

MECHANICAL ABBREVIATIONS

AF	ABOVE FINISH FLOOR	HWP	HEATING WATER PUMP
AC	AIR COMPRESSOR	HX	HEAT EXCHANGER
AHU	AIR HANDLING UNIT	ID	INSIDE DIAMETER
AS	AIR SEPARATOR	I.E.	INVERT ELEVATION
A.T.C.	ARCHITECTURAL TRADES CONTRACTOR	IAH	INTAKE HOOD
B	BOILER	LAT	LEAVING AIR TEMPERATURE
B.A.S.	BUILDING AUTOMATION SYSTEM	LH	LATENT HEAT (MBH)
CAF	COMBUSTION AIR FAN	LWT	LEAVING WATER TEMPERATURE
CC	COOLING COIL	MAX	MAXIMUM
CFM	CUBIC FEET PER MINUTE	MBH	BTU PER HOUR (THOUSAND)
CHLR	CHILLER	MIN	MINIMUM
CHP	CONSOLE HEAT PUMP	M.T.C.	MECHANICAL TRADES CONTRACTOR
CONV	CONVECTOR	N.C.	NOISE CRITERIA
CT	COOLING TOWER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CU	CONDENSING UNIT	NTS	NOT TO SCALE
CUH	CABINET UNIT HEATER	P	PUMP
CV	CONTROL VALVE	PCR	PUMPED CONDENSATE RETURN
QWP	CHILLED WATER PUMP	PD	PRESSURE DROP
DB	DRY BULB	RCP	RADIANT CEILING PANEL
DFU	DUCT FURNACE	REQ'D	REQUIRED
DIA	DIAMETER	RG	RETURN GRILLE
DN	DOWN	RH	RELATIVE HUMIDITY
DFR	DAMPNER	RLH	RELIEF HOOD
DS	DUCT SILENCER	RTU	ROOF TOP UNIT
EAT	ENTERING AIR TEMPERATURE	SD	SUPPLY DIFFUSER
EF	EXHAUST FAN	SF	SUPPLY FAN
EG	EXHAUST GRILLE	SG	SUPPLY GRILLE
E.T.C.	ELECTRICAL TRADES CONTRACTOR	SH	SENSIBLE HEAT (MBH)
EVR	EVAPORATOR	SM	SHEET METAL
EWT	ENTERING WATER TEMPERATURE	SQ. FT.	SQUARE FEET
EXH	EXHAUST	SST	SATURATED SUCTION TEMPERATURE
EXIST	EXISTING	STR	STRAINER
FF	FINISH FLOOR	TC	TOTAL COOLING (MBH)
FFM	FEET PER MINUTE	TCL	TEMPERATURE CONTROL
FT	FEET	TFR	TEMPERATURE & PRESSURE RELIEF VALVE
FTR	FINNED TUBE RADIATION	TYP	TYPICAL
FU	FURNACE	UH	UNIT HEATER
GAL	GALLON	VAV	VARIABLE AIR VOLUME BOX
GFRH	GAS FIRED RADIANT HEATER	VRH	VARIABLE AIR VOLUME REHEAT BOX
GR	GRILLE	FFVAV	FAN POWERED VARIABLE AIR VOLUME BOX
H	HUMIDIFIER	V.F.D.	VARIABLE FREQUENCY DRIVE
HC	HEATING COIL	ZD	ZONE DAMPER
HD	HEAD (FT)	X-SA	EXISTING ITEM (EXISTING SUPPLY AIR DUCT)
HP	HORSE POWER		
HHP	HORIZONTAL HEAT PUMP		
HTG	HEATING		
HVAC	HEATING, VENTILATION, & AIR CONDITIONING		

HVAC DUCTWORK SYMBOLS

	SUPPLY AIR DUCT RISER
	RETURN AIR DUCT RISER
	OUTSIDE AIR DUCT RISER (AS NOTED)
	EXHAUST AIR DUCT
	INSULATED DUCTWORK (AS NOTED)
	SUPPLY AIR DIFFUSER (SQUARE)
	SUPPLY AIR DIFFUSER (INLINE)
	SURFACE MTD. GRILLE
	SUPPLY AIR DIFFUSER (ROUND)
	CONICAL TAKE-OFF
	CONICAL TAKE-OFF W/ DAMPER
	BALANCE DAMPER
	RETURN AIR DUCT BOOT
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	VERTICAL FIRE DAMPER
	HORIZONTAL FIRE DAMPER
	VERTICAL SMOKE DAMPER
	HORIZONTAL SMOKE DAMPER
	VERTICAL FIRE / SMOKE DAMPER
	HORIZONTAL FIRE / SMOKE DAMPER
	DUCT SMOKE DETECTOR, INSTALLED BY M.T.C. PROVIDED & WIRED BY E.T.C.
	UNIT HEATER
	CEILING EXHAUST FAN
	ROOF MOUNTED EXHAUST FAN
	DEMOLITION

HVAC DUCTWORK

—SA—	SUPPLY AIR DUCT
—X-SA—	EXIST SUPPLY AIR DUCT
—RA—	RETURN AIR DUCT
—X-RA—	EXIST RETURN AIR DUCT
—OA—	OUTSIDE AIR DUCT
—X-OA—	EXIST OUTSIDE AIR DUCT
—EA—	EXHAUST AIR DUCT
—X-EA—	EXIST EXHAUST AIR DUCT

MECHANICAL SYMBOLS LEGEND

HVAC DUCTWORK & DIFFUSER TAGS

SD-1	250	TAG	CFM
8"	11TP4	NECK	REMARKS
		SIZE	

MISCELLANEOUS NOTES

	POINT OF CONNECTION BETWEEN NEW AND EXISTING
	POINT OF EXISTING TO REMAIN AND EXISTING TO BE REMOVED.
	INDICATES PLAN NOTE
	INDICATES DEMOLITION NOTE
	DETAIL BUBBLE DETAIL NUMBER PAGE LOCATION
	INDICATES DIRECTION OF DETAIL SECTION

TEMPERATURE CONTROL SYMBOLS

	THERMOSTAT
	PROGRAMMABLE THERMOSTAT
	THERMOSTAT (W/ NIGHT SETBACK)
	ROOM SENSOR
	HUMIDISTAT
	PRESSURE GAUGE
	DAMPNER (ELECTRIC OPERATION)
	DAMPNER (PNEUMATIC OPERATION)
	DAMPNER BLADES

HVAC PIPING

—CWS—	CHILLED WATER SUPPLY
—CWR—	CHILLED WATER RETURN
—CTS—	COOLING TOWER WATER SUPPLY
—CTR—	COOLING TOWER WATER RETURN
—HPS—	HEAT PUMP WATER SUPPLY
—HPR—	HEAT PUMP WATER RETURN
—HS—	HEATING WATER SUPPLY
—HR—	HEATING WATER RETURN
—DX—	DIRECT EXPANSION
—CD—	CONDENSATE DRAIN
—CS—	CONDENSER WATER SUPPLY
—CR—	CONDENSER WATER RETURN
—DYS—	SUCTION (DIRECT EXPANSION)
—DXL—	LIQUID (DIRECT EXPANSION)
—ST (0-20)—	LOW PRESSURE STEAM (0-20 LBS.)
—ST (21-15)—	MEDIUM PRESSURE STEAM (21-15 LBS.)
—ST (16+)—	HIGH PRESSURE STEAM (16 LBS. & ABV.)
—SC—	STEAM CONDENSATE (GRAVITY)
—SCP—	PUMPED STEAM CONDENSATE
—SC (BP)—	STEAM CONDENSATE BOILER FEED

HVAC PIPING SYMBOLS

	FLOW DIRECTION
	PIPING DROP
	PIPING RISE
	INLINE PIPING DROP
	INLINE PIPING RISE
	PIPING TEE
	PIPING ELBOW
	THERMOMETER
	PUMP
	UNION
	PIPE ANCHOR
	PIPE GUIDE
	BACK FLOW PREVENTER
	PIPE CAP
	PIPE BREAK
	THERMOMETER WELL
	EXPANSION LOOP
	EXPANSION COMPENSATOR
	FLOAT & THERMOSTATIC STEAM TRAP
	INVERTED BUCKET STEAM TRAP

