### SCOPE OF WORK

PROVIDE #1 NEW 5 TON DUCTED SPLIT GAS HEAT UNITS. PROVIDE NEW DUCTWORK WHERE NECESSARY AND PROVIDE NECESSARY ACCESSORIES FOR COMPLETE HVAC SYSTEMS. PROVIDE #4 NEW GAS

PROVIDE 1 NEW RESTROOM EXHAUST FAN. PROVIDE 4 NEW EXHAUST FAN AS PER CODE REQUIREMENT.

COORDINATE WITH GC ANY ADDITIONAL REFRIGERATION WORK REQUIRED AND WORK REQUIRED ON KITCHEN EXHAUST SYSTEMS. MECHANICAL CONTRACTOR TO COORDINATE WITH PLUMBING CONTRACTOR TO PROVIDING CONDENSATE LINES FOR MECHANICAL EQUIPMENT AND GAS FLUE FOR WATER HEATER.

# **MECHANICAL PLAN NOTES**

- A. USE NEW 5 TON DUCTED SPLIT GAS HEAT UNITS. PROVIDE MODIFICATIONS TO DUCT SYSTEM AS SHOWN. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS. INSTALL FIRE DAMPERS IN ANY FIRE WALLS AND BETWEEN FLOORS. TRANSITION TO DUCT SIZES SHOWN. PROVIDE DUCTWORK AND AIR DISTRIBUTION DEVICES AS INDICATED ON THE PLAN. REFER TO ROOF TOP UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.
- FOR SYSTEM OVER 2,000 CFM CHECK FOR DUCT MOUNTED AIR SMOKE DETECTORS AND THAT MEET THE REQUIREMENTS OF U.L. 268A, INTERLOCKED TO SHUTDOWN ROOF TOP UNIT UPON DETECTION OF SMOKE. IF NECESSARY PROVIDE SMOKE DETECTOR WITH AN ANNUNCIATOR, ALARM AND POWER L.E.D.'S FOR VISIBLE AND AUDIBLE ALARM SIGNAL, AND VISIBLE TROUBLE SIGNAL. MOUNT ANNUNCIATOR ON ROOM SIDE OF CEILING.
- ALL DUCTS WILL MINIMUM 26 GAUGE SHEET METAL WITH EXTERNAL DUCT WRAP INSULATION. ALL DUCTS TO BE MANUFACTURED AND INSTALLED ACCORDING TO ASHRAE AND SMACNA METAL DUCT CONSTRUCTION STANDARD, LATEST EDITION. ALL MATERIALS WILL CONFORM TO NFPA 90A. NO DUCT BOARD ALLOWED.
- THERMOSTATS SHALL BE 7-DAY PROGRAMMABLE TYPE. MOUNT THERMOSTAT 48" A.F.F. COORDINATE LOCATION OF THERMOSTAT.
- ALL INTERIOR AIR DUCTS WITH INSULATION SHALL HAVE A MINIMUM OF THICKNESS OF 1.5", R-6 INSULATION AND FOR FRESH AIR DUCT R-12 INSULATION ACCORDING TO 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
- ALL SEAMS, JOINTS, ETC WILL BE SEALED TO MAKE AIR DUCT AIRTIGHT. PRESSURE SENSITIVE MATERIALS AND OTHERS APPROVED BY LATEST SMACNA. SEALING MATERIALS WILL BE USED.
- .  $\,$  ALL EVAPORATOR UNITS SHALL HAVE A FLOAT SWITCH TO CONTROL  $\,$ OVERFLOW THAT WILL AUTOMATICALLY SHUT DOWN THE A/C SYSTEM. THE DEVICE SHALL BE ATTACHED TO THE SECONDARY
- ALL NEW A/C UNITS CONDENSATE DRAINS WILL BE COPPER FULL DIAMETER OF OUTLET AND WILL TERMINATE IN THE NEAREST ROOF DRAIN OR INDIRECT WASTE.
- ALL EQUIPMENT AND MATERIALS WILL BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND ACCORDING TO THE BEST PRACTICE.
- TESTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, SECTION C408.2.2. BALANCING PROCEDURES SHALL BE IN ACCORDANCE WITH THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (N.E.B.B.), THE ASSOCIATED AIR BALANCE COUNCIL (A.A.B.C) NATIONAL STANDARDS OR EQUIVALENT PROCEDURES.
- HANGER ATTACHMENTS TO THE STEEL STRUCTURE WILL BE RATED POWDER ACTUATED FASTENERS. "C" CLAMPS. WELDED STUDS. CLAMP HANGERS, JOIST CLAMPS OR OTHER METHODS RECOMMENDED BY SMACNA'S "METAL AND FLEXIBLE STANDARDS", CHAPTER 4, AND WILL HAVE A MINIMUM SAFETY MARGIN OF 4:1. SUSPENDED FROM TOP CHORD OF JOISTS, NOTHING FROM DECK OR CROSS BRACING.
- ALL HVAC CONTROLS AND CONTROL WIRING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

