

HVAC GENERAL NOTES:

- ALL MECHANICAL WORK SHALL CONFORM TO ALL LOCAL, STATE AND BUILDING CODES. ALL GOVERNMENT CODES NFPA, ASHRAE AND ASHRAE STANDARDS.
- ALL EQUIPMENT LOADING AND METHODS OF SUPPORT SHALL BE REVIEWED BY THE OWNER'S STRUCTURAL ENGINEER. COORDINATE WITH OWNER.
- DUCT PENETRATIONS SHALL CONFORM TO THE FIRE RATINGS OF EACH SPECIFIC PARTITION TYPE. CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL DRAWINGS.
- CONTRACTOR MUST COORDINATE WITH OWNER TO DETERMINE THE EXTENT OF OVERTIME HOURS.
- CONTRACTOR SHALL PRESURE TEST ALL PIPING IN ACCORDANCE WITH SPECIFICATIONS. TESTING SHALL BE DONE IN THE PRESENCE OF OWNER.
- CONTRACTOR SHALL INCLUDE PROVISIONS FOR TEMPORARY PIPING AS REQUIRED TO MAINTAIN SERVICE TO OTHER SPACES.
- PROVIDE 1 SET OF AS-BUILTS AND 2 COPIES OF THE CERTIFIED TESTING AND BALANCING REPORT TO THE LANDLORD UPON COMPLETION OF THE PROJECT.
- ALL WORK GENERATING OBJECTIONABLE NOISE SHALL BE COORDINATED WITH LANDLORD.
- HVAC EQUIPMENT SHALL BE ARRANGED TO MINIMIZE VIBRATION AND NOISE PROPAGATION.
- ALL WORK AFFECTING EXISTING BUILDING SYSTEMS SHALL BE COORDINATED WITH THE BUILDING INCLUDING ALL SHUT-DOWNS.
- CONTRACTOR TO COORDINATE ALL WORK WITH BUILDING MANAGEMENT AND BUILDING ENGINEERS. ALL WORK AFFECTING EXISTING SYSTEMS SHALL BE COORDINATED WITH BUILDING MANAGEMENT INCLUDING ALL SHUT-DOWNS. COORDINATE ALL WORK WITH THE OTHER TRADES.
- ALL EXISTING EQUIPMENT TO REMAIN SHALL BE CLEANED, REFURBISHED AND TESTED. REPLACE PARTS AS REQUIRED TO OBTAIN OPTIMAL PERFORMANCE. REPORT FINDINGS TO ENGINEER PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR SHALL PROVIDE AIR BALANCING UPON COMPLETION OF WORK. CONTRACTOR SHALL PROVIDE BALANCE REPORT TO ENGINEER.
- ALL ATO WIRING SHALL BE PROVIDED IN EMT WITHIN MECHANICAL ROOMS AND UTILITY ROOMS (I.E. ELEVATOR MACHINERY ROOMS, ELEVATOR ELECTRICAL RIGGING ELEVATOR). ALL OUTDOOR ATO WIRING SHALL BE PROVIDED WITHIN RIGID METAL CONDUIT.
- ALL ATO PANELS AND HVAC CONTROL PANELS SHALL BE CAPABLE OF BEING INTERLOCKED WITH THE TENANT'S BMS SYSTEM AS REQUIRED TO MONITOR THE SYSTEM(S) AND CONTROL THE SYSTEM(S) PER THE SEQUENCE OF OPERATIONS.
- COORDINATE ALL HVAC EQUIPMENT WITH OTHER TRADES (I.E. PLUMBING, SPRINKLER, ELECTRICAL, POWER AND LIGHTING, ARCHITECTURAL, ETC.). PROVIDE COORDINATED SHOP DRAWINGS INDICATING ALL OF THE MANUFACTURER'S RECOMMENDATIONS FOR PROPER INSTALLATION.
- CONTRACTOR TO PROVIDE UL LISTED FIRE STOPPING SYSTEM FOR ALL THROUGH PENETRATIONS INCLUDING BUT NOT LIMITED TO DUCTWORK, PIPING, HANGERS, CONDUIT, ETC.
- MANUFACTURER'S SYSTEM MUST BE PART OF A UL RATED SYSTEM. LOCATIONS AND TYPES OF FIRE STOPPING SYSTEM INSTALLATIONS SHALL BE COORDINATED WITH ARCHITECTURAL AND LIFE SAFETY PLANS TO DETERMINE SCOPE.
- CONTRACTOR TO PROVIDE ENGINEER WITH ASSOCIATED MANUFACTURER'S UL DETAIL OF ALL APPLICABLE PENETRATIONS FOR APPROVAL.
- FIRE STOPPING SYSTEMS MANUFACTURERS SHALL BE HILTI, 3M, STI, OR APPROVED EQUAL.
- CONTRACTOR TO COORDINATE FIRE STOPPING INSTALLATION WITH PROJECT SPECIAL INSPECTOR PRIOR TO INSTALLATION. FIRE STOPPING INSTALLATION INSPECTION SHALL BE PROVIDED BY SPECIAL INSPECTOR. ALL APPLICABLE FIRE STOPPING SYSTEM UL DETAILS SHALL BE AVAILABLE FOR SPECIAL INSPECTOR REVIEW.

BUILDING MECHANICAL NOTES:

- ANY CHANGES AND/OR UPGRADES TO TENANT'S EXISTING MECHANICAL SYSTEMS SHALL COMPLY WITH ALL CODES AND MALL CRITERIA. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
- NO PITCH POCKETS ARE PERMITTED ON THE ROOF FOR ANY CONDENSATE DRAINS, REFRIGERANT PIPING, POWER OR CONTROL WIRING. ALL CONNECTIONS ARE TO BE MADE INSIDE THE EQUIPMENT CURBS OR THROUGH PRE-MANUFACTURED PIPING CURBS.
- NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE LANDLORD'S STRUCTURE, FLOOR DECK, OR ROOF DECK. YOU MAY ATTACH, NON-DESTRUCTIVELY, TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE TENANT SPACE, WHEN ATTACHING TO LANDLORD'S STRUCTURE. DO NOT DRILL, WELD, SCREW, OR SHOOT INTO STRUCTURE. ALTERNATIVE METHODS OF ATTACHMENT ONLY NOTHING TO DAMAGE LANDLORD'S BASE BUILDING STRUCTURE. TENANT SHALL PROVIDE SIGNED AND SEALED STRUCTURAL DRAWINGS BY A STRUCTURAL ENGINEER WITH LEGALLY ACTIVE REGISTRATION AS INDICATED BY ALL JURISDICTIONAL REQUIREMENTS, FOR ALL STRUCTURAL MODIFICATIONS FOR LANDLORD RECORDS.
- ALL PENETRATIONS TO ROOF MUST BE APPROVED BY LANDLORD. ALL RELATED ROOF WORK MUST BE DONE BY MALL'S DESIGNATED ROOFING CONTRACTOR, AT TENANT'S EXPENSE. COORDINATE ALL WORK WITH PROPERTY MANAGEMENT ON SITE.
- TENANT MUST REMOVE ALL ABANDONED ROOFTOP AND/OR MECHANICAL EQUIPMENT ABOVE THE LEASED PREMISES AND WITHIN THE LEASED PREMISES. AT TENANT'S EXPENSE. PATCH AND REPAIR ROOF AS NEEDED.
- TENANT'S GC TO LABEL ALL ROOF TOP EQUIPMENT WITH TENANT NAME SPACE NUMBER AND EQUIPMENT IDENTIFICATION (RTU-1, EF-1), PER MALL SPECIFICATIONS/ STANDARDS.
- ALL PIPING ON ROOF SHALL BE SUPPORTED ON PRE-MANUFACTURED PIPE SUPPORTS INSTALLED ON CARRY TRAIL, SPACED PROPERLY TO SUPPORT PIPING. TREATED WOOD SUPPORTS ARE NOT PERMITTED.
- ALL UNEXPOSED SUPPLY AIR AND OUTSIDE AIR DUCTWORK SHALL BE EXTERNALLY INSULATED WITH 1" THICK FOIL FACE INSULATION INTERNALLY LINED DUCTWORK MAY BE USED FOR ACOUSTIC PURPOSES ONLY, NOT AS A SUBSTITUTE FOR EXTERNAL INSULATION.
- ALL DUCTWORK SHALL BE SHEET METAL. FLEX DUCT MAY ONLY BE USED IN RUNS OF 5'-0" OR LESS.
- AT CONCLUSION OF PROJECT, HVAC SYSTEM MUST BE TESTED AND BALANCED BY A LICENSED CONTRACTOR. COPY OF BALANCE REPORT MUST BE PROVIDED TO PROPERTY MANAGEMENT OFFICE ON-SITE.
- LANDLORD STRONGLY PREFERS USE OF ENERGY STAR PRODUCTS AND/OR EQUIPMENT WHENEVER POSSIBLE DURING TENANT BUILD OUT, WHICH CAN REDUCE ENERGY CONSUMPTION.

ABBREVIATIONS:

ABBREVIATION	DESCRIPTION
AC	AIR CONDITIONING
AD	ACCESS DOOR
A.F.F.	ABOVE FINISHED FLOOR
BDD	BACKDRIFT DAMPER
BHP	BRAKE HORSE POWER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
CAV	CONSTANT AIR VOLUME
CD	CEILING DIFFUSER AND/OR CONDENSATE DRAIN
COD	CABLE OPERATED DAMPER
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
CR	CEILING RETURN
DN	DOWN
DP	DRIP PAN
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FDIAD	FIRE DAMPER WITH ACCESS DOOR
FLA	FILL LOAD AMPS
FSD	FIRE SMOKE DAMPER
HP	HORSEPOWER
KW	KILOWATT
KWH	KILOWATT HOURS
LAT	LEAVING AIR TEMPERATURE
LD	LINEAR DIFFUSER (CEILING, WALL, SILL, OR FLOOR) AND/OR LEAK DETECTOR
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MD	MOTORIZED DAMPER
N.I.C.	NOT IN THIS CONTRACT
N.T.S.	NOT TO SCALE
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
PSIG	POUNDS PER SQUARE INCH (GAUGE)
RG	RETURN GRILLE
RPM	REVOLUTIONS PER MINUTE
SD	SMOKE DETECTOR
SG	SUPPLY GRILLE
SS	STAINLESS STEEL
TD	TRANSFER DUCT
TX	TOILET EXHAUST
VD	VOLUME DAMPER
V.F.I.	VERIFY IN FIELD
WMS	WIRE MESH SCREEN

SYMBOL LIST:

SYMBOL	DESCRIPTION
	PATTERN DEFLECTOR
	SUPPLY DIFFUSER (FOR SIZE, TYPE, ETC. SEE AIR OUTLET SCHEDULE)
	DIFFUSER TAG (SEE AIR OUTLET SCHEDULE)
	RETURN REGISTER (FOR SIZE, TYPE, ETC. SEE AIR OUTLET SCHEDULE)
	TRANSFER OPENING ABOVE HUNG CEILING
	TRANSFER AIR GRILLE
	DOOR UNDERCUT
	DUCTWORK (SEE SPECIFICATIONS)
	CLEAR INSIDE DIMENSIONS (FIRST NUMBER INDICATES PLAN SIZE)
	SUPPLY GRILLE (FOR SIZE, TYPE, ETC. SEE AIR OUTLET SCHEDULE)
	DIFFUSER TAG (SEE AIR OUTLET SCHEDULE)
	DUCT FLEXIBLE CONNECTION
	DUCTWORK WITH ACOUSTICAL LINING (DUCT SIZE NOTED INDICATES CLEAR INSIDE DIMENSION)
	ACCESS DOOR IN DUCT
	COMBINATION FIRE AND SMOKE DAMPER (FSD) WITH ACCESS DOOR & SMOKE DETECTOR/FIRE DAMPER (FD) WITH ACCESS DOOR
	DUCT VOLUME DAMPER
	CABLE OPERATED DAMPER TO BE USED FOR ALL SUPPLY AND RETURN DIFFUSERS IN SHEETROCK OR IN ACCESSIBLE CEILING.
	FUSIBLE LINK FIRE DAMPER WITH DUCT ACCESS DOOR (SD INDICATES SMOKE TYPE DAMPER, FSD INDICATES FIRE/SMOKE TYPE DAMPER. SEE SPECIFICATIONS)
	FIRE SMOKE DAMPER WITH ACCESS DOOR
	BRANCH TAKEOFF
	DUCT RISE CONNECTIONS
	DUCT DROP CONNECTIONS
	SUPPLY DUCTWORK UP
	RETURN DUCTWORK DOWN
	NEW THERMOSTAT
	TEMPERATURE SENSOR
	DUCT TYPE SMOKE DETECTOR
	MOTORIZED DAMPER
	CONTROL WIRING
	DIRECTION OF AIRFLOW
	SERVICE CLEARANCE

