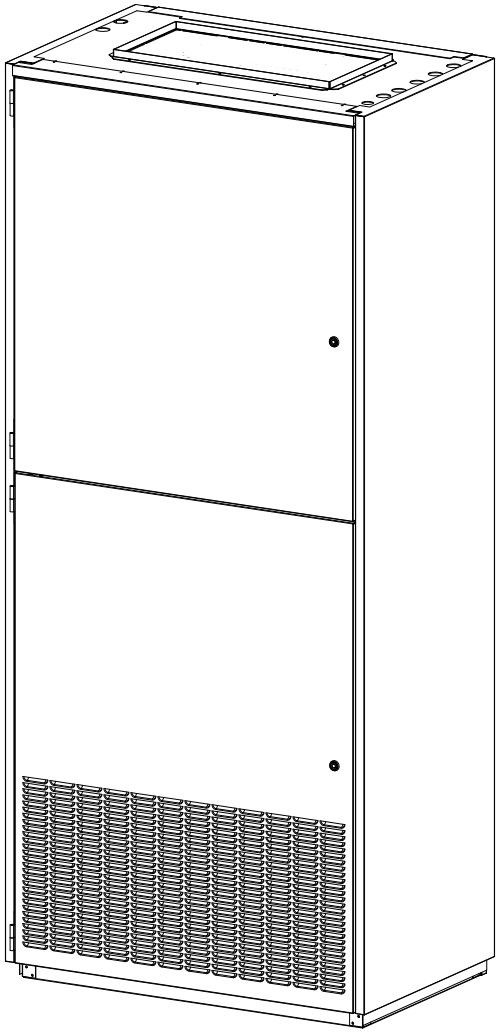
changeair
a systemair company

OWNER'S MANUAL
Installation, Operation, and Service Instructions
Version 1.1



Freshman Series

Dehumidification

Classroom Air Handler

www.changeair.com

This manual contains instructions for installation and operation of your unit. Keep it in a safe place for ready reference.

OWNER'S MANUAL
INSTALLATION, OPERATION, AND SERVICE INSTRUCTIONS

This manual contains instructions for installation and operation of your unit. Keep it in a safe place for ready reference. Should you require further information, contact your dealer.

Replacement parts and service are available through your local Change'Air representative.
To find your local representative contact:

Canada (519) 688-6363 **U.S.A.** (517) 676-0700
or visit
www.changeair.com

ATTENTION

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.
Installation and maintenance must be done by a qualified installer, service agency, or authorized dealer.
OPERATION OF UNIT DURING CONSTRUCTION MAY VOID THE WARRANTY.

Identification

Please keep this page for future reference

You have just purchased a ***Change'Air*** Freshman Series Dehumidification Air Handling Unit. This design is certified by the Canadian Standards Association **(CSA)** and bears the label indicating it has been tested to the current safety standards for both the United States and Canada.
To simplify the proper installation and to assure that the unit will operate in conformity with generally accepted safety regulations, the manufacturer and testing agency require that Installation should be carried out by a qualified HVAC technician using industry accepted standard practices. If questions arise during installation contact Change'Air Technical Services for assistance before proceeding.

NOTE: Do not deviate from the instructions as outlined in this manual. Failure to follow the installation, operation and maintenance instructions will ***void*** the responsibility of ***Change'Air Products and Services, Ltd.***

Unit Inspection

Inspected For Freight Damages

Your air handling unit was carefully packed for shipping. This means that the packaged product, with normal handling, will withstand the load conditions encountered in normal transit and in handling.

Your air handling unit should be inspected at the time of delivery to determine if any damage is present due to shipping or handling. If any damage is discovered, do not install the unit. Notify the freight company immediately and file a damage claim. The receiver is responsible for identifying damage and making a claim. If a partial claim is made Change'Air will assist you in determining replacement cost for any damaged parts.

The manufacturer can bear no responsibility for damages that occur in transit, or for improper operation of the unit as a result of shipping damages.

REFERENCE INFORMATION

For future reference, you should record the following information from the units

Dealer Name: _____ **Model Number(s)**_____

Address: _____ _____

City: _____ **Serial Number(s)** _____

State (Province): _____ _____

Zip or Postal Code:_____ **Date of Purchase**_____

Country: _____ **Date of Installation**_____

Safety Labeling

Safety Labeling and Signal Words

Danger
Warning
Caution
Notice

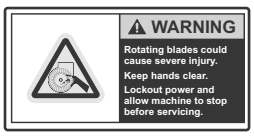
The signal words **DANGER**, **WARNING** and **CAUTION** are used to identify levels of seriousness.

The signal word **DANGER** is used on product labels to signify an immediate hazard.

The signal words **WARNING** and **CAUTION** will be used on product labels and throughout this manual and other manuals that may apply.

DANGER
Immediate hazards which **WILL** result in ***severe personal injury or death.***
DANGER

WARNING
Hazards or unsafe practices which **COULD** result in ***severe personal injury or death.***
WARNING



CAUTION
Hazards or unsafe practices which **COULD** result in ***minor personal injury or product or property damage.***
CAUTION

Warranties

LIMITED STANDARD PARTS ONLY WARRANTY (14 months)

This Change'Air Products and Services Ltd. (Change'Air or Change'Air USA) product is warranted to the original purchaser to be free from defects in material and workmanship under normal use and maintenance, consistent with Change'Air's instructions or recommendations for use and maintenance, for a period of 14 months from shipping date. Change'Air's sole responsibility under this parts warranty will be to provide a replacement part which fails to comply with this warranty during such warranty period, provided customer has promptly reported same to Change'Air. A new or remanufactured part may be provided to replace any defective part at Change'Air's sole option. Any defective part will be replaced without charge for the part itself, FOB the shipping point. THE EXCHANGED PART WILL BE WARRANTED FOR ONLY THE UNEXPIRED PORTION OF THE ORIGINAL WARRANTY. NO REPAIR OR REPLACEMENT PURSUANT TO THIS WARRANTY WILL RENEW OR EXTEND THE LIFE OF THE WARRANTY. Defective parts must be returned to Change'Air, transportation charges prepaid (Change'Air is not responsible for any freight charges), where Change'Air will establish to its sole satisfaction that the part was or became defective under normal use and maintenance. All replaced parts will become Change'Air's property. Repairs made pursuant to this warranty must be made by an authorized Change'Air service agency and do not qualify for labor reimbursement. No reimbursement will be made for transportation, diagnosing, shipping, or handling. THIS WARRANTY APPLIES ONLY TO THE PRODUCT IN ITS ORIGINAL INSTALLATION LOCATION AND IS VOID IF THE PRODUCT IS REINSTALLED ELSEWHERE.

LIMITED 2 AND 3 YEAR PARTS WARRANTY ON ERM FAN ASSEMBLIES AND

ACTUATORS

Change'Air specifically warrants the ERM fan assemblies will be free from defects in material and workmanship under normal use and maintenance, consistent with Change'Air's instructions or recommendations for use and maintenance, for a period of three years from the date of shipment. In addition, Change'Air warrants, for a period of two years from the date of shipment, the Belimo actuators against defects in material and workmanship under normal use and maintenance consistent with Change'Air's instructions or recommendations for use and maintenance. Replacement parts will be provided under the same conditions as stated above in the limited standard parts only warranty.

