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# Identifying Compatible Parts Across Multiple Mobile Home Brands

## Overview of HVAC needs specific to mobile homes

Mobile homes, often referred to as manufactured homes, have become an increasingly popular housing option due to their affordability and flexibility. With a variety of brands offering unique designs and features, homeowners are spoiled for choice. However, one challenge that arises with the diversity of mobile home brands is identifying compatible parts across different manufacturers. This essay provides an overview of some popular mobile home brands and explores how to identify interchangeable components among them.

Firstly, let's consider Clayton Homes, one of the largest manufacturers in the United States. Known for their customizable options and innovative designs, Clayton Homes offers a wide range of models that cater to different lifestyles and budgets. Their focus on sustainability and energy efficiency has made them a preferred choice for many eco-conscious buyers. Energy-efficient HVAC units can significantly reduce utility costs in mobile homes **mobile home hvac systems** pump. Due to their scale and standardization practices, Clayton Homes often uses parts that can be found in other major brands, making it easier for owners to find compatible replacements.

Another prominent name in the industry is Skyline Champion Corporation. This brand is known for its high-quality construction standards and customer-centric approach. They offer a diverse selection of floor plans that appeal to both first-time buyers and seasoned homeowners looking for upgrade options. While Skyline Champion maintains certain proprietary features in their designs, they also utilize industry-standard components which can be sourced from multiple suppliers.

Fleetwood Homes is yet another key player in the mobile home market. Fleetwood has built a reputation over decades for durable homes designed with modern aesthetics in mind. Their commitment to quality assurance means they frequently collaborate with trusted

suppliers who provide universal parts used by various manufacturers across the board.

When it comes to identifying compatible parts across these brands, there are several strategies that homeowners can employ. First, leveraging online resources such as forums dedicated to mobile home maintenance can provide valuable insights from experienced individuals who have navigated similar challenges before. Homeowners should also consult part catalogs offered by manufacturers or third-party suppliers that specify cross-compatibility details-these documents can serve as essential guides when sourcing replacement parts.

Additionally, engaging with professional repair services or contractors who specialize in mobile home repairs can offer expert advice on compatible components across different models and brands. These professionals often have extensive networks within the industry enabling them to source hard-to-find items or suggest alternative solutions where direct replacements are unavailable.

Finally, maintaining clear records of any modifications or repairs done on your mobile home is crucial-it ensures you have accurate information about part numbers or specifications needed when seeking replacements later on.

In conclusion, while the landscape of popular mobile home brands like Clayton Homes, Skyline Champion Corporation, and Fleetwood Homes presents diverse options for consumers; understanding compatibility between parts remains an important consideration during purchase decisions or ongoing maintenance efforts. By utilizing resources available through community knowledge bases online along with consulting experts within this field-homeowners stand a better chance at seamlessly integrating necessary replacements into their existing setups without unnecessary hassle or expense.

## Importance of efficient heating and cooling solutions —

- Overview of HVAC needs specific to mobile homes
- Importance of efficient heating and cooling solutions
- Understanding Financing Options for Mobile Home HVAC
- Explanation of common financing packages available

- **Key factors to consider when choosing a financing option**
- **Personal Loans for HVAC Systems**
- **Pros and cons of using personal loans for HVAC installation**

Mobile home HVAC systems are crucial for maintaining comfort and livability within manufactured homes. These systems, tailored to the unique requirements of mobile homes, consist of several key components that work together to provide efficient heating, ventilation, and air conditioning. Understanding these components not only aids in effective maintenance but also in identifying compatible parts across various mobile home brands.

The core component of any HVAC system is the furnace or heat pump, responsible for generating heat during colder months. In mobile homes, furnaces are typically compact and designed to fit limited spaces without compromising efficiency. They often run on electricity or gas and must be chosen based on the size and layout of the home to ensure optimal performance. Heat pumps are an alternative option that provides both heating and cooling by transferring heat between the interior of the home and the outside environment.

Another critical component is the air conditioner or cooling unit. Mobile homes often use a split-system air conditioner, which consists of an indoor unit connected to an outdoor compressor via refrigerant lines. In some cases, packaged units are employed where all components are housed in a single cabinet situated outside the home. Selecting compatible cooling units involves considering factors such as energy efficiency ratings (SEER), unit capacity (BTU), and compatibility with existing ductwork.

Ventilation plays a vital role in maintaining indoor air quality by expelling stale air and introducing fresh air into living spaces. This function is typically managed through a network of ducts that distribute conditioned air throughout the home. Mobile home ducts tend to be narrower than those in traditional houses due to space constraints, making it essential to choose parts that match these specifications closely when replacements are necessary.

Thermostats act as control centers for mobile home HVAC systems, regulating temperatures according to user preferences while maximizing energy efficiency. Modern thermostats offer programmable features that enable users to set specific temperature schedules tailored to their daily routines. Compatibility concerns arise when integrating smart thermostats with older systems; thus ensuring proper communication between devices is pivotal.

Finally, filters serve as guardians against dust, pollen, and other airborne particles that can compromise both HVAC performance and indoor health standards. Regular replacement or cleaning ensures optimal airflow through the system while extending its lifespan significantly.

Identifying compatible parts across multiple mobile home brands requires comprehensive knowledge about these fundamental components alongside detailed information regarding brand-specific designs or modifications made over time by manufacturers seeking differentiation within competitive markets.

In conclusion, understanding key aspects surrounding mobile home HVAC systems empowers homeowners not only towards informed decision-making concerning repairs but fosters confidence navigating diverse product offerings available today-ultimately leading toward enhanced comfort levels amidst ever-changing environmental conditions impacting modern lifestyles at large."

