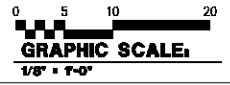


NOTES: (THIS SHEET ONLY)

- 1 16x18 16 GA. BLACK STEEL DUCT DOWN TO HOOD FLANGE. MATCH FLANGE SIZE.
- 2 18x18 MAKE-UP DUCT FROM S-1 TO HOOD. MATCH FLANGE SIZE.
- 3 PROVIDE SUPPORT CURBS FOR AFQ REFRIGERATION EQUIPMENT. SEE DETAIL 76, M2.1.
- 4 10x10 EA DUCT UP THRU ROOF BETWEEN JOISTS. SEE DETAIL 16, M2.1.
- 5 PROVIDE PIPE CURBS FOR AFQ REFRIGERATION EQUIPMENT. SEE DETAIL 12A, M2.1.
- 6 16x16 EA DUCT UP THRU ROOF BETWEEN JOISTS. SEE DETAIL 16, M2.1.
- 7 16x8 TRANSFER OPENING ABOVE CEILING.
- 8 RETURN AIR OPENING TO CEILING PLENUM WITH MANUAL VOLUME DAMPER AND 1/2" MESH SCREEN. SIZE INDICATED.
- 9 MOUNT REGISTER WITH TOP HIGH AS POSSIBLE. TYPICAL.
- 10 AFQ ICE MACHINE.
- 11 PROVIDE PIPE CURB FOR ICE MACHINE REFRIGERANT PIPING. SEE DETAIL 12A, M2.1.
- 12 AFQ SHOPPETTE COOLER CONDENSING UNIT.
- 13 AFQ PIZZA COOLER CONDENSING UNIT.
- 14 INSTALL WITH BOTTOM TIGHT TO DOOR FRAME.
- 15 3/4" DOOR UNDERCUT.
- 16 18x12 DOOR GRILLE.
- 17 18x18 SA DUCT UP THRU ROOF SIMILAR TO DETAIL 16, M2.1.
- 18 INSTALL REFRIGERANT LIQUID AND HOT GAS PIPING FROM ICE MACHINE TO CONDENSER IN COMPLIANCE WITH EQUIPMENT MANUFACTURERS REQUIREMENTS AND RECOMMENDATIONS. SLOPE FROM CONDENSER DOWN TO ICE MACHINE.
- 19 SUSPEND FROM STRUCTURE AT 10'-0" AFF.
- 20 MOUNT AFQ CONDENSER ON ROOF SUPPORT CURBS. SEE DETAIL 76, M2.1.
- 21 RUN DUCT BETWEEN JOISTS, HIGH AS POSSIBLE.
- 22 INSTALL AFQ REACH-IN FREEZER.
- 23 MOUNT AFQ REACH-IN FREEZER CONDENSING UNIT ON ROOF SUPPORT CURBS. SEE DETAIL 76, M2.1.
- 24 INSTALL REFRIGERANT LIQUID AND SUCTION PIPING FROM REACH-IN FREEZER TO CONDENSING UNIT IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 25 PROVIDE PIPE CURBS FOR REACH-IN FREEZER REFRIG. PIPING. SEE DETAIL 12A, M2.1.



REV. #	DESCRIPTION	DATE	BY



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DESIGNED BY: EDR	DATE: 4/16/01	THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY: RANDY MCCOY REGISTERED PROFESSIONAL ENGINEER 04-16-07 THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.
CHECKED BY: GLC	SCALE: AS NOTED	
REVIEWED BY: RRH	PROJECT NUMBER: 0530-00-000029	
DATE: 4/16/01		

McCOY AND HOWARD - CONSULTING ENGINEERS INC.
ILLINOIS DESIGN FIRM REGISTRATION NO. 184 - 001152
P.O. BOX 381 MT. VERNON, ILLINOIS 62884 PHONE 618/242-0473

NOTE: HOLD ALL DUCTWORK IN SHOPPETTE TIGHT TO STRUCTURE U.N.O. LIMITED SPACE AVAILABLE ABOVE CEILING. COORDINATE DUCTWORK WITH OTHER TRADES.

