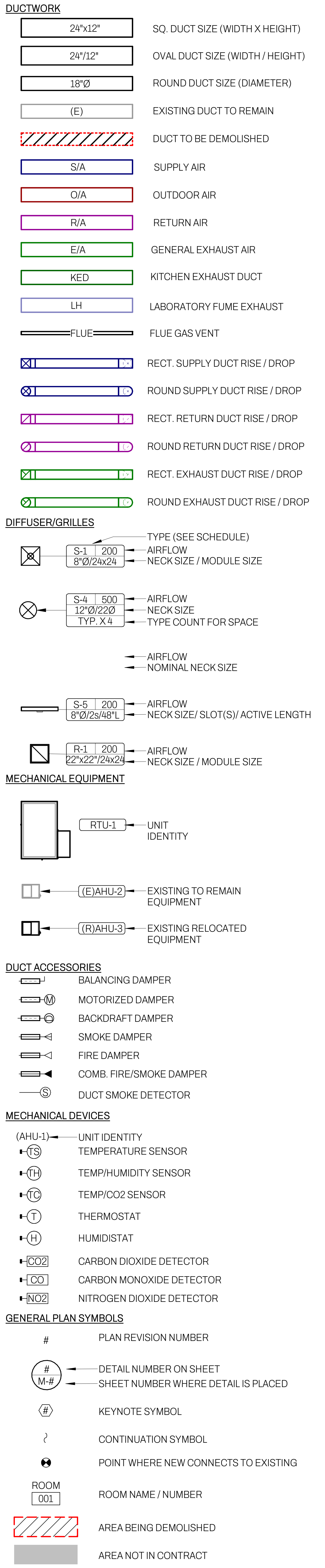
MECHANICAL ABBREVIATIONS

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
R	DUCT RISER
R/A	RETURN AIR
RE	RETURN/EXHAUST FAN
RH	RELATIVE HUMIDITY
RL/A	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

24"x12"	SQ. DUCT SIZE (WIDTH X HEIGHT)
24"/12"	OVAL DUCT SIZE (WIDTH / HEIGHT)
18"Ø	ROUND DUCT SIZE (DIAMETER)
(E)	EXISTING DUCT TO REMAIN
▨	DUCT TO BE DEMOLISHED
S/A	SUPPLY AIR
O/A	OUTDOOR AIR
R/A	RETURN AIR
E/A	GENERAL EXHAUST AIR
KED	KITCHEN EXHAUST DUCT
LH	LABORATORY FUME EXHAUST
FLUE	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

MECHANICAL EQUIPMENT

DUCT ACCESSORIES

	BALANCING DAMPER
Ⓜ	MOTORIZED DAMPER
	BACKDRAFT DAMPER
◁	SMOKE DAMPER
◁	FIRE DAMPER
◀	COMB. FIRE/SMOKE DAMPER
Ⓢ	DUCT SMOKE DETECTOR

MECHANICAL DEVICES

(AHU-1)	UNIT IDENTITY
TS	TEMPERATURE SENSOR
TH	TEMP/HUMIDITY SENSOR
TC	TEMP/CO2 SENSOR
T	THERMOSTAT
H	HUMIDISTAT
CO2	CARBON DIOXIDE DETECTOR
CO	CARBON MONOXIDE DETECTOR
NO2	NITROGEN DIOXIDE DETECTOR

GENERAL PLAN SYMBOLS

#	PLAN REVISION NUMBER
# / M-#	DETAIL NUMBER ON SHEET SHEET NUMBER WHERE DETAIL IS PLACED
⟨#⟩	KEYNOTE SYMBOL
≀	CONTINUATION SYMBOL
⊗	POINT WHERE NEW CONNECTS TO EXISTING
ROOM 001	ROOM NAME / NUMBER
▨	AREA BEING DEMOLISHED
▒	AREA NOT IN CONTRACT

MECHANICAL GENERAL NOTES

A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF ALL APPLICABLE CODES LOCAL CODES AS APPLIED BY THE AUTHORITY HAVING JURISDICTION.

B. 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 OFFSETS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS MAY BE NECESSARY TO FIT ACTUAL SPACE CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA WILL NOT FIT.

C. 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.

D. COORDINATE WITH ELECTRICAL, PLUMBING, STRUCTURAL, FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE MECHANICAL SYSTEM(S) AS DETAILED ON THE DRAWINGS AND SPECIFICATIONS. WORK CONSISTS OF PROVIDING ALL MATERIALS, EQUIPMENT, APPURTENANCES, ETC. REQUIRED FOR A COMPLETE 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, TESTED, AND READY FOR OPERATION.

E. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING CONFLICTS IN THE DRAWINGS AND SPECIFICATIONS PRIOR TO BIDDING AND REPORTING CONFLICTS TO THE ENGINEER BEFORE BIDDING. ANY CHANGES RESULTING FROM CONFLICTS IN THE FIELD, WHICH WERE NOT BROUGHT TO THE ENGINEERS ATTENTION, ARE TO BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

F. 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. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.

G. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTION 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 WORK BY REGULATORY AUTHORITIES.

H. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS TO THE BUILDING OWNER AND ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTING, ETC.

I. CONTRACTOR SHALL PROVIDE INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

J. ALL MATERIAL SHALL BE NEW OF U.S. MANUFACTURER OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARD QUALITY LEVEL BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED.

K. 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).

L. COORDINATE EXACT LOCATION OF ALL DIFFUSERS AND RETURNS WITH ARCHITECTURAL REFLECTED CEILING PLAN.

M. 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.

N. LOCATE THERMOSTATS, TEMPERATURE SENSORS, CONTROLLERS, C02 SENSORS, AND HUMIDITY SENSORS ABOVE FINISHED FLOOR AS PER ACCESSIBILITY CODE SECTION 5 REQUIREMENT 5. 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.

O. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE START-UP, REPLACE PRIOR TO FINAL ACCEPTANCE BY OWNER.

P. 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 TAB FIRM.

Q. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES FOR ALL REQUIRED OPENINGS IN WALLS, FOUNDATIONS, FLOORS, AND ROOFS.

R. REMOVE FROM THE SITE AND LEGALLY DISPOSE OF ALL ITEMS GENERATED AS CONSTRUCTION DEBRIS AS A RESULT OF NEW WORK OF THIS PROJECT.

S. 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.

T. 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.

U. UNDERCUT DOORS BY 3/4" TO ALLOW RETURN OR EXHAUST AIR FLOW. COORDINATE WITH ARCHITECTURAL DRAWINGS AND WITH GENERAL CONTRACTOR.

V. 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.

MECHANICAL GENERAL DUCTWORK NOTES

A. ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

B. DUCT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARD AND DETAILS ON THESE PLANS.

C. 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".

D. ALL DAMPER CONTROLS SHALL BE ACCESSIBLE.

E. 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 MANUFACTURE'S LISTED DETAILS AND SPECS.

F. 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.

G. 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 VAV BOXES. ALL DUCTWORK SHALL BE SEALED TO SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" FOR ITS PRESSURE CLASS SEALING METHODS.

H. ALL INSULATION SHALL HAVE FIRE/SMOKE RATING LESS THAN 25/50.

MECHANICAL SHEET INDEX

sg

sweetgreen

3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

P.O. BOX 38 | DALTON, GA 30722

STAMP:

SEAL
41016
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
1710 COMMONWEALTH AVE.,
SUITE 123
CHARLOTTE, NC 28205

DRAWN BY: TAL
CHECKED BY: EW
PROJECT MANAGER: JAH
SG DESIGN MANAGER: SC
SG DM CHECKED BY: SC
SG CONSTR. MANAGER: MC
PROJECT NO: 20240137.0
TEMPLATE VERSION: 2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

MECHANICAL LEGEND, SYMBOLS, AND ABBREVIATIONS

M-001

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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. SUCH STANDARDS ARE MADE A PART OF THE CONTRACT DOCUMENTS BY REFERENCE.

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 FILE FOR AND OBTAIN ALL REQUIRED PERMITS AND LICENSES, AND PAY ALL RELATED INSPECTION AND PERMITTING FEES, AS REQUIRED FOR THE EXECUTION OF THE CONTRACT. ARRANGE FOR NECESSARY INSPECTIONS REQUIRED BY CITY, COUNTY, STATE AND OTHER AUTHORITIES HAVING JURISDICTION IN A TIMELY MANNER AND AS REQUIRED OVER THE COMPLETE COURSE OF CONSTRUCTION. DELIVER INSPECTION CERTIFICATES AND WRITTEN APPROVAL NOTICES TO THE OWNER AT CONTRACT CLOSEOUT. THOSE ITEMS AND SYSTEMS DEEMED CRITICAL OR REQUIRED TO OBTAIN A COMPLETED CERTIFICATE OF OCCUPANCY SHALL TAKE PRIORITY OVER NON-CRITICAL ITEMS.

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. UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, THE RECOMMENDATIONS AND INSTRUCTIONS OF THE MANUFACTURER SHALL BE FOLLOWED FOR INSTALLING THE 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. DATA SUBMITTED FROM SUBCONTRACTORS AND MATERIAL SUPPLIERS DIRECTLY TO THE ENGINEER OF RECORD WILL NOT BE PROCESSED.

C. ANY ITEM WITH A TAG NUMBER MUST BE SUBMITTED FOR REVIEW. SUBMITTALS SHALL PROVIDE ALL PERTINENT DATA AND INFORMATION NECESSARY TO EVALUATE EACH ITEM. IN ADDITION TO THE REQUIREMENTS OUTLINED IN THE SPECIFIC DIVISION 23 SECTIONS, ALL SUBMITTALS MUST INDICATE THE APPLICABLE SPECIFICATION SECTION NUMBER AND EQUIPMENT TAG NUMBER.

D. ARCHITECT'S REVIEW OF SHOP DRAWINGS DOES NOT RELEASE CONTRACTOR FROM RESPONSIBILITY OF COORDINATING HIS WORK AT JOBSITE AND TAKING FIELD MEASUREMENTS. IN CASES WHERE INTERFERENCES BECOME APPARENT, THE CONTRACTOR SHALL NOTIFY ARCHITECT SO THAT SUCH INTERFERENCES MAY BE RESOLVED PRIOR TO PROCEEDING WITH SHOP WORK. NO CLAIM WILL BE ALLOWED FOR WORK THAT MIGHT HAVE TO BE MOVED OR REPLACED BASED ON A CLAIM THAT WORK WAS PLACED IN ACCORDANCE WITH DIMENSIONS SHOWN ON AN APPROVED SHOP DRAWING.

1.6 CONSTRUCTION DOCUMENTS

A. THE DRAWINGS FOR 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. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, THE CONTRACTOR SHALL MAKE SUCH CHANGES AS DIRECTED BY THE ENGINEER, WITHOUT ADDITIONAL COST TO THE OWNER.

B. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, SLEEVES, ETC. MAY NOT BE SHOWN; BUT WHERE SUCH ITEMS ARE REQUIRED BY THE NATURE OF THE WORK, THEY SHALL BE FURNISHED AND INSTALLED. ROUGH-IN DIMENSIONS AND LOCATIONS SHALL BE VERIFIED WITH THE SUPPLIER OF ALL EQUIPMENT FURNISHED BY OTHER TRADES, OR BY THE OWNER, PRIOR TO THE TIME OF ROUGH-IN.

C. EQUIPMENT SPECIFICATIONS MAY NOT DEAL INDIVIDUALLY WITH MINUTE ITEMS REQUIRED SUCH AS COMPONENTS, PART, CONTROLS AND DEVICES WHICH MAY BE REQUIRED TO MEET THE EQUIPMENT WARRANTIES. WHERE SUCH ITEMS ARE REQUIRED, THEY SHALL BE INCLUDED BY THE SUPPLIER OF THE EQUIPMENT, WHETHER OR NOT SPECIFICALLY CALLED FOR.

D. THE DRAWINGS AND THE SPECIFICATIONS ARE COOPERATIVE AND SUPPLEMENTARY. IT IS THE INTENT OF BOTH SAID DRAWINGS AND SPECIFICATIONS TO COVER ALL MECHANICAL REQUIREMENTS IN THEIR ENTIRETY AS NEARLY AS POSSIBLE. THE CONTRACTOR SHALL CLOSELY CHECK THE DRAWINGS AND SPECIFICATIONS FOR ANY OBVIOUS ERRORS OR OMISSIONS AND BRING ANY SUCH CONDITION TO THE ATTENTION OF THE ENGINEER PRIOR TO THE RECEIPT OF BID, IN ORDER TO PERMIT CLARIFICATION BY MEANS OF A MAILED ADDENDUM. IF THERE ARE NO QUESTIONS PRIOR TO THE BID PROPOSAL DATE, IT SHALL BE UNDERSTOOD THAT THE DRAWINGS AND SPECIFICATIONS ARE COMPLETE AND CORRECT, AND THAT THE INTENT OF SAID DOCUMENTS WILL BE COMPLIED WITH, AND THE INSTALLATION TO BE COMPLETE IN ALL RESPECTS, ACCORDING TO SAID INTENT. IF THERE IS A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN, IF NOT CLARIFIED IN WRITING BY THE ENGINEER.

