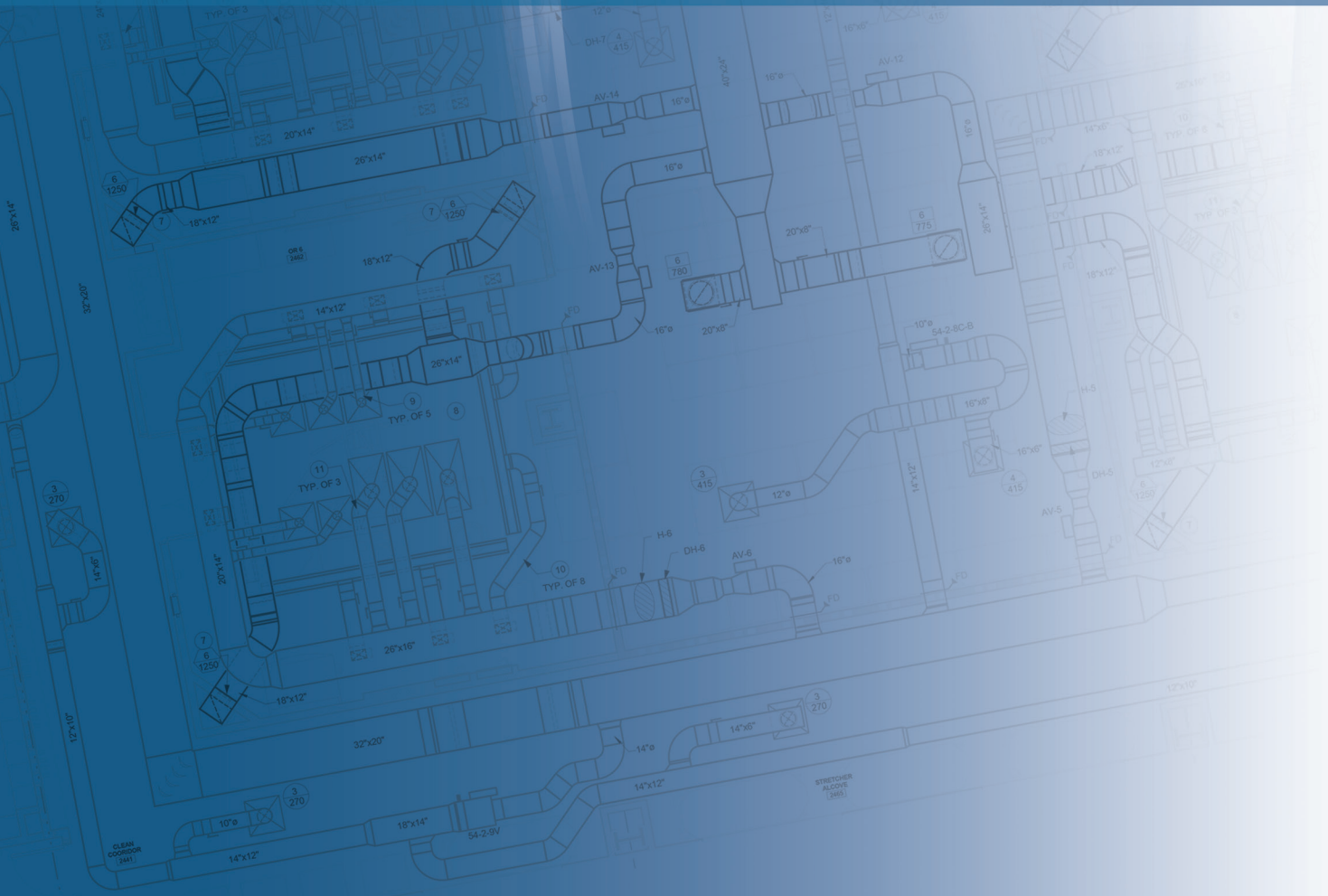


GENERAL OVERVIEW



ENGINEERED COMFORT'S COMPREHENSIVE PRODUCT LINE

Vertical Hi-Rise & Closet • 39 Series

Designed as a modular unit with integral risers to allow units to be "stacked" one on top of the other in a vertical column rising floor to floor up the building. This allows the use of one set of common risers, significantly reducing the installed cost compared to other fan coil systems.