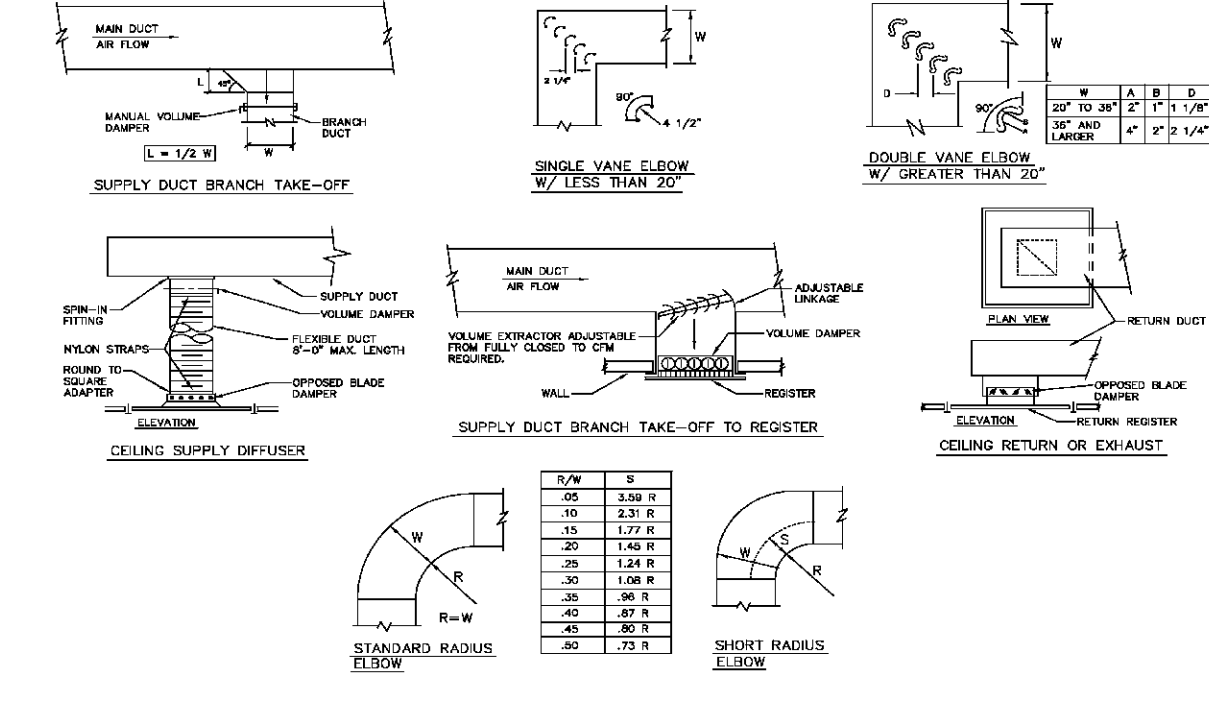
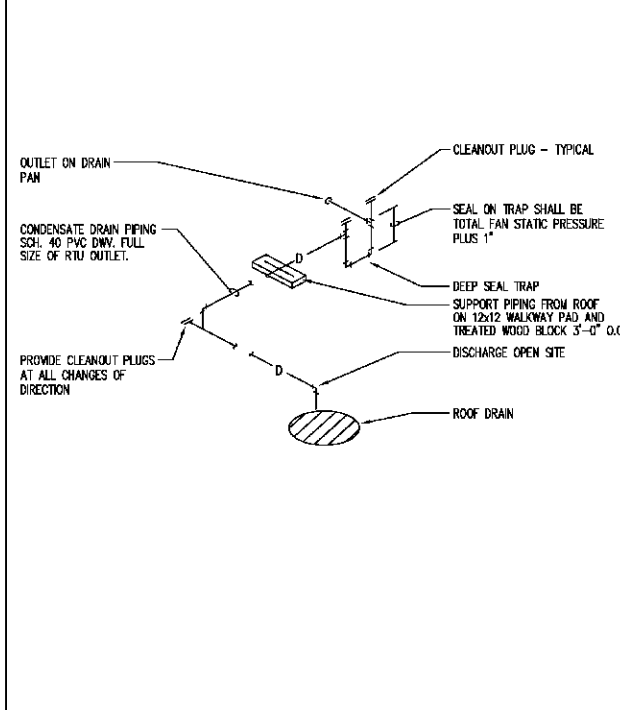
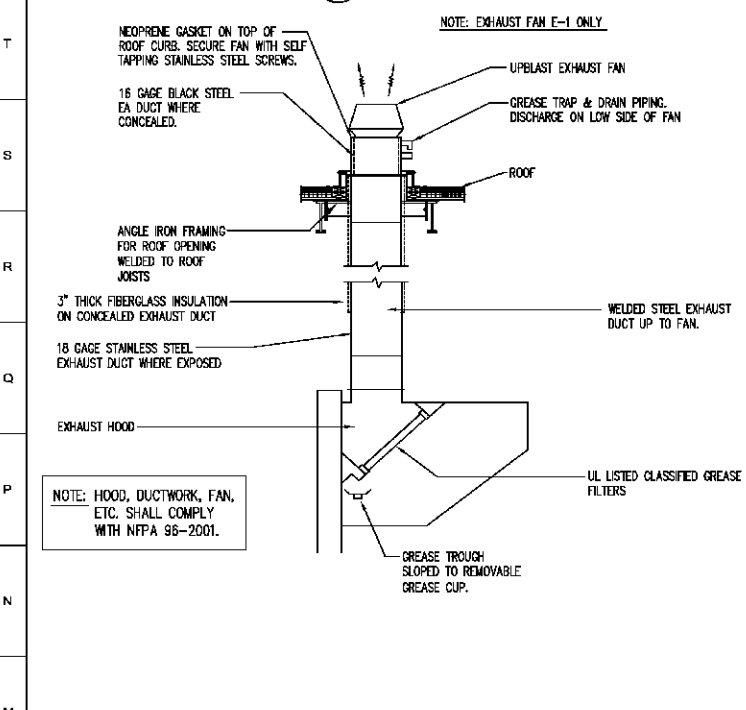
PROJECT TITLE:
MINI-MALL / GAS / CAR WASH
FORT BRAGG, NORTH CAROLINA

