DIVISION - 15 MECHANICAL SPECIFICATIONS

GENERAL

A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, ALONG WITH ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL FORM A PART OF THIS SECTION OF THE SPECIFICATIONS.

B. REFERENCE IS MADE TO REQUISITES FOR BIDDERS AND CONTRACTORS UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, WHICH SHALL BE CONSIDERED BINDING, UNLESS OTHERWISE NOTED UNDER THIS SECTION.

SCOPE

EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE CONSTRUCTION DETAILS, BOTH AS ON TENANT CONSTRUCTION DRAWINGS AND LANDLORD'S AS REFERRED TO, BEFORE SUBMITTING HIS BID AS NO ALLOWANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH THESE DETAILS. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION.

INSPECTION OF SITE

ALL PROPOSALS SHALL PRECLUDE THAT CONTRACTOR IS FAMILIAR WITH JOB SITE CONDITIONS AND UTILITY LOCATIONS AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

PERMITS

ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR INVOLVED.

CODE REQUIREMENTS

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS OR AS DIRECTED BY THE OWNER, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, WHETHER SO SHOWN OR NOT, AND ALL MODIFICATIONS REQUIRED BY SUCH AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.

MATERIALS AND WORKMANSHIP

A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURERS, AND UNLESS OTHERWISE SPECIFIED SHALL BE NEW, AND FREE FROM ANY DEFECTS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY UNLESS OTHERWISE SPECIFIED.

B. ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, AND ON COMPLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND ALL DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES, DO NOT JUST ABANDON.

CODES AND REGULATIONS

EACH SUBCONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN OR SPECIFIED. IF A SUBCONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT A VARIANCE, HE SHALL PROMPTLY NOTIFY THE GENERAL CONTRACTOR AND THE TENANT IN WRITING. IF ANY SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO LAWS, ORDINANCES, RULES AND REGULATIONS AND WITHOUT GIVING SUCH NOTICE, THE SUBCONTRACTOR SHALL BEAR ALL COSTS ARISING THEREFROM.

PROTECTION OF WORK AND PROPERTY

A. EACH SUBCONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL HIS WORK FROM DAMAGE AND SHALL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS ARISING FROM HIS WORK. HE SHALL MAKE GOOD ANY SUCH DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO CAUSES BEYOND HIS CONTROL AND NOT TO HIS FAULT OR NEGLIGENCE. HE SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS WELL.

B. EACH SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THEIR EMPLOYEES ON THE WORK AND SHALL COMPLY WITH ALL PROVISIONS OF FEDERAL, STATE AND LOCAL BUILDING CODES AND SAFETY LAWS TO PREVENT ACCIDENTS OR INJURY TO PERSONS ON OR ADJACENT TO THE PREMISES WHERE THE WORK IS BEING PERFORMED. EACH SUBCONTRACTOR SHALL MAINTAIN ALL INSURANCE REQUIRED TO PROTECT HIMSELF, OWNER AND TENANT FOR THE DURATION OF THE WORK AGAINST PROPERTY DAMAGE AND PUBLIC LIABILITY.

CHANGES IN THE WORK

THE TENANT, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK, THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY.

COOPERATION

ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CONJUNCTION WITH OTHER CONTRACTORS AND TRADES OF THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH CONTRACTOR AND TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS CONTRACTS. REFERENCE SHALL BE MADE TO THE OWNER FOR INSTRUCTIONS SHOULD ANY QUESTIONS ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES, OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

SUBSTITUTION OF MATERIALS

MANUFACTURER'S NAMES ARE LISTED HEREIN TO ESTABLISH A STANDARD. THE PRODUCTS OF OTHER MANUFACTURERS WILL BE ACCEPTABLE, IF IN THE OPINION OF THE TENANT, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY, THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED. CONTRACTOR ASSUMES ALL RESPONSIBILIES AND COST IMPACTS OF SUBSTITUTIONS.

SHOP DRAWINGS

SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS, AND SUCH OTHER ILLUSTRATIVE MATERIAL AS MAY BE CONSIDERED NECESSARY BY THE TENANT, SHALL BE SUBMITTED BY THIS CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.

DRAWINGS AND SPECIFICATIONS

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES, AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR IN ITEMS SHOWN ON CONTRACT DRAWINGS, THE SHOP DRAWINGS, DESCRIPTIONS, AND THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

RESPONSIBILITY

A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED IN HIS CONTRACT. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PROVIDE ALL INCIDENTAL ITEMS REQUIRED AS PART OF HIS WORK, REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.

B. CONTRACTOR SHALL SUPPLY TO LANDLORD AND TENANT A CERTIFIED BALANCE REPORT AT COMPLETION OF PROJECT. THIS IS REQUIRED FOR BOTH REMODELED AND NEW STORES.

HEATING, VENTILATING AND AIR CONDITIONING

GENERAL

A. THE WORK COVERED BY THIS SECTION OF THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE RESPECTIVE DRAWINGS, INFORMATION, OR INSTRUCTIONS TO BIDDERS, AND THE GENERAL CONDITIONS, ADDENDA, OR DIRECTIVES WHICH MAY BE ISSUED BY THE OWNER, HEREWITH, OR OTHERWISE, SHALL BE COMPLIED WITH IN EVERY RESPECT.

B. THE LISTING HEREIN OF AN ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL EACH ITEM LISTED, UNLESS SPECIFICALLY NOTED TO THE CONTRARY. THE CONTRACTOR SHALL PERFORM EACH OPERATION PRESCRIBED OR LISTED ACCORDING TO THE CONDITIONS STATED.

EXAMINATION OF SITE

ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE SITE AND ALL CONDITIONS THEREON AND/OR THEREIN. ALL PROPOSALS SHALL TAKE INTO CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS CONTRACT.

SCOPE

FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE FULLY OPERATIVE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM EXCEPT AS SPECIFICALLY EXCLUDED BY THE DRAWINGS, AND/OR TENANT'S DIRECTIONS.

EQUIPMENT

A. 1. ROOFTOP UNITS: FURNISH HEATING AND AIR CONDITIONING AS SCHEDULED. UNIT TO BE COMBINED PACKAGED SYSTEM, ALL SEASON EQUIPMENT, CONSISTING OF GAS HEATING SECTION, BLOWER, DX COIL, COMPRESSOR(S), AND AIR COOLED CONDENSING SECTION. UNIT SHALL BE DESIGNED FOR DOWN FLOW ARRANGEMENT WITH ALL DUCT PENETRATIONS WITHIN FACTORY ROOF CURB.

2. FEATURES: UNITS TO BE WOUND FOR VOLTAGE AND PHASE AS SCHEDULED. HEAVY GAUGE ALUMINIZED STEEL, STAINLESS STEEL OR COATED HEAT EXCHANGER WILL BE ACCEPTABLE. UNIT MUST BE A.G.A. APPROVED FOR OUTDOOR APPLICATION. DIRECT EXPANSION COIL WITH FACTORY INSTALLED EXPANSION VALVE – BLOWER SHALL BE OF THE CENTRIFUGAL BELT DRIVEN OR MULTI-SPEED DIRECT DRIVE TYPE WITH FORWARD CURVED BLADES – BLOWER AND MOTOR ISOLATED FOR QUIET OPERATION – BUILT IN MOTOR STARTER WITH OVER VOLTAGE PROTECTION. HERMETICALLY SEALED COMPRESSOR WITH INHERENT OVERLOAD PROTECTION THERMOSTAT – NON-PRORATED 5-YEAR WARRANTY ON COMPRESSOR AND 10-YEAR WARRANTY ON HEAT EXCHANGER – CONDENSER COIL CONSTRUCTED OF COPPER TUBING WITH ALUMINUM FINS – CRANKCASE HEATERS – BUILT IN MOTOR STARTERS ELECTRIC IGNITION – HIGH, LOW PRESSURE CUTOUT ON COMPRESSOR – SHUTOFF VALVES ON LIQUID AND SUCTION LINES – SHORT CYCLE TIMER PROTECTION – FILTER – DRYER – VIBRATION ISOLATION. UNIT FACTORY CHARGED.

