Air Monitor Corporation

H.F.A.#_____

W.O.#_____

SUBMITTAL DATA:

PROJECT CLEAN AIR ENGINEERING OFFICE BUILDING

ADDRESS 207 WOODWORK LANE

PALATINE, ILLINOIS

SUBMITTED EQUIPMENT AIRFLOW & STATIC PRESSURE MEASURING STATIONS

HVAC

SPECIFICATION SECTION _____

FRAN ASSOCIATES
ARCHITECT

GRITSCHKE ENGR.
CONSULTING ENGINEER

EDWARDS ENGINEERING, INC.
CONTRACTOR

AIR FILTER & EQUIPMENT CORPORATION
REPRESENTATIVE

(312) 486-8010
REPRESENTATIVE PHONE

Date	Revision Level
6/13/90	0

PRINTED IN U.S.A.

SUBMITTAL SHEET

THE AirMonitor

Duct Air Monitor Device™

rectangular configuration

STANDARD CONSTRUCTION

CASING: 14 gauge galvanized sheet metal, spot welded.
FLANGES: 1½" wide, 90° formed flange for all sizes up to 120" × 120"
AIR EQUALIZER AND STRAIGHTENER: Type D: Corrosion resistant aluminum. 3" deep × ¾" cell.
TOTAL PRESSURE HEADER: Copper. Silver solder construction.
STATIC PRESSURE HEADER AND SENSORS: Copper. Silver solder construction.
CASING LENGTH: 8"
OPERATION TEMPERATURE: Continuous operation to 150° Fahrenheit.
Intermittant operation up to one week 300° Fahrenheit.
CONNECTION FITTINGS: [X] minibarb [ ] compression
[X] For ¼" OD tubing (for readout only and for use with Air Monitor electronic controls).
[ ] For ⅜" OD tubing (required whenever the measuring station is to be used with Air Monitor pneumatic controls).

SPECIAL CONSTRUCTION (AS ABOVE, EXCEPT AS NOTED)

_____

_____

_____

DRAWING ATTACHED ☒ STANDARD ☐ SPECIAL

Station Number	Control Center Number	System Served	Size, inches Height	Size, inches Width	Station Area Sq. Ft.	Maximum Scheduled CFM	Maximum Scheduled fpm	Resistance to Airflow IN wc @ Maximum Scheduled CFM
AFMS-1	-	S-1	30	42	8.75	9,700	1,109	
AFMS-2	-	ER-1	16	48	5.33	5,380	1,009	
AFMS-3	-	S-2	30	48	10.00	13,840	1,384	
AFMS-4	-	ER-2	28	48	9.33	12,840	1,376	
AFMS-5	-	S-3	28	66	12.83	16,090	1,254	
AFMS-6	-	ER-3	34	44	10.39	15,090	1,452	
AFMS-7	-	E-1	24	46	7.67	9,240	1,205	