SHEET TITLE: **MECHANICAL PLAN**
SHEET NUMBER: **M1.1**

1A MECHANICAL PLAN

1/8" = 1'-0"

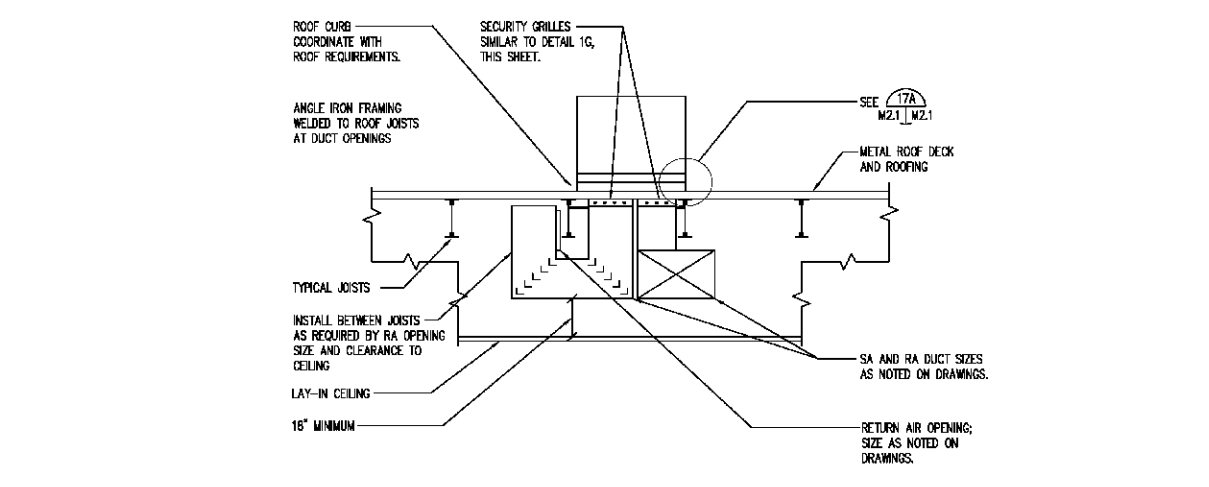
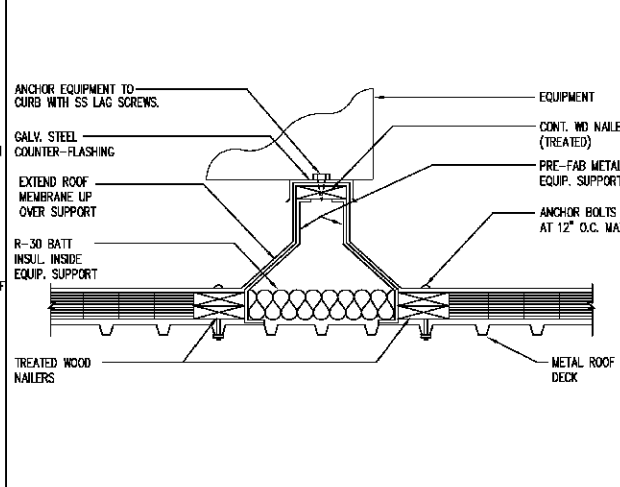
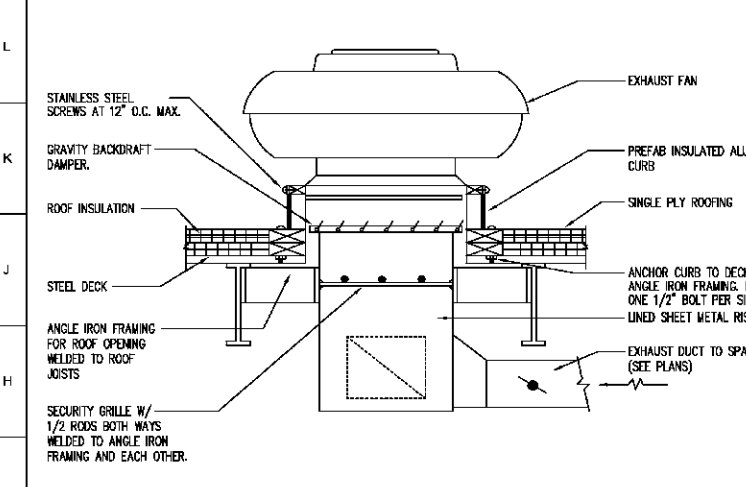




