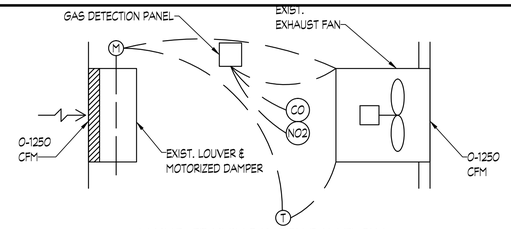
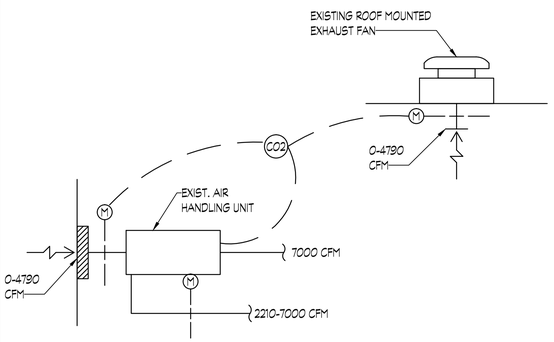


MAINT. TRAINING WORK BAY FLOW DIAGRAM
NO SCALE



ASSEMBLY HALL FLOW DIAGRAM
NO SCALE

SEQUENCE OF OPERATIONS:

MAINTENANCE TRAINING WORK BAY:

1. GAS DETECTION: THE GAS DETECTION SYSTEM SHALL OPERATE AND OVER-RIDE ALL OTHER SEQUENCES.

A. THERE IS A SINGLE SET OF CARBON MONOXIDE AND NITROGEN DIOXIDE SENSORS, CENTRALLY LOCATED, TO PROVIDE FULL COVERAGE OF THE WORK BAY.

B. IF EITHER ONE OF THE CARBON MONOXIDE AND/OR NITROGEN DIOXIDE DETECTORS SENSES GAS CONCENTRATIONS ABOVE LEVEL ONE SET POINTS (20 PPM OF CARBON MONOXIDE AND/OR 3 PPM OF NITROGEN DIOXIDE), THE FOLLOWING SHALL OCCUR.

(1) MOTORIZED DAMPER AT EXISTING OUTSIDE AIR LOUVER SHALL OPEN.
(2) EXISTING WALL MOUNTED EXHAUST FAN SHALL BE ENERGIZED.

C. IF EITHER ONE OF THE CARBON MONOXIDE AND/OR NITROGEN DIOXIDE DETECTORS SENSES GAS CONCENTRATIONS CONTINUING TO RISE ABOVE LEVEL TWO SET POINTS (50 PPM OF CARBON MONOXIDE AND/OR 5 PPM OF NITROGEN DIOXIDE), THE GAS DETECTION PANEL SHALL INITIATE AUDIBLE AND VISUAL ALARMS.

D. EXHAUST FAN SHALL CONTINUE TO OPERATE UNTIL GAS CONCENTRATIONS ARE REDUCED TO BELOW SET POINT LEVELS.

E. WHEN CARBON MONOXIDE AND/OR NITROGEN DIOXIDE GAS CONCENTRATIONS FALL BELOW THE LEVEL ONE SET POINTS (NOTED ABOVE), THE EXHAUST FAN SHALL DE-ENERGIZE AND MOTORIZED DAMPER SHALL CLOSE.

2. VEHICLE EXHAUST:

A. VEHICLE EXHAUST UTILITY FAN SHALL BE MANUALLY STARTED, WITH TAILPIPE HOSE CONNECTED TO VEHICLE(S) PLANNED TO BE OPERATED.

B. MOTORIZED DAMPER AT OUTSIDE AIR LOUVER SHALL OPEN.

C. WHEN VEHICLE EXHAUST FAN IS DE-ENERGIZED, AND IF GAS DETECTION SYSTEM IS NOT IN LEVEL ONE OR LEVEL TWO ALARM, THE OUTSIDE AIR MOTORIZED DAMPER SHALL CLOSE.