LIMITED 5 YEAR PARTS WARRANTY ON GAS HEAT EXCHANGER

In addition to the limited standard warranty set out above, during the second through fifth years after the date of shipment, Change'Air further warrants the gas heat exchanger against defects in material and workmanship under normal use and maintenance consistent with Change'Air's instructions or recommendations for use and maintenance. A replacement heat exchanger will be provided under the same conditions as stated above in the limited standard parts only warranty section.

EXTENDED & OPTIONAL WARRANTIES

Change'Air offers extended warranties on the compressor, the gas heat exchanger or the complete Change'Air unit at an extra cost to the customer. Extended warranty packages may be purchased through an authorized Change'Air supplier and are available in either a prorated parts only or replacement parts complete. In either case shipping and labour are the responsibility of the customer.

Optional one to five year labor warranties to accompany the standard parts warranties are available at an extra cost. Repairs made pursuant to this optional warranty will be made by an authorized Change'Air service agency and will qualify for labor reimbursement (to the service organization only) up to the maximum established by the Change'Air flat rate schedule effective at that time.

LIMITATION OF WARRANTIES

These warranties will not apply in respect of, and Change'Air will not under any circumstances be responsible for, any failure, deficiency or defect resulting from (i) any Change'Air product being improperly removed, installed, reinstalled, used, maintained or repaired by customer or any third party, (ii) any Change'Air product not being fit for a particular purpose, (iii) the design or specifications of any Change'Air product being unsuitable for any intended purpose, (iv) any Change'Air product being operated under abnormal conditions or in any manner which is contrary to the instructions or recommendations of Change'Air, (v) any Change'Air product being modified or altered by customer or any third party, or (vi) accident, unusual physical or other stress or normal wear and tear.

THE EXPRESS WARRANTIES SET OUT HEREIN ARE EXCLUSIVE AND NO OTHER WARRANTIES, REPRESENTATIONS OR GUARANTEES OF ANY NATURE OR KIND, WHETHER STATUTORY, ORAL, WRITTEN, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WILL APPLY. CUSTOMER'S EXCLUSIVE REMEDIES AND CHANGE'AIR'S ONLY OBLIGATIONS ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF ITS OBLIGATIONS HEREUNDER OR WITH DEFECTIVE OR DEFICIENT CHANGE'AIR PRODUCTS, WHETHER BASED ON WARRANTY, CONTRACT, TORT (INCLUDING NEGLIGENCE AND GROSS NEGLIGENCE) OR OTHERWISE, WILL BE THOSE EXPRESSLY STATED HEREIN.

Notwithstanding any other provision hereof, in no event will the aggregate liability of Change'Air and its employees, agents, directors, officers, representatives and/or suppliers for all claims, demands, liabilities, losses, actions, damages, expenses and costs relating to or resulting or arising out of (i) the performance or non-performance of its obligations hereunder, or (ii) the sale, operation or use of any Change'Air product exceed the aggregate amount paid by customer for the Change'Air product.

No claim or demand may be asserted against Change'Air or its employees, agents, directors, officers, representatives and/or suppliers hereunder unless the injury, loss or damage giving rise to such claim or demand is sustained within the applicable warranty period referred to above and unless such claim or demand is first asserted within twelve months after the injury, loss or damage has occurred.
THE EXPRESS WARRANTIES SET OUT HEREIN ARE VOID IN CASES WHERE THE CHANGE'AIR PRODUCT IS NOT USED IN ACCORDANCE WITH THE CHANGE'AIR OPERATING MANUAL, EXPOSED TO ENVIRONMENTS OUTSIDE OF ITS INTENDED USE OR DAMAGED THROUGH NEGLIGENCE OR INTENTIONAL ACTS OF ANY PARTY.

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ALL WORK UNDER THE TERMS OF THIS WARRANTY SHALL BE PERFORMED DURING NORMAL WORKING HOURS. ALL REPLACEMENT PARTS ASSUME AS THEIR WARRANTY PERIOD ONLY THE REMAINING TIME PERIOD OF THE APPLICABLE WARRANTY HEREUNDER.

CHANGE'AIR WILL NOT BE RESPONSIBLE FOR:

1. Normal maintenance as outlined in the installation, operating and service instructions manual including but not limited to cleaning of component parts such as orifices, burners and coils.
2. Failure to start and/or operate due to voltage or gas conditions, blown fuses, open circuit breakers, loose or disconnected wires, low gas pressure or other damages due to inadequacy or interruption of electrical service or gas supply.
3. Damage or repairs required as a consequence of faulty or improper installation, not in conformance with Change'Air instructions.
4. Damage as a result of floods, winds, lightning, accidents, corrosive atmosphere, acts of God or other conditions beyond the control of Change'Air.
5. Parts or accessories not supplied by Change'Air.
6. Costs incurred in gaining access to the equipment.
7. Damage or repairs required as a consequence of any misapplication, abuse, unreasonable use, unauthorized alteration, improper service, improper operation or failure to provide reasonable and necessary maintenance.
8. Freight charges incurred with respect to parts replaced.
9. Change'Air products installed outside Canada, the Continental USA and Alaska.
10. Change'Air products whose serial number has been altered, defaced or removed.
11. Fuel or electricity costs or increases in such costs from any reason whatsoever.
12. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, IN NO EVENT WILL CHANGE'AIR BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE OR KIND INCLUDING, BUT NOT LIMITED TO, CLAIMS FOR SERVICE INTERRUPTION, DELAYS, RE-PROCUREMENT COSTS, LOSS OF PROFIT, LOSS OF REVENUE, LOSS OF USE, LOSS OF GOODWILL, COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES, LOSS OF PRODUCTION OR COST OF CAPITAL, WHETHER OR NOT CHANGE'AIR HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH DAMAGES, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON A BREACH OF CONTRACT, NEGLIGENCE OR GROSS NEGLIGENCE.

WARRANTY CLAIM PROCEDURE

If customer believes one or more components of the Change'Air product is defective or working improperly, customer shall contact its local Change'Air agent and request the name and address of a Change'Air authorized service provider in its geographical area. Customer shall compile all available information concerning the parts and necessary labour required to rectify the defect and return the Change'Air product to normal operating condition. Customer shall complete a warranty claim form and fax it, with proof of shipment date, to Change'Air (Canadian fax # (519) 866-3798, USA Office fax # (517) 676-4367) prior to proceeding with any repair to the Change'Air product. If Change'Air determines customer's warranty claim is within the prescribed time period, Change'Air will promptly return the warranty claim form to customer with instructions concerning the procedure to be followed to repair the defect, together with a warranty authorization number. NO WORK TO RECTIFY ANY DEFECT FOR WHICH WARRANTY COVERAGE IS SOUGHT BY CUSTOMER SHALL BE COMPLETED UNTIL CHANGE'AIR HAS ISSUED A WARRANTY AUTHORIZATION NUMBER. All directions set out in such form must be carefully followed by customer. Change'Air shall ship in stock replacement components to customer within 2 business days. Costs of such replacement component(s) will be invoiced to customer but credit shall be given upon receipt by Change'Air of the defective component and determination by Change'Air that customer's warranty claim is valid. Receipts for any labor or field supplied parts must also be returned to Change'Air's head office. Warranty authorization number must be quoted on all correspondence, returns and claims. Reimbursement will only be made for field supplied parts and labor if authorized by Change'Air on the warranty claim form. If Change'Air determines that the alleged defective component was either (i) not defective or (ii) the defect was a result of an event or action which voided the warranty, customer shall be entitled to retain the replacement component but shall be responsible to pay Change'Air for the replacement component, plus the costs of repairs and labor if applicable.

