



## UNITAIRE IV INSTALLATION - OPERATION - MAINTENANCE INSTRUCTIONS

### INSTALLATION

**INSPECTION** - Entire shipment should be inspected for damage, either readily visible or concealed. Remove the shipping carton as soon as received and inspect for in-transit damage. Any damage should be noted on the freight bill by the carriers agent and a claim filed as soon as possible. To prevent damage after inspection, each fan coil unit should be kept in its carton until ready for installation.

**MOUNTING** - Wall should be plumb and continuous behind the fan coil unit. Position the unit, and fasten to the wall or ceiling by means of toggle bolts, anchors, expansion bolts, 3/8" lag screws or 3/8" rod with washers and nuts (field provided) using the four 7/16" diameter holes provided in the cabinet. When installing on panel walls, consult the wall manufacturer or Architect/Engineer for recommended method of fastening.

The units shall be installed level and rest easily on the floor. If the floor is not level, insert shims between the bottom of the cabinet and the floor until the cabinet is level.

The installation instructions for surface mounted floor, wall and ceiling models, also apply to recessed models.

For proper operation on model C-A with rear inlet, maintain 6" minimum clearance from the rear inlet to the wall or other obstruction.

When fan coil units are furnished with electric heating elements, ducted units should be installed in accordance with instructions located on the front cover of the control compartment. External static pressure (except when high static PSC motors are supplied) cannot exceed .125" of water.

**PIPING** - A clean system is required to insure against blockage of the coil and to assure proper operation of the control valves. A complete purging of the system is recommended before unit-piping connections are made. The basic unit coil connections are 5/8" O.D.

The supply connection is at the top and the return connection is at the bottom on vertical model fan coil units.

Horizontal model fan coil units have the supply connection located at the bottom and the return connection located at the top.

Field insulation is required on all chilled water piping and components that are not located over the auxiliary drain pan.

Care should be exercised in when piping the connections to the unit to prevent excess soldering material from entering the system.

Each basic unit is equipped with a manually operated air vent valve. This valve permits air to be vented from the coils and keeps it operating at full capacity.

**STOP VALVES** - should be provided so that each water coil can be readily removed without draining excess quantities of water from the system.

Use soft solder to make field connection to hand valves. Avoid excess heat to prevent destruction of internal functional parts. Most valves may be soldered while in "OPEN" position. Ball type valves must be in "CLOSED" position. Disassembly when possible is recommended to avoid chance of overheating. Operate by hand only. Do not force to open or close.

**FILTERS** - are shipped installed in units, except CCFR. It is the Responsibility of the installer to provide access to the filters on Models CPFPR and CPFBR fan coil units.

**AUTOMATIC CONTROL VALVES** - Certain automatic water control valves are shipped unmounted to prevent transit damage to the valve piping components. These valves will be mounted at the factory with union or flare connections. Prior to shipment the valve will be disconnected from the piping cluster, packed in a separate carton and shipped separately or in the end pocket of the unit. Field assembly by the installer is required.

It is recommended these valves be mounted on units before final unit installation.

All water mains must be adequately supported to carry the necessary weight involved. Due to the fact that hot or cold water may be circulated through the water mains, a sizeable movement due to expansion or contraction may be expected. If the piping is supported rigidly with no provision for movement, it is possible that breakage of tubing or fittings may result, causing water damage.

Consult Airtherm certified drawings for additional piping details.

### UNITS FOR HYDRONIC COOLING AND HEATING

All codes and local requirements governing the installation of this type of equipment must be followed. Conformance with the National Electric Code is a minimum requirement.

Unit internal wiring is terminated in a junction box, which is located on either the left or right hand side of the unit. Each fan coil unit is provided with a data plate stating voltage and ampacity. Field wiring to the electric junction box shall have a temperature rating of no less than 75° C.

### UNITS WITH HYDRONIC COOLING COILS AND ELECTRIC HEATING ELEMENTS

**WIRING** - all electric connections are to be made in the control compartment located in either the left or right end of the fan coil unit.

Remove the compartment cover and refer to the unit-wiring diagram on the reverse side. All codes and local requirements governing the installation of electric heating equipment must be followed. Conformance to the NEC should be considered the minimum requirement.

The chassis must be electrically grounded, and a grounding lug or lugs have been provided for this purpose.

Each fan coil unit is provided with a data plate showing voltage and ampacity. Field wiring to the control compartment shall have a temperature rating of no less than 75° C. (Refer to data located on the outside of the control compartment cover for minimum wire size.)

### ELECTRIC HEAT CONTROL PACKAGE ENCLOSURE CLEARANCE

Control Package (1)	Sides	Top	Bottom	Rear (2)
All models except 24V Control Pkg.	0"	0"	0"	0"
All concealed models with 24V Control Pkg.	2"	2"	2"	0"

(1) Packages having 24 V Control Voltage end in suffix "24.3"  
(2)"Rear" is the unit mounting side.

(CONTINUED ON THE NEXT SIDE)

**LINE POWER CIRCUIT WIRING** - Connections are to be made at the contractor terminals marked L1 and L2 or at power terminal block (when provided) marked L1 and L2. Consult unit-wiring diagram located on the reverse side of the control compartment cover.

**CONTROL CIRCUIT WIRING** - When a separate control power supply is required, wiring connections are to be made to control terminal blocks marked C1 and C2.

