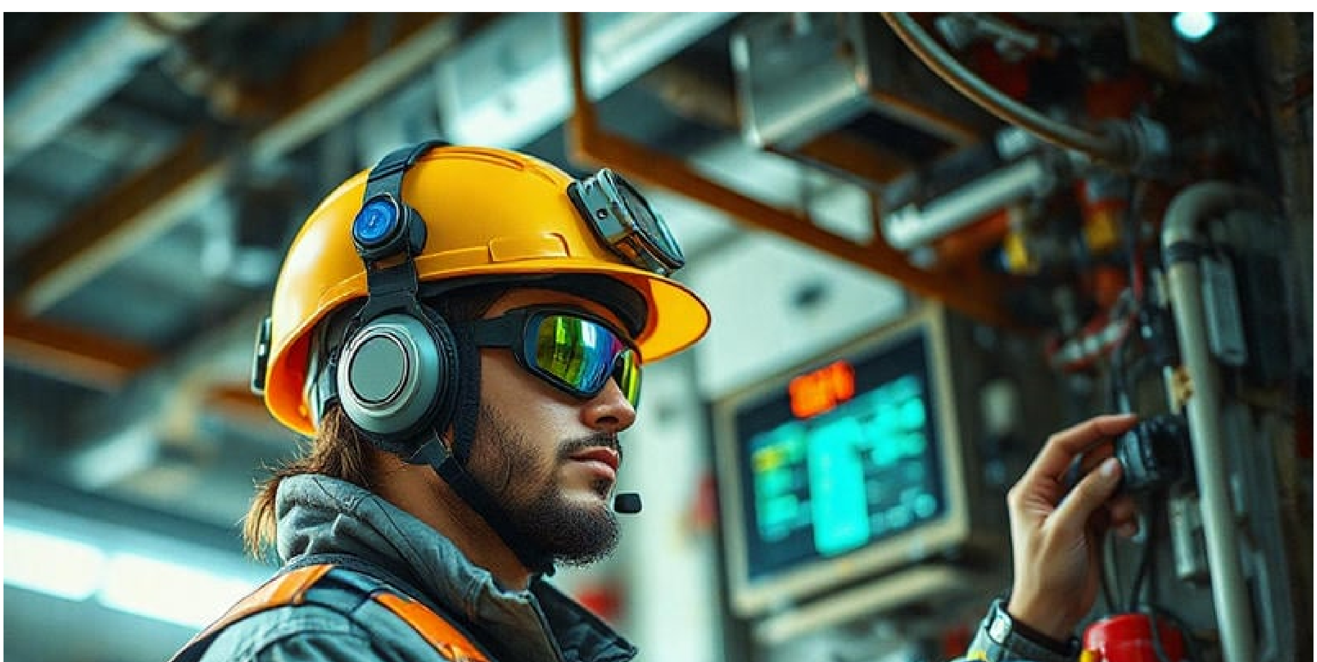
Retrofit HVAC

- **Reviewing Key Safety Measures for Mobile Home HVAC Work**
  Reviewing Key Safety Measures for Mobile Home HVAC Work Understanding PPE Guidelines for Mobile Home Furnace Repair Following OSHA Standards During Mobile Home AC Installations Noting Electrical Hazard Precautions in Mobile Home HVAC Projects Planning Lockout Procedures for Mobile Home Heating Maintenance Checking for Proper Ventilation in Mobile Home HVAC Crawl Spaces Confirming Compliance with HUD Requirements for Mobile Home Ducts Conducting On Site Safety Assessments Before Mobile Home AC Repairs Checking Gas Line Integrity in Mobile Home Heating Systems Identifying Combustion Clearance Issues in Mobile Home Furnaces Monitoring Air Quality Factors During Mobile Home HVAC Upkeep Coordinating Exit Strategies for Emergencies in Mobile Home HVAC Work
- **Identifying Warning Signs of Outdated Components**
  Identifying Warning Signs of Outdated Components Converting Older Units to High Efficiency Models Examining Duct Layout for Better Distribution Adjusting Equipment Size to Fit Modern Needs Evaluating Newer Options to Replace Electric Heaters Implementing Airflow Balancing Techniques Overcoming Physical Constraints in Legacy Structures Transitioning to Improved Refrigerants for Compliance Strengthening Insulation to Enhance Performance Matching Compatibility of Controls and Existing Wiring Coordinating Expert Consultations for Complex Projects Planning Timelines for Effective System Upgrades
- **About Us**



Importance of Safety in Mobile Home HVAC Work

In the realm of mobile home HVAC work, emergency preparedness is not just a precaution; it is a fundamental necessity that ensures the safety and well-being of both technicians and residents. Mobile homes present unique challenges due to their structure and location, making it imperative for HVAC professionals to be adept in coordinating exit strategies during emergencies. This essay explores the critical importance of emergency preparedness in this context, emphasizing how strategic planning can mitigate risks and save lives.

Mobile homes are often more vulnerable to environmental hazards such as tornadoes, hurricanes, and fires due to their lightweight construction and sometimes precarious siting. In such scenarios, HVAC systems can become both a lifeline and a liability. Properly functioning systems are crucial for maintaining air quality and comfort. Filters should be checked monthly to maintain air quality and system efficiency **mobile home hvac ductwork** HVAC. However, they can also pose risks if not properly maintained or shut down during an emergency. Therefore, having a robust plan in place for exiting these spaces safely while ensuring that HVAC equipment is secured or deactivated as necessary becomes paramount.

Coordinating exit strategies for emergencies begins with thorough training and awareness among HVAC technicians. Professionals must be educated on the specific vulnerabilities associated with mobile homes and how these impact evacuation procedures. This includes understanding the layout of different mobile home designs to identify multiple exits quickly, recognizing signs of potential hazards like gas leaks or electrical faults related to HVAC units, and knowing how to communicate effectively with residents under stress.

An effective emergency preparedness plan involves several key components: risk assessment, communication protocols, regular drills, and equipment checks. Risk assessments allow technicians to evaluate potential threats specific to each site before work commences. Communication protocols ensure that all parties involved-from fellow workers to residents-are informed promptly about an unfolding situation. Regular drills familiarize everyone with evacuation routes and procedures, reducing panic when real emergencies occur. Lastly, consistent equipment checks guarantee that HVAC systems do not become additional hazards during evacuations.

Moreover, technology plays a pivotal role in enhancing emergency preparedness in mobile home settings. Advances like smart thermostats capable of remote shutdowns or alerts can provide advanced warnings of system failures or environmental dangers like carbon monoxide leaks. Integrating such technologies into regular maintenance routines empowers technicians to act swiftly in securing premises during an emergency.

In conclusion, the importance of emergency preparedness in mobile home HVAC work cannot be overstated. With unique vulnerabilities inherent in these dwellings combined with the critical need for efficient climate control systems, having well-coordinated exit strategies is essential for safeguarding both human life and property. By prioritizing comprehensive training programs, utilizing technology wisely, conducting regular risk assessments and drills, HVAC professionals can significantly enhance their ability to respond effectively during crises-ultimately fostering safer living environments for all mobile home residents.

Common Hazards Associated with Mobile Home HVAC Systems —

In the realm of mobile home living, safety and preparedness hold paramount importance, particularly when it comes to the intricacies of HVAC systems. These systems, while crucial for maintaining a comfortable living environment, can also pose significant risks if not properly managed. One critical aspect of ensuring safety in mobile homes is identifying potential risks and hazards associated with HVAC work and developing effective exit strategies during emergencies.