#### **GENERAL NOTES**

- CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET. PAY SPECIAL ATTENTION TO THE RESPONSIBILITY SCHEDULE. WORK DESIGNATED ON SCHEDULE SHALL BE CONSIDERED INCLUDED IN YOUR SCOPE OF WORK AND CONTRACT AMOUNT.
- CONTRACTOR TO VERIFY THAT ALL EQUIPMENT SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON DRAWINGS AND SCHEDULES. IF DIFFERENT NOTIFY ARCHITECT/ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.
- DRAWINGS/DETAILS ARE TO BE CONSIDERED DIAGRAMMATIC, NOT NECESSARILY SHOWING IN DETAIL OR TO SCALE ALL MINOR ITEMS. UNLESS SPECIFIC DIMENSIONS ARE SHOWN, THE STRUCTURAL, ARCHITECTURAL AND SITE CONDITIONS SHALL GOVERN EXACT LOCATIONS. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK, AND CHECK/COORDINATE DRAWINGS OF ALL TRADES.
- COORDINATE WITH THE WORK OF OTHERS SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER. AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISES AND DRIPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING
- DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY
- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE PLENUM SHALL BE PLENUM RATED.
- VERIFY LOCATION OF PERMISSIBLE NEW STRUCTURAL ROOF PENETRATIONS AND ADAPT THE REQUIRED DUCTS ACCORDINGLY. THE OPENINGS MUST BE LOCATED USING A REBAR LOCATOR, TRYING TO LEAVE A TRANSVERSE BAR WITHIN 4" FROM THE OPENING. LOCATE OPENINGS AT MID-DISTANCE BETWEEN THE STEMS OF THE DOUBLE TEE AND LONGITUDINAL REINFORCEMENT SHALL NEVER BE CUT. CALL THE ARCHITECT'S OFFICE IN CASE OF UNEXPECTED DIFFICULTIES.
- ALL A/C AND FRESH AIR ROUND EXPOSED DUCTS WILL BE SPIRAL GALVANIZED AND READY FOR PAINTING. ALL RECTANGULAR DUCTS OVER CEILINGS MAY BE SHEET METAL WITH EXTERNAL INSULATION. ALL SG SUPPLY GRILLS WILL BE DOUBLE DEFLECTION WITH VOLUME CONTROLS.
- G.C. SHALL CONTRACT LANDLORD-APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ALL ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY. REQUIRED INSURANCE SHALL BE PROVIDED BY THE
- PLUMBING CONTRACTOR FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- CONSTRUCTION "AS BUILT" DRAWINGS AND DOCUMENTS SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS
- . OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE BUILDING OWNER.

AFTER THE DATE OF ACCEPTANCE AND PROVIDE COPY TO

### THERMOSTATIC CONTROLS

- THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE INDIVIDUALLY CONTROLLED BY THERMOSTATIC CONTROLS RESPONDING TO TEMPERATURE.
- B. DEAD BAND: WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CAPABLE OF PROVIDING A TEMPERATURE RANGE OR DEAD BAND OF AT LEAST 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
- THERMOSTATS THAT REQUIRE MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.

### SETBACK CONTROLS:

HEATING SYSTEMS LOCATED IN CLIMATE ZONES 2-8 SHALL BE EQUIPPED WITH CONTROLS THAT HAVE THE CAPABILITY TO AUTOMATICALLY RESTART AND TEMPORARILY OPERATE THE SYSTEM AS REQUIRED TO MAINTAIN ZONE TEMPERATURES ABOVE A HEATING SETPOINT ADJUSTABLE DOWN TO 55°F OR LOWER. COOLING SYSTEMS LOCATED IN CLIMATE ZONES 1B, 2B, AND 3B SHALL BE EQUIPPED WITH CONTROLS THAT HAVE THE CAPABILITY TO AUTOMATICALLY RESTART AND TEMPORARILY OPERATE THE SYSTEM AS REQUIRED TO MAINTAIN ZONE TEMPERATURES BELOW A COOLING SETPOINT ADJUSTABLE UP TO 90°F OR HIGHER OR TO PREVENT HIGH SPACE HUMIDITY LEVELS.

#### AUTOMATIC SHUTDOWN:

HVAC SYSTEMS SHALL BE EQUIPPED WITH AT LEAST ONE OF THE FOLLOWING: CONTROLS THAT CAN START AND STOP THE SYSTEM UNDER DIFFERENT TIME SCHEDULES FOR SEVEN DIFFERENT DAY-TYPES PER WEEK, ARE CAPABLE OF RETAINING PROGRAMMING AND TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST TEN HOURS, AND INCLUDE AN ACCESSIBLE MANUAL OVERRIDE, OR EQUIVALENT FUNCTION, THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO TWO HOURS.

MOCP(A)

LOCATION

INSTALLED.