GOVERNING LAW; ENTIRE AGREEMENT

This warranty shall be governed by and construed under the laws of the Province of Ontario, without regard for the conflicts of laws provisions thereof. For international contracts, the provisions of Ontario law, and not the UN Convention on Contracts for the International Sale of Goods, shall apply.
This warranty constitutes the entire agreement between Change'Air and you regarding your warranty rights. The terms herein shall not be modified except in a writing signed by Change'Air and you.
This warranty gives you specific legal rights, and you may also have other rights, which may vary from region to region.

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LIMITED WARRANTY

LIMITED STANDARD PARTS ONLY WARRANTY (14 months)

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LIMITED 3 YEAR PARTS WARRANTY ON DAMPER ACTUATORS

Changeair warrants, for a period of three years from the date of shipment, the Belimo actuators against defects in material and workmanship under normal use and maintenance consistent with Changeair's instructions or recommendations for use and maintenance. Replacement parts will be provided under the same conditions as stated above in the limited standard parts only warranty.

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In addition to the limited standard warranty set out above, during the second through fifth years after the date of shipment, Changeair further warrants the gas heat exchanger against defects in material and workmanship under normal use and maintenance consistent with Changeair's instructions or recommendations for use and maintenance. A replacement heat exchanger will be provided under the same conditions as stated above in the limited standard parts only warranty section.

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This warranty constitutes the entire agreement between Changeair and you regarding your warranty rights. The terms herein shall not be modified except in a writing signed by Changeair and you.
This warranty gives you specific legal rights, and you may also have other rights, which may vary from region to region.

General Preventative Maintenance

By performing proper preventative maintenance your unit will operate economically and dependably. Instructions for basic maintenance are found below.

WARNING

Before beginning with any preventative maintenance, you **MUST** follow these safety precautions. Failure to do so may result in personal injury or death.

1. Always turn OFF electrical power supply before cleaning the unit or performing any maintenance.
2. Although special care has been taken to minimize sharp edges, take extra care when handling parts or reaching into units.
3. Label all wires prior to disconnecting. Wiring errors can cause improper and dangerous operation. Verify proper operation after service.

Preventative Maintenance

NOTE: The following is a generalized list of maintenance procedures that pertains to all Change'Air Classroom Units, therefore one or more of the procedures may not apply to your particular unit(s).

Cleaning your vertical classroom unit:

Exterior

Annually or as needed, thoroughly clean cabinet exterior using a soft absorbent cloth, mild soap and water and/or non abrasive non-acidic cleaner.

Interior

1. Clean the interior annually or as needed.
2. Check and clean or replace air filter(s) monthly or as required.(Refer to Pg 5)
3. Thoroughly vacuum entire unit.
4. Wipe down metal parts as needed.
5. Clean fan assemblies. Refer to the Maintenance Section on Fans. (Refer to Pg 6 & 7)
6. Check Heating and Cooling coils (**if equipped**) for cleanliness at the start of each heating and cooling season (Refer to Pg 7).
7. Disinfect drain pan and drain lines **(**if equipped**)**.
8. Check electrical connections for tightness and controls for proper operation, including if equipped the damper actuator(s) annually.
9. Oil fan motors once a year with SAE 20 non-detergent oil, if applicable. (Refer to Pg 7)
10. Test unit and controls for complete functionality and replace and/or adjust parts as required.
11. Check the exterior louver to be sure it is free of debris or obstructions once a year.

Filter Maintenance

Filtering Out Trouble
Dirty air filters will cause air flow reduction through your unit. If excessive air loss occurs, the unit may freeze up when in the air conditioning mode, or cycle on high and limit safety controls during heating mode. If this condition persists the unit may be locked out by the safety circuits.

Each unit will be equipped with either 1" or 2" disposable pleated filters, a 1/4" washable filter, or a combination of washable and disposable filters.

Cleaning or Changing Filters
(Recommended once a month or as required).

1. Turn **OFF** electrical supply to unit.
2. Open the upper and lower front service panels with the key provided. Keys may vary.
3. Open the access coverl to dehumidification filters (Fig. A).
4. Slide out dirty filters and replace with new ones (Fig. A) Or wash filters (if permanent) with water, flushing in opposite direction of air flow, let dry and replace.
5. Reattach the access panel then close the upper and lower front service panel and lock with key.

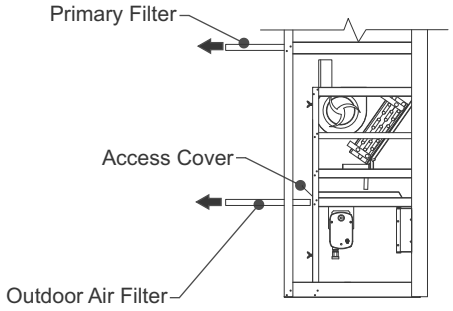


Fig. A
Disposable Filter(s)

CAUTION: *Never operate unit without a filter in place. Doing so may damage internal components and/or cause a loss of efficiency.*

Removing Supply Fan(s)

Remove SUPPLY FAN MOTOR(s) as follows.

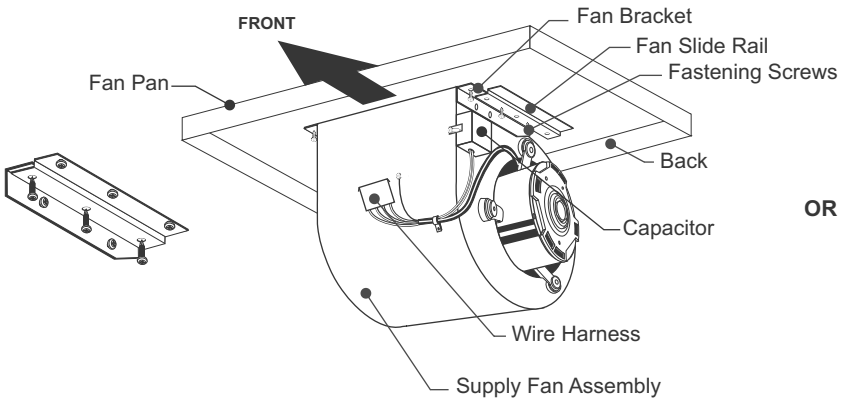
1. Turn **OFF** electrical supply to the unit.
2. Open front service panels of unit using key provided.
3. Disconnect the wire harness running to the fan motor. (Fig.B)
4. Remove fastening screws from either side of fan assembly
5. Pull fan assembly straight out of unit and clean dirt from fan blades and around motor housing. Oil motor with SAE 20 non-detergent oil. (Refer to Pg 7)

WARNING

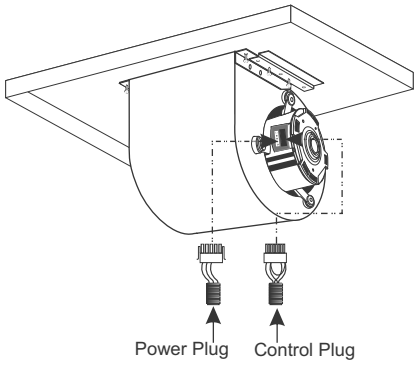
A qualified service technician should perform the following.

6. Replace fan assembly in track and re-secure with fastening screws.
7. Replace electrical wires.
8. Close service panels and lock with key, turn electrical power **ON**, and test operation of the unit.