Mobile homes, by nature, are unique in their structural design compared to traditional houses. Their compact spaces can lead to specific challenges related to HVAC systems, such as limited ventilation options and closer proximity of combustible materials. Therefore, the first step in safeguarding these environments is recognizing the potential hazards that may arise during HVAC maintenance or repair work.

Potential risks include electrical malfunctions, gas leaks from heating units, and even carbon monoxide exposure due to improper ventilation. Electrical issues can stem from outdated wiring or overloads caused by modern appliances. Gas leaks present an insidious danger as they are often odorless until reaching a critical level where detection becomes imperative for safety. Furthermore, inadequate ventilation can result in carbon monoxide buildup-a silent threat that poses severe health risks.

Once these hazards are identified, coordinating effective exit strategies becomes essential for ensuring the swift evacuation of occupants should an emergency occur. Considering the confined space within mobile homes, it's crucial to plan routes that maximize efficiency while minimizing panic during evacuation scenarios.

An efficient exit strategy begins with clear communication among all occupants about emergency procedures. Regular drills should be conducted to familiarize everyone with escape routes and designated meeting points outside the home. It's also vital to ensure that exits remain unobstructed at all times-this includes keeping pathways clear of furniture and other impediments that might hinder quick departures.

Moreover, equipping mobile homes with essential safety devices plays a pivotal role in risk mitigation. Smoke detectors and carbon monoxide alarms should be installed strategically throughout the home to provide early warnings of potential dangers. Additionally, having fire extinguishers readily available ensures minor incidents can be contained before escalating into full-blown emergencies.

In conclusion, identifying potential risks and hazards associated with HVAC work in mobile home settings is just one part of a broader safety strategy aimed at protecting both residents and property. By understanding these challenges and coordinating comprehensive exit strategies for emergencies, homeowners can foster a secure environment where comfort does not come at the expense of safety. Through preventive measures and preparedness planning, we not only safeguard our living spaces but also cultivate peace of mind knowing we're ready for any eventuality that may arise.

Posted by on

Posted by on

Essential Safety Gear and Equipment for Technicians

Developing comprehensive exit strategies for HVAC technicians, particularly in the context of mobile home HVAC work, is a critical aspect of ensuring safety and efficiency in emergency situations. Mobile homes present unique challenges due to their structural characteristics and often confined spaces, which can complicate evacuation procedures during emergencies such as fires or gas leaks. Therefore, coordinating effective exit strategies is paramount to protect both the technicians and the residents.

Firstly, understanding the layout and construction of mobile homes is essential for devising effective exit plans. Unlike conventional homes, mobile homes have a distinct floor plan with limited exits and narrower corridors. HVAC technicians must be familiar with these layouts to navigate quickly and efficiently in case of an emergency. This familiarity allows them to identify potential bottlenecks or obstacles that could hinder a swift evacuation.

Training is another vital component in developing comprehensive exit strategies. Technicians should undergo regular drills that simulate various emergency scenarios they might encounter while working on HVAC systems in mobile homes. These drills will help instill a reflexive response, enabling technicians to act decisively without panic when real emergencies arise. Training should cover not only rapid evacuation techniques but also the use of safety equipment like fire extinguishers and breathing masks.

Communication plays a crucial role in coordinating exit strategies during emergencies. Technicians should establish clear communication channels with other team members and residents before beginning any work on HVAC systems. This ensures that everyone is aware of potential hazards and understands their role during an evacuation. Instructing residents on basic emergency procedures also empowers them to assist effectively if needed.

Moreover, collaboration with local emergency services can enhance the effectiveness of exit strategies. By liaising with fire departments or paramedics beforehand, technicians can ensure that these professionals are aware of specific challenges posed by mobile homes' configurations. This proactive approach allows emergency responders to provide more targeted assistance when every second counts.

Incorporating technology into exit strategy development offers additional benefits. For instance, using digital mapping tools can help create detailed layouts of mobile home communities, highlighting critical egress points and nearby safe zones. These tools can be shared with all stakeholders involved in HVAC work within these areas for better preparation.

Finally, post-incident reviews are essential for refining existing strategies continually. After any emergency event where an evacuation was necessary, conducting thorough debriefs helps identify what worked well and what areas need improvement.

In conclusion, developing comprehensive exit strategies for HVAC technicians working in mobile homes requires careful planning, ongoing training, effective communication, collaboration with local authorities, leveraging technology advancements, and continuous evaluation processes aimed at enhancing safety protocols tailored specifically towards this unique environment's challenges all ensuring protection not just for those performing maintenance but equally importantly safeguarding lives residing therein too!

Proper Procedures for Handling Refrigerants and Chemicals

Training and equipping HVAC professionals to handle emergency situations is a critical aspect of ensuring safety and efficiency in mobile home environments. Mobile homes, with their unique structural characteristics and often limited space, present distinct challenges during emergencies, particularly when it comes to coordinating exit strategies. As such, it is essential for HVAC professionals to be well-prepared not only in their technical skills but also in their ability to respond swiftly and effectively in crisis scenarios.

One of the primary components of this training involves understanding the layout and design of mobile homes. Unlike traditional houses, mobile homes have different ventilation systems and typically tighter spaces, which can complicate evacuation plans. HVAC technicians need to be familiar with these layouts so they can identify potential hazards quickly and assist occupants in finding the safest routes during an emergency.

Moreover, HVAC systems themselves can contribute to emergency situations if not properly managed. For instance, a malfunctioning heating unit could lead to fire risks or carbon monoxide leaks-both potentially deadly scenarios. Therefore, training programs must emphasize routine inspections and maintenance protocols that prevent such occurrences. Technicians should be adept at identifying warning signs of system failures and take preemptive actions to mitigate risks before they escalate into full-blown emergencies.

Another crucial element of effective emergency preparedness is communication. In times of crisis, clear communication between HVAC professionals, occupants, and emergency personnel is vital. Training should include modules on how to convey information succinctly under pressure and coordinate with local fire departments or other first responders. This ensures that everyone involved understands the situation at hand and what steps need to be taken for a safe resolution.

Additionally, modern technology offers tools that can aid in managing emergencies more efficiently. For example, smart thermostats and remote monitoring systems allow technicians to assess problems from afar or shut down malfunctioning units remotely if necessary. Training programs should incorporate these technological advances so that professionals are equipped with the latest resources available for handling emergencies.

In conclusion, preparing HVAC professionals for emergency situations in mobile home settings requires a comprehensive approach that combines technical knowledge with practical skills in risk assessment and communication. By focusing on these areas during training programs, we can ensure that these essential workers are ready to protect both property and lives when disaster strikes. Investing time in such preparation ultimately leads to safer environments for all mobile home occupants while enhancing the overall reputation of the HVAC industry as a trusted guardian against unforeseen threats.

Electrical Safety Protocols for Mobile Home HVAC Work

In the realm of mobile home HVAC work, ensuring safety during emergencies is paramount. This requires not only well-planned exit strategies but also effective communication protocols and coordination with local emergency services. The unique structure and setting of mobile homes present distinct challenges, necessitating meticulous planning and collaboration to safeguard both workers and residents.

Communication protocols are the backbone of any successful emergency response plan. These protocols ensure that all parties involved have access to timely and accurate information, which can be crucial in preventing chaos during emergencies. For HVAC professionals working in mobile homes, establishing clear lines of communication with local emergency services is essential. This involves understanding who to contact, how to relay information quickly, and what specific terminology or codes should be used to convey the severity and nature of an incident.