3. ACCESSORIES: SUPPLY AND RETURN FILTER CASING ASSEMBLY, TWO COMPLETE SETS OF THROWAWAY TYPE FILTERS. FILTERS SHALL BE 2" THICK. ONE SET TO BE REMOVED AND REPLACED JUST PRIOR TO TEST & BALANCE – FULL ECONOMIZER PACKAGE WITH LOW LEAKAGE FRESH AIR STANDARD RETURN AIR DAMPERS AND DAMPER MOTOR, – MINIMUM POSITION SETTING – PROVIDE MANUFACTURER'S INTERFACE AS REQUIRED FOR OPERATION WITH THERMOSTAT AS SPECIFIED. PROVIDE MOUNTING CURB APPROVED BY NATIONAL ROOF CONTRACTORS ASSOCIATION TO SUPPORT THE ENTIRE ASSEMBLY WITH NAILER STRIP AND AIR TIGHT GASKET.

E. ALL HVAC UNITS WILL BE EQUIPPED WITH PROGRAMMABLE THERMOSTAT.
DESIGN AND STANDARD CONDITIONS FOR THERMOSTAT OPERATION WILL BE AS FOLLOWS:

COOLING: 75°F MAXIMUM OCCUPIED COOLING TEMPERATURE
85°F COOLING NIGHT SETBACK.

HEATING: 70°F MAXIMUM OCCUPIED HEATING TEMPERATURE
60°F HEATING NIGHT SETBACK.

FAN: CONTINUOUS IN OCCUPIED AND RECOVERY MODE AND WITH HEATING OR COOLING EQUIPMENT IN UNOCCUPIED MODE.

DEADBAND: CAPABLE OF MAINTAINING A 5°F DEADBAND.

CLOCK: 7 DAY CAPABLE OF 7 DIFFERENT DAY SCHEDULES.

OVERNIGHT: HAVE A 2 HOUR OVERRIDE ACCESSIBLE TO MANAGER.

BACKUP: CAPABLE OF MAINTAINING PROGRAMMED SETTING FOR AT LEAST 10 HOURS WITHOUT POWER.

F. THE HVAC SUBCONTRACTOR SHALL IDENTIFY ALL ROOF MOUNTED HVAC EQUIPMENT AND APPARATUS WITH 2" HIGH PAINTED STENCILED STORE NAME ON ALL SIDES OF EQUIPMENT.

DUCTWORK

A. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED OF NEW GALVANIZED PRIME GRADE SHEET STEEL OF THE FOLLOWING GAUGES:

DUCT SIZE	GAUGE
12" AND LESS	NO. 26 U.S. GAUGE
13" TO 30"	NO. 24 U.S. GAUGE
31" TO 54"	NO. 22 U.S. GAUGE
55" TO 84"	NO. 20 U.S. GAUGE
85" AND OVER	NO. 18 U.S. GAUGE

B. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED AS FOLLOWS:

SIZE	METHOD
17" AND LESS	"S" AND DRIVE CLEATS
18" TO 30"	"L" STANDING SEAMS ON 3'-0" CENTERS
31" TO 54"	1-1/4" STANDING SEAMS ON 3'-0" CENTERS

ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL BE SINGLE WALL, FACTORY-BUILT, GREASE DUCT FOR USE WITH TYPE I HOODS, WHICH CONFORMS TO NFPA-96. SEE ADDITIONAL SPECIFICATIONS ON SHEET MH1-01 OF HOOD DRAWINGS.

1. THE KITCHEN HOOD EXHAUST DUCTWORK SHALL BE ENCLOSED IN A RATED ENCLOSURE PER CODE, TWO (2) LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR.

2. THE CONTRACTOR SHALL INCLUDE IN HIS PRICE:
-ALL NECESSARY TRANSITION AND CONNECTION FITTINGS TO THE HOOD AND EXHAUST FANS.
- ALL CLEAN-OUT ACCESS PANELS AS REQUIRED BY CODE.
- ALL ELBOW AND TRANSITION FITTINGS.
- ALL HANGERS AND SUPPORTS.
-SHOP DRAWINGS SHOWING PROPOSED FABRICATION AND INSTALLATION COORDINATED WITH EXISTING FIELD CONDITIONS AND OTHER TRADES.

ROUND SPIRAL DUCTWORK SHALL BE LINX FACTORY PAINTED SPIRAL DUCTWORK AND FITTINGS OR APPROVED EQUAL. INSTALLED AND SUSPENDED AS PER MANUFACTURER'S RECOMMENDATIONS. GAUGES FOR SHOP FABRICATED DUCTS SHALL BE AS FOLLOWS:

UP TO 12" IN DIAMETER	NO. 26 GAUGE
13" TO 30"	NO. 24 GAUGE
31" TO 42"	NO. 22 GAUGE
43" TO 60"	NO. 20 GAUGE

ELBOWS SHALL HAVE A CENTERLINE RADIUS OF 1-1/2 TIMES DUCT DIAMETER AND MAY BE SMOOTH ELBOWS OR 5 PIECE 90 DEGREE ELBOWS AND 3 PIECE 45 DEGREE ELBOWS. JOINTS OF ROUND DUCTS SHALL BE SLIP TYPE WITH A MINIMUM OF 3 SHEET METAL SCREWS.

1. NOT USED.

2. ALL LOW PRESSURE DUCTWORK SHALL BE EXTERNALLY SEALED USING UNITED SHEET METAL, MMM EC-800, OR HARDCAST DUCT SEALER INSTALLED IN THE JOINTS PRIOR TO CLOSURE. ADDITIONALLY SEAL ALL EXTERNAL TRANSVERSE JOINTS AND FITTING CONNECTIONS EXTERNALLY.

C. ALL SUPPLY AIR DUCTS (HEATING AND COOLING) AND RETURN AIR DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED STEEL WITH MIN. 1-1/2" (R-6) THICK EXTERNAL THERMAL INSULATION EXCEPT DUCT LINED FOR ACOUSTICAL PURPOSES. CONTINUE INSULATION TO TOP OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. ALL EXHAUST AND RELIEF AIR DUCTS SHALL BE GALVANIZED STEEL. ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL HAVE FIRE BARRIER DUCT WRAP. DUCT WRAP SHALL BE TESTED IN ACCORDANCE WITH ASTM E 2336. 2 LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR TO BE USED.

D. CONTRACTOR WILL INSTALL INSECT SCREENS ON ALL DUCT OPENINGS WHICH LEAD TO OR ARE OUTDOORS. INSECT SCREENS SHALL BE 10 GAUGE, ONE-HALF INCH (1/2") MESH IN REMOVABLE GALVANIZED STEEL FRAMES.

E. ALL DUCTWORK SHALL BE DESIGNED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS GUIDE (ASHRAE) AND FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST METHODS RECOMMENDED IN THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) LOW VELOCITY DUCT MANUAL, LATEST EDITION.