Fig. B



OR



Removing Intake Fan(s)

Remove INTAKE FAN MOTOR(s) as follows.

1. Turn **OFF** electrical supply to the unit.
2. Open front service panels of unit using key provided.
3. Remove access panel to gain access to the fan. (Fig. D)
4. Label and disconnect the electrical wires from terminal strip on fan housing. (Fig. C)
5. Remove fastening screws from either side of fan assembly

WARNING

A qualified service technician should perform the following.

6. Pull fan assembly straight out of unit and clean dirt from fan blades and around motor housing. Oil motor with SAE 20 non-detergent oil. (Refer to Pg 7)
7. Replace fan assembly in track and re-secure with fastening screws.
8. Replace access panel. (Fig. D)
9. Replace electrical wires.
10. Close service panels and lock with key, turn electrical power **ON**, and test operation of the unit.

Fig. D

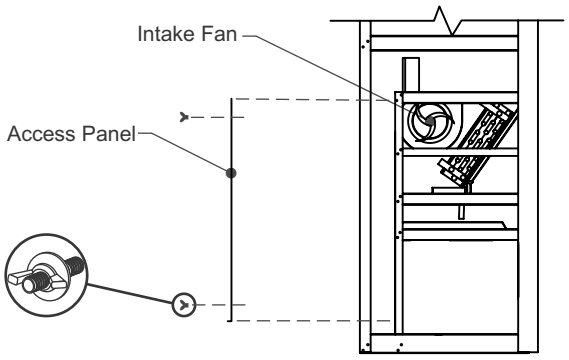
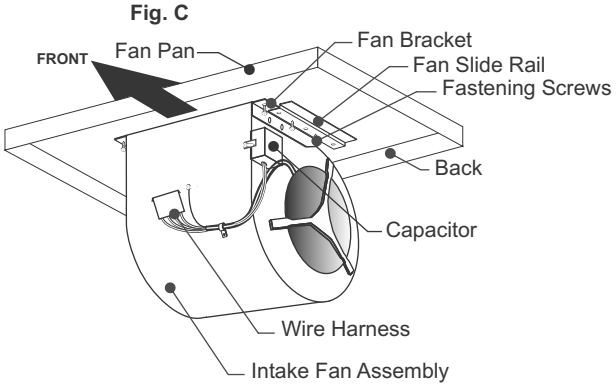


Fig. C



Cleaning Supply and Intake Fans

1. Remove Fan from unit (Refer to Pg 6)
2. Take a brush or similar cleaning tool and clean blades of fan to remove built up attached dirt.
3. Use a vacuum or compressed air and clean entire fan including the blades.
4. Use SAE 20 non-detergent oil on the Standard Motor requiring oiling.
5. Replace fan in unit (Refer to Pg 6)

Fig. E

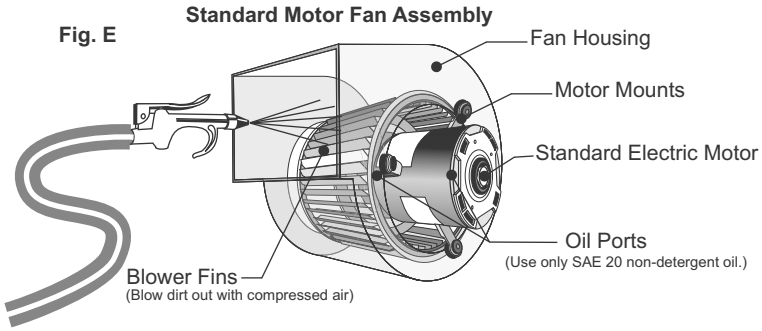
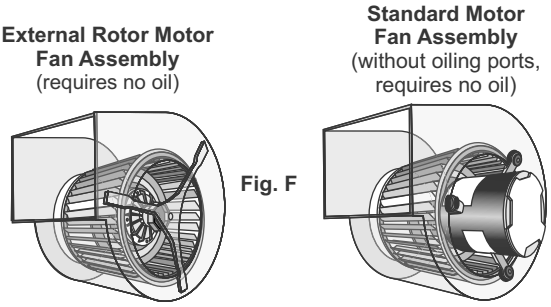


Fig. F



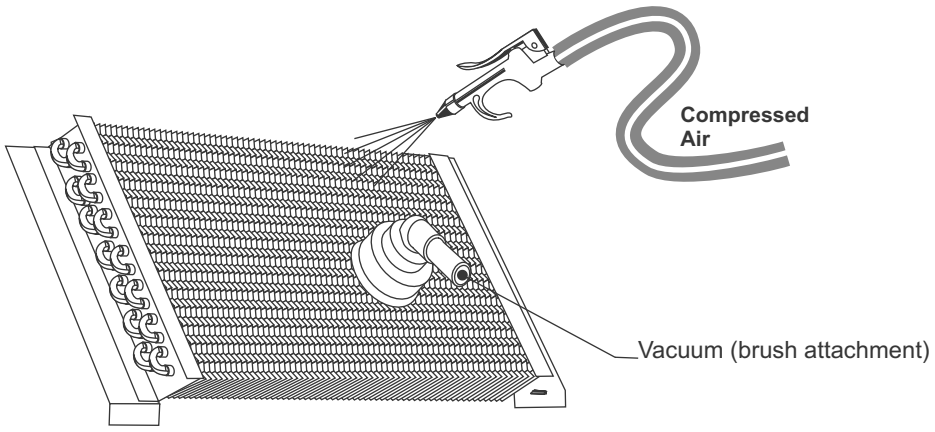
Coil Maintenance

Heating coil (open access)
1. Using a coil brush remove/dislodge excess foreign matter.
2. Vacuum loosened foreign matter.
3. Using compressed air, clean coil in reverse direction of air flow and/or using an environmentally safe cleaner, spray top side of coil and allow to soak for several minutes.
4. If required, wipe up drips and excess spray (allow to dry if required).
5. Re-assemble unit and test.

Primary Cooling coil
Gain access to back side of coil through filter opening.
1. Using a coil brush remove/dislodge excess foreign matter.
2. Vacuum loosened foreign matter.
3. Using compressed air, clean coil in reverse direction of air flow and/or using an environmentally safe cleaner, spray top side of coil and allow to soak for several minutes.
4. If required, wipe up drips and excess spray (allow to dry if required).
5. Re-assemble unit and test.

Outdoor Air Cooling coil
Removal of the access panel is required before maintenance can begin.
Gain access to back side of coil through the opening between the coil pan the filter rack.
1. Using a coil brush remove/dislodge excess foreign matter.
2. Vacuum loosened foreign matter.
3. Using compressed air, clean coil in reverse direction of air flow and/or using an environmentally safe cleaner, spray top side of coil and allow to soak for several minutes.
4. If required, wipe up drips and excess spray (allow to dry if required).
5. Re-assemble unit and test.

Fig. G



Coil Maintenance

CAUTION: Coil fins are delicate and can be damaged easily. Clean with care.

GENERAL ASSEMBLY AND INSTALLATION INSTRUCTIONS

It is important to read and understand the instructions outlined in this document, as well as any job specific documentation provided in the Information Package before proceeding with the installation.

Care should be taken to protect the painted finish when handling the unit and accessories.

