

SCOPE OF WORK

- TENANT IMPROVEMENTS OF EXISTING SHELL SPACE.
- MECHANICAL DESIGN INCLUDES INSTALLATION OF NEW DUCTING FOR SUPPLY, RETURN, AND EXHAUST AIR, EXHAUST FANS, AND KITCHEN CANOPY HOOD.

MECHANICAL ABBREVIATIONS

ABV	ABOVE
ADD	ADDENDUM
AFF	ABOVE FINISHED FLOOR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
ALT	ALTERNATE
ARCH	ARCHITECT/ARCHITECTURAL
BFF	BELOW FINISHED FLOOR
BLW	BELOW
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CB	CATCH BASIN
CFM	CUBIC FEET PER MINUTE
D	DEGREE
DB	DRY BULB
DIA	DIAMETER
DN	DOWN
E/A	EXHAUST AIR
EA	EACH
EAT	ENTERING AIR TEMPERATURE
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
F	DEGREES FAHRENHEIT
FL	FLOOR
FPM	FEET PER MINUTE
FT	FOOT/FEET
GAL	GALLON
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HP	HORSE POWER
HTG	HEATING
IN	INCH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LB/HR	POUNDS PER HOUR
LWT	LEAVING WATER TEMPERATURE
M/A	MIXED AIR
MAX	MAXIMUM
MBH	ONE THOUSAND BTU PER HOUR
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTR	MOTOR
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
Ø	ROUND
O/A	OUTSIDE AIR
PD	PRESSURE DROP
PLBG	PLUMBING
PWR	POWER
Q	DUCT RISER
R/A	RETURN AIR
RE	RETURN/EXHAUST FAN
RH	RELATIVE HUMIDITY
R/LA	RELIEF AIR
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
S/A	SUPPLY AIR
SF	SQUARE FOOT
SP	STATIC PRESSURE
STM	STEAM
T	THERMOSTAT
TD	TEMPERATURE DROP
TEMP	TEMPERATURE
TYP	TYPICAL
UG	UNDERGROUND
VAV	VARIABLE AIR VOLUME
VENT	VENTILATION
WB	WET BULB

MECHANICAL SYMBOL LEGEND

DUCTWORK	
	SQ. DUCT SIZE (WIDTH X HEIGHT)
	OVAL DUCT SIZE (WIDTH / HEIGHT)
	ROUND DUCT SIZE (DIAMETER)
	EXISTING DUCT TO REMAIN
	DUCT TO BE DEMOLISHED
	SUPPLY AIR
	OUTDOOR AIR
	RETURN AIR
	GENERAL EXHAUST AIR
	KITCHEN EXHAUST DUCT
	LABORATORY FUME EXHAUST
	FLUE GAS VENT
	RECT. SUPPLY DUCT RISE / DROP
	ROUND SUPPLY DUCT RISE / DROP
	RECT. RETURN DUCT RISE / DROP
	ROUND RETURN DUCT RISE / DROP
	RECT. EXHAUST DUCT RISE / DROP
	ROUND EXHAUST DUCT RISE / DROP
DIFFUSER/GRILLES	
	AIRFLOW TYPE (SEE SCHEDULE) NECK SIZE / MODULE SIZE
	AIRFLOW TYPE (SEE SCHEDULE) NECK SIZE / MODULE SIZE
	AIRFLOW TYPE (SEE SCHEDULE) NOMINAL NECK SIZE
	AIRFLOW TYPE (SEE SCHEDULE) NECK SIZE / SLOT(S) / ACTIVE LENGTH
	AIRFLOW TYPE (SEE SCHEDULE) NECK SIZE / MODULE SIZE
MECHANICAL EQUIPMENT	
	UNIT IDENTITY
	EXISTING TO REMAIN EQUIPMENT
	EXISTING RELOCATED EQUIPMENT
DUCT ACCESSORIES	
	BALANCING DAMPER
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	SMOKE DAMPER
	FIRE DAMPER
	COMB. FIRE/SMOKE DAMPER
	DUCT SMOKE DETECTOR
MECHANICAL DEVICES	
	UNIT IDENTITY
	TEMPERATURE SENSOR
	TEMP/HUMIDITY SENSOR
	TEMP/CO2 SENSOR
	THERMOSTAT
	HUMIDISTAT
	CARBON DIOXIDE DETECTOR
	CARBON MONOXIDE DETECTOR
	NITROGEN DIOXIDE DETECTOR
GENERAL PLAN SYMBOLS	
#	PLAN REVISION NUMBER
M-#	DETAIL NUMBER ON SHEET
M-#	SHEET NUMBER WHERE DETAIL IS PLACED
⊕	KEYNOTE SYMBOL
?	CONTINUATION SYMBOL
⊕	POINT WHERE NEW CONNECTS TO EXISTING
ROOM	ROOM NAME / NUMBER
	AREA BEING DEMOLISHED
	AREA NOT IN CONTRACT

MECHANICAL GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF ALL APPLICABLE LOCAL AND INTERNATIONAL CODES AND AMENDMENTS AS APPLIED BY THE AUTHORITY HAVING JURISDICTION.
- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK. MECHANICAL PLANS ARE GENERAL DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE SPRINKLER, STRUCTURAL AND INTERIOR DESIGNER PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. PROVIDE CORRECTIONS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS REQUIRED TO FIT ACTUAL SPACE CONDITIONS. SUCH WORK SHALL BE AT NO ADDITIONAL COST TO THE OWNER. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA OR EQUIVALENTS DO NOT SUFFICE.
- THE OWNER, OPERATOR, ARCHITECT NOR ENGINEER ARE RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS, MEANS AND METHODS, WORK TECHNIQUES, CONSTRUCTION SEQUENCE, OR PROCEDURES REQUIRED TO COMPLETE THE WORK.
- COORDINATION WITH ELECTRICAL, PLUMBING, STRUCTURAL, AND FIRE PROTECTION CONTRACTORS MAY BE REQUIRED TO PROVIDE A COMPLETE MECHANICAL SYSTEM(S) AS DETAILED ON THE DRAWINGS AND SPECIFICATIONS. WORK CONSISTS OF PROVIDING ALL MATERIALS, EQUIPMENT, APURTANCES, ETC. REQUIRED FOR A COMPLETE MECHANICAL SYSTEM(S). INCLUDE ANY INCIDENTAL APPARATUS, APPLIANCES, MATERIALS, LABOR, PERMITS, SERVICES, ETC. NECESSARY TO MAKE WORK COMPLETE AND READY FOR OPERATION. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO CALL FOR COMPLETE, FINISHED WORK. FINISHED WORK IS WORK THAT HAS BEEN TESTED AND IS READY FOR OPERATION.
- CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING CONFLICTS IN THE DRAWINGS AND SPECIFICATIONS PRIOR TO BIDDING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPORT CONFLICTS TO THE ENGINEER PRIOR TO BIDDING. ANY CHANGES RESULTING FROM CONFLICTS IN THE FIELD, WHICH WERE NOT BROUGHT TO THE ENGINEER'S ATTENTION, ARE TO BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE OF COMPLETED "FINISHED WORK". DEFECTS SHALL BE PROMPTLY REMEDIATED WITHOUT COST TO THE OWNER.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTS. CONTRACTOR SHALL OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO COMMENCEMENT OF WORK OR ORDERING EQUIPMENT. CONTRACTOR SHALL BE PRESENT FOR ALL INSPECTIONS OF HIS/HER WORK BY REGULATORY AUTHORITIES.
- CONTRACTOR SHALL PROVIDE A RECORD OF DRAWINGS TO THE BUILDING OWNER AND ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTING, ETC.
- CONTRACTOR SHALL PROVIDE INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- ALL MATERIAL SHALL BE NEW BY US MANUFACTURERS, AND OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARDS BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, CONTROLS AND ACCESSORIES COORDINATED WITH ALL TRADES AT ONE TIME. INDEXED IN A NEAT AND ORDERLY MANNER. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. CONTRACTOR SHALL NOT ORDER ANY EQUIPMENT WITHOUT APPROVAL FROM ENGINEER, ARCHITECT, OWNER, AND INTERIOR DESIGNER (IF APPLICABLE).
- COORDINATE EXACT LOCATION OF ALL DIFFUSERS AND RETURNS WITH ARCHITECTURAL, REFLECTED CEILING PLAN.
- CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL CONCEALED MECHANICAL EQUIPMENT. PANELS IN RATED WALLS OR CEILINGS MUST MAINTAIN THE SAME RATING AND MUST MATCH THE FINISH OF THE WALL OR CEILING IN WHICH IS INSTALLED.
- LOCATE THERMOSTATS, TEMPERATURE SENSORS, CONTROLLERS, CO2 SENSORS, AND HUMIDITY SENSORS ABOVE FINISHED FLOOR AS PER ACCESSIBILITY CODE SECTION 907.2. COORDINATE LOCATIONS WITH OTHER EQUIPMENT, FURNITURE, AND DOOR SWINGS. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL REQUIREMENTS FOR JUNCTION BOXES, CONDUITS, CONTROL WIRING, POWER, ETC. AND DEFINE RESPONSIBILITIES AND SCOPE OF WORK FOR EACH TRADE PRIOR TO PURCHASING/INSTALLATION.
- PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE START-UP, REPLACE PRIOR TO FINAL ACCEPTANCE BY OWNER.
- CONTRACTOR SHALL PROVIDE A CERTIFIED TEST & BALANCE REPORT AT COMPLETION OF PROJECT PRIOR TO FINAL INSPECTION. IT SHALL BE DONE BY AN INDEPENDENT COMPANY FOR ALL MECHANICAL EQUIPMENT, AIR AND WATER DEVICES, DAMPERS, AND ANY AIR MOVING SYSTEMS. THE TEST AND BALANCE REPORT SHALL BE IN ACCORDANCE WITH THE AABC OR NEBB STANDARDS AND PROCEDURES AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY GRILLES, RETURN GRILLES AND EXHAUST GRILLES AND THE LEAVING AND ENTERING AIR TEMPERATURE (°F) FROM SUPPLY GRILLES, EVAPORATORS, ENERGY RECOVERY UNITS AND ANY TYPE OF HEAT EXCHANGERS. CONTRACTOR SHALL INCLUDE COSTS NECESSARY (PART OF BID) TO MAKE ONE CHANGE IN EACH UNITS SHEAVE, BUSHINGS AND BELTS, BALANCING DAMPERS REQUIRED AND ANY OTHER DEVICES REQUIRED FOR THE CORRECT BALANCE OF THE SYSTEM AS REQUIRED BY THE TABFIRM.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES FOR ALL REQUIRED OPENINGS IN WALLS, FOUNDATIONS, FLOORS, AND ROOFS.
- REMOVE FROM THE SITE AND LEGALLY DISPOSE OF ALL ITEMS GENERATED AS CONSTRUCTION DEBRIS AS A RESULT OF NEW WORK OF THIS PROJECT.
- ALL OUTSIDE AIR INLETS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY EXHAUST AIR OUTLET OR PLUMBING VENT STACK. COORDINATE WITH THE PLUMBING DRAWINGS AND WITH THE PLUMBING AND GENERAL CONTRACTORS IN THE FIELD.
- ENGINEER HAS VERIFIED DIMENSIONAL AND PERFORMANCE SUITABILITY OF BASIS-OF-DESIGN EQUIPMENT MANUFACTURERS AS LISTED IN THE EQUIPMENT SCHEDULES. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY UNIT PROPOSED TO BE INSTALLED FITS ALL REQUIRED PROJECT DIMENSIONS AND MEETS ALL SCHEDULED OR SPECIFIED PERFORMANCE CRITERIA PRIOR TO BID. ANY ADDITIONAL WORK DUE TO EQUIPMENT OTHER THAN THAT SPECIFIED AS "BASIS-OF-DESIGN" SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
- UNDERCUT DOORS BY 3/4" TO ALLOW RETURN OR EXHAUST AIR FLOW. COORDINATE WITH ARCHITECTURAL DRAWINGS AND WITH GENERAL CONTRACTOR.
- THE MECHANICAL CONTRACTOR SHALL VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND BE RESPONSIBLE FOR ALL RELATED CLEARANCES IN THE FIELD. PROVIDE ADEQUATE MAINTENANCE CLEARANCE AROUND EACH INDOOR AND OUTDOOR UNIT PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE EXACT LOCATION OF ALL MECHANICAL UNITS IN THE FIELD WITH THE ARCHITECT AND THE OWNER. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.

- ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF TENANT SPACE.

MECHANICAL GENERAL DUCTWORK NOTES

- ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- DUCT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARD AND DETAILS ON THESE PLANS.
- ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS AS INDICATED ON PLANS. PROVIDE BALANCING DAMPERS WITH EXTRACTOR FOR ALL SUPPLY AND RETURN DIFFUSERS AND REGISTERS TO ENSURE COMPLIANCE AIR FLOW FOR BALANCED RETURN TRANSFER AIR FLOW. REMOTE CABLE OPERATED DAMPERS SHALL BE PROVIDED IN INACCESSIBLE AND HARD CEILING AREAS, "YOUNG REGULATOR OR EQUAL".
- ALL DAMPER CONTROLS SHALL BE ACCESSIBLE.
- ALL PENETRATIONS OF REQUIRED FIRE RATED WALLS, SLABS AND CEILINGS SHALL BE WITH AN ACCESSIBLE U.L. LABELED FIRE DAMPER OR WITH A U.L. LISTED FIRE STOPPING SYSTEM INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S LISTED DETAILS AND SPECS.
- ALL BRANCH TAKE-OFFS SHALL BE PROVIDED WITH MANUAL VOLUME DAMPERS. PROVIDE RADIUS ELBOWS WHERE FEASIBLE. SQUARE ELBOWS AND TEE'S SHALL BE FURNISHED W/SINGLE FOIL TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS. PROVIDE REMOTE, CABLE OPERATED VOLUME DAMPERS IN INACCESSIBLE AND HARD CEILING AREAS. "YOUNG REGULATOR" OR EQUAL.
- SMACNA DUCT PRESSURE CLASSES BASED ON OPERATING PRESSURE ARE: 1/2", 1", 2", 3", 4", 6", AND 10". EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC DUCT PRESSURE CLASS SHOWN ON PLANS, WHERE NO PRESSURE CLASS IS SPECIFIED FOR CONSTANT VOLUME SYSTEMS, 1" W.G. PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THE SMACNA STANDARDS REGARDLESS OF VELOCITY. WHERE NO PRESSURE CLASS IS SPECIFIED FOR VARIABLE VOLUME SYSTEMS, 2" W.G. PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THE SMACNA STANDARDS FOR DUCTWORK UPSTREAM OF VALV BOXES. ALL DUCTWORK SHALL BE SEALED TO SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" FOR ITS PRESSURE CLASS SEALING METHODS.
- ALL INSULATION SHALL HAVE FIRE/SMOKE RATING LESS THAN 25/50.

MECHANICAL SHEET INDEX

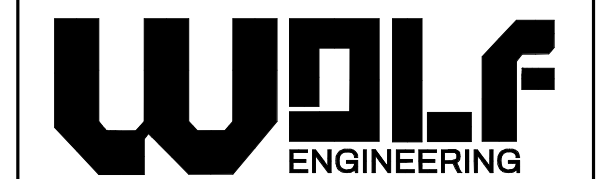
M-001	MECHANICAL LEGEND, SYMBOLS, AND ABBREVIATIONS
M-010	MECHANICAL SPECIFICATIONS
M-011	MECHANICAL SPECIFICATIONS
M-100	HVAC PLANS
M-101	HVAC ROOF PLAN
M-300	HVAC SCHEDULES
M-400	HVAC DETAILS
M-401	HVAC DETAILS



sweetgreen
3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

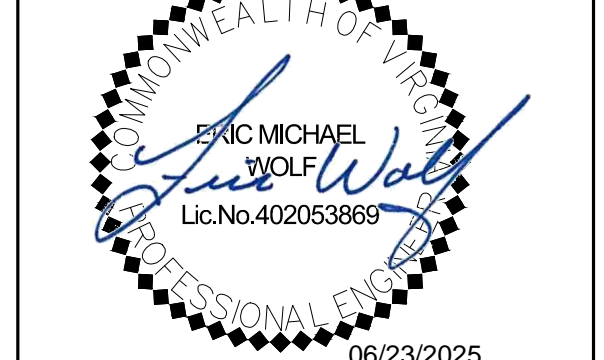
THESE DRAWINGS & SPECIFICATIONS ARE CONFIDENTIAL AND SHALL REMAIN THE SOLE PROPERTY OF SWEETGREEN CORPORATION. THEY SHALL NOT BE REPRODUCED OR USED IN ANY MANNER ON OTHER PROJECTS OR EXTENSIONS TO THIS PROJECT WITHOUT THE PRIOR WRITTEN CONSENT OF SWEETGREEN CORPORATION. THESE DRAWINGS & SPECIFICATIONS ARE INTENDED TO EXPRESS DESIGN INTENT FOR A PROTOTYPICAL SWEETGREEN STORE WHICH IS SUBJECT TO CHANGE AT ANY TIME AND MAY NOT REFLECT ACTUAL SITE CONDITIONS. NEITHER PARTY SHALL HAVE ANY OBLIGATION OR LIABILITY TO THE OTHER (EXCEPT AS STATED ABOVE) UNTIL A WRITTEN AGREEMENT IS FULLY EXECUTED.

ENGINEER OF RECORD:



P.O. BOX 38 | DALTON, GA 30722

STAMP:



PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0402057635

GREENLITE PEER REVIEWER

I recommend these construction documents for submission under the Expedited Building Plan Review Program (EBPR). The Conflict of Interest policy posted on the FC EBPR website and listed in the FC EBPR Manual has been strictly observed. The Registered Design Professional in charge retains sole responsibility for the design and these construction documents.