3. PROVIDE NEW FILTER IN EACH UNIT AT TURNOVER TO OWNER.

5. PROVIDE MANUFACTURER 7-DAY PROGRAMMABLE AUTOMATIC

6. PROVIDE A 24V MOTORIZED DAMPER ON FRESH AIR RUN OUT

8. SUPPORT AHU ON REINFORCED SHEET METAL R.A. PLENUM.

12. UNIT TO INCLUDE CONCENTRIC VENT FOR COMBUSTION AIR

13. PROVIDE COMPLETE PVC COMBUSTION /VENTILATION PIPE KIT

14. CATALOGUE NUMBERS AND MANUFACTURERS ARE TO

INDICATE TYPE AND QUALITY OF UNIT DESIRED. SUBMIT CUT

SHEETS OF THESES AND ALTERNATE MANUFACTURERS FOR

UNITS PROPOSED BY THE CONTRACTOR SHALL INCLUDE THE

ARCHITECT AND OWNER APPROVAL PRIOR TO PURCHASE OF ANY

ADD/DEDUCT ASSOCIATED WITH ACCEPTANCE OF THAT UNIT (OR

9. ALL ACCESSORIES AND OPTIONS ARE TO BE FACTORY

4. OUTDOOR UNITS SHALL HAVE MINIMUM 13.0 SEER RATING.

TO UNIT. DAMPER IS OPEN WHEN FAN IS ENERGIZED.

CHANGEOVER HEAT/COOL THERMOSTAT.

7. RETURN AIR THROUGH FILTERED GRILLE.

10. AHU TO USE UPFLOW APPLICATION.

AND EXHAUST FLUE GASES.

PER MFG. REQUIREMENTS.

11. DRAIN CONDENSATION TO HUB DRAIN

THE ALTERNATE PACKAGE AS A WHOLE)

## SETPOINT OVERLAP RESTRICTION:

WHERE HEATING AND COOLING TO A ZONE ARE CONTROLLED BY SEPARATE ZONE THERMOSTATIC CONTROLS LOCATED WITHIN THE ZONE, MEANS (SUCH AS LIMIT SWITCHES, MECHANICAL STOPS, OR, FOR DDC SYSTEMS, SOFTWARE PROGRAMMING) SHALL BE PROVIDED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT MINUS ANY APPLICABLE PROPORTIONAL BAND.

SPLIT SYSTEM GAS FURNACE SCHEDULES			FAN SCHEDULE						
UNIT TAG		AH-1	TAG	EF-1	EF-2	EF-3	EF-4	EF-5	
AREA SERVED		SEE PLAN	SERVICE	EXHAUST	EXHUAST	EXHAUST	EXHAUST	EXHAUST	
MANUFACTURER		LENNOX	AREA SERVED	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	
MODEL		SLP98UH110XV60C	CFM	3300	1200	2000	50	150	
	FAN CFM	2000	ESP (IN W.G.)	0.75	0.75	0.75	0.5	0.375	
FAN DATA	ESP (IN W.G.)	0.8"	RPM	2443	1516	1257	1056		
	MOTOR HP	1	TYPE	ROOF EXHUAST	ROOF EXHUAST	ROOF EXHAUST	ROOF EXHAUST	INLINE EXHAUST	
	OA CFM	250	MOTOR HP	1-1/2	1/3	1/2	1/ 4	77 WATTS	
	TOTAL MBH	61.5	V/PH/FLA	208/1/11	208/1/4	208/1/5.4	208/1/3.2	115/1/4.4	
COOLING	SENSIBLE MBH	46.7	MANUFACTURER	COOK	COOK	COOK	соок	COOK	
OOOLING			MODEL	16AFBC	120C4B	150C5B	120C OR60	GN-320	
	COIL MODEL	CX34-62C-6F	DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	
	INPUT MBH	110	CONTROL SCHEME	E	E	C	D	А	
HEATING			NOTES:						
	OUTPUT MBH	106	1. SCREEN			2. BACKDRAFT DAMPER			
AFUE(%)		98.1	3. COLOR BY ARCH	3. COLOR BY ARCHITECT.  4. INTEGRAL DISCONNECT SWITCH				VITCH	
		100 / 1	5. SPEED CONTRO	5. SPEED CONTROLLER NEAR FAN 6. PROVIDE STARTER AS REQUIRED					
VOLTAGE/PHASE		120 / 1	7. PROVIDE WITH FACTORY ROOF CURB  8. HANGING ISOLATOR KIT, SUSPEN RODS				JSPENSION		
FLA(A)		12.8	nono						

CONTROL OPTIONS:

A. CONTROL WITH ROOM LIGHTS

	UNIT TAG	CU-1	C. CONTROL WITH CO SENSOR  D. CONTROL WITH MOTION SENSOR						
CONDENSING UNIT	MANUFACTURER MODEL	LENNOX XC16-060-230	E. CONTROL WITH SWITCH						
	TON	5.0	5.0 DIFFUSER SCHEDULE						
	EER/SEER	11.70/15.0	MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
	V/PH	208 / 1 35.7 50	DESIGNATION	Α	В	С	D	E	F
			USE	SUPPLY	SUPPLY	SUPPLY	RETURN	RETURN	RETURN
	FLA(A)		MODEL	TMS TMS	TMS	300 RL	350RL	350RL	350RL
	MOCP(A)								
WEIGHT (LBS)		332	MOUNTING	CEILING	CEILING	SIDEWALL	CEILING	SIDEWALL	CEILING
NOTES:			LOCATION	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN
1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH AHRI			FACE SIZE	24" X 24"	12"X12"	14"X8"	24"X24"	24"X20"	12"X12"
STANDARD 2 10/290 AT 95 DEGREE F AMBIENT OUTDOOR AIR TEMPERATURE, 85 DEGREE F AND 67 DEGREE F WET BULB ENTERING AIR TEMPERATURE AND NORMAL AIR QUANTITY LISTED.			NECK SIZE	TO MATCH DUCT	TO MATCH DUCT	-	-	-	-
2. REFRIGERANT PIPING TO BE SIZED PER TOTAL INSTALLATION EQUIVALENT LENGTH, LONG LINE APPLICATION TO BE PROVIDED			FINISH	FINISH CONFIRM FINAL FINISH/COLOR WITH ARCHITECT/ OWNER.					
WHENEVER MANUFACTUEXCEEDED, INCLUDING L	IRER RECOMMENDED LIQUID LINE SOLENOID	NOISE CRITERIA	<30	<30	<30	<30	<30	<30	
ACCUMULATOR ETC. MA	XIMUM T.E.L. IS 100'								

9. BRICK VENT MODEL BV2, PRIMED FINISH FOR FIELD PAINTING.

GAS UNIT HEATER SCHEDULE								
TAG	RAD-1	RAD-2	RAD-3	RAD-4				
LOCATION	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN				
MOUNTING	SUSPENDED	SUSPENDED	SUSPENDED	SUSPENDED				
CAPACITY MBH H/L	75	75	75	75				
ELECTRICAL (V/PH/HZ)	120/1/60	120/1/60	120/1/60	120/1/60				
MANUFACTURER	SPACE RAY	SPACE RAY	SPACE RAY	SPACE RAY				
MODEL NO.	ETS-75-20	ETS-75-20	ETS-75-20	ETS-75-20				
NOTES:								
1.HEATER SHALL BE INSTALLED PER MANUFACTURER INSTALLATION INSTRUCTIONS.								
2. SOLID STATE IGNINTION.								
3. EACH HEATER SHALL BE CONTROLLED BY MANUFACTURER SUPPLIED NIGHT SETBACK DIGITAL THERMOSTATS, MOUNTED 4'-0" ABOVE THE FINISHED FLOOR. SEE MECHANICAL PLAN FOR LOCATION.								

4. CALORIZED EMITTER BE " PULL (NEGATIVE PRESSURE OR VACUUM)

5. HEATERS SHALL BE FURNISHED WITH END REFLECTORS.

RADIANT EFFICIENCY. HOT ROLLED EMITTER TUBES ARE NOT ALLOWED.

THROUGH" SYSTEMS WITH CAST IRON BURNERS AND RESISTANCE AND HIGH

DIFFUSER SCHEDULE									
MANUFACTURER	TITUS	US TITUS TITUS TITUS		TITUS	TITUS				
DESIGNATION	Α	В	С	D	E	F			
USE	SUPPLY	SUPPLY	SUPPLY	RETURN	RETURN	RETURN			
MODEL	TMS	TMS	300 RL	350RL	350RL	350RL			
MOUNTING	CEILING	CEILING	SIDEWALL	CEILING	SIDEWALL	CEILING			
LOCATION	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN			
FACE SIZE	24" X 24"	12"X12"	14"X8"	24"X24"	24"X20"	12"X12"			
NECK SIZE	TO MATCH DUCT	TO MATCH DUCT	-	-	-	-			
FINISH	CONFIRM FINAL FINISH/COLOR WITH ARCHITECT/ OWNER.								
NOISE CRITERIA <30		<30	<30	<30	<30	<30			
ACCESSORIES	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER	VOLUME DAMPER			

B. CONTROL WITH THERMOSTAT

			BASE	D ON 2015 INTE	ERNATIONAL ME	ECHANICAL CO	DDE	
TAG	FLOOR AREA (SQ.FT.)	AREA OUTDOOR AIR RATE CFM/SQ.FT.	PEOPLE OUTDOOR AIR RATE CFM/PERSON	OCCUPANT DENSITY /1000 S.F.	OCCUPANCY	OUTDOOR AIR REQUIRED	VENTILATION EFFECTIVENESS (EZ)	TOTAL OUTDOOR AIR REQUIRED.
AH-1								
RETAIL	596	0.12	7.5	15	11	155	0.8	195
BREAK ROOM	116	0.06	5	5	1	15	0.8	20
RETAIL OFFICE	140	0.06	5	5	1	15	0.8	20
						AH-1 TOTAL OUTSIDE AIR REQUIRED		235
						AH-	1 TOTAL OUTSIDE AIR PROVIDED	250
EF-1								
MASKING BAY	3456	0.75	0	0	0	2595	0.8	3245
						EF-1 TOTAL OUTSIDE AIR REQUIRED		3245
						EF-:	3300	
EF-2								
DELEVIERY AND DETAIL BAY	1210	0.75	0	0	0	910	0.8	1140
						EF-2	1140	
						EF-2 TOTAL OUTSIDE AIR PROVIDED		1200
EF-3								
SERVICE BAY	2031	0.75	0	0	0	1525	0.8	1910
						EF-3 TOTAL OUTSIDE AIR REQUIRED		1910
						EF-3 TOTAL OUTSIDE AIR PROVIDED		2000
EF-4								
DRY STORAGE	85	0.12	0	0	0	15	0.8	20
						EF-4	4 TOTAL OUTSIDE AIR REQUIRED	20
						EF-4	4 TOTAL OUTSIDE AIR PROVIDED	50

