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BENFIELD APARTMENTS

111 E. Main St.
Gibsonville, NC 27249

SPLIT SYSTEM A/C WITH HEAT PUMP

MARK	TONS	MANUFACTURER	INDOOR UNIT					OUTDOOR UNIT				FAN DATA					COOLING CAPACITY				HEAT PUMP HEATING CAP. @ 47°F	MINIMUM ELECTRIC HEAT CAPACITY	MINIMUM HEAT EFFICIENCY	ACTUAL HEAT EFFICIENCY
			MODEL NO.	POWER	MCA	MCB	STRIP HEAT	MODEL NO.	POWER	MCA	MCB	AIR FLOW	R.A. FLOW	O.A. FLOW	E.S.P.	MOTOR SIZE	SENSIBLE	TOTAL	MIN. EFF.	ACTUAL EFF.				
AHU-1/HP-1	1.5	*GOODMAN	AWUF190516B	208V/1ø	24.9	25	5.0 KW	GSZ140191A	208V/1ø	12.4	20	600	600	0	.5" W.G.	1/3	13,920	17,400	14 SEER	14 SEER	18,000	1.0 KW	8.2 HSPF	8.2 HSPF
AHU-2/HP-2	1.5	*GOODMAN	AWUF190516B	208V/1ø	24.9	25	5.0 KW	GSZ140191A	208V/1ø	12.4	20	600	600	0	.5" W.G.	1/3	13,920	17,400	14 SEER	14 SEER	18,000	1.0 KW	8.2 HSPF	8.2 HSPF

*OR APPROVED EQUAL

MECHANICAL NOTES:

1. ALL HVAC EQUIPMENT AND DUCTWORK TO BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL CODES.
2. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL DUCTWORK, PIPING, AND ELECTRICAL REQUIREMENTS WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.
3. ALL EQUIPMENT TO BE INSTALLED AS SUGGESTED BY MANUFACTURER.
4. DUCTWORK TO BE WRAPPED WITH INSULATION. SUPPLY AND RETURN DUCTS IN UNCONDITIONED SPACES e.g. (ATTIC) SHALL BE INSULATED WITH MINIMUM R-8 INSULATION. SEE NORTH CAROLINA ENERGY CONSERVATION CODE (NCECC) SECTION 403.2.1.
5. MECHANICAL SYSTEM TO BE BALANCED AND TESTED AFTER INSTALLATION TO ASSURE PROPER OPERATION.
6. COORDINATE EXACT LOCATION OF THERMOSTATS WITH OWNER.
7. BATHROOM EXHAUST FANS ARE TO BE FURNISHED, INSTALLED AND DUCTED TO OUTDOORS BY THE MECHANICAL CONTRACTOR. EXHAUST FAN TO BE WIRED BY THE ELECTRICAL CONTRACTOR.
8. EXHAUST FAN DISCHARGE TO BE AT LEAST TEN FEET AWAY FROM HVAC FRESH AIR IN-TAKE. ALL EXHAUST FAN AND DRYER DUCT TERMINATIONS MUST BE 3 FEET AWAY FROM WINDOW OPENINGS.
9. FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.
10. DUCT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE INTENT OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL TRANSITIONS, OFFSETS, OR TURNS, IN THE DUCTWORK AND/OR PIPING, NOT SHOWN BUT REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
11. ALL DUCTWORK SHALL BE INSTALLED TIGHT AGAINST THE STRUCTURE UNLESS OTHERWISE NOTED OR SHOWN.
12. AIR DISTRIBUTION LOCATIONS SHOWN ON MECHANICAL PLANS ARE APPROXIMATE.
13. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.
14. FLEXIBLE DUCTWORK SHALL BE UL-181, CLASS 1 CERTIFIED.
15. REFRIGERANT LINES TO BE SIZED BY MANUFACTURER FOR LENGTH OF RUN BETWEEN COIL AND CONDENSER. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ENSURING ANY REQUIRED ACCESSORIES FOR LONG REFRIGERANT LINES ARE INSTALLED AS SPECIFIED BY EQUIPMENT MANUFACTURER.
16. ALL DRYER DUCTS SHALL BE 4"ø IN SIZE, AND CONSTRUCTED OF 0.0157" GALVANIZED STEEL OR NONCOMBUSTIBLE MATERIAL OF EQUIVALENT STRENGTH AND CORROSION RESISTANCE.
17. HEAT PUMPS SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTAL HEAT OPERATION WHEN THE HEAT PUMP COMPRESSOR CAN MEET THE HEATING LOAD. A HEAT STRIP OUTDOOR TEMPERATURE LOCKOUT SHALL BE PROVIDED TO PREVENT SUPPLEMENTAL HEAT OPERATION IN RESPONSE TO THE THERMOSTAT BEING CHANGE TO A WARMER SETTING. THE LOCKOUT SHALL BE SET NO LOWER THAN 35°F AND NO HIGHER THAN 40°F. SEE INCECC SECTION 403..1.2.
18. ALL DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED IN ACCORDANCE WITH SECTION 603.9 OF THE NC MECHANICAL CODE.
19. REFRIGERANT PIPING TO BE INSULATED WITH A MINIMUM OF R-3 INSULATION (NCECC SECTION 403.3).
20. DUCT LEAKAGE TEST TO BE PERFORMED FOR DUCTWORK LOCATED OUTSIDE OF THE BUILDING ENVELOPE (i.e. IN ATTIC) IN ACCORDANCE WITH NCECC SECTION 403.2.2.
21. PROGRAMMABLE THERMOSTAT SHALL BE CAPABLE OF CONTROLLING HEATING AND COOLING SYSTEM ON A DAILY TIME SCHEDULE TO MAINTAIN SET POINTS AT DIFFERENT TIMES OF THE DAY AND HAVE THE CAPABILITY TO TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN TEMPERATURES DOWN TO 55°F OR UP TO 85°F. SEE NCECC SECTION 403.1.1.
22. DRYER VENT COLOR TO BE SELECTED BY OWNER.
23. PRIMARY CONDENSATE DRAIN TO BE ROUTED TO OUTDOORS. VERIFY TERMINATION LOCATION WITH MECHANICAL INSPECTOR PRIOR TO INSTALLATION. THE PIPING FROM THE SECONDARY DRAIN PAN SHALL BE CONFIGURED SUCH THAT THE SAFETY FLOAT SWITCH WILL SHUT THE UNIT DOWN YET PREVENT THE PAN FROM OVERFLOWING SHOULD THE SAFETY SWITCH FAIL.
24. MAINTAIN PROPER SERVICE CLEARANCE AROUND EQUIPMENT.
25. REFRIGERANT PIPING TO BE ROUTED THROUGH CLOSET STUD WALLS WHERE POSSIBLE.
26. IF THE CONTRACTOR ELECTS TO USE FIRE PENETRATION PRODUCTS DIFFERENT THAN WHAT IS SHOWN ON THE DRAWINGS, IT IS THEIR RESPONSIBILITY TO VERIFY IT MEETS UL STANDARDS FOR THE ASSEMBLY AND FIRE RATING VALUE IT IS BEING APPLIED TO.
27. DRYER DUCT TO BE WRAPPED IN APPROVED FIRE WRAP RATED FOR 1-HOUR PROTECTION.