F. NOT USED.

HANGERS AND SUPPORTS

A. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND LESS SHALL BE SUPPORTED BY MEANS OF BAND IRON HANGERS OF NO. 18 U.S. GAUGE ATTACHED TO THE DUCT BY MEANS OF RIVETS, SCREWS, OR CLAMPS, AND FASTENED TO STRUCTURE ABOVE BY TOGGLE BOLTS OR OTHER MEANS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS. VERTICAL DUCTS SHALL BE SUPPORTED WITH 1-1/4" x 1-1/4" x 1-1/4" ANGLES WHERE THEY PASS THROUGH THE FLOOR LINES.

B. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND MORE SHALL BE SUPPORTED BY MEANS OF ANGLE IRON TRAPEZE HANGERS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS.

FLASHING

A. CONTRACTOR WILL PROVIDE WATER TIGHT 24 GA. SHEET METAL FLASHINGS AT ALL EXTERIOR WALLS AND ROOF PENETRATIONS.

B. ALL CUTTING OF ROOF OPENINGS, SUPPORTS FOR ROOF OPENINGS, PITCH PANS, ROOF CURBS, FLASHINGS, COUNTER FLASHINGS, REPAIR TO ROOF, ETC. ASSOCIATED WITH HVAC SUBCONTRACTOR SHALL BE THE RESPONSIBILITY AND PART OF THE CONTRACT HVAC SUB-CONTRACTOR. HE SHALL EMPLOY THE LANDLORD'S ROOFERS FOR THIS WORK SO AS TO MAINTAIN THE ROOF BOND.

DAMPERS

A. SPLITTER DAMPERS SHALL BE FABRICATED OF SHEET STEEL NOT LESS THAN NO. 16 U.S. GAUGE WITH THE LEADING EDGE HEMMED. EACH DAMPER SHALL BE LARGE ENOUGH TO COVER THE SMALLER OF THE TWO OPENINGS IT CONTROLS. DAMPERS SHALL BE CONTROLLED AS FOLLOWS:

EXPOSED OR ACCESSIBLE DUCTWORK – LOCKING QUADRANTS EQUAL TO YOUNG REGULATOR NO. 1 WITH DAMPER ROD END BEARINGS ON OPPOSITE END.

CONCEALED DUCTWORK – LOCKING QUADRANT EQUAL TO YOUNG REGULATOR NO. 315 (CHROMIUM PLATED WITH DAMPER ROD END BEARINGS ON BOTH ENDS).

B. VOLUME DAMPERS SHALL BE OF THE OPPOSED INTERLOCKING TYPE AS MANUFACTURED BY AMERICAN FOUNDRY AND FURNACES CO. (AFFCO) OR EQUAL. BLADES SHALL BE OF NO. 16 GAUGE SHEET METAL AND SHALL NOT EXCEED 48" IN LENGTH OR 12" IN WIDTH. BLADES SHALL BE ON ONE-HALF INCH (1/2") DIAMETER RUSTPROOF AXLE. BEARINGS SHALL BE OF THE SELF-LUBRICATING FERRULE TYPE.

C. FIRE DAMPERS SHALL BE SUPPLIED AND INSTALLED BY HVAC CONTRACTOR AT DUCT PENETRATIONS IN FIRE RATED WALLS, CEILINGS, AND ROOFS AS REQUIRED. COORDINATE WITH LANDLORD, LOCAL FIRE MARSHALL AND ALL CODES AND GOVERNING AUTHORITIES HAVING JURISDICTION.

D. JOB FABRICATED TURNING VANES SHALL BE ACCEPTABLE IN SQUARE ELBOWS. PROVIDE AND INSTALL BARBER-COLEMAN AIR TURNS OR EQUAL. TURNING VANES SHALL BE OF THE SAME GAUGE METAL AS THE DUCT IN WHICH THEY ARE INSTALLED. RADIUS ELBOWS SHALL HAVE A CENTER-LINE RADIUS OF ONE AND ONE-HALF (1-1/2) TIMES THE DUCT WIDTH.

DUCTWORK - EXCEPTIONS

DUCTWORK FOR EXHAUSTING AIR OR OUTSIDE SUPPLY AIR SHALL BE ALL METAL AND CONSTRUCTED ACCORDING TO RECOMMENDED PRACTICES AS FOUND IN THE LATEST ISSUE OF ASHRAE.

SUPPORT OF DUCT SYSTEM

HANGER DESIGN SHALL BE AS DESCRIBED IN THE LATEST EDITION OF THE "SMACNA" MANUAL. REINFORCEMENT MEMBERS MAY BE USED TO SUPPORT DUCT SYSTEM PROVIDED DETAILS OUTLINED IN THE AFOREMENTIONED MANUAL ARE ADHERED TO.
DUCTS SHALL BE SUPPORTED AT ALL TURNS AND TRANSITIONS AND NOT MORE THAN 8'-0" O.C. STRAIGHT DUCTS UP TO 59" MAX. DIMENSIONS SHALL BE SUPPORTED 6'-0" O.C. DUCTS OVER 60" MAX. DIMENSIONS SHALL BE SUPPORTED AT 4'-0" O.C.

REINFORCEMENT

ALL DUCTS REQUIRING REINFORCEMENT SHALL BE REINFORCED ACCORDING TO THE LATEST EDITION OF "SMACNA" MANUAL.

MATERIALS FOR REINFORCEMENT MEMBERS SHALL BE GALVANIZED STEEL. ALL SCREWS AND WASHERS SHALL BE PLATED OR GALVANIZED.

ACCESSORY ITEMS

ALL MANUAL DAMPERS, FIRE DAMPERS, TURNING VANES, REGISTER CONNECTIONS, ACCESS DOORS OR OTHER ASSOCIATED ACCESSORIES SHALL BE INSTALLED ACCORDING TO THE LATEST PUBLICATION OF "SMACNA" MANUAL.

TESTING AND ADJUSTING

CONTRACTOR WILL DEMONSTRATE OPERATION OF SYSTEM TO FULL SATISFACTION OF TENANT, WILL BALANCE AIR FLOW IN ACCORDANCE WITH AIR QUANTITIES ON DRAWINGS AND WILL RECORD VOLUME READINGS IN ACCORDANCE WITH ASHRAE AND PROVIDE SAME TO TENANT. ALL PIPING SHALL WITHSTAND AIR PRESSURE TESTING PER GOVERNING PLUMBING CODE.

A. AIR DISTRIBUTION SYSTEMS:
1. INSPECT INSTALLATION AND VERIFY CONFORMITY TO DESIGN. VERIFY THAT SUPPLY, RETURN, AND EXHAUST DUCTS HAVE BEEN PRESSURE-TESTED FOR LEAKAGE AS RECOMMENDED IN THE APPROPRIATE SMACNA STANDARDS.
2. VERIFY THAT VOLUME AND FIRE DAMPERS ARE PROPERLY LOCATED AND FUNCTIONAL.
3. VERIFY THAT SUPPLY, RETURN, EXHAUST AND TRANSFER GRILLES, REGISTERS AND DIFFUSERS ARE INSTALLED AND OPERATING PROPERLY.

B. VERIFY THAT CONTROL COMPONENTS ARE INSTALLED IN ACCORDANCE WITH PROJECT REQUIREMENTS AND ARE FUNCTIONING AS INTENDED, INCLUDING ELECTRICAL POWER, CONTROL AND INTERLOCK WIRING, DAMPER SEQUENCES, SMOKE DETECTORS, ETC.

