



MECHANICAL GENERAL NOTES

- 1. THE MECHANICAL AND PLUMBING CONTRACT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE SCOPE AND THE GENERAL ARRANGEMENT OF THE SYSTEMS. WHERE APPLICABLE THE FOLLOWING NOTES SHALL APPLY TO ALL MECHANICAL (HVAC, PLUMBING, PIPING AND FIRE PROTECTION) SYSTEMS.
- 2. THOUGH SOME DUCTWORK AND PIPING OFFSETS AND TRANSITIONS ARE INDICATED, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL OFFSETS AND TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL OTHER TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
- 3. PROVIDE APPROVED FIRE STOPPING MATERIAL AROUND ALL DUCTWORK AND PIPING PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED FLOORS AND WALLS. PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FLOORS AND FIRE RATED WALLS AND FIRE/SMOKE DAMPERS AT ALL PENETRATIONS THROUGH SHAFT ENCLOSURES.
- 4. SUPPORT ALL EQUIPMENT (I.E. DOAS, FANS, ETC.) FROM STRUCTURE WITH SPECIFIED VIBRATION ISOLATION. 5. PROVIDE ACCESS PANELS WHERE REQUIRED FOR ADEQUATE ACCESS TO ALL CONCEALED EQUIPMENT, VALVES,
- DAMPERS AND CONTROLS. 6. ALL DUCT SIZES REFER TO INTERNAL FREE AREA. REFER TO DRAWINGS AND SPECIFICATIONS FOR INTERNAL INSULATION
- AND SOUND LINING PRIOR TO FABRICATION.
- 7. ALL DUCTWORK SHALL BE CONSTRUCTED OF RIGID SHEET METAL UNLESS OTHERWISE NOTED.
- 8. REFER TO DOOR SCHEDULE ON ARCHITECTURAL DRAWINGS FOR UNDER CUT DIMENSIONS AND DOOR LOUVER SIZES. 9. COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATIONS AND BORDER TYPES WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- 10. INSTALL DUCTWORK AND PIPING MAINS TIGHT TO UNDERSIDE OF STRUCTURE UNLESS OTHERWISE INDICATED.
- 11. REFER TO MECHANICAL DETAILS FOR TYPICAL EQUIPMENT CONNECTIONS.
- 12. PROVIDE CONDENSATE DRAIN PIPING FROM EACH AIR HANDLING UNIT TO NEAREST FLOOR DRAIN. PROVIDE CLEAN OUT AT EACH ELBOW. SIZE PER MANUFACTURER. 13. AIR CONDITIONING (A/C) CONDENSATE PIPING SHALL BE EXTENDED FROM ALL A/C CONDENSATE SOURCE EQUIPMENT
- (DOAS, VRF INDOOR UNITS, SPLIT SYSTEM A/C UNITS, ETC.) AND CONNECTED TO THE NEAREST STORM WATER PIPE/DRAIN LOCATION. SIZE PER MANUFACTURER.
- 14. AS AN INTEGRAL PART OF THESE DOCUMENTS, THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 15. PRIOR TO THE BALANCING OF SYSTEMS BY THE AABC CERTIFIED BALANCING CONTRACTOR, ALL LOW PRESSURE SYSTEMS SHALL BE TESTED BY THE MECHANICAL CONTRACTOR FOR DUCT LEAKAGE. DUCT LEAKAGE SHALL NOT EXCEED 1% FOR A DURATION OF TEN (10) MINUTES. SEE SPECIFICATIONS FOR ADDITIONAL TESTING CRITERIA. INSULATION MATERIALS SHALL NOT BE APPLIED UNTIL SYSTEMS HAVE BEEN WITNESSED, DOCUMENTED AND SUBMITTED TO MEET THE ABOVE TESTING REQUIREMENTS. REFER SPECIFICATIONS FOR SYSTEMS INDICATED AS LOW PRESSURE. THE BALANCE CONTRACTOR SHALL WITNESS AND CERTIFY ALL DUCT PRESSURE TESTS.
- 16. CONTRACTOR SHALL TEST/BALANCE ALL AIR AND HYDRONIC EQUIPMENT AND DEVICES INDICATED ON THE DOCUMENTS. AIR SYSTEM EQUIPMENT AND DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO: AIR HANDLING EQUIPMENT (DOAS UNITS, VRF INDOOR UNITS, ETC.), FANS, AIR VOLUME TERMINAL UNITS, AIR DEVICES, DUCT MOUNTED VOLUME DAMPERS, HOODS, ETC. HYDRONIC EQUIPMENT AND DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO: BOILERS, RADIANT FLOOR SYSTEMS, COILS, BALANCING VALVES, ETC. BALANCE ALL EQUIPMENT AND DEVICES TO THE AIR/WATER FLOWS (CFM OR GPM) INDICATED ON THE DOCUMENTS (WHERE FLOWS ARE NOT CLEARLY INDICATED, CONTACT THE A/E FOR CLARIFICATION).
- 17. SEE SPECIFICATIONS FOR SEISMIC REQUIREMENTS, WHERE APPLICABLE.
- 18. WHERE PIPING PENETRATES CONCRETE WALL AND SLABS, PROVIDE GROUND PENETRATING RADAR (GPR) SCAN TO IDENTIFY THE LOCATION OF REBAR. SUBMIT RESULTS TO OWNER AND ENGINEER FOR REVIEW.
- 19. SEE ARCHITECTURAL DOCUMENTS FOR ROOFING REQUIREMENTS.
- 20. PROVIDE SURFACE PREPARATION, PRIMING AND PAINTING OF ALL MECHANICAL AND BOILER ROOM FLOORS TO PROVIDE A SMOOTH, CLEANABLE SURFACE. PRIMER AND PAINT SHALL BE APPROPRIATE FOR CONCRETE SLAB SURFACES. SEE SPECIFICATION SECTIONS "PAINTING" AND "HVAC RELATED WORK", WHERE APPLICABLE, FOR ADDITIONAL PAINTING REQUIREMENTS. COLOR SHALL BE SELECTED BY THE A/E.
- 21. WHERE MOTOR STARTERS AND/OR VARIABLE FREQUENCY DRIVES (VFD'S) ARE INDICATED FOR MECHANICAL EQUIPMENT, THEY SHALL COMPLY WITH ALL REQUIREMENTS OUTLINED WITH THE ELECTRICAL SPECIFICATIONS FOR MOTOR STARTERS AND VFD'S. WHERE MOTOR STARTERS AND/OR VFD'S ARE PROVIDED BY THE MECHANICAL CONTRACTOR, OR AS A PORTION OF A PACKAGED MECHANICAL UNIT. THE ELECTRICAL SPECIFICATIONS SHALL ALSO APPLY. ALL VED'S FOR THE PROJECT, WHETHER PROVIDED BY THE MECHANICAL OR ELECTRICAL CONTRACTOR, SHALL BE PROVIDED BY A SINGLE MANUFACTURER, AND SHALL INCLUDE THE SAME FEATURES AND OPTIONS.
- 22. UNLESS INDICATED OTHERWISE, ALL EXPOSED PIPING IN ALL FINISHED AREAS SHALL BE COVERED WITH A 16-GAUGE STEEL PRIMED AND PAINTED METAL COVER. THE COVER SHALL BE SECURED TO AN ADJACENT STRUCTURE AND PAINTED TO MATCH ADJACENT SURFACES.
- 23. EXPANSION LOOPS AND ANCHORS SHALL BE PROVIDED ON ALL HYDRONIC AND REFRIGERANT PIPING SYSTEMS WHICH CROSS BUILDING EXPANSION JOINTS AND ALL HORIZONTAL AND VERTICAL PIPE LENGTHS EXCEEDING 100 FEET. REFRIGERANT EXPANSION LOOPS SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

SEISMIC DESIGN REQUIREMENTS

- 1. THIS FIRE STATION IS ASSIGNED TO SEISMIC DESIGN CATEGORY D AND IS OCCUPANCY CATEGORY IV AS DEFINED BY CHAPTER 1 OF ASCE 7. SEE STRUCTURAL DRAWINGS FOR SEISMIC DESIGN DATA.
- 2. ALL HVAC, PLUMBING & FIRE PROTECTION SYSTEMS AND EQUIPMENT ARE REQUIRED FOR THE CONTINUED OPERATION OF THE FIRE STATION AFTER AN EARTHQUAKE AND SHALL BE ASSIGNED A COMPONENT SEISMIC IMPORTANCE FACTOR OF 1.5 IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7.
- 3. THE MECHANICAL/PLUMBING/FIRE PROTECTION CONTRACTORS SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS PREPARED IN ACCORDANCE WITH THE IBC AND ASCE 7 BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PENNSYLVANIA WHO IS QUALIFIED TO DESIGN SEISMIC RESTRAINT SYSTEMS. AS AN ALTERNATIVE TO EQUIPMENT SEISMIC CALCULATIONS, CONTRACTORS MAY SUBMIT EQUIPMENT SEISMIC CERTIFICATES BY A NATIONALLY RECOGNIZED TESTING STANDARD PROCEDURE. SHOP DRAWINGS SHALL INCLUDE SEPARATE DETAILS AND CALCULATIONS FOR EACH SEPARATE SYSTEM, DEVICE OR ELEMENT. THE APPROVAL OF SEISMIC BRACING SHOP DRAWINGS SHALL BE REQUIRED PRIOR TO THE INSTALLATION OF ANY BUILDING SYSTEMS OR COMPONENTS.

2-PIPE VRF (CONSISTING OF REFRIGERANT SUCTION AND LIQUID) 3-PIPE VRF (CONSISTING OF REFRIGERANT

SUCTION, LIQUID, AND GAS)

- REFRIGERANT SUCTION
- REFRIGERANT LIQUID
- REFRIGERANT GAS
- PUMPED DISCHARGE
- HEATING WATER SUPPLY HEATING WATER RETURN
- CHECK VALVE BALL VALVE
- GATE VALVE
- BUTTERFLY VALVE

GLOBE VALVE

- BALANCING VALVE W/ FLOW METER FITTING (VENTURI TYPE)
- MULTI-PURPOSE VALVE

3-PORT MODULATING CONTROL VALVE

- 2-PORT MODULATING CONTROL VALVE
- RELIEF VALVE
- BUCKET STRAINER
- Y-STRAINER W/HOSE-END VALVE
- FLANGED CONNECTION

GAUGE AND VALVE

- INLINE CIRCULATING PUMP
- TEMPERATURE/PRESSURE TEST PORT TEE

THERMOMETER

UNION

AIR CHANGES / H AIR COOLED CON ABOVE FINISHED AIR PRESSURE DI ARCHITECTURAL AUTOMATIC TEMP BUILDING AUTOMA BACK-FLOW PRE\ BRAKE HORSEPO BACKWARD INCLIN BRITISH THERMAL BRITISH THERMAL CAPACITY CUBIC FEET PER H CUBIC FEET PER M COLD WATER (DO CONNECT TO EXIS DRY BULB DIFFERENTIAL BY DESIGNATION DIAMETER DOWN DIFFERENTIAL PR DRAWING(S) EXHAUST AIR ENTERING AIR TE ENERGY EFFICIEN ENERGY MANAGE EXTERNAL STATION



MECHANICAL LEGEND

PIPING CAP	————————————————————
CONCENTRIC REDUCER	
ECCENTRIC REDUCER	—— <u>D</u> ——
MANUAL AIR VENT	<u> </u>
AUTOMATIC AIR VENT	Ŷ
PIPE GUIDE OR SLEEVE	
PIPE ANCHOR	——————————————————————————————————————
GAS COCK	——————————————————————————————————————
PIPING ELBOW DOWN	———Э
PIPING ELBOW UP	O
PIPE CONNECTION BOTTOM	
PIPE CONNECTION TOP	ი
FLOOR CLEANOUT	ر
WALL CLEANOUT	co
HOSE-END VALVE	<u>⊥</u>
VALVE IN VERTICAL POSITION	₹
HEAT TRACED AND INSULATED PIPE	00000000
FLOOR DRAIN	Øfd
BALL AND TUBE MONITOR	•
WATER LEAK DETECTOR	\bigotimes
GAS METER	G
SUPPLY AIR DUCT UP (DASHED LINES FOR DOWN)	\bowtie
RETURN DUCT UP (DASHED LINES FOR DOWN)	
OUTSIDE AIR & EXHAUST DUCT UP (DASHED LINES FOR DOWN)	\square
FLEXIBLE CONNECTION	
FLEXIBLE DUCT	
DOUBLE THICKNESS TURNING VANES	

OPEN ENDED DUCT	۲ ــــــ
DUCTWORK WITH SOUND LINING	<u>}</u>
FLEXIBLE DUCT AND EQUIPMENT CONNECTOR	<u>}</u>
NEW DUCTWORK	<u>}</u>
DUCT TRANSITION ROUND TO RECTANGULAR	
DUCT TRANSITION	
CHANGE IN DUCT ELEVATION (R-RISE, D-DROP)	
DUCT SIZE (FIRST FIGURE IS SIDE SHOWN)	12x20
LINEAR SLOT DIFFUSER	
BALANCING DAMPER	╞╪╡
MOTOR OPERATED DAMPER	
FIRE DAMPER WITH ACCESS PANEL	}
COMBINATION FIRE/SMOKE DAMPER WITH SMOKE DETECTORS AND ACCESS PANEL	
BACKDRAFT DAMPER	} ∎
SPLITTER DAMPER	↓ s
ACCESS DOOR	
FIRE DETECTOR (FIRESTAT)	↓
SMOKE DETECTOR	
THERMOSTAT	Ť
CONNECT TO EXISTING	$\mathbf{\Theta}$
CARBON DIOXIDE SENSOR	C02
FAN SWITCH	\$
DOOR LOUVER	P
UNDERCUT DOOR	

MECHANICAL ABBREVIATIONS

	AIR CHANGES / HOUR	AC / HR	ENTERING WATER TEMPERATURE	EWT	NOT IN CONTRACT	NIC
	AIR COOLED CONDENSING UNIT	ACCU	FLEXIBLE CONNECTION / FORWARD CURVED	FC	NORMALLY OPEN / NUMBER	NO
	ABOVE FINISHED FLOOR	AFF	FULL LOAD AMPS	FLA	NON-POTABLE COLD WATER	NPCW
	AIR PRESSURE DROP	APD	FINS PER INCH	FPI	OUTSIDE AIR	OA
	ARCHITECTURAL	ARCH	FEET PER MINUTE	FPM	OPEN END DUCT	OED
	AUTOMATIC TEMPERATURE CONTROLS	ATC	FEET	FT	POUNDS PER SQUARE INCH	PSI
	BUILDING AUTOMATION SYSTEM	BAS	FACE VELOCITY	FV	PRESSURE	PRES
	BACK-FLOW PREVENTER	BFP	GALLON(S)	GAL	PUMPED DISCHARGE	PD
	BRAKE HORSEPOWER	внр	GALLONS PER MINUTE	GPM	QUANTITY	QTY
	BACKWARD INCLINED	ВІ	HEIGHT	н	RETURN AIR	RA
	BRITISH THERMAL UNIT	BTU	HORSEPOWER	HP	RETURN AIR FAN	RAF
	BRITISH THERMAL UNITS PER HOUR	втин	HEATING WATER SUPPLY	HS	RELATIVE HUMIDITY	RH
	CAPACITY	CAP	HEATING WATER RETURN	HR	REVOLUTIONS PER MINUTE	RPM
	CUBIC FEET PER HOUR	CFH	HEATER	HTR	REMOVE EXISTING	RX
	CUBIC FEET PER MINUTE	CFM	HERTZ	HZ	SUPPLY AIR	SA
	COLD WATER (DOMESTIC)	CW	INCH(ES)	IN	STATIC PRESSURE	SP
	CONNECT TO EXISTING	сх	KILOWATT	КW	TESTING AND BALANCING	TAB
	DRY BULB	DB	LENGTH	L	TOTAL STATIC PRESSURE	TSP
	DIFFERENTIAL BYPASS VALVE	DBV	LEAVING AIR TEMPERATURE	LAT	TYPICAL	TYP
	DESIGNATION	DESIG	POUNDS	LBS	UNLESS OTHERWISE NOTED	UON
	DIAMETER	DIA	LOCKED ROTOR AMPS	LRA	VARIABLE REFRIGERANT FLOW	VRF
	DOWN	DN	LEAVING WATER TEMPERATURE	LWT	VEHICLE EXHAUST AIR	VEA
	DIFFERENTIAL PRESSURE SENSOR	DPS	MAXIMUM	MAX	VOLTS	V
	DRAWING(S)	DWG	THOUSAND BRITISH THERMAL UNITS PER HOUR	MBH	VARIABLE FREQUENCY DRIVE	VFD
	EXHAUST AIR	EA	MINIMUM CIRCUIT AMPACITY	MCA	WIDTH	W
	ENTERING AIR TEMPERATURE	EAT	MECHANICAL EQUIPMENT ROOM	MER	WET BULB	WB
	ENERGY EFFICIENCY RATIO	EER	MAXIMUM FUSE SIZE	MFS	WATER COLUMN	WC
	ENERGY MANAGEMENT CONTROL SYSTEM	EMCS	MINIMUM	MIN	WATER GAUGE	WG
	EXTERNAL STATIC PRESSURE	ESP	MAXIMUM OVERCURRENT PROTECTION	MOP	WATER PRESSURE DROP	WPD
	EXISTING TO REMAIN	ETR	NORMALLY CLOSED	NC		
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NIC
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- 2. 10x10 TRANSFER DUCT. AIR DEVICES SHALL BE TYPE E.
- 3. REFER TO M301 FOR WORK IN THIS AREA.
- 4. 10x10 TRANSFER DUCT. AIR DEVICE WITHIN TOILET ROOM SHALL BE TYPE F. OTHER DEVICE SHALL BE TYPE E.
- 5. 12x12 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT
- 6. 10x12 OUTSIDE AIR DUCT UP TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 7. EQUIPMENT CLEARANCE (TYPICAL).

PARTITION.

- 8. 32x32 EXHAUST LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER. PROVIDE PLENUM WITH BAFFLE SEPERATING THE TWO EXHAUST AIRFLOWS. REFER
- TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION. 9. OPENED ENDED DUCT IN KITCHEN PLENUM SPACE ABOVE
- CLOUD CEILING. PROVIDE WITH SCREEN. 10. SPACE PRESSURE SENSOR FOR CONTROL OF DOAS-1
- RELIEF FAN. MOUNT AT 8 FEET ABOVE FINISHED FLOOR.
- 11. RADIANT FLOOR MANIFOLD CABINET MOUNTED ON WALL.
- 12. BALANCE OUTDOOR AIR DAMPER TO 625 CFM.
- 13. KITCHEN RANGE EXHAUST DUCT UP. TERMINATE AT ROOF. 14. 10x8 OUTDOOR AIR DUCT UP.
- 15. EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS
- FOR MORE INFORMATION. 16. AIR DEVICE SERVED FROM MEZZANINE ABOVE. REFER TO
- M301 FOR CONTINUATION. 17. 72x8 INTAKE LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER OPEN TO APPARATUS BAY. PROVIDE WITH MOTOR OPERATED DAMPER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 18. CONCRETE PAD (TYP). REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.
- 19. INTAKE LOUVER. REFER TO ARCHITECTURAL DRAWINGS

FOR MORE INFORMATION.

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- 20. 57X30 INTAKE LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 21. CORRIDOR TO REMAIN FREE OF ANY EXPOSED DUCTWORK OR PIPING THAT DOES NOT PERTAIN TO THE IMMEDIATE FUNCTION OF THE CORRIDOR.
- 22. RADIANT FLOOR MANIFOLD CABINET MOUNTED ON WALL UNDER STAIR CASE.

- M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 25. 16x12 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 26. 14x14 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 27. 20x20 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 28. 18x16 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 29. 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO DRYER AND UP TO MEZANINE 201. REFER TO M301 FOR CONTINUATION.
- 30. 4" RIGID DRYER EXHAUST DUCTWORK TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 31. TERMINATE DRYER EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
- 32. CONFIGURE DRYER EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
- 33. 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO DRYER.

24. 16x14 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO





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VESTIBULE



- THIS AREA.
- 12. BOLT DOWN ZONE FOR STAIRS. RADIANT FLOOR TUBING SHALL AVOID THIS AREA.
- 13. RS AND RL PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 14. RADIANT FLOOR ZONE 1 THERMOSTAT.
- 15. RADIANT FLOOR ZONE 2 THERMOSTAT.
- 16. PROVIDE CO AND NO2 SENESORS. MOUNT CO SENSOR ON WALL AT 5 FEET ABOVE FINISHED FLOOR. MOUNT NO2 SENSOR ON WALL AT 1 FOOT ABOVE FINISHED FLOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 17. DOAS-1 REFRIGERANT PIPING.

- 18. DOAS-1 REFRIGERANT PIPING TO MEZZANINE LEVEL. REFER TO M301 FOR CONTINUATION.
- 19. PROVIDE ACU-19 REMOTE TEMPERATURE SENSOR.
- 20. PROVIDE <u>ACU-01</u> REMOTE TEMPERATURE SENSOR.
- 21. HEATING WATER SUPPLY AND RETURN PIPING UP TO MEZZANINE 202. REFER TO M301 FOR CONTINUATION.

VESTIBULE LOBBY WOMEN JAN MEN JAN MEETING STOR OFFICE OFFICE OFFICE OFFICE OFFICE WATCH OFFICI OFFICE CHIEF'S OFFIC CONFERENCE COPY OFFICE SHOWER MECH SHOWER LAUNDRY ELEC. FITNESS SHOWER SHOWER MECH BUNK BUNK BUNK BUNK BUNK BUNK IT ST CORRIDOR CORRIDOR KITCHEN DAY ROOM CLEAN ROOM SHOWER SHOWER TURNOUT GEA DECON APPARATUS BA ELEC. STORAGE WORKSHOP ENGINEER 144 TOILET SCBA 145



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ROOMLIST
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SHOWER
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IT
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CORRIDOR
CORRIDOR
KITCHEN
DAY ROOM
CLEAN ROOM
SHOWER
SHOWER
FLEO
ELEU.
STORAGE
WORKSHOP
ENGINEER
TOILET
SCBA
UTILITY
VESTIBULE



1 MEZZANINE PLAN WEST - HVAC SCALE: 1/8" = 1'-0"



2 MEZZANINE PLAN EAST - HVAC SCALE: 1/8" = 1'-0"

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GENERAL NOTES:

- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- 2. SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- 3. REFER TO M502 FOR HEATING WATER PIPE SIZES AND CONFIGURATION.

○ DRAWING NOTES:

- 1. 20x20 OUTDOOR AIR DUCT DOWN TO DOAS-1.
- 6" OUTDOOR AIR DUCT DOWN TO DEVICE SERVING 109 -WATCH OFFICE. REFER TO M101 FOR CONTINUATION.
- 3. 10x12 OUTSIDE AIR DUCT DOWN TO 138 TURNOUT GEAR.
- REFER TO M101 FOR CONTINUATION. 4. CONCENTRIC BOILER VENT KIT.
- 5. CHEMICAL BYPASS FEEDER.
- 6. <u>DOAS-1</u> DDC PANEL MOUNTED ON WALL.
- 7. 12x12 EXHAUST AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 8. <u>VRF-1</u> REFRIGERANT PIPING TO ADMINISTRATION AREA OF BUILDING. REFER TO M201 FOR CONTINUATION.
- 9. DASHED LINE RERESENTS ELECTRICAL ROOM LOCATED BELOW MEZZANINE. NO MECHANICAL WORK SHALL PENETRATE MEZZANINE WITHIN THE DASHED LINE.
- 10. 2 1/2" HEATING WATER SUPPLY/RETURN DOWN TO FIRST FLOOR. REFER TO M201 FOR CONTINUATION
- 11. REFRIGERANT SUCTION AND LQUID PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 12. REFRIGERANT SUCTION, LIQUID, AND GAS PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 13. EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 14. PROVIDE DUCTWORK WITH SOUND LINING.
- 15. DOMESTIC WATER HEATER FLUE UP THROUGH ROOF. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 16. HEATING WATER SUPPLY AND RETURN PIPING RACKED ON
- WALL. REFER TO M401 AND M502 FOR MORE INFORMATION. 17. DOAS-1 REFRIGERANT PIPING.
- 18. MOUNT BOILERS ON SINGLE EQUIPMENT PAD.
- 19. DOAS-1 SHALL BE MOUNTED ON EQUIPMENT PAD.
- 20. 14x14 OUTSIDE AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 21. 16x12 OUTSIDE AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION. 22. 20x20 OUTSIDE AIR DUCT TO SPACE 139 DECON. REFER TO
- M101 FOR CONTINUATION. 23. 16x18 EXHAUST AIR DUCT TO SPACE 139 DECON. REFER TO
- M101 FOR CONTINUATION.
- 24. 16x14 EXHAUST AIR DUCT TO SPACE 139 DECON. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 25. 4" RIGID DRYER EXHAUST TO ADMINISTRATION SIDE OF BUILDING. REFER TO M301 FOR CONTINUATION.
- 26. 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO 135 CLEAN ROOM. REFER TO M101 FOR CONTINUATION.
- 27. 6x6 EXHAUST DUCT DOWN TO TOILET ROOM AIR DEVICE. REFER TO M101 FOR CONTINUATION.
- 28. 8x8 OUTSIDE AIR DUCT DOWN TO 135 CLEAN ROOM. REFER TO M101 FOR CONTINUATION.
- 29. 32x22 EXHAUST AIR DUCT DOWN TO 145 SCBA. REFER TO
- 30. <u>VRF-1</u> REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR CONTINUATION.
- 31. <u>DOAS-1</u> REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR MORE INFORMATION.

M101 FOR CONTINUATION.







GH

<u>UH-4</u> ____FIRST FLOOR 0' - 0''

GH

_____FIRST_FLOOR______

DRAWING NOTES: HEATING WATER SUPPLY AND RETURN PIPING. REFER TO HEATING WATER SCHEMATIC ON M502 FOR PIPE SIZES AND ADDITIONAL INFORMATION.

48x48 EXHAUST AIR LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.

GENERAL NOTES:

- 3. RADIANT FLOOR ZONE 1 MANIFOLD CABINET. 4. RADIANT FLOOR ZONE 2 MANIFOLD CABINET.
- 5. BOILER FLUE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 6. 8x72 INTAKE LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 7. REFRIGERANT PIPING. SIZE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- HEATING WATER TUBING TO UNDERFLOOR RADIANT HEAT SYSTEM. INSTALL TUBING TIGHT TO TOP SIDE OF REBAR. PROVIDE SLEEVES WHEN TUBING PENETRATES FLOOR SLAB AND AT EXPANSION JOINTS. INSTALL IN ACCORDANCE WITH MANUFACTURERS'S RECOMMENDATIONS. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.





1. REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

2. SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.







- <u>VRF-1</u> REFRIGERANT PIPING. SIZE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 3. 10x10 TRANSFER DUCT. AIR DEVICES SHALL BE TYPE E.
- 12x12 EXHAUST AIR DUCTWORK TO ADMINISTRATION/OFFICES. REFER TO M101 FOR
- ADMINSTRATION/OFFICES. REFER TO M101 FOR
- 14x14 OUTSIDE AIR DUCTWORK TO ADMINSTRATION/OFFICES. REFER TO M101 FOR
- 8. 58x30 OUTSIDE AIR INTAKE LOUVER. REFER TO

STUDIOS ARCHITECTURE + MASTER PLANNING 10839-d Philadelphia RD WHITE MARSH, MD 21162 (P) 410-344-1460 (F) 443-403-2460 (e) INFO@MWSARCH.COM www.mwsarch.com Burdette, Koehler, I 6300 Blair Hill Lane, Su Г И Ш CUMRU FIRE DEPARTME 1775 WELSH ROAD MOHNTON, PA 19540 NO. DESCRIPTION DATE PROJECT 18-036 PROJECT BID SET DATE 11/30/2023 DRAWING MECHANICAL SECTIONS

SHEET

M402

BKM# 19020.01



ESSURE AIR DUCT TH 1" JINING	SEAL: 1083 WHIT (P) 4 (F) 44 (E) IN WWV	T L 10-344 43-403 10-344 10-344 43-403 10-344 10-344 10-344 10-344 10-344 10-344 10-344 10-344 10-344 10-344 10-345 10-35	J C E + M HILAD SSH, M -1460 -2460 AWSA SARC NW ARGFES ACMAN ARGFES ACMAN ARGFES ACMAN ARGFES ACMAN ARGFES ACMAN ARGFES AR	DIOS DIOS Asster PLANNING DELPHIA RD AD 21162 ARCH.COM	
	CONSULTANT:		UKII	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400 Baltimore, Maryland 21209 P: 410.323.0600 www.bkma.com	
	NO.		1775 WELSH ROAD	NOHNTON, PA 19540	
	PROJI 18-0 PROJI BID DATE 11/3 DRAW MEC	ECT NU 36 ECT SE SET ISSUE 0/202 /ING TI HAN	JMBE ET: D: 3 TLE: ICAL BER: 15	R: . DETAILS 01 BKM# 19020 01	1/2/2010 0:18:30 AM



MANNS WOODWARD STUDIOS.





NOTES:

NO SCALE

NOTES:

1. PROVIDE EACH BOILER WITH CONDENSATE NEUTRALIZER.

4 HEATING WATER SCHEMATIC - CHECK OUT BAY & WEST BAY



PROVIDE FLEX DUCT CONNECTIONS AT ALL DUCT CONNECTION TO THE DOAS UNIT.