Coordination with local emergency services extends beyond simple communication; it involves building a relationship based on trust and mutual understanding. Emergency responders must be familiar with the layout and potential hazards associated with mobile home communities. Regular meetings or training sessions can help foster this familiarity, allowing responders to react more effectively when called upon. HVAC teams can play a critical role by providing detailed maps or schematics of their work areas, highlighting potential hazards such as gas lines or electrical systems.

Furthermore, developing coordinated exit strategies requires input from both HVAC professionals and local emergency personnel. These strategies should account for various scenarios-ranging from fires to gas leaks-and outline specific roles for each party involved. A successful plan will designate primary and secondary escape routes, assembly points for evacuees, and procedures for accounting for all personnel once they have exited the premises.

The importance of drills cannot be overstated in ensuring preparedness. Regular simulated emergencies allow both HVAC teams and emergency services to practice their respective roles within the exit strategy framework. These drills highlight potential weaknesses in communication protocols or coordination efforts that can be addressed before a real crisis occurs.

In conclusion, effective communication protocols and coordination with local emergency services are critical components in developing robust exit strategies for emergencies in mobile home HVAC work. By fostering strong relationships between all parties involved, ensuring clear communication channels, and practicing through regular drills, we can significantly enhance safety outcomes for workers and residents alike during unforeseen events. As we continue to evolve our approaches to these challenges, collaboration remains the key driver behind every successful emergency response effort in this specialized field.

Best Practices for Ensuring Structural Integrity During Installation and Maintenance

In the realm of mobile home HVAC work, emergencies are not just a possibility but an inevitability. Whether it be severe weather conditions, system malfunctions, or unexpected power outages, those involved in this line of work must be prepared to respond efficiently and effectively. A critical component of managing these emergencies is the coordination of exit strategies - plans that ensure safety and minimize disruptions. By examining past case studies, we can glean valuable lessons that inform current practices and enhance future responses.

One notable case study involves a mobile home community situated in a region prone to hurricanes. In this instance, the HVAC systems were compromised due to prolonged power outages following a storm. The initial response was chaotic; without a coordinated plan, technicians struggled to prioritize service calls and manage resources effectively. This case highlighted the critical importance of having pre-established communication channels and protocols for mobilizing equipment and personnel during mass-scale emergencies.

From this experience, several lessons emerged. First, it became evident that advance planning is paramount. Having an exit strategy that outlines clear roles and responsibilities can drastically improve response times and outcomes. For example, designating specific team members for tasks such as system assessments or customer communications ensures that nothing falls through the cracks during high-pressure situations.

Another crucial lesson learned was the need for regular training and drills. These prepare teams for real-life scenarios by familiarizing them with emergency procedures and fostering teamwork under stress. Training sessions should simulate various types of emergencies - from weather-related incidents to technical failures - allowing teams to practice implementing their exit strategies under different conditions.

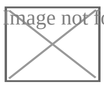
Furthermore, technology plays an indispensable role in coordinating exit strategies effectively. From using GPS tracking for dispatching technicians more efficiently to employing digital platforms that facilitate real-time communication among team members, integrating technology into emergency plans enhances coordination efforts considerably.

Finally, fostering relationships with local authorities and utility companies proved beneficial in this case study. Establishing partnerships before emergencies occur ensures smoother collaboration during crises when time is of the essence.

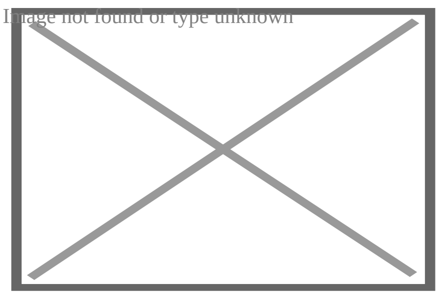
In conclusion, past emergencies in mobile home HVAC work offer invaluable insights into developing robust exit strategies for future incidents. By learning from previous experiences-emphasizing comprehensive planning, engaging in continuous training exercises, leveraging technology judiciously-and cultivating collaborative relationships-we can better navigate emergent situations with confidence while safeguarding both lives and property within vulnerable communities like those reliant on mobile homes' heating ventilation air conditioning systems .

About Modular building

For the Lego series, see Lego Modular Buildings.



This article **needs additional citations for verification**. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.
Find sources: "Modular building" – news · newspapers · books · scholar · JSTOR *(January 2024) (Learn how and when to remove this message)*

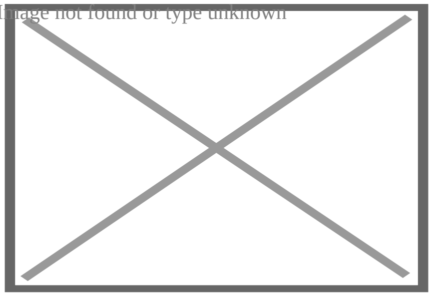


Prefabricated house in Valencia, Spain.

A **modular building** is a prefabricated building that consists of repeated sections called modules.[1] Modularity involves constructing sections away from the building site, then delivering them to the intended site. Installation of the prefabricated sections is completed on site. Prefabricated sections are sometimes placed using a crane. The modules can be placed side-by-side, end-to-end, or stacked, allowing for a variety of configurations and styles. After placement, the modules are joined together using inter-module connections, also known as inter-connections. The inter-connections tie the individual modules together to form the overall building structure.[2]

Uses

[edit]



Modular home prefab sections to be placed on the foundation

Modular buildings may be used for long-term, temporary or permanent facilities, such as construction camps, schools and classrooms, civilian and military housing, and industrial facilities. Modular buildings are used in remote and rural areas where conventional construction may not be reasonable or possible, for example, the Halley VI accommodation pods used for a BAS Antarctic expedition.[3] Other uses have included churches, health care facilities, sales and retail offices, fast food restaurants and cruise ship construction. They can also be used in areas that have weather concerns, such as hurricanes. Modular buildings are often used to provide temporary facilities, including toilets and ablutions at events. The portability of the buildings makes them popular with hire companies and clients alike. The use of modular buildings enables events to be held at locations where existing facilities are unavailable, or unable to support the number of event attendees.

Construction process

[edit]

Construction is offsite, using lean manufacturing techniques to prefabricate single or multi-story buildings in deliverable module sections. Often, modules are based around standard 20 foot containers, using the same dimensions, structures, building and stacking/placing techniques, but with smooth (instead of corrugated) walls, glossy white paint, and provisions for windows, power, potable water, sewage lines, telecommunications and air conditioning. Permanent Modular Construction (PMC) buildings are manufactured in a controlled setting and can be constructed of wood, steel, or concrete. Modular components are typically constructed indoors on assembly lines. Modules' construction may take as little as ten days but more often one to three months. PMC modules can be integrated into site built projects or stand alone and can be delivered with MEP, fixtures and interior finishes.

The buildings are 60% to 90% completed offsite in a factory-controlled environment, and transported and assembled at the final building site. This can comprise the entire building or be components or subassemblies of larger structures. In many cases, modular contractors work with traditional general contractors to exploit the resources and advantages of each type of construction. Completed modules are transported to the building site and assembled by a crane.[4] Placement of the modules may take from several hours to several days. Off-site construction running in parallel to site preparation providing a shorter time to project completion is one of the common selling points of modular construction. Modular construction timeline

Permanent modular buildings are built to meet or exceed the same building codes and standards as site-built structures and the same architect-specified materials used in conventionally constructed buildings are used in modular construction projects. PMC can have as many stories as building codes allow. Unlike relocatable buildings, PMC structures are intended to remain in one location for the duration of their useful life.