HVAC PIPING VALVES

	GATE VALVE
	GAS COCK
	CHECK VALVE
	BALANCE COCK
	CIRCUIT SETTER
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	GLOBE VALVE
	BALL VALVE
	SOLENOID VALVE
	EXPANSION VALVE WITH THERMOSTATIC BULB
	PLUG VALVE
	BUTTERFLY VALVE
	RELIEF VALVE
	HOSE & DRAIN END VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	GAS PRESSURE REGULATOR
	STRAINER (BLOW-OFF)

GENERAL HVAC NOTES

- LOCATE EXHAUST OUTLETS OF VENTILATION SYSTEMS AND COMBUSTION EQUIPMENT STACKS AT LEAST 10 FEET FROM OUTDOOR AIR INTAKES.
- LOCATE OUTDOOR INTAKES AT LEAST 6 FEET ABOVE GROUND LEVEL OR 3 FEET ABOVE ROOF LEVEL UNLESS OTHERWISE INDICATED.
- NOTIFY OWNER OF ANY PIPING OR DUCTWORK DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- LOCATIONS OF THE THERMOSTATS TO BE VERIFIED IN FIELD.
- COORDINATE LOUVER SIZES WITH ARCHITECTURAL TRADES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO CONSTRUCTION TO AVOID CONFLICTS.
- PROVIDE MANUAL AIR VENTS WITH 3/4" HOSE CONNECTION AT ALL HIGH POINTS.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
- ALL WORK SHALL CONFORM TO MICHIGAN MECHANICAL CODE, LATEST APPLICABLE EDITION.
- ALL DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSION.
- IF THERE IS CONFLICTING INFORMATION IN THE PLANS OR SPECIFICATIONS THE MORE STRINGENT AND GREATER COST ITEM SHALL BE USED.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.

REVISIONS

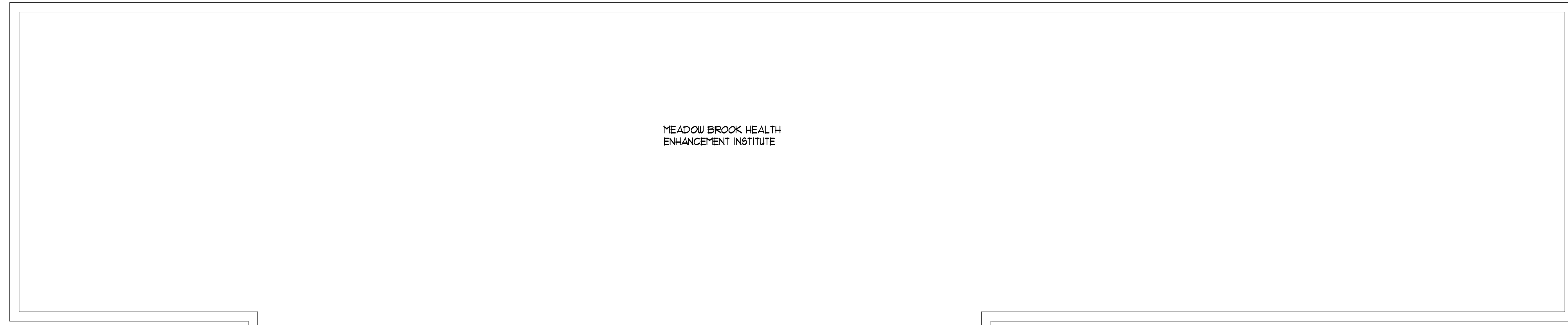
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PROJECT
OAKLAND UNIVERSITY PAVILION
HVAC MODIFICATIONS

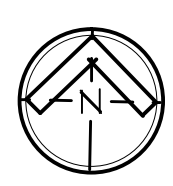
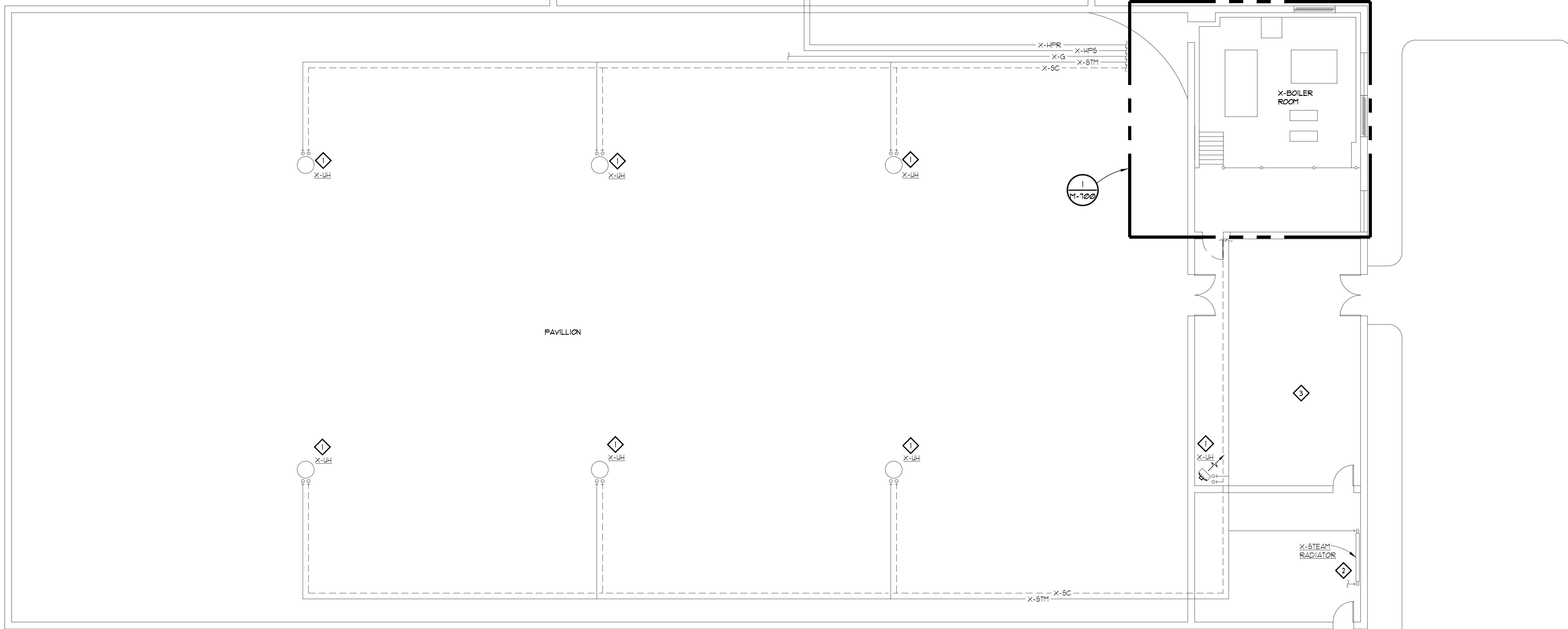
SHEET DESCRIPTION	MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS
DATE	6/16/11
PROJECT NUMBER	10136.01
SHEET NUMBER	M-100



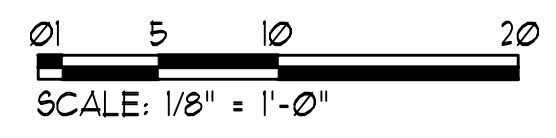
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DEMOLITION NOTES:

