

CITY OF AUBURN, MAINE

HEATING SYSTEM UPGRADES

AUBURN PUBLIC WORKS HIGHWAY GARAGE

296 Gracelawn Road, Auburn, Maine

100% Bid Documents

November 6, 2013

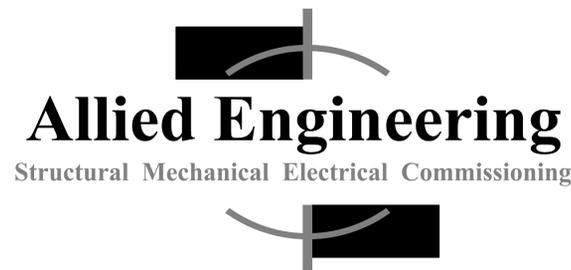
Drawing List

- M-000 Plumbing and HVAC Notes, Legend and Abbreviations
- MD-100 Hydronic Piping Demolition Plan ~ Ground Floor
- MP-100 Natural Gas Piping Plan ~ Ground Floor
- MP-400 Hydronic Piping Part Plans ~ Ground and Second Floors
- MP-401 Mechanical Part Plan ~ Boiler Room
- MP-500 Mechanical Details and Schedules
- E-000 Electrical Symbols and Abbreviations
- ED-100 Electrical Demolition Plan Ground Floor
- E-100 Electrical Plan Ground Floor

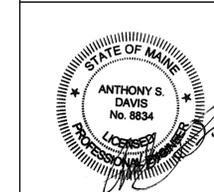
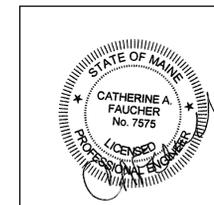


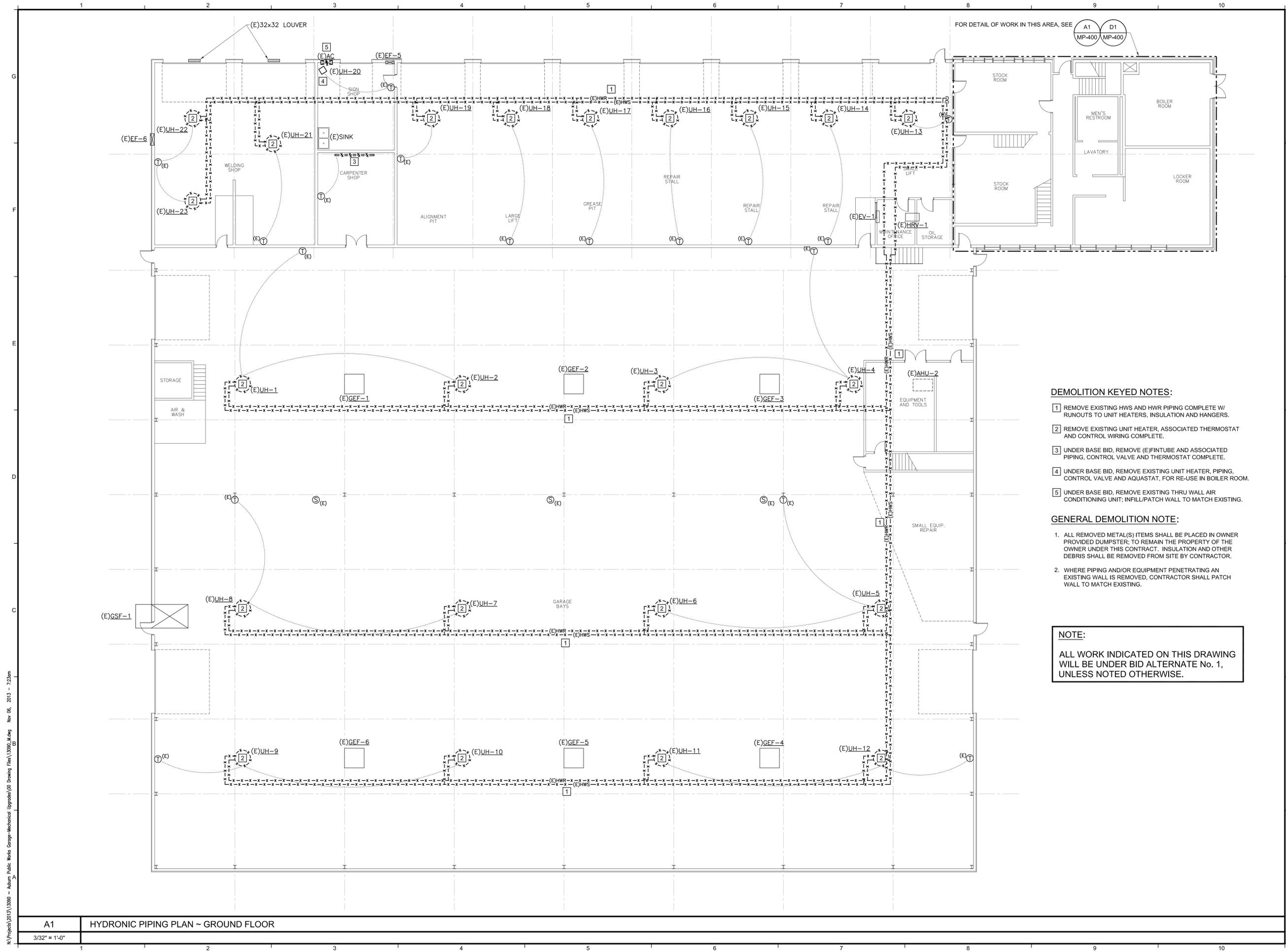
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Project:
**HEATING SYSTEM UPGRADES
 ~ AUBURN PUBLIC WORKS
 HIGHWAY GARAGE**
 296 Gracelawn Road, Auburn, Maine
 Bid No. 2014-019

Client:
City of Auburn, Maine
 60 Court Street
 Auburn, Maine 04210

Legend:

Consultant Name and Address:
Allied Engineering
 Structural Mechanical Electrical Commissioning
 168 Veranda Street
 Portland, Maine 04103
 P: 207.221.2256
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- DEMOLITION KEYED NOTES:**
- 1 REMOVE EXISTING HWS AND HWR PIPING COMPLETE W/ RUNOUTS TO UNIT HEATERS, INSULATION AND HANGERS.
 - 2 REMOVE EXISTING UNIT HEATER, ASSOCIATED THERMOSTAT AND CONTROL WIRING COMPLETE.
 - 3 UNDER BASE BID, REMOVE (E)FINTUBE AND ASSOCIATED PIPING, CONTROL VALVE AND THERMOSTAT COMPLETE.
 - 4 UNDER BASE BID, REMOVE EXISTING UNIT HEATER, PIPING, CONTROL VALVE AND AQUASTAT, FOR RE-USE IN BOILER ROOM.
 - 5 UNDER BASE BID, REMOVE EXISTING THRU WALL AIR CONDITIONING UNIT; INFILL/PATCH WALL TO MATCH EXISTING.

- GENERAL DEMOLITION NOTE:**
1. ALL REMOVED METAL(S) ITEMS SHALL BE PLACED IN OWNER PROVIDED DUMPSTER; TO REMAIN THE PROPERTY OF THE OWNER UNDER THIS CONTRACT. INSULATION AND OTHER DEBRIS SHALL BE REMOVED FROM SITE BY CONTRACTOR.
 2. WHERE PIPING AND/OR EQUIPMENT PENETRATING AN EXISTING WALL IS REMOVED, CONTRACTOR SHALL PATCH WALL TO MATCH EXISTING.

NOTE:
 ALL WORK INDICATED ON THIS DRAWING
 WILL BE UNDER BID ALTERNATE No. 1,
 UNLESS NOTED OTHERWISE.

