



Maintenance • Service • Safety

Recommendations For Lumalier In AHU & In Duct Disinfection
AR Series



www.lumalier.com

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EPA ESTABLISHMENT NO. 91347-TN-001

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What is UVGI?

UV-C, also known as “germicidal ultraviolet”, **has a specific wavelength of 253.7nanometers (253.7 billionths of a meter)** and is known to deactivate molds, spores and germs contained in tiny airborne droplet nuclei that transmit diseases such as measles, tuberculosis, and influenza from person to person. With significant penetrating ability, UV-C can penetrate the cell wall of a microorganism and destroy it but it cannot penetrate the outer layer of human skin or the cornea of the eye. Although overexposure may lead to a temporary, minor eye irritation or skin reddening it does not cause serious or long-term health effects.

Safety

Personal Protective Equipment

Employees must wear personal protective equipment whenever UV radiation measurements are being made close to the lamp source in order to document lamp output, or when maintenance procedures must be performed in areas where **UVGI systems are activated**.

Personal Protection Equipment includes:

- Safety glasses with side shields
- Head, neck and face covering opaque to UV radiation
- Soft cotton gloves
- Long-sleeved, tightly woven fabrics with SPF 15 or greater

Reporting UV Exposure

Should any temporary eye or skin irritation that develops after acute exposure to UV radiation one should contact their supervisor or physician.

Maintenance

Scheduled Maintenance Procedures

Quarterly – Visually inspect lamps through a viewing window to insure all lamps are operational.

Semi-Annually – If the lamps show visual dust accumulation, they should be cleaned.

To clean lamps:

- De-energize by switching the exterior toggle switch to the “off” position.
- Remove the UV unit from the duct. (if necessary)
- Using soft cotton gloves, remove the lamps from the UV unit.
- Using a soft cotton cloth, with isopropyl alcohol, wipe the lamps and allow to dry.
- Replace the lamps.
- Reinstall the UV unit in the duct. (if necessary)
- Turn on the exterior toggle switch.
- Inspect the lamps through the viewing port to insure all lamps are energized.

Annually – Replace the lamps.

To replace lamps:

- De-energize by switching the exterior toggle switch to the “off” position.
- Remove the UV unit from the duct. (if necessary)
- Remove the used lamps from the UV unit.
- Wearing soft cotton gloves and using a soft cotton cloth, with isopropyl alcohol, wipe the new lamps and allow to dry.
- Install the new lamps.
- Reinstall the UV unit in the duct.
- Turn on the exterior toggle switch.
- Inspect the lamps through the viewing port to insure all lamps are energized.

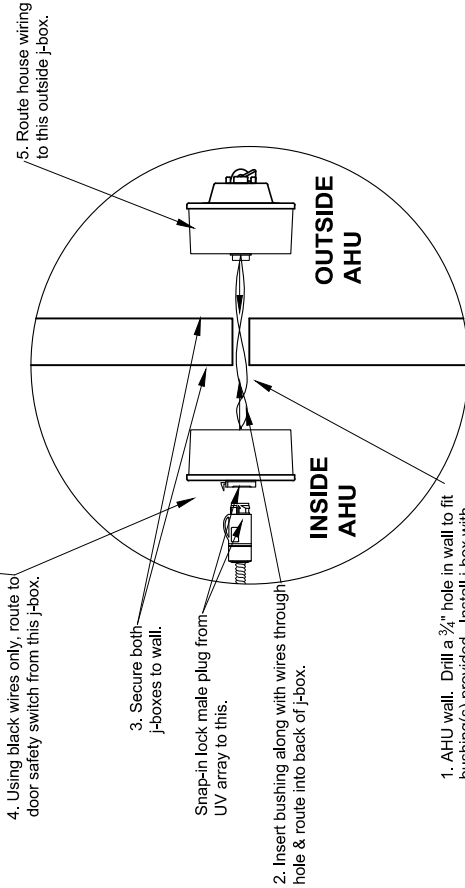
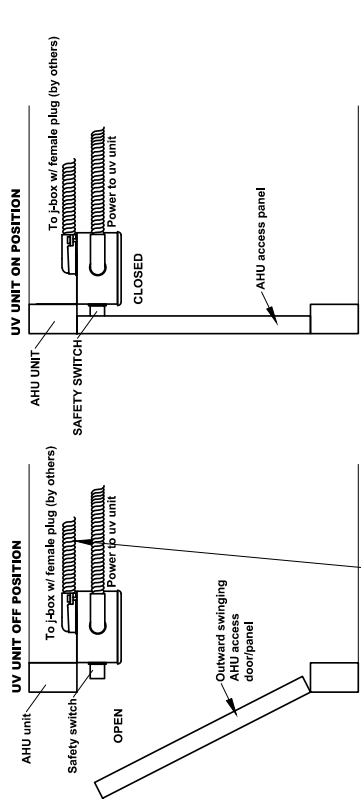
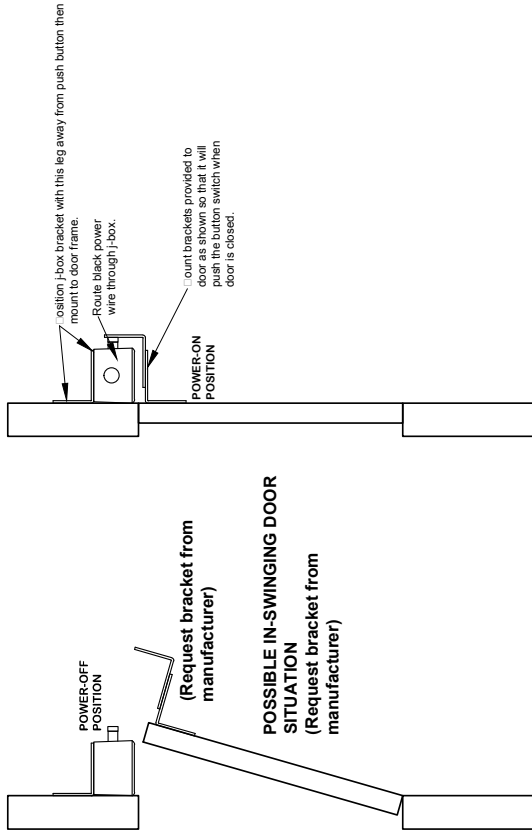
Note: Dielectric grease is required to be used on all lamp sockets and male/female whips.

Service

Lumalier replacement parts and lamps can be purchased from authorized distributors or directly. For technical assistance or information call 901-800-1709 or email@evergreenuv.com.

Material Safety Data Sheets (MSDS)

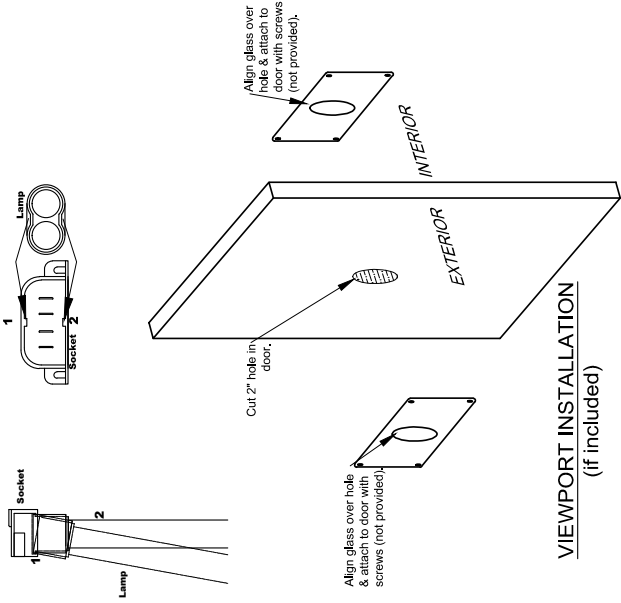
For MSDS sheets on our lamps, please contact your local Lumalier representative.