Project Clean Air Engineering

Location Palatine, Illinois

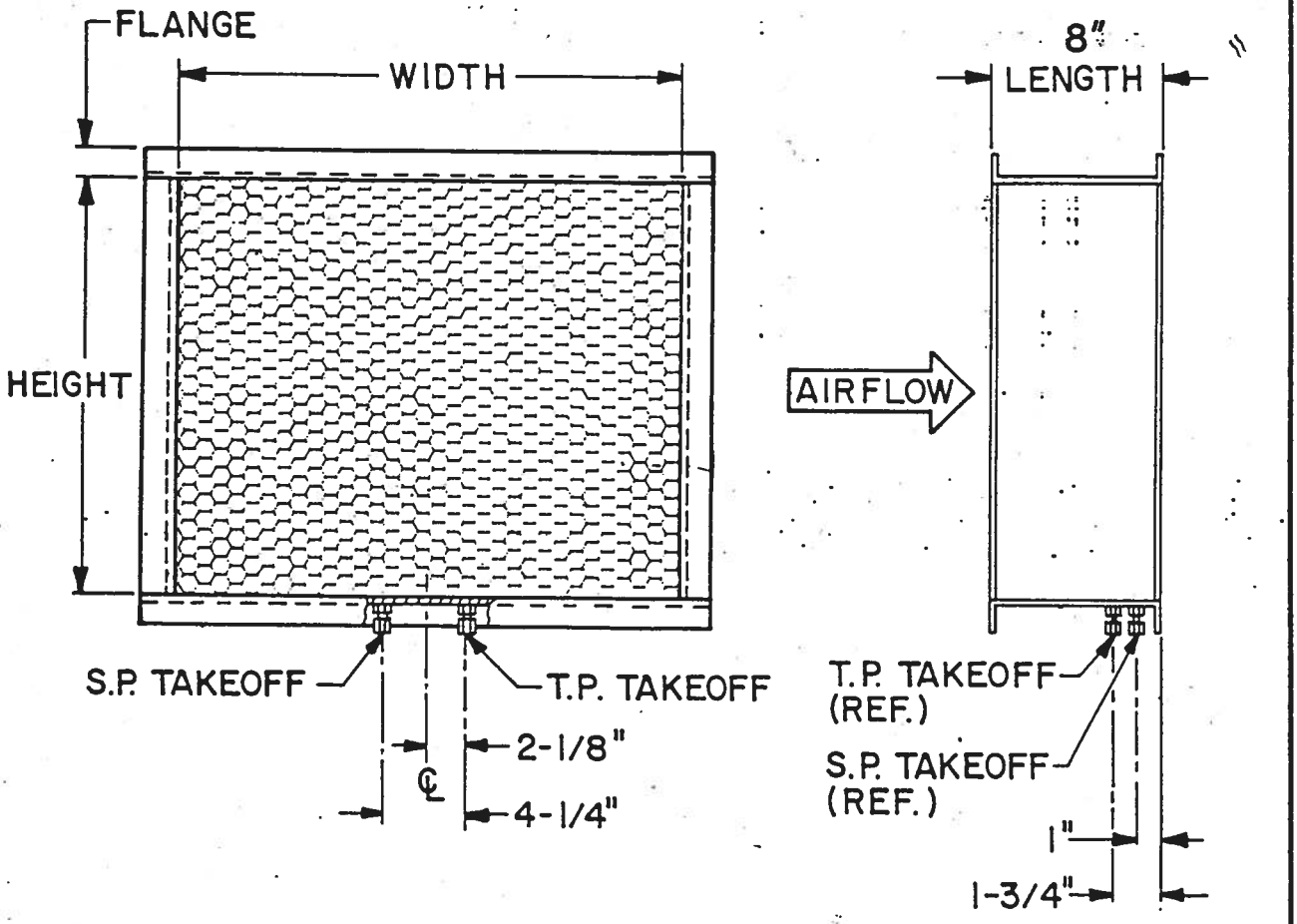
AirMonitor Corporation
P.O.Box 6358 Santa Rosa, Ca 95406
(707) 544-2706 TWX 510-744-2073
AIRMONITR SARO

THE AirMonitor

Duct Air Monitor Device™

rectangular configuration

TYPE 1 FLANGE



AirMonitor Corporation
P.O. Box 6358 Santa Rosa, Ca 95406
(707) 544-2706 TWX 510-744-2073
AIRMONITR SARO

SUBMITTAL SHEET

THE AirMonitor

System Static Totalizer™

rectangular configuration

STANDARD CONSTRUCTION

CASING: 14 gauge galvanized sheet metal, spot welded.
FLANGES: 1½" wide, 90° formed flange for all sizes up to 120" x 120"
AIR EQUALIZER AND STRAIGHTENER CELL: Type D: Corrosion resistant aluminum. 3" deep x ¾" cell.
STATIC PRESSURE HEADER AND SENSORS: Copper. Silver solder construction.
CASING LENGTH: 8"
OPERATION TEMPERATURE: Continuous operation to 150° Fahrenheit.
Intermittant operation up to one week 300° Fahrenheit.
CONNECTION FITTINGS: [X] minibarb [ ] compression
[X] For ¼" OD tubing (for readout only and for use with Air Monitor electronic controls).
[ ] For ⅜" OD tubing (required whenever the measuring station is to be used with Air Monitor pneumatic controls).