**VENTILATION CALCULATIONS** 

# **CONCORD BUILDING DEPARTMENT NOTES**

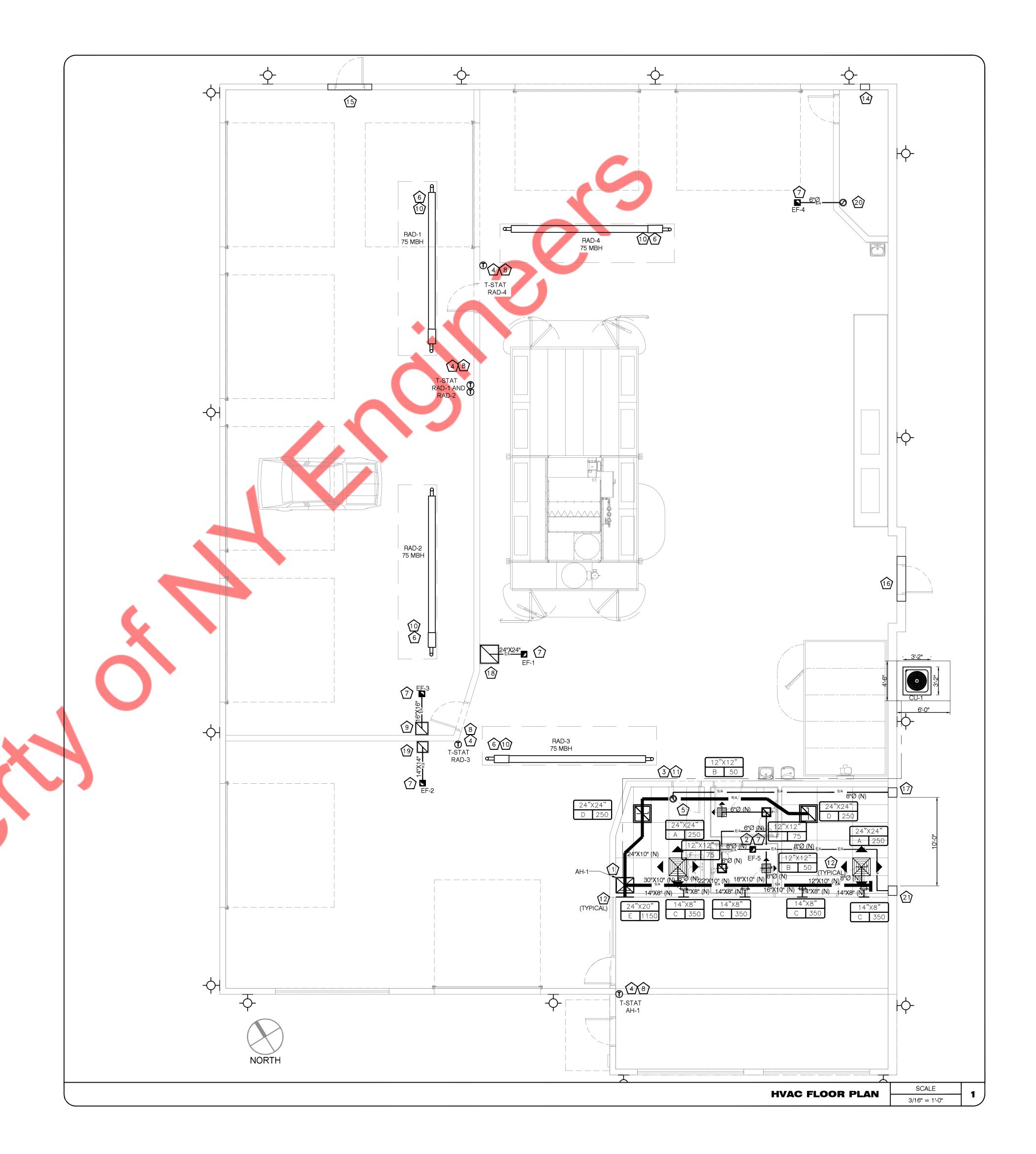
- ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2018 NORTH CAROLINA BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE. THE CONTRACTOR SHALL ENGAGE THE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS
- AND TESTS IF REQUIRED. . THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND
- REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2018 NORTH CAROLINA MECHANICAL CODE:
- A. REFRIGERATION SYSTEMS MC 1108 I. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OF
- STANDARD: A. DUCT CONSTRUCTION AND INSTALLATION- 2018 NCMC 603
- B. AIR INTAKES, EXHAUSTS AND RELIEF 2018 NCMC 401.5
- C. GAS FIRED EQUIPMENT -2018 NORTH CAROLINA FUEL GAS CODE
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2018 NORTH CAROLINA MECHANICAL CODE.
- 7. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2018 NORTH CAROLINA MECHANICAL CODE 403.3
- B. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION. 9. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS
- SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES. 10. MECHANICAL SYSTEMS SHALL BE COMMISSIONED PER 2018 NORTH CAROLINA ENERGY CONSERVATION CODE C403.2.2, C408.2.1, C408.2.5 FINAL COMMISSIONING REPORT SHALL BE DUE WITHIN 90 DAYS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.
- A COMMISSIONING PLAN SHALL BE DEVELOPED BY A LICENSED DESIGN PROFESSIONAL, MECHANICAL ENGINEER OR APPROVED AGENCY. 12. A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY THE LICENSED DESIGN PROFESSIONAL, ELECTRICAL ENGINEER, MECHANICAL ENGINEER OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT.
- 13. A WRITTEN REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH SECTION 2018 NORTH CAROLINA ENERGY CONSERVATION CODE C408.2.1.
- 14. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183. 15. SMOKE DETECTOR SHALL MEET UL268A.