## Affordable Payment Plans for Upgrading Mobile Home AC Systems

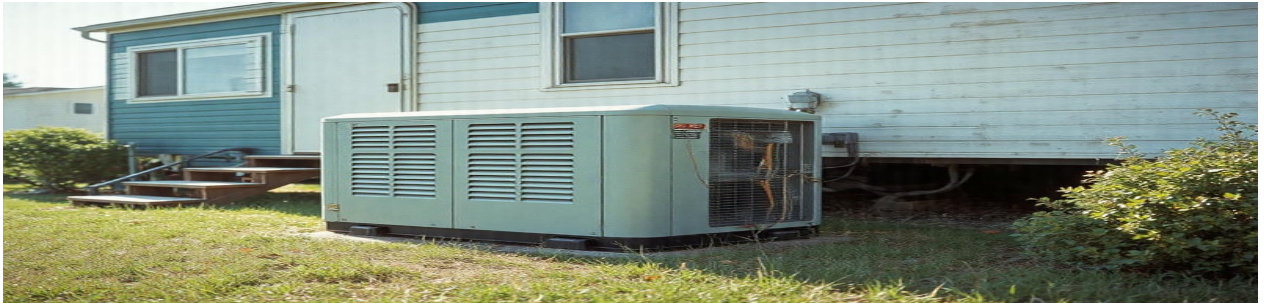


Choosing the right payment plan for upgrading your mobile home AC system is a crucial decision that can significantly impact your financial stability and comfort at home.. With numerous options available, it's essential to consider several factors to ensure you select a plan that aligns with your needs and budget. Firstly, assess your financial situation.

Posted by on 2024-12-30



## Aligning Equipment Compatibility with Financing Options in Mobile Homes



In the dynamic world of mobile homes, aligning equipment compatibility with financing options is a crucial element that can significantly impact the success of any project.. The process involves ensuring that the equipment used in mobile home construction or renovation is not only technically suitable but also financially feasible.

Posted by on 2024-12-30

## Benefits of Payment Plans Tailored for Mobile Home HVAC Upgrades



When contemplating upgrades to your mobile home's HVAC system, choosing the right payment plan is as crucial as selecting the equipment itself.. As energy efficiency and comfort become increasingly important, many homeowners are considering tailored payment plans that make these enhancements more accessible.

Posted by on 2024-12-30

# Understanding Financing Options for Mobile Home HVAC

In the realm of mobile home maintenance and repair, identifying compatible parts across multiple brands is a task of paramount importance. Mobile homes, often constructed with unique specifications and materials, require precise attention when it comes to repairs and part replacements. The ability to correctly identify compatible components can mean the difference between a seamless repair process and an arduous journey fraught with mismatched parts and inefficient fixes.

Firstly, understanding compatibility across different brands ensures safety. Mobile homes are intricate structures that integrate various systems such as electrical, plumbing, heating, and structural components. An incompatible part could compromise the integrity of these systems, leading to potential hazards like electrical failures or water leaks. Therefore, ensuring parts are not only suitable but also certified for use in specific models is crucial for maintaining safe living conditions.

Moreover, identifying compatible parts enhances efficiency in repairs. Homeowners or technicians equipped with the knowledge of which parts align with which models can expedite the repair process significantly. This not only saves time but also reduces labor costs associated with trial-and-error methods of finding suitable replacements. In an industry where time equals money, especially for professionals managing multiple jobs simultaneously, this efficiency cannot be understated.

Additionally, knowing how to find compatible parts fosters cost-effectiveness. Purchasing incorrect or ill-fitting components can lead to unnecessary expenses-not just in terms of money spent on wrong parts but also due to potential damage caused by their improper installation or operation. By thoroughly understanding compatibility requirements across brands, one avoids these pitfalls and optimizes their budget effectively.

Furthermore, this skill supports sustainability efforts within the industry. Correctly matching parts minimizes waste generated from discarded incompatible materials and promotes longer lifespans for existing mobile homes through proper maintenance practices. In a world increasingly focused on environmental responsibility, such conscientiousness contributes positively toward reducing one's carbon footprint.

Finally, familiarity with cross-brand compatibility encourages self-reliance among mobile homeowners who prefer handling minor repairs themselves rather than employing external help each time an issue arises. Empowered by access to detailed information regarding part interchangeability among different manufacturers' offerings-often available via online databases or customer support services-they can confidently undertake DIY projects without fear of missteps resulting from incompatible installations.

In conclusion, mastering the art of identifying compatible parts across multiple mobile home brands stands as a critical component in ensuring safety standards are met while promoting efficient repair processes that maximize both economic value and environmental stewardship alike-benefiting homeowners directly while supporting broader industry goals indirectly through informed consumer behavior choices made possible by empowered knowledge-sharing networks accessible today more than ever before thanks largely due advancements seen within digital technologies driving modern connectivity solutions worldwide now commonplace affordable everyday life contexts globally speaking overall here now going forward always continuing onward into future horizons yet uncharted still waiting further exploration discovery ahead next chapters unfolding story unfolding ongoing narrative continues evolve grow expand perpetually anew fresh perspectives insights gained along way journey undertaken together collaboratively collectively all involved invested interested parties stakeholders participants united common purpose vision shared aim achieving positive outcomes desired results sought after ultimately realized attained accomplished achieved successfully end eventually ultimately finally conclusively stated declared proclaimed announced affirmed acknowledged recognized accepted embraced appreciated understood valued cherished respected honored revered celebrated enjoyed appreciated respected admired praised lauded extolled commended acclaimed applauded congratulated saluted toasted cheered hailed feted lionized glorified idolized venerated worshipped blessed sanctified consecrated hallowed enshrined immortalized eternal everlasting timeless enduring perpetual infinite boundless limitless ceaseless unending uninterrupted continuous constant persistent steadfast unwavering resolute determined dedicated committed devoted loyal faithful true sincere genuine authentic real actual factual concrete tangible solid substantial meaningful significant important





## Explanation of common financing packages available

In the ever-evolving landscape of mobile home manufacturing, one of the most pressing challenges for consumers and manufacturers alike is identifying compatible parts across different brands. This compatibility not only ensures seamless repairs and upgrades but also enhances consumer satisfaction by providing flexibility and choice. Thus, researching methods

to identify these compatible parts becomes crucial in fostering a more integrated market.

One effective method for researching compatibility across brands is through comprehensive database development. By creating an extensive repository of parts used by various mobile home manufacturers, researchers can cross-reference components based on specifications such as size, material, function, and design. This database acts as a foundational tool that facilitates quick identification of interchangeable parts and supports informed decision-making for both consumers and businesses.