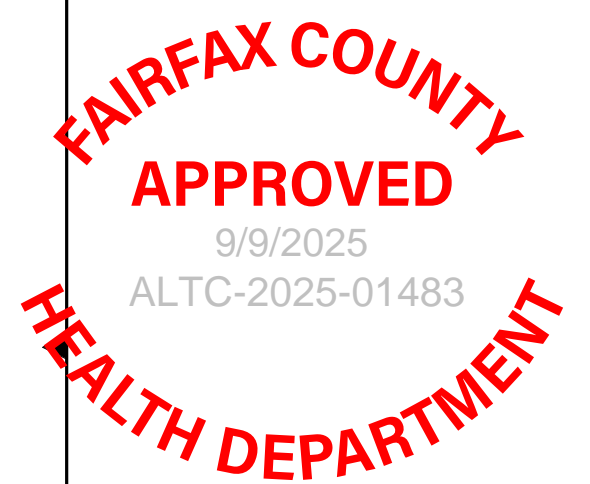
PROJECT INFORMATION:
PIKE 7 PLAZA
PROJECT INFORMATION:
8399 LEEBSBURG PIKE
VIENNA, VA 22182

DRAWN BY:	BG
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	TR
SG DM CHECKED BY:	TR
SG CONSTR. MANAGER:	MC
PROJECT NO:	20240238.0
TEMPLATE VERSION:	2401

REV.	DATE	DESCRIPTION
	06/23/2025	PERMIT SET

MECHANICAL
LEGEND, SYMBOLS,
AND ABBREVIATIONS

M-001



SECTION 230500 - BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

- 1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE GENERAL ADMINISTRATIVE AND PROCEDURAL REQUIREMENTS FOR THE INSTALLATION OF MECHANICAL SYSTEMS.
B. WHEN USED IN THESE SPECIFICATIONS THE TERM "PROVIDE" IS DEFINED TO MEAN TO "FURNISH AND INSTALL" MATERIALS, EQUIPMENT, ETC.
1.2 APPLICABLE STANDARDS
A. APPLICABILITY OF STANDARDS: EXCEPT WHERE THE CONTRACT DOCUMENTS INCLUDE MORE STRINGENT REQUIREMENTS, APPLICABLE CONSTRUCTION INDUSTRY STANDARDS HAVE THE SAME FORCE AND EFFECT AS IF BOUND OR COPIED DIRECTLY INTO THE CONTRACT DOCUMENTS.
B. CONFLICTING REQUIREMENTS: WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES TO THE ARCHITECT FOR A DECISION BEFORE PROCEEDING.
C. PUBLICATION DATES: WHERE THE DATE OF ISSUE OF A REFERENCED STANDARD IS NOT SPECIFIED, COMPLY WITH THE STANDARD IN EFFECT AS OF DATE OF CONTRACT DOCUMENTS.
D. COMPLY WITH THE REQUIREMENTS OF APPLICABLE LOCAL PLUMBING, MECHANICAL, FIRE PROTECTION, AND BUILDING CODES.

- 1.3 CONSTRUCTION PERMITS AND INSPECTIONS
A. CONTRACTOR SHALL OBTAIN AND OBTAIN ALL REQUIRED PERMITS AND LICENSES, AND PAY ALL RELATED INSPECTION AND PERMITTING FEES, AS REQUIRED FOR THE EXECUTION OF THE CONTRACT.
1.4 WORKMANSHIP AND QUALIFICATIONS
A. ALL EQUIPMENT, MATERIALS, SPECIALTIES, ETC., SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE AND STANDARDS FOR THIS TYPE WORK.
1.5 SUBMITTALS
A. PRIOR TO THE PERFORMANCE OF ANY WORK OR INSTALLATION OF ANY MATERIALS, OBTAIN APPROVAL FROM THE ARCHITECT BY SUBMITTING SHOP DRAWINGS AND DATA SHEETS.
B. SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WILL BE ACCEPTED ONLY WHEN SUBMITTED BY THE CONTRACTOR.
C. ANY ITEM WITH TAG NUMBER MUST BE SUBMITTED FOR REVIEW.
D. THE DRAWINGS AND THE SPECIFICATIONS ARE COOPERATIVE AND SUPPLEMENTARY.
1.6 CONSTRUCTION DOCUMENTS
A. THE DRAWINGS OR MECHANICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND MATERIALS.

- 1.7 PRE-BID SITE VISIT
A. PERSONALLY INSPECT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED OF CONDITIONS UNDER WHICH THE WORK IS TO BE DONE.
PART 2 - PRODUCTS
2.1 DESIGN BASIS
A. THE PRODUCTS/MATERIALS SPECIFICALLY NAMED IN THE SPECIFICATION AND/OR ON THE DRAWINGS ARE THE BASIS OF DESIGN.
THE ARCHITECT RESERVES THE SOLE RIGHT FOR THE APPROVAL OF PROPOSED EQUIPMENT FOR EQUIPMENT, AND THE PHRASE, "OR AN APPROVED EQUIVALENT", USED IN THESE SPECIFICATIONS, OR ON THE DRAWINGS, SHALL BE INTERPRETED AS AN EQUIVALENT APPROVED BY THE ARCHITECT.
ALL CHANGES REQUIRED BY ALTERNATE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER, AND ALL COSTS INCURRED BY OTHER TRADES, PUBLIC UTILITIES OR THE OWNER, AS A RESULT OF THE USE OF SUCH EQUIPMENT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
THE CONTRACTOR SHALL IDENTIFY THE DIFFERENCES IN ALTERNATE MATERIAL OR EQUIPMENT AS COMPARED TO THAT SPECIFIED, AND SHALL INDICATE THE BENEFITS TO THE PROJECT AS A RESULT OF SELECTING THE ALTERNATIVE.
E. ENGINEER RESERVES THE RIGHT TO REFUSE APPROVAL OF EQUIPMENT WHICH DOES NOT MEET THE SPECIFICATION, IN HIS OPINION, OR OF EQUIPMENT FOR WHICH NO LOCAL EXPERIENCE OF SATISFACTORY SERVICE IS AVAILABLE.
THE ENGINEER FURTHER RESERVES THE RIGHT TO REJECT EQUIPMENT FOR WHICH MAINTENANCE SERVICE AND THE AVAILABILITY OF REPLACEMENT PARTS IS QUESTIONABLE.

- 2.2 ACCEPTABLE MANUFACTURERS
A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS AS MANUFACTURED BY AMBER/BOOTH CO., KORFUND DYNAMICS CORP., MASON INDUSTRIES, INC., OR APPROVED EQUIVALENT.
PART 3 - EXECUTION
3.1 MECHANICAL INSTALLATIONS
A. GENERAL: SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF MECHANICAL SYSTEMS, MATERIALS, AND EQUIPMENT.
COORDINATE MECHANICAL SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS.
VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
3.2 CUTTING AND PATCHING
A. CUT, REMOVE AND LEGALLY DISPOSE OF SELECTED MECHANICAL EQUIPMENT, COMPONENTS, AND MATERIALS AS INDICATED, INCLUDING BUT NOT LIMITED TO REMOVAL OF MECHANICAL PIPING, HEATING UNITS, PLUMBING FIXTURES AND TRIM, AND OTHER MECHANICAL ITEMS MADE OBSOLETE BY THE NEW WORK.
MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS.
B. PROTECT THE STRUCTURE, FURNISHINGS, FINISHES, AND ADJACENT MATERIALS NOT INDICATED OR SCHEDULED TO BE REMOVED.
C. PROVIDE AND MAINTAIN TEMPORARY PARTITIONS OR DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT AREAS.
D. PATCH EXISTING FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS AND EXPERIENCED INSTALLERS.
3.3 PAINTING
A. FACTORY PAINTED EQUIPMENT THAT HAS BEEN SCRATCHED OR MARRED SHALL BE REPAINTED TO MATCH ORIGINAL FACTORY COLOR.
B. ALL UNINSULATED BLACK FERROUS METAL ITEMS EXPOSED TO SIGHT SUCH AS EQUIPMENT HANGERS, PIPING, FRAMES AND SUPPORTS NOT PROVIDED WITH FACTORY PRIME COAT, SHALL BE CLEANED AND PAINTED WITH ONE COAT OF RUST INHIBITING PRIMER.
3.4 PERFORMANCE
A. OPERATING AND SYSTEMS SHALL BE PROTECTED AGAINST FREEZING, FLOODING, CORROSION, AND OTHER FORMS OF DAMAGE PRIOR TO ACCEPTANCE BY THE OWNER.
B. DESIGN AND FABRICATION FEATURES OR PROVEN METHODS NOT SPECIFICALLY COVERED BY THIS SPECIFICATION SHALL BE SPECIFICALLY STATED AND DOCUMENTED IN THE PROPOSAL.
C. LABOR SHALL BE FURNISHED FOR ASSEMBLING ALL PIECES OF EQUIPMENT WHICH, DUE TO SHIPPING LIMITATIONS, HAVE COMPONENTS WHICH ARRIVE ON THE JOBSITE DISASSEMBLED.
3.5 OPERATING AND MAINTENANCE INSTRUCTIONS
A. ARRANGE FOR EACH INSTALLER OF EQUIPMENT THAT REQUIRES REGULAR MAINTENANCE TO MEET WITH THE OWNER'S PERSONNEL TO PROVIDE INSTRUCTION IN PROPER OPERATION AND MAINTENANCE.
3.6 FINAL INSPECTION
A. PRIOR TO FINAL ACCEPTANCE, ALL SYSTEMS SHALL BE OPERATED TO TEST PERFORMANCE TO THE SATISFACTION OF THE ENGINEER.
B. DEFECTS DEMONSTRATED BY INSPECTIONS AND TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT THE SUBCONTRACTOR'S EXPENSE.
3.7 CLEANING OF SYSTEMS AND PREMISES
A. BEFORE THE SYSTEMS ARE TESTED AND BALANCED, DUCTS AND EQUIPMENT SHALL BE THOROUGHLY CLEANED SO THAT NO DIRT, DUST OR OTHER FOREIGN MATTER WILL BE DEPOSITED IN OR CARRIED THROUGH THE SYSTEM.
B. AIR HANDLING UNITS SHALL NOT BE OPERATED WITHOUT FILTERS IN PLACE.
C. WATER AND STEAM SYSTEMS SHALL BE THOROUGHLY FLUSHED AND CLEANED OF ANY AND ALL DELETERIOUS MATERIALS BEFORE THE SYSTEMS ARE PLACED IN OPERATION.
D. ALL EQUIPMENT SHALL BE THOROUGHLY CLEANED OF DIRT AND DEBRIS AT THE COMPLETION OF THE PROJECT AND PRIOR TO ACCEPTANCE BY THE OWNER.
3.8 PROTECTION
A. GUARDS, BARRICADES, LIGHTS, SERVICES, ETC., NECESSARY FOR THE PROTECTION OF PERSONS AND PROPERTY SHALL BE FURNISHED AND MAINTAINED.
B. EXISTING WORK SUCH AS PAVEMENTS, LAWNS, SIDEWALKS, FLOORS, CURBS, AND OTHER STRUCTURES AND UTILITIES WHICH ARE DAMAGED OR DISTURBED DUE TO MAKING CONNECTIONS OR ANY PHASE OF OPERATIONS SHALL BE RESTORED TO THE SATISFACTION OF THE OWNER AND THE GOVERNING AUTHORITIES.
3.9 SAFETY
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE DEMOLITION AND INSTALLATION OF THIS WORK.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IDENTIFICATION AND PREVENTION OF UNSAFE CONDITIONS IN REGARD TO DEMOLITION CONSTRUCTION, HAZARDOUS MATERIALS, AND EQUIPMENT USAGE.
C. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT UTILITIES.
D. REMOVE DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS FROM BUILDING SITE.
E. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION OPERATIONS, COMPLY WITH APPLICABLE REGULATIONS, LAWS, AND ORDINANCES CONCERNING REMOVAL, HANDLING AND PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION.

- 3.10 MECHANICAL IDENTIFICATION MATERIALS
A. GENERAL: PROVIDE MANUFACTURER'S STANDARD PRODUCTS OF CATEGORIES AND TYPES REQUIRED FOR EACH APPLICATION AS REFERENCED IN OTHER DIVISION 23 SECTIONS.
3.11 MECHANICAL EQUIPMENT IDENTIFICATION
A. GENERAL: INSTALL ENGRAVED PLASTIC LAMINATE SIGN OR PLASTIC EQUIPMENT MARKER ON OR NEAR EACH MAJOR ITEM OF MECHANICAL EQUIPMENT.
B. LETTERING SIZE: MINIMUM 1/4" HIGH LETTERING FOR NAMES OF UNIT WHERE VIEWING DISTANCE IS LESS THAN 2'-0", 1/2" HIGH FOR DISTANCES UP TO 8'-0", AND PROPORTIONATELY LARGER LETTERING FOR GREATER DISTANCES.
3.12 DUCT INSTALLATION
A. USE FABRICATED FITTINGS FOR ALL CHANGES IN DIRECTIONS, CHANGES IN SIZE AND SHAPE, AND CONNECTIONS.
B. LOCATE DUCTS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES.
C. SEAL DUCT SEAMS AND JOINTS ACCORDING TO SMACNA DUCT CONSTRUCTION STANDARDS.
D. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS EQUIPPED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
E. SUPPORT HORIZONTAL DUCTS WITHIN 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERSECTION.
F. SUPPORT VERTICAL DUCTS AT A MAXIMUM INTERVAL OF 16 FEET AND AT EACH FLOOR.
3.13 CONNECTIONS
A. EQUIPMENT CONNECTIONS: CONNECT EQUIPMENT WITH FLEXIBLE CONNECTORS IN ACCORDANCE WITH DIVISION 23 SECTION "DUCT ACCESSORIES."
B. BRANCH CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
C. OUTLET AND INLET CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
D. TERMINAL UNITS CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
SECTION 233000 - DUCTWORK ACCESSORIES
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE DUCTWORK ACCESSORIES WORK AS INDICATED ON DRAWINGS AND IN SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION, WHICH INCLUDES DAMPERS, DAMPER ACTUATORS, TURNING VANES, DUCT HARDWARE, AND DUCT ACCESS DOORS.
1.2 QUALITY ASSURANCE
A. COMPLY WITH APPLICABLE SECTIONS OF THE FOLLOWING CODES AND STANDARDS:
1. SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE.
2. ASHRAE RECOMMENDATIONS PERTAINING TO CONSTRUCTION OF DUCTWORK ACCESSORIES, EXCEPT AS OTHERWISE INDICATED.
3. UL STANDARD 55 "FIRE DAMPERS AND CEILING DAMPERS".
4. NFPA 90A "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS".
PART 2 - PRODUCTS
2.1 DAMPERS AND ACTUATORS
A. LOW PRESSURE MANUAL DAMPERS: PROVIDE DAMPERS OF SINGLE BLADE TYPE OR MULTI-BLADE TYPE, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, OR AS MANUFACTURED BY RUSKIN MODEL MD35, MD25 OR MDRS25 AS REQUIRED, OR EQUIVALENT.
B. BACKDRAFT DAMPERS: HEAVY DUTY, MINIMUM 0.125" WALL THICKNESS EXTRUDED ALUMINUM FRAME, MINIMUM 0.070" THICK EXTRUDED ALUMINUM BLADES WITH VINYL EDGE SEALS, SYNTHETIC BEARINGS, MILL FINISH, RUSKIN MODEL 80, OR EQUIVALENT.
C. CONTROL DAMPERS: PROVIDE DAMPERS WITH PARALLEL BLADES FOR 2-POSITION CONTROL, OR OPPOSED BLADES FOR MODULATING CONTROL.
CONSTRUCT BLADES OF 16-GA STEEL, PROVIDE HEAVY-DUTY MOLDED SELF-LUBRICATING NYLON BEARINGS, 1/4" DIAMETER STEEL AXLES SPACED ON 9" CENTERS.
CONSTRUCT FRAME OF MINIMUM 5" X 1" X16-GUAGE STEEL HAT
2.2 TURNING VANES
A. FABRICATED TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
B. MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 27" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.
2.3 DUCT HARDWARE AND ACCESS DOORS
A. PROVIDE DUCT HARDWARE, MANUFACTURED BY ONE MANUFACTURER FOR ALL ITEMS ON PROJECT, INCLUDING TEST HOLES AND QUADRANT LOCKS.
B. ACCESS DOORS: CONSTRUCT OF SAME OR GREATER GAGE AS DUCTWORK SERVED, PROVIDE INSULATED DOORS FOR INSULATED DUCTWORK.
C. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
2.4 FLEX DUCT
A. FABRICATED OF ACOUSTICALLY TRANSPARENT NYLON INNER FILM LOOKED TO GALVANIZED STEEL HELIX WIRE, WITH R5 FIBERGLASS INSULATION AND REINFORCED METALIZED VAPOR BARRIER OUTER JACKET, FLEXMASTER TYPE 6M OR EQUIVALENT.
PART 3 - EXECUTION
3.1 INSTALLATION OF DUCTWORK ACCESSORIES
A. INSTALL DUCTWORK ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, WITH APPLICABLE PORTIONS OF DETAILS OF CONSTRUCTION AS SHOWN IN SMACNA STANDARDS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION.
B. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
C. LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
3.2 TURNING VANES
A. FABRICATED TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
B. MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 27" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.
3.3 DUCT HARDWARE AND ACCESS DOORS
A. PROVIDE DUCT HARDWARE, MANUFACTURED BY ONE MANUFACTURER FOR ALL ITEMS ON PROJECT, INCLUDING TEST HOLES AND QUADRANT LOCKS.
B. ACCESS DOORS: CONSTRUCT OF SAME OR GREATER GAGE AS DUCTWORK SERVED, PROVIDE INSULATED DOORS FOR INSULATED DUCTWORK.
C. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
3.4 FLEX DUCT
A. FABRICATED OF ACOUSTICALLY TRANSPARENT NYLON INNER FILM LOOKED TO GALVANIZED STEEL HELIX WIRE, WITH R5 FIBERGLASS INSULATION AND REINFORCED METALIZED VAPOR BARRIER OUTER JACKET, FLEXMASTER TYPE 6M OR EQUIVALENT.