AEI Project No.: 13090 | Cad File: 13090M.DWG

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<input type="checkbox"/>	30% DESIGN DEVELOPMENT
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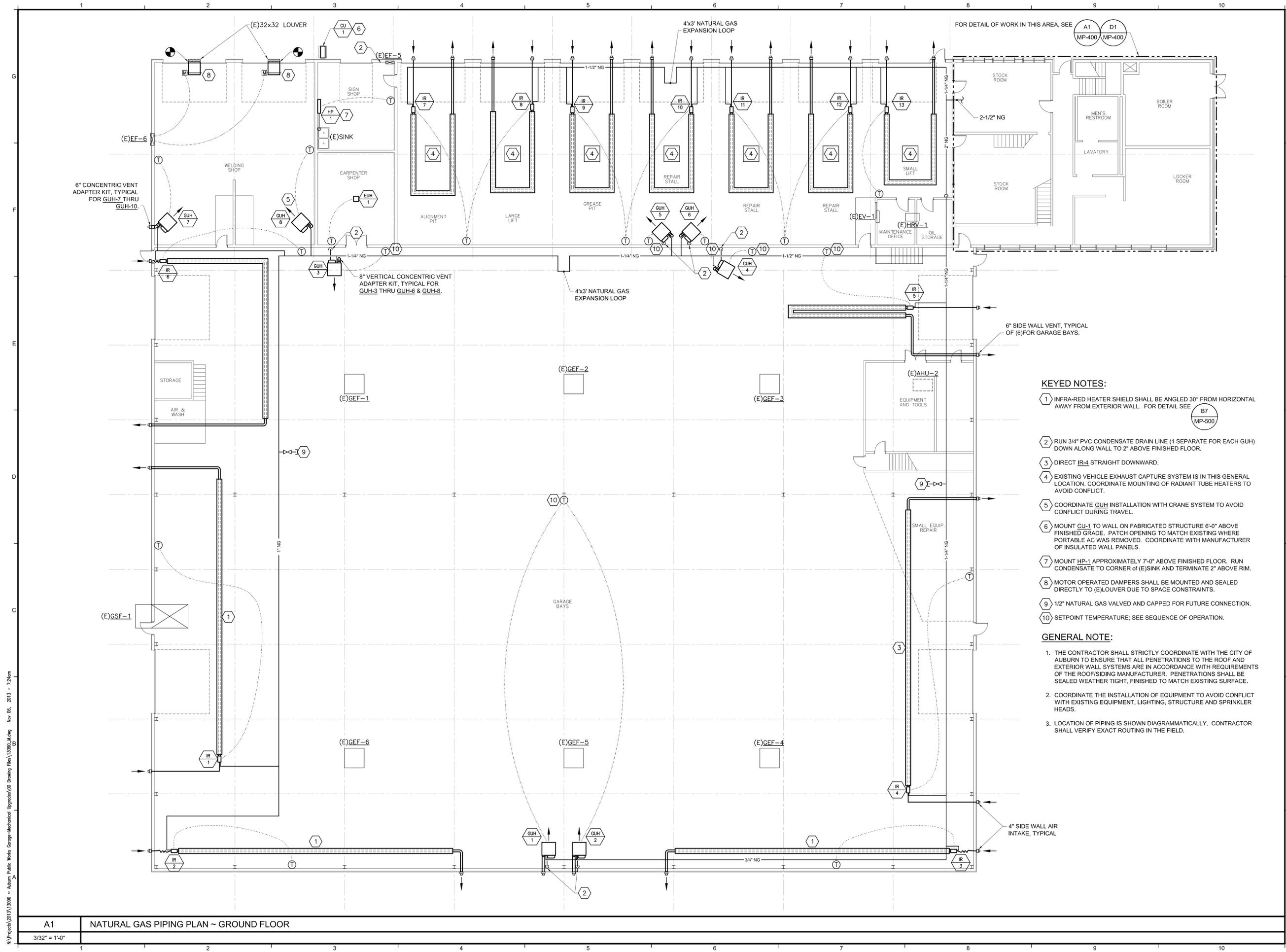
Sheet Title:
**HYDRONIC PIPING
 DEMOLITION PLAN ~
 GROUND FLOOR**

No.	Revision/Issue	Date

Design by: HAG	Checked by: ASD
Drawn by: REW	Approved by: ASD
Project No. 724	Date: 06 November, 2013

Sheet Number:
MD-100

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- KEYED NOTES:**
- 1 INFRA-RED HEATER SHIELD SHALL BE ANGLED 30° FROM HORIZONTAL AWAY FROM EXTERIOR WALL. FOR DETAIL SEE (B7) MP-500
 - 2 RUN 3/4" PVC CONDENSATE DRAIN LINE (1 SEPARATE FOR EACH GUH) DOWN ALONG WALL TO 2" ABOVE FINISHED FLOOR.
 - 3 DIRECT IR-4 STRAIGHT DOWNWARD.
 - 4 EXISTING VEHICLE EXHAUST CAPTURE SYSTEM IS IN THIS GENERAL LOCATION. COORDINATE MOUNTING OF RADIANT TUBE HEATERS TO AVOID CONFLICT.
 - 5 COORDINATE GUH INSTALLATION WITH CRANE SYSTEM TO AVOID CONFLICT DURING TRAVEL.
 - 6 MOUNT CU-1 TO WALL ON FABRICATED STRUCTURE 6'-0" ABOVE FINISHED GRADE. PATCH OPENING TO MATCH EXISTING WHERE PORTABLE AC WAS REMOVED. COORDINATE WITH MANUFACTURER OF INSULATED WALL PANELS.
 - 7 MOUNT HP-1 APPROXIMATELY 7'-0" ABOVE FINISHED FLOOR. RUN CONDENSATE TO CORNER OF (E)SINK AND TERMINATE 2" ABOVE RIM.
 - 8 MOTOR OPERATED DAMPERS SHALL BE MOUNTED AND SEALED DIRECTLY TO (E)LOUVER DUE TO SPACE CONSTRAINTS.
 - 9 1/2" NATURAL GAS VALVED AND CAPPED FOR FUTURE CONNECTION.
 - 10 SETPOINT TEMPERATURE; SEE SEQUENCE OF OPERATION.

- GENERAL NOTE:**
1. THE CONTRACTOR SHALL STRICTLY COORDINATE WITH THE CITY OF AUBURN TO ENSURE THAT ALL PENETRATIONS TO THE ROOF AND EXTERIOR WALL SYSTEMS ARE IN ACCORDANCE WITH REQUIREMENTS OF THE ROOF/SIDING MANUFACTURER. PENETRATIONS SHALL BE SEALED WEATHER TIGHT, FINISHED TO MATCH EXISTING SURFACE.
 2. COORDINATE THE INSTALLATION OF EQUIPMENT TO AVOID CONFLICT WITH EXISTING EQUIPMENT, LIGHTING, STRUCTURE AND SPRINKLER HEADS.
 3. LOCATION OF PIPING IS SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL VERIFY EXACT ROUTING IN THE FIELD.

