



Installation and Maintenance Manual

IM 1082-3

Group: **Unit Ventilator**

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Daikin Classroom Self-Contained Unit Ventilator Model AEQ Air Source Heat Pump

MicroTech® and Electromechanical Controls



Model AEQ Air Source Heat Pump





IMPORTANT!

Improper installation can cause equipment damage, personal injury or death. Before beginning installation, please read this publication in its entirety.
Develop a thorough understanding before starting the installation procedure.
This manual is to be used as a guide. Each installation is unique, so only general topics are covered.
The order in which topics are covered may not be those required for the actual installation.

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Recognize safety information. When you see a safety symbol on the unit or in these instructions, be alert to the potential for personal injury. Understand the meanings of the words DANGER, WARNING, and CAUTION.


DANGER identifies the most serious hazards that will result in death or severe personal injury.

 DANGER	
	Disconnect all electrical power before servicing unit to avoid injury or death due to electrical shock.

WARNING means the hazards can result in death or severe personal injury.


 WARNING	
Hazardous Voltage! Disconnect all electric power including remote disconnects before servicing. Failure to disconnect power before servicing can cause severe personal injury or death.	


CAUTION identifies unsafe practices that can result in personal injury or product and property damage.

 CAUTION	
Use copper conductors only. Unit terminals are not designed to accept other types of conductors. Failure to do so can cause damage to the equipment	

Improper installation, adjustment, service, maintenance, or use can cause, fire, electrical shock, or other conditions which can result in personal injury or property damage. This product must be installed only by personnel with the training, experience, skills, and applicable licensing that makes him/her "a qualified professional HVACR installer."

Follow all applicable safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available. Follow all warnings and cautions in these instructions and attached to the unit. Consult applicable local building codes and National Electrical Codes (NEC) for special requirements.

 CAUTION	
Installation and maintenance are to be performed only by qualified personnel who are familiar with and in compliance with state, local and national codes and regulations, and experienced with this type of equipment. Sharp edges and coil surfaces are a potential injury hazards. Avoid contact with them.	

 WARNING	
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. A qualified licensed electrician or other technician trained and experienced in live electrical components should perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components can result in death or severe injury.	

Important Information

Made in the U.S.A., pride and workmanship go into every Daikin Model AEQ self-contained unit ventilator to provide our customers with quality products. Products should be installed and serviced only by qualified installers and service technicians familiar with and in compliance with state, local and national codes and regulations, and experienced with this type of equipment. This installation manual is designed to help with the installation and start-up.

Transportation Damage

Items supplied by Daikin may include louvers, wall sleeve, Model AEQ unit and accessories. Each item has been carefully inspected and securely packed in a Daikin-approved carton at the factory. In addition, each Model AEQ unit has been operated at the factory to verify proper performance. The carrier checked the items when the shipment was loaded and assumed responsibility for damage or loss upon acceptance of the shipment.

The purchaser is responsible for filing the necessary claims with the carrier. Check each carton upon arrival for external damage or shortages. Note any damage or shortage and any damage on all copies of the freight bill. If damage or shortages are found, the consignee should:

1. Note any visible damage to the shipment or container on all copies of the delivery receipt and have it signed by the carrier's agent. Failure to adequately describe such external evidence of a loss or damage may result in the carrier refusing to honor a claim.
2. Notify carrier promptly with a written request for an inspection.
3. In case of concealed loss or damage, or damage and/or loss that does not become apparent until the product has been unpacked, notify the carrier as soon as possible, preferably within five (5) days and no later than 15 days.
4. File the claim within the six (6) month statute of limitations of the carrier with the following supporting documents:
 - a. Original Bill of Lading, certified copy, or indemnity bond.
 - b. Original paid freight bill or indemnity in lieu thereof.
 - c. Original invoice, or a certified copy thereof, showing trade and other discounts or reductions.
 - d. Copy of the inspection report issued by carrier's representative at the time damage is reported to the carrier.

The carrier is responsible for making prompt inspection of damage and for providing a thorough investigation of each claim. Daikin will not accept claims for transportation damage.

To help avoid concealed damage:

1. Lay the louvers on their side for shipping, handling and storage. Do not stack louver more than 10 high. See [Figure 3 on page 6](#).
2. Do not stack wall sleeves more than 2 high. See [Figure 4 on page 6](#).
3. Model AEQ unit ventilators must be shipped, handled and stored right-side up. Do not stack units more than two (2) high. See [Figure 5 on page 6](#).

NOTICE

Daikin louvers, wall sleeves, Model AEQ units and accessories are carefully packed and thoroughly inspected before leaving the factory. The carrier assumed responsibility for damage or loss upon acceptance of the shipment. Claims for loss or damage sustained in transit must be made upon the carrier as follows:

VISIBLE LOSS OR DAMAGE

Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt and signed by the carrier's agent. Failure to adequately describe such external evidence of loss or damage may result in the carrier's refusing to honor a damage claim. The form required to file a claim will be supplied by the carrier.

CONCEALED LOSS OR DAMAGE

For concealed loss or damage (damage and/or loss that does not become apparent until the product has been unpacked), make a written request for inspection by the carrier's agent within fifteen (15) days of the delivery date. File a claim with the carrier since such damage is the carrier's responsibility.

Equipment Storage

If equipment is stored for any length of time before installation, it should remain in its shipping packaging in a clean, dry, climate controlled area. For extended storage times, rotate indoor fan motor and outdoor fan /motor assemblies periodically to prevent flattening of the bearing.

Lifting, Moving, and Stacking

A forklift with 72" tines, or other lifting device is needed to move these products ([Figure 2](#)).

Move the louver, wall sleeve, or unit to the location at which it is to be installed before uncrating. Check tagging on carton to confirm that the item is correct for the location. The carton for the unit is imprinted with the Daikin trademark which is the "front" or room side of the unit. The end of the unit carton marked "Truck From This End" should be on the right-hand side when facing the front of the carton.

Forklift-type vehicles may be used to unload and move the cartons. When using a forklift, it is important that the products remain banded to its skid and be lifted only from the end designated on the carton. See [Figure 6 on page 6](#). Move only one unit at a time. Do not drop unit.

CAUTION

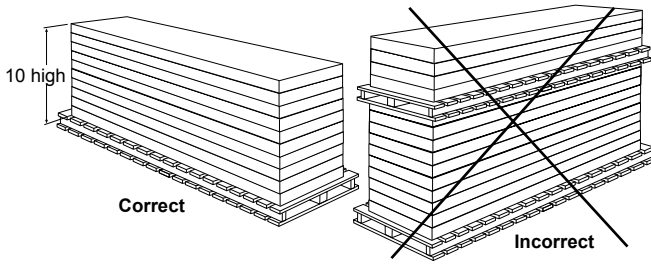
Use 72" length forklift tines. Short tines will damage the unit bottom. Improper handling can damage internal components

Figure 2: Forklift lifting requirements



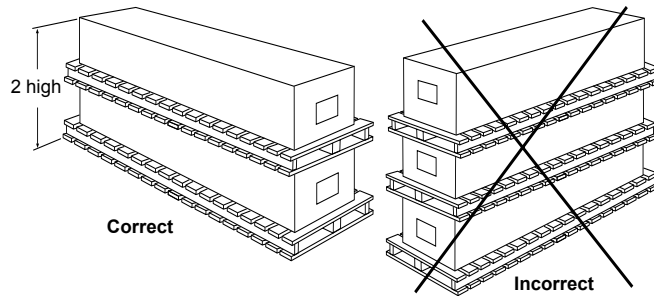
Louver Cartons

Figure 3: Stack louvers maximum 10 high as shown



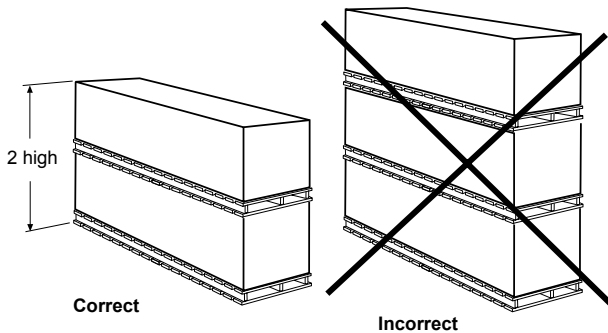
Wall Sleeve Cartons

Figure 4: Stack wall sleeve maximum 2 high as shown



Unit Cartons

Figure 5: Stack units maximum 2 high as shown



Complete Installation Procedure Summary

- Read this manual in its entirety and understand the installation procedures
- Wall opening cut
- Lintel(s) in place to support masonry wall over opening
- Electrical and control wiring roughed in
- Rough opening envelope smooth and sealed
- Position of louver marked for mounting to wall opening
- Position of wall sleeve marked where it extends and at points where mounts to wall and floor
- Splitters fabricated
- Metal flashing in place or sealed sloped mortar bed for drainage from wall sleeve "D" seal channel to bottom of louver
- Louver installed and sealed at bird screen toward wall sleeve
- Splitter(s) enclosures installed and sealed to louver
- Wall sleeve installed and sealed air and water tight
- Splitters attached to wall sleeve and sealed
- Electrical run and control wiring connections made to wall sleeve junction box
- Interior wall finished
- Shut-off valves installed below floor grade for water or steam
- Unit Installed

Figure 6: Unit package dimensions

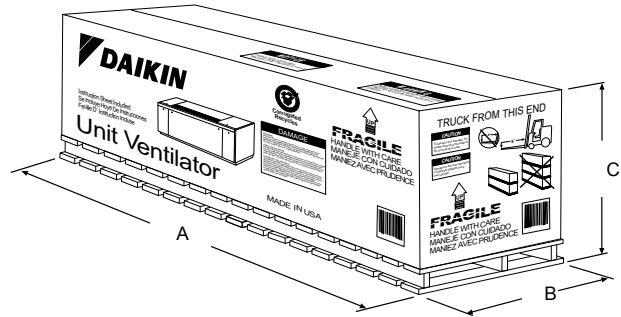


Table 1: Shipping carton dimensions & weights

Model AEQ	"A"	"B"	"C"	Shipping Weight
024	107"	31"	39"	885 lbs.
036	107"	31"	39"	975 lbs.
044, 054	119"	31"	39"	1075 lbs.

Note: All dimensions are approximate only and are subject to change without notice. Refer to approved submittal prints for rough-in details and construction purposes and for recommended wall opening size.

Carefully arrange the location and installation of each model AEQ unit to provide convenient service access for maintenance and, if necessary, removal of the unit. The installation consists of four basic elements in the following order:

1. Louver
2. Galvanized Wall Sleeve
3. Horizontal Air Splitters by others (if required)
4. AEQ Self-contained Unit Ventilator

The louver brings in outdoor air for the condenser fan section and ventilation air to the classroom while providing a path for heated condenser air to exit.

The Wall Sleeve secures the unit, provides a watertight and air tight seal to the building and brings in electrical and control wiring

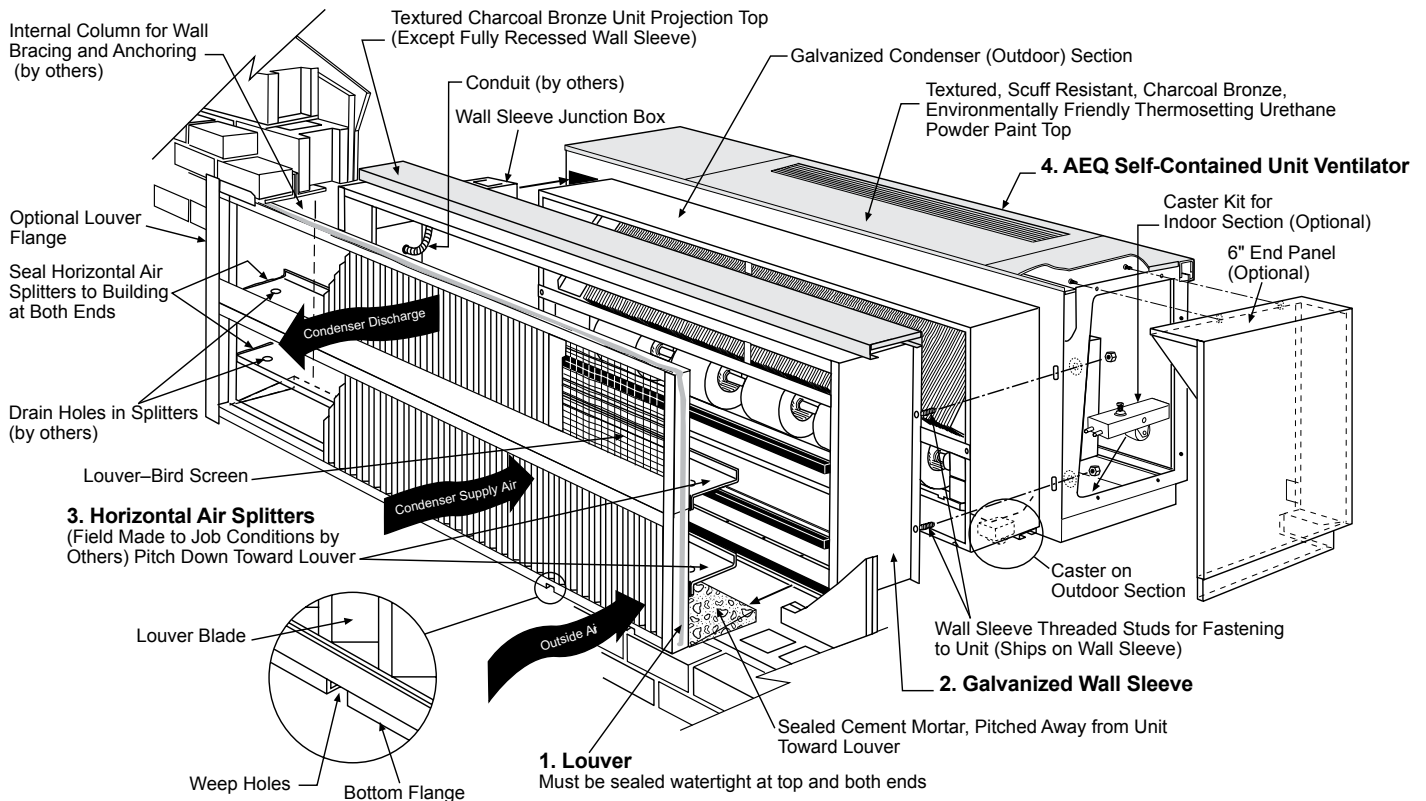
(if required). It contains the unit main power disconnect switch which is located in the wall sleeve junction box. All field electrical connections are made inside this box.

Horizontal Air Splitters provide proper air paths and minimize air recirculation.

The AEQ self-contained unit ventilator provides comfort cooling and heating for the space. The Model AEQ unit is designed to be installed into or up against an inside wall. The louver, air splitters (if required) and wall sleeve are installed before the AEQ unit is installed.

On many jobs, the louver and wall sleeve are shipped ahead of the unit itself. Installation instructions for these components are shipped with the individual components included in this publication.

Figure 7: Typical frame and brick construction with partial recess



An opening in the outside wall is required to accommodate the wall sleeve and louver. The wall opening must be of sufficient size to allow proper fit of the louver and will depend on the type of wall. National and local codes for building construction must be followed and may supersede the suggested methods in this manual.

Locating Wall Opening (Existing Building)

The first step in the installation is to carefully locate the area of interior and exterior wall to be removed. Determine the appropriate location on the interior wall where the unit ventilator is to be installed. Using the rear edge of the wall sleeve as a guide, mark the interior wall surface for the rough-in wall sleeve opening 1/4" larger at each end than the wall sleeve recess dimension, and 1/4" higher (see Table 2 on page 9). In all cases, the bottom of the outdoor louver opening must be at the same height as the floor line.

For non-recessed installations, (full projection), mark the position of the wall sleeve on the interior wall surface with the wall mount flanges removed to help determine the location of the outdoor wall surface rough opening.

Transfer the interior wall opening dimensions to the exterior wall surface, being certain the opening is 1/4" larger at each end than the wall sleeve recess dimension, and 1/4" higher.

NOTICE

Wall and floor must be at 90° to one another. If not, the floor must be leveled (90°) to wall.

Figure 8: No recess (full projection), thin wall construction

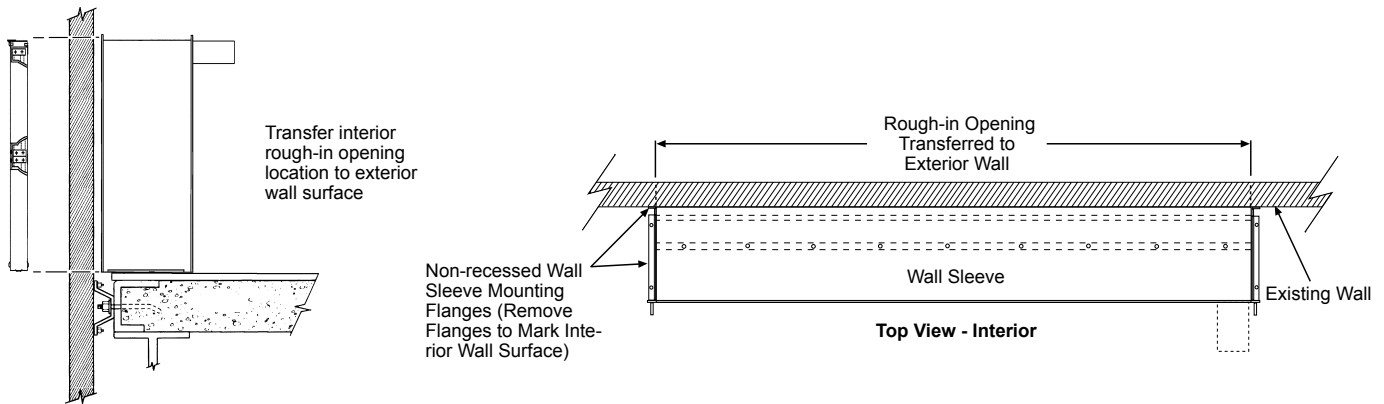


Figure 9: Full recess, thick wall construction

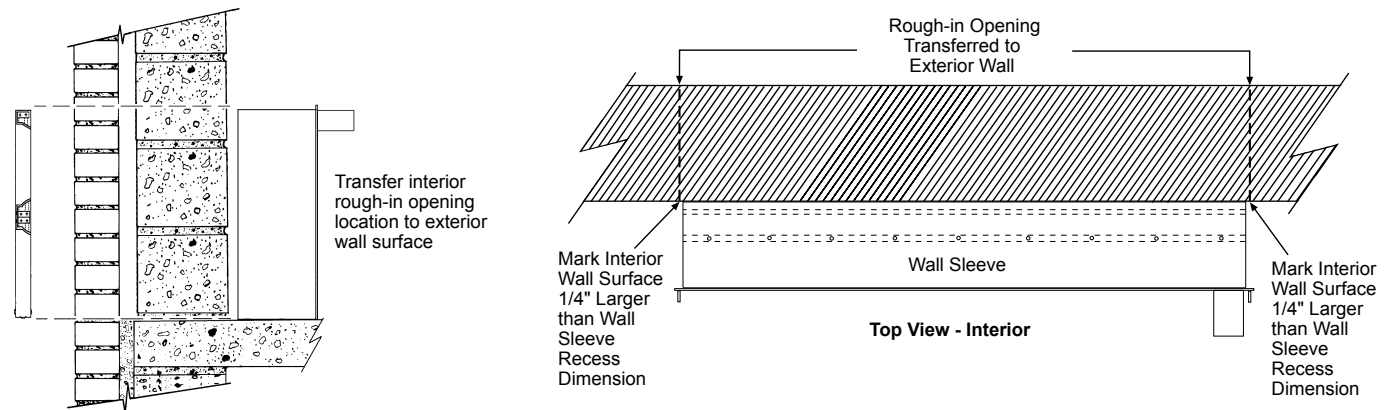
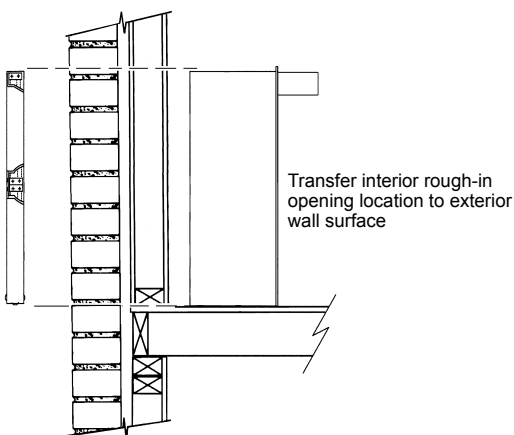


Figure 10: Partial recess, frame and brick construction



CAUTION

Unit ventilators use fresh air to condition the interior space. Obstructions near the louver wall opening must be removed to allow free flow of entering and discharge air. Building and vehicle exhaust, etc., near the louver intake must be identified and eliminated.

Cutting Exterior Wall Opening

The wall opening must be of sufficient size to allow proper, yet snug, fit of the louver and will depend on the type of wall. If the louver is to be installed in a masonry wall, install a lintel to support the wall above the wall sleeve and louver. Install a sleeve to prevent moisture from seeping into the wall interior. Refer to approved submittal prints for recommended rough wall opening size.

⚠ CAUTION

Read louver and wall sleeve installation sections beginning on [page 12](#) before proceeding. Improper installation can result in property damage.

The following is a typical procedure for installing in existing masonry walls. Follow local codes and safety procedures.

If the Model AEQ unit is to be installed in an existing classroom, an opening must be cut in the outside wall to accommodate the wall sleeve and louver. This is accomplished as follows: First, the outside of the masonry wall is cut with a carborundum or other suitable blade as shown in [Figure 11](#). This opening should be 1/2" larger overall than the size of the louver supplied with the unit (see [Figure 12](#) & [Table 2](#)).

Figure 11: Cutting the outside wall rough opening slightly larger than the size of the louver



Figure 12: Rough-in dimensions of exterior wall for louvers

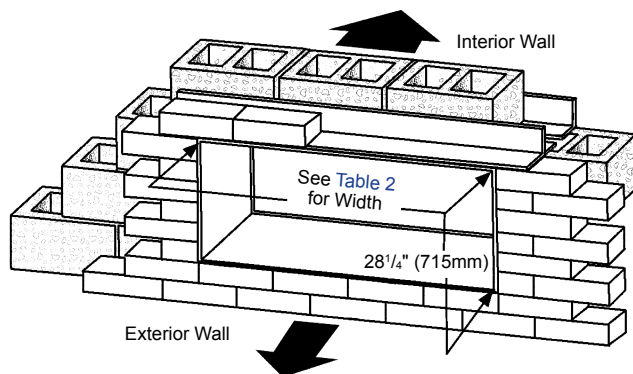


Table 2: Recommended rough-in dimensions for louvers with or without flanges (exterior wall)

Unit Size	Width		Height	
	IN	MM	IN	MM
024	84½	2140	28¾	715
036	96½	2444	28¾	715
044	108½	2747	28¾	715
054				

Note: See louver installation section [page 12](#). Dimensions are approximate and are dictated by job site conditions.

⚠ CAUTION

Horizontal splitters (by others) must be installed whenever there is space between the wall sleeve and the louver. Seal the ends of the wall opening. Pitch splitters toward the louver for water drainage, see sealing wall sleeve and horizontal splitters. Refer to [Figure 54](#) on [page 24](#) and [Figure 56](#) and [Figure 57](#) on [page 26](#).

Cutting Interior Wall Opening

Next, the interior wall is cut as shown in [Figure 13](#). If any portion of the wall sleeve is to be recessed into the wall, the opening must be large enough to accommodate the wall sleeve (see [Table 3](#) on [page 10](#)). In all cases, the bottom of the wall opening must be at the same height as the floor line. Seal the floor of the wall opening to permit water to drain under the louver and away from the building interior. If the building is a panel wall, the sleeve will be nonrecessed (full projection) and all of the unit will remain in the room.

Figure 13: The interior wall opening is cut



Table 3: Recommended rough-in wall opening for wall sleeve

Unit Size	Wall Sleeve w/Flange Length	Sleeve (Recessed) Length	Recommended Rough-in Wall Opening	
			Length	Height
024	86" (2184mm)	84" (2145mm)	84½" (2146mm)	28½" (724mm)
036	98" (2489mm)	96" (2489mm)	96½" (2451mm)	28½" (724mm)
044, 054	110" (2794mm)	108" (2755mm)	108½" (2756mm)	28½" (724mm)

The interior wall is then knocked out in the area cut for the wall sleeve as shown in Figure 14.

Figure 14: The interior wall is knocked out in the area cut for the wall sleeve



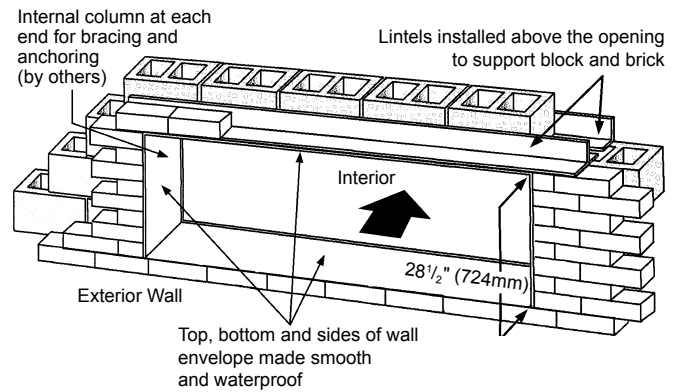
If the wall consists of concrete block with brick (or other) veneer and the louver opening is smaller than the opening of the wall sleeve (which is to be recessed), be careful to knock out only the veneer that is necessary.

After the opening is finished (Figure 15), a lintel must be installed above the opening in masonry walls to support the remaining block and brick (Figure 16). The wall must contain a solid surface or an internal column at each end for bracing and anchoring the wall sleeve and louver (by others).

Figure 15: A Lintel must be installed above the opening to support the remaining block and brick



Figure 16: Lintels installed



⚠ CAUTION

The wall opening must be sealed and made watertight. See the louver, splitter and wall sleeve installation sections

New Buildings

In new construction, if any portion of the wall sleeve is to be recessed into the wall, the opening must be large enough to accommodate the wall sleeve. Refer to Table 3. For smaller wall thickness, the wall sleeve will be nonrecessed (full projection) and all of the unit will project into the room. In all cases, the bottom of the wall opening must be at the same height as the floor line. A lintel must be installed above the opening in masonry walls to support the block and brick. The wall must contain a solid surface or an internal column at each end for bracing and anchoring the wall sleeve and louver (by others).

Louver Details

Note: Please refer to "Transportation Damage" on page 5 for information on receiving, inspection, and filing claims for damage or loss with the carrier, and handling items supplied by Daikin.

Figure 17: Typical wall louver and grille

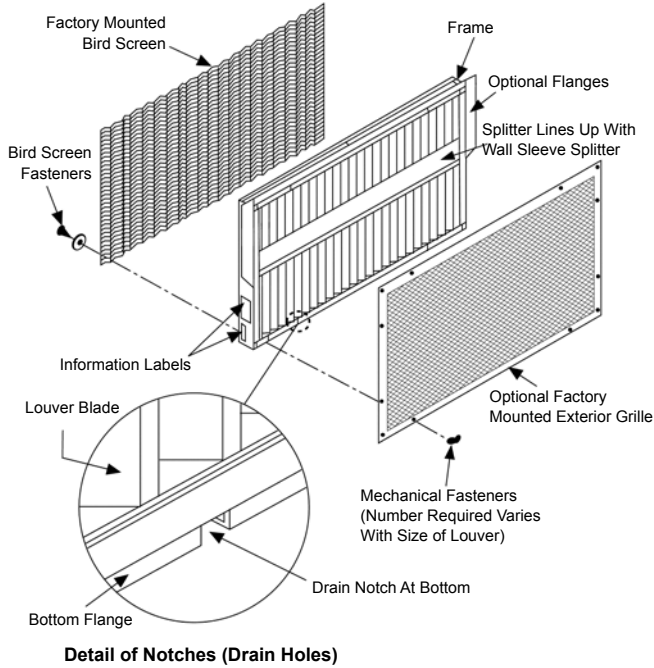


Figure 20: Grille detail

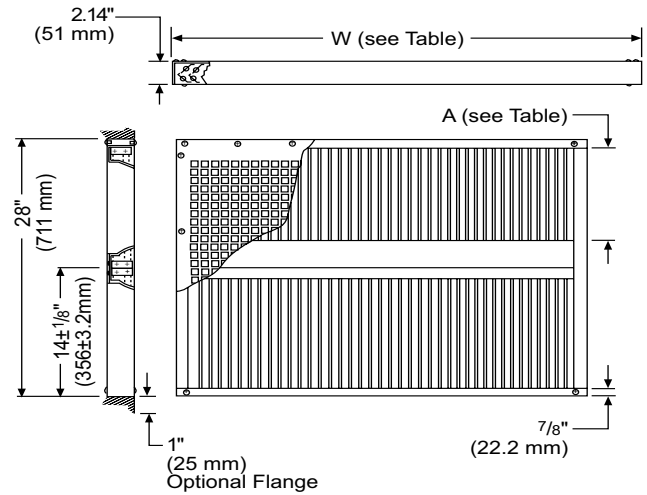
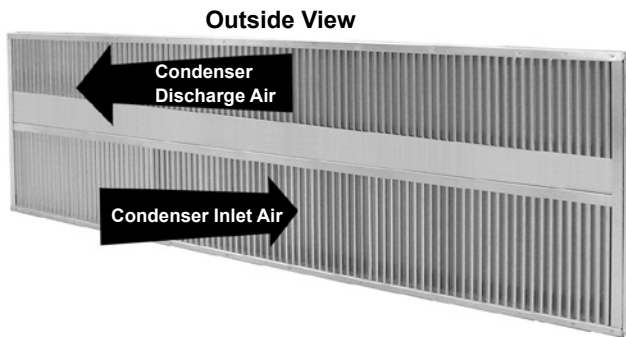


Table 4: Wall louver dimensions

Unit Size	Louver Size (Height x W)	Discharge Air Opening (A)
024	28" x 84" (711 x 2134)	9" (229mm)
036	28" x 96" (711 x 2438)	9" (229mm)
044, 054	28" x 108" (711 x 2743)	7" (178mm)

Note: All dimensions are approximate and subject to change without notice. Refer to approved submittal prints for rough-in details and construction purposes, and for recommended wall opening size.

Figure 18: Vertical blade louver, without flange



Note: See CAUTION at right for louver blade orientation and drainage

Figure 19: Vertical louver with flange

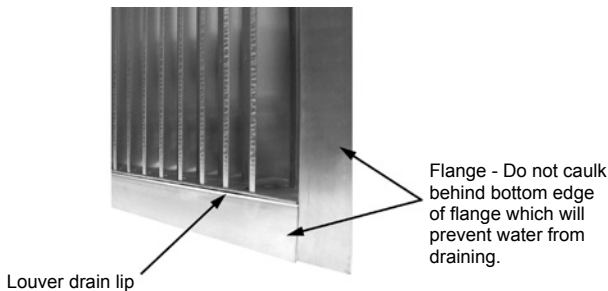
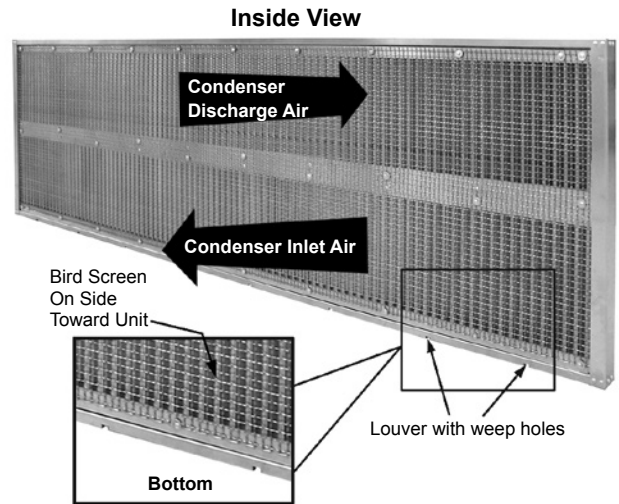


Figure 21: Vertical blade louver, without flange



⚠ CAUTION

Locate Drain Lip at bottom of vertical louver to allow proper drainage. Bird screen should always be on side toward unit.