E. THE CONTRACTOR SHALL LOCATE ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED OR MAINTAINED IN FULL ACCESSIBLE POSITIONS. MINOR DEVIATIONS FROM THE CONTRACT DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY, BUT CHANGES OF MAGNITUDE, OR WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT APPROVAL. AMPLE SPACE SHALL BE ALLOWED FOR REMOVAL OF ALL PARTS THAT MAY REQUIRE REPLACEMENT OR SERVICE IN THE FUTURE.

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. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

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 AND/OR OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT PRODUCT/MATERIALS, EVEN IF FROM OTHER ACCEPTABLE MANUFACTURERS, IF IT IS FELT THEY DO NOT MEET THE INTENT OF THE SPECIFICATION.

B. THE ARCHITECT RESERVES THE SOLE RIGHT FOR THE APPROVAL OF PROPOSED MATERIAL FOR EQUIPMENT, AND THE PHRASE, " OR AN APPROVED EQUIVALENT ", USED IN THESE SPECIFICATIONS, OR ON THE DRAWINGS, SHALL BE INTERPRETED TO MEAN AN EQUIVALENT APPROVED BY THE ARCHITECT.

C. 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.

D. 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. THE 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.

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. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.

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. INSTALLERS' QUALIFICATIONS REFER TO THE MATERIALS AND METHODS REQUIRED FOR THE SURFACE AND BUILDING COMPONENTS BEING PATCHED.

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. IN ADDITION, SUCH ITEMS IN FINISHED SPACES SHALL ALSO BE PAINTED WITH TWO COATS OF FINISH PAINT IN A COLOR TO MATCH ADJACENT SURFACES OR AS OTHERWISE SELECTED BY THE ARCHITECT.

3.4 PERFORMANCE

A. ALL EQUIPMENT 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. IF INSTALLERS ARE NOT EXPERIENCED IN PROCEDURES, PROVIDE INSTRUCTION BY MANUFACTURER'S REPRESENTATIVES.

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. ALL AIR FILTERS SHALL BE REPLACED AFTER COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCING. IF AIR-HANDLING SYSTEMS ARE USED FOR TEMPORARY HEATING OR COOLING, THE AIR FILTERS SHALL BE CHANGED A MINIMUM OF EVERY TWO WEEKS.

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. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING ON THE SAFETY OF PERSONS OR PROPERTY OR THEIR PROTECTION FROM DAMAGE, INJURY, OR LOSS.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IDENTIFICATION AND PREVENTION OF UNSAFE CONDITIONS IN REGARD TO DEMOLITION, CONSTRUCTION, HAZARDOUS MATERIALS, AND EQUIPMENT USAGE. CONTRACTOR SHALL COMPLY WITH ALL OSHA, ENVIRONMENTAL PROTECTION AGENCY, AND LOCAL AUTHORITY REQUIREMENTS.

C. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITION AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATION SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT UTILITIES.

D. REMOVE DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS FROM BUILDING SITE. TRANSPORT AND LEGALLY DISPOSE OF MATERIALS OFF 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.

SECTION 230548 - 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.

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 34. WHERE MORE THAN ONE TYPE OF PRODUCT IS OFFERED, SELECTION IS INSTALLER'S OPTION.

SECTION 230553 - 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. PLASTIC PIPE MARKERS AND VALVE TAGS.

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. WHERE MORE THAN SINGLE TYPE IS SPECIFIED FOR APPLICATION, SELECTION IS INSTALLER'S OPTION, BUT PROVIDE SINGLE SELECTION FOR EACH PRODUCT CATEGORY.

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 AND EACH OPERATIONAL DEVICE, AS SPECIFIED HEREIN IF NOT OTHERWISE SPECIFIED FOR EACH ITEM OR DEVICE.

B. LETTERING SIZE: MINIMUM 1/4" HIGH LETTERING FOR NAME OF UNIT WHERE VIEWING DISTANCE IS LESS THAN 2'-0", 1/2" HIGH FOR DISTANCES UP TO 6'-0", AND PROPORTIONATELY LARGER LETTERING FOR GREATER DISTANCES. PROVIDE SECONDARY LETTERING 2/3 TO 3/4 OF SIZE OF PRINCIPAL LETTERING.

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.

D. 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 MANUFACTURERS 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 255) 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.; CERTAINTEED CORP.; KNAUF FIBER GLASS GMBH.; OWENS-CORNING FIBERGLAS 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 ARCHITECT.

B. FLEXIBLE FIBERGLASS DUCTWORK INSULATION (TYPE FFG): ASTM C 553, '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:

SERVICE	MAX SERVICE TEMP	INSULATION TYPE	INSULATION THICKNESS
-HVAC SUPPLY DUCTWORK BETWEEN FAN DISCHARGE, OR HVAC UNIT DISCHARGE, AND ROOM TERMINAL OUTLET. -NECK AND BELLS OF SUPPLY DIFFUSERS.	450 F	RFG	R6 (MIN) 2"
-HVAC RETURN DUCTWORK BETWEEN ROOM TERMINAL INLET AND RETURN FAN INLET, OR HVAC UNIT INLET -HVAC PLENUMS AND UNIT HOUSINGS NOT PRE-INSULATED AT FACTORY OR LINED.	250 F	FFG	R6 (MIN) 2"

B. INSULATE ALL DUCT THAT ARE EXPOSED TO THE OUTDOORS AND WEATHER ACCORDING TO THE FOLLOWING SCHEDULE:

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

A. THIS PROJECT SHALL INCLUDE RECTANGULAR, ROUND METAL DUCTS, AND PLENUMS FOR HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS IN PRESSURE CLASSES FROM LOW PRESSURE (STATIC PRESSURE LESS THAN OR EQUAL TO 2-INCH WATER GAGE) TO MEDIUM PRESURE (STATIC PRESSURE GREATER THAN 2-INCH AND LESS THAN 3-INCH WATER GAGE).

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-001657, TYPE I; FORMULATED WITH A MINIMUM OF 75 PERCENT SOLIDS.

C. 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. STATIC PRESSURE CLASSIFICATIONS: EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO THE FOLLOWING PRESSURE CLASSIFICATIONS:
1. SUPPLY DUCTS: 2-INCH WATER GAGE.
2. RETURN DUCTS: 1/2 INCHES WATER GAGE, NEGATIVE PRESSURE.
3. EXHAUST DUCTS: 1/2 INCHES WATER GAGE, NEGATIVE PRESSURE.

C. FABRICATE ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER DUCT CONSTRUCTION IN ACCORDANCE WITH SMACNA "HVAC METAL DUCT CONSTRUCTION STANDARD".

D. ROUND DUCT OF EQUIVALENT DIAMETER TO THE INDICATED RECTANGULAR DUCT MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION.

E. 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". ALL ROUND DUCT 12" DIAMETER AND GREATER SHALL BE FABRICATED OF SPIRAL-WOUND DUCT.

F. IN LIEU OF SHOP FABRICATED DUCT AND FITTINGS, FACTORY FABRICATED DUCT AND FITTINGS MAY BE SUBSTITUTED, SUCH AS MANUFACTURED BY LINDAB, 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; AVOID DIAGONAL RUNS. INSTALL DUCT SYSTEMS IN SHORTEST ROUTE THAT DOES NOT OBSTRUCT USEABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT.

C. SEAL DUCT SEAMS AND JOINTS ACCORDING TO SMACNA " DUCT CONSTRUCTION STANDARDS ".

D. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED 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, FIRE AND SMOKE DAMPERS, 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 BD6, 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, ½ " DIAMETER STEEL AXLES SPACED ON 9 " CENTERS. CONSTRUCT FRAME OF MINIMUM 5 " X 1 " X 16-GUAGE STEEL HAT CHANNEL. DAMPER TO BE EQUIPPED WITH FOAM BLADE SEALS AND METAL COMPRESSION TYPE JAMB SEALS. PROVIDE GALVANIZED STEEL FINISH WITH ALUMINUM TOUCH-UP. MAXIMUM LEAKAGE ALLOWED OF 10 CFM/SQ. FT. OF DAMPER AREA AT 1 " W.C. DIFFERENTIAL PRESSURE. DAMPER SHALL BE RUSKIN MODEL CD35, OR EQUIVALENT.

D. DAMPER ACTUATOR: THE ACTUATOR FURNISHED SHALL BE THE DIRECT-COUPLED TYPE, ENABLING IT TO BE MOUNTED DIRECTLY TO THE DAMPER SHAFT WITHOUT THE NEED FOR CONNECTING LINKAGE. ACTUATOR SHALL BE BY BELIMO, OR EQUIVALENT.

2.2 FIRE AND SMOKE DAMPERS

A. FIRE DAMPERS: UNLESS NOTED OTHERWISE, PROVIDE FIRE DAMPERS RATED AT 1-1/2 HOUR AND SIZED TO MATCH THE DUCT. PROVIDE FIRE DAMPERS RATED FOR DYNAMIC CONDITIONS UNLESS OTHERWISE NOTED. PROVIDE FUSIBLE LINK RATED AT 160-165° F, UNLESS OTHERWISE INDICATED. FRAME SHALL BE SMACNA TYPE B. FABRICATE IN ACCORDANCE WITH NFPA 90A AND UL 555, AND AS INDICATED.

B. FIRE/SMOKE DAMPERS: UNLESS NOTED OTHERWISE, PROVIDE MOTOR-DRIVEN FIRE/SMOKE DAMPERS RATED AT 1-1/2 HOUR AND LEAKAGE CLASS I, AND SIZED TO MATCH THE DUCT. PROVIDE WITH CASING CONSTRUCTED OF 11-GA GALVANIZED STEEL, FUSIBLE LINK 160-165°F, PARALLEL AIRFOIL BLADES AND SPRING RETURN ELECTRIC ACTUATORS EXTERNALLY FACTORY MOUNTED. DAMPERS SHALL BE FABRICATED IN ACCORDANCE WITH UL555S. COORDINATE ACTUATOR REQUIREMENTS WITH THE FIRE ALARM CONTRACTOR.

2.3 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 2" O.C., AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.

2.4 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. PROVIDE FLUSH FRAMES FOR UNINSULATED DUCTWORK, EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCT. PROVIDE ONE SIDE HINGED, OTHER SIDE WITH ONE HANDLE-TYPE LATCH FOR DOORS 12" HIGH AND SMALLER, 2 HANDLE-TYPE LATCHES FOR LARGER DOORS.

2.5 FLEX DUCT

A. FABRICATED OF ACOUSTICALLY TRANSPARENT NYLON INNER FILM LOCKED TO GALVANIZED STEEL HELIX WIRE, WITH R6 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. INSTALL ACCESS DOORS AT ALL FIRE DAMPERS FIRE/SMOKE DAMPERS, CONTROL DAMPERS, OTHER DUCT MOUNTED EQUIPMENT, AND ELSEWHERE AS SHOWN ON DRAWINGS. INSTALL TO OPEN AGAINST SYSTEM AIR PRESSURE, WITH LATCHES OPERABLE FROM EITHER SIDE, EXCEPT OUTSIDE ONLY WHERE DUCT IS TOO SMALL FOR PERSON TO ENTER.

C. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, AS NECESSARY TO INTERFACE INSTALLATION OF DUCTWORK ACCESSORIES PROPERLY WITH OTHER WORK.

D. CONNECT DIFFUSERS OR TROFFER 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 THE 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. INSTALL FLEXIBLE DUCTWORK AT INLET TO ALL DIFFUSERS WHICH ARE SHOWN TO BE CONNECTED WITH FLEXIBLE DUCTWORK. SUPPORT ALL FLEXIBLE DUCT ON MINIMUM 4' CENTERS.

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: STATICALLY 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

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sg

sweetgreen

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WOLF ENGINEERING

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05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
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DRAWN BY:	TAL
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	SC
SG DM CHECKED BY:	SC
SG CONSTR. MANAGER:	MC
PROJECT NO:	20240137.0
TEMPLATE VERSION:	2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

MECHANICAL SPECIFICATIONS

M-010

5/16/2025 3:18:46 PM

IN CONFORMANCE WITH APPLICABLE SECTIONS OF ARI 650, ASHRAE 70, AMCA 500 AND NFPA 90A.

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:

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 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. 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. CUT 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.

