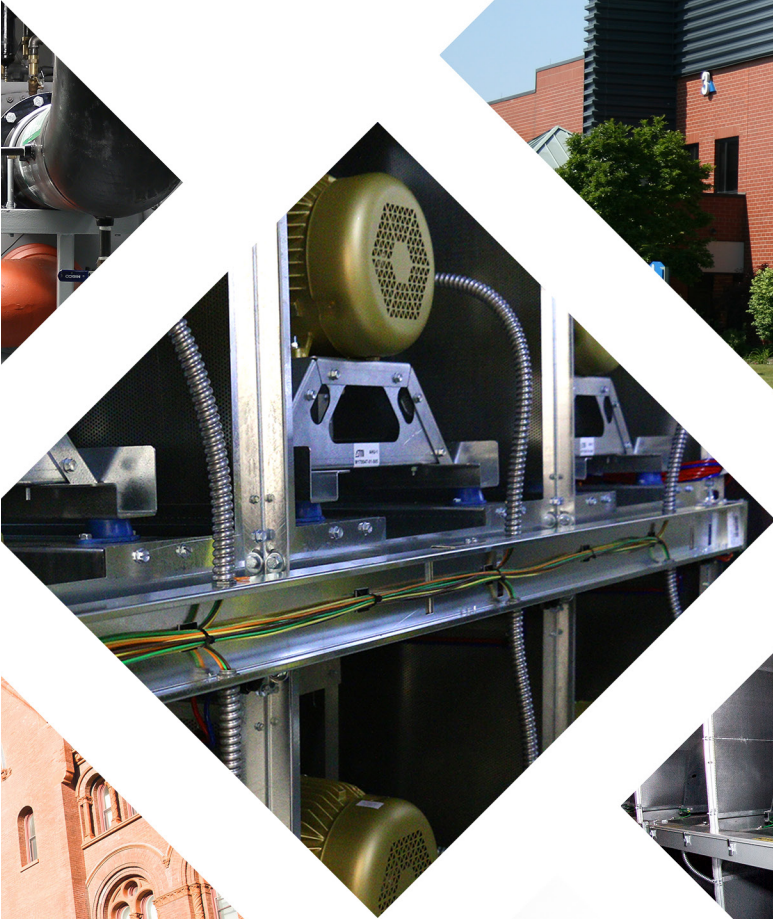




Fan Array System Assembly Manual



TMI Climate Solutions Fan Array Systems

The TMI Climate Solutions Fan Array System is a field installed retrofit methodology that uses several smaller fan cubes to replace a larger fan within your existing air handling unit, providing design flexibility, redundancy, reducing maintenance costs and increasing energy savings.

This manual is designed to provide general information on the common assembly of all standard components that will be installed in your Fan Array System.

Note that some sections of this manual may not apply to your Fan Array System. This manual has been designed for general assembly purposes and describes the standard components that will be included in your field installed Fan Array System.

All documentation that was specifically designed for your Fan Array System has been included in your project specific documentation package including (if applicable):

- Mechanical drawings
- Electrical Schematics
- Sequence of Control
- DDC controller documentation (when supplied)
- Variable Frequency Drive (VFD) instructions manual on CD or DVD (if supplied)
- Warranties

Inspection of Supplied Components

Inspect the received fan cubes and optional components for any damage that may have occurred during shipment. Ensure there is no damage to any of the internal components as well. If damage is discovered file a claim with the shipping company. Remember to check the packing list against all items received. If items are missing sign the carrier's bill of landing with the notation, "Shipment received less item description and/ or item number." Contact TMI Climate Solutions immediately if damage is found. No return shipment will be accepted without authorization.

Precautions

The services of qualified field service personnel are mandatory for safe and proper installation of this equipment. Authorities having jurisdiction should be consulted before installations are made to verify local codes, installation procedures and installation clearances.

The following clearances from combustible materials are to be maintained:

- Top: 6"
- Control side: 48"
- Opposite controls: 6"
- Bottom: 0"

If roof curb is provided by others, it must be at least 4" high and constructed from

non-combustible material.

The fan array is designed for installation on a level surface. Ensure level prior to assembly.

Do not locate the fan array inlet opening within 10 feet of any exhaust discharge point or within 24" of any obstruction.

Provide access and clearance upstream and downstream of the fan array for maintenance.