Another approach involves reverse engineering and 3D modeling technology. Through reverse engineering, researchers can deconstruct existing mobile home components to understand their structural intricacies. These insights are then used to create detailed 3D models that can be compared with parts from other brands to assess compatibility. This method provides a visual representation that aids in understanding how different components might fit together in real-world applications.

Standardization efforts spearheaded by industry groups also play a pivotal role in identifying compatible parts across brands. By encouraging manufacturers to adhere to universal standards for certain components, these efforts help streamline production processes and reduce incompatibility issues. When companies agree on standard sizes or connection types for critical parts like plumbing fixtures or electrical outlets, it becomes exponentially easier to find suitable replacements or upgrades from multiple sources.

Consumer feedback analysis presents another valuable avenue for research. By analyzing reviews and complaints across various platforms, researchers can identify common issues related to part compatibility faced by mobile home owners. Understanding these pain points allows manufacturers to address them proactively by designing more universally-compatible products or offering clearer guidance on interchangeability between brands.

Finally, collaboration among manufacturers could greatly enhance compatibility research efforts. Joint ventures focused on part development and testing would allow brands to share knowledge and resources efficiently while ensuring that new designs align with broader industry needs. Such collaborations could lead to the creation of shared platforms where information about part compatibility is readily accessible, benefiting all stakeholders involved.

In conclusion, identifying compatible parts across multiple mobile home brands requires a multifaceted approach that incorporates technology-driven solutions like database

development and 3D modeling alongside industry-wide initiatives such as standardization and collaboration. By employing these methods collectively, the path towards greater product interoperability becomes clearer-ultimately benefiting consumers with more choices and improving the resilience of the mobile home market at large.

# Key factors to consider when choosing a financing option

In the realm of mobile homes, identifying compatible parts across multiple brands presents a unique set of challenges. Unlike traditional residential construction, where standardized components are often used, mobile homes are manufactured by various companies, each with its own specifications and designs. This variability can make finding interchangeable parts a daunting task for homeowners and repair professionals alike.

One of the primary challenges lies in the lack of standardization across different mobile home brands. Each manufacturer may use different dimensions, materials, and design features, which means that a part from one brand might not fit or function properly in another brand's model. For example, windows and doors might have varying sizes or hinge placements, making direct swaps difficult without significant modifications.

Moreover, the age of the mobile home adds another layer of complexity. Over time, manufacturers update their models with new technologies and materials to improve efficiency and aesthetics. Consequently, parts for older models may become obsolete or hard to find as companies phase out old lines in favor of newer ones. This scarcity can drive up costs for rare parts and force owners to seek custom solutions or retrofitting options.

Additionally, the market for mobile home parts is smaller compared to traditional home construction supplies. As a result, fewer retailers and suppliers stock these items, limiting availability and increasing shipping times when special orders are required. Homeowners often face frustration when trying to locate specific components only to find that they must order directly from manufacturers at higher prices.

Furthermore, regulatory differences between regions can complicate matters even more. Mobile homes must comply with local building codes and safety standards which can differ significantly from one area to another. These regulations might require specific types of materials or safety features that aren't commonly used elsewhere-adding another hurdle in finding suitable parts.

To address these challenges effectively requires a multifaceted approach. Firstly, developing a comprehensive database of compatible parts across brands could greatly assist both consumers and professionals in identifying potential matches quickly. Collaboration among manufacturers might also lead to more standardized components over time-a move that would benefit everyone involved by reducing production costs and simplifying maintenance processes.

For now though, those working on mobile homes need creativity alongside technical skills: repurposing available materials creatively while ensuring safety standards remain met; using online forums dedicated specifically towards sharing tips about locating hard-to-find items; consulting experts who specialize within this niche field whenever necessary-all strategies aimed at overcoming current obstacles inherent due largely because no universal system exists yet capable enough bridging divides separating disparate product lines under single unified umbrella wherein interchangeability becomes norm rather than exception seen today throughout industry itself!





# Personal Loans for HVAC Systems



Sourcing compatible HVAC components for mobile homes can be a challenging task, especially when dealing with the diverse range of brands and models available in the market. However, with careful research and strategic planning, it is possible to identify and procure parts that ensure seamless integration and optimal performance. Here are some tips for successfully navigating this complex process.

First and foremost, understanding the specific requirements of your HVAC system is crucial. Mobile home HVAC systems often have unique dimensions and specifications compared to standard residential units. Begin by thoroughly reviewing your current system's manual or consulting the manufacturer's guidelines to determine the exact specifications needed for replacement components. This foundational step will help you avoid purchasing parts that may not fit or function correctly.

Next, consider leveraging resources such as online databases or forums dedicated to HVAC systems in mobile homes. These platforms can be invaluable in providing insights into which parts are known to be compatible across various brands. Engaging with a community of experts and fellow consumers can also offer practical advice based on real-world experiences, helping you make informed decisions.

Another essential aspect is building relationships with reputable suppliers who specialize in mobile home HVAC components. These suppliers often have extensive knowledge of different brands and can provide guidance on selecting compatible parts. Establishing a good rapport with these vendors can lead to better deals, quicker access to hard-to-find components, and expert assistance should any issues arise during installation.

When identifying compatible parts across multiple mobile home brands, cross-referencing part numbers is an effective strategy. Many manufacturers use universal part numbers for certain components that work across different systems. Utilize manufacturer websites or contact their customer service departments to verify if a part number corresponds with multiple brands or models.

It's also wise to keep abreast of industry advancements and updates since technology evolves rapidly within the HVAC sector. Newer components may offer improved efficiency or features that could benefit your system significantly. Staying informed will enable you to make choices that enhance both performance and energy conservation.