5. Route house wiring to this outside j-box.

4. Using black wires only, route to door safety switch from this j-box.

LAMP INSTALLATION: INSERT THE LAMP AT AN ANGLE AS SHOWN UNDER THE TOP SOCKET TAB FIRST (# 1 ABOVE). ALIGN & INSERT THE 4 LAMP PINS INTO THE 4 SOCKET SLOTS & HOLD IN PLACE WHILE SIMULTANEOUSLY ROTATING THE LAMP OVER TO THE OTHER SOCKET TAB (# 2 ABOVE) & ALLOWING THE LAMP TO SNAP UNDER SOCKET TAB 2. REMOVE THE LAMP FROM THE SOCKET TAB 2 POSITION IMMEDIATELY. FAILURE TO FOLLOW THIS ORDER OF INSTALLATION MAY RESULT IN BREAKAGE OF LAMP SOCKET &/OR LAMP.



3. Secure both j-boxes to wall.

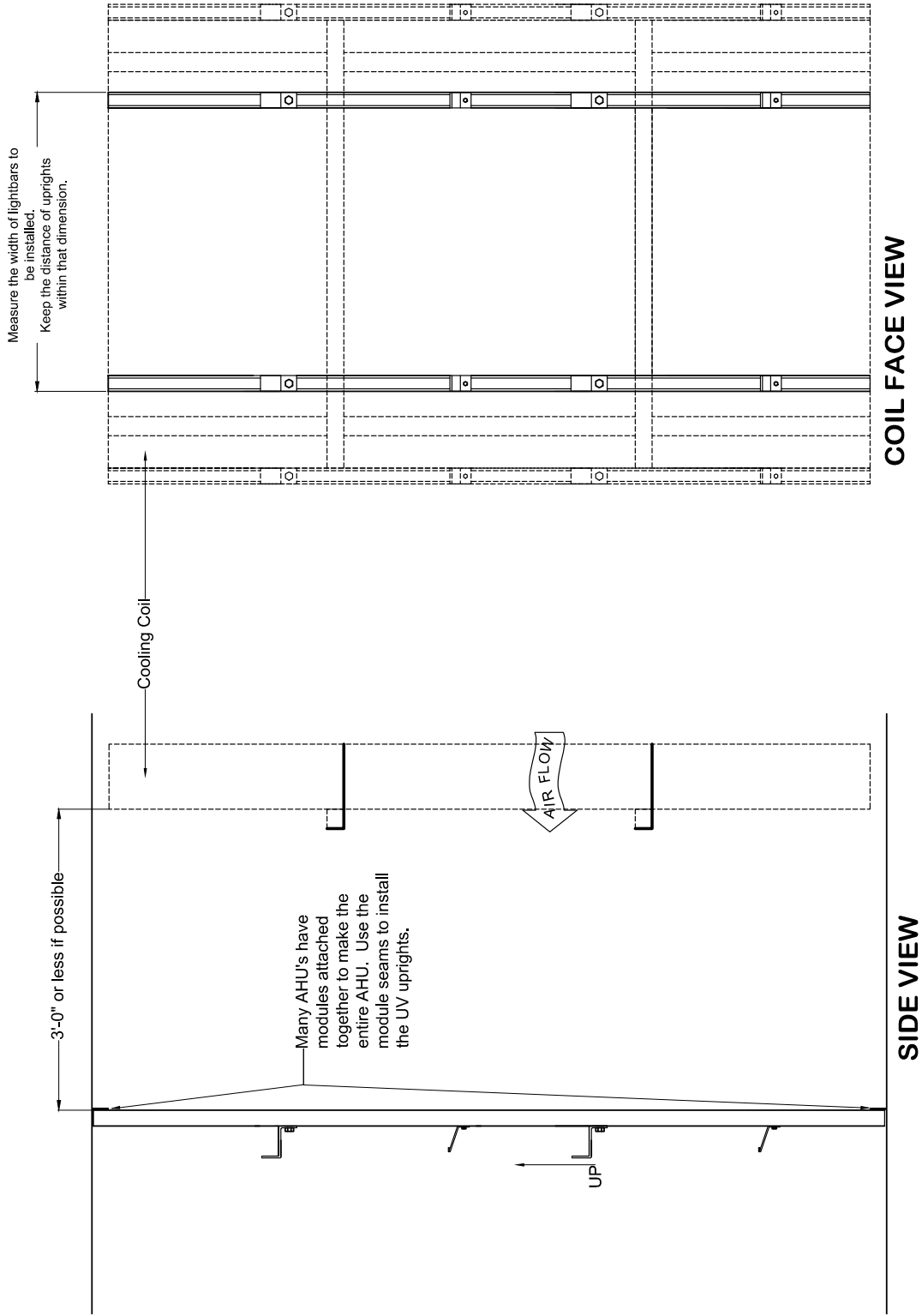
2. Insert bushing along with wires through hole & route into back of j-box.

1. AHU wall. Drill a 3/8" hole in wall to fit bushing(s) provided. Install j-box with female plug to inside of AHU. **IT IS HIGHLY RECOMMENDED TO MOUNT THIS ASSEMBLY AT THE HINGE SIDE OF ACCESS DOOR. THIS REDUCES THE AMOUNT OF CONDUIT & WIRE PLUS IS A MORE DIRECT POWER ROUTE.**

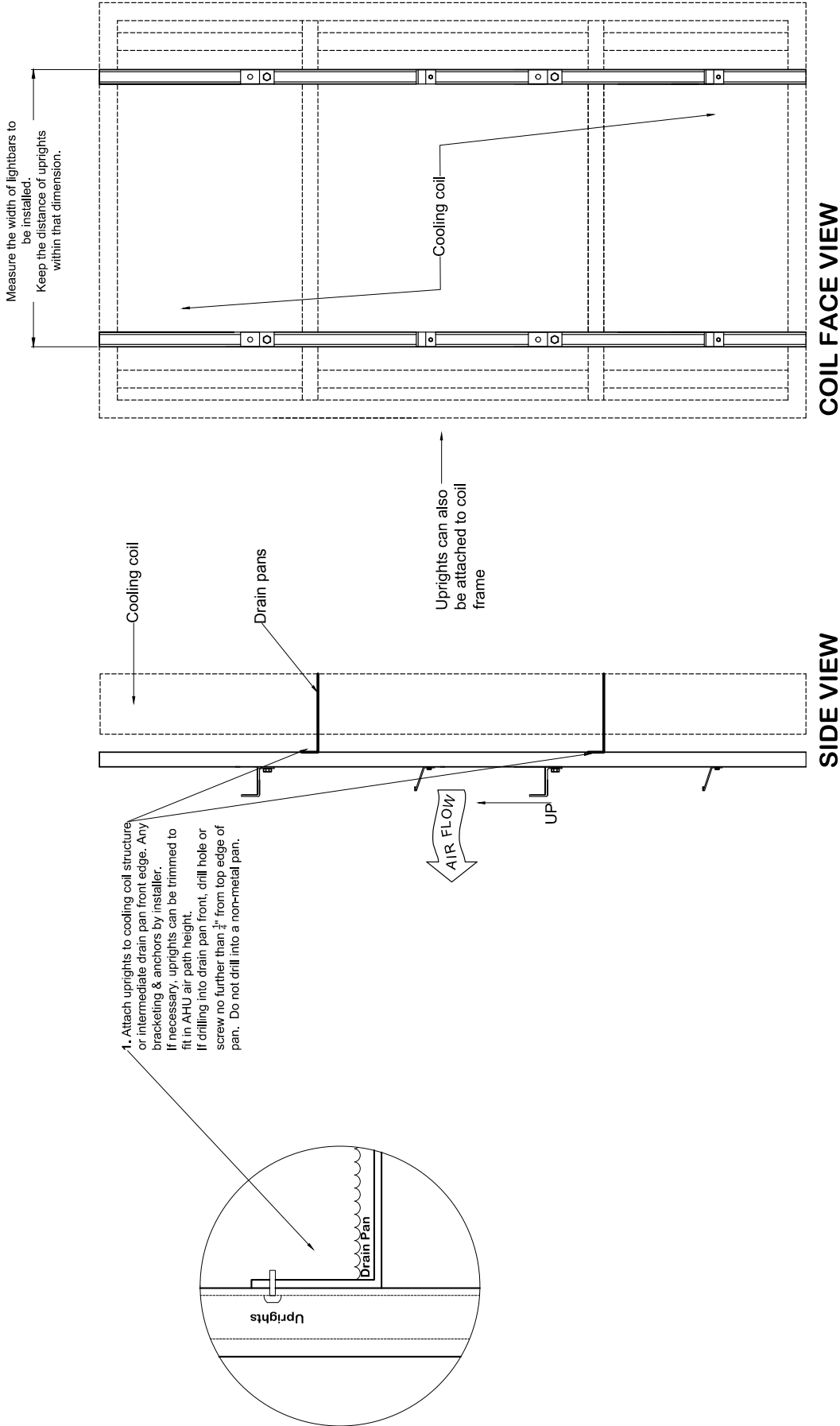
EQUIPMENT INCLUDED
(1 SET PER UV ARRAY)