Louver Installation Considerations

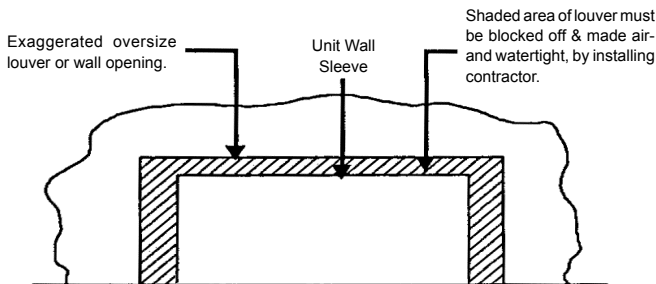
The standard louver is an aluminum, vertical, divided blade design complete with bird screen. This louver is also available with flanges and/or with a heavy-duty exterior lattice grille.

CAUTION

Louvers by Daikin provide proper airflow. Proper unit performance has not been verified with louvers by others.

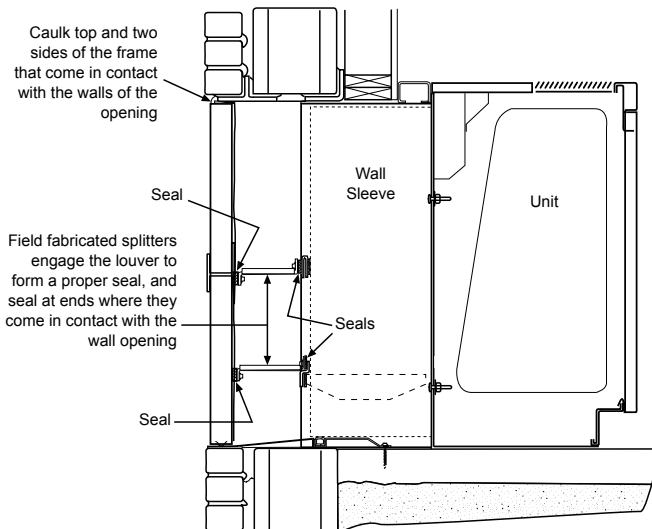
1. [Figure 18](#) & [Figure 21](#) on page 11 show detail of a typical louver. Before installation, carefully examine the louver and note the location of the bird screen and the notches (drain holes). The louver must be installed with the small opening at the top, notches at the bottom and the bird screen toward the room. If the louver is to be installed in a masonry wall, there must also be a lintel to support the existing wall above the louver
2. Measure the opening to be sure there is adequate clearance for the louver around the sides. Observe the opening in relation to the wall sleeve and unit. For proper unit operation, the louver must be centered left to right and top to bottom to the wall sleeve. If the louver is of such a dimension that it extends above, below, or beyond the wall sleeve, then these areas must be blocked off airtight ([Figure 22](#)).

Figure 22: Oversize wall opening



3. If the wall sleeve does not extend into the wall far enough to meet the louver, field fabricated splitter(s) must be provided. The splitter(s) need to extend far enough to engage the louver in order to form a proper seal. See "[Unit Room Projection & Splitter Length Details](#)" on page 22.

Figure 23: Typical field fabricated splitters



Note: See [Figure 57](#) on page 26 for detail of attaching splitters to wall sleeve.

CAUTION

See important information on bottom splitter seal, and drainage from condenser section drain pan ([Figure 51](#) & [Figure 52](#) on page 23).

4. Check to see if the horizontal divider on the louver is the same height as the top horizontal splitter rail of the wall sleeve. The louver frame must be permanently mounted in the wall.
5. Before installing the louver in the opening, place a heavy bead of caulk along the top and two sides of the frame that come in contact with the walls of the opening. Use a flexible, waterproof caulk such as silicone.
6. Once the louver has been placed in the opening, further mechanical fastening may be desired or required. Fasten in a manner appropriate to the installation. See "[Louver Installation Methods](#)" on page 16 through page 18. Care must be taken if fasteners are to be placed in the frame. If this is necessary, remove the louver by removing the screws that hold it in place. Drill holes in the desired locations and fasten with flat head screws. Be sure these screws do not interfere with the reinstallation. Shims must be placed between the louver and the wall so it won't be distorted. After the louver has been properly positioned, secure with fasteners.

In masonry wall applications, the louver may be permanently mounted by placing mortar around the top and sides in order to prevent it from being removed. Mortar keys may be attached to the louver, if necessary.

Typical Installation Methods

If the outside opening has not yet been made refer to "[Step 1–Wall Opening Procedure](#)" on page 8 for the recommended locations and the job-specific plans for the exact location. Follow national and local codes.

Wall Opening

Cut the wall opening so that it is slightly larger than the louver being installed. Refer to [Table 2](#) on page 9.

If the opening is already there refer to [Table 4](#) on page 11 for dimensions. Measure to be sure there is a minimum of 3/8" (9mm) clearance around all sides. For masonry installations, follow national and local codes and install a lintel above all louvers.

Outside Air Plenum

In thick wall applications, the portion of the wall between the louver and the unit is the outside air plenum. Line this plenum area with 3/8" (9 mm) sealed cement mortar or other suitable material. In some applications, the job specifications require a metal sleeve connection between the louver and the unit. If using such a sleeve, properly caulk it for a weather tight seal to help prevent moisture from seeping into the wall.

CAUTION

Sealing is critical in preventing freeze-ups, cold drafts, air infiltration, and to prevent moisture from entering the wall or room. Be sure the wall is smooth, square, and provides a suitable mating surface.

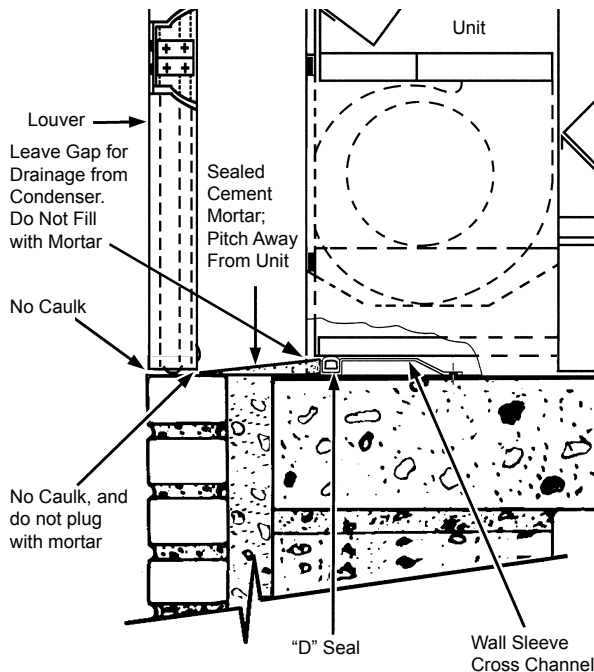
Sloping, Sealed Cement Mortar Base

Before setting the louver, construct a sloping, sealed cement mortar base to drain unwanted moisture to the outside, (Figure 24). Be sure the mortar base tapers toward the louver and away from the wall sleeve. The mortar at the wall sleeve also acts as a drain for excess moisture from the outside to drain back outside, thus it must extend so it meets the “D” seal flange of the wall sleeve. Temporarily slide the wall sleeve into place to mark this meeting point on the floor. Refer to Step 3 on page 24. The mortar should be the same height as the “D” seal flange. Be sure the sealed cement mortar base is smooth and flush along the wall sleeve “D” seal flange. This is critical in preventing water leaks and air leaks under the unit.

CAUTION

A space must exist between the bottom back edge of the wall sleeve and the sloping sealed cement mortar base to allow moisture to drain away from the condenser section. Do not fill this space with mortar (Figure 24).

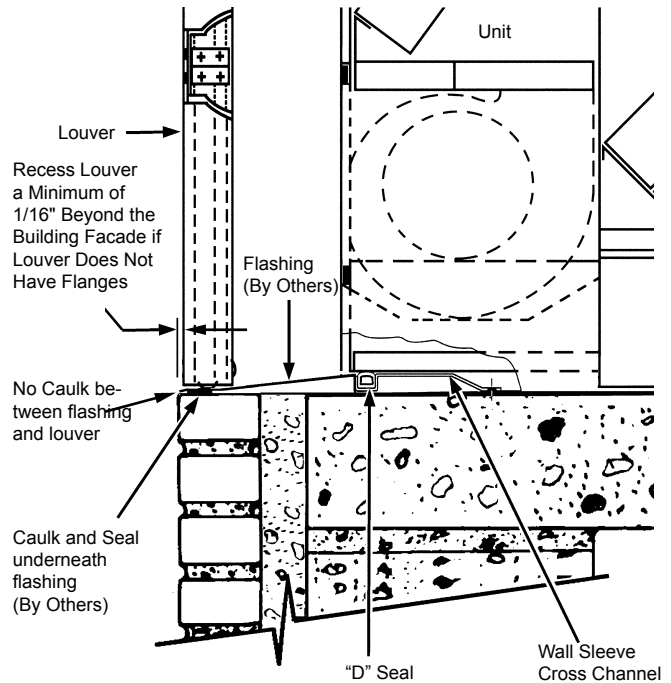
Figure 24: Typical louver installation with sloping sealed cement mortar base (splitters not shown)



Sloped Flashing

If it is not possible to construct a sloping mortar base, then field-supplied flashing is required that is pitched for water drainage (Figure 25). The flashing should terminate flush with the exterior of the building. The flashing should extend so it is under the wall sleeve and meets the “D” seal flange of the wall sleeve. Place a bead of caulk under the flashing to prevent moisture from wicking back to the unit. Do not caulk the joint between the louver and the flashing. This joint is designed to let unwanted moisture escape.

Figure 25: Typical louver installation with sloped flashing



CAUTION

Personal injury hazard. Avoid contact with sharp edges.

Before setting the louver, be sure the drain lip (vertical louver) is at the bottom, and the bird screen is toward the unit (refer to Figure 17 through Figure 21 on page 11). Place a heavy bead of caulk along the top and the two vertical sides of the louver, leaving the bottom uncaulked so that if moisture gets into the area between the louver and the unit, it can drain to the outside, unrestricted.

Louver With Flanges

Place an additional bead of caulk on the inside of the top and side flanges that come in contact with the building facade. Do not caulk the bottom flange. Place the louver in the opening and push it tight against the building. Fasten it to the exterior of the building using fasteners (by others) appropriate to the installation. Seal the top and sides with a waterproof caulk to make it weather-tight. Do not caulk the bottom of the louver; doing so will trap unwanted moisture behind the flange.

Louver Without Flanges

Place the louver in the opening so that it is recessed a minimum 1/16" (2mm) beyond the building facade or as directed in the architectural plans (Figure 25). If specified in the plans, secure the louver in the wall using mechanical fasteners (supplied by others) appropriate to the installation. With the louver solidly in place, run a bead of caulk around the perimeter of the louver to seal it weather-tight. Do not plug the bottom weep holes or the drip line of the louver. This will restrict the flow of unwanted moisture to the outside.

If flashing was used instead of the sloping mortar base, caulk the flashing where it contacts the “D” seal of the wall sleeve, the sides of the wall, etc. (Figure 25). This helps prevent moisture and outside air from getting under the flashing and into the room.

Top Plan Views – No Recess (Full Projection)

Figure 26: Panel wall application with flush louver

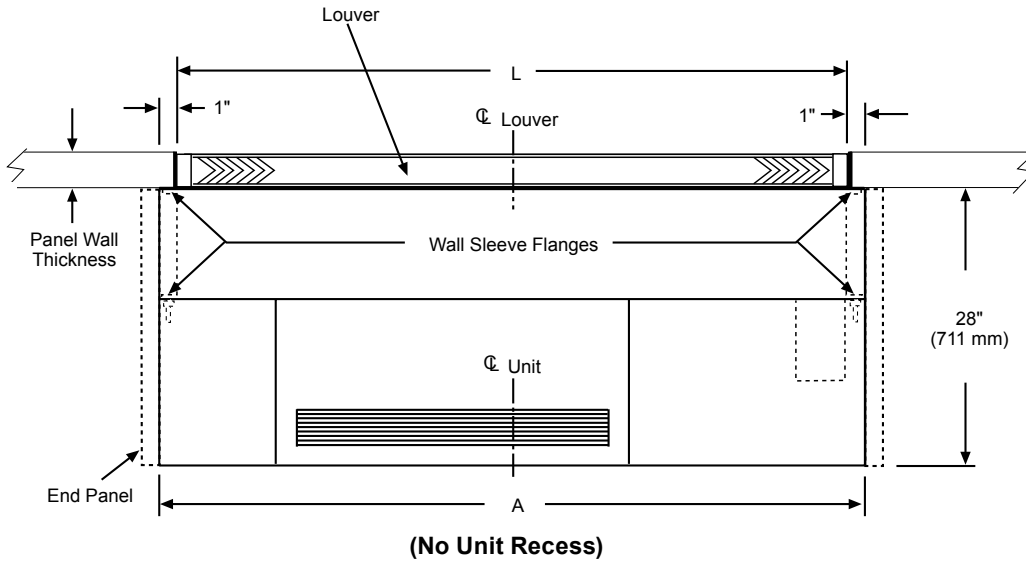


Figure 27: Masonry wall application with flush louver

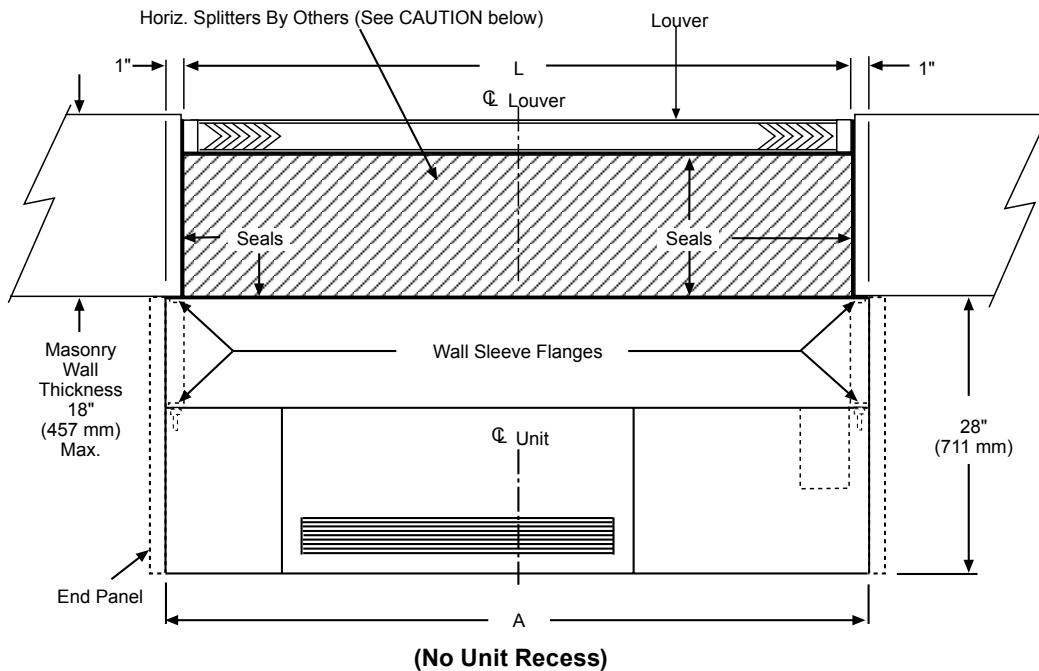


Table 5: Unit & louver dimensions

Unit Size	Unit "A"		Louver "L"	
	IN	MM	IN	MM
024	86	2184	84	2134
036	98	2489	96	2438
044, 054	110	2794	108	2743

Note: "A" is unit length without end panels.

CAUTION

The bottom of the louver must be installed flush with the bottom of the unit for proper air inlet/outlet orientation and to permit water to drain under the louver from the building exterior. Louver dimensions are $\pm \frac{1}{16}$ " (1.6 mm) except as noted. Intake and discharge must not be restricted. Trees, shrubs, etc., must be a minimum of 30" (762 mm) away from intake.

Louver must be blanked off airtight (by others) if it extends beyond the confines of the wall sleeve. Horizontal splitters (by others) must be installed whenever there is any space between the wall sleeve and the louver. Seal the ends of the wall opening. Locate splitters between condenser discharge and condenser inlet, and between condenser air inlet and outdoor air inlet. Pitch the splitters toward the louver for water drainage.

Louvers by Daikin provide proper air flow. Proper unit performance has not been verified with louvers by others.

Grille must be flush with louver to provide proper air flow.

Top Plan Views – Partial or Full Recess

Figure 28: Masonry wall application with flush louver

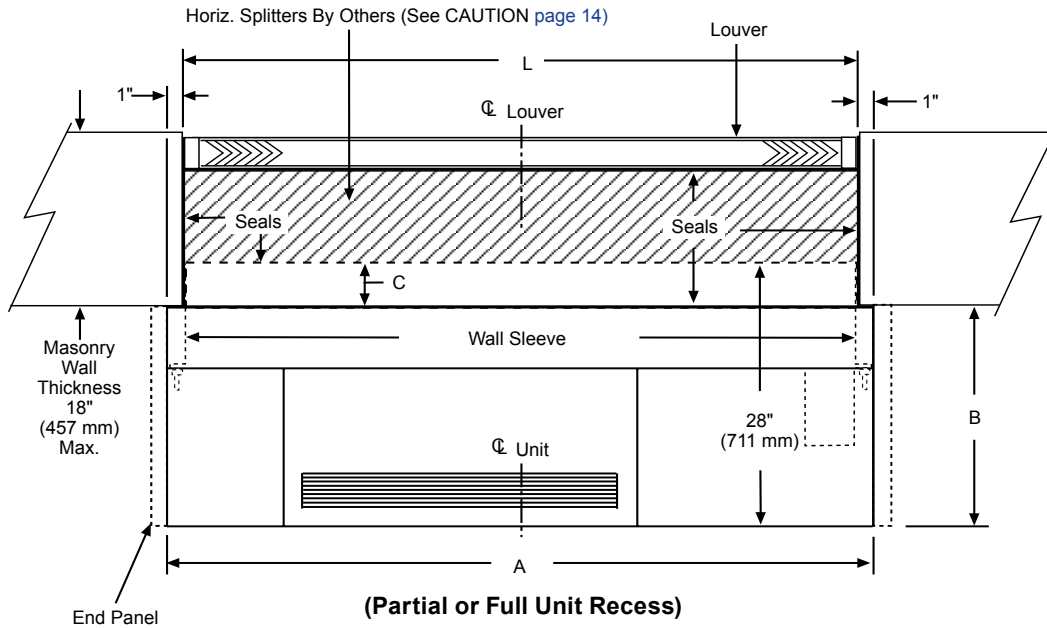


Figure 29: Masonry wall application with recessed louver

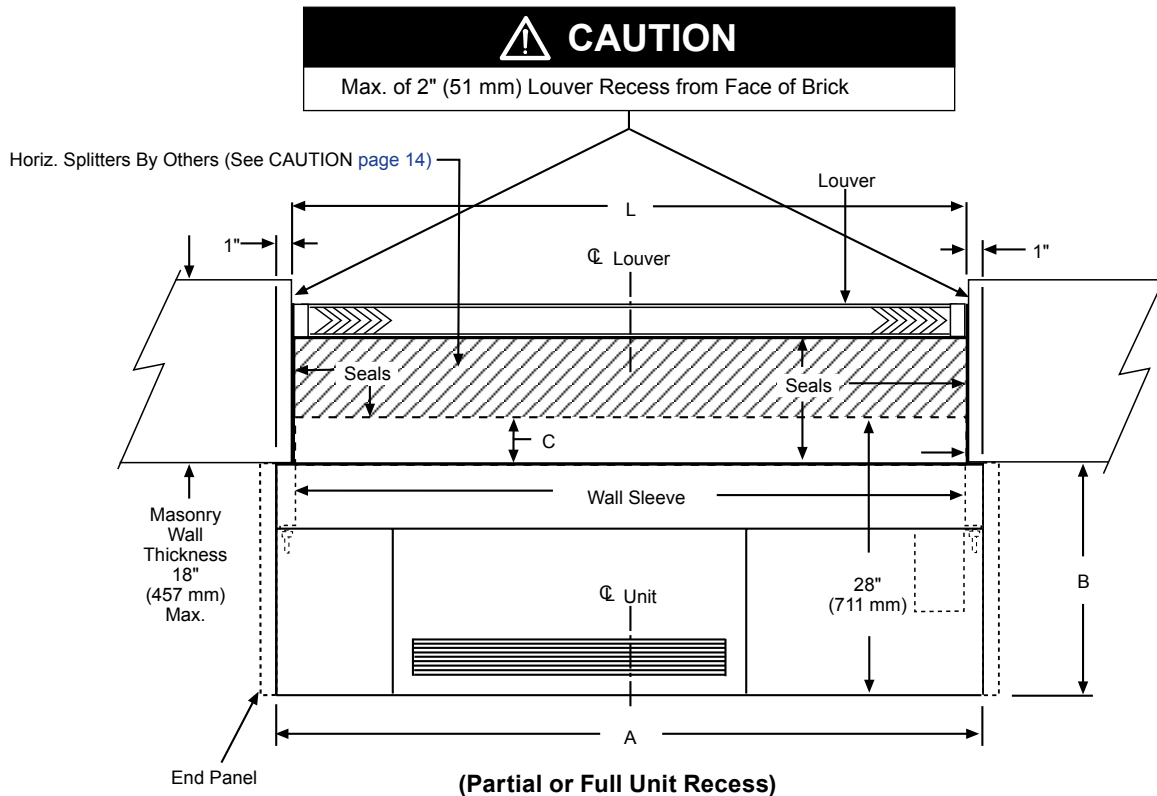


Table 6: Room projection / end panel depth

Application	B Room projection of unit	C Amount unit is recessed into wall
Full Recess	16 5/8" (422 mm)	1 1/8" (289)
Recess	19 5/8" (498 mm)	8 3/8" (213)
	21 7/8" (556 mm)	6 1/8" (156)
No Recess	28" (711 mm)	0

Louver Installation Methods

Figure 30 through Figure 38 show various methods of installation. Select the appropriate method.

The following is a brief description of several popular methods of installation. Many variations are possible, depending on wall thickness, opening size, method of fastening, etc.

Louvers Without Flanges

Friction Fit Installation

Figure 30. This is a friction fit of the louver where the wall opening is made just large enough for the louver to be held in place by the friction between the wall and the louver. This will require each wall opening be “custom cut” to the intake size, which can be done only after the intake is on site for actual measurements. Recommended wall openings provided in this manual do not apply for this method of installation.

CAUTION

Appropriate fasteners must be used to prevent removal by unauthorized personnel.

Friction Fit Using Shims Installation

Figure 31. In cases where the opening is too large and the louver fits too loosely, friction fit may be obtained by the use of shims to help hold the louver in place.

Fastens To Wall Sleeve Installation

Figure 32. It may be desired to mount the louver to the wall sleeve so as to allow demounting the louver from the building exterior.

The louver may be fastened to the wall sleeve using appropriate fasteners on each corner of the wall sleeve where it butts up against the louver. The louver must be at least as long as the wall sleeve to be secured to the sleeve in this fashion. No holes are provided in the louver or in the wall sleeve for this type of mounting; the holes must be drilled in the field. Mounting hardware must also be provided by the installer. The wall sleeve must be properly secured to the wall structure.

CAUTION

INSTALL SO THAT THE EMBOSSEMENTS ARE AT THE BOTTOM OF THE LOUVER AND THE BIRD SCREEN IS ON THE UNIT (ROOM) SIDE.

If the wall intake louver extends above, below, or beyond the ends of the wall sleeve, it must be blanked off airtight in these areas only.

THE WALL OPENING SHOULD BE OF SUFFICIENT SIZE TO ALLOW PROPER, YET SNUG, FIT OF THE LOUVER, AND WILL DEPEND ON THE TYPE OF INSTALLATION REFER TO APPROVED SUBMITTAL PRINTS FOR RECOMMENDED WALL OPENING SIZE.

If the louver is to be installed in a masonry wall, there should also be a lintel to support the wall above the louver to prevent moisture from seeping into the wall. If it is to be installed in a panel wall, the louver should be placed so that it is as flush as possible with the inside wall.

Figure 30: Friction fit louver

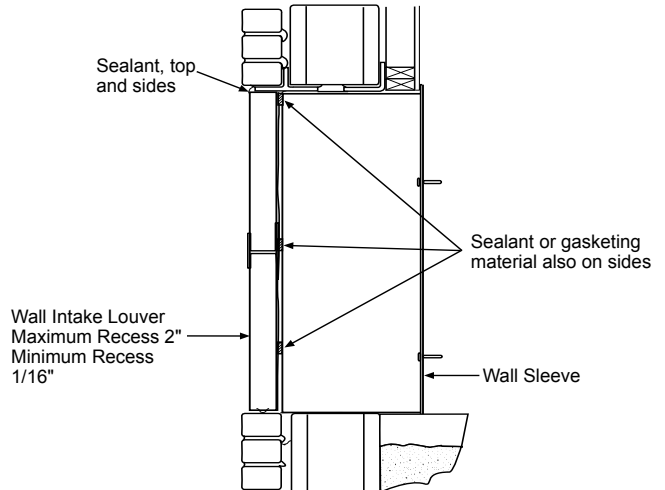


Figure 31: Friction fit using shims

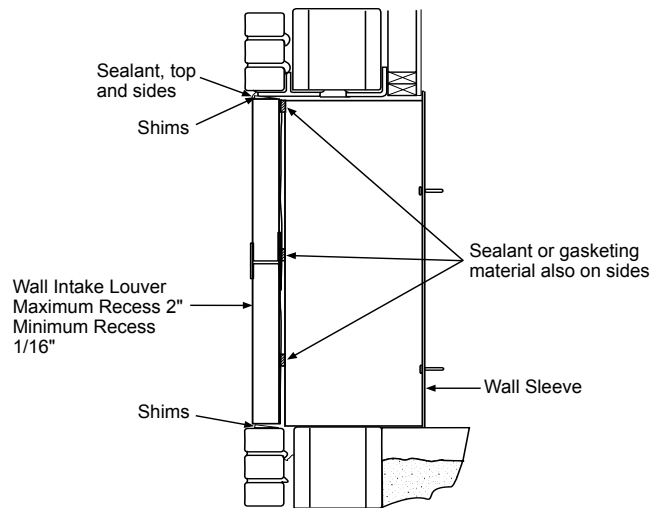
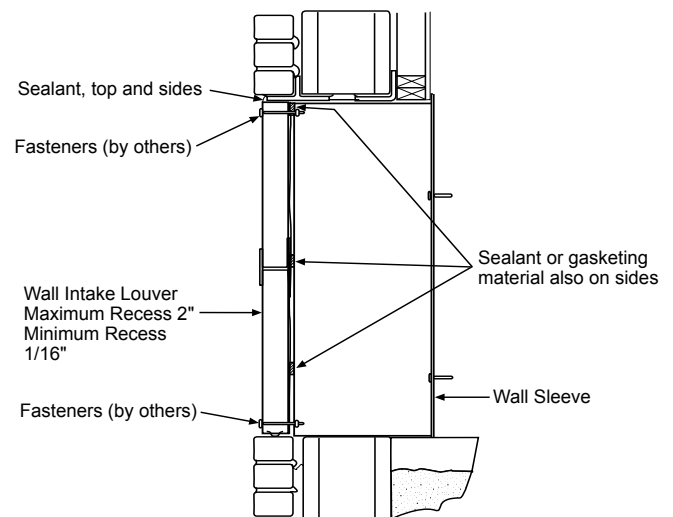


Figure 32: Louver fastens to wall sleeve



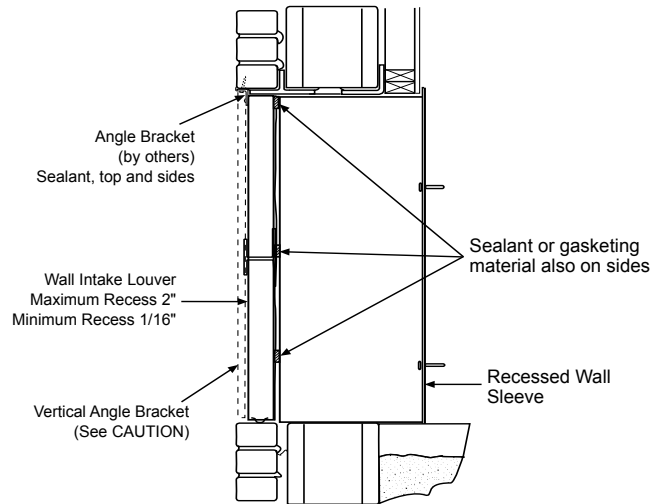
Angle Bracket Mounting to Exterior Surface

Figure 33. This shows a typical application where an angle bracket is affixed to the edges of the louver and then the entire assembly is mounted from the outside by fastening to the exterior surface using suitable hardware. This figure shows an application where the wall sleeve is fully recessed into the wall and butts up against the louver. However, the same method of installation may be used where only partial or no recess is required and a horizontal air splitter between louver and wall sleeve must be installed.

⚠ CAUTION

Do not use mounting angles or strips at the bottom of the intake louver that run across the louver's entire length and plug the weep hole locations. Property damage and poor indoor air quality will result if water cannot drain to the outside from the weep holes. Appropriate fasteners must be used to prevent removal by unauthorized personnel.

Figure 33: Angle bracket on louver mounts to exterior surface



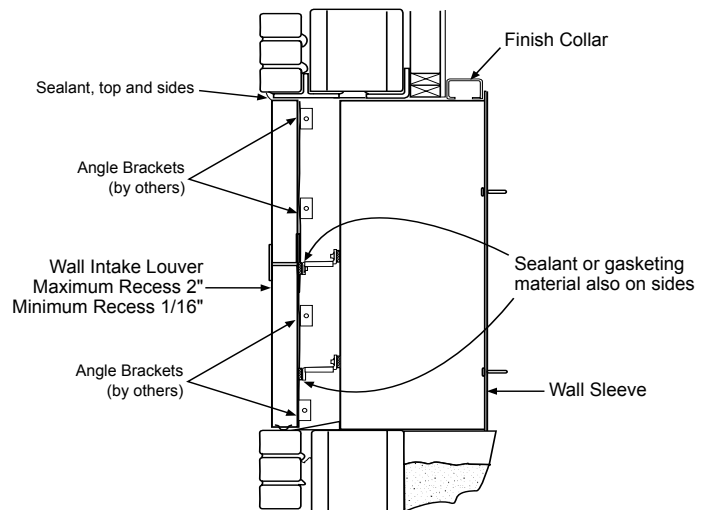
Angle Bracket Mounting to Interior Surface

Figure 34. This is a variation of the installation shown in Figure 32 where the angle brackets are mounted on the inside of the louver and fastened to the wall from the interior of the building. This also shows usage of a horizontal air splitter with a partially recessed wall sleeve. Once the louver has been installed, run a bead of caulk around the outside perimeter of the frame to seal it watertight.

