

COMPREHENSIVE
COMFORT SOLUTIONS

COMMERCIAL OFFICES



Why Building Owners Choose Daikin

A History of Indoor Comfort Solutions

Becoming a global leader in any industry takes more than just time. For over 90 years Daikin has shown that it takes industry-leading product innovation and a commitment to excellence in order to climb to the top. This commitment led Daikin to develop the first *VRV* system in 1982.

World-Class Support with Global Experience

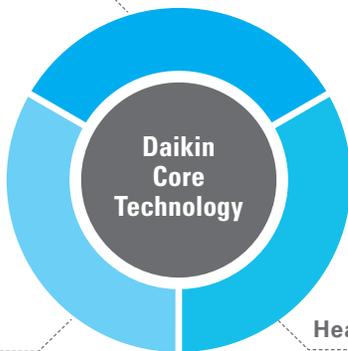
Daikin and its local representatives join together to provide superior support and resources from system design through ongoing operations unique to your business. We stand ready to make your Daikin experience unsurpassed.

3 Core State-of-the-Art Technologies

Daikin develops state-of-the-art HVAC technologies that provide indoor comfort solutions. We do this by focusing on three core technologies:

Refrigerant Control

Using refrigerant as the heat transfer medium between outdoor unit and indoor space allows you to reach your setpoint faster than using air or water.



Inverter

The system ramps up to load demand only, using less energy compared to traditional on/off operation. This means fewer temperature swings and more comfort for occupants.

Heat Pump

Ability to heat and cool on one system with one set of piping, saving energy and reducing unnecessary components.

OFFICE INSTALLATIONS IN NORTH AMERICA



- » More than 2,500 projects
- » Total of 6,900 *VRV* systems installed
- » In excess of 20 million sq. ft.
- » 69,000 tons of *VRV* units



Sales



After Sales Service



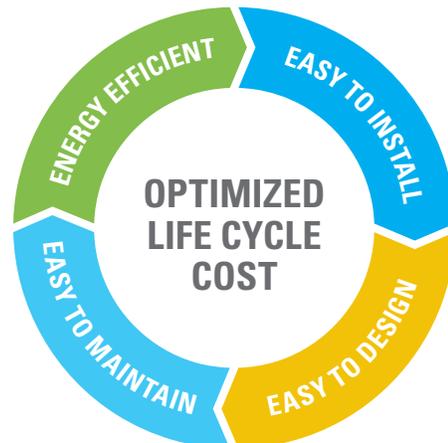
Research and Development



Manufacturing

Optimized Life Cycle Cost

The features of a Daikin *VRV* system is energy efficiency, easy to design, install, and maintain. This means that Daikin *VRV* systems are designed to help reduce total life cycle costs.



Total Office Solutions

Design Options for Every Space

- » As a company, we pride ourselves on our commitment to excellence in the workplace. To us that means a total comfort solution that maintains a quiet, comfortable setting in each space or zone that is conducive to a productive work environment.
- » VRV indoor units fit most spaces within the building from small offices and conference rooms to open floor plans and training areas. With 13 unique indoor unit options that come with intelligent controls we can meet each zone's load requirement while achieving the desired aesthetic — a single source for all of your heating and cooling requirements.
- » Daikin's air intelligent heating and cooling technology is designed to provide a flexible and scalable solution for HVAC in office buildings. The modular design allows Daikin VRV to be scaled up or down to meet project specifications. Daikin and its skilled customer network have experience designing systems for all sized office buildings from 5 tons to over 1,000 tons.