E. TESTING AND BALANCING OF THE MECHANICAL SYSTEMS TO BE COMPLETED BY NATIONAL TAB AT THE GENERAL CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL CONTRACT WITH, SCHEDULE, AND SUPERVISE/ASSIST NATIONAL TAB AS REQUIRED. CONTACT SWEETGREEN'S CONSTRUCTION MANAGER FOR CONTACT INFORMATION.

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 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 COMPILE 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.

sg

sweetgreen

3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

P.O. BOX 38 | DALTON, GA 30722

STAMP:

SEAL 41016
ERIC MICHAEL WOLF
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
1710 COMMONWEALTH AVE.,
SUITE 123
CHARLOTTE, NC 28205

DRAWN BY: TAL
CHECKED BY: EW
PROJECT MANAGER: JAH
SG DESIGN MANAGER: SC
SG DM CHECKED BY: SC
SG CONSTR. MANAGER: MC
PROJECT NO: 20240137.0
TEMPLATE VERSION: 2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

MECHANICAL SPECIFICATIONS

M-011

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COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 2015 IECC
Project Title: Sweetgreen - Plaza Midwood (Charlotte, NC)
Location: Charlotte, North Carolina
Climate Zone: 3a
Project Type: Alteration

Construction Site:	Owner/Agent:	Designer/Contractor:
1600 Central Ave Charlotte, North Carolina 28205	Sweetgreen 3101 W. Exposition Blvd. Los Angeles, California 90018	Wolf Engineering PO Box 38 Dalton, Georgia 30721

Mechanical Systems List

Quantity	System Type & Description
1	AHU/HP-1 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 26 kBtu/h, Proposed Efficiency = 8.20 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 23 kBtu/h, Proposed Efficiency = 16.00 SEER, Required Efficiency = 14.00 SEER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: FAN 1 Supply, Single-Zone VAV, 800 CFM, 1.0 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP
3	AHU/HP-2,3,4 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 46 kBtu/h, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 46 kBtu/h, Proposed Efficiency = 16.00 SEER, Required Efficiency = 14.00 SEER Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00 Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes Fans: FAN 2 Supply, Single-Zone VAV, 1520 CFM, 1.0 motor nameplate hp, 0.0 fan efficiency grade, 0.0 total fan efficiency, 0.0 design fan efficiency , fan exception: Single fan <= 5HP
1	GWH-1: Gas Storage Water Heater, Capacity: 60 gallons, Input Rating: 120 kBtu/h w/ Circulation Pump Proposed Efficiency: 95.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Eric Wolf, PE
Name - Title   Signature   Date

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2015 IECC

Requirements: 75.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C103.2 [PR3][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5, C403.2.4.6 [FO9][3]	Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1, C404.6.2 [PL3][1]	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.3 [PL7][3]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.7 [PL8][3]	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

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sg

sweetgreen

3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

P.O. BOX 38 | DALTON, GA 30722

STAMP:

ERIC MICHAEL WOLF
SEAL 41016
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

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**1710 COMMONWEALTH AVE.,
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PROJECT NO:	20240137.0
TEMPLATE VERSION:	2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

MECHANICAL COMPLIANCE FORMS

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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41]^{3}	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.13 [ME71]^{2}	Unenclosed spaces that are heated use only radiant heat.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.6.1 [ME59]^{1}	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Systems with design outdoor air of less than 1200 cfm.
C403.2.6.2 [ME115]^{3}	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7 [ME57]^{1}	Exhaust air energy recovery on systems meeting Table C403.2.7(1) and C403.2.7(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.8 [ME116]^{3}	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.9 [ME60]^{2}	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.9 [ME10]^{2}	Ducts and plenums sealed based on static pressure and location.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.9.1.3 [ME11]^{3}	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.3.2.1 [ME121]^{3}	Closed-circuit cooling tower within heat pump loop have either automatic bypass valve or lower leakage positive closure dampers. Open-circuit tower within heat pump loop have automatic valve to bypass all heat pump water flow around the tower. Open- or closed-circuit cooling towers used in conjunction with a separate heat exchanger have heat loss by shutting down the circulation pump on the cooling tower loop.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.4.6 [ME110]^{3}	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply. *See the Mechanical Systems list for values.*

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C404.2.1 [ME111]^{2}	Gas-fired water-heating equipment installed in new buildings: where a singular piece of water-heating equipment >= 1,000 kBtu/h serves the entire building, thermal efficiency >= 90 Et. Where multiple pieces of water-heating equipment serve the building with combined rating >= 1,000 kBtu/h, the combined input-capacity-weighted-average thermal efficiency >= 90 Et. Exclude input rating of equipment in individual dwelling units and equipment <= 100 kBtu/h.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53]^{3}	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.5, C403.5.1, C403.5.2 [ME123]^{3}	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8]^{3}	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27]^{3}	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47]^{3}	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42]^{3}	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.2 [FI38]^{3}	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.3 [FI20]^{3}	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI39]^{3}	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.4.2.1, C403.2.4.2.2 [FI40]^{3}	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2.3 [FI41]^{3}	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.3 [FI11]^{3}	Heat traps installed on supply and discharge piping of non-circulating systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C404.4 [FI25]^{2}	All piping insulated in accordance with section details and Table C403.2.10.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.6.1 [FI12]^{3}	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.1 [FI28]^{1}	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.1 [FI31]^{1}	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.2 [FI10]^{1}	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.4 [FI29]^{1}	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI7]^{3}	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43]^{1}	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.4 [FI30]^{1}	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

sg

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3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

P.O. BOX 38 | DALTON, GA 30722

STAMP:

NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL
41016
ERIC MICHAEL WOLF
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
1710 COMMONWEALTH AVE.,
SUITE 123
CHARLOTTE, NC 28205

DRAWN BY:	TAL
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	SC
SG DM CHECKED BY:	SC
SG CONSTR. MANAGER:	MC
PROJECT NO:	20240137.0
TEMPLATE VERSION:	2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

MECHANICAL COMPLIANCE FORMS

M-021

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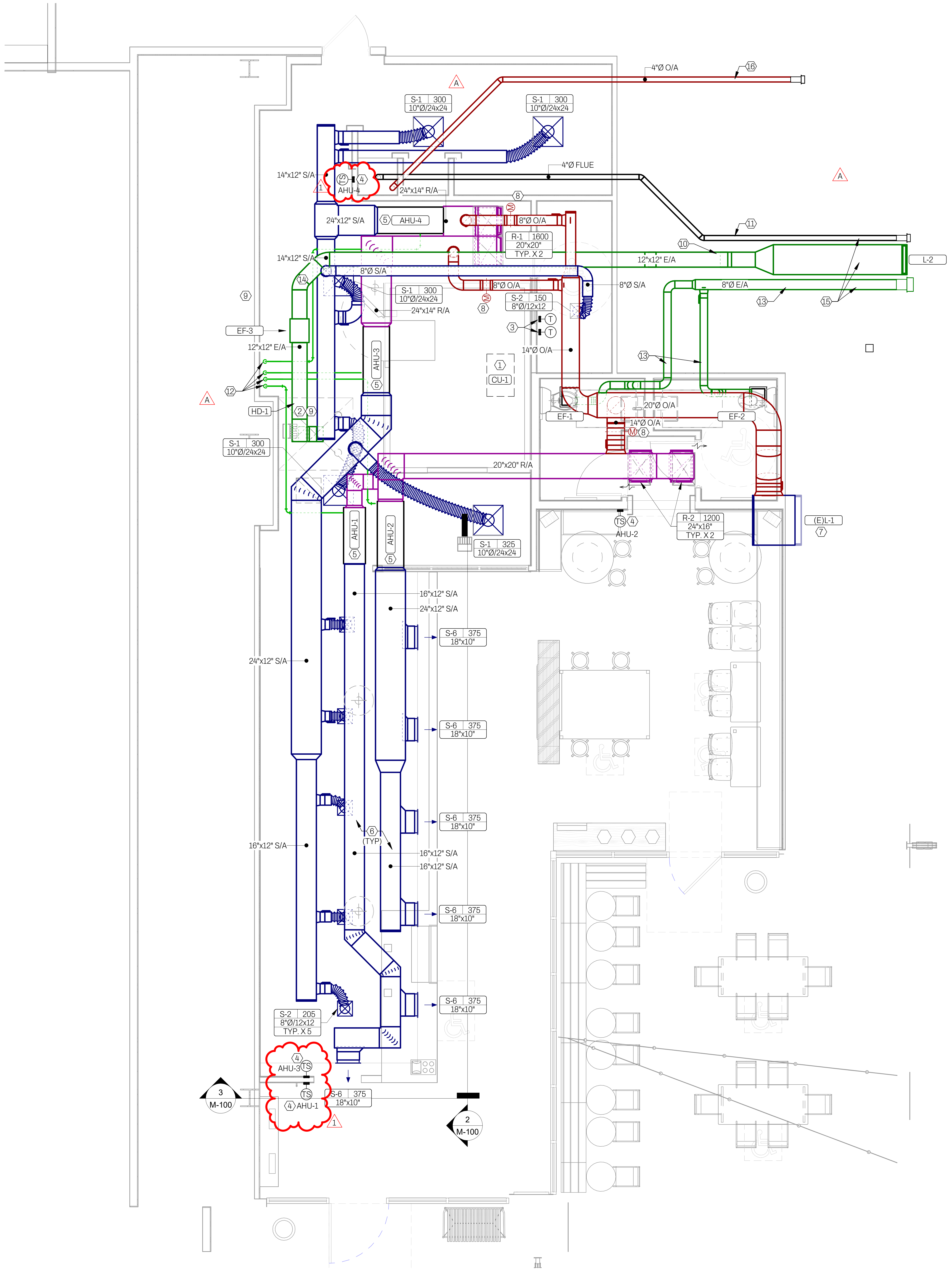
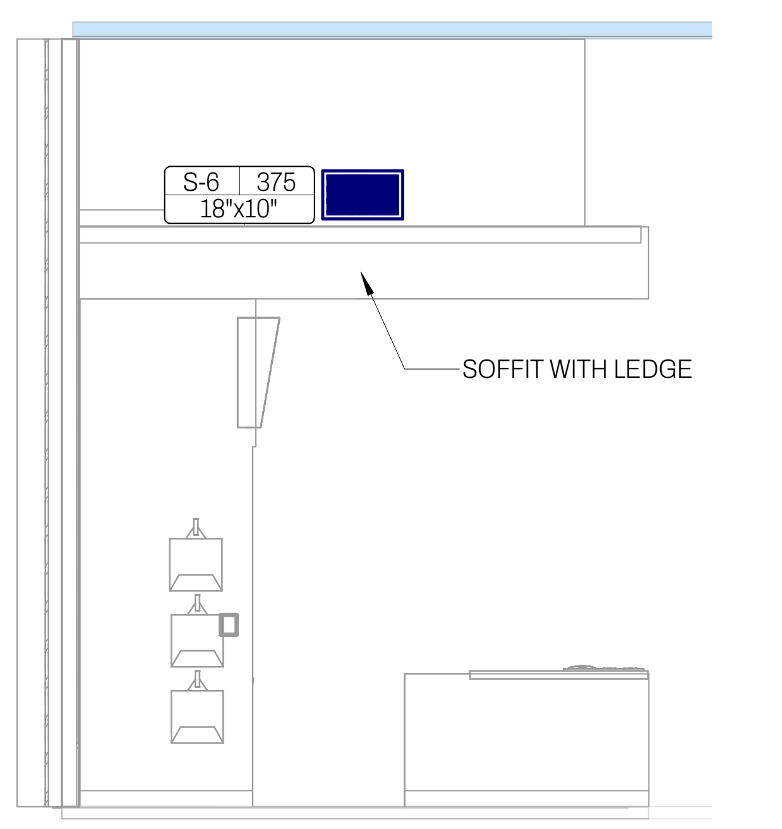
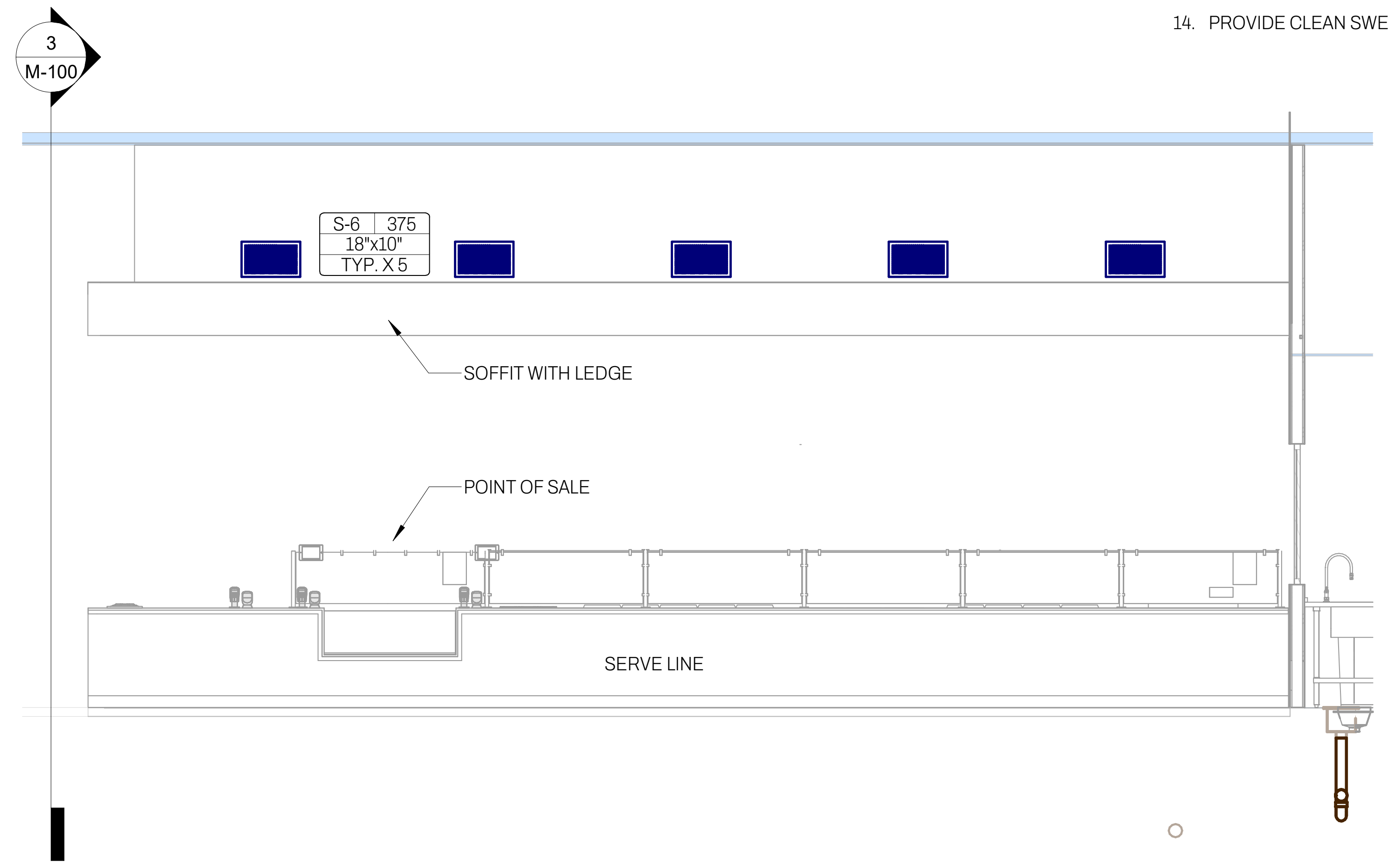