SPECIAL CONSTRUCTION (AS ABOVE, EXCEPT AS NOTED)

_____

_____

_____

DRAWING ATTACHED [X] STANDARD [ ] SPECIAL

	Station Number	Control Center Number	System Served	Size, inches Height	Size, inches Width	Station Area Sq. Ft.	Maximum Scheduled CFM	Maximum Scheduled fpm	Resistance to Airflow IN wc @ Maximum Scheduled CFM
1st. Flr.	SPS-1			20	30	4.17			
2nd. Flr.	SPS-2			18	24	3.00			
2nd Flr.	SPS-3			20	28	3.89			

(1) Locate at Col. E, between Col's. 3 & 4
(2) Locate at Col's. E & 2
(3) Locate at Col. 5, between Col's. D & E

Project Clean Air Engineering

Location Palatine, Illinois

AirMonitor Corporation
P O Box 6358 Santa Rosa, Ca 95406
(707) 544-2706 TWX 510-744-2073

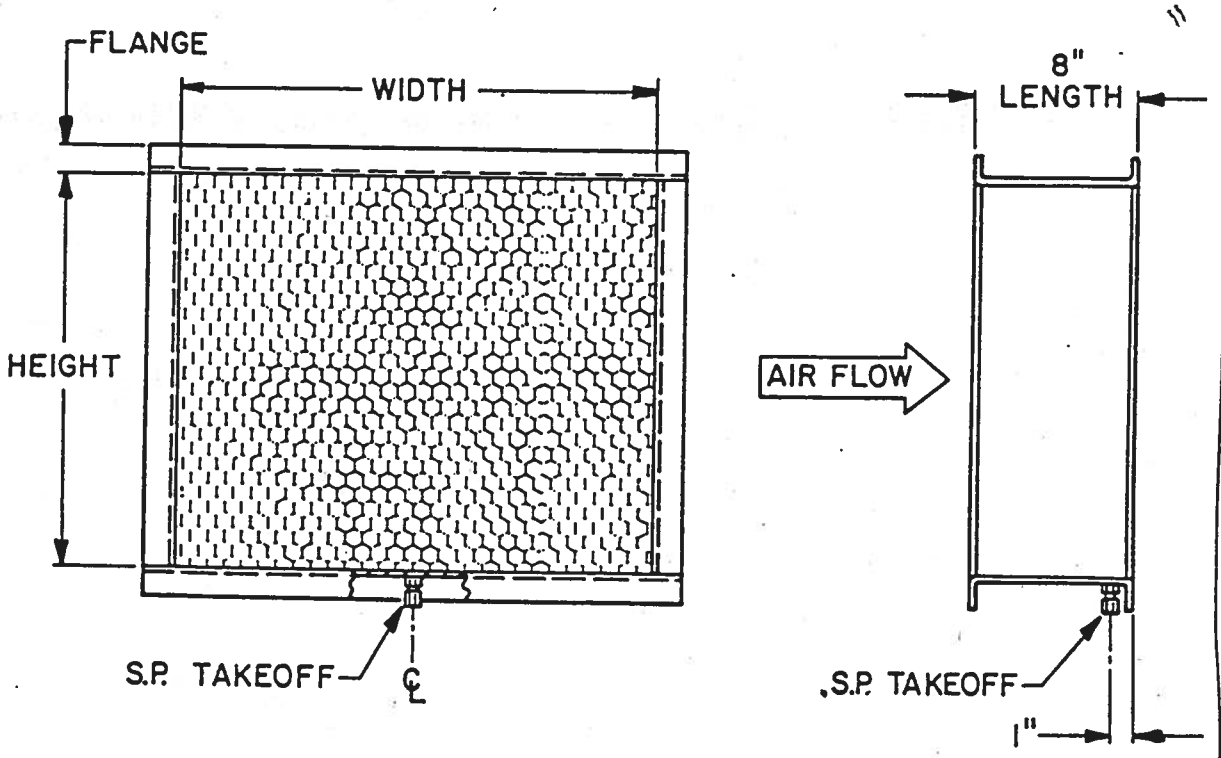
SUBMITTAL SHEET

THE AirMonitor

System Static Totalizer™

rectangular configuration

TYPE I FLANGE



AirMonitor Corporation
P.O.Box 6358 Santa Rosa, Ca 95406
(707) 544-2706 TWX 510-744-2073
AIRMONITR SARO

FAN-E and D.A.M.D.
DESIGN & INSTALLATION GUIDE

● GENERAL INSTALLATION CONSIDERATIONS ●

The FAN-E and D.A.M.D. units can be installed in "almost" any location, position or condition. The purpose of this guide is to explain the few application and installation limitations, and to present minimum guidelines for proper installation.