⚠ CAUTION

Do not plug the weep holes in the bottom of the louver. Property damage and poor indoor air quality will result if water cannot drain to the outside from the weep holes. Appropriate fasteners must be used to prevent removal by unauthorized personnel

Figure 34: Angle brackets on louver mounts to interior surface

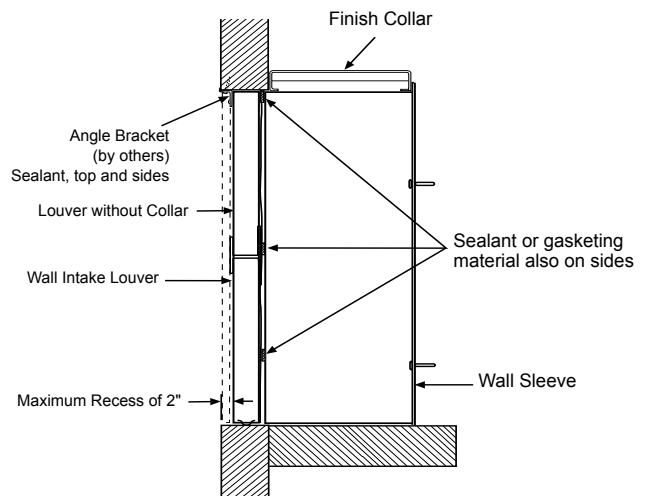


Panel Wall - Angle Bracket Mounting on Exterior Surface

Figure 35. This shows a typical panel wall installation where the panel wall thickness is greater than that of the louver. In this case, it is possible to mount the louver without flange using angle brackets. The louver could be removable from the exterior of the building.

On many panel wall applications, the panel wall manufacturer may accomplish louver mounting by using various aluminum extrusions to “build-in” the louver as a permanent part of the panel wall. All panel wall applications will most likely utilize a full finish collar, meaning no wall sleeve recess into the wall itself. See CAUTIONS above.

Figure 35: Panel wall using angle bracket on exterior surface



Panel Wall Using Moisture Resistant Material/ Sheet Metal Framing

Figure 36. If desired, the louver may be “framed” in moisture resistant material or a moisture resistant material/ sheet metal combination and then inserted into the panel wall for final mounting. This installation is desirable when the wall opening is considerably larger than that required by the louver. Provide an air and watertight seal and avoid blocking drainage at the bottom of the louver. After installation, be sure that there are no obstructions (mortar, nails, etc.) on the inside of the Louver where it meets the wall sleeve.

CAUTION

Do not use mounting angles or strips at the bottom of the intake louver that run across the louver's entire length. This will plug the weep hole locations and property damage and poor indoor air quality will result if water cannot drain to the outside from the weep holes. Appropriate fasteners must be used to prevent removal by unauthorized personnel.

Louvers With Flange

Masonry Installation

Figure 37. If the louver is supplied with a flange, follow these steps.

1. A bead of caulk is applied to the inside of the top and side flange that come in contact with the building facade.
2. The louver with flange is placed into the opening and pushed tight against the building.
3. Fasten it to the exterior of the building using appropriate fasteners for the installation.
4. Seal the top and two sides from the inside with waterproof caulk to make it weathertight. Do not seal the bottom flange. To do so may trap water behind the flange. See CAUTION above.

Panel Wall Installation

Figure 38. This installation is typical when the thickness of the panel wall very closely approximates the thickness of the louver itself. Here only mounting straps may be required, running the entire top length and vertical width of the louver. This installation is perhaps the easiest. The louver could be removable from the exterior of the building. See CAUTION above.

Figure 36: Panel wall using moisture resistant material/ sheet metal framing

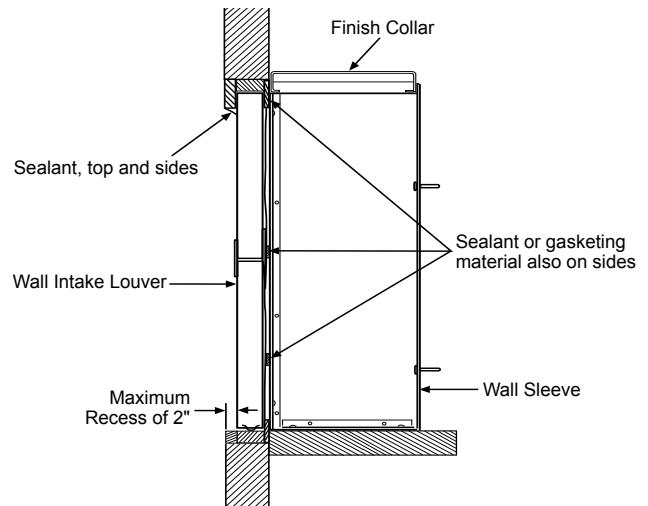


Figure 37: Masonry wall using collar on exterior surface

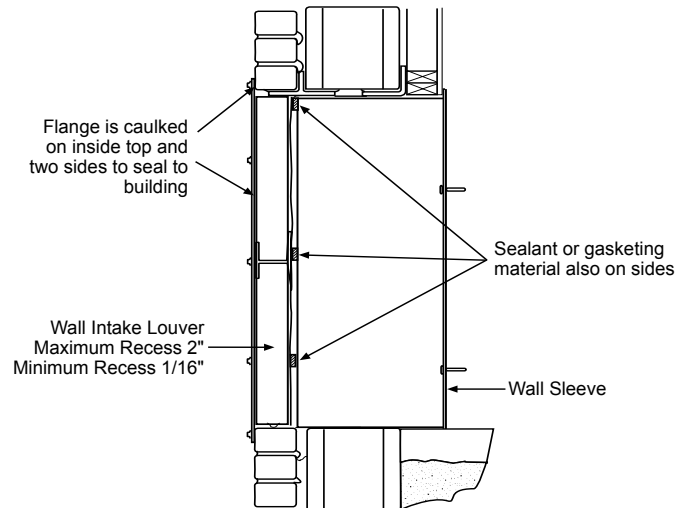
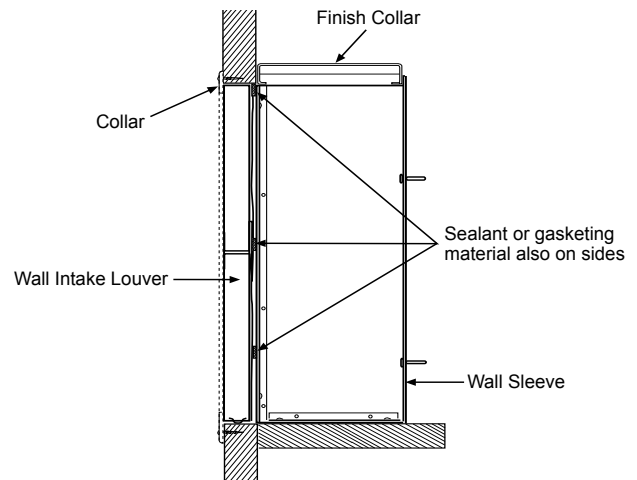


Figure 38: Panel wall using collar on exterior surface



Wall Sleeve Details

Note: Please refer to "Transportation Damage" on page 5 for information on receiving, inspection, and filing claims for damage or loss with the carrier, and handling items supplied by Daikin.

Figure 39: Wall sleeve

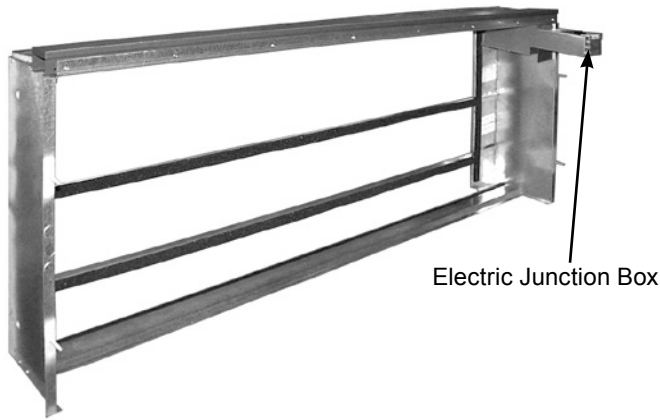


Table 7: Wall sleeve dimensions

Unit Size	Overall Length "L" (mm)	Sleeve Recess Length "Lr" (mm)
024	86 (2184)	84 (2145)
036	98 (2489)	96 (2450)
044, 054	110 (2794)	108 (2755)

Note: Wall sleeve (electric junction box is strapped to the wall sleeve during shipping and is field mounted).

Mount The Junction Box To Wall Sleeve

Mount the junction box to the wall sleeve as shown in Figure 40 with five (5) provided screws. Three (3) screws on the front and two (2) screws secure the underside back edge of the junction box to the wall sleeve.

Figure 40: Attach electric junction box to wall sleeve

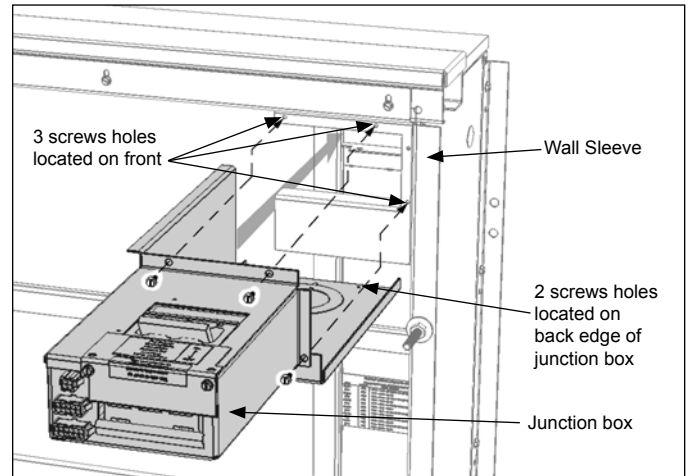
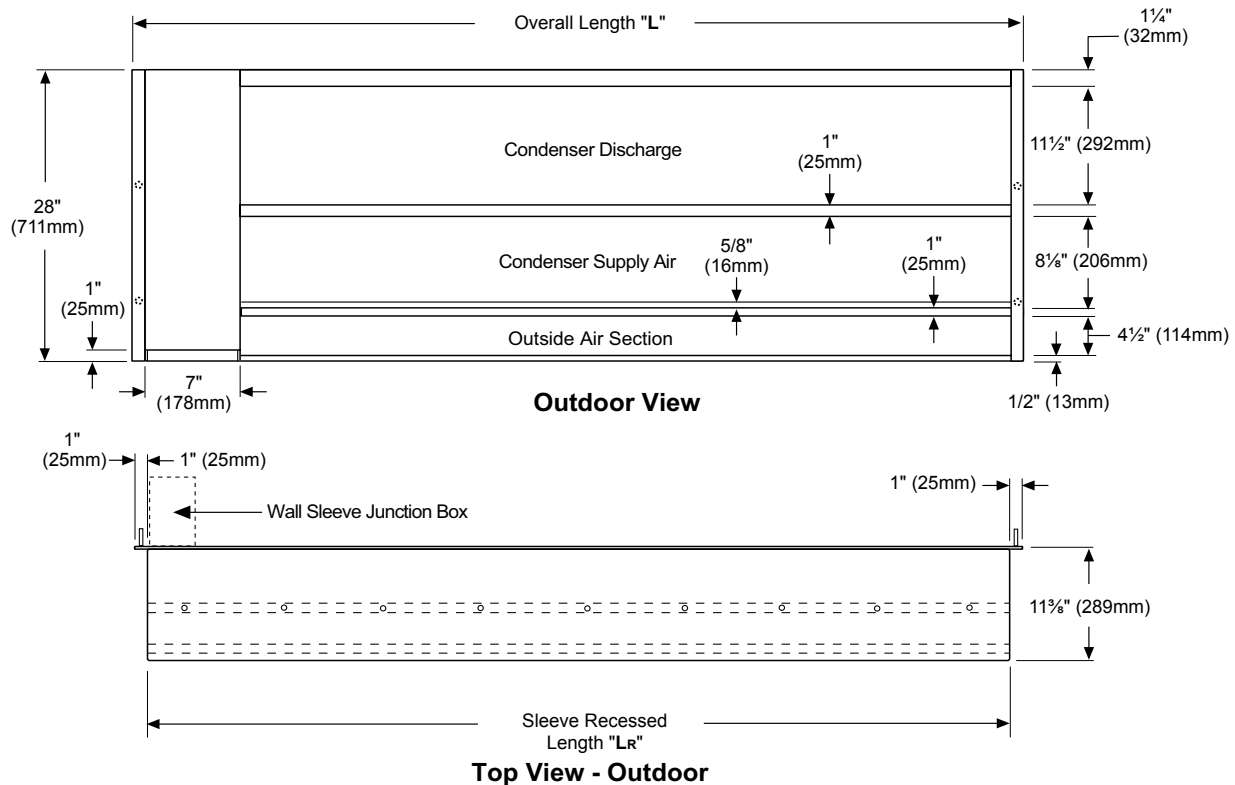


Figure 41: Wall sleeve dimensions for recessed applications



CAUTION

The opening between the wall sleeve and the louver must be completely enclosed by the installer to prevent air and water leaks into the building

Pre Wall Sleeve Installation Checklist

- Wall sleeve section of manual read in its entirety with understanding of the installation procedures
- Louver installed and sealed with bird screen toward wall sleeve with 9" exhaust opening at top
- Structural columns exist to attach wall sleeve
- Sides of rough opening smooth and sealed
- Electrical and control wiring stubbed up
- Top, and bottom of wall envelope smooth and sealed and 90° to interior mounting wall
- Splitters installed and sealed for mate-up to wall sleeve
- Metal flashing in place or sealed sloped mortar bed for drainage from wall sleeve "D" seal channel to bottom of louver
- Correct wall sleeve confirmed
- Wall sleeve assembled

The Daikin wall sleeve and louver design is based on a "wet sleeve" concept. In brief, this means the design accommodates the penetration of some moisture into the rear outdoor section of the AE unit with provisions for containment and disposal of this moisture to the outdoors (see details in [Figure 7 on page 7](#)). Therefore, proper Louver, Splitter and Wall Sleeve installation is critical.

The wall sleeve must be installed before the AE self-contained unit ventilator can be placed. The recessed portion of the wall sleeve measures approximately 84", 96" or 108" wide by 28" high and may be recessed into the wall up to 11 3/8" in depth. Consult approved Daikin submittal drawings for the job to determine the proper amount of recess, if any, and recommended wall opening size.

The AE unit chassis attaches to the wall sleeve threaded studs using 4-nuts and washers ([Figure 42](#)).

⚠ CAUTION

Unit wall sleeve must be anchored to an internal wall column or other suitable support.

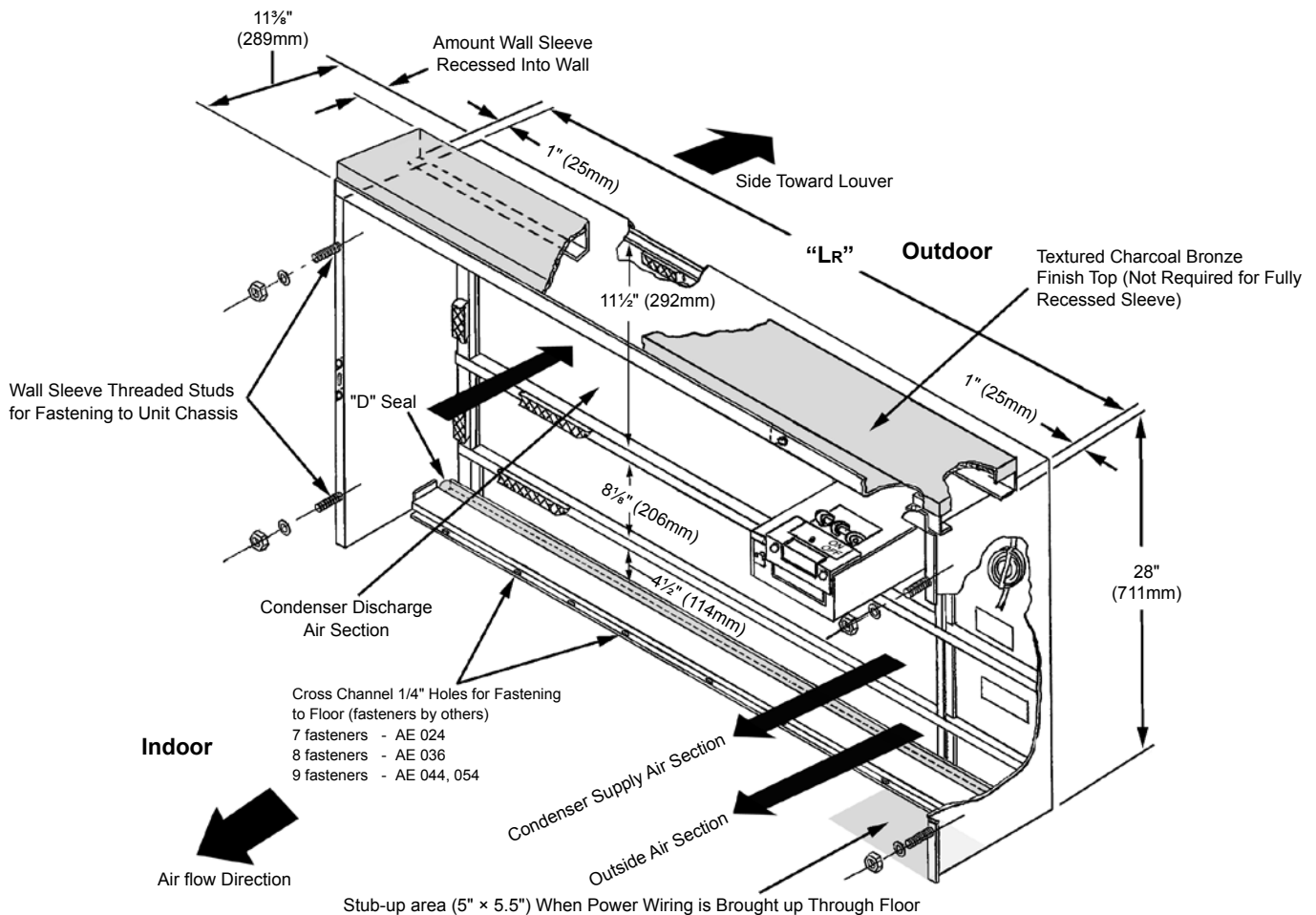
NOTICE

Wall and floor must be at 90° to one another. If not, the floor must be leveled (90°) to wall.

Table 8: Recommended rough-in wall opening

Unit Size	Recommended Rough-in Wall Opening		Sleeve Recess Length "LR"
	Length (mm)	Height (mm)	
024	84 1/2" (2146)	28 1/2 (724)	84" (2184mm)
036	96 1/2" (2451)		96" (2489mm)
044, 054	108 1/2" (2756)		108" (2794mm)

Figure 42: Wall sleeve details (recessed type)



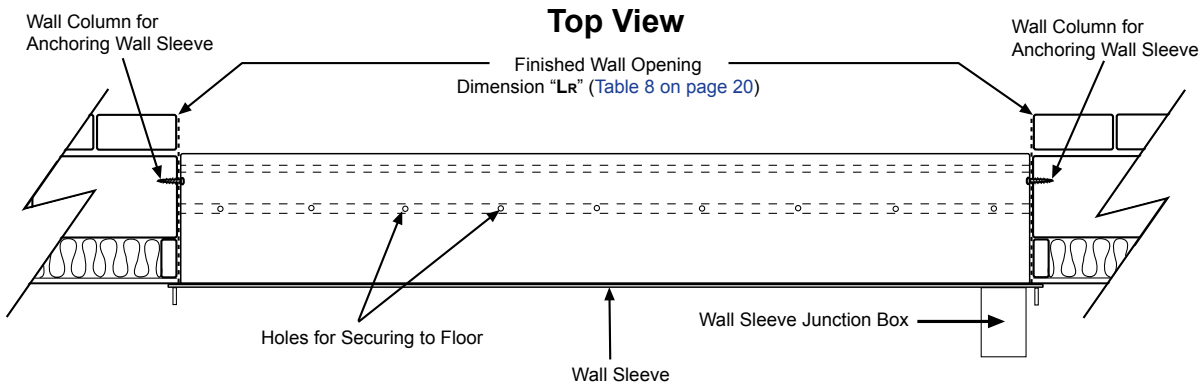
Typical Wall Sleeve Applications

The following is a brief description of three typical methods of installation. Many variations are possible, depending on wall thickness.

Thick Masonry Wall With Full Recess

This example shows the wall sleeve fully recessed into a Masonry (Thick) Wall.

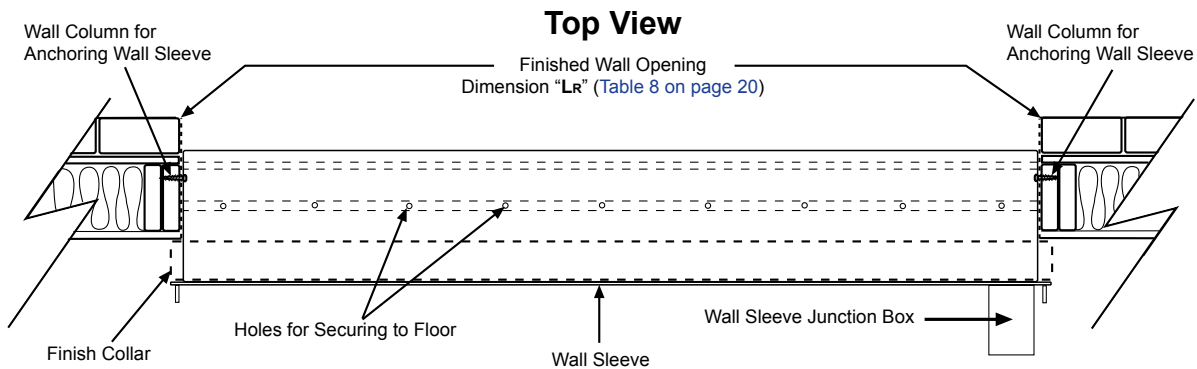
Figure 43: Thick masonry wall with full recess wall sleeve



Masonry Wall With Partial Recess

This example shows the wall sleeve partially recessed into a Masonry (Thick) Wall.

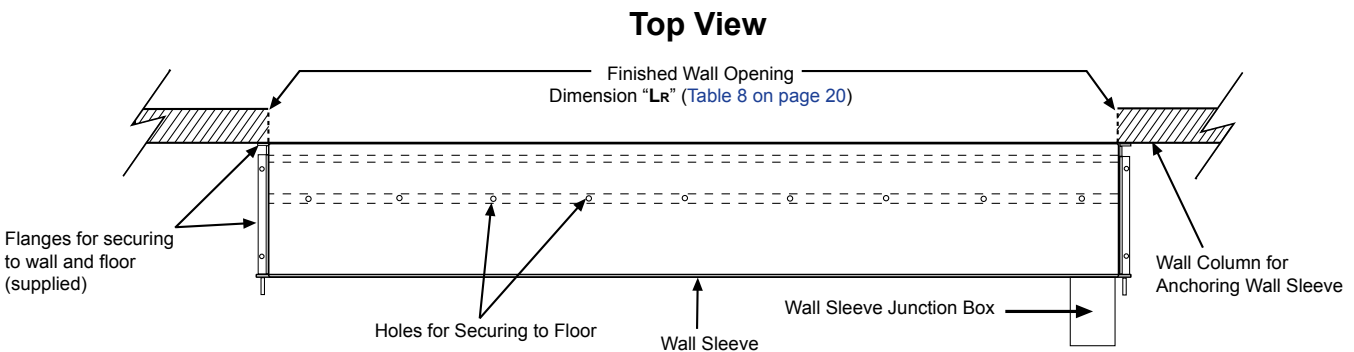
Figure 44: Masonry wall with partial recess wall sleeve



Panel Wall With No Recess (Full Projection)

This is an example of a Panel (Thin) Wall construction with No Recess (full projection). The wall sleeve is secured flush to the wall and floor with the addition of flanges. The wall opening is the same as the wall sleeve recessed length (refer to dimension "LR" in Table 8 on page 20).

Figure 45: Panel (thin) wall with no recess (full projection) wall sleeve



Unit Room Projection & Splitter Length Details

CAUTION

Horizontal splitter (by others) must be installed whenever there is space between the wall sleeve and the louver. Seal the ends of the wall opening to prevent water penetration and air leakage. Pitch the splitters toward the louver for water drainage

Figure 46: Splitter locations

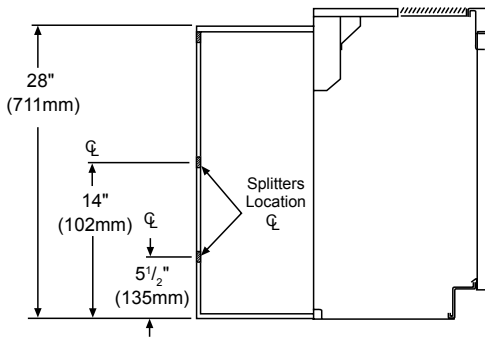
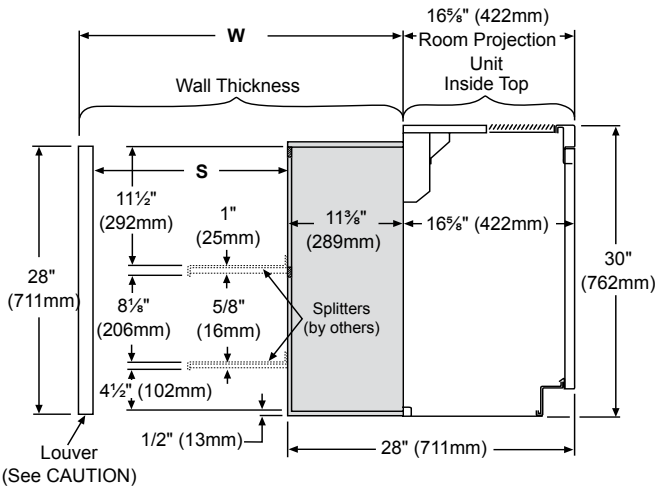


Figure 47: 16 5/8 inch Room projection or full wall sleeve recess



Note: Shading indicates portion of unit wall sleeve recessed into wall opening

Figure 48: 19 5/8 inch Room projection

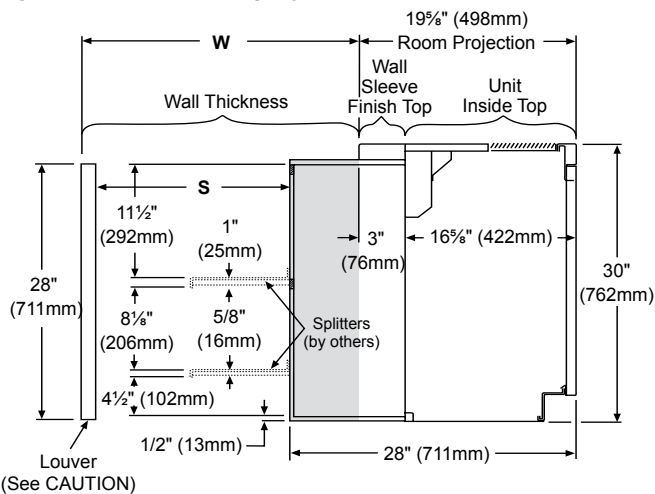


Figure 49: 21 7/8 inch room projection

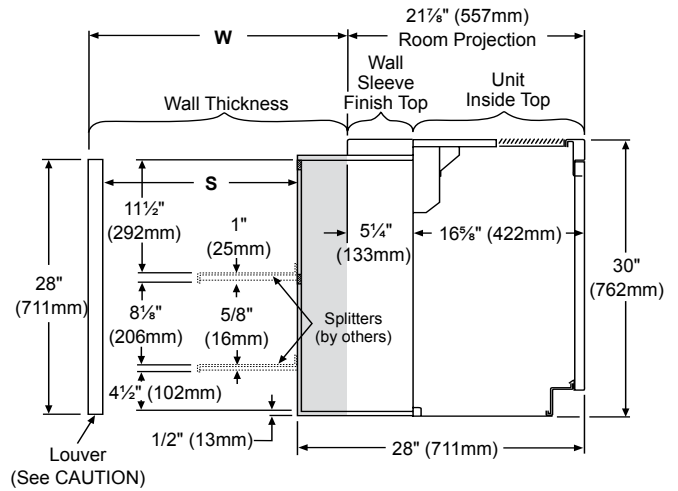


Figure 50: 28 inch Room projection

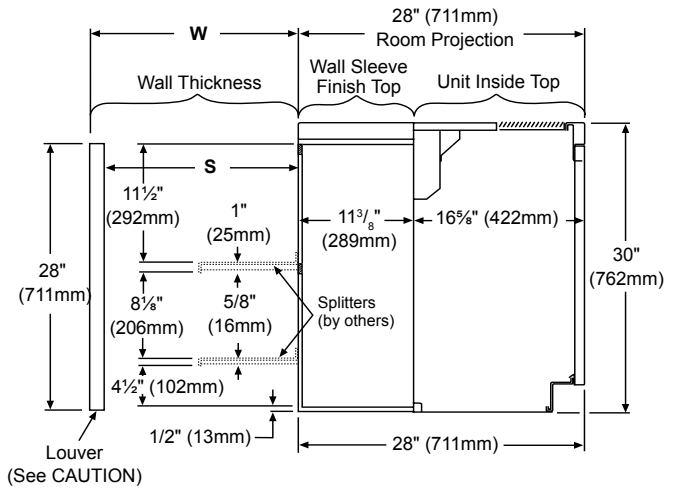


Table 9: Wall thickness, unit projection into room

Wall Thickness "W"	Louver	Unit Projection into Room and Wall Sleeve Type			
		28"	21 7/8"	19 5/8"	16 5/8"
		Figure 50	Figure 49	Figure 48	Figure 47
Splitter Length from Wall Sleeve to Louver "S"					
2 1/2"	2 1/2"	0			
4"	2 1/2"	1 1/2"			
6"	2 1/2"	3 1/2"			
8"	2 1/2"	5 1/2"			
8 5/8"	2 1/2"	6 5/8"	0"		
10"	2 1/2"	7 1/2"	1 3/8"		
10 7/8"	2 1/2"	8 3/8"	2 1/4"	0"	
12"	2 1/2"	9 1/2"	3 3/8"	1 1/8"	
13 5/8"	2 1/2"			3"	0"
14"	2 1/2"			3 1/8"	1/8"
16"	2 1/2"				2 1/8"
18"	2 1/2"				4 1/8"
24"	2 1/2"				10 1/8"

Note: All dimensions are approximate and subject to change without notice. Actual building dimensions may vary

General Considerations

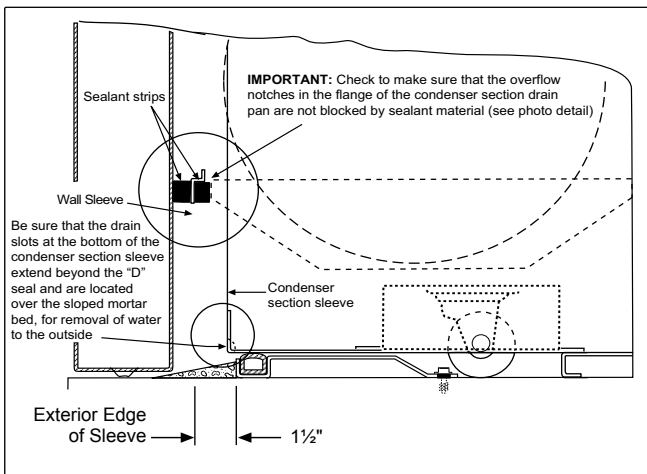
The installing contractor shall do the following:

1. Make sure there is a masonry lintel supporting the wall above any masonry opening and vertical wall column on the ends.
2. Frame and seal airtight and watertight all openings between the louver and wall sleeve not enclosed by the wall sleeve.