3. SUMMER VENTILATION:

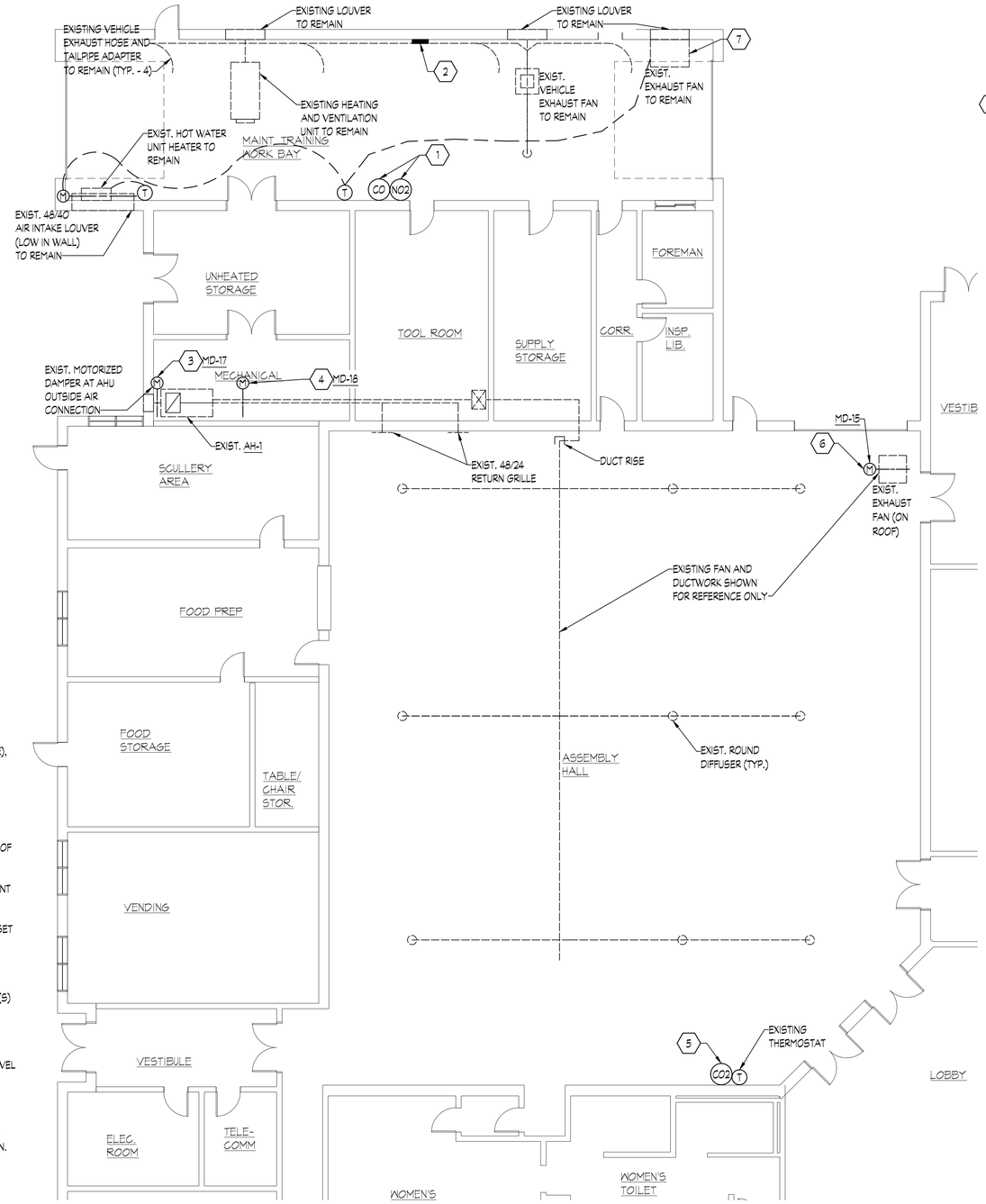
A. THE SPACE TEMPERATURE SENSOR SHALL, UPON A RISE IN ROOM TEMPERATURE ABOVE ITS SET POINT (80°F, ADJUSTABLE), OPEN THE OUTSIDE AIR LOUVER'S MOTORIZED DAMPER, AND ENERGIZE THE WALL MOUNTED EXHAUST FAN.

DRILL HALL:

1. VENTILATION CONTROL: A NEW WALL MOUNTED CARBON DIOXIDE (CO2) SENSOR SHALL PROVIDE OUTSIDE AIR VENTILATION CONTROL BASED ON OCCUPANCY AND RESULTANT CO2 LEVELS.

A. DURING UNOCCUPIED PERIODS THE OUTSIDE AIR DAMPER AT THE EXISTING AIR HANDLING UNIT, AH-1, SHALL BE CLOSED, AND THE RETURN DAMPER SHALL BE OPEN. THE ROOF MOUNTED EXHAUST FAN, IN THE DRILL HALL, SHALL BE DE-ENERGIZED AND ITS MOTORIZED DAMPER SHALL BE CLOSED.

B. DURING OCCUPIED MODE, OUTSIDE AIR SHALL BE CONTROLLED BY THE SPACE MOUNTED CO2 SENSOR, TO MONITOR CO2 LEVEL. OUTSIDE AIR DAMPER AND EXHAUST AIR DAMPER SHALL MODULATE FROM CLOSED, TO A POSITION CAPABLE OF PROVIDING A MAXIMUM OF 4790 CFM OF OUTSIDE AIR TO THE UNIT (BASED ON CO2 LEVELS). RETURN AIR DAMPER SHALL MODULATE PROPORTIONALLY. DAMPERS SHALL MODULATE AS NECESSARY TO MAINTAIN 800 PPM (ADJUSTABLE) CO2 LEVEL IN THE SPACE.



