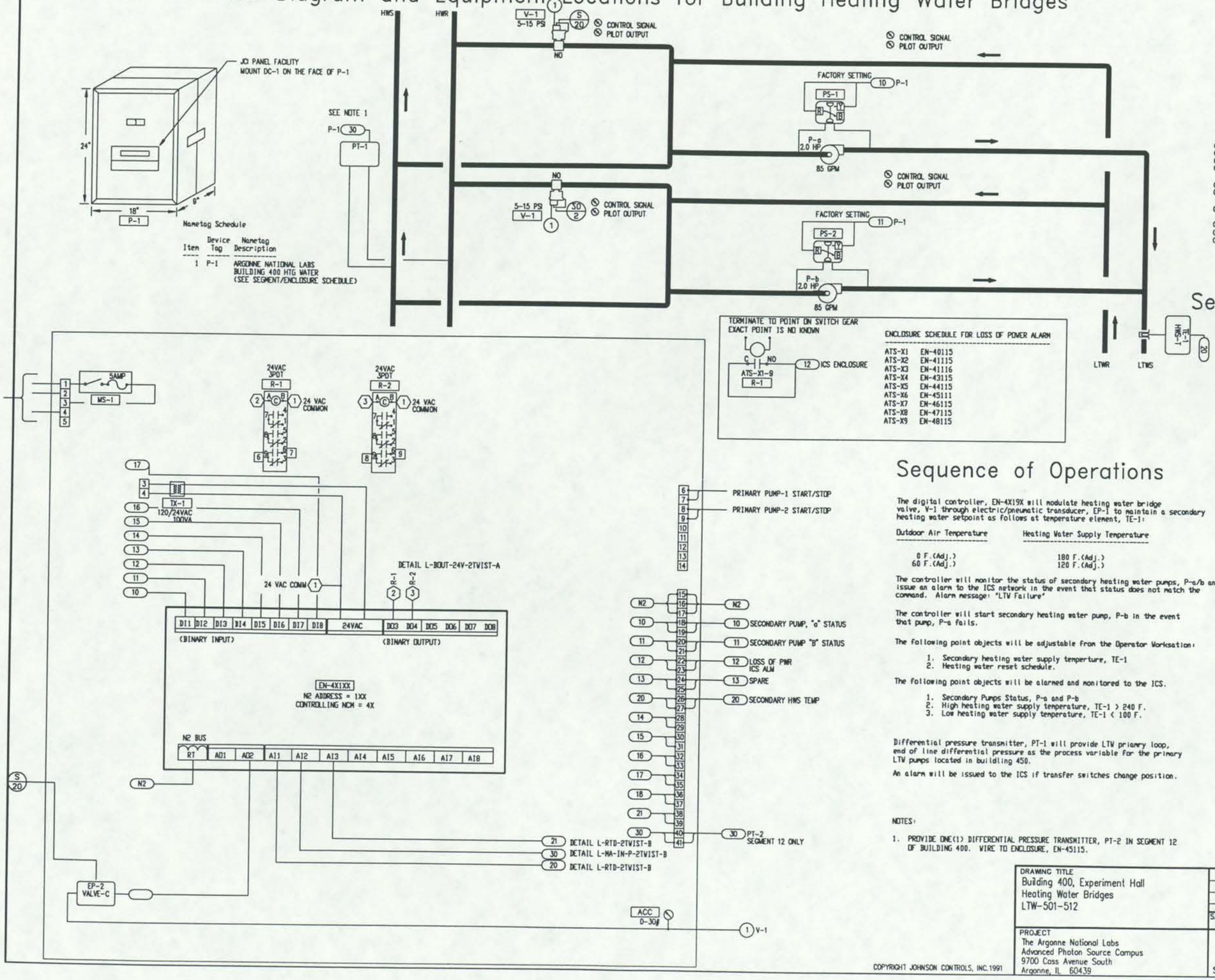
Flow Diagram and Equipment Locations for Building Heating Water Bridges



Nametag Schedule

Item	Device Tag	Nametag Description
1	P-1	ARGONNE NATIONAL LABS BUILDING 400 HTG WATER (SEE SEGMENT/ENCLOSURE SCHEDULE)

ENCLOSURE SCHEDULE FOR LOSS OF POWER ALARM

ATS-X1	EN-40115
ATS-X2	EN-41115
ATS-X3	EN-41116
ATS-X4	EN-43115
ATS-X5	EN-44115
ATS-X6	EN-45111
ATS-X7	EN-46115
ATS-X8	EN-47115
ATS-X9	EN-48115

FIELD MATERIAL

DEVICE TAG	QTY	CODE NUMBER	DESCRIPTION
PS-1-PS-2	24	P74FA-5C	DIFFERENTIAL PRES CONTROL
TE-1	12	TE-6000-4	SENSOR, 1000 OHM +/- .25%
	12	TE-6001-3	PACKING NUT & FTG.S
	12	WZ-1000-2	STAINLESS STEEL WELL,1/2"
V-1	24	----	SEE VALVE SCHEDULE
PT-1	1	PT-550-3-5-D	DIFFERENTIAL PRESS TRANSMITTER-TRIAD
R-1	9	RR2B-UL-120VAC	CONTROL RELAY
	9	SH2B-05	BASE