PIPING SYMBOL LIST

SYMBOL	DESCRIPTION
	MANUALLY OPERATED SHUTOFF VALVE
	CHECK VALVE
	AUTOMATIC MODULATING THREE-WAY CONTROL VALVE
	AUTOMATIC TWO-WAY SHUTOFF VALVE
	PRESSURE GAUGE
	FUTURE VALVED AND CAPPED CONNECTION
	Y-STRAINER W/ BLOWOFF VALVE
	THERMOMETER
	CONDENSATE PUMP
	LEAK DETECTOR
	PIPING DROP
	PIPING RISE
	OUTDOOR PIPE SUPPORTS / GUIDES
	UNIONS
	PIPE TEE
	PIPE GUIDE

DRAWING LIST:

NUMBER	DESCRIPTION
M-100	H.V.A.C. TITLE SHEET
M-101	H.V.A.C. SPECIFICATIONS SHEET 1 OF 2
M-102	H.V.A.C. SPECIFICATIONS SHEET 2 OF 2
M-103	H.V.A.C. ENERGY CODE COMPLIANCE FORMS
M-300	H.V.A.C. GROUND FLOOR PLANS
M-301	H.V.A.C. ROOF PLAN
M-400	H.V.A.C. GROUND FLOOR PIPING PLAN
M-401	H.V.A.C. ROOF PIPING PLAN
M-600	H.V.A.C. SCHEDULES
M-700	H.V.A.C. DETAILS SHEET 1 OF 2
M-701	H.V.A.C. DETAILS SHEET 2 OF 2

DRAWING NOTATIONS:

SYMBOL	DESCRIPTION
	SEE REFERENCE NOTE APPLICABLE TO THIS DRAWING. NOTE NUMBER INDICATED BY NUMERAL IN DIAMOND.
	DETAIL REFERENCE TAG
	INDICATES DRAWING NUMBER, ELEVATION REFERENCE
	INDICATES DETAIL NUMBER
	INDICATES DRAWING NUMBER
	POINT OF CONNECTION TO EXISTING
	POINT OF DISCONNECTION
	CUT AND CAP



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H.V.A.C. TITLE SHEET

M-100

1. GENERAL

A. THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ("AIA DOCUMENT A201, LATEST EDITION), AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER PRIOR TO SUBMITTING A PROPOSAL. ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS, ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION TO OCCUR, SHALL BE REMOVED BY THE CONTRACTOR.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AT WHAT TIMES OR DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DRIPS AND RISERS OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED.

E. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM ALLOWED INSTALLING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INLET CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.

F. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXCESS COST SHALL NOT BE MADE WITHOUT APPROVAL.

G. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETELY DETACHING FROM THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN DRAWING OF THE WORK.

H. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO ENSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.

I. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING DISTURBED INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.

J. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.

K. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

L. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL.

M. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUNIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DRAINAGE STEEL AS REQUIRED.

N. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE REMOVED FROM DRAWING. THIS SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

O. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

P. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

Q. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFOR SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

R. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

S. REMOVABLE ACCESS TILE AND/OR ACCESS DOORS ARE REQUIRED IN HUNG CEILING, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL, EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.

T. ALL EQUIPMENT SHALL HAVE AN MEI AND/OR BSA NUMBER. THIS INFORMATION MUST BE INCLUDED IN THE SUBMITTAL PACKAGE.

U. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

V. SUBMISSION OF A PROPOSAL SHALL BE CONSIDERED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING PROJECT, INCLUDING ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.

W. INSURANCE. IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FORM THE CONTRACTOR TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

X. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

Y. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

Z. SUBSTITUTIONS ON EQUIPMENT WILL ONLY BE CONSIDERED BY THE ENGINEER OR RECORD (ROR) IF THE REQUEST IS PUT FORTH BY THE CONTRACTOR(S) IN A TIMELY MANNER (2 WEEKS PRIOR TO SUBMISSION OF BID). THE CONTRACTOR(S) SHALL REVIEW THE DOCUMENTS TO UNDERSTAND THE SCOPE OF THE EQUIPMENT FOR WHICH A SUBSTITUTION IS REQUESTED AND PROVIDE A SHOP DRAWING FROM THE ALTERNATE MANUFACTURER LISTED HEREIN FOR A FORMAL REVIEW BY THE OWNER. ANY BREACH OF THE TERMS LISTED IN THIS SECTION WILL AUTOMATICALLY DISQUALIFY THE REQUEST FOR SUBSTITUTION.

2. DEFINITIONS

1. "PROVIDE" TO SUPPLY, INSTALL AND CONNECT UP COMPLETE TO AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. "INSTALL" TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3. "FURNISH" OR "SUPPLY" TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4. "WORK" LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5. "CONCEALED" EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITH DOUBLE PARTITIONS OR HUNG CEILING, IN TRENCHES IN CRAWL SPACES, OR IN ENCLOSURES.

6. "EXPOSED" NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE. MINIMUM MOVEMENT OF 1/8".

7. "SIMILAR" OR "EQUAL" EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

8. "BMS" BUILDING MANAGEMENT SYSTEM THAT CONTROLS THE ENTIRE HVAC SYSTEM AND ALL RELATED EQUIPMENT REQUIRED TO ACHIEVE THE SEQUENCE OF OPERATIONS.

3. SCOPE OF WORK

A. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.

B. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FIELD DRAWINGS AND SPECIFICATIONS WITH THE PERMITS FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES. BY ALL FEES THEREFOR, THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTING OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR AND FOR THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES. BY PROVIDER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO COVER THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. CONTROLLED INSPECTION BY A LICENSED PROFESSIONAL ENGINEER TO BE HIRED BY THIS CONTRACTOR ON BEHALF OF OWNER.

E. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT PROVIDE COMPLETE SET OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, DUCTWORK, PIPING AND CONTROL SYSTEMS INCLUDING CAPABILITY DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

F. CONTRACTOR SHALL ATTAIN THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER (PE) TO PREPARE AND SUBMIT ALL FABRICATION DRAWINGS, SIGNED AND SEALED BY THE ARCHITECTED PE. PERTAINING TO THE NEW SYSTEM SERVICE TO CONSOLIDATED EDISON FOR APPROVAL. THE CONTRACTOR SHALL PROVIDE ALL DRAWINGS, CALCULATIONS AND DOCUMENTATION TO THE ARCHITECT FOR CONSOLIDATED EDISON PURSUANT TO THEIR STANDARDS AND REGULATIONS FOR SUCH WORK.

4. SHOP DRAWINGS

A. INDICATE ON EACH SUBMISSION: PROJECT NAME AND LOCATION, ARCHITECT AND ENGINEER, ITEM IDENTIFICATION AND APPROVAL STAMP OF PRIME CONTRACTOR.

5. SUBMISSIONS

1. SUBMISSIONS IN 11 X 17 IN. OR SMALLER. IF THE SUBMISSION IS A CATALOGUE, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, THE CONTRACTOR SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY TWO COPIES WHEN NO ORIGINAL IS RECEIVED TO THE ENGINEER. ALL CATALOGUE DUCTS SHALL BE COMPLETE.

2. SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPA TO THE ENGINEER.

3. SUBMIT SHOP DRAWINGS FOR HVAC EQUIPMENT LISTED IN THE MECHANICAL SCHEDULES AND DRAWINGS SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:

- 1. VIBRATION ISOLATION.
2. AIR BALANCING REPORT.
3. DUCTWORK AND PIPING CONSTRUCTION AND LAYOUT
4. DUCTWORK AND PIPING INSTALLATION
5. AIR RESISTERS
6. TEMPERATURE CONTROLS
7. FANS
8. BALANCING VALVES
9. LEAK DETECTORS
10. CONDENSATE PUMP
11. COOL COOLED SPLIT SYSTEMS
12. SEQUENCE OF OPERATIONS

6. AS-BUILTS AND EQUIPMENT OPERATION INSTRUCTIONS

A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE INSTRUCTION BOOKLET SHALL BE SUBMITTED TO THE ARCHITECT WITH ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS INDICATING AS INSTALLED CONDITIONS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

7. SHEET METAL WORK

A. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE GALVANIZED SHEET STEEL AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SHEET METAL AND CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. DUCT CONSTRUCTION STANDARDS, PRESSURE CLASSIFICATION 2 N. W.G.

B. FOR DUCTWORK SYSTEMS WHERE AIR MOVING EQUIPMENT (I.E. FANS, AIR HANDLERS ETC.) ASSOCIATED WITH THAT SYSTEM IS IN EXCESS OF 2" W.G. PRESSURE CLASS, PROVIDE THE REQUIRED PRESSURE CLASS DUCTWORK PURSUANT TO SMACNA STANDARDS. PRESSURE CLASS OF DUCT SYSTEM SHALL BE THE CLOSEST PRESSURE RATING HIGHER THAN THAT OF THE FANS STATIC PRESSURE RATING. REFER TO MECHANICAL SCHEDULES FOR PRESSURE INFORMATION.

C. VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA "LOW VELOCITY MANUAL, EXCEPT PROVIDE REAR AT ONE END OF DAMPER. THE DAMPER LEVER AND LOCKSCREW AT OTHER END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. AND WITH LEVERS OPERATED BY THE DAMPER. DAMPERS NOT APPLY TO KITCHEN EXHAUST ACCESS DOORS. INSULATED OR UNINSULATED, SAME AS DUCT.

1. PROVIDE MINIMUM 20 IN. X 14 IN. ON MAIN DUCTS, AND 12 IN. X 6 IN. ON BRANCH DUCTS, UNLESS OTHERWISE APPROVED. AT FIRE DAMPERS, AND AT ALL DUCT ACCESSORIES SUCH AS FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS, DUCT SMOKE DETECTORS, MOTORIZED DAMPERS, LOUVERS, DUCT MOUNTED TEMPERATURE SENSORS, AND INTERNAL BY-PASS DAMPERS.

2. ALL ACCESS DOORS TO BE HINGED, WITH LATCH SIMILAR TO VENTLOCK NO. 100. ALL DUCTWORK RISERS INSTALLED OUTDOORS SHALL BE COMPOSED OF WEATHERPROOF MATERIALS ON FINISH WITH A WEATHERPROOF COATING ALONG THE ENTIRE OUTDOOR RUN.

E. FLEXIBLE CONNECTIONS: NEOPRENE COATED GLASS FABRIC, 30 OZ PER SQ YD WITH SEWED AND CEMENTED SEAMS, SIMILAR TO VENT FABRICS. PROVIDE WITH METAL COLLARS. ALLOW MINIMUM MOVEMENT OF 1/8".