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Sheet Title:
**NATURAL GAS
 PIPING PLAN ~
 GROUND FLOOR**

No.	Revision/Issue	Date

Design by: HAG	Checked by: ASD
Drawn by: REW	Approved by: ASD
Project No. 724	Date: 06 November, 2013

Sheet Number:
MP-100

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ELECTRIC CONVECTION HEATER SCHEDULE									
TAG	SERVES	REZNOR MODEL	CFM	VOLTS	PHASE	WATTS	AMPS	BTUH	WEIGHT (LBS.)
EUH-1	CARPENTRY	ECS-4	450	208	1	4,000	20	13,648	32

GAS FIRED SEALED COMBUSTION UNIT HEATER SCHEDULE																
TAG	MFR.-MODEL	SIZE	TYPE	EXPOSED FACE DIM.	EXPOSED DEPTH DIM.	WEIGHT LBS	INPUT MBH	OUTPUT MBH	GAS PRESSURE RANGE (MIN-MAX)	GAS CONN. SIZE	CFM	VENT CONN.	COMB. AIR	MOTOR HP	ELECT	NOTES
GUH-1	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-2	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-3	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-4	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-5	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-6	REZNOR - UEAS		GAS FIRED UH	20-1/8"	39-3/16"	250	131.0	121.8	5"-14"	1/2"	2256	4"	6"	1/4	120/1/60	
GUH-7	REZNOR - UDAS		GAS FIRED UH	15 1/8"	26 5/8"	80	75.0	62.2	5"-14"	1/2"	960	4"	4"	0.06	120/1/60	
GUH-8	REZNOR - UDAS		GAS FIRED UH	15 1/8"	26 5/8"	80	75.0	62.2	5"-14"	1/2"	960	4"	4"	0.06	120/1/60	

AIR CONTROL SCHEDULE	
ASSOCIATED PUMPS	P-1 & P-2
PIPE MAIN SIZE	2"
AIR & DIRT SEPARATOR	
MFR-MODEL	TACO-4902ADH
INLET/OUTLET	2"
STRAINER	NO
BLADDER-TYPE EXPANSION TANK	
MFR-MODEL	CA-300
SYSTEM HEIGHT, FT	15
STATIC PRESSURE AT TANK, PSI	6.5
PSI REQD. AT HIGHEST TERM UNIT	5
TANK PRE-CHARGE PRESSURE	11.5
TANK DIAMETER	24
TANK HEIGHT	59
ACCEPTANCE VOLUME	79
WATERLOGGED WEIGHT (LBS.)	978
ASME PRESSURE RATING	125

BOILER SCHEDULE	
TAG	B-1
TYPE	CONDENSING
MANUFACTURER	VEISSMANN
BOILER MODEL/SERIES	VITOCROSSAL 200 / CM2 186
GROSS INPUT / MIN (MBH)	663 / 133
NET AHR-RATING (MBH)	643
A.F.U.E.	95.0%
TEMP RISE, DEG F	40.0
MAX FLOW, GPM	31
FLUID	WATER
SHIPPING WEIGHT (LBS)	730
OVERALL DEPTH (IN.)	73"
WIDTH (IN.)	36.5"
HEIGHT (IN.)	66"
VENT CONN. DIA (IN.)	8"
VENT MATERIAL	POLYPROPYLENE
VENT CATEGORY	IV
AIR INLET CONN. (IN.)	6"
WATER CONN. (IN.)	2 1/2"
GAS	NAT
GAS CONN. (IN.)	1"
TURN DOWN	5:1 MOD
MIN / MAX GAS PRS. IN. WG.	4" TO 14"
ELECTRICAL	120-160
TOTAL AMPS	12

SINGLE SPLIT CONDENSING UNIT SCHEDULE	
TAG	CU-1
LOCATION	MOUNT ON BUILDING BRACKET STRUCTURE
SERVICE	HP-1
MFR.-MODEL	DAIKIN - Single Split
MODEL	RZQ18PVJU9
TONS	1.5
V-PH-HZ	208-230 / 1/60
REFRIGERANT	410A
COOLING CAPACITY	18,000 BTU/HR
HEATING CAPACITY	20,000 BTU/HR
MIN OA TEMP COOL / HEAT	4 F / 0 F
COMP QTY	1 INV
FAN QTY	1
UNIT MCA	16.5
UNIT MOP	20
MAX FUSE	25
COMPRESSOR R.L.A.	---
COMPRESSOR L.R.A.	---
MIN. COOLING STAGES	35% - 100%
COOLING EER	18.6
HEATING COP	3.04
OPERATING WEIGHT, lbs.	175
DEPTH	12-5/8"
WIDTH	36"
HEIGHT	30-5/16"
NOTES:	
	1. PROVIDE UNIT-MOUNTED FACTORY DISCONNECT SWITCH.

UNIT HEATER SCHEDULE																		
TAG	MFR.-MODEL	SIZE	TYPE	EXPOSED FACE WIDTH	EXPOSED FACE HEIGHT	MBH	CFM	EAT (DEG.-F)	LAT (DEG.-F)	GPM	FLUID	EWT	LWT	MOTOR HP	ELECT	MAX WPD	PIPE RUNOUT SIZE	NOTES
CUH-1	TRANE FFH	2	VERTICAL RECESSED	3'-11"	2'-6"	16.6	256	70	---	1.0	WATER	180.0	146.8	145W	120-1-60	5.5	5/8"	
CUH-2	TRANE FFH	2	VERTICAL RECESSED	3'-11"	2'-6"	16.6	256	70	---	1.0	WATER	180.0	146.8	145W	120-1-60	5.5	5/8"	
CUH-3	TRANE FFH	2	VERTICAL RECESSED	3'-11"	2'-6"	16.6	256	70	---	1.0	WATER	180.0	146.8	145W	120-1-60	5.5	5/8"	

PUMP SCHEDULE																		
TAG	SYSTEM	LEAD/LAG	MFR.	MODEL	SUCTION DISCH	SUCTION DIFFUSER	TYPE	PUMPED FLUID	PERFORMANCE				ELECTRICAL		ELECTRICAL COORDINATION		NOTES	
									GPM	HEAD	RPM	NPSH	BHP	MOTOR HP	VOLTS/PH (60 Hz.)	VFD FURN. BY		STARTER FURN. BY
P-1	HEATING WATER	YES	TACO	VR 20	2" x 2"	NO	VERT. INLINE	WATER	40	35	NA	NA	1.1	1.1	208/1	INTEGRAL	NA	26
P-2	HEATING WATER	YES	TACO	VR 20	2" x 2"	NO	VERT. INLINE	WATER	40	35	NA	NA	1.1	1.1	208/1	INTEGRAL	NA	26

GAS FIRED SEALED COMBUSTION INFRARED (IR) HEATER SCHEDULE										
TAG	MFR.-MODEL	LENGTH FT	TYPE	HIGH OUTPUT MBH	LOW OUTPUT MBH	GAS PRESSURE RANGE (MIN-MAX)	GAS CONN. SIZE	ELECT	AMP	NOTES
IR-1	REZNOR VP2	70	STRAIGHT TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-2	REZNOR VP2	70	STRAIGHT TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-3	REZNOR VP2	70	STRAIGHT TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-4	REZNOR VP2	70	STRAIGHT TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-5	REZNOR VP2	60	"U" BEND TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-6	REZNOR VP2	65	"L" BEND TUBED	200	150	7" - 14"	1/2"	120/1/60	1.2	
IR-7	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-8	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-9	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-10	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-11	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-12	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	
IR-13	REZNOR VP2	50	"U" BEND TUBED	125	95	7" - 14"	1/2"	120/1/60	1.2	