1M EXHAUST HOOD AND DUCTWORK
NO SCALE HJ

7M RTU CONDENSATE DRAIN DETAIL
NO SCALE HJ

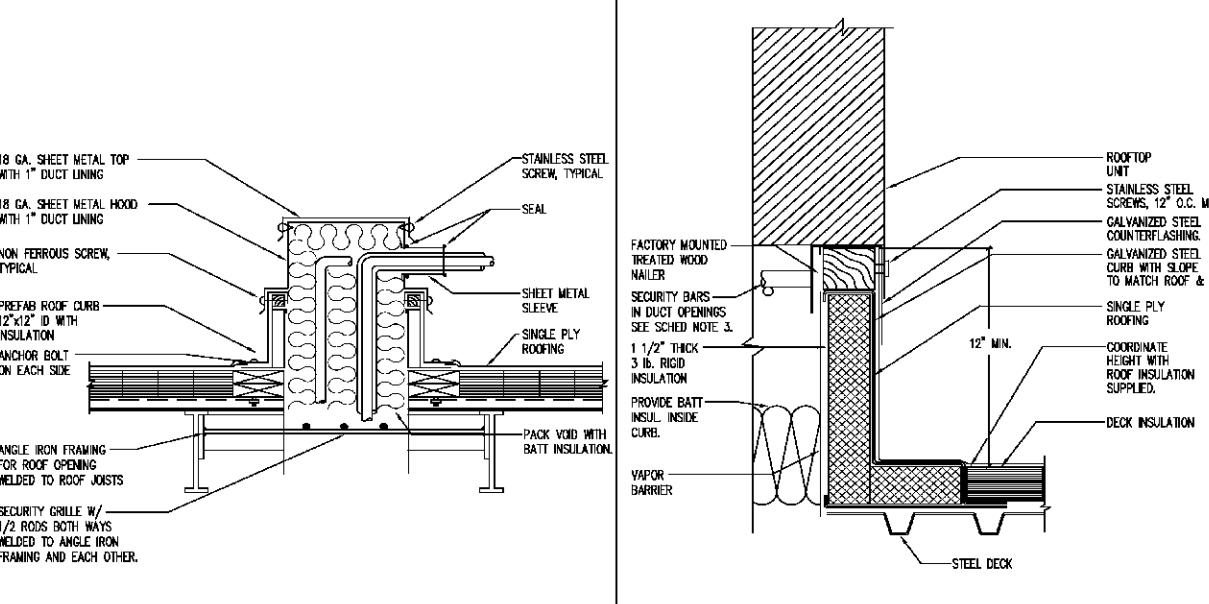
12M SHEET METAL DUCTWORK DETAILS
NO SCALE HJ



1G EXHAUST FAN DETAIL
NO SCALE HJ

7G ROOF EQUIPMENT SUPPORT CURB DETAIL
NO SCALE HJ

12G SECTION THRU TYPICAL ROOFTOP UNIT
NO SCALE HJ



12A PIPE CURB DETAIL
NO SCALE HJ

17A ROOFTOP UNIT MOUNTING CURB
NO SCALE HJ



REV. #	DESCRIPTION	DATE	BY

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DESIGNED BY	EDR	DATE	4/6/01
CHECKED BY	GLC	SCALE	AS NOTED
REVIEWED BY	RRM	PROJECT NUMBER	0530-00-000029

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY: RANDY MCCOY 0234062 04-18-07
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McCOY AND HOWARD CONSULTING ENGINEERS INC.
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PROJECT TITLE: **MINI-MALL / GAS / CAR WASH**
FORT BRAGG, NORTH CAROLINA

SHEET TITLE: **MECHANICAL DETAILS** SHEET NUMBER: **M2.1**

ROOFTOP UNIT SCHEDULE

MARK	RT-1	RT-2	RT-3	RT-4	RT-5	RT-6
TRANE MODEL NO.	YHC120	YHC148	YHC182	YHC202	YHC252	YHC300
TOTAL AIRFLOW - CFM	4,000	1600	3,000	3,000	3,000	2000
OUTDOOR AIRFLOW - CFM	1200	320	150	600	600	200
EXTERNAL STATIC PRESSURE - IN. W.C.	0.6	0.4	0.6	0.6	0.6	0.6
INDOOR FAN RPM						
SENSIBLE COOLING CAPACITY - BTU/HR						
TOTAL COOLING CAPACITY - BTU/HR						
