

JOIST BEARING HGT 29' - 0"

SECTION THRU LOBBY

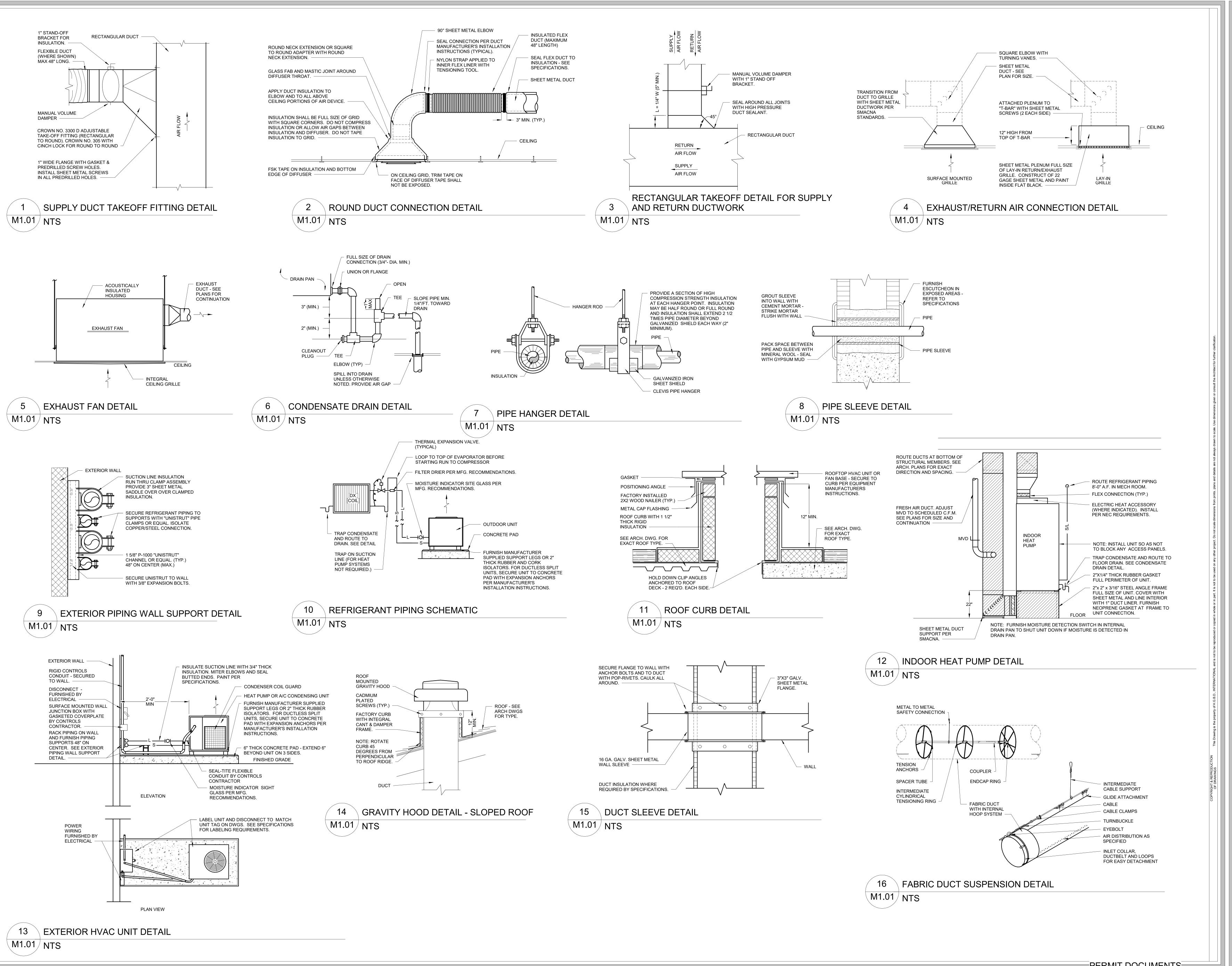
M0.02 1/8" = 1'-0"

DESIGNED DRAWN CHECKED CAB CAB CAB DATE: 08/02/2019 JOB NO. 216 4801 01 05/15/19 EFFINGHAM COUNTY GYMNASIUM CLARENCE E. MORGAN RECREATION COMPLEX HVAC ROOF