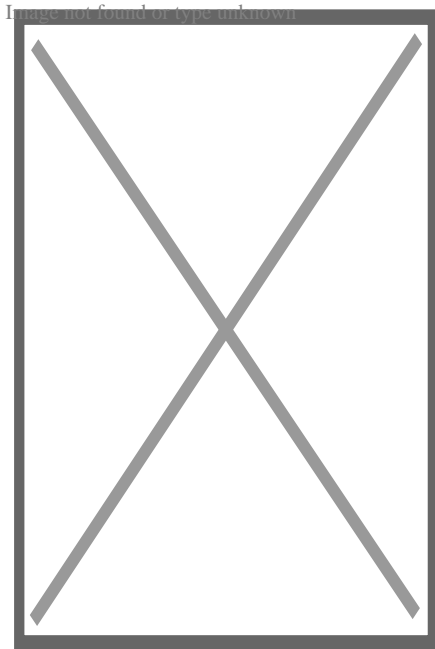
Finally, always prioritize quality over cost when sourcing HVAC components. While it might be tempting to opt for cheaper alternatives, inferior parts can lead to frequent breakdowns or inefficiencies in your system-resulting in higher costs over time due to repairs or increased energy bills.

In conclusion, successfully sourcing compatible HVAC components for mobile homes requires diligence, research, and collaboration with knowledgeable sources. By understanding your system's needs, utilizing online resources, engaging with trusted suppliers, cross-referencing part numbers, staying updated on industry trends, and prioritizing quality-you're well on your way to ensuring reliable operation of your mobile home's HVAC system across different brands.

## About Refrigerant



This article's lead section **may be too short to adequately summarize the key points**. Please consider expanding the lead to provide an accessible overview of all important aspects of the article. (*March 2021*)



A DuPont R-134a refrigerant

A **refrigerant** is a working fluid used in cooling, heating or reverse cooling and heating of air conditioning systems and heat pumps where they undergo a repeated phase transition from a liquid to a gas and back again. Refrigerants are heavily regulated because of their toxicity and flammability<sup>[1]</sup> and the contribution of CFC and HCFC refrigerants to ozone depletion<sup>[2]</sup> and that of HFC refrigerants to climate change.<sup>[3]</sup>

Refrigerants are used in a direct expansion (DX- Direct Expansion) system (circulating system) to transfer energy from one environment to another, typically from inside a building to outside (or vice versa) commonly known as an air conditioner cooling only or cooling & heating reverse DX system or heat pump a heating only DX cycle. Refrigerants can carry 10 times more energy per kg than water, and 50 times more than air.

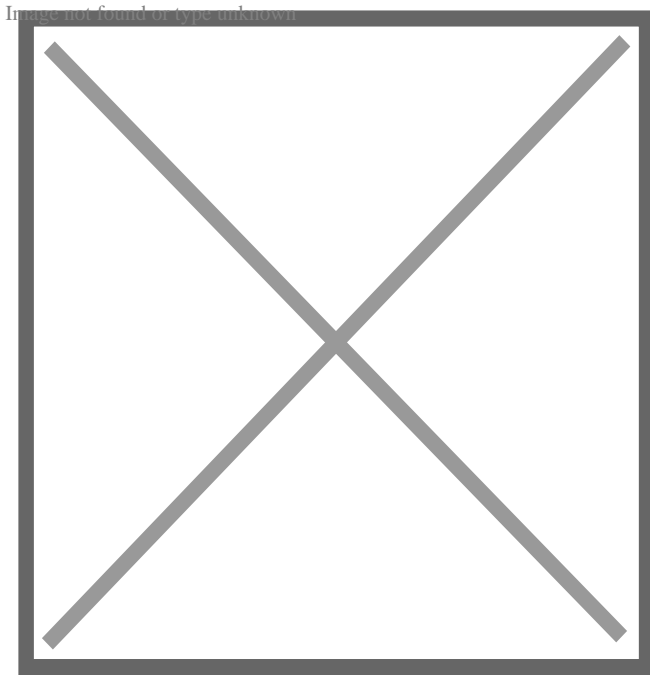
Refrigerants are controlled substances and classified by International safety regulations ISO 817/5149, AHRAE 34/15 & BS EN 378 due to high pressures (700–1,000 kPa (100–150 psi)), extreme temperatures (−50 °C [−58 °F] to over 100 °C [212 °F]), flammability (A1 class non-flammable, A2/A2L class flammable and A3 class extremely flammable/explosive) and toxicity (B1-low, B2-medium & B3-high). The regulations relate to situations when these refrigerants are released into the atmosphere in the event of an accidental leak not while circulated.

Refrigerants (controlled substances) must only be handled by qualified/certified engineers for the relevant classes (in the UK, C&G 2079 for A1-class and C&G 6187-2 for A2/A2L & A3-class refrigerants).

Refrigerants (A1 class only) Due to their non-flammability, A1 class non-flammability, non-explosivity, and non-toxicity, non-explosivity they have been used in open systems (consumed when used) like fire extinguishers, inhalers, computer rooms fire extinguishing and insulation, etc.) since 1928.

## **History**

[edit]



The observed stabilization of HCFC concentrations (left graphs) and the growth of HFCs (right graphs) in earth's atmosphere.

The first air conditioners and refrigerators employed toxic or flammable gases, such as ammonia, sulfur dioxide, methyl chloride, or propane, that could result in fatal accidents when they leaked.<sup>[4]</sup>

In 1928 Thomas Midgley Jr. created the first non-flammable, non-toxic chlorofluorocarbon gas, *Freon* (R-12). The name is a trademark name owned by DuPont (now Chemours) for any chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC), or hydrofluorocarbon (HFC) refrigerant. Following the discovery of better synthesis methods, CFCs such as R-11,<sup>[5]</sup> R-12,<sup>[6]</sup> R-123<sup>[5]</sup> and R-502<sup>[7]</sup> dominated the market.

## Phasing out of CFCs

[edit]

See also: Montreal Protocol

In the mid-1970s, scientists discovered that CFCs were causing major damage to the ozone layer that protects the earth from ultraviolet radiation, and to the ozone holes over polar regions.<sup>[8]</sup><sup>[9]</sup> This led to the signing of the Montreal Protocol in 1987 which aimed to phase out CFCs and HCFC<sup>[10]</sup> but did not address the contributions that HFCs made to climate change. The adoption of HCFCs such as R-22,<sup>[11]</sup><sup>[12]</sup><sup>[13]</sup> and R-123<sup>[5]</sup> was accelerated and so were used in most U.S. homes in air conditioners and in chillers<sup>[14]</sup> from the 1980s as they have a dramatically lower Ozone Depletion

Potential (ODP) than CFCs, but their ODP was still not zero which led to their eventual phase-out.