AIR DISTRIBUTION SCHEDULE

MARK	MANUFACTURER	NECK SIZE	PANEL SIZE	CFM RANGE	USE	TYPE	MODEL	MATERIAL	REMARKS
A	E.H. PRICE	28x4	30x6	0-500	SUPPLY	SPIRAL LOUVER FACE	SDG-ST-AS	STEEL	SPIRAL DUCT SIZE MIN/MAX 8"/21"
B	E.H. PRICE	–	12x6	0-200	SUPPLY	SIDEWALL REGISTER	520D	STEEL	–

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	CFM	SP	MOTOR	POWER	SONES	WATTS	CONTROL
EF-1	GREENHECK	SP-A90	CEILING EXHAUST	70	0.25" W.G.	FHP	120V/1ø	0.4	16.9	WALL SWITCH
EF-2	GREENHECK	SP-A90	CEILING EXHAUST	70	0.25" W.G.	FHP	120V/1ø	0.4	16.9	WALL SWITCH

Natural Ventilation Calculations

Occupany Classification	Gross Square Feet (SF)	Operable Opening Area Required @ 4% of Ventilated Area (SF)	Operable Opening Area Provided (SF)
UNIT A	588	23.52	31

Natural Ventilation Calculations

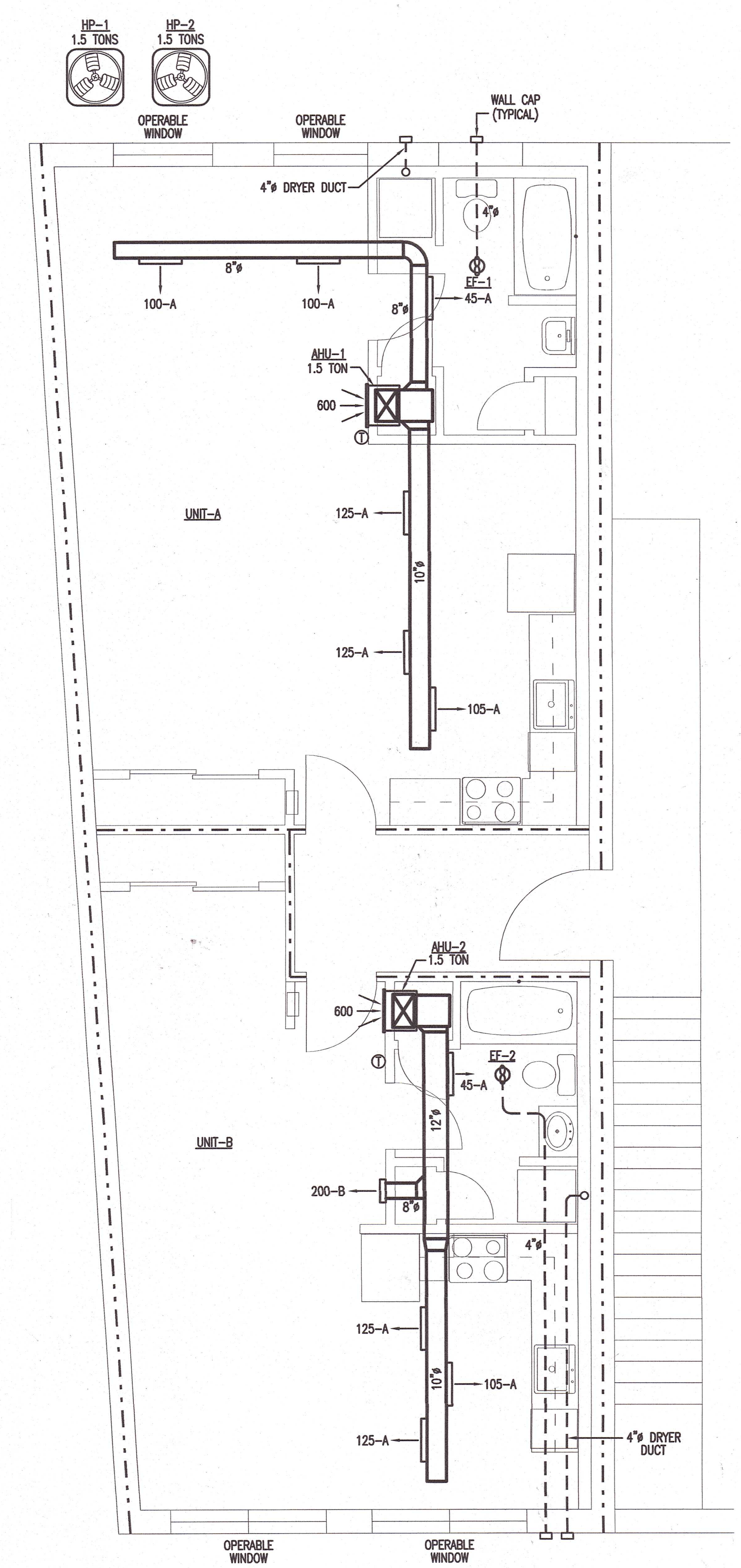
Occupany Classification	Gross Square Feet (SF)	Operable Opening Area Required @ 4% of Ventilated Area (SF)	Operable Opening Area Provided (SF)
UNIT B	469	18.76	50

SYMBOLS & ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION
	PROGRAMMABLE THERMOSTAT (SEE NOTE 6)
	CEILING SUPPLY DIFFUSER
	SIDEWALL SUPPLY DIFFUSER
	SUPPLY DUCT SECTION
	RETURN DUCT SECTION
CFM	CUBIC FEET PER MINUTE
ø	DIAMETER OR POWER PHASE
O.A.	OUTSIDE AIR
R.A.	RETURN AIR
S.A.	SUPPLY AIR
A.F.F.	ABOVE FINISHED FLOOR
	EXHAUST FAN

WALL LEGEND

SYMBOL	DESCRIPTION
	1-HOUR RATED FIRE WALL
	2-HOUR RATED FIRE WALL



1 / M-1 MECHANICAL PLAN
SCALE: 1/4" = 1'-0"

DRAWING NAME	MECHANICAL PLAN
SEAL	NORTH CAROLINA PROFESSIONAL SEAL 050989 ENGINEER
DRAWN	HLD
CHECKED	JNK
DATE	11/29/23
SCALE	AS NOTED
JOB NO.	23052
SHEET	M-1