DRAWING NUMBER

M0.02

PERMIT DOCUMENTS



PERMIT DOCUMENTS

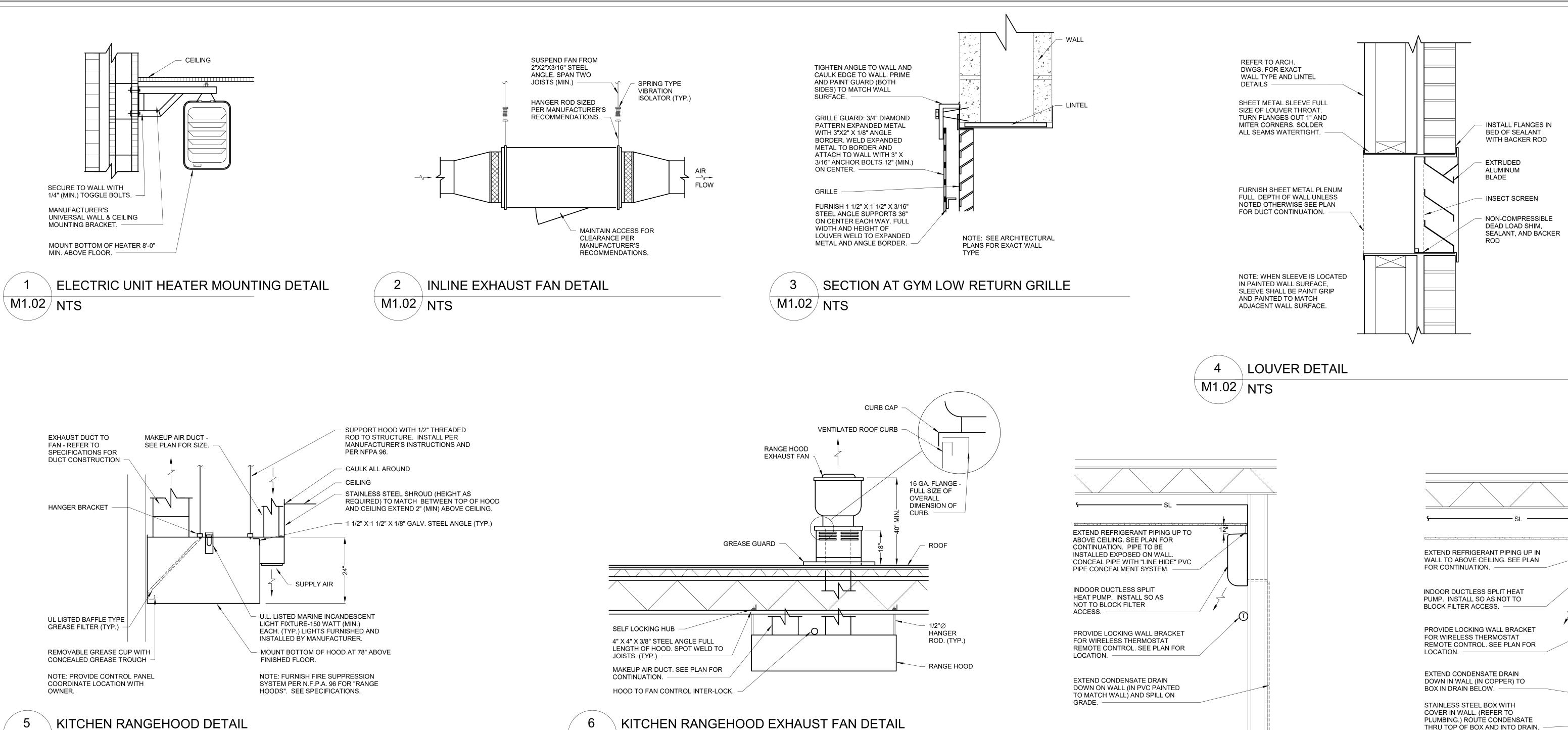
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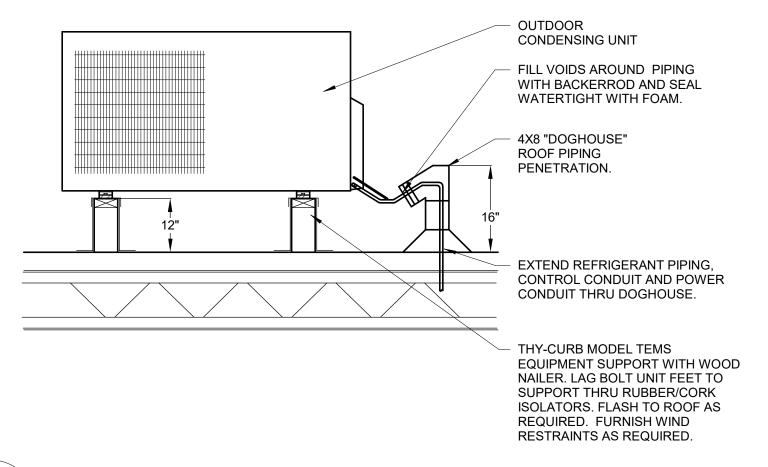
GYMNASIUM REATION COMPLEX OUNT SAN REC