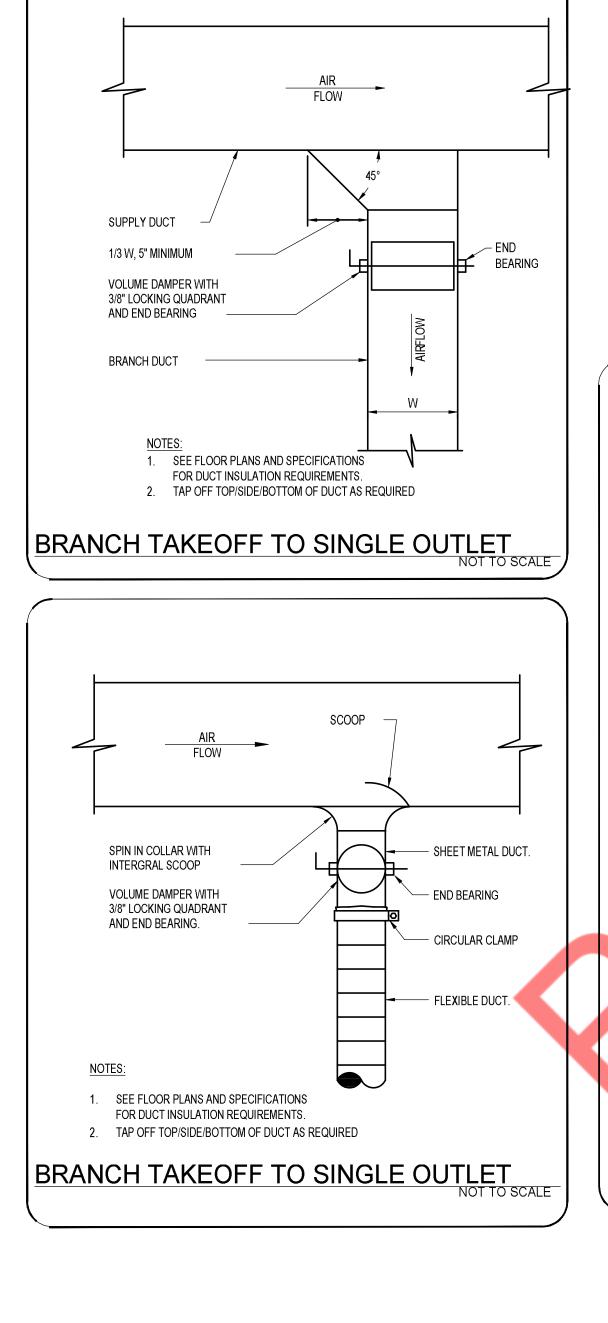
## **MECHANICAL PLAN NOTES**

- PROVIDE DUCTED SMOKE DETECTOR IN RETURN OF AH-1.
- 2. MANUFACTURER SUPPLIED RESTROOM EXHAUST FAN LOUVERED BRICK VENT. COORDINATE LOCATION AND SIZE OF BRICK VENT WITH FLOOR PLAN, BUILDING STRUCTURE AND GENERAL CONTRACTOR PRIOR TO ORDERING AND INSTALLATION. VENT SHALL BE PRIMED FOR FIELD PAINTING.
- PROVIDE REFRIGERANT LINE SET, LIQUID LINE MOISTURE INDICATING SIGHT GLASS AND LIQUID LINE FILTER-DRYER. ALL REFRIGERANT LINES SIZING, ROUTING AND ACCESSORIES SHALL BE INSTALLED AND LOCATED STRICTLY PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. FAILURE TO INSTALL PIPING AS DESCRIBED MAY RESULT IN CONTRACTOR REPLACING REFRIGERANT PIPING AT NO ADDITIONAL COST TO OWNER. COORDINATE ROUTING OF REFRIGERANT PIPING WITH OTHER TRADES PRIOR TO INSTALLATION.
- 4. THERMOSTAT SUPPLIED BY MANUFACTURER WITH EACH PIECE OF EQUIPMENT. THERMOSTAT TO BE INSTALLED ON AN INSULATED SUBBASE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND MOUNTED SO THAT THE HIGHEST OPERABLE CONTROL IS NOT MORE THAT 48" AFF.
- 5. OUTSIDE AIR DUCT SHALL BE WRAPPED WITH MINIMUM 1-1/2" DUCT WRAP. FIELD ROUTE AS REQUIRED FROM RETURN AIR DUCT TO OUTSIDE AIR LOUVER. COORDINATE ROUTING AND MOUNTING HEIGHT OF WALL LOUVER WITH STRUCTURE AND ARCHITECTURAL ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.
- 6. ROUTE 4"Ø FLUE SEPARATELY THRU ROOF FOR EACH RADIANT HEATER. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND DETAIL ON SHEET M3 FOR FURTHER INFORMATION. COORDINATE WITH ARCHITECTURAL ROOF PLAN.
- 7. ALL EXHAUST FANS SHALL BE ROOF MOUNTED EXCEPT TOILET EXHAUST FAN WHICH SHOULD BE INLINE.
- 8. THE CONTRACTOR SHALL FURNISH A MANUFACTURER SPECIFIED (OR EQUAL)
  THERMOSTAT WITH INSULATED SUBBASE. THERMOSTAT TO BE 7 DAY PROGRAMMABLE
  WITH 4 SETBACK PERIODS PER DAY. THERMOSTAT TO BE INSTALLED PER
  MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT THERMOSTAT SO THAT THE