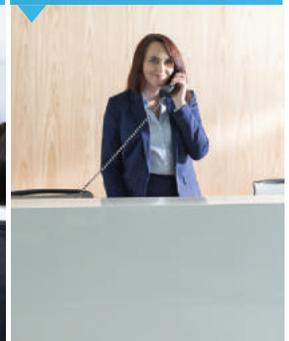
Offices

Conference Rooms

Lobby

Training Rooms

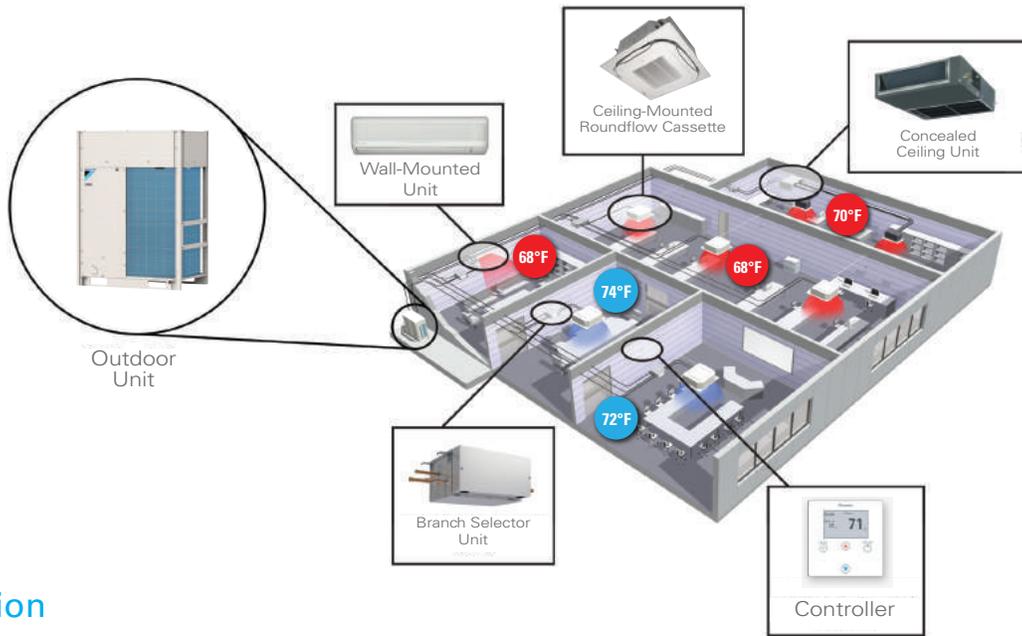
Reception Area



VRV Comfort Solutions for: Everyone in the Office

The Talk of the Office

Daikin VRV systems help maintain constant, optimal room temperatures and avoid indoor climate variations that can disturb a work-conducive atmosphere. VRV technology allows for independent temperature control in each space. Occupant-controlled functionality with intuitive zone controllers helps to resolve an age-old comfort complaint from CEOs and employees. Further, integrated system sensors in each zone serve the system by automatically adjusting to compensate for increased or reduced occupancy, while maintaining the desired comfort level in each space.