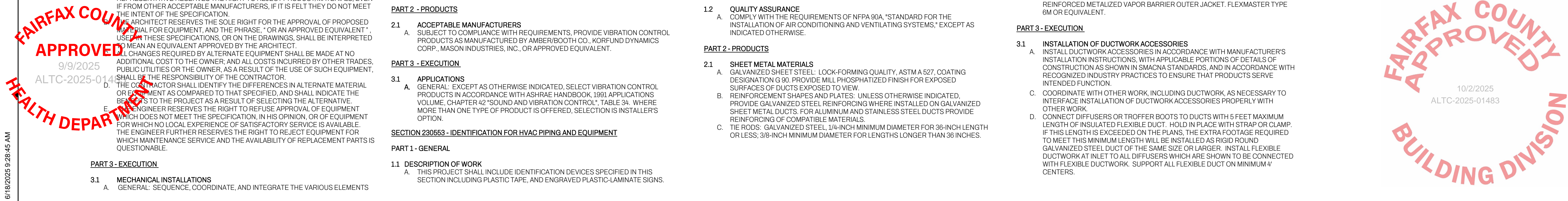
- SECTION 230648 - VIBRATION CONTROLS FOR HVAC
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE VIBRATION ISOLATORS AT ALL MECHANICAL EQUIPMENT, UNLESS THE VIBRATION GENERATION COMPONENTS ARE INTERNALLY ISOLATED.
B. TYPES OF VIBRATION CONTROL PRODUCTS REQUIRED INCLUDE NEOPRENE PADS AND SPRING HANGERS.
C. FLOOR OR PAD MOUNTED EQUIPMENT WITHOUT VIBRATION ISOLATORS SHALL BE BOLTED TO THE FLOOR (SLAB OR HOUSEKEEPING PAD) WITH 3/8" DIAMETER EXPANSION BOLTS.
PART 2 - PRODUCTS
2.1 ACCEPTABLE MANUFACTURERS
A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE VIBRATION CONTROL PRODUCTS AS MANUFACTURED BY AMBER/BOOTH CO., KORFUND DYNAMICS CORP., MASON INDUSTRIES, INC., OR APPROVED EQUIVALENT.
PART 3 - EXECUTION
3.1 APPLICATIONS
A. GENERAL: EXCEPT AS OTHERWISE INDICATED, SELECT VIBRATION CONTROL PRODUCTS IN ACCORDANCE WITH ASHRAE HANDBOOK, 1991 APPLICATIONS VOLUME, CHAPTER 42 "SOUND AND VIBRATION CONTROL", TABLE 3A, WHERE MORE THAN ONE TYPE OF PRODUCT IS OFFERED, SELECTION IS INSTALLER'S OPTION.
SECTION 230653 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE IDENTIFICATION DEVICES SPECIFIED IN THIS SECTION INCLUDING PLASTIC TAPE, AND ENGRAVED PLASTIC LAMINATE SIGNS.

- B. CODES AND STANDARDS: COMPLY WITH ANSI A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS, AND VIEWING ANGLES OF IDENTIFICATION DEVICES.
PART 2 - PRODUCTS
2.1 ACCEPTABLE MANUFACTURERS
A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE MECHANICAL IDENTIFICATION MATERIALS AS MANUFACTURED BY ALLEN SYSTEMS, INC., BRADY (W-H) CO., SIGNMARK DIV., SETON NAME PLATE CORP., OR APPROVED EQUIVALENT.
2.2 MECHANICAL IDENTIFICATION MATERIALS
A. GENERAL: PROVIDE MANUFACTURER'S STANDARD PRODUCTS OF CATEGORIES AND TYPES REQUIRED FOR EACH APPLICATION AS REFERENCED IN OTHER DIVISION 23 SECTIONS.
PART 3 - EXECUTION
3.2 MECHANICAL EQUIPMENT IDENTIFICATION
A. GENERAL: INSTALL ENGRAVED PLASTIC LAMINATE SIGN OR PLASTIC EQUIPMENT MARKER ON OR NEAR EACH MAJOR ITEM OF MECHANICAL EQUIPMENT.
B. LETTERING SIZE: MINIMUM 1/4" HIGH LETTERING FOR NAMES OF UNIT WHERE VIEWING DISTANCE IS LESS THAN 2'-0", 1/2" HIGH FOR DISTANCES UP TO 8'-0", AND PROPORTIONATELY LARGER LETTERING FOR GREATER DISTANCES.
C. TEXT OF SIGNS: IN ADDITION TO NAME OF IDENTIFIED UNIT, PROVIDE LETTERING TO DISTINGUISH BETWEEN MULTIPLE UNITS, INFORM OPERATOR OF OPERATIONAL REQUIREMENTS, INDICATE SAFETY AND EMERGENCY PRECAUTIONS, AND WARN OF HAZARDS AND IMPROPER OPERATIONS.
IN ADDITION TO THE PLASTIC SIGN, INSTALL PRESSURE SENSITIVE LABEL DESCRIBED IN PART 2 OR PAINTED STENCIL LABEL, ABOVE ON EACH PIECE OF MECHANICAL EQUIPMENT.
THOROUGHLY CLEAN EQUIPMENT SURFACE PER LABEL MANUFACTURER'S INSTRUCTIONS PRIOR TO INSTALLING LABEL.
SECTION 230700 - MECHANICAL INSULATION
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE MECHANICAL INSULATION FOR DUCT AND EQUIPMENT AS INDICATED ON DRAWINGS AND SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION.
1.2 QUALITY ASSURANCE
A. PROVIDE COMPOSITE MECHANICAL INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS, AS TESTED BY ASTM E 84 (NFPA 256) METHOD.
PART 2 - PRODUCTS
2.1 ACCEPTABLE MANUFACTURERS
A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS MANUFACTURED BY ONE OF THE FOLLOWING: ARMSTRONG WORLD INDUSTRIES, INC.; CERTAINTEE CORP.; KNAUF FIBERGLASS GMBH.; OWENS-CORNING FIBERGLASS CORP.
2.2 DUCTWORK AND EQUIPMENT INSULATION MATERIALS
A. RIGID FIBERGLASS DUCTWORK INSULATION (TYPE RFG): ASTM C 612; "K" VALUE OF 0.24 AT 75 F, NON-COMBUSTIBLE, RIGID, JACKET, CONFIRM ASJ OR FSK WITH TWO WEEKS.
B. FLEXIBLE FIBERGLASS DUCTWORK INSULATION (TYPE FFG): ASTM C 653; "K" VALUE OF 0.36 AT 75 F, NON-COMBUSTIBLE, FLEXIBLE, JACKET, CONFIRM ASJ OR FSK WITH ARCHITECT.
C. PROVIDE ASTM C 921 JACKETS FOR DUCTWORK INSULATION: TYPE I FOR DUCTWORK WITH TEMPERATURES BELOW AMBIENT; TYPE II FOR DUCTWORK WITH TEMPERATURES ABOVE AMBIENT.
D. DUCTWORK INSULATION ACCESSORIES: PROVIDE STAPLES, BANDS, WIRES, TAPE, ANCHORS, CORNER ANGLES AND SIMILAR ACCESSORIES AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.
PART 3 - EXECUTION
3.1 DUCT AND EQUIPMENT INSULATION APPLICATION SCHEDULE
A. INSULATE CONCEALED DUCT AND EQUIPMENT ACCORDING TO THE FOLLOWING SCHEDULE:
TABLE 1: SERVICE, MAX SERVICE TEMP, INSULATION TYPE, INSULATION THICKNESS
- HVAC SUPPLY DUCTWORK BETWEEN FAN DISCHARGE, OR HVAC UNIT DISCHARGE, AND ROOM TERMINAL OUTLET. (450 F, RFG, R6 (MIN) 2")
- NECK AND BELLS OF SUPPLY DIFFUSERS.
- HVAC RETURN DUCTWORK BETWEEN ROOM TERMINAL INLET AND RETURN FAN INLET, OR HVAC UNIT INLET. (250 F, FFG, R6 (MIN) 2")
- HVAC PLENUMS AND UNIT HOUSINGS NOT PRE-INSULATED AT FACTORY OR LINED.
B. INSULATE ALL DUCT THAT ARE EXPOSED TO THE OUTDOORS AND WEATHER ACCORDING TO THE FOLLOWING SCHEDULE:
TABLE 2: SERVICE, MAX SERVICE TEMP, INSULATION TYPE, INSULATION THICKNESS
- ALL HVAC DUCTWORK EXPOSED TO OUTDOORS, CLIMATE ZONE 1-4. (450 F, RFG, R8 (MIN) 2-1/2")
- ALL HVAC DUCTWORK EXPOSED TO OUTDOORS, CLIMATE ZONE 5-8. (450 F, RFG, R12 (MIN) 3")
C. INSTALL DUCT AND EQUIPMENT THERMAL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN COMPLIANCE WITH RECOGNIZED INDUSTRY PRACTICES.
D. MAINTAIN INTEGRITY OF VAPOR BARRIER AND PROTECT IT TO PREVENT PUNCTURE AND OTHER DAMAGE.
SECTION 233113 - METAL DUCTWORK
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
1.2 QUALITY ASSURANCE
A. COMPLY WITH THE REQUIREMENTS OF NFPA 90A "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS," EXCEPT AS INDICATED OTHERWISE.
PART 2 - PRODUCTS
2.1 SHEET METAL MATERIALS
A. GALVANIZED SHEET STEEL: LOCK-FORMING QUALITY, ASTM A 527, COATING DESIGNATION G 90. PROVIDE MILL PHOSPHATIZED FINISH FOR EXPOSED SURFACES OF DUCTS EXPOSED TO VIEW.
B. REINFORCEMENT SHAPES AND PLATES: UNLESS OTHERWISE INDICATED, PROVIDE GALVANIZED STEEL REINFORCING WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS. FOR ALUMINUM AND STAINLESS STEEL DUCTS PROVIDE REINFORCING OF COMPATIBLE MATERIALS.
C. TIE RODS: GALVANIZED STEEL, 1/4-INCH MINIMUM DIAMETER FOR 36-INCH LENGTH OR LESS; 3/8-INCH MINIMUM DIAMETER FOR LENGTHS LONGER THAN 36 INCHES.

- 2.2 SEALING MATERIALS
A. JOINT AND SEAM TAPE: 2 INCHES WIDE, GLASS-FIBER-FABRIC REINFORCED.
B. JOINT AND SEAM SEALANT: ONE-PART, NONSAG, SOLVENT-RELEASE-CURING, POLYMERIZED BUTYL SEALANT COMPLYING WITH FS TT-S-001867, TYPE I; FORMULATED WITH A MINIMUM OF 75 PERCENT SILICONE.
FLANGED JOINT MASTICS: ONE-PART, ACID-CURING, SILICONE ELASTOMERIC JOINT SEALANTS, COMPLYING WITH ASTM C 920, TYPE S, GRADE NS, CLASS 25, USE O.
2.3 DUCT AND FITTING FABRICATION
A. EXCEPT AS OTHERWISE INDICATED, FABRICATE DUCTS WITH GALVANIZED SHEET STEEL, IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, INCLUDING THEIR ASSOCIATED DETAILS.
CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.
B. FABRICATE ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER DUCT CONSTRUCTION IN ACCORDANCE WITH SMACNA HVAC METAL DUCT CONSTRUCTION STANDARD.
C. ROUND DUCT OF EQUIVALENT DIAMETER TO THE INDICATED RECTANGULAR DUCT MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION.
D. FABRICATE ROUND DUCT AND ROUND FITTINGS INCLUDING ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER DUCT CONSTRUCTION IN ACCORDANCE WITH SMACNA HVAC METAL DUCT CONSTRUCTION STANDARD.
E. IN LIEU OF SHOP FABRICATED DUCT AND FITTINGS, FACTORY FABRICATED DUCT AND FITTINGS MAY BE SUBSTITUTED, SUCH AS MANUFACTURED BY LINDBAB, OR APPROVED EQUIVALENT.
PART 3 - EXECUTION
3.1 DUCT INSTALLATION
A. USE FABRICATED FITTINGS FOR ALL CHANGES IN DIRECTIONS, CHANGES IN SIZE AND SHAPE, AND CONNECTIONS.
B. LOCATE DUCTS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY, PARALLEL AND PERPENDICULAR TO BUILDING LINES.
C. SEAL DUCT SEAMS AND JOINTS ACCORDING TO SMACNA DUCT CONSTRUCTION STANDARDS.
D. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS EQUIPPED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
E. SUPPORT HORIZONTAL DUCTS WITHIN 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERSECTION.
F. SUPPORT VERTICAL DUCTS AT A MAXIMUM INTERVAL OF 16 FEET AND AT EACH FLOOR.
3.2 CONNECTIONS
A. EQUIPMENT CONNECTIONS: CONNECT EQUIPMENT WITH FLEXIBLE CONNECTORS IN ACCORDANCE WITH DIVISION 23 SECTION "DUCT ACCESSORIES."
B. BRANCH CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
C. OUTLET AND INLET CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
D. TERMINAL UNITS CONNECTIONS: COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
SECTION 233300 - DUCTWORK ACCESSORIES
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE DUCTWORK ACCESSORIES WORK AS INDICATED ON DRAWINGS AND IN SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION, WHICH INCLUDES DAMPERS, DAMPER ACTUATORS, TURNING VANES, DUCT HARDWARE, AND DUCT ACCESS DOORS.
1.2 QUALITY ASSURANCE
A. COMPLY WITH APPLICABLE SECTIONS OF THE FOLLOWING CODES AND STANDARDS:
1. SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE.
2. ASHRAE RECOMMENDATIONS PERTAINING TO CONSTRUCTION OF DUCTWORK ACCESSORIES, EXCEPT AS OTHERWISE INDICATED.
3. UL STANDARD 55 "FIRE DAMPERS AND CEILING DAMPERS".
4. NFPA 90A "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS".
PART 2 - PRODUCTS
2.1 DAMPERS AND ACTUATORS
A. LOW PRESSURE MANUAL DAMPERS: PROVIDE DAMPERS OF SINGLE BLADE TYPE OR MULTI-BLADE TYPE, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, OR AS MANUFACTURED BY RUSKIN MODEL MD35, MD25 OR MDRS25 AS REQUIRED, OR EQUIVALENT.
B. BACKDRAFT DAMPERS: HEAVY DUTY, MINIMUM 0.125" WALL THICKNESS EXTRUDED ALUMINUM FRAME, MINIMUM 0.070" THICK EXTRUDED ALUMINUM BLADES WITH VINYL EDGE SEALS, SYNTHETIC BEARINGS, MILL FINISH, RUSKIN MODEL 80, OR EQUIVALENT.
C. CONTROL DAMPERS: PROVIDE DAMPERS WITH PARALLEL BLADES FOR 2-POSITION CONTROL, OR OPPOSED BLADES FOR MODULATING CONTROL.
CONSTRUCT BLADES OF 16-GA STEEL, PROVIDE HEAVY-DUTY MOLDED SELF-LUBRICATING NYLON BEARINGS, 1/4" DIAMETER STEEL AXLES SPACED ON 9" CENTERS.
CONSTRUCT FRAME OF MINIMUM 5" X 1" X16-GUAGE STEEL HAT
2.2 TURNING VANES
A. FABRICATED TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
B. MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 27" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.
2.3 DUCT HARDWARE AND ACCESS DOORS
A. PROVIDE DUCT HARDWARE, MANUFACTURED BY ONE MANUFACTURER FOR ALL ITEMS ON PROJECT, INCLUDING TEST HOLES AND QUADRANT LOCKS.
B. ACCESS DOORS: CONSTRUCT OF SAME OR GREATER GAGE AS DUCTWORK SERVED, PROVIDE INSULATED DOORS FOR INSULATED DUCTWORK.
C. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
2.4 FLEX DUCT
A. FABRICATED OF ACOUSTICALLY TRANSPARENT NYLON INNER FILM LOOKED TO GALVANIZED STEEL HELIX WIRE, WITH R5 FIBERGLASS INSULATION AND REINFORCED METALIZED VAPOR BARRIER OUTER JACKET, FLEXMASTER TYPE 6M OR EQUIVALENT.
PART 3 - EXECUTION
3.1 INSTALLATION OF DUCTWORK ACCESSORIES
A. INSTALL DUCTWORK ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, WITH APPLICABLE PORTIONS OF DETAILS OF CONSTRUCTION AS SHOWN IN SMACNA STANDARDS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION.
B. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
C. LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
3.2 TURNING VANES
A. FABRICATED TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
B. MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1-1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 27" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.
3.3 DUCT HARDWARE AND ACCESS DOORS
A. PROVIDE DUCT HARDWARE, MANUFACTURED BY ONE MANUFACTURER FOR ALL ITEMS ON PROJECT, INCLUDING TEST HOLES AND QUADRANT LOCKS.
B. ACCESS DOORS: CONSTRUCT OF SAME OR GREATER GAGE AS DUCTWORK SERVED, PROVIDE INSULATED DOORS FOR INSULATED DUCTWORK.
C. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.
D. CONNECT DIFFUSERS OR TRIGGER BOOTS TO DUCTS WITH 5 FEET MAXIMUM LENGTH OF INSULATED FLEXIBLE DUCT, HOLD IN PLACE WITH STRAP OR CLAMP. IF THIS LENGTH IS EXCEEDED ON THESE PLANS, THE EXTRA FOOTAGE REQUIRED TO MEET THIS MINIMUM LENGTH WILL BE INSTALLED AS RIGID ROUND GALVANIZED STEEL DUCT OF THE SAME SIZE OR LARGER.
E. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK.
3.4 FLEX DUCT
A. FABRICATED OF ACOUSTICALLY TRANSPARENT NYLON INNER FILM LOOKED TO GALVANIZED STEEL HELIX WIRE, WITH R5 FIBERGLASS INSULATION AND REINFORCED METALIZED VAPOR BARRIER OUTER JACKET, FLEXMASTER TYPE 6M OR EQUIVALENT.