1 MECHANICAL - HVAC
M-100 1/4" = 1'-0"



3 MECHANICAL - SECTION 8
M-100 1/4" = 1'-0"



2 MECHANICAL - SECTION 7
M-100 1/4" = 1'-0"

KEY NOTES (CONTINUED)

15. ROUTE AND EXTEND FLUE FOR WATER HEATER, HOOD EXHAUST, AND RESTROOM EXHAUST DUCTWORK TOGETHER AND TIGHT TO STRUCTURE TO TERMINATE AT FACE OF EXTERIOR WALL ABOVE. CONTRACTOR SHALL COORDINATE WITH LANDLORD EXACT LOCATION OF PENETRATIONS AND SHEATHING REQUIREMENTS.
16. ROUTE WATER HEATER INTAKE AIR HIGH IN FIRE COMMAND ROOM, AS SHOWN. COORDINATE ROUTING WITH ALL ELEMENTS WITHIN THE EXTENTS OF THIS ROOM. SEAL ALL PENETRATIONS IN FIRE RATED PARTITIONS AND PROVIDE WITH 12" STEEL SLEEVE WHERE PENETRATING FIRE RATED WALL AS REQUIRED BY FIRE CODE. DUCT SHALL BE FIRE WRAPPED AND CONSTRUCTED OF STEEL NOT LESS THAN 0.0217 INCHES IN THICKNESS FOR ENTIRE LENGTH. TERMINATE AT INTAKE WALL CAP WITH METAL MESH INSECT SCREEN. MAINTAIN CODE REQUIRED CLEARANCES. CONFIRM ROUTING WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

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 FOR WALK-IN COOLER LOCATED ABOVE COOLER. COORDINATE EXACT LOCATION IN FIELD.
2. PROVIDE EXHAUST GRILLE OVER KITCHEN CANOPY HOOD (BY OTHERS). DUCTING FROM EXHAUST FAN TO GRILLE IS SIZED TO ACCOMMODATE THE ADDITION OF A TYPE 2 HOOD IN THE FUTURE. COORDINATE EXACT GRILLE LOCATION WITH ARCHITECT/KITCHEN DESIGN TEAM.
3. PROVIDE THERMOSTATS WHERE INDICATED. INSTALL AT 48" ABOVE FINISHED FLOOR. COORDINATE WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT ACCESS IS NOT BLOCKED.
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)682-6822, EXT. 4.2.
   EMAIL - WILL@NATIONALTAB.COM.
6. PROVIDE EQUAL SPACING BETWEEN DIFFUSERS AND LIGHTING IN SOFFIT. COORDINATE EXACT LOCATIONS WITH CONTRACTOR.
7. EXISTING LOUVER TO REMAIN. BLOCKOUT UNUSED PART OF LOUVER FROM INSIDE AND INSULATE ACCORDINGLY. PROVIDE 2'-0" MINIMUM FULL SIZED PLENUM FOR O/A.
8. PROVIDE MOTORIZED DAMPER SHALL INTERLOCK WITH AHU PER NECECC C403.2.4.3.
9. CONTRACTOR SHALL FURNISH EF-3 AND HD-1 THROUGH NATIONAL ACCOUNT. CONTRACTOR SHALL INSTALL INLINE EXHAUST FAN, EF-3, AND INTERLOCK WITH HOOD, HD-1. REFER TO SCHEDULE ON SHEET M-300 FOR ADDITIONAL DETAILS.
10. ROUTE HOOD EXHAUST HIGH IN FIRE COMMAND ROOM, AS SHOWN. COORDINATE ROUTING WITH ALL ELEMENTS WITHIN THE EXTENTS OF THIS ROOM. SEAL ALL PENETRATIONS IN FIRE RATED PARTITIONS AND PROVIDE WITH 12" STEEL SLEEVE WHERE PENETRATING FIRE RATED WALL AS REQUIRED BY FIRE CODE. DUCT SHALL BE FIRE WRAPPED AND CONSTRUCTED OF STEEL NOT LESS THAN 0.0217 INCHES IN THICKNESS FOR ENTIRE LENGTH.
11. ROUTE WATER HEATER FLUE HIGH IN FIRE COMMAND ROOM, AS SHOWN. COORDINATE ROUTING WITH ALL ELEMENTS WITHIN THE EXTENTS OF THIS ROOM. SEAL ALL PENETRATIONS IN FIRE RATED PARTITIONS AND PROVIDE WITH 12" STEEL SLEEVE WHERE PENETRATING FIRE RATED WALL AS REQUIRED BY FIRE CODE. DUCT SHALL BE FIRE WRAPPED AND CONSTRUCTED OF STEEL NOT LESS THAN 0.0217 INCHES IN THICKNESS FOR ENTIRE LENGTH. TERMINATE AT EXHAUST WALL CAP. MAINTAIN CODE REQUIRED CLEARANCES. WRAPPING OR INSULATING FLUE SHALL BE IN ACCORDANCE W. THE WATER HEATER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. ROUTE AHU CONDENSATE DOWN THROUGH WALL TO FLOOR SINK BELOW COMBI-OVEN AS SHOWN. FIELD COORDINATE EXACT ROUTING.
13. ROUTE RESTROOM EXHAUST HIGH IN FIRE COMMAND ROOM, AS SHOWN. COORDINATE ROUTING WITH ALL ELEMENTS WITHIN THE EXTENTS OF THIS ROOM. SEAL ALL PENETRATIONS IN FIRE RATED PARTITIONS AND PROVIDE WITH 12" STEEL SLEEVE WHERE PENETRATING FIRE RATED WALL AS REQUIRED BY FIRE CODE. DUCT SHALL BE FIRE WRAPPED AND CONSTRUCTED OF STEEL NOT LESS THAN 0.0217 INCHES IN THICKNESS FOR ENTIRE LENGTH. MAINTAIN 10' FROM INTAKE LOUVER. TERMINATE AT EXHAUST WALL CAP.
14. PROVIDE CLEAN SWEEP TRANSITION WITH CLEANOUT ON END.

sg

sweetgreen

3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:
WOLF ENGINEERING
P.O. BOX 38 | DALTON, GA 30722

STAMP:
41016
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
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HVAC PLAN

A

M-100

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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.

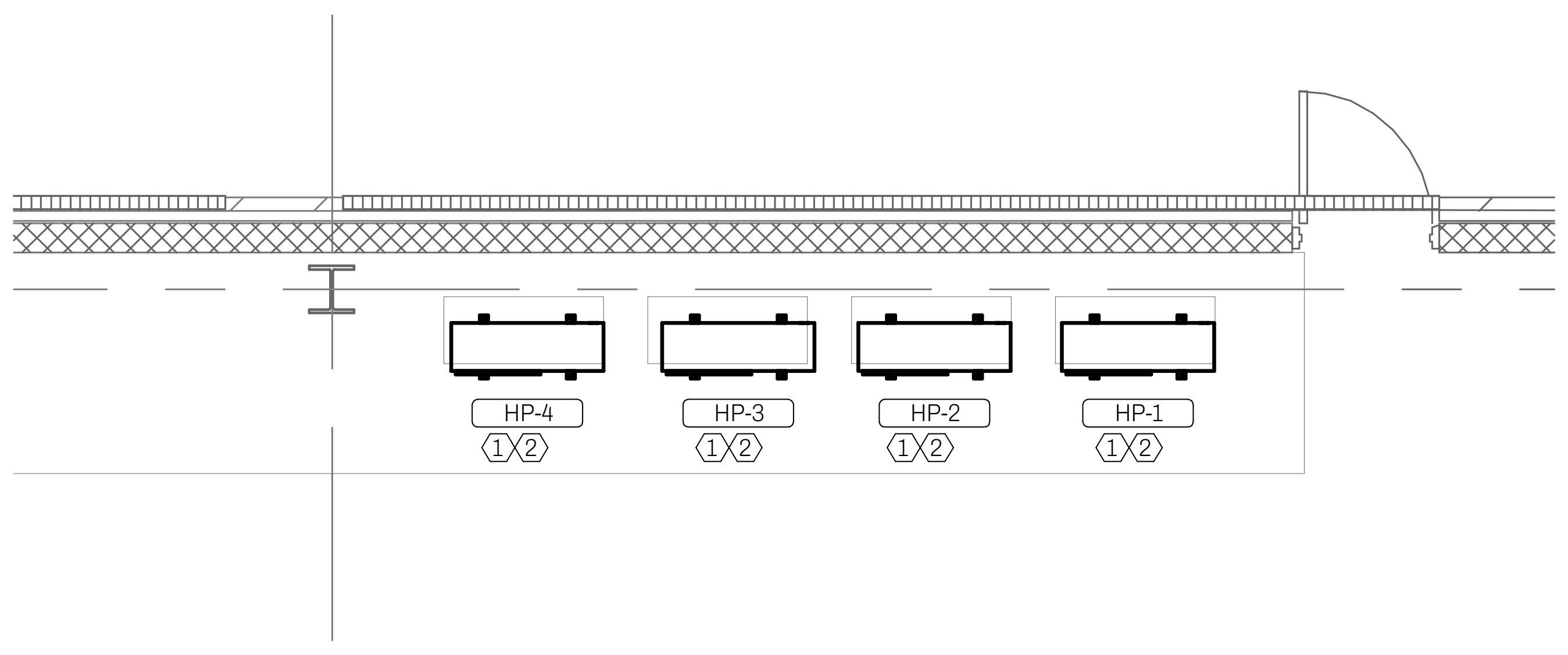
C. DRAWINGS ARE DIAGRAMMATIC ONLY. FINAL EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC. SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO OWNER.