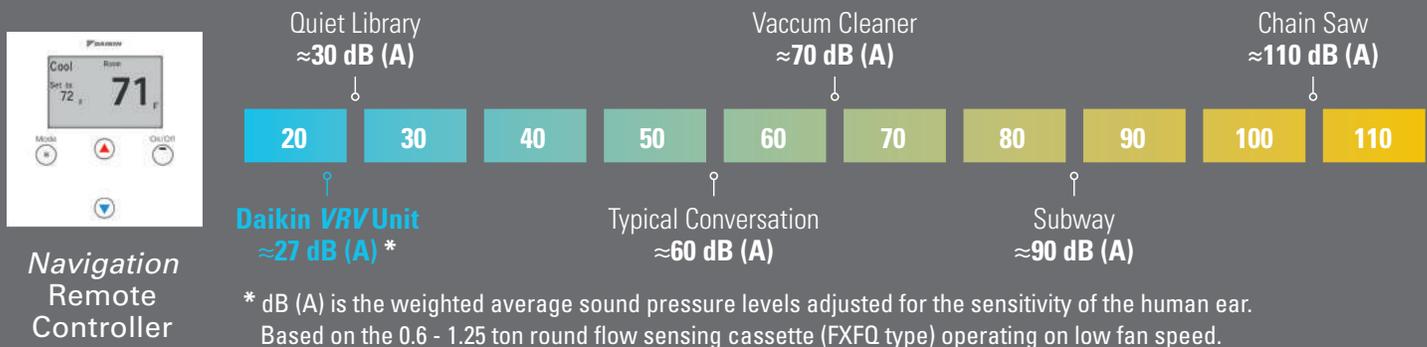


Quiet Operation

No more loud, disruptive noises when the HVAC system cycles on or off. In turn, there's one less distraction to adversely impact concentration, employee mood, and meeting productivity.

A Daikin VRV system can ensure tenant spaces are quiet and comfortable.

1. Simple and intuitive controls.
2. Discrete and quiet ducted indoor units have sound levels as low as ≈ 29 dB(A), lower than the average noise level in a library.
3. The addition of occupancy sensors along with the controller's variable setback capabilities ensure enhanced levels of comfort and energy efficient operation.



VRV Comfort Solutions for: Owners and Financial Executives

Impact to Your Bottom Line

- » Featuring the ability to vary capacity and to simultaneously heat and cool, Daikin VRV systems can reduce energy consumption as compared to non-inverter HVAC systems.
- » Often, a lower total cost of ownership is realized through upfront construction savings, energy efficient operation, reduced maintenance, a 10-Year Parts Warranty* and system monitoring options.



* Complete commercial warranty details available from your local Daikin manufacturer's representative or distributor or online at www.daikincomfort.com or www.daikinac.com.

- » With one of the highest efficiency ratings in the industry, a Daikin VRV system provides a significant advantage when Leadership in Energy and Environmental Design (LEED) points and energy-related tax credits or subsidies are a priority for the project.

Installation Advantages: Saves Time and Money

Ideal for complete installation or partial-system retrofit, Daikin VRV systems' modular design opportunity facilitates expedited installation time frames that may even fit within restricted construction schedules.

Potential installation phase savings will vary and depend on unique building factors, outdoor and indoor unit selections, and may include the following:

- » Reduction of electrical service requirements and wiring compared to traditional systems
- » Reduction of ductwork
- » Minimize or eliminate landscaping around the compact VRV outdoor unit that is strategically and easily placed out of sight or on a roof
- » Structural reinforcements are typically not needed to support the lightweight outdoor unit
- » A compact VRV outdoor unit that can be taken to the roof via service elevator: No additional auxiliary equipment needed to install
- » Space savings can be realized without the need for a large mechanical room, such as in the case of a chiller. For existing office buildings leaseable square footage can be maximized

ACCORDING TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY ENERGY USE IS THE SINGLE LARGEST OPERATING EXPENSE WITH ENERGY REPRESENTING **30%** OF A TYPICAL OFFICE BUILDING'S COST

Average Annual Cost to Operate per/sq. ft.**



** Modeled from a 3-story low-rise office building, 16,150 sq. ft./floor in Houston, TX. Costs to operate per square foot can vary based on regional climate, local utility provider and system design. Modeled in-house by PhD engineer using IES_VE software according to ASHRAE 90.1-2010 in 2016.

Electricity and natural gas prices based on 2018 commercial price U.S. averages according to EIA.gov.