Manufacturing considerations

[edit]

The entire process of modular construction places significance on the design stage. This is where practices such as Design for Manufacture and Assembly (DfMA) are used to ensure that assembly tolerances are controlled throughout manufacture and assembly on site. It is vital that there is enough allowance in the design to allow the assembly to take up any "slack" or misalignment of components. The use of advanced CAD systems, 3D printing and manufacturing control systems are important for modular construction to be successful. This is quite unlike on-site construction where the tradesman can often make the part to suit any particular installation.

Bulk materials

- Image not found or type unknown
  Bulk
  materials
  Walls attached to floor
- Image not found or type unknown
  Walls attached to
  floor
  Ceiling drywalled in spray booth
- Image not found or type unknown

Ceiling drywalled in
spray booth
Roof set in place

- Image not found or type unknown
  Roof set in place
  Roof shingled and siding installed

- Image not found or type unknown
  Roof shingled and
  siding installed
  Ready for delivery to site

- Image not found or type unknown
  Ready for delivery to
  site
  Two-story modular dwelling

- Image not found or type unknown
  Two-story modular dwelling
  Pratt Modular Home in Tyler Texas

- Image not found or type unknown
  Pratt Modular Home in
  Tyler Texas
  Pratt Modular Home kitchen

- Image not found or type unknown

Pratt Modular Home
kitchen
Pratt Modular Home in Tyler Texas

- Image not found or type unknown
  Pratt Modular Home in
  Tyler Texas

Upfront production investment

[edit]

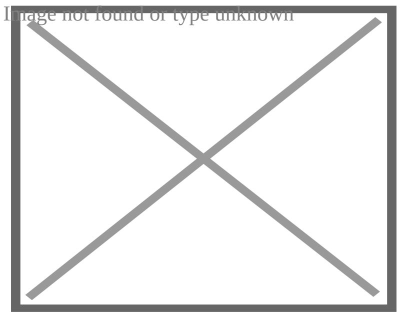
The development of factory facilities for modular homes requires significant upfront investment. To help address housing shortages in the 2010s, the United Kingdom Government (via Homes England) invested in modular housing initiatives. Several UK companies (for example, Ilke Homes, L&G Modular Homes, House by Urban Splash, Modulous, TopHat and Lighthouse) were established to develop modular homes as an alternative to traditionally-built residences, but failed as they could not book revenues quickly enough to cover the costs of establishing manufacturing facilities.

IIke Homes opened a factory in Knaresborough, Yorkshire in 2018, and Homes England invested £30m in November 2019,[5] and a further £30m in September 2021.[6] Despite a further fund-raising round, raising £100m in December 2022,[7][8] Ilke Homes went into administration on 30 June 2023,[9][10] with most of the company's 1,150 staff made redundant,[11] and debts of £320m,[12] including £68m owed to Homes England.[13]

In 2015 Legal & General launched a modular homes operation, L&G Modular Homes, opening a 550,000 sq ft factory in Sherburn-in-Elmet, near Selby in Yorkshire.[14] The company incurred large losses as it invested in its factory before earning any revenues; by 2019, it had lost over £100m.[15] Sales revenues from a Selby project, plus schemes in Kent and West Sussex, started to flow in 2022, by which time the business's total losses had grown to £174m.[16] Production was halted in May 2023, with L&G blaming local planning delays and the COVID-19 pandemic for its failure to grow its sales pipeline.[17][18] The enterprise incurred total losses over seven years of £295m.[19]

Market acceptance

[edit]



Raines Court is a multi-story modular housing block in Stoke Newington, London, one of the first two residential buildings in Britain of this type. (December 2005)

Some home buyers and some lending institutions resist consideration of modular homes as equivalent in value to site-built homes.[*citation needed*] While the homes themselves may be of equivalent quality, entrenched zoning regulations and psychological marketplace factors may create hurdles for buyers or builders of modular homes and should be considered as part of the decision-making process when exploring this type of home as a living and/or investment option. In the UK and Australia, modular homes have become accepted in some regional areas; however, they are not commonly built in major cities. Modular homes are becoming increasingly common in Japanese urban areas, due to improvements in design and quality, speed and compactness of onsite assembly, as well as due to lowering costs and ease of repair after earthquakes. Recent innovations allow modular buildings to be indistinguishable from site-built structures.[20] Surveys have shown that individuals can rarely tell the difference between a modular home and a site-built home.[21]

Modular homes vs. mobile homes

[edit]

Differences include the building codes that govern the construction, types of material used and how they are appraised by banks for lending purposes. Modular homes are built to either local or state building codes as opposed to manufactured homes, which are also built in a factory but are governed by a federal building code.[22] The codes that govern the construction of modular homes are exactly the same codes that govern the construction of site-constructed homes.[*citation needed*] In the United States, all modular homes are constructed according to the International Building Code (IBC), IRC, BOCA or the code that has been adopted by the local jurisdiction.[*citation needed*] In some states, such as California, mobile homes must still be registered yearly, like vehicles or standard trailers, with the Department of Motor Vehicles or other state agency. This is true even if the owners remove the axles and place it on a permanent foundation.[23]

Recognizing a mobile or manufactured home

[edit]

A mobile home should have a small metal tag on the outside of each section. If a tag cannot be located, details about the home can be found in the electrical panel box. This tag should also reveal a manufacturing date.[*citation needed*] Modular homes do not have metal tags on the outside but will have a dataplate installed inside the home, usually under the kitchen sink or in a closet. The dataplate will provide information such as the manufacturer, third party inspection agency, appliance information, and manufacture date.

Materials

[edit]

The materials used in modular buildings are of the same quality and durability as those used in traditional construction, preserving characteristics such as acoustic insulation and energy efficiency, as well as allowing for attractive and innovative designs thanks to their versatility.[24] Most commonly used are steel, wood and concrete.[25]

- Steel: Because it is easily moldable, it allows for innovation in design and aesthetics.
- Wood: Wood is an essential part of most modular buildings. Thanks to its lightness, it facilitates the work of assembling and moving the prefabricated modules.
- Concrete: Concrete offers a solid structure that is ideal for the structural reinforcement of permanent modular buildings. It is increasingly being used as a base material in this type of building, thanks to its various characteristics such as fire resistance, energy savings, greater acoustic insulation, and durability.[26]

Wood-frame floors, walls and roof are often utilized. Some modular homes include brick or stone exteriors, granite counters and steeply pitched roofs. Modulars can be designed to sit on a perimeter foundation or basement. In contrast, mobile homes are constructed with a steel chassis that is integral to the integrity of the floor system. Modular buildings can be custom built to a client's specifications. Current designs include multi-story units, multi-family units and entire apartment complexes. The negative stereotype commonly associated with mobile homes has prompted some manufacturers to start using the term "off-site construction."

New modular offerings include other construction methods such as cross-laminated timber frames.[27]

Financing

[edit]

Mobile homes often require special lenders.[28]

Modular homes on the other hand are financed as site built homes with a construction loan

Standards and zoning considerations

[edit]

Typically, modular dwellings are built to local, state or council code, resulting in dwellings from a given manufacturing facility having differing construction standards depending on the final destination of the modules.[29] The most important zones that manufacturers have to take into consideration are local wind, heat, and snow load zones.[*citation needed*] For example, homes built for final assembly in a hurricane-prone, earthquake or flooding area may include additional bracing to meet local building codes. Steel and/or wood framing are common options for building a modular home.