VIEWPORT INSTALLATION
(if included)



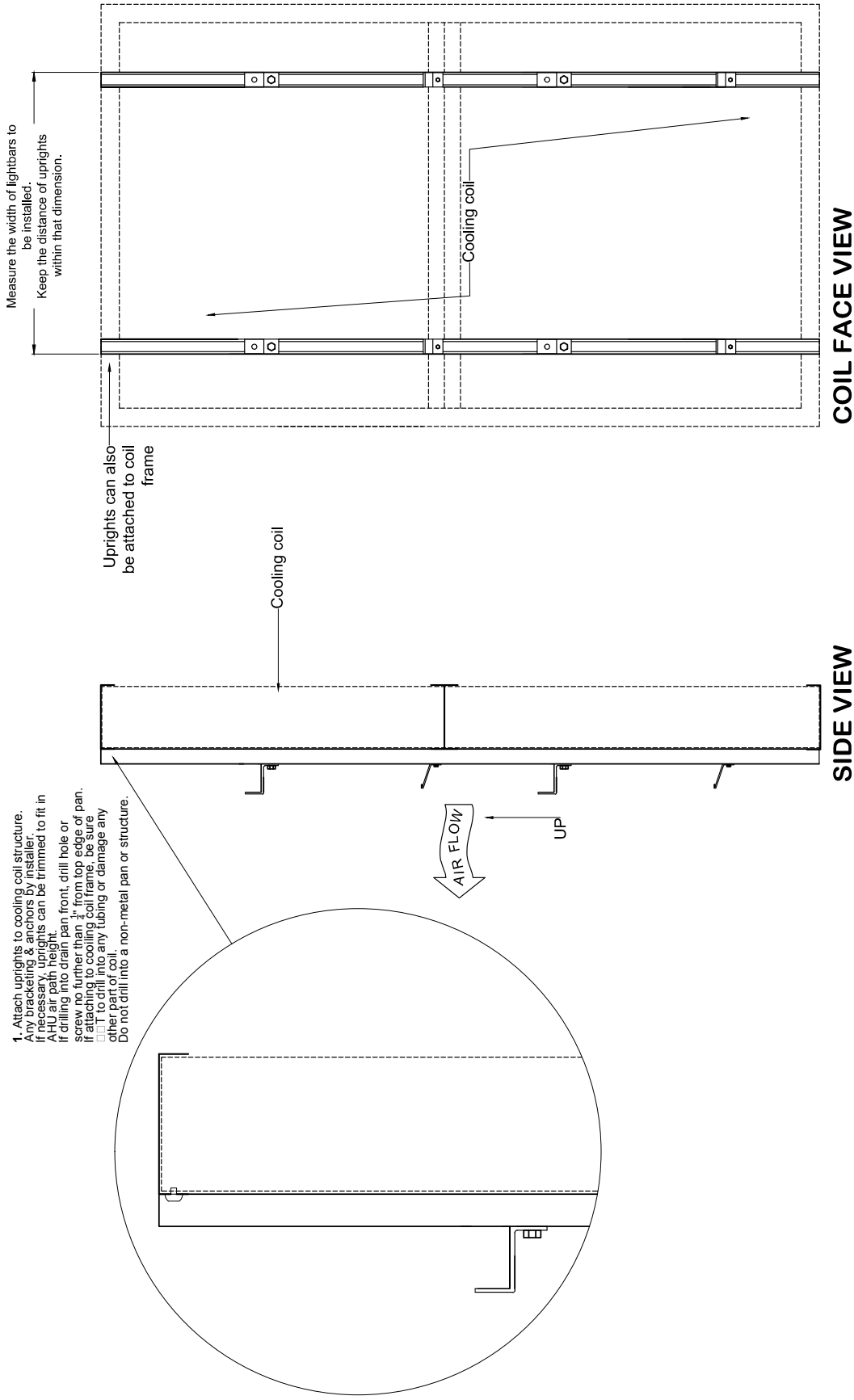


A POSSIBLE UPRIGHTS INSTALLATION SITUATION
**INSTALLATION
 DRAWING**



A POSSIBLE INSTALLATION SITUATION ON DRAIN PANS

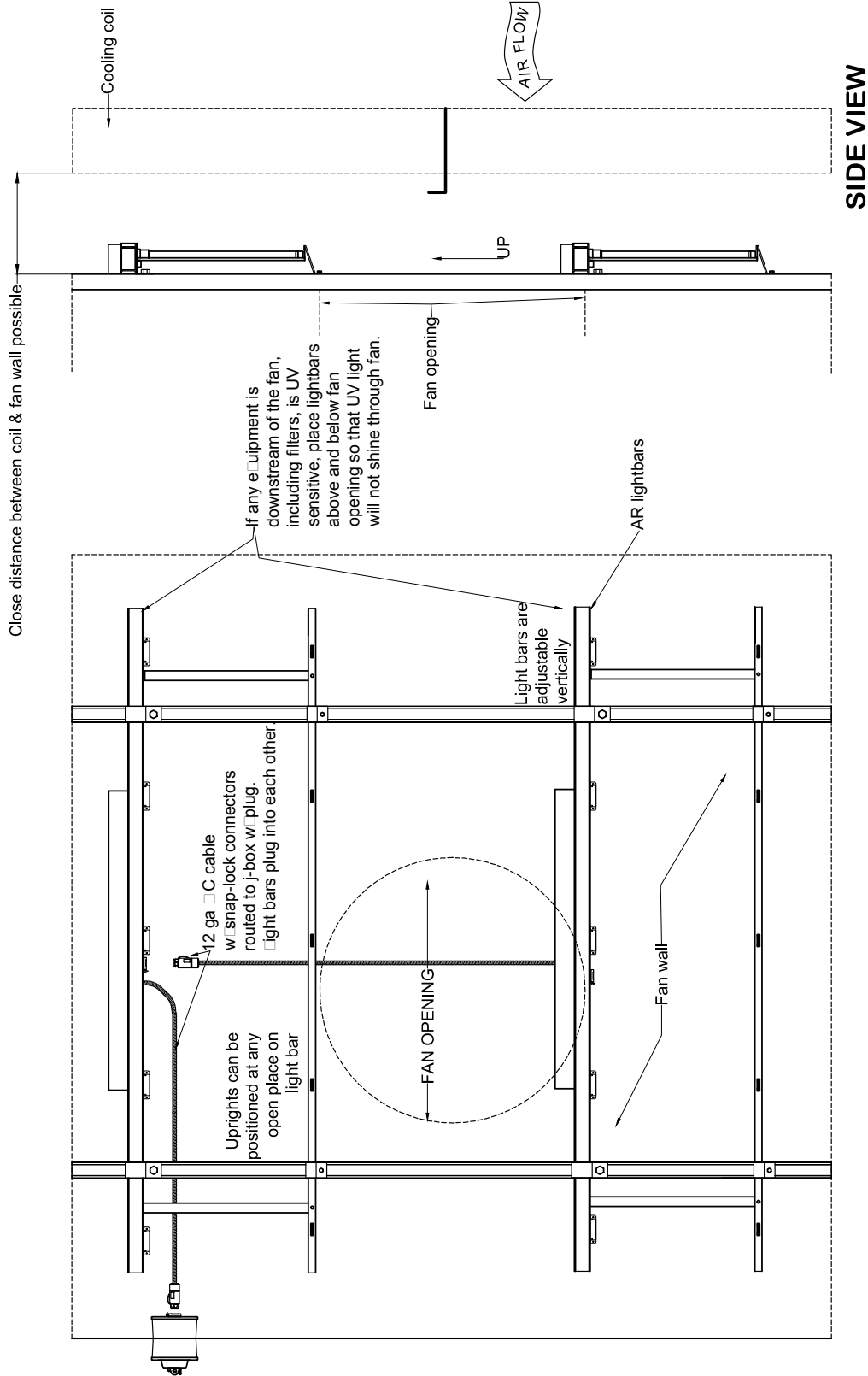
**ON-COIL
INSTALLATION
DRAWING**



1. Attach uprights to cooling coil structure. Any excess tubing or coil can be trimmed to fit in AHU air path height. If drilling into drain pan front, drill hole or screw no further than 1/8" from top edge of pan. If attaching to cooling coil frame, be sure other part of coil. Do not drill into a non-metal pan or structure.