MANNS WOODWARD STUDIOS

BKM# 19020.01

	DEDICATED OUTDOOR AIR SYSTEM SCHEDULE																																
		VENTILATION FAN DATA			ATION FAN DATA EXHAUST FAN			COOLING DATA								ENERGY RECOVERY WHEEL						ELECTRICAL			,		BASIS OF D	ESIGN					
DESIG ARE														1				AIRFLOWS SUMMER CONDITIONS					WINTER CONDITIONS			1		+				1	
	AREA SERVED	CFM ESP	(IN) TSP (IN)	HP FAN RPM	I CFM ESP (II	N) TSP (IN)	HP FAN RF	MTYPE	TOTAL MBH	SENS MBH	EAT DB/WB (DEG F)	LAT DB/WB (DEG F)	TYPE	EAT	LAT	INPUT MBH	OUTPUT MBH	OA CFM	EXHAUST CFM	OUTSIDE AIR DB/WB (DEG F) RETURN AIR) DB/ %RH	WHEEL LEAVING DB/WB (DEG F)	G OUTSIDE AIR D) (DEG F)	B RETURN AIR DI (DEG F)	B WHEEL LEAVING DB (DEG F)	VOLTS	PHASE	MCA	MOCP	(LBS) MANU	MANUFACTURER	MODEL	NOT
						•	·			- I			•														•			•	l l		
DOAS-1	ADMINISTRATION SPACES	3015 1.0	0 2.50	3 1873	2130 1.10	2.50	1.5 2396	DX	191.1	112.1	84.2 / 70.5	50.4 / 50.2	NATURAL GAS	0	75	300.0	240.0	3015	2130	95 / 78	75 / 50%	84.2 / 70.5	0.0	70.0	35.1 / 31.1	460	3	35.6	45.0	3102	VALENT	VXE	1,2,3,4,
NOTES:																																	
					• ·· · • • • • • • • • • • • • • • • •																												

1. AIR CAPACITIES BASED ON A MAXIMUM DIRTY FILTER PRESSURE DROP AS INDICATED. 2. PROVIDE UNIT WITH HOT-GAS REHEAT FOR HUMIDITY CONTROL.

3. COOLING COIL ENTERING AIR CONDITIONS BASED ON ENERGY RECOVERY WHEEL LEAVING AIR CONDITION. 4. PROVIDE FACTORY WIRED DISCONNECT SWITCH.

5. GAS FURNACE SHALL BE SIZED SHUCH THAT THE ENERGY RECOVERY WHEEL IS NONOPERATIONAL. 6. RELIEF FAN TOTAL STATIC PRESSURE SHALL INCLUDE 0.25 IN WG DIRTY FILTER ALLOWANCE.

7. SUPPLY FAN TOTAL STATIC PRESSURE SHALL INCLUDE 0.25 IN WG DIRTY FILTER ALLOWANCE. 8. PROVIDE WITH INTEGRAL VFDs FOR SUPPLY AND EXHAUST FANS.

				Α	R DE\	/ICE	SCHI	EDULE		
				CEM	INLET /				BASIS	OF DESIGN
DESIG	DUTY	SIZE (IN)	MOUNTING	RANGE	NECK SIZE (IN)	MAX SP	MAX NC	DESCRIPTION	MANUFACTURER	MODEL
				_						
А	SUPPLY / OUTDOOR AIR	24 x 24 MODULE	LAY-IN	0-120	6.00	0.10"	20	18 x 18 NECK WITH FACTORY MOUNTED SQUARE - ROUND TRANSITION	TITUS	TDC
A	SUPPLY / OUTDOOR AIR	24 x 24 MODULE	LAY-IN	121 - 210	8.00	0.10"	20	19 x 18 NECK WITH FACTORY MOUNTED SQUARE - ROUND TRANSITION	TITUS	TDC
A	SUPPLY / OUTDOOR AIR	24 x 24 MODULE	LAY-IN	211-325	10.00	0.10"	25	20 x 18 NECK WITH FACTORY MOUNTED SQUARE - ROUND TRANSITION	TITUS	TDC
A	SUPPLY / OUTDOOR AIR	25 x 24 MODULE	LAY-IN	326-470	12.00	0.10"	25	21 x 18 NECK WITH FACTORY MOUNTED SQUARE - ROUND TRANSITION	TITUS	TDC
A	SUPPLY / OUTDOOR AIR	26 x 24 MODULE	LAY-IN	471-640	14.00	0.10"	25	22 x 18 NECK WITH FACTORY MOUNTED SQUARE - ROUND TRANSITION	TITUS	TDC
В	SUPPLY / OUTDOOR AIR	8 x 8	SURFACE	0-135	6 x 6	0.10"	20	SINGLE DEFELCTION FIXED LOUVER, LONG FRONT BLADES, 45° DEFLECTION 3/4" SPACING	TITUS	271 RL
В	SUPPLY / OUTDOOR AIR	10 x 10	SURFACE	136-219	8 x 8	0.10"	20	SINGLE DEFELCTION FIXED LOUVER, LONG FRONT BLADES, 45° DEFLECTION 3/4" SPACING	TITUS	271 RL
В	SUPPLY / OUTDOOR AIR	12 x 8	SURFACE	220-254	10 x 6	0.10"	20	SINGLE DEFELCTION FIXED LOUVER, LONG FRONT BLADES, 45° DEFLECTION 3/4" SPACING	TITUS	271 RL
В	SUPPLY / OUTDOOR AIR	14 x 8	SURFACE	255	12 x 6	0.10"	20	SINGLE DEFELCTION FIXED LOUVER, LONG FRONT BLADES, 45° DEFLECTION 3/4" SPACING	TITUS	271 RL
С	EXHAUST	42 x 24	SURFACE	0-5985	42 x 24	0.20"	45	FIXED LOUVER. 35° DEFLECTION 3/4" SPACING - REGISTER	TITUS	350 FS
D	SUPPLY / OUTDOOR	4 FT LONG	SURFACE	0-240	12.00	0.10"	30	LINEAR SLOT, 3/4" SLOT (2 SLOTS)	TITUS	ML-38 W/ MPI-38 INSULATED PLENUM
	RETURN / EXHAUST	24 x 24	LAY-IN	0-125	6 X 6	0.10"	20	PERFORATED FACE - REGISTER (FLUSH)	TITUS	PAR
	RETURN / EXHAUST	24 x 24	LAY-IN	126-220	8 X 8	0.10"	20			
		24 X 24		221-340	10 x 10	0.10	20			
		24 X 24		501 1300	12 X 12	0.10	20			
	RETURN / EARAUST	24 X 24		501-1300		0.10	25	PERFORATED FACE - REGISTER (FLOSH)	11103	FAR
F	RETURN / EXHAUST	6 x 6	SURFACE	0-100	6 x 6	0.06"	20	FIXED LOUVER. 35° DEFLECTION 3/4" SPACING - REGISTER	TITUS	350 FL
F	RETURN / EXHAUST	8 x 8	SURFACE	101-185	8 x 8	0.06"	20	FIXED LOUVER. 35° DEFLECTION 3/4" SPACING - REGISTER	TITUS	350 FL
F	RETURN / EXHAUST	10 x 10	SURFACE	186-340	10 x 10	0.06"	20	FIXED LOUVER. 35° DEFLECTION 3/4" SPACING - REGISTER	TITUS	350 FL
F	RETURN / EXHAUST	50 x 50	SURFACE	3060	48 x 48	0.10"	20	FIXED LOUVER. 35° DEFLECTION 3/4" SPACING - SUPPLY	TITUS	350 FL
G	RETURN / EXHAUST	4 FT LONG	SURFACE	0-155	8 x 6	0.10"	30	LINEAR SLOT, 3/4" SLOT (2 SLOTS)	TITUS	MLR-38
G	RETURN / EXHAUST	4 FT LONG	SURFACE	156-300	10 x 8	0.10"	30	LINEAR SLOT, 3/4" SLOT (2 SLOTS)	TITUS	MLR-38

NOTES: 1. PROVIDE ALL AIR DEVICES WITH OPPOSED BLADE VOLUME DAMPER. 2. CONTRACTOR MAY PROVIDE ALUMINUM OR STEEL AIR DEVICES UNLESS OTHERWISE INDICATED. ALL AIR DEVICES IN HIGH HUMIDITY AREAS (ie. TOILET ROOMS, ETC) MUST BE ALUMINUM.

	DESIGN CONDITIONS SCHEDULE											
	OCCUPIED HOURS UNOCCUPIED HOURS											
ROOM DESCRIPTION	SUMI	MER	WINT	ER	SUM	MER	WINTER					
	DB (DEG F)	% RH	DB (DEG F)	% RH	DB (DEG F)	% RH	DB (DEG F)	% RH				
			•				•					
GENERAL OFFICE,												
DORM, CONFERENCE	75	60	70	_	80	60	65	_				
ROOMS, EOC,	75	00	10	-		00	00	_				
FITNESS ROOM												
IT SPACE	72	55	72	-	72	55	72	55				
UTILITY ROOMS	85 (MAX)	-	40 (MIN)	-	85 (MAX)	-	40 (MIN)	-				
TOILET ROOMS,												
SHOWERS,	AIR	_	70	_	AIR	_	70	_				
UNOCCUPIED	TRANSFER	-		-	TRANSFER	-	/0	-				
STORAGE												
APPARATUS BAY,		_	65	_		_	60	_				
LOCKER ROOMS		_		-		_		_				

VRF HEAT RECOVERY (BRANCH SELECTOR) BOX SCHEDULE												
		NUMBER OF	El	ECTRICA	-	BASIS OF DESIGN						
	LOCATION	CONNECTED UNITS	VOLTS/PH	MCA	MOCP	MANUFACTURER	MODEL					
	•				•							
HR-1	101 - LOBBY	4	208/1	0.2	15	JCI	COB					
HR-2	101 - LOBBY	3	208/1	0.2	15	JCI	COB					
HR-3	131 - CORRIDOR	8	208/1	0.4	15	JCI	COB					
HR-4	130 - CORRIDOR	5	208/1	0.4	15	JCI	COB					
HR-5	130 - CORRIDOR	4	208/1	0.2	15	JCI	COB					

LOW PRESSU OR SL LOW PRESSI LOW PRES

NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL DUCTWORK REQUIREMENTS AS WELL AS DETAILED PRODUCT AND INSTALLATION REQUIREMENTS. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL APPLY. 2. SUCCESSFUL COMPLETION OF DUCT PRESSURE TESTING SHALL OCCUR PRIOR TO THE

PRESSURE INDICATED.

DUCT CONSTRUCTION SCHEDULE													
ŚTEM	DUCT PRESSURE CLASS (IN WC)	DUCT SEAL CLASS	TEST PRESSURE (IN WC)	MAX ALLOWABLE LEAKAGE	NOTES								
IRE OUTDOOR AIR JPPLY AIR	2"	A	2"	1%	1, 2 & 3								
URE RETURN AIR	2"	A	2"	1%	1, 2 & 3								
SURE EXHAUST	2"	A	2"	1%	1, 2 & 3								

INSTALLATION OF INSULATION. VERIFICATION OF SUCCESSFUL PRESSURE TEST RESULTS SHALL BE SUBMITTED TO THE A/E AND INCLUDED IN THE PROJECT O & M MANUALS. 3. TEST PRESSURE SHALL BE 125% OF SYSTEM OPERATING PRESSURE, BUT NOT LESS THAN THE

			VRF AIR	CONDITIO	NING U	NIT SC	HEDL	UE.						
	UNIT ID				NAMEPLATE			COOLING	COIL DATA	4	HEATI	NG COIL		
INDOOR UNIT	ASSOCIATED OUTDOOR UNIT(S)	HEAT RECOVERY UNIT	AREA SERVED	TYPE	SUPPLY AIR CFM	VOLTS/PH	TOTAL MBH	SENS MBH	EAT DB (DEG F)	EAT WB (DEG F)	МВН	EAT (DEG F)	NOTES	BASIS OF D
	•								•		•		•	
ACU-01	VRF-1	HR-2	100 - VESTIBULE	CASSETTE	424	208/1	4.0	3.5	75.1	61.0	4.0	70.0	1	JCI YIC
ACU-02	VRF-1	HR-1	101 - LOBBY	CASSETTE	424	208/1	4.3	4.3	75.1	57.0	3.9	70.0		JCI YIC
ACU-03	VRF-1	HR-1	104.2 - EOC OFFICE	CASSETTE	424	208/1	7.2	6.2	75.1	61.3	3.9	70.0		JCI YIC
ACU-04	VRF-1	HR-1	104 - MEETING	DUCTED	1059	208/1	28.5	21.8	75.1	62.6	16.3	70.0		JCI YID
ACU-05	VRF-1	HR-1	104 - MEETING	DUCTED	424	208/1	28.5	21.8	75.1	62.6	16.3	70.0		JCI YIC
ACU-06	VRF-1	HR-2	110 - CHIEFS OFFICE	CASSETTE	424	208/1	2.7	2.5	75.1	60.5	1.3	70.0		JCI YIC
ACU-07	VRF-1	HR-3	109.1 OFFICE	CASSETTE	424	208/1	2.1	1.9	75.1	61.0	0.7	70.0		JCI YIC
ACU-08	VRF-1	HR-3	114 - OFFICE	CASSETTE	424	208/1	2.1	1.9	75.1	61.0	0.7	70.0		JCI YIC
ACU-09	VRF-1	HR-2	105 - OFFICE	CASSETTE	424	208/1	7.3	6.3	75.1	61.3	3.9	70.0		JCI YIC
ACU-10	VRF-1	HR-3	106 - OFFICE	CASSETTE	424	208/1	7.3	6.3	75.1	61.3	3.9	70.0		JCI YIC
ACU-11	VRF-1	HR-3	107 - OFFICE	CASSETTE	424	208/1	7.3	6.3	75.1	61.3	3.9	70.0		JCI YIC
ACU-12	VRF-1	HR-3	108 - OFFICE	CASSETTE	953	208/1	17.9	16.3	75.1	60.5	7.7	70.0		JCI YIC
ACU-13	VRF-1	HR-3	109 - WATCH OFFICE	CASSETTE	953	208/1	19.0	16.5	75.1	61.2	9.5	70.0		JCI YIC
ACU-14	VRF-1	HR-3	131 - CORRIDOR	DUCTED	1183	208/1	29.2	26.8	75.1	60.0	21.7	70.0		JCI YID
ACU-15	VRF-1	HR-5	130 - CORRIDOR	CASSETTE	424	208/1	5.8	5.4	75.1	60.2	5.8	70.0		JCI YIC
ACU-16	VRF-1	HR-6	133 - KITCHEN	DUCTED	1271	208/1	36.2	33.7	75.1	60.2	12.2	70.0		JCI YID
ACU-17	VRF-1	HR-6	134 - DAY ROOM	DUCTED	1059	208/1	27.7	22.3	75.1	61.2	16.0	70.0		JCI YID
ACU-18	VRF-1	HR-6	123-128 - DORM	DUCTED	1271	208/1	42.4	36.5	75.1	61.4	21.7	70.0		JCI YID
ACU-19	VRF-1	HR-6	133 - KITCHEN	DUCTED	1271	208/1	36.2	33.7	75.1	60.2	12.2	70.0	1	JCI YID
ACU-20	VRF-1	HR-5	119 - FITNESS	CASSETTE	424	208/1	6.8	7.6	75.1	65.9	1.5	70.0		JCI YIC
ACU-21	VRF-1	HR-5	119 - FITNESS	CASSETTE	424	208/1	6.8	5.6	75.1	65.9	1.5	70.0		JCI YIC
ACU-22	VRF-1	HR-5	139 - DECON	WALL MOUNTED	494	208/1	8.5	5.8	75.1	60.2	10.1	70.0		JCI TIW
ACU-23	VRF-1	HR-3	111 - CONFERENCE	CASSETTE	424	208/1	5.3	4.1	75.1	62.6	1.1	70.0		JCI YIC
ACU-24	VRF-1	HR-5	138 - TURNOUT GEAR	DUCTED	318	208/1	5.1	4.8	75.1	60.2	3.8	70.0		JCI YID

GENERAL NOTES (NOTES APPLY TO ALL ACUS):

A. PROVIDE REFRIGERANT PIPING (INCLUDING DOUBLE SUCTION RISERS WITH TRAPS IF REQUIRED) AS RECOMMENDED BY MANUFACTURER. PIPE LENGTHS AND SIZING SHALL BE AS RECOMMENDED BY MANUFACTURER. B. FULLY COORDINATED REFRIGERANT PIPING DRAWINGS SHALL BE INCLUDED WITH THE EQUIPMENT SUBMITTAL. C. SHOULD A MANUFACTURER OTHER THAN THE BASIS OF DESIGN BE PROVIDED, CONTRACTOR SHALL COORDINATE ELECTRICAL REVISIONS REQUIRED AT NO COST TO THE OWNER.

D. COOLING CAPACITIES INDICATED SHALL BE AT 75 DEG. F / 50% RH RETURN AIR. E. PROVIDE WALL MOUNTED THERMOSTATS CAPABLE OF LOCAL TEMPERATURE SETPOINT ADJUSTMENT OR THROUGH SIGNAL FROM EMCS.

F. PROVIDE CONDENSATE LEAK DETECTION IN ACCORDANCE WITH UL 508 AN ALL APPLICABLE CODES FOR ALL VRF TERMINAL UNITS. LEAK DETECTION SHALL ALARM AT THE BUILDING EMCS AND SHALL DE-ENERGIZE THE G. PROVIDE REFRIGERANT LEAK DETECTION AND ALARM AT VRF CONTROL PANEL AND EMCS. H. CAPACITIES INDICATED ARE NET CAPACITIES AFTER PIPE LENGTHE DE-RATINGS HAVE BEEN ACCOUNTED FOR.

I. PROVIDE CONDENSATE DRAINS FROM HEAT RECOVERY UNITS AS REQUIRED BY MANUFACTURER. EXTEND CONDENSATE PIPING AND CONNECT NEAREST STORM WATER PIPING OR DRAIN. J. ALL DUCTED UNITS SHALL HAVE AN EXTERNAL STATIC PRESSURE OF 0.6" WG.

L. PROVIDE UNITS WITH CONDENSATE PUMP.

NOTES (APPLY TO SPECIFIC ACUS):

	FAN SCHEDULE																	
DESIG	LOCATION	AREA SERVED	CFM	ESP (IN)	HP	MAX BHP	MOTOR VOLTS	PHASE	VFD	RPM	MIN FAN DIA	WHEEL TYPE	CLASS	DRIVE TYPE	METHOD OF CONTROL	MANUFACTURER	MODEL	NOTES
				1 1														
EF-1	139 - DECON	139 - DECON	675	0.5	1/4	0.2	115	1	Ν	1542	15	BI	I	DIRECT	ATC	GREENHECK	SQ	1
EF-2	141.1 - STORAGE	140 - APPARATUS BAY	430	0.6	1/4	0.16	115	1	Ν	1578	15	BI	I	DIRECT	ATC	GREENHECK	SQ	1
EF-3	202 - MEZZANINE	140 - APPARATUS BAY	5985	5 1.0	3	2.5	460	3	Ν	1091	40	BI	Ι	BELT	ATC	GREENHECK	USF	1
EF-4	146 - UTILITY	146 - UTILITY	990	0.5	1/4	0.18	115	1	Ν	1349	26	AF	Ι	DIRECT	ATC	GREENHECK	AER	1
VF-1	143 - WORKSHOP	143 - WORKSHOP/ 142 ENGINEER	70	0.5	1/4	0.05	115	1	N	1212	15	BI	Ι	DIRECT	ATC	GREENHECK	SQ	1

NOTES: 1. PROVIDE WITH FACTORY WIRED DISCONNECT SWITCH.

					DUCT		SPLIT S	YSTE	N SCH	HEDUL	.E						
	DESIC	GNATION			C00	LING	HEATING			ELECTRICA	L CHARAC	TERISTICS			BASIS OF DE	SIGN	
AREA SERVED			CFM	UNIT TYPE				INDOOR UNIT			OUTDOOR UNIT						REMAR
								FAN FLA	VOLTS	PHASE	MCA	VOLTS	PHASE	MOCP			
118 - ELEC	DSS-1	ACCU-1	400	WALL MOUNT	6.1	5.2	-	0.1	208	1	15.0	208	1	25	YORK	DHX/DHX	1,2,3,4,5
143 -ENGINEER	DSS-2	ACCU-2	350	WALL MOUNT	4.9	3.2	1.5	0.1	208	1	26.0	208	1	30	YORK	DHP/DHM	1,2,3,4,
142 - WORK SHOP	DSS-3	ACCU-2	350	WALL MOUNT	4.0	2.4	1.4	0.1	208	1	26.0	208	1	30	YORK	DHP/DHM	1,2,3,4,
141 - ELEC	DSS-4	ACCU-4	580	WALL MOUNT	20.2	16.8	-	0.1	208	1	18.1	208	1	30	YORK	DHX/DHX	1,2,3,4,5
145 - SCBA	DSS-5	ACCU-2	350	WALL MOUNT	3.0	1.8	1.1	0.1	208	1	26.0	208	1	30	YORK	DHP/DHM	1,2,3,4,
141.1 - STORAGE	DSS-6	ACCU-2	350	WALL MOUNT	4.1	2.7	2.0	0.1	208	1	26.0	208	1	30	YORK	DHP/DHM	1,2,3,4,
129 - IT	DSS-7	ACCU-3	430	WALL MOUNT	17.0	14.4	-	0.1	208	1	12.7	208	1	20	YORK	DHX/DHX	1,2,3,4,5

NOTES:

2. COOLING CAPACITIES INDICATED SHALL BE AT 75°F / 50% RH RETURN AIR AND 95°F OUTSIDE AIR.

4. PROVIDE UNITS WITH CONDENSATE PUMP. 5. UNIT MUST BE CAPABLE OF LOW AMBIENT COOLING DOWN TO 0 DEGREES F.

K. PROVIDE SELECTIONS FOR VRF SYSTEM BASED ON PROJECT SPECIFIC PIPING LENGTHS AND CONFIGURATION.

1. PROVIDE UNIT WITH REMOTE TEMPERATURE SENSOR.

1. PROVIDE DOUBLE SUCTION REFRIGERANT PIPING RISERS AND TRAPS AS RECOMMENDED BY MANUFACTURER.

3. REFRIGERANT SYSTEM ACCESSORIES AND PIPE SIZES SHALL BE AS RECOMMEND BY MANUFACTURER.

6. CONTRACTOR SHALL VERIFY LINE LENGTHS AND INCLUDE ANY ASSOCIATED DE-RATING.

	AIR COOLED CONDENSING UNIT SCHEDULE													
			COC	DLING	HEA		ELECTRICA	L	NOTES	BASIS OF DESIGN				
DESIG	LOCATION	REFRIGERANT	OA TEMP	TOTAL MBH	OA TEMP	TOTAL MBH	VOLTS/PH	MCA	MOCP		MANUFACTURER	MO		
				•							·			
VRF-1	GRADE	R-410A	95	432.0	0	486.0	208/3	58x3	70x3	1,2	JCI	YVA		
ACCU-5	GRADE	R-410A	95	191.1	-	-	460/3	3.7	15		VALENT	V۷		
NOTES:														

1. CAPACITIES FOR REFERENCE ONLY. UNIT SHALL BE ABLE TO SERVE INDOOR UNITS WITH ALL DE-RATES ACCOUNTED FOR. 2. PROVIDE SELECTIONS FOR VRF SYSTEM BASED ON PROJECT SPECIFIC PIPING LENGTHS.



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	BOILER SCHEDULE														
DESIG	LOCATION	SYSTEM	ТҮРЕ	INPUT	OUTPUT	DESIGN PRESS (PSI)	OPER PRESS	FUEL TYPE	NET MIN OUTPUT	GAS PRESSURE	ELECT	RICAL	BASIS OF DESIGN		
				MBH	MBH		(PSI)		(MBH)	(IN WG)	VOLTS	PHASE	MANUFACTURER	MODEL	
B-1	EAST MEZZANINE	HEATING WATER	CONDENSING	400	392	75	22	NATURAL GAS	390	14	120	1	LOCHINVAR	FTXL	
B-2	EAST MEZZANINE	HEATING WATER	CONDENSING	400	392	75	22	NATURAL GAS	390	14	120	1	LOCHINVAR	FTXL	

1. BOILER SHALL BE CONDENSING TYPE. 2. PROVIDE BOILER WITH CONDENSATE NEUTRLIZATION KIT. 3. PROVIDE BOILER WITH CONCENTRIC VENT KIT.

	EXPANSION / TANK SCHEDULE														
SIG	LOCATION					AIR CH	ANGE		DIMEN	ISIONS		BASIS OF DES	SIGN	N	
		SYSTEM	EM TYPE	TANK VOL (GAL)	VOLUME (GAL)	PRECHARGE PSIG	OPER PSIG	DIA (IN)	H/L (IN)	SYSTEM CONN (IN)	FIELD WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS	
-1	EAST MEZZANINE	RADIANT FLOOR	DIAPHRAGM	10	2.3	12.0	22	10	37.0	1.0	144	BELL & GOSSETT	B-35	1,2,3,4	

1. EXPANSION TANK SHALL BE FACTORY PRECHARGED TO CAPACITIES SHOWN.

2. BLADDER SHALL BE REMOVABLE THRU ACCESS HANDHOLE. 3. PROVIDE ALL PIPING SPECIALTIES AS SHOWN IN TYPICAL PIPING DIAGRAM.

4. TANK SHALL BE A.S.M.E. STAMPED.

	PUMP SCHEDULE														
DESIG	SERVICE		GPM			MOTOR						BASIS OF DESIGN		NOTES	
DEGIG	SERVICE	LOOATION			HP	MAX BHP	VOLTS	PHASE	VFD			MANUFACTURER	MODEL	כויטיבי	
PHWP-1	RADIANT FLOOR	EAST MEZZANINE	40	13.0	0.5	0.2	208	1	-	2637	ATC	BELL & GOSSETT		2	
PHWP-2	RADIANT FLOOR	EAST MEZZANINE	40	13.0	0.5	0.2	208	1	-	2637	ATC	BELL & GOSSETT	ECORCIRC XL	2	
SHWP-1	RADIANT FLOOR	EAST MEZZANINE	40	45.0	1.5	1.1	480	3	Y	3228	ATC	BELL & GOSSETT	E-90	1	
SHWP-2	RADIANT FLOOR	EAST MEZZANINE	40	45.0	1.5	1.1	480	3	Y	3228	ATC	BELL & GOSSETT	E-90	1	
NOTES:															

1. VARIABLE SPEED PUMPS. PROVIDE PUMPS WITH GROUNDING RINGS AND INVERTER DUTY MOTORS. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR VARIABLE FREQUENCY DRIVE REQUIREMENTS. SELECT MOTORS SO THAT DRIVES OPERATE AT 60 HZ OR LESS AT THE CONDITIONS INDICATED. 2. PROVIDE PUMP WITH ECM MOTOR OR INTEGRAL VFD.

	AIR SEPARATOR SCHEDULE										
DESIG	LOCATION	SYSTEM	SIZE (IN)	GPM	STRAINER	BASIS OF	REMARK				
					MANUFACTURER MODEL						
AS-1	MEZZANINE	RADIANT FLOOR HEATING	3.0	40	Y	BELL & GOSSETT	RL-3F	1,2,3			
NOTES	:										

1. MAXIMUM PRESSURE DROP THRU AIR SEPARATORS SHALL BE ONE FOOT OF HEAD. 2. PROVIDE HIGH CAPACITY AUTOMATIC AIR VENT ON AIR VENT PORT OF SEPARATOR.