Some US courts have ruled that zoning restrictions applicable to mobile homes do not apply to modular homes since modular homes are designed to have a permanent foundation.[*citation needed*] Additionally, in the US, valuation differences between modular homes and site-built homes are often negligible in real estate appraisal practice; modular homes can, in some market areas, (depending on local appraisal practices per Uniform Standards of Professional Appraisal Practice) be evaluated the same way as site-built dwellings of similar quality. In Australia, manufactured home parks are governed by additional legislation that does not apply to permanent modular homes. Possible developments in equivalence between modular and site-built housing types for the purposes of real estate appraisals, financing and zoning may increase the sales of modular homes over time.[30]

CLASP (Consortium of Local Authorities Special Programme)

[edit]

The Consortium of Local Authorities Special Programme (abbreviated and more commonly referred to as CLASP) was formed in England in 1957 to combine the resources of local authorities with the purpose of developing a prefabricated school building programme. Initially developed by Charles Herbert Aslin, the county architect for Hertfordshire, the system was used as a model for several other counties, most notably Nottinghamshire and Derbyshire. CLASP's popularity in these coal mining areas was in part because the system permitted fairly straightforward replacement of subsidence-damaged sections of building.

Building strength

[edit]

Modular Home being built in Vermont photo by Josh Vignona

Image not found or type unknown

Modular home in Vermont

Modular homes are designed to be stronger than traditional homes by, for example, replacing nails with screws, adding glue to joints, and using 8–10% more lumber than conventional housing.[31] This is to help the modules maintain their structural integrity as they are transported on trucks to the construction site. However, there are few studies on the response of modular buildings to transport and handling stresses. It is therefore presently difficult to predict transport induced damage.[1]

When FEMA studied the destruction wrought by Hurricane Andrew in Dade County Florida, they concluded that modular and masonry homes fared best compared to other construction.[32]

CE marking

[edit]

The CE mark is a construction norm that guarantees the user of mechanical resistance and strength of the structure. It is a label given by European community empowered authorities for end-to-end process mastering and traceability.[*citation needed*]

All manufacturing operations are being monitored and recorded:

- Suppliers have to be known and certified,
- Raw materials and goods being sourced are to be recorded by batch used,
- Elementary products are recorded and their quality is monitored,
- Assembly quality is managed and assessed on a step by step basis,
- When a modular unit is finished, a whole set of tests are performed and if quality standards are met, a unique number and EC stamp is attached to and on the unit.

This ID and all the details are recorded in a database, At any time, the producer has to be able to answer and provide all the information from each step of the production of a single unit, The EC certification guaranties standards in terms of durability, resistance against wind and earthquakes.[*citation needed*]

Open modular building

[edit]
See also: Green building

The term Modularity can be perceived in different ways. It can even be extended to building P2P (peer-to-peer) applications; where a tailored use of the P2P technology is with the aid of a modular paradigm. Here, well-understood components with clean interfaces can be combined to implement arbitrarily complex functions in the hopes of further proliferating self-organising P2P technology. Open modular buildings are an excellent example of this. Modular building can also be open source and green. Bauwens, Kostakis and Pazaitis[33] elaborate on this kind of modularity. They link modularity to the construction of houses.

This commons-based activity is geared towards modularity. The construction of modular buildings enables a community to share designs and tools related to all the different parts of house construction. A socially-oriented endeavour that deals with the external architecture of buildings and the internal dynamics of open source commons. People are thus provided with the tools to reconfigure the public sphere in the area where they live, especially in urban environments. There is a robust socializing element that is reminiscent of pre-industrial vernacular architecture and community-based building.[34]

Some organisations already provide modular housing. Such organisations are relevant as they allow for the online sharing of construction plans and tools. These plans can be then assembled, through either digital fabrication like 3D printing or even sourcing low-cost materials from local communities. It has been noticed that given how easy it is to use these low-cost materials are (for example: plywood), it can help increase the permeation of these open buildings to areas or communities that lack the know-how or abilities of conventional architectural or construction firms. Ergo, it allows for a fundamentally more standardised way of constructing houses and buildings. The overarching idea behind it remains key - to allow for easy access to user-friendly layouts which anyone can use to build in a more sustainable and affordable way.

Modularity in this sense is building a house from different standardised parts, like solving a jigsaw puzzle.

3D printing can be used to build the house.

The main standard is OpenStructures and its derivative Autarkytecture.[35]

Research and development

[edit]

Modular construction is the subject of continued research and development worldwide as the technology is applied to taller and taller buildings. Research and development is carried out by modular building companies and also research institutes such as the Modular Building Institute[36] and the Steel Construction Institute.[37]

See also

[edit]

- Image not found or type unknown Housing portal
- Affordable housing
- Alternative housing
- Commercial modular construction
- Construction 3D printing
- Container home
- Kit house
- MAN steel house
- Manufactured housing
- Modern methods of construction
- Modular design
- Portable building
- Prefabrication

- Open-source architecture
- Open source hardware
- OpenStructures
- Prefabricated home
- Relocatable buildings
- Recreational vehicles
- Shipping container architecture
- Stick-built home
- Tiny house movement
- Toter

References

[edit]

1. ^ ***a b*** *Lacey, Andrew William; Chen, Wensu; Hao, Hong; Bi, Kaiming (2018). "Structural Response of Modular Buildings – An Overview". Journal of Building Engineering.* ***16****: 45–56. doi:10.1016/j.jobe.2017.12.008. hdl:20.500.11937/60087.*
2. **^** *Lacey, Andrew William; Chen, Wensu; Hao, Hong; Bi, Kaiming (2019). "Review of bolted inter-module connections in modular steel buildings". Journal of Building Engineering.* ***23****: 207–219. doi:10.1016/j.jobe.2019.01.035. S2CID 86540434.*
3. **^** *"Halley VI Research Station – British Antarctic Survey". Bas.ac.uk. Retrieved 2016-05-03.*
4. **^** *"Why Build Modular?". Modular.org. Retrieved 2016-05-03.*
5. **^** *Morby, Aaron (4 November 2019). "Government pumps £30m into modular house builder". Construction Enquirer. Retrieved 14 March 2024.*
6. **^** *Morby, Aaron (27 September 2021). "Ilke Homes raises £60m for top 10 house builder plan". Construction Enquirer. Retrieved 14 March 2024.*
7. **^** *Morby, Aaron (6 December 2022). "Ilke Homes pulls off £100m record-breaking fund raise". Construction Enquirer. Retrieved 14 March 2024.*
8. **^** *O'Connor, Rob (6 December 2022). "ilke Homes announces new £100m investment". Infrastructure Intelligence. Retrieved 14 March 2024.*
9. **^** *Gardiner, Joey (30 June 2023). "Ilke Homes sinks into administration with most of firm's 1,100 staff set to lose their jobs". Building. Retrieved 14 March 2024.*
10. **^** *Riding, James (30 June 2023). "Modular house builder Ilke Homes enters administration with majority of staff to be made redundant". Inside Housing. Retrieved 14 March 2024.*
11. **^** *Morby, Aaron (30 June 2023). "Ilke Homes falls into administration". Construction Enquirer. Retrieved 14 March 2024.*
12. **^** *Prior, Grant (25 August 2023). "Ilke Homes went under owing £320m". Construction Enquirer. Retrieved 14 March 2024.*
13. **^** *Willmore, James (14 February 2024). "Homes England to lose most of £68.8m it is owed from Ilke Homes following collapse". Inside Housing. Retrieved 14 March 2024.*
14. **^** *Dale, Sharon (11 May 2020). "Head of Legal & General modular homes factory reveals plans for its future". Yorkshire Post. Retrieved 20 March 2024.*