⚠ CAUTION

Installation and maintenance are to be performed only by qualified personnel who are familiar with and in compliance with state, local and national codes and regulations, and experienced with this type of equipment. Sharp edges and coil surfaces are a potential injury hazards. Avoid contact with them.

Figure 51: Wall sleeve sealant material where it contacts the condenser section drain flange



⚠ CAUTION

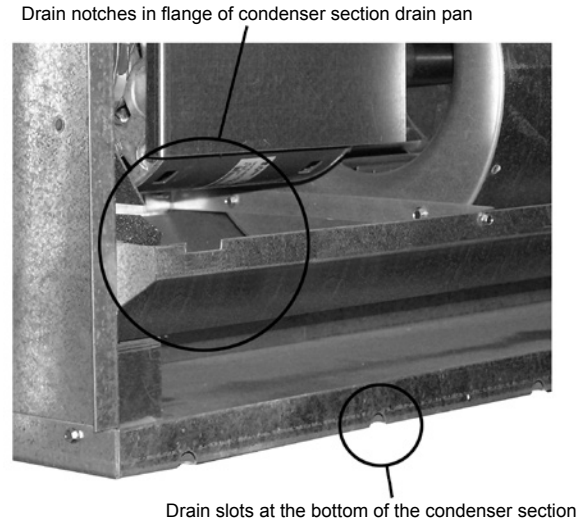
Accumulated moisture can cause property damage if not properly drained. Installing contractor must provide such drainage.

3. For details of required sealing, refer to [Figure 54](#) and [Figure 55 on page 25](#) for recessed wall sleeve applications and [Figure 57 on page 26](#) for nonrecessed wall sleeve applications.
4. Seal watertight both ends and top of wall sleeve to building at rear flange of wall sleeve.
5. Seal watertight the bottom of wall sleeve at rear "D" seal to building and pitch toward louver bottom channel. Also fasten the wall sleeve cross channel to the floor through 1/4" holes with fasteners (by others) (7 fasteners - AE 024), (8 fasteners - AE 036), (9 fasteners - AE 044, 054) (refer to [Figure 42 on page 20](#)).
6. The louver must be installed with the drain notches located at the bottom and the bird screen located on the unit side. Openings between louver drain notches must be free of mortar or other foreign material for water removal.

⚠ CAUTION

Overflow drain notches (2) in the flange of the condenser drain pan **must not be blocked**. Remove any sealant material from wall sleeve bottom splitter rail that may cover these notches.

Figure 52: Check that condenser section drain pan notches are not blocked



Note: The (2) condenser section drain pan notches are located approximately 1" from the left end and right end of the condenser drain pan flange.

7. Apply rubber stripping or sealant material (by others) across full length of wall sleeve splitters.
8. If the louver does not butt up against the wall sleeve:
 - a. Fabricate a horizontal air splitter from galvanized steel, or some other suitable weather resistant material. Pitch the splitters toward the louver for water drainage. The width of the air splitters is determined by the width of the wall opening. The depth of the air splitters is determined by the distance between the louver horizontal splitter and the wall sleeve splitter rails.
 - b. Position a 1" diameter drain hole in the horizontal splitter, approximately 6" from each end, next to the louver.

⚠ CAUTION

Use appropriate screws to attach to the wall sleeve splitters. Ensure the screws do not restrict proper mate-up or sealing of the unit to the wall sleeve.

9. Permanently seal any remaining air leaks so that, when finished:
 - a. There is an airtight separation between the condenser inlet air, condenser discharge air and the outdoor air inlet.
 - b. There are no air leaks around the perimeter of the wall sleeve where it adjoins the wall.

Recessed Applications

The installing contractor must do the following:

1. Place the wall sleeve into the wall opening and recess it the amount shown on the approved Daikin submittal drawings.
2. Level the wall sleeve horizontally and plumb the wall sleeve vertically.
3. (See Figure 53). Mark top (A), bottom (at "D" seal flange) (B), and sides where wall sleeve extends into the wall opening (C). Mark the wall sleeve cross channel holes (D). Also mark points where wall sleeve splitters meet the building envelope (E).

Figure 53: Mark edges and points of wall sleeve on building envelope

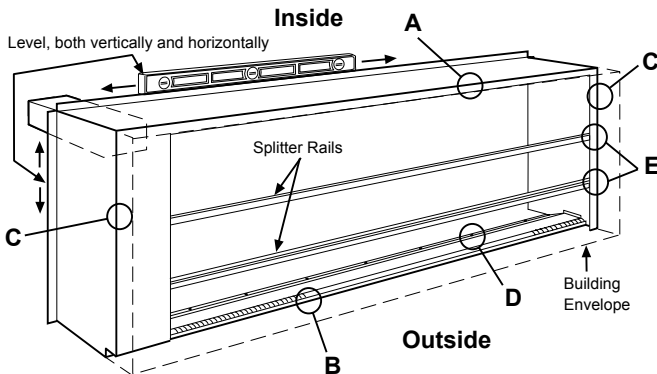
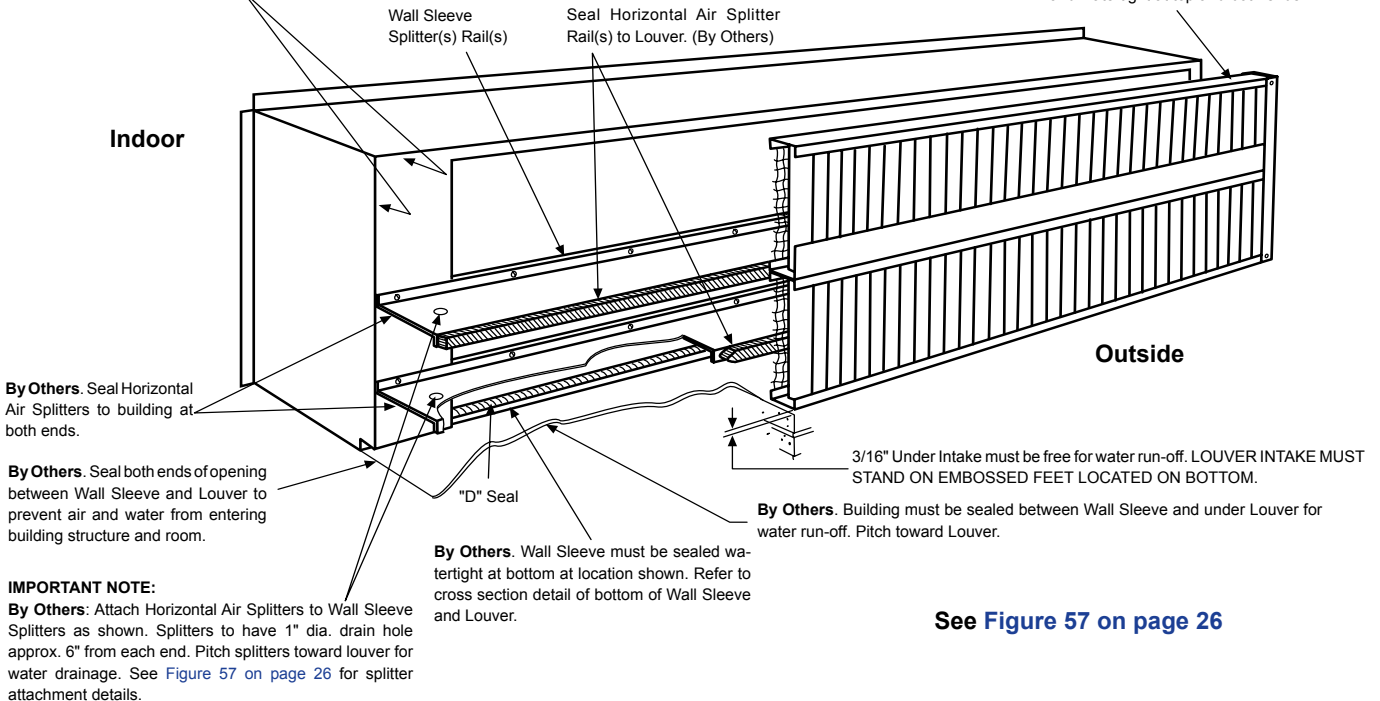


Figure 54: Recessed wall sleeve – mounting and sealing splitters to wall sleeve and louver

By Others. Wall Sleeve must be sealed watertight at top and both ends at location shown.

By Others. Louver must be sealed air and watertight at top and both ends.



By Others. Seal Horizontal Air Splitters to building at both ends.

By Others. Seal both ends of opening between Wall Sleeve and Louver to prevent air and water from entering building structure and room.

IMPORTANT NOTE:

By Others: Attach Horizontal Air Splitters to Wall Sleeve Splitters as shown. Splitters to have 1" dia. drain hole approx. 6" from each end. Pitch splitters toward louver for water drainage. See Figure 57 on page 26 for splitter attachment details.

By Others. Wall Sleeve must be sealed watertight at bottom at location shown. Refer to cross section detail of bottom of Wall Sleeve and Louver.

By Others. Building must be sealed between Wall Sleeve and under Louver for water run-off. Pitch toward Louver.

3/16" Under Intake must be free for water run-off. LOUVER INTAKE MUST STAND ON EMBOSSED FEET LOCATED ON BOTTOM.

See Figure 57 on page 26

4. Drill with the appropriate masonry bit, holes to receive fasteners (by others), for securing the wall sleeve to the building envelope.
5. Make a galvanized metal flashing or use sealed cement mortar from marked edge of "D" seal on wall sleeve, and pitch toward louver. The mortar or flashing should be the same height as the "D" seal flange.

CAUTION

Sloped mortar bed or metal flashing must not restrict water drainage under louver.

6. Fabricate splitter enclosure and /or splitters to fit space between louver and wall sleeve, at marked reference points.
7. Apply gasketing (sealant material) to splitters and seal each end where splitters contact building envelope. A thin layer of caulk is suggested along the edge of the flashing or sloped mortar bed, where it contacts the "D" seal flange.
8. Position the wall sleeve into the opening, making sure all critical sealing points make contact. Fasten the wall sleeve securely in place using the previously drilled holes, and through the two knockouts provided on each end.
9. Secure the splitters to the wall sleeve and seal each splitter to each wall sleeve splitter rail (Figure 54 below and Figure 57 on page 26).
10. Caulk or seal any space between the wall sleeve and the wall on both the indoor side and the outdoor side.

CAUTION

Locate drain lip at bottom of vertical louver to allow proper drainage. Bird screen must always be on side toward unit.

CAUTION

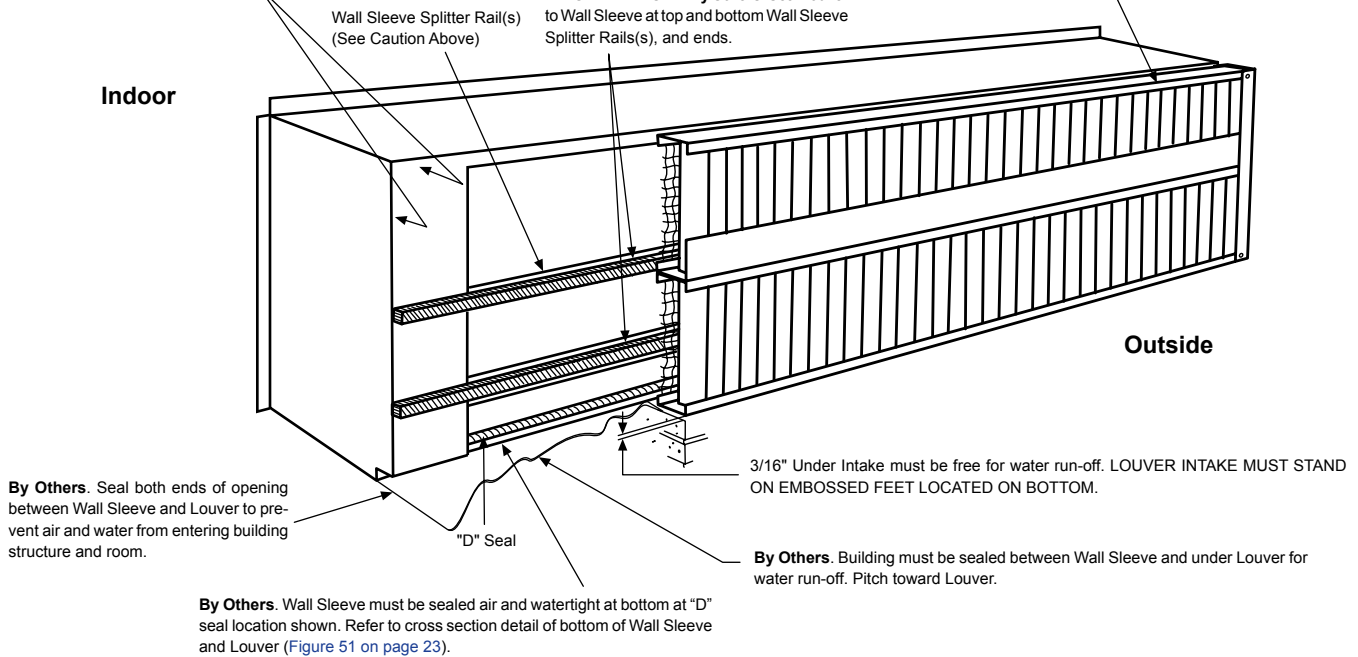
Wall sleeve must be anchored to an internal wall column or other suitable support.

Figure 55: Recessed wall sleeve - direct sealing wall sleeve to louver

By Others. Wall Sleeve must be sealed watertight at top and both ends at location shown.

By Others. Louver must be sealed air and watertight at top and both ends.

IMPORTANT NOTE: By Others. Seal Louver to Wall Sleeve at top and bottom Wall Sleeve Splitter Rails(s), and ends.



By Others. Seal both ends of opening between Wall Sleeve and Louver to prevent air and water from entering building structure and room.

3/16" Under Intake must be free for water run-off. LOUVER INTAKE MUST STAND ON EMBOSSED FEET LOCATED ON BOTTOM.

By Others. Building must be sealed between Wall Sleeve and under Louver for water run-off. Pitch toward Louver.

By Others. Wall Sleeve must be sealed air and watertight at bottom at "D" seal location shown. Refer to cross section detail of bottom of Wall Sleeve and Louver (Figure 51 on page 23).

CAUTION

Locate drain lip at bottom of vertical louver to allow proper drainage. Bird screen must always be on side toward unit.

CAUTION

Wall sleeve must be anchored to an internal wall column or other suitable support.

Full Projection Applications

The installing contractor must check the following before proceeding:

- A structural wall column exists in the wall for anchoring the wall sleeve to the building.
- The louver is installed correctly and sealed, with the wall cavity air and water tight.
- Electrical and wall sleeve control wiring is roughed in.
- The wall behind the unit is smooth and plumb.
- The seals on the rear of the wall sleeve take up the small irregularities of normal masonry construction.
- Moisture resistant material strips are installed on irregular walls or walls with mullions in order to provide a flush surface for the wall sleeve to seal against.
- Moldings at the floor/wall line are omitted behind the unit.

The installing contractor must do the following:

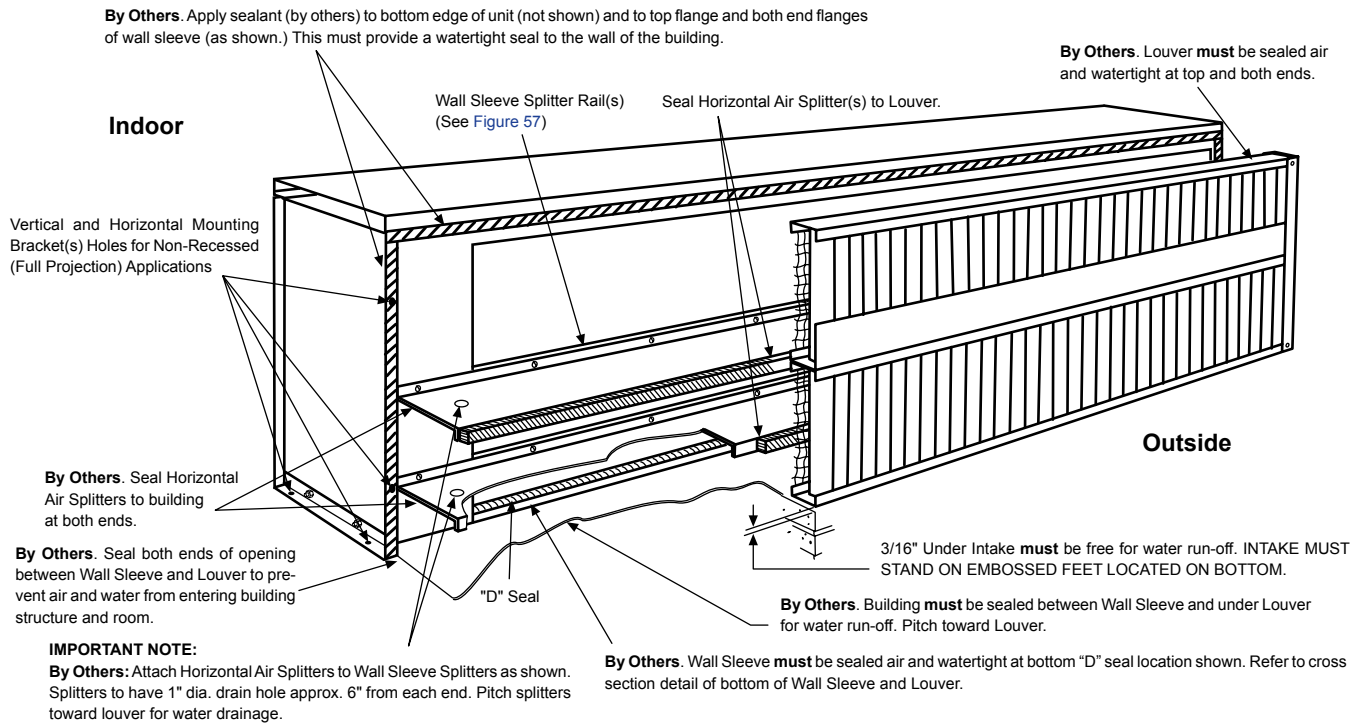
1. Apply sealant (by others) to bottom edge at rear of unit top and both end flanges on rear of wall sleeve to provide air and water tight seal to interior wall of building.
2. Level the wall sleeve horizontally, and plumb the wall sleeve vertically.
3. Mark top, bottom (at "D" seal flange), and sides where wall sleeve extends into the wall opening. Mark the wall sleeve cross channel holes and the vertical frame holes (4). Also mark points where wall sleeve splitters rail(s) meet the building envelope.
4. Drill with the appropriate masonry bit, holes to receive fasteners (by others), for securing the wall sleeve to the building envelope.

5. Make a galvanized metal flashing or use sealed cement mortar from marked edge of "D" seal on wall sleeve, and pitch toward louver.
6. Fabricate splitter enclosure and /or splitters to fit space between louver and wall sleeve, at marked reference points (see splitter details).
7. Apply gasketing (sealant material) to splitters and seal each end where splitters contact building envelope. A thin layer of caulk is required along the edge of the flashing or sloped mortar bed, where it contacts the "D" seal flange to provide an air and water tight seal.
8. Fasten the wall sleeve securely in place by:
 - a. Securing it to the floor through the two (2) 3/8" diameter holes in the turned out bottom flanges of the wall sleeve at each end, and/or:
 - b. Securing it to the wall through the two (2) 3/8" diameter holes in the turned out vertical flanges of the wall sleeve at each end to a wall structural column on each side.
9. Panel wall applications must have:
 - a. The wall opening sleeved to prevent moisture from seeping into the wall interior.
 - b. If the panel wall is less than 2¼" thick, the wall louver must be installed flush to the interior wall and be allowed to extend to the outside as required, and must be air and water tight.
10. Seals on wall sleeve must be compressed to provide a watertight seal after installation is complete.
11. Secure the splitters to the wall sleeve and seal each splitter to each wall sleeve splitter rail (see Figure 56 and Figure 57 on page 26).

CAUTION

Leakage of outdoor air wastes energy, causes drafts and erratic unit ventilator operation. These passages are also a potential pathway for water. Provide a sealing surface at the floor line. Install the wall sleeve in a wall made of noncombustible material, and on a floor made of noncombustible material. Floor must be level, unbroken and structurally strong to support the unit.

Figure 56: Sealing full projection wall sleeve and horizontal air splitters



CAUTION

Wall sleeve must be anchored to an internal wall column or other suitable support.

CAUTION

Locate drain lip at bottom of vertical louver to allow proper drainage. Bird screen must always be on side toward unit.

Figure 57: Attaching splitters to wall sleeve splitter rails and seals

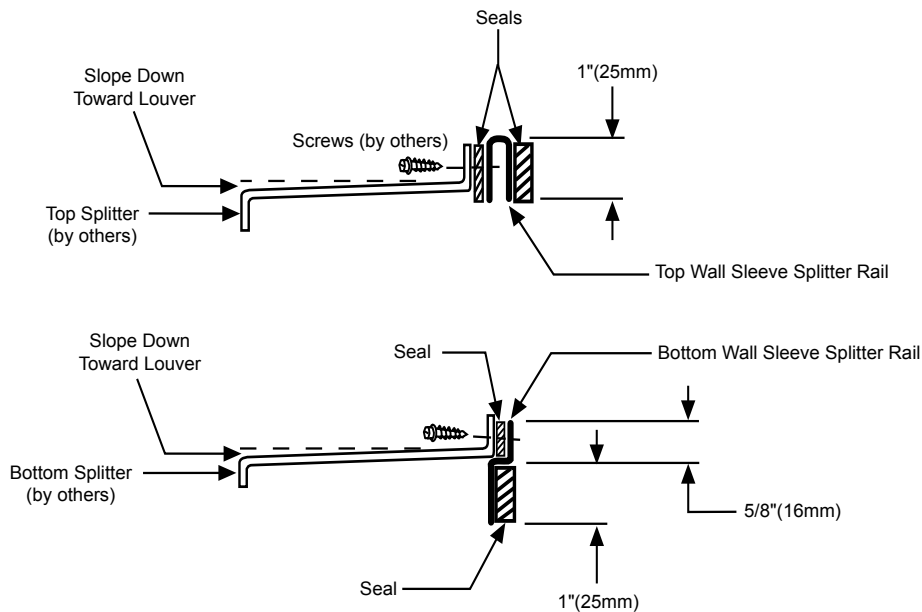
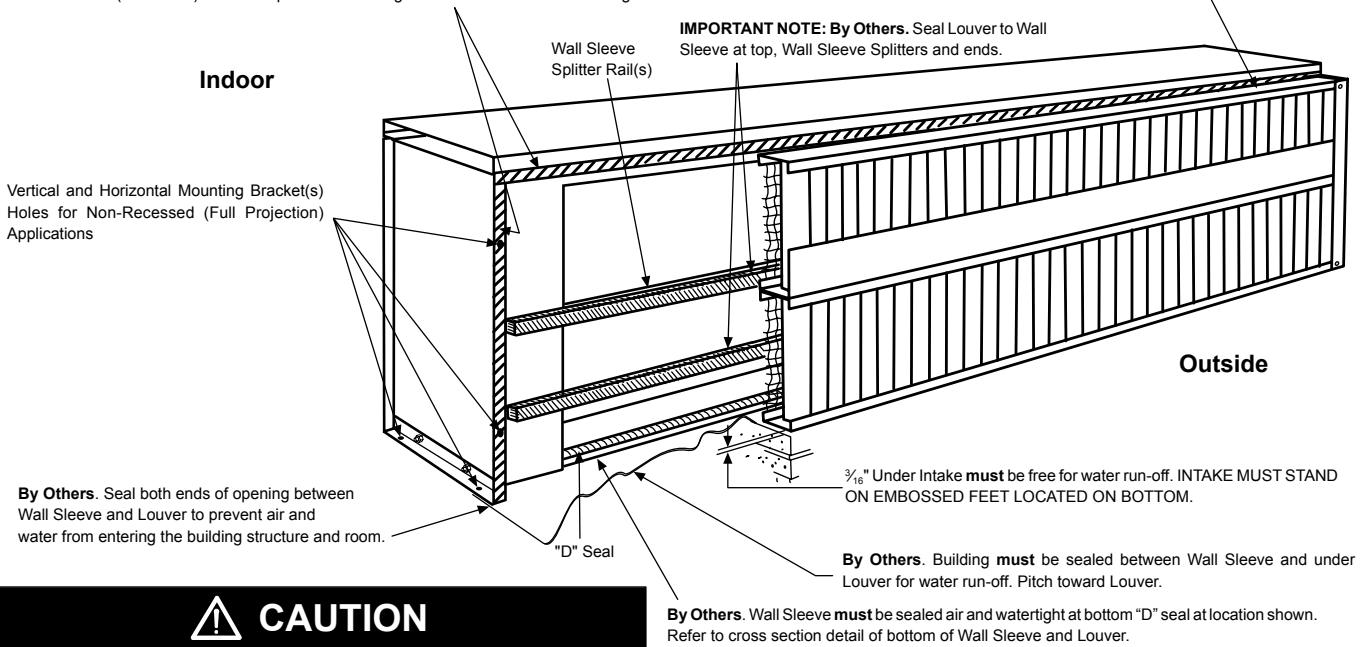


Figure 58: Sealing full projection wall sleeve to louver intake without horizontal air splitters

By Others. Apply sealant (by others) to bottom edge of unit (not shown) and to top flange and both end flanges of wall sleeve (as shown.) This must provide a watertight seal to the wall of the building.

By Others. Louver must be sealed watertight at top and both ends.



CAUTION
Wall sleeve must be anchored to an internal wall column or other suitable support.

Drain System – Heat Pump Condensate Disposal into Building

During the heat mode, frost can build up on the cold, outdoor section coil. When the frost build up on the coil is too great, the unit will go into defrost mode and remove this frost by warming up the outdoor coil. The condensate from the defrost mode is collected in the upper drain pan located below the outdoor section coil. It is then directed into the indoor section through a plastic tube. This tube must be connected to the buildings condensate disposal system. Do not connect the unit drain connection so that condensate exits to the outside and/or is exposed to freezing temperatures. Installer is responsible for any damage that might be caused from freezing condensate. Refer to Figure 59 and Figure 60 for the recommended method for draining the heating condensate from the unit.

Figure 59: Condensate drain stub-up within 6" end panel

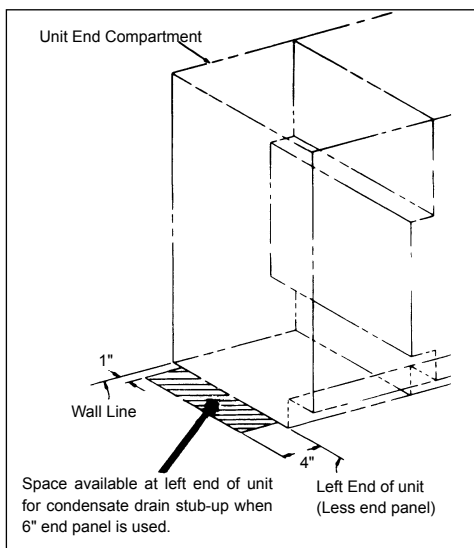


Figure 60: Condensate drain stub-up inside left end compartment

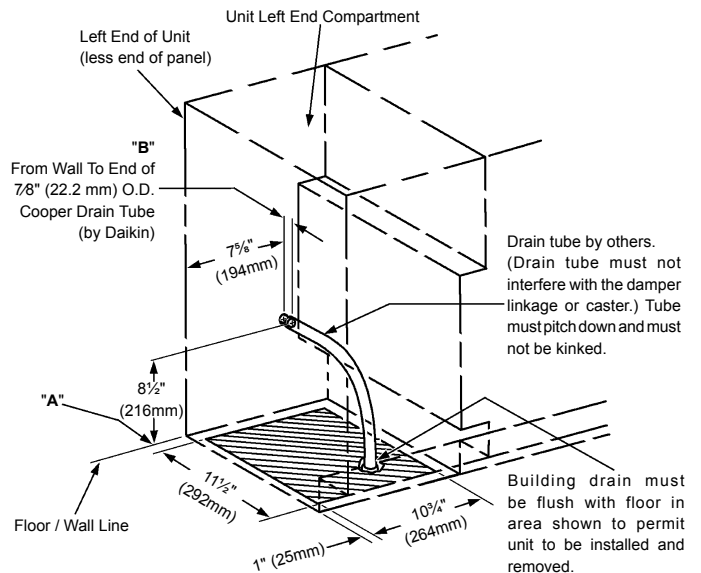


Table 10: Condensate drain location dimensions

Room Projection		Dimension "A"		Dimension "B"	
IN.	MM	IN.	MM	IN.	MM
16%	422	1	25.4	2	50.8
19%	498	4	102	5	127
21%	556	6 1/4	159	7 1/4	184
28	711	12 3/8	314	13 3/8	340

WARNING
Condensate drain stub-up, including unions and shutoff valves, must disconnect below floor line to permit unit to be installed and removed.

Refer to the wiring diagram furnished with the unit to determine electrical connections required.

⚠ CAUTION

Use copper conductors only. Aluminum conductors can cause equipment failure and overheating hazards. All wiring in right hand compartment must be class 1.

⚠ CAUTION


All field wiring must be in accordance with the National Electric Code and applicable local codes.

Refer to [Figure 63](#) & [Figure 64](#) on [page 29](#) for stub-up locations. Refer to [page 30](#) and [page 31](#) for main power connections and field wired communication module, and [page 44](#) through [page 47](#) for remote wall mounted sensor controls, if any.

Check wall sleeve nameplate to verify it is the correct voltage and amperage for the AEQ model to be installed.

Whenever the electric stub-up is brought in through the floor within the confines of the wall sleeve and any portion of the wall sleeve is recessed into the wall, the watertight conduit must be flush with the floor to permit installation of the wall sleeve. Sufficient space must be left around the conduit to permit the attachment of continuing watertight conduit after the wall sleeve is installed. For concrete slabs, it is recommended that this be accomplished either by sleeving the conduit or by recessing a watertight junction box into the slab.

⚠ DANGER

 Disconnect all electrical power before servicing unit to prevent injury or death due to electrical shock.

Procedure – Main Power Connections

The main steps to wiring the wall sleeve are as follows:

1. Confirm that the main power to the wall sleeve wires are de-energized and tagged-out.
2. Remove top cover plate and protective plate covering the terminal lugs on the wall sleeve junction box ([Figure 61](#)).
3. Bring the main power through the waterproof conduit to the junction box on the wall sleeve, to the terminal lugs on the upstream side of SW1-Main Power non-fused “ON-OFF” switch. See [Figure 62](#) for terminal lug locations and phase connections. Insert main power wires into the terminal lugs (A, B, C) and tighten securely. Power wiring must be hooked up with proper phasing. Electrical (3) phasing must be A, B, and C for electrical phase 1, 2, and 3 (A = L1, B = L2, C = L3). Single phase power wiring must be A and C. Check supply power with a phase meter to match the unit phase wiring.