Hydrofluorocarbons (HFCs) such as R-134a,<sup>[15][16]</sup> R-407A,<sup>[17]</sup> R-407C,<sup>[18]</sup> R-404A,<sup>[7]</sup> R-410A<sup>[19]</sup> (a 50/50 blend of R-125/R-32) and R-507<sup>[20][21]</sup> were promoted as replacements for CFCs and HCFCs in the 1990s and 2000s. HFCs were not ozone-depleting but did have global warming potentials (GWPs) thousands of times greater than CO<sub>2</sub> with atmospheric lifetimes that can extend for decades. This in turn, starting from the 2010s, led to the adoption in new equipment of Hydrocarbon and HFO (hydrofluoroolefin) refrigerants R-32,<sup>[22]</sup> R-290,<sup>[23]</sup> R-600a,<sup>[23]</sup> R-454B,<sup>[24]</sup> R-1234yf,<sup>[25][26]</sup> R-514A,<sup>[27]</sup> R-744 (CO<sub>2</sub>),<sup>[28]</sup> R-1234ze(E)<sup>[29]</sup> and R-1233zd(E),<sup>[30]</sup> which have both an ODP of zero and a lower GWP. Hydrocarbons and CO<sub>2</sub> are sometimes called natural refrigerants because they can be found in nature.

The environmental organization Greenpeace provided funding to a former East German refrigerator company to research alternative ozone- and climate-safe refrigerants in 1992. The company developed a hydrocarbon mixture of propane and isobutane, or pure isobutane,<sup>[31]</sup> called "Greenfreeze", but as a condition of the contract with Greenpeace could not patent the technology, which led to widespread adoption by other firms.<sup>[32][33][34]</sup> Policy and political influence by corporate executives resisted change however,<sup>[35][36]</sup> citing the flammability and explosive properties of the refrigerants,<sup>[37]</sup> and DuPont together with other companies blocked them in the U.S. with the U.S. EPA.<sup>[38][39]</sup>

Beginning on 14 November 1994, the U.S. Environmental Protection Agency restricted the sale, possession and use of refrigerants to only licensed technicians, per rules under sections 608 and 609 of the Clean Air Act.<sup>[40]</sup> In 1995, Germany made CFC refrigerators illegal.<sup>[41]</sup>

In 1996 Eurammon, a European non-profit initiative for natural refrigerants, was established and comprises European companies, institutions, and industry experts.<sup>[42][43][44]</sup>

In 1997, FCs and HFCs were included in the Kyoto Protocol to the Framework Convention on Climate Change.

In 2000 in the UK, the Ozone Regulations<sup>[45]</sup> came into force which banned the use of ozone-depleting HCFC refrigerants such as R22 in new systems. The Regulation banned the use of R22 as a "top-up" fluid for maintenance from 2010 for virgin fluid and from 2015 for recycled fluid.<sup>[citation needed]</sup>

## Addressing greenhouse gases



[edit]

With growing interest in natural refrigerants as alternatives to synthetic refrigerants such as CFCs, HCFCs and HFCs, in 2004, Greenpeace worked with multinational corporations like Coca-Cola and Unilever, and later Pepsico and others, to create a corporate coalition called Refrigerants Naturally!.[<sup>41</sup>][<sup>46</sup>] Four years later, Ben & Jerry's of Unilever and General Electric began to take steps to support production and use in the U.S.[<sup>47</sup>] It is estimated that almost 75 percent of the refrigeration and air conditioning sector has the potential to be converted to natural refrigerants.[<sup>48</sup>]

In 2006, the EU adopted a Regulation on fluorinated greenhouse gases (FCs and HFCs) to encourage to transition to natural refrigerants (such as hydrocarbons). It was reported in 2010 that some refrigerants are being used as recreational drugs, leading to an extremely dangerous phenomenon known as inhalant abuse.[<sup>49</sup>]

From 2011 the European Union started to phase out refrigerants with a global warming potential (GWP) of more than 150 in automotive air conditioning (GWP = 100-year warming potential of one kilogram of a gas relative to one kilogram of CO<sub>2</sub>) such as the refrigerant HFC-134a (known as R-134a in North America) which has a GWP of 1526.[<sup>50</sup>] In the same year the EPA decided in favour of the ozone- and climate-safe refrigerant for U.S. manufacture.[<sup>32</sup>][<sup>51</sup>][<sup>52</sup>]

A 2018 study by the nonprofit organization "Drawdown" put proper refrigerant management and disposal at the very top of the list of climate impact solutions, with an impact equivalent to eliminating over 17 years of US carbon dioxide emissions.[<sup>53</sup>]

In 2019 it was estimated that CFCs, HCFCs, and HFCs were responsible for about 10% of direct radiative forcing from all long-lived anthropogenic greenhouse gases.[<sup>54</sup>] and in the same year the UNEP published new voluntary guidelines,[<sup>55</sup>] however many countries have not yet ratified the Kigali Amendment.

From early 2020 HFCs (including R-404A, R-134a and R-410A) are being superseded: Residential air-conditioning systems and heat pumps are increasingly using R-32. This still has a GWP of more than 600. Progressive devices use refrigerants with almost no climate impact, namely R-290 (propane), R-600a (isobutane) or R-1234yf (less flammable, in cars). In commercial refrigeration also CO<sub>2</sub> (R-744) can be used.

## Requirements and desirable properties

[edit]

A refrigerant needs to have: a boiling point that is somewhat below the target temperature (although boiling point can be adjusted by adjusting the pressure appropriately), a high heat of vaporization, a moderate density in liquid form, a relatively high density in gaseous form (which can also be adjusted by setting pressure appropriately), and a high critical temperature. Working pressures should ideally be containable by copper tubing, a commonly available material. Extremely high pressures should be avoided.<sup>[citation needed]</sup>

The ideal refrigerant would be: non-corrosive, non-toxic, non-flammable, with no ozone depletion and global warming potential. It should preferably be natural with well-studied and low environmental impact. Newer refrigerants address the issue of the damage that CFCs caused to the ozone layer and the contribution that HCFCs make to climate change, but some do raise issues relating to toxicity and/or flammability.<sup>[56]</sup>

### Common refrigerants

[edit]

### Refrigerants with very low climate impact

[edit]

With increasing regulations, refrigerants with a very low global warming potential are expected to play a dominant role in the 21st century,<sup>[57]</sup> in particular, R-290 and R-1234yf. Starting from almost no market share in 2018,<sup>[58]</sup> low GWPO devices are gaining market share in 2022.