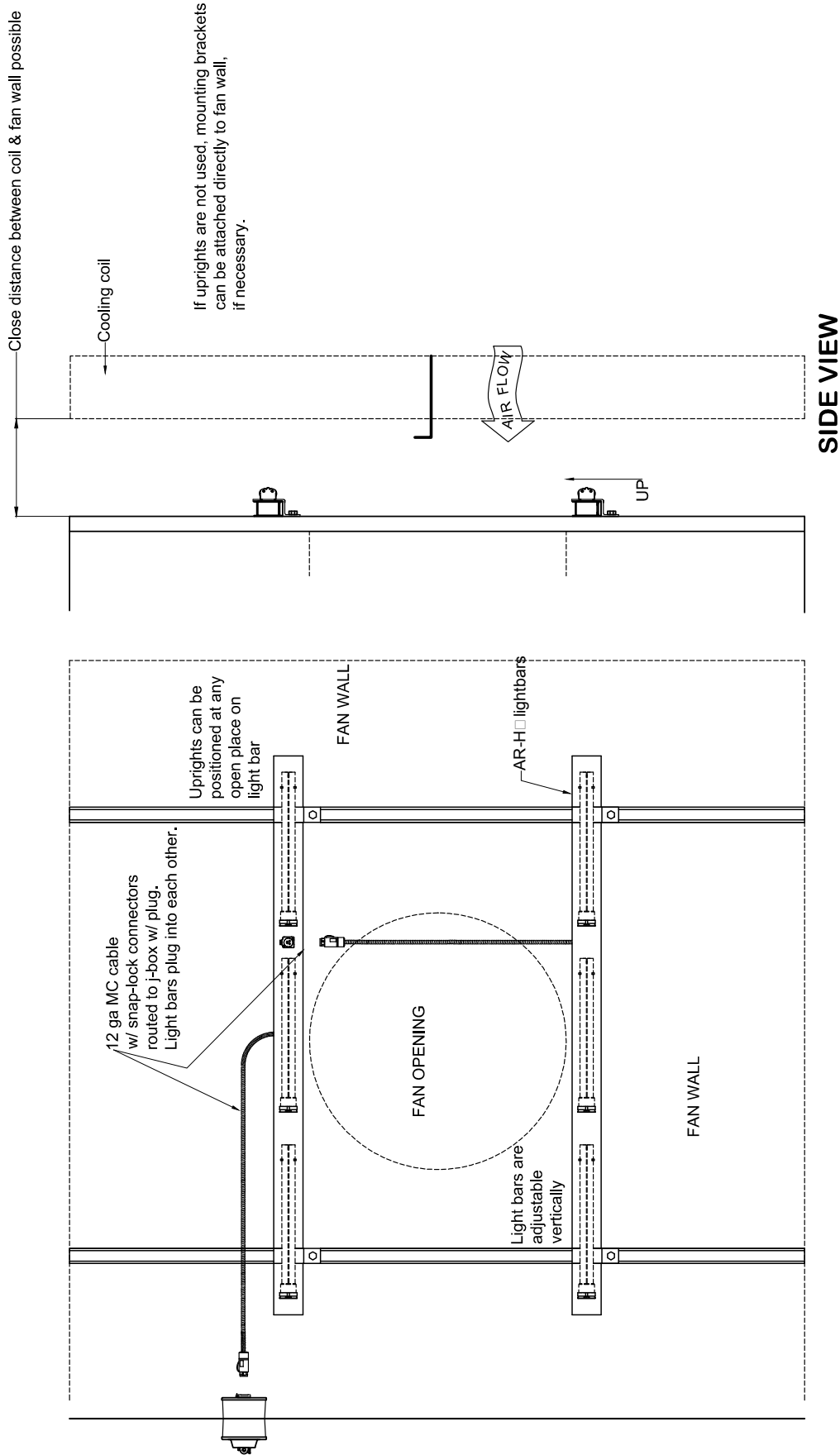
A POSSIBLE INSTALLATION SITUATION

**ON-COIL
INSTALLATION
DRAWING**



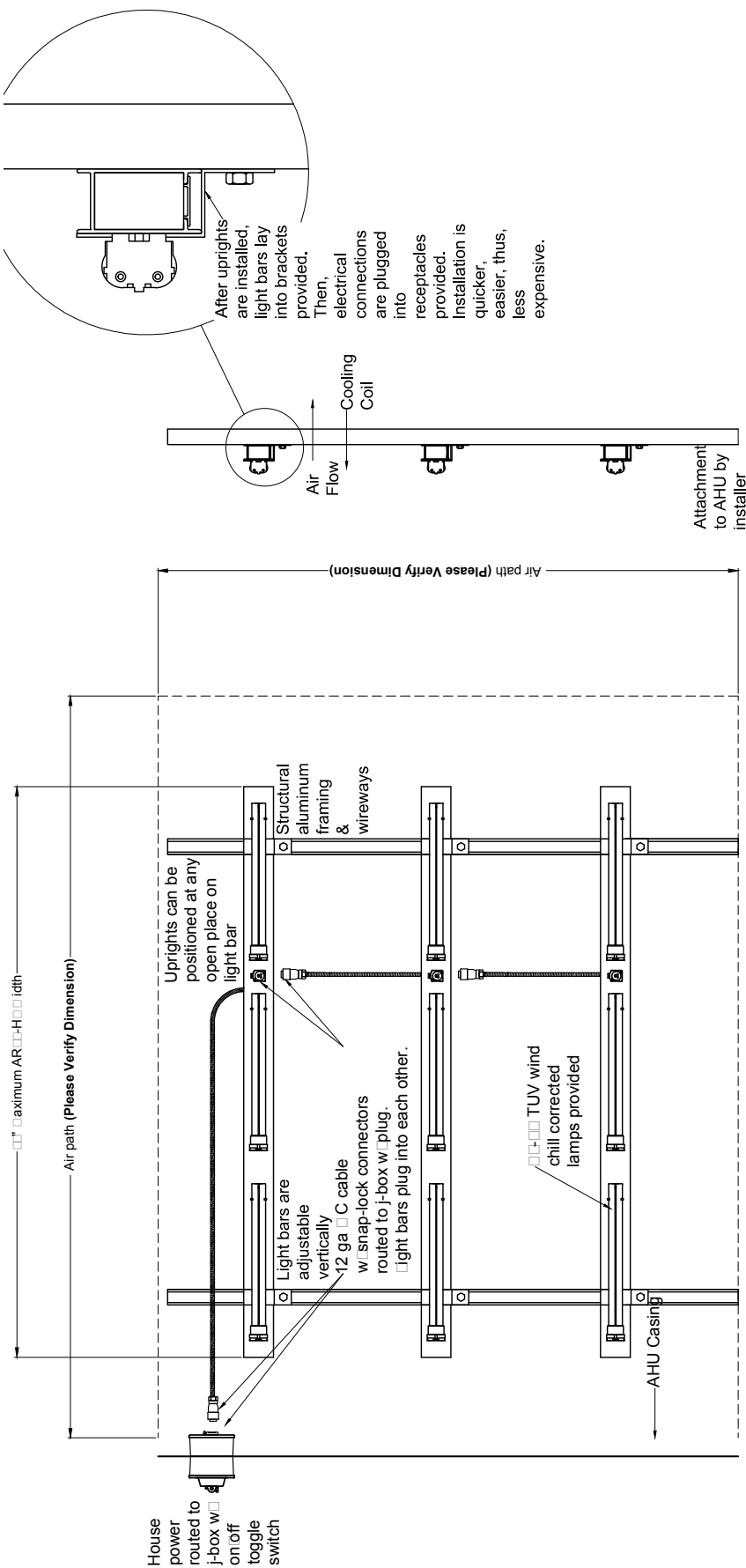
A POSSIBLE INSTALLATION SITUATION USING THE AR LIGHTBARS

**FAN WALL
INSTALLATION
DRAWING**



A POSSIBLE INSTALLATION SITUATION USING THE AR-HL LIGHTBARS

**FAN WALL
INSTALLATION
DRAWING**



AR-HL

ELECTRICAL REQUIREMENTS: 120V to 240V LAMPS: PL-LWTUV (WIND CHILL CORRECTED)