- 1 RECOMMISSION EXISTING STEAM UNIT HEATER FOR USE WITH NEW HYDRONIC DISTRIBUTION SYSTEM. REMOVE EXISTING STEAM TRAP AND CONNECT CONDENSATE OUTLET DIRECTLY TO EXISTING SC PIPING WITH BALL VALVE, UNION, AND DRAIN VALVE. RECONFIGURE UNIT HEATER CONTROLS FOR CONTINUOUS FLOW AND FAN CYCLE ON CALL FOR HEAT. CLEAN UNIT HEATER FINS AND VERIFY OPERATION.
- 2 RECOMMISSION EXISTING STEAM RADIATOR FOR USE WITH NEW HYDRONIC DISTRIBUTION SYSTEM. REMOVE EXISTING STEAM TRAP AND CONNECT CONDENSATE OUTLET DIRECTLY TO EXISTING SC PIPING WITH BALL VALVE, UNION, AND DRAIN VALVE. REPLACE CONTROL VALVE ON EXISTING STEAM RADIATOR. REPLACE WITH NEW CONTROL VALVE PROVIDED BY TEMPERATURE CONTROL CONTRACTOR UNDER SEPARATE CONTRACT.
- 3 RECOMMISSION (6) EXISTING STEAM RADIATORS AND (1) STEAM UNIT HEATER (NOT SHOWN) ON MEZZANINE LEVEL ABOVE FOR USE WITH NEW HYDRONIC DISTRIBUTION SYSTEM. REMOVE EXISTING STEAM TRAP AND CONNECT CONDENSATE OUTLET DIRECTLY TO EXISTING SC PIPING SIMILAR TO NOTES 1 & 2 ABOVE. RECONFIGURE UNIT HEATER CONTROLS FOR CONTINUOUS FLOW AND FAN CYCLE ON CALL FOR HEAT. CLEAN UNIT HEATER FINS AND VERIFY OPERATION. REPLACE CONTROL VALVE ON EXISTING STEAM RADIATOR. REPLACE WITH NEW CONTROL VALVE PROVIDED BY TEMPERATURE CONTROL CONTRACTOR UNDER SEPARATE CONTRACT.



FLOOR PLAN HVAC - DEMOLITION



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PROJECT
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HVAC MODIFICATIONS

SHEET DESCRIPTION
FLOOR PLAN HVAC - DEMOLITION

DATE
6/16/11

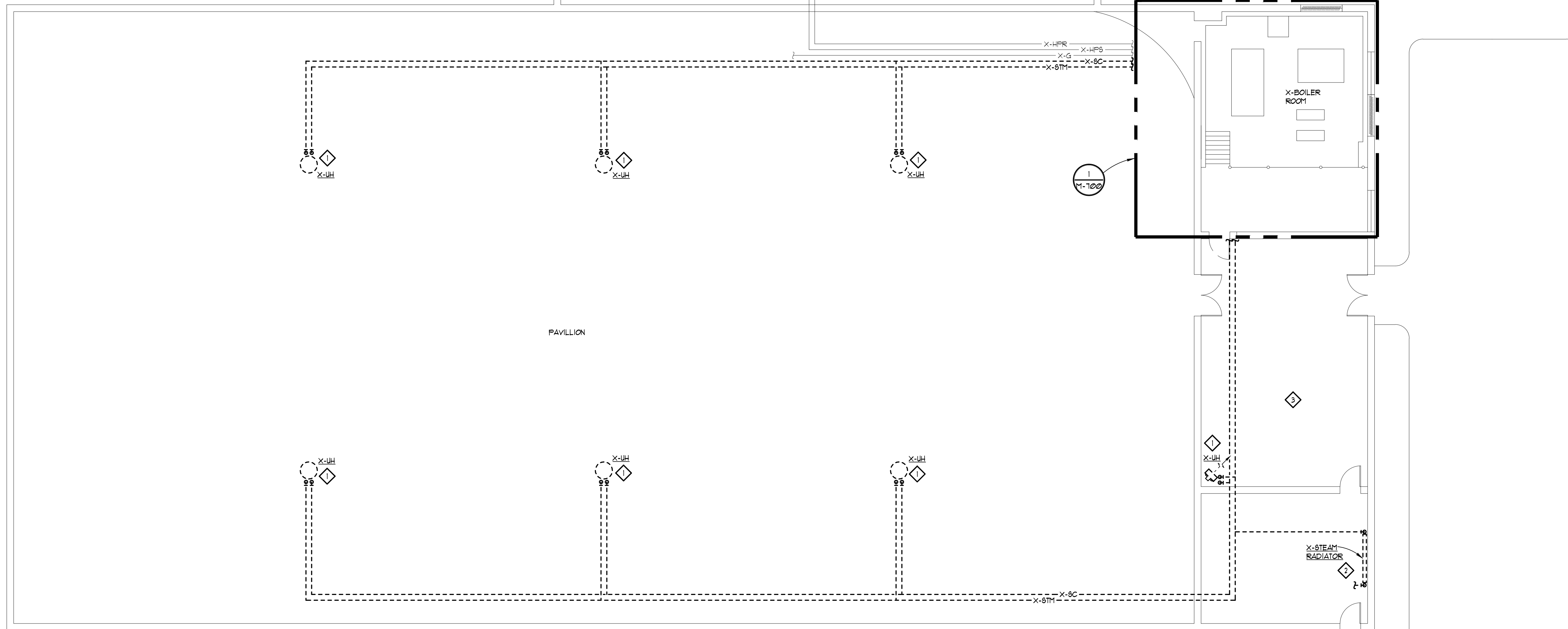
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DEMOLITION NOTES:

- ① ALTERNATE: DISCONNECT AND DEMO EXISTING STEAM UNIT HEATER AND ALL ASSOCIATED ACCESSORIES AND CONTROLS AT LOCATION SHOWN. DEMO ASSOCIATED PIPING TO EXTENTS SHOWN.
- ② ALTERNATE: DISCONNECT AND DEMO EXISTING STEAM RADIATOR AND ALL ASSOCIATED ACCESSORIES AND CONTROLS AT LOCATION SHOWN. DEMO ASSOCIATED PIPING TO EXTENTS SHOWN.
- ③ ALTERNATE: DISCONNECT AND DEMO (6) EXISTING STEAM RADIATORS AND (1) STEAM UNIT HEATER ON MEZZANINE LEVEL ABOVE. DEMO ALL ASSOCIATED ACCESSORIES, CONTROLS, AND PIPING.



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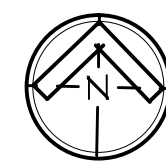
PROJECT
OAKLAND UNIVERSITY PAVILLION
HVAC MODIFICATIONS

SHEET DESCRIPTION
**FLOOR PLAN
HVAC -
DEMOLITION -
ALTERNATE**

DATE
6/16/11

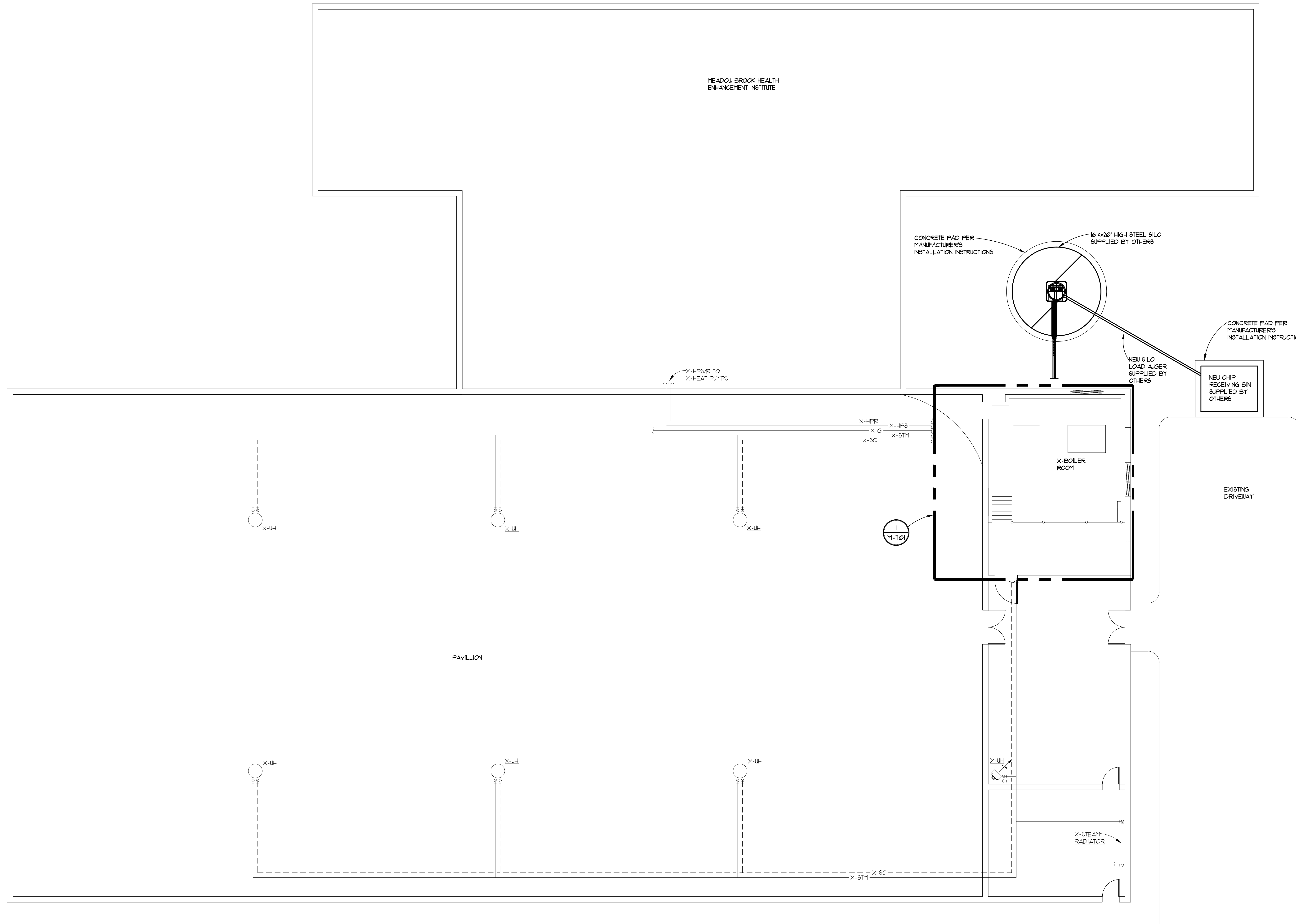
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SHEET NUMBER
M-301