C. UPON COMPLETION OF THE INSTALLATION AND START-UP OF THE MECHANICAL EQUIPMENT, TEST, ADJUST AND BALANCE SYSTEM COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING.

D. BEFORE FINAL ACCEPTANCE IS MADE, FURNISH TO THE ARCHITECT THE FOLLOWING DATA:
1. SUMMARY OF MAIN SUPPLY, RETURN AND EXHAUST DUCT PILOT TUBE TRANSVERSES AND FAN SETTINGS.
2. AIR QUANTITIES AT EACH SUPPLY, RETURN, RELIEF AND EXHAUST AIR HANDLING DEVICE.
3. AIR PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY FAN AND EXHAUST FAN.
4. MOTOR CURRENT AND VOLTAGE READINGS AT EACH EQUIPMENT MOTOR.
5. TEST RESULTS SHALL BE RECORDED ON STANDARD FORMS CONFORMING TO AABC AND NEBB REQUIREMENTS. THE REPORT SHALL INCLUDE AIR FLOW SCHEMATIC DIAGRAMS INDICATING AND IDENTIFYING TEST LOCATIONS SUCH AS DUCT TRANSVERSE, OUTLET READINGS, PRESSURE READINGS AND TEMPERATURE READINGS, AND SHALL BE REFERENCED TO THE RECORDED DATA ON THE FORMS.

E. MAKE AN INSPECTION IN THE BUILDING DURING THE OPPOSITE SEASON FROM THAT IN WHICH THE INITIAL ADJUSTMENTS WERE MADE, AND AT THAT TIME MAKE ANY NECESSARY MODIFICATIONS TO THE INITIAL ADJUSTMENTS REQUIRED TO PRODUCE OPTIMUM OPERATION OF THE SYSTEM COMPONENTS, TO PRODUCE THE PROPER CONDITIONS IN EACH SPACE.

F. INSTRUCTION: THE CONTRACTOR SHALL INSTRUCT THE BUILDING OPERATING PERSONNEL IN THE CONSTRUCTION AND OPERATION OF ALL EQUIPMENT.

GUARANTEE

ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTANCE BY TENANT SHALL BE A CONDITION OF THIS CONTRACT. ALL WORK FOUND TO BE DEFECTIVE SHALL BE REPAIRED OR REPLACED BY THIS SUBCONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE TENANT.

MECHANICAL

TEMPORARY SERVICES

THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SPECIFIC ITEMS OF TEMPORARY SERVICES:

A. TELEPHONE – THE TENANT'S GENERAL CONTRACTOR SHALL INSTALL A JOB SITE TELEPHONE AND NOTIFY TENANT AS LISTED ON SHEET A-1 OF THE TELEPHONE NUMBER AND THE NAME OF THE SUPERINTENDENT.

B. TEMPORARY WATER – WATER REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE PROVIDED AND PAID FOR BY THE CONTRACTOR. WATER USED FOR HUMAN CONSUMPTION SHALL CONFORM TO REQUIREMENTS OF STATE AND LOCAL AUTHORITIES FOR POTABLE WATER.

C. TEMPORARY ELECTRICITY – TEMPORARY ELECTRIC SERVICE REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE FURNISHED AND PAID FOR BY THE CONTRACTOR WHO SHALL FURNISH, INSTALL, AND MAINTAIN ALL TEMPORARY OVERHEAD CONSTRUCTION, METERS, DROPS, AND OTHER WIRING AND FITTINGS FOR BOTH LIGHT AND POWER AT LOCATIONS REQUIRED IN THE WORK AND SHALL BEAR THE COST OF MAKING THE SERVICE CONNECTIONS. BEFORE FINAL ACCEPTANCE, TEMPORARY ELECTRICAL SERVICE FACILITIES INSTALLED BY THE CONTRACTOR SHALL BE REMOVED AND THE SERVICE CONNECTIONS SEVERED IN ACCEPTABLE MANNER.

D. TEMPORARY HEAT – WHEN REQUIRED FOR PROPER INSTALLATION OR PROTECTION OF ANY PORTION OF THE WORK, THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY HEATING UNITS AS APPROVED BY THE LANDLORD OR LOCAL AUTHORITY.

E. COST OF LANDLORD PROVIDED UTILITY SERVICES – IF THE LANDLORD ELECTS TO PROVIDE TEMPORARY UTILITY SERVICES, THE CONTRACTOR WILL BE SO INFORMED BY THE TENANT. THE CONTRACTOR SHALL MAKE TO PAY THE COST OF SAID TEMPORARY CONSTRUCTION AND UTILITY SERVICES.

NOTE FOR TENANT GENERAL CONTRACTOR

IT IS THE RESPONSIBILITY OF THE TENANT'S GENERAL CONTRACTOR TO MAKE USE OF APPLICABLE NOTES AND SPECIFICATIONS LISTED ON THIS SHEET AS THEY MAY PERTAIN TO THE SPECIFIC JOB.