⚠ CAUTION

AE unit compressors are single-direction rotation compressors and can be damaged if rotated in the wrong direction. For this reason, proper phasing of electrical power is important. Running the compressor backward will damage the compressor and void the warranty

Figure 61: Wall sleeve junction box cover plates

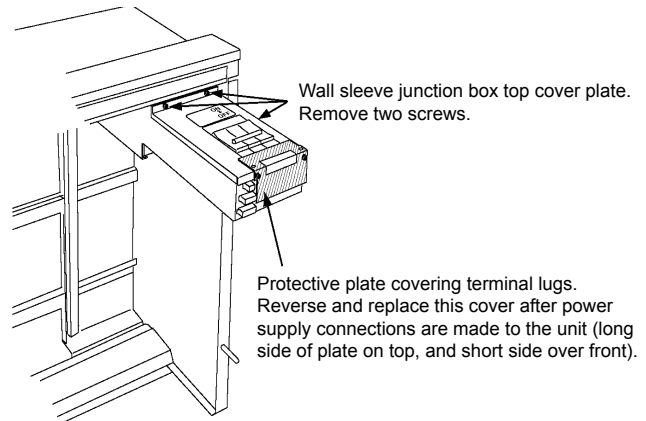
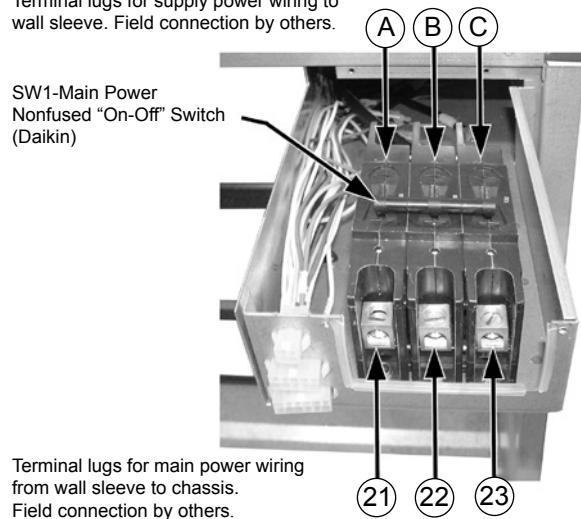


Figure 62: Detail of SW1-main power connections

Terminal lugs for supply power wiring to wall sleeve. Field connection by others.



Note: (B) and (22) not used on single phase.

⚠ CAUTION

Whenever the electric stub-up is brought in through the floor within the confines of the wall sleeve, and any portion of the wall sleeve is recessed into the wall, the conduit must be flush with the floor to permit installation of the wall sleeve. Sufficient space must be left around the watertight conduit to permit the attachment of continuing conduit after the wall sleeve is installed. For concrete slabs, this should be accomplished either by sleeving the watertight conduit or by recessing a watertight junction box into the slab.

4. Bring the control wiring (optional remote wall sensor, optional building automation control wiring to the optional communication module, optional communications for other external inputs/outputs) through the waterproof conduit to the junction box on the wall sleeve, to the appropriate capped wires within the wall sleeve junction box.
5. Connect remote wall sensors and external input/output devices to the appropriate wires using the existing wire caps. Verify that the wires are securely fastened within the wire caps. Wiring diagrams for doing so are provided in [Figure 66](#) on [page 30](#) through [Figure 68](#).
6. Reinstall the top cover plate and protective plate covering the terminal lugs of the wall sleeve junction box.

Wall Sleeve Electrical Stub-up Details

Figure 63: Wall sleeve with electric stub-up from bottom

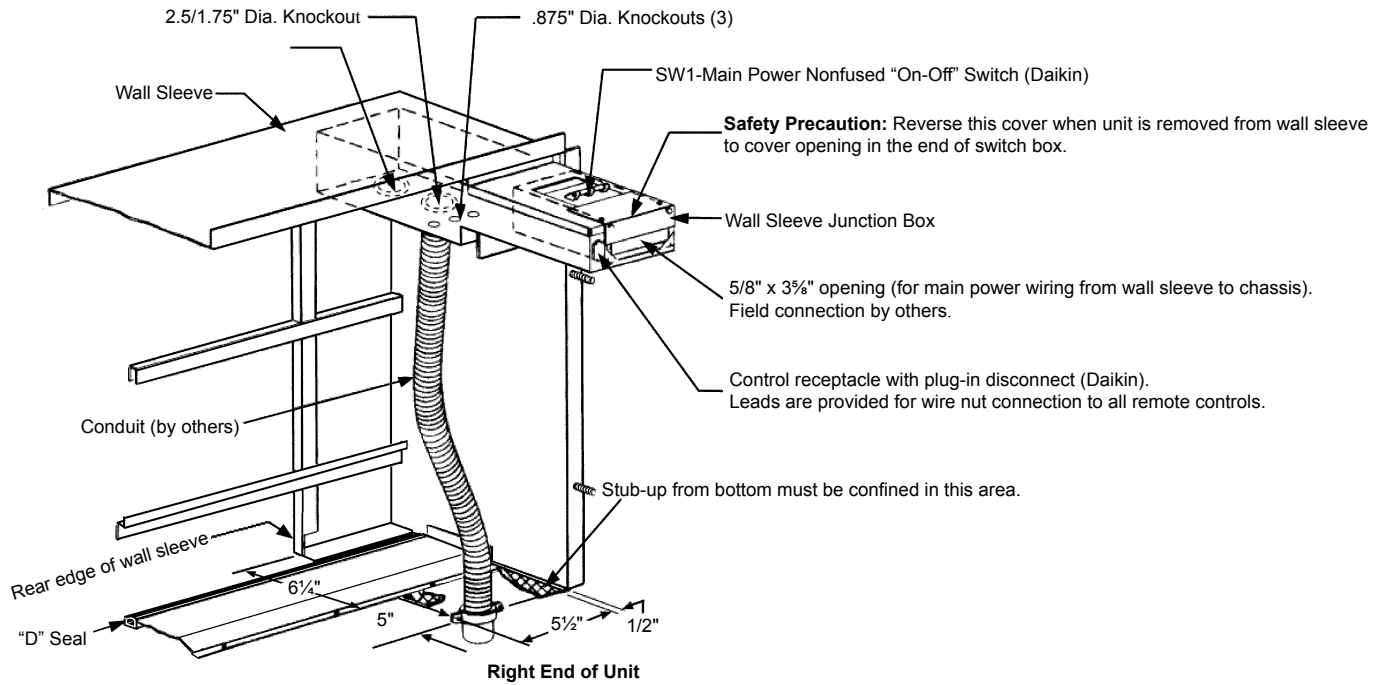
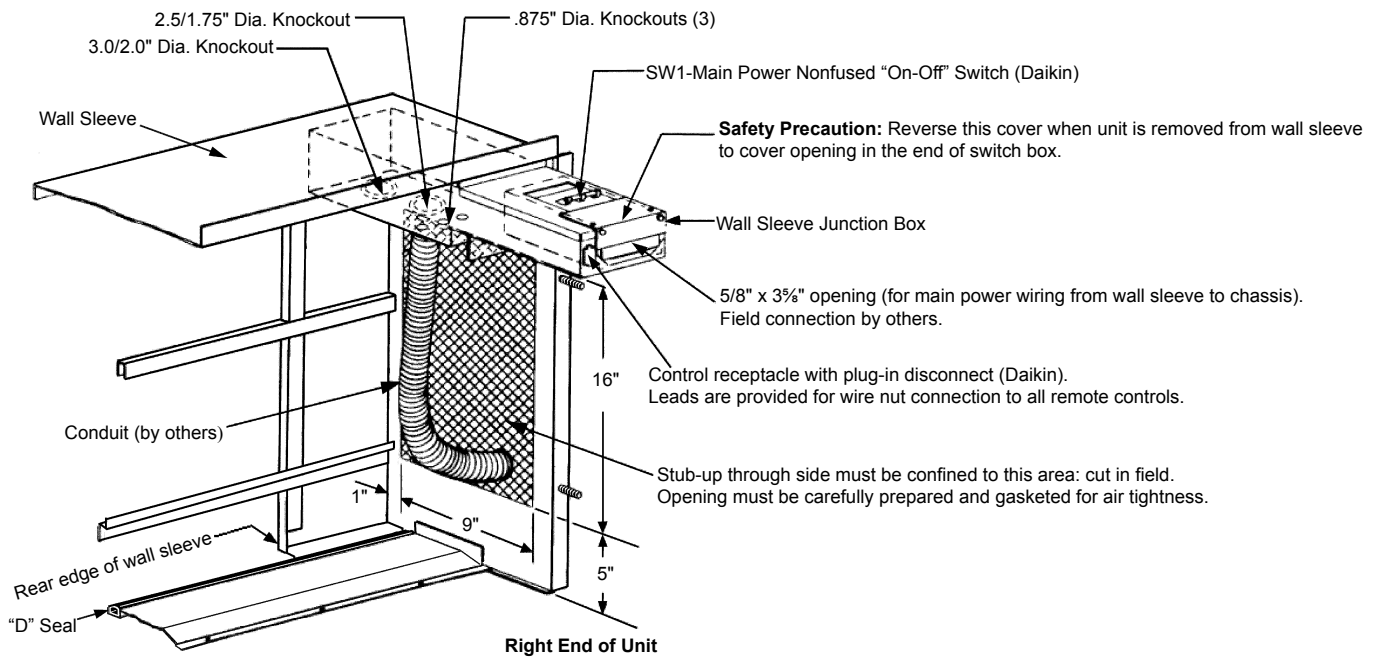



Figure 64: Wall sleeve with electric stub-up from side



⚠ DANGER



Disconnect all electrical power before servicing unit to prevent injury or death due to electrical shock.

⚠ CAUTION

AE unit compressors are single-direction rotation compressors and can be damaged if rotated in the wrong direction. For this reason, proper phasing of electrical power is important.

Unit Connection Procedure to Wall Sleeve

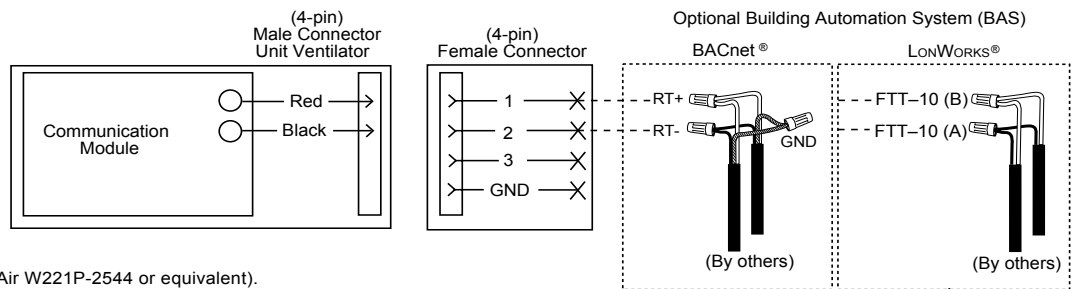
Before installing the unit ventilator into the wall sleeve confirm that power to the wall sleeve is de-energized and tagged out.

After the unit ventilator has been installed into the wall sleeve, do the following:

1. Confirm that power to the wall sleeve is de-energized and locked and tagged-out.
2. Plug in the unit control wiring male plug(s) into the appropriate wall sleeve female plug(s) (Figure 65).
 - Plug in 4-pin (for MicroTech and Electromechanical).
 - 10-pin (MicroTech only).
 - 12-pin (MicroTech only).
3. Remove the wall sleeve junction box terminal lugs cover plate.
4. Insert the unit chassis main power wires (21, 22, and 23) into the wall sleeve disconnect switch terminal lugs. Tighten the terminal lugs securely.
5. Reinstall the wall sleeve terminal lugs cover plate over the main power wires with the label reading correctly, (long edge of plate on top and short edge over front).
6. Proceed to page 32 to complete electrical procedure.

Note: For electromechanical use ① only (see page 48). ② and ③ not used for electromechanical. Control connections for electromechanical are made to the terminal block in the left end compartment.

Figure 66: 4-pin plug MicroTech control wiring diagram



Wiring:

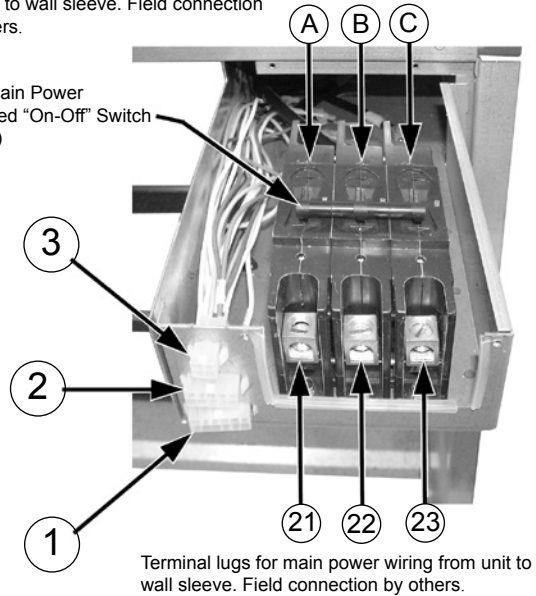
Use twisted shielded pair (Connect Air W221P-2544 or equivalent). Daisy-chain and tie shield to earth ground at **one** point only. The polarity of the signal must always be maintained throughout the network. Always connect + to + and - to -. The shield connection must be continuous throughout the entire network and must be connected to earth ground at **one** (and only one) point.

The N2 Bus can use either solid or stranded wires of the following types: 3-wire twisted cable, 2 twisted-pair telephone cable, or two twisted pair with shield. The wiring is polarity sensitive. The polarity of the signal must always be maintained throughout the network. Always connect + to + and - to -. The shield connection must be continuous throughout the entire network and must be connected to earth ground at **one** (and only one) point.

Use Belden 8471, NEMA Level 4, or Echelon-approved equivalent wire. Since the LONWORKS communication wiring is polarity insensitive, no polarity must be observed when making connections via the unshielded twisted-pair wiring.

Figure 65: Wall sleeve junction box details for MicroTech

Terminal lugs for supply power wiring (by others) to wall sleeve. Field connection by others.

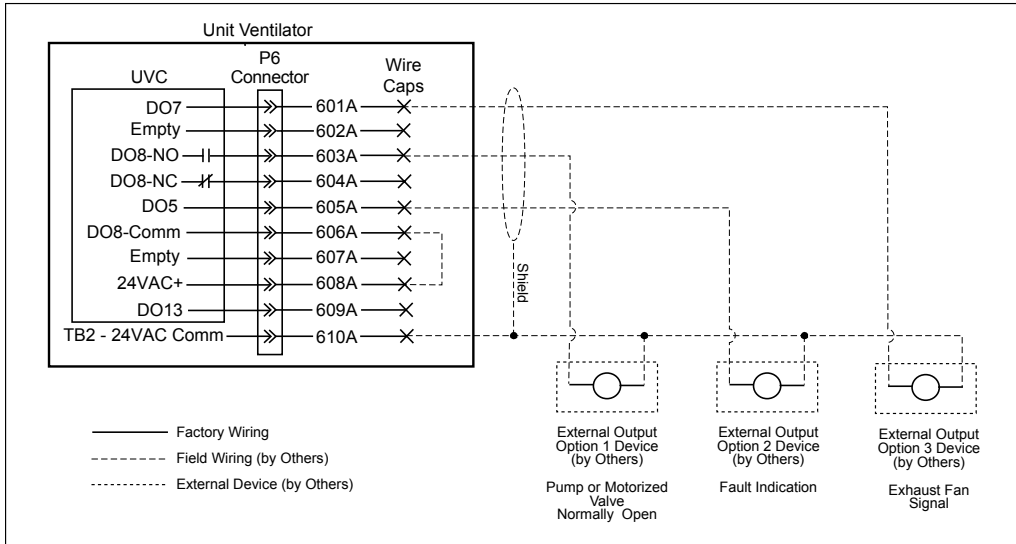


Note: (B) and (22) not used on single phase.

Table 11: Wall sleeve junction box wiring legend

Legend			
	Plug In		Comp Tie Point
	Splice		Optional Wiring
	Tap Conn.		Wired by Others
	Term Conn.		Factory Wired
	Capped Wire		Ground
			External Device by Others

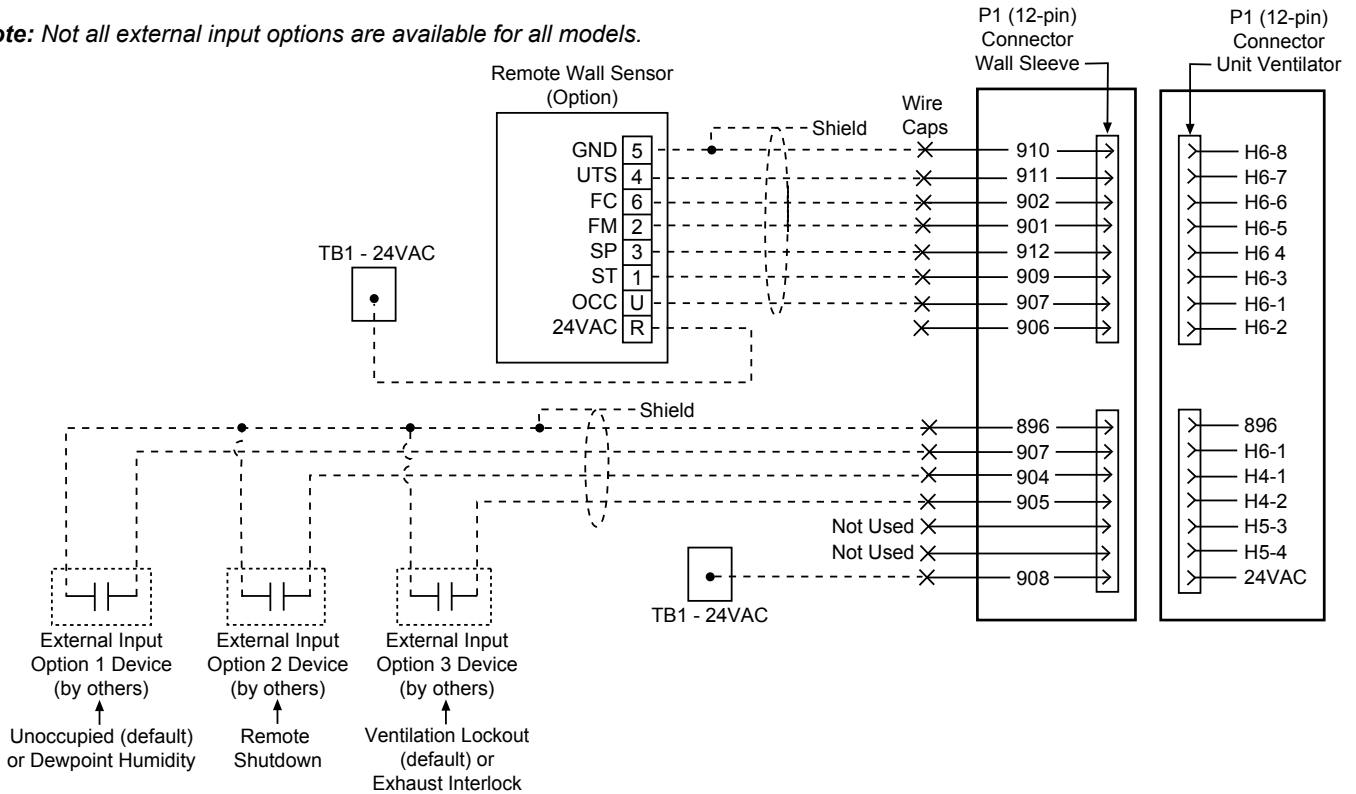
Figure 67: 10-pin plug MicroTech wiring diagram



Note: Not all external input options are available for all models.

Figure 68: 12-pin plug MicroTech control wiring diagram

Note: Not all external input options are available for all models.



Pre Installation Checklist for Unit

- Lintel installed above wall louver to support masonry wall
- Birdscreen on wall louver facing toward room interior
- Embossments of wall louver at bottom and free for drainage
- Wall sleeved to prevent moisture seepage into wall
- Free opening under wall louver clear for water run-out
- Wall louver anchored to building and sealed against air and water leaks
- Horizontal air splitters between wall sleeve and louver (if required), water and air tight
- Wall sleeve anchored to building and sealed against air or water leaks
- Sealant material applied to "D" seal cross channel flange to seal to drainage slope edge
- Unit inspection complete for damage, data plate information and correct location of unit (refer to "Transportation Damage" on page 5)

Remove Packaging and Inspect Unit Ventilator

Carefully remove the packaging, remaining alert to any signs of shipping damage (Figure 69). Be careful not to discard components that may be included with the packaging. (Retain some or all of the packaging to provide jobsite unit location information and temporary protection for the unit ventilator after installation.) Be sure to dispose of plastic packaging and protective cardboard properly, in accordance with local recycling rules and guidelines.

⚠ CAUTION

Cut out the rear of the carton and place it over the unit for protection until all construction has been completed.

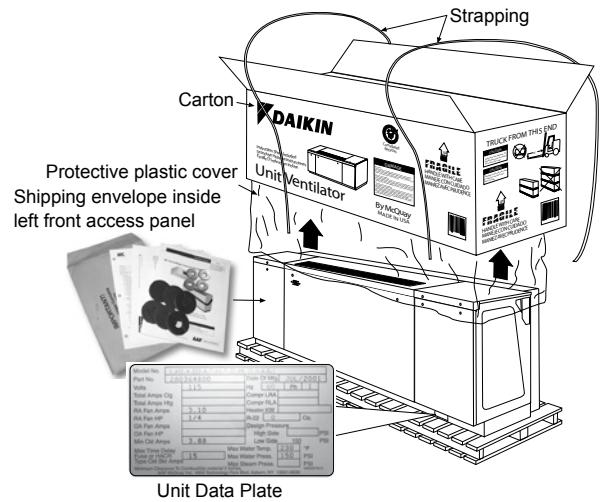
IMPORTANT

If unit is damaged, file a claim with the carrier. Notify the local Daikin Unit Ventilator representative immediately.

Properly Identify Unit Ventilator(s)

To be sure the correct unit ventilator(s) is/are in the correct location(s), the installer must check the packing list and unit identification/tagging number(s) against the plans. Further, the unit data plate, (Figure 69) located on the lower right end of the unit ventilator, contains specific information of standard components (refer to "Nomenclature" on page 56).

Figure 69: Remove packaging to identify unit



⚠ WARNING

Plastic packaging is a suffocation hazard. Dispose of properly. Keep away from children.

The AEQ Self-contained unit comes with an allen wrench, four (4) insulation donuts, and four (4) lagging washers in the envelope placed in the left end compartment of the unit (Figure 69).

- Important:**
1. Move only one unit at a time.
 2. DO NOT DROP UNIT!
 3. Store in a clean dry environment.
 4. Lift only from designated end.

Lower crated unit from dolly (if used), but DO NOT DROP. Remove unit from skid if unit will be installed immediately (Figure 70 through Figure 72 on page 34). If storing unit prior to installation, replace the carton over the unit until installation is begun. This will prevent the unit from being scratched or damaged by other workers preparing the area.

End panels are shipped separate from the unit and are installed after unit installation is complete.

- Unit comes encased in plastic bag. Be sure that the plastic bag is disposed of properly after removing permanently.
- Units are shipped in trucks. For information on loading, truck-load quantities see page 6 and Table 1 for shipping carton weights and dimensions.
- Unloading difficulties at the job site can be minimized by having the necessary equipment and manpower available when the shipment arrives on the job site.
- Forklift type vehicles should be used to unload the units. When using a forklift, it is very important that the unit be lifted only from the end designated on the carton.
- Forks on the forklift should be minimum of 72 inches long.
- Strap type sling of nylon or other material should be used rather than wire rope to prevent damage to the unit.

Note: These are general instructions. Refer to the Daikin submittal drawings for specific dimensions, unit arrangement, stub-up locations, recommended wall opening size, etc.

Table 12: General unit data

			024	036	044	054
Fan Data	Nominal CFM (L/s)	High Speed	1000 (472)	1250 (590)	1500 (708)	1500 (708)
		Medium speed	750 (354)	1000 (472)	1150 (543)	1150 (543)
		Low Speed	650 (307)	800 (378)	950 (448)	950 (448)
	Number of Fans		3	4	4	4
	Size	Diameter - in (mm)	8.12 (206mm)	8.12 (206mm)	8.12 (206mm)	8.12 (206mm)
Width- in (mm)		8.25 (210mm)	8.25 (210mm)	8.25 (210mm)	8.25 (210mm)	
Fan Motors	Room Fan Motor Horsepower (Type)		1/4 (PSC)	1/4 (PSC)	1/4 (PSC)	1/3 (ECM)
	Outdoor Fan Horsepower (Type)		1/3 (PSC)	3/4 (ECM)	3/4 (ECM)	3/4 (ECM)
Filter Data	Nominal Size	Inches	10 × 48½ × 1	10 × 60½ × 1	(2) 10 × 36½ × 1	(2) 10 × 36½ × 1
		(mm)	254 × 1232 × 25	254 × 1537 × 25	(2) 254 × 927 × 25	(2) 254 × 927 × 25
	Area - Ft2 (m ²)		3.37 (.31)	4.2 (.39)	5.08 (.47)	5.08 (.47)
	Quantity		1	1	2	2
Shipping Weight	Lb. (kg)		885 (402)	975 (442)	1075 (448)	1075 (448)
Refrigerant Charge	Oz.		146	158	166	142

Before Moving Unit Up to Wall Opening Checklist

- Unit is correct for the location
- Unit installation section of manual was read in its entirety with understanding of the installation procedures of the wall sleeve and air intake louver in accordance with the instructions.
- For full projection applications, the field applied pressure adhesive gasketing has been inspected and forms an unbroken and tight seal to prevent air and water leaks
- Room air and condenser fan bearings are secure and oiled
- Room air and outdoor condenser fan shaft coupling set screws are tightened securely to both motor shaft and fan shaft
- Room air and condenser fans rotate freely and quietly
- Fan wheel set screws are tight
- Construction debris inside unit, in the area of the wall sleeve, the entire surface of the sealed, sloped mortar bed, and the drainage space at the bottom of the outdoor air louver has been cleaned up
- Adequate access space for maintenance, service and unit removal has been provided
- Wall sleeve is properly sealed air and watertight
- Power to wall sleeve is correctly hooked up and control wiring if any is hooked up
- Wall and floor are 90° to one another. If not, floor needs to be leveled (90°) to wall
- Unit power supply is correct and verified by unit data plate

INFORMATION

Directions given in this bulletin for right and left sides assume a position facing the indoor side of the unit ventilator

Check for concealed shipping damage.

End panels are shipped separate from the unit and are installed after unit installation is complete.

Position the Unit Ventilator

Move the unit ventilator to the correct location. Refer to [Table 12 on page 33](#) for approximate shipping weights.

If the unit packaging has already been removed, carefully remove unit ventilator from wood skid ([Figure 70](#) through [Figure 72](#)). Be sure to properly dispose of the skid in accordance with local recycling rules and guidelines.

Lower crated unit from dolly (if used), but **DO NOT DROP**. Remove external carton by lifting off, and **SAVE THIS CARTON**.

⚠ DANGER

Hold down clamps must be on unit when moved. If unit shifts or slides off skid, it can be damaged or cause personal injury.

Removing Unit from the Skid

Remove fasteners at each end which hold the unit to the skid and carefully slide the front of the unit off the skid (1). Tip unit forward until the bottom of the slotted front kickplate is resting on the floor (2). Lift rear of unit off of the skid by tipping unit forward while supporting the unit from the front, until it is possible to slide skid out from under the unit. **GENTLY LOWER** the rear of the unit to the floor (3).

Figure 70: Removing unit from skid

1. Carefully slide the front of the unit off the front of the skid.

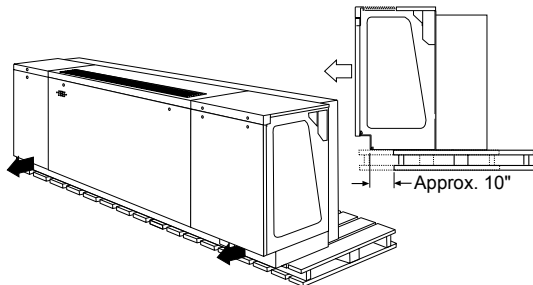


Figure 71: Tip unit forward slowly

2. While supporting unit from the front, slowly tip unit forward until bottom of kickplate is resting on floor.

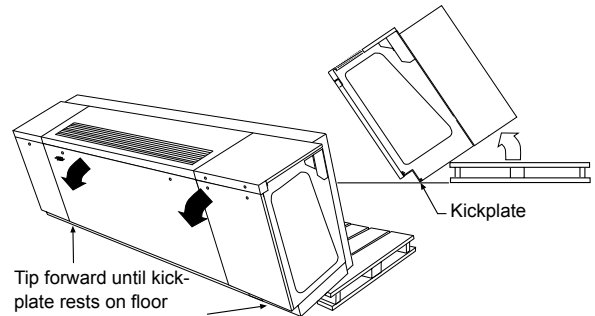
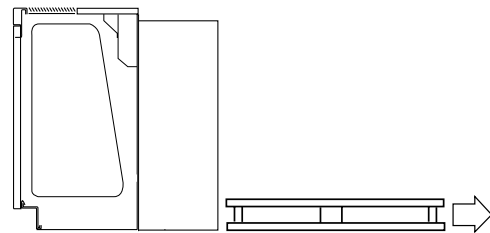


Figure 72: Remove skid and gently lower unit

3. Remove skid and **GENTLY LOWER** the rear of the unit to the floor (**DO NOT DROP**).



Before Sliding the Unit into Place

Sliding of this unit to the wall can be made easier with the assistance of Caster Kit P/N 105629001 (Figure 73 and Figure 74). A piece of cardboard placed under the unit will make this job easier and reduce marring the floor. (Do not leave cardboard under unit after installation.)

Be certain that the field-supplied electrical connections are in place, de-energized and in accordance with the plans.

⚠ DANGER

Disconnect all electrical power before installing the unit to prevent injury or death due to electrical shock. Ensure the wall sleeve junction box protective cover plate is installed.

Installing Casters

If the unit was ordered with the optional caster wheels, utilize these casters to help move the unit into position. The outdoor section comes with two swivel casters. Casters are installed as follows:

1. Remove the left and right front access panels.
2. With the one caster (left end), ensure the caster is fully up (turn bolt clockwise to raise, counterclockwise to lower).
3. Locate in the left end compartment the slots and bolt location.
4. Insert the tines of the caster channel into the slots. Securely bolt the front to the unit front rail.
5. Repeat for the right caster wheels (2).
6. Slowly engage the casters by lowering the bolt. Make all caster adjustments equally before raising the unit.
7. When full engaged, the unit will roll forward into the wall sleeve. When installed, reverse the procedure and remove the caster kit. Save the caster kit for future unit servicing or replacement.