  HIGHEST OPERABLE CONTROL IS NOT MORE THAT 48" AFF.
- 9. DROP 16"x16" EXHAUST DUCT DOWN IN LOCATION SHOWN. INSTALL DUCTWORK TIGHT TO WALL AND TRANSITION AS REQUIRED TO FAN. TERMINATE AT 3' A.F.F.. COVER OPENING WITH 1"x1" WIRE MESH.
- 10. MOUNT GAS FIRED RADIANT HEATER TO STRUCTURE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO DETAIL ON SHEET M3 AND SERVICE BAY SECTION ON ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION.
- 11. ROUTE REFRIGERANT PIPE AS HIGH AS POSSIBLE AND TIGHT TO WALL. COORDINATE ROUTING WITH ALL OTHER TRADES.
- 12. COORDINATE MOUNTING HEIGHT OF SUPPLY AIR GRILLES INTO SALES WALL WITH INSTALLED HEIGHT OF DUCTWORK WITH STRUCTURE AND ARCHITECTURAL ELEVATIONS. BOTTOM OF GRILLE SHALL BE MOUNTED NO LESS THAN 9'-0" AFF.
- 13. DROP EXHAUST DUCT DOWN IN LOCATION SHOWN. INSTALL DUCTWORK TIGHT TO WALL AND STRUCTURE. TRANSITION AS REQUIRED FROM FAN ON ROOF. TERMINATE DUCTWORK AT 12" A.F.F. AND COVER WITH 1"X1" WIRE MESH.
- 14. 12x12 OUTDOOR AIR LOUVER EQUAL TO RUSKIN ELC445D WITH 0.59 SQFT FREE AREA. PROVIDE WITH 12" FIELD SUPPLIED SUPPLIED PLENUM AND BIRDSCREEN. DRAINABLE COMBINATION LOUVER WITH 120 VOLT MOTORIZED DAMPER INTERLOCKED WITH EF-4.
- 15. 60x24 OUTDOOR AIR LOUVER EQUAL TO RUSKIN ELC445D WITH 2.875 SQFT FREE AREA. PROVIDE WITH 12" FIELD SUPPLIED SUPPLIED PLENUM AND BIRDSCREEN. DRAINABLE COMBINATION LOUVER WITH 120 VOLT MOTORIZED DAMPER INTERLOCKED WITH EF-3.
- 16. 54x36 OUTDOOR AIR LOUVER EQUAL TO RUSKIN ELC445D WITH 4.71 SQFT FREE AREA. PROVIDE WITH 12" FIELD SUPPLIED SUPPLIED PLENUM AND BIRDSCREEN. DRAINABLE COMBINATION LOUVER WITH 120 VOLT MOTORIZED DAMPER INTERLOCKED WITH EF-1.
- 17. 12x16 OUTDOOR AIR LOUVER EQUAL TO RUSKIN ELC445D WITH 0.42 SQFT FREE AREA. PROVIDE WITH 12" FIELD SUPPLIED SUPPLIED PLENUM AND BIRDSCREEN. DRAINABLE

COMBINATION LOUVER WITH 120 VOLT MOTORIZED DAMPER INTERLOCKED WITH AH-1.