3. CONSTRUCTION SHALL BE A.S.M.E. STAMPED FOR 125 PSI WORKING PRESSURE.

	ELECTRIC HEATER SCHEDULE											
	MOUNTING	CFM		кw		FAN MOTOR				BASIS OF	NOTES	
DESIG					VOLTS	PHASE	CYCLE		LAT(F)	MANUFACTURER	MODEL	
CH-1	RECESSED	100	3,413	1.0	120	1	60 HZ	68	99.6	QMARK	CWH	1
CH-2	RECESSED	100	1,706	0.5	120	1	60 HZ	68	83.8	QMARK	CWH	1
UH-1	SUSPENDED	350	10,200	3.0	208	1	60 HZ	65	92.1	QMARK	MUH	1
UH-2	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
UH-3	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
UH-4	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
EDH-1	DUCT	70	5,460	1.6	120	1	60 HZ	0	70.0	INDEECO	QUA	1,2
NOTES:												

1. PROVIDE FACTORY WIRED DISCONNECT SWITCH. 2. PROVIDE WITH SCR CONTROLLER AND THERMOSTAT.



EL	REMARKS
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	PLUMBIN	G LEGEND
COLD WATER (CW)		FLOW SWITCH
HOT WATER (HW)		FLOOR CLEANOUT
HOT WATER RECIRCULATION (HWR)		WALL CLEANOUT
NONPOTABLE COLD WATER	NPCW	
CONDENSATE DRAIN LINE	CD	GAUGE AND VALVE
FOUNDATION DRAINAGE	FD	
INDIRECT WASTE PIPING	IW	
PUMPED DISCHARGE	PD	PIPE ANCHOR
SANITARY PIPING		PIPE GUIDE OR SLEEVE
STORM WATER PIPING	<u> </u>	PIPING CAP
OVERFLOR STORM WATER	OFSW	PIPE CONNECTION BOTTOM
VENT PIPING		PIPE CONNECTION TOP
FIRE LINE	F	
SPRINKLER PIPING		
COMPRESSED AIR	A	
PROPANE GAS	P	TEE
BACKWATER VALVE	BWV	TEMPERATURE/PRESSURE TEST PORT
BALL VALVE	——à——	THERMOMETER
BALANCING VALVE W/ FLOW METER FITTING (VENTURI TYPE)	è	UNION
BUTTERFLY VALVE]I	WATER HAMMER ARRESTOR
CHECK VALVE	Ń	Y-STRAINER W/HOSE-END VALVE
FIRE DEPARTMENT SIAMESE CONNECTION	———- ,	
FIRE DEPARTMENT VALVE		AREAWAY DRAIN
GATE VALVE		FLOOR DRAIN
GLOBE VALVE	b	FLOOR SINK
GAS COCK	<u>r</u>	FUNNEL FLOOR DRAIN
OS & Y VALVE	¢	ROOF DRAIN
PRESSURE REGULATOR	&	DOUBLE CHECK VALVE BACKFLOW PREVENTE
	<u>k</u>	REDUCED PRESSURE ZONE BACKFLOW PREVE
RELIEF VALVE	т	HEAT TRACED AND INSULATED PIPE
BUCKET STRAINER		HOSE BIBB
		HOSE-END VALVE
CONCENTRIC REDUCER		VALVE IN VERTICAL POSITION
ECCENTRIC REDUCER	<u>D</u>	
FLANGED CONNECTION	I	VENT THRU ROOF
FLOW SWITCH	<u> </u>	WALL HYDRANT

SEISMIC DESIGN REQUIREMENTS

- 1. THIS FIRE STATION IS ASSIGNED TO SEISMIC DESIGN CATEGORY D AND IS OCCUPANCY CATEGORY IV AS DEFINED BY CHAPTER 1 OF ASCE 7. SEE STRUCTURAL DRAWINGS FOR SEISMIC DESIGN DATA.
- 2. ALL HVAC, PLUMBING & FIRE PROTECTION SYSTEMS AND EQUIPMENT ARE REQUIRED FOR THE CONTINUED OPERATION OF THE FIRE STATION AFTER AN EARTHQUAKE AND SHALL BE ASSIGNED A COMPONENT SEISMIC IMPORTANCE FACTOR OF 1.5 IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7.
- 3. THE MECHANICAL/PLUMBING/FIRE PROTECTION CONTRACTORS SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS PREPARED IN ACCORDANCE WITH THE IBC AND ASCE 7 BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PENNSYLVANIA WHO IS QUALIFIED TO DESIGN SEISMIC RESTRAINT SYSTEMS. AS AN ALTERNATIVE TO EQUIPMENT SEISMIC CALCULATIONS, CONTRACTORS MAY SUBMIT EQUIPMENT SEISMIC CERTIFICATES BY A NATIONALLY RECOGNIZED TESTING STANDARD PROCEDURE. SHOP DRAWINGS SHALL INCLUDE SEPARATE DETAILS AND CALCULATIONS FOR EACH SEPARATE SYSTEM, DEVICE OR ELEMENT. THE APPROVAL OF SEISMIC BRACING SHOP DRAWINGS SHALL BE REQUIRED PRIOR TO THE INSTALLATION OF ANY BUILDING SYSTEMS OR COMPONENTS.

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PLUMBING ABBREVIATIO	DNS
ABOVE FINISHED FLOOR	AFF
AIR HANDLING UNIT	AHU
BRAKE HORSEPOWER	BHP
BACKWATER VALVE	BWV
CONNECTION	CONN
COLD WATER (DOMESTIC)	CW
DESIGNATION	DESIG
DOUBLE CHECK VALVE BACKFLOW PREVENTER	DCVBP
FEET	FT
FIRE DEPARTMENT VALVE	FDV
HORSEPOWER	HP
HOT WATER (DOMESTIC)	HW
HOT WATER RECIRCULATE (DOMESTIC)	HWR
INDIRECT WASTE	IW
KILOWATT(S)	KW
POUNDS	LBS
MAXIMUM	MAX
THOUSAND BRITISH THERMAL UNITS PER HOUR	MBH
NORMALLY CLOSED	NC
NOT IN CONTRACT	NIC
NORMALLY OPEN	NO
REDUCED PRESSURE ZONE BACKFLOW PREVENTER	RPZBP
REVOLUTIONS PER MINUTE	RPM
SANITARY	SAN
SHOWER DRAIN	SD
STANDPIPE	STP
TRAP PRIMING LINE	TPL
UNLESS OTHERWISE NOTED	UON
WASTE	W

PLUMBING GENERAL NOTES

- MAKE ALL WATER CONNECTIONS TO FIXTURES ABOVE FLOOR.
- PROVIDE PIPE SLEEVE EXTENDING FULL WIDTH OF FOOTINGS FOR PIPING THROUGH FOOTINGS, FOUNDATION
- WALLS, ETC. 4. LIMIT SANITARY AND WASTE PIPING DEAD END TO 12 INCHES FROM MAIN OR MAIN BRANCH.
- 5. PROVIDE A MINIMUM OF 24 INCHES CLEARANCE FOR RODDING OF CLEANOUTS.
- 6. CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER DISCIPLINES PRIOR TO CONSTRUCTION.
- ACCESS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CLEANOUTS ETC. LOCATED AT/IN CEILINGS, WALLS OR FLOORS.
- 8. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF PLUMBING FIXTURES, FLOOR DRAINS AND OTHER EQUIPMENT.
- 9. ALL FLOOR DRAINS AND SHOWER DRAINS CONNECTED TO THE SANITARY SHALL BE PROVIDED WITH A PRIMED TRAP UNLESS OTHERWISE NOTED.
- 10. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL FLUSH TYPE CLEANOUTS WITH WALLS, EQUIPMENT, DUCTWORK, PIPE, STRUCTURAL MEMBERS, ETC.
- 11. ALL SPECIFICATIONS AND DRAWINGS (I.E., ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL) ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION.
- 12. ALL CUTTING, DRILLING AND PATCHING OF WALLS, FLOORS OR STRUCTURAL MEMBERS FOR THE INSTALLATION OF THE PLUMBING SYSTEMS SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR. STRUCTURAL COMPONENTS SHALL NOT BE CUT, DRILLED OR MODIFIED IN ANY WAY WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND APPROVAL.
- 13. PROVIDE ONE (1) TRAP PRIMER VALVE FOR EACH FLOOR DRAIN WITHOUT A CONSTANT SOURCE OF WATER SUPPLY TO MAINTAIN TRAP SEAL. PRIMER VALVE SHALL BE LOCATED IN AN ACCESSIBLE AREA AND CONNECTED TO THE NEAREST 3/4" COLD WATER LINE SERVING A FIXTURE.
- 14. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION (NOT TO EXCEED 48"
- 15. ALL PIPING, SYSTEMS, VALVES AND EQUIPMENT SHALL BE PROPERLY IDENTIFIED.
- 16. ALL PIPING VALVES, AND ACCESSORIES SERVING EQUIPMENT SHALL BE INSTALLED TO ALLOW SERVICING OR REMOVAL WITHOUT DISCONNECTING ALL PIPING ACCESSORIES.
- 17. ALL VALVES SHALL HAVE THEIR NORMAL (IN OPERATION) POSITION IDENTIFIED, SUCH AS "NORMALLY OPEN"
- 18. EXPANSION LOOPS AND ANCHORS SHALL BE PROVIDED ON ALL PIPING SYSTEMS WHICH CROSS BUILDING EXPANSION JOINTS AND ALL HORIZONTAL AND VERTICAL PIPING LENGTHS EXCEEDING 100 FEET OR EACH PORTION THEREOF.
- 19. ALL ROUGH-IN AND FINAL CONNECTION FOR EQUIPMENT SPECIFIED BY OTHERS SHALL BE PROVIDED.
- 20. VERIFY EQUIPMENT LOCATIONS WITH OTHER CONSULTANTS OR SUPPLIERS BEFORE PROCEEDING WITH ANY ROUGH-IN.
- 21. ALL PIPING SHALL BE INSTALLED ABOVE CEILING OR IN A CONCEALED SPACE UNLESS NOTED OR INDICATED OTHERWISE.
- 22. THOUGH SOME PIPING OFFSETS ARE INDICATED, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL OFFSETS THAT ARE REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES TO PROVIDE COMPLETE SYSTEM WITHOUT INTERFERENCES.
- 23. ALL PLUMBING VENTS SHALL BE A MINIMUM OF FIFTEEN FEET (15') FROM OUTSIDE AIR INTAKES. 24. AIR CONDITIONING (A/C) CONDENSATE PIPING SHALL BE EXTENDED FROM ALL A/C CONDENSATE SOURCE EQUIPMENT (AHU'S, FAN COIL UNITS, UNIT VENTILATORS, SPLIT SYSTEM A/C UNITS, ETC.) AND CONNECTED TO
- THE NEAREST STORM WATER PIPE/DRAIN LOCATION. SIZE PER MANUFACTURER. 25. SEE SPECIFICATIONS FOR SEISMIC REQUIREMENTS, WHERE APPLICABLE.
- 26. CONTRACTOR SHALL NOT LOCATE ANY PLUMBING OR FIRE PROTECTION PIPING OVER ELECTRICAL

OR "NORMALLY CLOSED".

I	PLUMBING PIPE AND EQUIPMENT INSULATION SCHEDULE										
SYSTEM	PIPE SIZE	TYPE	THICKNESS	MAX K-VALUE @ 75°F	JACKET	NOTES					
DOMESTIC COLD WATER	ALL SIZES	RIGID FIBERGLASS	1"	0.23	ASJ	1, 2, 3 & 4					
	1" AND SMALLER		1"		ASJ						
DOMESTIC HOT WATER AND RECIRCULATING	1 1/4" AND 1 1/2"	RIGID FIBERGLASS	1 1/2"	0.23		1, 2 & 3					
	2" AND LARGER		2"								
HORIZONTAL SANITARY AND VENTS WITHIN 6FT OF ROOF	ALL SIZES	RIGID FIBERGLASS	1"	0.23	ASJ	1, 2 & 3					
HORIZONTAL STORM WATER AND DRAIN BODIES	ALL SIZES	RIGID FIBERGLASS	1"	0.23	ASJ	1, 2 & 3					
DOMESTIC WATER HEATER EQUIPMENT (EXPANSION TANK, ETC)	UP TO 200°F FLUID TEMP	RIGID FIBERGLASS	2"	0.23	ASJ	1 & 2					

NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL INSULATION REQUIREMENTS AS WELL AS DETAILED PRODUCT AND INSTALLATION REQUIREMENTS. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

2. ASJ (ALL SERVICE JACKET) SHALL INCLUDE VAPOR RETARDER.

3. FOR PIPING INSTALLED BELOW 8'-0" ABOVE FINISHED FLOOR, PROVIDE PVC JACKET. 4. ALL EXTERIOR FIBERGLASS INSULATION SHALL BE PROVIDED WITH A WEATHERPROOF ALUMINUM JACKET.

	PLUMBING DRAIN SCHEDULE										
ABBR	FIVTUDE		BASIS OF	DESIGN	NOTEO						
	FIXTURE	AREA	MANUFACTURER	MODEL	NOTES						
FD	FLOOR DRAIN	LOOR DRAIN LOOR DRAIN LOOR DRAIN LAUNDRY ROOMS DECON & TURNOUT GEAR ROOMS		FD-100-A FD-320-Y FD-100-A FD-100-A	1 & 2 1 & 2 1 & 2 1 & 2 1 & 2						
FFD	FUNNEL FLOOR DRAIN	MECH ROOMS KITCHEN (ICEMAKER)	WATTS WATTS	FD-340 FD-100-A	1, 2 & 4 1, 2 & 3						
TD-1	TRENCH DRAIN	APPARATUS BAY	DURATRENCH	DTPF SERIES	8						
TD-2	LINT TROUGH DRAIN	DECON ROOM	JR SMITH	SQ-TD-850	10						
TD-3	SHOWER TRENCH DRAIN	SHOWER THRESHHOLD	INFINITY DRAIN	FXIG SERIES	1, 5 & 9						
NOTE											

1. PROVIDE ASSE 1072 FLOOR DRAIN TRAP SEAL DEVICE, MIFAB MI-GUARD OR EQUIVALENT. ADJUSTABLE NICKEL BRONZE STRAINER.

PROVIDE WITH 4" DIAMETER FUNNEL

PROVIDE WITH 6" DIAMETER FUNNEL. 5. VANDAL PROOF.

6. ADJUSTABLE EXTENSION FLANGE. UNDERDECK CLAMP.

8. PROVIDE FIBER REINFORCED POLYMER, HEAVY DUTY LOAD RATING, WITH 0.5% SLOPE. 9. ADA COMPLIANT.

10. 12" WIDE x 12-1/2" DEEP X 102" LONG LINT TYPE 304 STAINLESS STEEL TROUGH WITH

STAINLESS STEEL BAR GRATE AND SOLID COVER. DUAL REMOVABLE STAINLESS STEEL FILTER SCREENS AND A DOME BOTTOM STRAINER AND 4" DRAIN CONNECTION, JAY R SMITH

MODEL SQ-TD-850 OR EQUIVALENT.

- 2. PROVIDE VACUUM BREAKERS ON ALL HOSE CONNECTION TYPE FITTING HOSE BIBBS, WALL HYDRANTS, ETC.

- ABOVE THE FINISHED FLOOR). PIPE RELIEF OUTLET DISCHARGE TO NEAREST FLOOR DRAIN.

- EQUIPMENT, PANELS, ETC. AND THROUGH THEIR REQUIRED CLEARANCE AREAS.

SPRINKLER GENERAL NOTES

- 1. SPRINKLER CONTRACTOR SHALL PROVIDE COMPLETE SPRINKLER COVERAGE AND DETERMINE THE HAZARD CLASSIFICATION IN ALL AREAS UNDER THIS CONTRACT. CONTRACTOR SHALL LOCATE SPRINKLER HEADS AND SIZE PIPING IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 13, AND AUTHORITY HAVING JURISDICTION.
- 2. CONTRACTOR SHALL HYDRAULICALLY DESIGN AND INSTALL THE SPRINKLER SYSTEM IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 13. SPRINKLERS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13, AND THE AUTHORITY HAVING JURISDICTION.
- 3. CONTRACTOR SHALL PROVIDE AN INDEPENDENT FLOW TEST AS REQUIRED TO CONFIRM FLOW AND PRESSURE AVAILABILITY.
- 4. CONTRACT DRAWINGS FOR SPRINKLER WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY
- SCOPE AND GENERAL ARRANGEMENT. CONTRACTOR SHOULD VISIT SITE TO DETERMINE EXACT QUANTITIES AND SCOPE OF WORK. 5. PRIOR TO THE INSTALLATION OF THE SPRINKLER SYSTEM, THE SPRINKLER CONTRACTOR
- SHALL COORDINATE PIPING, VALVES, SPRINKLER HEADS, ETC. WITH ALL DUCTWORK, PIPING, CABLE TRAYS, STRUCTURAL MEMBERS AND OTHER DISCIPLINES. 6. ALL PENETRATIONS IN FIRE RATED WALLS, CEILINGS AND FLOORS SHALL BE SEALED TO THE
- FULL THICKNESS OF THE PENETRATION WITH A MATERIAL OF EQUAL FIRE RESISTANCE. 7. ALL CUTTING, DRILLING AND PATCHING OF WALLS, FLOORS OR STRUCTURAL MEMBERS FOR THE INSTALLATION OF THE SPRINKLER SYSTEMS SHALL BE PROVIDED BY THE SPRINKLER
- CONTRACTOR. STRUCTURAL COMPONENTS SHALL NOT BE CUT, DRILLED OR MODIFIED IN ANY WAY WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND APPROVAL. 8. ALL SPRINKLER PIPING INSTALLED IN FINISHED AREAS SHALL BE CONCEALED.
- 9. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES OR OMISSIONS ON THE DRAWINGS OR IN THE SPECIFICATIONS, HE SHALL NOTIFY THE ENGINEER OF SUCH CONDITIONS PRIOR TO THE BID DATE OTHERWISE, IT WILL BE UNDERSTOOD THAT THE DRAWINGS AND SPECIFICATIONS ARE CLEAR AS TO WHAT IS INTENDED AND SHALL BE AS INTERPRETED BY THE ENGINEER.
- 10. SPRINKLER CONTRACTOR SHALL CENTER SPRINKLER HEADS IN CEILING TILES. 11. THOUGH SOME PIPING OFFSETS ARE INDICATED, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL OFFSETS THAT ARE REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE FIRE PROTECTION AND SPRINKLER WORK WITH THE WORK OF ALL OTHER TRADES TO
- PROVIDE COMPLETE SYSTEM WITHOUT INTERFERENCES. 12. PROVIDE NFPA APPROVED SPRINKLER HEAD GUARDS IN ALL AREAS SUBJECT TO POTENTIAL DAMAGE. SPRINKLER HEAD GUARDS SHALL BE PROVIDED IN THE FOLLOWING AREAS AND OTHER SIMILAR TYPE SPACES SUBJECT TO POTENTIAL DAMAGE: GYMNASIUMS, MULTI-PURPOSE ROOMS, FITNESS AREAS, ACTIVITY ROOMS, MECHANICAL ROOMS,
- 13. SEE SPECIFICATIONS FOR SEISMIC REQUIREMENTS, WHERE APPLICABLE.

ELECTRICAL ROOMS, ETC.

14. CONTRACTOR SHALL PROVIDE HYDRAULIC CALCULATIONS TO DETERMINE FINAL SIZING OF SPRINKLER MAINS AND BRANCH LINES AND OVERSIZED MAINS AND BRANCH LINES WILL BE NECESSARY TO OVERCOME FRICTION PRESSURE LOSSES.

	PLUMBING FIXTURE SCHEDULE									
DESIG	DESCRIPTION	CW	HW	SAN	VENT	TRAP	FLOW	NOTES		
						•				
WC-1	WATER CLOSET	1 1/4"	-	4"	2"	'INT'	1.28 GPF	4		
WC-2	WATER CLOSET	1 1/4"	-	4"	2"	'INT'	1.28 GPF	1 & 4		
UR-1	URINAL	1"	-	2"	1 1/2"	'INT'	0.125 GPM	3		
UR-2	URINAL	1"	-	2"	1 1/2"	'INT'	0.125 GPM	1 & 3		
L-1	LAVATORY	1/2"	1/2"	1 1/2"	1 1/2"	'P'	0.5 GPM	1 & 3		
L-2	LAVATORY	1/2"	1/2"	1 1/2"	1 1/2"	'P'	0.5 GPM	1 & 2		
S-1	SINK	1/2"	1/2"	1 1/2"	1 1/2"	'P'	0.5 GPM	1 & 2		
S-2	SINK	1/2"	1/2"	1 1/2"	1 1/2"	'P'	0.5 GPM	1 & 2		
S-3	3 COMP SINK	(2) 1/2"	(2) 1/2"	-	(3) 1 1/2" IW	-	1.5 GPM	4		
S-4	SINGLE COMPARTMENT SINK W/ DRAINBOARDS	1/2"	1/2"	-	1 1/2" IW	-	1.5 GPM	4		
SH-1	SHOWER WITH FAUCET	1/2"	1/2"	2"	1 1/2"	'P'	1.5 GPM	1 & 3		
SH-2	SHOWER	1/2"	1/2"	2"	1 1/2"	'P'	1.5 GPM	1 & 3		
MB-1	MOP BASIN	3/4"	3/4'	3"	1 1/2"	'P'	1.5 GPM	4		
IMC-1	ICE MAKER CONNECTION	1/2"	-	-	-	-	-	3		
WMC-1	WASHING MACHINE CONNECTION	1/2"	1/2"	2"	1 1/2"	'P'	-	3		

NOTES: 1. ADA COMPLIANT.

2. COUNTERTOP MOUNTED. 3. WALL MOUNTED.

4. FLOOR MOUNTED

	I	PLUMBING EQUIPMENT SCHEDULE	
DESIG	SERVICE	DESCRIPTION	BASIS OF DESIGN
DWH-1	DOMESTIC WATER HEATER	PACKAGED CONDENSING TYPE GAS FIRED WATER HEATER, 500 MBH INPUT, 97% THERMAL EFFICIENCY, TEMPERATURE LIMIT, TEMPERATURE CONTROL SYSTEM ACCURATE TO +/- 4 DEGREES F WATER CONTROL VALVE. UNIT SHALL HAVE THE CAPACITY OF 130 GALLON STORAGE, 588 GPH RECOVERY @ 100°F RISE (40°F - 140°F), 500 CFH GAS INPUT, 120 V / 1 PH / 60 HZ, PROVIDE CONDENSATE NEUTRALIZATION KIT.	PVI CONQUEST MODEL No. 50 L 130A-GCML
DWH-2	DOMESTIC WATER HEATER (APPARATUS BAY TOILET RM)	ELECTRIC POINT-OF-USE TANKLESS WATER HEATER, UNIT SHALL HAVE THE CAPACITY OF 0.5 GPM, 65°F RISE (40°F - 105°F), 5.5 KW, 277 V / 1 PH / 60Hz.	CHRONOMITE MODEL No. SR-20L/277
DWH-3	DOMESTIC WATER HEATER (APPARATUS BAY UTILITY SINK)	ELECTRIC POINT-OF-USE TANKLESS WATER HEATER, UNIT SHALL HAVE DIGITAL MICROPROCESSOR TEMP CONTROL AND THE CAPACITY OF 1.5 GPM, 65°F RISE (40°F - 103°F), 17.4 KW, 277 V / 1 PH / 60Hz.	CHRONOMITE MODEL No. R-63L/277
<u>ET-1</u>	DOMESTIC HOT WATER EXPANSION TANK (DWH-1)	ASME RATED BLADDER TYPE THERMAL EXPANSION TANK WITH FACTORY PAINTED STEEL SHELL AND BUTYL DIAPHRAGM. 15 GALLON, 10 GALLON ACCEPTANCE VOLUME.	WESSEL MODEL No. TTA-30
DWMV-1	DOMESTIC HOT WATER MIXING VALVE (DWH-1)	MASTER DOMESTIC HOT WATER THERMOSTATIC MIXING VALVE, ASSE 1017 APPROVED WITH NICKEL PLATED ELEMENTS, RATED FOR 25 GPM MAXIMUM AND 1 GPM MINIMUM WITH A MAXIMUM PRESSURE LOSS OF 10 PSI AT 25 GPM FLOW.	LAWLER MODEL No. 801
DHWR-1	DOMESTIC HOT WATER RECIRCULATOR PUMP (DWH-1)	CLOSE COUPLED DIRECT DRIVE INLINE PUMP WITH SEALED BALL BEARING DESIGN MOTOR, RATED AT 12.5 GPM AT 15 FT. TDH. MOTOR SHALL BE 3450 RPM, 1/10 HP, 115 V / 1 PH/ 60 HZ. PUMP SHALL BE STAINLESS STEEL AND NSF 61 APPROVED. DOMESTIC HOT WATER RECIRCULATOR PUMP SHALL BE CONTROLLED BY A FLOW SWITCH INSTALLED IN THE DOMESTIC HOT WATER MAIN AT THE DOMESTIC WATER HEATER.	TACO MODEL No. 2410
DWBP-1	DOMESTIC WATER BOOSTER PUMP	FACTORY ASSEMBLED AND TESTED DUPLEX PACKAGE DOMESTIC WATER BOOSTER PUMP, NSF 61 APPROVED, WITH CONTROL PANEL WITH TUNABLE VARIABLE FREQUENCY PRESSURE SEQUENCING. TOTAL CAPACITY SHALL BE 140 GPM AT 80 FT HD. EACH PUMP SHALL BE 140 GPM AT 80 FT TDH, 5 HP, 460 V /3 PH / 60 HZ.	AQUA-FLO PAK MODEL No. DAP-2-5-B-4
<u>FP-1</u>	FIRE PUMP	HORIZONTAL SPLIT CASE TYPE PUMP. PUMP SHALL BE 300 GPM AT 40 PSI, 15 HP AT 460 V / 3 PH / 60 HZ, 3520 RPM. PUMP SHALL BE FM APPROVED & UL LISTED.	PEERLESS PUMP MODEL No. 4PVF8G-PACKED
JP-1	JOCKEY PUMP	CLOSE COUPLED TURBINE PUMP TYPE. PUMP SHALL BE 7.8 GPM AT 118 FT. HD, 3/4 HP AT 480 V / 3 PH / 60 HZ, 3450 RPM. PUMP SHALL BE FM APPROVED & UL LISTED.	MTH PUMPS MODEL NO. E41E
	1		





GENERAL NOTES:

- 1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- 2. REFER TO P100 FOUNDATION PLUMBING PLAN FOR ADDITIONAL PIPING RELATED TO THE STORM WATER SYSTEM.
- 3. INVERT ELEVATIONS ARE BASED ON A FINISHED FLOOR ELEVATION OF
- ALL EXTERIOR PIPING MATERIAL SHALL BE SDR 35 (PVC D 3034) PIPING OR AS APPROVED BY CUMRU TOWNSHIP BERKS COUNTY, PA.

O DRAWING NOTES:

541.0.

- 1. INCOMING 3" DOMESTIC WATER SERVICE, PROVIDE MINIMUM 3'-0" GROUND COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 2. INCOMING 6" FIRE PROTECTION SERVICE, PROVIDE MINIMUM 3'-0" GROUND COVER, FOR
- CONTINUATION, REFER TO CIVIL DRAWINGS. 3. INCOMING GAS SERVICE AND GAS METER ASSEMBLY BY LOCAL GAS COMPANY.
- 4. 1000 GALLON OIL/SAND SEPARATOR WITH (2) MANHOLES, REFER TO DETAIL.
- 5. 6" SANITARY, INVERT ELEVATION @ 535.00+/-, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 6. 4" SANITARY, INVERT ELEVATION @ 536.00+/-, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 7. POST TYPE FIRE DEPARTMENT CONNECTION WITH 5" STORZ CONNECTION. PROVIDE
- BALL DRIP AT BASE OF RISER BELOW GRADE AND REQUIRED DRAINAGE PIT, COORDINATE FINAL LOCATION OF FIRE DEPARTMENT CONNECTION IN FIELD. 8. (4) 2" VENT (FROM OIL/SAND SEPARATOR'S INFLUENT TEE, TWO MANHOLES AND
- EFFLUENT TEE) LOCATED BELOW GRADE, FOR CONTINUATION, REFER TO FIRST FLOOR PLUMBING PLAN AND REFER TO DETAIL. 9. 4" FIRE, FOR CONTINUATION, REFER TO FOUNDATION PLAN - PLUMBING.
- 10. 4" FIRE, PROVIDE MINIMUM 3'-0" GROUND COVER, COORDINATE FINAL ROUTING OF
- PIPING WITH ALL UTILITIES BELOW GRADE.







0'		90'
0"		

BKM# 19020.01



- @ 537.00' +/-,FOR CONTINUATION, REFER TO PLUMBING SITE PLAN.
- 2. 4" SANITARY, INVERT ELEVATION @ 537.50' +/-, FOR CONTINUATION, REFER
- TO PLUMBING SITE PLAN. 3. 4" SANITARY, INVERT ELEVATION @ 536.00' +/-, FOR CONTINUATION, REFER
- TO CIVIL DRAWINGS.
- 4. INCOMING GAS SERVICE UP TO GAS METER ASSEMBLY PROVIDED BY LOCAL GAS COMPANY.
- 5. 4" STORM WATER UP TO 4" DOWNSPOUT BOOT, REFER TO DETAIL, BY 1A GENERAL CONTRACTOR.
- 6. 4" STORM WATER, PROVIDE 3'-0" MIN. GROUND COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS, BY 1A GENERAL
- 7. 3" INCOMING DOMESTIC WATER SERVICE, PROVIDE 3'-0" MIN. GROUND
- COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS. 8. 6" INCOMING FIRE PROTECTION SERVICE, PROVIDE 3'-0" MIN. GROUND
- COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 9. 2" SANITARY UP TO 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE. 10. 4" SANITARY UP TO <u>WC-1</u>.
- 11. 4" SANITARY UP TO <u>WC-2</u>.

CONTRACTOR.

- 12. 2" SANITARY UP TO 2" SHOWER TRENCH DRAIN (<u>SH-2)</u> WITH ASSE 1072 TRAP SEAL DEVICE.
- 13. 2" SANITARY UP TO (3) <u>L-2</u>.
- 14. 3" SANITARY UP TO <u>MB-1</u>.
- 15. 2" VENT UP.

ALL DRAWINGS ARE PROTECTED BY FEDERAL COPYRIGHT BY MANNS WOODWARD STUDIOS, INC. AND CAN NOT BE REPRODUCED OR MODIFIED IN ANY MANNER WITHOUT WR 271, E 44" PS: ANI \$ ANY NOT BE USED IN PART OR WHOLE TO DEVELOP THE DESIGN OF ANOTHER BUILDING WITHOUT EXPRESS WRITTEN PERMISSION BY

- 16. 3" SANITARY UP TO (1) <u>UR-1</u> & (1) <u>UR-2</u>.
- 17. 2" SANITARY & 2" ISLAND VENT UP TO SANITARY RISER DIAGRAM.
- 18. 2" SANITARY & 2" ISLAND VENT UP TO <u>S-2</u>. REFER TO SANITARY RISER DIAGRAM.
- 19. 4" SANITARY UP TO 4" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.
- 20. 2" SANITARY UP TO <u>L-2</u>.