The installation factors to be considered are air turbulence, direction, temperature and contamination. Each of these factors and its resulting effect on unit or station performances are discussed below:

TURBULENT AIR FLOW

The FAN-E unit incorporates a small-celled air straightener for complete processing of the air flow prior to measurement. Therefore, little if any, concern need be given to this factor beyond that incorporated in the *Minimum Requirements for Installation* sketches shown on the reverse of this sheet.

The D.A.M.D. station contains a large-celled air straightener extremely efficient in eliminating duct turbulence. It does not produce any static barrier (resistance to air flow) and will, therefore permit the transmission of negative duct static pressures (often present with gross air turbulence). The presence of negative duct static pressures (where positive pressures should exist) can cause the D.A.M.D. station to record false velocity pressure (and velocity) values. The minimum distances from air turbulence-producing fittings, transition, etc. to assure proper D.A.M.D. station operation are shown in the *Minimum Requirements for Installation* sketches shown on the reverse of this sheet.

DIRECTION OF AIR FLOW

The FAN-E unit and D.A.M.D. station will function only with the air flow passing through the air straightening section prior to entering the total and static pressure sensing section. To prevent improper installation, each unit and station is marked with two or more arrows indicating the required direction of air flow. If a unit or station is inadvertantly installed backwards, a negative (pressure) scale reading will result.

AIR TEMPERATURE

The standard FAN-E unit and D.A.M.D. station is designed to operate in air systems where temperatures of 160°F are not exceeded for prolonged periods. Units using special materials can be designed and constructed for use in air temperatures up to 1000°F.

AIRBORNE CONTAMINANTS

The levels of air filtration and cleanliness normally associated with air conditioning applications are satisfactory for operation of the FAN-E or D.A.M.D. units. Possible plugging of the total and static pressure sensors is sharply reduced by the presence of a "no-flow" condition when connected to a meter.

Dry types of airborne contaminants do not normally present any problems, however the presence of agglomerating, or wet types of particles (such as oil mist, soot, wet exhaust fumes, etc.) may present problems since these "wet" contaminants can impinge on the sensor surfaces. If plugging of the sensor section does occur compressed air can be applied to the pressure transmitting tube to blow back and clear the sensors.

● INSPECTION, INSTALLATION AND OPERATING INSTRUCTIONS ●

INSPECTION

Carefully uncrate the D.A.M.D. or FAN-E unit. Inspect aluminum honeycomb for surface damage. If edges of honeycomb have been dented or bent over, straighten and reshape by means of a long-nose plier.

Visually check internal total and static pressure sensor tubes for any breakage during transit.

Check external tubing to be certain that all tubing connections are wrench tight.

INSTALLATION

In general, the FAN-E or D.A.M.D. unit is mounted in the duct work in the normal manner of a sheet metal collar or fitting. Connection can be made by bolt or rivet flange connections, metal "U" clips, etc. A government lock, or other like connection is NOT recommended on the inlet side of the unit due to their intrusion into the air stream.

Be certain that the station is mounted with the air flow arrow on arrow on the casing pointing in the direction of air flow in the duct.

Unit can be mounted in any plane or position without affecting its operation.

Do *not* violate the minimum installation requirements shown on the reverse of this sheet. There are typically better positions to install the units than shown. Ideally the unit should be located three-fourths of the distance downstream and between two obstructions.

Connect the ten foot lengths of blue (static pressure) and white (total pressure) tubing to the external pressure fitting ports on the casing. Generally, there will be an externally mounted blue (static pressure) tube on the casing for interconnecting the static sensors, which can be traced to determine the proper connecting port (for the blue tubing). The remaining port is for the total pressure (white tubing) connection.

If no external tubing is visible, the static pressure (blue tubing) connection port is located closest to the downstream side of the station at a distance of approximately three (3) inches from the rear casing flange. The total pressure (white tubing) connection port is usually four (4) inches from the rear casing flange.