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ISSUE DATE

REV	ISSUE	DATE
	PERMIT	04.27.2022
1	REVISION 1	11.05.2022
2	GREEN SET/REV 2	05.10.2023

SHEET TITLE

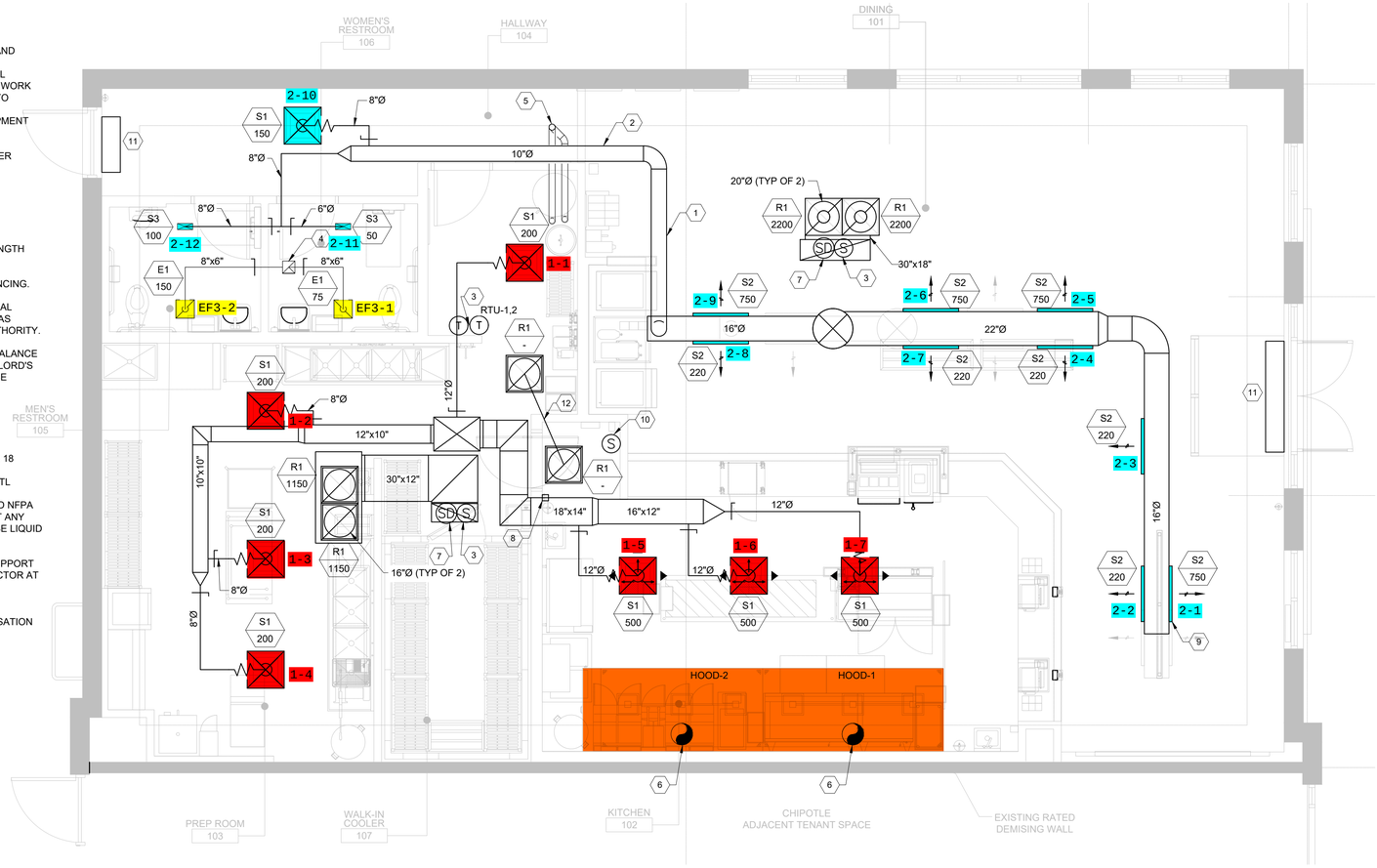
MECHANICAL SPECIFICATIONS

SHEET NUMBER

M1.0

GENERAL NOTES

1. DUCT/PIPING LAYOUT IS SCHEMATIC, EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH THE BUILDING STRUCTURE, EQUIPMENT, EXISTING CONDITIONS, ARCHITECTURAL DRAWINGS, AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK PRIOR TO COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL OTHER TRADES' WORK. CONTRACTOR TO VERIFY THAT DUCTWORK SIZES, ELEVATIONS, EQUIPMENT WILL FIT ABOVE CEILING SYSTEM.
2. ALL WORK SHALL COMPLY WITH LOCAL MECHANICAL CODE AND ALL OTHER APPLICABLE CODES.
3. DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
4. ALL SUPPLY DUCTWORK ABOVE CEILING SPACES SHALL BE EXTERNALLY INSULATED WITH 1-1/2" THICK FIBERGLASS INSULATION.
5. FLEXIBLE RUNOUTS TO AIR DEVICES SHALL BE NO MORE THAN 5'-0" IN LENGTH AND SHALL BE INSULATED.
6. MANUAL DAMPERS SHALL BE PROVIDED AT ALL BRANCH TAPS FOR BALANCING.
7. ALL MECHANICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE LOCAL MECHANICAL CODES AND APPLICABLE PROVISION OF THE LOCAL FUEL GAS CODES. ALL WORK IS SUBJECT TO ON-SITE APPROVAL BY THE LOCAL AUTHORITY.
8. THE MECHANICAL CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM BALANCE REPORT, HEAT GAIN, HEAT LOSS, AND COOLING CALCULATIONS TO LANDLORD'S REPRESENTATIVE TO VERIFY THAT THE REQUIRED VENTILATION AIR TO BE PROVIDED TO EACH SPACE HAS BEEN OBTAINED.
9. REFER TO SHEET M2-01 FOR MECHANICAL LEGEND.
10. SEE ARCHITECTURAL DRAWING A9-01 FOR FINISH SPECIFICATIONS.
11. ALL KITCHEN HOOD EXHAUST WORK SHALL BE 14 GAUGE BLACK IRON OR 18 GAUGE 303 STAINLESS STEEL WITH CONTINUOUS WELDED SEAMS, OR CAPTIVEAIRE NON-WELDED FACTORY GREASE DUCT SYSTEM WHICH IS ETL LISTED TO STANDARD UL-1978 AND CAN/ULC-S662 WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND NFPA STANDARD 96. ACCESS DOORS SHALL BE PROVIDED EVERY 20'-0" AND AT ANY CHANGE IN DIRECTION. ALL SEAMS, JOINTS, AND PENETRATIONS SHALL BE LIQUID TIGHT AND CONTINUOUS.
12. PROVIDE AND INSTALL ALL ADDITIONAL STEEL FOR ROOF STRUCTURE SUPPORT OF ALL EQUIPMENT ON ROOF. ALL ROOF WORK BY LANDLORD'S CONTRACTOR AT TENANT'S EXPENSE. ALL EQUIPMENT ON ROOF SHALL BE CURB OR RAIL MOUNTED AND FLASHED TO ROOF MEMBRANE.
13. THE TOP OF ALL DIFFUSERS SHALL BE INSULATED TO PREVENT CONDENSATION AND RUST TO FORM.
14. LINEAR DIFFUSERS TO BE PROVIDED WITH INSULATED PLENUM BOXES.



SEQUENCE OF OPERATIONS

ROOFTOP UNITS:

1. THERMOSTATS SHALL CONTROL OCCUPIED/UNOCCUPIED MODE OF OPERATION FOR THE ENTIRE SYSTEM IN ACCORDANCE WITH PROGRAMMED TIMES AND SET POINTS.
2. ON A CALL FOR COOLING FROM THE THERMOSTAT, SYSTEM SHALL ENERGIZE (MECHANICAL COOLING) IN STAGES. WHEN OUTDOOR ENTHALPY, AS SENSED BY UNIT MOUNTED CONTROLS, IS BELOW ITS SETTING, AND FREE COOLING IS AVAILABLE, UNIT MOUNTED ECONOMIZER SHALL BE ENABLED AND MODULATE DAMPERS BEYOND THEIR MIN. POSITION SET-POINTS TO SATISFY THE SETTING OF (55°F ADJUSTABLE). DURING THIS CYCLE, THE MECHANICAL COOLING SHALL BE DISABLED. ENTHALPY CONTROLLER SHALL RESET THE OUTSIDE AIR DAMPERS TO THE MINIMUM POSITION AND ENERGIZE THE MECHANICAL COOLING WHEN THE SET-POINT IS EXCEEDED.
3. ON A CALL FOR HEATING, GAS FIRED HEAT EXCHANGERS SHALL BE ENERGIZED AND SHALL RUN UNTIL SET-POINT IS SATISFIED.
4. DURING NIGHT SETBACK PERIOD AS PROGRAMMED ON ASSOCIATED ROOFTOP UNIT THERMOSTAT, BLOWER FAN SHALL BE OFF AND OUTSIDE AIR DAMPERS SHUT. ON A CALL FOR HEATING OR COOLING, THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE HEAT EXCHANGER OR COMPRESSOR CYCLE SHALL RUN UNTIL SPACE SET-POINT IS SATISFIED.
5. OVERRIDE TIMER SWITCH (MOUNTED ON THERMOSTAT) SHALL BYPASS THE PROGRAMMABLE THERMOSTAT (OCCUPIED SETTING) AND SHALL ENERGIZE THE SYSTEM INTO THE OCCUPIED MODE FOR A MINIMUM OF A 3 HOUR PERIOD.
6. REMOTE TEMPERATURE SENSORS SHALL BE USED SO THAT THERMOSTATS CAN BE IN PREP ROOM AREA, AWAY FROM THE PUBLIC.

EXHAUST FANS:

1. TOILET ROOM EXHAUST FANS SHALL BE INTERLOCKED WITH THE RTU THERMOSTATS. DURING THE OCCUPIED MODE, THE EXHAUST FAN SHALL RUN CONTINUOUSLY. DURING UNOCCUPIED HOURS, EXHAUST FANS SHALL BE TURNED OFF.