DAMP LOCATIONS ONLY

CAN BE MORE MULTIPLE LIGHTBAR ROWS BUT THEY ALL INSTALL THE SAME.

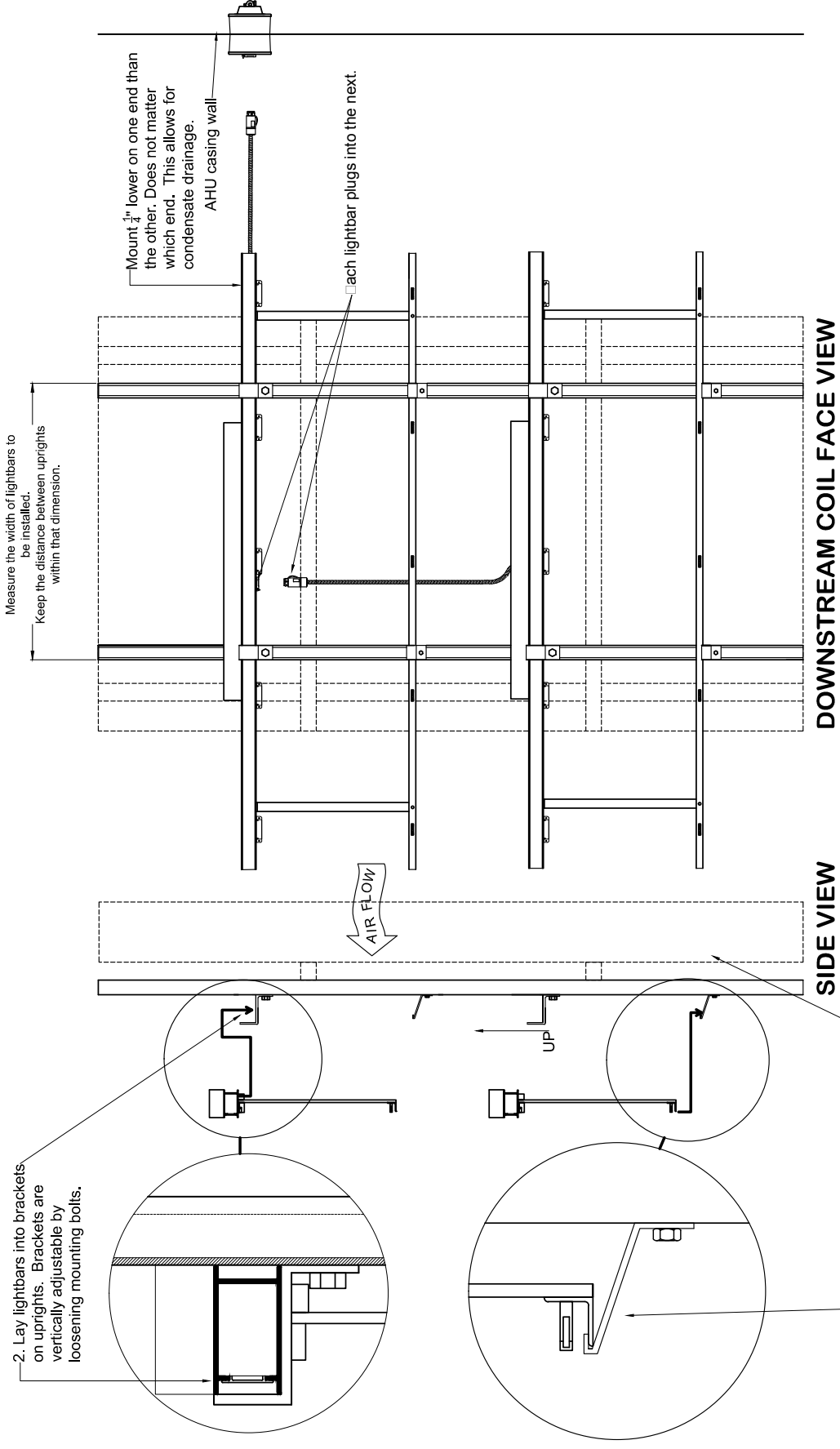
NOTE: TO ENSURE PROPER FIT AND CLEARANCES AT INSTALLATION, CONFIRMATION OF ALL DIMENSIONS & CONDITIONS IS THE SOLE RESPONSIBILITY OF AHU'S LOCAL AUTHORIZED PERSONNEL & MUST BE PERFORMED BY SAME ON RESPECTIVE AHU(S) PRIOR TO UV UNITS' PRODUCTION (i.e. IT IS THE RESPONSIBILITY OF THE OWNER, OWNER'S REPRESENTATIVE, AND/OR CONTRACTOR TO DETERMINE IF THE UV UNIT WILL OR WILL NOT FIT IN AHU) THIS SUBMITTAL DRAWING WAS GENERATED WITH ONLY LIMITED INFORMATION PROVIDED VIA AHU(S) MANUFACTURER'S OR CUSTOMER'S WRITTEN AND/OR ORAL INFORMATION, SPECIFICATIONS, SCHEMATIC DRAWINGS, SKETCHES &/OR SCHEDULES. CONFIRMATION OF AHU(S) UV AREA ON SITE CONDITION(S) IS NECESSARY FOR A SMOOTH INSTALLATION. **THIS DRAWING MUST BE SIGNED & DATED BY RESPONSIBLE PARTY FOR APPROVAL BEFORE PRODUCTION CAN PROCEED.**

APPROVED BY: _____ DATE: _____

7

SUBMITTAL DRAWING

PLEASE CHECK(✓) ITEMS TO INCLUDE OR NOT INCLUDE	
INCLUDE	NOT INCLUDE (PLEASE SEE EQUIPMENT INCLUDED PAGE)
✓	INTERNAL POWER PLUG-IN OUTLET
✓	EXTERNAL ON/OFF TOGGLE SWITCH
✓	DOOR SAFETY SWITCH
✓	VIEWPORT FOR ACCESS DOOR
✓	RADIOMETER (ADDER)
✓	POWER EXTENSION (ADDER)
✓	TOGGLE SWITCH LOCK-OUT COVER