DRAWING NUMBER

M1.01

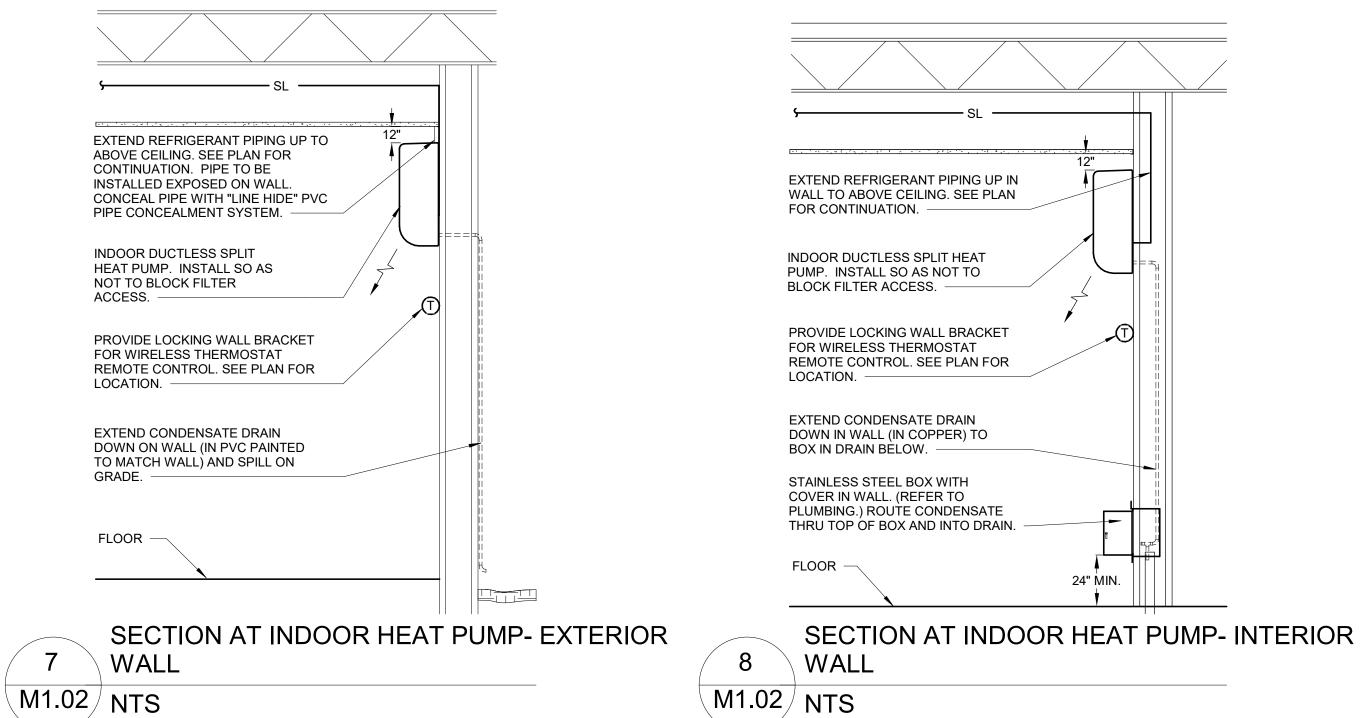


M1.02 NTS





M1.02/NTS





DESIGNED DRAWN CHECKED Designer Author Checker DATE: 08/02/2019 JOB NO. 216 4801 01