F. TURNING VANES: GALVANIZED STEEL SMALL DOUBLE-THICKNESS VANES WITH 2 IN. INSIDE RADIUS.

G. COMBINATION FIRE AND SMOKE DAMPERS: UL LISTED, GALVANIZED STEEL CONSTRUCTION MULTI-LAYERED TYPE, EQUIPPED WITH FUSIBLE LINK CONFORMING TO NFPA STANDARD 90A. SIMILAR TO RUSKIN MODEL FSD 60 FOR 1 1/2 HOUR RATING. SEE PLANS FOR MORE INFORMATION.

H. ALL DUCT DIMENSIONS INDICATED ON PLANS ARE INSIDE CLEAR DIMENSIONS.

I. AUTOMATIC DAMPERS: COMPLETE WITH LINKAGE AND ELECTRIC OPERATOR. OPPOSED BLADE DAMPER OR GALVANIZED STEEL MIN. 4 IN. MAX. 8 IN. WIDE WITH COMPRESSIBLE EDGE SLOTS TO PREVENT LEAKAGE. FACTORY-ASSEMBLED STEEL LINKAGE AND SHAFT WITH NITON OR OIL-IMPREGNATED BRONZE BEARINGS. MOTOR WITH SUFFICIENT POWER TO LIMIT LEAKAGE TO 10% OF PERmitted LEAKAGE. PROVIDE WITH 1/2" MINIMUM OPERATING FORCE WITHOUT DEFLECTION. DAMPER MOUNTED IN WELDED STEEL CHANNEL FRAME.

J. WIRE MESH SCREEN (WMS): NO. 16/SS, 12" SQUARE MESH, 1/4 IN. WIDE GALVANIZED STEEL INCLUDING FRAME. FURNISH DUCT OPENING TO RECEIVE FRAME.

K. LOW PRESSURE FLEXIBLE DUCT: SHALL BE A FACTORY-FABRICATED HIGH TEMPERATURE COPOLYMER IMPREGNATED GLASS FIBER, LOCKED TO COLD ROLLED PLATE STEEL SPIRAL. SIMILAR TO WIREMOLD 57. MAXIMUM INSTALLED LENGTH SHALL NOT EXCEED 18 IN.

L. CONTRACTOR SHALL HIRE STRUCTURAL ENGINEER TO ANALYZE DUCTWORK HANGING AND SUPPORTS AND CONNECTION TO EXISTING STRUCTURE.

8. NOISE CONTROL

A. ALL ROOM NC LEVELS SHALL BE 35 OR LESS.

B. PROVIDE SOUNDING FOR THE FOLLOWING DUCTWORK:

- 1. ALL DUCTWORK WITH MECHANICAL ROOMS AND NOT LESS THAN 20 FT ON EACH SIDE OF ALL FANS AND AC UNITS.
2. AIR TRANSFER DUCTS.
3. ALL MIXED AIR FLEXIBLES, EXCEPT WHERE MOISTURE CARRYOVER FROM OUTDOOR AIR LOUVER WILL OCCUR.
4. ALSO WHERE NOTED ON A DRAWING.

C. SOUNDING IN DUCTWORK: FIBROUS GLASS, MINIMUM 3 LB DENSITY, 1 IN. THICKNESS, MAXIMUM 0.25 F-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH ACrylic COATED FINISH ALL EDGES AND STEAM PIPING TO BE MINIMUM 3/4". FLAMESPREAD SHALL BE A MAXIMUM OF 25. LINING SHALL NOT SUPPORT MICROBIAL GROWTH AND SHALL BE TESTED IN ACCORDANCE WITH ASTM C 1071 AND ASTM G21G22. SIMILAR TO MANVILLE PERMACOTE LINA COUSTIC.

D. ALL SOUNDING, ADHESIVES, FACES AND ACCESSORIES TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, EXCEPT AS OTHERWISE NOTED.

9. TESTING AND BALANCING

A. AIR BALANCING SHALL BE ACCOMPLISHED BY ADJUSTMENT OF FANS AND BRANCH DAMPERS FOR MAJOR ADJUSTMENTS. ADJUSTMENT OF TERMINAL DAMPERS AND DEVICES SHALL BE FOR TRIM OR MINOR ADJUSTMENT ONLY. THIS SHALL BE DONE TO PERMIT THE LEAST NOISE GENERATION TO THE SPACE WHILE PROVIDING THE REQUIRED AMOUNT OF AIR PER THE MECHANICAL DRAWINGS.

B. THE CONTRACTOR SHALL PROVIDE ALL LABOR, PRESSURE GAUGES, FLOW METERS, SHEAVES, AND BELTS REQUIRED TO BALANCE SYSTEMS.

C. BALANCING REPORT SHALL BE PROVIDED ON A8C-TYPE FORMS.

D. FANS, AIR HANDLING UNITS, PACKAGED VERTICAL A/C UNITS, HORIZONTAL CEILING HUNG UNITS, INLINE EXHAUST FANS, MAKEUP AIR UNITS, WATER SOURCE HEAT PUMPS, ETC SHALL BE BALANCED TO WITHIN +/- 10% OF THE DESIGN QUANTITIES.

E. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY AN INDEPENDENT FIRMS SPECIALIZING IN TESTING AND BALANCING.

F. THE PERFORMANCE AND CAPACITY OF ALL SYSTEMS AND EQUIPMENT TO BE DEMONSTRATED BY THE CONTRACTOR.

10. INSULATION - GENERAL REQUIREMENTS

A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E 84), (ASA A2-2-1983). FLAME SPREAD: MAXIMUM 25. FUEL CONTRICTION AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.

B. ALL INSULATION MATERIALS AND THICKNESSES SHALL COMPLY WITH THE LATEST EDITION (I.E. THE ADDITION OF EFFECT AT THE ANTICIPATED STATE DATE OF CONSTRUCTION) OF THE FEDERAL STATE ENERGY CONSERVATION CONSTRUCTION CODE AND SUBSEQUENT AMENDMENTS.

C. ALL FACINGS SHALL BE PAINTABLE. COLOR(S) SHALL BE AS SPECIFIED BY ARCHITECT.

D. DEFINITIONS:
1. EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILING OR OPENING ACCESS PANELS.
2. CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.

9. OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER. DUCTWORK INSULATION FRAME: LOCATION THICKNESS MATERIAL

Table with 4 columns: SUPPLY/RETURN, CONCEALED/EXPOSED, 1-1/2", D-1/D-2

A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED. INSULATION MATERIALS AND THICKNESSES SHALL COMPLY WITH THE LATEST EDITION OF ENERGY CONSERVATION CODE APPLICABLE IN LA. (AT THE TIME OF ANTI-CORROSION DATE).

INSULATION SCHEDULE - DUCTWORK (WITH VAPORESAL FINISH)

Table with 4 columns: SUPPLY/RETURN, CONCEALED/EXPOSED, 1-1/2", D-1/D-2

B. DUCTWORK NOT REQUIRED TO BE THERMALLY INSULATED:

1. WHERE SOUNDING IS OF MINIMUM THICKNESS SPECIFIED FOR INSULATION. AIR CONDITIONING RETURN AIR DUCTWORK EXPOSED IN AIR CONDITIONED SPACES AND INSTALLED IN HUNG CEILING WHERE SPACE IMMEDIATELY ABOVE AND BELOW ARE BOTH AIR CONTINUED.

C. MATERIAL:

1. TYPE D-1: MINIMUM 1 LB/CU FT DENSITY FIBERGLASS BLANKET, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FOL-SKRM-KRAFT LABOR BARRIER FACING SIMILAR TO OWENS CORNING SOFTK FRK OR AN APPROVED EQUAL.

2. TYPE D-2: FIBERGLASS LINER. THE MAX K-FACTOR SHALL BE 0.23 AT 75°F MEAN TEMPERATURE. THE INSULATION SHALL BE PROVIDED WITH A FACTORY-APPLIED ALL PURPOSE OR ALL SERVICE FACING. THE INSULATION SHALL BE EQUAL TO JONS MANVILLE LINAUCOSTIC.

D. INSTALLATION:

1. FIBERGLASS BLANKET: 2 IN. LAP STRIPS AT ALL SEAMS. SECURE BOTTOM OF ALL DUCTS OVER 24 IN. WIDE WITH MIN. 4 ROWS OF WELD PINS 1/2 IN. ON CENTER. SECURE ALL SEAMS WITH FOL VAPOUR BARRIER TAPE AND VAPORESAL ADHESIVE.

2. FIBERGLASS LINER: LINER SHALL BE ADHERED TO THE SHEET METAL WITH FULL COVERAGE OF AN APPROVED ADHESIVE THAT CONFORMS TO ASTM 916 AND ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE COATED WITH PERMACOTE FACTORY-APPLIED OR FIELD APPLIED EDGE COATING AND SHALL BE NEATLY BUTTED WITHOUT GAPS. METAL NONGS SHALL BE SECURELY INSULATED OVER TRANSVERSELY ORIENTED LINER EDGES FACING THE AIRSTREAM AT FORWARD DISCHARGE AND AT ANY POINT WHERE LINED DUCT IS PRECEDED BY UNLINED DUCT. LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS SPECIFIED PER MANUFACTURER'S RECOMMENDATION. THE PIN LENGTH SHOULD BE SUCH AS TO HOLD THE MATERIAL FLAT IN PLACE WITH MINIMUM COMPRESSION OF THE MATERIAL.

10. PIPING INSTALLATION:

A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE WITH VAPORESAL FINISH EXCEPT AS OTHERWISE NOTED.

INSULATION SCHEDULE - PIPING

Table with 4 columns: SERVICE, SIZE, THICKNESS, MATERIAL

11. PIPING - GENERAL REQUIREMENTS

A. COMPLETE WITH: PIPE, FITTINGS, VALVES, STRAINERS, MOTORIZED VALVE OPERATORS, STRAINERS, HANGERS, SUPPORTS, GUIDE, SLEEVES AND ACCESSORIES.

B. ALL ITEMS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:

- 1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
2. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
3. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
4. MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY (MSS).

C. ALL PRESSURED PIPING TO BE TESTED HYDROSTATICALLY TO 150 PSI OR 150% OF OPERATING PRESSURE, WHICHEVER IS GREATER, BUT NEVER EXCEED TEST PRESSURE ANSI B 31.3. TEST DURATION TO BE 2 HOURS WITH NO PRESSURE CHANGE. CORRECTED FOR TEMPERATURE CHANGE. REPAIR OR REPLACE LEAKS OR DEFECTS WITHOUT ADDITIONAL WORK.

D. PROVIDE DIELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE TO BE JOINED.

E. PIPE SUPPORTS:

1. PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTENTS TO PREVENT SAGGING, VIBRATION, OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS.

2. HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS TYPE HANGER. MAXIMUM SPACING AS FOLLOWS:

- a. STEEL 1 IN. AND SMALLER: 7 FT.
b. STEEL 1-1/4 IN. AND LARGER: 10 FT.
c. COPPER 3 IN. AND SMALLER: 7 FT.

d. ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, RUNOUTS, AND CONCENTRATED LOADS DUE TO VALVES, ETC.

3. VERTICAL PIPING:

- a. BASE ELBOW SUPPORT WITH BEARING PLATE ON STRUCTURAL SUPPORT.
b. GUIDES AT EVERY SECOND FLOOR (SPACING NOT TO EXCEED 25 FT).
c. TOP SUPPORT HANGER OR SADDLE IN HORIZONTAL CONNECTION WITH PROVISIONS FOR EXPANSION.

d. INTERMEDIATE STEEL RISER CLAMP SUPPORT BEARDED AND WELDED TO PIPE BEARING ON STRUCTURAL STEEL OR BEARING PLATE AT FLOOR.