2. Lay lightbars into brackets on uprights. Brackets are vertically adjustable by loosening mounting bolts.

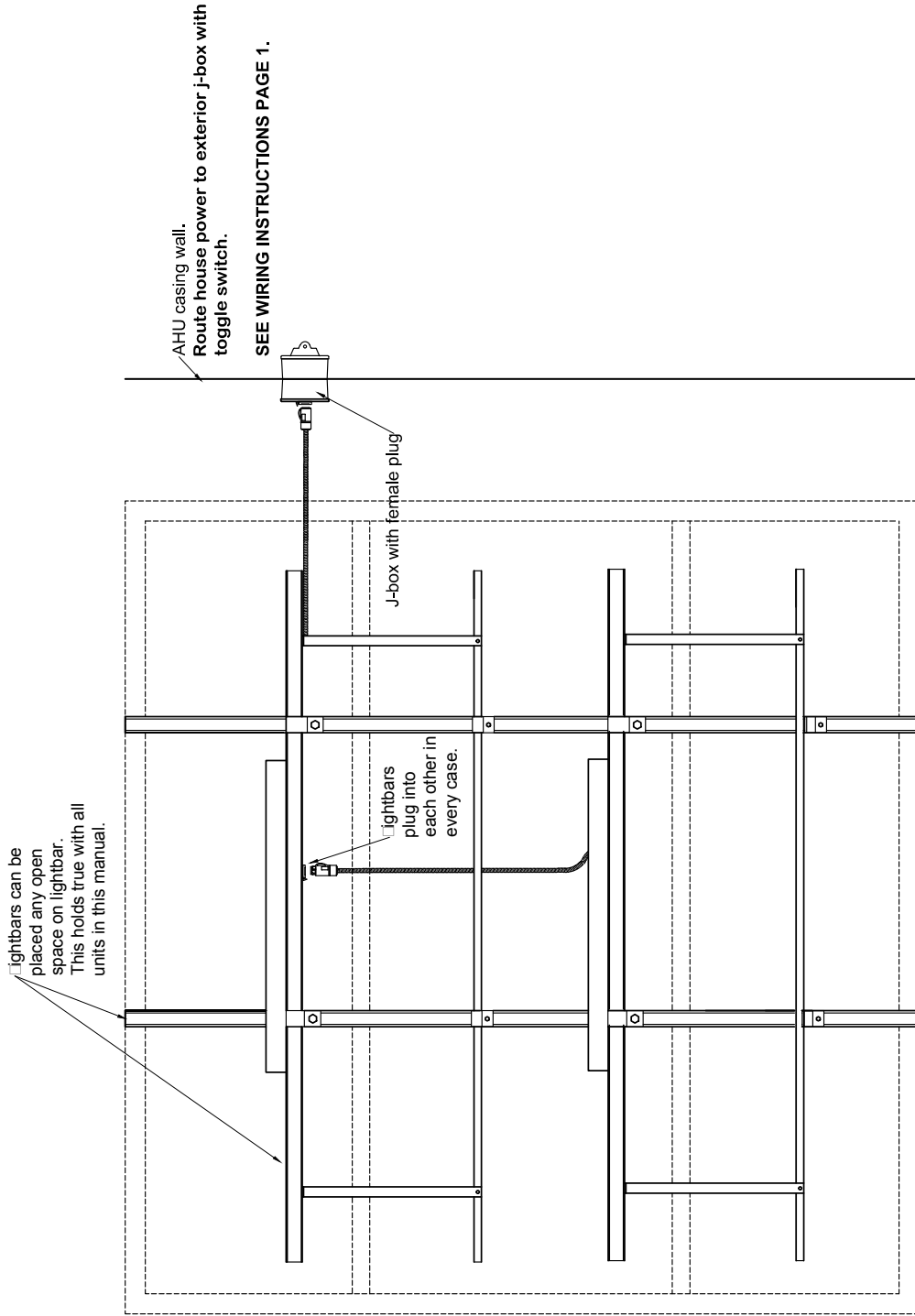
3. After adjusting lightbars positions, loosen the lower brackets, hook bracket over bottom rail as shown and retighten.

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ELECTRICAL REQUIREMENTS: 120V to 240V LAMPS: PL-LWTUV (WIND CHILL CORRECTED) DAMP LOCATIONS ONLY CAN BE MORE MULTIPLE LIGHTBAR ROWS BUT THEY ALL INSTALL THE SAME.