07/01/19

GYMNASIUM REATION COMPLEX

COUNTY RGAN RECRI

DRAWING NUMBER

M1.02

DDC SYSTEM POINTS LIST - MISC POINTS												
HARDWARE POINTS SOFTWARE POINTS										SHOWN ON		
POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ANALOG VALUE	BINARY VALUE	PID LOOP	SCHEDULE	TREND	ALARM	GRAPHIC	
OUTSIDE AIR TEMPERATURE	Х								Х		Х	
OUTSIDE AIR HUMIDITY	Х								Х		Х	

	DDC	SYS	TEM	POI	NTS	LIST	- DA	TA RO	OM		
	Н	IARDWAF	RE POINT	S			SOFT	TWARE POIN	TS		SHOWN ON GRAPHIC
POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ANALOG VALUE	BINARY VALUE	PID LOOP	SCHEDULE	TREND	ALARM	GRAPHIC
SPACE TEMP (1)	Х										Х
HIGH SPACE TEMP										X	

(1) TEMPERATURE IS FOR INFORMATION ONLY. CONTROL OF UNIT SHALL BE THRU UNIT FURNISHED CONTROLS.

	Н	rs		SHOWN ON GRAPHIC							
POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ANALOG VALUE	BINARY VALUE	PID LOOP	SCHEDULE	TREND	ALARM	GIVAFIIIC
ZONE TEMP	Х								Х		Х
ZONE SETPOINT ADJUST	Х										Х
SUPPLY AIR TEMPERATURE	Х								Х		Х
SMOKE DETECTOR (1)			Х						Х	Х	Х
FAN STATUS			Х						Х		Х
FAN START/STOP				Х					Х		Х
REVERSING VALVE				Х					Х		Х
COMPRESSOR STAGE 1				Х					Х		Х
COMPRESSOR STAGE 2 (1)				Х					Х		Х
HEATING STAGES				Х					Х		Х
SCHEDULE								Х			
HEATING SETPOINT									Х		Х
COOLING SETPOINT									Х		Х
HIGH ZONE TEMP										Х	
LOW ZONE TEMP										Х	
FAN FAILURE										Х	
FAN IN HAND										Х	
HIGH SUPPLY AIR TEMP										Х	
LOW SUPPLY AIR TEMP										Х	

(1) WHERE	REQUIRED
(') ** : : = : \ =	I VE QUII VE E

	+	IARDWAF	RE POINT	rs			SOFT	WARE POIN	ΓS		SHOWN ON
POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ANALOG VALUE	BINARY VALUE	PID LOOP	SCHEDULE	TREND	ALARM	GRAPHIC
ZONE TEMP	Х								Х		Х
ZONE SETPOINT ADJUST	Х										Х
SUPPLY AIR TEMPERATURE	Х								Х		Х
MIXED AIR TEMPERATURE	Х								Х		
COMPRESSOR STAGE 1				Х					Х		Х
COMPRESSOR STAGE 2				Х					Х		Х
COMPRESSOR STAGE 3				Х					Х		Х
ELECTRIC HEAT STAGE 1				Х					Х		Х
ELECTRIC HEAT STAGE 2				Х					Х		Х
OUTDOOR AIR DAMPER		Х							Х		Х
ZONE OVERRIDE			Х						Х		Х
SMOKE DETECTOR			Х						Х	Х	Х
FAN STATUS			Х						Х		Х
FAN START/STOP				Х					Х		Х
SPACE HUMIDITY	Х								Х		Х
SPACE CO2	Х				Х				Х		Х
SCHEDULE								х			
ECONOMIZER ZONE TEMP SETPT					Х				Х		Х
DEHUMIDIFICATION SETPOINT					Х				Х		Х
PERCENT OF TIME SATISFIED					Х				Х		
HEATING SETPOINT									Х		Х
COOLING SETPOINT									Х		Х
HIGH ZONE TEMP										Х	
LOW ZONE TEMP										Х	
COMPRESSOR RUNTIME EXCEED										Х	
FAN FAILURE										Х	
FAN IN HAND										Х	
FAN RUNTIME EXCEEDED										Х	
FILTER CHANGE REQUIRED										Х	Х
HIGH SPACE HUMIDITY										Х	
LOW SPACE HUMIDITY										Х	
HIGH SUPPLY AIR TEMP										Х	
LOW SUPPLY AIR TEMP										Х	