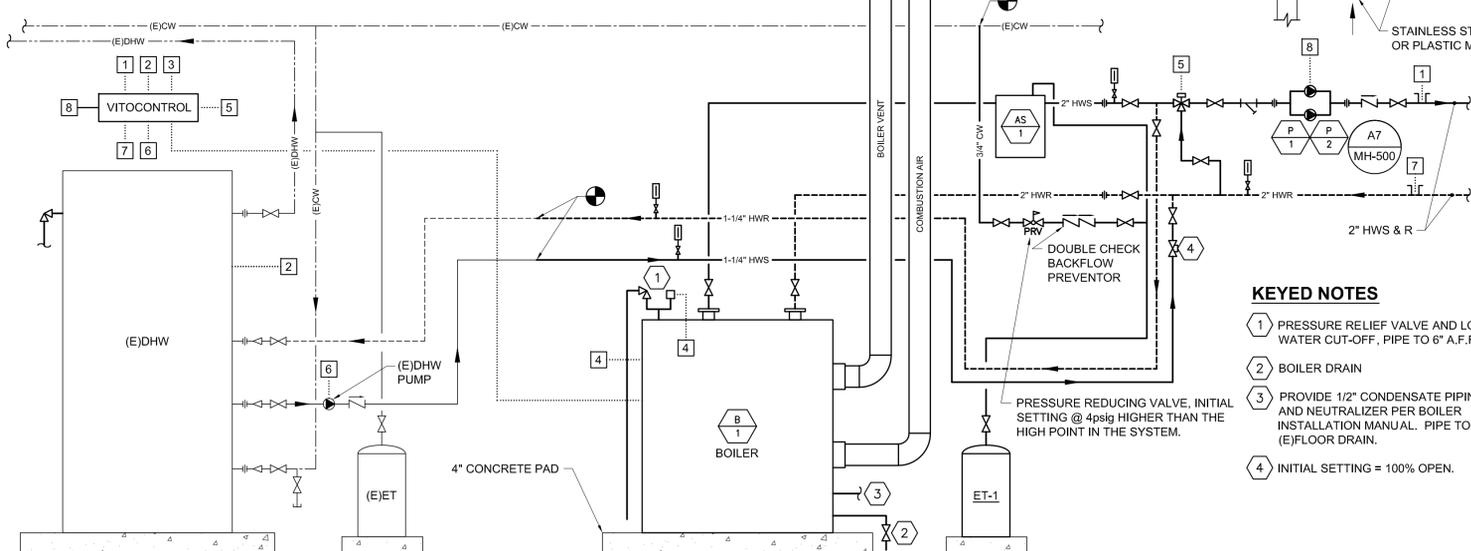
SINGLE SPLIT INDOOR HEAT PUMP SCHEDULE																				
TAG	DAIKIN VRV MODEL NUMBER	AREA SERVED	UNIT CONFIGURATION	TONS	FAN CFM H/L	COOLING		HEATING		REFRIGERANT			ELECTRICAL		PHYSICAL					
						TOTAL COOLING BTUH	SENSIBLE BTUH	HEATING BTUH	TYPE	LIQUID PIPE SIZE	GAS PIPE SIZE	COND PIPE SIZE	CONTROL	V-PH-HZ	MCA	MAX FUSE SIZE	HEIGHT	WIDTH	DEPTH	NET WEIGHT (LBS)
HP-1	FAQ18PVJU	SIGN SHOP	WALL MOUNTED	1.5	500 / 400	18,000	13,700	20,000	410A	3/8"	5/8"	1"	EXPAN VLV	208-1-60	0.4	15A	11-3/8"	41-3/8"	9"	35

D1 MECHANICAL SCHEDULES

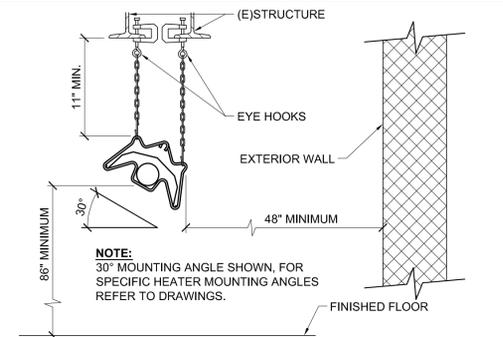
NONE

SENSORS - WIRE TO BOILER CONTROLLER

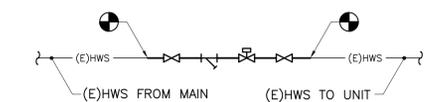
- 1 HW SUPPLY TEMPERATURE SENSOR
- 2 TEMPERATURE SENSOR - DHW
- 3 OUTSIDE AIR TEMPERATURE SENSOR
- 4 LOW WATER CUTOFF
- 5 RESET WATER MIXING VALVE
- 6 (E)DHW PUMP
- 7 HW RETURN TEMPERATURE SENSOR
- 8 HEATING PUMP (P-1/P-2) LEAD/LAG



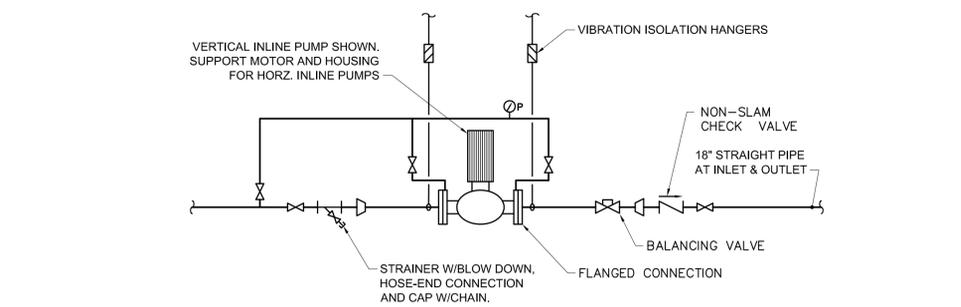
- KEYED NOTES**
- 1 PRESSURE RELIEF VALVE AND LOW WATER CUT-OFF, PIPE TO 6" A.F.F.
 - 2 BOILER DRAIN
 - 3 PROVIDE 1/2" CONDENSATE PIPING AND NEUTRALIZER PER BOILER INSTALLATION MANUAL. PIPE TO (E)FLOOR DRAIN.
 - 4 INITIAL SETTING = 100% OPEN.



B7 DETAIL ~ INFRA-RED HEATER SUSPENSION



B9 DETAIL ~ CONTROL VALVE PIPING

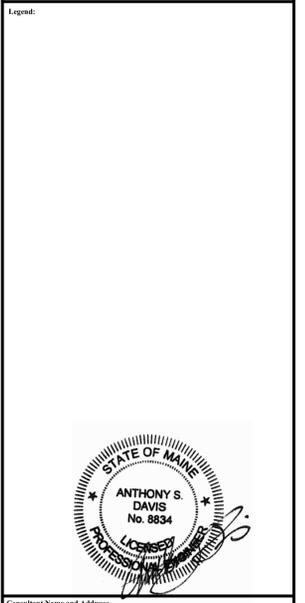


A7 DETAIL ~ VERTICAL IN-LINE PUMP

A1 DETAIL ~ HEATING PLANT SCHEMATIC

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MECHANICAL DETAILS AND SCHEDULES

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Drawn by: REW Approved by: ASD