Figure 73: Optional indoor section caster installation

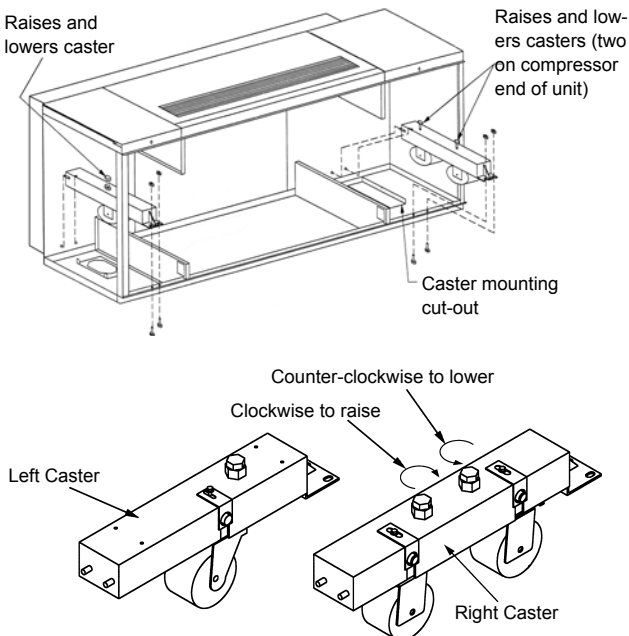


Figure 74: Optional indoor section caster shown in right end compressor compartment



Procedure

Wall and floor must be at 90° to one another. If not, the floor needs to be leveled (90°) to wall. Be sure that the condenser section drain pan notches are not blocked (see Figure 52 on page 23 and Figure 78 on page 36).

Slide the unit up to the wall sleeve aligning the four threaded studs (Figure 75 on page 34) on the wall sleeve with the holes on each end of the unit. If the optional indoor caster kit is not used, a piece of cardboard placed under the unit will make the job easier and prevent marking the floor (Do not leave the cardboard under the unit after installation). The wall sleeve mounting studs should slide through the holes in the unit.

If a finish collar is used, make sure that the unit, finish collar and wall sleeve all line up properly.

Confirm that the bottom splitter rail seal in area of unit condenser drain pan notches is removed (see Figure 77 on page 36).

Figure 75: Slide the unit up to the wall sleeve

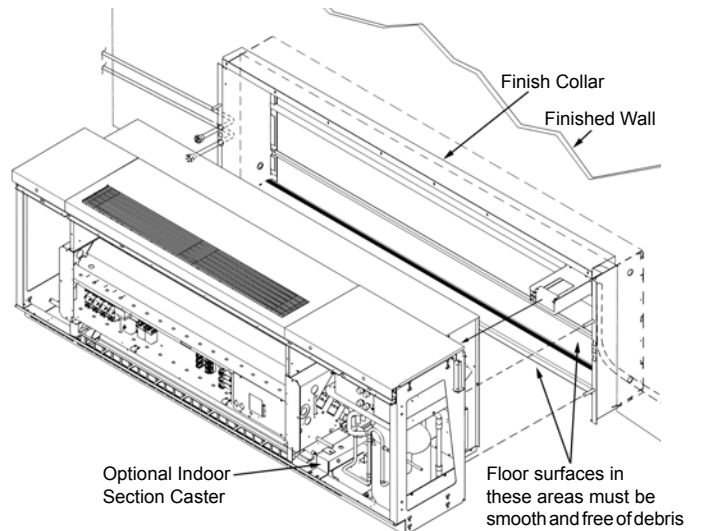
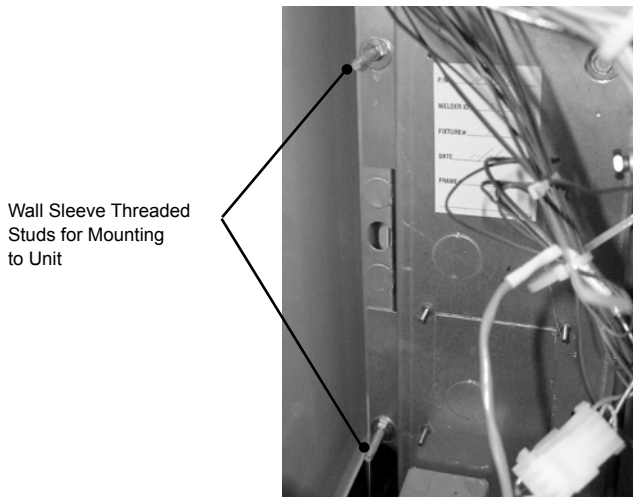


Figure 76: Slide the unit up to the wall sleeve threaded studs



Check to see that the unit ventilator is level from end to end and back to front. Using a 4' level is recommended.

Place the washers over the threaded studs and tighten the mounting nuts (see cautions).

CAUTION

Do not draw the nuts up as tight as possible as they may distort the unit and loosen the caulking and wall sleeve from their position.

CAUTION

Leakage of outdoor air wastes energy, causes drafts and erratic unit ventilator operation. These passages are also a potential pathway for water. Provide a sealing surface at the floor line. Install the wall sleeve in a wall made of noncombustible material, and on a floor made of noncombustible material. Floor must be level, 90° to wall, unbroken and structurally strong to support the unit.

Figure 77: Bottom splitter rail seal removal

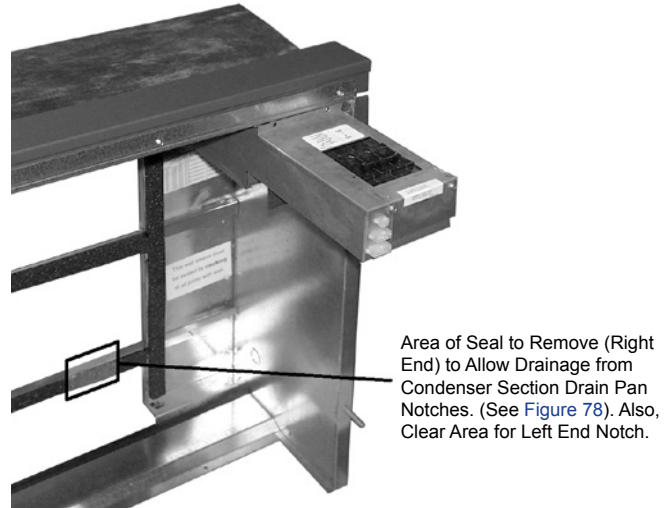
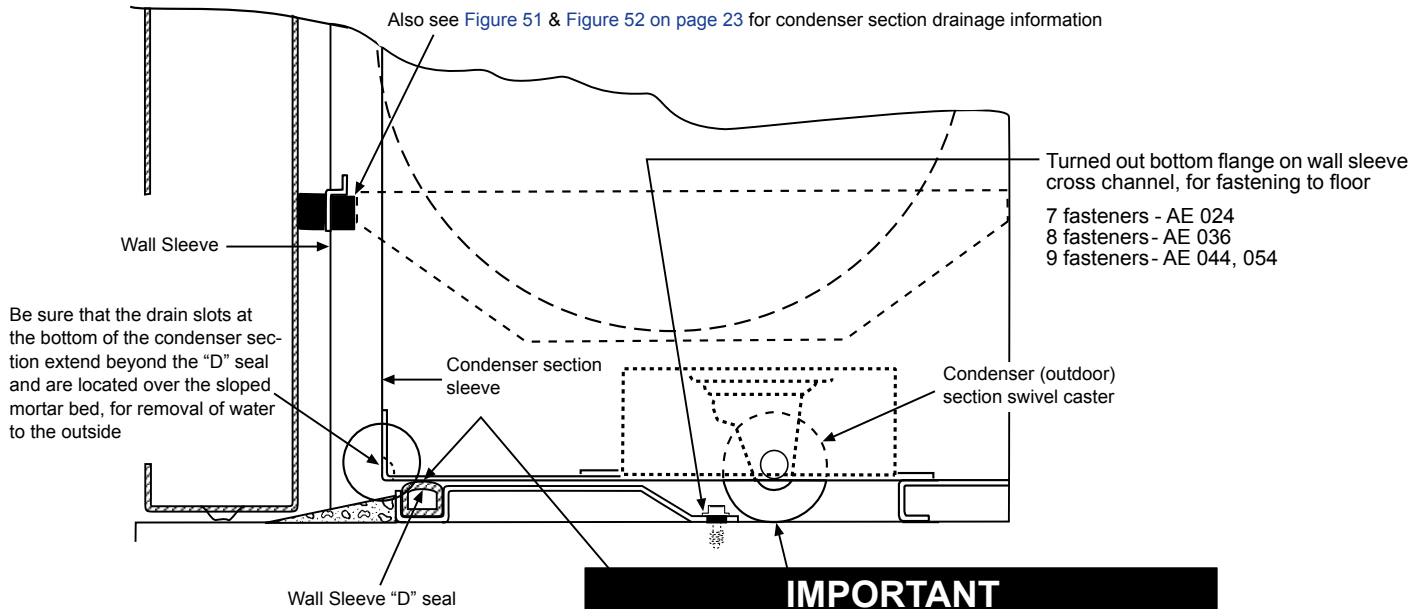


Figure 78: Wall sleeve drainage considerations



Be sure that the drain slots at the bottom of the condenser section extend beyond the "D" seal and are located over the sloped mortar bed, for removal of water to the outside

IMPORTANT

The floor, at the location of the outside condenser section caster wheels must be smooth and level, and free of any debris. The condenser section must make contact and seal to the "D" seal on the cross channel of the wall sleeve to help prevent air and water leaks into the building.

⚠ WARNING

To avoid electrical shock, personal injury or death, be sure that field wiring complies with local and national fire, safety, and electrical codes, and voltage to the system is within the limits shown in the job-specific drawings and unit electrical data plate(s).

⚠ WARNING

Power supply to unit must be disconnected before making field connections. To avoid electrical shock, personal injury or death, be sure to rigorously adhere to field wiring procedures regarding proper lockout and tagout of components.

⚠ CAUTION

Confirm the wiring and phase is correct. Running the compressor backward will damage the compressor and void the warranty.

Procedure

1. Confirm that the power to the wall sleeve is de-energized and tagged-out.
2. Verify that all wiring has been hooked up per the instructions beginning with step 4 on page 28 through page 31. Details for MicroTech controls begin on page 39 through page 47, and electromechanical control page 48 through page 50.
3. Confirm that the unit SW1-Main Power non-fused “On-Off” switch is “Off.”
4. Provide power to the wall sleeve.
5. Verify that the main power is correctly phased to the wall sleeve and unit without closing SW1.

Refer to Table 13 through Table 16, and Figure 79 on page 39 and Figure 80 on page 40 or the job-specific electrical drawings before proceeding with field power and control wiring. See also the wiring diagram provided on the unit ventilator right front access panel.

Table 13: Model AEQ electrical data – size 024

Volt/Hz/ Phase	Voltage Range		Room Fan FLA	Outdoor Fan FLA	Compressor		Heating Option			Power Supply		
	Min.	Max.			RLA	LRA	Heat Type	Heater kW	Rated Heater Amps	MCA	Maximum Fuse	
208/60/1	197	228	2.7	2.9	11.7	58.3	Elec. Heat ¹	Low (3 elem.)	8.0	38.5	69.8	70
			2.7	2.9	11.7	58.3		High (6 elem.)	16.0	76.9	117.8	125
230/60/1	207	253	2.7	2.9	11.7	58.3	Elec. Heat ¹	Low (3 elem.)	7.3	33.3	63.3	70
			2.7	2.9	11.7	58.3		High (6 elem.)	14.7	66.7	105.0	110
208/60/3	197	228	2.7	2.9	6.5	55.4	Elec. Heat ¹	Low (3 elem.)	8.0	22.2	42.9	45
			2.7	2.9	6.5	55.4		High (6 elem.)	16.0	44.4	70.6	80
230/60/3	207	253	2.7	2.9	6.5	55.4	Elec. Heat ¹	Low (3 elem.)	7.3	19.2	39.1	40
			2.7	2.9	6.5	55.4		High (6 elem.)	14.7	38.5	63.3	70
460/60/3	414	506	2.7	1.2	3.5	28.0	Elec. Heat ¹	Low (3 elem.)	7.3	9.6	21.3	25
			2.7	1.2	3.5	28.0		High (6 elem.)	14.7	19.2	33.3	35

¹ Electric Heat Options are with Compressor and Outdoor Fan.

Table 14: Model AEQ electrical data – size 036

Volt/Hz/ Phase	Voltage Range		Room Fan FLA	Outdoor Fan FLA	Compressor		Heating Option			Power Supply		
	Min.	Max.			RLA	LRA	Heat Type	Heater kW	Rated Heater Amps	MCA	Maximum Fuse	
208/60/1	197	228	2.7	6.3	17.9	96.0	Elec. Heat ¹	Low (3 elem.)	10.0	48.1	93.8	100
			2.7	6.3	17.9	96.0		High (6 elem.)	20.0	96.2	153.9	175
230/60/1	207	253	2.7	5.7	17.9	96.0	Elec. Heat ¹	Low (3 elem.)	9.2	41.7	85.0	90
			2.7	5.7	17.9	96.0		High (6 elem.)	18.4	83.3	137.0	150
208/60/3	197	228	2.7	6.3	14.2	88.0	Elec. Heat ¹	Low (3 elem.)	10.0	27.8	63.8	70
			2.7	6.3	14.2	88.0		High (6 elem.)	20.0	55.5	98.4	100
230/60/3	207	253	2.7	5.7	14.2	88.0	Elec. Heat ¹	Low (3 elem.)	9.2	24.1	58.4	60
			2.7	5.7	14.2	88.0		High (6 elem.)	18.4	48.1	88.4	90
460/60/3	414	506	2.7	3.1	6.2	44.0	Elec. Heat ¹	Low (3 elem.)	9.2	12.0	30.0	30
			2.7	3.1	6.2	44.0		High (6 elem.)	18.4	24.1	45.1	50

¹ Electric Heat Options are with Compressor and Outdoor Fan.

FLA = Full Load Amps

RLA = Rated Load Amps

LRA = Locked Rotor Amps

MCA = Minimum Circuit Ampacity

Table 15: Model AEQ electrical data – size 044

Volt/Hz/ Phase	Voltage Range		Room Fan FLA	Outdoor Fan FLA	Compressor		Heating Option				Power Supply	
	Min.	Max.			RLA	LRA	Heat Type		Heater kW	Rated Heater Amps	MCA	Maximum Fuse
208/60/1	197	228	2.7	6.3	21.2	104.0	Elec. Heat ¹	Low (3 elem.)	12.0	57.7	109.9	110
			2.7	6.3	21.2	104.0		High (6 elem.)	24.0	115.4	182.0	200
230/60/1	207	253	2.7	5.7	21.2	104.0	Elec. Heat ¹	Low (3 elem.)	11.0	50.0	99.5	100
			2.7	5.7	21.2	104.0		High (6 elem.)	22.0	100.0	162.0	175
208/60/3	197	228	2.7	6.3	14.0	83.1	Elec. Heat ¹	Low (3 elem.)	12.0	33.3	70.4	80
			2.7	6.3	14.0	83.1		High (6 elem.)	24.0	66.6	112.0	125
230/60/3	207	253	2.7	5.7	14.0	83.1	Elec. Heat ¹	Low (3 elem.)	11.0	28.9	64.1	70
			2.7	5.7	14.0	83.1		High (6 elem.)	22.0	57.7	100.1	110
460/60/3	414	506	2.7	3.1	6.4	41.0	Elec. Heat ¹	Low (3 elem.)	11.0	14.4	33.3	35
			2.7	3.1	6.4	41.0		High (6 elem.)	22.0	28.9	51.4	60

1 Electric Heat Options are with Compressor and Outdoor Fan.

Table 16: Model AEQ electrical data – size 054

Volt/Hz/ Phase	Voltage Range		Room Fan FLA	Outdoor Fan FLA	Compressor		Heating Option				Power Supply	
	Min.	Max.			RLA	LRA	Heat Type		Heater kW	Rated Heater Amps	MCA	Maximum Fuse
208/60/1	197	228	3.0	6.3	27.1	152.9	Elec. Heat ¹	Low (3 elem.)	12.0	57.7	117.6	125
			3.0	6.3	27.1	152.9		High (6 elem.)	24.0	115.4	189.8	200
230/60/1	207	253	2.8	5.7	27.1	152.9	Elec. Heat ¹	Low (3 elem.)	11.0	50.0	107.0	110
			2.8	5.7	27.1	152.9		High (6 elem.)	22.0	100.0	169.5	175
208/60/3	197	228	3.0	6.3	16.5	110.0	Elec. Heat ¹	Low (3 elem.)	12.0	33.3	73.9	80
			3.0	6.3	16.5	110.0		High (6 elem.)	24.0	66.6	115.5	125
230/60/3	207	253	2.8	5.7	16.5	110.0	Elec. Heat ¹	Low (3 elem.)	11.0	28.9	67.4	70
			2.8	5.7	16.5	110.0		High (6 elem.)	22.0	57.7	103.4	110
460/60/3	414	506	2.8	3.1	7.2	52.0	Elec. Heat ¹	Low (3 elem.)	11.0	14.4	34.4	35
			2.8	3.1	7.2	52.0		High (6 elem.)	22.0	28.9	52.5	60

1 Electric Heat Options are without Compressor and Outdoor Fan.

FLA = Full Load Amps

RLA = Rated Load Amps

LRA = Locked Rotor Amps

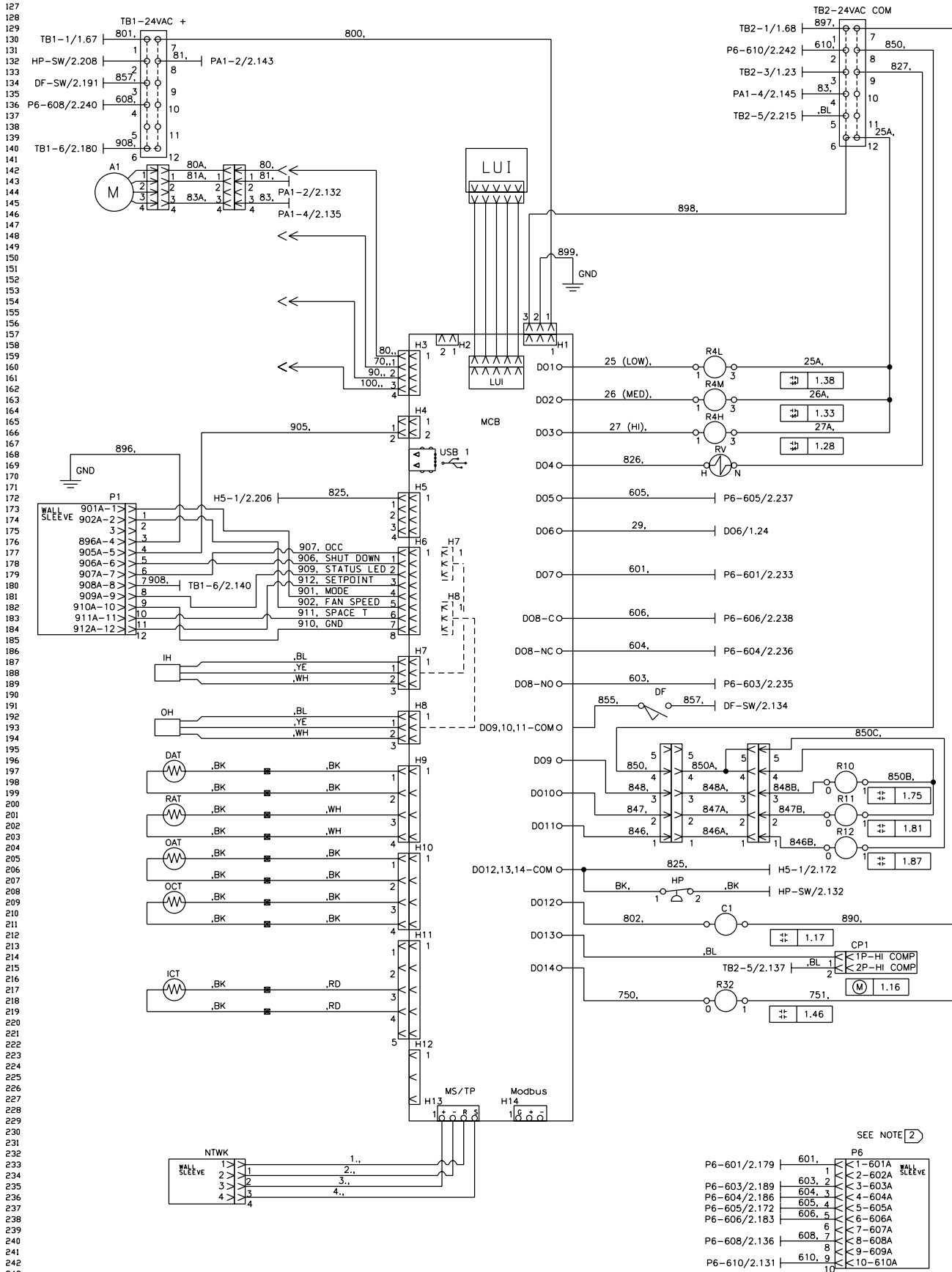
MCA = Minimum Circuit Ampacity

Table 17: Wiring Diagram Legend for Figure 79 on page 39 and Figure 80 on page 40

Symbol	Description	Symbol	Description	Symbol	Description
A1	Actuator- Outdoor Air	ICT	Sensor - Indoor DX Coil Temperature	R28	Relay - Outdoor Motor Air
A2	Actuator- Face & Bypass	IH	Sensor - Indoor Humidity	RV	Reversing Valve
C1	Compressor Contactor	MCB	Main Control Board	RAT	Sensor - Room Air Temperature
CAP1	Capacitor Run	NTWK	Network Connection	T6	Thermostat - Freeze Stat
CEH1-3	Electric Heat Contactor	OAT	Sensor - Outdoor Air Temperature	TB1	Terminal Block - 24VAC+
CO2	Sensor - Indoor Air CO2	OCT	Sensor - Outdoor DX Coil Temperature	TB2	Terminal Block – 24VAC Gnd
DAT	Sensor - Discharge Air Temperature	OH	Sensor - Outdoor Humidity	TB3	(A, B) Terminal Block – Main Power
DCS	Switch - Unit Power	OH1	Thermostat - Overheat	TBE	Terminal Block - Electric Heat
DF	Dead Front Switch	OH2	Thermostat - Overheat	TR1	Transformer - Motor Speed
EH1-6	Heater - Electric	OHM	E.H. Man Reset - Overheat Stat	TR3	Transformer - 208 / 230V-24V, 75VA
EH10	Heater - Outdoor Drain Pan	PL1	LED Occupancy / Fault Status	TR4	Transformer - 460V-230V
F1A/F1B	Fuse - Compressor	R1-R3	Relay Electric Heat (Backup)	TR5	Transformer - 208 / 230V-24V
F2A/F3C	Fuse - Electric Heat	R10-R12	Relay – Electric Heat	V1	Valve - Heat EOC (Accessory)
FA/FB	Fuse– Control, Load	R4H	Relay – Fan High Speed	V2	Valve - Cool EOC (Accessory)
FC/FD	Fuse– Control, Transformer	R4M	Relay– Fan Medium Speed	VH	Valve - Heat (Accessory)
FMI	Motor - Room Fan	R4L	Relay– Fan Low Speed	VC	Valve - Cool (Accessory)
FMO	Motor Outdoor Air	R32	Relay - Drain Pan Heater		
HP	High Pressure Switch				

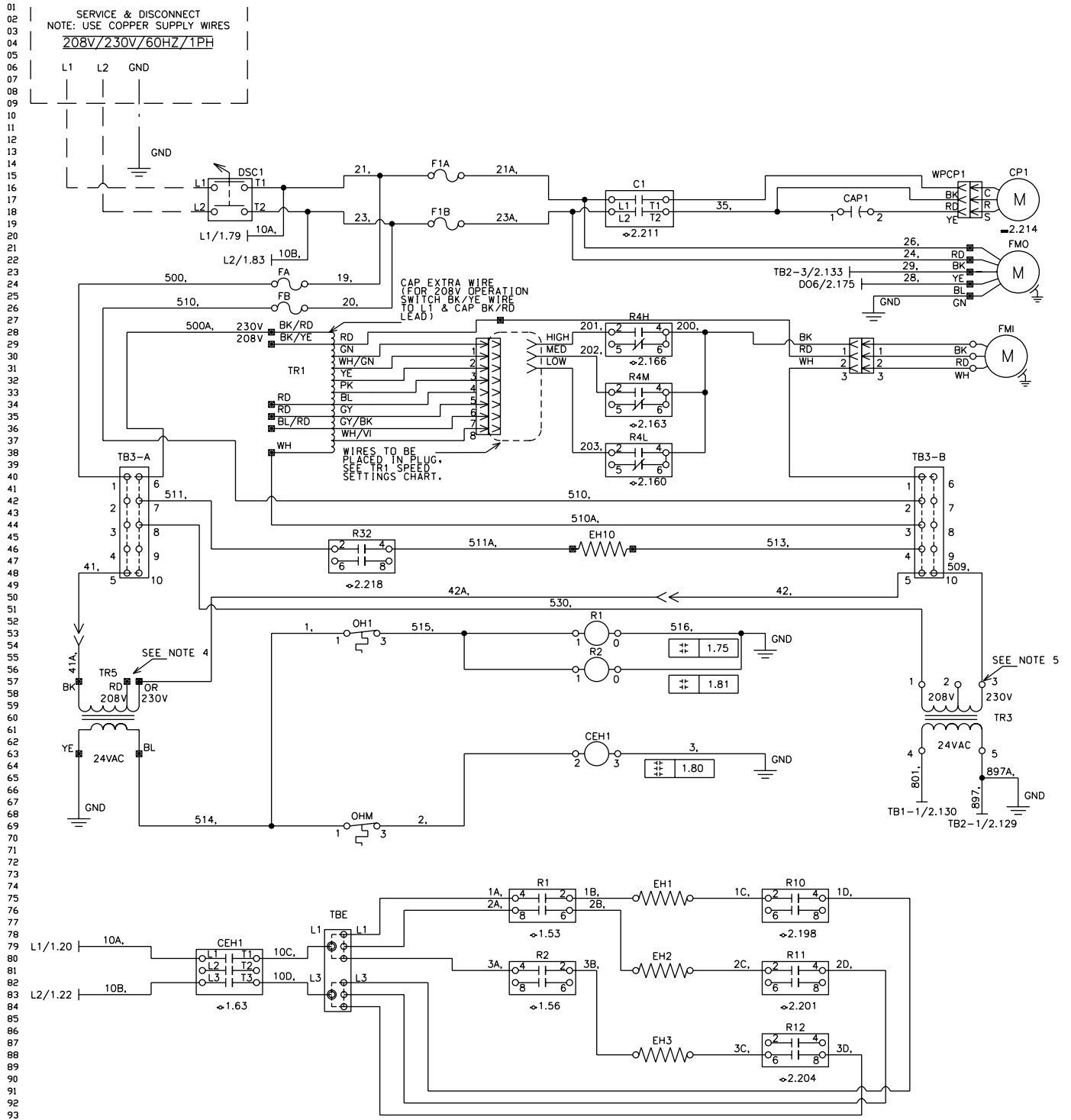
- Notes:**
1. All electrical installation must be in accordance with national and local electrical codes and job wiring schematic.
 2. External wiring options - see IM for the different configured options, wiring to be minimum 18 gauge, 90°C.
 3. EC motors are factory programmed for specified air flow. Contact Daikin Applied for replacement.
 4. Cap extra wire. Switch wire 42A to red wire for 208V operation.
 5. Switch wire 509 to terminal 2 for 208V operation.
 6. Devices in legend may or may not be on unit.

Figure 79: Typical MicroTech Controls Wiring Diagram – 208V / 60Hz / 1Ph



Note: See Figure 34 on page 61 for typical MicroTech service and disconnect wiring and wiring schematic legend.

Figure 80: Typical MicroTech Wiring Diagram – Service and Disconnect – 208V / 60Hz / 1Ph



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Legend - Symbols	
---	Accessory or field mounted component
	Ground
	Wire nut / splice
	Overlap point - common potential wires
L1/1.20	Wire link (wire link ID / page # . line #)

TR1 Speed Settings		
	044	036
High	GN	GN
Med	YE	PK
Low	PK	GY

MicroTech® Unit Mounted DDC Control Components

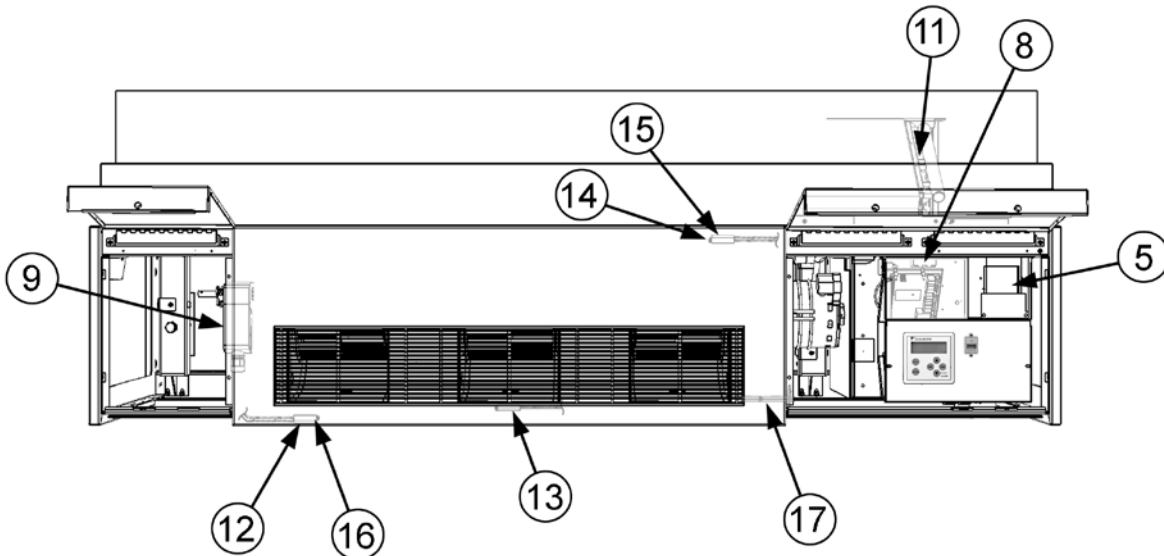
Note: *Figure 81 & Figure 82 provide a top view of the unit and its components. A description of each component follows, by callout number.*

1. **MicroTech Unit Ventilator Controller (UVC):** (Located Beneath the Local User Interface Panel). Factory mounted and run tested, microprocessor-based DDC control device capable of complete, Stand-alone unit control or incorporated into a building-wide network using the optional BACnet plug-in communication module. The UVC contains a microprocessor that is pre-programmed with the application code required to operate the unit. The UVC supports up to 16 analog inputs, 8 binary inputs, 4 analog outputs, 2 PWM outputs, and 14 binary outputs. Client-server unit controllers are field configured for local peer-to peer network between units, with the wiring field-installed.
2. **Communication Module (optional):**
(Located Beneath the Local User Interface Panel). Plug-in network communication module that is attached to the UVC via a 12-pin header and 4 locking standoffs. Available communication module:
 - Building Automation and Control Network: (BACnet™) Server-Client/Token Passing (MS/TP) - Allows the UVC to inter-operate with systems that use the BACnet (MS/TP) protocol with a conformance level of 3. Meets the requirements of ANSI/ASHRAE 135-2008 standard for BACnet systems.

3. **Local User Interface (LUI):** The LUI provides a unit mounted interface which indicates the current unit operating state and can be used to adjust the unit ventilator operating parameters (operating mode, temperature set points, fan speed and occupancy mode). The LUI has a built in menu structure (password protected) with 4 keys and 2 individual LED indicators to adjust the unit ventilator operating parameters.
4. **External Signal Connection Plugs:**
(Located Beneath the Local User Interface Panel). Three (3) multi-pin plugs are factory provided and pre-wired with amp plug connections that plug into the wall sleeve. Provided for field wiring of :
 - Remote Wall Mounted Temperature Sensor (optional accessory).
 - External Input Signals (by others): unoccupied, remote shutdown, ventilation lockout, dew point/humidity (night time operation) or exhaust interlock signals.
 - External Output Options (by others): fault indication signal, exhaust fan on/off or auxiliary heat signal.