- 18. DROP 24"x24" EXHAUST DUCT DOWN IN LOCATION SHOWN. INSTALL DUCTWORK TIGHT TO WALL AND TRANSITION AS REQUIRED TO FAN. TERMINATE AT 3' A.F.F.. COVER OPENING WITH 1"x1" WIRE MESH.
- 19. DROP 14"x14" EXHAUST DUCT DOWN IN LOCATION SHOWN. INSTALL DUCTWORK TIGHT TO WALL AND TRANSITION AS REQUIRED TO FAN. TERMINATE AT 3' A.F.F.. COVER OPENING WITH 1"x1" WIRE MESH.
- 20. DROP EXHAUST DUCT DOWN IN LOCATION SHOWN. INSTALL DUCTWORK TIGHT TO WALL AND TRANSITION AS REQUIRED TO FAN. TERMINATE AT 3' A.F.F.. COVER OPENING WITH 1"x1" WIRE MESH.
- 21. MANUFACTURER SUPPLIED RESTROOM INLINE EXHAUST FAN. COORDINATE LOCATION
  AND SIZE OF VENT WITH FLOOR PLAN, BUILDING STRUCTURE AND GENERAL
  CONTRACTOR PRIOR TO ORDERING AND INSTALLATION. VENT SHALL BE PRIMED FOR
  FIELD PAINTING.





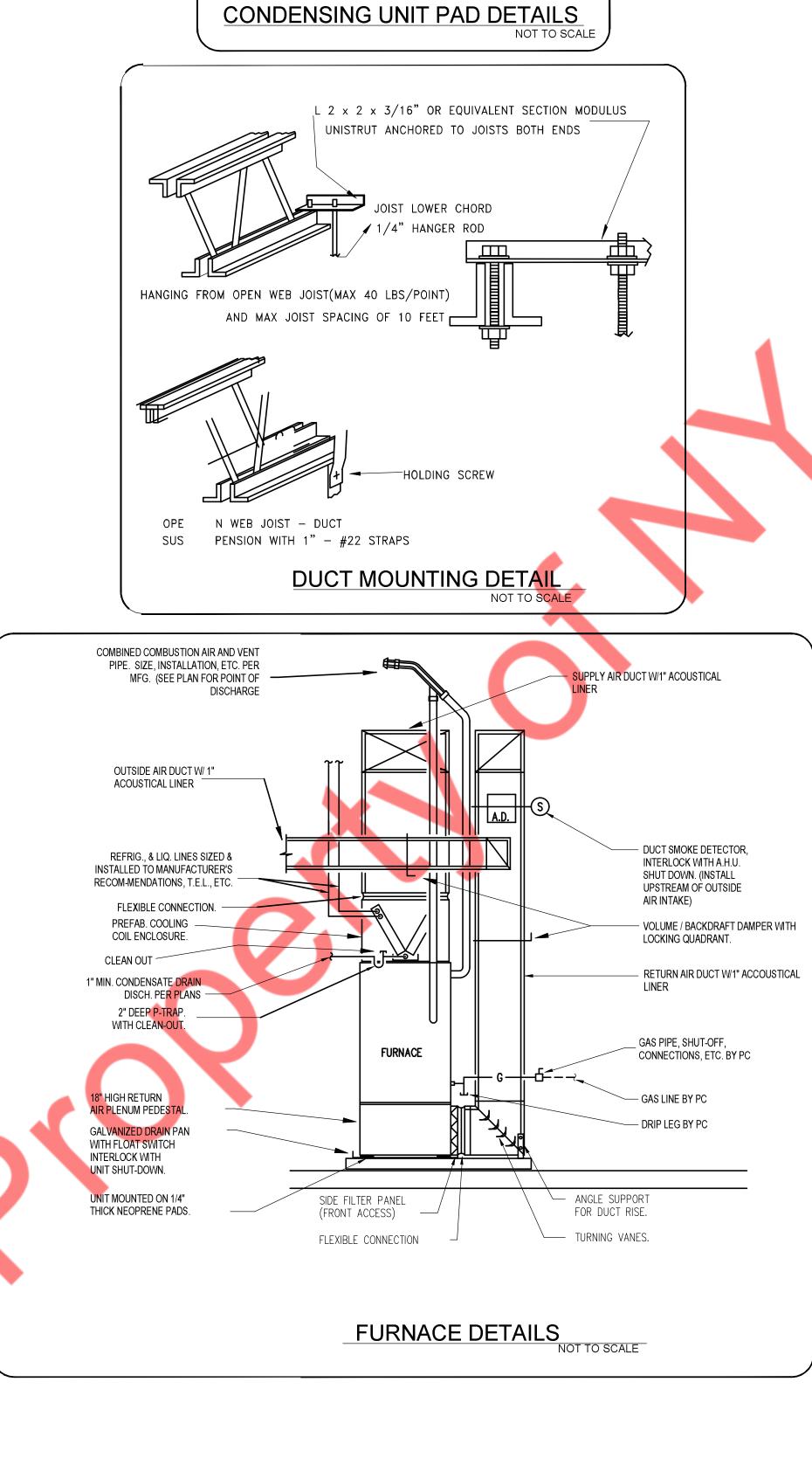
REFER TO DIFFUSER SCHEDULE

— CUBIC FEET PER MINUTE

NOT TO SCALE

DIFFUSER/GRILLE TYP<del>E</del> (REFER TO SCHEDULE)

DIFFUSER/GRILLE TAG



CONDENSING

GRADE -