- Model 39VH 88" (2235) high unit design.
- Low profile Model 39L 80" (2032) high unit design.
- 200 – 2200 CFM (94 – 991 l/s). The largest range in the industry.
- High efficiency PSC motor standard in 9 unit sizes (motor / blower combinations in four footprint sizes).
- Ultra-high efficiency ECM available in nine unit sizes.
- Industry leading Variable Air Volume (VAV) ECM/EPIC Fan Technology® available with ECM for performance leading energy savings, quietness and comfort.
- Risers (where provided) are factory installed as standard but may be optionally shipped loose upfront to facilitate field installation.
- Primary applications include hotels, condominiums and apartment buildings.
- Available in Type C Concealed, Type A/B Paired, Type M/S Master Slave and Type E Exposed Unit arrangements.



Type C Concealed Unit

Designed for stand-alone concealed applications in corners or along room walls. Drywall may be directly attached or the unit framed in. After completion of the finished room walls, only the supply grille and return panel are visible.



Type E Exposed Unit

Designed for exposed stand-alone applications on both new and renovation projects where concealed installation is not possible or practical. Units feature an integral riser chase as standard and a full height flush mount removable face panel with supply and return grilles. An optional ceiling shroud extension is available to take the unit casing the full height of the room. The entire unit features an attractive baked enamel paint finish.

Type M/S Master Slave "Side-by-side" Unit

Designed for those applications where building design prohibits the use of a Paired unit. The units are a pair but the slave is installed remote from the master. Units still share a common set of risers (supplied on the Type M Master unit when provided) but each unit is shipped separately for a field piping connection.



Type A/B Paired "Piggyback" Unit

Designed for installation in the separation wall between two rooms. Paired units are a pair, available in a "piggyback" or "side by side" arrangement. They share a single set of common risers (attached to A unit) but each has its own set of water valves and controls for independent operations. Paired units are shipped completely assembled direct from the factory for additional cost savings and are available with a one-hour fire-rated option.



Vertical Hi-Rise & Closet • 39 Series (continued)



Low Profile Vertical Hi-Rise Units 39L Series

All the same design unit sizes features and options as the standard 39VH series model, but in a reduced height casing for easier installation where floor to floor height is restricted.

- Low profile 80" (2032) high unit design.
- Available in Type C Concealed, Type A/B Paired and Type M/S Master Slave arrangements.



Low Boy Vertical Hideaway Units 39MU Series

Design for platform or floor mounted, vertical ducted applications. Units are normally located in closets, utility rooms or other concealed locations.

- Compact unit design
- 200 – 2100 CFM (94 – 991 l/s)
- High efficiency PSC motor standard in 9 unit sizes (motor/blower combinations in four footprint sizes).
- Ultra-high efficiency ECM available in nine unit sizes.
- Industry leading Variable Air Volume EPIC Fan Technology® available for performance leading energy savings, quietness and comfort.

Horizontal Fan Coil Units

Model Series 35FH • High Capacity, Ducted

A fully commercial unit designed for concealed ceiling applications, 17" (432) unit height for sizes up to 24, and 23" (584) height for sizes 30 & 40.

- Draw-through maximizes capacity as air contacts more of the coil face area.
- Fully insulated coil casing reduces heat losses.
- Insulated casing reduces radiated sound.
- Airflow range 400 – 4000 CFM (189 – 1888 l/s).
- 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 30 & 40 where size equals approximate max airflow.
- External Static Pressure up to 1.0" w.g. (250 Pa).
- PSC, 3 Speed ECM and EPIC ECM Motor are available.
- Industry leading Variable Air Volume ECM/EPIC Fan Technology® available.
- Up to eight rows of cooling/ heating coils available.
- Full panel bottom and side access to all components.