Note: *Not all external signal options can be used simultaneously and may not be available on all software models.*

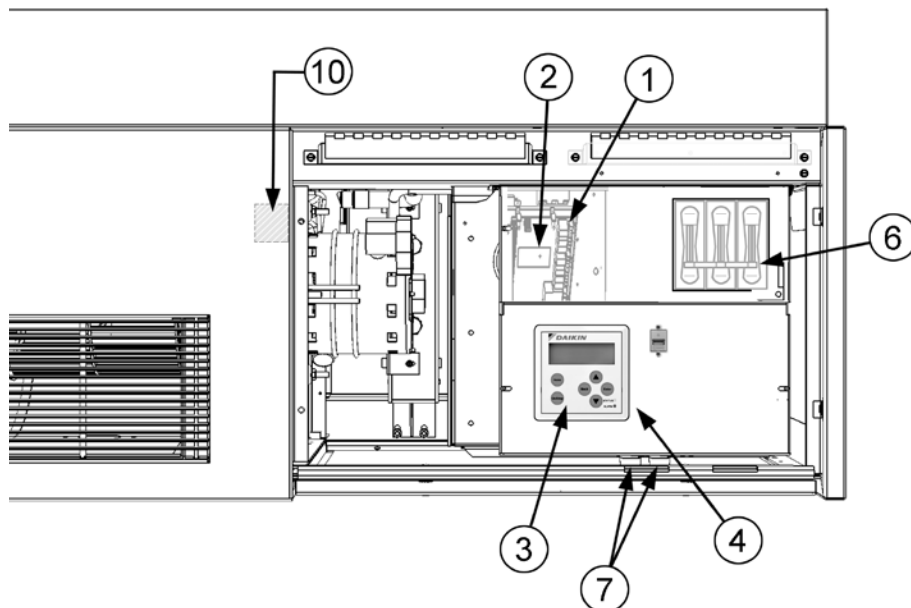
Figure 81: MicroTech sensor and component locations (top view)



MicroTech® Control Components

- 5. **Motor speed transformer:** – (Located Beneath the Local User Interface Panel). Multi-tap auto-transformer provides multiple fan motor speed control through the LUI.
- 6. **Unit Main Power “On-Off” Switch:** – Shipped with the wall sleeve accessory, the “On-Off” switch disconnects the main power to the unit for servicing or when the unit is to be shut down for an extended period of time.
- 7. **Fuse(s):** – Fan motor and controls have the hot line(s) protected by factory installed cartridge type fuse(s).
- 8. **Control Transformer:** – (Located Beneath the Local User Interface Panel). 75 VA 24-volt NEC Class 2 transformer for 24 volt power supply.
- 9. **Outdoor Air/Return Air Damper Actuator (A1):** – Proportional, direct-coupled actuator that spring returns the outdoor air damper to the closed position upon a loss of power.
- 10. **Indoor, Direct Expansion (DX) Coil Refrigerant Temperature Sensor (UCT):** – The sensor is installed on the unit ventilator’s indoor refrigerant coil on the right hand side of the coil “u-bend”. It is used to sense low refrigerant temperatures on the indoor coil.
- 11. **Outdoor, Direct Expansion (DX) Coil Refrigerant Temperature Sensor (OCT):** – The sensor is installed on the unit ventilator’s outdoor refrigerant coil on the right hand side of the coil “u-bend”. It is used to sense the refrigerant temperature on the outdoor coil.
- 12. **Room Temperature Sensor (RAT):** – The unit mounted sensor is located in the sampling chamber (front, center section) where room air is continuously drawn through for prompt response to temperature changes in the room. A Remote Wall Mounted Temperature Sensor is available for remote room temperature sensing. (optional).
- 13. **Discharge Air Temperature Sensor (DAT):** – The sensor is located on the second fan from the right to sense discharge air temperatures.
- 14. **Outdoor Air Temperature Sensor (OAT):** – The sensor is located in the outdoor air section of the unit before the outdoor air damper. With network applications, the unit mounted sensor can be overridden by a remote sensor through the network.
- 15. **Outdoor Air Humidity Sensor (OH):** (optional / standard with expanded and leading edge controls) – Unit mounted humidity sensor for units using Expanded outdoor enthalpy economizer or Leading Edge indoor/outdoor, true enthalpy comparison economizer. The sensor is located in the outdoor air section of the unit before the outdoor air damper. With network applications, the unit mounted sensor can be overridden by a remote sensor through the network.
- 16. **Room Humidity Sensor (IH):** (optional / standard with expanded controls) – Unit mounted humidity sensor for units capable of passive or active dehumidification (Re-heat) or with units using Leading Edge indoor/outdoor, true enthalpy comparison economizer. The sensor is located in the sampling chamber (front, center panel) where room air is continuously drawn through for fast response to humidity changes in the room. With network applications, the unit mounted sensor can be overridden by a remote sensor through the network.
- 17. **CO2 Sensor (CO2):** (optional) – Unit mounted, single beam absorption infrared gas sensor with a sensing range of 0 – 2000 ppm and voltage output of 0 to 10 VDC (100 ohm output impedance). The Pitot Tube sensing device is located in the unit ventilator’s return air stream. The optional CO2 sensor is used with the UVC’s Demand Control Ventilation feature to vary the amount of outside air based on actual room occupancy. With network applications, the unit mounted sensor can be overridden by a remote sensor through the network.

Figure 82: AEQ top right access view



MicroTech® Control Components

Economizer Control Capabilities

- **Basic:** Compares the inside and outside air temperatures using item 12 (Room Temperature Sensor) and item 14 (Outdoor Air Temperature Sensor) to determine if outdoor air can be used for “free”, economizer cooling operation.
- **Expanded:** Compares the inside and outside air temperatures using item 12 (Room Temperature Sensor) and item 14 (Outdoor Air Temperature Sensor) and calculates the enthalpy of the outside air relative humidity using item 15 (Outdoor Air Humidity Sensor) to determine if outdoor air can be used for “free”, economizer cooling operation.
- **Leading Edge:** True enthalpy comparison economizer that compares the inside and outside air temperatures using item 12 (Room Temperature Sensor) and item 14 (Outdoor Air Temperature Sensor) and compares the enthalpy of the inside and outside air relative humidity using item 15 (Outdoor Air Humidity Sensor) and item 16 (Room Humidity Sensor) to determine if outdoor air can be used for “free”, economizer cooling operation.

Economizer for Reheat (Model AEQ)

- **Basic:** Uses (Room Temperature sensor), (Outdoor Air Temperature Sensor) and (Room Humidity Sensor) for active dehumidification (reheat) or to determine if outdoor air can be used for “free”, economizer cooling operation.
- **Leading Edge:** Uses (Room Temperature Sensor), (Outdoor Air Temperature Sensor), (Outdoor Air Humidity Sensor) and (Room Humidity Sensor) for active dehumidification (reheat) or to determine if outdoor air can be used for “free”, economizer cooling operation.

Local User Interface (LUI)

Figure 83: Local user interface (LUI)



The optional built-in LUI touch pad with digital OLED display is located in the right hand compartment below the top right access door. The 4 x 20 OLED display will provide a variety of information including:

- Operating mode states
- Fan functions
- Room set point temperature
- Current room temperature
- Fault codes for quick diagnostics at the unit

The LUI has a built in menu structure (Pass-word protected) with 4 keys and 2 individual LED indicators to adjust the unit ventilator operating parameters shown in the following.

Operating Mode States (4)

- **Heat:** Heating and economizer operation only
- **Cool:** Cooling and economizer operation only
- **Fan Only:** Fan operation only
- **Auto:** Unit automatically switches between heating, cooling and economizer operation to satisfy the room load conditions. The current unit state is also displayed.

Fan States (4)

- **High:** (constant speed)
- **Medium:** (constant speed)
- **Low:** (constant speed)
- **Auto (part load, variable air):** Varies the fan speed automatically to meet the room load conditions whether the unit is in heating, cooling or economizer mode. The current fan speed is also displayed. During low load or normal operation (about 60% of the time) the fans will operate at low speed. When the load increases to an intermediate demand the fans automatically shifts to medium speed. At near design or design load conditions, the fans will operate on high speed. A 10-minute delay between speed changes is incorporated to minimize the awareness of these changes. The outdoor air damper will index based on the fan speed to maintain the required minimum cfm (cubic feet per minute) of ventilation air.

Occupancy Modes (4)

- **Occupied:** Normal, daytime operation where the unit maintains the room set point.
- **Unoccupied:** Night set back operating mode in which the unit responds to a new room set point and cycles to maintain the condition. The fan comes on when heating or cooling is needed and runs until the load is satisfied. The outside air damper is closed during this mode. When a cooling load is satisfied by the refrigerant system, the compressor is de-energized and the Unit Ventilator indoor fan continues to run for a fixed period of time to remove possible frost buildup on the evaporator coil.
- **Stand By Mode:** The unit ventilator maintains the stand by mode set point temperature with the outside air damper closed. The fan runs continuously unless it is configured to cycle in response to the room load.
- **Bypass Mode:** By depressing the Tenant Override Switch on a remote sensor or using the LUI keypad the unit is placed back into the Occupied Mode for a predetermined time (default of 120 minutes). This time can be set in 1-minute increments from 1 minute to 240 minutes through the Unit Ventilator Service Tool, the LUI keypad or a BMS network.

MicroTech Wall Mounted Sensors

WARNING

Rigorously adhere to field wiring procedures regarding proper lockout and tagout of components.

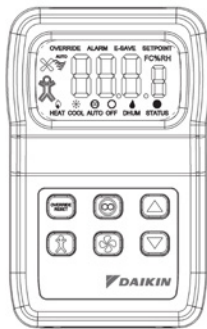
WARNING

To avoid electrical shock, personal injury or death:

1. Installer must be qualified, experienced technician.
2. Disconnect power supply before installation to prevent electrical shock and damage to equipment.
3. Make all connections in accordance with electrical wiring diagrams, and in compliance with national and local codes. Use copper conductors only.
4. Do not exceed ratings of the device. This is a low voltage device: Never apply more than 12VAC/VDC to any lead or damage will result.
5. Avoid locations where excessive moisture, corrosive fumes, or vibrations are present.

Note: Avoid placing wall sensor near drafty areas such as doors or windows. Avoid external walls, or dead spots near exposed columns. Avoid direct sunlight on wall sensor.

Figure 84: Wall mounted temperature sensor



When Using A Remote Temperature Sensor

If a decision is made to use a Wall Mounted Temperature Sensor instead of the unit mounted room air sensor then placement of the Remote Wall Mounted Temperature Sensor is critical for proper room temperature sensing (see [Figure 85](#) and [Figure 86](#)). The UVC is capable of using one of four remote wall mounted temperature sensors. It is recommended that additional wires be pulled to compensate for potential wire breakage or future options.

- 6-Button Digital Adjustable Sensor (PN 910247458) 8-wires
- 4-Button Digital Adjustable Sensor (PN 910247448) 6-wires
- The Basic Sensor with setpoint adjustment (PN 910247453) 4-wires
- The Basic Sensor (PN 910247450) 3-wires

NOTICE

For sensor terminal wiring details see the installation manual specific to the sensor being used.

Figure 85: Correct wall sensor locations

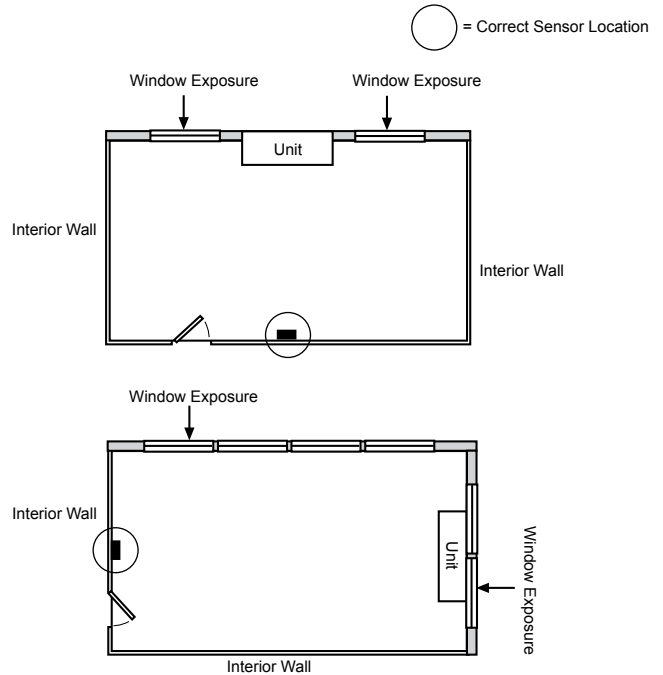


Figure 86: Incorrect unit and wall sensor locations

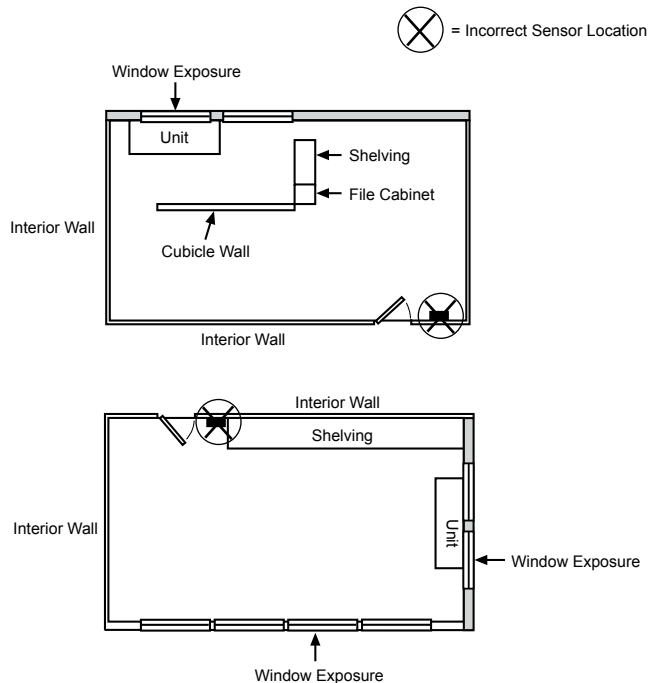


Table 18: Max sensor wire length and gauge

Maximum sensor wire length for less than 1°F error	
Gauge	Length
14 AWG	800 ft. (244 m)
16 AWG	500 ft. (152 m)
18 AWG	310 ft. (94 m)
20 AWG	200 ft. (61 m)
22 AWG	125 ft. (38 m)

CAUTION

Static sensitive components. A static discharge while handling electronic circuit boards can cause damage to the components. Discharge any static electrical charge by touching the bare metal inside the main control panel before performing any service work. Never unplug any cables, circuit board terminal blocks, relay modules, or power plugs while power is applied to the panel.

Typical Connections For Temperature Sensor Applications

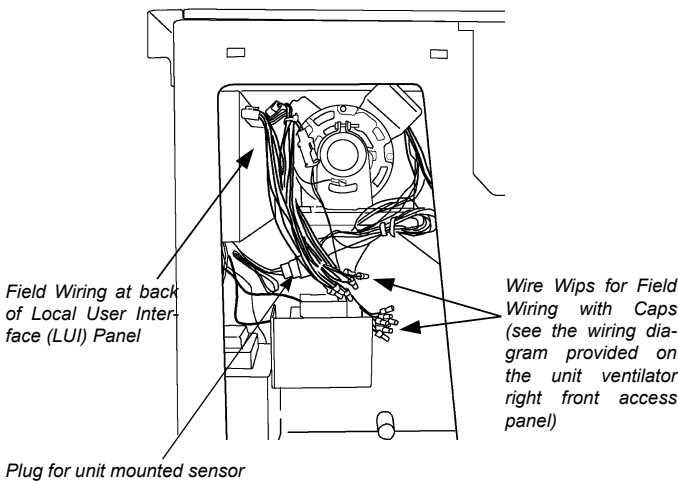
The low voltage field wiring connections have all been centrally located within the unit ventilator and are easily accessible.

To simplify field connections, multi-pin plugs are factory provided and pre-wired with short wire whips (Figure 87). Each of the wires in these wire whips is capped and should remain capped if not used. See Table 19 on page 47 for wiring the remote mounted temperature sensor to the unit control wiring.

All low voltage field wiring connections must be run in shielded cable with the shield drain wires connected as shown in the field wiring diagrams.

For sensor terminal wiring details see the installation manual specific to the sensor being used.

Figure 87: Field wiring whips with caps viewed from right end compartment



Sensor Functions

- Display sensor to show room Temperature, fan speed (AUTO/HIGH/MEDIUM/LOW), system mode (HEAT/COOL AUTO/OFF), ALARM, Override and occupancy.

Mounting

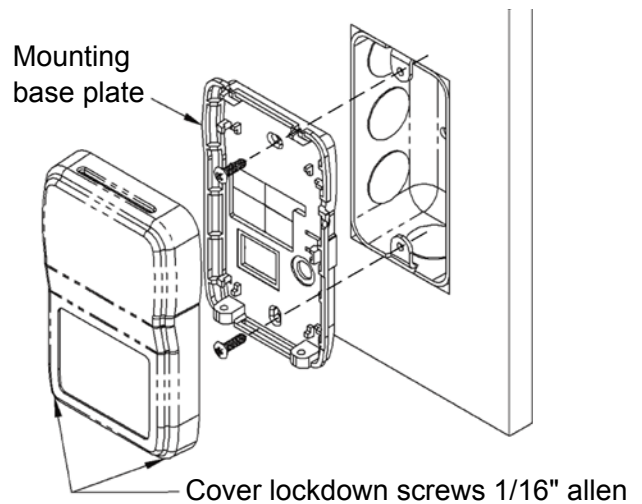
Location

Avoid mounting on outside walls or in direct sunlight.

Junction Box, (J-Box)

1. Pull the wire through the wall and out of the junction box, leaving about six inches free.
2. Pull the wire through the hole in the base plate.
3. Secure the back plate to the box using the #6-32 × 1/2 inch mounting screws provided.
4. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
5. Terminate the unit according to the guidelines in the Termination section.
6. Attach Cover by latching it to the top of the base, rotating it down and snapping into place.
7. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until it is flush with the bottom of the cover.

Figure 88: Junction box mounting (hardware is provided for both junction box and drywall installation.)



Drywall Mounting

1. Place the base plate against the wall where you want to mount the sensor.
2. Mark out the two mounting holes where the unit will be attached to the wall. Drill a 3/16" hole in the center of each mounting hole and insert a drywall anchor into the holes.
3. Drill one 1/2" hole in the middle of the marked wiring through hole area.
4. Pull the wire through the wall and out the 1/2" hole, leaving about six inches free.
5. Pull the wire through the hole in the base plate.

6. Secure the base to the drywall anchors using the #6 × 1" mounting screws provided.
7. Screw the plate firmly to the wall so the foam plate backing is compressed about 50%.
8. Terminate the unit according to the guidelines in the Termination section.
9. Attach cover by latching it to the top of the base, rotating it down and snapping it into place.
10. Secure the cover by backing out the lock-down screws using a 1/16" Allen wrench until it is flush with the sides of the cover

Note: *in any wall-mount application, the wall temperature and the temperature of the air within the wall cavity can cause erroneous readings.*

The mixing of room air and air from within the wall cavity can lead to condensation, erroneous readings and sensor failure. To prevent these conditions, Daikin recommends sealing the conduit leading to the junction box with fiberglass.

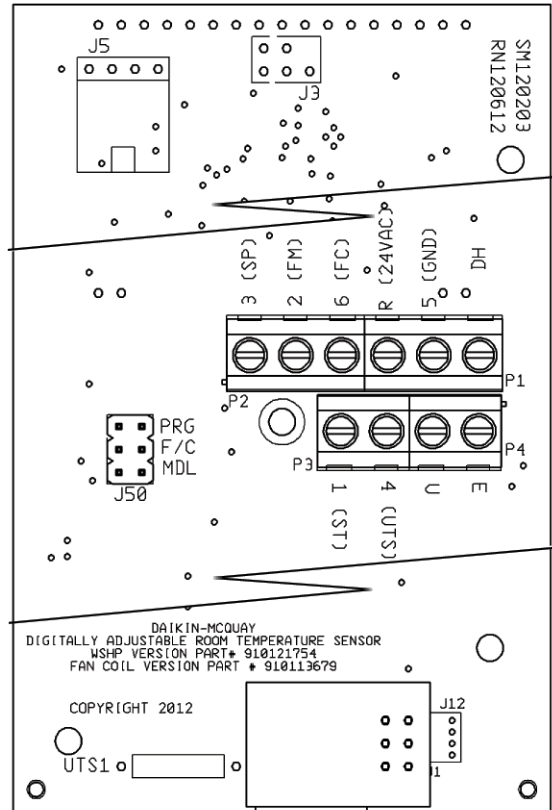
Maintenance

Wipe the display as needed with a damp water only cotton cloth. Do not use any type of cleaner as it may damage the buttons or scratch the display. Do not paint.

Terminations

Daikin Applied recommends using shielded 22AWG for all connections and a separate twisted pair for the power wire connections. The shield should be earth grounded only at the power source. Larger gauge wire may be required for runs greater than 250'.

Figure 89: Sensor circuit board



⚠ CAUTION

The AC power wiring at terminals [R] & [5] should be run in a separate twisted shielded pair to avoid fluctuating and inaccurate signal levels induced into the other sensor signal wires. This sensor AC power can be run in the same conduit with the sensor signal wire as long as it's run in twisted, shielded pair and terminated properly.

All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin representative.

Table 19: Unit ventilator MicroTech board to room temperature sensor wiring

MicroTech Base Board									
Terminal Block Label	TB1	H6-1	H6-2	H6-3	H6-4	H6-5	H6-6	H6-7	H6-8
Sensor 910247458	●	●	○	●	●	●	●	●	●
Sensor 910247448	●	●	○	●	●	○	○	●	●
Sensor 910247453	○	○	○	●	●	○	○	●	●
Sensor 910247450	○	○	○	●	○	○	○	●	●
Description	24VAC	Occupancy	Shutdown (Not Used)	Status LED	Setpoint	Unit Mode	Fan Speed	10K RTD	Ground
Wire	908	907	906	909	912	901	902	911	910

Typical Wiring

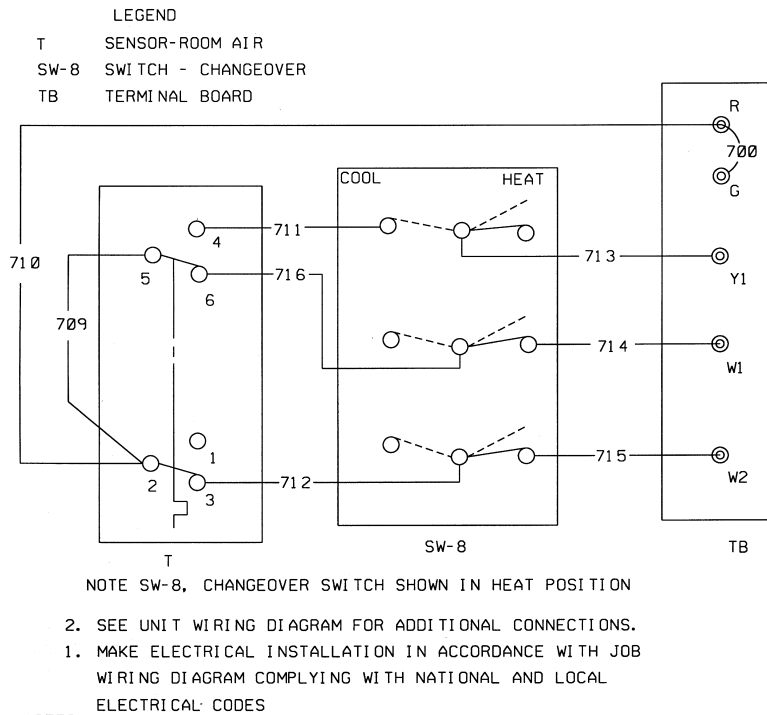
Terminal Label	R	U	1 (ST)	3 (SP)	2 (FM)	6 (FC)	4 (UTS)	5 (GND)
Description	24VAC	Unoccupied	Unit Status Output	Setpoint Adjust	Unit Mode	Fan Speed	Room Temp Sensor & Tenant Override	Ground

Room Temperature Sensor

Terminal Designations

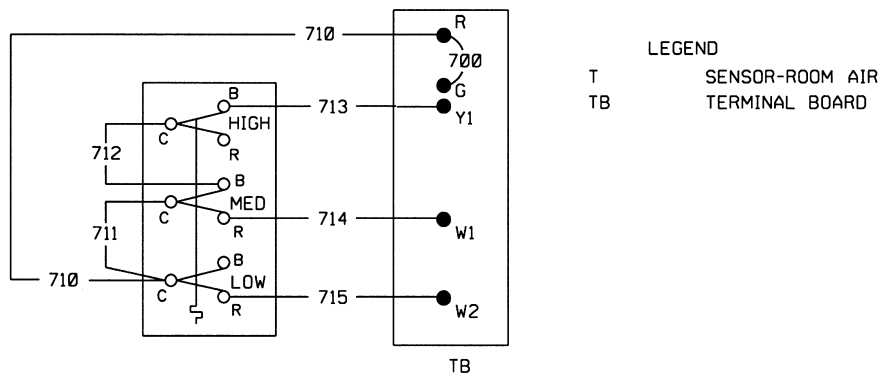
● = Active Terminal ○ = Not Used

Figure 90: Electromechanical controls – model AE unit-mounted manual changeover thermostat wiring – two-stage electric heat (applies to units produced after Jan. 2001)



Note: These are typical wiring diagrams and subject to change without notice. See unit for actual wiring diagram.

Figure 91: Electromechanical controls – model AE unit-mounted auto changeover thermostat wiring – two-stage electric heat (applies to units produced after Jan. 2001)



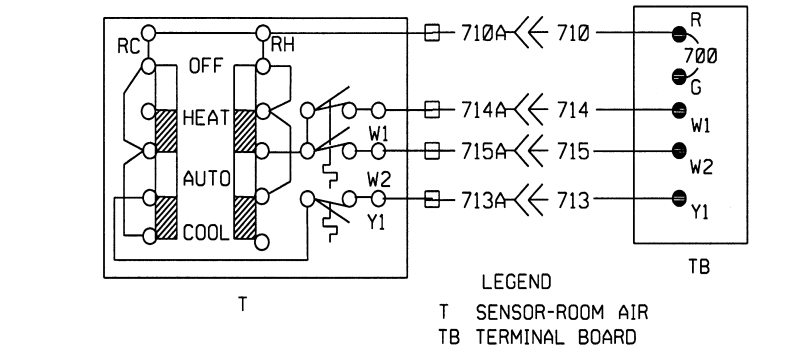
2. SEE UNIT WIRING DIAGRAM FOR ADDITIONAL CONNECTIONS.
 NOTES 1. MAKE ELECTRICAL INSTALLATION IN ACCORDANCE WITH JOB WIRING DIAGRAM COMPLYING WITH NATIONAL AND LOCAL ELECTRICAL CODES.

LEGEND		
->> PLUG IN	○	COMP TIE POINT
■ SPLICE	---	OPTIONAL WIRING
⊗ TAP CONN.	---	WIRED BY OTHERS
● TERM CONN	---	FACTORY WIRED
✕ CAPPED WIRE	⏏	GROUND

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Note: These are typical wiring diagrams and subject to change without notice. See unit for actual wiring diagram.

Figure 92: Electromechanical controls – model AE 20% outside air – remote wall-mounted auto/manual changeover thermostat wiring – two-stage electric heat (applies to units produced after Jan. 2001)



HEAT ANTICIPATOR SETTING		
	HEATING STAGE 1	HEATING STAGE 2
AE	1.2	0.8
AZ	0.2	0.2

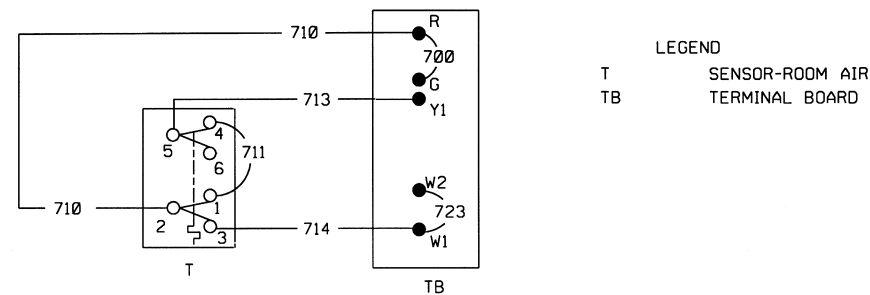
LEGEND		
⇒ PLUG IN	○	COMP TIE POINT
□ SPLICE	---	OPTIONAL WIRING
⊗ TAP CONN.	---	WIRED BY OTHERS
● TERM CONN	---	FACTORY WIRED
× CAPPED WIRE	⏏	GROUND

NOTES 1. MAKE ELECTRICAL INSTALLATION IN ACCORDANCE WITH JOB WIRING DIAGRAM COMPLYING WITH NATIONAL AND LOCAL ELECTRICAL CODES.
 2. SEE UNIT WIRING DIAGRAM FOR ADDITIONAL CONNECTIONS.

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Note: These are typical wiring diagrams and subject to change without notice. See unit for actual wiring diagram.

Figure 93: Electromechanical controls – model AE 20% outside air – unit-mounted, auto changeover, one-stage thermostat with wet heat or electric heat (applies to units produced after Jan. 2001)

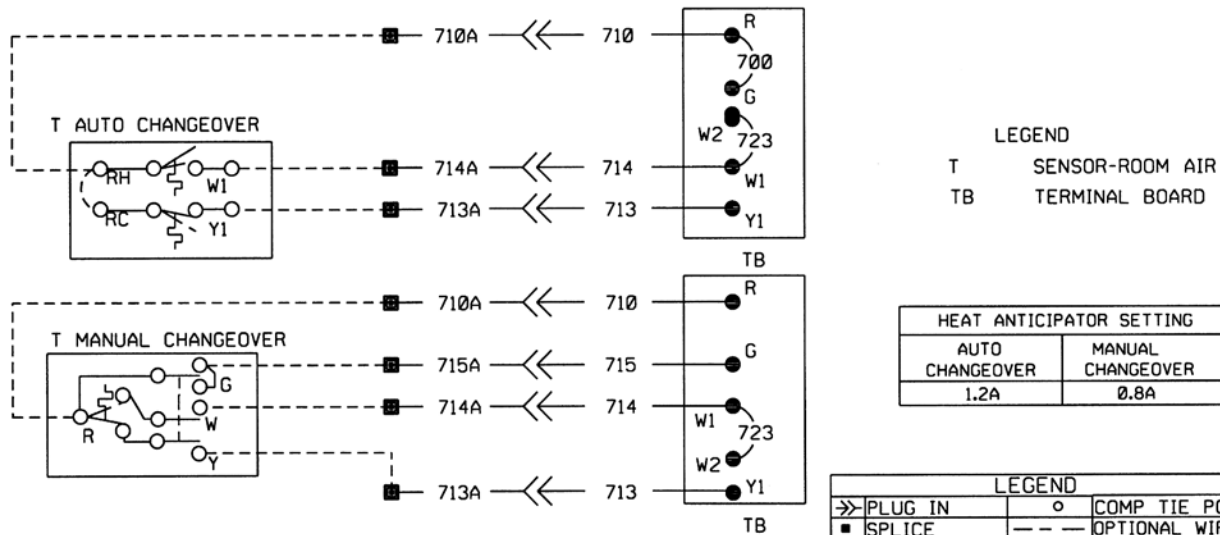


2. SEE UNIT WIRING DIAGRAM FOR ADDITIONAL CONNECTIONS.
 NOTES 1. MAKE ELECTRICAL INSTALLATION IN ACCORDANCE WITH JOB WIRING DIAGRAM COMPLYING WITH NATIONAL AND LOCAL ELECTRICAL CODES.