DUCT SMOKE DETECTORS:

1. ROOFTOP UNIT SUPPLY FAN SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN DUCT SMOKE DETECTOR.

N

1 FLOORPLAN - HVAC
1/4" = 1'-0"

MECHANICAL SYMBOLS LEGEND

(T)	THERMOSTAT
(S)	TEMPERATURE SENSOR
(SD)	SMOKE DETECTOR
	FLEXIBLE DUCT
	VOLUME DAMPER
FD	FIRE DAMPER
	CEILING SUPPLY AIR DIFFUSER
	CEILING RETURN AIR GRILLE
	SIDEWALL AIR DIFFUSER OR GRILLE
	NEW DUCTWORK
	EXISTING DUCTWORK
D	CONDENSATE DRAIN
G	GAS PIPING
	PIPE TURNING DOWN
	PIPE TURNING UP
	BALL VALVE
	GATE VALVE
	CONNECTION OF NEW TO EXISTING
	CHECK VALVE
	GAS COCK
	UNION
	PRESSURE GAUGE
	STRAINER
AFF	ABOVE FINISHED FLOOR
S1 / 100	AIR DEVICE # / CFM — S – SUPPLY, R – RETURN, E – EXHAUST

MECHANICAL KEYED NOTES

1. DUCTWORK SHALL BE ROUTED THROUGH WEBBING IN JOIST SPACE, FIELD VERIFY EXACT SITE CONDITIONS PRIOR TO BID.
2. DUCTWORK SHALL BE ROUTED BETWEEN IN JOISTS AS HIGH AS POSSIBLE. FIELD VERIFY EXACT SITE CONDITIONS PRIOR TO BID.
3. REMOTE TEMPERATURE SENSOR MOUNTED IN RETURN DUCT. REMOTE SENSOR TO COMMUNICATE WITH THERMOSTAT LOCATED AT MANAGER'S STATION. NEW THERMOSTAT(S) TO BE HONEYWELL MODEL TH8110. VERIFY THERMOSTAT LOCATIONS WITH OWNER.
4. 8"X8" EXHAUST DUCT UP TO EF-3 ON ROOF.
5. 4" PVC/CPVC INTAKE AND 4" PVC/CPVC EXHAUST FROM GAS WATER HEATER UP TO ROOF. COMBINE RIGHT BEFORE ROOF PENETRATION WITH CONCENTRIC VENT KIT. WATER HEATER PROVIDED AND INSTALLED BY OTHERS.
6. 14"Ø GREASE EXHAUST DUCT UP TO EXHAUST FAN ON ROOF. SEE ROOF PLAN FOR ADDITIONAL DETAILS. TRANSITION DUCTWORK AS NECESSARY TO AVOID OBSTRUCTIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. COORDINATE INSTALLATION OF NEW DUCT SMOKE DETECTOR IN RETURN AIR DUCT WITH ELECTRICAL CONTRACTOR. UNIT TO BE PROVIDED WITH ANNUNCIATOR BELOW UNIT WITH REMOTE TEST STATION LOCATED AT MANAGER'S DESK. VERIFY EXACT LOCATION IN FIELD WITH OWNER REPRESENTATIVE.
8. ANSUL MANUAL PULL STATION.
9. BALANCE DAMPER WITHIN DIFFUSER. TYPICAL OF ALL "S2" DIFFUSERS.
10. INSTALL ROOM TEMPERATURE SENSOR (PROVIDED BY OTHERS) FOR KITCHEN HOOD. VERIFY EXACT MOUNTING HEIGHT IN FIELD.
11. AIR CURTAIN, REFER TO ARCHITECTURAL EQUIPMENT PLANS FOR ADDITIONAL INFORMATION.
12. 15"Ø TRANSFER AIR DUCT ABOVE CEILING, CONNECTED TO RETURN GRILLES AS SHOWN.

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ARCHITECT OF RECORD

CONSULTANT

FIVE GUYS POOLER, GA.
2120 POOLER PARKWAY
POOLER, GA 31322

PROJECT NUMBER: 2021236.29

ISSUE DATE

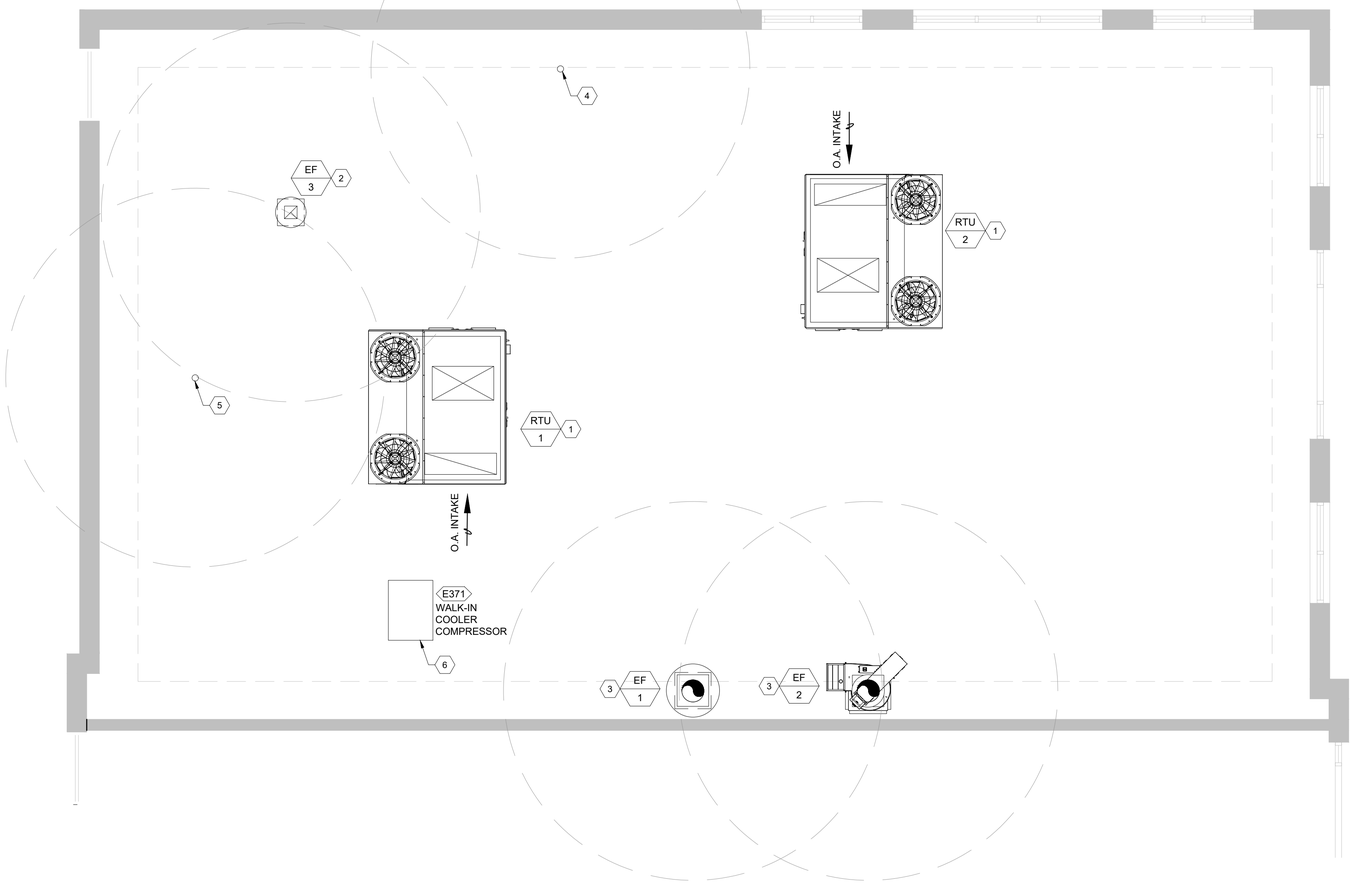
REV	ISSUE	DATE
	PERMIT	04.27.2022
1	REVISION 1	11.05.2022
2	GREEN SET/REV 2	05.10.2023