F. PIPING, VALVES AND FITTINGS TO BE INSULATED:

1. LOW TEMPERATURE PIPING SYSTEMS: 40 TO 100 DEG F INCLUDING:

- a. CONDENSATE DRAIN PIPING.
b. MAKE UP WATER (COORDINATE WITH PLUMBING SPECIFICATIONS)
c. REFRIGERANT PIPING
d. CONDENSATE WATER

G. MATERIAL:

1. TYPE A-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.2 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FIRE-RETARDANT FOL-SKRM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 A-1.

2. TYPE P-3: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS FITTING, MAXIMUM 0.23 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO EPOXUL HANFAB MOLDED FITTINGS.



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09.07.2021

PROJECT INFORMATION: THE FALL / SOUTH MIAMI
PROJECT INFORMATION: 8870 SW 136TH STREET UNIT RR02, MIAMI FL 33176

DRAWN BY: xx
CHECKED BY: xx
PROJECT MANAGER: JD
SO DESIGN MANAGER: JM
SQ CONSTR. MANAGER: JD
PROJECT NO: 221108
TEMPLATE VERSION: 05.01.2020

REV. NO. DATE DESCRIPTION
1 08.09.2021 SQ REVIEW
2 09.07.2021 FOR PERMIT

H.V.A.C. SPECIFICATIONS SHEET 1 OF 2

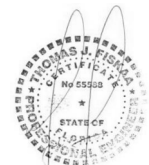
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**H.V.A.C.
SPECIFICATIONS
SHEET 2 OF 2**

M-102

3. TYPE P-4: MINIMUM 1 LB DENSITY FIBERGLASS FITTING INSERTS, MAXIMUM 0.29 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO MANVILLE HLO TEM INSULATION INSERTS.

4. TYPE P-6: MINIMUM 6 LB MOLDED FOAMED PLASTIC, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE, MAXIMUM 0.17 PERMEANCE, SIMILAR TO ARMSTRONG ARMAFLEX II

H. FINISH:

1. TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.

2. TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 3/16 MIL DRY FILM THICKNESS, SIMILAR TO KOSTER TITE-IT, UL LABEL.

3. TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.

4. TYPE F-6: ALL PURPOSE JACKET WITH UNIDIRECTIONAL TAPE STRIPPING TO PROTECT INSULATION, SIMILAR TO JOHNS MANVILLE APU.

I. INSTALLATION:
1. BEFORE APPLYING INSULATION ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED.
2. ALL INSULATION SHALL BE BUTTED FIRMLY TOGETHER. PROVIDE 2" LAMP STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. USE VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE WHERE REQUIRED. STAPLES NOT PERMITTED. REFRIGERANT PIPING INSULATION SHALL HAVE MITERED FITTINGS.
3. ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS PASSING THROUGH SLEEVES, HANGERS, ETC., OR OTHER OPENINGS. PROVIDE SADDLES OR SHIELDS FOR PROTECTION.
4. INSULATION FOR STRAINERS OR OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACABLE WITHOUT DAMAGE.

L. REFRIGERANT PIPING:

1. PIPE: ASTM B280 TYPE ACR COPPER TUBING FOR R-410A APPLICATIONS.

2. FITTINGS: BRAZED.

3. PIPING APPURTENANCES SUCH AS, BUT NOT LIMITED TO THE FOLLOWING: FILTER DRIERS, SUCTION ACCUMULATOR, ETC. SHALL BE FURNISHED BY THE MANUFACTURER OR PROVIDED BY THE MECHANICAL CONTRACTOR BASED ON MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS. PIPING APPURTENANCES EXTERNAL TO AC UNITS SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR PURSUANT TO THE MANUFACTURER'S REQUIREMENTS.

4. INSTALL PIPING SO AS NOT TO PRODUCE TRAPPING OF OIL.

M. CONDENSATE DRAIN PIPING

1. PIPE: ASTM B88, HARD DRAWN COPPER TUBING TYPE "L".

2. FITTINGS: BRAZED.

a. PITCH, EXCEPT AS NOTED:
b. 1 IN. IN 4 FT PREFERRED.

3. 1 IN. IN 8 FT MINIMUM.

4. SWING CHECK VALVES: AT CONDENSATE PUMP DISCHARGE, 300 LB WOG, BRONZE BODY, SOLDER ENDS, REGROIND BRONZE DISC TO BE USED WITH COPPER TUBING. JENKINS FIG. 1222

N. VIBRATION ISOLATION

1. GENERAL:
a. PROVIDE ISOLATION FOR EQUIPMENT, PIPING AND DUCTWORK.
b. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
c. PROVIDE LEVELING DEVICES AND APPROVED RESILIENT RESTRAINING DEVICES AS REQUIRED TO LIMIT EQUIPMENT AND PIPING MOTION IN EXCESS OF 1/4 IN.

d. ACCEPTABLE MANUFACTURERS:
1. MASON INDUSTRIES, INC.
2. VIBRATION ELIMINATOR CO.
3. KORFUND DYNAMICS CORP.

2. CEILING-HUNG FANS AND EQUIPMENT:
a. PROVIDE SPRING HANGER ROD ISOLATORS. STEEL COMPRESSION SPRING AND NEOPRENE SOUND PAD WITHIN A STEEL RETAINER BOX. SIMILAR TO MASON TYPE POIS.
b. 1 IN. MINIMUM STATIC DEFLECTION, 1/2 IN. MINIMUM RESERVE DEFLECTION. FACTORY-PRELOADED TO 75% OF RATED LOAD.
c. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE EQUIPMENT OR STRUCTURE CANNOT SUPPORT POINT LOADS.

3. FLOOR MOUNTED EQUIPMENT HAVING INTERNAL ISOLATION:
a. PROVIDE 5/16 IN. THICK NEOPRENE ACOUSTICAL BASE PADS OF RIBBED OR WAFFLE CONSTRUCTION, SIMILAR TO MASON TYPE VV.
b. 50 PSI MAXIMUM LOADING. PROVIDE STEEL BEARING PLATE TO DISTRIBUTE LOAD WHERE REQUIRED.

4. FLOOR-MOUNTED EQUIPMENT REQUIRING EXTERNAL VIBRATION ISOLATION:
a. PROVIDE BUILT-UP RESILIENT VERTICAL LIMB STOPS. PROVIDE TWO LAYERS OF 1/4 IN. NEOPRENE BASE PAD SEPARATED BY 1/8 IN. SHEET STEEL. TAPPED HOLES SHALL BE IN TOP PLATE FOR BOLLING TO EQUIPMENT. ISOLATORS SHALL BE CAPABLE OF SUPPORTING EQUIPMENT AT A FIXED ELEVATION DURING ISOLATION.
b. 1 IN. MINIMUM STATIC DEFLECTION.
c. CORROSION RESISTANT WHEN EXPOSED TO WEATHER.

12. EQUIPMENT

A. FAN COILS

1. AIR HANDLER TYPE AND ARRANGEMENT
A. THE AIR HANDLER SHALL BE FURNISHED AS A HORIZONTAL DRAW-THROUGH COOLING COIL AND HEATING COIL IN REHEAT POSITION ONLY TYPE.

2. AIR HANDLER CASING
a. AIR HANDLER CASING SHALL BE CONSTRUCTED WITH A CORROSION RESISTANT ALUMINUM FRAME WITH 1" THICK DOUBLE WALL PANELS. REQUIRED FOR CASING PROTECTION AND REDDITY. UNIT PANELS SHALL CONSIST OF INJECTED POLYURETHANE FOAM INSULATION SANDWICHED BETWEEN GALVANNEED STEEL EXTERIOR AND INTERIOR SHEETS. FORMED "THERMAL BREAK" PANELS SHALL HAVE A PLASTIC MOLDED EDGE TO ELIMINATE INNER AND OUTER PANELS FROM CONTACTING EACH OTHER.

b. PANELS SHALL BE FASTENED TO FRAME WITH PERIMETER SCREWS WITH A NEOPRENE GASKET IN BETWEEN THE PANEL AND THE FRAME TO MINIMIZE AIR LEAKAGE AND PREVENT THERMAL BRIDGING FROM UNIT INTERIOR TO UNIT EXTERIOR. HINGED AND LATCHED ACCESS PANELS FOR BLOWER AND FILTER SECTIONS SHALL BE FURNISHED ON BOTH THE DRIVE & OPPOSITE DRIVE SIDE TO ALLOW ACCESS TO UNIT INTERIOR. BLOWER PANEL SHALL BE FURNISHED TWO QUARTER-TURN OPEN-TO-CLOSE LATCH ASSEMBLIES, ONE TOOLED FLATHEAD SCREW TYPE AND ONE WITH LEVER HANDLE OPERATION. FILTER ACCESS PANELS SHALL BE PROVIDED WITH HINGED AND TWO QUARTER-TURN OPEN-TO-CLOSE LATCH ASSEMBLIES ON THE DRIVE & OPPOSITE SIDE ONLY.

3. SUPPLY FAN
A. THE SUPPLY FAN SHALL BE A SWIS DIRECT-DRIVE BACKWARD-INCLINED PLENUM FAN TYPE. FAN ASSEMBLY INCLUDING FAN AND MOTOR SHALL BE DYNAMICALLY BALANCED BY THE MANUFACTURER ON ALL THREE PLANES. MANUFACTURER MUST ENSURE MAXIMUM FAN RPM IS BELOW THE CRITICAL SPEED. FAN VARIABLE FREQUENCY DRIVE SHALL CONTROL THE FAN SPEED FROM A MINIMUM OF 50% AND SHALL NOT EXCEED 90%.

B. FAN AND MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION TYPE ISOLATORS INSIDE CABINETY.

C. UNITS SHALL BE CERTIFIED IN ACCORDANCE WITH THE CENTRAL STATION AIR HANDLING UNITS CERTIFICATION PROGRAM THAT IS BASED ON ASHRAE STANDARD 49B.

4. BEARINGS AND DRIVES
A. BASIC LOAD RATING COMPUTED IN ACCORDANCE WITH AFPM - ANSI STANDARDS, L-50 LIFE AT 2000-HOURS HEAVY DUTY PLOW BLOCK TYPE, SELF-ALIGNING, GREASE-LUBRICATED BALL BEARINGS.
B. SHAFTS SHALL BE SOLID, HOT ROLLED STEEL, GROUND AND POLISHED, KEYS TO SHAFT, AND PROTECTIVELY COATED WITH LUBRICATING OIL. HOLLOW SHAFTS ARE NOT ACCEPTABLE.
C. V-BELT DRIVES SHALL BE CAST IRON OR STEEL SHEAVES, DYNAMICALLY BALANCED, BORED TO FIT SHAFTS AND KEYS. VARIABLE AND ADJUSTABLE PITCH SHEAVES SELECTED SO RETURN RATIO IS OBTAINED. BELT SHALL BE SET AT 1% TENSION AND RATED BASED ON MOTOR HORSEPOWER. CONTRACTOR TO FURNISH FIXED SHEAVES AT FINAL RPM AS DETERMINED BY BALANCING CONTRACTOR.

5. ELECTRICAL
A. MOTOR SHALL BE A PREMIUM EFFICIENCY OPEN DRIP-PROOF TYPE. ELECTRICAL CHARACTERISTICS SHALL BE AS SHOWN ON THE SCHEDULE.
B. A VARIABLE FREQUENCY DRIVE WITH JUNCTION BOX SHALL BE FURNISHED AND MOUNTED BY FAN MANUFACTURER FOR FIELD POWER CONNECTION.