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MP-500

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A	AMPERE	MT	MOUNT
AC	ALTERNATING CURRENT	MTS	MANUAL TRANSFER SWITCH
AFF	ABOVE FINISHED FLOOR	MCP	MOTOR CONTROL PANEL
AFG	ABOVE FINISHED GRADE	MH	METAL HALIDE
AHU	AIR HANDLING UNIT	MDP	MAIN DISTRIBUTION PANEL
AIC	AMPERES INTERRUPTING CAPACITY	MIN	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AWG	AMERICAN WIRE GAUGE	NC	NORMALLY CLOSED
BAS	BUILDING AUTOMATION SYSTEM	NEC	NATIONAL ELECTRICAL CODE
BKBD	BACKBOARD	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
C	CONDUIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CAT	CATALOG, CATEGORY	NIC	NOT IN CONTRACT
CATV	CABLE TV	NF	NON-FUSED
CB	CIRCUIT BREAKER	NO	NORMALLY OPEN
CCTV	CLOSED CIRCUIT TELEVISION	NO, #	NUMBER
CM	CIRCULAR MILS	NTS	NOT TO SCALE
COMM	COMMUNICATIONS	OC	ON CENTER
CU	MECH CONDENSING UNIT	OCC	OCCUPANCY
CU	COPPER	OH	OVERHEAD
CUH	CABINET UNIT HEATER	P	POLE
DDC	DIGITAL DIRECT CONTROL	PA	PUBLIC ADDRESS
DN	DOWN	PH	PHASE
DW	DISHWASHER	PIR	PASSIVE INFRARED
DWG	DRAWING	PNL	PANELBOARD
EF	EXHAUST FAN	PIO	PART OF
ELEV	ELEVATOR	PV	PHOTOVOLTAIC
EMT	ELECTRICAL METALLIC TUBING	PVC	POLY-VINYL CHLORIDE
EP	EXPLOSION PROOF	REC	RECEPTACLE
ERU	ENERGY RECOVERY UNIT	REF	REFRIGERATOR RECEPT
EWC	ELECTRIC WATER COOLER	RF	RETURN FAN
FACP	FIRE ALARM CONTROL PANEL	RGS	RIGID GALVANIZED STEEL
FB	FLOOR BOX	RM	ROOM
FLA	FULL LOAD AMPS	RMC	RIGID METAL CONDUIT
FWE	FURNISHED WITH EQUIPMENT	RTU	ROOFTOP UNIT
G, GND	GROUND	REF	REFRIGERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SF	SUPPLY FAN
GFP	GROUND FAULT PROTECTION	SPDT	SINGLE POLE, DOUBLE THROW
HID	HIGH INTENSITY DISCHARGE	SQ	SQUARE
HOA	HAND-OFF-AUTO SELECTOR SWITCH	TEL	TELEPHONE
HP	HORSEPOWER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
HVAC	HEATING, VENTILATION AND COOLING UNIT	TYP	TYPICAL
IDS	INTRUSION DETECTION SYSTEM	UF	UNDER FLOOR
IG	ISOLATED GROUND	UG	UNDERGROUND
IMC	INTERMEDIATE METAL CONDUIT	UH	UNIT HEATER
IR	INFRARED	UL	UNDERWRITER'S LABORATORY
K	KILO	UNO	UNLESS NOTED OTHERWISE
KCMIL	KILO CIRCULAR MILS	UPS	UNINTERRUPTIBLE POWER SUPPLY
KW	KILOWATT	V	VOLTS
KVA	KILO VOLT-AMPS	VFD	VARIABLE FREQUENCY DRIVE
LAN	LOCAL AREA NETWORK	W	WATT
LC	LIGHTING CONTACTOR	WP	WEATHERPROOF
LF	LINEAR FEET	WG	WIREGUARD
LC	LOADCENTER	XFMR	TRANSFORMER
LCP	LIGHTING CONTROL PANEL	(E)	EXISTING ITEM TO REMAIN
LED	LIGHT EMITTING DIODE	(R)	REMOVE ITEM AND DISPOSE OF PROPERLY
LTG	LIGHTING	(ER)	RELOCATED ITEM AT NEW LOCATION
MAX	MAXIMUM	(RL)	REMOVE AND RELOCATE
MCB	MAIN CIRCUIT BREAKER		
MECH	MECHANICAL		
MH	MOUNTING HEIGHT		
MICRO	MICROWAVE		
MLO	MAIN LUG ONLY		

LIGHT FIXTURE, RECESSED TROFFER, TYPICAL

RECESSED DOWNLIGHT

RECESSED WALL WASHER DOWNLIGHT

WALL MOUNTED LIGHT FIXTURE

CEILING SURFACE MOUNTED LIGHT FIXTURE

PENDANT MOUNTED LIGHT FIXTURE

LINEAR LIGHT FIXTURE, CEILING SURFACE MOUNTED

LINEAR LIGHT FIXTURE, PENDANT MOUNTED

LINEAR LIGHT FIXTURE, WALL MOUNTED

LINEAR LIGHT FIXTURE, WALL MOUNTED VERTICALLY

TYPICAL FOR ALL FIXTURE TYPES:

INDICATES LUMINAIRE TYPE ON SCHEDULE

LOWER CASE LETTER INDICATES SWITCHING

INDICATES CIRCUIT NUMBER

F3 LUMINAIRES

NO SCALE

HATCHING INDICATES FIXTURE WITH ONE LAMP ON EMERGENCY BATTERY/BALLAST

EXIT SIGN, CEILING MOUNTED, SHADING INDICATES FACE(S)

ARROWHEAD INDICATES CHEVRON(S) REQUIRED

NUMBER INDICATES CIRCUIT NUMBER

EXIT SIGN, WALL MOUNTED, SHADING INDICATES FACE(S)

MOUNT AT 7'-6" AFF OR OVER DOOR

NUMBER INDICATES CIRCUIT NUMBER

F7 EMERGENCY LUMINAIRES

NO SCALE

NETWORK CONNECTION

DMX CONNECTION

LOW VOLTAGE SWITCHING

REFER TO DETAILS ON SHEET E-500

E5 SOUND SYSTEM

NO SCALE

- BRANCH CIRCUIT WIRING NOT SHOWN. WIRE AND CONNECT ELECTRICAL ITEMS TO CIRCUITS INDICATED.
- DISCONNECT, REMOVE, RELOCATE, AND RECONNECT ELECTRICAL CONDUIT, WIRING, DEVICES, BOXES, FIXTURES, EQUIPMENT, ETC. AS INDICATED AND AS REQUIRED TO FACILITATE THE WORK OF DIVISION 26 AND OTHER DIVISIONS. THESE DRAWINGS ARE NOT INTENDED TO INDICATE ALL ITEMS TO BE REMOVED.
- DO NOT SCALE THE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS FOR EXACT DIMENSIONS.
- THE LOCATION OF EQUIPMENT, OUTLETS, ETC. AS GIVEN ON THE DRAWINGS IS APPROXIMATE. IT SHALL BE UNDERSTOOD THAT THESE LOCATIONS ARE SUBJECT TO MODIFICATION AS MAY BE FOUND NECESSARY OR DESIRABLE AT THE TIME OF INSTALLATION IN ORDER TO MEET PROJECT REQUIREMENTS. SUCH CHANGES SHALL BE MADE WITHOUT EXTRA CHARGE.
- ALL ELECTRICAL DEVICES, WHEN INSTALLED, SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. COVER PLATES SHALL BE INSTALLED AFTER FINISH MATERIALS HAVE BEEN APPLIED.
- COORDINATE ALL WORK WITH OTHER DIVISIONS AND THE OWNER.
- VERIFY EXACT POWER REQUIREMENTS OF EQUIPMENT PRIOR TO ROUGH IN.
- POWER WIRING FOR EQUIPMENT & CONTROL SHALL BE PERFORMED BY DIVISION 26. ALL CONTROL WIRING OPERATING AT LESS THAN 120 VOLTS FOR MECHANICAL EQUIPMENT SHALL BE BY DIVISION 23.
- NO WIRING THAT BECOMES UNUSED AS PART OF THIS PROJECT SHALL BE ABANDONED IN PLACE.

D3 RECEPTACLES

20A, 125V, 2P, 3W, NEMA 5-20R

20A, 125V, 2P, 3W, NEMA L5-20R (TWISTLOCK)

30A DRYER RECEPTACLE-250V, 2P, 3W, GROUNDING, NEMA 14-30R, (3)#10+(1)#10G TO 30A, 2P CIRCUIT BREAKER

30A, 250V, 2P, 3W, NEMA 6-30R

50A RANGE RECEPTACLE-250V, 2P, 3W, NEMA 14-50R, (3)#8+(1)#10 TO 40A, 2P CIRCUIT BREAKER

NOTE:

PROVIDE MATCHING CORD AND PLUG FOR SINGLE RECEPTACLES

F3 SINGLE RECEPTACLES

NO SCALE

NOTE

SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION INTO THE DESIGN

D5 -

NO SCALE

SECURITY PANEL, MOUNT WITH TOP OF PANEL NOT MORE THAN 72" AFF

ANNUNCIATOR, MOUNT WITH TOP OF PANEL NOT MORE THAN 72" AFF

KEYPAD, MOUNT 48" AFF

MOTION SENSOR, PASSIVE INFRARED (PIR), WALL MOUNTED 96" AFF

MOTION SENSOR, PASSIVE INFRARED (PIR), CEILING MOUNTED

MOTION SENSOR, MICROWAVE, WALL MOUNTED

MOTION SENSOR, MICROWAVE, CEILING MOUNTED

MOTION SENSOR, DUAL TECHNOLOGY, PIR/MICROWAVE, WALL MOUNTED

MOTION SENSOR, DUAL TECHNOLOGY, PIR/MICROWAVE, CEILING MOUNTED

CAMERA

CHIME

CARD ACCESS

STROBE

DOOR CONTACT

HORN

MAGNETIC DOOR LOCK

TRANSFORMER

DOOR RELEASE BUTTON

DOOR SWITCH

BELL

A1 SECURITY SYSTEM

NO SCALE

D7 FIRE ALARM SYSTEM

NO SCALE

FIRE ALARM CONTROL PANEL, MOUNT WITH TOP OF PANEL NOT MORE THAN 72" AFF

FIRE ALARM ANNUNCIATOR, MOUNT WITH TOP OF PANEL NOT MORE THAN 72" AFF

SMOKE DETECTOR

SMOKE DETECTOR, "E" INDICATES CONNECTION FOR ELEVATOR RECALL

SINGLE STATION SMOKE DETECTOR WITH AUDIBLE INDICATING APPLIANCE, MOUNT ON WALL

SINGLE STATION SMOKE DETECTOR WITH AUDIBLE/VISUAL INDICATING APPLIANCE

HEAT DETECTOR

HEAT DETECTOR, "E" INDICATES CONNECTION FOR ELEVATOR RECALL

DUCT SMOKE DETECTOR

GAS VALVE

FLAME DETECTOR, ARROW INDICATES DIRECTION OF COVERAGE

REMOTE TEST/INDICATOR FOR DUCT SMOKES, MOUNT ON CEILING BENEATH UNIT, OR WALL MOUNT WHERE INDICATED ON PLANS

MANUAL PULL STATION, MOUNT 48" AFF

HORN/STROBE NOTIFICATION APPLIANCE, CANDELA AS NOTED ON PLANS

SPEAKER/STROBE NOTIFICATION APPLIANCE, CANDELA AS NOTED ON PLANS

STROBE ONLY NOTIFICATION APPLIANCE, CANDELA AS NOTED ON PLANS

STROBE NOTIFICATION APPLIANCE, 15 CANDELA, 120V, CONNECT TO OPERATE UPON ACTIVATION OF ROOM SMOKE DETECTOR

MINI HORN NOTIFICATION APPLIANCE

HORN/STROBE WITH PULL STATION DIRECTLY BELOW

MAGNETIC DOOR HOLD OPEN DEVICE

TRANSFORMER

SPRINKLER SYSTEM WATER FLOW SWITCH, PROVIDED UNDER DIVISION 23, WIRED UNDER DIVISION 26

SPRINKLER SYSTEM TAMPER SWITCH, PROVIDED UNDER DIVISION 23, WIRED UNDER DIVISION 26

SPRINKLER SYSTEM CHECK VALVE PRESSURE SWITCH, FURNISHED AND INSTALLED UNDER DIVISION 23, WIRED UNDER DIVISION 26

SPRINKLER SYSTEM EXCESS PRESSURE PUMP, FURNISHED AND INSTALLED UNDER DIVISION 23, WIRED UNDER DIVISION 26

KNOX BOX, PROVIDE IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT REQUIREMENTS

SMOKE DAMPER

FIRE AND SMOKE DAMPER

D3 LIGHT SWITCHES

NO SCALE

LIGHT SWITCH, 20A, 125/277V

THREE-WAY LIGHT SWITCH

FOUR-WAY LIGHT SWITCH

TWO-POLE SWITCH

KEY OPERATED SWITCH

MOTOR RATED SWITCH

SINGLE POLE SWITCH WITH RED PILOT LIGHT - RED LIGHT SHALL GLOW WHEN CIRCUIT IS ENERGIZED

MULTI-GANGED SWITCHES, GANG UNDER ONE PLATE, LETTER INDICATES SWITCHING

OCCUPANCY SENSOR SWITCH, WALL MOUNTED

2-BUTTON OCCUPANCY SENSOR SWITCH

OCCUPANCY SENSOR, CEILING MOUNTED

OCCUPANCY SENSOR, WALL MOUNTED

0-10V DIMMER SWITCH

FLOUORESCENT DIMMER SWITCH

HANDICAP SWITCHES FOR HOOD LIGHT AND FAN

TIMER SWITCH, 60 MINUTES

LOW VOLTAGE LIGHT SWITCH, MOMENTARY CONTACT

LIGHTING TIME CLOCK

LIGHTING CONTACTOR

LIGHTING CONTROL PANEL

PHOTOCCELL

NOTES:

- MOUNT LIGHT SWITCHES WITH CENTERLINE 48" AFF, UNO
- LOWER CASE LETTER AT SWITCH INDICATES SWITCHING

D9 POWER DISTRIBUTION

NO SCALE

PANELBOARD - SURFACE MOUNTED

PANELBOARD - FLUSH MOUNTED

FUSED DISCONNECT SWITCH

NON-FUSED DISCONNECT SWITCH

MOTOR STARTER - NUMBER INDICATES NEMA SIZE

COMBINATION MOTOR STARTER/FUSED DISCONNECT

MECHANICAL PUMP

MOTOR OR FAN

METER AND CABINET

JUNCTION BOX - CEILING MOUNTED

JUNCTION BOX - WALL MOUNTED

JUNCTION BOX - FLOOR MOUNTED

JUNCTION BOX - PEDESTAL MOUNTED

TRANSFORMER - NUMBER INDICATES DESIGNATION SEE TRANSFORMER SCHEDULE

VARIABLE FREQUENCY DRIVE

TRANSIENT VOLTAGE SURGE SUPPRESSOR

EMERGENCY SHUTOFF SWITCH - WALL MOUNTED 48" TO CENTERLINE - PROVIDE TAMPER-PROOF COVER

CONDUIT TURNING UP

CONDUIT TURNING DOWN

WIRING UNDERGROUND OR UNDERSLAB

HOMERUN - (2)#12+(1)#12G UNO (EXCEPT COMPUTER AND LIGHTING CIRCUITS: (1)#12+(1)#10N+(1)#12G UNO)

SINGLE-PHASE HOMERUN OR MULTIPLE HOMERUN UTILIZING THE SAME CONDUIT

3-PHASE HOMERUN OR MULTIPLE HOMERUN UTILIZING THE SAME CONDUIT

FLEXIBLE CONNECTION

GROUNDING SYSTEM

POWER POLE

PUSHBUTTON

DOORBELL CHIME

SYSTEMS FURNITURE WHIP

MOTORIZED DOOR OPERATOR AND PUSH PADDLE - FURNISHED BY DIVISION 08, WIRED BY DIVISION 26

A3 FLOOR AND CEILING DEVICES

NO SCALE

DUPLX RECEPTACLE, 20A, 125V, 2P, 3W, NEMA 5-20R, MOUNT IN FLUSH FLOOR BOX

DOUBLE DUPLX RECEPTACLE, 20A, 125V, 2P, 3W, NEMA 5-20R, MOUNT IN FLUSH FLOOR BOX

JUNCTION BOX, MOUNT IN FLUSH FLOOR BOX

EMPTY FLUSH FLOOR BOX

DUPLX RECEPTACLE, PEDESTAL MOUNTED

SINGLE RECEPTACLE, PEDESTAL MOUNTED

JUNCTION BOX, PEDESTAL MOUNTED

DUPLX RECEPTACLE, FLUSH MOUNTED IN CEILING

DOUBLE DUPLX RECEPTACLE, FLUSH MOUNTED IN CEILING

DUPLX GFCI RECEPTACLE, FLUSH MOUNTED IN CEILING

DOUBLE DUPLX GFCI RECEPTACLE, FLUSH MOUNTED IN CEILING

DATA OUTLET, FLUSH MOUNTED IN CEILING, SEE SCHEDULE FOR TYPE

JUNCTION BOX, FLUSH MOUNTED IN CEILING

OVERHEAD RECEPTACLE DROP, DUPLX

OVERHEAD RECEPTACLE DROP, DOUBLE DUPLX

OVERHEAD RECEPTACLE DROP, GFCI

Project: HEATING SYSTEM UPGRADES - AUBURN PUBLIC WORKS HIGHWAY GARAGE
296 Gracelawn Road, Auburn, Maine
Bid No. 2014-019