FLOOR PLAN HVAC - DEMOLITION - ALTERNATE

0 5 10 20
SCALE: 1/8" = 1'-0"



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CONCRETE PAD PER
MANUFACTURER'S
INSTALLATION INSTRUCTIONS

16'x20' HIGH STEEL SILO
SUPPLIED BY OTHERS

CONCRETE PAD PER
MANUFACTURER'S
INSTALLATION INSTRUCTIONS

NEW SILO
LOAD AUGER
SUPPLIED BY
OTHERS

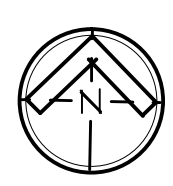
NEW CHIP
RECEIVING BIN
SUPPLIED BY
OTHERS

EXISTING
DRIVEWAY

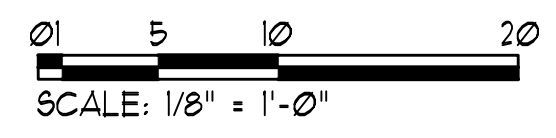
X-BOILER
ROOM

PAVILLION

X-STEAM
RADIATOR



FLOOR PLAN HVAC - NEW



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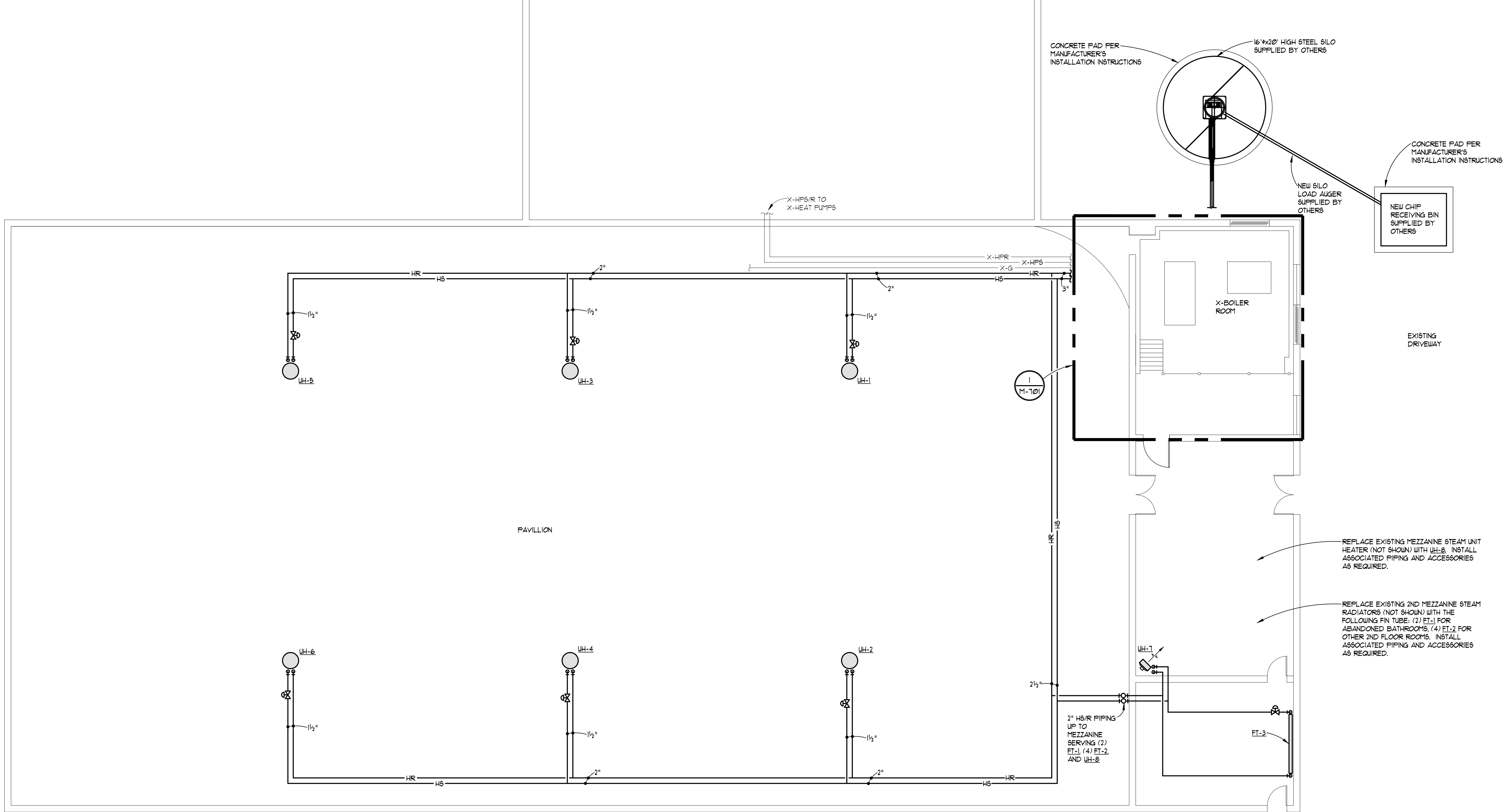
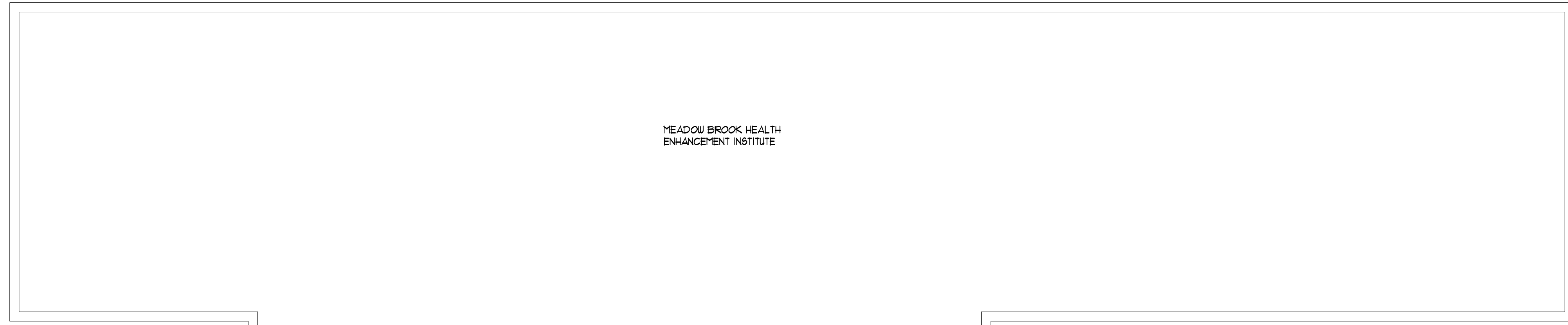
PROJECT
OAKLAND UNIVERSITY PAVILLION
HVAC MODIFICATIONS