OPERATING INSTRUCTIONS

There are no moving parts or components in the FAN-E or D.A.M.D. unit, therefore, checkout procedures for the unit prior to operation are not normally required.

Connect the white (total pressure) tubing to the greater pressure side of the manometer or diaphragm gauge and the blue (static pressure) tubing to the lower pressure side of the gauge. This tubing comes complete with quick-connect fitting for use with Air Monitor Meters. If other gauges are used to read the velocity pressure, a piece of 5/16" dia. rubber hose can be slipped over these fittings to permit the connection of the tubing to the gauge ports.

When using with the Air Monitor Portable Dry Meter, set up meter on tripod. Lift lid and bring meter to a vertical position (lid is used as a back brace) and adjust the meter needle to the "O" position. With Air Meter switch "OFF", connect blue and white tubing to similar color tubing leads from meter. Turn Air Meter switch to "ON" and read. To disconnect station from meter, turn Air Meter switch to "OFF" and disconnect tubes at quick-connect fitting.

MAINTENANCE

The FAN-E or D.A.M.D. unit has no moving parts or components requiring replacement, recalibration, etc., therefore, periodic maintenance is not required. If a stationary dry meter is permanently connected to a station, it should not go out of calibration with repeated use. Care should be given, however, to the transporting and handling of the Portable Dry Type Meter to avoid unnecessary shocks that could damage the internal mechanism.

If excessive build-up of dust or contaminants is evidenced near the FAN-E or D.A.M.D. unit location a source of compressed gas (air or nitrogen) can be connected to the blue and white tubes and the unit purged by reverse flow of the released gas. The internal tubing and headers are capable of withstanding pressure up to 100 psi.