D. 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

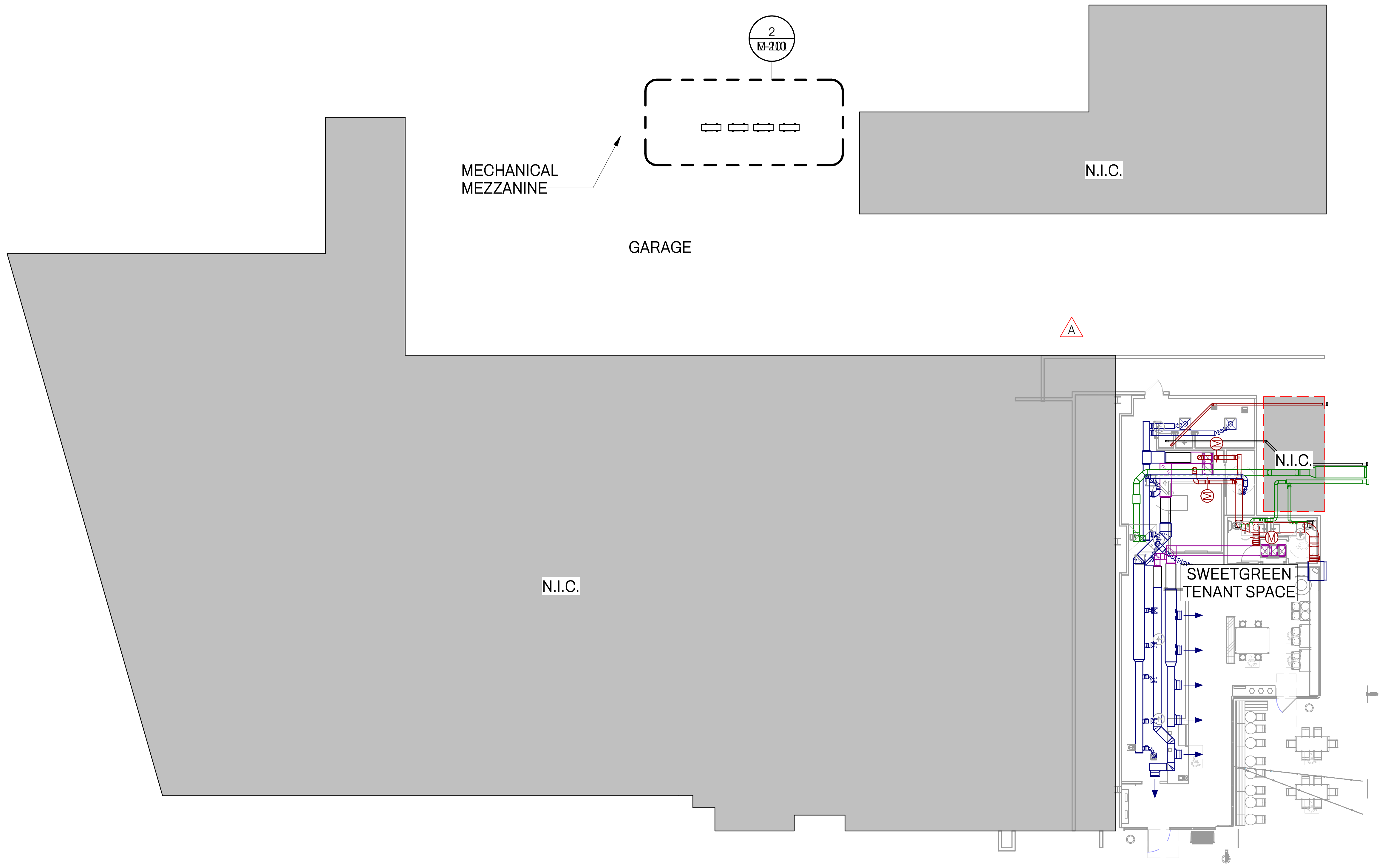
1. NEW HEAT PUMP FOR TENANT SPACE LOCATED ON MECHANICAL MEZZANINE. COORDINATE EXACT LOCATION OF UNITS ON MEZZANINE WITH LANDLORD AND LANDLORD CONTRACTOR. MAINTAIN MANUFACTURER REQUIRED OPERATING AND SERVICE CLEARANCES.
2. MAINTAIN HEAT PUMP SPLIT SYSTEM LINESET LENGTH REQUIREMENTS AND PROVIDE LONG LINESET APPLICATION WHERE NECESSARY. LINESET SHALL BE ROUTED FROM TENANT SPACE, HIGH IN GARAGE TO MECHANICAL MEZZANINE. COORDINATE EXACT ROUTING OF LINESETS IN ACCORDANCE WITH LANDLORD. SEAL ALL FIRE RATED PENETRATIONS ACCORDINGLY.

A



2
M-101
MECHANICAL - HVAC - MECHANICAL MEZZANINE
1/4" = 1'-0"

A



1
M-101
MECHANICAL - LEVEL 1 OVERALL HVAC PLAN
1/16" = 1'-0"

5/16/2025 3:18:53 PM

sg

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3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

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HVAC MEZZANINE AND GARAGE PLAN

A **M-101**

SPLIT-SYSTEM HEAT PUMP SCHEDULE

MARK	MANUFACTURER	MODEL	NOMINAL CAPACITY	SERVES	INDOOR UNIT					OUTDOOR UNIT								REMARKS
					TOTAL CFM	OA CFM	FAN ESP	MOTOR HP	BACKUP HEAT	MODEL	COOLING			HEATING		V/PH/HZ	MCA/MOCP	
											TOTAL	SENSIBLE	SEER2	HIGH TEMP	HSPF2			
AHU-/HP-1	DAIKIN	FXTA24AAVJUA	2.0 TON	SEATING	750 CFM	200 CFM	0.50 IN-WG	1.00 HP	0.0 KW	RXTA24AAVJU	23,000 BTU/H	16,800 BTU/H	16	25,800 BTU/H	8.2	208/1/60	19.8 / 20	ALL
AHU-/HP-2	DAIKIN	FXTA48AAVJUA	4.0 TON	SEATING	1,500 CFM	350 CFM	0.50 IN-WG	1.00 HP	0.0 KW	RXTA48AAVJU	45,500 BTU/H	34,800 BTU/H	16	46,000 BTU/H	8.5	208/1/60	29.4 / 30	ALL
AHU-/HP-3	DAIKIN	FXTA48AAVJUA	4.0 TON	KITCHEN	1,350 CFM	280 CFM	0.50 IN-WG	1.00 HP	0.0 KW	RXTA48AAVJU	45,500 BTU/H	34,800 BTU/H	16	46,000 BTU/H	8.5	208/1/60	29.4 / 30	ALL
AHU-/HP-4	DAIKIN	FXTA48AAVJUA	4.0 TON	KITCHEN	1,350 CFM	280 CFM	0.50 IN-WG	1.00 HP	0.0 KW	RXTA48AAVJU	45,500 BTU/H	34,800 BTU/H	16	46,000 BTU/H	8.5	208/1/60	29.4 / 30	ALL

REMARKS:

1. EQUIPMENT SHALL BE PROCURED THROUGH A DAIKEN NATIONAL ACCOUNT. ANY CHANGES OR VARIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DAIKIN NATIONAL ACCOUNT TEAM. CONTACT PAUL ROMERO (714)632-9800, PROMERO@NSWCLA.COM.
2. PROVIDE HIGH EFFICIENCY R32 CHLORINE-FREE REFRIGERANT TO UNIT.
3. ESP SHOWN DOES NOT INCLUDE PRESSURE DROP THROUGH FILTERS. FAN MOTOR SHALL BE ECM TYPE.
4. PROVIDE FACTORY INSTALLED THERMAL EXPANSION VALVE (TXV) AND TIME-DELAY RELAY.
5. PROVIDE INTERNAL DRAIN PAN AND DRAIN PLAN LEVEL SENSOR. INTERNAL FLOAT SWITCH SHALL BE WIRED FOR UNIT SHUTDOWN.
6. PROVIDE UNIT WITH FACTORY FURNISHED DISCONNECT. PROVIDE NON-FUSED DISCONNECT SWITCH.
7. PROVIDE DRAIN PAN AND DRAIN PLAN LEVEL SENSOR.
8. AUXILIARY HEATER RATING SHOWN AT 240 VOLTS. INDOOR UNIT SHALL HAVE A SINGLE POINT POWER CONNECTION.
9. INSTALL OUTDOOR UNIT ON 4" CONCRETE BASE WITH NEOPRENE PAD ISOLATORS. CONTROL WIRING IN FLEX CONDUIT. LOW AMBIENT CONTROLS AND ANTI-SHORT CYCLE TIMER.
10. PROVIDE HONEYWELL TH832 THERMOSTATS WITH LOCKABLE COVERS (MODEL CG511A1000 OR EQUAL). ALTERNATE - MODEL D4271C - COMMERCIAL 7 DAY PROGRAMMABLE WIFI THERMOSTAT.
11. PROVIDE COMPRESSOR START ASSIST CAPACITOR AND RELAY, CRANKCASE HEATER, EVAP FREEZE TSTAT, ISOLATION RELAY, AND LOW AMBIENT ACCESSORIES
12. PROVIDE WITH MIXING BOX AND FILTER BOX.
13. PROVIDE WITH DISCHARGE AIR TEMPERATURE DEVICE.
14. PROVIDE UNIT WITH 20 YEAR WARRANTY, AND ALL FUNCTIONAL PARTS COVERED BY A 5-YEAR PARTS WARRANTY.

* CONFIRM ALL UNIT DIMENSIONS WITH MANUFACTURER AND COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DESIGNS.

AIR BALANCE SCHEDULE

MARK	(CFM) SUPPLY AIR	(CFM) RETURN	(CFM) OA	(CFM) EXHAUST	(CFM) TOTAL:
AHU/HP-1	750	550	200		200
AHU/HP-2	1500	1050	350		350
AHU/HP-3	1350	1185	280		280
AHU/HP-4	1350	1185	280		280
EF-1				-75	-75
EF-2				-75	-75
EF-3				-930	-930
NET PRESSURIZATION (CFM):					30

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	FACE SIZE	MATERIAL	MOUNTING STYLE	REMARKS
E-1	TITUS	OMNI	PLAQUE FACE EXHAUST	24X24	STEEL	SURFACE	1, 3, 4
R-1	TITUS	350FL	RETURN GRILLE WITH 3/4" BLADE SPACING, 35 DEGREE DEFLECTION AND FRONT BLADES PARRALEL TO SHORT DIMENSION	SEE PLANS	ALUMINUM	LAY-IN	1, 3, 4
R-2	TITUS	350FL	RETURN GRILLE WITH 3/4" BLADE SPACING, 35 DEGREE DEFLECTION AND FRONT BLADES PARRALEL TO SHORT DIMENSION	SEE PLANS	ALUMINUM	SURFACE	1, 3, 4
S-1	TITUS	OMNI	PLAQUE FACE DIFFUSER	24X24	ALUMINUM	LAY-IN	ALL
S-2	TITUS	OMNI	PLAQUE FACE DIFFUSER	12X12	ALUMINUM	SURFACE	ALL
S-6	TITUS	300FL	DOUBLE DEFLECTION SUPPLY REGISTER WITH 3/4" BLADE SPACING AND FRONT BLADES PARRALEL TO LONG DIMENSION	SEE PLANS	ALUMINUM	SURFACE	1, 3, 4

REMARKS:

1. COORDINATE BORDER TYPE AND FINISH WITH ARCHITECT PRIOR TO PURCHASING.
2. MATCH SNAPLOCK AND FLEXIBLE DUCT RUNOUT SIZES AS NOTED ON PLANS.
3. MODULE SIZE INDICATED INCLUDES NOMINAL BORDER SIZE.
4. PROVIDE OPPOSED BLADE MANUAL VOLUME DAMPER FOR AIRFLOW ADJUSTMENT ACCESSIBLE THROUGH GRILLE FACE.
5. PROVIDE FACTORY-FABRICATED TRANSITION BOOT FOR DUCT CONNECTIONS.