- SECTION 233400 - FANS
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE THE REQUIREMENTS OF THE SCHEDULED FANS INCLUDING CEILING MOUNTED AND IN-LINE CENTRIFUGAL FANS, ROOF MOUNTED INTAKE AND EXHAUST FANS, AND OTHER FAN TYPES AS SCHEDULED OR NOTED.
1.2 QUALITY ASSURANCE
A. FANS SHALL BE DESIGNED, MANUFACTURED, AND TESTED IN ACCORDANCE WITH UL 705 "POWER VENTILATORS."
B. MOTORS AND ELECTRICAL ACCESSORIES SHALL COMPLY WITH NEMA STANDARDS.
PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS MANUFACTURED BY COOK, GREENHECK, PENN VENTILATOR, OR APPROVED EQUIVALENT.
2.2 FANS - GENERAL
A. GENERAL: PROVIDE FANS THAT ARE FACTORY FABRICATED AND ASSEMBLED, FACTORY TESTED, AND FACTORY FINISHED, WITH INDICATED CAPACITIES AND CHARACTERISTICS.
B. FANS AND SHAFTS: STATIONALLY AND DYNAMICALLY BALANCED AND DESIGNED FOR CONTINUOUS OPERATION AT THE MAXIMUM RATED FAN SPEED AND MOTOR HORSEPOWER. FANS SHALL BE FACTORY BALANCED AND CHECKED FOR VIBRATION. MAXIMUM FAN SELF-EXCITED VIBRATION VELOCITY SHALL NOT EXCEED 0.157 INCH/SECOND AT BEARING CAPS, MEASURED WITH THE FAN FULLY ASSEMBLED AND OPERATING AT DESIGN CONDITIONS. FAN SHAFT SHALL BE TURNED, GROUND, AND POLISHED STEEL DESIGNED TO OPERATE AT NO MORE THAN 70 PERCENT OF THE FIRST CRITICAL SPEED AT THE TOP OF THE SPEED RANGE OF THE FAN'S CLASS.
C. FACTORY FINISH: THE FOLLOWING FINISHES ARE REQUIRED:
1. SHEET METAL PARTS: PRIME COATING PRIOR TO FINAL ASSEMBLY.
2. EXTERIOR SURFACES: BAKED-ENAMEL FINISH COAT AFTER ASSEMBLY ON ALL FERROUS METAL PARTS. NO FINISH ON GALVANIZED OR ALUMINUM PARTS.
PART 3 - EXECUTION
3.1 INSTALLATION - GENERAL
A. INSTALL FANS LEVEL AND PLUMB, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. SUPPORT UNITS AS DESCRIBED BELOW, USING THE VIBRATION CONTROL DEVICES INDICATED.
B. ARRANGE INSTALLATION OF UNITS TO PROVIDE ACCESS SPACE AROUND UNITS FOR SERVICE AND MAINTENANCE.
3.2 CONNECTIONS
A. DUCT INSTALLATIONS AND CONNECTIONS ARE SPECIFIED IN OTHER DIVISION 23 SECTIONS. MAKE FINAL DUCT CONNECTIONS WITH FLEXIBLE CONNECTIONS.
SECTION 233713 - AIR OUTLETS AND INLETS
PART 1 - GENERAL
1.1 DESCRIPTION OF WORK
A. THIS PROJECT SHALL INCLUDE AIR OUTLETS AND INLETS WORK AS INDICATED BY DRAWINGS AND SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION.
B. TYPES OF AIR OUTLETS AND INLETS REQUIRED FOR PROJECT INCLUDE CEILING AIR DIFFUSERS AND REGISTERS, WALL REGISTERS AND GRILLES, AND LOUVERS. REFER TO PLANS AND EQUIPMENT SCHEDULES.
1.2 QUALITY ASSURANCE
A. CODES AND STANDARDS: AIR OUTLETS AND INLETS SHALL BE TESTED AND RATED IN ACCORDANCE WITH APPLICABLE SECTIONS OF AIR 650, ASHRAE 70, AMCA 500 AND NFPA 90A.

Professional seal for Eric Michael Wolf, PE, License No. 402053869, State of Virginia. Includes contact information for Sweetgreen (3101 W. Exposition Blvd, Los Angeles, CA 90018) and Wolf Engineering (P.O. Box 38, Dalton, GA 30722). Project information: PIKE 7 PLAZA, 8399 LEEBSBURG PIKE, VIENNA, VA 22182. Mechanical Specifications M-010. Revisions table with date 06/23/2025 and description PERMIT SET.



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FAIRFAX COUNTY APPROVED HEALTH DEPARTMENT 9/9/2025 ALTC-2025-014

10/2/2025 ALTC-2025-01483

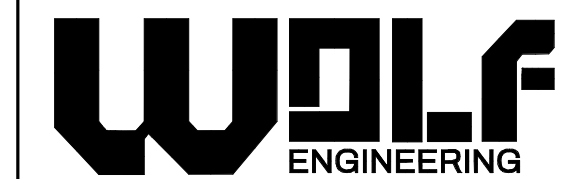


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ENGINEER OF RECORD:



P.O. BOX 38 | DALTON, GA 30722

STAMP:



PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0002057635

GREENLITE PEER REVIEWER

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PROJECT INFORMATION:
PIKE 7 PLAZA

PROJECT INFORMATION:
**8399 LEESBURG PIKE
VIENNA, VA 22182**

DRAWN BY:	BG
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	TR
SG DM CHECKED BY:	TR
SG CONSTR. MANAGER:	MC
PROJECT NO:	20240238.0
TEMPLATE VERSION:	2401

REV.	DATE	DESCRIPTION
	06/23/2025	PERMIT SET

MECHANICAL SPECIFICATIONS

M-011

PART 2 - PRODUCTS

- 2.1 **DIFFUSERS AND GRILLES**
- A. GENERAL: EXCEPT AS OTHERWISE INDICATED, PROVIDE MANUFACTURER'S STANDARD CEILING AIR DIFFUSERS AND WALL GRILLES WHERE SHOWN, OF SIZE, SHAPE, CAPACITY AND TYPE INDICATED, CONSTRUCTED OF MATERIALS AND COMPONENTS AS INDICATED, AND AS REQUIRED FOR COMPLETE INSTALLATION.
 - B. PERFORMANCE: PROVIDE DIFFUSERS AND GRILLES THAT HAVE, AS MINIMUM, TEMPERATURE AND VELOCITY TRAVERSES, THROW AND DROP, AND NOISE CRITERIA RATINGS FOR EACH SIZE DEVICE AS LISTED IN MANUFACTURER'S CURRENT DATA.
 - C. CEILING COMPATIBILITY: PROVIDE DIFFUSERS WITH BORDER STYLES THAT ARE COMPATIBLE WITH ADJACENT CEILING SYSTEMS, AND THAT ARE SPECIFICALLY MANUFACTURED TO FIT INTO CEILING MODULE WITH ACCURATE FIT AND ADEQUATE SUPPORT. REFER TO GENERAL CONSTRUCTION DRAWINGS AND SPECIFICATIONS FOR TYPES OF CEILING SYSTEMS WHICH WILL CONTAIN EACH TYPE OF CEILING AIR DIFFUSER.
 - D. PROVIDE MOUNTING FRAMES TO ADAPT TO CONSTRUCTION TYPE, WHERE INSTALLED IN HARD CEILINGS OR WALLS, PROVIDE SURFACE MOUNT FRAME BELOW CEILING WITH PERIMETER FLANGE AND GASKET TO SEAL AGAINST CEILING CONSTRUCTION.
 - E. WHERE INDICATED, PROVIDE ADJUSTABLE OPPOSED BLADE DAMPER ASSEMBLY, KEY OPERATED FROM FACE OF DIFFUSER.
 - F. PROVIDE, WHERE REQUIRED TO PROTECT FIRE RATED CEILING PENETRATIONS, COMBINATION ADJUSTABLE OPPOSED BLADE DAMPER AND FUSIBLE LINK FIRE DAMPER WITH UL APPROVED LINK AND ASSEMBLY DESIGNED TO MEET REQUIREMENTS OF NFPA 90A.
 - G. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE EQUIPMENT MANUFACTURED BY KRUEGER MFG. CO., TITUS PRODUCTS CO., TUTTLE & BAILEY CORP., OR APPROVED EQUIVALENT.

- AIR OUTLET WITHIN 5% OF DESIGN FLOW AS SHOWN ON THE DRAWINGS. AFTER THE FINISHED AREA IS OCCUPIED, THE AIR VOLUMES SHALL BE READJUSTED, IF REQUIRED, TO PROPERLY BALANCE THE COOLING AND HEATING LOADS THROUGHOUT THE CONDITIONED AREAS.
- B. AIR OUTLETS SHALL BE BALANCED WITH AIR PATTERN AS SHOWN ON THE DRAWINGS.
- 2. ALL BALANCING MUST BE ACCOMPLISHED WITH DIFFUSER AIR PATTERNS AS INDICATED ON THE DRAWINGS.
- 3. THE CONTRACTOR SHALL SUBMIT DETAILED BALANCING PROCEDURES AND RECORDING FORMS FOR THE ENGINEER'S REVIEW, PRIOR TO COMMENCING ANY AIR BALANCE WORK.
- C. FINAL AIR BALANCE READINGS.
 - 1. AFTER AIR FLOW ARE BALANCED, AND WITH THE TEMPERATURE CONTROLS SET TO PRODUCE DESIGN COOLING, MEASURE AND RECORD ALL DATA NECESSARY TO COMPIL A COMPLETE REPORT TO DEMONSTRATE THE ACCEPTABILITY OF THE VARIOUS MECHANICAL SYSTEMS, INCLUDE AT LEAST THE FOLLOWING DATA IN THE REPORT:
 - A. OUTSIDE DRY BULB AND WET BULB TEMPERATURE.
 - B. INSIDE DRY BULB AND WET BULB TEMPERATURES IN SIX SELECTED AREAS OF THE CONDITIONED SPACE, ROOM OR AREA SELECTED BY THE ENGINEER.
 - C. DRY BULB TEMPERATURES OF AIR ENTERING AND LEAVING ALL COILS.
 - D. TEMPERATURE OF WATER ENTERING AND LEAVING EACH WATER COIL.
 - 2. THE BALANCED POSITION OF EACH CONTROLLING VALVE AND DAMPER SHALL BE PERMANENTLY MARKED ON THE PIPE, INSULATION, OR DUCTWORK.
- D. TEMPERATURE CONTROL ADJUSTING.
 - 1. AUTOMATIC TEMPERATURE CONTROLS SHALL BE CALIBRATED AND ALL THERMOSTATS, DAMPERS, ETC., ADJUSTED SO THAT CONTROL SYSTEM IS IN THE PROPER OPERATING CONDITION, SUBJECT TO REVIEW BY THE ENGINEER.
- F. FINAL REPORT
 - 1. SUBMIT PDF AND SIX (6) COPIES OF COMPLETE REPORTS TO THE ARCHITECT.

PART 3 - EXECUTION

- 3.1 **INSTALLATION**
- A. GENERAL: INSTALL AIR OUTLETS AND INLETS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO INSURE THAT PRODUCTS SERVE INTENDED FUNCTIONS.
 - B. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK AND DUCT ACCESSORIES, AS NECESSARY TO INTERFACE INSTALLATION OF AIR OUTLETS AND INLETS WITH OTHER WORK.
 - C. LOCATE CEILING AIR DIFFUSERS, REGISTERS, AND GRILLES, AS INDICATED ON GENERAL CONSTRUCTION "REFLECTED CEILING PLANS". UNLESS OTHERWISE INDICATED, LOCATE UNITS IN CENTER OF ACOUSTICAL CEILING MODULES.

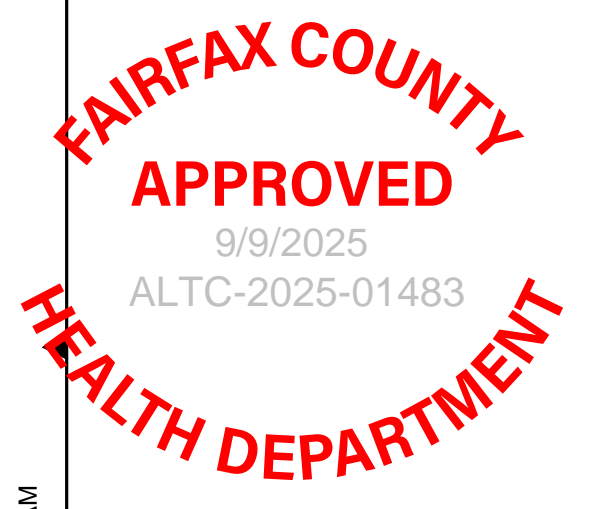
SECTION 238900 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

- 1.1 **DESCRIPTION OF WORK**
- A. THIS PROJECT SHALL INCLUDE THE REQUIREMENTS AND PROCEDURES FOR TOTAL MECHANICAL SYSTEMS TESTING, ADJUSTING, AND BALANCING. REQUIREMENTS INCLUDE MEASUREMENT AND ESTABLISHMENT OF THE FLUID QUANTITIES OF THE MECHANICAL SYSTEMS AS REQUIRED TO MEET DESIGN SPECIFICATIONS, AND RECORDING AND REPORTING THE RESULTS. WORK INCLUDES TESTING, ADJUSTING AND BALANCING THE SUPPLY AIR SYSTEMS, RETURN AIR SYSTEMS, EXHAUST AIR SYSTEMS, AND VERIFYING THE TEMPERATURE CONTROL SYSTEM OPERATION.
 - B. SYSTEMS/DEVICES TO BE BALANCED INCLUDE THE FOLLOWING:
 - 1. ALL AIR DEVICES, INCLUDING ALL SUPPLY DIFFUSERS, RETURN GRILLES AND EXHAUST GRILLES.
 - 2. ALL NEW EXHAUST FANS.
 - 3. ALL EXISTING ROOFTOP UNITS, INCLUDING TOTAL SUPPLY AIR, RETURN AIR AND OUTDOOR AIR.
 - 1.2 **QUALITY ASSURANCE**
 - A. AGENCY QUALIFICATIONS: EMPLOY THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING AGENCY MEETING THE QUALIFICATIONS SPECIFIED BELOW, TO BE THE SINGLE SOURCE OF RESPONSIBILITY TO TEST, ADJUST, AND BALANCE THE BUILDING MECHANICAL SYSTEMS IDENTIFIED ABOVE, TO PRODUCE THE DESIGN OBJECTIVES. SERVICES SHALL INCLUDE CHECKING INSTALLATIONS FOR CONFORMITY TO DESIGN, MEASUREMENT AND ESTABLISHMENT OF THE FLUID QUANTITIES OF THE MECHANICAL SYSTEMS AS REQUIRED TO MEET DESIGN SPECIFICATIONS, AND RECORDING AND REPORTING THE RESULTS.
 - 1. THE INDEPENDENT TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) IN THOSE TESTING AND BALANCING DISCIPLINES REQUIRED FOR THIS PROJECT, AND HAVING AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED, CERTIFIED BY AABC OR NEBB AS A TEST AND BALANCE ENGINEER.
 - B. CODES AND STANDARDS:
 - 1. NEBB: "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS."
 - 2. AABC: "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE".
 - 3. ASHRAE: ASHRAE HANDBOOK, HVAC APPLICATIONS VOLUME, CHAPTER 39, TESTING, ADJUSTING, AND BALANCING.

PART 3 - EXECUTION

- 3.1 **INITIAL BASELINE TESTING**
- A. PRIOR TO THE START OF CONSTRUCTION, PERFORM A BASELINE TEST TO DETERMINE THE EXISTING CONDITIONS OF ALL SYSTEMS SERVING THE AREA OF CONSTRUCTION WHICH WILL BE MODIFIED AS A RESULT OF THE PROJECT.
 - 1. MEASURE AIRFLOW AT EACH INLET AND OUTLET.
 - 2. MEASURE TOTAL AIRFLOW AT FAN DISCHARGE BY PITOT TUBE.
 - 3. MEASURE VOLTAGE AND AMPERAGE OF ALL SYSTEM MOTORS.
 - B. RECORD OPERATING CONDITIONS AND PROVIDE REPORT TO THE OWNER AND ENGINEER, SPECIFICALLY NOTING ANY DEFICIENCIES WHICH MAY IMPACT THE SUCCESSFUL COMPLETION OF THIS PROJECT.
- 3.2 **PERFORMING TESTING, ADJUSTING, AND BALANCING**
- A. EXAMINATION: BEFORE COMMENCING TESTS, VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE. ENSURE THE FOLLOWING:
 - 1. EQUIPMENT IS OPERABLE AND IN SAFE AND NORMAL CONDITION.
 - 2. TEMPERATURE CONTROL SYSTEMS ARE INSTALLED COMPLETE AND OPERABLE.
 - 3. PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE AND OPEN.
 - 4. DUCT SYSTEMS ARE CLEAN OF DEBRIS.
 - 5. FIRE AND VOLUME DAMPERS ARE IN PLACE AND OPEN.
 - 6. ACCESS DOORS ARE CLOSED AND DUCT END CAPS ARE IN PLACE.
 - 7. AIR OUTLETS ARE INSTALLED AND CONNECTED.
 - 8. DUCT SYSTEM LEAKAGE HAS BEEN MINIMIZED.
 - B. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN THE REFERENCED STANDARDS.
 - C. OUT INSULATION, DUCTWORK, AND PIPING FOR INSTALLATION OF TEST PROBES TO THE MINIMUM EXTENT NECESSARY TO ALLOW ADEQUATE PERFORMANCE OF PROCEDURES. PATCH INSULATION, DUCTWORK, AND HOUSINGS, USING MATERIALS IDENTICAL TO THOSE REMOVED. SEAL INSULATION TO RE-ESTABLISH INTEGRITY OF THE VAPOR BARRIER.
 - D. MARK EQUIPMENT SETTINGS, INCLUDING DAMPER CONTROL POSITIONS, VALVE INDICATORS, FAN SPEED CONTROL LEVERS, AND SIMILAR CONTROLS AND DEVICES, TO SHOW FINAL SETTINGS. MARK WITH PAINT OR OTHER SUITABLE, PERMANENT IDENTIFICATION MATERIALS.
- 3.3 **RECORD AND REPORT DATA**
- A. PREPARE TEST AND BALANCE REPORT AND SUBMIT ONE (1) COPY TO THE ENGINEER AND ONE (1) COPY TO THE OWNER'S REPRESENTATIVE. REPORT SHALL BE STANDARD NEBB OR AABC FORMAT.
 - B. AIR BALANCE AND ADJUSTING
 - 1. SUPPLY AIR SYSTEMS INSTALLED IN FINISHED AREAS OF THE BUILDING SHALL BE BALANCED AND ADJUSTED AS FOLLOWS:
 - A. AFTER DUCT SYSTEMS HAVE BEEN INSTALLED COMPLETE WITH ALL VAV BOXES, TERMINAL DEVICES, GRILLES, DAMPERS, DUCTS, COILS, AND OTHER ITEMS HEREINAFTER SPECIFIED THE CONTRACTOR SHALL MAKE ADJUSTMENTS, AS REQUIRED, TO DELIVER THE VOLUME OF AIR AT EACH