**REMOTE MOUNTED COMPONENTS** - Units requiring remote mounted thermostats should be installed in accordance with the manufacturer's instructions shipped with the thermostat, and should be connected as shown on the wiring diagram included in the unit.

**24V REMOTE THERMOSTAT WIRING MUST BE IN ACCORDANCE WITH N.E.C. CLASS I**

Some control packages also require a remote mounted fan speed switch. This switch should be mounted adjacent to the thermostat for ease of operation and installation. The electric connections from the remote components through the control box should be installed in conduit or other protective covering. All wiring should conform to the NEC or other local codes.

## OPERATION

### THE FOLLOWING OPERATIONAL CHECKS SHOULD BE MADE AFTER EACH FAN COIL UNIT HAS BEEN INSTALLED

**ACCESS** - The front panel must be removed for access to the interior components. Sufficient space for front panel removal must be provided.

**FANS** - Check the fan wheels for free rotation by spinning manually. Any slight misalignment can be corrected by repositioning the motor base, or repositioning the fan wheel on the motor shaft. When making an adjustment, be certain the fan wheel is centered on the housing inlet.

**DATA PLATE** - Before energizing the fan coil units, check the data plate rating for required power and control voltages. Verify the correct voltages have been wired to the unit.

**START-UP** - With the front panel in place, allow the fan coil unit to run for several minutes. Rotate the fan speed selector switch and observe motor speed changes.

**THERMOSTATS** - On units with built-in thermostats, check thermostat operation by rotating the temperature adjustment knob, or manually adjust the remote wall thermostat.

**CONTACTORS** - Check contactors for proper operation. Chattering indicates low control circuit voltage and can cause permanent damage to contactor contacts.

**CAUTION: DISCONNECT THE LINE AND CONTROL POWER FROM THE FAN COIL UNIT BEFORE MAKING ANY ADJUSTMENTS.**

**OPERATION** - If the fan is shut off for any extended period, when chilled water is being circulated, condensation may occur on the unit when it is installed in a high humidity area. To prevent

condensation, it is recommended that a valve at the unit be used to stop the flow of chilled water when the fan is off.

**FILTER** - Check that the filter is in place and clean.

## MAINTENANCE

Airtherm UNITAIRE IV fan coil units will provide many years of trouble free service if a regular schedule of inspection and maintenance is followed. Usually inspection every four months under normal operating conditions is adequate. However, this period may be varied to fit a particular installation. The following routine maintenance is recommended to insure peak performance.

**NOTE: DISCONNECT POWER TO THE UNIT BEFORE PERFORMING MAINTENANCE.**

**CLEANING:** Gain entry to the unit interior by removing appropriate panels. Remove all accumulated dust and dirt with a suction vacuum cleaner and visually check for loose screws, fasteners, etc.

**COILS:** Clean the coil once a year, or more often if necessary, so cooling and heating capacity will not be impaired. Dirt may be removed by brushing or vacuuming the base of the coil. High pressure may be blown through the coil in the direction opposite the airflow to dislodge dirt. In extreme cases it may be necessary to remove the coil from the unit and spray with a mild alkaline cleaning solution followed by a rinse.

**CONTROL COMPARTMENT** - It is not necessary to remove the control compartment of the fan coil units for use with electric heating elements for routine maintenance. No adjustments are required, unless malfunction due to control wiring or component failures is suspected.

**FILTERS** - Disposable filters should be changed a minimum of twice per cooling season and heating season to assure that excessive dust and lint have not accumulated to interrupt free flow of air. If, due to extreme circumstances and unit location, excessive accumulation is noted, filters should be changed more often. Cleanable filters should be changed twice during the cooling and heating seasons with periodic checks for excessive dust and lint accumulation as noted above. Cleanable filters may be cleaned by immersing in water and shaking dry. They also can be cleaned with the suction attachment on a vacuum cleaner.

A duplicate set of throwaway filters should be kept on hand for replacement purposes.

**MOTORS** - Are permanently lubricated with provisions for re-oiling to extend their life. Under normal operating conditions, lubricate the motor every two years or 8000 hours, whichever comes first. When re-oiling, use #20 non-detergent automotive oil. Inspect the fan and the motor assembly a minimum of once a year for accumulation of dust and dirt. If necessary, remove and clean. Motors and fans are mounted on a removable motor board assembly. When fan wheels are replaced, be sure the blades curve forward in the direction of rotation.

**SELECTOR SWITCHES AND THERMOSTATS** - Check for satisfactory operation following the same procedure described under the heading above - "Start Up".

## LIMITED WARRANTY

Products manufactured by AIRTHERM are warranted against defects in material and workmanship for a period of one year from the date of shipment.

Requests for repair or replacement of products under this warranty must be referred to AIRTHERM for issuance of a return authorization. Transportation charges must be prepaid on shipments of products returned to the factory.

Products determined to be defective will be repaired or replaced and returned to the purchaser F.O.B. factory. This warranty does not apply to any equipment which shall have been altered or repaired outside AIRTHERM's factory, or which has been subject to misuse, negligence or operating conditions in excess of those stated in AIRTHERM's catalog. Products of other manufacturers, assembled with or accessory to these products, are subject to the warranty of their manufacturer.

Under no conditions shall the company be held liable for consequential damages or repair costs. The company reserves the right to make changes in design or dimensions, to add or eliminate products without prior notice.