Warning: Classroom Air Handlers weigh anywhere from 420lbs to 1070lbs and may be heavy. Care must be taken in the handling and moving of this unit to prevent it from becoming unstable and tipping over once the shipping crate is removed. Never lean a ladder against the unit or put weight on or against the unit prior to completing the installation as it may tip.

General Installation Instructions of the Classroom Air Handler

Refer to custom shop and installation drawings and instructions in the Information Package that was sent with the Unit for exact measurements, descriptions and installation details

1. Once the Rear Standoff (RSO) or Rear Plenum Assembly (RPA) installation has been completed (if applicable) and the Wall Sleeve has been installed, proceed with fastening the Classroom Unit in place. (Refer to Pg 12)

Notice: You may require an assistant's help for this procedure.

2. To assure a tight seal between the unit (or standoff) and the wall, apply foam tape to the 1" wide mounting edge and to any partitions of the rear standoff (or unit).

Tip: Keep the tape back from the outside edges by at least ¼" so the tape does not become unsightly when compressed.

3. If the unit has a cooling coil and drain pan, pass the drain hoses that come out the back of the unit through the wall sleeve. These hoses must gravitate drain downward to the outside as they pass through to the exterior louver. They must allow condensate to drain freely to the outside without restriction and without inhibiting the operation of the dampers. (It will be necessary to cut away enough of the bird screen in the back of the exterior louver to allow the condensate hoses to pass between the blades of the louver to the exterior.)

Notice: The condensate hose is supplied with a loop (trap). DO NOT REMOVE THIS LOOP. If the loop is removed the drain pan may overflow causing water damage inside and outside the unit.

4. Check to be sure that the back of the Classroom Air Handler is centered directly in front of the wall sleeve opening, and then carefully slide the unit back into place (the unit must be level).
5. If the wall is not perfectly perpendicular to the floor, it may be necessary to slide shims under the front or back of the unit.
6. Open the bottom and top front service panels with the door key provided.
7. Lag the unit securely to the floor in at least two places. This should be done through the bottom pan of the unit from the inside.

Installation Note: Some units have a drain pan in the bottom (i.e. ERV units); avoid fastening the unit through the drain pan.

8. Lag the vertical classroom unit to a couple of the wall studs, or other structural wall components, through the Unit Mounting Strip located inside the across the back and near the top. (Use lags and shields if necessary).

Installation Note: When the classroom air handler is fitted with a Rear Standoff (RSO) or Rear Plenum Assembly (RPA) it is necessary to fasten the unit to the wall by using a field supplied 2" x 2" x 34" 18ga. Angle Brace, that must be secured to the top cover of the RSO assembly.

9. Once the air handler is in place, the wall sleeve should have a positive seal along all points of contact against the unit and must not interfere with the operation of any dampers. This can be checked from the outside if the exterior louver has not been installed or has been provided with a hinged access.

Important: It is imperative that the air separation dividers in the wall sleeve be installed correctly to maintain a separation between the stale, exhausted relief, or condenser air from the incoming fresh air. These partitions extend from the rear of the unit to the backside of the exterior louver as indicated in the installation drawings provided.

10. To assure a watertight seal, caulk or tape the wall sleeve to the exterior perimeter of the wall opening. Follow standard weather proofing procedures when installing and caulking the exterior louver and wall sleeve to prevent the infiltration of water into the wall cavity.
11. Install the kick plate cover along the front at the base of the unit and fasten into place along the sides with a couple of screws.
12. Apply a small bead of silicone around the outside of the unit where the unit meets the wall. This will assure a good airtight seal and provide a finished appearance.
13. Reinstall the front service panels with the door key provided.

Refer to custom shop and installation drawings and instructions in the Information Package that was sent with the Unit for exact measurements, descriptions and installation details.

Electrical Connections

ATTENTION: ELECTRICIAN

It is recommended that each unit be installed on a permanent, separate electrical circuit. The circuit must be protected by a fuse or HACR type circuit breaker.

To minimize risk, the unit is equipped with a door switch to disable the 24 VAC control voltage, de-energizing the internal contacts when the main access panels are removed. All units without electric heat contain an internal manual disconnect switch that interrupts supply line voltage. It is located inside the unit near the main electrical control box.

Always turn off the electrical supply to the unit before repair or major service. Failure to do so may result in personal injury.

In Canada, the unit must be installed and electrically grounded in accordance with local codes, or the Canadian Electric Code CSA C22.1. In the U.S. installation must be in accordance with the most current issue of the National Electric Code ANSI/NFPA 70.

Wall Sleeve

Wall sleeves are typically shipped knocked down and must be field assembled.
Before proceeding, the wall opening must be prepared in accordance to the installation drawings, relative to the final installed position of the unit. It will likely be necessary to provide a support header across the top of the opening to comply with local building code requirements.

Tip: DO NOT install the exterior louver until after the Classroom Unit is fastened securely to the wall.

1. Prior to assembly, it may be necessary to trim the depth of the wall sleeve to suit the finished wall thickness. If the finished wall depth is greater than that of the wall sleeve or if the unit has a rear standoff, it may be necessary to add extensions to the sleeve and dividers, which must be fabricated in the field.
2. Assembly of the wall sleeve is detailed in the assembly drawings inclosed in the information package provided with the unit ventilator. We recommend the use of ½" x #10 round head self tapping sheet metal screws to fasten each component together. Screws must be installed with heads out to prevent them from catching in the rough wall opening during installation.
3. To assure a tight seal between the wall sleeve and the classroom unit, apply foam tape to the mounting flanges of sleeve and dividers.

Tip: Be careful not to insert screws where they may interfere with the insertion of the Exterior Louver. Do not insert screws into the bottom pan of the wall sleeve as this may allow water to seep into the wall cavity.

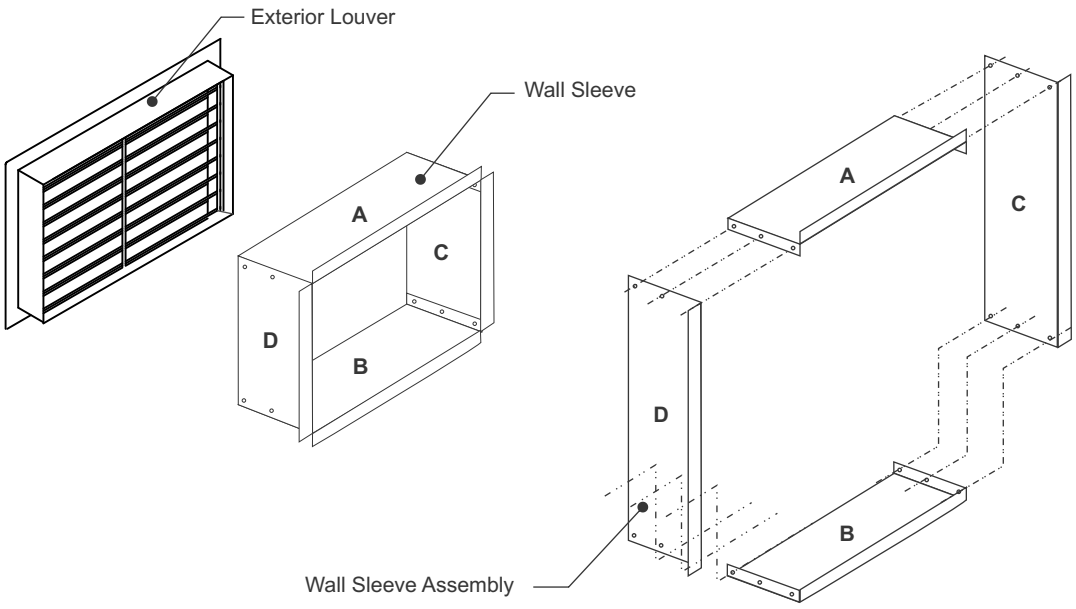
4. Insert the wall sleeve through the rough wall opening from the inside of the building and secure it into place.