DDC SYSTEM F	POINT	S LIS	T - E	XHA	UST	FAN	SCC	ONTRO	LLED	BY LIG	HTING			
	F	HARDWARE POINTS				SOFTWARE POINTS								
POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	ANALOG VALUE	BINARY VALUE	PID LOOP	SCHEDULE	TREND	ALARM	- GRAPHIC			
FAN STATUS			Х						Х		Х			
FAN START/STOP				Х					X		Х			
FAN FAILURE										Х				
FAN IN HAND										Х				
FAN RUNTIME EXCEEDED										Х				

DDC SYSTEM POINTS LIST FOR UNITS WITH INVERTER DRIVE COMPRESSOR

(IH	P & (OHP.	- 2 &	5 IH	RU 8)	
		MIN	IIMUM BA	CNET PO	INTS	SHOWN ON
POINT NAME		ANALOG VALUE	BINARY VALUE	TREND	ALARM	GRAPHIC
ZONE TEMP		Х		Х		×
MODE OF CONTROL			Х	Х	Х	×
SCHEDULE			X	Х		X
HEATING SETPOINT		Х		Х		X
COOLING SETPOINT		Х		X		X
HIGH ZONE TEMP		Х		Х	Х	
LOW ZONE TEMP		Х		X	Х	
SUPPLY FAN			Х	Х	Х	×

—— S/L——	REFRIGERANT SUCTION / LIQUID
D	CONDENSATE DRAIN
T	THERMOSTAT 4'-0" A.F.
-S	WALL SWITCH
	FLEXIBLE DUCT CONNECTION AT UNIT
+	FABRIC DUCT
	LINED DUCT (SIZE SHOWN IS METAL SIZE)
<i>C000</i> —	FLEXIBLE DUCT CONNECTION
X	SUPPLY DIFFUSER
	RETURN / EXHAUST GRILLE
	SQUARE ELBOW WITH TURNING VANES

SYMBOL

H.V.A.C. LEGEND

DESCRIPTION

-	
	LINED DUCT (SIZE SHOWN IS METAL SIZE)
<i>C000</i> —	FLEXIBLE DUCT CONNECTION
×	SUPPLY DIFFUSER
	RETURN / EXHAUST GRILLE
	SQUARE ELBOW WITH TURNING VANES
	MANUAL VOLUME DAMPER (MVD)
A/8	SEE AIR DEVICE SCHEDULE FOR TYPE
7.70	NECK CONNECTION SIZE UNLESS NOTED OTHERWISE
C.F.M.	CUBIC FEET PER MINUTE
F-1	EQUIPMENT NUMBER - SEE SCHEDULES
-	AIRFLOW DIRECTION
Ø	DIAMETER
₩/	AIR EXTRACTOR
OBD	OPPOSED BLADE DAMPER
TYP.	TYPICAL
ENT.	ENTERING
LVG.	LEAVING
S.P.	STATIC PRESSURE
A.P.D.	AIR PRESSURE DROP
OA	OUTDOOR AIR

HVAC GENERAL NOTES

INSTALL DUCTWORK AND PIPING ABOVE CEILINGS WHERE POSSIBLE AND IN CHASES TO PROVIDE MAXIMUM POSSIBLE CLEARANCE'S FOR MAINTENANCE ACCESS. INSTALL PIPING AND DUCTWORK IN EQUIPMENT ROOMS PARALLEL OR PERPENDICULAR TO WALLS AND CEILINGS UNLESS SHOWN OTHERWISE.

ALL DUCTWORK AND PIPING SHALL BE CONCEALED UNLESS NOTED

COORDINATE THE INSTALLATION OF DUCTWORK AND PIPING WITH THAT OF OTHER TRADES TO PROVIDE THE BEST POSSIBLE ARRANGEMENT. REFER TO PLUMBING, ELECTRICAL, AND STRUCTURAL DRAWINGS AND SPRINKLER SHOP DRAWINGS. ARRANGE PIPING AND DUCTWORK TO AVOID CONFLICTS WITH OTHER BUILDING TRADES.