MINIMUM VENTILATION CALCULATIONS

UNIT 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)
AHU-1/AHU-2	DINING ROOMS	842 SF	38	70	7.5 CFM	0.18 CFM/FT²	0.8	437 CFM	550
AHU-1/AHU-2									550
AHU-3/AHU-4	KITCHEN (COOKING)	1030 SF	10	20	7.5 CFM	0.12 CFM/FT²	0.8	199 CFM	250
AHU-3/AHU-4									250

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	SERVES	AIRFLOW RATE	ESP	MOTOR			MAXIMUM SONES	VOLTAGE	PHASE	FLA	MCA	MOCP	WEIGHT	REMARKS
							POWER	RPM	DRIVE								
EF-1	CAPTIVEAIRE	CFA 200CA	CEILING	WEST RR	75 CFM	0.70 IN-WG	0.17 HP	652	ECM	<0.3	120 V	1	1.8 A	2.3 A	15.0 A	26 LB	1, 2, 4, 5, 6, 7, 8, 9, 10
EF-2	CAPTIVEAIRE	CFA 200CA	CEILING	EAST RR	75 CFM	0.70 IN-WG	0.17 HP	652	ECM	<0.3	120 V	1	1.8 A	2.3 A	15.0 A	26 LB	1, 2, 4, 5, 6, 7, 8, 9, 10
EF-3	CAPTIVEAIRE	SIF11DD	INLINE DIRECT DRIVE	HOOD	930 CFM	1.00 IN-WG	1.00 HP	1938	DIRECT	12.4	208 V	3	3.0 A	3.8 A	15.0 A	206 LB	1, 3, 4, 5, 6, 7, 8, 9, 10

REMARKS:

1. FAN SHALL BE AMCA CERTIFIED AND UL LISTED FOR SOUND AND PERFORMANCE.
2. PROVIDE WITH 3 AMP FAN MOUNTED SPEED CONTROL FOR AIRFLOW ADJUSTMENT.
3. PROVIDE WITH VAV PACKAGE WITH MANUAL CONTROL (VFD FACTORY MOUNTED).
4. PROVIDE SPRING/NEOPRENE ISOLATION HANGERS.
5. PROVIDE UNIT WITH NAME PLATE TO INCLUDE DESIGNATION AND AREA SERVED BY FAN.
6. PROVIDE MANUFACTURER'S 2 YEAR WARRANTY.
7. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
8. PROVIDE WITH BACKDRAFT DAMPER.
9. PROVIDE WITH ADAPTERS AS NECESSARY TO MAKE DUCT CONNECTIONS.
10. EQUIPMENT SHALL BE PROCURED THROUGH A CAPTIVEAIRE NATIONAL ACCOUNT. ANY CHANGES OR VARIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CAPTIVEAIRE NATIONAL ACCOUNT TEAM - CONTACT KEVIN BOEHM - REG40@CAPTIVEAIRE.COM

WALK-IN COOLER REFRIGERANT CALCULATIONS

CODE: NORTH CAROLINA MECHANICAL CODE 2018, ADOPTS WITH AMENDMENTS: IMC 2015

VOLUME: 928 CU FT

REFRIGERANT TYPE: R448A

REFRIGERANT CLASSIFICATION: A1

REFRIGERANT CHARGE: 9 LBS

HORSEPOWER: 1.5 HP

LOCATION: ON COOLER

SPECIFIED REFRIGERANT DENSITY: 9.7 LBS / 1000 CU FT

MAX. REFRIG. DENSITY PER CODE: 24 LBS / 1000 CU FT

DETECTOR REQUIRED: NO

TYPE II HOOD SCHEDULE

MARK	BASIS OF DESIGN		TYPE	DESIGN CFM	V/P/H	MAX CFM	SUPPLIER/ INSTALLER	WEIGHT (LBS)	REMARKS:
	MANUFACTUR...	MODEL							
HD-1	CAPTIVEAIRE	6012 VHB-G-ND	TYPE II CANOPY HOOD	930	120/1/60	930	KES	174	ALL

REMARKS:

1. SEE PLANS FOR DUCT SIZE AND ROUTING.
2. HOOD SHALL BE TYPE II, FOR SMELLS, HEAT, AND MOISTURE. INSTALLED BY GC.
3. PROCURED THROUGH NATIONAL ACCOUNT - CONTACT CAPTIVEAIRE FOR INFORMATION - NATIONAL ACCOUNT CONTACT KEVIN BOEHM, AT REG_40 @CAPTIVEAIRE.COM.

CONDENSING UNIT SCHEDULE

MARK	DESCRIPTION	COMPRESSORS	FURNISHED BY	INSTALLED BY	MANUFACTURER	REMARKS:
CU-1	WALK-IN COOLER REMOTE CONDENSING UNIT	1	KES	KES	BY KES	ALL

REMARKS:

1. FURNISHED WITH THE WALK-IN COOLER. (BY OTHERS)

EXTERIOR WALL LOUVER SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	NOMINAL SIZE	DEPTH	DESIGN AIRFLOW RATE	DESIGN FREE AREA VELOCITY	MIN. FREE AREA	MAX. PRESSURE DROP	REMARKS
L-2	GREENHECK	ESD-435	DRAINABLE BLADE LOUVER	24"X18"	4"	930 CFM	755 FPM	1.23 SF	0.10 IN-WG	ALL

REMARKS:

1. PROVIDE WITH MINIMUM OF 24" DEEP PLENUM WITH FULL SIZED LOUVER CONNECTION.

sg

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3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:

WOLF ENGINEERING

P.O. BOX 38 | DALTON, GA 30722

STAMP:

SEAL 41016
ERIC MICHAEL WOLF
COA:P-2368
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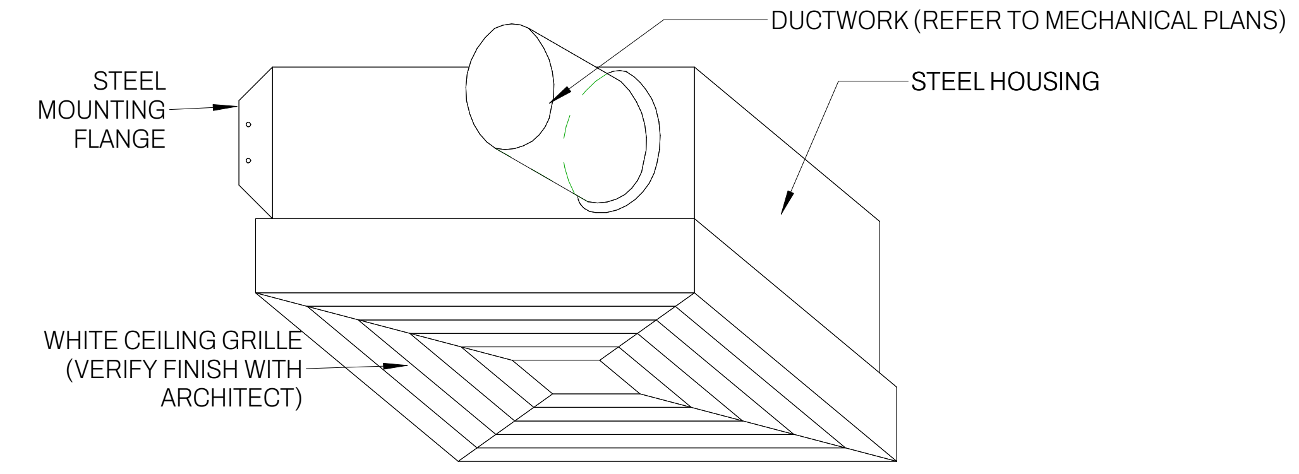
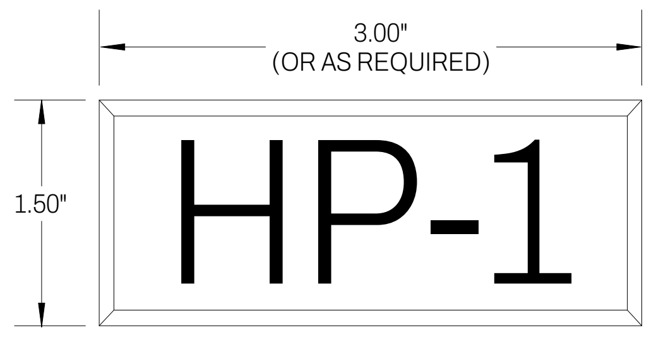
HVAC SCHEDULES

M-300



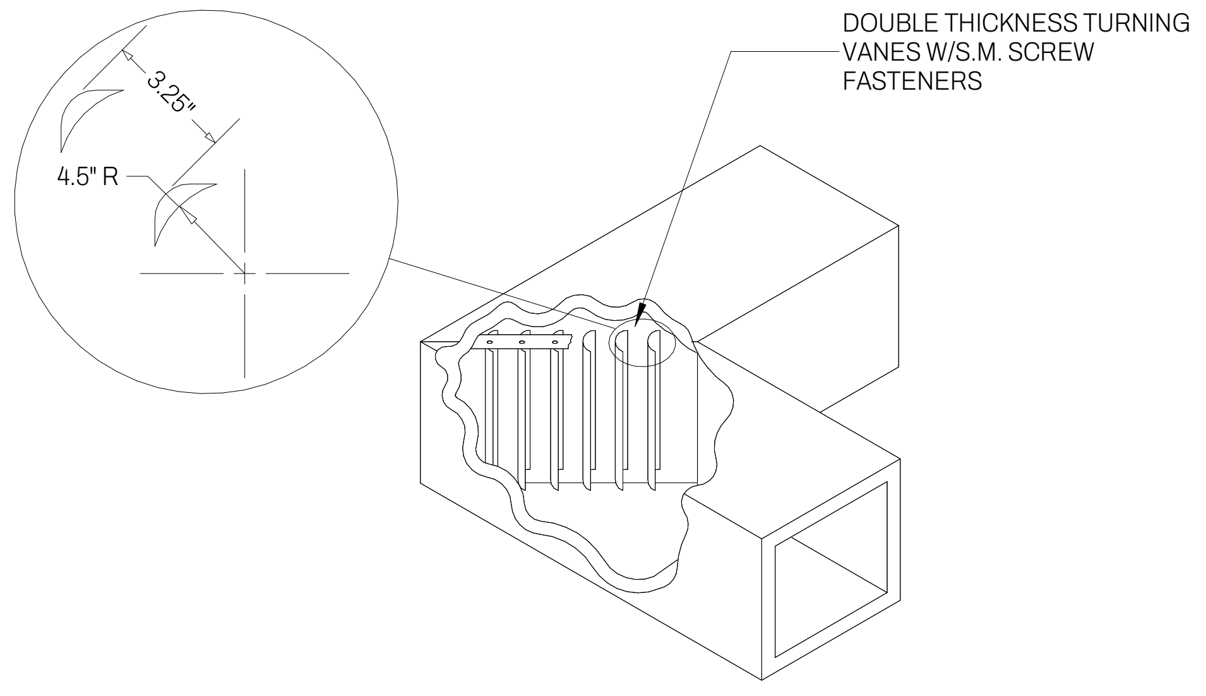
GENERAL NOTES:
1. PROVIDE BACKDRAFT DAMPER W/ BIRDSCREEN.
2. FLASH AND SEAL WALL/ROOF CAP.
3. PROVIDE INTERNAL ISOLATION AND SOUND INSULATION.
4. SUPPORT FAN FROM STRUCTURE.
5. REFER TO FAN SCHEDULE FOR FAN CONTROL.

7 M-400 CABINET CEILING EXHAUST FAN
NOT TO SCALE

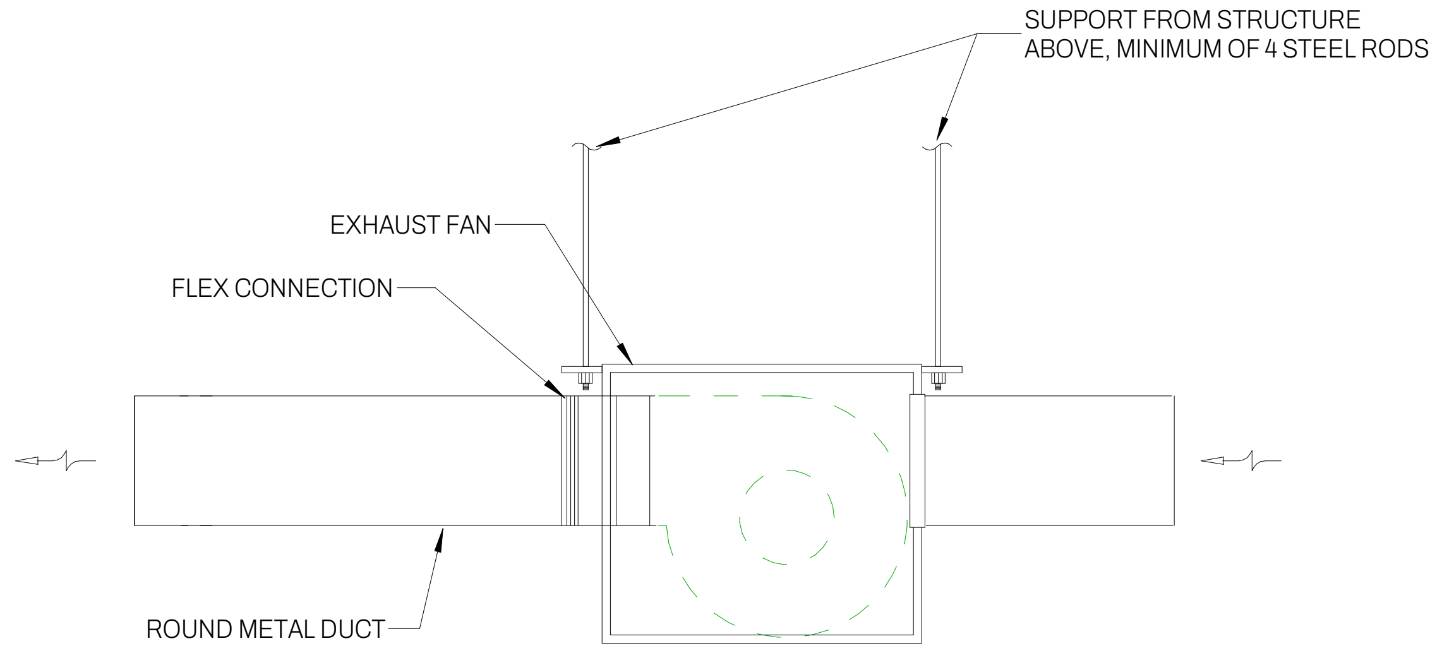


ENGRAVED PLASTIC TAG WITH 1" HIGH WHITE LETTERS ON BLACK BACKGROUND. TAG SHALL HAVE ALL EDGES BEVELED AND SMOOTH. SECURE TAG WITH PERMANENT, WATERPROOF DOUBLE SIDED TAG TAPE AT VISIBLE LOCATION ON MECHANICAL EQUIPMENT. LABEL ALL INDOOR AND OUTDOOR UNITS WITH NOTATION SHOWN ON PLANS.