SHEET DESCRIPTION
**FLOOR
PLAN
HVAC -
NEW**

DATE
6/16/11

PROJECT NUMBER
10136.01

SHEET NUMBER
M-400



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PROJECT
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HVAC MODIFICATIONS

SHEET DESCRIPTION
FLOOR PLAN HVAC - NEW - ALTERNATE

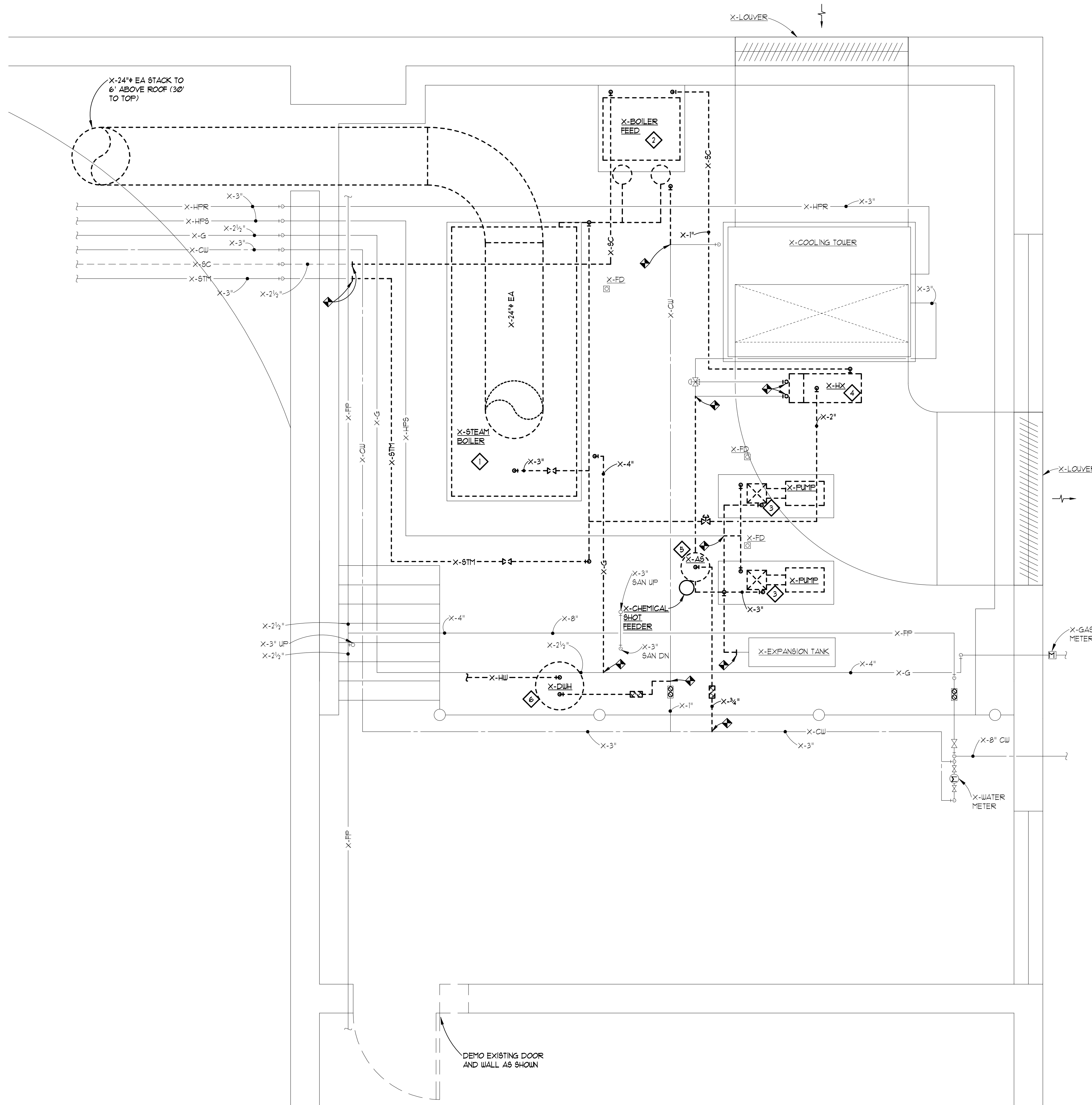
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6/16/11

PROJECT NUMBER
10136.01

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M-401

 **FLOOR PLAN HVAC - NEW - ALTERNATE**

0 5 10 20
SCALE: 1/8" = 1'-0"



DEMOLITION NOTES:

- 1 DISCONNECT AND DEMO EXISTING BOILER AND ALL ASSOCIATED ACCESSORIES AND CONTROLS AT LOCATION SHOWN. DEMO ASSOCIATED PIPING TO EXTENTS SHOWN. DEMO ASSOCIATED EXISTING BOILER VENT AND PATCH WALL AND ROOF TO MATCH EXISTING.
- 2 DISCONNECT AND DEMO EXISTING BOILER FEED UNIT AND ALL ASSOCIATED ACCESSORIES AT LOCATION SHOWN. DEMO ASSOCIATED PIPING TO EXTENTS SHOWN. REMOVE EXISTING CONCRETE PAD AND PATCH FLOOR AS REQUIRED.
- 3 DISCONNECT AND DEMO EXISTING PUMP AND ALL ASSOCIATED ACCESSORIES AND CONTROLS AT LOCATION SHOWN. DEMO ASSOCIATED PIPING TO EXTENTS SHOWN. REMOVE EXISTING CONCRETE PAD AND PATCH FLOOR AS REQUIRED.
- 4 DISCONNECT AND DEMO EXISTING STEAM HEAT EXCHANGER AND ALL ASSOCIATED ACCESSORIES AT LOCATION SHOWN.
- 5 DISCONNECT AND RELOCATE EXISTING AIR SEPARATOR, CHEMICAL SHOT FEEDER AND ASSOCIATED ACCESSORIES AT LOCATION SHOWN. DEMO ASSOCIATED CW PIPING BACK TO MAIN.
- 6 DISCONNECT AND RELOCATE EXISTING DOMESTIC WATER HEATER AND ALL ASSOCIATED ACCESSORIES AND PIPING AT LOCATION SHOWN. DEMO ASSOCIATED BACKFLOW PREVENTER SERVING DIH.