6. COOLING AND HEATING SECTIONS
A. ACCESS TO COILS FROM DRIVE SIDE (OPPOSITE CONNECTION SIDE) OF UNIT FOR SERVICE AND CLEANING SHALL BE PROVIDED. COIL HEADERS AND RETURN BENDS SHALL BE FULLY ENCLOSED WITHIN UNIT CASING. COIL CONNECTIONS SHALL BE FACTORY SEALED WITH GROMMET ON EXTERIOR AND GASKET SLEEVE BETWEEN OUTER WALL AND INNER LINER WHERE EACH PIPE EXTENDS THROUGH THE UNIT CASING TO MINIMIZE AIR AND CONDENSATE LEAKAGE.
B. COOLING COILS:
1. COOLING PERFORMANCE SHALL BE AS SPECIFIED ON THE UNIT SCHEDULE.
2. WATER COIL FINNS SHALL HAVE FULL DRAWN COLLARS TO PROVIDE A CONTINUOUS SURFACE COVER OVER THE ENTIRE TUBE FOR MAXIMUM HEAT TRANSFER. SEAMLESS COPPER TUBES SHALL BE MECHANICALLY EXPANDED INTO THE FINNS TO PROVIDE A CONTINUOUS PRIMARY-TO-SECONDARY COMPRESSION BOND OVER THE ENTIRE FINNED LENGTH FOR MAXIMUM HEAT TRANSFER RATES. BARE COPPER TUBES SHALL NOT BE VISIBLE BETWEEN FINNS. COIL CASING SHALL BE CONSTRUCTED OF GALVANIZED STEEL.
3. WATER COILS SHALL BE PROVIDED WITH HEADERS OF SEAMLESS COPPER TUBING WITH INTRODUCED TUBE HOLES TO PERMIT EXPANSION AND CONTRACTION WITHOUT CREATING UNDESIRABLE STRESS OR STRAIN. COIL CONNECTIONS SHALL BE COPPER SWEAT CONNECTIONS WITH CONNECTION SIZE TO BE DETERMINED BY MANUFACTURER BASED UPON THE MOST EFFICIENT COIL CIRCUITING. VENT AND DRAIN CONNECTIONS SHALL BE FURNISHED ON THE COIL CONNECTION EXTERNAL TO THE CABINET. VENT CONNECTIONS PROVIDED AT THE HIGHEST POINT TO ASSURE PROPER VENTING. DRAIN CONNECTIONS SHALL BE PROVIDED AT THE LOWEST POINT.
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B. FILTER MEDIA SHALL BE UL 900 LISTED, CLASS I OR CLASS II.
8. ACCEPTABLE MANUFACTURERS:
TRANE.

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B. COOLING COILS:
1. COOLING PERFORMANCE SHALL BE AS SPECIFIED ON THE UNIT SCHEDULE.
2. WATER COIL FINNS SHALL HAVE FULL DRAWN COLLARS TO PROVIDE A CONTINUOUS SURFACE COVER OVER THE ENTIRE TUBE FOR MAXIMUM HEAT TRANSFER. SEAMLESS COPPER TUBES SHALL BE MECHANICALLY EXPANDED INTO THE FINNS TO PROVIDE A CONTINUOUS PRIMARY-TO-SECONDARY COMPRESSION BOND OVER THE ENTIRE FINNED LENGTH FOR MAXIMUM HEAT TRANSFER RATES. BARE COPPER TUBES SHALL NOT BE VISIBLE BETWEEN FINNS. COIL CASING SHALL BE CONSTRUCTED OF GALVANIZED STEEL.
3. WATER COILS SHALL BE PROVIDED WITH HEADERS OF SEAMLESS COPPER TUBING WITH INTRODUCED TUBE HOLES TO PERMIT EXPANSION AND CONTRACTION WITHOUT CREATING UNDESIRABLE STRESS OR STRAIN. COIL CONNECTIONS SHALL BE COPPER SWEAT CONNECTIONS WITH CONNECTION SIZE TO BE DETERMINED BY MANUFACTURER BASED UPON THE MOST EFFICIENT COIL CIRCUITING. VENT AND DRAIN CONNECTIONS SHALL BE FURNISHED ON THE COIL CONNECTION EXTERNAL TO THE CABINET. VENT CONNECTIONS PROVIDED AT THE HIGHEST POINT TO ASSURE PROPER VENTING. DRAIN CONNECTIONS SHALL BE PROVIDED AT THE LOWEST POINT.
4. DRAIN PAN SHALL BE CONSTRUCTED FROM ANTIMICROBIAL COATED GALVANIZED STEEL, PITCHED AND SLOPED IN DIRECTION OF AIR FLOW TO DRAIN CONNECTION TO ALLOW FOR CONDENSATE DRAINAGE. DRAIN PAN SHALL BE POSITIONED ABOVE 1" THICK INSULATED DOUBLE WALL PANEL. CONDENSATE DRAIN CONNECTION SHALL BE PROVIDED.
5. COIL CASING SHALL BE CONSTRUCTED OF GALVANIZED STEEL.
C. WATER HEATING COIL
1. HEATING PERFORMANCE SHALL BE AS SPECIFIED ON THE UNIT SCHEDULE.
2. HOT WATER COIL FINNS SHALL HAVE FULL DRAWN COLLARS TO PROVIDE A CONTINUOUS SURFACE COVER OVER THE ENTIRE TUBE FOR MAXIMUM HEAT TRANSFER. SEAMLESS COPPER TUBES SHALL BE MECHANICALLY EXPANDED INTO THE FINNS TO PROVIDE A CONTINUOUS PRIMARY-TO-SECONDARY COMPRESSION BOND OVER THE ENTIRE FINNED LENGTH FOR MAXIMUM HEAT TRANSFER RATES. BARE COPPER TUBES SHALL NOT BE VISIBLE BETWEEN FINNS. WATER COILS SHALL BE PROVIDED WITH HEADERS OF SEAMLESS COPPER TUBING WITH INTRODUCED TUBE HOLES TO PERMIT EXPANSION AND CONTRACTION WITHOUT CREATING UNDES

COMcheck Software Version 4.1.5.3
Mechanical Compliance Certificate

Project Information
 Design Code: 2018 IECC
 Project Title: Sweetgreen Miami The Falls
 Location: Miami, Florida
 Climate Zone: 1A
 Project Type: Alteration

Consultation Site: Owner/Agent: Designer/Contractor:
 8880 SW 136th Street
 Miami, FL 33176

Mechanical Systems List

Quantity System Type & Description

- 1 AC20-1 (Single Zone):
 VRF Cooling Unit, Air Cooled Heat Pump
 Heating Mode Capacity: 18.00kW
 No minimum efficiency requirement applies
 Cooling Mode Capacity: 120.00kW
 No minimum efficiency requirement applies
 Fan System: None
- 1 AC-1 (Single Zone):
 Cooling 1 Inlet: VRF Zone Fan Unit Capacity = 14.00kW, No Economizer, Economizer exception: Low Capacity Residential
 No minimum efficiency requirement applies
 Fan System: AC-1 (AC20-1 - Compliance Motor Nameplate HP method) - Passes
 Fans:
 FAN-1 Supply, Single Zone VAV, 371 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- 1 AC-1 (AC-1) (Single Zone):
 Cooling 2 Inlet: VRF Zone Fan Unit Capacity = 48.00kW, No Economizer, Economizer exception: Low Capacity Residential
 No minimum efficiency requirement applies
 Fan System: AC-1 (AC20-1 - Compliance Motor Nameplate HP method) - Passes
 Fans:
 FAN-2 Supply, Single Zone VAV, 1342 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- 1 AC20-2 (Single Zone):
 VRF Cooling Unit, Air Cooled Heat Pump
 Heating Mode Capacity: 18.00kW
 No minimum efficiency requirement applies
 Cooling Mode Capacity: 120.00kW
 No minimum efficiency requirement applies
 Fan System: None
- 1 AC-4 (Single Zone):
 Cooling 1 Inlet: VRF Zone Fan Unit Capacity = 48.00kW, No Economizer, Economizer exception: Low Capacity Residential
 No minimum efficiency requirement applies
 Fan System: AC-4 (AC20-1 - Compliance Motor Nameplate HP method) - Passes
 Fans:
 FAN-3 Supply, Single Zone VAV, 1342 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
- 1 AC-4 (Single Zone):
 Cooling 1 Inlet: VRF Zone Fan Unit Capacity = 54.00kW, No Economizer, Economizer exception: Low Capacity Residential
 No minimum efficiency requirement applies
 Fan System: AC-4 (AC20-1 - Compliance Motor Nameplate HP method) - Passes
 Fans:
 FAN-4 Supply, Single Zone VAV, 1443 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

Project Title: Sweetgreen Miami The Falls Report date: 09/03/21
 Data Reference: F1222-Practiced21-07A-00-Sweetgreen-8888 SW 136th Street Miami, FL02 - Internal Project Page: 1 of 14
 Data/06-Calculations01-MechanicalMech ComCheck.cck

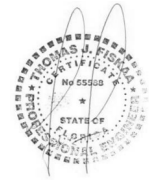
Quantity System Type & Description

Part Number: AC-1 (AC20-1 - Compliance Motor Nameplate HP method) - Passes
 Fans:
 FAN-1 Supply, Single Zone VAV, 371 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

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 2018 IECC requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the inspection checklist.

Name: Title Signature Date



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

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 PHONE: 212-279-2670
 FAX: 212-279-2671

STAMP:
Received
U.S. Construction Corp.
Barbara Garriz
11/11/21
 09.07.2021

PROJECT INFORMATION:
THE FALL / SOUTH MIAMI
 PROJECT INFORMATION:
8870 SW 136TH STREET
UNIT RR02, MIAMI FL 33176

DRAWN BY: Author
 CHECKED BY: Checker
 PROJECT MANAGER: JD
 SG DESIGN MANAGER: JM
 SG CONSTR. MANAGER: JD
 PROJECT NO: 221158
 TEMPLATE VERSION: 06.01.2020

REVISIONS
 REV. DATE DESCRIPTION
 08.09.2021 SG REVIEW
 09.07.2021 FOR PERMIT

H.V.A.C. ENERGY CODE COMPLIANCE FORMS

M-103

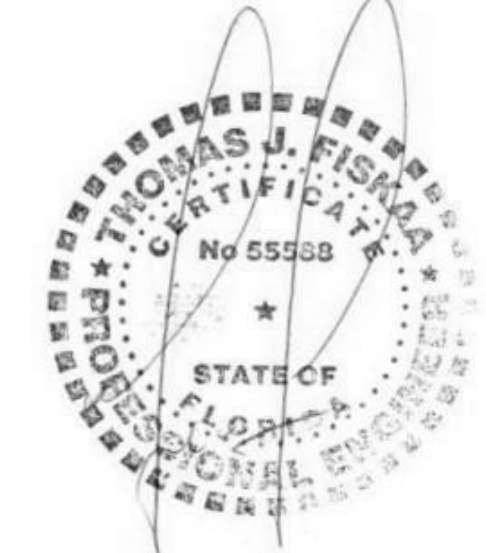


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10.27.2021

PROJECT INFORMATION:
THE FALL / SOUTH MIAMI
PROJECT INFORMATION:
**8870 SW 136TH STREET
UNIT RR02, MIAMI FL 33176**

DRAWN BY: XX
CHECKED BY: XX
PROJECT MANAGER: JD
SG DESIGN MANAGER: JM
SG CONSTR. MANAGER: JD
PROJECT NO: 221168
TEMPLATE VERSION: 06.01.2020

REVISIONS	REV.	DATE	DESCRIPTION
	1	01.21.2022	WALK-IN COOLER PERMIT
	2	02.25.2022	PERMIT REVISIONS

H.V.A.C. GROUND FLOOR PLANS

M-300

PLAN NOTES:

- CONTRACTOR SHALL VERIFY IN FIELD EXACT DUCT ROUTING LOCATION AND CONNECTIONS. CONTRACTOR SHALL COORDINATE WITH ALL TRADES BEFORE ANY WORK IS TO BE PERFORMED. REPORT ANY DISCREPANCIES TO BUILDING MANAGEMENT AND ENGINEER.
- CONTRACTOR SHALL INSTALL ALL NEW DUCT AS HIGH AS POSSIBLE TO THE CEILING. ALL NEW DUCTWORK SHALL BE PROPERLY SECURED AS PER MECHANICAL SPECIFICATIONS.
- PROVIDE VOLUME DAMPERS FOR ALL BRANCH DUCTS AND CONNECTIONS TO AIR OUTLETS. PROVIDE CABLE OPERATED, CONCEALED, OPPOSED BLADE DAMPERS FOR BRANCHES AND AIR OUTLETS LOCATED IN NON-ACCESSIBLE CEILINGS MAINTAIN AREA CEILING HEIGHTS.
- SHEET METAL DUCTWORK DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- COORDINATE LOCATIONS, ACCESS AND DETAILS OF VISIBLE DEVICES AND AIR OUTLETS WITH THE ARCHITECT PRIOR TO INSTALLATION.
- INTERNALLY LINED DUCTWORK IS REQUIRED FOR ACOUSTICAL PURPOSES. PROVIDE 1" ACOUSTICAL LINING 20 FEET UPSTREAM AND DOWNSTREAM OF FAN COIL UNITS AND FANS.
- PROVIDE CONNECTIONS TO AIR REGISTERS TO ALLOW FOR THE BRANCH VOLUME DAMPERS TO ROTATE WITHOUT OBSTRUCTION. SEE AIR OUTLET SCHEDULES FOR REGISTER NECK SIZES.
- COORDINATE EQUIPMENT & DUCTWORK HANGING WITH SEISMIC REQUIREMENTS FROM PANYNJ.
- CONTRACTOR TO FULLY WALK SITE PRIOR TO SUBMITTING FINAL BID.
- ALL TENANT HVAC SYSTEMS SHALL BE COMMISSIONED UPON COMPLETION OF CONSTRUCTION AND PRIOR TO OCCUPANCY AS PER THE REQUIREMENTS DEFINED IN THE TENANT TECHNICAL CRITERIA MANUAL.
- REFER TO TABLE CFM'S REQUIRED AT THE CONNECTION POINT FOR AIR BALANCING PURPOSES
- ANY USED HVAC EQUIPMENT, DUCTWORK, PIPING, WIRING, ETC. WITHIN OR SERVING THE DEMISED PREMISES MUST BE REMOVED.
- TENANT SHALL INSTALL AN INDICATOR PILOT LAMP 12" ABOVE THERMOSTAT FOR THE PURPOSE OF VERIFYING EXHAUST FAN OPERATION.

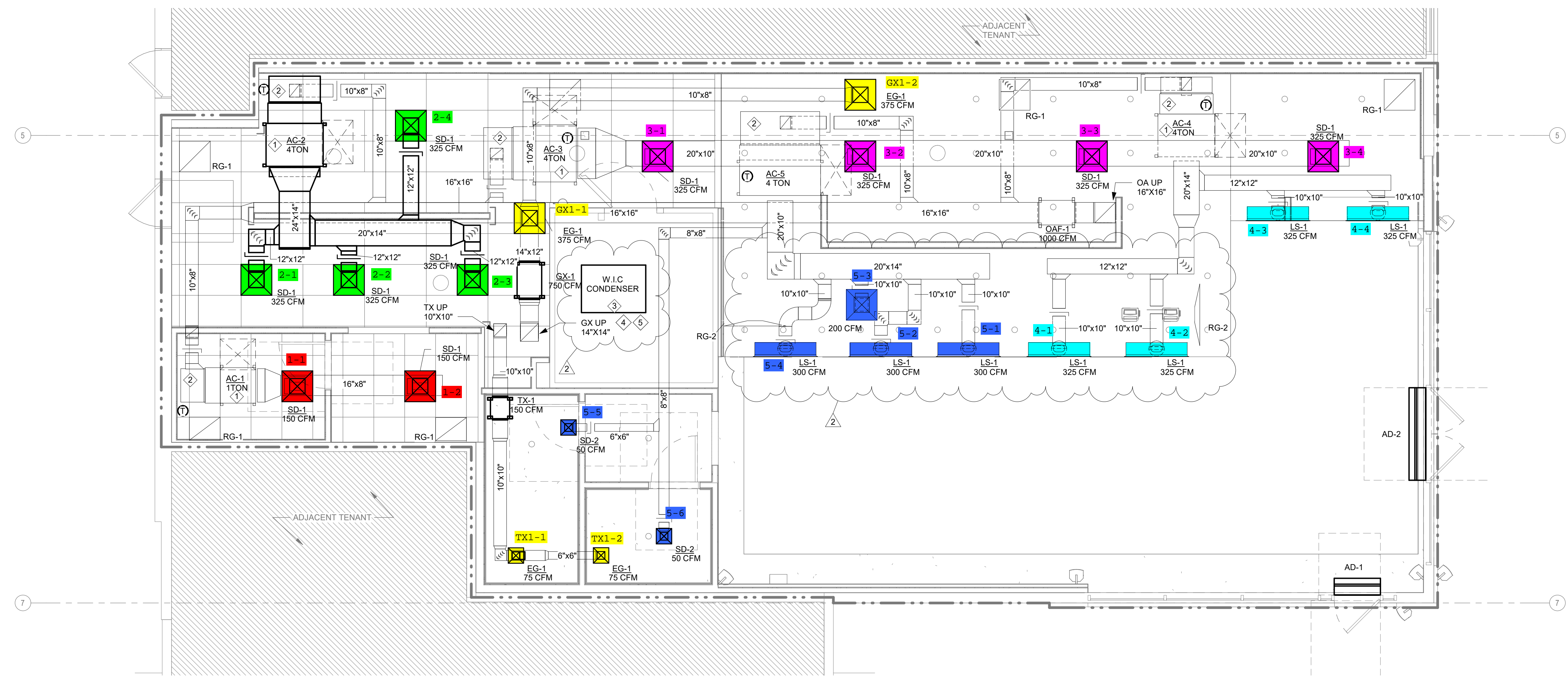
REFERENCE NOTES:

- PROVIDE CEILING HUNG AC UNIT WITH SPRING VIBRATION ISOLATORS AND SUPPLEMENTAL STEEL SUPPORT AS REQUIRED. PROVIDE UNIT WITH AUXILIARY STAINLESS STEEL DRAIN PAN, CONDENSATE PUMP, LEAK DETECTOR AND MIXING BOX. COORDINATE EXACT LOCATION WITH CLIENT AND ARCHITECT. COORDINATE STRUCTURAL SUPPORT WITH STRUCTURAL ENGINEER. PROVIDE UNIT WITH PROPER CLEARANCE FOR SERVICE AND MAINTENANCE. REFER TO SCHEDULES AND MANUFACTURER'S MANUAL FOR MORE INFORMATION.
- CONNECT OUTSIDE AIR DUCT TO MIXING BOX. PROVIDE CARBON DIOXIDE SENSOR IN RETURN DUCT.
- WALK-IN COOLER CONDENSING UNIT AND EVAPORATOR SHALL MEET THE AWEF REQUIREMENTS SET FORTH IN TABLE 410.10.2.1(3) OF FL ECC. PROVIDE SPECIFICATION SHEET
- WALK IN COOLER CONDENSER WILL BE LOCATED ON THE TOP OF WIC. PROVIDE WIC COOLER WITH CONDENSATE PUMP. ROUTE CONDENSATE PIPING TO NEAREST FLOOR DRAIN. COORDINATE WITH PLUMBING CONTRACTOR
- WALK-IN COOLER CONDENSING UNIT AND EVAPORATOR SHALL MEET THE REQUIREMENTS SET FORTH IN TABLE 403.2.14.2(3) OF FL ECC

MINIMUM DUCT INSULATION R-VALUES, HEATING AND COOLING SUPPLY AND RETURN DUCTS

LOCATION	SUPPLY DUCT	RETURN DUCT
Exterior of building	R-6	R-4.2
Ventilated Attic	R-6	R-4.2
Unvented attic above insulated ceiling	R-6	R-4.2
Unvented attic with roof insulation	R-4.2	None
Unconditioned spaces ¹	R-4.2	R-4.2
Indirectly conditioned spaces ²	None	None
Conditioned spaces	None	None
Buried	R-4.2	None

1. Includes crawl spaces, both ventilated and nonventilated.
2. Includes return air plenums with or without exposed roofs above.



1 H.V.A.C. GROUND FLOOR PLAN
1/4" = 1'-0"



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3101 W. EXPOSITION BLVD.
LOS ANGELES, CALIFORNIA 90018

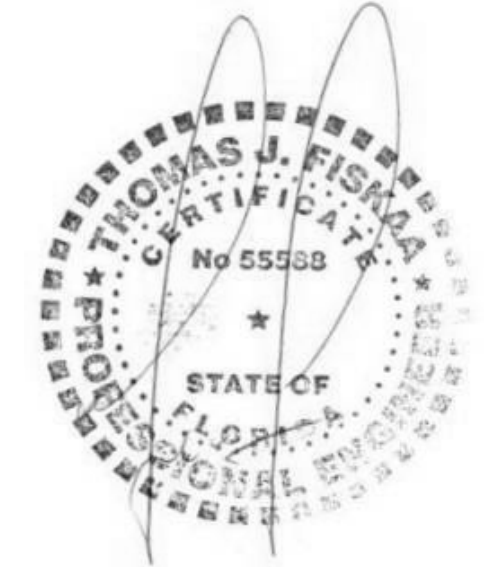
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ARCHITECT OF RECORD:

O'NEIL LANGAN
ARCHITECTS

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15TH FLOOR
NEW YORK, NY 10018
PHONE: 212-279-2670
FAX: 212-279-2671

STAMP:



10.27.2021

PROJECT INFORMATION:
THE FALL / SOUTH MIAMI
PROJECT INFORMATION:
**8870 SW 136TH STREET
UNIT RR02, MIAMI FL 33176**

DRAWN BY: XX
CHECKED BY: XX
PROJECT MANAGER: JD
SG DESIGN MANAGER: JM
SG CONSTR. MANAGER: JD
PROJECT NO: 221168
TEMPLATE VERSION: 06.01.2020