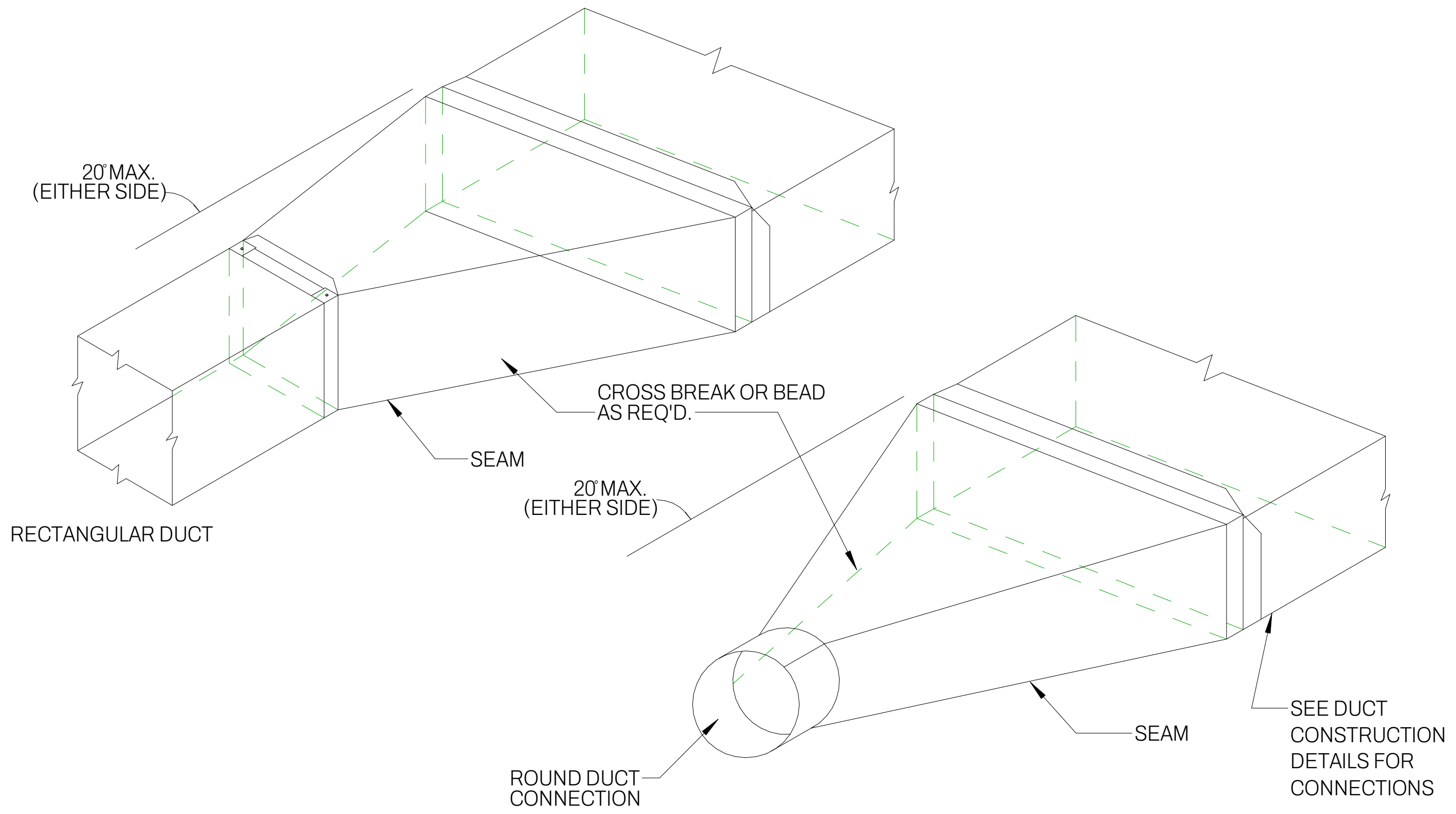
8 M-400 TYPICAL ENGRAVED TAG DETAIL
NOT TO SCALE



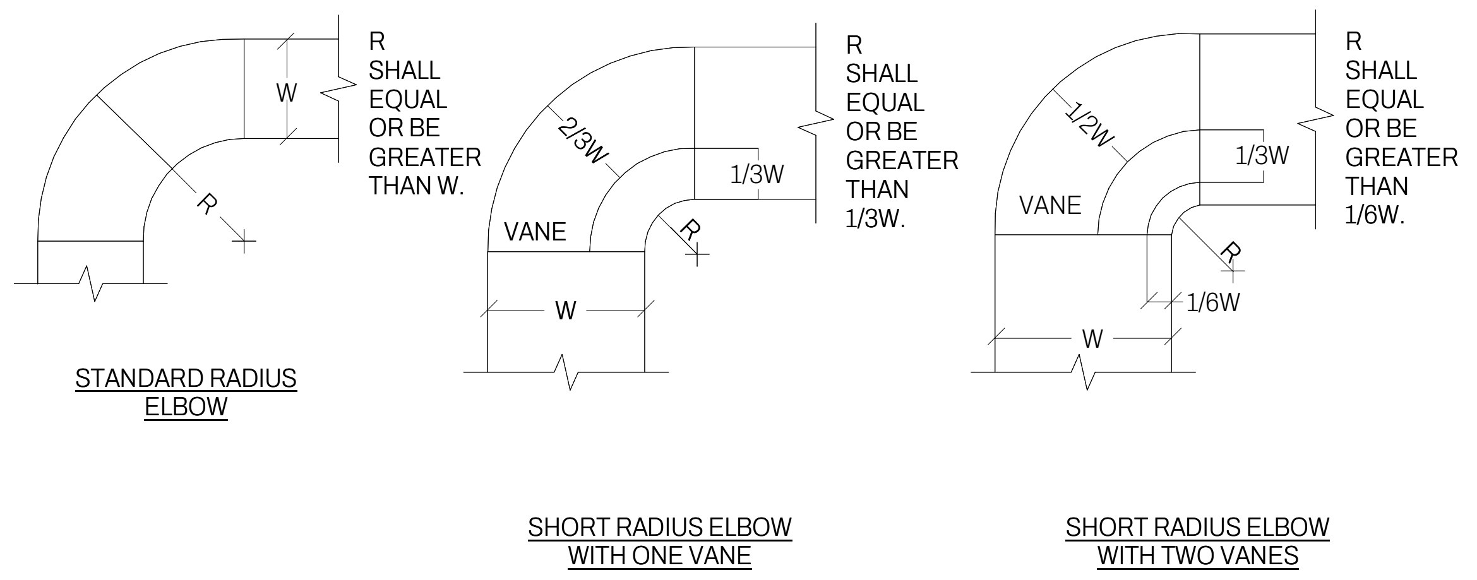
9 M-400 TURNING VANE DETAIL
NOT TO SCALE