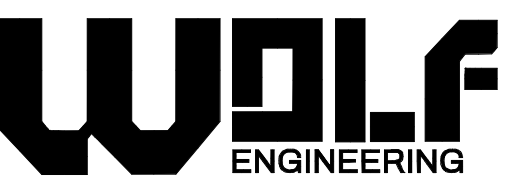


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ENGINEER OF RECORD:



P.O. BOX 38 | DALTON, GA 30722

STAMP:



PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0402057635

GREENLITE PEER REVIEWER

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PROJECT INFORMATION:
PIKE 7 PLAZA

PROJECT INFORMATION:
**8399 LEEBSBURG PIKE
VIENNA, VA 22182**

DRAWN BY: BG
 CHECKED BY: EW
 PROJECT MANAGER: JAH
 SG DESIGN MANAGER: TR
 SG DM CHECKED BY: TR
 SG CONSTR. MANAGER: MC
 PROJECT NO: 20240238.0
 TEMPLATE VERSION: 2401

REVISIONS
 REV. DATE DESCRIPTION
 06/23/2025 PERMIT SET

HVAC PLANS

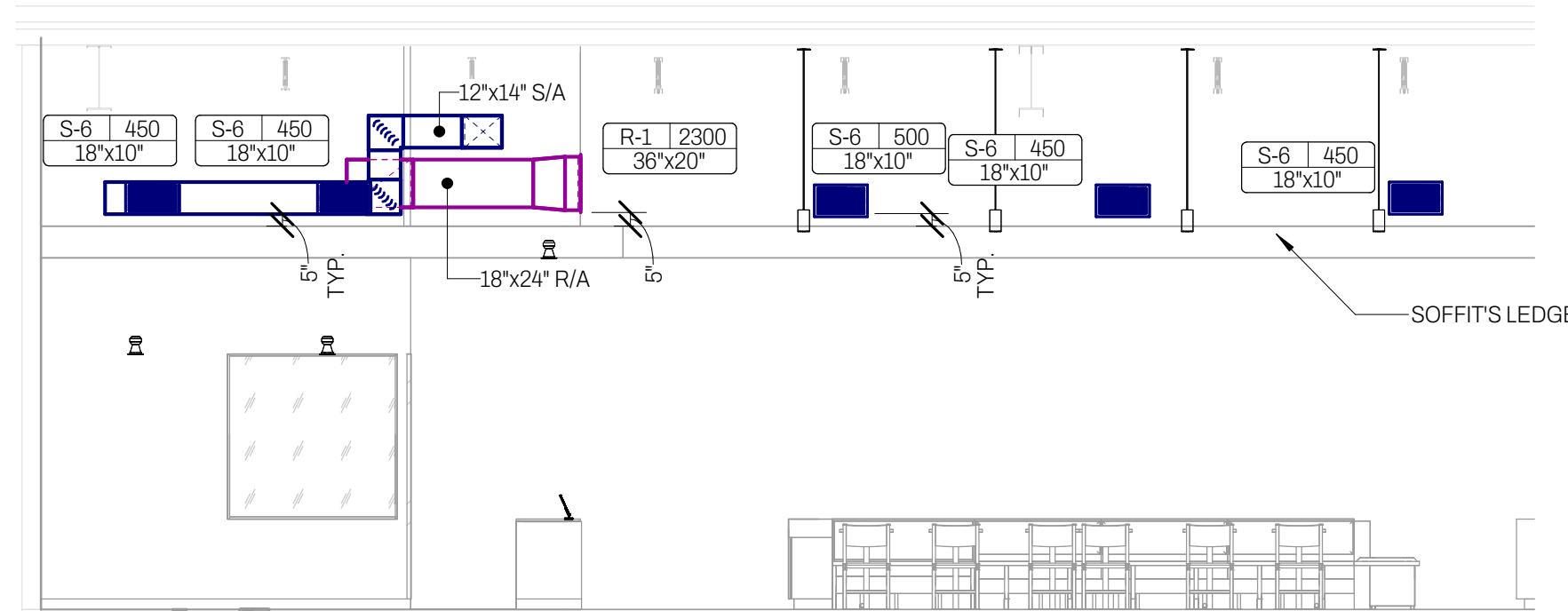
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GENERAL NOTES

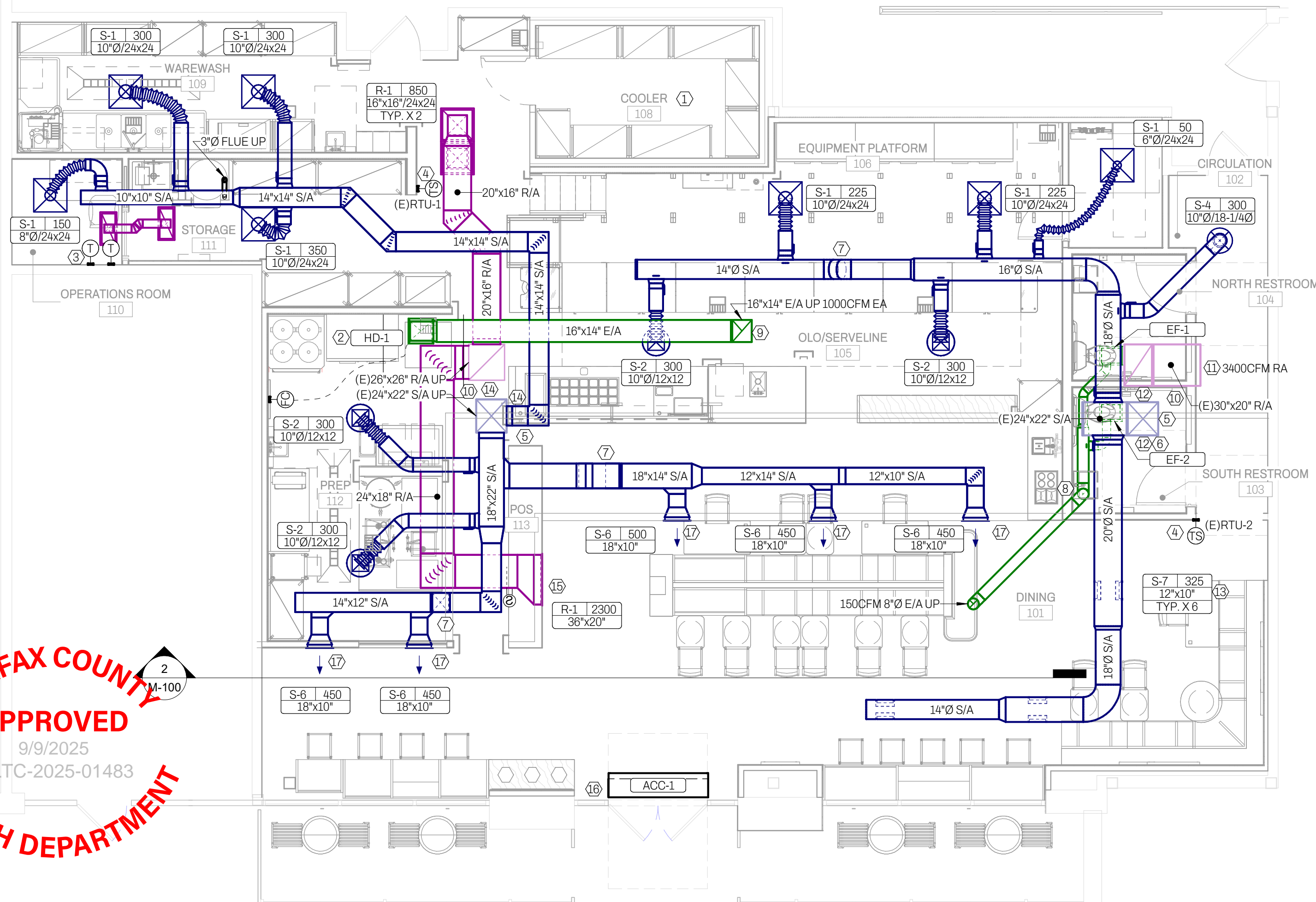
- A. IT IS THE RESPONSIBILITY OF THE GENERAL AND MECHANICAL CONTRACTOR TO FULLY INSPECT THE SITE PRIOR TO COMMENCEMENT.
- B. VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATION OF ALL STRUCTURAL ELEMENTS, BAR JOISTS, COLUMNS, ETC. AND COORDINATE DUCT LOCATIONS ACCORDINGLY.
- C. DRAWINGS ARE DIAGRAMMATIC ONLY. FINAL EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC. SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO OWNER.
- D. LOCATE THERMOSTATS SUCH THAT THEY ARE ACCESSIBLE, PROTECTED, AND IN AN AREA OF UNOBSTRUCTED AIR CIRCULATION.
- E. NO EXPOSED DUCTWORK SHALL BE PERMITTED. COORDINATE WITH AOR AS REQUIRED.

KEY NOTES

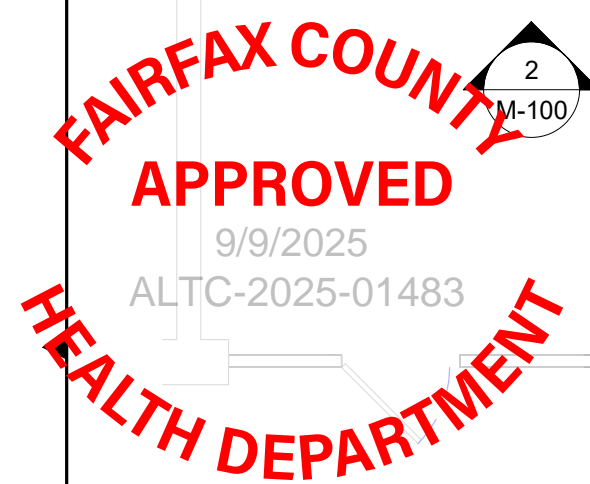
- 1. NEW CONDENSOR (BY OTHERS) FOR WALK-IN COOLER LOCATED ON ROOF. REFER TO SHEET M-101 FOR LOCATION. UNIT SHALL COMPLY WITH IMC CHAPTER 11.6 ASHRAE 15, SUCH THAT UNIT CONTAINS CODE COMPLIANT REFRIGERANT WITH LEAK DETECTION, ALARM, EMERGENCY SHUTOFF, VENTILATION, AND PROVIDED SIGNAGE.
- 2. PROVIDE EXHAUST DUCT TO TYPE II KITCHEN CANOPY HOOD OVER OVEN FOR SMELLS AND HEAT. ROUTE DUCTING HIGH IN STRUCTURAL SUPPORTS WHERE APPLICABLE. COORDINATE EXACT LOCATION WITH ARCHITECT/KITCHEN DESIGN TEAM.
- 3. PROVIDE THERMOSTATS/CONTROLLERS WHERE INDICATED. INSTALL AT 48" ABOVE FINISHED FLOOR. COORDINATE WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT ACCESS IS NOT BLOCKED. UNITS ARE TO OPERATE RTU'S TEMPERATURE SENSORS.
- 4. INSTALL TEMPERATURE SENSOR FOR RTU WHERE INDICATED. COORDINATE WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED.
- 5. CONTRACTOR SHALL FURNISH AND INSTALL REME HALO AIR PURIFICATION SYSTEM IN SUPPLY AIR DUCT AND REQUIRED TRANSFORMER PER MANUFACTURER'S INSTRUCTIONS. CONTRACTOR SHALL FURNISH THROUGH NATIONAL ACCOUNT AND INSTALL. NATIONAL ACCON: NATIONAL TAB CONTACT - WILL TURNBOUGH, PHONE (855)882-6822, EXT. 4.2, EMAIL - WILL@NATIONALTAB.COM.
- 6. ALL DUCT WORK VISIBLE THROUGH GRILLES IN DINING AREA SHALL BE SPIRAL AND PAINTED BACK. (TYPICAL).
- 7. TRANSITION DUCTING TO HIGH/LOW CEILING AS SHOWN ON PLANS. REFERENCE ARCHITECTURAL PLANS WHERE REQUIRED.
- 8. ROUTE NEW RESTROOM EXHAUST DUCTING TIGHT TO STRUCTURE ABOVE. FAN OPERATION SHALL INTERLOCK WITH RESTROOM LIGHTING. REFER TO SHEET M-101 FOR EXHAUST AIR DUCT TERMINATION LOCATION THRU ROOF.
- 9. ROUTE NEW EXHAUST DUCTING TIGHT TO STRUCTURE ABOVE. ROUTE DUCTING TO EXISTING FAN UTILIZING EXISTING CURB, REFER TO SHEET M-101 FOR ADDITIONAL INFORMATION. FAN OPERATION SHALL BE OPERATED BY WALL MOUNTED CONTROL. RELOCATE INTERLOCK AND CONTROL PANEL TO ACCESSIBLE WALL AS SHOWN. FAN IS FOR SMELLS ONLY, NO SMOKE OR GREASE, COORDINATE WITH ARCH PLANS FOR FURTHER INFORMATION.
- 10. LOCATE EXISTING SUPPLY AND RETURN AIR DUCTS DOWN FROM ROOFTOP UNITS ABOVE.
- 11. LOCATE EXISTING RETURN AIR DUCT TIGHT TO STRUCTURE ABOVE. DUCT HAS A 90 DEGREE TURNING VEIN WITH GRILLE ON OPEN END OF DUCT TO REMAIN.
- 12. ROUTE NEW SPIRAL DUCTING FROM EXISTING SUPPLY AIR DUCT.
- 13. INSTALL SIDE WALL DIFFUSERS CENTERED ON SPIRAL DUCT. UTILIZE GRILLE WITH 45 DEGREE BLADE DEFLECTION DOWNWARD (TYP).
- 14. ROUTE NEW RECTANGULAR DUCTING TO EXISTING SUPPLY AND RETURN AIR DROPS. INSURE RA DUCT CONTAINS SMOKE DETECTOR TIED INTO OPERATION OF FA SYSTEM.
- 15. PROVIDE SURFACE MOUNTED RETURN AIR GRILLE IN SOFFIT. DUCT TAKEOFF SHALL CONTAIN SMOKE DETECTOR TIED INTO OPERATION OF FA SYSTEM.
- 16. INSTALL AIR CURTAIN PER MANUFACTURER'S INSTRUCTION. AIR CURTAIN'S VELOCITY EXCEEDS 800FPM. REFER TO SCHEDULE ON SHEET M-300. PROVIDE A TEMPERATURE SENSOR ON THE EXTERIOR OF THE BUILDING TO SERVE THE AIR CURTAIN. INTERLOCK THE SENSOR WITH THE EQUIPMENT SUCH THAT THE HEATER SHALL BE DE-ENERGIZED WHEN OUTDOOR TEMPERATURE IS GREATER THAN 45°F. ADJUST MANUFACTURER'S DOOR SWITCH SUCH THAT AIR CURTAIN'S FAN REMAINS ENERGIZED FOR TWO SECONDS AFTER DOOR IS SHUT. DOOR SWITCH SHALL BE INTERLOCKED WITH AUTOMATIC DOORS.
- 17. PROVIDE SIDE WALL DIFFUSERS IN HIGH SOFFIT. GRILLE SHALL HAVE 45 DEGREE DEFLECTION DOWNWARD. (TYP).



2 MECHANICAL - SIDEWALL DIFFUSER ELEVATION VIEW
M-100 3/16" = 1'-0"



1 MECHANICAL - LEVEL 1 HVAC PLAN
M-100 3/16" = 1'-0"



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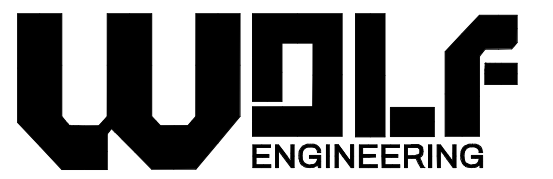


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LOS ANGELES, CALIFORNIA 90018

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ENGINEER OF RECORD:



P.O. BOX 38 | DALTON, GA 30722

STAMP:



PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0402057535

GREENLITE PEER REVIEWER

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PROJECT INFORMATION:
PIKE 7 PLAZA

PROJECT INFORMATION:
8399 LEESBURG PIKE
VIENNA, VA 22182

DRAWN BY:	BG
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	TR
SG DM CHECKED BY:	TR
SG CONSTR. MANAGER:	MC
PROJECT NO.:	20240238.0
TEMPLATE VERSION:	2401

REVISIONS	REV.	DATE	DESCRIPTION
	06/23/2025	PERMIT SET	

HVAC ROOF PLAN

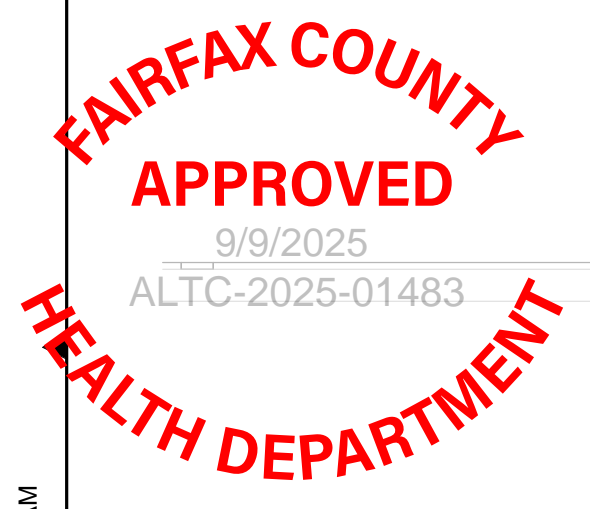
M-101

GENERAL NOTES

- A. IT IS THE RESPONSIBILITY OF THE GENERAL AND MECHANICAL CONTRACTOR TO FULLY INSPECT THE SITE PRIOR TO COMMENCEMENT.
- B. VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATION OF ALL STRUCTURAL ELEMENTS, BAR JOISTS, COLUMNS, ETC. AND COORDINATE DUCT LOCATIONS ACCORDINGLY.
- C. DRAWINGS ARE DIAGRAMMATIC ONLY. FINAL EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC. SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO OWNER.
- D. CONTRACTOR SHALL MAINTAIN 10' CLEARANCE FROM EXHAUST AND PLUMBING VENTS TO OUTSIDE AIR INTAKES. COORDINATE WITH CONTRACTOR FOR EXISTING PLUMBING VENT. VENT PIPING SHALL BE EXTENDED TO TERMINATE 3' ABOVE UNIT'S TOP ELEVATION.

