

TRANE CATALYTIC AIR CLEANER SYSTEM

PART 1 - GENERAL

1. The Trane Catalytic Air Cleaner System (TCACS) shall be factory-engineered and factory-installed in the air handler by the air handler manufacturer. Field-installed fixtures shall not be allowed.

PART 2 - DESIGN

1. The Trane Catalytic Air Cleaner System shall be a three part integral assembly for treatment of air by: (1) High Efficiency Particle Filtration (2) Ultraviolet Germicidal Irradiation (UVGI) using UV-C lamps and fixtures; and (3) Photocatalytic Oxidation (PCO) catalyst media using titanium dioxide (TiO₂).
2. High Efficiency Particle Filters shall be rated MERV 13 or higher. Filters are positioned upstream of the PCO media.
3. UV-C lamps and ballasts designed specifically to provide type-C ultraviolet light with a wavelength at or near 253.7 Angstroms and shall not produce any ozone. Lamps shall be imbedded in the center of the catalyst media bank, spaced no further than 6" apart, and shall achieve a minimum coverage of 5 milliwatts per square inch of UVC light across all exposed surfaces of the PCO media.
4. The catalyst media shall consist of six-inch deep (direction of airflow) grid with face area to match casing opening, one pleat per inch (nominal), and coated with 40-200 nanometer TiO₂. The complete PCO media bank assembly shall be housed in a galvanized or stainless steel casing and placed in the air handler perpendicular to the airflow.
5. All UV lamps and PCO media shall be removable from outside the AHU casing through a side access door for maintenance purposes.
6. An air flow switch shall be wired into the control circuit to disable the UV lights when the AHU fan is not running.
7. The Trane Catalytic Air Cleaner System can be configured to operate with 120V/1 phase/60 hz, 200-208V/3ph/60hz, 230V/3ph/60hz, 460V/3ph/60hz, or 575V/3ph/60hz electrical power. All 120V/1ph./60hz systems shall have an independent single point external power connection. Three phase systems shall be either independent single point power or integral with the AHU main power as shown on the drawings. All necessary main fusing shall be included.
8. Electrical fixtures shall meet the UL drip proof design criteria. Component enclosures shall be constructed of galvanized steel or stainless steel to resist corrosion. Fixtures shall have been tested and recognized by UL/C-UL under Category Code ABQK (Accessories, Air Duct Mounted), UL Standards 1995.

9. For Line Voltage options, the TCACS shall be provided with a UL 508 listed panel for power distribution and over-current protection.
10. TCACS assemble shall be capable of withstanding 750 fpm face velocity with no structural damage
11. All polymeric materials that come into direct or indirect (reflected) contact with UV-C light shall be tested and certified as UV-C tolerant. Any non-conforming construction materials or components within the exposure zone shall be completely shielded from the UV-C light using a certified UV-C tolerant material.. UV-C tolerance is defined as being capable of performing its intended duty for a minimum of 20 years.

PART 3 - SAFETY

1. Access doors or panels shall be provided at the location of each Trane Catalytic Air Cleaner System as indicated on the plans and schedule. All access doors/panels shall have a mechanical safety interlock switch that disconnects the TCACS power upon opening.
2. Each TCACS shall be equipped with an externally mounted electrical disconnect switch, with lock-out capability to prevent unwanted operation for maintenance purposes.
3. A window shall be provided on each air handler to allow visual inspection of the Trane Catalytic Air Cleaner System during operation. The viewing window shall be guaranteed to block UV-C light emissions below the threshold limits specified by NIOSH and/or ACGIH.
4. Units shall have a safety warning label applied to the exterior of each section containing UV-C lights.
5. Complete safety, maintenance and servicing instructions for the Trane Catalytic Air Cleaner System shall be incorporated into the air handler manufacturer's standard installation, operating and maintenance manuals.