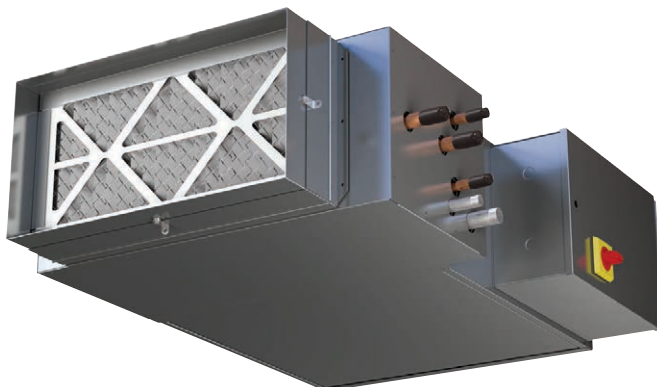


35FHZW

Model Series 37FH • Low Profile, Ducted

A fully commercial unit designed for concealed ceiling applications where a lower profile is required (11" (279) high unit).

- 100 – 1400 CFM (47 – 661 l/s) capacity in three unit sizes.
- Only 11" (279) in height for tight ceiling applications.
- Ultra-high efficiency ECM motor standard.
- Industry leading Variable Air Volume ECM/EPIC Fan Technology® available for performance leading energy savings, quietness and comfort.
- Fully isolated direct drive blower/motor assembly.
- Insulated inlet casing reduces radiated sound.
- Easy full panel access to all components.
- Sloped drain pan externally insulated.
- Up to six rows of cooling/heating coils available.
- Various IAQ linings available.
- Ultraviolet light option.



37FHZW

Horizontal Fan Coil Unit • Low Profile

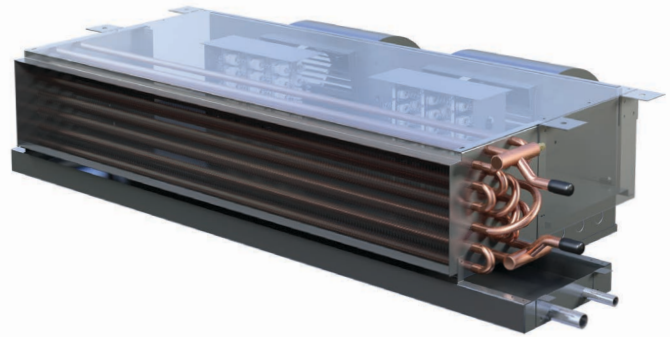
Model Series 40H

The 40H Series horizontal low profile fan coil units are designed to combat confined ceiling heights and space restrictions. With a full range of capacities, low sound decibels, and high air volume at various external static pressures; the 40H Series can overcome the most demanding installation needs.

Model 40HF: Low Profile Free Horizontal Return Fan Coil Units

300 – 1500 CFM (142 – 708 l/s)

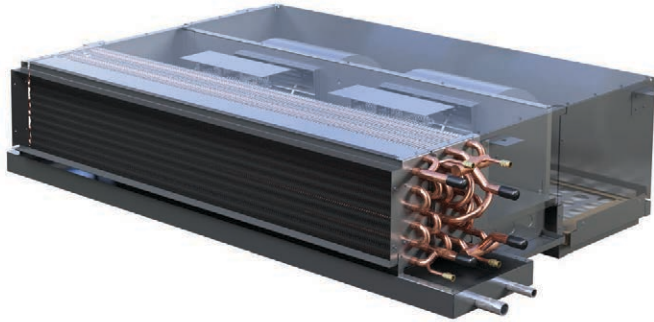
Model 40HF Low profile free return horizontal fan coil unit is concealed fan coil unit for mounting above ceilings, in closets, hallways and bathroom areas. The discharge collar for duct connections is ideal for easy installation. The optional bottom mount controls enclosure with hinged door is easily accessible for service.