KEY NOTES

- 1. NEW CONDENSER ON ROOF FOR WALK IN FRIDGE BY KITCHEN EQUIPMENT TEAM. ROUTE FULL SIZE CONDENSATE TO NEAREST ROOF DRAIN.
- 2. MAINTAIN 10' CLEARANCE FROM EXHAUST AIR OUTLETS, PLUMBING VENTS, AND FANS TO OUTSIDE AIR INTAKES.
- 3. EXISTING ROOF MOUNTED EQUIPMENT. INSPECT, CLEAN, AND CONDITION TO OPERATE AS "LIKE NEW".
- 4. PROVIDE EXHAUST AIR DUCT UP THRU ROOF TO ROOF CAP WITH BUG SCREEN AND GRAVITY BACKDRAFT DAMPER. DUCT SERVES RESTROOMS BELOW.
- 5. PROVIDE FLUE PIPING UP THRU ROOF TO ROOF. PROVIDE CAP WITH BUG SCREEN.



1 MECHANICAL - ROOF MECHANICAL PLAN
M-101 1/4" = 1'-0"

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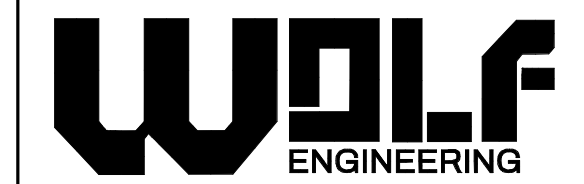


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LOS ANGELES, CALIFORNIA 90018

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P.O. BOX 38 | DALTON, GA 30722

STAMP:



Table with columns: PEER REVIEWER, PR#, DPOR#

GREENLITE PEER REVIEWER

I recommend these construction documents for submission under the Expedited Building Plan Review Program (EBRP)...

PROJECT INFORMATION: PIKE 7 PLAZA, 8399 LEEBURG PIKE, VIENNA, VA 22182

DRAWN BY: BG, CHECKED BY: EW, PROJECT MANAGER: JAH, SG DESIGN MANAGER: TR, SG DM CHECKED BY: TR, SG CONSTR. MANAGER: MC, PROJECT NO: 20240238.0, TEMPLATE VERSION: 2401

REVISIONS: REV. DATE DESCRIPTION, 06/23/2025 PERMIT SET

HVAC SCHEDULES

M-300

AIR DEVICE SCHEDULE

Table with columns: MARK, MANUFACTURER, MODEL, DESCRIPTION, FACE SIZE, MATERIAL, MOUNTING STYLE, REMARKS

- REMARKS: 1. COORDINATE BORDER TYPE AND FINISH WITH ARCHITECT PRIOR TO PURCHASING. 2. MATCH SNAPLOCK AND FLEXIBLE DUCT RUNOUT SIZES AS NOTED ON PLANS...

MINIMUM VENTILATION CALCULATIONS

Table with columns: UNIT NAME, ROOM NAME, OCCUPANCY CATEGORY, ZONE FLOOR AREA, ZONE POPULATION (RA), ZONE DENSITY (PZ / 1000 SF), OUTDOOR AIRFLOW RATE PER PERSON (AZ), OUTDOOR AIRFLOW RATE PER AREA (PZ), ZONE AIR DISTRIBUTION EFFECTIVENESS (EZ), BREATHING ZONE OUTDOOR AIRFLOW (VBZ), ZONE OUTDOOR AIR FLOW (VOZ)

AIR CURTAIN SCHEDULE

Table with columns: TYPE ID, DESCRIPTION, MANUFACTURER, MODEL, NOZZLE LENGTH, DESIGN AIRFLOW RATE, MAX VELOCITY, HEAT KW, VOLTAGE, PHASE, MOCP, MCA, INTERLOCK, DIMENSIONS (LENGT, H, WIDTH, T), REMARKS

- REMARKS: 1. UNIT CONTAINS 1 WHEEL TYPE 1/2HP MOTOR WITH ELECTRIC HEAT. (SINGLE BREAKER CONNECTION) 2. PROVIDE MANUFACTURER'S INSTALLATION KIT...

EXISTING PACKAGED ROOFTOP UNIT SCHEDULE

Table with columns: MARK, MANUFACTURER, MODEL, AREA SERVED, NOMINAL SIZE (TONS), SUPPLY FAN (TOTAL CFM, OUTSIDE AIR, ESP, HP), COOLING (TOTAL, SENSIBLE, GAS INPUT), HEAT PUMP HEATING, ELECTRICAL (VOLTAGE, PHASE, FREQUENCY, MOCP, MCA), WEIGHT, REMARKS

- REMARKS: 1. UNIT IS EXISTING TO REMAIN. 2. INSURE UNIT IS EQUIPPED WITH LOW LEAK DOWNFLOW ECONOMIZER WITH DRY BULB SENSOR. 3. PROVIDE HONEYWELL TH832 THERMOSTATS WITH LOCKABLE COVERS...

EXISTING EXHAUST FAN SCHEDULE

Table with columns: MARK, MANUFACTURER, MODEL, TYPE, AIRFLOW RATE, ESP, MOTOR (POWER, RPM), VOLTAGE, PHASE, FLA, MCA, MOCP, FAN INTERLOCK, WEIGHT, REMARKS

- REMARKS: 1. INSPECT, CLEAN, AND CONDITION TO LIKE NEW AS REQUIRED. 2. RELOCATE CONTROLS AND ASSOCIATED APPARATUS AS REQUIRED (SEE PLANS).

EXHAUST FAN SCHEDULE

Table with columns: MARK, MANUFACTURER, MODEL, TYPE, SERVES, DESIGN AIRFLOW RATE, AIRFLOW RATE, ESP, MOTOR (POWER, RPM, DRIVE), MAXIMUM SONES, VOLTAGE, PHASE, FLA, MCA, MOCP, FAN INTERLOCK, WEIGHT, REMARKS

- REMARKS: 1. FAN SHALL BE AMCA CERTIFIED AND UL LISTED FOR SOUND AND PERFORMANCE. 2. PROVIDE ECM WIRING PACKAGE, MANUAL DR 0-10V REFERENCE SPEED CONTROL. 3. PROVIDE MANUFACTURER'S BACKDRAFT DAMPER...

AIR BALANCE SCHEDULE

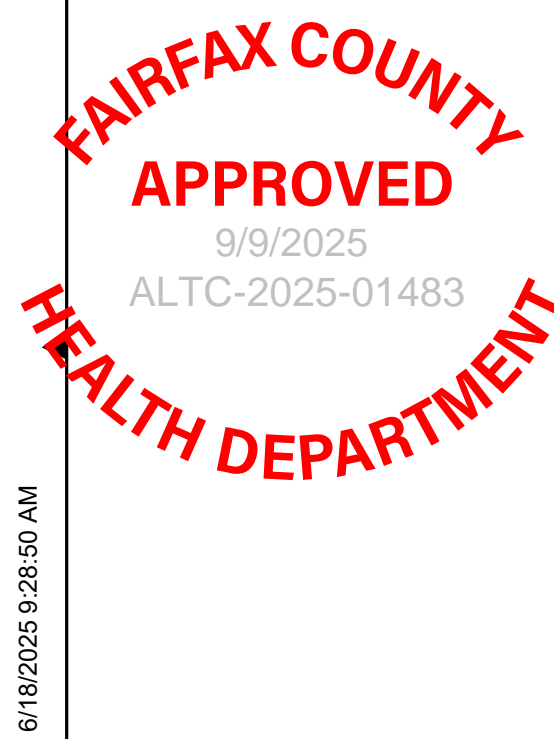
Table with columns: MARK, (CFM) SUPPLY AIR, (CFM) RETURN, (CFM) OA, (CFM) EXHAUST, (CFM) TOTAL

WALK-IN COOLER CONDENSING UNIT SCHEDULE - BY OTHERS - DEFERRED SUBMITTAL

Table with columns: MARK, DESCRIPTION, COMPRESSORS, FURNISHED BY, INSTALLED BY, MANUFACTURER, REMARKS

Table with columns: MARK, BASIS OF DESIGN (MANUFACTURER, MODEL), TYPE, DESIGN CFM, V/PH, MAX CFM, SUPPLIER/INSTALLER, WEIGHT (LBS), REMARKS

Table with columns: MARK, BASIS OF DESIGN (MANUFACTURER, MODEL), TYPE, DESIGN CFM, V/PH, MAX CFM, SUPPLIER/INSTALLER, WEIGHT (LBS), REMARKS



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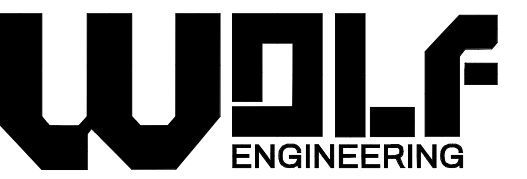


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LOS ANGELES, CALIFORNIA 90018

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STAMP:



PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0402057935

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PROJECT INFORMATION:
PIKE 7 PLAZA

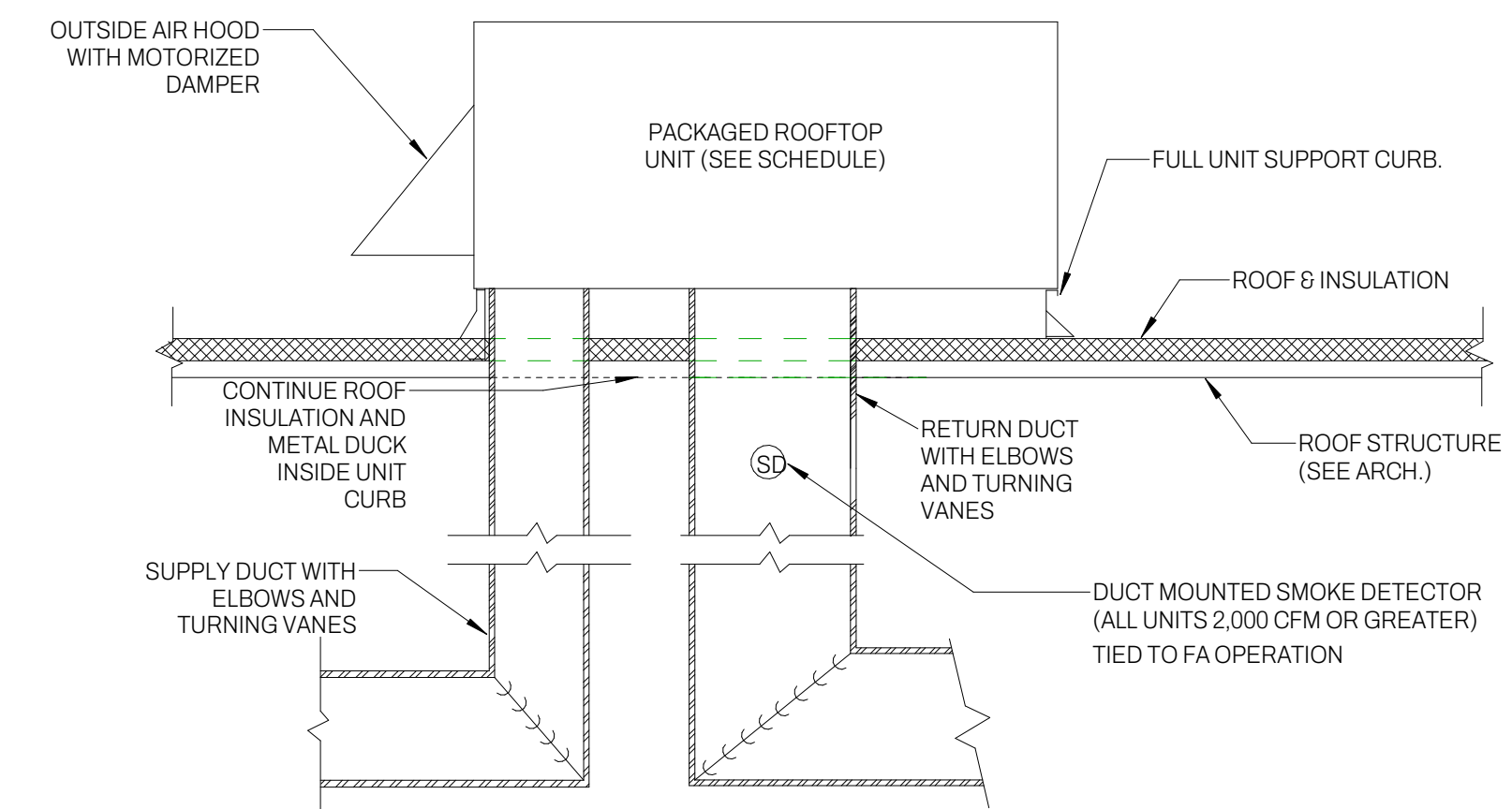
PROJECT INFORMATION:
**8399 LEESBURG PIKE
VIENNA, VA 22182**

DRAWN BY:	BG
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	TR
SG DM CHECKED BY:	TR
SG CONSTR. MANAGER:	MC
PROJECT NO.:	20240238.0
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REVISIONS	REV.	DATE	DESCRIPTION
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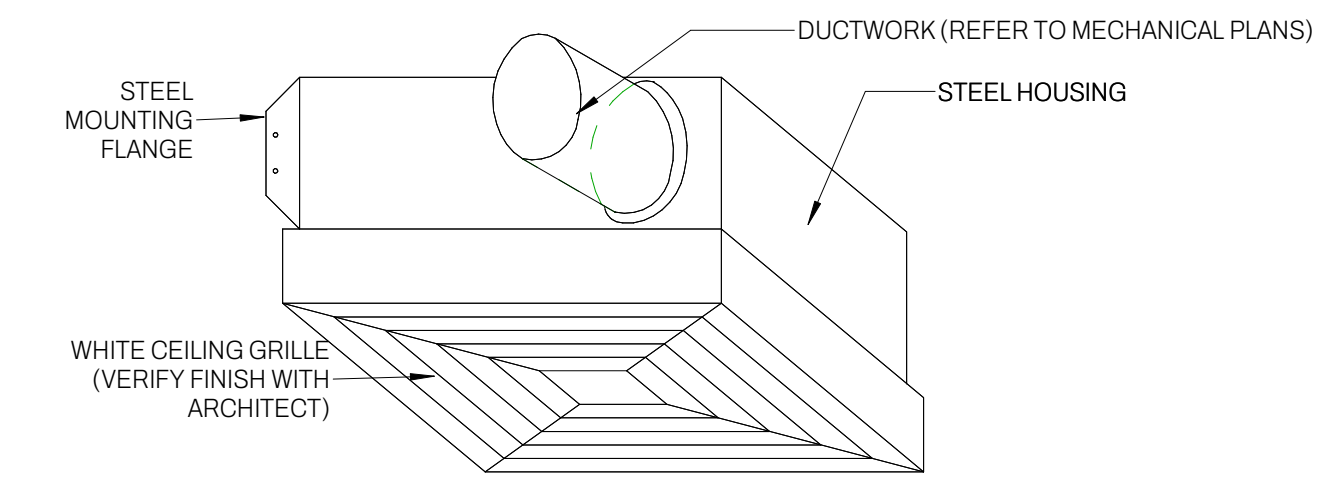
HVAC DETAILS

M-400



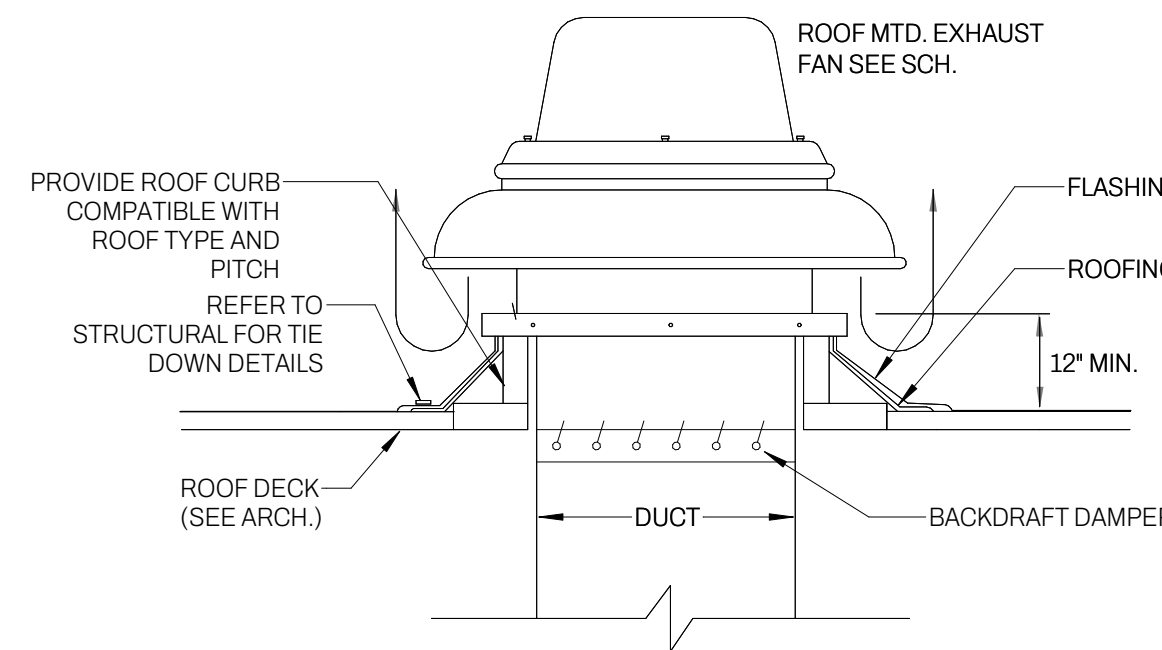
- GENERAL NOTES:
- MECHANICAL CONTRACTOR SHALL COORDINATE LOCATION AND SIZE OF ROOF OPENING REQUIRED BY ACTUAL EQUIPMENT INSTALLED WITH THE GENERAL CONTRACTOR IN THE FIELD.
 - PREFABRICATED ROOF CURBS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ROOFING CONTRACTOR.
 - CONNECTION OF THE ROOF CURB TO THE BUILDING STRUCTURE SHALL BE AS DETAILED BY THE STRUCTURAL ENGINEER AND/OR ARCHITECT TO RESIST WIND LOADING IN ACCORDANCE TO THE INTERNATIONAL BUILDING CODE. THE ATTACHMENT OF THE ROOFTOP UNIT TO THE ROOF CURB SHALL BE IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATIONS TO RESIST WIND LOADING IN ACCORDANCE TO THE INTERNATIONAL BUILDING CODE.