10 M-400 MECHANICAL - INLINE EXHAUST FAN
N.T.S.



4 M-400 TRANSITION DETAIL
NOT TO SCALE



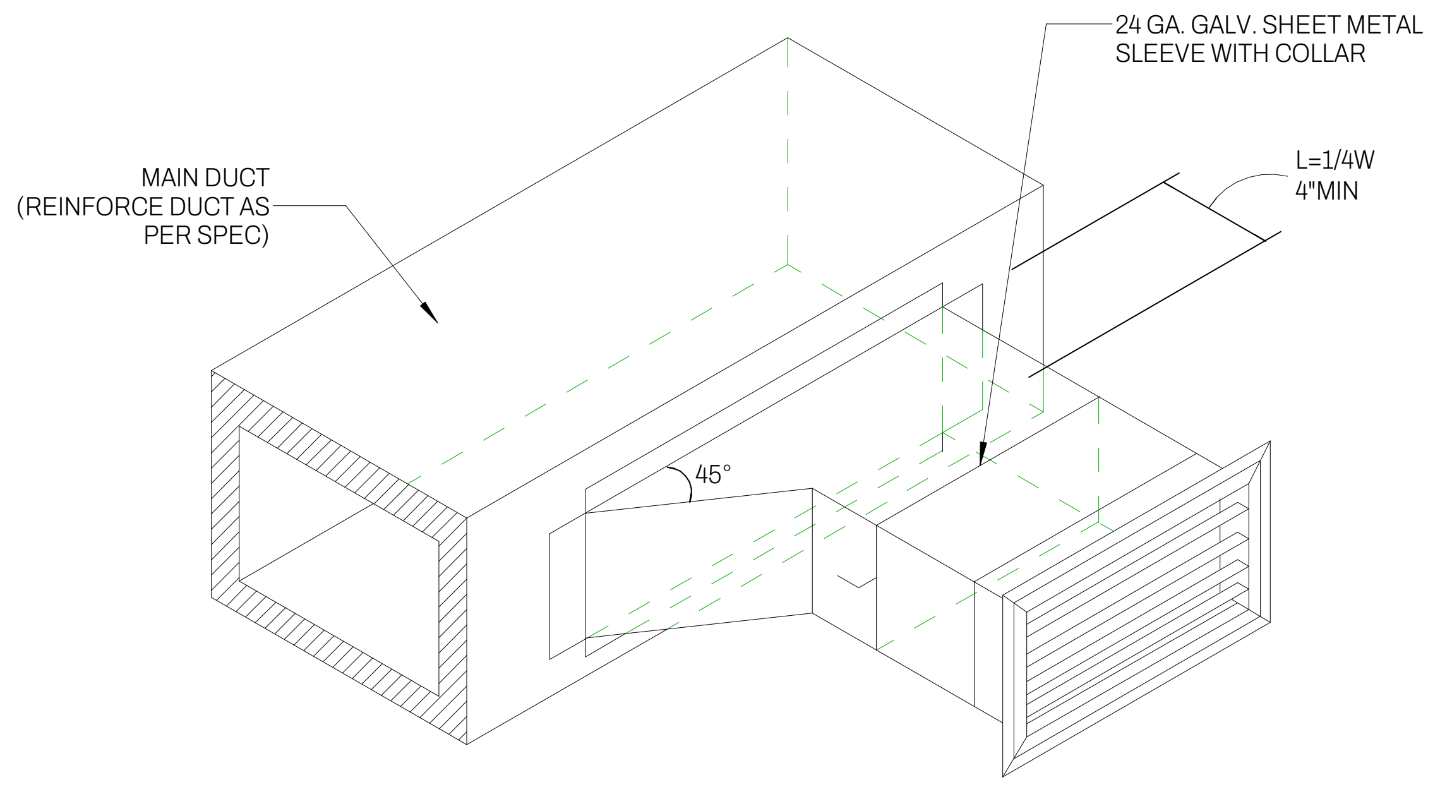
STANDARD RADIUS ELBOW

SHORT RADIUS ELBOW WITH ONE VANE

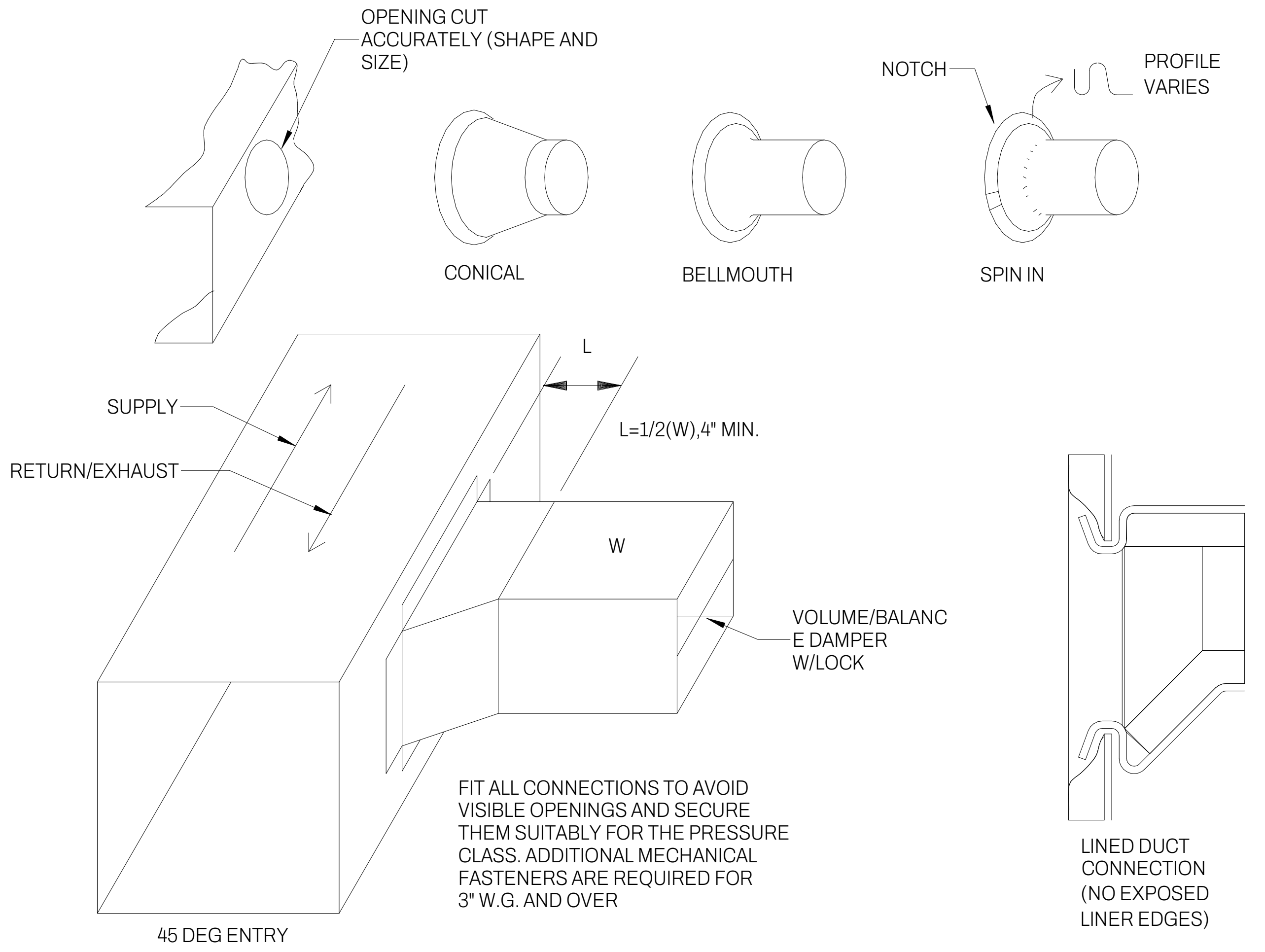
SHORT RADIUS ELBOW WITH TWO VANES

GENERAL NOTE
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED, AND FASTENED AS RECOMMENDED BY SMACNA.

5 M-400 TYPICAL RADIUS ELBOW DETAIL
NOT TO SCALE

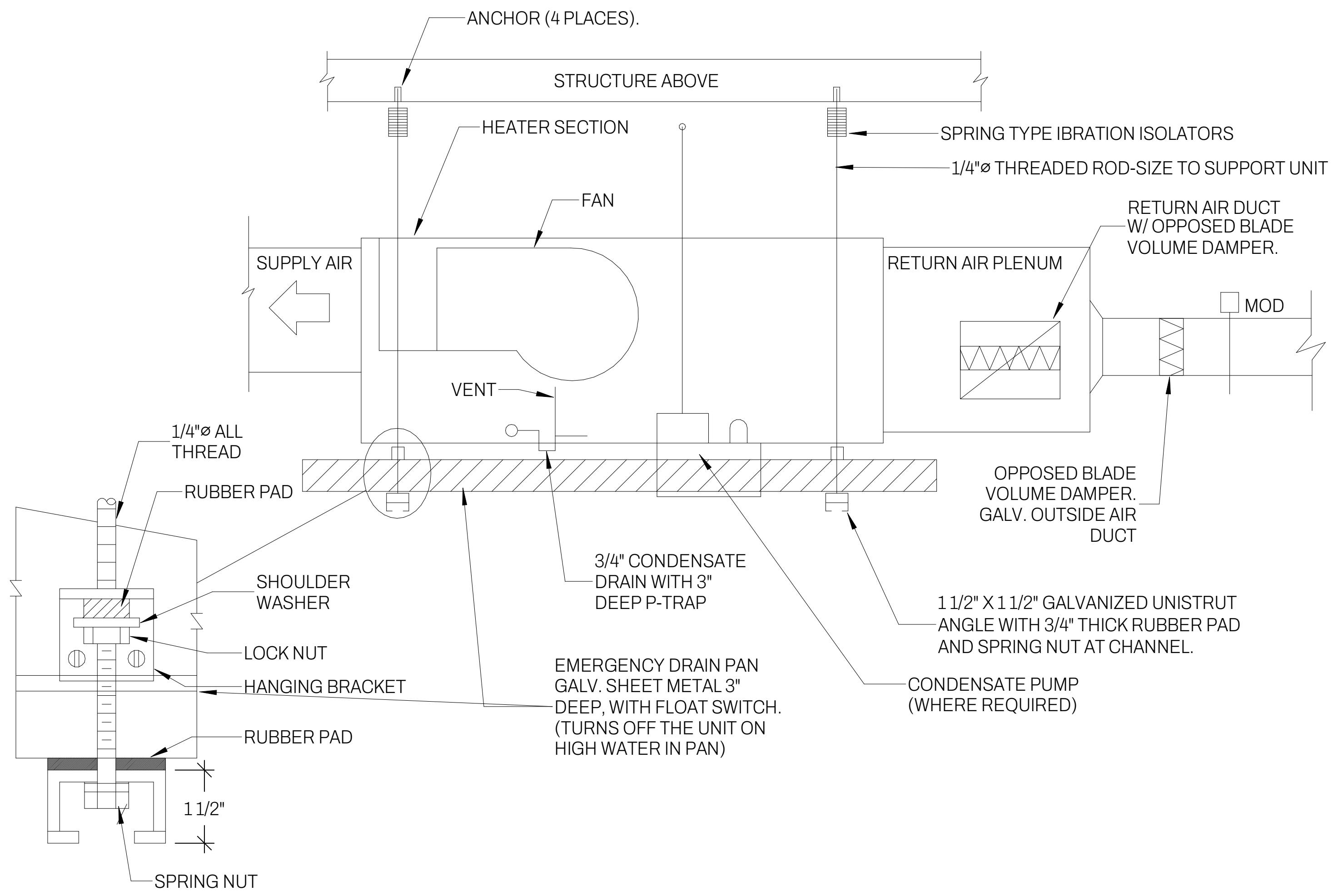


6 M-400 MECHANICAL - SIDEWALL REGISTER DETAIL
N.T.S.



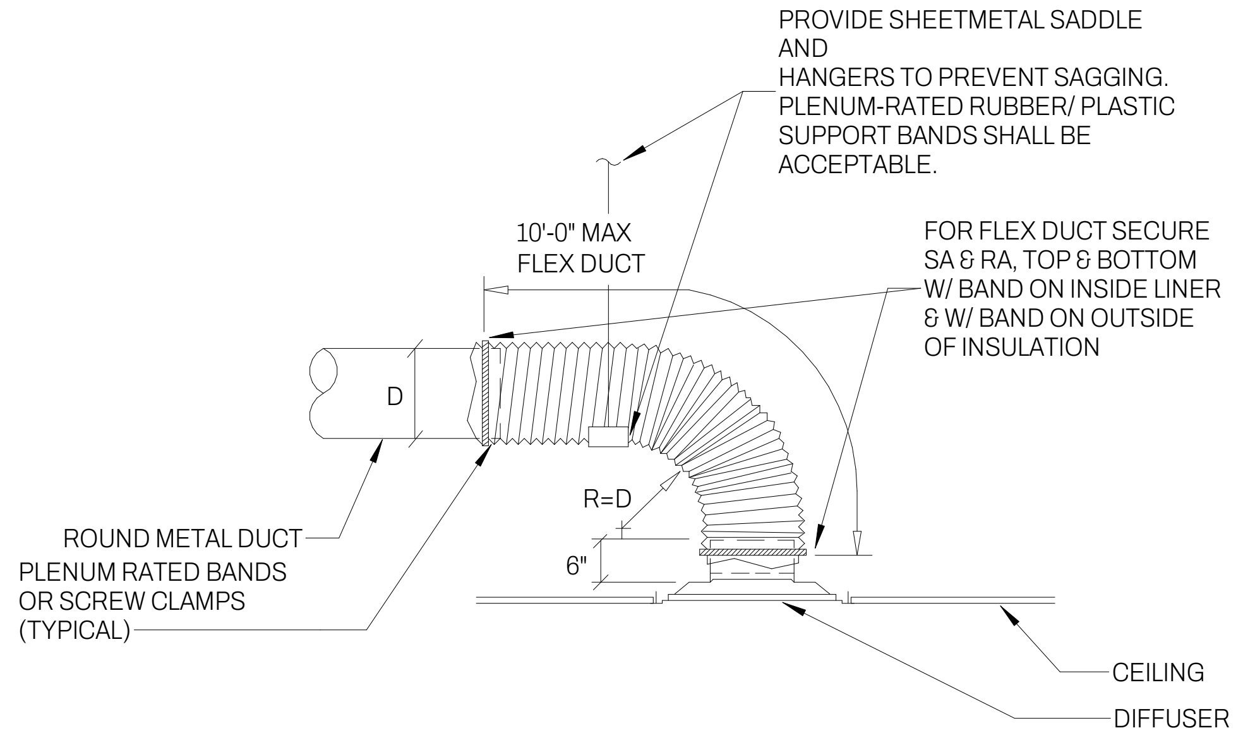
FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS AND SECURE THEM SUITABLY FOR THE PRESSURE CLASS. ADDITIONAL MECHANICAL FASTENERS ARE REQUIRED FOR 3" W.G. AND OVER

1 M-400 DUCT BRANCH CONNECTION DETAIL
NOT TO SCALE



GENERAL NOTES:
1. GLASS FAB AND MASTIC SUPPLY & RETURN DUCT FOR 4 FEET FROM UNIT CONNECTION DUCT TAPE ALL SUPPLY SIDE JOINTS ON UNIT.
2. MOTORIZED OUTSIDE AIR DAMPER (MOD) TO BE RUSKIN CD-50 WITH BELIMO LF24-SR, ELECTRIC PROPORTINOAL DAMPER ACTUATOR, INTERLOCED WITH AHU'S FAN. PROVIDE MANUAL VOLUME DAMPER FOR OUTDOOR AIR BALANCING.

2 M-400 MECHANICAL - HORIZONTAL AIR HANDLING UNIT DETAIL
N.T.S.



3 M-400 DIFFUSER CONNECTION DETAIL
NOT TO SCALE

sweetgreen
3102 WEST 36TH STREET
LOS ANGELES, CALIFORNIA 90018

ENGINEER OF RECORD:
WOLF ENGINEERING
P.O. BOX 38 | DALTON, GA 30722

STAMP:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 41016 ERIC MICHAEL WOLF
COA:P-2368
05/16/2025

PROJECT INFORMATION:
PLAZA MIDWOOD

PROJECT INFORMATION:
1710 COMMONWEALTH AVE.,
SUITE 123
CHARLOTTE, NC 28205

DRAWN BY:	TAL
CHECKED BY:	EW
PROJECT MANAGER:	JAH
SG DESIGN MANAGER:	SC
SG DM CHECKED BY:	SC
SG CONSTR. MANAGER:	MC
PROJECT NO:	20240137.0
TEMPLATE VERSION:	2401

REVISIONS

REV.	DATE	DESCRIPTION
	01/10/2025	PERMIT / HEALTH REVIEW SET
A	03/17/2025	ADDENDUM A
C	04/29/2025	ADDENDUM C
1	05/16/2025	IFC SET

HVAC DETAILS

M-400

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