Model 40HP: Low Profile Horizontal Plenum Fan Coil Units

300 – 1500 CFM (142 – 708 l/s)

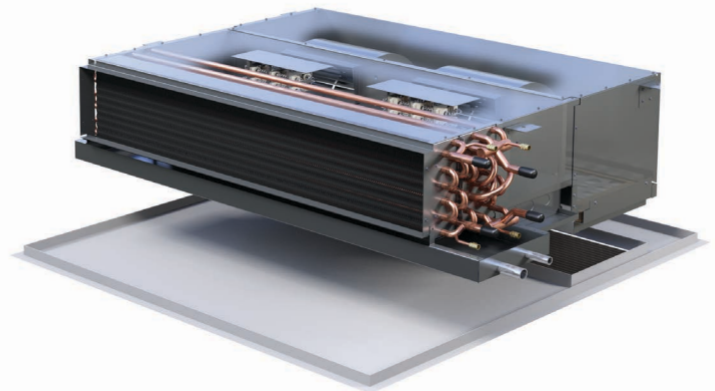
Model 40HP Low profile horizontal plenum fan coil unit is a slim, compact, concealed fan coil design ideal for a dropped ceiling, closet, hallway and bathroom application. Equipped with a standard factory mounted discharge collar for duct connections, making for an easier installation. The optional bottom mount controls enclosure with hinged door and bottom return-air provides easy access for service.



Model 40HT: Low Profile Horizontal Telescoping Fan Coil Units

300 – 1500 CFM (142 – 708 l/s)

Model 40HT Low profile telescoping horizontal fan coil unit is a recessed fan coil designed for flush ceiling applications. The telescoping frame and hinged access panel of the Horizontal Recessed Bottom Return allow it to fit any type of ceiling and comes in a durable attractive powder coat finish.



Model 40HX: Low Profile Exposed Cabinet Horizontal Fan Coil Units

300 – 1500 CFM (142 – 708 l/s)

Model 40HX Low profile exposed cabinet horizontal fan coil unit is designed for exposed ceiling mounted applications where space is limited or not available. The cabinet is constructed of heavy gauge galvanized steel and finished with a durable attractive powder coat finish making this unit ideal for remodel situations where adding duct work is not an option.



Vertical Sill Fan Coil Units

Model Series 41V

41V Series Vertical Fan Coil Units are designed to maximize flexibility of selection and installation. The vertical up flow design is ideal for heating and cooling requirements in motels, hotels, office buildings, hospitals, and college dorm rooms.

Model 41VC: Vertical Concealed/Top Supply

300 – 1200 CFM (142 – 566 l/s)

Model 41VC is a vertical fan coil unit designed for concealed applications. The slender design makes this unit ideal for perimeter heating and cooling applications in hotels, offices, hospitals, and other public buildings. The coil section of the 41VC is lined with fiberglass insulation to provide positive protection against sweating and maximum dampening of noise. Standard 41VC units are provided with a galvanized finish.



Model 41VX: Vertical Exposed Flat Top Cabinet

300 – 1200 CFM (142 – 566 l/s)

Model 41VX exposed vertical fan coil units feature a flat top cabinet which makes this unit ideal for perimeter heating and cooling applications in hotels, offices, hospitals and other public buildings. The cabinet is fabricated of heavy gauge galvanized steel, and the top panel provides the structural rigidity essential for an exposed unit. Standard units have a removable, one-piece front panel for easy access to all internal components. The 41VX is also very durable and aesthetically pleasing with an attractive powder coat finish.