9 TYPICAL PACKAGED ROOFTOP UNIT DETAIL
M-400 NOT TO SCALE

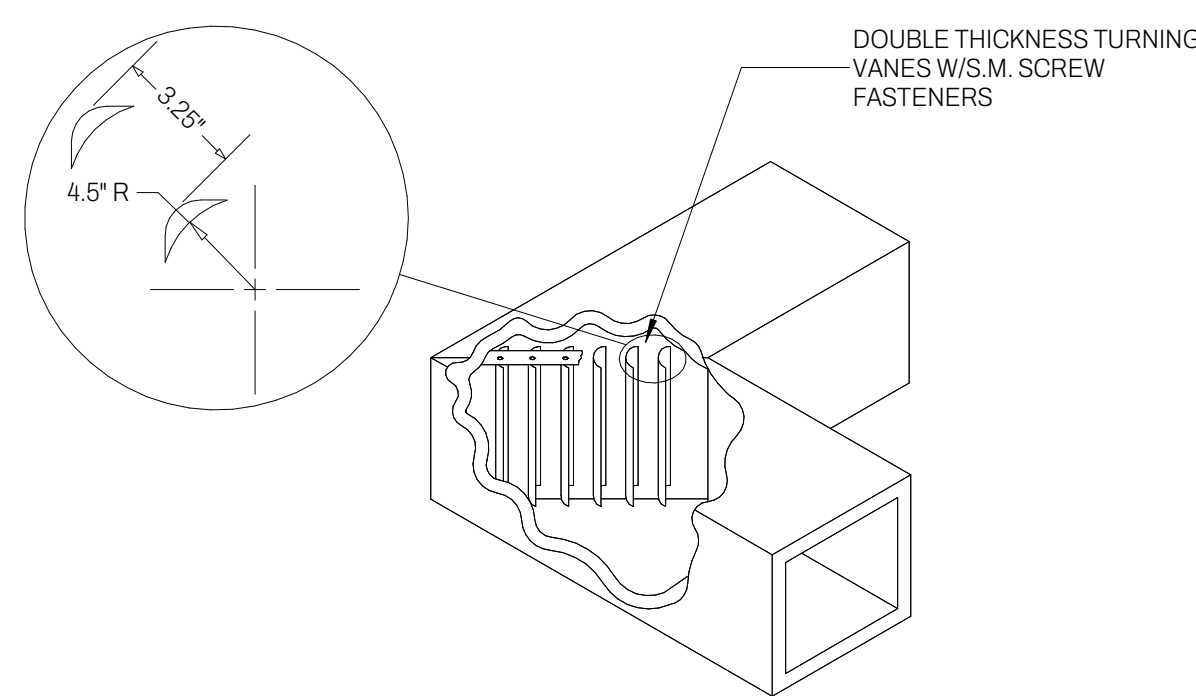


- GENERAL NOTES:
- PROVIDE BACKDRAFT DAMPER W/ BIRDSCREEN.
 - FLASH AND SEAL WALL/ROOF CAP.
 - PROVIDE INTERNAL ISOLATION AND SOUND INSULATION.
 - SUPPORT FAN FROM STRUCTURE.
 - REFER TO FAN SCHEDULE FOR FAN CONTROL.

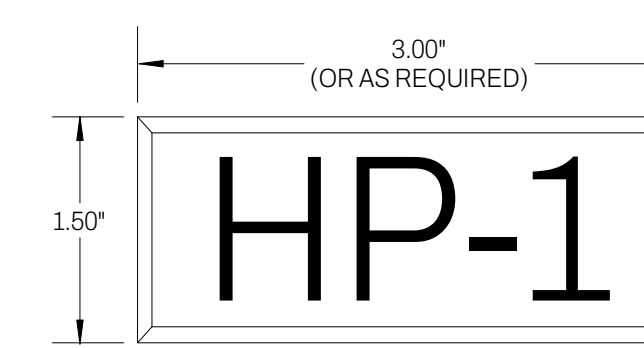
6 CABINET CEILING EXHAUST FAN
M-400 NOT TO SCALE



8 ROOF MOUNTED EXHAUST FAN
M-400 NOT TO SCALE

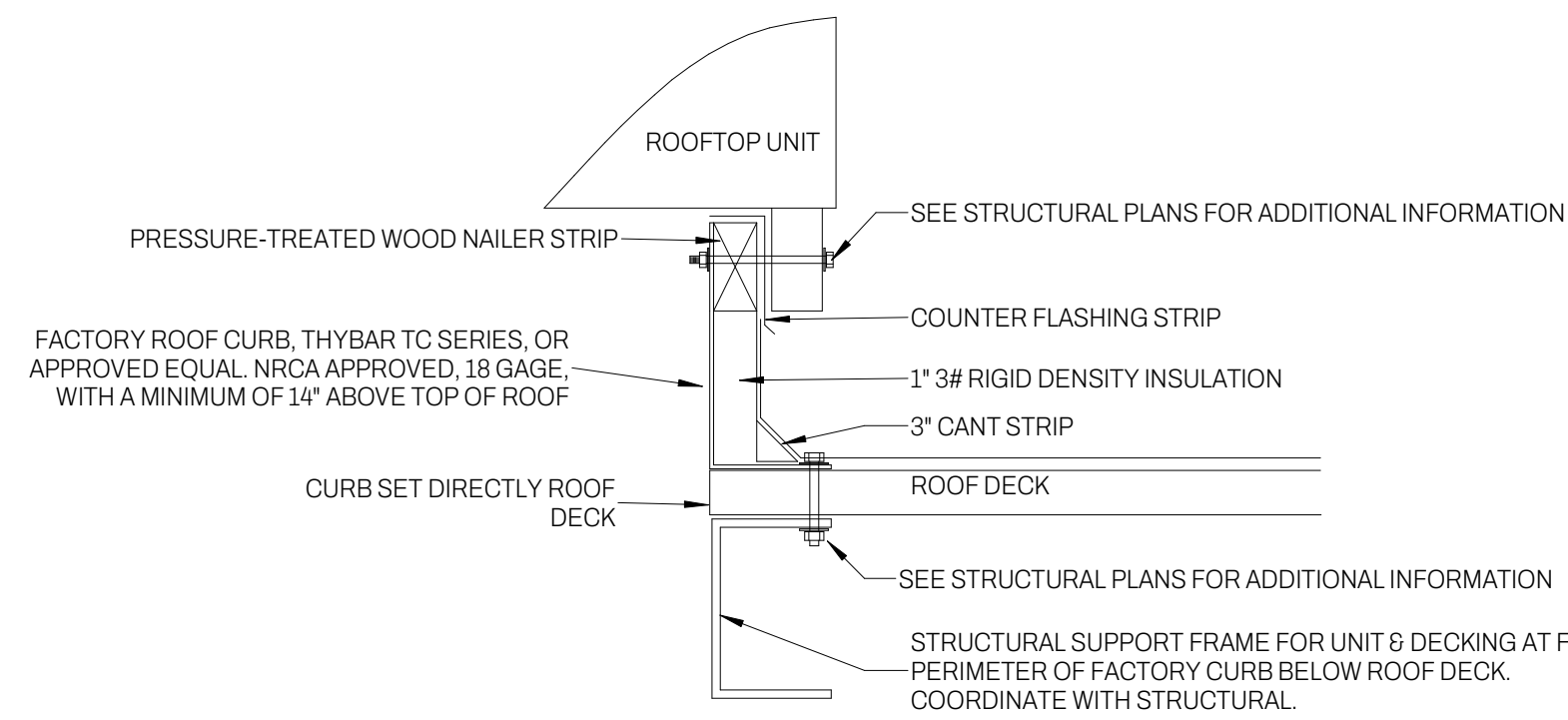


5 TURNING VANE DETAIL
M-400 NOT TO SCALE



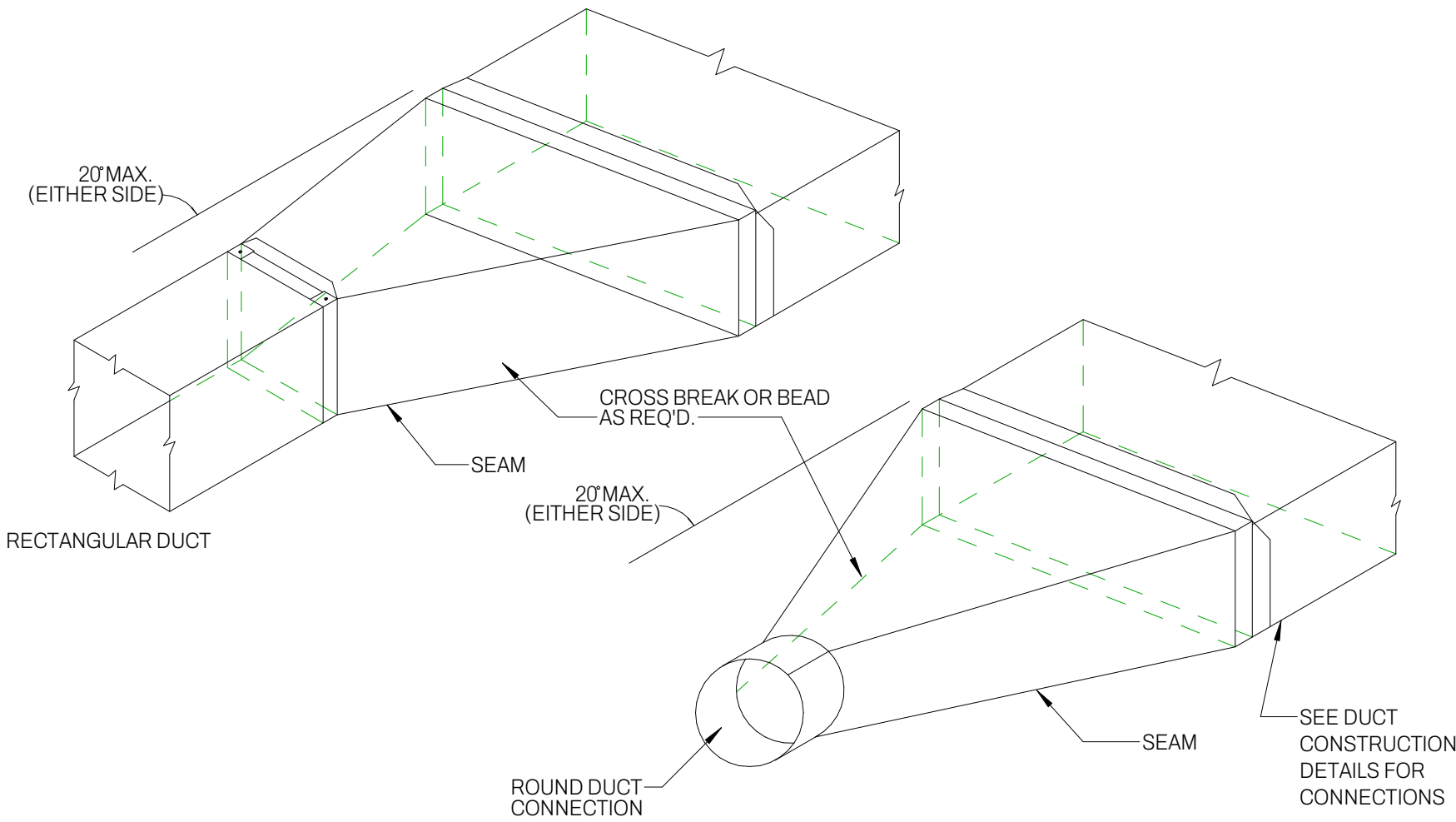
ENGRAVED PLASTIC TAG WITH 1" HIGH WHITE LETTERS ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH. SECURE TAG WITH PERMANENT, WATERPROOF DOUBLE SIDED TAG TAPE AT VISIBLE LOCATION ON MECHANICAL EQUIPMENT. LABEL ALL INDOOR AND OUTDOOR UNITS WITH NOTATION SHOWN ON PLANS.

3 TYPICAL ENGRAVED TAG DETAIL
M-400 NOT TO SCALE

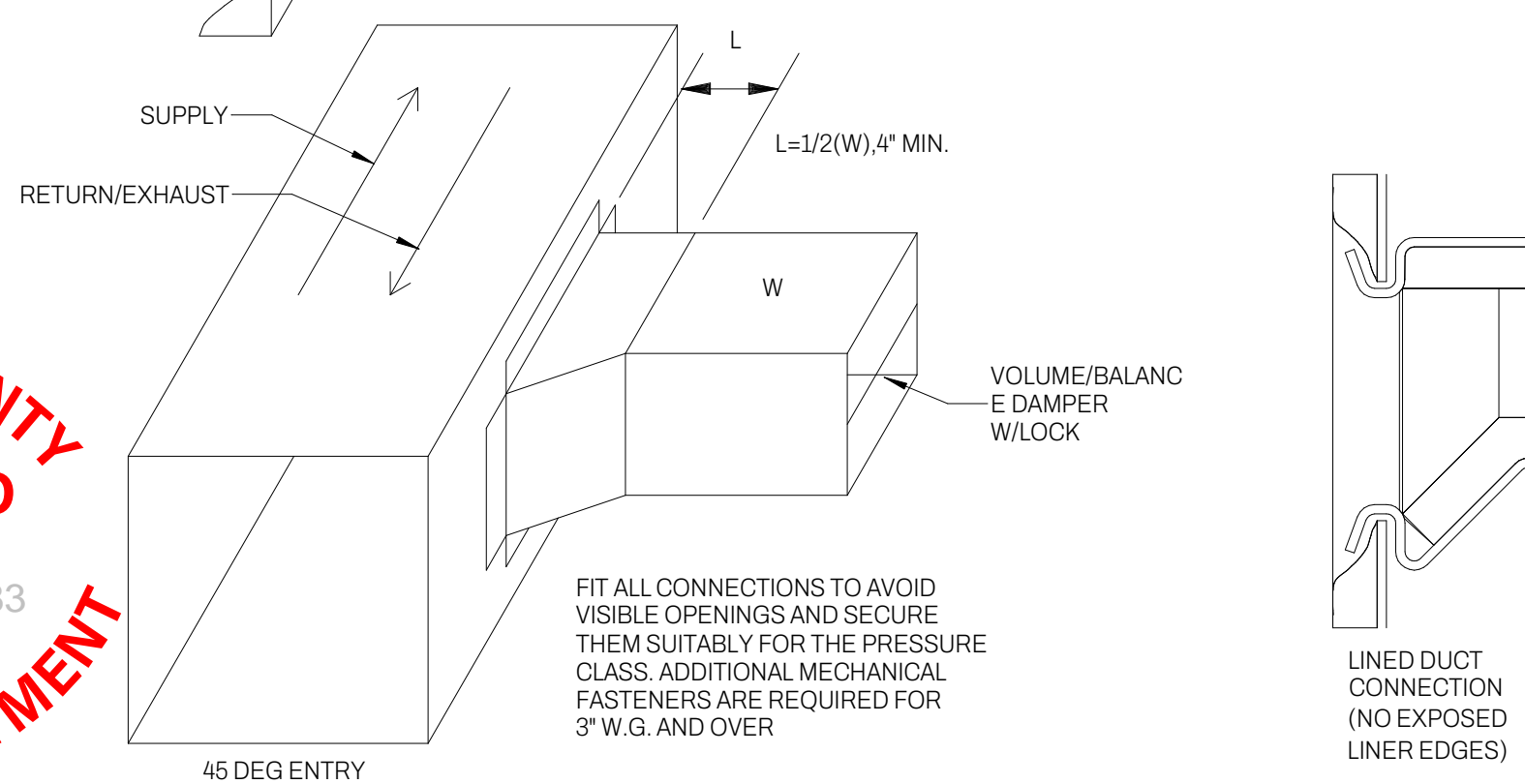
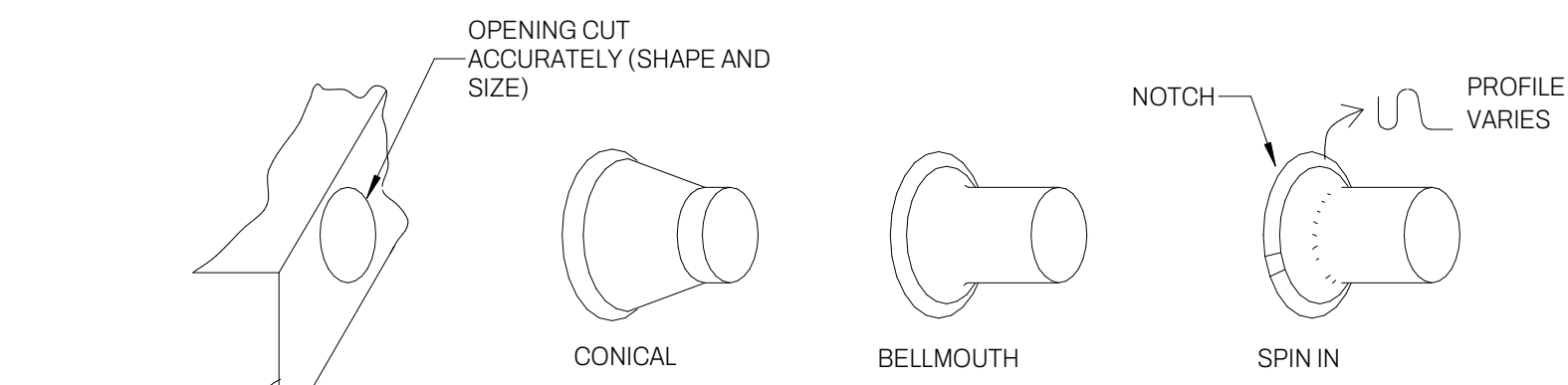


- GENERAL NOTES:
- MECHANICAL CONTRACTOR SHALL COORDINATE ROOF OPENING SIZES AND LOCATIONS FOR STRUCTURAL SUPPORT FRAMING WITH GENERAL CONTRACTOR.
 - CURB SHALL BE MANUFACTURED WITH SLOPING BASE TO MATCH ROOF PITCH AND LEVEL TOP.
 - ALTERNATE METHODS OF TIE-DOWN SHALL BE APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO COMMENCEMENT OF WORK OR EQUIPMENT ORDER.