Client: City of Auburn, Maine
60 Court Street
Auburn, Maine 04210

Legend:

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AEI Project No.: 13090 Cad File: 13090_E.DWG

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Design Status:

- CONCEPT DESIGN
- 30% DESIGN DEVELOPMENT
- 60% DESIGN DEVELOPMENT
- 90% DESIGN DEVELOPMENT
- 100% BID DOCUMENT
- 100% CONSTRUCTION DOCUMENT
- RECORD DOCUMENT

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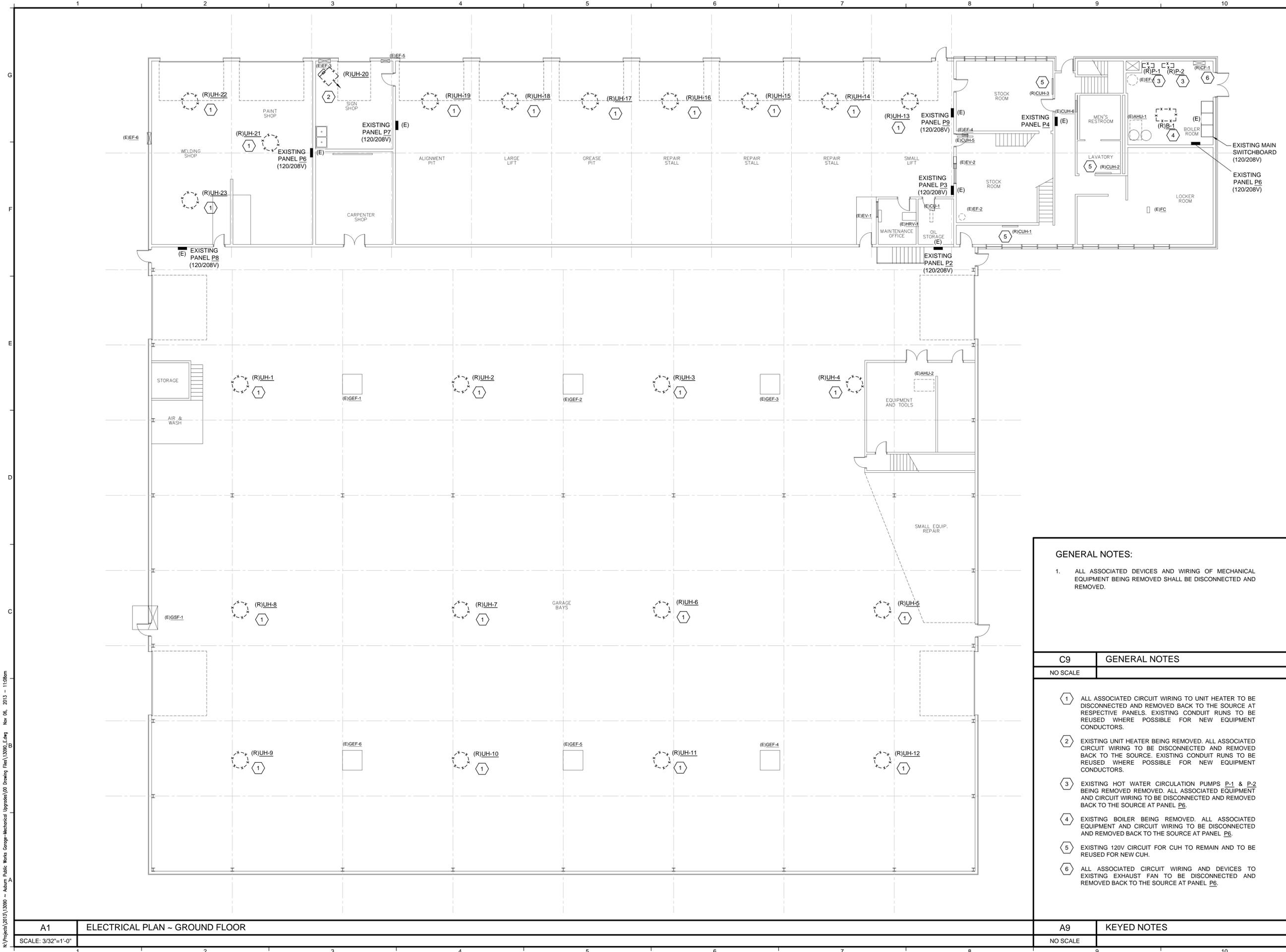
Short Title: ELECTRICAL SYMBOLS AND ABBREVIATIONS

No.	Revision/Issue	Date

Design by: SRM Checked by: SRM
Drawn by: GC Approved by: CAF

Project No. 724 Date: 06 November, 2013

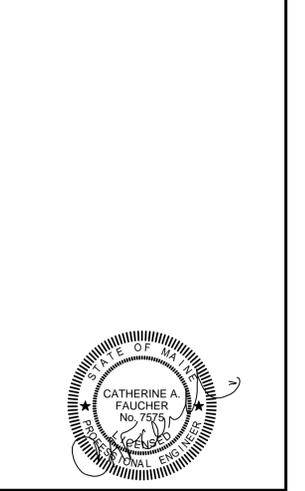
Sheet Number: E-000



Project:
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 - AUBURN PUBLIC WORKS
 HIGHWAY GARAGE**
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 60 Court Street
 Auburn, Maine 04210**

Legend:



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AEI Project No.: 13090 | Cad File: 13090_EDWG

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- Drawing Status:
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Sheet Title:
**ELECTRICAL
 DEMOLITION PLAN
 GROUND FLOOR**

No.	Revision/Issue	Date

Design by: SRM | Checked by: SRM
 Drawn by: GC | Approved by: CAF
 Project: **No. 724** | Date: **06 November, 2013**