VRV Comfort Solutions for: Facility Directors and Energy Managers

Budget and User Friendly, Easily Maintained, Reliable and Supported

- » **Budget friendly solution.** Life cycle cost analysis shows VRV to be a big winner with its impressive energy and post construction savings achieved when compared to traditional high efficiency HVAC systems. Ask your local representative to work on this analysis with you.
- » **Advanced inverter technology.** Quality design and system components such as the variable-speed inverter compressors are highly efficient at part load operation.
- » **Optimized comfort.** We know your concerns include occupant comfort (because these are your tenants) so you will enjoy those indoor units with the ability to evaluate the occupancy of each room, engage temperature setback and clean its filters on a regular basis!
- » **BMS options.** Choose between fully integrating with your current BMS/BAS or leave as a stand-alone system. The system will be continuously monitored and error notifications will be sent via email as necessary.
- » **Remote diagnostics.** Receive remote diagnostics and enjoy central system management capability to lighten your workload and enhance occupant comfort. See page 9 for more information on controls and monitoring.
- » **Simple maintenance.** Maintenance is relatively minimal in comparison to conventional HVAC systems and should not require additional or specialized maintenance staffing.
- » **World Class Technical Support at 1 (855) 770-5678.** You won't be left alone! Your facility is important to us.



Outstanding Warranties*

At Daikin we have chosen to show our commitment to our customers and confidence in our equipment by offering a 10-Year Parts Warranty* and 10-Year Compressor Replacement Warranty* on all VRV equipment.



* Complete commercial warranty details available from your local Daikin manufacturer's representative or distributor or online at www.daikincomfort.com or www.daikinac.com.



VRV Comfort Solutions for: System Benefits

Flexibility and Efficiency by Design

A Daikin VRV system is a high quality, reliable and long-service-life HVAC solution for offices. VRV systems may be installed as a heat pump that heats or cools your facility or as a heat recovery unit to simultaneously heat and cool different zones. While the mechanics of the system are important we also pay special attention to how the equipment is incorporated into the building it serves.

Modular Space-Saving Comfort

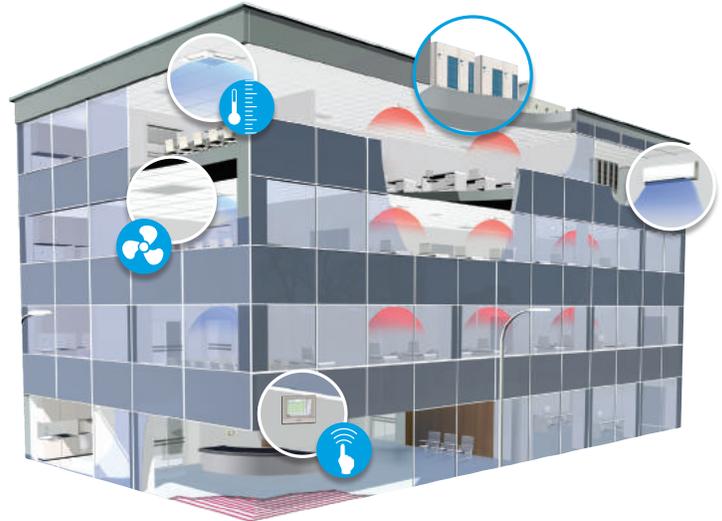
Your creative building design options open up with Daikin VRV. Whether you plan to create employee recreation areas, or turn the roof into a green space, Daikin VRV's modular design and relatively small footprint allow the flexibility to install outdoor units on the ground level, in a mechanical closet or tucked away on the roof. Daikin VRV provides design flexibility with long piping lengths, up to 3,280 ft.

For New Builds or Retrofit Projects — Less Is More.

Modular in design and application, Daikin VRV systems are an ideal and affordable option for new construction jobs as well as to adjunct or update an existing HVAC system. Not only boasting a smaller footprint and a lower structural load requirement than conventional HVAC systems, a VRV system allows for the reduction or elimination of ductwork, as well as related system components like air-distribution fans and water pumps. With less plenum space needed, you could raise the ceiling height for an open, luxurious feel.

Addressing Your Outside Air Concerns

From bringing in outside air directly into the indoor units to decoupling the outside air from the indoor units utilizing a dedicated outside air system, we are committed to handling your ventilation issues from humidity to other indoor air quality concerns.