1 ENLARGED BOILER ROOM HVAC - DEMOLITION
SCALE: 1/2"=1'-0"

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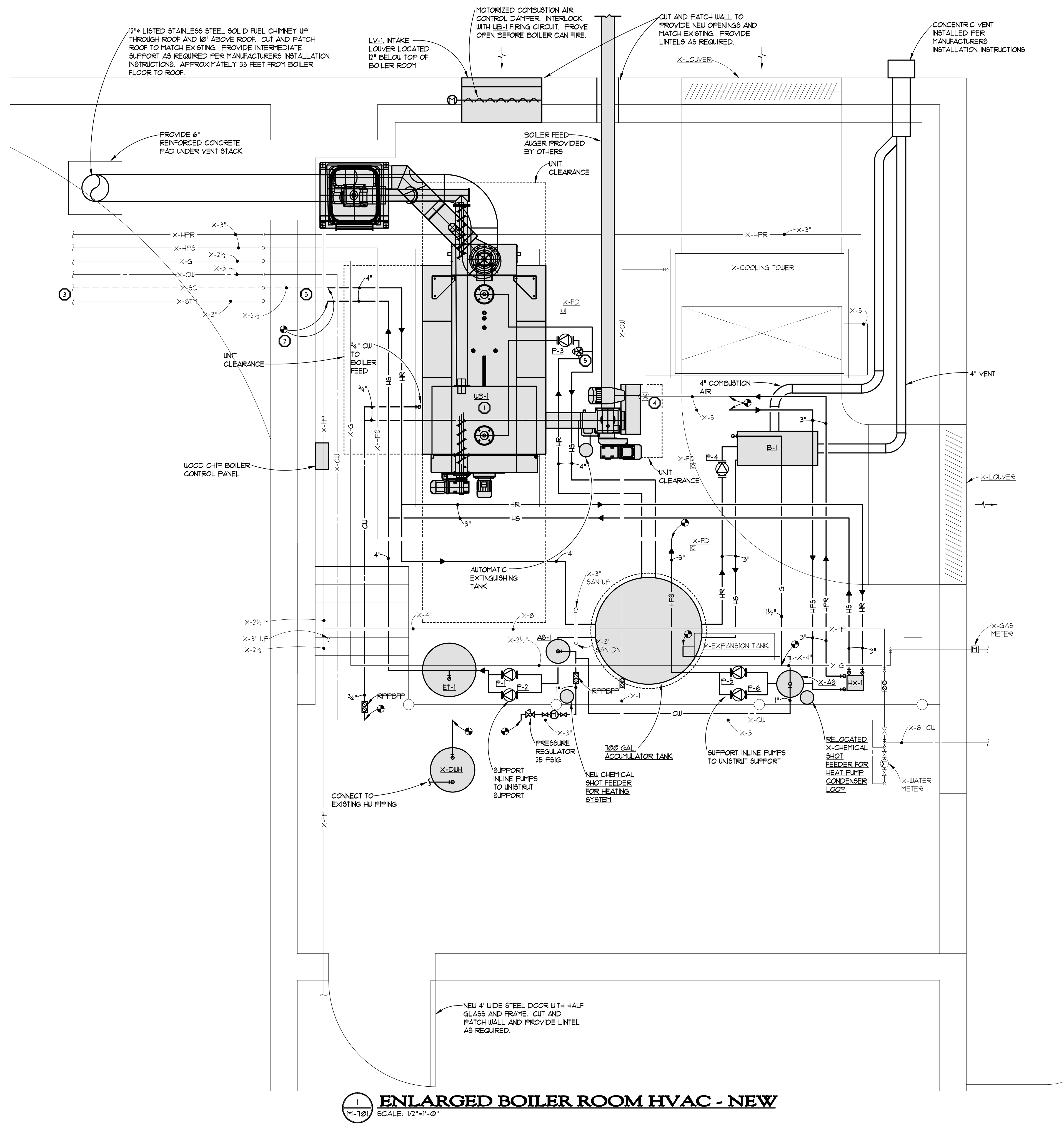
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PROJECT
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HVAC MODIFICATIONS

SHEET DESCRIPTION
ENLARGED BOILER ROOM HVAC - DEMOLITION
DATE
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PROJECT NUMBER
10136.01
SHEET NUMBER
M-700



HVAC KEY NOTES

1. INSTALL WOOD CHIP BOILER PIPING AND ALL ACCESSORIES AND CONTROLS PER MANUFACTURERS INSTALLATION INSTRUCTIONS. EXTEND CONCRETE PAD AS REQUIRED TO SUPPORT UNIT.
2. CONNECT H/R TO EXISTING STEAM PIPING AND H/R PIPING TO EXISTING STEAM CONDENSATE PIPING AT LOCATION SHOWN.
3. EXISTING 3-WAY VALVE TO REMAIN.
4. 3-WAY CONTROL VALVE PROVIDED BY TEMPERATURE CONTROLS CONTRACTOR.

ALTERNATE HVAC KEY NOTES

3. ALTERNATE: EXISTING 5TH AND 6C NOT TO BE REUSED. DEMO ALL EXISTING 5TH AND 6C PIPING AT LOCATION SHOWN. 3\"/>

1 ENLARGED BOILER ROOM HVAC - NEW
SCALE: 1/2\"/>

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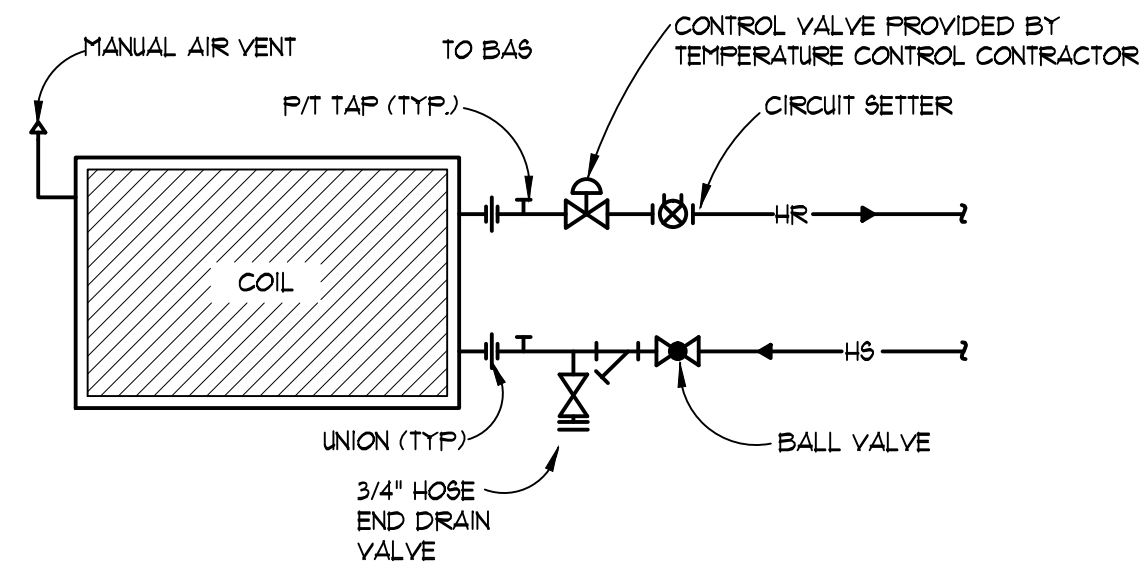
HVAC MODIFICATIONS