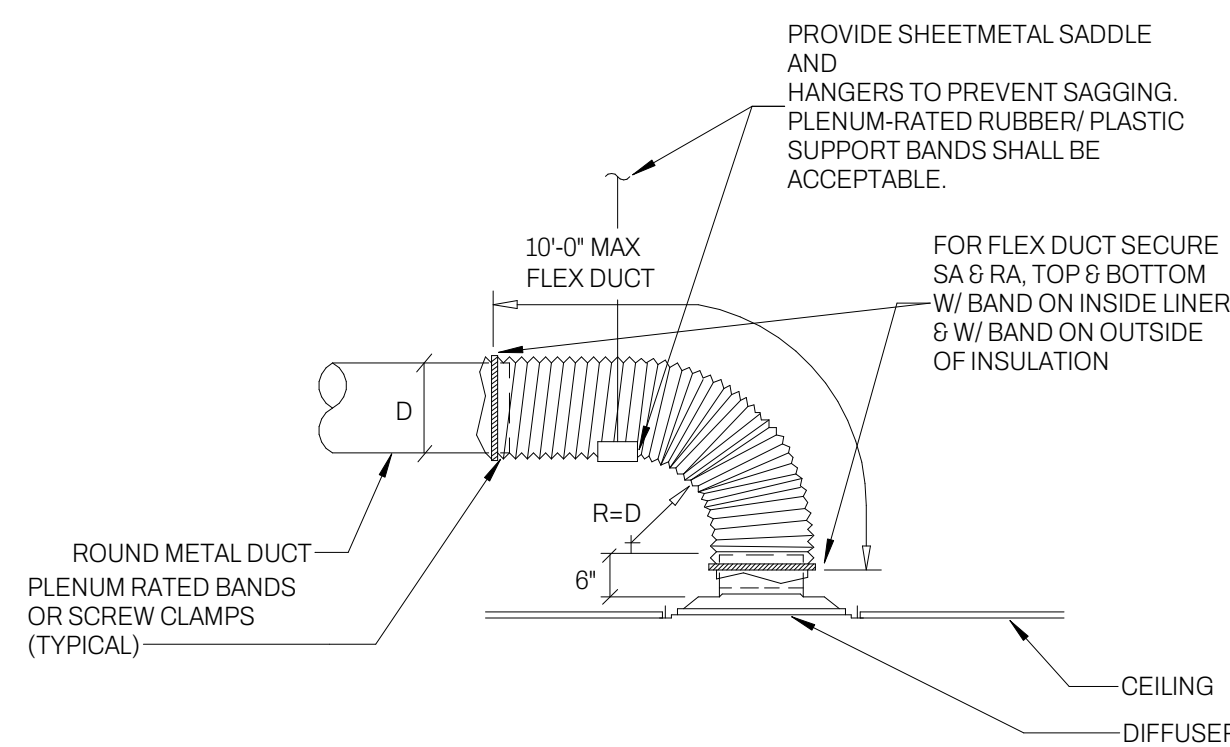
7 ROOFTOP UNIT CURB DETAIL
M-400 NOT TO SCALE



4 TRANSITION DETAIL
M-400 NOT TO SCALE



1 DUCT BRANCH CONNECTION DETAIL
M-400 NOT TO SCALE



2 DIFFUSER CONNECTION DETAIL
M-400 NOT TO SCALE

FAIRFAX COUNTY
APPROVED
9/9/2025
ALTC-2025-01483
HEALTH DEPARTMENT

FAIRFAX COUNTY
APPROVED
10/2/2025
ALTC-2025-01483
BUILDING DIVISION

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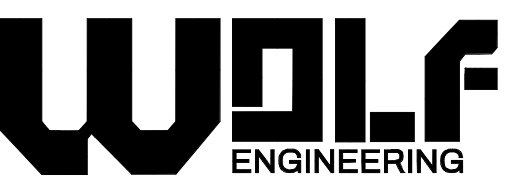


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PEER REVIEWER	PR#	DPOR#
JOHN STOPPI	236	0602057635

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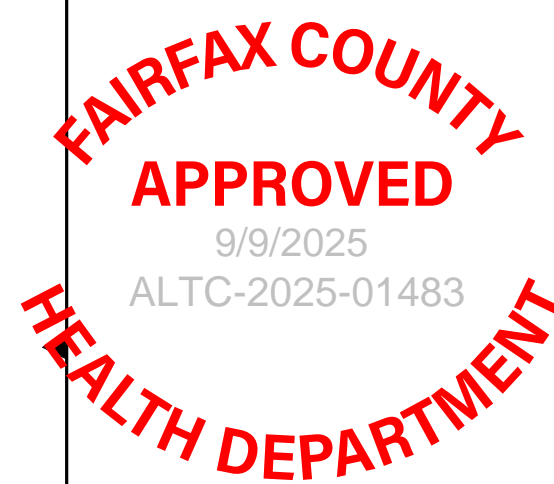
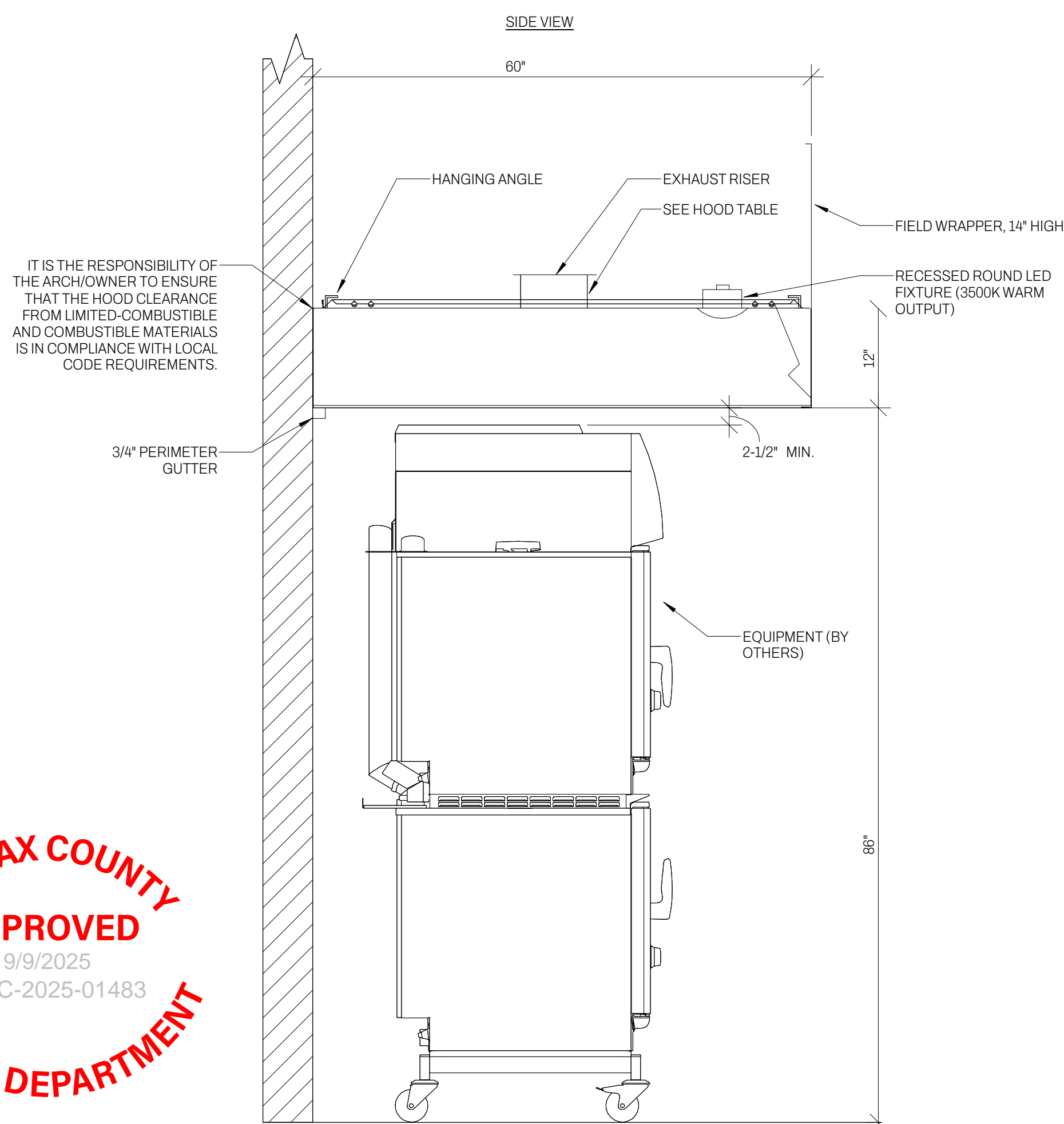
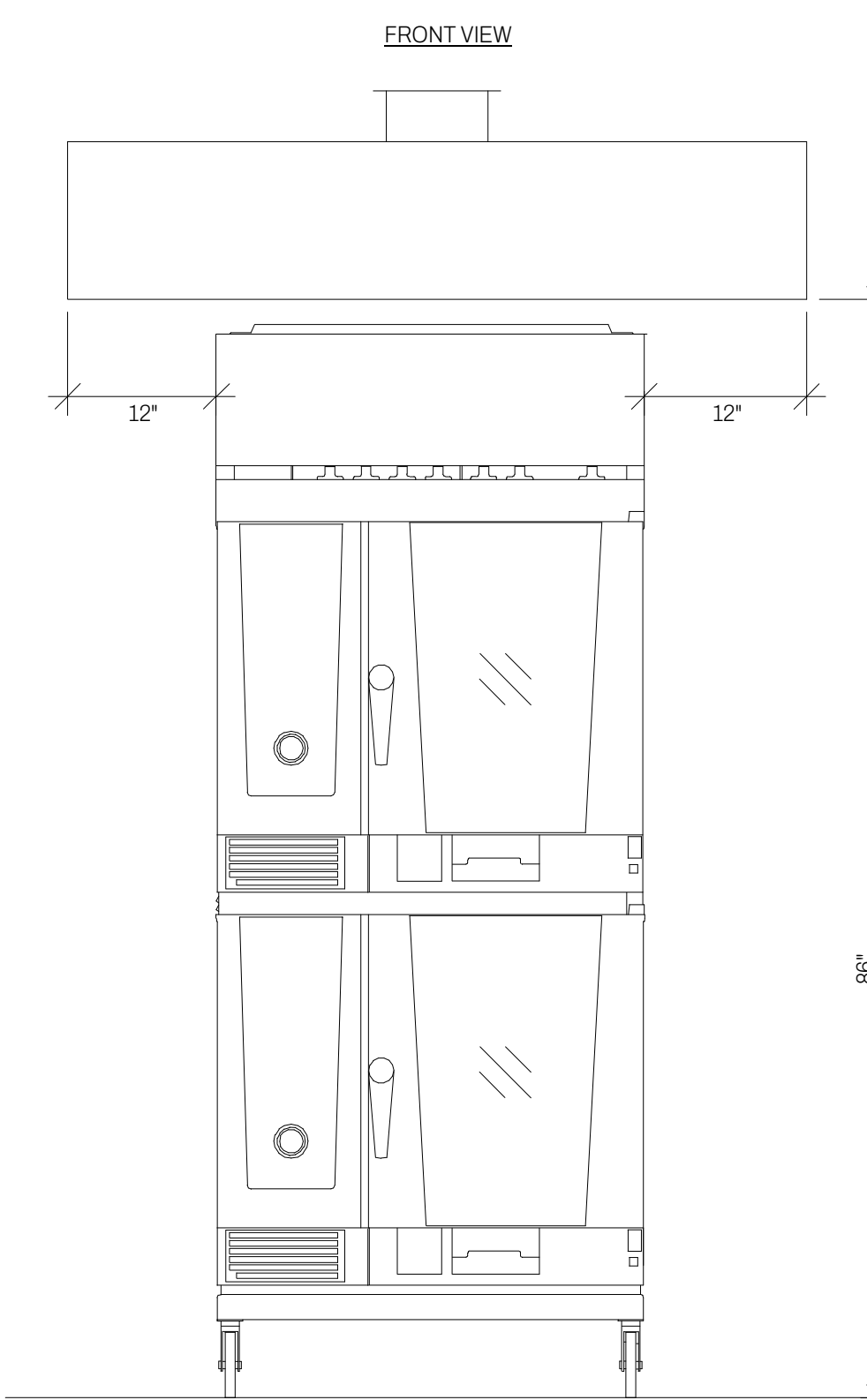
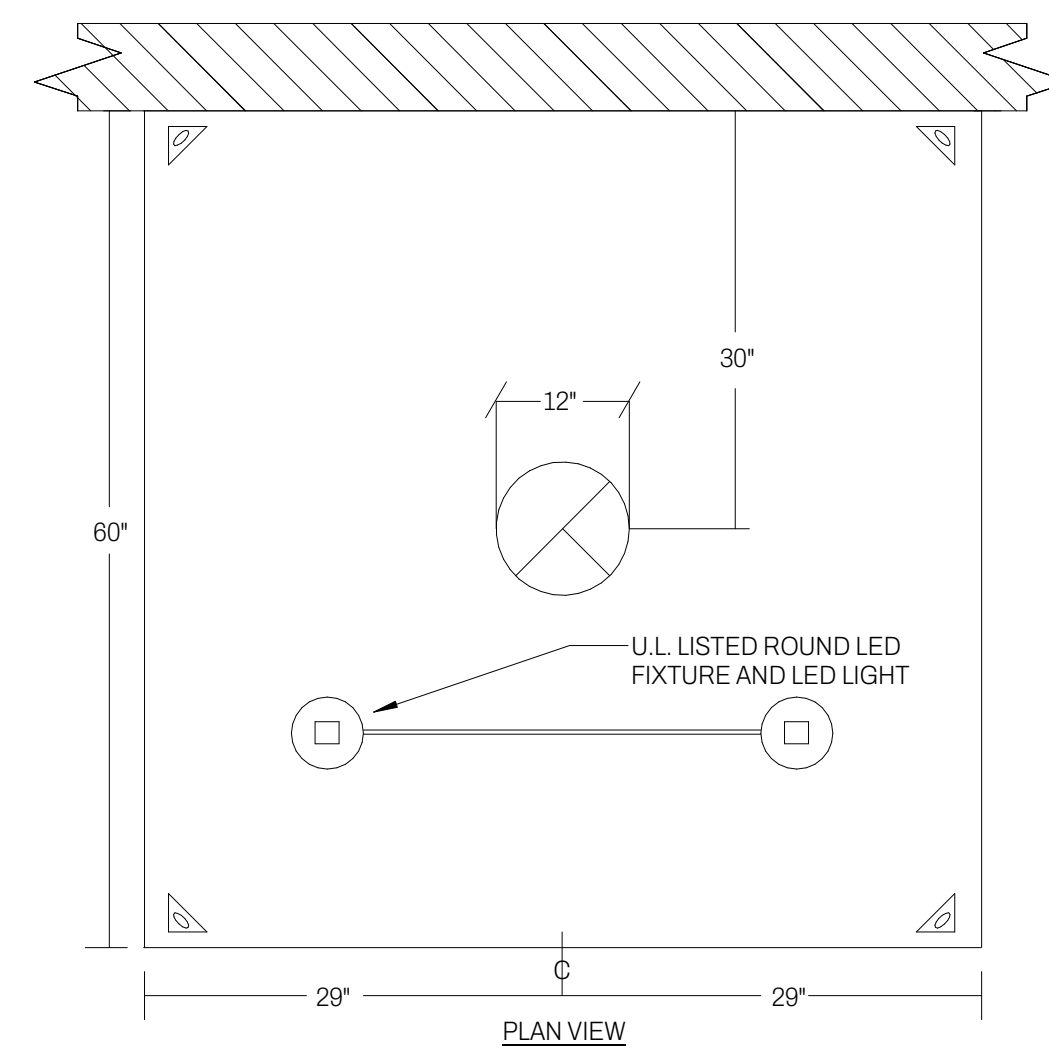
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 SG CONSTR. MANAGER: MC
 PROJECT NO: 20240238.0
 TEMPLATE VERSION: 2401

REVISIONS	REV.	DATE	DESCRIPTION

HVAC DETAILS

M-401



1 HOOD 'HD-1' ELEVATION DETAIL
M-401 NOT TO SCALE

6/18/2025 9:28:52 AM