15. **^** *Morby, Aaron (30 November 2020). "L&G modular homes losses exceed £100m". Construction Enquirer. Retrieved 20 March 2024.*
16. **^** *Morby, Aaron (3 October 2022). "L&G modular homes amassed loss deepens to £174m". Construction Enquirer. Retrieved 20 March 2024.*
17. **^** *Prior, Grant (4 May 2023). "L&G halts production at modular homes factory". Construction Enquirer. Retrieved 20 March 2024.*
18. **^** *Kollewe, Julia (4 May 2023). "Legal & General halts new production at modular homes factory near Leeds". The Guardian.*
19. **^** *Morby, Aaron (6 November 2023). "L&G modular homes foray amassed £295m of losses". Construction Enquirer. Retrieved 20 March 2024.*
20. **^** *fab, ukporta (19 August 2020). "prefabricated structures". ukportaprefab. Retrieved 4 September 2020.*
21. **^** *"Factory-Built Construction and the American Homebuyer: Perceptions and Opportunities" (PDF). Huduser.gov. p. 9. Retrieved 2017-09-10.*
22. **^** *Solutions, Dryside Property – Jennifer Mitchell and Magic Web. "Mobile homes vs Manufactured homes vs Modular homes". Drysideproperty.com. Retrieved 2018-03-09.*
23. **^** *"HCD Manufactured and Mobile Homes". Hcd.ca.gov.*
24. **^** Métodos modernos de construcción (MMC): Fabricación modular. Upv.es. 2020-10-02 Retrieved 2022-09-08
25. **^** A guide to the latest modular building construction materials. Hydrodiseno.com. 2021-12-14 Retrieved 2022-09-05
26. **^** Construcción modular en hormigón: una tendencia al alza (PDF). Andece.org. p. 53. Retrieved 2022-07-06
27. **^** *"Prefabricated Housing Module Advances Wood Research at the University of British Columbia | 2017-05-15T00:00:00 | Perkins + Will News". Archived from the original on 2019-03-31. Retrieved 2019-03-31.*
28. **^** *"HUD Financing Manufactured (Mobile) Homes". Portal.hud.gov. Archived from the original on 2016-05-03. Retrieved 2016-05-03.*
29. **^** *"Australian Government modular home regulations". Austlii.edu.au. Retrieved 2007-10-21.*
30. **^** *"Building Codes for Modular Homes". Modularhomesnetwork.com. Retrieved 2010-08-06.*
31. **^** *"Disruptive Development: Modular Manufacturing In Multifamily Housing" (PDF). p. 35. Retrieved 10 September 2017.*
32. **^** *"FIA 22, Mitigation Assessment Team Report: Hurricane Andrew in Florida (1993)". Fema.gov.*
33. **^** Bouwens, M., Kostakis, V., & Pazaitis, A. 2019. The Commons Manifesto. University of Westminster Press, London, pg. 24
34. **^** Bouwens, M., Kostakis, V., & Pazaitis, A. 2019. The Commons Manifesto. University of Westminster Press, London, pg. 25
35. **^** *"Thomas Lommée & Christiane Hoegner - Autarkytecture | z33". Archived from the original on 2014-12-31. Retrieved 2015-01-01.*
36. **^** *"Modular Building Institute". Modular.org.*

37. **^** *"The Steel Construction Institute (SCI) UK Global Steel Expertise". Steel-sci.com.*

34 - "Volumetric modular construction trend gaining groun d". https://www.aa.com.tr/en/corporate-news/volumetric-modular-construction-trend-gaining-ground/2357158 06.09.2021

Portal:

- Image not found or type unknown housing

About Fan coil unit

Image not found or type unknown

This article **relies largely or entirely on a single source**. Relevant discussion may be found on the talk page. Please help improve this article by introducing citations to additional sources.
Find sources: "Fan coil unit" – news · newspapers · books · scholar · JSTOR *(August 2014)*

Image not found or type unknown

This article **may be too technical for most readers to understand**. Please help improve it to make it understandable to non-experts, without removing the technical details. *(August 2014) (Learn how and when to remove this message)*

Image not found or type unknown

This article's **tone or style may not reflect the encyclopedic tone used on Wikipedia**. See Wikipedia's guide to writing better articles for suggestions. *(August 2014) (Learn how and when to remove this message)*

Image not found or type unknown

This article **may need to be rewritten** to comply with Wikipedia's quality standards. You can help. The talk page may contain suggestions. *(August 2023)*

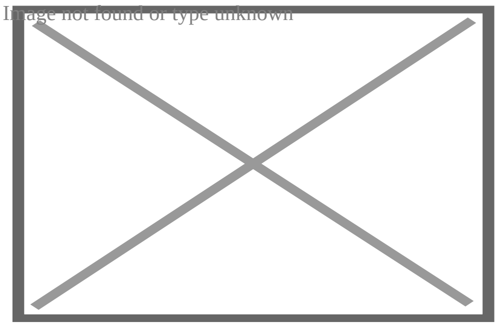
Image not found or type unknown

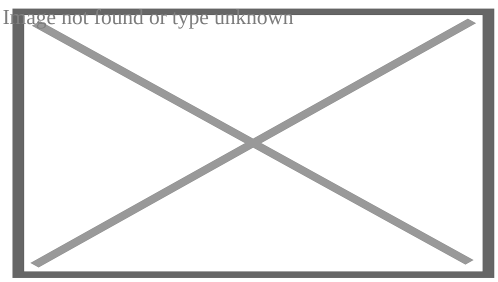
This article has multiple issues. Please help **improve it** or discuss these issues on the **talk page**. *(Learn how and when to remove these messages)*

(Learn how and when to remove this message)

Image not found or type unknown

Refrigerant based Fan-Coil Unit. Other variants utilize a chilled, or heated water loop for space cooling, or heating, respectively.





A **fan coil unit** (**FCU**), also known as a **Vertical Fan Coil Unit** (**VFCU**), is a device consisting of a heat exchanger (coil) and a fan. FCUs are commonly used in HVAC systems of residential, commercial, and industrial buildings that use ducted split air conditioning or central plant cooling. FCUs are typically connected to ductwork and a thermostat to regulate the temperature of one or more spaces and to assist the main air handling unit for each space if used with chillers. The thermostat controls the fan speed and/or the flow of water or refrigerant to the heat exchanger using a control valve.

Due to their simplicity, flexibility, and easy maintenance, fan coil units can be more economical to install than ducted 100% fresh air systems (VAV) or central heating systems with air handling units or chilled beams. FCUs come in various configurations, including horizontal (ceiling-mounted) and vertical (floor-mounted), and can be used in a wide range of applications, from small residential units to large commercial and industrial buildings.

Noise output from FCUs, like any other form of air conditioning, depends on the design of the unit and the building materials surrounding it. Some FCUs offer noise levels as low as NR25 or NC25.

The output from an FCU can be established by looking at the temperature of the air entering the unit and the temperature of the air leaving the unit, coupled with the volume of air being moved through the unit. This is a simplistic statement, and there is further reading on sensible heat ratios and the specific heat capacity of air, both of which have an effect on thermal performance.

Design and operation

[edit]

Fan Coil Unit covers a range of products and will mean different things to users, specifiers, and installers in different countries and regions, particularly in relation to product size and output capability.

Fan Coil Unit falls principally into two main types: blow through and draw through. As the names suggest, in the first type the fans are fitted behind the heat exchanger, and in the other type the fans are fitted in front the coil such that they draw air through it. Draw through units are considered thermally superior, as ordinarily they make better use of the heat exchanger. However they are more expensive, as they require a chassis to hold the fans whereas a blow-through unit typically consists of a set of fans bolted straight to a coil.

