1. Fan Wall Technology (FWT)

1.1. The Fan Wall Technology, as licensed by Huntair Inc., shall consist of multiple, direct driven, arrangement 4 plenum fans constructed per AMCA requirements for the duty specified, (Class I, II, or III). All fans shall be selected to deliver the specified airflow quantity at the specified operating Total Static Pressure and specified fan/motor speed. The Fan Wall Array shall be selected to operate at a system Total Static Pressure that does not exceed 90% of the specified fan's peak static pressure producing capability at the specified fan/motor speed. Each fan/motor "cube" shall include an 11 gauge, A60 Galvanized steel intake wall, 14 gauge spun steel inlet funnel, and an 11 gauge G90 Galvanized steel motor support plate and structure. The fan intake wall, inlet funnel, and motor support structure shall be powder coated for superior corrosion resistance. All motors shall be standard pedestal mounted type, (ODP) (TEFC)(TENV), T-frame motors selected at the specified operating voltage, RPM, and efficiency as specified or as scheduled elsewhere. All motors shall include isolated bearings or shaft grounding. Each fan/motor cartridge shall be dynamically balanced to meet AMCA standard 204-96, category BV-5, to meet or exceed Grade 2.5 residual unbalance.

1.1.1. The FWT array shall be provided with integral acoustical silencers that reduce the bare fan discharge sound power levels by a minimum of 15 db re 10^-12 watts throughout the eight octave bands with center frequencies of 125, 250, 500, 1000, 2000, 4000, and 8000 HZ when compared to the same unit without the silencers. The silencers shall not increase the fan total static pressure, nor shall it increase the airway tunnel length of the Air Handling Unit and with no additional static pressure.

1.1.2. Alternate manufacturers must submit acoustical data for review and approval prior to the bid indicating that the proposed alternate equipment can meet all specified performance requirements without impacting the equipment performance or design features including duct connection location, unit weights, acoustical performance, or specified total fan HP for each FWT array. Proposals submitted which indicate a higher connected fan HP than specified or scheduled will not be accepted.

1.2. The fan array shall consist of multiple fan and motor "cubes", spaced in the air way tunnel cross section to provide a uniform air flow and velocity profile across the entire air way tunnel cross section and components contained therein. Each fan cube shall be **(individually wired to a control panel containing a single VFD, as specified elsewhere, for the total connected HP for all fan motors contained in the FWT array) (wired to an individual VFD as specified elsewhere for each fan motor. Each individual VFD shall be driven by a "master/slave" control scheme, and shall also be provided with a redundant PLC controller in the event of a "master" VFD failure).** Wire sizing shall be determined, and installed, in accordance with applicable NEC standards.

1.3. The Fan Wall array shall produce a uniform air flow profile and velocity profile within the airway tunnel of the air handling unit not to exceed the specified cooling coil and/or filter bank face velocity when measured at a point 12" from the intake side of the Fan Wall array intake plenum wall, and at a distance of 48" from the discharge side of the Fan Wall intake plenum wall.

1.4. Each fan/motor assembly shall be removable through a 30" wide, free area, access door located on the **(discharge)(inlet)** side of the fan wall array.

1.5. **Option:** Each fan/motor "cube" will be provided with an individual back-draft damper similar to a Ruskin BD6 Heavy Duty 6063T5 extruded aluminum frame, .125" wall thickness. Frame shall have galvanized steel braces on all corners. Blades shall be minimum .070" wall thickness 6063T5 extruded aluminum. Bearings shall be corrosion resistant long life synthetic. Linkage shall be ½" tie bar with stainless steel pivot pins.

1.6. **Option:** Each fan assembly shall be supplied with a complete flow measuring system, Huntair Flow-Cone, which indicates airflow in Cubic Feet per Minute. The flow measuring system shall consist of a flow measuring station with four static pressure taps and four total pressure tubes located at the throat of the fan inlet cone. The flow measuring station shall not obstruct the inlet of the fan and shall have no effect on fan performance (flow or static) or sound power levels. A surface mounted indicator, located on the unit exterior, shall provide a **(digital) (analog)** CFM readout, and/or a **(4-20 ma) (0-10 volt)** output control signal for use in the BAS as specified elsewhere.

1.7. The manufacturer shall provide a complete spare FWT fan/motor assembly for emergency replacement, one for each type of assembly provided on the project. Manufacturers for alternate, single direct driven fan assembly provided in lieu of the specified Fan Wall shall provide a spare motor and fan assembly and a five year, parts and labor warranty for repair and/or replacement at no additional expense to the owner. Such warranty coverage shall include all freight charges for expedited shipment of emergency replacement parts, the cost of any cranes or lifting devices, and any costs associated with air handling unit disassembly and re-assembly, as required, for emergency replacement of any defective fan or motor.