MIN ENERGY EFFICIENCY RATIO	11.2 EER	12 SEER	11.5 EER	11.5 EER	11.5 EER	11.8 SEER
NOM. NATURAL GAS INPUT - BTU/HR	250,000	120,000	200,000	200,000	200,000	130,000
DERATED HEATING OUTPUT - BTU/HR	202,500	96,000	162,000	162,000	162,000	103,000
AFUE	81	81	81	81	81	80
ELECTRICAL SERVICE - VOLTS-PHASE-CYCLE	208-3-60	208-3-60	208-3-60	208-3-60	208-3-60	208-3-60
COMPRESSOR RATED LOAD AMPS (RLA)	18.6/14.7	12.5	2 @ 12.4	2 @ 12.4	2 @ 12.4	17.4
INDOOR FAN FULL LOAD AMPS (FLA)	9.4	2.0	6.3	6.3	6.3	5.0
OUTDOOR FAN FULL LOAD AMPS (FLA)	4.0	5.0	2.5	2.5	2.5	2.0
MINIMUM CIRCUIT AMPS	48.6	22.6	38.1	38.1	38.1	28.8
MAX. FUSE OR HACR CIRCUIT BREAKER	60	35	50	50	50	45
OPERATING WEIGHT - LBS.	1500	800	1200	1200	1200	700
COOLING COIL ENT. AIR DB/WB	84.9/68.6	82.6/67.4	79.2/65.6	81.0/67.4	81.0/67.4	79.5/66.2
FURNACE ENT. AIR DB	53.9	58.6	65.6	58.6	58.6	63.3
COOLING COIL L.V.G. AIR DB/WB						
FURNACE L.V.G. AIR DB	100.8	114.1	115.6	108.6	108.6	111.0
NOMINAL TONS	10	4	7.5	7.5	7.5	5
AREA SERVED	DINING	BARBER	PIZZA	RETAIL	RETAIL	MPA

- NOTES: PROVIDE ROOFTOP UNITS WITH FOLLOWING ACCESSORIES:
1. ROOF MOUNTING CURB
 2. INTEGRATED DRY-BUILD ECONOMIZER
 3. BURGLAR BARS
 4. COMPRESSOR CYCLE DELAY TIMER
 5. BAROMETRIC RELIEF DAMPER
 6. HAIL GUARD
 7. FACTORY MOUNTED DISCONNECT AND THRU THE BASE ELECTRIC.
 8. HINGED ACCESS DOORS.