SHEET TITLE

MECHANICAL PLAN

SHEET NUMBER

M2.0



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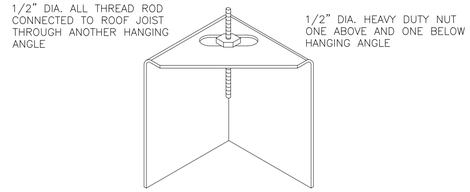
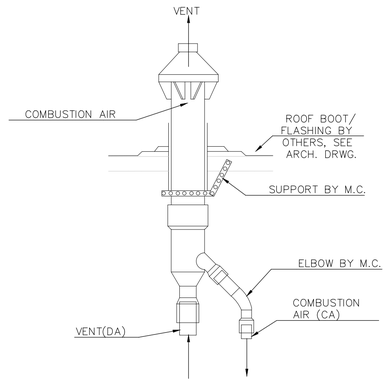
1 ROOF PLAN - HVAC
1/4" = 1'-0"



*ROD AND NUST TO BE SUPPLIED BY INSTALLING CONTRACTOR HANGIN ANGLE IS PRE-PUNCHED AT FACTORY

2 HOOD HANGING ANGLE DETAIL
NO SCALE



3 CONCENTRIC VENT KIT DETAIL
NO SCALE

MECHANICAL KEYED NOTES

1. INSTALL NEW ROOFTOP UNIT AT LOCATION OF EXISTING UNIT BEING REMOVED. RE-USE EXISTING CURB AND PROVIDE CURB ADAPTER, OR PROVIDE NEW CURB WHERE REQUIRED. VERIFY EXACT LOCATION IN FIELD.
2. NEW EXHAUST FAN FOR RESTROOMS.
3. NEW EXHAUST FAN PROVIDED BY CAPTIVEAIRE FOR THE KITCHEN HOOD. GENERAL CONTRACTOR TO COORDINATE GREASE GUARD SYSTEM INSTALLATION. REFER TO SHEET A2-15 FOR MORE INFO.
4. 4"Ø CONCENTRIC KIT FOR WATER HEATER. MAINTAIN 12" MIN. CLEARANCE ABOVE HIGHEST ANTICIPATED SNOW LEVEL. MAXIMUM OF 24" ABOVE ROOF.
5. SANITARY VENT THROUGH ROOF. VERIFY EXACT LOCATION IN FIELD, NOTIFY TENANT'S ENGINEER OF ANY MAJOR DISCREPANCIES.
6. REMOTE WALK-IN CONDENSER ON ROOF.

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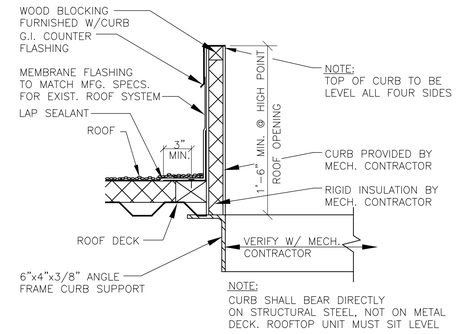
SHEET TITLE

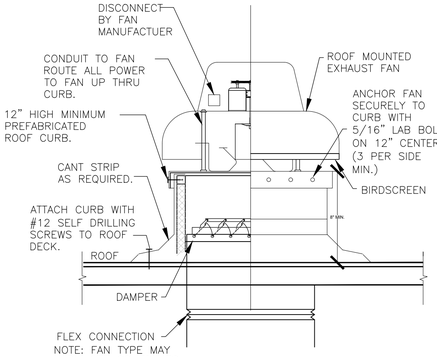
ROOF PLAN

SHEET NUMBER

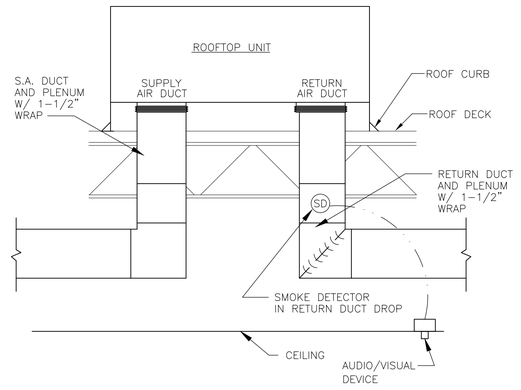
M3.0



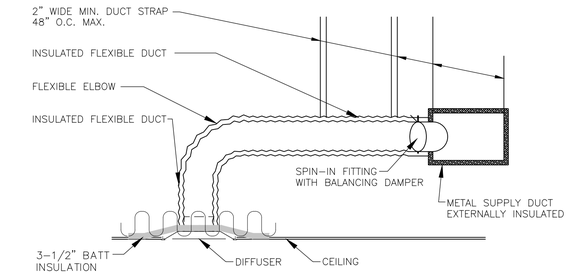
1 ROOF CURB SECTION
NO SCALE



2 ROOF MOUNTED FAN
NO SCALE

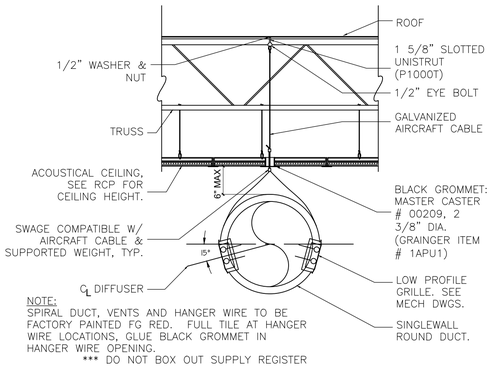


3 ROOFTOP UNIT MOUNTING DETAIL
NO SCALE



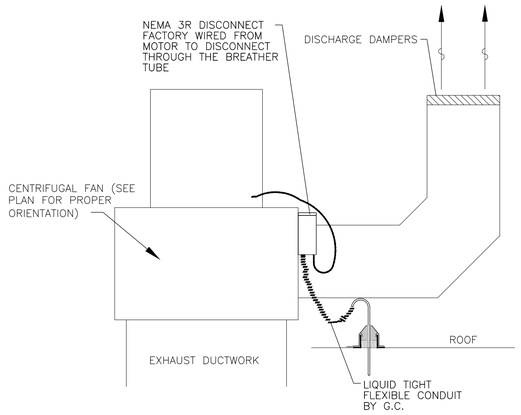
* REFER TO THE MECHANICAL EQUIPMENT SCHEDULE FOR COMPONENT AND DEVICE SPECIFICATIONS.