Model 41VS: Vertical Exposed Sloped Top Cabinet

300 – 1200 CFM (142 – 566 l/s)

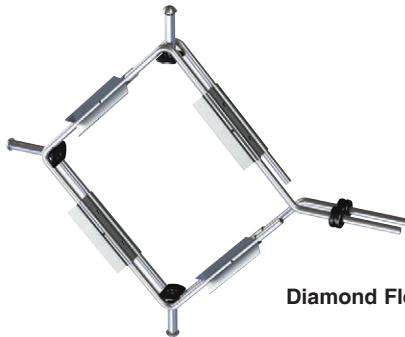
Model 41VS vertical sloped top cabinet fan coil unit is designed for applications in hotels, offices, hospitals, and others public buildings where it is necessary to prevent books and other items from being placed over the discharge grilles on the top panel. The cabinet is fabricated of heavy gauge galvanized steel and the top panel provides the structural rigidity essential for an exposed unit. Standard units have a removable, one-piece front panel for easy access to all internal components. The 41VS is also very durable and aesthetically pleasing with an attractive powder coat finish.



COMMON COMPONENTS

Diamond Flow Sensor

The Nailor Diamond Flow is a multi-point airflow sensor that is designed to provide an averaged and accurate flow signal for use with pressure independent controls.



Diamond Flow Sensor

Accuracy

Conventional airflow sensors function best under ideal inlet conditions. Space constraints, structural components and mechanical system machinery often influence inlet conditions, in many instances, creating less than ideal entering conditions. Without the several lengths of duct needed for ideal conditions, the air profile moving across the sensor can become distorted or turbulent. As a result, the non-uniform inlet condition provides an inaccurate airflow measurement.

The Diamond Flow is constructed of aluminum (stainless steel is optional) to ensure longevity and strength. Each sensor has a minimum of four pick-up points on each side which sample airflow in each quadrant of the inlet. Those readings are then averaged, providing an output signal available to a controller. The 'Diamond Flow' has a maximum error envelope of +/- 5%. Resulting flow measurements are therefore accurate when used within normal practices and often without ideal inlet conditions.

Signal Amplification

Another Diamond Flow sensor advantage lies in the approximate 2.5 average amplification factor of the velocity pressure signal (ΔP) sent to the controller. By amplifying this signal 2.5 times, accuracy is enhanced primarily during low airflow conditions. Inside pneumatic reset controllers, the static pressure signal is subtracted from the total pressure signal by piping these pressures to opposite sides of the diaphragm. The combined diaphragm and spring assembly have a mass equivalent to about .03" w.g. (7.5 Pa). This mass defines the dead band and the minimum ΔP setting. By amplifying the velocity signal, the controller is tricked into a lower minimum capability and a narrower dead band. The same advantage is realized with digital and electronic controls utilizing a flow sensor and transducer. Low flow sensitivity is increased and lower settings can be held. Exact control at minimum settings is crucial in maintaining good IAQ design practices.

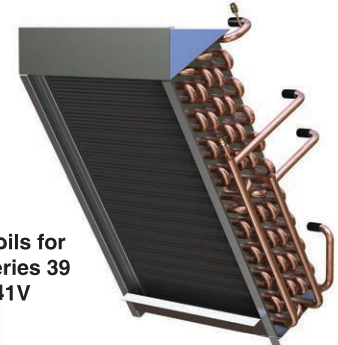
Minimal Intrusion

The sleek design of the sensor causes minimal disturbance to the airstream. Therefore, compared with other bulkier sensor designs, it produces a minimal pressure drop increase across the terminal unit damper, reducing the inlet static pressure requirement and increasing energy efficiency, while at the same time producing negligible sensor generated noise.

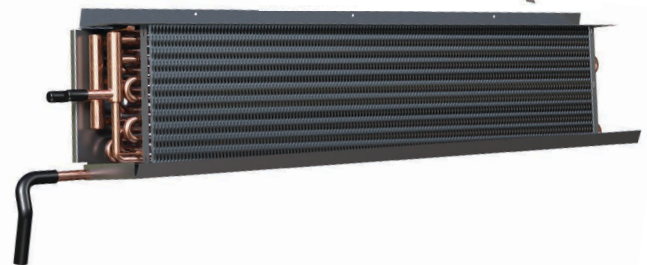
Water Coils

Engineered Comfort Fan coil units are available with factory installed hot water coils with up to four rows for reheat and supplementary heating applications. Coils are custom designed specifically for Fan Coil units. The number of circuits and header/connection size have been selected to optimize performance.