INSTALLATION DRAWING

8



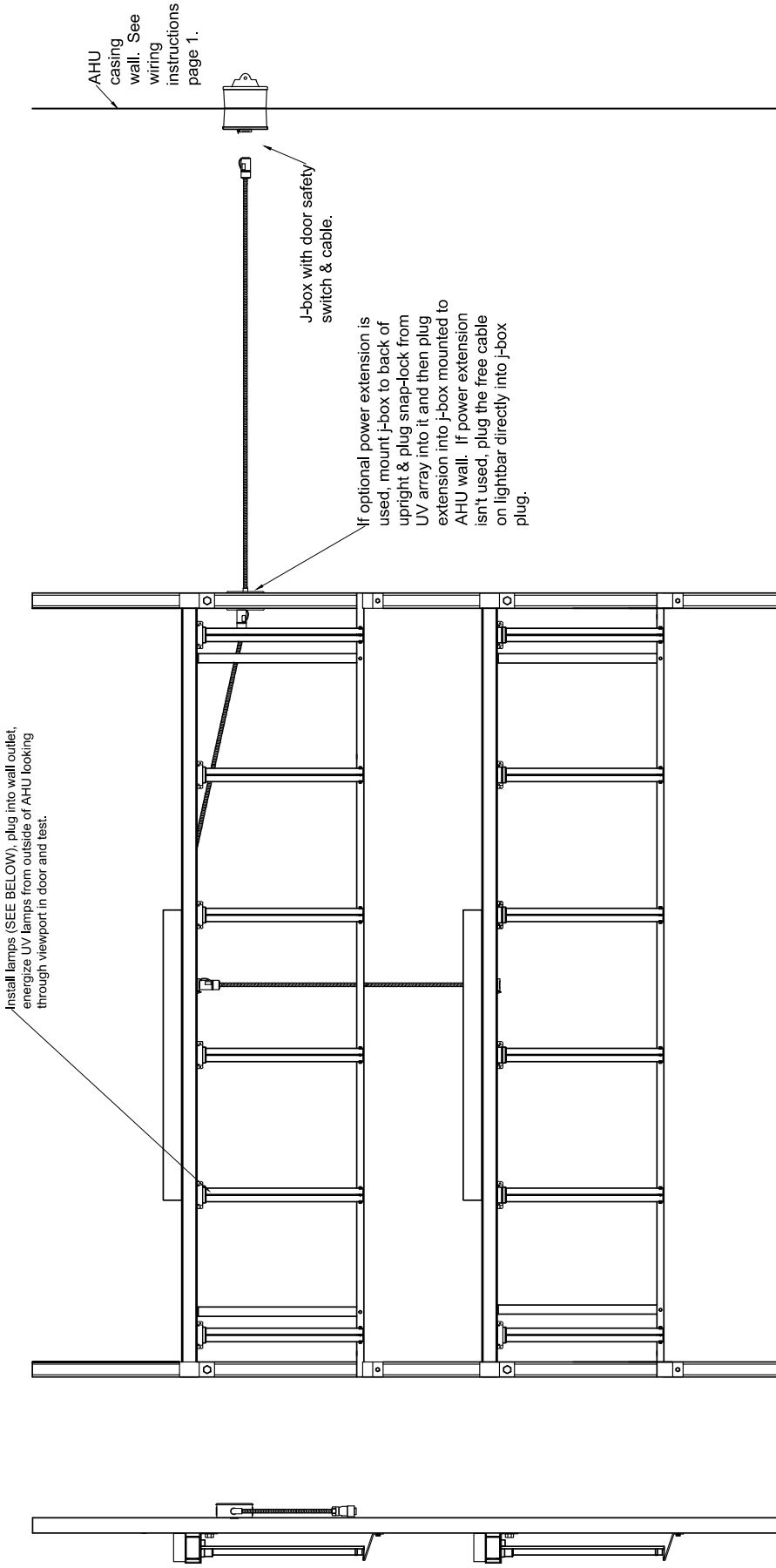
DOWNSTREAM COIL FACE VIEW

AR

**ELECTRICAL REQUIREMENTS: 120V to 240V
LAMPS: PL-LWTUV (WIND CHILL CORRECTED)
DAMP LOCATIONS ONLY**

**INSTALLATION
DRAWING**

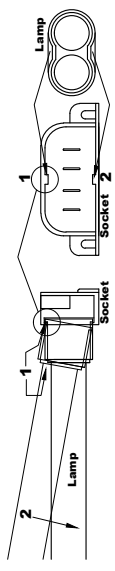
9



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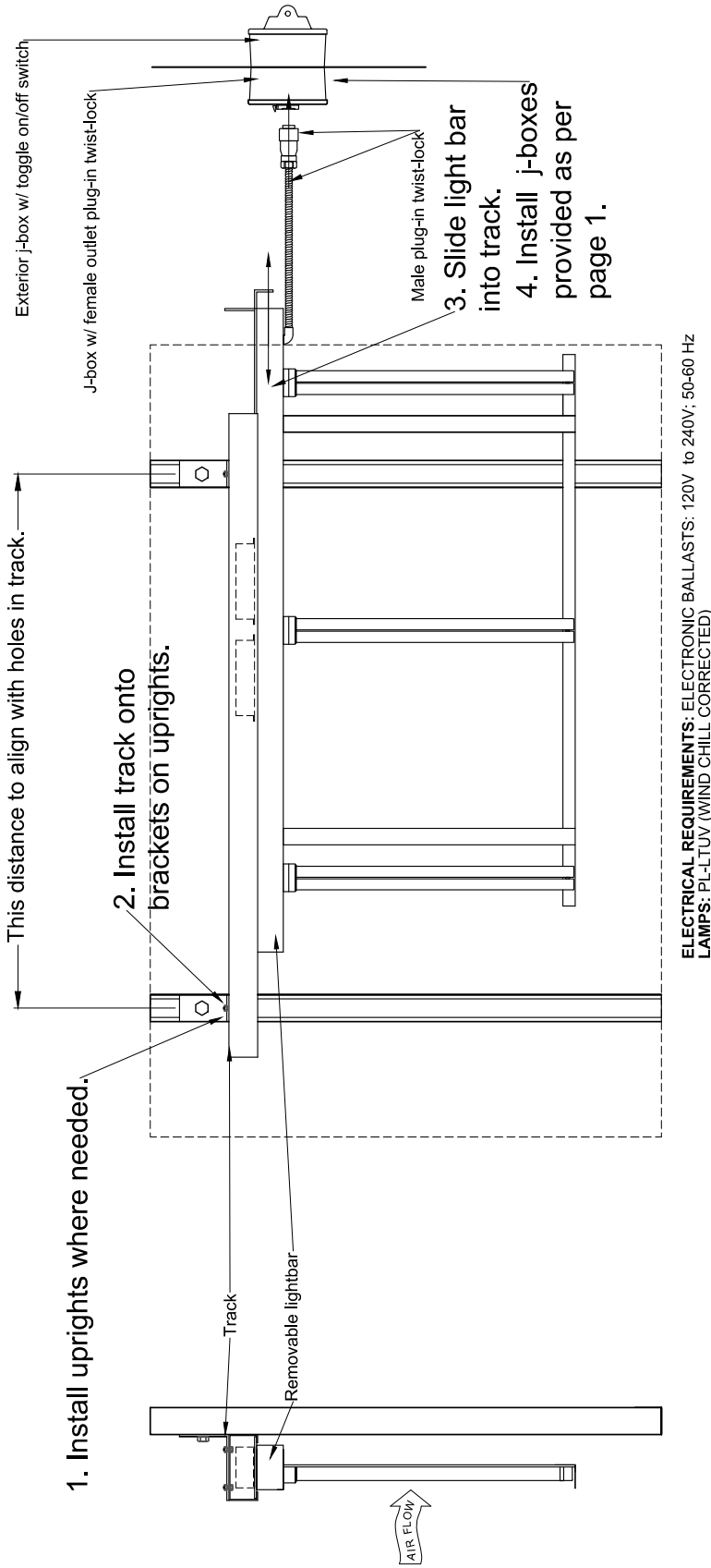
**ELECTRICAL REQUIREMENTS: 120V to 240V
LAMPS: PL-LWTUV (WIND CHILL CORRECTED)
DAMP LOCATIONS ONLY**

LAMP INSTALLATION



LAMP INSTALLATION: INSERT THE LAMP AT AN ANGLE AS SHOWN UNDER THE TOP SOCKET TAB FIRST (# 1 ABOVE). ALIGN & INSERT THE 4 LAMP PINS INTO THE 4 SOCKET SLOTS & HOLD IN PLACE WHILE SIMULTANEOUSLY ROTATING THE LAMP OVER TO THE OTHER SOCKET TAB (# 2 ABOVE) & ALLOWING THE LAMP TO SNAP UNDER SOCKET TAB 2.

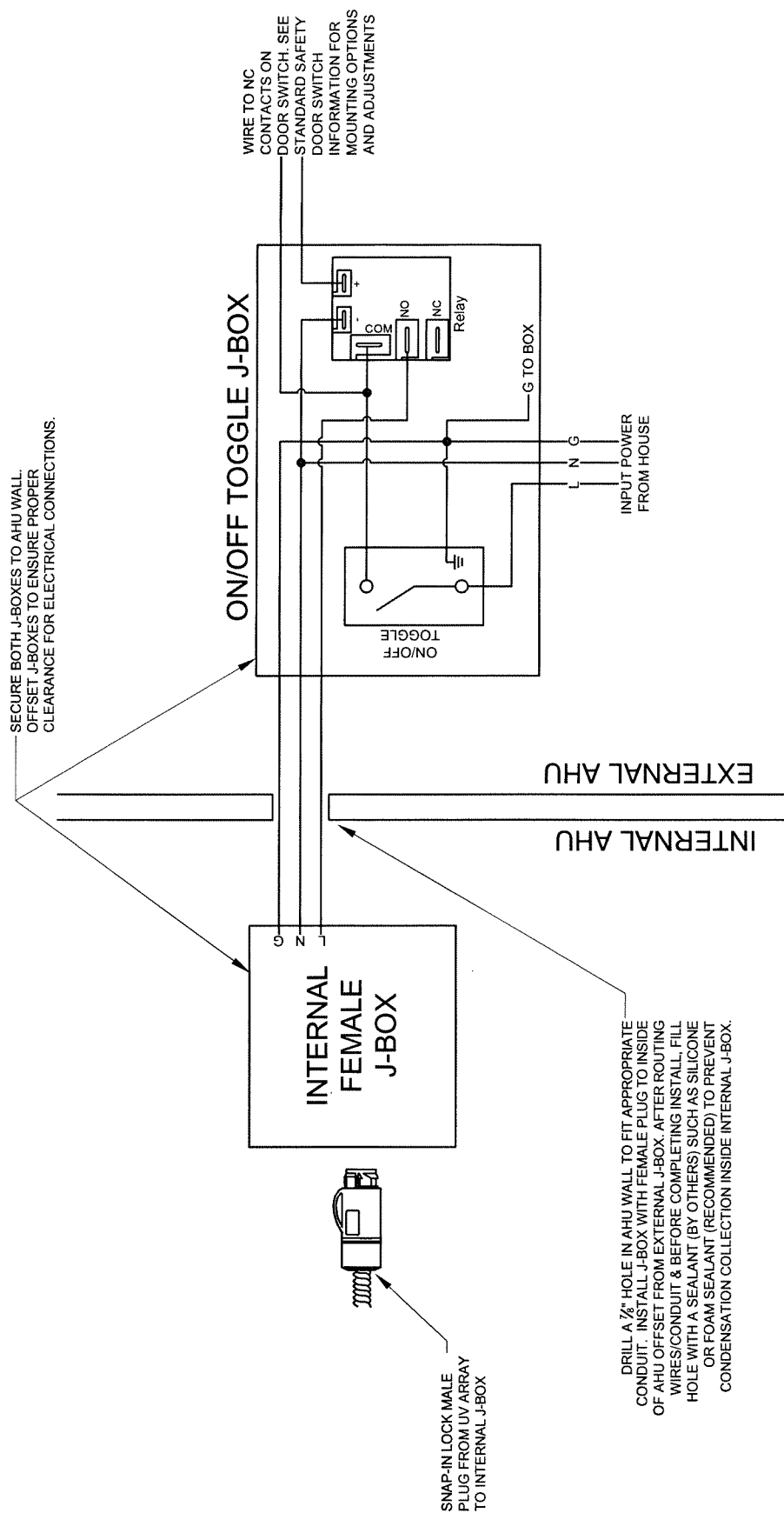
TO REMOVE LAMP, FOLLOW THIS INSTRUCTION IN REVERSE ORDER. FAILING TO FOLLOW THIS ORDER OF INSTALLATION MAY RESULT IN BREAKAGE OF LAMP SOCKET &/OR LAMP.