A fan coil unit may be concealed or exposed within the room or area that it serves.

An exposed fan coil unit may be wall-mounted, freestanding or ceiling mounted, and will typically include an appropriate enclosure to protect and conceal the fan coil unit itself, with return air grille and supply air diffuser set into that enclosure to distribute the air.

A concealed fan coil unit will typically be installed within an accessible ceiling void or services zone. The return air grille and supply air diffuser, typically set flush into the ceiling, will be ducted to and from the fan coil unit and thus allows a great degree of flexibility for locating the grilles to suit the ceiling layout and/or the partition layout within a space. It is quite common for the return air not to be ducted and to use the ceiling void as a return air plenum.

The coil receives hot or cold water from a central plant, and removes heat from or adds heat to the air through heat transfer. Traditionally fan coil units can contain their own internal thermostat, or can be wired to operate with a remote thermostat. However, and as is common in most modern buildings with a Building Energy Management System (BEMS), the control of the fan coil unit will be by a local digital controller or outstation (along with associated room temperature sensor and control valve actuators) linked to the BEMS via a communication network, and therefore adjustable and controllable from a central point, such as a supervisors head end computer.

Fan coil units circulate hot or cold water through a coil in order to condition a space. The unit gets its hot or cold water from a central plant, or mechanical room containing equipment for removing heat from the central building's closed-loop. The equipment used can consist of machines used to remove heat such as a chiller or a cooling tower and equipment for adding heat to the building's water such as a boiler or a commercial water heater.

Hydronic fan coil units can be generally divided into two types: Two-pipe fan coil units or four-pipe fan coil units. Two-pipe fan coil units have one supply and one return pipe. The supply pipe supplies either cold or hot water to the unit depending on the time of year. Four-pipe fan coil units have two supply pipes and two return pipes. This allows either hot or cold water to enter the unit at any given time. Since it is often necessary to heat and cool different areas of a building at the same time, due to differences in internal heat loss or heat gains, the four-pipe fan coil unit is most commonly used.

Fan coil units may be connected to piping networks using various topology designs, such as "direct return", "reverse return", or "series decoupled". See ASHRAE Handbook "2008 Systems & Equipment", Chapter 12.

Depending upon the selected chilled water temperatures and the relative humidity of the space, it's likely that the cooling coil will dehumidify the entering air stream, and as a by product of this process, it will at times produce a condensate which will need to be carried to drain. The fan coil unit will contain a purpose designed drip tray with drain connection for this purpose. The simplest means to drain the condensate from multiple fan coil units will be by a network of pipework laid to falls to a suitable point. Alternatively a condensate pump may be employed where space for such gravity pipework is limited.

The fan motors within a fan coil unit are responsible for regulating the desired heating and cooling output of the unit. Different manufacturers employ various methods for controlling the motor speed. Some utilize an AC transformer, adjusting the taps to modulate the power supplied to the fan motor. This adjustment is typically performed during the commissioning stage of building construction and remains fixed for the lifespan of the unit.

Alternatively, certain manufacturers employ custom-wound Permanent Split Capacitor (PSC) motors with speed taps in the windings. These taps are set to the desired speed levels for the specific design of the fan coil unit. To enable local control, a simple speed selector switch (Off-High-Medium-Low) is provided for the occupants of the room. This switch is often integrated into the room thermostat and can be manually set or automatically controlled by a digital room thermostat.

For automatic fan speed and temperature control, Building Energy Management Systems are employed. The fan motors commonly used in these units are typically AC Shaded Pole or Permanent Split Capacitor motors. Recent advancements include the use of brushless DC designs with electronic commutation. Compared to units equipped with asynchronous 3-speed motors, fan coil units utilizing brushless motors can reduce power consumption by up to 70%.[1]

Fan coil units linked to ducted split air conditioning units use refrigerant in the cooling coil instead of chilled coolant and linked to a large condenser unit instead of a chiller. They might also be linked to liquid-cooled condenser units which use an intermediate coolant to cool the condenser using cooling towers.

DC/EC motor powered units

[edit]

These motors are sometimes called DC motors, sometimes EC motors and occasionally DC/EC motors. DC stands for direct current and EC stands for electronically commutated.

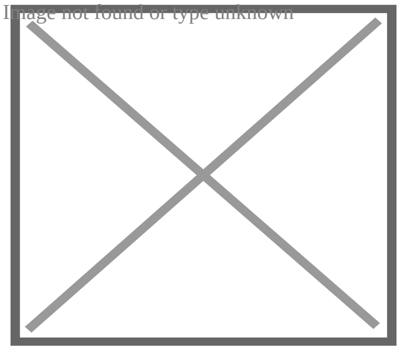
DC motors allow the speed of the fans within a fan coil unit to be controlled by means of a 0-10 Volt input control signal to the motor/s, the transformers and speed switches associated with AC fan coils are not required. Up to a signal voltage of 2.5 Volts (which may vary with different fan/motor manufacturers) the fan will be in a stopped condition but as the signal voltage is increased, the fan will seamlessly increase in speed until the maximum is reached at a signal Voltage of 10 Volts. fan coils will generally operate between approximately 4 Volts and 7.5 Volts because below 4 Volts the air volumes are ineffective and above 7.5 Volts the fan coil is likely to be too noisy for most commercial applications.

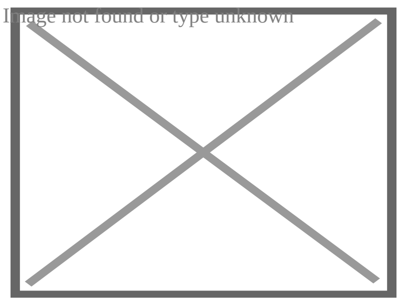
The 0-10 Volt signal voltage can be set via a simple potentiometer and left or the 0-10 Volt signal voltage can be delivered to the fan motors by the terminal controller on each of the Fan Coil Units. The former is very simple and cheap but the latter opens up the opportunity to continuously alter the fan speed depending on various external conditions/influences. These conditions/criteria could be the 'real time' demand for either heating or cooling, occupancy levels, window switches, time clocks or any number of other inputs from either the unit itself, the Building Management System or both.

The reason that these DC Fan Coil Units are, despite their apparent relative complexity, becoming more popular is their improved energy efficiency levels compared to their AC motor-driven counterparts of only a few years ago. A straight swap, AC to DC, will reduce electrical consumption by 50% but applying Demand and Occupancy dependent fan speed control can take the savings to as much as 80%. In areas of the world where there are legally enforceable energy efficiency requirements for fan coils (such as the UK), DC Fan Coil Units are rapidly becoming the only choice.

Areas of use

[edit]





In high-rise buildings, fan coils may be vertically stacked, located one above the other from floor to floor and all interconnected by the same piping loop.

Fan coil units are an excellent delivery mechanism for hydronic chiller boiler systems in large residential and light commercial applications. In these applications the fan coil units are mounted in bathroom ceilings and can be used to provide unlimited comfort zones - with the ability to turn off unused areas of the structure to save energy.

Installation

[edit]

In high-rise residential construction, typically each fan coil unit requires a rectangular through-penetration in the concrete slab on top of which it sits. Usually, there are either 2 or 4 pipes made of ABS, steel or copper that go through the floor. The pipes are usually insulated with refrigeration insulation, such as acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam (Rubatex or Armaflex brands) on all pipes, or at least on the chilled water lines to prevent condensate from forming.