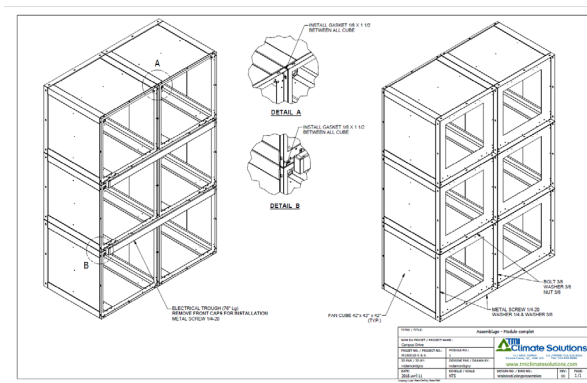


WARNING

Many of the following steps need to be performed with the unit powered off and locked out. Disconnect the main power switch to the unit before performing service and maintenance procedures.

Fan Array System Assembly

1. Verify receipt of all factory supplied components against enclosed packing list. Each fan cube will be numbered and the location within the array will be shown in your project specific drawings. Refer to these drawings as you assemble your Fan Array for specific notes and information pertaining to/ affecting your project, as applicable.



2. Prior to demolition of existing fan: Verify that assembled array will fit inside existing air handling unit. Internal floor to ceiling and inside wall to all dimensions were provided to TMI Climate Solutions by others.
3. Disconnect power to the existing fan at the main disconnect control panel.
4. Make note of all wire locations for reinstallation later.
5. Remove existing fan/motor assembly and clean the area thoroughly.
6. Make sure that floor on the air handler is level and rigid.

7. Carefully remove fan cubes from crates and other packing materials.
8. If you have access to a hoist on site you can utilize the recommended lifting points and lugs to secure the individual cubes. (see images 1, 2 & 3)
These points are predrilled to make transportation quick and easy.

Image 1

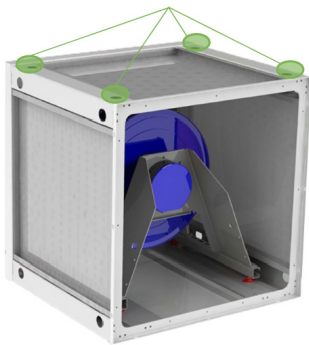


Image 2



Image 3



9. Determine offset for the assembled array (from inside walls) on both sides of the unit and mark accordingly. (see image 4)

Image 4



Image 5



Image 6



10. Add Gasket $1\frac{1}{2}$ " x $\frac{1}{8}$ " between each fan cube along the vertical edges of the inlet side of the cubes. If fan cubes are stacked, gasket is also required on the horizontal edges of the inlet side of the fan. Refer to your project specific documentation package to ensure your adding gasket to all edges necessary. (see images 5 & 6)
11. Align first fan cube (bottom row furthest from access side of unit) and only secure first cube to floor using tek screws (see image 7).
12. Continue setting fan cubes in numerical order until bottom row is completed, fasten together using supplied bolts, washers, nuts, and using provided holes on both inlet and discharge side of fan cubes (see image 8 & 9) Do not yet secure to floor.

Image 7

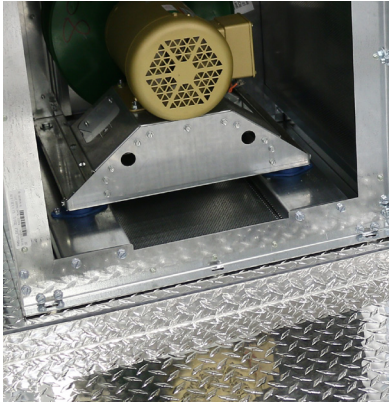


Image 8

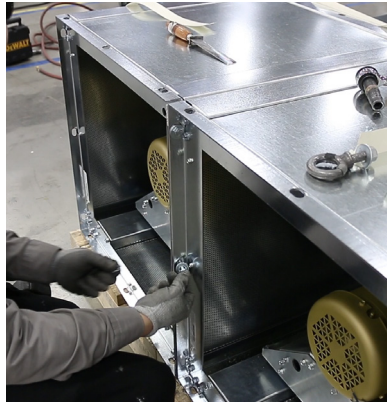


Image 9



13. Check alignment and verify clearance on both sides of air handling unit inside walls. Adjust accordingly.
14. After alignment is verified, secure complete first row of fan cubes to floor with tek screws.

Image 10



Image 11



Image 12



15. Install additional rows of fan cubes and bolt together on both inlet and discharge side of fan cubes (see images 10, 11, & 12).
16. To secure the fan array to the unit, attach blank-off walls to sides and ceiling of unit then secure to fan cubes. gasket between blank-off walls and fan cubes as required to prevent air from bypassing the fan array(see images 13, 14 & 15).