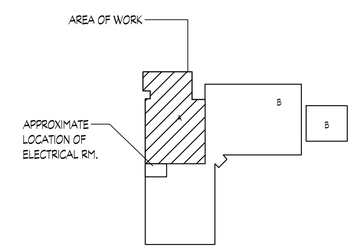
SMYRNA READINESS CENTER FLOOR PLAN
SCALE: 1/8" = 1' - 0"

GENERAL NOTES:

1. REFER TO SEQUENCE OF OPERATIONS, ON THIS DRAWING, FOR REQUIRED EQUIPMENT OPERATION AND SYSTEM CONTROL.
2. REMOVE EXISTING "PLUG-IN" RECEPTACLE STYLE CARBON MONOXIDE (CO) DETECTORS FROM THE FACILITY AND TURN OVER TO DEARNG.
3. SCOPE OF WORK LIMITED TO VEHICLE BAYS AND DRILL HALL AIR HANDLING UNIT SYSTEM. NO WORK IN OFFICE AREAS AND SUPPORT SPACES.

(#) DRAWING NOTES:

1. INSTALL CARBON MONOXIDE (CO) AND NITROGEN DIOXIDE (NO2) SENSORS AS INDICATED, TO ACCOUNT FOR DIESEL AND GAS VEHICLES. MAINTAIN MAXIMUM 50'-0" RADIUS FOR FULL COVERAGE OF VEHICLE BAYS.
2. INSTALL NEW GAS DETECTION CONTROL PANEL WITH INTEGRAL ALARMS.
3. REMOVE EXISTING OUTSIDE AIR MOTORIZED DAMPER (WITHIN AIR HANDLING UNIT CASING) AND REPLACE WITH NEW MODULATING MOTORIZED DAMPER. FIELD VERIFY SIZE (ESTIMATED AT 60/30). SEE SEQUENCE OF OPERATION FOR CONTROL REQUIREMENTS.
4. INSTALL NEW MODULATING MOTORIZED DAMPER IN EXISTING RETURN AIR DUCT (ESTIMATED AT 40/28). SEE SEQUENCE OF OPERATION FOR CONTROL REQUIREMENTS.
5. INSTALL NEW WALL-MOUNTED CARBON DIOXIDE SENSOR/CONTROLLER FOR CONTROL OF EXISTING AH-1, SEE SEQUENCE OF OPERATION FOR CONTROL REQUIREMENTS.
6. INSTALL NEW MODULATING MOTORIZED DAMPER AT INLET TO EXISTING ROOF MOUNTED EXHAUST FAN (ESTIMATED AT 24/24). SEE SEQUENCE OF OPERATION FOR CONTROL REQUIREMENTS.
7. CONFIRM OPERATION OF EXISTING WALL-MOUNTED EXHAUST FAN TO PROVIDE MINIMUM 1250 CFM. PROVIDE 'ADD ALTERNATE' LINE ITEM PRICE TO REPLACE FAN; SEE FAN SCHEDULE FOR (EF-7).



1' 0 4' 8' 12' 16'
GRAPHIC SCALE 1/8" = 1'-0"

KEY PLAN
NOT TO SCALE

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND ■ MILFORD, DELAWARE
410.543.9091 302.424.1441

General Notes:

NOT FOR BIDDING PURPOSES

Consultant:

Allen & Shariff
DESIGN | BUILD | MANAGE
Allen & Shariff Engineering, LLC
205 East Market Street
Salisbury, Maryland 21801
Tel: 410.341.0200

Revision

Project:

DELAWARE ARMY NATIONAL GUARD

VEHICLE MAINTENANCE BLDGS - C0/NO2 DETECTION DESIGN

SMYRNA READINESS CENTER - AREA A
103 ARTISAN DRIVE
SMYRNA, DE 19977

Set No.: DESIGN	Sheet Title: MECHANICAL FLOOR PLAN
Proj.No.: 0999.J011.D02	Scale: AS NOTED
Dwn.By: DH & SM	Date: 11/26/13
Sheet No.: M2	

THIS DRAWING, THE DESIGN AND CONSTRUCTION FEATURES DISCLOSED ARE PROPRIETARY TO DAVIS, BOWEN & FRIEDEL, INC., AND SHALL NOT BE ALTERED OR REUSED WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 2013

© ALLEN & SHARIFF ENGINEERING, LLC JOB# 1331027