- 23. 2" SANITARY UP TO <u>L-1</u>.
- 24. 1/2" HWR, 3/4" HW & 3/4" CW UP.
- 25. 1/2" HWR, 3/4" HW & 3/4" CW UP TO (1) <u>S-1</u> & (1) <u>S-2</u>.
- FITTINGS.
- 1072 TRAP SEAL DEVICE.
- 29. 2" SANITARY UP TO 2" SHOWER BASE DRAIN (SH-1) WITH ASSE 1072 TRAP SEAL DEVICE.
- 30. 2" SANITARY UP TO 2" SHOWER BASE DRAIN (SH-2) WITH ASSE 1072 TRAP
- SEAL DEVICE.
- 31. 2" SANITARY UP TO WMC-1.
- 32. 2" SANITARY UP TO <u>UR-2</u>.
- 34. 2" SANITARY UP.
- PLAN AND DETAIL.
- 36. (4) 2" VENT UP.
- DEVICE.
- 38. 1" GAS UP.
- 40. 4" RADON UP, REFER TO DETAIL. 41. 4" FIRE UP.
- TO PLUMBING SITE PLAN.

26. 1/2" HWR, 3/4" HW & 3/4" CW LOCATED BELOW SLAB IN 6" PVC CONDUIT, PIPING SHALL BE INSULATED SEAMLESS SOFT COPPER TUBING WITH NO

27. 4" SANITARY UP TO 4" LINT TROUGH DRAIN FOR EXTRACTORS WITH ASSE

28. 3" SANITARY UP TO 3" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.

33. 4" SANITARY UP TO TRENCH DRAIN, REFER TO DETAIL.

35. (4) 2" VENT PIPING TO OIL/WATER SEPARATOR, REFER TO PLUMBING SITE

37. 2" SANITARY UP TO 2" FUNNEL FLOOR DRAIN WITH ASSE 1072 TRAP SEAL

39. EXTEND 1" GAS BELOW PATIO FLOOR, RISE UP TO GAS GRILLE, REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF GAS GRILLE.

42. 4" FIRE TO FIRE DEPARTMENT CONNECTION, FOR CONTINUATION REFER







- 1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- 2. ALL VALVES SHALL BE ACCESSIBLE.
- EQUIVALENT.

○ DRAWING NOTES:

- 7. INCOMING GAS SERVICE & GAS METER ASSEMBLY PROVIDED BY LOCAL GAS COMPANY. PROVIDE SUPPORTS, CONCRETE PAD, ETC. PER REQUIREMNETS OF LOCAL GAS COMPANY.

- 10. 1 1/4" CONDENSATE DRAIN TO MECHANICAL UNIT, MECHANICAL UNIT NOT PART OF PLUMBING PRIME WORK. PLUMBING PRIME TO SUPPLY MATERIAL AND LABOR FOR ROUGH-IN & FINAL CONNECTION OF DRAIN FROM UNIT TO TERMINUS. (TYPICAL)
- 11. INSTANTANEOUS ELECTRIC WATER HEATER, <u>DWH-2</u>, LOCATED BELOW LAVATORY (<u>L-1</u>), REFER TO SCHEDULE AND DOMESTIC WATER PIPING DIAGRAM FOR PIPING TO <u>L-1</u>. 12. 1/2" CW DOWN TO <u>L-1</u>.
- 13. 1 1/4" CW DOWN TO WC-2.
- 14. 2" VENT UP.

- HW & 3/4" CW INSULATED SEAMLESS SOFT COPPER TUBING IN 6" PVC CONDUIT LOCATED BELOW SLAB AND UP INTO 1/2 HEIGHT WALL TO SERVE ISLAND SINKS <u>S-1</u> & <u>S-2</u>. REFER TO FOUNDATION PLAN, FOR ROUTING BELOW SLAB. REFER TO DOMESTIC WATER RISER DIAGRAM FOR ADDITIONAL PIPING TO DISHWASHER AND UNDERCOUNTER ICE MACHINE. 18. RISE PIPE TO ABOVE CEILING SPACE OF RM 109.
- 20. 2" VENT DOWN TO 3" SANITARY.
- LOCATION OF FDC.

GENERAL NOTES:

- 3. FLOOR DRAIN TRAP SEAL DEVICES SHALL HAVE IAMPO/UPC AND ASSE 1072 LISTINGS AND SHALL BE MI-FAB MI-GUARD OR
- 1. 4" TRENCH DRAIN, <u>TD-1</u>, REFER TO DETAIL.
- 2. TO AUTOMATIC SPRINKLERS (EAST ZONE).
- 3. TO AUTOMATIC SPRINKLERS (WEST ZONE).
- 4. 2" VENT DOWN TO <u>L-1</u> & 2" SANITARY. 5. 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 6. 4" DOWNSPOUT BOOT, REFER TO DETAIL.
- 8. FOR CONTINUATION, REFER TO MEZZANINE EAST PLAN.
- 9. FOR CONTINUATION, REFER TO MEZZANINE WEST PLAN..
- 15. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO MB-1.
- 16. COMBINATION BALANCING & SHUT-OFF FITTING (SET @ 0.5 GPM). 17. 1/2" HWR, 3/4" HW & 3/4" CW DOWN, TRANSITION TO 1/2" HWR, 3/4"
- 19. 2" VENT DOWN TO 2" SANITARY.

21. 4" FIRE UP & 4" FIRE DOWN TO SIAMESE FIRE DEPARTMENT CONNECTION (FCD) WITH BALL DRIP, REFER TO FOUNDATION PLAN AND PLUMBING SITE PLAN FOR CONTINUATION OF PIPING

FIRST FLOOR PLAN - PLUMBING SCALE: 1/8" = 1'-0"

- 4. ALL EXPOSED PIPING LOCATED IN APPARATUS BAY SHALL BE PAINTED TO MATCH CEILING PAINT COLOR. PAINTING SHALL BE PROVIDED UNDER ANOTHER DIVISION - REFER TO DIVISION 1A PRIME SCOPE OF WORK. PLUMBING PRIME CONTRACTOR SHALL PROVIDE PIPE IDENTIFICATION AND PIPE FLOW ARROWS PER SPECIFICATIONS.
- 5. ALL EXPOSED INSULATED PIPING IN APPARATUS BAY SHALL BE PROVIDED WITH PVC JACKETS.
- 22. 4" RADON UP THROUGH ROOF AND 4" RADON DOWN, REFER TO DETAIL 23. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO EXTRACTOR, EXTRACTOR UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE HOSE CONNECTIONS,
- WATER HAMMER ARRESTORS, DUAL CHECK VALVES, ROUGH-IN & FINAL CONNECTIONS. 24. 2' VENT, 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO L-1 AND 2" SANITARY.
- 25. 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO SH-1.
- 26. 4" SANITARY UP TO 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 27. 4" SANITARY DOWN.
- 28. 3/4" CW DOWN TO 3/4" NON-FREEEZE WALL HYDRANT WITH VACUUM BREAKER IN RECESSED NICKEL BRONZE BOX WITH HINGED COVER AND LOCKABLE KEY LOCK.
- 29. 1 1/4" CONDENSATE DOWN, EXTEND THROUGH EXTERIOR WALL AT 18" ABOVE FINISHED GRADE, DISCHARGE OVER SPLASHBLOCK.
- 30. 1" CW & 2" VENT DOWN TO UR-2 & 2" SANITARY.
- 31. 1 1/4" CW UP.
- 32. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO (2) WMC-1.
- 33. 2" VENT DOWN TO WMC-1 & 2" SANITARY.
- 34. OIL WATER SEPERATOR ALARM CONTROL PANEL.
- 35. 4" GAS UP.

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- 36. 2" SANITARY UP TO 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 37. TD-2, 12" WIDE x 12-1/2" DEEP X 102" LONG LINT TYPE 304 STAINLESS STEEL TROUGH WITH STAINLESS STEEL BAR GRATE AND SOLID COVER, DUAL REMOVABLE STAINLESS STEEL FILTER SCREENS AND A DOME BOTTOM STRAINER AND 4" DRAIN CONNECTION, JAY R SMITH MODEL SQ-TD-850 OR EQUIVALENT. COORDINATE INSTALLATION WITH RAISED CONCRETE
- PLATFORM STRUCTURAL ELEMENTS. 38. 4" FLOOR SINK ASSE 1072 TRAP SEAL DEVICE.
- 39. 2" VENT DOWN TO 4" SANITARY.
- 40. 2" VENT UP TO 4" VENT THROUGH ROOF.
- 41. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO S-3.
- 42. 3/4" HWR, 1 1/2" HW & 2" CW UP.
- 43. 2" CW DOWN WITH PIPE SUPPORTED ALONG COLUMN TO 36" ABOVE FINISHED FLOOR, PROVIDE 2" THREADED HOSE END CONNECTION WITH BALL VALVE, PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER ON THE SIZE AND TYPE OF HOSE END THREAD.

AT 84" ABOVE FINISHED FLOOR.

- 45. 1" COMPRESSED AIR UP.
- 46. PROVIDE 1" COMPRESSED AIR WITH SHUT-OFF VALVE, REGULATOR AND QUICK DISCONNECT PROVIDE ROUGH-IN AND FINAL CONNECTION. MOUNT OUTLET AT 48" ABOVE FINISHED FLOOR WITHIN WORKSHOP RM 142.
- 47. ROUTE 1 1/4" COMPRESSED AIR ALONG WALL ABOVE SHELVING. 48. (1) 4" VENT UP AND (4) 2" VENT DOWN (PIPING ASSOCIATED WITH OIL/WATER SEPARATOR), REFER TO DETAIL.
- MEZZANINE WEST).
- 50. WEST SPRINKLER ZONE (INCLUDES FIRST FLOOR WEST AREA).
- 51. EXTEND 1/2" HW FROM SINK <u>S-1</u> SUPPLY TO OWNER PROVIDED UNDERCOUNTER DISHWASHER. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION.
- 52. EXTEND 1/2" CW FROM SINK S-1 SUPPLY TO OWNER PROVIDED UNDERCOUNTER ICEMAKER. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION. 53. 2" FUNNEL FLOOR DRAIN WITH 1/2" TRAP PRIMING LINE FOR INDIRECT DRAIN
- FLOOR DRAIN WITH AIR GAP.
- 55. 1/2" CW DOWN TO COFFEEMAKER, COFFEEMAKER PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE. ASSE1024 BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION.
- 56. 1" GAS DOWN TO GAS RANGE, RANGE PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION. 57. PROVIDE GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET FOR GAS
- ACCESSIBLE CEILING.

VESTIBUL LOBBY WOMEN JAN MEN JAN MEETING STOR OFFICE OFFICE OFFICE OFFICE OFFICE 108 WATCH OFFICI 109 OFFICE CHIEF'S OFFIC CONFERENC COPY OFFICE SHOWER MECH SHOWER LAUNDRY ELEC. FITNESS SHOWER 120 SHOWER 121 MECH BUNK BUNK BUNK BUNK 126 BUNK BUNK 128 IT 129 1 CORRIDOR CORRIDOR KITCHEN DAY ROOM **CLEAN ROOM** SHOWER 136 SHOWER 137 TURNOUT GEA DECON 139 APPARATUS BA ELEC. STORAGE WORKSHOP ENGINEER TOILET 144 SCBA UTILITY 146 VESTIBULE

- 44. 3/4" COMPRESSED AIR DOWN TO AIR HOSE REEL, PROVIDE REELCRAFT MODEL # D9388 OLPBW SERIES 8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET
- CONNECTION HOSES FOR AIR, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, ROUGH-IN AND FINAL CONNECTION. MOUNT HOSE REEL TO COLUMN
- 49. EAST SPRINKLER ZONE (INCLUDES APPARATUS BAY, MEZZANINE EAST & MEZZANINE WEST AND FIRST FLR SPACES BELOW MEZZANINE EAST &
- FROM ICEMAKER. LOCATE FUNNEL FLOOR DRAIN WITHIN ICEMAKER SPACE. 54. EXTEND 3/4" INDIRECT DRAIN FROM UNDERCOUNTER ICEMAKER TO FUNNEL
- RANGE, REFER TO NATURAL GAS RISER FOR ADDITIONAL VALVE AND SOLENOID VALVE CONTROL. VALVES SHALL BE LOCATED ABOVE AN EASILY

- 58. CORRIDOR SHALL REMAIN CLEAR OF ANY PLUMBING PIPING. REFER TO ARCHITECTURAL NOTES CONCERNING SPRINKLER PIPING. 59. SPRINKLER MAIN LOCATED AT PEAK OF CORRIDOR.
- 60. 1 1/4" CW UP AND 1 1/4" CW DOWN TO WATER HOSE REEL IN RM 139, PROVIDE REELCRAFT MODEL # D9399 OLPBW SERIES D8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR WATER, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, ROUGH-IN AND FINAL
- CONNECTION. MOUNT HOSE REEL TO WALL AT 36" ABOVE FINISHED FLOOR. 61. INSTANTANEOUS ELECTRIC WATER HEATER, <u>DWH-3</u>, LOCATED BELOW UTILTY SINK (S-4), REFER TO SCHEDULE AND DOMESTIC WATER PIPING DIAGRAM FOR PIPING TO <u>S-4</u>.
- 62. 1/2" CW DOWN TO <u>S-4</u>.

ABOVE FINISHED FLOOR.

- 63. 3" FLOOR SINK ASSE 1072 TRAP SEAL DEVICE. 64. 1 1/4" CW DOWN TO WATER HOSE REEL, PROVIDE REELCRAFT MODEL # D9399 OLPBW SERIES D8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR WATER, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, ROUGH-IN AND FINAL CONNECTION. MOUNT HOSE REEL TO COLUMN AT 36"
- 65. 3/4" GAS DOWN TO GAS DRYER, GAS DRYER UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.
- 66. SCBA FILL STATION HOSE, COORDINATE FINAL LOCATION WITH OWNER PRIOR TO INSTALLATION. PROVIDE ROUGH-IN AND FINAL CONNECTION. COORDINATE WITH FILL STATION MANUFACTURER'S RECOMMENDATIONS.
- 67. 1" GAS DOWN IN FURRED WALL, PENETRATE THROUGH EXTERIOR WALL AT 18" ABOVE PATIO FLOOR, THEN DROP DOWN BELOW PATIO FLOOR AND EXTEND TO GAS GRILLE (APPROXIMATELY 50 FT), REFER TO GAS GRILLE LOCATION ON ARCHITECTURAL PLANS. GAS GRILLE UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION. NOTE: GAS RISE TO GAS GRILLE SHALL BE LOCATED ON PATIO SIDE OF RETAINING WALL AND NOT IN RETAINING WALL.
- 68. PROVIDE GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET FOR OUTDOOR GAS GRILLE, REFER TO NATURAL GAS RISER FOR ADDITIONAL VALVE AND SOLENOID VALVE CONTROL. VALVES SHALL BE LOCATED ABOVE AN EASILY ACCESSIBLE CEILING.

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CONSULTANT:		DNII	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400 Baltimore, Maryland 21209	P: 410.323.0600 www.bkma.com	
	CUMRU FIRE DEPARTMENT	1775 WELSH ROAD	MOHNTON, PA 19540		
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PART FIRST FLOOR PLAN - PLUMBING



SCALE: 1/4" = 1'-0"

GENERAL NOTES:

- 1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- 2. ALL VALVES SHALL BE ACCESSIBLE.
- 3. FLOOR DRAIN TRAP SEAL DEVICES SHALL HAVE IAMPO/UPC AND ASSE 1072 LISTINGS AND SHALL BE MI-FAB MI-GUARD OR
- 4. CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS PANELS UNDER VALVES FOR ACCESS TO VALVES WHERE HARD CEILINGS

○ DRAWING NOTES:

- 1. 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 2. 4" VENT THROUGH ROOF.
- 3. 2" VENT DOWN TO 4" SANITARY.
- 4. 2" VENT DOWN.

EQUIVALENT.

ARE LOCATED.

- 5. SPRINKLER MAIN (WEST SPRINKLER ZONE) AND SPRINKLER MAIN (EAST SPRINKLER ZONE) DOWN.
- 6. 4" FIRE DOWN.
- 7. 1 1/4" CW DOWN.
- 8. 4" GAS DOWN.
- 9. 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO WMC-1.
- 10. 2" GAS DOWN TO BOILER <u>B-1</u>. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION, REFER TO GAS RISER DIAGRAM.
- 11. 2" GAS DOWN TO BOILER <u>B-2</u>. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION, REFER TO GAS RISER DIAGRAM.
- 12. DOMESTIC WATER HEATER, <u>DWH-1</u> ON 4" HOUSEKEEPING PAD, REFER TO SCHEDULE AND DETAIL.
- 13. DOMESTIC HOT WATER RECIRCULATING PUMP, DHWR-1, REFER TO SCHEDULE AND DETAIL.
- 14. DOMESTIC HOT WATER MASTER MIXING VALVE, DWMV-1, REFER TO SCHEDULE AND DETAIL.
- 15. 2" GAS DOWN TO DOAS-1. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION.
- 16. TO AUTOMATIC SPRINKLERS (EAST SPRINKLER ZONE).
- 17. TO AUTOMATIC SPRINKLERS (WEST SPRINKLER ZONE).
- 18. FOR CONTINUATION, REFER TO FIRST FLOOR PLAN PLUMBING.
- 19. 3/4" GAS, 2" CW, 1 1/2" HW & 3/4" HWR DOWN.
- 20. 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 21. 2" SANITARY DOWN.
- 22. 1/2" HWR, 1/2" HW, 2" VENT & 1/2" CW DOWN TO L-2 & 2" SANITARY.
- 23. 1 1/4" CW DOWN TO <u>WC-2</u>.
- 24. 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO SH-2.
- 25. 2" VENT UP.
- 26. 1/2" HWR DOWN TO 1/2" HW.
- 27. 3/4" HW & 3/4" CW DOWN TO (3) L-2.
- 28. 2" CW DOWN TO (1) WC-2, (1) UR-1 & (1) UR-2.
- 29. 2" CW DOWN TO (1) WC-2 & (2) WC-1.
- 30. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO MB-1.
- 31. 2" VENT DOWN TO L-2 & 2" SANITARY. 32. 2" VENT DOWN TO (2) L-2 & 2" SANITARY.
- 33. 2" VENT DOWN TO (1) <u>UR-1</u> & (1) <u>UR-2</u> & 3" SANITARY.
- 34. COMBINATION BALANCING & SHUT-OFF FITTING (SET @ 0.5 GPM).
- 35. 1/2" HWR, 1" HW & 1 1/2" CW UP.
- DOMESTIC WATER BOOSTER PUMP, <u>DWBP-1</u> ON 6" HOUSEKEEPING PAD, REFER TO SCHEDULE AND DETAIL.
- 37. ELECTRICAL ROOM LOCATED BELOW THIS DASHED AREA; PROVIDE NO PLUMBING PENETRATIONS DOWN THROUGH FLOOR WITHIN THIS DASHED AREA.
- 2 1/2" GAS DOWN TO <u>DWH-1</u>. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION.
- 39. 3" INCOMING DOMESTIC WATER DOWN WITH STRAINER AND MAIN SHUT-OFF VALVE.
- 40. 6" FIRE DOWN WITH OS&Y SHUT-OFF VALVE WITH TAMPER SWITCH.
- 41. 3" REDUCED PRESSURE PRINCIPLE BACK FLOW PREVENTER ASSEMBLY MOUNTED IN VERTICAL POSITION, ZURN 475V FOR DOMESTIC WATER SYSTEM, REFER TO DETAIL.
- 42. 6" DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY FOR FIRE PROTECTION SYSTEM, REFER TO DETAIL.

- 43. FIRE PUMP, FP-1, REFER TO SCHEDULE AND DETAIL.
- 44. JOCKEY PUMP, JP-1, REFER TO SCHEDULE AND DETAIL.
- 45. FIRE PUMP CONTROLLER.
- 46. JOCKEY PUMP CONTROLLER.
- 47. 4" FIRE UP (SERVING SIAMESE FIRE DEPARTMENT CONNECTION). 48. SPRINKLER MAIN UP (SERVING EAST SPRINKLER ZONE).
- 49. SPRINKLER MAIN UP (SERVING WEST SPRINKLER ZONE).
- 50. SPRINKLER ZONE VALVE ASSEMBLY (SERVING EAST SPRINKLER ZONE), REFER TO DETAIL.
- 51. SPRINKLER ZONE VALVE ASSEMBLY (SERVING WEST SPRINKLER
- ZONE), REFER TO DETAIL. 52. 4" SANITARY UP TO 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL
- DEVICE.
- 53. 4" SANITARY DOWN.
- 54. 3" CW UP. 55. 3" CW DOWN.
- 56. 3/4" CW DOWN TO 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER IN RECESSED NICKEL BRONZE BOX WITH HINGED COVER AND LOCKABLE KEY LOCK.
- 57. 1 1/4" CONDENSATE DRAIN TO MECHANICAL UNIT, MECHANICAL UNIT NOT PART OF PLUMBING PRIME WORK. PLUMBING PRIME TO SUPPLY MATERIAL AND LABOR FOR ROUGH-IN & FINAL CONNECTION OF DRAIN FROM UNIT TO TERMINUS. (TYPICAL)
- 58. 1 1/4" CONDENSATE DOWN, EXTEND THROUGH EXTERIOR WALL AT 18" ABOVE FINISHED GRADE, DISCHARGE OVER SPLASHBLOCK.
- 59. 1" CW & 2" VENT DOWN TO UR-1 & 2" SANITARY.
- 60. 2" VENT DOWN TO 2" SANITARY.
- 61. 2" VENT DOWN TO WMC-1 & 2" SANITARY.
- 62. 6" FIRE PUMP BYPASS.
- 63. 6" FIRE TO FIRE PUMP TEST HEADER CONNECTION.
- 64. TWO-WAY FLUSH FIRE PUMP TEST HEADER CONNECTION.
- 65. 1" COMPRESSED AIR DOWN.
- 66. 4" VENT UP THROUGH ROOF AND 4" VENT DOWN.
- 67. 2" SHOWER BASE FLOOR DRAIN (SH-2) WITH 1/2" TRAP PRIMING LINE 68. EAST SPRINKLER ZONE (INCLUDES MEZZANINE EAST, MEZZANINE WEST, APPARATUS BAY, AND FIRST FLR SPACES BELOW MEZZANINE EAST)
- 69. WEST SPRINKLER ZONE (INCLUDES FIRST FLOOR WEST AREA AND FIRST FLR SPACES BELOW MEZZANINE WEST).
- 70. 2" VENT DOWN TO 3" SANITARY.
- 71. 1 1/4" COMPRESSED AIR TO AIR COMPRESSOR, AIR COMPRESSOR PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, AIR REGULATOR, AIR FILTER, ROUGH-IN & FINAL CONNECTION. COORDINATE WITH FINAL LOCATION OF AIR COMPRESSOR BY OWNER.
- 72. 2" COLD WATER MAKE-UP TO MECHANICAL EQUIPMENT, PROVIDE SHUT-OFF VALVE AND REDUCED PRESSURE ZONE BACKFLOW PREVENTER. EXTEND DRAIN FROM BACKFLOW PREVENTER AIR GAP FITTING OVER TO NEAREST FLOOR DRAIN, REFER TO DETAIL.
- 73. 1 1/4" CW DOWN.
- 74. 3/4" GAS UP AND DOWN TO GAS DRYER. GAS DRYER PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.
- 75. AIR COMPRESSOR UNDER ANOTHER DIVISION, REFER TO NOTE 71 FOR ADDITIONAL INFORMATION.
- 76. SCBA FILL STATION UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, AIR PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WHERE THE AIR INTAKE PIPE FOR THE FILL STATION PENETRATES EXTERIOR WALL FOR OUTSIDE AIR INTAKE.
- 77. PROVIDE COMPRESSED AIR LINE FROM SCBA FILL STATION, REQUIRED FITTINGS, VALVES, ETC AND MAKE FINAL CONNECTION TO FILL STATION. SIZE AND MATERIAL OF PIPING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
- 78. COMPRESSED AIR LINE (FROM FILL STATION DOWN) DOWN THROUGH MEZZANINE FLOOR INTO SCBA ROOM LOCATED ON FIRST FLOOR.
- 79. CHECK VALVE APPROVED FOR FIRE PROTECTION SYSTEMS. 80. 4" FIRE DOWN.



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DOMESTIC WATER RISER DIAGRAM NO SCALE

GENERAL NOTES:

- 1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- 2. ALL VALVES SHALL BE INSTALL IN AN ACCESSIBLE AREA.

○ DRAWING NOTES:

- 1. 3" INCOMING DOMESTIC WATER SERVICE, FOR CONTINUATION, REFER TO CIVIL DRAWINGS. 2. 3" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER
- ASSEMBLY WITH STRAINER (VERTICAL UP-VERTICAL UP POSITION), REFER TO DETAIL.
- 3. DOMESTIC WATER BOOSTER PUMP, <u>DWBP-1</u>, REFER TO DETAILS.
- 4. FULL LINE SIZE BYPASS WITH NORMALLY CLOSED VALVE. 5. 2" COLD WATER MAKEUP TO MECHANICAL EQUIPMENT, PROVIDE
- SHUT-OFF BALL VALVE AND REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
- 6. 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
- 7. DOMESTIC WATER HEATER, <u>DWH-1</u>, REFER TO DETAIL. 8. DOMESTIC HOT WATER RECIRCULATING PUMP, <u>DHWR-1</u>, REFER TO DETAIL.
- 9. DOMESTIC HOT WATER MASTER MIXING VALVE, <u>DWMV-1</u>, REFER TO DETAIL.
- 10. POINT-OF-USE THERMOSTATIC MIXING VALVE, LAWLER MODEL NO. 570 (ASSE 1070).
- 11. COMBINED PRESSURE BALANCING/THERMOSTATIC SHOWER MIXING VALVE, ASSE 1016.
- 12. COMBINATION SHUT-OFF VALVE AND BALANCE FITTING (SET AT 0.5 GPM), REFER TO DETAIL.
- 13. WATER HAMMER ARRESTER, SIZE TO PDI WH-201.

- 16. BACKFLOW PREVENTER. (TYPICAL)

- CONDUIT, PROVIDE SEAMLESS SOFT COPPER TUBING WITH NO FITTINGS.
- COLUMN AT 36" ABOVE FINISHED FLOOR.
- FINAL CONNECTION.
- REFER TO SCHEDULE.
- REFER TO SCHEDULE.

14. 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER.

15. 3/4" NON-FREEZE COLD WATER HOSE BIBB WITH VACUUM BREAKER.

17. ICE MAKER & FILTER ASSEMBLY PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION PROVIDE SHUT-OFF BALL VALVES AND BACKFLOW PREVENTER, ROUGH-IN & FINAL CONNECTION.

18. AUTOMATIC TRAP PRIMING STATION <u>TPS-1</u>, REFER TO DETAIL. 19. 1/2" HWR, 3/4" HW & 3/4" CW INSULATED PIPING LOCATED IN 6" PVC

20. WATER HOSE REEL, PROVIDE REELCRAFT MODEL # D9399 OLPBW SERIES 8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR WATER, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALI VALVE, ROUGH-IN AND FINAL CONNECTION. MOUNT HOSE REEL TO

21. 2" CW DOWN WITH PIPE SUPPORTED ALONG COLUMN TO 36" ABOVE FINISHED FLOOR, PROVIDE 2" THREADED HOSE END CONNECTION WITH BALL VALVE, PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER ON THE SIZE AND TYPE OF HOSE END THREAD.

22. 1/2" HWR, 1" HW & 1" CW DOWN TO EXTRACTOR, EXTRACTOR UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE ROUGH-IN &

23. INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-2,

24. INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-3,

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MANNS WOODWARD STUDIOS.

GENERAL NOTES:

- 1. REFER TO P001 FOR FIRE PROTECTION LEGEND, ABBREVIATIONS, SCHEDULES & GENERAL NOTES.
- 2. ALL VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
- 3. PROVIDE AIR RELEASE FITTINGS AS REQUIRED PER NPFA 13. DISCHARGE DRAIN THROUGH EXTERIOR WALL, COORDINATE LOCATIONS OF DRAINS WITH OWNER/ARCHITECT.
- 4. ALL FIRE AND SPRINKLER PIPING AND APPURTENANCES SHALL CONFORM
- TO NFPA 13 & 20. 5. ALL FIRE PIPING AND FITTINGS SHALL BE CLASS 250 PSI WORKING
- PRESSURE.
- 6. ALL LOW POINTS IN THE COMPRESSED AIR SYSTEM SHALL BE PROVIDED WITH A DRAIN VALVE AND CAP, DRAIN VALVES SHALL BE ACCESSIBLE FROM FLOOR LEVEL.