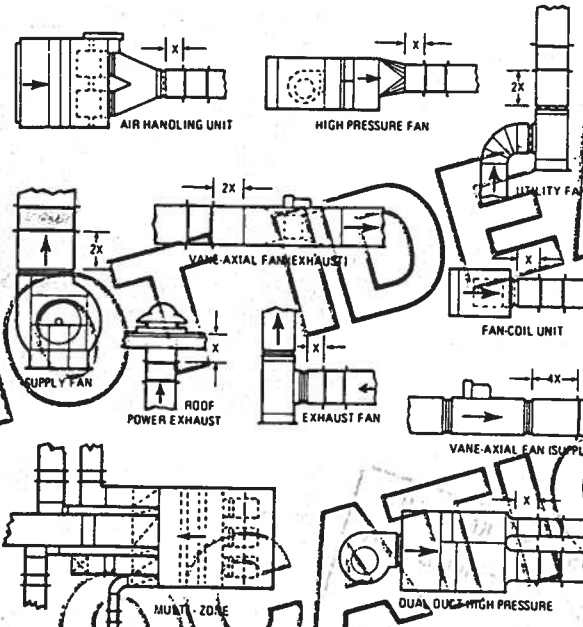
Air Monitor Corporation

P.O. Box 6358 Coddingtown Station
Santa Rosa, California 95406
(707) 544-2706

MINIMUM REQUIREMENTS FOR INSTALLATION

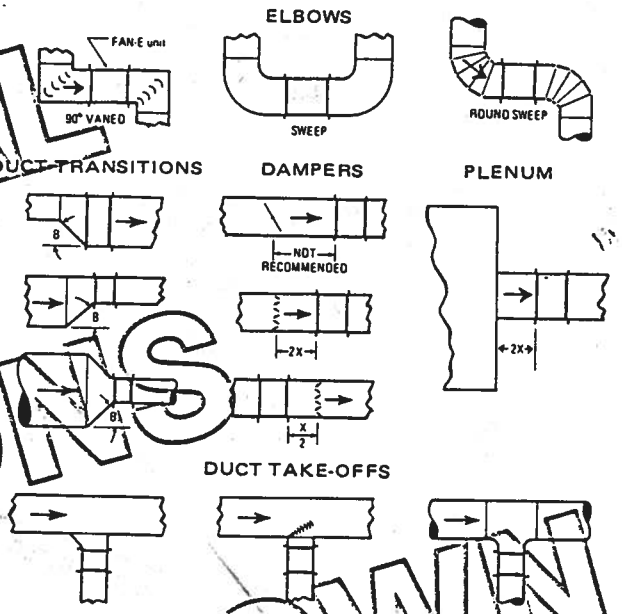
UNIT LOCATIONS SHOWN ARE NOT IDEAL - THEY ARE SHOWN TO INDICATE MINIMUMS ONLY

FAN-E ON FAN SYSTEM



IN SEVERE DUCT CONDITIONS

NOTE: While normally applied to fan systems to measure total fan or system capacities, the FAN-E unit can be installed in duct locations where conditions are too severe for D.A.M.D. station installations. The FAN-E can be located directly adjacent to most elbows, duct transitions and duct take-offs. Several of these typical installations are illustrated below.



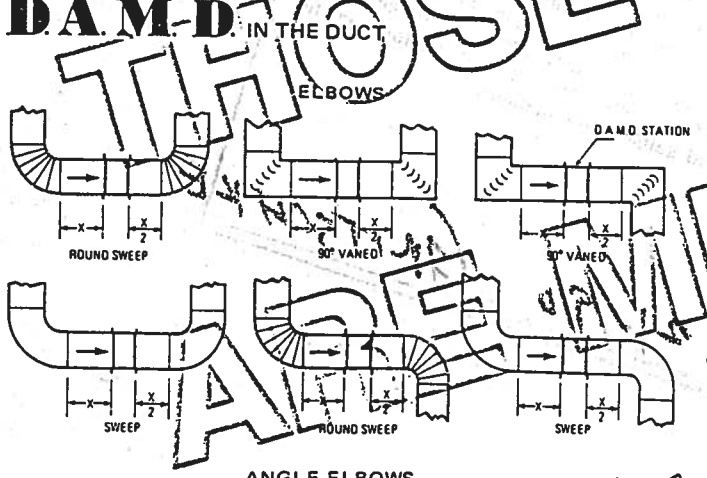
DIMENSION CODE

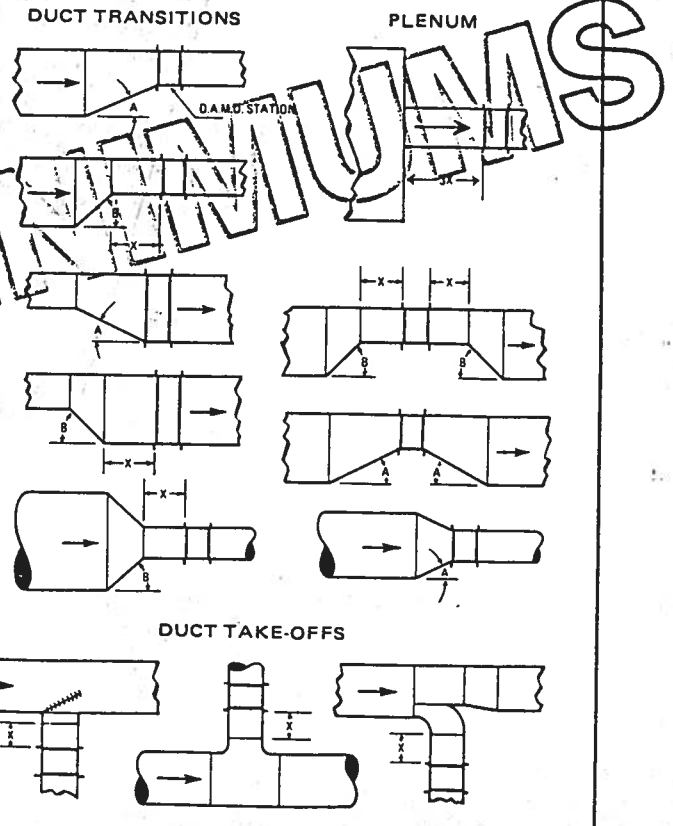
X = Average duct dimension
For round duct, X = one diameter
For square duct, X = duct dimension

For rectangular duct, $X = \frac{\text{duct width} + \text{duct height}}{2}$

Angle A = 15° or less
Angle B = Over 15°

D.A.M.D. IN THE DUCT





THOSE SHOWN ARE MINIMUMS ONLY

127-035

PRINTED IN U.S.A.