REV.	DATE	DESCRIPTION
1	08.09.2021	SG REVIEW
1	09.07.2021	FOR PERMIT
2	02.25.2022	PERMIT REVISIONS

H.V.A.C. GROUND FLOOR PIPING PLANS

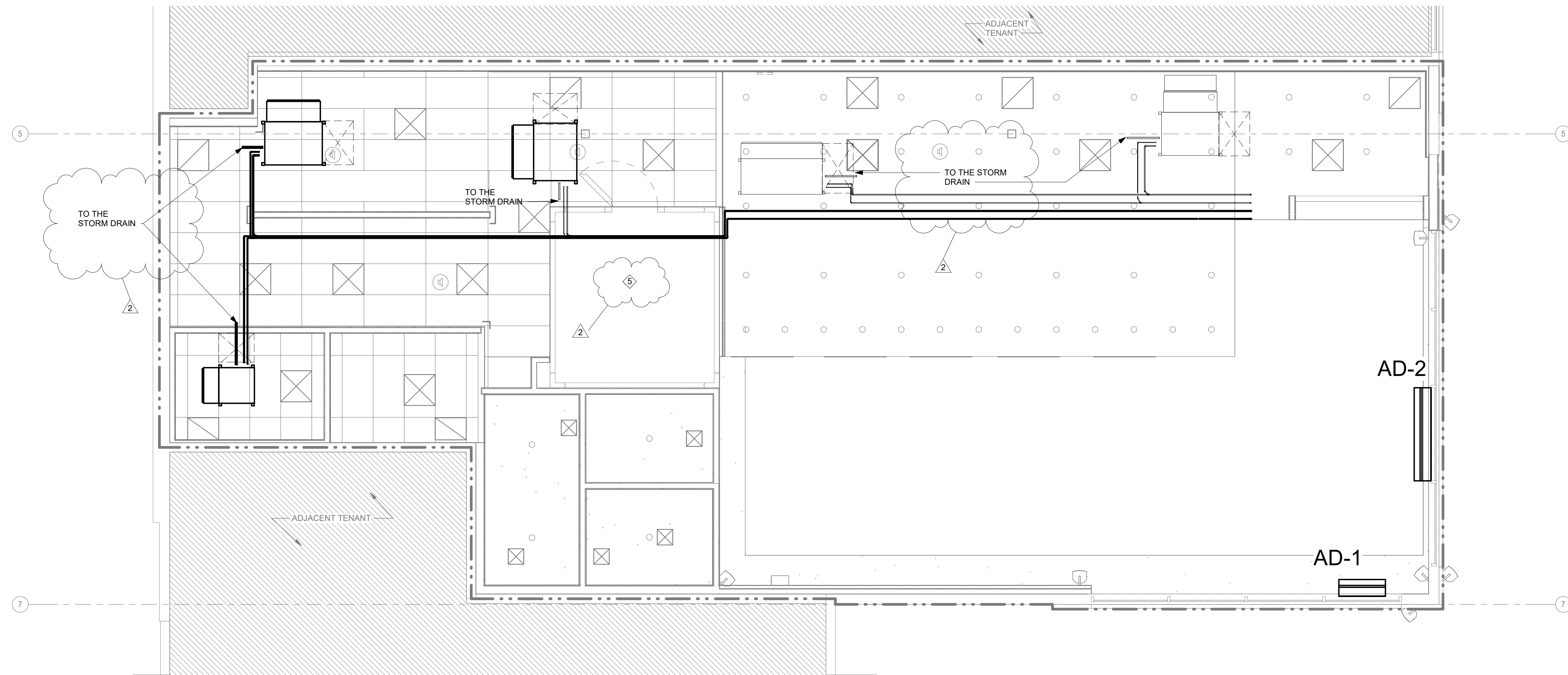
M-400

REFERENCE NOTES:

- ① CONTRACTOR SHALL COORDINATE REFRIGERANT PIPE SIZES, QUANTITIES AND ROUTING WITH UNIT MANUFACTURER.
- ② PROVIDE CEILING HUNG VRF FAN COIL WITH STAINLESS STEEL DRIP PAN WITH LEAK DETECTION SYSTEM.
- ③ PROVIDE AC-1 THROUGH AC-5 WITH 7-DAY PROGRAMMABLE THERMOSTAT.
- ④ PROVIDE EXTERIOR REFRIGERANT PIPING WITH INSULATION AND WEATHERPROOF JACKET.
- ⑤ PROVIDE CONDENSATE PUMP FOR WALK IN COOLER. ROUTE CONDENSATE PIPE TO NEAREST STORM DRAIN. VERIFY IN FIELD THE NECESSARY HEAD AND CONFIRM WITH WIC VENDOR THE CONDENSATE FLOW PRIOR TO ORDERING

PLAN NOTES:

- 1. PROVIDE AC WITH STAINLESS STEEL DRIP PAN WITH LEAK DETECTION SYSTEM. LEAK DETECTION SYSTEM SHALL BE INTEGRATED WITH BUILDINGS BMS. COORDINATE TIE-IN WITH BUILDING MANAGEMENT.
- 2. PROVIDE ACCU WITH 7-DAY PROGRAMMABLE THERMOSTAT. REFER TO SCHEDULE FOR THERMOSTAT MODEL. COORDINATE FINISH WITH ARCHITECT.
- 3. CONTRACTOR SHALL ROUTE CONDENSATE PIPING TO MOP SINK.
- 4. PROVIDE AC WITH 7-DAY PROGRAMMABLE THERMOSTAT.
- 5. PIPE DIAMETERS SHALL BE AS PER MANUFACTURER REQUIREMENTS
- 6. ANY USED HVAC EQUIPMENT, DUCTWORK, PIPING, WIRING, ETC. WITHIN OR SERVING THE DEMISED PREMISES MUST BE REMOVED.



① H.V.A.C. GROUND FLOOR PIPING PLAN
1/4" = 1'-0"

AIR-COOLED VRF HEAT PUMP UNIT SCHEDULE

EVAPORATOR DATA

DESIG.	MANUF.	MODEL #	CONDENSER	FAN		COOLING		HEATING		ELECTRICAL			WEIGHT (LBS)	REMARKS
				CFM	OA (CFM)	TOTAL (MBH)	EAT DB/WB (F)	TOTAL (MBH)	V/Hz	MCA	MFS			
AC-1	MITSUBISHI	PEFY-P12NMAU-E3	ACCU-1	371	-	12.0	80/67	13.0	208/190	1.20	15	49	⊙⊙⊙⊙⊙⊙	
AC-2	MITSUBISHI	PEFY-P48NMHU-E2	ACCU-1	1,342	-	48.0	80/67	48.0	208/190	4.16	15	153	⊙⊙⊙⊙⊙⊙	
AC-3	MITSUBISHI	PEFY-P48NMHU-E2	ACCU-1	1,342	-	48.0	80/67	48.0	208/190	4.16	15	153	⊙⊙⊙⊙⊙⊙	
AC-4	MITSUBISHI	PEFY-P48NMHU-E2	ACCU-2	1,342	-	48.0	80/67	48.0	208/190	4.16	15	153	⊙⊙⊙⊙⊙⊙	
AC-5	MITSUBISHI	PEFY-P48NMHU-E2	ACCU-2	1,412	-	54.0	80/67	60.0	208/190	4.18	15	157	⊙⊙⊙⊙⊙⊙	

CONDENSER DATA

DESIG.	MANUF.	MODEL #	LOCATION	COOLING (MBH)	HEATING (MBH)	COOLING AMBIENT	HEATING AMBIENT	ELECTRICAL			WEIGHT (LBS)	REFNG. TYPE	EER	COP	REMARKS
								V/Hz	MCA	MOP					
ACCU-1	MITSUBISHI	PUHY-P120TNU-A	ROOF	120	135	95	47	208/3/60	41.0	60	594	R-410A	12.30	3.70	⊙⊙⊙⊙⊙⊙
ACCU-2	MITSUBISHI	PUHY-P120TNU-A	ROOF	120	135	95	47	208/3/60	41.0	60	594	R-410A	12.30	3.70	⊙⊙⊙⊙⊙⊙

- NOTES:**
- MECHANICAL CONTRACTOR TO COORDINATE REFRIGERANT PIPE LAYOUT, SIZES, AND INSTALLATION WITH THE MANUFACTURER. REFRIGERANT PIPE LENGTH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATION. PROVIDE REFRIGERANT CHARGE PER MANUFACTURER REQUIREMENTS.
 - CONTRACTOR TO PROVIDE MANUFACTURERS REQUIRED PIPE FITTINGS.
 - PROVIDE DISCONNECT SWITCHES FOR ALL UNITS.
 - PROVIDE WITH WALL MOUNTED ZONE THERMOSTATS AND REMOTE SPACE TEMPERATURE SENSORS.
 - PROVIDE CONDENSER WITH STEEL FRAME STAND AND NEOPRENE PADS.
 - CONTRACTOR SHALL UTILIZE LOSSERVICE TECHNICIAN FOR STARTUP AND COMMISSIONING OF SYSTEM. COMMISSIONING REPORT SHALL BE PROVIDED TO CLIENT AND ENGINEER.
 - PROVIDE WITH CENTRALIZED CONTROLLER. LL SUPPLIED UNITS SHALL BE CONNECTED ALSO WITH THE CENTRALIZED CONTROLLER.

AIR OUTLET SCHEDULE

DESIG.	TYPE	CFM RANGE	MAX NC	NECK SIZE	FACE SIZE OR LENGTH x WIDTH	FLOW PATTERN	MANUF.	MODEL No.	REMARKS
SD-1	PERFORATED CEILING DIFFUSER	150 325	< 30	8" Ø 12" Ø	24" x 24"	SEE PLAN	TITUS	PCS	SEE NOTES BELOW
SD-2	CEILING MOUNTED SQUARE DIFFUSER	150	< 30	6" Ø	12" x 12"	SEE PLAN	TITUS	OMNI	SEE NOTES BELOW
LS-1	LINEAR PLENUM DIFFUSER	325	< 30	-	48" X 7 3/4"	SEE PLAN	TITUS	TBD	SEE NOTES BELOW
RG-1	CEILING MOUNTED RETURN GRILLE	-	< 30	-	24" X 24"	-	TITUS	PMR	SEE NOTES BELOW
EG-1	CEILING MOUNTED EXHAUST GRILLE	-	< 30	6" X 6" 12" X 12"	24" X 24"	-	TITUS	PMR	SEE NOTES BELOW
RG-2	RETURN GRILLE	-	< 30	-	24" X 24"	-	TITUS	25-RFL	SEE NOTES BELOW

- NOTES:**
- COORDINATE AIR OUTLET BORDER TYPES, FRAMING, AND FINISHES WITH THE ARCHITECT.
 - PROVIDE ALL AIR OUTLETS WITH VOLUME DAMPERS.
 - PROVIDE CABLE OPERATED DAMPERS YOUNG REGULATOR MODEL 800AW FOR AIR OUTLETS IN SHEETROCK OR INACCESSIBLE CEILINGS.
 - PROVIDE EXHAUST GRILLES WITH BACKDRAFT DAMPERS.

OUTDOOR AIR CALCULATIONS

ROOM DESIGNATION	CLASSIFICATION	AREA (SF)	NR. OF FIXTURES	DEFAULT OCCUPANCY (PP/L1000 SF)	OCCUPANCY BY AREA	AIR RATE			VENTILATION REQUIRED		VENTILATION REQUIRED CFM	VENTILATION PROVIDED CFM	
						CFM/SF	CFM/PERSON	CFM/FIXTURE	OCCUPANCY	AREA	FIXTURES	-726.6E, 282.5 IN	-750E, 282.5 IN
BOH KITCHEN, PREP, WORK AREA	RESTAURANT - KITCHEN	1,038	-	20	21	-	0.7E, 0.12 IN	7.5	-	158	-726.6E, 125 IN	-	-750E, 282.5 IN
SERVE LINE	RETAIL STORES - SALES	251	-	5	2	0.18	7.5	15	45.2	60.18	90		
DINING	RETAIL STORES - SALES	805	-	70	57	0.18	7.5	-	422.6	144.9	-	567.5	
RESTROOMS	RETSROOMS	172	4	-	-	-	-	-	-	-	-	-	
OFFICE	OFFICE SPACES	133	-	5	1	0.06	5	-	5	3	-	8	

NOTES:
BASED ON TABLE 403.3 - MINIMUM VENTILATION RATES OF FL MECHANICAL CODE

FAN SCHEDULE

DESIG.	C.F.M.	S.P. (N. WG)	FAN SPEED (RPM)	MOTOR POWER(H P)	ELECTRICAL		SONES	WEIGHT (LBS.)	MANUF.	MODEL No.	REMARKS
					V/Hz	FLA					
TX-1	150	0.517	1200	0.18	115/180	1.9	10.1	64	CAPTVAIRE	SF10-DD	⊙⊙⊙⊙
OAF-1	1000	1.040	1704	1/2	115/180	8.9	10.1	131	CAPTVAIRE	SF11-DD	⊙⊙⊙⊙
QX-1	750	0.891	1485	1/2	115/180	8.4	10.1	137	CAPTVAIRE	SF11-DD	⊙⊙⊙⊙

- NOTES:**
- PROVIDE WITH DISCONNECT SWITCH.
 - COORDINATE INSTALLATION WITH FIELD CONDITIONS.
 - PROVIDE WITH VIBRATION ISOLATORS.
 - PROVIDE WITH BACKDRAFT DAMPER

AIR DOOR SCHEDULE

DESIG.	LOCATION	FAN		HP	AT (F)	ELECTRICAL MOTORS & UNIT			WEIGHT (LBS)	MANUF. MODEL NO.	REMARKS
		AIR VOLUME CFM	MAX CFM @ NOZZLE			V/PHZ	MCA	MOP			
AD-1	ENTRANCE	1,036	3,600	1@1/2	-	208/3/60	1.7	15	43	BERNER AE10-1003A	SEE NOTES BELOW
AD-2	ENTRANCE	2,072	3,600	2@1/2	-	208/3/60	1.7	15	64	BERNER AE10-E-2072A	SEE NOTES BELOW

- NOTES:**
- PROVIDE WITH DOOR SWITCH.
 - PROVIDE WITH HANGING BRACKETS.