AR-S

**ELECTRICAL REQUIREMENTS: 120V to 240V
LAMPS: PL-LTUUV (WIND CHILL CORRECTED)
DAMP LOCATIONS ONLY**

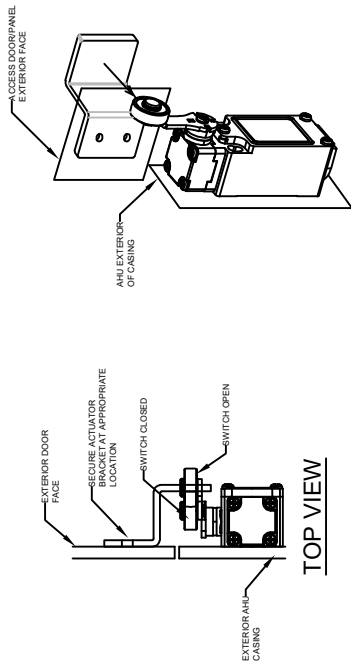
AR-S INSTALLATION
INSTRUCTIONS



- NOTE!**
- ANY ADDITIONAL FASTENERS, CONNECTORS, OR WIRING REQUIRED THAT IS NOT SUPPLIED IS THE DUTY OF THE INSTALLER TO PROVIDE
 - ALL LOCAL AND NATIONAL CODES MUST BE FOLLOWED WHEN INSTALLING ELECTRICAL CIRCUIT
 - ALL FIELD WIRING MUST BE RATED 90°C
 - ENSURE THE MAIN POWER SWITCH IS POWERED OFF AND LOCKED OUT BEFORE ATTEMPTING TO WORK INSIDE AHU
 - POWER INPUT INTO JUNCTION BOX MUST BE ROUTED THROUGH BOTTOM OF BOX IF INSTALLED OUTSIDE

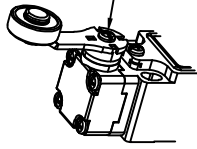
SINGLE PHASE WIRING DIAGRAM WITH SINGLE POLE LIGHT SWITCH

STANDARD SAFETY DOOR SWITCH INFORMATION



ACTUATOR HEAD POSITIONING
THE ACTUATOR HEAD MAY BE POSITIONED IN ANY OF FOUR DIRECTIONS DEPENDING ON IN-SWINGING OR OUT-SWINGING DOOR.

1. REMOVE FOUR HEAD RETAINING SCREWS WHILE HOLDING ACTUATOR HEAD IN PLACE.
2. TO PREVENT ACTUATOR SPRING LOSS; REMOVE HEAD SLOWLY TO RELIEVE SPRING TENSION PRIOR TO REMOVAL.
3. ROTATE ACTUATOR HEAD TO DESIRED POSITION.
4. POSITION THE LARGE DIAMETER END OF THE ACTUATOR SPRING OVER THE ACTUATOR. PLACE RETAINING SCREWS THROUGH GASKET MATERIAL AND POSITION HEAD OVER SCREW HOLES IN DESIRED POSITION.
5. SECURELY TIGHTEN THE SCREWS TO 0.2Nm OF TORQUE.

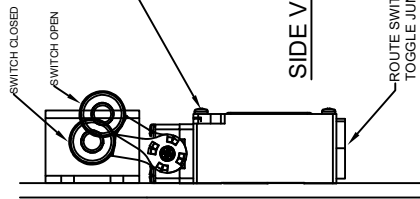


POSITIONING LEVER
THE LEVER ON THE ROTARY ACTUATED UNITS IS ADJUSTABLE TO ANY OF THE SEGMENTED POSITIONS 360° AROUND THE SHAFT; HOWEVER, THE DEGREE OF ROTATION IS DEPENDANT ON HEAD POSITION AND DIRECTION OF ROLLER.

1. LOOSEN THE LEVER RETAINING SCREW WITH A PHILLIPS HEAD SCREWDRIVER.
2. REMOVE LEVER.
3. REPOSITION LEVER TO DESIRED LOCATION.
4. SECURELY TIGHTEN SCREWS.

WIRING TO SWITCH

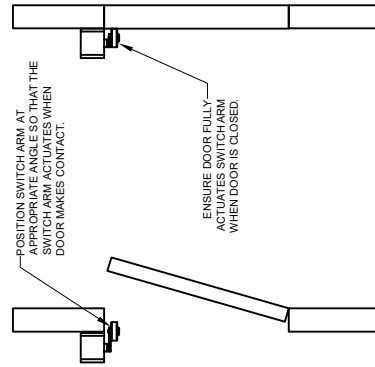
1. REMOVE FRONT COVER PLATE SCREW.
2. CONTACT BLOCK AREA BY TERMINAL SCREW IS LABELED FOR NO (NORMALLY OPEN) AND NC (NORMALLY CLOSED) CONTACTS.
3. CONNECT STRANDED WIRE (18 AWG - 14 AWG) OR SOLID WIRE (18 AWG - 16 AWG) TO DESIRED CONNECTOR TERMINALS. USE 90°C (194° F) RATED WIRE WHEN AMBIENT TEMPERATURE IS TO EXCEED 75°C (158° F).
4. SECURELY TIGHTEN COVER SCREW.



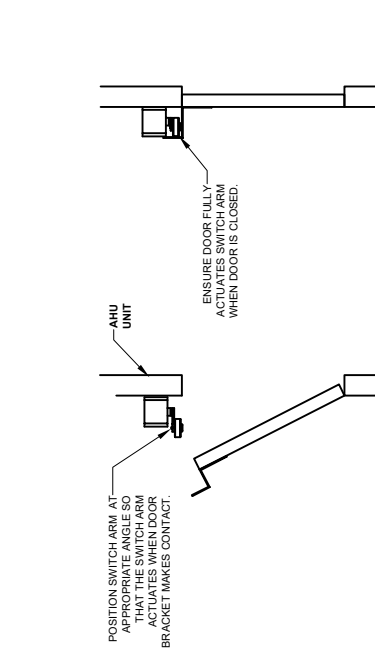
16

WARNINGS!

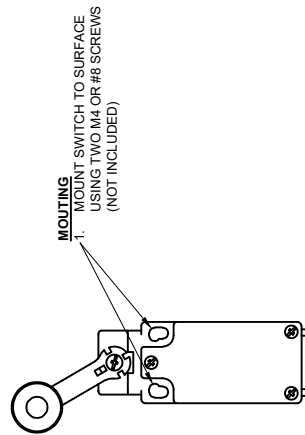
- WHERE POSSIBLE, INSTALL THESE SWITCHES WITH THE CONDUIT OPENING POINTED DOWN TO DRAIN MOISTURE AWAY FROM SWITCH
- DO NOT INSTALL SWITCH AT THE LOW POINT OF A CONDUIT RUN
- INSTALL A FITTING INTO THE CONDUIT OPENING THAT PROVIDES STRAIN RELIEF TO THE WIRES/CABLE, AS WELL AS SEALING AGAINST CONTAMINANTS FOUND IN THE APPLICATION.
- IN APPLICATIONS WHERE FLUIDS OR MOISTURE MAY BE PRESENT, SEAL THE FITTING THREADS WITH A PRODUCT SUCH AS TEFLON TAPE OR PIPE DOPE.



IN-SWINGING DOOR MOUNTING OPTION



OUT-SWINGING DOOR MOUNTING OPTION



MOUNTING

1. MOUNT SWITCH TO SURFACE USING TWO #4 OR #6 SCREWS (NOT INCLUDED)

ROUTE SWITCH WIRING FROM ON/OFF TOGGLE JUNCTION BOX. USE PLUG RATED TYPE 1 TO MAINTAIN THE INTEGRITY OF THE ENCLOSURE TYPE RATING, OR EQUIVALENT