Refer to custom shop and installation drawings and instructions in the Information Package that was sent with the Unit for exact measurements, descriptions and installation details.

Exterior Louver

The exterior louver is supplied with the unit and should slide into the wall sleeve from the outside of the building. Fasten to the wall through the standard 2" flange. Refer to Information Package and installation diagrams shipped with the unit. (screws not provided)
NOTE: Two condensate drain lines exit through the back of the unit and are supported by the exterior louver.

Fig. H
General Wall Sleeve Visual Assembly



Relief Damper

Change'Air recommends the use of a relief damper assembly be used in conjunction with all units installations unless balanced powered exhaust is made available within the ventilated space. Improper static pressure control of a ventilated space will affect the ventilation capacities and unit performance.

A counter balanced, gravity relief damper assembly is available through your Change'Air representative. This includes the relief damper, an 8" depth wall sleeve, and an aluminum exterior louver.

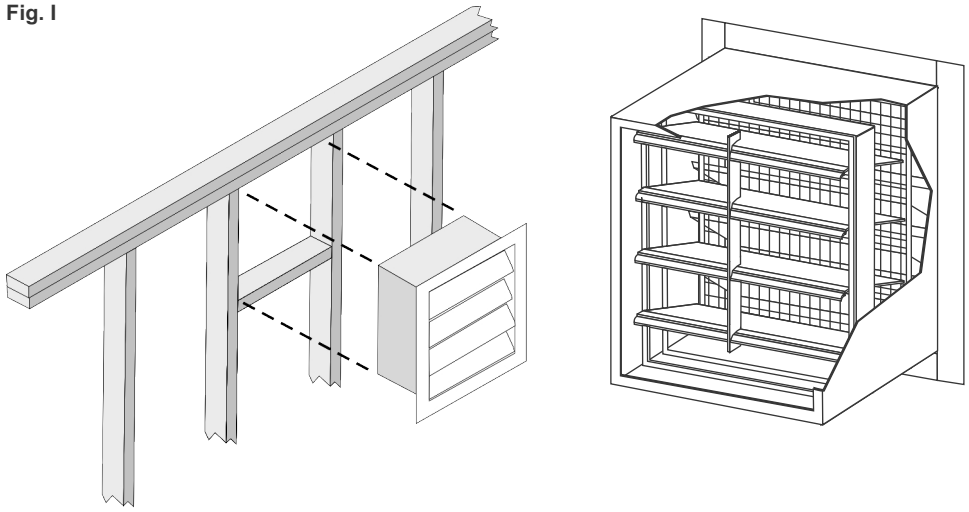
A minimum finished wall depth of 9.75" is required when the relief assembly is used in conjunction with the interior grille in order for the damper to operate freely.

Finished wall depths greater than 8" may require a field fabricated wall sleeve extension.

Note: Locate the relief damper assembly as far away from the classroom unit as possible within the same ventilated space. Refer to minimum clearances when locating opening.

1. Cut or construct an opening through the wall adherent to the appropriate size.
2. On the exterior, run a bead of weatherproof caulking around the perimeter of the wall opening.
3. Insert the relief damper assembly into the wall opening from the outside, with the louver blades pointing down and to the outside. Securely fasten it to the wall through the standard 2" flange.
4. On the interior, seal or caulk between the wall sleeve and the interior finished wall .
5. Once the ventilator is operating in an Occupied mode and using proper balancing procedures, adjust the counter balance control of the relief assembly by adding or removing weights as necessary to relieve the required static pressure for that room.
6. Using screws and anchors, the melamine relief damper cover or interior grille can now be installed to conceal the wall opening.

Fig. I



Rear Standoff (RSO)

Installation Note: When the vertical classroom unit is fitted with a rear standoff (RSO) or rear plenum assembly (RPA) it becomes necessary to fasten the unit to the wall by using a supplied 2" x 2" x 34" 18ga. Angle brace, that must be secured to the top cover of the RSO assembly as described below.

We recommend the use of ¾" x #10 round head self-tapping sheet metal screws to fasten the accessories to the unit.

Notice: You may require an assistant's help for this procedure.

Care should be taken to protect the painted finish when handling the unit and accessories.

1. On a clean, flat, unobstructed floor surface, lay out the pieces of the standoff relative to the positions they are to be installed, shown in the Installation/Assembly Drawings sent with the unit.
2. Clamp the angle brace so it is flush to the top, back edge of top cover. Fasten the angle brace with four evenly spaced screws. (This will be used at a later step to fasten the unit to the wall.)
3. Due to slight variations in the unit widths, it is best to assemble the RSO on the unit rather than preassembling the RSO and then fastening it to the unit.
4. Position the vertical classroom unit directly in front of its final installation position. Allow enough room behind the unit for the RSO and some room to work. (Once the RSO is mounted it may become more difficult to relocate the unit.)
5. Place the Side Panel against the back of the unit in the orientation shown and square up the corners and edges and then securely fasten the panel to the unit using ½" x #10 round head self-tapping sheet metal screws. Place screws through the 1" front mounting flange of the standoff panel into the back of the unit at approximately 18" apart or in the starting holes provided.
6. Repeat with opposite side panel.
7. Place top cover on top of the installed side panels with the angle brace toward the wall side (rear) of the assembly. Square up the corners and edges of both pieces and securely fasten the top cover to the unit and to the top edge of each side panel
8. Place bottom cover in position between the installed side panels along the floor. Square up the corners and edges of both pieces and securely fasten the side panels to the bottom cover. Do not mount the RSO to the unit through the top or bottom cover of the standoff. (If this unit has packaged air conditioning these may interfere with the removal of the exhaust fan during future service maintenance.)

Top Plenum

1. Carefully unpack the plenum assembly. The plenums sent with the units may vary in height or model, and will be labeled with a CU# if provided.
2. Remove the front access covers from the appropriately selected five-sided plenum assembly.

Tip: At this time, it may be easiest to cut any necessary holes or service knockouts that may be required in the plenum and install any plenum takeoffs or supply grilles before proceeding.

3 Apply 3/8" foam tape to the bottom edges of the top plenum and front access cover to create a positive air seal between the plenum and the unit. (If your unit does not have a rear plenum extension apply the foam tape to the back corners of the plenum where it will meet the wall.)
4. Place the back/side portion of the plenum assembly on top of the unit and against the wall or rear plenum extensions. If applicable, fasten the back corners of the plenum to the standoff extensions using ¾" x #10 screws. (It will be necessary to push back the insulation to access the bare metal to start the screws.)
5. Fasten the bottom edges of the plenum to the top of the unit using ½" x #10 screws.
6. Complete and test all service connections (electrical, plumbing, refrigeration, etc.) required for the unit operation.
7. Reinstall the front/ top access cover of five-sided plenum assembly.
8. If your plenum is supplied with supply grilles, it may be necessary to adjust the supply grilles. If the grilles are double deflective (standard) the rear blades of each grille should be positioned parallel to the floor or slightly downwards. The front blades should be positioned to provide a broad spectrum of air dispersion throughout the room. (Left, right and center)

Refer to custom shop and installation drawings instructions in the Information Package that was sent with the unit for exact measurements, descriptions and installation details.