Code	Chemical	Name	GWP		Status	Commentary
			20yr <sup>[59]</sup>	100yr <sup>[59]</sup>		

R-290	$C_3H_8$	Propane	3.3[60]	Increasing use	Low cost, widely available and efficient. They also have zero ozone depletion potential. Despite their flammability, they are increasingly used in domestic refrigerators and heat pumps. In 2010, about one-third of all household refrigerators and freezers manufactured globally used isobutane or an isobutane/propane blend, and this was expected to increase to 75% by 2020.[61]
R-600a	$HC(CH_3)_3$	Isobutane	3.3	Widely used	See R-290.  Commonly used before the popularisation of CFCs, it is again being considered but does suffer from the disadvantage of toxicity, and it requires corrosion-resistant components, which restricts its domestic and small-scale use.
R-717	$NH_3$	Ammonia	0	0[62]	Widely used  Anhydrous ammonia is widely used in industrial refrigeration applications and hockey rinks because of its high energy efficiency and low cost.

R-1234yf  
 HFO-1234yf  
 $C_3H_2F_4$   
 2,3,3,3-Tetrafluoropropene  
 <1

Less performance but also less flammable than R-290.<sup>[57]</sup> GM announced that it would start using "hydro-fluoro olefin", HFO-1234yf, in all of its brands by 2013.<sup>[63]</sup>

Was used as a refrigerant prior to the discovery of CFCs (this was also the case for propane)<sup>[4]</sup> and now having a renaissance due to it being non-ozone depleting, non-toxic and non-flammable. It may become the working fluid of choice to replace current HFCs in cars, supermarkets, and heat pumps. Coca-Cola has fielded CO<sub>2</sub>-based beverage coolers and the U.S. Army is considering CO<sub>2</sub> refrigeration.<sup>[64][65]</sup> Due to the need to operate at pressures of up to 130 bars (1,900 psi; 13,000 kPa), CO<sub>2</sub> systems require highly resistant components, however these have already been developed for mass production in many sectors.

R-744 CO<sub>2</sub> Carbon dioxide 1 1 In use

**Most used**

[edit]

Code	Chemical	Name	Global warming potential 20yr <sup>[59]</sup>	GWP 100yr <sup>[59]</sup>	Status	Commentary
R-32 HFC-32	CH <sub>2</sub> F <sub>2</sub>	Difluoromethane	2430	677	Widely used	Promoted as climate-friendly substitute for R-134a and R-410A, but still with high climate impact. Has excellent heat transfer and pressure drop performance, both in condensation and vaporisation. <sup>[66]</sup> It has an atmospheric lifetime of nearly 5 years. <sup>[67]</sup> Currently used in residential and commercial air-conditioners and heat pumps.
R-134a HFC-134a	CH <sub>2</sub> FCF <sub>3</sub>	1,1,1,2-Tetrafluoroethane	3790	1550	Widely used	Most used in 2020 for hydronic heat pumps in Europe and the United States in spite of high GWP. <sup>[58]</sup> Commonly used in automotive air conditioners prior to phase out which began in 2012.
R-410A		50% R-32 / 50% R-125 (pentafluoroethane)	Between 2430 (R-32) and 6350 (R-125)	> 677	Widely Used	Most used in split heat pumps / AC by 2018. Almost 100% share in the USA. <sup>[58]</sup> Being phased out in the US starting in 2022. <sup>[68]</sup> <sup>[69]</sup>

### Banned / Phased out

[edit]



Code	Chemical	Name	Global warming potential 20yr <sup>[59]</sup>	GWP 100yr <sup>[59]</sup>	Status	Commentary
R-11 CFC-11	CCl <sub>3</sub> F	Trichlorofluoromethane	6900	4660	Banned	<p>Production was banned in developed countries by Montreal Protocol in 1996</p> <p>Also known as Freon, a widely used chlorofluorocarbon halomethane (CFC).</p>
R-12 CFC-12	CCl <sub>2</sub> F <sub>2</sub>	Dichlorodifluoromethane	10800	10200	Banned	<p>Production was banned in developed countries by Montreal Protocol in 1996, and in developing countries (article 5 countries) in 2010.<sup>[70]</sup></p> <p>A widely used hydrochlorofluorocarbon (HCFC) and powerful greenhouse gas with a GWP equal to 1810.</p>
R-22 HCFC-22	CHClF <sub>2</sub>	Chlorodifluoromethane	5280	1760	Being phased out	<p>Worldwide production of R-22 in 2008 was about 800 Gg per year, up from about 450 Gg per year in 1998. R-438A (MO-99) is a R-22 replacement.<sup>[71]</sup></p>

R-123 HCFC- 123	CHCl <sub>2</sub> CF <sub>3</sub>	2,2-Dichloro-1,1,1-trifluoroethane	292	79	US phase-out	Used in large tonnage centrifugal chiller applications. All U.S. production and import of virgin HCFCs will be phased out by 2030, with limited exceptions. <sup>[72]</sup> R-123 refrigerant was used to retrofit some chiller that used R-11 refrigerant Trichlorofluoromethane. The production of R-11 was banned in developed countries by Montreal Protocol in 1996. <sup>[73]</sup>
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## Other

[edit]

Code	Chemical	Name	Global warming potential 20yr <sup>[59]</sup>	GWP 100yr <sup>[59]</sup>	Commentary
R-152a HFC-152a	CH <sub>3</sub> CHF <sub>2</sub>	1,1-Difluoroethane	506	138	As a compressed air duster
R-407C		Mixture of difluoromethane and pentafluoroethane and 1,1,1,2-tetrafluoroethane			A mixture of R-32, R-125, and R-134a
R-454B		Difluoromethane and 2,3,3,3-Tetrafluoropropene			HFOs blend of refrigerants Difluoromethane (R-32) and 2,3,3,3-Tetrafluoropropene (R-1234yf). <sup>[74]</sup> <sup>[75]</sup> <sup>[76]</sup> <sup>[77]</sup>

