choices due to their flexibility, ease of installation without extensive ductwork modifications, and zoned heating/cooling capabilities. They are ideal if you want targeted temperature control in specific areas of your home.

How often should I maintain or service my upgraded HVAC unit in a mobile home?

Regular maintenance is key to ensuring efficiency and longevity. Schedule professional servicing at least once a year before peak seasons (summer/winter) and routinely replace filters every 1-3 months depending on usage and manufacturer recommendations.

Royal Supply Inc

Phone : +16362969959

City : Oklahoma City

State : OK

Zip : 73149

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