LEGEND		
⇒ PLUG IN	○	COMP TIE POINT
■ SPLICE	---	OPTIONAL WIRING
⊗ TAP CONN.	---	WIRED BY OTHERS
● TERM CONN	---	FACTORY WIRED
× CAPPED WIRE	⏏	GROUND

Note: These are typical wiring diagrams and subject to change without notice. See unit for actual wiring diagram.

Figure 94: Electromechanical controls – model AEQ one-stage units – remote wall-mounted room air sensor - auto or manual changeover



2. SEE UNIT WIRING DIAGRAM FOR ADDITIONAL CONNECTIONS.
 NOTES 1. MAKE ELECTRICAL INSTALLATION IN ACCORDANCE WITH JOB WIRING DIAGRAM COMPLYING WITH NATIONAL AND LOCAL ELECTRICAL CODES.

⇨	PLUG IN	○	COMP TIE POINT
■	SPLICE	---	OPTIONAL WIRING
⊗	TAP CONN.	---	WIRED BY OTHERS
●	TERM CONN	---	FACTORY WIRED
⊗	CAPPED WIRE	⏚	GROUND

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End Panel Dimensions

Figure 95: 1" (25mm) and 6" (152mm) end panel dimensions – self-contained floor unit ventilators

All Dim. in inches	16 ⁵ / ₈ " (422mm) Deep End Panels	19 ⁵ / ₈ " (498mm) Deep End Panels	21 ⁷ / ₈ " (556mm) Deep End Panels	28" (711mm) Deep End Panels
Top View				
End View with No Cut-Out				

Figure 96: 6" (152mm) end panel dimensions – self-contained floor unit ventilator

All Dim. in inches	16 ⁵ / ₈ " (422mm) Deep End Panels	19 ⁵ / ₈ " (498mm) Deep End Panels	21 ⁷ / ₈ " (556mm) Deep End Panels	28" (711mm) Deep End Panels
Top View				
End View with No Cut-Out				

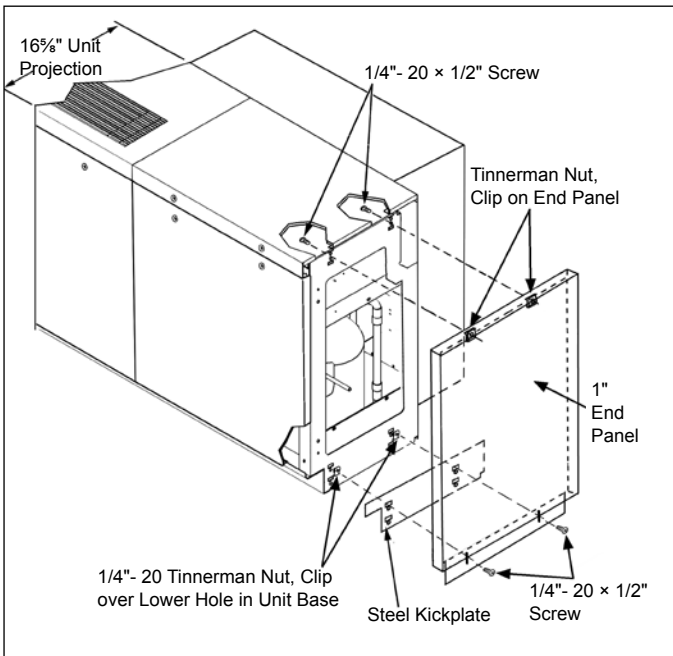
End Panel Assembly

Accessory end panels are shipped separately with hardware and kickplate.

The final step of unit installation is attaching the end panels. End panels are required unless the unit has adjoining matching cabinets.

1. Refer to [Figure 97](#) for a 1" thick end panel. Attach two (2) Tinnerman nuts to the top edge of the end panel and two (2) to the bottom end of the unit. Align the end panel with the front and top edges of the unit. Insert through upper mounting holes inside unit end compartment and thread into tinnerman clips on the end panel. Attach the end panel to the unit using four (4) 5/32" hex socket head fasteners provided.

Figure 97: 1" End panel



2. Refer to [Figure 98](#) for 6" thick end panel.
 - a. Position bracket (YC1934) on wall so angle is 5" from end of unit and near bottom.
 - b. Mark and drill required hole for device to fasten bracket to wall (not included).
 - c. Attach the bracket to wall.
 - d. Attach two (2) Tinnerman nuts to the top edge of the end panel and one (1) to the bottom front of the end frame.
 - e. Align the end panel with the front and top edges of the unit. Attach end panel to the unit using three (3) 5/32" hex socket head fasteners provided. Bracket (YC1934) is intended to prevent movement of the panel toward the unit when pressure is applied to the end panel.

Figure 98: 6" End panel with provided hardware

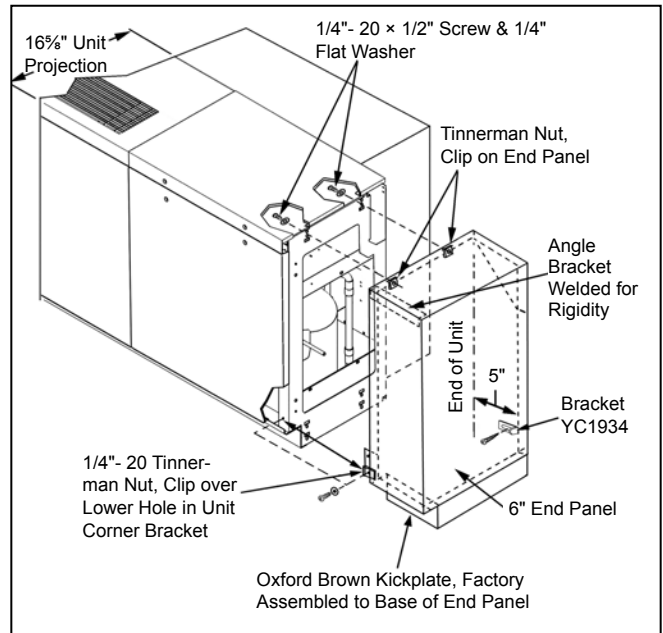
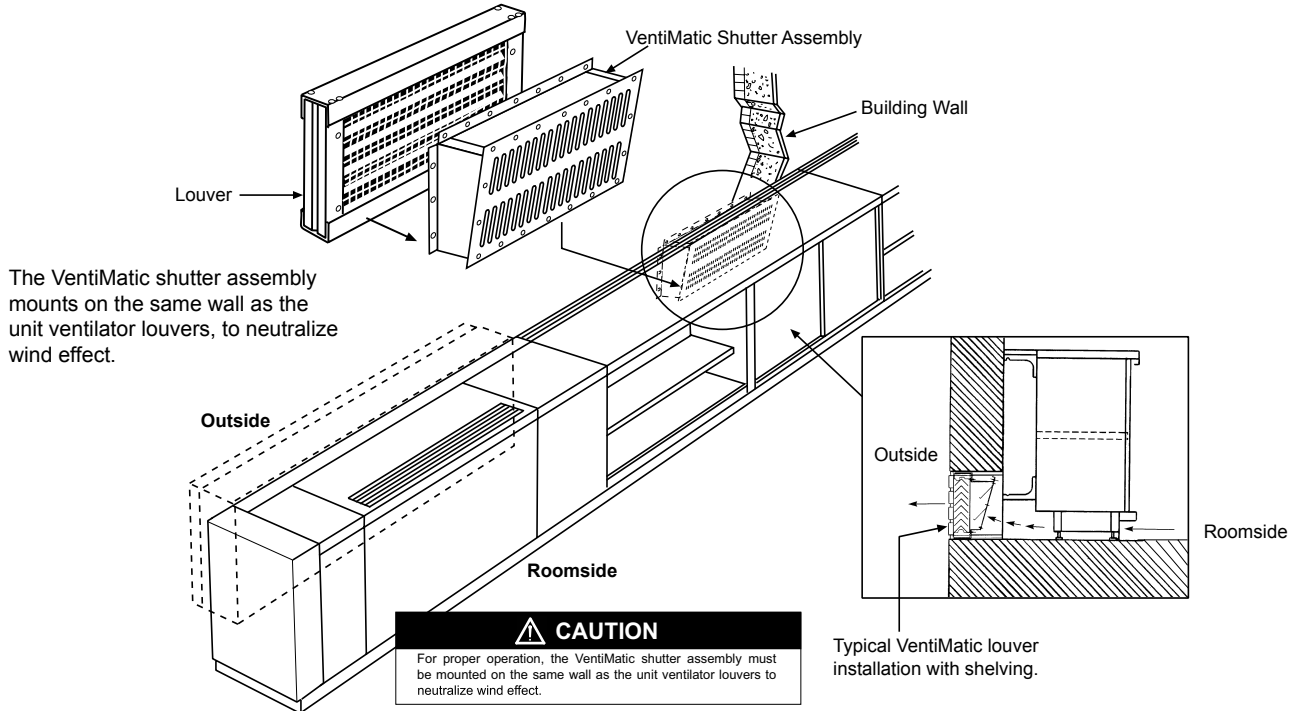


Figure 99: Typical VentiMatic™ Shutter assembly installation

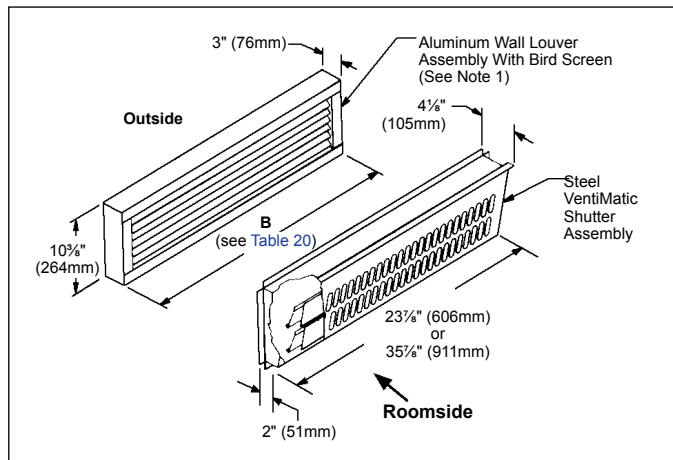


VentiMatic™ Shutter Assembly

The Daikin VentiMatic Shutter Assembly is a one-way shutter. It is a continuously variable, gravity-actuated, room exhaust vent that operates in direct response to positive static pressure, opposing any airflow into the room resulting in a slight positive pressure.

When mounting the VentiMatic Shutter(s) on the wall louver, make sure that all moving parts are unobstructed and placed level and plumb for proper operation. If an optional steel interior wall grille is furnished, install as shown in [Figure 102 on page 54](#).

Figure 100: Single VentiMatic Shutter & wall louver



For large units, two VentiMatic Shutters may be mounted side by side on the same louver ([Figure 96](#)).

Figure 101: Two VentiMatic Shutters & wall louver

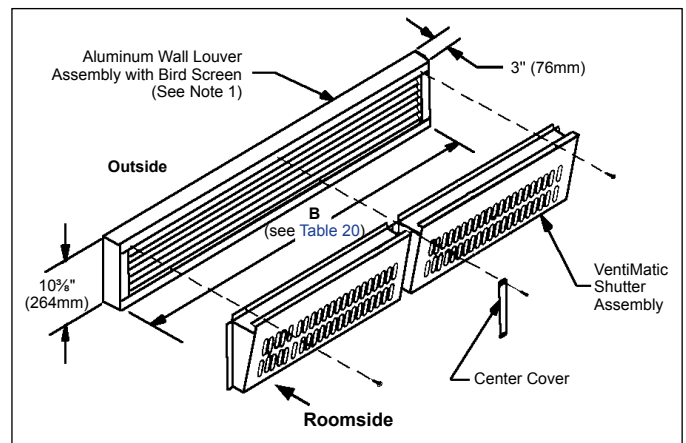
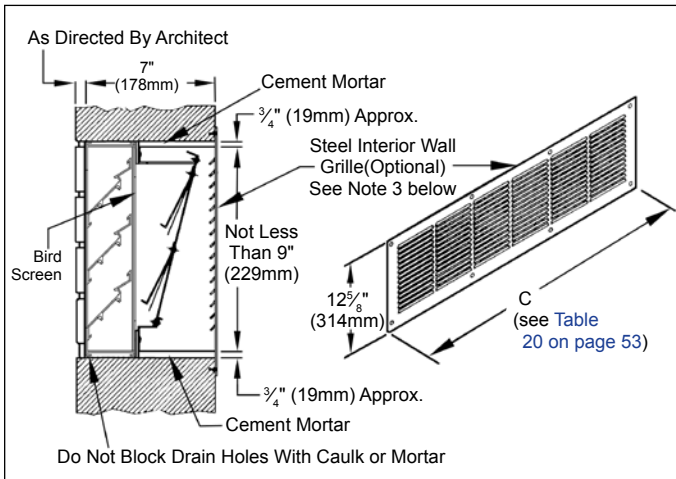


Table 20: Recommended wall openings for VentiMatic wall louvers

B	C	Recommended Wall Openings For Wall Louvers		Maximum Number of VentiMatic Shutters Which Can Be Mounted On Standard Louver		VentiMatic Shutter(s) Air Capacity Maximum	
		Length	Height	24"	36" Shutter	cfm	L/s
24" (610)	27" (659)	24½" (622)	10⅞" (267)	1	0	500	236
36" (914)	39" (991)	36½" (927)	10⅞" (267)	0	1	750	354
48" (1219)	51" (1295)	48½" (1232)	10⅞" (267)	2	0	1000	472
60" (1524)	63" (1600)	60½" (1537)	10⅞" (267)	1	1	1250	590
72" (1829)	75" (1905)	72½" (1842)	19⅞" (495)	0	2	1500	708

Figure 102: Louver, VentiMatic Shutter, interior wall grille details, dimensions



Notes:

1. Horizontal blade wall louver shown. Vertical blade wall louver also available.
2. The optional exterior grille shown mounted on the wall louver.
3. The optional steel interior wall grille is used to conceal the interior wall opening whenever the VentiMatic shutter is not located behind shelf cabinets. Hardware to mount the interior wall grille is not included.

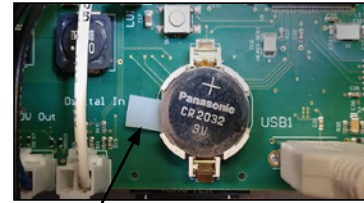
Step 9 – Prepare Unit Ventilator for Start-up

Post Installation Checklist

- Unit securely fastened to wall sleeve
- Electrical hook-up complete; power, control, wall thermostat (if applicable) in accordance with unit wiring diagram(s)
- Air filter clean and in place
- All access and end panels in place and protective covering removed
- No debris, dust, dirt, or obstructions exist in front of the return air intake grille at the floor
- All installation work has been completed in accordance with applicable local, state and national codes
- Room air fan shaft bearing oiled
- Unit square and level and running smoothly and quietly
- No air infiltration
- Paint nicks and scratches touched up (as required)
- Access space provided for maintenance, service and unit removal
- Shipping carton replaced over unit for protection
- Owner or maintenance personnel provided with a copy of this manual and other manuals/documents shipped with the unit.
- Owner or maintenance personnel instructed on proper operation and maintenance

Remove Battery Shipping Tab

Check that board backup battery shipping tab is removed. To remove, grasp tab and gently pull. Battery should be replaced every 3 years of unit service.



Remove Battery Shipping Tab

Oiling

Do not attempt to operate the unit fans until the room air fan shaft bearing has been oiled.

Condenser motor and fan shaft bearings are permanently lubricated.

Access to fan shaft bearing is through left top access door. Use a high grade SAE 20 or 30 nondetergent mineral oil. A few drops are sufficient. **Do not over oil.** Refer to Figure 103 for the oil point.

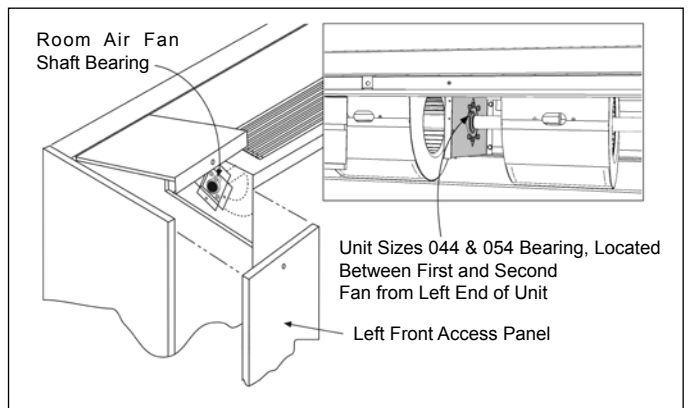
Note:

Unit sizes 044 and 054 have an additional fan shaft bearing located between the first and second fan from the unit left end that should also be oiled.

⚠ CAUTION

When oiling the middle fan shaft bearing DO NOT allow oil to drip down on the components located below the bearing.

Figure 103: Fan shaft bearing(s) oil cup location(s)



⚠ WARNING

Turn off unit before servicing to avoid danger of injury from rotating fans.

NOTICE

Motor manufacturer recommends not oiling the room fan motor.

Filter(s)

Daikin single-use filters are standard on all self-contained unit ventilators, including AEQ units. Permanent wire mesh and renewable media filters are available in lieu of single-use filters.

- Single-use filters feature Amerglas media. They are designed to be used once and discarded.
- Permanent filters are metal filters that may be removed for cleaning and reused numerous times.
- Renewable media filters (Figure 104 on page 55) consist of a heavy painted metal structural frame and renewable Amerglas media.

Turn off the unit (fan speed switch or unit on/off switch is located behind the right front end compartment panel). Remove the center front panel, pull out the filter and replace with a clean filter. Replace the center panel and restart the unit.

Filters should be replaced during the first week of placing into service to prevent dirt carry-over into the internals of the unit and back into the classroom (see Figure 104). A periodic filter changeout program should be established. Filters should be checked monthly or more often if conditions indicate. Filters are included in all units.

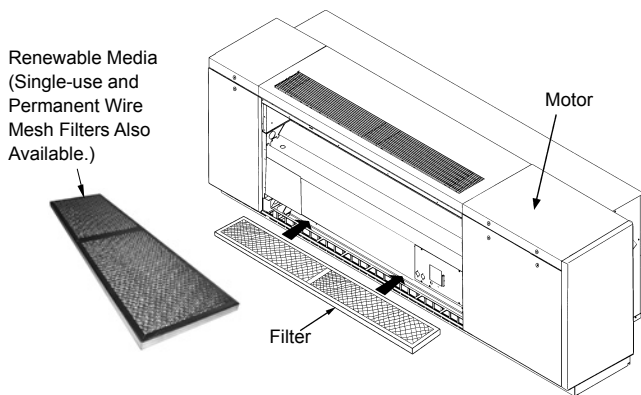
CAUTION

Units must have a filter installed when operating. Operation without a filter can compromise unit performance due to build up of dust and dirt on components.

CAUTION

Dirty or clogged filters can impact unit performance, and damage the unit.

Figure 104: Filter installation



Step 10 – Complete Check, Test and Start Procedure (See page 57)

Provide completed Check, Test and Start form to your local Daikin representative and specifying engineer for verification that proper start-up was completed. The form is enclosed in the manila envelope located behind the left front access door and as well beginning on page 57

CAUTION

Remove debris, dust, dirt, and any obstruction from the area in front of the return air intake grille at the floor.

1. Before proceeding, inspect the fan system, to verify that all parts are aligned properly and move freely. Inspect fans and fan discharge area for obstructions. Verify that power has been disconnected. Rotate the fan assembly manually. Check that a clean filter is installed and the area in front of unit ventilator is free of debris. All panels should be in place and properly fastened. Check for outdoor air leaks and condensation. Verify that the coil section is properly sealed using the insulating foam donuts supplied.
2. After the unit ventilator has been properly installed, activate unit electrical power and applicable hot water/steam/refrigerant systems.
3. Using the applicable control, activate the unit ventilator. Depending on the operating mode selected, the dampers, fans, and other components should operate as needed.
4. Run the unit ventilator for ten minutes, listening and observing. Fans should be operating correctly and rotating in the proper direction, without unusual noise. Likewise, the unit should be free of sheet metal rattles and / or unusual noises. All panels should be in place and properly fastened. Check for air leaks and condensation. Compressor should run without noise. If noisy, check electrical phases to verify that the compressor is rotating correctly. Phase reversal can damage the compressor and void the warranty.

Installer/Owner's Responsibility Protect your investment - read carefully

Your Daikin express written limited warranty does not cover equipment failures that are caused by misuse, abuse, mis-installation, failure to maintain the unit, etc. Here are a few examples of the types of damage not covered by warranty:

1. Damage resulting from handling during transportation or installation.
2. Damage to compressor resulting from improper electrical phase hook up.
3. Progressive damage to unit from failure to check and test at start-up.
4. Damage to electronic or electrical components from incorrect or fluctuating power supply, stray static electricity, or building automation network inputs.
5. Inaccessibility of unit for service or parts installation that prevents proper equipment operation.
6. Damage to aluminum coils and electronic controls, etc., resulting from operating the unit while building maintenance cleaning agents are in use.
7. Damage resulting from freezing water or condensate, inadequate or interrupted water supply, use of corrosive water, rearrangement of unit piping system, fouling or restriction of the water circuit by foreign material.
8. Damage caused by not cleaning or replacing filters.
9. Damage resulting from failure to keep evaporator coil and intake clean.
10. Damage caused by accident, alteration of the unit design or tampering.

Please complete and return the Check, Test and Start document beginning on page 57 immediately to protect your warranty.

Table 21: Unit ventilator data plate - nomenclature

U AEQ 9 024 H G 12 Z B1 AL 22 G I B 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Category	Code Item	Code Option	Code Designation & Description									
Product Category	1	1	U	Unit Ventilators								
Model Type	2	2-4	AEQ	Air Source Heat Pump								
Design Series	3	5	9	Design J								
			7	Design H (036, 044, 054)								
Nominal Capacity	4	6-8	024	24,000	044	44,000						
			036	36,000	054	54,000						
Voltage	5	9	C	208/60/1	H	230/60/3						
			G	230/60/1	K	460/60/3						
			D	208/60/3								
Coil Options	6	10	G	Direct Expansion	9	Direct Expansion with Stainless Steel Drain Pan						
			H	Direct Expansion with Refrigerant Relief Valve								
Heating Options	7	11-12	12	3 Element Low Cap. Electric Heat								
			13	6 Element Low Cap. Electric Heat								
Hand Orientation	8	13	Z	Not Available								
Controls CO ₂ = Return Air CO ₂ Sensor	9	14-15	##	MicroTech® Controls (see control code table below)								
			Control Features				Feature Selections					
			Open Protocol	BACnet / Stand-Alone	•		•		•	•		
				LONMARK		•		•			•	•
			DCV	CO ₂ Sensor			•	•		•		•
			Factory-Installed Keypad	LUI					•	•	•	•
			Control Code									
			Economizer Control	Basic	B1	B5	B9	BD	BH	BL	BP	BT
				Expanded	E1	E5	E9	ED	EH	EL	EP	ET
				Leading-Edge	L1	L5	L9	LD	LH	LL	LP	LT
44	Electromechanical w/2-Position OA Damper for Remote Thermostat											
Discharge	10	16-17	AL	16-5/8" Top Bar Grille								
Return Air/Outside Air	11	18-19	22	Return Air Bottom Front/ Outdoor Air Rear								
Power Connection	12	20	G	Box With Switch								
Color	13	21	I	Antique Ivory	G	Soft Gray						
			W	Off White	C	Cupola White						
			B	Putty Beige								
SKU Type	14	22	B	Standard Delivery								
Product Style	15	23	1	1st Style Change								



Warranty

Form: 573882Y

Group: **Unit Ventilator**
Type: **Basic Unit Data**
Date: **July 2017**

Daikin Applied Unit Ventilator Warranty Registration Form

Check, test & start procedure for Unit Ventilators

This form must be completely filled out and returned to, Daikin Warranty Department within ten days in order to comply with the terms of the Daikin Applied warranty. Forms should be returned to Daikin Applied Warranty Department, P.O. Box 920, Auburn, NY 13021-0920.

Sales Office: _____ S.O.#: _____ Date Started: _____
 Job Name: _____ G.O. # _____
 Job Location: _____
 Unit Location: _____ Unit Tagging: _____
 Model No.: _____ Serial No.: _____
 Supply Voltage: L1/L2 _____ L2/L3 _____ L3/L1 _____ Rated: _____
 Room Fan Motor Amps: T1: _____ RPM _____ Nameplate Rating: _____

I. Initial check

- A. Does electrical service correspond to unit nameplate? Yes No
- B. Are all electrical power connections tight? Yes No
- C. Does all field wiring conform to unit electrical schematic? Yes No
- D. Is unit installed per IM bulletin? Yes No
- F. Cabinet paint O.K.? Yes No
- G. Cabinet bent? Yes No
- H. Do outdoor and indoor fans turn freely? Yes No
- I. Are all setscrews on outdoor and indoor fan couplings tight? Yes No
- J. Are end bearing bolts on outdoor and indoor fan shaft tight? Yes No
- K. Have the fan shaft end bearing and room fan motor been oiled (if applicable)? Yes No
- L. Are outdoor air and return air dampers operating properly? Yes No
- M. Is the filter clean? Yes No
- N. Is there excessive noise or vibration? Yes No

If Yes, corrective action (if any) _____

II. Controls check

- A. Does the unit have Daikin controls (MicroTech)? Yes No
 If No, control company _____
 If controls are not by Daikin, skip to Section III.
- B. Condensate disposal system operating O.K. (drainless AED)? Yes No
- C. Does unit start and perform per sequence of operation as stated in OM? Yes No
- D. If the unit has a unit mounted sensor, has the insulation been removed from the sampling chamber inlet? Yes No
- E. Are all sensors installed and insulated properly? Yes No
- F. If the unit has MicroTech controls, room setpoint: _____ °F Deadband 6° or _____ °F

III. Refrigeration system

- A. Has all field piping been leak tested to 100 psig (AVS, AVV, AVR, AHF, AHV & AHR) Yes No
- B. Is expansion valve bulb properly installed and insulated Yes No
- C. High pressure control cutout (if applicable) _____ psig
- D. Crankcase heater operating O.K.? Yes No
- E. Reversing valve operating O.K.? Yes No
- F. Emergency heat operating O.K.? Yes No
- G. Piping correct (AVS, AVV, AVR, AHF, AHV & AHR to remote condensing unit)? Yes No
- H. Checked for refrigerant leaks? Yes No

IV. Hydronic piping check

- A. Is unit piping correct (the remainder of this section applies only to units with Daikin controls)? Yes No
- B. Is the modulating control valve(s) piped correctly (valve controlled units)? Yes No
- C. Is the modulating control valve(s) placed in the upright position (valve controlled units)? Yes No
- D. Is 2 - position control valve(s) piped correctly (face and bypass)? Yes No





Check, test & start procedure for Unit Ventilators

V. Start-up (Readings must be taken at full load conditions)

- A. Outdoor Fan Motor Amps: T1 _____ Nameplate Rating: _____
- B. Compressor Amps (Cig): T1 _____ T2 _____ T3 _____ Nameplate Rating: _____
- C. Compressor Amps (Htg): T1 _____ T2 _____ T3 _____ Nameplate Rating: _____
- D. Refrigerant Pressures Htg./Clg.: Suction: _____ / _____ Discharge: _____ / _____
- E. Refrigerant Temperature Htg./Clg.: Suction _____ °F / _____ °F Discharge: _____ °F / _____ °F
- F. O.A. Temp.: _____ °F Super Heat: _____ °F Subcooling: _____ °F
- G. R.A. Temp. Htg./Clg.: _____ °F / _____ °F Discharge Air Temp.: _____ °F / _____ °F
- H. Electric Htg. Amp: L1 _____ L2 _____ L3 _____ Total Amp: _____
- I. Water Temperature Htg./Clg.: In _____ °F / _____ °F Out _____ °F / _____ °F

VI. Performed by:

Company: _____

Name: _____

Title: _____

Signature: _____

Date: _____

Comments: _____

Service Technician: _____

Contractor Representative: _____

Allen Wrench

5/32" tool used with hex fasteners on unit ventilator front access panels and top access doors.

AEQ Unit Ventilator

The AEQ self-contained unit ventilator provides comfort cooling and heating to the classroom, using an outside coil to reject the heat from cooling. The unit also brings in outside air.

BACnet®

(Building Automation and Control Network) An ASHRAE and ANSI Standard 135-1995: A standard data communication protocol for building automation and control networks.

Condenser Coil

A coil for removing heat from refrigerant gas for the purpose of causing the refrigerant gas to condense to a liquid.

“D” Seal

The horizontal gasket or seal on the wall sleeve cross channel that positively contacts the unit condensing section to help prevent air and water leaks from entering the room.

Evaporator Coil

A coil in which a refrigerant gas is evaporated for the purpose of extracting heat from the surrounding medium resulting in cooling of the air passing over the coil.

Face and Bypass Dampers

A damper arranged to direct the air through an indoor heating coil, around the indoor coil, or partly through and partly around the indoor coil in any desired proportion, in response to control demand.

Full Projection

The self-contained unit ventilator wall sleeve anchors to the interior wall surface with no recess into the wall opening, requiring an 11-3/8" finish collar. The unit/wall sleeve combination projects a full 28 inches from the room wall.

Full Recess

The self-contained unit ventilator wall sleeve is fully recessed into the wall opening, not requiring a finish collar, and the unit projects into the room 16-5/8".

Grille

The grille is a decorative cover to the louver. The grille openings line up with the louver openings to maximize the air flow.

Lintel

A horizontal beam across the top of a door, window, louver or wall sleeve opening that supports the weight of the structure above it.

Louver

The louver is to bring in adequate amounts of outdoor air for the condenser fan section and ventilation air to the classroom while providing a path for heated condenser air and to minimize water entering.

MicroTech

Direct Digital Control system providing comfort and unit protection, with Protocol Selectability™, allowing easy integration into existing Building Automation Systems (BAS) using open, standard protocols.

Partial Recess

The self-contained unit ventilator wall sleeve is partially recessed into the wall opening, requiring either a 3" or 5-1/4" finish collar.

Reciprocating Compressor

A compressor which raises pressure from a low to high pressure gas by means of reciprocating pistons.

Remote Sensor

A remote wall mounted device that senses room air temperatures and communicates with the unit ventilator.

Scroll Compressor

A scroll compressor uses an oscillating motion to raise the refrigerant from a low pressure to a higher pressure.

Splitters

Horizontal Air Splitters function as partitions between the condenser discharge section, condenser supply air section and the outside room air section. They are required to provide proper air paths and prevent air recirculation when there is a space between the wall sleeve and the louver.

Wall Sleeve

The Wall Sleeve is used to secure the unit, provide a watertight and airtight seal between the building and the unit. In addition, it brings in electrical and control wiring (if required) and allows fast installation of the unit.

Outside Air

The air drawn into the unit from outside the building to provide fresh air.



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