CAPACITIES BASED ON 101°F DEGREE AIR ENTERING CONDENSER.
ALL ROOFTOP UNITS SHALL USE R-22 OR R-410A REFRIGERANT.
OTHER APPROVED MANUFACTURERS: CARRIER, LENNOX, AMERICAN STANDARD.

GRILLES, REGISTERS, AND DIFFUSERS

MARK	TITUS MODEL NO.	USE	MOUNTING LOCATION	MOUNTING FRAME	AIR PATTERN	FINISH	REMARKS
1	50-F	EXHAUST	CEILING	SURFACE	----	SFSA	
2	50-F	RETURN	LAY-IN CLG	LAY-IN	----	SFSA	
3	TDCA	SUPPLY	LAY-IN CLG	LAY-IN	4-WAY	SFSA	WITH OBD
4	TDCA	SUPPLY	LAY-IN CLG	LAY-IN	2-WAY OPPOS	SFSA	WITH OBD
5	300 RL	SUPPLY	SIDEWALL	SURFACE	DBL DEFLECT	SFSA	WITH OBD
6	TDCA	SUPPLY	CEILING	SURFACE	2-WAY CORNER	SFSA	WITH OBD
7	TDCA	SUPPLY	CEILING	SURFACE	2-WAY OPPOS	SFSA	WITH OBD
8	33 RL	RETURN	SIDEWALL	SURFACE	----	SFSA	
9	TDCA	SUPPLY	CEILING	SURFACE	4-WAY	SFSA	WITH OBD

- NOTES: 1. PAINT ALL BARE METAL SURFACES EXPOSED TO VIEW THRU GRILLE, REGISTER OR DIFFUSER WITH FLAT BLACK PAINT.
2. OBD (OPPOSED BLADE DAMPER).
3. SFSA INDICATES STANDARD FINISH SELECTED BY ARCHITECT.

EXHAUST FAN SCHEDULE

MARK	GREENHECK MODEL NO.	CFM	EXT. S.P. IN. W.C.	FAN RPM	TYPE OF DRIVE	CONTROL OR ARI INTERLOCK	DAMPER SIZE IN. X IN.	MOTOR HP	VOLT	PH	REMARKS	AREA SERVED
E-1	GB-141-4	900	0.25	707	BELT	RT-1	18X16	1/4	120	1	PC,DS,BS,BO	TOILETS
E-2	GB-081-6	300	0.25	900	BELT	RT-2	10X10	1/8	120	1	PC,DS,BS,BO	BARBER
E-3	CUJE-180-10	2300	1.0	1061	BELT	MANUAL SWITCH	18X18	1	208	1	PC,CE,DS,UL,CT,K	PIZZA
E-4	GB-081-6	450	0.25	902	BELT	RT-5	12X12	1/4	120	1	PC,DS,BS,BO	SHOPPETTE TOILET
E-5	GB-081-6	300	0.25	900	BELT	REV ACT TSTAT	10X10	1/8	120	1	PC,DS,BS,BO	ELECTRICAL ROOM

- NOTES: PC = PREFAB ALUM. 12" HIGH ROOF CURB WITH SLOPE AND COLOR TO MATCH ROOF. RC = SLOPE ROOF CAP, EDS = NEMA 3R DISCONNECT SWITCH
CG = CEILING GRILLE, DS = DISCONNECT SWITCH, BS = BROODSCREEN, BO = BACKDRAFT DAMPER, IC = INLET GRILLE, HK = HINGING KIT, UL = UL CLASS 762
V = VIBRATION ISOLATORS, USOR = UNIT MOUNTED SPEED CONTROLLER, SCR = SPEED CONTROLLER, IS = INTAKE GRILLE
TS = TWO SPEED, EXP = EXPLOSION PROOF, UDC = UNDER EAVE DISCHARGE CAP, PM = PAINT TO MATCH ROOF, GT = GREASE TRAP, RJ = SLOPED ROOF JACK