O DRAWING NOTES:

- 1. 6" INCOMING FIRE PROTECTION WATER SERVICE.
- 2. FOR CONTINUATION, REFER TO FLOOR PLANS.
- 3. OS&Y GATE VALVE WITH TAMPER SWITCH (TYPICAL).
- 4. REDUCED PRESSURE PRINCIPLE DETECTOR BACKFLOW PREVENTER, REFER TO DETAIL.
- 5. SPRINKLER ZONE VALVE ASSEMBLY, REFER TO DETAIL.
- 6. FIRE PUMP, REFER TO DETAIL.
- 7. JOCKEY PUMP, REFER TO DETAIL.
- 8. REMOVABLE FIRE PUMP TEST HEADER, PROVIDE (2) 2 1/2" VALVES x 4" SUPPLY PIPE.
- 9. PROVIDE POST TYPE FIRE DEPARTMENT SIAMESE CONNECTION WITH 5" STORZ CONNECTION. MOUNT 36" ABOVE FINISHED GRADE, REFER TO PLUMBING SITE PLAN. 10. INCOMING GAS SERVICE AND GAS METER ASSEMBLY, VALVES,
- REGULATORS AND ALL ASSOCIATED APPURTENANCES BY LOCAL GAS COMPANY.
- 11. GAS PRESSURE REDUCING VALVE (INCHES TO INCHES). (TYPICAL)
- 12. BUILDING MAIN GAS SHUT-OFF VALVE.
- 13. FULL SIZE DIRT LEG.
- 14. AIR COMPRESSOR, AIR COMPRESSOR PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, AIR REGULATOR, AIR FILTER, ROUGH-IN & FINAL CONNECTION.
- 15. FULL SIZE BY-PASS VALVE (NORMALLY CLOSED).
- 16. PRESSURE GAUGE.
- 17. 1" COMPRESSED AIR WITH SHUT-OFF BALL VALVE, REGULATOR AND QUICK-DISCONNECT, PROVIDE ROUGH-IN AND FINAL CONNECTION. MOUNT OUTLET AT 48" ABOVE FINISHED FLOOR.
- 18. 3/4" COMPRESSED AIR TO HOSE REEL, PROVIDE REELCRAFT MODEL # D9399 OLPBW HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR AIR, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, REGULATOR, ROUGH-IN AND FINAL CONNECTION. MOUNT HOSE REEL TO COLUMN AT 84" ABOVE FINISHED FLOOR.
- 19. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, REGULATOR, ROUGH-IN AND FINAL CONNECTION.
- 20. GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET SHALL BE INSTALLED WITH KITCHEN EXHAUST HOOD FIRE SUPPRESSION SYSTEM, KITCHEN HOOD EXHAUST FAN AND FIRE DEPARTMENT CALL CENTER. VALVE SHALL BE LOCATED ABOVE ACCESSIBLE CEILING IN KITCHEN. SHUT-OFF VALVE SHALL BE INTERLOCKED AS FOLLOWS:
- A. WHEN EXHAUST FAN IS ENERGIZED, SHUT-OFF VALVE SHALL OPEN.
- B. WHEN EXHAUST FAN IS DE-ENERGIZED, SHUT-OFF VALVE SHALL CLOSE
- C. WHEN FIRE SUPPRESSION SYSTEM IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
- D. WHEN FIRE DEPARTMENT CALL CENTER IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
- E. COORDINATE WITH ATC, FIRE ALARM SYSTEM AND KITCHEN HOOD
- 21. EQUIPMENT PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.

PROVIDER/INSTALLER.

- 22. GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET SHALL BE INSTALLED WITH OUTDOOR GRILLE AND FIRE DEPARTMENT CALL CENTER. VALVE SHALL BE LOCATED ABOVE ACCESSIBLE CEILING. SHUT-OFF VALVE SHALL BE INTERLOCKED AS FOLLOWS:
- A. GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET SHALL BE NORMALLY OPEN.
- B. WHEN FIRE SUPPRESSION SYSTEM IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
- C. WHEN FIRE DEPARTMENT CALL CENTER IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
- D. COORDINATE WITH ATC, FIRE ALARM SYSTEM AND OUTDOOR GRILLE PROVIDER/INSTALLER.

	ELECTRI			ELI	ECTRICAL ABBREVIATIONS	
	DRAWING SYMBOLS		LIGHTING PLAN SYMBOLS	A AC	AMPERE ALTERNATING CURRENT	1. REFER TO ARCHITECTUR. 2. DRAWINGS SHALL NOT BE
				AFC AFF	ABOVE FINISHED COUNTER ABOVE FINISHED FLOOR	
(#) ()	DRAWING NOTE (APPLIES TO THIS DRAWING UNLT)		LIGHTING FIXTURES) - SEE LIGHTING FIXTURE SCHEDULE	AFG AHU AIC	ABOVE FINISHED GRADE AIR HANDLING UNIT	LIGHTING FIXTURES.
(\cdot)	– DETAIL, SECTION OR ELEVATION NUMBER – DRAWING NUMBER		LIGHTING FIXTURE: DOWNLIGHT, 2' x 4' & 2' x 2'	AIC ANSI ASYM	AMERICAN NAT'L STANDARDS INSTIT.	4. REFER TO ARCHITECTUR DEVICES AND COVERPLA
À	REVISION NUMBER - CLOUDED AREA ON DRAWING		 LOWER CASE - INDICATES CONTROLLING SWITCH(ES) (TYPICAL FOR ALL LIGHTING FIXTURES) 	ATC	AUTOMATIC TEMPERATURE CONTROL AMERICAN WIRE GAUGE	5. THE ELECTRICAL CONTR
<u> </u>	CONTAINS REVISION		LED LIGHTING FIXTURE	BATT BLDG	BATTERY BUILDING	DRAWINGS AND SPECIFIC PRIOR TO ROUGH-IN.
		⊢⊶	LED LIGHTING FIXTURE, INDUSTRIAL TYPE	C CB	CONDUIT CIRCUIT BREAKER	6. REFER TO MECHANICAL
	TRICAL FOWER FLAIN STINDULS		LIGHTING FIXTURE ON EMERGENCY CIRCUIT	CKT CLG	CIRCUIT CEILING	7. WHEREVER POSSIBLE. T
\frown	ELECTRICAL CIRCUIT - 2 #12, 1 #12 GW IN 3/4" CONDUIT, U.O.N.			CT CTR	CURRENT TRANSFORMER CENTER	DRAWINGS FOR THE ACT ROUGH-IN. THIS SHALL A
	HOMERUN TO PANELBOARD	•	FIXTURE SCHEDULE	CU CX DB	COPPER CONNECT TO EXISTING	BY THE CONTRACTOR OF
		Ю	LIGHTING FIXTURE, WALL MOUNTED - SEE LIGHTING FIXTURE SCHEDULE	DIA	DIAMETER	INSTALLED IN FINISHED A WALLS, FLOORS OR CEIL
/、	ELECTRICAL CIRCUIT CONCEALED BELOW GRADE OR FINISHED FLOOR		SURFACE MOUNTED TRACK LIGHTING - SEE LIGHTING	DWG ECB	DRAWING ENCLOSED CIRCUIT BREAKER	SHALL BE PROVIDED BY PERMITTED IN FINISHED
o	CONDUIT TURNING UP			EF ELEC	EXHAUST FAN ELECTRIC / ELECTRICAL	9. PRIOR TO PURCHASE AN
	CONDUIT TURNING DOWN	H⊠† ⊠	WITH DIRECTIONAL ARROWS AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE	EMER EMT	EMERGENCY ELECTRICAL METALLIC TUBING	(STARTERS, ETC.), THE C CHARACTERISTICS. STAR
$\bigcirc \bigcirc \bigcirc \bigcirc$	JUNCTION BOX: CEILING, WALL OR FLUSH-FLOOR MOUNTED	4-6	SELF-CONTAINED, BATTERY POWERED EMERGENCY LIGHT	EQUIP ETR	EQUIPMENT EXISTING TO REMAIN	10. PROVIDE EQUIPMENT GF
	DUPLEX RECEPTACLE - 2P, 3W, 2OA, 125V, NEMA 5-20R IN		WITH TWIN LAMPHEAD. SEE LIGHTING FIXTURE SCHEDULE	EWC EX	ELECTRIC WATER COOLER EXISTING	11. WHERE CIRCUIT AND HO
x"	xx" - DENOTES MOUNTING HEIGHT. WP - WEATHERPROOF. MW - MICROWAVE.	•-□	SITE LIGHTING FIXTURE, POLE MOUNTED. SEE LIGHTING FIXTURE SCHEDULE		FIRE ALARM FIRE ALARM ANNUNCIATOR PANEL FIRE ALARM CONTROL PANEL	GROUND IN 3/4" CONDUI ADDITIONAL CONDUCTO DIMMING DRIVERS, ETC
	GFI - GROUND FAULT CIRCUIT INTERRUPTER, RE - REFRIGERATOR	Sa	LOW VOLTAGE SWITCH - SUBSCRIPT INDICATES FIXTURES CONTROLLED BY THE SWITCH (TYPICAL FOR	FCU	FAN COIL UNIT FEEDER	OF CONDUCTORS FOR LO
	TV - TELEVISION, MOUNT AT 72" AFF	- 4	ALL LIGHTING SWITCHES), 48" A.F.F., U.O.N.: 3 - THREE WAY TOGGLE SWITCH,	F FLA	FUSED OR FUSIBLE FULL LOAD AMPERES	12. COORDINATE WITH SYST REQUIRED. PROVIDE OVE
€	DUPLEX RECEPTACLE, MOUNTED 6" ABOVE COUNTERTOP BACK SPLASH UNLESS OTHERWISE NOTED		4 - FOUR WAY TOGGLE SWITCH, D - DIMMER SWITCH,	FSS FVNR	FUSED SAFETY SWITCH FULL VOLTAGE NON-REVERSING	GROUNDS, ETC. AS REQU DONE BY ELECTRICAL CO SUPPLIER FOR SPECIFIC
₽	DUPLEX RECEPTACLE - 2P, 3W, 2OA, 125V, NEMA 5-2OR IN		O - WALL MTD. OCCUPANCY SENSOR, WP - WEATHERPROOF, EDO - EMEROCINICY DOWED OFF	GFI GW	GROUND FAULT CIRCUIT INTERRUPTER GROUND WIRE	PARTITIONS SERVED BY CIRCUITS DISCONNECTE
#-			EPU - EMERGENUY POWER OFF	GND HOA	GROUND HAND-OFF-AUTOMATIC	13. COORDINATE NUMBER A
47-	2P, 3W, 2OA, 125V, NEMA 5-2OR IN RECESSED TWO-GANG OUTLET BOX, 18" A.F.F., U.O.N.	PC	PHOTOELECTRIC CONTROL	HP HZ	HORSEPOWER HERTZ	14. FEEDERS AND BRANCH (
₽	TWO DUPLEX RECEPTACLES WITH COMMON FACEPLATE IN	тс	TIME CLOCK	JB KCMIL	JUNCTION BOX THOUSAND CIRCULAR MILS	15. UNLESS NOTED OTHERW
	SURFACE OUTLET BOX, SURFACE MOUNTED, 18" A.F.F., U.O.N.			KVA KW	KILOVOLT-AMPERE KILOWATT	BEEN SIZED BASED ON C TYPE. FOR OTHER TYPES 310 15/B)(16) FOR PROPE
	MULTI-OUTLET ASSEMBLY		FIRE ALARM SYMBOLS	MCB MCC		16. THE CONTRACTOR SHALL
ŧ	DUPLEX RECEPTACLE - 2P, 3W, 2OA, 125V, NEMA 5-2OR IN FLUSH MOUNTED FLOOR OUTLET BOX	X 15	FIRE ALARM VISUAL DEVICE, SUBSCRIPT DENOTES	MCP MDP	MOTOR CIRCUIT PROTECTOR MAIN DISTRIBUTION PANEL	FIRE RATED WALLS. WAL SIDES OF THESE RATED
(TWO DUPLEX RECEPTACLES WITH COMMON FACEPLATE		CANDELA RATING, 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.	MECH	MECHANICAL MANHOLE	REQUIREMENTS, THE CO SOME OTHER MEANS OF
	2P, 3W, 2OA, 125V, NEMA 5-2OR IN FLUSH MOUNTED TWO-GANG FLOOR OUTLET BOX	⊡⊲ 15	FIRE ALARM HORN WITH VISUAL DEVICE, SUBSCRIPT DENOTES CANDELA RATING, 80" A.F.F.	MLO MTD	MAIN LUGS ONLY MOUNTED	17. WHERE LIGHT SWITCHES
€₽	POWER POLE WITH DUPLEX RECEPTACLE		OR 6" BELOW CEILING, WHICHEVER IS LOWER.	MT HT NEC	MOUNTING HEIGHT NATIONAL ELECTRICAL CODE	MULTIGANG PLATE. WHEF SHALL BE BASED ON LOA
€₽	POWER POLE WITH DUPLEX RECEPTACLE AND		FIRE ALARM MANUAL STATION, 48" A.F.F., U.O.N.	NEMA NF	NATIONAL ELECTRICAL MANUF. ASSOC. NON-FUSED	18. ON THE ROOF, XHHW-2 CO
/ # \ _		O	FIRE ALARM HEAT DETECTOR	NFSS NIC	NON-FUSED SAFETY SWITCH NOT IN CONTRACT	19. CIRCUIT NUMBERS INDIC
<u>\#</u> /1	1 - <u>RANGE</u> : NEMA '14-50' RECEPTACLE, 30" A.F.F.	0	FIRE ALARM SMOKE DETECTOR	PH or Ø	PHASE POLE	20. PROVIDE LABEL ON ALL R
	3 - <u>SERVER RACK</u> : NEMA 'L6-30P', 30A, 208V.	भ्रह्म	SPRINKLER VALVE POSITION (TAMPER) SWITCH	PB PNI	PUSH BUTTON PANEL	SOURCE PANEL & CIRCUI DIRECTION ON WHETHER
	PANELBOARD. RECESSED OR SURFACE MOUNTED	ېچې	SPRINKLER FLOW SWITCH	PVC RM	POLYVINYL CHLORIDE ROOM	IF ON BACK SIDE OF COVE ON FRONT OF COVER PLA WITH BLACK LETTERING
Q	ELECTRICAL MOTOR	भ ्र ्म्स	SPRINKLER PRESSURE SWITCH	RX SW	REMOVE EXISTING SWITCH	LABEL IS AS FOLLOWS: PA
SM	MOTOR SWITCH WITH THERMAL OVERLOAD	ØE	SMOKE DETECTOR: E-ELEVATOR	SCHED SD	SCHEDULE SMOKE DAMPER	FOR IN THIS NOTE.
	COMBINATION MAGNETIC MOTOR STARTER WITH	207	SMOKE DETECTOR, DUCT TYPE	SEC SFA	SECONDARY SPRINKLER FLOW ALARM	ALL EQUIPMENT IN THE F. HAVE ITS AVAILABLE FAU
_	MCP OR FUSIBLE DISCONNECT SWITCH	НG	FIRE ALARM BELL / GONG	SS SYM	SAFETY SWITCH SYMMETRICAL	22. CABLES AND CONDUITS F 2017 300.4 (E).
X	MAGNETIC MOTOR CONTROLLER/STARTER	ð	FIRE ALARM SYSTEM MAGNETIC DOOR HOLDER	ТЕС	TELEPHONE TERMINAL BOARD	23. ALL PANELBOARDS, SWIT SWITCHES SHALL BE LAB
C	DISCONNECT SWITCH	FACP	FIRE ALARM CONTROL PANEL	UGUH	UNDERGROUND UNIT HEATER	24. MECHANICAL EQUIPMEN
		FAP	FIRE ALARM ANNUNCIATOR PANEL	UON UPS	UNLESS OTHERWISE NOTED UNINTERUPTIBLE POWER SYSTEM	MECHANICAL BASIS OF D SUBMITTED THAT IS OTHI CONTINGENT ON THE RE
ELEC	TRICAL POWER RISER SYMBOLS	\odot	CARBON MONOXIDE DETECTOR	V VPS	VOLT VALVE POSITION (TAMPER) SWITCH	INCLUDING ANY POSSIBLE THE CONTRACTOR AT NO
90A 	FUSE - NUMERAL INDICATES FUSE AMPERE RATING		PECIAL SYSTEMS SYMBOLS	W WP	WIRE WEATHERPROOF	25. ALL EQUIPMENT TERMINA
90A	LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER,			XFMR	TRANSFORMER	TERMINATIONS ARE RATE 60 DEGREES PER NEC 20 NO COST TO THE OWNER
904	AND ACCESSORIES	√ [∨]	TELEPHONE OUTLET, 48" AFF, UON			26. ALL TRANSFORMER COIL
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	LOW VOLTAGE DRAW-OUT CIRCUIT BREAKER, RATING AS INDICATED, SEE SCHEDULE FOR		COMBINATION TELEPHONE/DATA OUTLET, 18" AFF UON. TV - TELEVISION. COORDINATE MOUNTING HEIGHT			27. CONTRACTOR SHALL BAI
ww —			WITH ARCHITECT. AT EACH "TV" OUTLET LOCATION SHOWN, PROVIDE (1) COAX AND (1) DATA OUTLET WITH 1" CONDUIT UP			NEEDED. REFER TO PAN MEASURE LOADS AFTFR
	IRANSFORMER, TYPE AS NOTED ON DRAWING		FLOOR MOUNTED TELEPHONE/DATA OUTLET			OUTAGES AND RE-TEST
[ ⁺ / ⁺ ]	AUTOMATIC TRANSFER SWITCH		ACCESS CONTROL CARD READER. PROVIDE JUNCTION BOX			
└╴╇╌┙			WITH PULL WIRE.			SEISMIC DESIGN
£	CURRENT TRANSFORMER					1. THIS FIRE STATION IS AS
<del>}{</del>	POTENTIAL TRANSFORMER					DRAWINGS FOR SEISMIC
_Δ	3 PHASE DELTA CONNECTION					2. ALL ELECTRICAL SYSTEM OPERATION OF THE FIRE
۲÷	3 PHASE WYE CONNECTION WITH GROUNDED NEUTRAL					A COMPONENT IMPORTA ASCE 7.
Ť	GROUNDING					3. THE ELECTRICAL CONTR PREPARED IN ACCORDA
						PROFESSIONAL ENGINEI QUALIFIED TO DESIGN S
						DEVICE, OR ELEMENT. T BE REQUIRED PRIOR TO
						COMPONENTS. REFER T REQUIREMENTS.

SMIC DESIGN REQUIREMENTS:

- DRAWINGS FOR SEISMIC DESIGN DATA.
- ASCE 7.
- COMPONENTS. REFER TO SEISMIC SPECIFICATION SECTION 260549 FOR ADDITIONAL

### NERAL NEW WORK NOTES:

REFER TO ARCHITECTURAL DRAWINGS FOR ROOM NAME LIST.

DRAWINGS SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES AND DEVICES. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF

REFER TO ARCHITECTURAL DRAWINGS FOR COLORS AND FINISHES FOR WIRING

THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ALL OTHER DRAWINGS AND SPECIFICATIONS SHALL BE CONSULTED AND COORDINATED WITH

REFER TO MECHANICAL PLANS FOR EXACT MECHANICAL EQUIPMENT LOCATION & ELECTRICAL CONNECTION REQUIREMENTS.

WHEREVER POSSIBLE, THE CONTRACTOR SHALL OBTAIN ACTUAL ROUGH-IN DRAWINGS FOR THE ACTUAL ITEM OF EQUIPMENT TO BE INSTALLED PRIOR TO ROUGH-IN. THIS SHALL APPLY TO ALL EQUIPMENT, WHETHER IT IS TO BE INSTALLED BY THE CONTRACTOR OR BY THE OWNER.

IT IS THE INTENT OF THESE DRAWINGS THAT ALL NEW ELECTRICAL WORK TO BE INSTALLED IN FINISHED AREAS, BE INSTALLED CONCEALED WITHIN NEW OR EXISTING WALLS, FLOORS OR CEILINGS. ANY AND ALL CUTTING AND PATCHING OF SURFACES SHALL BE PROVIDED BY THE CONTRACTOR. SURFACE METAL RACEWAYS SHALL BE PERMITTED IN FINISHED AREAS ONLY WHERE SPECIFICALLY APPROVED IN THE FIELD

PRIOR TO PURCHASE AND INSTALLATION OF ANY MOTOR CONTROL EQUIPMENT (STARTERS, ETC.), THE CONTRACTOR SHALL VERIFY THE ACTUAL MOTOR ELECTRICAL CHARACTERISTICS. STARTER OVERLOADS SHALL BE SIZED IN ACCORDANCE WITH THE ACTUAL MOTOR RUNNING LOAD AMPERES.

PROVIDE EQUIPMENT GROUNDING CONDUCTORS FOR ALL FEEDERS AND CIRCUITS. WHERE CIRCUIT AND HOMERUN LINES ARE NOT SHOWN, PROVIDE MINIMUM 2#12+1#12 GROUND IN 3/4" CONDUIT. CIRCUITS SHALL NOT SHARE NEUTRAL. PROVIDE ADDITIONAL CONDUCTORS FOR LIGHTING CIRCUITS FOR SWITCHLEGS, TRAVELLERS, DIMMING DRIVERS, ETC. REFER TO BRANCH CIRCUIT WIRE SIZING CHART FOR SIZING OF CONDUCTORS FOR LONG CIRCUITS.

COORDINATE WITH SYSTEMS FURNITURE SUPPLIER FOR CIRCUIT CONFIGURATION REQUIRED. PROVIDE OVERSIZED NEUTRALS, SEPARATE NEUTRALS, ISOLATED GROUNDS, ETC. AS REQUIRED. FINAL CONNECTION OF SYSTEM FURNITURE SHALL BE DONE BY ELECTRICAL CONTRACTOR. COORDINATE WITH SYSTEM FURNITURE SUPPLIER FOR SPECIFICATIONS. SYSTEMS FURNITURE AND DEMOUNTABLE PARTITIONS SERVED BY MULTIWIRE BRANCH CIRCUITS SHALL BE ABLE TO HAVE ALL CIRCUITS DISCONNECTED SIMULTANEOUSLY BY MULTI-POLE CIRCUIT BREAKERS.

COORDINATE NUMBER AND TYPE OF CONDUCTORS REQUIRED FOR DIMMING CIRCUITS WITH TYPE OF DIMMING DRIVER/DIMMER SWITCHES TO BE PROVIDED.

FEEDERS AND BRANCH CIRCUITS SHALL BE TYPE THHN/THWN IN CONDUIT.

UNLESS NOTED OTHERWISE, ALL CONDUCTORS SHOWN ON THESE DRAWINGS HAVE BEEN SIZED BASED ON COPPER IN ACCORDANCE WITH 75° C (167° F) INSULATION TYPE. FOR OTHER TYPES OF CABLE, SIZE ACCORDING TO NEC 2017 TABLE 310.15(B)(16) FOR PROPER AMPACITY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FIRE RATING OF ANY FIRE RATED WALLS. WALL RECESSED ELECTRICAL BOXES THAT ARE ON OPPOSITE SIDES OF THESE RATED WALLS SHALL BE SEPARATED BY A MINIMUM OF 24". IF THIS SPACING CANNOT BE MET WHILE ADHERING TO NEC AND FHA SPACING REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE LISTED PUTTY PADS OR PROVIDE SOME OTHER MEANS OF ADHERING TO IBC 2015 SECTION 714.3.2.

WHERE LIGHT SWITCHES ARE SHOWN GROUPED TOGETHER, THEY SHALL BE UNDER MULTIGANG PLATE. WHERE DIMMER SWITCHES ARE USED, SELECTION OF CAPACITY SHALL BE BASED ON LOAD SERVED AND ANY DE-RATING REQUIRED DUE TO GANGING

ON THE ROOF, XHHW-2 CONDUCTORS SHALL BE USED PER NEC 2017.

CIRCUIT NUMBERS INDICATED ARE FOR CLARIFICATION OF GROUPING ONLY. ADJUST CIRCUIT NUMBERS TO COORDINATE WITH ACTUAL CIRCUIT BREAKERS USED. PROVIDE LABEL ON ALL RECEPTACLE COVER PLATES. LABEL SHALL INDICATE

SOURCE PANEL & CIRCUIT NUMBER. COORDINATE WITH ARCHITECT & OWNER FOR DIRECTION ON WHETHER TO PUT LABEL ON FRONT OR BACK SIDE OF COVER PLATE. IF ON BACK SIDE OF COVER PLATE, USE PERMANENT, INDELIBLE, BLACK MARKER. IF ON FRONT OF COVER PLATE, PROVIDE LAMINATED POLYESTER, STICK-ON TYPE LABEL WITH BLACK LETTERING ON CLEAR BACKGROUND (SEE SPECIFICATION). FORMAT LABEL IS AS FOLLOWS: PANEL NAME - CIRCUIT NUMBER. IF BUILDING STANDARD IS ALREADY IN PLACE, USE THE BUILDING STANDARD IN LIEU OF THE LABELING CALLED

ALL EQUIPMENT IN THE FAULT CURRENT / COORDINATION / ARC FLASH STUDY SHALL HAVE ITS AVAILABLE FAULT CURRENT LABELED IN THE FIELD PER NEC 2017 110.24. CABLES AND CONDUITS RUN UNDER ROOF DECKING SHALL BE INSTALLED PER NEC

ALL PANELBOARDS, SWITCHBOARDS, ECB's, TRANSFORMERS, AND DISCONNECT SWITCHES SHALL BE LABELED AS TO THEIR SOURCE PER NEC 2017 408.4 (B).

MECHANICAL EQUIPMENT ELECTRICAL CONNECTIONS ARE SIZED BASED ON THE MECHANICAL BASIS OF DESIGN (BOD). IF OTHER MECHANICAL EQUIPMENT IS SUBMITTED THAT IS OTHERWISE EQUAL TO THE BOD, IT MAY BE APPROVED CONTINGENT ON THE REQUIREMENT THAT ANY ADDITIONAL ELECTRICAL COST, INCLUDING ANY POSSIBLE DESIGN AND/OR ENGINEERING COST, BE ABSORBED BY THE CONTRACTOR AT NO COST TO THE OWNER.

ALL EQUIPMENT TERMINATIONS SHALL BE RATED AT 75 DEGREES. IF ANY EQUIPMENT TERMINATIONS ARE RATED AT 60 DEGREES, CONTRACTOR SHALL DERATE CABLES TO 60 DEGREES PER NEC 2017 ARTICLE 110.14(C)(1)(a) AND NEC 2017 ARTICLE 310.15 AT

ALL TRANSFORMER COILS SHALL BE COPPER. NO ALUMINUM SHALL BE PERMITTED. CONTRACTOR SHALL BALANCE LOADS ON EACH PHASE OF MAIN DISTRIBUTION PANEL TO WITHIN 10% OF EACH OTHER. ADJUST LOADS IN DOWNSTREAM PANELS AS NEEDED. REFER TO PANEL SPECIFICATIONS FOR ADDITIONAL INFORMATION. MEASURE LOADS AFTER SUBSTANTIAL COMPLETION. ADJUST DURING PLANNED OUTAGES AND RE-TEST VOLTAGES UNTIL WITHIN 10%.

THIS FIRE STATION IS ASSIGNED TO SEISMIC DESIGN CATEGORY D AND IS OCCUPANCY CATEGORY IV AS DEFINED BY CHAPTER 1 OF ASCE 7. SEE STRUCTURAL

### ALL ELECTRICAL SYSTEMS AND EQUIPMENT ARE REQUIRED FOR THE CONTINUED OPERATION OF THE FIRE STATION AFTER AN EARTHQUAKE AND SHALL BE ASSIGNED A COMPONENT IMPORTANCE FACTOR OF 1.5 IN ACCORDANCE WITH CHAPTER 13 OF

THE ELECTRICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS PREPARED IN ACCORDANCE WITH THE IBC AND ASCE 7 BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PENNSYLVANIA WHO IS QUALIFIED TO DESIGN SEISMIC RESTRAINT SYSTEMS. SHOP DRAWINGS SHALL INCLUDE SEPARATE DETAILS AND CALCULATIONS FOR EACH SEPARATE SYSTEM, DEVICE, OR ELEMENT. THE APPROVAL OF SEISMIC BRACING SHOP DRAWINGS SHALL BE REQUIRED PRIOR TO THE INSTALLATION OF ANY BUILDING SYSTEMS OR

### GENERAL NOTES - SPECIAL SYSTEMS:

- A. ELECTRICAL CONTRACTOR (EC) SHALL BE RESPONSIBLE FOR COORDINATING WITH SPECIAL SYSTEMS SUPPLIERS AND INSTALLERS FOR TELECOMMUNICATIONS, SECURITY, AND A/V WORK.
- B. EC SHALL PERFORM ALL ROUGH-IN WORK FOR SPECIAL SYSTEMS INCLUDING CONDUITS, BOXES, CABLES, TERMINAL PLATES AND CABLE TRAY (IF APPLICABLE). ALL DATA CABLING SHALL BE CAT 6. THE CONTRACTOR SHALL BE REQUIRED TO TEST ALL CABLES PRIOR TO FINAL TERMINATION. FINAL TERMINATIONS ON EQUIPMENT SHALL BE BY THE OWNER.
- C. EC SHALL PERFORM ALL WORK FOR GROUNDING SYSTEM AS REQUIRED FOR SPECIAL SYSTEMS INCLUDING GROUNDING CONDUCTORS, NEW GROUND BUSES, AND BONDING CONNECTIONS. ALL GROUNDING SHALL BE PER THE NEC.
- D. AV & IT SYSTEM ACTIVE EQUIPMENT SUCH AS SERVERS, NETWORK SWITCHES, AV EQUIPMENT AND DEVICES, IT RACKS, ETC. ARE NOT IN CONTRACT.

BUSHED.