4 HVAC DUCTWORK DETAIL
NO SCALE



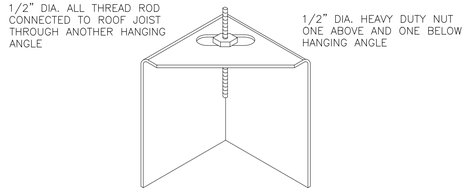
5 EXPOSED DUCT DTL
NO SCALE

NATIONAL ACCOUNT INFO:
LINX INDUSTRIES
2600 AIRLINE BLVD.
PORTSMOUTH, VA 23701
CONTACT: KARIN ANDERSON
PHONE: 757-392-3222
EMAIL: KARINA@LI-HVAC.COM



6 GRILL HOOD EXHAUST FAN DETAIL
NO SCALE

NOTE: PROVIDE SECOND DUCT CLEANOUT AT 6" ABOVE CONNECTION TO HOOD DUCT COLLAR.



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7 HOOD HANGING ANGLE DETAIL
NO SCALE

DEDICATED OUTDOOR AIR UNIT (RTU-1)

MFR.	MODEL NO.	UNIT WT.	UNIT SIZE	VOLTS	HZ	PH	MCA	MOCP	MIN. OUTSIDE AIR CFM
CAPTIVE AIRE	CASRTU3-I.200 -18-15T-DOAS	2,449 12.0 EER	15.0 TONS	208	60	3	61.9	70	2300

TOTAL CFM	COOLING CAPACITY TOTAL	COOLING CAPACITY SENS.	HEATING MBH IN/OUT	INDOOR FAN MOTOR	FILTERS NO.	FILTERS RATING	FILTERS TYPE
2300	185.8 MBH	105.0 MBH	187.5 / 150	2.0 HP	4 4	2" MERV 8 2" MERV 13	T/A

DEDICATED OUTDOOR AIR UNIT (RTU-2)

MFR.	MODEL NO.	UNIT WT.	UNIT SIZE	VOLTS	HZ	PH	MCA	MOCP	MIN. OUTSIDE AIR CFM
CAPTIVE AIRE	CASRTU3-I.200 -20-15T-DOAS	2,515 12.0 EER	15 TONS	208	60	3	71.9	80	1500

TOTAL CFM	COOLING CAPACITY TOTAL	COOLING CAPACITY SENS.	HEATING MBH IN/OUT	INDOOR FAN MOTOR	FILTERS NO.	FILTERS RATING	FILTERS TYPE
4400	171.5 MBH	123.3 MBH	200 / 160	5.0 HP	4 4	2" MERV 8 2" MERV 13	T/A

NOTES:
1. NEW DEDICATED OUTDOOR AIR UNIT FURNISHED BY OWNER, AND INSTALLED BY CONTRACTOR. PROVIDE AND INSTALL ALL WIRING AND CONTROLS FOR A COMPLETE SYSTEM. REFER TO SHEETS MH1.0 THROUGH MH11.0 FOR ADDITIONAL INFORMATION.
2. VERIFY ELECTRICAL INFORMATION WITH ELECTRICAL CONTRACTOR.

AIR BALANCE SCHEDULE

UNIT MARK	SUPPLY AIR	OUTSIDE AIR	MAKE-UP AIR	EXHAUST AIR	RETURN AIR	NOTES
RTU-1	2300	2300			0	
RTU-2	4400	1500			2900	
EF-1				-1852		
EF-2				-1662		
EF-3				-225		
BLDG. TOTAL	6700	3800		-3739	2900	
			MAKE-UP	HVAC UNITS		3800
				TOTAL		3800
			EXHAUST	KITCHEN HOODS		-3514
				GENERAL EXHAUST		-225
				TOTAL		-3739
			BALANCE RESULTS	MAKE-UP		3800
				EXHAUST		-3739
				TOTAL		61

FAN SCHEDULE

MARK	TYPE	CFM	E.S.P. (IN. W.C.)	DRIVE	MOTOR DATA HP	MOTOR DATA VOLTS	MOTOR DATA PH	SERVES	MFR	MODEL	UNIT WT.	NOTES
EF-1	ROOF	1852	1.375	DIRECT	3.0	208	3	FRYERS	CAPTIVEAIRE	DU180HFA	181	3,4,5,6,8
EF-2	ROOF	1662	1.375	DIRECT	3.0	208	3	GRILL	CAPTIVEAIRE	CASRE15DD	252	3,4,5,7,8
EF-3	ROOF	225	0.25	DIRECT	1/20	115	1	TOILET/MOP SK	GREENHECK	G-090-G	26	1,2

NOTES:
1. NEW EXHAUST FAN.
2. FAN SHALL BE INTERLOCKED WITH RTU THERMOSTATS SO THAT EXHAUST FAN RUNS CONTINUOUSLY DURING OCCUPIED MODE.
3. HOOD EXHAUST FAN TO BE CONNECTED TO HOOD CONTROL PANELS AND ANSUL SYSTEM.
4. HOOD EXHAUST FAN TO BE PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.
5. REFER TO MECHANICAL HOOD DRAWINGS FOR MORE INFORMATION.
6. GREASE GUARD TO EXTEND 15" ON ALL SIDES OF EXHAUST FAN, INSTALL BEFORE EXHAUST FAN IS ACTIVATED, CALL JAY MAHON AT 331.229.3460.
7. DRIP GUARD TO BE INSTALLED UNDER FAN, CONTACT JAY MAHON AT 331.229.3460.
8. REFER TO ARCHITECTURAL SHEET A2-15 FOR MORE INFORMATION ON GREASE GUARDS FOR EXHAUST FANS.

AIR DEVICE SCHEDULE

PLAN MARK	MFR	MODEL	FACE SIZE	NECK SIZE	TYPE	NOTES
S1	TITUS	TMS	24"x24"	SCHEDULE	DIFF.	1,2,3,7
S2	LINDAB	RGS-3	33"x6"	32"x6"	DIFF.	1,4,6
S3	TITUS	350FL	10"x4"	SCHEDULE	DIFF.	2,3,5,7
S4	TITUS	TDC	24"x24"	SCHEDULE	DIFF.	2,3,7,8
R1	TITUS	TMS	24"x24"	SCHEDULE	R.G.	2,3,7
E1	TITUS	350FL	12"x12"	SCHEDULE	E.G.	3,5,7

NOTES:
1. 4-WAY THROW UNLESS OTHERWISE NOTED.
2. PROVIDE ADAPTOR BOOTS AS REQUIRED.
3. FINISH SHALL MATCH CEILING FINISH UNLESS OTHERWISE SPECIFIED. VERIFY FINISHES WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING.
4. EXTRACTOR DAMPER.
5. PROVIDE SQUARE TO ROUND ADAPTOR AS REQUIRED.
6. SPRAY PAINT RED TO MATCH DUCTWORK.
7. #26 WHITE IN KITCHEN, PREP, VESTIBULE, AND RESTROOMS, #84 FACTORY BLACK IN DINING ROOM AND HALL.
8. 3-WAY AIR THROW PATTERN.

AIR DEVICE RUNOUT SCHEDULE

DUCT CFM	DUCT SIZE
0 - 100	6" ROUND
101 - 240	8" ROUND
241 - 449	10" ROUND
450 - 680	12" ROUND
681 - 1030	14" ROUND
1031 - 1250	15" ROUND
1251 - 1450	16" ROUND
1451 - 2000	18" ROUND

GENERAL NOTES
1. AIR DEVICE NECK SIZE SHALL BE THE SAME AS RUNOUT SIZE.
2. RECTANGULAR DUCT SIZES OF EQUIVALENT FREE AREA MAY BE BE SUBSTITUTED FOR ROUND DUCT.
3. RUNOUTS MAY BE RIGID OR FLEX DUCT PER SPECIFICATIONS.

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MECHANICAL SCHEDULES

SHEET NUMBER

M4.0