VRV for Offices

Our Office Solution Offers Opportunity for:

- » Increased comfort and productivity with individual zone control, low sound levels and tight temperature control
- » Optimized energy efficiency
- » Simple maintenance — that can lead to low operational costs
- » Modular system allowing cost effective out-of-hours operation
- » Integrated ventilation solutions designed to support high levels of indoor air quality
- » Complete Daikin building management system for office building management with *intelligent Touch Manager*
- » Remote monitoring with email alerts
- » Self-cleaning filters designed to yield operational and maintenance cost savings
- » Intelligent sensors on the round flow cassette provide innovative occupancy sensing features

VRV Common Indoor Solutions for the Office

Ductless Round Flow Sensing Cassette



An Office Solution with Maximum Performance and Minimum Maintenance

The Daikin round flow cassette is ideal for open plan applications such as conference rooms and offices where variances in temperature and airflow can cause discomfort. With 18 configurable airflow distribution patterns, it can also be effective in smaller, more intricate spaces such as conference rooms.

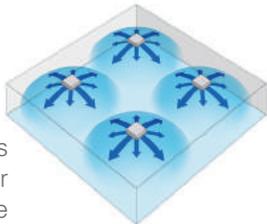
Optimized Comfort

Integrated Presence and Floor Sensors



Daikin's round flow cassette provides optimum comfort. An optional presence sensor allows the system to dynamically respond to room occupancy. If the room is empty, air conditioning can be automatically switched off. When the room is occupied, air flow is directed away from occupants for draft-free comfort.

360° Airflow Design
reduces hot and cold spots



Minimize cold/hot drafts where areas are occupied. Maximize uniform floor to ceiling temperatures and enable temperature setback when zones become unoccupied.

Maintenance Friendly

Self-Cleaning Filter Panel
(optional)



The cassette has an optional self-cleaning filter mechanism to clean the filters daily and prevent increased energy consumption caused by filter loading. The mechanism comes complete with a vacuum cleaner connection to allow for periodic emptying of the collection box.

VRV Common Indoor Solutions for the Office

Ducted Ceiling Mounted Concealed Unit



Powerful, Concealed, Flexible

The DC-Ducted unit is ideal for small to large spaces in need of a concealed air-conditioning system. It is extremely powerful and the compact design allows it to be completely concealed.

Optimized Comfort & Efficiency

High Performance Fan Motor



A brushless DC fan motor, over a traditional AC motor, yields lower energy consumption, lower sound emissions, less fluctuation of air temperature and relative humidity.

Enhanced Indoor Air Quality

Optional MERV 13 Filters

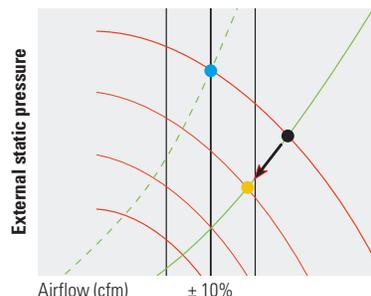


MERV 13 filters are designed to meet air filtration standards set forth in the LEED programs for existing building and new construction, as well as an effective IAQ tool for LEED in offices.

Install Friendly

Compact Unit Design and Flexible Ductwork

The unit's low profile, compact design, auto-adjusting airflow at commissioning, wide external static pressure range and flexible ductwork design makes this indoor unit easy and flexible to install into your unique building design.



- Fan characteristic curve
- Actual duct resistance curve
- - - Duct resistance curve at the time of designing
- Rated airflow
- Airflow with out airflow automatic adjustment
- Actual airflow

Controls and Monitoring Solutions

Controls

Simple To Use Intuitive Zone Control

Daikin provides scalable options for room control that are incredibly easy to use, yet powerful in terms of building management oversight and assignment of individual zone control privileges.