UNLESS DIMENSIONED, PIPING, DUCTWORK, AND EQUIPMENT ARE SHOWN IN APPROXIMATE LOCATIONS. EXACT CONFIGURATION SHALL BE DETERMINED IN THE FIELD TO COORDINATE WITH OTHER TRADES AND TO ALLOW FOR A MINIMUM NUMBER OF OFFSETS AS POSSIBLE WHILE ALLOWING FOR ADEQUATE MAINTENANCE ACCESS.

FURNISH FLEXIBLE DUCT CONNECTIONS TO ALL AIR HANDLING EQUIPMENT.

EXACT LOCATION OF AIR DEVICES SHALL BE DETERMINED IN THE FIELD. COORDINATE WITH ARCHITECTURAL REQUIREMENTS AND LIGHTING. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ELECTRICAL PLANS FOR LIGHT LOCATIONS. AIR DEVICE LOCATIONS SHALL BE INSTALLED WITH A UNIFORM APPEARANCE AND SHALL BE SYMMETRICAL.

DUCT ACCESS DOORS SHALL BE FURNISHED AT ALL FIRE AND SMOKE DAMPERS, DUCT MOUNTED COILS, AND AT ALL DUCT MOUNTED CONTROL

DEVICES.

SLOPE DRAIN LINE TOWARDS DRAIN WITH A MINIMUM SLOPE OF 1/4" PER FOOT.

THERMOSTAT LOCATIONS SHALL BE A MINIMUM OF 8" AWAY FROM DOOR FRAMES. COORDINATE LOCATION OF THERMOSTATS WITH LIGHT SWITCHES AND OTHER WALL DEVICES FOR SYMMETRY. MOUNT AT 4'-0" A.F. UNLESS

AIR DEVICE SCHEDULE

					~ _	
TYPE	TYPE	NECK SIZE (1)	FINISH	OPPOSED BLADE DAMPER	TITUS MODEL NUMBER	KEYNOTE
A/6	SQUARE CEILING DIFFUSER	6"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 24" X 24" FACE	(2)
A/8	SQUARE CEILING DIFFUSER	8"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 24"X 24" FACE	(2)
A/10	SQUARE CEILING DIFFUSER	10"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 24"X 24" FACE	(2)
A/12	SQUARE CEILING DIFFUSER	12"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 24"X 24" FACE	(2)
B/6	SQUARE CEILING DIFFUSER	6"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 12" X 12" FACE	(2)
B/8	SQUARE CEILING DIFFUSER	8"	MANUFACTURER'S STANDARD WHITE	Yes	TMS / 12" X 12" FACE	(2)
D	EGG CRATE RETURN/EXHAUST	22" X 22"	MANUFACTURER'S STANDARD WHITE	No	50 / 24X24 PANEL WITH BORDER FRAME	
G	HEAVY DUTY GYM GRILLE	SEE PLANS	MANUFACTURER'S STANDARD WHITE	No	33RL-38 DEGREE DEFLECTION WITH 1/2" BLADE SPACING	(4)
L-1	WIND DRIVEN LOUVER	SEE PLANS	(3)	No	ESD-635X	

(1) DUCT RUNOUT SHALL BE SAME SIZE AS NECK SIZE UNLESS NOTED OTHERWISE.

(2) SEE ARCHITECTURAL PLANS FOR CEILING TYPE. FURNISH LAY-IN TYPE FOR T-BAR CEILINGS AND SURFACE TYPE FOR ALL OTHER CEILINGS. (3) EXTRUDED ALUMINUM LOUVER - BAKED ENAMEL FINISH, STANDARD COLOR SELECTED BY ARCHITECT. FURNISH INSECT SCREEN AND FLANGE FRAME.

(4) BLADES 14 GAUGE, FRAME 16 GUAGE HEAVY STEEL.

(6) SWITCH WITH THERMOSTAT. SET AT 85 DEGREES (ADJ.).