EXHAUST HOOD SCHEDULE

MARK	MODEL NO.	TYPE	CFM	DUCT FLANGE IN. X IN.	DIMENSIONS (IN)	AREA SQ. FT.	AREA SERVED	MANUFACTURER		
EH-1	CWC-4	LIGHT DUTY	2300	16x6	24	102	75	62.5	PIZZA	GREASEMASTER, 4 SIDES EXPOSED

- NOTE: 1. PROVIDE HOOD EH-1 WITH STAINLESS STEEL FLAME GUARD FILTERS.
2. HOODS SHALL BE MOUNTED AS INDICATED ON HOOD SHOP DRAWINGS AND EQUIPMENT DRAWINGS, & UL LISTING REQUIREMENTS.
3. PROVIDE HOODS WITH UL LISTED LIGHT FIXTURES AT 3'-0" O.C. MAX AND FACTORY INSTALLED LIGHT SWITCHES.
4. HOOD SHALL BE UL LISTED FOR SERVICE OVER OVDMS AT 270 CFM PER LINEAL FOOT EXHAUST, 200 CFM PER LINEAL FOOT MAKE-UP.
5. PROVIDE 6" HIGH STAINLESS STEEL ENCLOSURE PANELS FOR 4 SIDES.

FLY FAN SCHEDULE

MARK	GREENHECK MODEL NO.	CFM	EXT. S.P. IN. W.C.	FAN RPM	TYPE OF DRIVE	CONTROL OR ARI INTERLOCK	DAMPER SIZE IN. X IN.	MOTOR HP	VOLT	PH	REMARKS	AREA SERVED
FF-1	MARS 36CH	2550	-----	1750	DIRECT	MICROSWITCH	-----	1/2	120	1	MB	PREP AREA
FF-2	MARS 36CH	2550	-----	1750	DIRECT	MICROSWITCH	-----	1/2	120	1	MB	MPA
FF-3	MARS 36CH	2550	-----	1750	DIRECT	MICROSWITCH	-----	1/2	120	1	MB	MPA

NOTES: MB = MICROSWITCH CONTROL

WALL MOUNTED ELECTRIC UNIT HEATER SCHEDULE

MARK	BERKO MODEL NO.	CAPACITY (WATTS)	VOLTS/PH	AMPS	REMARKS	AREA SERVED
EUH-1	HUH-524TA	2500	208/1	12.0	SEE BELOW	MECHANICAL ROOM

- NOTES: 1. PROVIDE UNIT WITH FACTORY MOUNTED DISCONNECT SWITCH, FAN RELAY SWITCH, INTEGRAL THERMOSTAT, AND AUTO RESET THERMAL CUT-OFF.

SUPPLY FAN SCHEDULE

MARK	GREENHECK MODEL NO.	CFM	EXT. S.P. IN. W.C.	FAN RPM	TYPE OF DRIVE	CONTROL	DAMPER SIZE IN. X IN.	MOTOR HP	VOLT	PH	REMARKS	AREA SERVED
S-1	RSF-120-S	1700	0.5	632	BELT	FLOCK E-3	18x18	1/2	120	1	PC	PIZZA

- NOTES: 1. PROVIDE HIGH EFFICIENCY MOTORS PER 15060
2. PROVIDE WITH DISCONNECT SWITCH, MOTORIZED BACKDRAFT DAMPERS, AND WASHABLE ALUMINUM FILTERS.
3. PC = PREFAB ALUM. 12" HIGH ROOF CURB WITH SLOPE AND COLOR TO MATCH ROOF