- » Individual control for private offices and conference rooms
- » Flexible zone level scheduling such as a 5+2 office schedule with use of central controller



Navigation Remote Controller

Comprehensive Control for Building or Campus



intelligent Touch Manager

The Daikin *intelligent Touch Manager (iTM)* provides facility managers a central control platform with simple display, easy programming and Internet accessibility. With four different screen views, including a floor plan layout, the *iTM* controller provides instant access to the information you need and allows control of up to 1024 indoor units, and control of auxiliary equipment such as DOAS, lighting and pumps.

The Daikin *intelligent Touch Manager (iTM)* provides facility managers a central control platform with simple display, easy programming and Internet accessibility. With four different screen views, including a floor plan layout, the *iTM* controller provides instant access to the information you need and allows control of up to 1024 indoor units, and control of auxiliary equipment such as DOAS, lighting and pumps.

- » VRV can be seamlessly integrated with third-party BMS systems, such as BACnet™ and LonWorks®
- » Receive system alarms and alerts and send error emails

Support for Energy Savings Strategies

- » Setpoint range limitation
- » Demand Control (peak hour)
- » Demand Control Ventilation
- » An economizer draws in cool outside air when it is available to reduce the need for mechanically cooled air
- » Temperature setback for unoccupied periods in spaces where occupancy varies, such as conference rooms

Performance Monitoring



Remote Monitoring with D-NET

Performance monitoring with *D-NET* delivers a 24/7/365 remote monitoring service that optimizes system performance. *D-NET* uses system and weather data to ensure that your VRV system is operating efficiently and will anticipate and warn of potential system problems, reducing down time and saving money. In addition, *D-NET* will send you periodic reports about system performance that can help identify areas of operational improvement.

What Does D-NET Offer You?

- » **Assistance in reducing life-cycle costs:** Safeguarding the lifelong optimum operation of your air conditioning system means getting prepared to operate the system in an energy efficient way and reduce unexpected breakdowns and costs
- » **Fast response, better prepared:** Save on maintenance and repair costs by receiving warning alerts of potential system problems
- » **Long-lasting systems:** Maximize the system's life by assuring it runs optimally and avoids unnecessary stress
- » **Energy strategy management:** *D-NET* supports your energy saving strategy by helping you manage your energy, and plan your annual energy target based on the previous year's data report(s), or from a target which you set. The more data you have the better long term decisions you can make. *D-NET* can monitor multiple office buildings and optimize system settings to minimize energy consumption across your portfolio

Separate Tenant Energy Billing

- » **Power Proportional Distribution (PPD)** lets you manage multiple tenant energy billing separately by calculating the apportionment of outdoor unit's total power consumption to individual indoor units on the system



Daikin Texas Technology Park

North American Headquarters
Houston, TX



Knowledge through Training



Online



Classroom



Hands-On



Daikin understands that highly trained and qualified installers and technicians, and owner's staff are a critical component of the VRV life cycle. That is why we have developed a comprehensive training program that addresses every stage of the VRV life cycle. We provide online, classroom, and hands-on training to ensure that our systems are designed, installed, and maintained correctly so that every Daikin system can work as designed for years to come.

Support from World Class Experts

Every project has its own unique set of challenges. In order to help ensure that you have the highest level of support, application engineers and local manufacturer's representatives are ready to assist with expert advice in your region.

Daikin City — Online Library

Learn more about Daikin's products and technology and gain access to a vast variety of information, tools and resources with the Daikin City portal at www.daikincity.com.



About Daikin:

DAIKIN Daikin Industries, Ltd. (DIL) is a global Fortune 1000 company, which celebrated its 90th anniversary in May 2014. The company is recognized as one of the largest HVAC (Heating, Ventilating, Air Conditioning) manufacturers in the world. DIL is primarily engaged in developing indoor comfort products, systems, and refrigeration products for residential, commercial, and industrial applications. Its consistent success is derived, in part, from a focus on innovative, energy-efficient, and premium quality indoor climate and comfort management solutions.

Before purchasing an appliance in this document, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.

Contact your local Daikin manufacturer's representative or distributor for more information.