- E. ALL SPECIAL SYSTEM CONDUITS INCLUDING SERVICE CONDUITS, AND CONDUITS FROM OUTLETS, ETC. SHALL HAVE ENDS
- F. FOR SECURITY WORK THE SECURITY VENDOR SHALL PROVIDE ALL WIRING AND EQUIPMENT. THE EC SHALL BE RESPONSIBLE FOR BOXES, EMPTY CONDUIT, AND PULLSTRINGS. THE SECURITY VENDOR SHALL BE CONTRACTED THROUGH THE GC OR THE EC.
- G. REFER TO DIVISION 27 FOR ADDITIONAL TELECOMMUNICATIONS WIRING REQUIREMENTS.

### BRANCH CIRCUIT WIRE SIZING

	(20 AMP	ERE SINGLE PHASE					
)	LENGTH OF RUN	HOMERUN SIZE 2	CIRCUIT WIRE SIZE				
	120 VOLT SYS	TEM	<b>`</b>				
	0' - 50'	#12	#12				
	50' - 100'	#10	#12				
	100' - 175'	#8	#10				
	175' - 300'	#6	#8				
	208 OR 240 VOLT SYSTEM						
	0' - 125'	#12	#12				
	125' - 200'	#10	#12				
	200' - 300'	#8	#10				
	277 VOLT SYSTEM						
	0' - 150'	#12	#12				
	150' - 275'	#10	#12				
	275' - 400'	#8	#10				

(1) WIRING FOR BRANCH CIRCUITS PROTECTED BY 20 AMPERE OVERCURRENT PROTECTIVE DEVICES SHALL BE SIZED IN ACCORDANCE WITH THE ABOVE TABLE (UON). WIRING FOR OTHER BRANCH CIRCUITS SHALL BE SIZED AS SHOWN ON DRAWINGS. EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED THE SAME AS THE HOMERUN/CIRCUIT CONDUCTOR.

(2) HOMERUN LENGTH SHALL BE FROM THE PANELBOARD TO THE CLOSEST OUTLET, DEVICE OR FIXTURE ON THE CIRCUIT.

- (3) CIRCUIT LENGTH SHALL BE FROM THE CLOSEST TO THE FARTHEST OUTLET, DEVICE OR FIXTURE.
- (4) PROVIDE CODE COMPLIANT MEANS OF REDUCING CONDUCTOR SIZE AS NEEDED FOR TERMINATIONS. PROVIDE ADDITIONAL JUNCTION BOXES, SPLICES, LUGS, ETC. AS NEEDED.
- (5) LENGTH OF RUN REFERS TO THE LENGTH OF THE HOME RUN OR THE LENGTH OF THE CIRCUIT (WITH EACH DEFINED IN NOTES 2 & 3).

LIGH	TING CONTROL SEQUENCE OF OPERATIONS
SPACE TYPE	SEQUENCE OF OPERATION
(1) CONFERENCE ROOMS, CLASSROOMS	WALL MOUNTED DIMMER SWITCH WITH WALL AND/OR CEILING MOUNTED OCCUPANCY SENSOR. SENSOR TURNS ALL LIGHTS ON TO 50% UPON ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURNS ON AUTOMATICALLY UPON LOSS OF BUILDING POWER.
2 OFFICES	LIGHT CONTROLLED BY WALL/CEILING MOUNTED OCCUPANCY SENSOR. SENSOR TURNS ALL LIGHTS ON TO 100% UPON ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURN ON AUTOMATICALLY UPON LOSS OF BUILDING POWER.
3 STORAGE, UTILITY SPACES	LIGHTS CONTROLLED BY MANUAL SWITCHES. WHERE OCCUPANCY SENSORS ARE INDICATED ON DRAWINGS, LIGHTS TURN ON TO 100% UPON MANUAL ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE.
4 RESTROOMS	LIGHT CONTROLLED BY CEILING MOUNTED OCCUPANCY SENSOR. SENSOR TURNS ALL LIGHTS ON TO 100% UPON ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURN ON AUTOMATICALLY UPON LOSS OF BUILDING POWER.
5 CORRIDORS	LIGHTS CONTROLLED BY CEILING MOUNTED OCCUPANCY SENSORS. SENSOR TURNS ALL LIGHTS ON TO 100% UPON ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURNS ON AUTOMATICALLY UPON LOSS OF BUILDING POWER. ALL EGRESS LIGHTS (NORMAL AND EMERGENCY) TURNS ON AUTOMATICALLY UPON FIRE ALARM ACTIVATION.
6 Lobby	LIGHTS CONTROLLED BY CEILING MOUNTED OCCUPANCY SENSORS. SENSOR TURNS ALL LIGHTS ON TO 100% UPON ACTIVATION. SENSOR TURNS LIGHTS TO 50% AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURN ON AUTOMATICALLY UPON LOSS OF BUILDING POWER. ALL EGRESS LIGHTS (NORMAL AND EMERGENCY) TURNS ON AUTOMATICALLY UPON FIRE ALARM ACTIVATION.
(7) DORMS	LIGHTS CONTROLLED BY WALL MOUNTED OCCUPANCY SENSOR. LIGHTS TURN ON TO 100% UPON MANUAL ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURNS ON AUTOMATICALLY UPON LOSS OF BUILDING POWER.
8 DORM CORRIDOR	LIGHTS CONTROLLED BY PROGRAMMABLE TIMECLOCK. DURING NORMAL BUILDING OPERATION HOURS, CEILING MOUNTED LIGHT FIXTURES SHALL BE ON AT 100%. AFTER HOURS, CEILING MOUNTED LIGHT FIXTURES SHALL BE OFF AND WALL MOUNTED STEP LIGHTS / UNDER LOCKER TAPE LIGHTS SHALL BE ON AT 100%. CEILING MOUNTED LIGHTS SHALL BE CONTROLLABLE BY WALL MOUNTED OVERRIDE SWITCH. SENSOR TURNS CEILING LIGHTS OFF AUTOMATICALLY AFTER HOURS WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE.EMERGENCY LIGHTS TURNS ON AUTOMATICALLY UPON LOSS OF BUILDING POWER. COORDINATE EXACT HOURS OF OPERATION WITH OWNER. ALL EGRESS LIGHTS (NORMAL AND EMERGENCY) TURNS ON AUTOMATICALLY UPON FIRE ALARM ACTIVATION.
9 EXTERIOR FIXTURES	LIGHTS CONTROLLED BY PROGRAMMABLE TIMECLOCK.
DAY ROOM	WALL MOUNTED DIMMER SWITCH WITH WALL AND/OR CEILING MOUNTED OCCUPANCY SENSOR. LIGHTS TURN ON TO 100% UPON MANUAL ACTIVATION. SENSOR TURNS LIGHT OFF AUTOMATICALLY WITHIN 20 MINUTES OF OCCUPANTS LEAVING THE SPACE. EMERGENCY LIGHTS TURNS ON AUTOMATICALLY UPON LOSS OF BUILDING POWER.

![](_page_23_Picture_55.jpeg)

![](_page_24_Figure_0.jpeg)

![](_page_24_Figure_31.jpeg)

25. PROVIDE MINIMUM 30"X48"X30" HANDHOLE BY QUAZITE OR APPROVED EQUAL.

SCALE: 1" = 10'-0"

- 26. PROVIDE POWER TO BUILDING MOUNTED LED SIGNAGE. CIRCUIT TO PANEL RP3-79. REFER TO DRAWING A-200 FOR ADDITIONAL INFORMATION.
- 27. PROVIDE POWER TO BUILDING MOUNTED LED SIGNAGE. CIRCUIT TO PANEL RP1-29. REFER TO DRAWING A-200 FOR ADDITIONAL INFORMATION. PROVIDE POWER VIA INTERIOR MOUNTED JUNCTION BOX. PROVIDE 3/4" CONDUIT POKED THRU EXTERIOR WALL FOR FINAL CONNECTION TO SIGNAGE. FIELD COORDINATE EXACT LOCATION OF POKE THRU TO ENSURE POWER CONNECTION IS FULLY CONCEALED BEHIND LED SIGNAGE.
- 28. PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM PAD MOUNTED UTILITY TRANSFORMER TO FIRE PUMP CONTROLLER.
- 29. PORTABLE GENERATOR CONNECTION CABINET UNIT. PROVIDE (3) SETS OF 400A CONNECTORS PER PHASE INCLUDING GROUND AND NEUTRAL. PROVIDE INTERNAL 800A MAIN CIRCUIT BREAKER IN CONNECTION CABINET AHEAD OF MAIN BUS AND DOWNSTREAM FROM CONNECTORS. PROVIDE CONNECTION FOR GENERATOR START UP SIGNAL AS WELL AS PHASE ROTATION MONITOR. PROVIDE CONTACT FOR CLOSED SIGNAL TO INHIBIT CLOSED TRANSITION ON CABINET.
- 30. NEW UTILITY POLE. VERIFY EXACT LOCATION IN FIELD.

![](_page_24_Picture_46.jpeg)

![](_page_24_Figure_48.jpeg)

![](_page_24_Figure_49.jpeg)

![](_page_24_Figure_50.jpeg)

![](_page_25_Figure_1.jpeg)

### GENERAL NOTES:

- 1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS.
- 2. BOND ALL METALLIC NON CURRENT CARRYING MATERIALS WITHIN THE BOUNDS OF THIS PLAN TO GROUNDING ELECTRODES. MAKE CONNECTIONS UNDERGROUND AND USE EXOTHERMIC WELDS.

### LIGHTNING PROTECTION NOTES:

THE CONTRACTOR SHALL PROVIDE A DEDICATED ROOF LIGHTNING PROTECTION SYSTEM AS OUTLINED BELOW AND SPECIFIED.

- 1. LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO ENSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION BY AN APPROVED MASTER ELECTRICIAN AND UL LIGHTNING PROTECTION CERTIFIED INSTALLER.
- 2. ROOF LIGHTNING AIR TERMINALS AND GROUNDING SHALL BE LAID OUT AND INSTALLED BY CERTIFIED LIGHTNING PROTECTION INSTALLER AS REQUIRED BY LATEST EDITION OF NFPA 780.
- 3. PROVIDE OWNER WITH UL MASTER LIGHTNING PROTECTION CERTIFICATION LABEL.
- 4. LIGHTNING PROTECTION SYSTEM TO BE TESTED IN ACCORDANCE WITH UL 96 REQUIREMENTS. 5. ENSURE THAT ALL AIR TERMINALS ARE WITHIN 2 FEET OF OUTSIDE STRUCTURE EDGE,
- OUTSIDE CORNERS, AND RIDGE ENDS. MINIMUM PROJECTION ABOVE PROTECTED OBJECT IS 12 INCHES.
- 6. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR AND ENSURE THAT ALL BENDS HAVE AT LEAST AN 8 INCH RADIUS AND DO NOT EXCEED 90 DEGREES.
- 7. ATTACH ALL EXPOSED ROOF AND BONDING CABLES AT A MAXIMUM OF 3 FEET ON CENTER. VERIFY COMPATIBILITY OF ADHESIVE WITH MANUFACTURER ON ALL ROOF APPLICATIONS PRIOR TO INSTALLATION.
- 8. REFER TO LIGHTNING PROTECTION SPECIFICATIONS FOR ADDITIONAL INFORMATION. 9. PROVIDE LIGHTNING PROTECTION CONNECTIONS TO ALL RTUS AND OTHER ROOF
- MOUNTED EQUIPMENT. REFER TO ELECTRICAL ROOF PLANS FOR EQUIPMENT LOCATIONS.

### DRAWING NOTES:

1 PROVIDE AIR TERMINAL. 2 PROVIDE DOWN CONDUCTOR TO GROUND ROD.

![](_page_25_Picture_20.jpeg)

![](_page_25_Picture_21.jpeg)

![](_page_25_Picture_23.jpeg)

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BKM# 19020.01

![](_page_26_Figure_0.jpeg)

1. REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

### **DRAWING NOTES:**

- 1. UNLESS OTHERWISE NOTED, ALL RECEPTACLES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL RP3.
- 2. UNLESS OTHER WISE NOTED ALL RECEPTACLES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL RP2.
- 3. PROVIDE LEGRAND EVOLUTION 4 GANG FLOOR BOX FOR POWER AND TELECOM/AV CONNECTIONS. TWO (2) DUPLEX RECEPTACLES, ONE (1) DATA JACK, AND ONE (1) AV.
- 4. PROVIDE COUNTERTOP GFCI RECEPTACLE WITH USB PORT MOUNTED AT 24" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 5. PROVIDE GFCI RECEPTACLE FOR DISH WASHER. 6. PROVIDE (4) 4" SPARE CONDUITS ABOVE CEILING FOR
- FUTURE USE. 7. PROVIDE MINIMUM 28"x28"x28" PULLBOX ABOVE CEILING FOR
- FUTURE USE. 8. PROVIDE (4) 4" CONDUIT SLEEVES THROUGH WALL FOR
- FUTURE USE. INSTALL AT 18'-0" AFF. 9. PROVIDE (2) 4" SPARE CONDUITS ABOVE CEILING FOR
- FUTURE USE. 10. PROVIDE (3) 4" SPARE CONDUITS UNDER SLAB FROM ROOM 104.1 TO ROOM 122 FOR FUTURE ELECTRICAL WORK. FIELD
- COORDINATE STUB UP LOCATIONS. 11. PROVIDE POWER FOR FUTURE OPERABLE PARTITION. PROVIDE CONNECTION TO BLANK RECESSED WALL BOX FOR
- FUTURE CONTROLS. 12. ALL RECEPTACLES IN THIS ROOM SHALL BE PROVIDED IN
- WATERPROOF ENCLOSURE. 13. PROVIDE CEILING MOUNTED RECEPTACLE AND DATA

OUTLET FOR FUTURE PROJECTOR.

- 14. PROVIDE SPARE 3" CONDUIT FOR FUTURE OUTDOOR POWER SUPPLY. CONDUIT SHALL RUN FROM HANDHOLE AT BASE OF PATIO RETAINING WALL, UNDER PATIO, UP INTERIOR WALL, AND TERMINATE IN JUNCTION BOX ABOVE FINISHED CEILING.
- 15. PROVIDE MINIMUM 6-GANG FLOORBOX WITH (1) QUAD RECEPTACLE, (4) DATA JACKS, AND (4) HDMI PORTS. BASIS OF DESIGN EVOLUTION SERIES BY LEGRAND OR APPROVED EQUAL. CONNECT FLOORBOX TO MEDIA BOX LOCATED 72" AFF ON ADJACENT WALL USING (3) 2" CONDUIT. WALL MEDIA BOX TO INCLUDE (1) DUPLEX OUTLET, (4) DATA JACKS, AND (4) HDMI PORTS.

### **O DRAWING NOTES (CONTINUED):**

- 16. PROVIDE SPARE 6-GANG AV FLOORBOX WITH (3) 2" CONDUIT FROM FLOOR BOX, UP WALL, AND TERMINATING IN JUNCTION BOX ABOVE FINISHED CEILING. BASIS OF DESIGN
- 17. PROVIDE TWO-WAY SWITCH FOR CONTROL OF APPARTUS BAY GARAGE DOORS. SWITCHES SHALL BE GANGED TOGETHER. PROVIDE CONDUIT AND WIRE FROM SWITCHES TO DOOR OPERATOR PER MANUFACTURER REQUIREMENTS.
- 18. PANEL SHALL BE RECESSED MOUNTED. 19. PROVIDE COUNTERTOP GFCI RECEPTACLE WITH USB PORT MOUNTED WITHIN BACK SPLASH. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL
- INFORMATION. 20. MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.
- 21. STUB UP (4) 4" CONDUITS IN THIS ROOM FOR TELECOM SERVICE. REFER TO SITE PLAN FOR ADDITIONAL INFORMATION. FIELD COORDINATE EXACT LOCATION.
- 22. PROVIDE 208V, 3P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO OWNER PROVIDED GEAR DRYER. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL SHALL BE A MINIMUM OF (3)#10 + (1)#10 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- 23. COORDINATE OUTLET LOCATIONS IN THIS ROOM WITH ARCHITECTURAL DRAWINGS. 24. PROVIDE 120V CONNECTION TO SOLENOID VALVE.
- COORDINATE INSTALLATION WITH PLUMBING INSTALLER. FIELD COORDINATE EXACT LOCATION.

EVOLUTION SERIES BY LEGRAND OR APPROVED EQUAL.

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![](_page_26_Picture_41.jpeg)

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CONSULTANT:		DKIII	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209 P: 410.323.0600   www.bkma.com	
	CUMRU FIRE DEPARTMENT	1775 WELSH ROAD	MOHNTON, PA 19540	
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VESTIBULE

![](_page_27_Figure_0.jpeg)

- NECESSARY FROM CORRESPONDING OUTDOOR UNIT. PROVIDE 208V, 2P, 30A FSS IN NEMA 1 ENCLOSURE. FUSE PER MANUFACTURER'S RECOMMENDATIONS.

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![](_page_27_Picture_33.jpeg)

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CONSULTANT:		DKII	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209	P: 410.323.0600   www.bkma.com	
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102	WOMEN
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103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC.
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
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127	BUNK
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147	VESTIDULE

![](_page_28_Picture_11.jpeg)

ACHITECTURE + MASTER PLANNING ARCHITECTURE + MASTER PLANNING 10839-D PHILADELPHIA RD WHITE MARSH, MD 21162 (P) 410-344-1460 (F) 443-403-2460 (E) INFO@MWSARCH.COM WWW.MWSARCH.COM INFO@MWSARCH.COM INFO@MWSARCH.COM	
CONSULTANT: Defended Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209 P: 410.323.0600   www.bkma.com	
CUMRU FIRE DEPARTMENT 1775 WELSH ROAD MOHNTON, PA 19540	
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### **DRAWING NOTES:**

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- 1. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL LP1.
- 2. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL LP2.
- 3. WALL RECESSED STEP LIGHT MOUNTED AT 18" AFF.
- 4. MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.
- 5. SWITCH SHALL CONTROL TYPE "K" FIXTURES IN MAIN CORRIDOR.
- 6. SWITCH SHALL CONTROL TYPE "K3" FIXTURES IN MAIN CORRIDOR.
- 7. PROVIDE LED TAPE LIGHT UNDER LOCKERS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAIL. PROVIDE LOW VOLTAGE TRANSFORMER PER TAPE LIGHT MANUFACTURER RECOMMENDATION.

FIRST FLR ROON VESTIBULE LOBBY WOMEN 102 JAN 102 1 MEN 103 JAN 103.1 MEETING 104 STOR 104.1 OFFICE 104.2 OFFICE 105 OFFICE 106 OFFICE 107 OFFICE 108 WATCH OFFICI 109 OFFICE 109.1 110 CHIEF'S OFFIC CONFERENCE 113 COPY OFFICE 114 SHOWER 115 MECH 115.1 SHOWER 116 LAUNDRY ELEC. 118 FITNESS 119 SHOWER 120 SHOWER 121 MECH 122 BUNK 123 BUNK BUNK BUNK 124 126 BUNK 127 BUNK 128 IT 129 ST 129 1 CORRIDOR 130 CORRIDOR KITCHEN 133 134 DAY ROOM 135 CLEAN ROOM SHOWER 136 137 SHOWER 138 TURNOUT GEA DECON 139 APPARATUS BA 140 1/1 ELEC. STORAGE 141.1 WORKSHOP 142 143 ENGINEER 144 TOILET SCBA UTILITY VESTIBULE

![](_page_29_Picture_14.jpeg)

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CONSULTANT:		DATE	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209	P: 410.323.0600   www.bkma.com
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ALL DRAWINGS ARE PROTECTED BY FEDERAL COPYRIGHT BY MANNS WOODWARD STUDIOS, INC. AND CAN NOT BE USED IN PART OR WHOLE TO DEVELOP THE DESIGN OF ANOTHER BUILDING WITHOUT EXPRESS WRITTEN PERMISSION. DOCUMENTS MAY NOT BE USED IN PART OR WHOLE TO DEVELOP THE DESIGN OF ANOTHER BUILDING WITHOUT EXPRESS WRITTEN PERMISSION.

### **GENERAL NOTES:**

- 1. REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND
- GENERAL NOTES. 2. ALL EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO PANEL
- LS1 3. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES IN MEZZANINE WEST SHALL BE CONNECTED TO PANEL LP2 AND ALL RECEPTACLES SHALL BE CONNECTED TO RP3
- 4. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES IN MEZZANINE EAST SHALL BE CONNECTED TO PANEL LP1 AND ALL RECEPTACLES SHALL BE CONNECTED TO RP2.

### **DRAWING NOTES:**

- 1. PROVIDE 480V, 3P, 60A FSS WITH 60A CURRENT LIMITING FUSES IN NEMA 1 ENCLOSURE FOR CONNECTION TO LIFE SAFETY ATS.
- 2. TRANSFORMER SHALL BE SUSPENDED. PROVIDE ALL MOUNTING HARDWARE AS NECESSARY.
- 3. PROVIDE COMBINATION FIRE ALARM AND CARBON MONOXIDE DETECTION CONTROL PANEL. CARBON MONOXIDE DETECTION TO BE PROVIDED THROUGHOUT THE ENTIRE BUILDING.
- 4. PROVIDE POWER TO DOAS-1 AS SHOWN. DISCONNECT SWITCH PROVIDED BY MECHANICAL. PROVIDE POWER CONNECTIONS BETWEEN THE DISCONNECT SWITCH AND UNIT PER MANUFACTURER RECOMMENDATIONS. THE CIRCUIT SHALL BE A MINIMUM OF (3)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- 5. PROVIDE 480V, 3-PHASE, FULL VOLTAGE, NON-REVERSING NEMA SIZE 0 MOTOR STARTER IN NEMA 1 ENCLOSURE FOR CONNECTION TO EF. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- 6. PROVIDE 480V, 0.5 HP, 6-PULSE VFD WITH A 5% LINE REACTOR AND MAINTENANCE BYPASS FOR CONNECTION TO PUMP AS INDICATED. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- 7. PROVIDE 480V, 1.5 HP, 6-PULSE VFD WITH A 5% LINE REACTOR AND MAINTENANCE BYPASS FOR CONNECTION TO PUMP AS INDICATED. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- 8. PROVIDE 480V, 3-PHASE, FULL VOLTAGE, NON-REVERSING NEMA SIZE 0 MOTOR STARTER IN NEMA 1 ENCLOSURE FOR CONNECTION TO VEF. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- 9. PROVIDE MINIMUM 1/4" THICK, 2" TALL GROUND BUS BAR. SIZE LENGTH AS NEEDED PER QUANTITY OF CONNECTIONS. PROVIDE CONNECTION WATER MAIN, STRUCTURAL STEEL, FOUNDATION REBAR, GROUND RING, AND LIGHTNING PROTECTION SYSTEM. PROVIDE CONNECTION TO TELECOMMUNICATIONS GROUND BUS BAR.
- 10. PROVIDE TIMECLOCK FOR EXTERIOR LIGHTING CONTROL. REFER TO LIGHTING CONTROL SEQUENCE OF OPERATIONS ON DRAWING E001 FOR ADDITIONAL INFORMATION.
- 11. PROVIDE 480V, 3P, 800A SERVICE ENTRANCE RATED FSS IN NEMA 1 ENCLOSURE WITH 800A FUSES.
- 12. PROVIDE 480V, 3P, 30A FSS IN NEMA 1 ENCLOSURE FOR CONNECTION TO DWBP-1. FUSE PER MANUFACTURER RECOMMENDATIONS. THE CIRCUIT SHALL BE A MINIMUM (3)# 12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- 13. DISCONNECT SWITCH PROVIDED BY MECHANICAL.
- 14. PROVIDE DUCT SMOKE DETECTOR FOR DOAS-1. COORDINATE DUCT SMOKE DETECTOR INSTALLATION WITH MECHANICAL CONTRACTOR.
- 15. PROVIDE DUCT SMOKE DETECTOR FOR EF-3. COORDINATE DUCT SMOKE DETECTOR INSTALLATION WITH MECHANICAL CONTRACTOR.
- 16. PROVIDE 208V, 3P, 60A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO OWNER PROVIDED AIR COMPRESSOR. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL SHALL BE A MINIMUM OF (3)#4 + (1)#10 GND IN 1-1/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.

![](_page_30_Picture_25.jpeg)

![](_page_30_Picture_26.jpeg)

![](_page_31_Figure_0.jpeg)

### **GENERATOR GROUNDING DETAIL** NO SCALE

![](_page_31_Figure_2.jpeg)

## 4 LIGHTNING PROTECTION GROUNDING DETAIL

# 5 LIGHTNING PROTECTION AIR TERMINAL DETAIL

![](_page_31_Figure_7.jpeg)

![](_page_31_Figure_8.jpeg)

![](_page_31_Figure_9.jpeg)

![](_page_31_Figure_15.jpeg)

3 CONCRETE POLE BASE DETAIL NO SCALE

![](_page_31_Figure_17.jpeg)

# 6 CARD READER MOUNTING DETAIL NO SCALE

CONTRACTOR OF THE CONTRACT OF
RIGHARD ADAM MILLER PE-050888-E
Ш.
CONSULTANT: DEVENDEN Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209 P. 410.323.0600   www.bkma.com
Image: market index
PROJECT NUMBER: 18-036 PROJECT SET: BID SET
DATE ISSUED: 11/30/2023 DRAWING TITLE: ELECTRICAL DETAILS
SHEET NUMBER: E401

![](_page_32_Figure_0.jpeg)

- 1. REFER TO UNDERGROUND STRUCTURES SPECIFICATIONS FOR ADDITIONAL HANDHOLE REQUIREMENTS.
- 2. STONE AND CONCRETE APRON SHALL BE FIELD INSTALLED.

![](_page_32_Figure_3.jpeg)

![](_page_32_Figure_4.jpeg)

### FIRE ALARM RISER DIAGRAM

### DRAWING NOTES:

- 1 PROVIDE GENERATOR MONITORING SIGNAL
- (2) PROVIDE DDC PANEL MONITORING SIGNAL.
- 3 PROVIDE CONNECTIONS FROM FIRE ALARM SYSTEM TO LIGHTING CONTROL DEVICES AS INDICATED ON DRAWING E001. THE LIGHTING CONTROL SYSTEM SHALL RAMP ALL LIGHTING TO FULL BRIGHTNESS DURING A FIRE ALARM EVENT.
- 4 NOTIFICATION COVERPLATES MUST INDICATE "ALERT".

# 5 FIRE ALARM MATRIX

1 HORNS SHALL BE ADDRESSABLE TO ALLOW FOR TEMPORAL 3 AND 4 OUTPUTS FROM A SINGLE HORN, OR CONTRACTOR SHALL PROVIDE (1) ADDITIONAL HORN PER EACH (1) HORN SHOWN ON FLOOR PLAN TO ALLOW FOR TEMPORAL 3 AND 4 OUTPUTS TO EACH HORN RESPECTIVELY.

### DRAWING NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

**GENERAL NOTES:** 

	ACTIVATE BUILDING GENERAL ALARM HORN DEVICES) THROUGHOUT ENTIR TEMPORAL 3 TONES AND FIRE ALARW	SHUT DOWN INDICATED MECHANICAL	SHUTDOWN DESTRATIFICATION FANS	RELEASE MAGNETIC DOOR HOLD-OPE	RELEASE EGRESS DOOR MAG LOCKS	ACTIVATE SYSTEM SUPERVISORY IND	ACTIVATE SYSTEM TROUBLE INDICAT	ACTIVATE CENTRAL MONITORING ST/	ACTIVATE FACP AND ANNUNCIATOR	ACTIVATE BUILDING GENERAL ALARM DEVICES) THROUGHOUT ENTIRE BUIL TONES
MANUAL PULL STATION	•			•	•			•	•	
SPOT-TYPE SMOKE DETECTOR	٠		•	•	•			•	•	
DUCT-TYPE SMOKE DETECTOR		•		•	•			•	٠	
SPRINKLER VALVE TAMPER						•		•	•	
SPRINKLER WATER FLOW SWITCH	•			•	•			•	•	
GENERATOR STATUS						•		•	•	
FIRE ALARM SYSTEM GROUND FAULT CONDITION							•	•	•	
FIRE ALARM SYSTEM TROUBLE CONDITION							•	•	•	
CARBON MONOXIDE DETECTOR				•	•			•	٠	•
COMBINATION SMOKE/CO DETECTOR - SMOKE ACTIVATION	•		•	•	•			•	•	
COMBINATION SMOKE/CO DETECTOR - CO ACTIVATION				•	•			•	•	•

LARM (STROBE / ENTIRE BUILDING LARM VOICE ME. VICAL (HVAC) UN FANS

TO PANEL ' LS2' FOR 120 VAC, 1 PH, POWER

- GROUND ROD.

LEAVE EXPOSED IN

BOTTOM OF HAND

HOLE. BOND TO

PARTS USING #6

BARE COPPER

GROUND WIRE.

ALL METALLIC

TO NOTIFICATION DEVICES (4)

![](_page_32_Figure_29.jpeg)

FOUNDATION. PRIMARY CONDUITS SHOULD BE CUT OFF 2 INCHES BELOW THE TOP OF

GROUNDING CONNECTIONS, AND #6 AWG COPPER COMMUNICATIONS GROUND WIRE.

3. REFER TO ELECTRIC UTILITY CUSTOMER GUIDE FOR ELECTRIC SERVICE FOR ADDITIONAL

2 DUCTBANK TURN UP PAD DETAIL

2. CUSTOMER SHALL FURNISH AND INSTALL ONE 3/4" DIAMETER X 8' GROUND ROD,

FOUNDATION TO ALLOW FOR TERMINATING THE CABLES.