MECHANICAL SYMBOL SCHEDULE

- D — CONDENSATE DRAIN
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTIOM
- ELBOW TURNED UP
- ELBOW TURNED DOWN
- ⊕ TEE - 45° BOTTOM OUTLET
- ⊕ TEE - 45° TOP OUTLET
- ⊕ UNION OR FLANGE
- ⊕ SUPPLY AIR DUCTWORK (SA)
- ⊕ RETURN, EXHAUST, OR OUTDOOR AIR DUCTWORK (RA, EA, OA)
- ⊕ SUPPLY
- ⊕ RETURN OR EXHAUST
- ⊕ INCLINE RISE (IN DIRECTION OF FLOW)
- ⊕ INCLINE DROP (IN DIRECTION OF FLOW)
- ⊕ FLEXIBLE DUCTWORK
- ⊕ FLEXIBLE DUCT CONNECTION
- ⊕ FIRE DAMPER
- ⊕ VOLUME DAMPER
- ⊕ ACCESS DOOR IN DUCTWORK
- ⊕ SECURITY GRILLE WITH 1/2" BARS 6" O.C. BOTH WAYS
- ⊕ ACCESS PANEL IN BUILDING CONSTRUCTION - SIZE
- ⊕ ADJUSTABLE VOLUME EXTRACTOR
- ⊕ SPLITTER DAMPER
- ⊕ TURNING VANES
- ⊕ THERMOSTAT - MOUNT 48" AFF, G INDICATES GAIRD, N INDICATES NIGHT
- ⊕ GRILLE OR DIFFUSER SYMBOL - SEE SCHEDULE, THROAT SIZE INDICATED
- ⊕ EQUIPMENT DESIGNATION - SEE SCHEDULE
- ⊕ DOOR GRILLE AND SIZE
- ⊕ DOOR UNDERCUT
- ⊕ MOTORIZED DAMPER

- §1**
- THE CONTRACTOR SHALL VISIT THE JOB SITE BEFORE BIDDING TO ACQUAINT HIMSELF WITH THE CONDITIONS UNDER WHICH THE WORK MUST BE CARRIED OUT.
 - THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING AND REFINISHING REQUIRED FOR THE INSTALLATION OF HIS WORK. HE SHALL CUT, PATCH AND REFINISH TO MATCH ADJACENT SURFACES.
 - MAXIMUM LENGTH OF ALL FLEXIBLE DUCTWORK SHALL BE 8'-0".
 - ALL SUSPENDED DUCTWORK, PIPING, EQUIPMENT, ETC. SHALL BE HUNG FROM STRUCTURAL BEAMS ROOF STRUCTURE AND CEILING SUPPORT STRUCTURE. NOTHING SHALL BE HUNG FROM METAL ROOF. COORDINATE WITH ROOF MANUFACTURERS REQUIREMENTS.
 - KEEP ALL EQUIPMENT SERVICE ACCESS AREAS CLEAR OF ALL ELECTRICAL CONDUITS, CONTROL WIRING, DUCTWORK, WATER PIPING, ETC. SO AS NOT TO HINDER SERVICE ACCESS TO EQUIPMENT FOR MAINTENANCE AND REPAIR.
 - INDICATED LOCATIONS OF CEILING MOUNTED DIFFUSERS, REGISTERS, EXHAUST FANS, ETC. ARE APPROXIMATED. COORDINATE ACTUAL LOCATION WITH ELECTRICAL AND REFLECTED CEILING WORK.
 - ALL TEMPERATURE CONTROL WIRING AND DEVICES SHALL BE BY THIS CONTRACTOR IN COMPLIANCE WITH DIVISION 16 REQUIREMENTS.
 - AFAI INDICATES EQUIPMENT FURNISHED AND INSTALLED BY THE ARMY AIR FORCE EXCHANGE SERVICE. CONTRACTOR SHALL PROVIDE ALL NECESSARY ROUGH-IN CONNECTIONS TO EQUIPMENT REQUIRING SAME.
 - AFCI INDICATES EQUIPMENT FURNISHED BY THE ARMY AIR FORCE EXCHANGE SERVICE. CONTRACTOR SHALL PROVIDE ALL NECESSARY ROUGH-IN CONNECTIONS TO EQUIPMENT REQUIRING SAME.
 - REFRIGERANT PIPING SHALL COMPLY WITH EQUIPMENT MANUFACTURERS PUBLISHED RECOMMENDATIONS AND REQUIREMENTS. PIPE SIZES AND ROUTING INDICATED ARE SCHEMATIC.

DESIGN CONDITIONS

SUMMER
93°F DB + 77°F WB
78°F DB, 65°F WB

* 101°F FOR AIR COOLED EQUIPMENT CAPACITY SELECTION



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MINI-MALL / GAS / CAR WASH
FORT BRAGG, NORTH CAROLINA

MECHANICAL SYMBOLS / SCHEDULES

M3.1