Image 13



Image 14

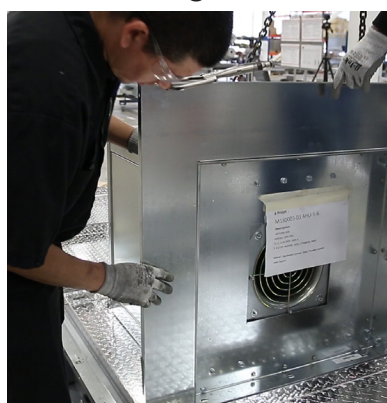


Image 15

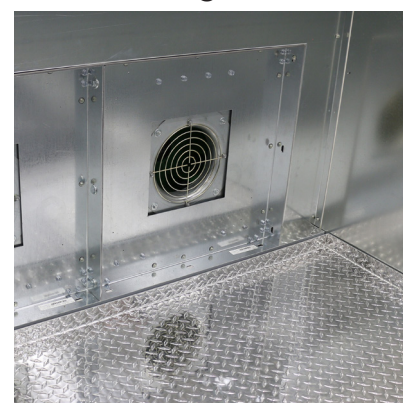


Image 19



Image 20



Image 21



Image 22



Image 23



Wiring

21. Attach screw in connector to each end of flexible conduit; conduit not to exceed 3 Ft. Conduit connection to Raceway (see images 24 & 25). Conduit connection to motor (see images 26 & 27).

Image 24



Image 25



Image 26



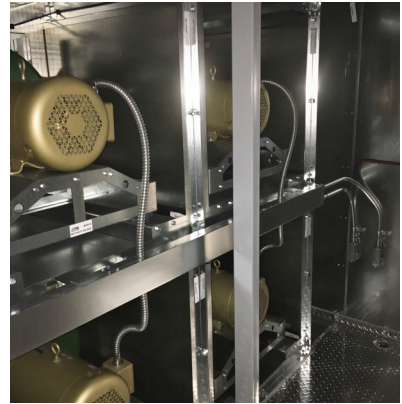
Image 27



Image 28



Image 29



22. Install flexible conduit using screw in connector from the motor to the dedicated hole in the raceway (see images 28 & 29)
23. Pass wires through the flexible conduit and through the raceway, minimum gage for AC motor is 12 AWG (see images 30 & 31).

Image 30

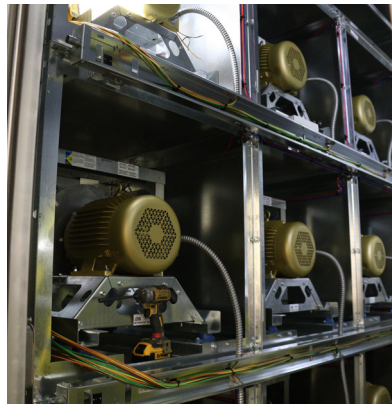
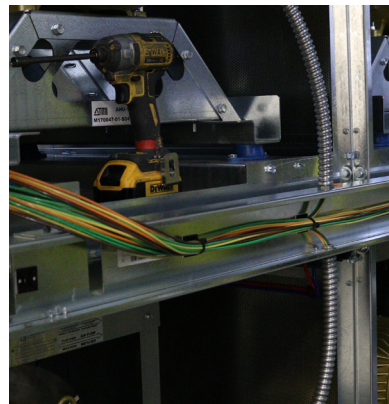


Image 31



24. Follow the sequence of the fan array for connection in the motor overload panel (see images 32, 33, & 34).

Image 32



Image 33

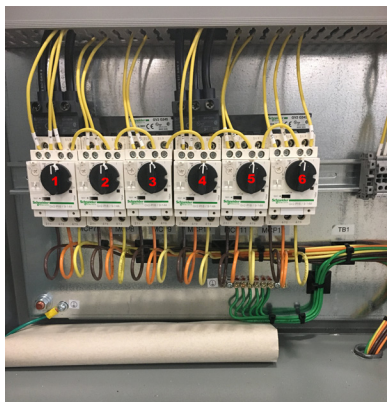


Image 34



Note:

From raceway to the motor protection panel, use the appropriated conduit sizes according to NEC Code Annexe C

25. Wire each fan cube motor to motor overload panel (if supplied) per wiring diagram. Diagram is located inside the motor overload panel lid.
26. Once Fan Array has been funny wired you can snap the Racetray face plate into place to cover and protect exposed wires (see image 35).

Image 35



27. Re-assemble air handling unit walls, doors, safety devices, etc. removed during retrofit per unit Manufacturer's recommendations.
28. Clean the interior of the unit. The assembly is now complete.

Notes:



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