- Tubes are 1/2" (13) O. D. copper.
- Fins are rippled aluminum, 12 to 14 inch.
- Connections: 5/8" (16) or 7/8" (22) O. D. male solder, dependent on size and number of rows.
- Coils are pressure tested to 350 psi (2413 kPa).
- Water coil valves for electronic control are available.
- AHRI Certified.



Water Coils for Model Series 39 and 41V

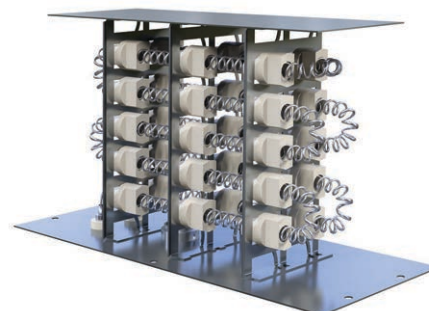


Electric Heaters

Engineered Comfort Electric Coils are tested with the fan coil in accordance with UL Standard 1995 and meet all requirements of the National Electric Code and CSA. Units are listed and labeled by the ETL Testing Laboratory as an assembly. All controls are enclosed in a NEMA 1 electrical enclosure for easy access.

All wiring for the motor and heater terminates in the enclosure for single point electrical connection in the field. Each unit is supplied with a wiring diagram.

Note: NEC requires a means to disconnect the heater power supply within sight of or on the fan coil unit.



Electric Heater



CONTROLS

Direct Digital Control (DDC)

Digital Controls dominate today's new construction market. Engineered Comfort has a wealth of experience supplying fan coil units for use with factory mounted digital controls supplied by others. We have worked with all major controls companies in recent years and have developed standard factory mounting programs to ensure operational efficiency is maximized for all terminal types and applications.

Engineered Comfort has designed its fan coil units to be generic in nature and compatible with all DDC controllers. Engineered Comfort offers its own EZstat - The all-in-one fan coil digital controller.

Analog Control Thermostat and Controller

Digital Display Thermostats for 3-Speed Fan Coil Units:

The Engineered Comfort T1070 Series Thermostat represent great value for a wide variety of two and four pipe hydronic fan coil applications.

These thermostat controllers are available in both programmable and non-programmable models and are designed for standalone use in commercial buildings such as hotels and schools as well as residential condominium and apartment projects.

LCD Analog Thermostat: A single output with limits and PI function thermostat is designed to be used with the Fan Coil Unit controller.

Analog controller: The Engineered Comfort controller is mounted inside the controls enclosure on the fan coil unit and is factory wired. Engineered Comfort fan coil units with analog controls provide extremely accurate variable air volume control. They are factory calibrated for each unit permitting quick and easy start-up with no field settings required, but may be simply and easily field adjusted if necessary to suit changing requirements.

See Controls Section of this catalog for more details.



A Participating Corporation in the AHRI Standard 440 Certification program.

AHRI CERTIFICATION

Nailor is a participating company in the Air Conditioning, Heating and Refrigeration Institute's 440 certification program for room fan-coils. Nailor has completed and received AHRI certification for our complete line of fan coil units in this catalog.

To comply with AHRI Standard 440, manufacturers must rate their products at standard rating conditions as specified by the standard. This permits direct comparison between manufacturers. In addition to standard ratings, Nailor also publishes application ratings. These application ratings are based upon tests conducted in accordance with the standard but at other conditions as well in order to provide the design engineer with a wider range of data from which to make his selection.

Participation in the AHRI program provides assurance that manufacturers' equipment will meet the claimed performance ratings. Compliance with AHRI Standard 440 by participants in the certification program is assured by regular testing of random samples by an independent laboratory.