Rear Plenum Assembly (RPA)

We recommend the use of ¾" x #10 round head self-tapping sheet metal screws to fasten this accessory to the unit ventilator.

The rear plenum assembly is pre-assembled to minimize field installation procedures. These have been shipped separate of the units to facilitate shipping and on site handling of the units due to their weight and size. Match up the RPA to the corresponding unit before proceeding.

Notice: You may require an assistant's help for this procedure.

1. It is necessary to remove and reassemble the back from the RPA in order to fasten it to the back of the unit. Remove the back panel of the RPA.
2. Field cut openings must be made in the back panel of each rear plenum assembly (RPA). These holes must directly line up with the wall sleeve openings and must be sized so as not to restrict airflow and still maintain a seal between the unit and the wall.

Installation Note: When a partition (or partitions) is designed into the RPA and wall sleeve, a separation of air between two or more air paths must be maintained from the back of the unit to the backside of the exterior louver. (refer to job specific shop or installation drawings)

3. To assure a tight seal between the classroom unit and the RPA, apply 3/8" foam tape to the 1" wide front edges of the RPA and any partitions it may have.

Tip: Keep the tape back from the outside edges by at least ¼" so the tape does not become unsightly when compressed.

4. Position the Vertical Classroom Unit directly in front of its final installation position. Allow enough room behind the unit for the RPA and some room to work. (Once the RPA is mounted it may become more difficult to relocate the unit.)
5. Place the RPA tight against the back of the unit so that it is flush with the sides and top of the unit, as shown in the installation drawings.
6. Begin by fastening the RPA to the back of the unit at one of the top corners. Place a screw through the 1" front mounting flange of the RPA side panel into the back of the unit. Proceed by similarly placing a screw into the opposite top corner and then down both of the RPA side flanges at approximately 18" apart. (Do not mount the RPA to the unit through the top or bottom cover of the RPA as these may interfere with the removal of components during future service maintenance.)
7. Reinstall the back panel and apply 1"' low density foam tape (supplied with RPA) around the perimeter of the back panel of the RPA. This provides filler between the RPA and the wall surface.
8. If the unit has a cooling coil and drain pan, pass the drain hoses that come out the back of the unit through the RPA. These hoses must gravity drain downward to the outside or to a drain. They must allow condensate to drain freely to the outside without restriction and without inhibiting the operation of the dampers. (It will be necessary to cut away enough of the bird screen in the back of the exterior louver to allow the condensate hoses to pass between the blades of the louver to the exterior.)

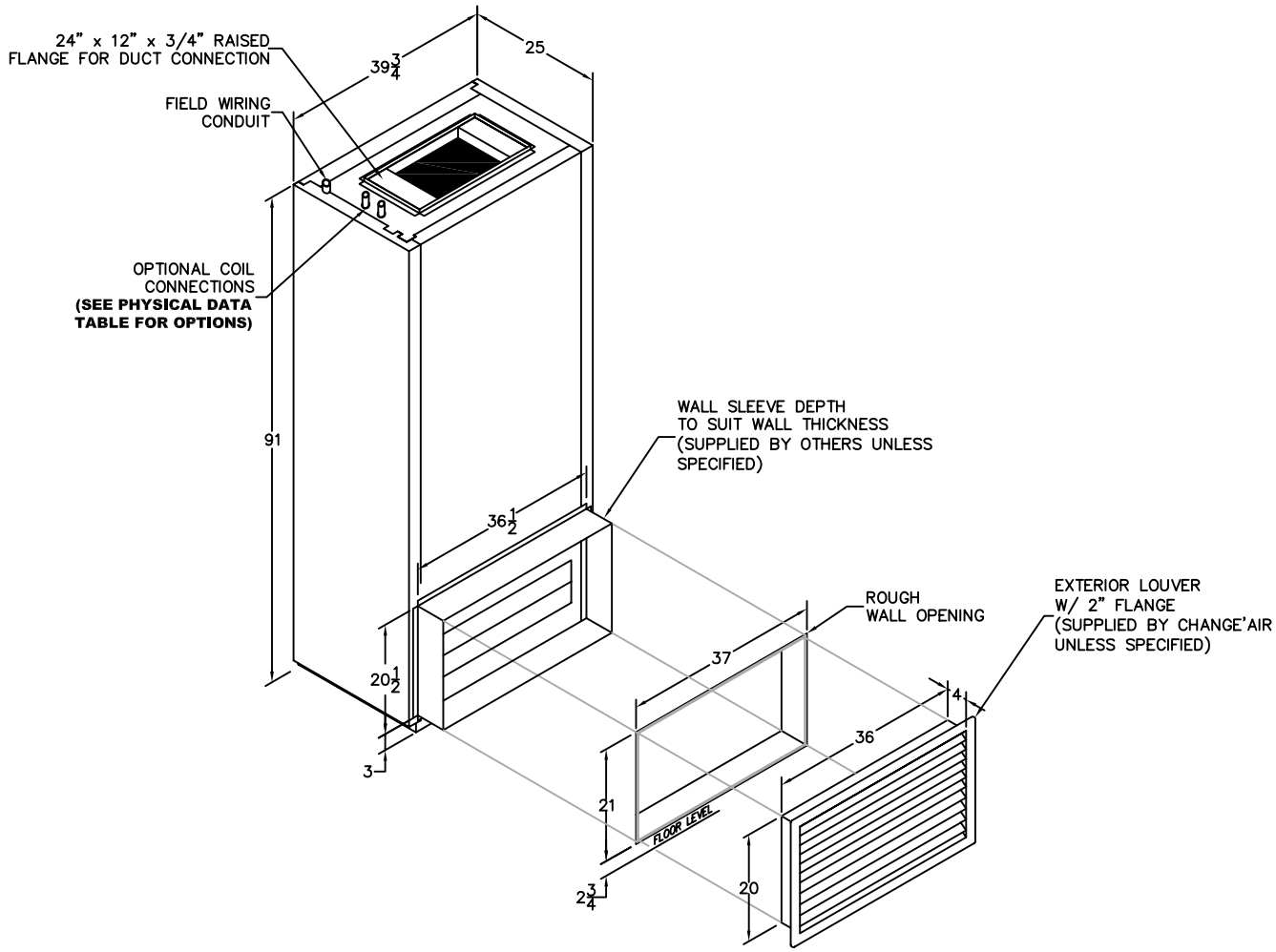
Refer to custom shop and installation drawings instructions in the Information Package that was sent with the unit for exact measurements, descriptions and installation details.

Top Duct Cover

1. Carefully unpack the top duct cover
2. Remove the front access covers from the appropriately selected top duct cover.
3. Place the back/side portion of the top duct cover on top of the unit and against the wall using screws. (It will be necessary to push back the insulation to access the bare metal to start the screws.)
4. Fasten the bottom edges of the cover to the top of the unit using screws.
5. Complete and test all service connections (electrical, plumbing, refrigeration, etc.) required for the ventilators operation.
6. Reinstall the front access cover of top duct cover.

For more information on assembly and installation consult the Information Package that is sent with the Unit.

Dehumidification Unit Installation Drawings



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NOTE: All installation drawings provide information for installation of hot water, steam and electric heat units.