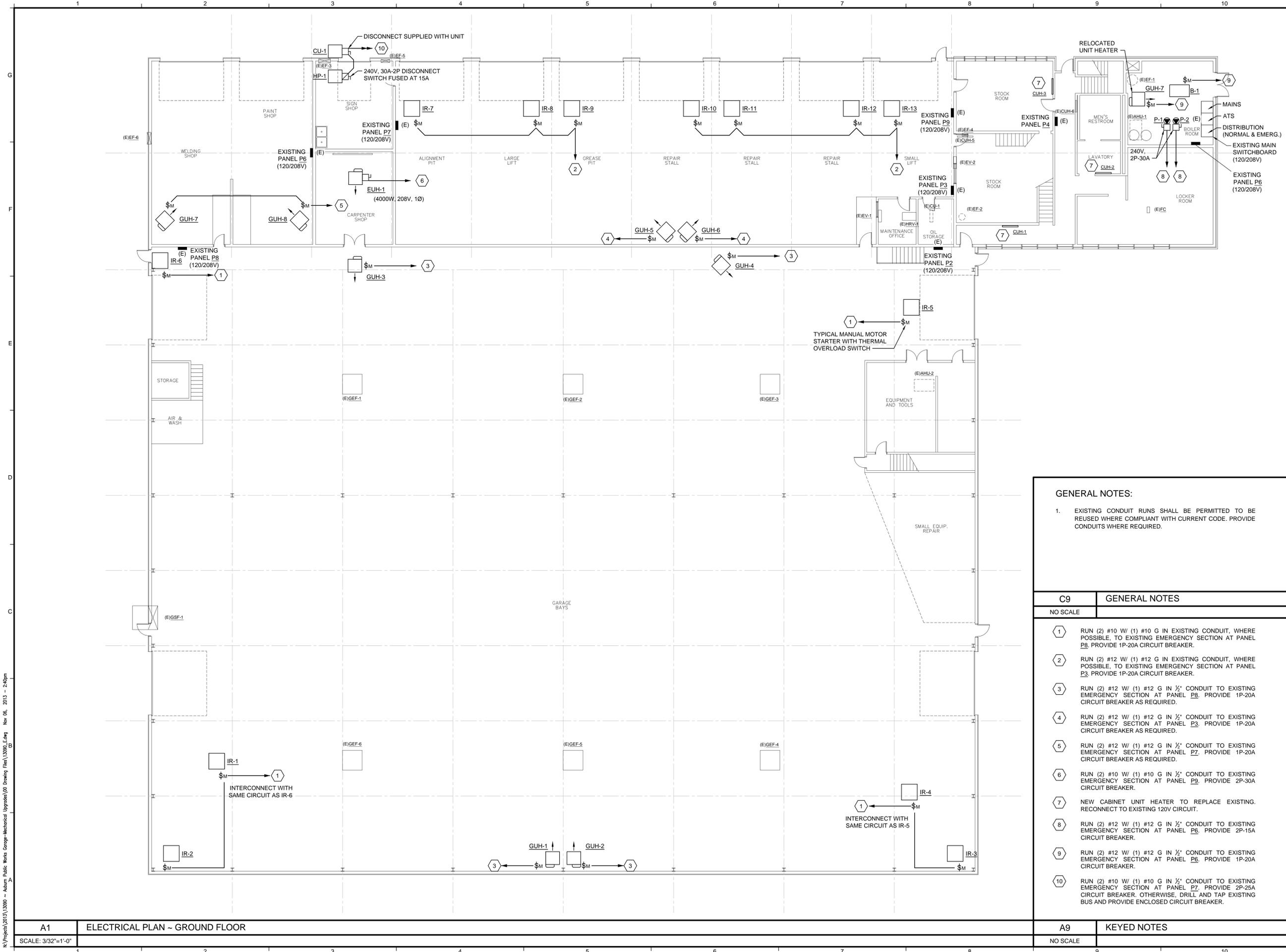
Sheet Number:
ED-100

- GENERAL NOTES:**
- ALL ASSOCIATED DEVICES AND WIRING OF MECHANICAL EQUIPMENT BEING REMOVED SHALL BE DISCONNECTED AND REMOVED.
- | C9 | GENERAL NOTES |
|----------|---------------|
| NO SCALE | |
- ALL ASSOCIATED CIRCUIT WIRING TO UNIT HEATER TO BE DISCONNECTED AND REMOVED BACK TO THE SOURCE AT RESPECTIVE PANELS. EXISTING CONDUIT RUNS TO BE REUSED WHERE POSSIBLE FOR NEW EQUIPMENT CONDUCTORS.
 - EXISTING UNIT HEATER BEING REMOVED. ALL ASSOCIATED CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED BACK TO THE SOURCE. EXISTING CONDUIT RUNS TO BE REUSED WHERE POSSIBLE FOR NEW EQUIPMENT CONDUCTORS.
 - EXISTING HOT WATER CIRCULATION PUMPS P-1 & P-2 BEING REMOVED. ALL ASSOCIATED EQUIPMENT AND CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED BACK TO THE SOURCE AT PANEL P6.
 - EXISTING BOILER BEING REMOVED. ALL ASSOCIATED EQUIPMENT AND CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED BACK TO THE SOURCE AT PANEL P6.
 - EXISTING 120V CIRCUIT FOR CUH TO REMAIN AND TO BE REUSED FOR NEW CUH.
 - ALL ASSOCIATED CIRCUIT WIRING AND DEVICES TO EXISTING EXHAUST FAN TO BE DISCONNECTED AND REMOVED BACK TO THE SOURCE AT PANEL P6.
- | A9 | KEYED NOTES |
|----------|-------------|
| NO SCALE | |

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A1 | ELECTRICAL PLAN - GROUND FLOOR
 SCALE: 3/32"=1'-0"

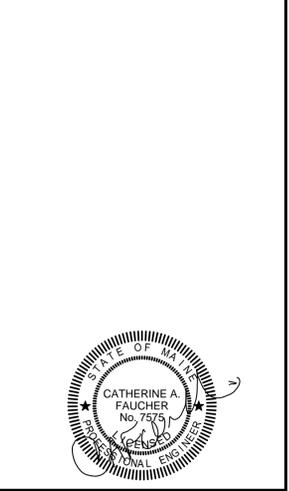
A9 | KEYED NOTES
 NO SCALE



Project:
**HEATING SYSTEM UPGRADES
 - AUBURN PUBLIC WORKS
 HIGHWAY GARAGE**
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Drawing Status:

<input type="checkbox"/>	CONCEPT DESIGN
<input type="checkbox"/>	30% DESIGN DEVELOPMENT
<input type="checkbox"/>	60% DESIGN DEVELOPMENT
<input type="checkbox"/>	90% DESIGN DEVELOPMENT
<input checked="" type="checkbox"/>	100% BID DOCUMENT
<input type="checkbox"/>	100% CONSTRUCTION DOCUMENT
<input type="checkbox"/>	RECORD DOCUMENT

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Sheet Title:
**ELECTRICAL
 PLAN
 GROUND FLOOR**

No.	Revision/Issue	Date

Design by: SRM | Checked by: SRM
 Drawn by: GC | Approved by: CAF
 Project: **No. 724** | Date: **06 November, 2013**

Sheet Number:
E-100

GENERAL NOTES:

- EXISTING CONDUIT RUNS SHALL BE PERMITTED TO BE REUSED WHERE COMPLIANT WITH CURRENT CODE. PROVIDE CONDUITS WHERE REQUIRED.

C9 GENERAL NOTES

- NO SCALE
- RUN (2) #10 W/ (1) #10 G IN EXISTING CONDUIT, WHERE POSSIBLE, TO EXISTING EMERGENCY SECTION AT PANEL P8. PROVIDE 1P-20A CIRCUIT BREAKER.
 - RUN (2) #12 W/ (1) #12 G IN EXISTING CONDUIT, WHERE POSSIBLE, TO EXISTING EMERGENCY SECTION AT PANEL P3. PROVIDE 1P-20A CIRCUIT BREAKER.
 - RUN (2) #12 W/ (1) #12 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P8. PROVIDE 1P-20A CIRCUIT BREAKER AS REQUIRED.
 - RUN (2) #12 W/ (1) #12 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P3. PROVIDE 1P-20A CIRCUIT BREAKER AS REQUIRED.
 - RUN (2) #12 W/ (1) #12 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P7. PROVIDE 1P-20A CIRCUIT BREAKER AS REQUIRED.
 - RUN (2) #10 W/ (1) #10 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P9. PROVIDE 2P-30A CIRCUIT BREAKER.
 - NEW CABINET UNIT HEATER TO REPLACE EXISTING. RECONNECT TO EXISTING 120V CIRCUIT.
 - RUN (2) #12 W/ (1) #12 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P6. PROVIDE 2P-15A CIRCUIT BREAKER.
 - RUN (2) #12 W/ (1) #12 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P8. PROVIDE 1P-20A CIRCUIT BREAKER.
 - RUN (2) #10 W/ (1) #10 G IN 1/2" CONDUIT TO EXISTING EMERGENCY SECTION AT PANEL P7. PROVIDE 2P-25A CIRCUIT BREAKER. OTHERWISE, DRILL AND TAP EXISTING BUS AND PROVIDE ENCLOSED CIRCUIT BREAKER.

A9 KEYED NOTES

NO SCALE

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A1 ELECTRICAL PLAN - GROUND FLOOR
 SCALE: 3/32"=1'-0"