REQUIREMENTS.

![](_page_32_Figure_31.jpeg)

### BASIS OF DESIGN: WATTSTOPPER

### **GENERAL NOTES:**

- 1. 1 OR 2 RELAY CONTROLLER ARE ACCEPTABLE AS APPLICABLE. PROVIDE ENOUGH RELAYS TO SWITCH ALL LOADS. LIGHTING LOAD PER CONTROLLER SHALL NOT EXCEED 20A TOTAL REGARDLESS OF NUMBER OF RELAYS.
- 2. REFER TO FLOOR PLANS FOR DEVICE TYPES AND QUANTITIES IN EACH AREA. THIS DIAGRAM SHOWS A TYPICAL GENERAL ARRANGEMENT WITH TYPICAL DEVICES.
- 3. PROVIDE COORDINATION DRAWINGS WITH ALL REQUIRED DIAGRAMS FOR THE ENTIRE SYSTEM IN A SUBMITTAL FOR REVIEW.

### WIRING DIAGRAM NOTES:

- 1 PROVIDE CONTROL WIRE IN EMT CONDUIT.
- PROVIDE LOW VOLTAGE CONTROL WIRING PER SUPPLIER'S RECOMMENDATIONS. PROVIDE CONTROL WIRING IN EMT CONDUIT.
- 3 CONNECT INPUT/OUTPUT DEVICE TO FIRE ALARM CONTROL MODULE. ALL LIGHTING SHALL TURN ON FULL BRIGHTNESS WHEN THE FIRE ALARM IS ACTIVATED. CONTRACTOR SHALL COORDINATE WITH FIRE ALARM INSTALLER FOR FINAL CONNECTION TO FIRE ALARM SYSTEM. FIRE ALARM WIRING SHALL BE PER FIRE ALARM SYSTEM SUPPLIER RECOMMENDATIONS.

![](_page_32_Picture_41.jpeg)

SEAL: SEAL: 10839 WHITI (P) 41 (P) 41 (F) 44 (E) IN WWV SEAL: (P) 41 (F) 44 (E) IN WWV	T L TECTUR 2-D PH E MAF 0-344 3-403 FO@N V.MW	HILAD AWSA SARC		O S PLANNING A RD 162 COM MILLER
CONSULTANT:		DATE	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209	P: 410.323.0600   www.bkma.com
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![](_page_33_Figure_1.jpeg)

### **GENERAL NOTES:**

- 1. REFER TO DRAWING E001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
- 2. ALL TRANSFORMERS ARE 3-PHASE, DELTA-WYE, 480V PRIMARY 208/120V SECONDARY, DRY-TYPE UNLESS OTHERWISE NOTED.
- 3. REFER TO SITE PLAN FOR SPARE UNDERGROUND CONDUIT REQUIREMENTS.

### DRAWING NOTES:

- PROVIDE 480V, 3P, 60A, 65KAIC FSS IN NEMA 1 ENCLOSURE WITH 60A CURRENT LIMITING FUSES.
- 2 PROVIDE WITH BYPASS ISOLATION SWITCH.

### FEEDER SCHEDULE:

- F1 PROVIDE 4#8 + 1#10 GND IN 1" CONDUIT.
- F2 PROVIDE (2) SETS OF 4#600KCMIL + 1#3/0 GND IN (2) 4" CONDUITS.
- F3 PROVIDE (2) SETS OF 4#600KCMIL +1#3/0 GND IN (2) 4" CONDUITS.
- F4 PROVIDE 4#6 + 1#10 GND IN 1" CONDUIT.
- F5 PROVIDE (2) SETS OF 3#350KCMIL + 1#1 GND IN (2) 3" CONDUIT.
- F6 PROVIDE 4#8 + 1#10 GND IN 3/4" CONDUIT.
- F7 PROVIDE 3#3/0 + 1#6 GND IN 2" CONDUIT.
- F8 PROVIDE 4#600KCMIL + 1#1/0 GND IN 4" CONDUIT.
- F9 PROVIDE 4#4/0 + 1#4 GND IN 2-1/2" CONDUITS.
- F10 PROVIDE 4#600KCMIL +1#3 GND IN 4" CONDUITS.
- F11 PROVIDE 3#10 + 1#10 GND IN 3/4" CONDUIT.
- F12 PROVIDE 4#6 +1#8 GND IN 1" CONDUIT.
- F13 PROVIDE 4#3 + 1#8 GND IN 1-1/4" CONDUIT.

S T ARCHITEC 10839-D WHITE M (P) 410-3 (F) 443-4 (E) INFO WWW.M	UIRE + M PHILAD AARSH, M 344-1460 003-2460 @MWSA WSARC	DIO ASTER PLANNIN ELPHIA RD AD 21162 RCH.COM H.COM	S g
CONSULTANT:	bkm	Burdette, Koehler, Murphy & Associates, Inc. 6300 Blair Hill Lane, Suite 400   Baltimore, Maryland 21209 P: 410.323.0600   www.bkma.com	
	1775 WELSH ROAD	MOHNTON, PA 19540	
	JESCRIPT		
PROJECT 18-036 PROJECT BID SE DATE ISS 11/30/2 DRAWING ELECT DIAGR	SET: T UED: 023 TITLE: RICAL AM JMBER: <b>E5</b>	R: ONE-LINE D1	

![](_page_34_Picture_0.jpeg)

### LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LENS/LOUVER	MOUNTING	Voltage	Color Temperature	MAX. FIXTURE INIT	IAL FIXTURE LUMEN OUTPUT	LAMP TYPE	MANUFACTURER	CATALOG NUMBER
A1	2X2 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	18 2000 I	m	LED	MARK ARCHITECTURAL	WHSPR-2X2-2000LM-40K-90CRI-MIN10-MVOLT-SWC
A2	2X2 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	30 3300 I	m	LED	MARK ARCHITECTURAL	WHSPR-2X2-3300LM-40K-90CRI-MIN10-MVOLT-SWC
B1	2X4 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	42 4800 1	m	LED	MARK ARCHITECTURAL	WHSPR-2X4-4800LM-40K-90CRI-MIN10-MVOLT-SWC
B2	2X4 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	53 6000 I	m	LED	MARK ARCHITECTURAL	WHSPR-2X4-6000LM-40K-90CRI-MIN10-MVOLT-SWC
С	4' DIRECT/INDIRECT PENDANT FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	72 2800 1	m	LED	PEERLESS	10CRM4L-LLP-4FT-MSL4-90CRI-SBL-40K-I700LMF-700LMF-MIN1-Z T-277-SCT
Е	VANITY FIXTURE	N/A	WALL	277 V	4000 K	18 900 lm	1	LED	MOEN	DN0763CH
F	DOWNLIGHT	POLYCARBONATE	RECESSED	277 V	4000 K	12 1000 I	m	LED	GOTHAM	EVO-40/10-6AR-MWD-LSS-MVOLT-EZ10
G1	LOW BAY INDUSTRIAL FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	29 4000 I	m	LED	LITHONIA	MSL-4000LM-SBL-MVOLT-GZ10-40K-90CRI-WH
G2	LOW BAY INDUSTRIAL FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	86 10000	lm	LED	LITHONIA	MSL-10000LM-SBL-MVOLT-GZ10-40K-90CRI-WH
Н	WALL RECESSED STEPLIGHT	ACRYLIC	WALL	277 V	4000 K	4 31721	m	LED	WAC	WL-LED200
J	4' SURFACE MOUNTED WRAPAROUND FIXTURE	ACRYLIC	SURFACE	277 V	4000 K	26 3000 I	m	LED	LITHONIA	LBL4-3000LM-80CRI-40K-MIN10-GZT-MVOLT
Κ	DIRECT LINEAR PENDANT	ACRYLIC	SUSPENDED	277 V	4000 K	32 3200 I	m	LED	MARK ARCHITECTURAL	S4LD-LLP-MSL4-90CRI-40K-800LMF-MIN1-MVOLT-ZT
K2	DIRECT LINEAR WALL	ACRYLIC	WALL	277 V	3500 K	28 3000 I	m	LED	SPI LIGHTING	SEW12114-L28W-3500K-DFSSB-B
L	DOWNLIGHT WET LOCATION	POLYCARBONATE	RECESSED	277 V	4000 K	12 1000 I	m	LED	GOTHAM	EVOSH-40/10-6AR-MWD-LSS-MVOLT-EZ10
М	LINEAR WALL RECESSED TAPE LIGHT - UNDER LOCKER	N/A	WS	277 V	3000 K	2 63 lm		LED	CALI	LLED8000-UCS-SF-3.6W-10V-2.7K-DRY-WH-XX'
Ν	RECESSED LINEAR SLOT	ACRYLIC	RECESSED	277 V	4000 K	31 3600 I	m	LED	AXIS LIGHTING	CLKLED-900-90-40-SO-4-W-UNV-DP-1
P1	POLE MOUNTED SITE LIGHTING	N/A	POLE	277 V	4000 K	54 6967 I	m	LED	LITHONIA	DSX1 LED P1 40K T3M MVOLT RPA
P2	POLE MOUNTED SITE LIGHTING	N/A	POLE	277 V	4000 K	54 3000 I	m	LED	LITHONIA	RADPT LED P1 40K SYM MVOLT PT4 PIR
W1	OUTDOOR WALLPACK	ACRYLIC	WALL	277 V	4000 K	36 3327 I	m	LED	HE WILLIAMS	VWP-H-L30-7-40-T3-BLK-SDGL-EM
W2	WALL MOUNTED OUTDOOR FIXTURE	N/A	WALL	277 V	4000 K	27 2000 1	m	LED	BARN LIGHT ELECTRIC	BLE-G-ASFC12-100-G36-LDBPC-LED27-4000K-DL
W3	WALL MOUNTED OUTDOOR GOOSENECK	N/A	WALL	277 V	4000 K	43 4000 I	m	LED	BARN LIGHT ELECTRIC	BLE-G-WHS28-100-G36-NA-LDCHX-LED43-4000K-DL
W4	FLOOD LIGHTING	N/A	WALL	277 V	4000 K	69 7000 I	m	LED	HE WILLIAMS	VF2-L70/740-MF-CU-DBZ-DIM-UNV
Х	EXIT SIGN	N/A	CEILING/WALL	. 277 V		10 0 lm		LED	LITHONIA	LRP-120/277
Y	EMERGENCY FIXTURE WITH BATTERY BACKUP	N/A	WALL	277 V	4000 K	36 3327 I	m	LED	LITHONIA	ELM2L

1. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.

2. PROVIDE EXIT SIGN MOUNTING TYPES, DIRECTIONAL ARROWS AND FACE QUANTITIES (SINGLE/DOUBLE) AS INDICATED ON DRAWING. COORDINATE LETTERING COLOR OF THE EXIT SIGNS WITH AUTHORITY HAVING JURISDICTION.

3. FINISHES FOR ALL FIXTURES SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL.

4. EQUAL MANUFACTURERS SHALL BE SUBMITTED TO ARCHITECT AND ENGINEER FOR APPROVAL.

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5. PROVIDE ALL LIGHT FIXTURES WITH POWER TRANSFORMERS, LAMPS, AND ALL OTHER APPURTENANCES AS RECOMMENDED BY MANUFACTURER.

![](_page_34_Picture_9.jpeg)

	Panelboard: MI	)P					
	Location: ELEC Supply From: Mounting: Enclosure: Not U	sed	Volts: 480/277 Phases: 3 Wires: 4	7 3Ø 4W		A.I.C. Rating Mains Type Mains Rating	: 65kA : MLO : 800 A
lotes:							
СКТ	Circu	it Description	# of Poles	Frame Size	Trip Rating	Load (kVA)	Remarks
1	XFMR RP		3	400 A	300 A	119.2	
2	MP1		3	225 A	225 A	72.2	
3	MP2		3	400 A	400 A	108.0	
4	LP1		3	100 A	100 A	14.3	
5	SPD		3	100 A	60 A	0.0	
6	SPARE		3		400 A	0.0	
7	SPACE					0.0	
8	SPACE					0.0	
9	SPACE					0.0	
10	SPACE					0.0	
11	SPACE					0.0	
12	SPACE					0.0	
13							
14							
15							
16							
17							
18							
19							
20							
				Тс	otal Conn. Load:	313.7	kVA
					Total Amps:	377 3	Α

Legend:

Notes:

PROVIDE I-LINE TYPE PANELBOARD.

	LOCATIO MOUNTING	N: ELEC. 141 S: Surface				MAINS MAI	RATINNS TY	NG: 60 PE: MO	A CB		VOL AIC R/	<b>TAGE:</b> 480/277 3Ø 4W <b>ATING:</b> 25kA	
скт	Circuit Descript	on Trip	Poles	Α	в	с	A	в	с	Poles	Trip	Circuit Description	ск
1	XFMR LS	25 A	3	1.20			1.51			1	20 A	LIGHTING	2
3					0.00			0.96		1	20 A	LIGHTING	4
5						0.00			0.46	1	20 A	LIGHTING	6
7	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	8
9	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	18
19	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	20
21	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	24
25	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	26
27	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	30
31	SPACE			0.00			0.00					SPACE	32
33	SPACE				0.00			0.00				SPACE	34
35	SPACE					0.00			0.00			SPACE	36
37	SPACE			0.00			0.00			3	30 A	SPD	38
39	SPACE				0.00			0.00					40
41	SPACE					0.00			0.00				42
<b>Conn</b> AØ: BØ: CØ:	ected Load 2.71 KVA = 0.96 KVA = 0.46 KVA =	= 23 A = 8 A = 4 A	A A A										

	LOCATIO MOUNTIN	<b>N</b> : ELEC <b>G</b> : Surfac	. 141 ce				MAINS MAI	S RATIN NS TYI	<b>IG</b> : 10 <b>PE</b> : M0	0 A CB		VOL AIC R/	TAGE: 480/277 3Ø 4W Ating: 25ka	
скт	Circuit Descript	ion	Trip	Poles	A	в	с	A	В	с	Poles	Trip	Circuit Description	скт
1	LP2		60 A	3	3.33			0.57			1	20 A	SITE LIGHTING	2
3						2.28			0.32		1	20 A	LIGHTING	4
5							1.43			2.22	1	20 A	LIGHTING	6
7	LS1		60 A	3	2.71			0.00			1	20 A	SPARE	8
9						0.96			0.00		1	20 A	SPARE	10
11							0.46			0.00	1	20 A	SPARE	12
13	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	14
15	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	18
19	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	20
21	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	24
25	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	26
27	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	30
31	SPACE				0.00			0.00					SPACE	32
33	SPACE					0.00			0.00				SPACE	34
35	SPACE						0.00			0.00			SPACE	36
37	SPACE				0.00			0.00			3	30 A	SPD	38
39	SPACE					0.00			0.00					40
41	SPACE						0.00			0.00				42
Conn	ected Load													
AØ:	6.61 KVA :	=24	1 A _ A	4										
BØ:	3.56 KVA	=13	3 A A	A										
CØ:	4.11 KVA :	= 15	5A A	A										
Notes	:													

	Panel: LE LOCATION: ELE MOUNTING: Surf	<b>P2</b> EC. 118 face				MAINS MAI	RATIN NS TYI	<b>IG</b> : 10 PE: ML	0 A _O		VOL AIC R/	TAGE: 480/277 3Ø 4W ATING: 14kA	
скт	Circuit Description	Trip	Poles	Α	В	С	A	В	С	Poles	Trip	Circuit Description	скт
1	LIGHTING	20 A	1	1.55			0.81			1	20 A	SITE LIGHTING	2
3	LIGHTING	20 A	1		1.83			0.45		1	20 A	LIGHTING	4
5	LIGHTING	20 A	1			0.49			0.94	1	20 A	LIGHTING	6
7	LIGHTING	20 A	1	0.39			0.58			1	20 A	LIGHTING	8
9	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	10
11	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	12
13	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	18
19	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	20
21	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	24
25	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	26
27	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	30
31	SPACE			0.00			0.00					SPACE	32
33	SPACE				0.00			0.00				SPACE	34
35	SPACE					0.00			0.00			SPACE	36
37	SPACE			0.00			0.00			3	30 A	SPD	38
39	SPACE				0.00			0.00					40
41	SPACE					0.00			0.00				42
Conn	ected Load												
AØ:	3.33 KVA =	28 A 🛛 A	4										
BØ:	2.28 KVA =	19 A A	4										
CØ:	1.43 KVA =	12 A A	A										
Notes	:												

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9 11 
 13
 SP/

 15
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 21
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 23
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 35
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 37
 SP/

 39
 SP/

 41
 SP/
 Connecto AØ: BØ: CØ: Notes:

	LOCATION MOUNTING	:ELEC. 141 :Surface				MAINS MAI	S RATII NS TY	NG: 22 PE: MI	5 A _O		VOL AIC R	<b>TAGE</b> : 480/277 3Ø 4W <b>ATING</b> : 42kA	
скт	Circuit Descriptio	on Trip	Poles	Α	В	с	A	В	С	Poles	Trip	Circuit Description	ск
1	SPARE	20 A	3	0.00			0.94			3	15 A	SWHP-1	2
3					0.00			0.94					4
5						0.00			0.94				6
7	PHWP-1	15 A	3	0.58			0.94			3	15 A	SHWP-2	8
9					0.58			0.94					10
11						0.58			0.94				12
13	PHWP-2	15 A	3	0.58			9.87			3	45 A	DOAS-1	14
15					0.58			9.87					16
17						0.58			9.87				18
19	DWH-3	80 A	1	16.05			2.02			3	20 A	DWBP-1	20
21								2.02					22
23									2.02				24
25	DWBP-1	20 A	3	2.02			0.44			3	20 A	JP-1	26
27					2.02			0.44					28
29						2.02			0.44				30
31	SPACE			0.00			1.33			3	40 A	EF-3	32
33	SPACE				0.00			1.33					34
35	SPACE					0.00			1.33				36
37	SPACE			0.00			0.00			3	30 A	SPD	38
39	SPACE				0.00			0.00					40
41	SPACE					0.00			0.00				42
Conn	ected Load	106 1	^							1			
AU:	<u>34.78</u> KVA =	<u> </u>	4 A										
00: CA	10.73 NVA =	0 A/											
100:	18.73 KVA =	00 A 7	4										

LOCATION: ELE MOUNTING: Surf	EC. 118 face				MAINS MAI	RATINNS TYI	NG: 40 PE: MI	0 A _O		VOL AIC R	. <b>TAGE</b> : 480/277 3Ø 4W ATING: 42kA	
Circuit Description	Trip	Poles	Α	В	С	Α	В	С	Poles	Trip	Circuit Description	скт
-MR MP3	175 A	3	33.04			1.03			3	20 A	ACCU-5	2
				36.20			1.03					4
					32.99			1.03				6
SF-1	20 A	3	0.44			0.44			3	20 A	DSF-2	8
				0.44			0.44					10
					0.44			0.44				12
PACE			0.00			0.00					SPACE	14
PACE				0.00			0.00				SPACE	16
PACE					0.00			0.00			SPACE	18
PACE			0.00			0.00					SPACE	20
PACE				0.00			0.00				SPACE	22
PACE					0.00			0.00			SPACE	24
PACE			0.00			0.00					SPACE	26
PACE				0.00			0.00				SPACE	28
PACE					0.00			0.00			SPACE	30
PACE			0.00			0.00					SPACE	32
PACE				0.00			0.00				SPACE	34
PACE					0.00			0.00			SPACE	36
PACE			0.00			0.00			3	30 A	SPD	38
PACE				0.00			0.00					40
PACE					0.00			0.00				42
34.95       KVA =         38.11       KVA =         34.90       KVA =	126 A A 138 A A 126 A A	х х х										

![](_page_35_Picture_10.jpeg)

	Location: E Mounting: S	LEC. 141 Surface				MAINS MAI	RATINNS TYP	NG: 40 PE: MO	0 A CB		VOL AIC R/	<b>TAGE</b> : 120/208 3Ø 4W <b>ATING:</b> 18kA	
скт	Circuit Description	Trip	Poles	A	В	с	A	В	с	Poles	Trip	Circuit Description	ск
1	RP2	225 A	3	9.86			17.49			3	225 A	RP3	2
3					9.60			19.57					4
5						9.14			22.21				6
7	ACCU-2	40 A	2	2.52			1.50			2	20 A	UH-1 - 146	8
9					2.52			1.50					10
11	ACCU-4	30 A	2			1.88			0.60	1	20 A	B-2	12
13				1.88			1.32			1	20 A	DWH-1	14
15	DDC PANEL	20 A	1		0.60			1.01		1	20 A	CH-1 - 144	16
17	B-1	20 A	1			0.60			0.60	1	20 A	DDC PANEL	18
19	DDC PANEL	20 A	1	0.60			0.00			1	20 A	TIMECLOCK	20
21	DWH-2	30 A	2		2.40			0.60		1	20 A	EF-2	22
23						2.40			0.60	1	20 A	EF-4	24
25	UH-3	20 A	2	1.10			1.10			2	20 A	UH-4	26
27					1.10			1.10					28
29	EXTERIOR SIGNAGE	20 A	1			0.18			1.10	2	20 A	UH-2	30
31	DDC PANEL	20 A	1	0.60			1.10						32
33	SPARE	20 A	1		0.00			0.34		1	20 A	VF-1	34
35	SPARE	20 A	1			0.00			0.50	1	20 A	DHWR-1	36
37	SPACE			0.00			0.00			3	30 A	SPD	38
39	SPACE				0.00			0.00					40
41	SPACE					0.00			0.00				42

	Panel: RP LOCATION: ELEC. MOUNTING: Surfac	<b>2</b> 141 e				Mains Mai	RATIN NS TYI	<b>1G</b> : 22 <b>PE</b> : MI	25 A LO		VOL AIC R	<b>.TAGE:</b> 120/208 3Ø 4W <b>ATING:</b> 14kA	
скт	Circuit Description	Trip	Poles	Α	в	с	A	В	с	Poles	Trip	Circuit Description	скт
1	REC - 141.1, EXTERIOR	20 A	1	0.72			0.54			1	20 A	REC - 142	2
3	REC - 143	20 A	1		0.90			0.72		1	20 A	REC - 143,144,145	4
5	REC - 141, EXTERIOR	20 A	1			0.72			0.72	1	20 A	REC - 146, EXTERIOR	6
7	REC - MEZZANINE WEST	20 A	1	0.54			0.72			1	20 A	REC - BAY AREA	8
9	CABLE REEL - BAY AREA	20 A	1		0.36			0.36		1	20 A	CABLE REEL - BAY AREA	10
11	CABLE REEL - BAY AREA	20 A	1			0.36			0.36	1	20 A	CABLE REEL - BAY AREA	12
13	CABLE REEL - BAY AREA	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	14
15	CABLE REEL - BAY AREA	20 A	1		0.36			0.36		1	20 A	CABLE REEL - BAY AREA	16
17	REC - BAY AREA	20 A	1			0.72			0.36	1	20 A	CABLE REEL - BAY AREA	18
19	RECEPTACLE	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	20
21	CARD READERS	20 A	1		0.50			0.50		1	20 A	CARD READERS	22
23	REC TV APPARATUS BAY 140	20 A	1			0.36			0.00	1	20 A	SPARE	24
25	REC TV APPARATUS BAY 140	20 A	1	0.36			0.00			1	20 A	SPARE	26
27	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	30
31	AIR COMPRESSOR MEZZ	60 A	3	5.54			0.00			1	20 A	SPARE	32
33					5.54			0.00		1	20 A	SPARE	34
35						5.54			0.00	1	20 A	SPARE	36
37	SPACE			0.00			0.00			3	30 A	SPD	38
39	SPACE				0.00			0.00					40
41	SPACE					0.00			0.00				42
						-							
Conn	ected Load		_										
AØ:	9.86 KVA = 82	<u>A</u>	4										
CØ:	$\frac{9.00}{9.14} \text{ KVA} = \frac{80}{76}$	A /	4										
Notes	5:												

 95
 SPARE

 97
 SPARE

 99
 SPARE

 101
 SPARE

 103
 SPARE

 105
 SPARE

 107
 SPARE

 109
 SPARE

 101
 SPARE

 103
 SPARE

 104
 SPARE

 105
 SPARE

 111
 SPARE

 113
 SPARE

 115
 SPARE

 117
 SPARE

 119
 SPARE

 121
 SPARE

 123
 SPARE

 125
 SPARE

 
 Connected Load

 AØ:
 17.49
 KVA =
 146 A
 A

 BØ:
 19.57
 KVA =
 163 A
 A

 CØ:
 22.21
 KVA =
 185 A
 A
 Notes:

	Panel: RP Location: Elec. MOUNTING: Surfac	<b>)</b> 118 æ				Mains Mai	S RATII NS TY	NG: 22 PE: M	25 A CB		VOI AIC R	<b>_TAGE</b> : 120/208 3Ø 4W <b>ATING</b> : 14kA	
скт	Circuit Description	Trip	Poles	A	В	с	A	В	С	Poles	Trip	Circuit Description	скт
	REC - 100, 101, 102	20 A	1	0.90			0.72			1	20 A	REC - 103, 104	2
3	REC - 104	20 A	1		0.72			0.72		1	20 A	REC - 104	4
5	FLR BOXES- 104	20 A	1			0.72			0.72	1	20 A	FLR BOXES- 104	6
7	FLR BOXES- 104	20 A	1	0.72			0.72			1	20 A	FLR BOXES- 104	8
9	RECEPTACLE	20 A	1		0.72			0.90	-	1	20 A	REC - 105	10
11	REC - 106	20 A	1			0.90			0.72	1	20 A	REC - 107	12
13	REC - 107	20 A	1	0.36			0.90			1	20 A	REC - 108	14
15	REC -109	20 A	1		0.36			0.36		1	20 A	REC - 109	16
17	REC - 109	20 A	1			0.36			0.18	1	20 A	REC - 109	18
19	REC - 110	20 A	1	0.90			0.72			1	20 A	REC - 109.1	20
21	RECEPTACLE	20 A	1		0.54			0.54		1	20 A	REC - 111	22
23	REC - 113 & CORRIDOR	20 A	1			0.72			0.18	1	20 A	REC - 112	24
25	PRINTER - 113	20 A	1	0.60			0.18			1	20 A	PLOTTER - 113	26
27	REC -114	20 A	1		0.72			0.72		1	20 A	REC - 114	28
29	REC - 115, 116, 117, 118	20 A	1			0.72			0.54	1	20 A	REC - 119	30
31	WATER FOUNTAIN - 119	20 A	1	0.18			0.00			1	20 A	REC - PROJECTOR 104	32
33	TREAD MILL - 119	20 A	1		0.36			0.36		1	20 A	TREAD MILL - 119	34
35	REC - 119	20 A	1			0.36			0.72	1	20 A	BEC - 120 121 CORRIDOR	36
37	REC - 123	20 A	1	0.90		0.00	0.90		0.72	1	20 A	REC - 124	38
30	REC - 125	20 A	1	0.00	0 90		0.00	0.90		1	20 A	REC - 126	40
11	REC 123	20 A	1		0.30	0.00		0.30	0.00	1	20 A	REC 128	40
41		20 A	1	0.00		0.90	0.54		0.90	1	20 A		42
43		20 A	1	0.90	0.00		0.54	0.26		1	20 A		44
45		20 A	1		0.90	0.54		0.30	0.00		20 A		40
47		20 A	1	0.00		0.54	0.00		0.60	1	20 A		48
49		20 A	1	0.60			0.60			1	20 A	FRIDGE - KITCHEN	50
51	REC - 134	20 A	1		0.54			0.54		1	20 A	FLR BOXES - 134	52
53	REC - 135, 136, 137, 147	20 A	1			0.54			0.54	1	20 A	REC - 138, 139	54
55	REC - MEZZANINE WEST	20 A	1	0.54			0.36	-		1	20 A	REC - EXTERIOR	56
57	REC - EXTERIOR	20 A	1		0.54			4.00	-	2	50 A	RANGE - KITCHEN	58
59	REC - 109	20 A	1			0.72			4.00				60
61	REC - 138	20 A	1	0.72			0.72			1	20 A	REC - 138	62
63	REC - 138	20 A	1		0.72			0.60		1	20 A	FREEZER - 139	64
65	OVEN - KITCHEN	30 A	2			1.65			0.60	1	20 A	<b>DISHWASHER - KITCHEN</b>	66
67				1.65			0.54			1	20 A	RECEPTACLE	68
69	RECEPTACLE DAY ROOM 134	20 A	1		0.54			0.54		1	20 A	RECEPTACLE MEETING 104	70
71	RECEPTACLE KITCHEN 133	20 A	1			0.36			0.72	1	20 A	RECEPTACLE KITCHEN 133	72
73	RECEPTACLE FITNESS 119	20 A	1	0.36			0.18			1	20 A	RECEPTACLE IT 129	74
75	RECEPTACLE IT 129	20 A	1		0.18			0.18		1	20 A	RECEPTACLE IT 129	76
77	RECEPTACLE WATCH	20 A	1			0.72			0.72	1	20 A	RECEPTACLE	78
79	EXTERIOR SIGNAGE	20 A	1	0.18			0.36			1	20 A	RECEPTACLE	80
81		20 A	1		0.00		0.00	0.36		1	20 A	RECEPTACI E FITNESS 119	82
83		20 A	1		0.00	0.54		0.00	0.54	1	20 A		84
85	TV FITNESS 119	20 A	1	0.18		0.04	0.36		0.04	1	20 A		86
87		20 A	1	0.10	0.50		0.50	0.25		1	20 A		88
07		20 A	1		0.50	0.60		0.25	0.10	1	20 A		00
09	REC - MICROWAVE 133	20 A	1	0.00		0.60	0.00		0.18	1	20 A		90
91	SPARE	20 A	1	0.00	0.00		0.00	0.00		1	20 A	SPARE	92
93	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	94
95	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	96
97	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	98
99	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	100
101	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	102
103	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	104
105	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	106
107	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	108
109	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	110
111	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	112
113	SPARE	20 A	1			0.00			0.00	1	20 A	SPARE	114
115	SPARE	20 4	1	0.00		5.00	0.00		5.00	1	20 4	SPARE	116
117	SPARE	20 1	1	0.00	0.00		0.00	0.00		1	20 1	SPARE	110
110		20 A	1		0.00	0.00		0.00	0.00	1	20 A		110
119		20 A		0.00		0.00	0.00		0.00		20 A	SPARE	120
121	SPARE	20 A	1	0.00	0.00		0.00	0.00		3	30 A	540	122
123	SPARE	20 A	1		0.00	-		0.00	-				124
							1			1	1		126