INDEPENDENT LABORATORY



CERTIFICATION

Although AHRI Certification, as explained above, provides some assurance of product performance, the program only verifies a single standard rating condition (certification rating point) for each terminal size. This is for valid logistical reasons. However, the correlation of the AHRI rating points with the comprehensive application data is sometimes difficult to reconcile in some manufacturers catalogs.

In order to provide assurance and complete credibility to the engineering community, Nailor tests its products at Energistics Laboratory; one of the foremost research, development and test facilities in North America.

UV Lights For Fan Coil Unit Applications

UVGI has been used for about 100 years to disinfect water, surfaces and air, but traditionally, it has not been used in A/C systems, especially ductless fan coils. UVC energy can "escape" fan coil return and/or supply air openings to potentially do harm to eyes and skin. Our system is uniquely designed to prevent this, making UVC use in ductless systems safe. We are first to accomplish this design goal. UVC kills or inactivates microorganisms, and degrades

most organic material to eliminate the mold, mildew, and slime along with their nutrients that accumulate on coils and in drain pans. This so-called bio-film binds (surface attachment) airborne contaminants to a coils surface through a complex aggregation of microbes and their excretion of a protective and adhesive type of matrix material. Degrading the matrix allows it to wash away with condensate runoff and residual drain pan water. This results in increased operating efficiencies through optimum heat exchange efficiency, reduced coil pressure drop and fewer clogged drains. What's more, health benefits have been claimed as UVC reduces space specific concentrations of airborne virus and other infectious agents that circulate through any air conveyance system.

What is Ultraviolet (UV) Light?

UV energy can be found in the electromagnetic spectrum emitted by the sun, between visible light and x-rays, and it's invisible to the human eye. The most common germicidal frequency is approximately 260 nm. Man made germicidal UV is extremely close at 254 nm and is referred to as UVC. It's a safe, well tested technology produced by lamps that are similar to fluorescent lights. To kill bacteria, virus and mold spores, UVC energy only needs to penetrate the microbe's outer cell membrane to reach the DNA, where it severely damages this genetic material. It's very easy for UVC and the best part is that no chemicals or any other

residual materials need be used. The microbe is killed or is unable to reproduce so when UVC is combined with the right filter, the two become the optimal strategy for cost effective recirculation of the same air, over and over again.

Improved Indoor Air Quality

Typically, A/C systems are damp, dark and full of nutrients; the perfect breeding ground for mold and bacteria. As they run, these inherent materials along with airborne infectious particles (virus) are circulated throughout the space. Research shows that occupants exposed to these contaminants can develop various health issues, including sinus congestion, headaches, allergies and asthma, as well as upper respiratory ailments, colds and flu. According to the World Health Organization, these ailments account for a substantial portion of absences from school and work, leading to lower productivity. As a result, UVC energy is required by the GSA for any government facility it funds. Other agencies and organizations recommending its use are the CDC, ASHRAE, Homeland Security and the DOE and more! UVGI can destroy several contaminants in HVAC systems to protect the coil, air distribution system, and occupant space and technicians alike.

Lower Operating Costs

The cooling coil is the most critical part of an A/C system. Because of moisture and dirt, coils can act as a "Petri dish" growing a myriad of microbes. These contaminate (allergens) like fungi, molds and bacteria also reduce a coils mechanical efficiency. It then either cost's more to run or it simply no longer gets the job done. This common occurrence forms the basis of coil cleaning, a routinely "required" safeguard. But it's costly, only effective for a short term and requires the use of chemicals. For fan coil units, coil access may not even be possible; just another reason why Engineered Comfort includes UVC. UVC can play a critical role in keeping coils clean. Our calculated intensity and positioning of UVC lamps allows us to deliver what's needed, to all but eliminate traditional coil cleaning. System performance is maintained, harmful chemicals are not used and occupants and technicians alike are more comfortable, productive and safe.

"At Engineered Comfort, we're about total comfort through secure and productive environments."