	FAN SCHEDULE													
							ELECTRICAL DATA (5)		ELECTRICAL DATA (5)					
				ESP						GREENHECK MODEL				
ITEM	NUMBER	LOCATION	CFM	(in wg)	MOTOR SIZE	RPM	VOLTAGE	PHASE	SONES	NUMBER	NOTES			
EF	1	DRESSING	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(3)			
EF	2	DRESSING	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(3)			
EF	3	DRESSING	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(3)			
EF	4	DRESSING	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(3)			
EF	5	JANITOR	80	0.5	24 WATTS	900	115	1	2.5	SP-A200	(1)(3)			
EF	6	MEN	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(3)			
EF	7	WOMEN	860	0.5	1/6 HP	1399	277	1	7.5	SQ-100-VG	(2)(3)			
EF	8	KITCHEN EXHAUST	1400	1.0	1 HP	1309	115	1		ACCUREX XRUD-141-VG	(4)			
EF	9	KITCHEN SUPPLY	1260	0.6	3/4	1279	115	1	11.1	ACCUREX XID-130-VG	(4)			
EF	10	MECHANICAL	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(6)			
EF	11	MECHANICAL	550	0.5	1/6 HP	1642	277	1	8.8	SQ-95-VG	(2)(6)			

(1) FURNISH BACKDRAFT DAMPER, HANGING BRACKETS, METAL CEILING GRILLE, SPEED CONTROLLER, AND DISCONNECT MEANS. (2) FURNISH BACKDRAFT DAMPER, HANGING ISOLATION BRACKETS, SPEED CONTROLLER, AND DISCONNECT MEANS. (3) CONTROL WITH ROOM LIGHTS. FURNISH AUXILIARY CONTACTS AS REQUIRED. (4) SWITCH WITH CONTROL PANEL ON RANGEHOOD. REFER TO SPECIFICATIONS FOR SEQUENCE OF OPERATION. (5) COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL PLANS & CONTRACTOR BEFORE ORDERING EQUIPMENT. NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES FOUND.

	ROOFTOP UNIT SCHEDULE												
						COOLING			ELECTRIC	CAL (4)	CARRIER		
			OUTSIDE	ESP (IN.		CAPACITY		HEATER			MODEL		
ITEM	NUMBER	CFM	AIR CFM (3)	W.G.)	MOTOR HP	(BTU) (1)	IEER	KW	VOLTAGE	PHASE	NUMBER	NOTES	
RTU	1	8000	1100	0.50	7.5	248	17.5	50	460	3	50LCEA24	(2)(3)	
RTU	2	8000	1100	0.50	7.5	248	17.5	50	460	3	50LCEA24	(2)(3)	
RTU	3	8000	1100	0.50	7.5	248	17.5	50	460	3	50LCEA24	(2)(3)	
RTU	4	8000	1100	0.50	7.5	248	17.5	50	460	3	50LCEA24	(2)(3)	

(1) RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240. (2) FURNISH WITH ROOF CURB, FACTORY INSTALLED DISCONNECT, ECONOMIZER, POWERED CONVENIENCE OUTLET AND THREE STAGE COOLING.

FURNISH ACTIVE DEHUMIDIFICATION SYSTEM.
(3) FURNISH CO2 CONTROLS. MIN OUTSIDE AIR = 1100 CFM, MAXIMUM OUTSIDE AIR = 1500.
(4) COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL PLANS & CONTRACTOR BEFORE ORDERING EQUIPMENT. NOTIFY ENGINEER
IMMEDIATELY IF DISCREPANCIES FOUND.

						INE	DOOR H	EAT P	UMP SC	HEDU	LE				
ITEM	NUMBER	CFM	OUTSIDE AIR (CFM)	ESP (IN	DDIVE	FANLID	(1) C		HEATING CAPACITY (MBH)	CAPACITY HEATER HEATE		ELECTRIC		CARRIER MODEL	NOTES
ITEM IHP	NUMBER	3000	· , ,	WG)	DRIVE	FAN HP	SENSIBLE	TOTAL 91.8		KW (2)	STAGES	VOLTAGE 460	PHASE 3	NUMBER	NOTES
	1		360	1.0	BELT		68.0		55.3	15	I			40RUQA08	(4)
IHP	2	1710	140	0.5	DIRECT	1000 W	48.0	58.0	62.0			208	3	40MBDQ583	(5)
IHP	3	1050	100	0.5	DIRECT	1/2	21.4	32.5	21.4	9	1	208	1	FV4CNF002	
IHP	4	300	0	0.0	DIRECT	22 W	11.0	12.0	12.0			208	1	40MAQB12B3	
IHP	5A	290	0	0.0	DIRECT	22 W	8.3	9.0	10.9			208	1	40MAQB09B3	(5)
IHP	5B	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	5C	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	6A	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	6B	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	7A	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	7B	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	8A	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	8B	300	0	0.0	DIRECT	46 W	8.3	9.0	10.0			208	1	40MBCQ093	(5)
IHP	8C	290	0	0.0	DIRECT	22 W	8.3	9.0	10.9			208	1	40MAQB09B3	(5)

(1) RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240. (2) HEATER SIZED AT 208 VOLT. COORDINATE WITH ELECTRICAL PLANS.