ALL DRAWINGS ARE PROTECTED BY FEDERAL COPYRIGHT BY MANNS WOODWARD STUDIOS, INC. AND CAN NOT BE REPRODUCED OR MODIFIED IN ANY MANNER WITHOUT WRITTEN PERMISSION. DOCUMENTS MAY NOT BE USED IN PART OR WHOLE TO DEVELOP THE DESIGN OF ANOTHER BUILDING WITHOUT EXPRESS WRITTEN PERMISSION BY

Description	Trip           20 A              20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A           20 A	Poles 2 2 2 2 2 2 1 1 1 1	A 1.32 0.16 0.16 0.14 0.05 0.50 0.50 0.50	B 1.32 0.11 0.11 0.14 0.33 0.33 0.50 0.50	C 0.16 0.11 0.05 0.05 0.33 0.50	A 0.06 0.19 0.19 0.15 0.15 0.45 0.50	<ul> <li>B</li> <li>0.06</li> <li>0.08</li> <li>0.08</li> <li>0.15</li> <li>0.15</li> <li>0.15</li> <li>1.01</li> <li>1.01</li> <li>2.50</li> </ul>	C 0.19 0.08 0.08 0.45 0.50	Poles 2 2 2 2 2 1 1 1 1 1 1 1	Trip 20 A  20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A	Circuit Description HR-5  ACU-04,05  ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	CK1 2 4 6 8 10 12 14 16 18 20 22 24 24 26 28 30 32
3 2,13 3 3 3 3 17 17 17	20 A  20 A  20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  2  2  2  2  2  2  1 1 1 1	1.32 0.16 0.14 0.05 0.50 0.50 0.50	1.32 0.11 0.14 0.33 0.50 0.50	0.16 0.11 0.05 0.33 0.50 0.18	0.06 0.19 0.15 0.45 0.50 0.50	0.06 0.08 0.15 0.15 0.18 1.01 2.50	0.19 0.08 0.45 0.50 0.50	2  2  2  2  1 1 1 1 1 1 1 1	20 A  20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A	HR-5  ACU-04,05  ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 24
3 2,13 3 3 17 17 17	 20 A  20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2 2 2 2 2 1 1 1 1	0.16 0.14 0.05 0.50 0.50 0.50	1.32 0.11 0.14 0.33 0.33 0.50 0.50	0.16 0.11 0.05 0.33 0.50 0.50	0.19 0.15 0.45 0.50 0.50	0.06 0.08 0.15 0.15 0.18 1.01 2.50	0.19 0.08 0.08 0.45 0.50 0.50	 2  2  2  1 1 1 1 1 1 1 1	 20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A	 ACU-04,05  ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	4 6 8 10 12 14 16 18 20 22 24 24 26 28 30 32 24
3 2,13 3 3 17 17	20 A  20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  2  2  2  2  1 1 1 1 1	0.16 0.14 0.14 0.05 0.50 0.50 0.50 0.50	0.11 0.14 0.33 0.33 0.50 0.50	0.16 0.11 0.11 0.05 0.33 0.33 0.50 0.50	0.19 0.15 0.15 0.45 0.50 0.50	0.08 0.15 0.15 0.18 1.01 2.50	0.19 0.08 0.45 0.45 0.50	2  2  2  1 1 1 1 1 1 1 1	20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A	ACU-04,05  ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	6 8 10 12 14 16 18 20 22 24 26 28 30 32 32
3 2,13 3 3 17 17	 20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	 2  2  2  2  1 1 1 1 1 1	0.16 0.14 0.14 0.05 0.50 0.50 0.50	0.11 0.14 0.33 0.33 0.50 0.50	0.11 0.05 0.33 0.50 0.50	0.19 0.15 0.45 0.50 0.50	0.08 0.15 0.15 0.18 0.18 1.01 2.50	0.08 0.45 0.45 0.50 0.50	 2  2  2  1 1 1 1 1 1 1 1	 20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A	 ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	8 10 12 14 16 18 20 22 24 26 28 30 32 32
3 2,13 3 3 3 17 17 17	20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  2  2  1 1 1 1 1 1 1 1 1 2 	0.14 0.05 0.50 0.50 0.50 0.18	0.11 0.14 0.33 0.33 0.50 0.50	0.11 0.05 0.33 0.50 0.50	0.15 0.45 0.50 0.50	0.08 0.15 0.15 0.18 1.01 2.50	0.08 0.45 0.50 0.50	2  2  1 1 1 1 1 1 1 1	20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A	ACU-09,10,11  ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	10 12 14 16 18 20 22 24 26 28 30 32 32
2,13 3 3 17 17 17	20 A  20 A  20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  2  1 1 1 1 1 1 1 1 1 2 	0.14 0.05 0.50 0.50 0.50 0.50	0.14 0.33 0.50 0.50 0.50	0.05 0.33 0.50 0.18	0.15	0.15 0.18 1.01 2.50	0.45	2  2  1 1 1 1 1 1 1 1	20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A	ACU-06,14,23  ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	14 16 18 20 22 24 26 28 30 32 24
3 3 5 5 17 17	 20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	 2  1 1 1 1 1 1 1 1 1 2 	0.05 0.50 0.50 0.50 0.18	0.14 0.33 0.50 0.50	0.05 0.33 0.50 0.50	0.45	0.15 0.18 1.01 2.50	0.45	 2  1 1 1 1 1 1 1	 20 A 20 A 20 A 20 A 20 A 20 A 20 A	 ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	16 18 20 22 24 26 28 30 32 32
3 3 17 17	20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  2  1 1 1 1 1 1 1 1 2 	0.05 0.50 0.50 0.50 0.18	0.33 0.50 0.50	0.05 0.33 0.50 0.18	0.45	0.18	0.45	2  1 1 1 1 1 1 1	20 A  20 A 20 A 20 A 20 A 20 A 20 A	ACU-16,19,20, 21  WASHER - 135 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	18 20 22 24 26 28 30 32 24
B 17 17 17	 20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	 2  1 1 1 1 1 1 1 1 2 	0.05 0.50 0.50 0.50 0.18	0.33	0.33 0.50 0.18	0.45 0.50 0.50	0.18 1.01 2.50	0.50	 1 1 1 1 1 1 1	 20 A 20 A 20 A 20 A 20 A 20 A	 WASHER - 135 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	20 22 24 26 28 30 32 24
B 5 5 5 7 17 17	20 A  20 A 20 A 20 A 20 A 20 A 20 A 20 A 20 A	2  1 1 1 1 1 1 1 1 2 	0.50	0.33 0.50 0.50 0.50	0.33 0.50 0.18	0.50	0.18 1.01 2.50	0.50	1 1 1 1 1 1	20 A 20 A 20 A 20 A 20 A 20 A	WASHER - 135 CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	22 24 26 28 30 32 24
5 5 7 17 17	 20 A 20 A	 1 1 1 1 1 1 1 1 2	0.50	0.50	0.33 0.50 0.18	0.50	1.01	0.50	1 1 1 1 1	20 A 20 A 20 A 20 A 20 A	CH-2 RM 120 CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	24 26 28 30 32 24
5 5 7 17 17	20 A 20 A 20 A 20 A 20 A 20 A 20 A 30 A  20 A	1 1 1 1 1 1 1 2 	0.50 0.50 0.50 0.18	0.50	0.50	0.50	1.01 2.50	0.50	1 1 1 1	20 A 20 A 20 A 20 A	CH-2 RM 103 CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	26 28 30 32
5 5 17 17	20 A 20 A 20 A 20 A 20 A 20 A 20 A 30 A  20 A	1 1 1 1 1 1 2	0.50	0.50	0.50	0.50	1.01 2.50	0.50	1 1 1	20 A 20 A 20 A	CH-1 RM 102 CH-2 RM 137 CH-2 RM 147	28 30 32
3 5 17 17	20 A 20 A 20 A 20 A 20 A 20 A 30 A  20 A	1 1 1 1 1 2 	0.50	0.50	0.50 0.18	0.50	2.50	0.50	1	20 A 20 A	CH-2 RM 137 CH-2 RM 147	30 32
5 5 17 17	20 A 20 A 20 A 20 A 30 A  20 A	1 1 1 1 2	0.50	0.50	0.18	0.50	2.50		1	20 A	CH-2 RM 147	32
5 17 17	20 A 20 A 20 A 30 A  20 A	1 1 1 2	0.18	0.50	0.18		2.50					24
17	20 A 20 A 30 A  20 A	1 1 2 	0.18		0.18				2	30 A	DRYER - 135	- 34
17	20 A 30 A  20 A	1 2 	0.18					2.50				36
,	30 A  20 A	2				2.50			2	30 A	DRYER - 117	38
	 20 A			2.50			2.50					40
	20 A				2.50			0.43	1	20 A	EF-1	42
		2	1.32			0.00			1	20 A	SPARE	44
				1.32		_	0.00		1	20 A	SPARE	46
	20 A	1			0.00			1.50	2	20 A	EXTRACTOR - 139	48
	20 A	1	0.00			1.50						50
- 139	20 A	2		0.00			6.97		3	80 A	VRF-1A	52
					0.00			6.97				54
	80 A	3	6.97			6.97						56
				6.97			6.97		3	80 A	VRF-1B	58
					6.97			6.97				60
	30 A	3	2.12			6.97						62
				2.12			0.00		1	20 A	SPARE	64
					2.12			0.00	1	20 A	SPARE	66
	20 A	1	0.00		-	0.00			1	20 A	SPARE	68
	20 A	1		0.00			0.00		1	20 A	SPARE	70
	20 A	1			0.00			0.00	1	20 A	SPARE	72
			0.00			0.00					SPACE	74
				0.00			0.00				SPACE	76
					0.00			0.00			SPACE	78
			0.00			0.00			3	30 A	SPD	80
				0.00			0.00					82
					0.00			0.00				84
	KVA = KVA = KVA =	Image: Note of the second s	K VA =       275 A       A         KVA =       275 A       A         KVA =       275 A       A	Image: Note of the second state of	Image: Note of the second state of	Image: Note of the second	Image: Note of the second	Image: Note of the second state of	Image: Note       Image: Note	Image: Note in the	Note       Lot N       L       Orde       Orde	100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       100       1000       100       100 <th1< th=""></th1<>

	L	OCATION: E OUNTING: S	ELEC. 141 Surface				MAINS MAI	S RATII NS TY	NG: 60 PE: M	A CB		VOL AIC R	<b>TAGE</b> : 120/208 3Ø 4W <b>ATING</b> : 14kA	
скт	Circuit	Description	Trip	Poles	A	в	с	A	В	С	Poles	Trip	Circuit Description	скт
1	FACP		20 A	1	0.60			0.60			1	20 A	FAP	2
3	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	4
5	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	6
7	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	8
9	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	10
11	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	12
13	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	14
15	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	18
19	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	20
21	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	24
25	SPARE		20 A	1	0.00			0.00			1	20 A	SPARE	26
27	SPARE		20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE		20 A	1			0.00			0.00	1	20 A	SPARE	30
31	SPACE				0.00			0.00					SPACE	32
33	SPACE					0.00			0.00				SPACE	34
35	SPACE						0.00			0.00			SPACE	36
37	SPACE				0.00			0.00			3	30 A	SPD	38
39	SPACE					0.00			0.00					40
41	SPACE						0.00			0.00				42
Conn	ected Load													
AØ:	1.20	KVA =	10 A	A										
BØ:	0.00	KVA =	0 A	A										
CØ:	0.00	KVA =	0 A	A										
Notes	5:													

![](_page_36_Picture_7.jpeg)

Firehouse Alert	ing Project Notes		1. THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RES
ectrical Contractor Scope of Work: Provide permit if needed	Wire Length to leave in boxes for device connection: 16"		PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPE FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER C COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSO ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZI
Provide wire			COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, A/E F ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BU
Provide wire runs per NFPA 70 code	Wire Terminations:		IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVID
Provide all wiring materials (hangars, conduit, surface mold, wire ties, box	es, etc)		SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO TECHNICAL REPRESENTATIVE. REQUESTS SHALL BEE SUBJECT TO THE REQUIREMENTS
Provide high voltage electrical relay connections if needed			2. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
Provide other high voltage connections if needed Provide electrical power where needed (dedicated/undedicated)	Mounting heights: All are A.F.F. to bottom of the box		3. ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED T
Provide complete system installation (including head end equipment)	Apparatus Bay LCDs & power outlets - 95"		CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY TIEMS MOUNT CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHI FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL
Provide as-built drawings after installation	Volume Controls, Alert Selectors, Resets, & Who's In Reader - 48"	CONTROLLER WIRING	COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUTHAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.
Provide 1 year of warranty on labor Provide an on-site representative when final connections are made	APS IP alerting controller – Dimensions 18" high, 15" wide, 4½" deep - 48 inches A.F.F. Bogen #MB8STL wall mount speaker 11 5/8" X 11 5/8" - 78 inches A F F to bottom of speaker	INPUTS	4. ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT I GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CA
riorido di ono noprocontativo mierrinar connociono dio mado	Exterior Speaker shall be hung under soffit where possible		WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANIN
C Coone of Monky	Apparatus bay speakers to be hung 16' A.F.F.		UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUI MATCH DECK ABOVE.
S Scope of Work: Provide shop drawings of field devices	Gas disconnect – located at the solenoid		
Provide system components		13 = Front Doorbell	
Provide technical support to electrical contractor: 410-239-4644	Device Wire Size	I4 = Side Doorbell	
Provide end user training	Reset Buttons, Doorbells = 18/2 STR OAS	15 = Fitness Medical Emergency	
Provide 1 year of system warranty – Elect. Cont. may assist APS for payr	nent to LED Speakers, Volume Controls = 16/4 STR	I6 = Master Reset	
ke repairs/replacements as needed	Stove Resets = 18/2 STR OAS & 16/2 STR Gas Shutoffs and Stove Shutoffs = 16/2 STR	I7 = Manual Alert Fire	
re Specifications:	Stacklights = 18/6 STR	I8 = Manual Alert EMS	
	Toggle Alert Selectors = 16/4 STR or 16/2 STR	I9 = Stove Reset	
oneywell:	Momentary Alert Selectors = 18/2 STR OAS, one wire per button on the gang plate CAD LCD Displays, Notifier Modules, and Scrolling LEDs = Cat6 (not to exceed 300')	I10 = NOT USED	
on-Plenum	RIB Relays (Lighting) = 16/2 STR	111 = NOT USED	
51009 16/2 STR Grav 1000'	Who's In Main Reader – Cat6 (not to exceed 300')	112 = NOTUSED	
61009 16/4 STR Gray 1000'	RGB LED Clusters= 16/4 STR <25' between lightheads and <25' to Notifier Module (no more than 2	112 - NOTUSED	
45509 18/2 STR OAS Gray 500'	lightheads per Notifier Module)	III3 - NOT USED	
01009 18/6 STR Gray 1000'	Zones:	114 = NOT USED	
02102 CAT6 Yellow 1000'	All devices in the following areas need to be zoned as follows:	115 = AC Supervisory	
	Homorups from the following general groce:	I16 = Battery Supervisory	
enunn oduct Number Connectors Color Length	Bunkrooms, Common Areas, Apparatus Bay, Exterior Speakers	OUTPUTS	
11112 16/2 STR White 1000'		O1 = Apparatus Bay Vol Ctrl	
25512 16/4 STR White 500'	Supplied Drawings take precedence over the above	O2 = Fire Alert	
15512 18/2 STR OAS Gray 500'		O3 = EMS Alert	
11102 CAT6 Yellow 1000'	Regiured boxes:	O4 = Specialty Alert	
21001 CAT6 OAS White 1000'	35w volume control – Double gang 3" deep box	O5 = Bunkroom Vol Ctrl / LEDs	
eaker Information:	10w volume control – Single gang 3" deep box	O6 = 1 st Floor Vol Ctris	
	Alert selector – Single gang 3" deep box	07 = Common Vol Ctrl	
Speaker Type Common Wire 70V Wire Wattage Color Color	Stove reset – Single gang 3" deep box	O8 = Chief's Office Vol Ctrl	
ound CSS8008 Ceiling Speaker Black Brown 2.5	Doorbells- Single gang 3" deep box     Who's In Remote Reader - Double gang 3" deep box	09 = Red strobe	
erior Loudspeaker Switch Position 4 7.5		O10 = Blue Strobe	
T Bathroom Speaker 1.0			
Jumper set to 70V		OTT - NOT USED	
STSL Metal Wall Mount Speaker Black Green 2.0		012 = NOT USED	
indsphere Speaker Black Purple 7.5		013 = NOT USED	
		O14 = Dry Contact	
LED Speaker Type Common Audio 70V Audio LED Comm	on LED Power	O15 = Supervisory Relay	
		O16 = Stove Disconnect	
Round CSS8008 Ceiling Speaker Black Brown Black	Red		

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Α.	G	eneral Requirements		anno
	1.	All work shall be performed in accordance with national, State and local electrical and/or building codes.	6.	The
	2.	All critical components of the System shall be supported by an uninterruptible power supply.		and s conn broa
	3.	The System shall be capable of providing a scalable fire station alerting system that is compatible with non-proprietary industry standard products.		syste
В.	N	FPA 1221 Compliance	7.	The
	1.	The System's components, control, and operation shall comply with NFPA 1221 as it applies to a standalone fire station alerting system.		units supp indic
	2.	The System and its components shall comply with NFPA 1221 when a dispatch server and station controller are implemented.	G.	Fire
	3.	Redundancy to computer aided dispatch (CAD) alerting shall be implemented and utilized in the event of a CAD data delivery failure.		1. <u>S</u>
C.	Co	omputer Aided Dispatch Integration		
	1.	The System shall interface with the customer's CAD system.		
	2.	Samples of CAD alert output Incident Number: 1234567 Type: Medical Priority: 2 Units: A19 A58 Date: 10/11/16 08:52 Box: 111 Location Name: Walmart		
		Address: 960 Sea Shell Ct City: North Beach XST: Main St and North Ave Remarks: subject 250pd alarm		2. <u>R</u>
	3.	The System shall be capable of supporting all dispatch messages and general announcements.		
	4.	The System shall have the capability to display CAD incident data (units assigned, incident type, location) to a color display (minimum 24-inch diagonal) located at customer required locations in each fire station. The System displays shall be capable of showing a minimum of four panes of non-emergency information. Upon alert, a separate emergency pane shall automatically display, overriding the non-emergency information.		3. <u>A</u>
D.	Sy	stem Monitoring and Recording		4. <u>D</u>
	1.	The System shall monitor critical power sources. Automatic visual, electronic notification and time-stamped logs shall be generated for loss of critical power and network connections.		
	2.	All alarm transmissions shall be recorded and archived to include date and time of the alarm and be available on the display.		5. <u>R</u>
	3.	System monitored faults or failurs shall notify visually and audibly in a prominent fashion that satisfies the visual trouble requirements.		
	4.	The System shall be capable of remotely alerting both customer and vendor support staff of critical events that occur within the alerting system via email, SMS text, or audiovisual annunciation.		6. <u>V</u>
	5.	System controller(s) shall visually and audibly notify fire station personnel of System trouble. The visual trouble indicator shall be located in a common area of the fire station.		
E.	Ra	adio Dispatch		
	1.	The System shall automatically generate an audible dispatch announcement that shall include units assigned, incident type, and incident location.		
	2.	The voice announcement should be human-like, non-synthesized, non-robotic, and easily understood. A sample of voice announcements shall be provided upon request.		7. <u>LE</u>
	3.	The System voice database shall have the ability to be upgraded as needed.		
	4.	The System shall have the ability to transmit a specific alert tone generated through the station alerting system based on the unit type.		
F.	Fi	re Station Activation		
	1.	The System shall receive CAD data via SMTP, TCP/IP or linked database servers. The System shall have remote access via port forwarding or VPN tunnel for system updates / troubleshooting.		
	2.	The System shall have the ability to manually control alerting functions in the event of loss of the CAD link or CAD server.		
	3.	The System shall provide the ability to provide priority to the System alert audio during dispatch alerts.		
	4.	The System shall be a modular design providing a minimum of 16 inputs and 16 outputs to monitor and control external and switched functions. The System shall provide for the control of multiple zones and system resets. The System shall be able to interface with door access, traffic control devices, high voltage lighting and other equipment or appliances.		

The System shall be capable of displaying non-emergency information on displays that include weather, incident history, last incident information and

ouncements. The System shall also display emergency incident CAD mation on dispatch alert.

customer shall provide each fire station with a dedicated base station radio speaker for monitoring the primary dispatch audio. Each base radio shall be ected to a station public address amplifier whose sole purpose is for the adcast of a dispatch, nonemergency or general announcements. The System ution shall be able to provide audio through the fire station public address em only when activated for the specific station and certain zones of that on.

System shall provide an audible alert tone and can separately identify the and incident type that is being dispatched. The System shall be able to port a minimum of six customized tones so that different tones can be used to cate the individual unit for the alert notification. The System shall be capable nnouncing the incident address as an option.

### Station Alerting

### Speakers

- Commercial, non-proprietary ceiling (with ceiling bridge assemblies) and wall-mounted speakers shall be provided for audible alerting over the fire station's public address system. Speaker shall provide 70V Taps (5W, 2.5W, 1.3W, 0.7W) External speakers shall be capable of being controlled through a timing circuit.
- b. Speakers shall produce a clear, understandable sound (voice and tone) throughout the space for the area where it is installed.
- c. Omni-directional speakers shall be used for interior apparatus bay audio. These speakers shall be capable of being hung directly from the ceiling and can be used to distribute clean audio to an entire apparatus bay.

### elay Controls and Inputs

a. The System shall provide a minimum of 16 inputs and 16 relay contacts for the purpose of controlling external switched functions. These relays shall be able to be energeized for a configurable period of time upon receipt of an alert. The outputs shall be configurable as normally open or normally closed contact closures.

### ppliance Controls

a. The System shall be able to provide relay contact closure to control gas or electric stoves, ovens, and other user defined appliances when an alert is received.

### oorbells)

a. The System shall be capable of connecting doorbells that will announce the location over the fire station's public address system.

### oom and Area Selector Switches

 The System shall be capable of providing an alert selector mounted in a single-gang box to allow station personnel to appropriately zone the alerting for their room or area. The alert selector shall be able to select from one to six types of alerts.

### olume Control

- The System shall be configurable for time-of-day (day/night) control.
- b. The System shall be capable of sensing ambient noise to automatically adjust the speaker volume for noise compensation if required by the customer.
- c. All volume controls shall include an override relay that will provide maximum volume when there is an alert. Volume controls shall be in 10-watt (single gang) or 35-watt (double gang) boxes.

### ED and Other Lighting

- a. The System shall provide for a variety of LED visual alert lighting. A minimum of five colors shall be available that will be associated with different apparatus alerting requirements. The basic colors that shall be provided are: green, red, blue, amber, and purple.
- b. A LED lighting cluster shall be provided as required. The LED cluster shall be capable of being ceiling or wall-mounted. The LED cluster will include a 5-second ramp up function.
- c. A LED speaker light shall be provided as required. The LED speaker light shall include one, 12VDC LED light fixture to be activate during an alert. The LED speaker light shall include multiple wattage 25V/70V speaker taps and include a 5-second ramp up function.
- A multi-colored custom alerting LED light shall be provided as required. The LED light shall be capable of cycling through a custom set of colors associated with specific apparatus alerting. This light shall be capable of being ceiling or wall-mounted and connected to the System using CAT5 PoE.
- The System shall provide for the use of individual colored strobe or modular stack lighting that is customizable based upon customer requirements. Strobe lighting colors shall be available in Red, Blue, Yellow, or Clear. Stack lighting colors shall be available in Green. Red, Blue, Amber, or Clear.

### 8. Visual Displays

 The System shall have the capability to display emergency and nonemergency information on LCD displays. The size and location of the LCD displays shall be specified by the customer.

- emergency display status.

### 9. Fire Station Zoning

### 10. Alerting Resets

- dispatch alert.

### H. Alerting System Configuration

- administrors shall have full control access.

### I. Training and System Manuals

- provided for the customer's technical staff.

### J. Components

- for ease of replacement.
- equipment shall have the ability to be mounted in a rack.
- department or qualified personnel.

### K. Warrenties and Support Aggrements

- Describe warranty provided as well as length of warranty.
- Describe extended yearly warranties available and their cost.
- capabilities.
- support.

### L. Training

provided for the customer's technical staff.

b. Non-emergency information that shall be displayed will include: incident history, announcements, weather mapping, and last incident dispatched information. The System shall have the capability to display advanced and custom non-emergency information to include: weather and traffic information, IP cameras (station or highway cameras), global panes that can be shared among multiple stations, and shared panes where information can be entered manually and shared with all stations. Non-Emergency screens shall be capable of displaying up to six panes of standard or customized information.

 Emergency information that is provided by the customer's CAD system and required by the customer shall be displayed. The System shall be capable to display advanced emergency information such as: response mapping with geocoding and water sources and road closures. Emergency screens shall be capable of being manually programmed to time-out after a customer determined time period and return to non-

 d. Single or multi-line LED displays shall be capable of displaying emergency alert or non-emergency information. LED displays shall be capable of displaying a custom static message.

a. The System shall provide for fire station zoning such that portions of a fire station can be alerted without alerting the entire fire station.

a. The System shall have the ability to provide a means to reset all station speakers or zones, lighting and relay activation, while maintaining he ability to be overridden by the receipt of a subsequent

b. All reset switches shall be identifiable with a custom label.

1. The System shall be centrally managed. Both the vendor and the customer's

Authorized administrators shall be able to control, configure and update the System on a browser from any web-enabled device. In addition, manual alerting shall be available from a browser from any web-enabled device.

1. System maintenance, programming and troubleshooting training shall be

Digital copies of all technical documents, user manuals, and any training materials required for the operation of the System shall be provided.

 Preference will be given to the solution that allows for the easiest upgrading. replacement, and adding of components. Equipment shall be non-proprietary

Any electronic components such as servers, amplifiers, and other similar

All field devices shall be available for replacement within 24 hours by

Specify your twenty-four hour a day, seven days a week software support

Specify your eight hours a day, five days a week software support capabilities. Specify in pricing sheet, pricing for single year support and for five-year

System maintenance, programming and trouble-shooting training shall be

**GENERAL NOTES** 

. THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, A/E FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REOUIRED. AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.

IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNER'S TECHNICAL REPRESENTATIVE. REQUESTS SHALL BEE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.

2. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

3. ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH, MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.

4. ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

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![](_page_39_Figure_0.jpeg)

FIRST FLOOR ALERTING DIAGRAM

3. ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS

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![](_page_40_Figure_0.jpeg)

### FIRST FLOOR ALERTING WIRING DIAGRAM

	Device	Mount
0	Doorbell	48" AFF
VC VC 10 35	Volume Control 10 / 35 Watt	48" AFF
35	3 Button Alert Selector	48" AFF
2A	2 Button Manual Alert	48" AFF
(M) E	Medical Emergency Alert	48" AFF
O	Reset Button	48" AFF
۲	Stove Reset	48" AFF
	Stove Disconnect	Located at Solenoid
(S) 2.5)	8" 70V Speaker, 2.5 Watt	Ceiling
(BS) 1.0	SM4T Bathroom Speaker, 1.0 Watt	Ceiling
WS 2.0	Wall Speaker, 2.0 Watt	78" AFF
(SS 7.5)	Soundsphere, 7.5 Watt	192" AFF
S 7.5	External Speaker, 7.5 Watt	Under Soffit
(2.5) 2.5	8" LED Ceiling Speaker, 2.5 Watt	Ceiling
RIBIG	Red/Blue/Green Strobe	Ceiling
SD	Alerting Disconnect	78" AFF
RGB	Notifier LED Display	Ceiling
(NM)	Notifier LED Module	Above Ceiling
POE	POE Switch for Notifiers	Rack
	RIB Relay	Above Ceiling
CAD LED 43'	CAD 43" LED Display	78" AFF* See FHA Notes
FAST	FAST Server	Rack
Q	FHA Trouble Strobe	Ceiling
APS	APS IP Controller System	Rack

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![](_page_41_Figure_0.jpeg)

FIRST FLOOR ALERTING WIRING DIAGRAM

4. ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO

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![](_page_42_Figure_0.jpeg)

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