SHEET DESCRIPTION: **ENLARGED BOILER ROOM HVAC - NEW**

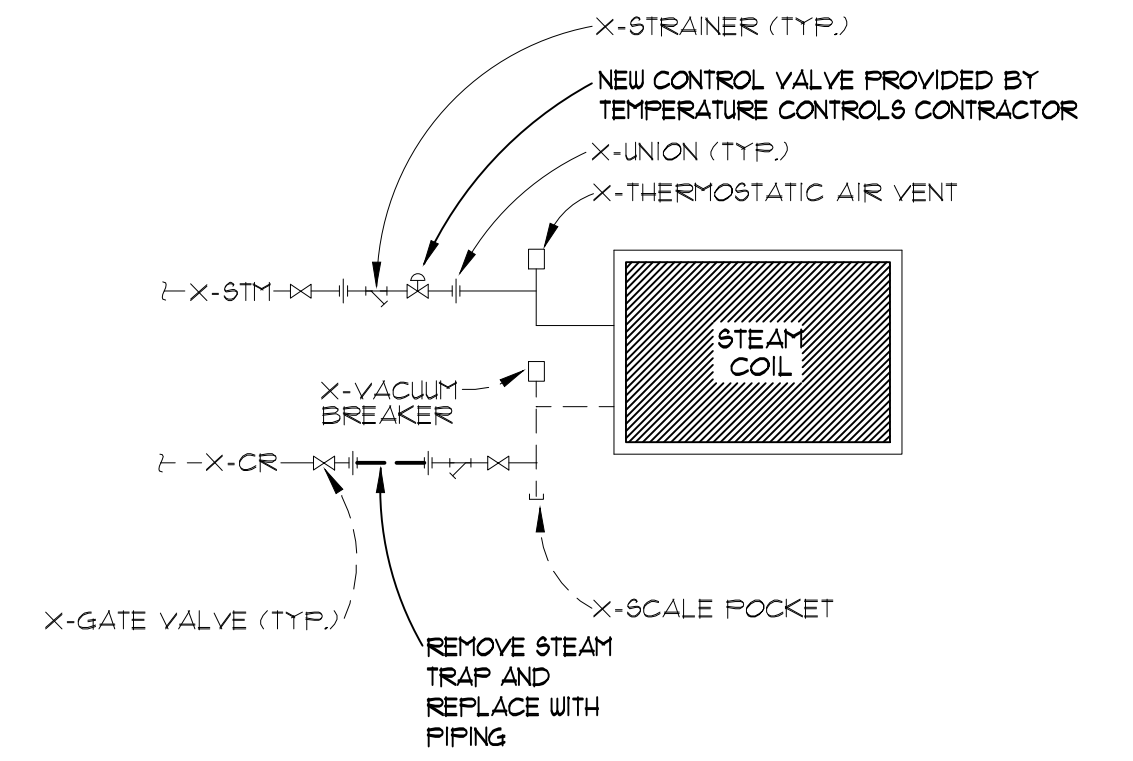
DATE: **6/16/11**

PROJECT NUMBER: **10136.01**

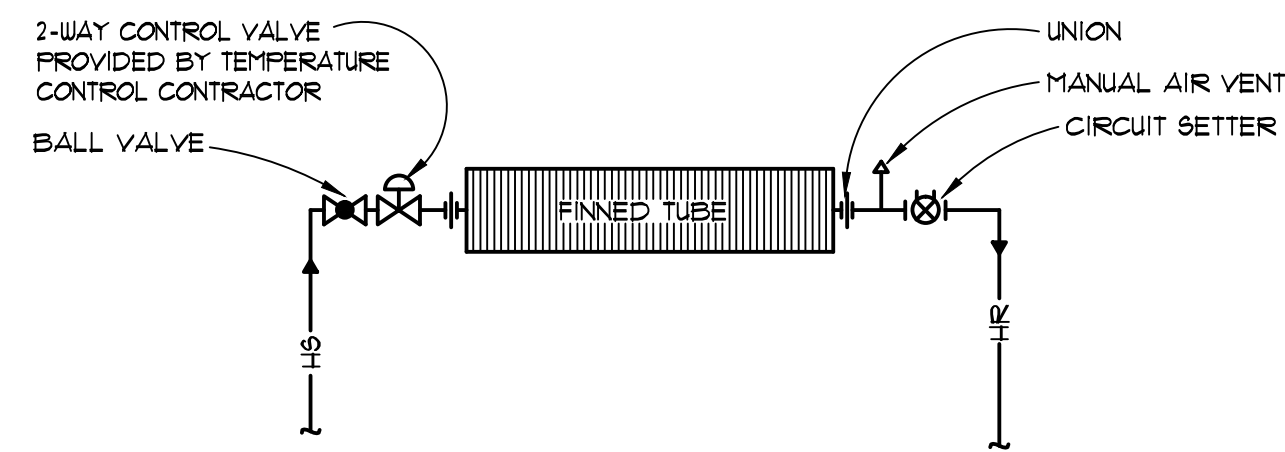
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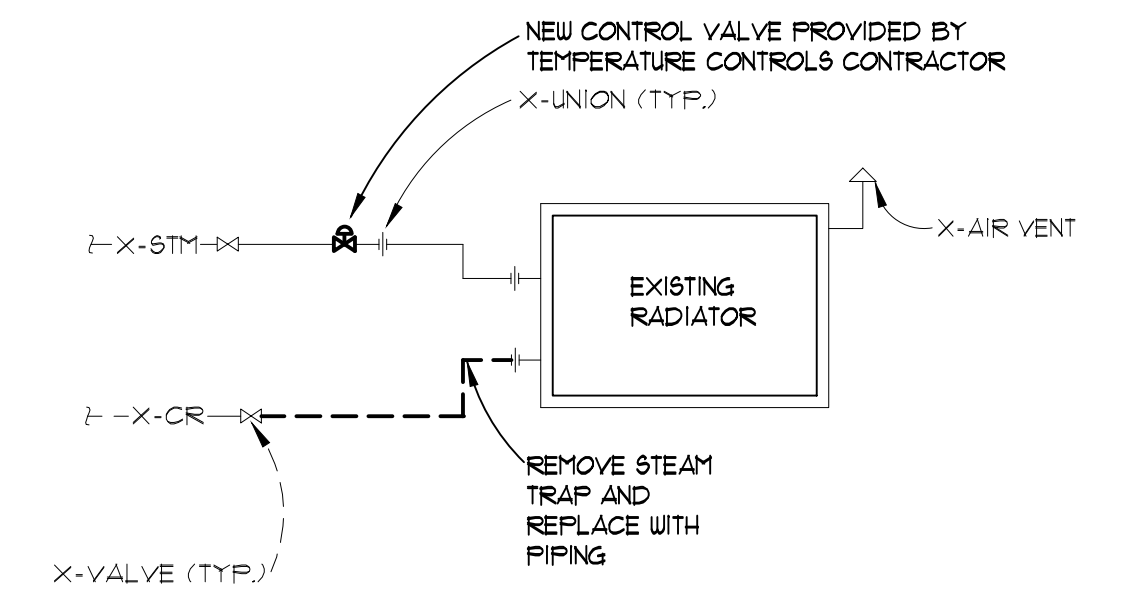
3
 1'-0" **ALTERNATE BID UNIT HEATER PIPING DETAIL**
 SCALE: NTS



1
 1'-0" **BASE BID UNIT HEATER MODIFICATION PIPING DETAIL**
 SCALE: NTS



4
 1'-0" **ALTERNATE BID FINNED TUBE PIPING DETAIL**
 SCALE: NTS



2
 1'-0" **BASE BID RADIATOR MODIFICATION PIPING DETAIL**
 SCALE: NTS

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PROJECT
OAKLAND UNIVERSITY PAVILION
 HVAC MODIFICATIONS

SHEET DESCRIPTION
MECHANICAL DETAILS

DATE
6/16/11

PROJECT NUMBER
10136.01

SHEET NUMBER
M-801

FIN TUBE RADIATION SCHEDULE							
TAG	LENGTH, FT.	ENCLOSURE	CAPACITY BTU/HR.	EWT °F	LWT °F	GPM	NOTES
FT-1	2	185	2,500	180	160	0.3	1,2
FT-2	7	185	8,800	180	160	0.9	1,2
FT-3	9	185	11,200	180	160	1.2	1,2

NOTES:
 1. BASED ON TRANE
 2. SLOPING TOP ENCLOSURE

WOOD-FIRED BOILER SCHEDULE																					
TAG	MODEL	LOCATION	TYPE	FLUE SIZE (in)	HEAT OUTPUT (MBH)	BOILER HORSE-POWER (HP)	OUTPUT EFFICIENCY (%)	WATER FLOW RATE (GPM)	WATER-SIDE PRESSURE DROP (FT)	BOILER WATER VOLUME (GAL)	EWT (°F)	LWT (°F)	WATER BOILER DIMENSIONS (in)			ELECTRICAL					NOTES
													LENGTH	WIDTH	HEIGHT	VOLTS	PHASE	KW	DISC.	STRTR	
WB-1	KRT-300	BOILER ROOM	WOOD BURNING BOILER WITH ROTATION COMBUSTION CHAMBER	12	1,024	30.6	92	105	5	238	140	160	134.4	52.4	82	208	3	3.6	EC	EC	1,2,3

NOTES:
 1. BASED ON: KOB PYROT
 2. ACCESSORIES:
 A) DE-ASHING SYSTEM
 B) FIRE EXTINGUISHING SYSTEM
 C) ECOTRONIC CONTROL SYSTEM
 3. BOILER PRE-PURCHASED BY OWNER.