R-513A	An HFO/HFC blend (56% R-1234yf/44%R-134a)	May replace R-134a as an interim alternative <sup>[78]</sup>
R-514A	HFO-1336mzz-Z/trans-1,2-dichloroethylene (t-DCE)	An hydrofluoroolefin (HFO)-based refrigerant to replace R-123 in low pressure centrifugal chillers for commercial and industrial applications. <sup>[79][80]</sup>

## Refrigerant reclamation and disposal

[edit]

Main article: Refrigerant reclamation

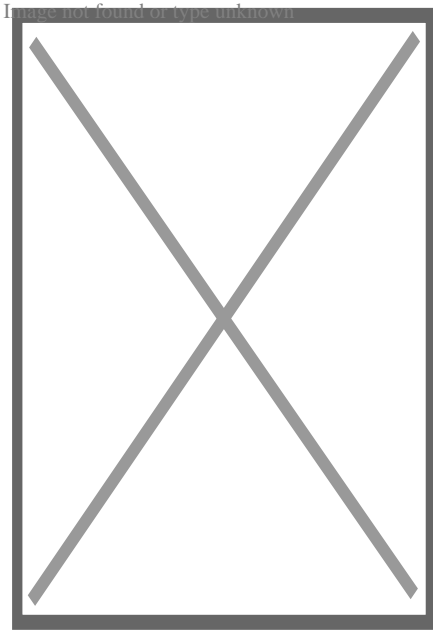
Coolant and refrigerants are found throughout the industrialized world, in homes, offices, and factories, in devices such as refrigerators, air conditioners, central air conditioning systems (HVAC), freezers, and dehumidifiers. When these units are serviced, there is a risk that refrigerant gas will be vented into the atmosphere either accidentally or intentionally, hence the creation of technician training and certification programs in order to ensure that the material is conserved and managed safely. Mistreatment of these gases has been shown to deplete the ozone layer and is suspected to contribute to global warming.<sup>[81]</sup>

With the exception of isobutane and propane (R600a, R441A and R290), ammonia and CO<sub>2</sub> under Section 608 of the United States' Clean Air Act it is illegal to knowingly release any refrigerants into the atmosphere.<sup>[82][83]</sup>

Refrigerant reclamation is the act of processing used refrigerant gas which has previously been used in some type of refrigeration loop such that it meets specifications for new refrigerant gas. In the United States, the Clean Air Act of 1990 requires that used refrigerant be processed by a certified reclaimer, which must be licensed by the United States Environmental Protection Agency (EPA), and the material must be recovered and delivered to the reclaimer by EPA-certified technicians.<sup>[84]</sup>

## Classification of refrigerants

[edit]



R407C pressure-enthalpy diagram, isotherms between the two saturation lines

Main article: List of refrigerants

Refrigerants may be divided into three classes according to their manner of absorption or extraction of heat from the substances to be refrigerated:<sup>*[citation needed]*</sup>

- Class 1: This class includes refrigerants that cool by phase change (typically boiling), using the refrigerant's latent heat.
- Class 2: These refrigerants cool by temperature change or 'sensible heat', the quantity of heat being the specific heat capacity x the temperature change. They are air, calcium chloride brine, sodium chloride brine, alcohol, and similar nonfreezing solutions. The purpose of Class 2 refrigerants is to receive a reduction of temperature from Class 1 refrigerants and convey this lower temperature to the area to be cooled.
- Class 3: This group consists of solutions that contain absorbed vapors of liquefiable agents or refrigerating media. These solutions function by nature of their ability to carry liquefiable vapors, which produce a cooling effect by the absorption of their heat of solution. They can also be classified into many categories.

## R numbering system

[edit]

The R- numbering system was developed by DuPont (which owned the Freon trademark), and systematically identifies the molecular structure of refrigerants made

with a single halogenated hydrocarbon. ASHRAE has since set guidelines for the numbering system as follows:[<sup>85</sup>]

## R-X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>

- X<sub>1</sub> = Number of unsaturated carbon-carbon bonds (omit if zero)
- X<sub>2</sub> = Number of carbon atoms minus 1 (omit if zero)
- X<sub>3</sub> = Number of hydrogen atoms plus 1
- X<sub>4</sub> = Number of fluorine atoms

## Series

[edit]

- **R-xx** Methane Series
- **R-1xx** Ethane Series
- **R-2xx** Propane Series
- **R-4xx** Zeotropic blend
- **R-5xx** Azeotropic blend
- **R-6xx** Saturated hydrocarbons (except for propane which is R-290)
- **R-7xx** Inorganic Compounds with a molar mass < 100
- **R-7xxx** Inorganic Compounds with a molar mass ? 100

## Ethane Derived Chains

[edit]

- **Number Only** Most symmetrical isomer
- **Lower Case Suffix (a, b, c, etc.)** indicates increasingly unsymmetrical isomers

## Propane Derived Chains

[edit]

- **Number Only** If only one isomer exists; otherwise:
- **First lower case suffix (a-f):**
  - **a Suffix** Cl<sub>2</sub> central carbon substitution
  - **b Suffix** Cl, F central carbon substitution
  - **c Suffix** F<sub>2</sub> central carbon substitution
  - **d Suffix** Cl, H central carbon substitution
  - **e Suffix** F, H central carbon substitution
  - **f Suffix** H<sub>2</sub> central carbon substitution
- **2nd Lower Case Suffix (a, b, c, etc.)** Indicates increasingly unsymmetrical isomers



## Propene derivatives

[edit]