TROUBLE SHOOTING GUIDE

ATTENTION: Change'Air is not responsible for injury to untrained or unauthorized personnel who attempt to do repairs based on the trouble shooting procedures outlined in this section.

Your Change'Air Classroom Air Handling Unit has been manufactured with great care and top rated quality control. Should you experience problems with the operation of your Change'Air Air Handler, follow one or more of the procedures below.

1. Consult a qualified service technician, or call your Change'Air sales agent to receive the name of a manufacture approved service company.
2. Determine the nature of the problem. For either a sequence of operation/control issue or mechanical problems, follow the appropriate steps below.

Controls and Mechanical Issues

For Control related Problems:

- Locate and record the manufacturer name, model and serial numbers of the control device in question.
- Refer to the supplied control "Owner/Operators" manual for assistance for programming or technical support lines available in your region.
- Literature and technical support are available for the PIC Electronics Economizer, and TD controllers through your Change'Air representative.

For Mechanical related Problems:

- Check the maintenance schedules to ensure that all cleaning schedules are up to date and air filters have been cleaned regularly.
- Use the Trouble Shooting Guide (Refer to Pg 15) to diagnose the problems.
- Replace any parts with original equipment replacement parts available through your Change'Air representative.
- Should you need further assistance, locate the unit serial plate and record the Serial and Model Numbers and voltage. With this information call your Change'Air representative and request the technical support or service department.

Replacement parts and service are available through your local Change'Air representative.
To find your local representative contact:

changeair a systemair company

Canada (519) 688-6363 **U.S.** (517) 676-0700
or visit
www.changeair.com

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CONTROLS

Control of the classroom unit is achieved through an external device, which is generally termed "thermostat". The complexity of the control is a wide range from a simple mercury switch to a computerized system of information monitoring room conditions to process its control.

Internal Controls and Their Function

Temperature - The economizer board monitors mixed air temperature via a mixed air temperature sensor which controls the damper. If the mixed air temperature drops below 59°F (15°C) or 50°F (10°C) during cool cycle, the damper will close to minimum position (pot adjustable). This is a low mixed air ambient temperature protection. When the mixed air temperature rises above 59°F (15°C) or 50°F (10°C) during cool cycle the damper returns to normal position (pot adjustable). This process may be repeated, ensuring that your classroom unit will heat the room space in cases where there is excessive building heat loss or extreme outdoor temperatures while still providing maximum fresh air ventilation. Outside air temperature is also monitored, see "Compressor Protection".

Fan Motors Thermal Overload Protection - All fan motors have internal thermal overload protection. The motor will automatically restart when it has cooled down.

Fuses - Inside the main electrical box there are line voltage fuses protecting all internal components against breakdown, wiring shorts etc,. These do not reset automatically, consult a service technician to replace these fuses.

Electric Heat - All electric resistance elements units have two levels of protection. A high temperature thermal cut-out disc which opens at 150°F and resets automatically, and a line voltage fuse at the element which opens at 219°F and will not automatically reset, consult a service technician to replace these fuses.
Hydronic Coil - There is one temperature disc sensing the air temperature entering the hydronic coil. A temperature of 37°F will open either circuit. A low entering temperature will close the damper to all outside air, remove power to all fans and open the hot water valve. The disc automatically resets when the temperature rises above 59°F.

GENERAL CLASSROOM UNIT SEQUENCE OF OPERATIONS

The following is a suggested sequence of operations, which is determined by the control thermostat. All classroom unit supplied by Change'Air, arrive with a standard control terminal strip to interface with a thermostat. Consultation with the design engineer will determine the exact sequence required for your application, which may vary from the example given.
Occupied Mode
Unit operation is energized by an occupied signal and provides fresh air as per ASHRAE code 62-89. While occupied, the supply fan runs continuously. Heat and Cool functions would cycle as needed with the high speed supply fan and occupied set points from the thermostat. Temperature protections move the fresh air damper to a minimum position when the mixed air temperature falls below 50°F.
Unoccupied Mode
Fresh air damper is disabled. Unit will operate on Heat/Cool function, cycling the high speed fan as required to meet unoccupied set points determined by the thermostat.

Cool
When cooling is required, an economizer circuit will process the signal. This is a multi-function board, controlling the cool signal to the compressor (optional) and damper positioning. On models with mechanical air conditioning, it will lock out the mechanical cool below 60°F outside temperature and introduce 80% fresh air to achieve cooling. On models without mechanical air conditioning, free air-cooling is the only function.

General Classroom Unit Trouble Shooting

ATTENTION: Change'Air is not responsible for injury to untrained or unauthorized personnel who attempt to do repairs based on the trouble shooting procedures outlined in this section.
1. Problem - Unit Blows Fuses

a) Incorrect fuse; check fuse size.
b) Short circuit or incorrect unit wiring line voltage; check wiring (see diagram)
c) Transformer short-circuited to ground.
d) Incorrect low voltage wiring; check wiring (see diagram)

2. Problem - Supply Fan Not Running

a) Check for 24VAC at terminal strip. Between G & X
b) Check for "supply VAC" at fan relay.
c) Check for "supply VAC" across fan motor.
d) Test fan capacitor.

3. Problem - Excessive Noise

a) Blower wheel rubbing- Check for proper positioning and clearance of blower wheel. Adjust wheel as necessary.
b) Loosen blower wheel - Ensure wheel is properly tightened on motor shaft.
c) Blower wheel out of balance - Replace blower
d) Motor mounting - Motor mounts may have come loose.
e) Motor hum:
   i. Check capacitor in motor circuit.
   ii.Check for obstruction of wheel.
   iii. Check that motor speed control (if equipped) is functioning.

4. Problem - Damper Not Opening or Working Improperly

a) Does unit require "occupied signal" to enable actuator? Check for any open "safety circuits"
b) Ensure damper circuitry is enabled; check for 24vac at actuator, check for dc signal at actuator. If signals are present and actuator not functioning replace actuator.
c) Determine if damper position is controlled from an Air Quality device. If an Air Quality device is present test device output for DC voltage and actuator for corresponding DC voltage "during occupied state"
d) Without an Air Quality device an internal potentiometer located on the economizer board (marked with an "N") controls the damper position. In an occupied state test the 0-10 VDC to the actuator, adjusting the potentiometer as necessary.

Cooling

1. Problem - Temperature drop between mixed air and supply is less than 18°F. If it is more than this, the unit is operating properly.

a) Check for evaporator coil or filter, clean as necessary
b) Test for over or under charged unit; adjust accordingly.
c) Confirm fan is running at full speed, and check amperage draw.
d) Check for unit running low suction psi, possible dirty evaporator or filter, clean as needed.

2. Problem related to iced over evaporator coil

a) Check for dirty air filter.
b) Check for dirty evaporator coil.
c) Possible restrictions in the capillary tube or low gas charge; recheck fan speed.
d) Check thermostat set point. (If room temperature drops below 70°F (21°C), the evaporator may ice over during extended operation.

NOTE: Mechanical cooling should not operate when outside temperature is below 60°F (17°C), as the economizer ("free cooling") will be in operation.

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To find your local representative contact:

Canada (519) 688-6363 **U.S.A.** (517) 676-0700
or visit
www.changeair.com

ATTENTION

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.
Installation and maintenance must be done by a qualified installer, service agency, or authorized dealer.
OPERATION OF UNIT DURING CONSTRUCTION MAY VOID THE WARRANTY.