Unit ventilator

[edit]

A unit ventilator is a fan coil unit that is used mainly in classrooms, hotels, apartments and condominium applications. A unit ventilator can be a wall mounted or ceiling hung cabinet, and is designed to use a fan to blow outside air across a coil, thus conditioning and ventilating the space which it is serving.

European market

[edit]

The Fan Coil is composed of one quarter of 2-pipe-units and three quarters of 4-pipe-units, and the most sold products are "with casing" (35%), "without casing" (28%), "cassette" (18%) and "ducted" (16%).[2]

The market by region was split in 2010 as follows:

Region	Sales Volume in units[2]	Share
Benelux	33 725	2.6%
France	168 028	13.2%
Germany	63 256	5.0%
Greece	33 292	2.6%
Italy	409 830	32.1%
Poland	32 987	2.6%
Portugal	22 957	1.8%
Russia, Ukraine and CIS countries	87 054	6.8%
Scandinavia and Baltic countries	39 124	3.1%
Spain	91 575	7.2%
Turkey	70 682	5.5%
UK and Ireland	69 169	5.4%
Eastern Europe	153 847	12.1%

See also

[edit]
Image not found or type unknown
Wikimedia Commons has media related to ***Fan coil units***.

- Thermal insulation
- HVAC
- Construction
- Intumescent
- Firestop

References

[edit]

1. **^** *"Fan Coil Unit". Heinen & Hopman. Retrieved 2023-08-30.*
2. ^ ***a b*** *"Home". Eurovent Market Intelligence.*

- v
- t
- e

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

- 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

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

About Durham Supply Inc

Photo

Image not found or type unknown

Photo

Image not found or type unknown

Photo

Image not found or type unknown

Photo

Image not found or type unknown

Photo

Image not found or type unknown

Photo

Image not found or type unknown

Things To Do in Tulsa County

Photo

Image not found or type unknown

The Blue Dome

4.5 (60)

Photo

Image not found or type unknown

Guthrie Green

4.7 (3055)

Photo

Tours of Tulsa

4.9 (291)

Photo

Image not found or type unknown

Route 66 Historical Village

4.4 (718)

Photo

Image not found or type unknown

Tulsa Air and Space Museum & Planetarium

4.3 (419)

Photo

Bob Dylan Center

4.9 (245)

Driving Directions in Tulsa County

Driving Directions From Waffle House to Durham Supply Inc

Driving Directions From Tulsa to Durham Supply Inc

Driving Directions From Brookhaven Hospitales to Durham Supply Inc

Driving Directions From Dollar General to Durham Supply Inc

**https://www.google.com/maps/dir/Brookhaven+Hospitales/Durham+Supply+Inc/@36.15
95.8495188,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sChIJ05Q-
HwTztocR0q6HuDgEScA!2m2!1d-
95.8495188!2d36.1581877!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e0**

**https://www.google.com/maps/dir/Tuff+Shed+Tulsa/Durham+Supply+Inc/@36.1572625,
95.8371145,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sChIJrUAcBQ3ztocR1ytS4G4tw-
g!2m2!1d-
95.8371145!2d36.1572625!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e2**

**https://www.google.com/maps/dir/Camp+Bow+Wow/Durham+Supply+Inc/@36.1592217
95.8133058,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sChIJtec_BYP0tocR4OerOd444p
95.8133058!2d36.1592217!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e1**

**https://www.google.com/maps/dir/ALDI/Durham+Supply+Inc/@36.1324391,-
95.8340763,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sChIJR7H050fztocRkvuY7ZNaGt
95.8340763!2d36.1324391!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-**

95.8384781!2d36.1563128!3e3

Driving Directions From Tulsa Air and Space Museum & Planetarium to Durham Supply Inc

Driving Directions From The Cave House to Durham Supply Inc

Driving Directions From Tulsa Botanic Garden to Durham Supply Inc

Driving Directions From Guthrie Green to Durham Supply Inc

Driving Directions From Streetwalker Tours to Durham Supply Inc

Driving Directions From The Tulsa Arts District to Durham Supply Inc

https://www.google.com/maps/dir/The+Cave+House/Durham+Supply+Inc/@36.1517211
96.0112668,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-
96.0112668!2d36.1517211!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e0

https://www.google.com/maps/dir/Guthrie+Green/Durham+Supply+Inc/@36.1597162,-
95.9920028,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-
95.9920028!2d36.1597162!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e2

https://www.google.com/maps/dir/The+Blue+Dome/Durham+Supply+Inc/@36.1557551,
95.9870395,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-
95.9870395!2d36.1557551!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-
95.8384781!2d36.1563128!3e1

https://www.google.com/maps/dir/Route+66+Historical+Village/Durham+Supply+Inc/@3
96.0161972,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-

96.0161972!2d36.1083018!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-95.8384781!2d36.1563128!3e3

https://www.google.com/maps/dir/The+Outsiders+House+Museum/Durham+Supply+In
95.9703987,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-95.9703987!2d36.1654767!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-95.8384781!2d36.1563128!3e0

https://www.google.com/maps/dir/Gathering+Place/Durham+Supply+Inc/@36.1251603,
95.9840207,14z/data=!3m1!4b1!4m14!4m13!1m5!1m1!1sunknown!2m2!1d-95.9840207!2d36.1251603!1m5!1m1!1sChIJDzPLSIrytocRY_EaORpHGro!2m2!1d-95.8384781!2d36.1563128!3e2

Reviews for Durham Supply Inc

Durham Supply Inc

Image not found or type unknown

Dennis Champion

(5)

Durham supply and Royal supply seems to find the most helpful and friendly people to work in their stores, we are based out of Kansas City out here for a few remodels and these guys treated us like we've gone there for years.

Durham Supply Inc

Image not found or type unknown

Ty Spears

(5)

Bought a door/storm door combo. Turns out it was the wrong size. They swapped it out, quick and easy no problems. Very helpful in explaining the size differences from standard door sizes.

Durham Supply Inc

Image not found or type unknown

Gerald Clifford Brewster

(5)

We will see, the storm door I bought says on the tag it's 36x80, but it's 34x80. If they return it.......they had no problems returning it. And it was no fault of there's, you measure a mobile home door different than a standard door!

Durham Supply Inc

Image not found or type unknown

B Mann

(5)

I was in need of some items for a double wide that I am remodeling and this place is the only place in town that had what I needed (I didn't even try the other rude place)while I was there I learned the other place that was in Tulsa that also sold mobile home supplies went out of business (no wonder the last time I was in there they were VERY RUDE and high priced) I like the way Dunham does business they answered all my questions and got me the supplies I needed, very friendly, I will be back to purchase the rest of my items when the time comes.

Durham Supply Inc

Image not found or type unknown

Ethel Schiller

(5)

This place is really neat, if they don't have it they can order it from another of their stores and have it there overnight in most cases. Even hard to find items for a trailer! I definitely recommend this place to everyone! O and the prices is awesome too!

Coordinating Exit Strategies for Emergencies in Mobile Home HVAC Work**View GBP**

Check our other pages :

- **Overcoming Physical Constraints in Legacy Structures**
- **Checking for Proper Ventilation in Mobile Home HVAC Crawl Spaces**
- **Transitioning to Improved Refrigerants for Compliance**
- **Following OSHA Standards During Mobile Home AC Installations**

Royal Supply Inc

Phone : +16362969959

City : Oklahoma City

State : OK

Zip : 73149

Address : Unknown Address

Google Business Profile

Company Website : **https://royal-durhamsupply.com/locations/oklahoma-city-oklahoma/**

Sitemap

Privacy Policy

About Us

Follow us