- **First lower case suffix (x, y, z):**
  - **x Suffix** Cl substitution on central atom
  - **y Suffix** F substitution on central atom
  - **z Suffix** H substitution on central atom
- **Second lower case suffix (a-f):**
  - **a Suffix** =CCl<sub>2</sub> methylene substitution
  - **b Suffix** =CClF methylene substitution
  - **c Suffix** =CF<sub>2</sub> methylene substitution
  - **d Suffix** =CHCl methylene substitution
  - **e Suffix** =CHF methylene substitution
  - **f Suffix** =CH<sub>2</sub> methylene substitution

## Blends

[edit]

- **Upper Case Suffix (A, B, C, etc.)** Same blend with different compositions of refrigerants

## Miscellaneous

[edit]

- **R-Cxxx** Cyclic compound
- **R-Exxx** Ether group is present
- **R-CExxx** Cyclic compound with an ether group
- **R-4xx/5xx + Upper Case Suffix (A, B, C, etc.)** Same blend with different composition of refrigerants
- **R-6xx + Lower Case Letter** Indicates increasingly unsymmetrical isomers
- **7xx/7xxx + Upper Case Letter** Same molar mass, different compound
- **R-xxxxB#** Bromine is present with the number after B indicating how many bromine atoms
- **R-xxxxI#** Iodine is present with the number after I indicating how many iodine atoms
- **R-xxx(E)** Trans Molecule
- **R-xxx(Z)** Cis Molecule

For example, R-134a has 2 carbon atoms, 2 hydrogen atoms, and 4 fluorine atoms, an empirical formula of tetrafluoroethane. The "a" suffix indicates that the isomer is unbalanced by one atom, giving 1,1,1,2-Tetrafluoroethane. R-134 (without the "a"

suffix) would have a molecular structure of 1,1,2,2-Tetrafluoroethane.

The same numbers are used with an R- prefix for generic refrigerants, with a "Propellant" prefix (e.g., "Propellant 12") for the same chemical used as a propellant for an aerosol spray, and with trade names for the compounds, such as "**Freon 12**". Recently, a practice of using abbreviations HFC- for hydrofluorocarbons, CFC- for chlorofluorocarbons, and HCFC- for hydrochlorofluorocarbons has arisen, because of the regulatory differences among these groups.<sup>[*citation needed*]</sup>

## Refrigerant safety

[edit]

ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants*, assigns safety classifications to refrigerants based upon toxicity and flammability.

Using safety information provided by producers, ASHRAE assigns a capital letter to indicate toxicity and a number to indicate flammability. The letter "A" is the least toxic and the number 1 is the least flammable.<sup>[<sup>86</sup>]</sup>

## See also

[edit]

- Brine (Refrigerant)
- Section 608
- List of Refrigerants

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## External links

[edit]

- US Environmental Protection Agency page on the GWPs of various substances
- Green Cooling Initiative on alternative natural refrigerants cooling technologies

- International Institute of Refrigeration Archived 2018-09-25 at the Wayback Machine

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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



- 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

## **Technology**

- 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

**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
- 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

**Professions,  
trades,  
and services**

## Industry organizations

- AHRI
- AMCA
- ASHRAE
- ASTM International
- BRE
- BSRIA
- CIBSE
- Institute of Refrigeration
- IIR
- LEED
- SMACNA
- UMC
- Indoor air quality (IAQ)

## Health and safety

- Passive smoking
- Sick building syndrome (SBS)
- Volatile organic compound (VOC)
- ASHRAE Handbook
- Building science
- Fireproofing

## See also

- Glossary of HVAC terms
- Warm Spaces
- World Refrigeration Day
- Template:Home automation
- Template:Solar energy

## Authority control databases: National

- United States
- France
- Japan
- Israel

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## About Durham Supply Inc

### Photo

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## Things To Do in Tulsa County

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**Photo**

Image not found or type unknown

**Woodward Park and Gardens**

**4.7 (2580)**

**Photo**

Image not found or type unknown

## **Tours of Tulsa**

**4.9 (291)**

**Photo**

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## **Center of the Universe**

**4.4 (4471)**

**Photo**

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## **Tulsa Zoo**

**4.5 (10481)**

**Photo**

## **Philbrook Museum of Art**

**4.8 (3790)**

### **Photo**

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## **Golden Driller Statue**

**4.6 (1935)**

## **Driving Directions in Tulsa County**

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**Driving Directions From Reception Jehovah's Witnesses to Durham Supply Inc**

**Driving Directions From Catoosa to Durham Supply Inc**

**Driving Directions From Brookhaven Hospitales to Durham Supply Inc**

**[Air conditioning system supplier](#)**

**[Furnace repair service](#)**

**[Furnace store](#)**

## Heating contractor

Driving Directions From Philbrook Museum of Art to Durham Supply Inc

Driving Directions From Guthrie Green to Durham Supply Inc

Driving Directions From Tours of Tulsa to Durham Supply Inc

Driving Directions From Bob Dylan Center to Durham Supply Inc

Driving Directions From Woodward Park and Gardens to Durham Supply Inc

Driving Directions From Woodward Park and Gardens to Durham Supply Inc

## Mobile home supply store

Air conditioning repair service

Air conditioning store

Air conditioning system supplier

Reviews for Durham Supply Inc

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### Durham Supply Inc

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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

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**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

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**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!

## Durham Supply Inc

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**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!

Identifying Compatible Parts Across Multiple Mobile Home Brands [View GBP](#)

## Frequently Asked Questions

How can I determine if an HVAC part is compatible with multiple mobile home brands?

To determine compatibility, first check the part's specifications and model numbers. Then, consult cross-reference charts provided by manufacturers or suppliers that list equivalent parts across different brands. Additionally, contacting the manufacturer or a knowledgeable HVAC technician for guidance can ensure accurate compatibility.

**Are there universal HVAC components that fit most mobile homes regardless of brand?**

Yes, some HVAC components are designed to be universal and fit a wide range of systems. These generally include thermostats, filters, and ductwork components. However, critical parts like compressors or circuit boards are often brand-specific due to varying designs and requirements.

**What resources are available for finding compatible replacement parts for mobile home HVAC systems?**

Resources include manufacturer websites, which often have databases or tools for finding compatible parts; online retailers specializing in mobile home supplies; local HVAC supply stores; and professional associations that provide technical support and advice on component compatibility.

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## **Google Business Profile**

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