(3) COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL PLANS & CONTRACTOR BEFORE ORDERING EQUIPMENT. NOTIFY ENGINEER

IMMEDIATELY IF DISCREPANCIES FOUND. (4) FURNISH DUAL STAGE UNIT.

(5) FURNISH BACNET INTERFACE FOR INTEGRATION TO BUILDING MANAGEMENT SYSTEM.

	OUTDOOR HEAT PUMP SCHEDULE										
	COOLING HEATING ELECTRICAL DATA (2) REFRIGERANT PIPE SIZES (
		CAPACITY		CAPACITY MBH	COP				CARRIER MODEL	SUCTION LINE	LIQUID LINE
ITEM	NUMBER	(BTU/HR)	SEER/IEER	HIGH (1)	HIGH (1)	HSPF	VOLTAGE	PHASE	NUMBER	SIZE	SIZE
OHP	1	91800	12.7	55.3	3.3		460	3	38AUQx08	1 1/8"	1/2"
OHP	2	58000	18.0	62.0	3.6	9.0	208	1	38MBRQ58A3	3/4"	3/8"
OHP	3	32400	14	21.4	3.7	8.2	460	3	25HCE436	7/8"	3/8"
OHP	4	12000	21.5	12.0	3.2	10.0	208	1	38MAQB12R	1/2"	1/4"
OHP	5	24000	23	23.0	3.9	9.4	208	1	38MGRQ24	3 - 3/8"	3 - 1/4"
OHP	6	18000	22.5	19.0	3.6	9.9	208	1	38MGRQ18	2 - 3/8"	2 - 1/4"
OHP	7	18000	22.5	19.0	3.6	9.9	208	1	38MGRQ18	2 - 3/8"	2 - 1/4"
OHP	8	24000	23	23.0	3.9	9.4	208	1	38MGRQ24	3 - 3/8"	3 - 1/4"

(1) RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240. (2) COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL PLANS & CONTRACTOR BEFORE ORDERING EQUIPMENT. NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES FOUND. (3) REFRIGERANT PIPE SIZES INDICATED ARE FOR ESTIMATING PURPOSES ONLY. EXACT SIZES AND ACCESSORIES REQUIRED SHALL BE DETERMINED

RANGEHOOD SCHEDULE								
ITEM	NUMBER	EXHAUST CFM	SUPPLY CFM	DIMENSION (1)	ACCUREX MODEL NO.	NOTES		
RH	1	1400	1260	78"L X 48" W X 24" H	XBEW-78-S	(2)(3)		

(1) DIMENSIONS DO NOT INCLUDE SIZE FOR FIRE SUPPRESSION CABINET OR INTEGRAL SUPPLY PLENUM. (2) REFER TO FAN SCHEDULE FOR FAN CAPACITIES. F-8 FOR EXHAUST AND F-9 FOR SUPPLY. (3) FURNISH CONTROL PACKAGE FOR SINGLE POINT POWER CONNECTION, INTEGRAL SUPPLY PLENUM AND INTEGRAL FIRE SUPPRESSION CABINET.

UNIT HEATER SCHEDULE									
ITEM	NUMBER	HEATER KW	QMARK MODEL NO.	NOTES					
UH	1	3	MUH	(1)					
UH	2	5	MUH	(1)					

(1) FURNISH BRACKET FOR SUSPENDED MOUNTING AND WALL THERMOSTAT.

BÝ EQUIPMENT MANUFACTURER FROM FIELD OBTAINED DIMENSIONS.

GRAVITY HOOD SCHEDULE									
	ESP (I			ESP (IN.	FREE	GREE			
ITEM	NUMBER	LOCATION	CFM	WĠ)	AREA (SF)	MODEL	NUMBER	NOTES	
GH	1	ROOF	600	0.03	1.45	GRSI	16	(1)	

(1) FURNISH ROOF CURB AND INSECT SCREEN.



DESIGNED DRAWN CHECKED

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M2.01