



**LEGEND:**

- (PI) PRESSURE GAUGE
- (TI) TEMPERATURE GAUGE
- (TE) TEMPERATURE ELEMENT
- (TT) TEMPERATURE TRANSMITTER
- (TC) TEMPERATURE CONTROLLER
- VFD VARIABLE FREQUENCY DRIVE

HEADER CONNECTION	HEAT LOAD BTU/HR	FLOW (USgal)	HW DESIGN TEMP. IN °F	OUT °F	COMMENTS
3" FUTURE	1,760,000	60	200	140±	FUTURE TAPS ON HEADERS HAVE BEEN DESIGNED FOR HEATING COILS IN AHU'S IN LAP POOL BUILDING.
3" FUTURE	1,760,000	60	200	140±	
4" TO HX-100	2,000,000	67	200	140±	
1 1/2" TO HX-101	200,000	7	200	140±	

EQUIP. NO.	LOC'N	FLOW (USgpm)	PUMP HEAD (ft. w.c.)	FLUID DESC.	S.G. AT 55°F	MOTOR		COMMENTS
						SIZE (hp)	SPEED (RPM)	
P-1	LAP ROOM.	160	25	POOL WATER	1.0	3	1750	IN-LINE PUMP, S/S FITTED
P-2	LAP ROOM.	12	25	POOL WATER	1.0	0.75	1750	IN-LINE PUMP, S/S FITTED
P-3	WEST BOILER ROOM	175		BOILER WATER	1.0	5	3450	EXISTING PUMP ON SITE. GRUNDFOS 2.5 LP 55/4.6

TAG	DESCRIPTION	FLOW MEDIA	VALVE TYPE	FLOW RATE	DESIGN PRESSURE DROP	ACTUATOR DESCRIPTION	COMMENTS
CV-1	HEATING SYSTEM DIVERSION VALVE	POOL WATER	3 WAY	12 US gpm.	5 psi.	SELF ACTING CONTROL SYSTEM	SPIRAX-SARCO. 3/4" TYPE TW CONTROL VALVE C/W SA121, RANGE 1 CONTROL SYSTEM.

EQUIP. NO.	TOTAL HEAT TRANSFER (BTU/HR)	FLOW (USgpm)	INLET TEMP. °F	OUTLET TEMP. °F	MAX ΔP (psi)	COOL SIDE SWIMMING POOL WATER				COMMENTS
						FLOW (USgpm)	INLET TEMP. °F	OUTLET TEMP. °F	MAX ΔP (psi)	
HX-100	2,000,000 APPROX.	160	200	175	5.2	160	80	TBA	5	PLATE & FRAME UNIT 316 S/S PLATES, NBR GASKET
HX-101	200,000 APPROX.	12	200	180	2.1	12	84	TBA	2.1	PLATE & FRAME UNIT 316 S/S PLATES, NBR GASKET

**PROCESS FLOW SCHEMATIC**  
NTS

**CONTROL COMPONENTS**  
HEAT SOURCE  
1. P-3 OPERATES CONTINUOUSLY.  
LAP POOL, POOL WATER,  
2. MODULATE VFD ON P-1 TO MAINTAIN SETPOINT OF TEMPERATURE (TT-1) ELEMENT/ TRANSMITTER.  
KIDDY POOL, POOL WATER  
3. CONTROL VALVE (CV-1) TO BYPASS FLOW THROUGH OR AROUND HX-101 BASED ON MIXED TEMPERATURE.

**CONTROL COMPONENTS**  
TEMPERATURE ELEMENT/TRANSMITTER  
TT-1  
1. USE SMART HEAD STYLE TRANSMITTER WITH 4-20 mA OUTPUT TO VFD. A 24 VDC POWER SUPPLY IS REQUIRED, BY THIS CONTRACT. SUPPLY UNIT C/W THERMOWELL, AND LOCAL TEMPERATURE INDICATION. USE ROSEMOUNT OR EQUAL.  
VARIABLE FREQUENCY DRIVE  
VFD-1  
1. USE VFD IN A NEMA 12 ENCLOSURE, RATED AT HP RATING OF PUMP, CONSTANT TORQUE, POWER TO MATCH PUMP SUPPLIED.  
2. ACCESSORIES TO INCLUDE:  
.1 AUTO TUNING  
.2 SOC MAXIMUM AMBIENT TEMPERATURE  
.3 RS-485 SERIAL COMMUNICATION  
.4 BUILT-IN PID CONTROL  
.5 UL AND ULC LISTED  
.6 CONTROL TRANSFORMER FUSED IN PRIMARY & SECONDARY  
.7 DOOR INTERLOCKED CIRCUIT BREAKER  
.8 LINE REACTOR  
3. ABLE TO ACCEPT CONTROL SIGNAL FROM TT-1 ABOVE, AND CONTROL PUMP SPEED BASED ON INTERNAL PID CONTROL.  
5. ACCEPTABLE MATERIAL - MITSUBISHI OR EQUAL.

**Record Drawings**  
These Record Drawings have been prepared utilizing the mark-up documents provided by the contractor. Accutech Engineering Inc has undertaken no independent verification of the information. The responsibility for the accuracy of the Record information rests with the contractor supplying the information.

REV.	DESCRIPTION	DWR.	APP.	DATE
4	AS BUILT DRAWING	FT	BKW	05/31/02
3	RELOCATED CONTROL POINT	FT	BKW	02/06/02
2	ISSUED FOR CONSTRUCTION	FT	BKW	02/01/02
1	ISSUED FOR TENDER	FT	BKW	01/25/02
0	ISSUED FOR CLIENT REVIEW	FT	BKW	01/24/02

**ACCUTECH** Engineering  
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APPROVED BY: FT DATE: \_\_\_\_\_  
DESIGNED BY: BKW  
DRAWN BY: FT CHECKED BY: BKW  
SCALE: AS NOTED JOB No. \_\_\_\_\_

**CITY OF WINNIPEG**  
PAN AM POOL MECHANICAL RENOVATIONS  
PROCESS FLOW DIAGRAM & SCHEDULES  
AM01 4  
REV.

02/21/02

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