PANEL MATERIAL

DEVICE TAG	QTY	CODE NUMBER	DESCRIPTION
(P) ACC	12	M-8000-393	SCREW-ON LAMCOID NAME-
(P) ACC	324	PD-113-15	TERM SEC MINIATURE 600V
(P) ACC	60	PD-113-3	TERMINAL BLOCK; MEDIUM
(P) MS-1	12	PD-112-22	BUSS SSU FUSE HOLDER/
	12	PD-112-23	FUSE T-5 (5AMP) FOR
(P) P-1	12	M-8100-1824	CONTROL CABINET;STD. FACE
(P) ACC	24	G-2010-5	AIR GAGE 1-1/2"
(P) R-1-R-2	24	PD-109-21	RELAY; PLUG IN 3PDT
	24	PD-101-35	SOCKET; 11PIN BLADE
(P) TX-1	12	Y64AL-2C	TRANSFORMER
(P) DC-1	12	LCP200-0	DIGITAL CONTROLLER
(P) EP-1	12	EP-8000-4	ELECT/PNEUMATIC TRANSDUCER

ANY MATERIAL WITH A (P) PRECEEDING THE DEVICE TAG IS CONSIDERED PROPRIETARY EQUIPMENT AND IS BEING SUPPLIED BY JOHNSON CONTROLS, INC. ALL OTHER MATERIAL IS NON-PROPRIETARY EQUIPMENT.

Segment/Enclosure Schedule

Heating Water Bridge (PANEL, P-1 TAG)	Associated Network Control Unit	Experiment Hall Hall Segment Number
LTW-501	EN-40000	1
LTW-502	EN-41000	3
LTW-503	EN-41000	4
LTW-504	EN-42000	6
LTW-505	EN-43000	7
LTW-506	EN-44000	9
LTW-507	EN-44000	10
LTW-508	EN-45000	12
LTW-509	EN-46000	14
LTW-510	EN-47000	15
LTW-511	EN-47000	16
LTW-512	EN-48000	18

Sequence of Operations

The digital controller, EN-4X19X will modulate heating water bridge valve, V-1 through electric/pneumatic transducer, EP-1 to maintain a secondary heating water setpoint as follows at temperature element, TE-1:

Outdoor Air Temperature	Heating Water Supply Temperature
0 F.(Adj.)	180 F.(Adj.)
60 F.(Adj.)	120 F.(Adj.)

The controller will monitor the status of secondary heating water pumps, P-a/b and issue an alarm to the ICS network in the event that status does not match the command. Alarm message: "LTV Failure"

The controller will start secondary heating water pump, P-b in the event that pump, P-a fails.

The following point objects will be adjustable from the Operator Workseation:

1. Secondary heating water supply temperture, TE-1
2. Heating water reset schedule.

The following point objects will be alarmed and monitored to the ICS.

1. Secondary Pumps Status, P-a and P-b
2. High heating water supply temperature, TE-1 > 240 F.
3. Low heating water supply temperature, TE-1 < 100 F.

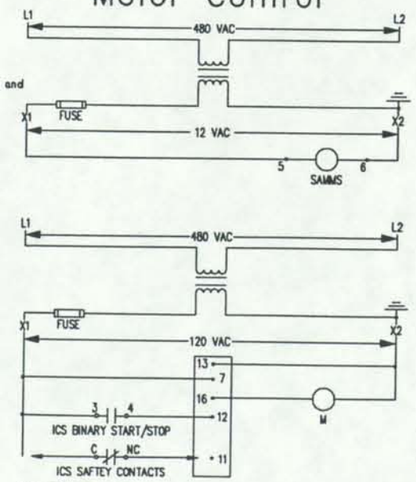
Differential pressure transmitter, PT-1 will provide LTW primary loop, end of line differential pressure as the process variable for the primary LTW pumps located in building 450.

An alarm will be issued to the ICS if transfer switches change position.

NOTES:

1. PROVIDE ONE(1) DIFFERENTIAL PRESSURE TRANSMITTER, PT-2 IN SEGMENT 12 OF BUILDING 400. WIRE TO ENCLOSURE, EN-45115.

Motor Control



LEADER LINE INDICATES POSSIBLE FUTURE CONECTION FOR SAFETY CONTACTS.

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FILE: 400_HW

REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY
	3	GENERAL		01/02/93	SF
	2	GENERAL		07/31/92	SF
	1	GENERAL		02/27/92	SF

SALES ENGR	PROJECT MGR	APPL. ENGR	DRAWN		APPROVED	
DB	SP	SF	BY SF	DATE 02/14/92	BY	DATE

DRAWING TITLE
Building 400, Experiment Hall
Heating Water Bridges
LTW-501-512

PROJECT
The Argonne National Labs
Advanced Photon Source Campus
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