AIR BALANCE SCHEDULE

UNIT	SERVED	HVAC SUPPLY		HVAC RETURN		HVAC OUTDOOR		OA %	HOOD MAKE-UP		HOOD EXHAUST		GENERAL EXH.	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
AC-1	BOH	371		361		10		2						
AC-2	BOH	1342		1197		145		10						
AC-3	BOH	1342		1197		145		10						
AC-4	DINING	1342		922		350		25						
AC-5	DINING	1412		1062		350		25						
OAF-1	AC 1-5					1000		100						750
EX-1	BOH													150
TX-1	REST RM													
TOTALS														

Air System Sizing Summary for BLOCK LOAD

Air System Information		BLOCK LOAD		Number of zones	
Design Name	15857	Block Load	15857	Number of zones	14.0 E
Location	MIAMI	Design Name	15857	Block Load	15857
System Type	SEAV	Location	MIAMI	System Type	SEAV

Air System Design Load Summary for BLOCK LOAD

ZONE LOADS	DESIGN COOLING		DESIGN HEATING		SCHEDULE
	COOLING (BTU/hr)	HEATING (BTU/hr)	COOLING (BTU/hr)	HEATING (BTU/hr)	
Zone 1	1000	500	1000	500	1
Zone 2	2000	1000	2000	1000	2
Zone 3	3000	1500	3000	1500	3
Zone 4	4000	2000	4000	2000	4
Zone 5	5000	2500	5000	2500	5
Zone 6	6000	3000	6000	3000	6
Zone 7	7000	3500	7000	3500	7
Zone 8	8000	4000	8000	4000	8
Zone 9	9000	4500	9000	4500	9
Zone 10	10000	5000	10000	5000	10



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STAMP:
Received
U.S. Construction Corp.
Barbara Gariz
11/11/21

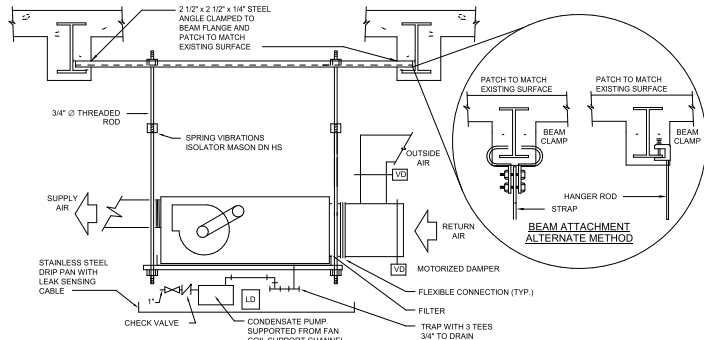
PROJECT INFORMATION:
THE FALL / SOUTH MIAMI
8870 SW 136TH STREET
UNIT RR02, MIAMI FL 33176

DRAWN BY: XX
CHECKED BY: XX
PROJECT MANAGER: JD
SG DESIGN MANAGER: JM
SG CONSTR. MANAGER: JD
PROJECT NO: 212168
TEMPLATE VERSION: 06.01.2020

REVISIONS: XX
REV. DATE DESCRIPTION
08.09.2021 SG REVIEW
09.07.2021 FOR PERMIT

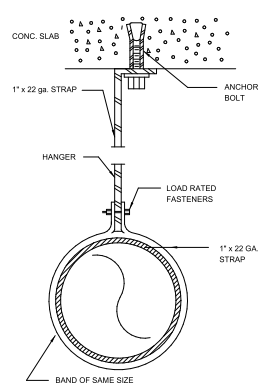
H.V.A.C. SCHEDULES

M-600



**AIR HANDLING UNIT
HANGING DETAIL**

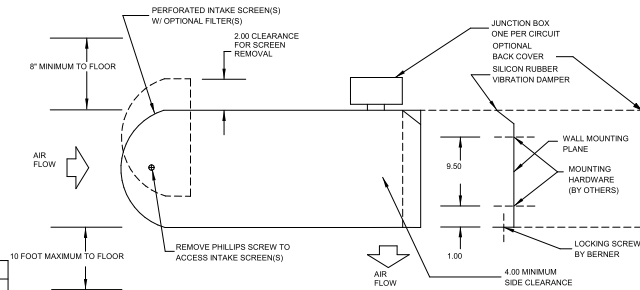
SCALE: NONE



**TYPICAL ROUND
DUCT HANGER**

SCALE: NONE REFERENCE # M100.057

MINIMUM HANGER SIZES TABLE		
DIA	MAXIMUM SPACING	STRAP
10\"/>		

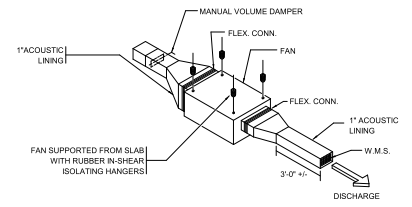


NOTES:

- AIR CURTAIN MUST BE INSTALLED SO AIR STREAM IS NOT OBSTRUCTED WHEN DEFLECTED 20 DEGREES TO EITHER SIDE OF CL.
- ELECTRICAL CONNECTIONS TO BE FLEXIBLE.
- FIELD VERIFY DIMENSIONS.
- ANCHORS TO SUPPORTING STRUCTURE BY OTHERS.
- ADEQUACY OF SUPPORTING STRUCTURE IS TO BE VERIFIED BY A PROFESSIONAL ENGINEER.
- DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.

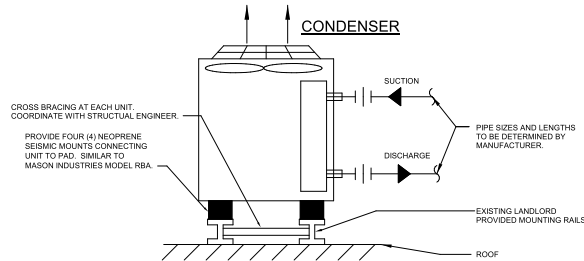
AIR DOOR DETAIL

SCALE: NONE



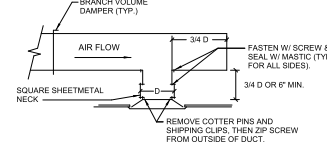
**INLINE FAN HANGING
SUPPORT DETAIL**

SCALE: NONE REFERENCE # M400.013



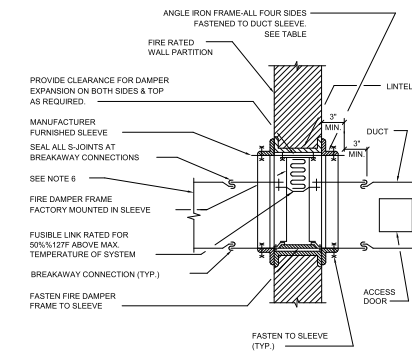
ROOFTOP AIR-COOLED CONDENSER

SCALE: NONE



TYPICAL DIFFUSER INSTALLATION

SCALE: NONE



FIRE DAMPER DETAIL

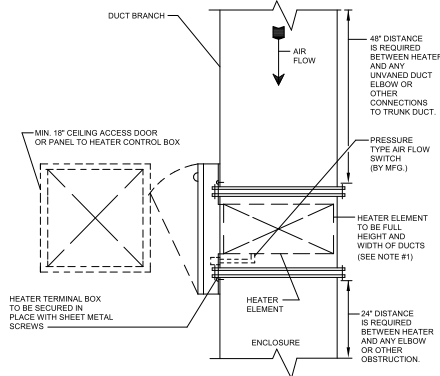
SCALE: NONE

ANGLE IRON TABLE	
WALL OPENING	ANGLE SIZE
UP TO 54"	1 1/2" x 1 1/2" x 18"
55" TO 64"	3" x 2" x 3/16"
65" TO 120"	3" x 2" x 3/16"

NOTE: RETAINING ANGLES MUST LAP STRUCTURAL OPENING 1" MIN. AND COVER CORNERS OF OPENINGS

GENERAL NOTES:

- FIRE DAMPER TO BE U.L. LABELED N.F.P.A. 80 A, N.F.P.A. APPROVED INSTALLATION.
- DETAILS TO BE PART OF SUBMISSION OF FIRE DAMPER FOR APPROVAL, WHICH SHALL MEET N.F.P.A. STANDARD 80 A. DETAILS SHOWN ARE FOR FIRE DAMPERS IN HORIZONTAL DUCT-WORK FOR FIRE DAMPERS IN VERTICAL DUCT-WORK DETAILS SIMILAR EXCEPT DAMPERS SHALL BE SPRING LOADED.
- ACCESS DOOR IS SHOWN IN SIDE OF DUCT. IF FUSIBLE LINK IS MORE ACCESSIBLE FROM BOTTOM OF DUCT RELOCATE ACCESS DOOR.
- U.L. APPROVED BREAKWAY SLIP JOINT CONNECTION SHALL BE USED.
- FIRE DAMPER FOR DUCT HEIGHT LARGER THAN 24 IN. CAN BE IN AIR STREAM.
- THE DETAIL IS FOR GUIDE ONLY. INSTALL FIRE DAMPER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.



NOTES:

- WHERE NECESSARY TO INSTALL HEATER LARGER OR SMALLER THAN DUCT, PROVIDE UP STREAM TRANSITION WITH MINIMUM 2% SLOPE. PROVIDE DOWN STREAM TRANSITION WITH MINIMUM 30% SLOPE.
- INSTALL AS PER MFG. REQUIREMENTS TO AVOID STRATIFICATION OR INADEQUATE AIR FLOW.

**ELECTRIC DUCT HEATER DETAIL
(FLANGED TYPE)**

SCALE: NONE



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Barbara Garriz
11/11/21**

09.07.2021



PROJECT INFORMATION:
THE FALL / SOUTH MIAMI

PROJECT INFORMATION:
**8870 SW 136TH STREET
UNIT RR02, MIAMI FL 33176**

DRAWN BY: Author
CHECKED BY: JDC Checker
PROJECT MANAGER: JD
SG DESIGN MANAGER: JM
SG CONSTR. MANAGER: JD
PROJECT NO: 221168
TEMPLATE VERSION: 06.01.2020

REVISIONS
REV. DATE DESCRIPTION
08.09.2021 SG REVIEW
09.07.2021 FOR PERMIT

**H.V.A.C. DETAILS
SHEET 2 OF 2**

M-701