GAS-FIRED BOILER SCHEDULE																					
TAG	MODEL	LOCATION	TYPE	FLUE SIZE (in)	INPUT ENERGY (MBH)	HEAT OUTPUT (MBH)	BOILER HORSE-POWER (HP)	OUTPUT EFFICIENCY (%)	WATER FLOW RATE (gmp)	WATER-SIDE PRESSURE DROP (FT)	EWT (°F)	LWT (°F)	WATER BOILER DIMENSIONS (in)			ELECTRICAL					NOTES
													LENGTH	WIDTH	HEIGHT	VOLTS	PHASE	FLA	DISC.	STRTR	
B-1	KBN601	BOILER ROOM	GAS FIRED CONDENSING BOILER	4	600	567	16.9	94	38	30	150	180	36.25	15.5	42.5	120	1	15.5	EC	MAN	1,2

NOTES:
 1. BASED ON: LOCHINVAR
 2. ACCESSORIES:
 A) MANUAL RESET HIGH LIMIT CONTROL
 B) MANUAL RESET LOW WATER CUTOFF
 C) DIRECT VENT SIDEWALL WITH CONCENTRIC VENT KIT

FLUID PUMP SCHEDULE															
TAG	SERVES	LOCATION	MODEL	TYPE	PUMP				MOTOR						NOTES
					GPM	HEAD (FT)	IMP. DIA.	% EFF.	RPM	HP	VOLT	PHASE	DISC.	STRTR.	
P-1	HYDRONIC SYSTEM	BOILER ROOM	SERIES 80	INLINE	100	40	6.875	55.8%	1750	3.0	208	3	EC	EC	1,2,3
P-2	HYDRONIC SYSTEM	BOILER ROOM	SERIES 80	INLINE	100	40	6.875	55.8%	1750	3.0	208	3	EC	EC	1,2,3
P-3	WOOD FIRED BOILER (WB-1)	BOILER ROOM	SERIES 60	INLINE	105	25	5.25	70.7%	1750	1.5	208	3	EC	EC	1,2
P-4	GAS FIRED BOILER (B-1)	BOILER ROOM	SERIES 60	INLINE	38	30	5.625	56.0%	1750	1.0	208	3	EC	EC	1,2
P-5	HEAT PUMP LOOP	BOILER ROOM	SERIES 80	INLINE	80	60	8.5	51.3%	1750	3.0	208	3	EC	EC	1,2
P-6	HEAT PUMP LOOP	BOILER ROOM	SERIES 80	INLINE	80	60	8.5	51.3%	1750	3.0	208	3	EC	EC	1,2

NOTES:
 1. BASED ON: BELL & GOSSETT
 2. ABBREVIATIONS
 EC - ELECTRICAL CONTRACTOR
 ETHL - ETHELEYN GYCOL
 PROP. - PROPYLENE GLYCOL
 MAN - MANUFACTURER
 NA - NOT APPLICABLE
 COND - CONDENSATE
 3. CONTROLLED WITH VFD

HYDRONIC UNIT HEATER SCHEDULE																				
TAG	MODEL	LOCATION	CFM	MIN. MBH	ROWS	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	GPM	MAX. ΔP (FT.)	ELECTRICAL								REMARKS
												VOLTAGE	PHASE	HP	FLA	WATTS	DISC BY	STRTR BY		
UH-1	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-2	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-3	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-4	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-5	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-6	UHSA-166P	PAVILLION	2620	97.7	N/A	60	95	180	160	10	0.58	115	1	1/6	-	-	EC	TC		
UH-7	UHSA-60S	EAST AREA OPEN SPACE	815	27.4	N/A	60	95	180	160	2.8	0.16	115	1	1/20			EC	TC		
UH-8	UHSA-42S	MEZZANINE AREA OPEN SPACE	590	15.0	N/A	60	95	180	160	1.5	0.04	115	1	1/20			EC	TC		

NOTES:
 1. BASED ON: TRANE
 2. ACCESSORIES:
 T - UNIT MOUNTED THERMOSTAT
 R - REOSTAT (SOLID STATE CONTROLLER)
 3. ABBREVIATIONS
 EC - ELECTRICAL CONTRACTOR
 MC - MECHANICAL CONTRACTOR
 TC - TEMPERATURE CONTROL CONTRACTOR

LOUVER SCHEDULE											
TAG	FUNCTION	SERVES	MAKE & MODEL	NECK SIZE		DEPTH	INLET FREE AREA (FT2)	CFM	PRESSURE DROP (IN WC)	SCREEN	REMARKS
				WIDTH	HEIGHT						
LV-1	COMBUSTION AIR	BOILER ROOM	L6375D	36"	24"	6"	2.75	1375	0.03	BIRD	1

NOTES:
 1. BASED ON: RUSKIN

HEAT EXCHANGER SCHEDULE													
TAG	SERVES	LOCATION	TYPE	CAPACITY (MBH)	HEAT PUMP LOOP				BOILER LOOP				NOTES
					EWT °F	LWT °F	GPM	WPD (FT. HD.)	EWT °F	LWT °F	GPM	WPD (FT. HD.)	
HX-1	HEAT PUMP LOOP	BOILER ROOM	BRAZED PLATE STAINLESS STEEL	350	60	70	80	5.6	140	120	35	1.3	

BASED ON: BELL & GOSSETT

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PROJECT
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 HVAC MODIFICATIONS

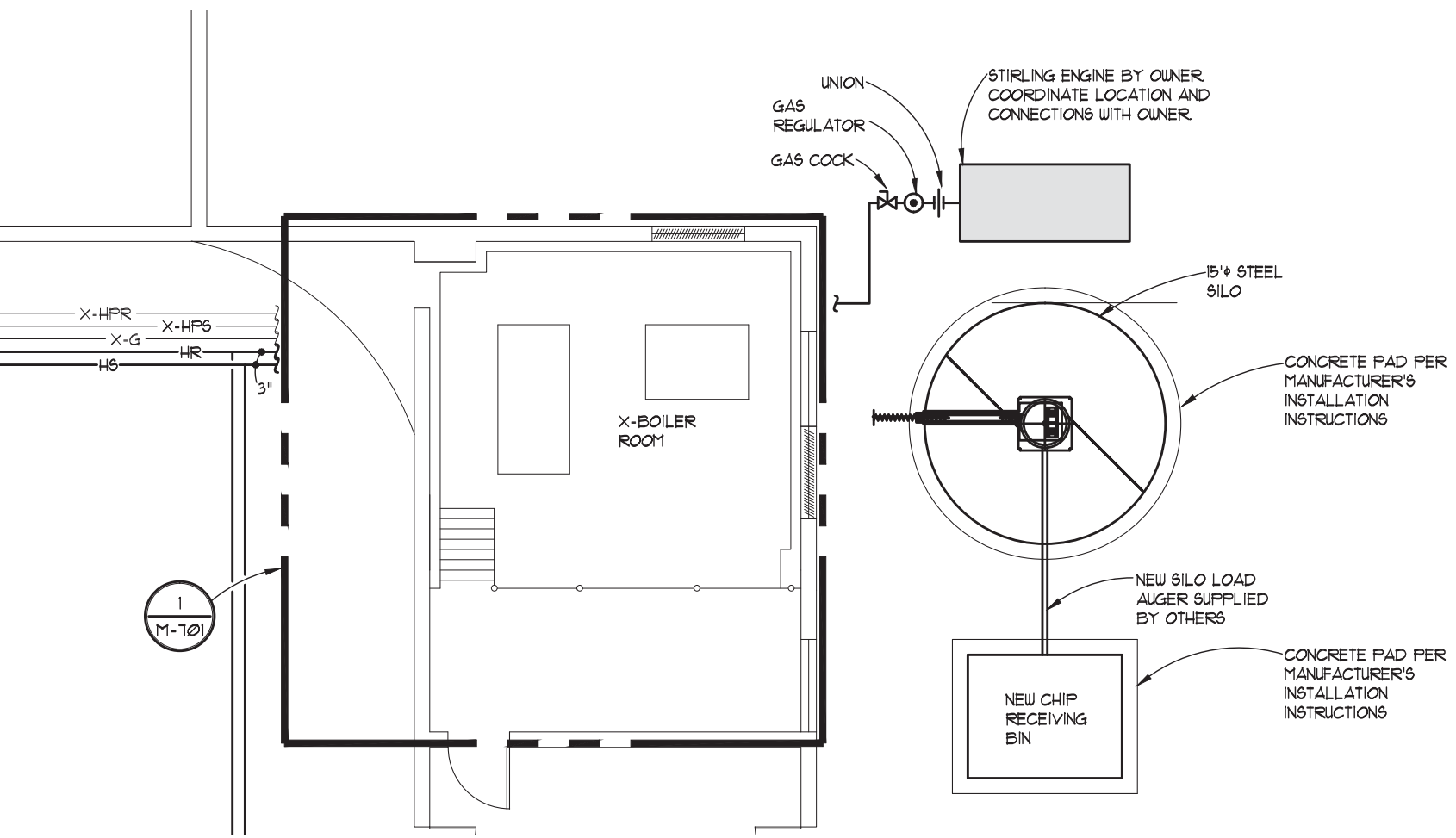
SHEET DESCRIPTION
 MECHANICAL SCHEDULES

DATE
 6/16/11

PROJECT NUMBER
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SHEET NUMBER

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