HYDRAULIC CALCULATION

PRESSURE AVAILABLE : MINIMUM = 71 P.S.I.
MAXIMUM = 81 P.S.I.

PRESSURE REQUIRED AT FARTHEST FIXTURE :	25 P.S.I.
PRESSURE LOSS THRU PRV :	– P.S.I.
PRESSURE LOSS DUE TO HEIGHT : 15 FEET HIGH	6.5 P.S.I.
PRESSURE LOSS THROUGH METER : 2"	7 P.S.I.
PRESSURE LOSS THROUGH BACKFLOW:	13 P.S.I.
OTHER LOSSES :	0 P.S.I.
TOTAL LOSSES :	52 P.S.I.

LOSS AVAILABLE FOR FRICTION :
71 – 52 = 19 P.S.I.

LENGTH OF RUN – METER TO FARTHEST FIXTURE :

OUTSIDE BUILDING :	1350 FT.
INSIDE BUILDING :	50 FT.
TOTAL :	1400 FT.

ALLOWABLE FRICTION LOSSES :

PRESSURE AVAILABLE 19 P.S.I. X 100 / EQUIVALENT LENGTH 1400 FT. = 1.3 P.S.I. / 100 FT.
= 1.3 P.S.I. DESIGN PRESS.

WATER PIPING

FRICTION LOSS 1 P.S.I PER 100 FEET

SIZE	FIXTURE UNITS		VELOCITY	GPM
	FLUSH TANK	FLUSH VALVE		
1/2"	0	0	1.4	1.0
3/4"	1	0	1.9	2.8
1"	6	0	2.1	5.5
1 1/4"	12	0	2.5	9.6
1 1/2"	21	8	2.8	15.0
2"	56	14	3.3	31.5
2 1/2"	151	60	3.7	55.0
3	320	190	4.2	89.0
3 1/2	543	443	4.6	132
4	846	819	5.0	188
5	2064	2064	5.8	335
6	3980	3980	6.5	540

PLUMBING FIXTURES SCHEDULE

ITEM	DESCRIPTION	TRAP ARM	WASTE	VENT	CW	HW	REMARKS
WC–1	WATER CLOSET, SENSOR 1.28 GPF	INT	4"	2"	1"	–	ZURN "ECOVANTAGE" FLOOR MOUNTED, FLUSH VALVE TOILET SYSTEM MODEL No. Z5655, SIPHON JET ACTION, ELONGATED BOWL, WHITE VITREOUS CHINA W/ SENSOR OPERATED BATTERY POWERED FLUSH VALVE (1.28 GPF)
WC–2	WATER CLOSET, SENSOR ACCESSIBLE 1.28 GPF	INT	4"	2"	1"	–	ZURN "ECOVANTAGE" FLOOR MOUNTED, FLUSH VALVE TOILET SYSTEM MODEL No. Z5665. ADA COMPLIANT, SIPHON JET ACTION, ELONGATED BOWL, WHITE VITREOUS CHINA W/ SENSOR OPERATED BATTERY POWERED FLUSH VALVE (1.28 GPF)
U–1	URINAL, SENSOR 0.125 GPF	INT	2"	2"	¾"	–	ZURN "ECOVANTAGE" URINAL SYSTEM MODEL No. Z5738. ADA COMPLIANT, WALL HUNG, SIPHON JET ACTION, WHITE VITREOUS CHINA W/ SENSOR OPERATED BATTERY POWERED FLUSH VALVE (.125 GPF) & ZURN MODEL No. Z1222 CARRIER.
U–2	URINAL ACCESSIBLE 0.125 GPF	2"	2"	2"	¾"	–	ZURN "ECOVANTAGE" URINAL SYSTEM MODEL No. Z5738. ADA COMPLIANT, WALL HUNG, SIPHON JET ACTION, WHITE VITREOUS CHINA W/ SENSOR OPERATED BATTERY POWERED FLUSH VALVE (.125 GPF) & ZURN MODEL No. Z1222 CARRIER.
L–1	LAVATORY ACCESSIBLE .5 GPM	1 ¼"	2"	½"	½"	½"	ZURN MODEL Z5220, 19"x16" UNDERMOUNT LAVATORY, GRID STRAINER, ADA TRAP Z8946–3NT CHICAGO SENSOR FAUCET 116.112.21.1, BATTERY OPERATED, .5GPM FLOW
L–2	LAVATORY ACCESSIBLE .5 GPM	1 ¼"	2"	½"	½"	½"	ZURN MODEL Z5360, WALL MOUNTED LAVATORY, 4" CENTERS, GRID STRAINER, ADA TRAP Z8946–3NT CHICAGO METERING FAUCET 3300–ABCP, WITH INTEGRAL TEMPERATURE CONTROL
HS–1	HAND SINK ACCESSIBLE .5 GPM	1 ¼"	2"	½"	½"	½"	ZURN MODEL Z5360, WALL MOUNTED LAVATORY, 4" CENTERS, GRID STRAINER, ADA TRAP Z8946–3NT CHICAGO 802–ABCP FAUCET
HS–2	HAND SINK ACCESSIBLE 1.5 GPM	1 ¼"	2"	½"	½"	½"	ELKAY MODEL LRAD–1918–55–1, 18 GAUGE, TYPE 302 18–8 NICKEL BEARING STAINLESS STEEL SINGLE COMPARTMENT SINK, SIZE 19"x18"x5–1/2" DEEP, WITH FITTING LEDGE AND "JIFFY CLAMPS" CLAMPS, LK–99 BASKET STRAINER WITH 1–1/2" TAILPIECE, LA PATTERN CAST BRASS P–TRAP "SPEEDWAY" SUPPLIES WITH LOOSE KEY ANGLESTOPS. CHICAGO FAUCET 201–AGN8AE35–317CP 1.5GPM.
SS–1	SERVICE SINK	3"	3"	2"	¾"	¾"	ZURN MODEL No. Z5850–D3–RG SERVICE SINK. WHITE ENAMELED CAST IRON. COMPLETE WITH 3" DRAIN, VINYL–COATED RIM GUARD, AND CHICAGO 897–CP W/ VACUUM BREAKER, PAIL HOOK, HOSE THREADED OUTLET, SERVICE STOPS, WALL BRACE, & HOT / COLD TEXT INDEXES.
FD–1	FLOOR DRAIN	2"	2"	1 ½"	–	–	ZURN MODEL No. ZN415S–P FLOOR DRAIN. DURA COATED CAST IRON BODY W/ 2" NO–HUB BOTTOM OUTLET. COMPLETE W/ 5" CHROME–PLATED NICKEL BRONZE HEEL–PROOF TOP, & ½" TRAP PRIMER CONNECTION.
FS–1	FLOOR SINK 12"x12"x6"DEEP	3"	3"	2"	–	–	ZURN MODEL No. ZN1900–NH–HP–P–3–34 FLOOR SINK. CAST IRON BODY W/ PORCELAIN ENAMEL INTERIOR AND TOP. COMPLETE W/ ANTI–SPLASH DOME STRAINER, ½" TRAP PRIMER CONNECTION, & ⅝" HEEL–PROOF GRATE.
MV–1	MIXING VALVE	–	–	–	½"	½"	LEONARD MODEL 220–STSTL–REC
MV–2	MIXING VALVE	–	–	–	¾"	¾"	LEONARD MODEL C210–AF–BR–STSTL
RD–1	ROOF DRAIN	–	–	–	–	–	ZURN MODEL No. ZC100–C–R–VP ROOF DRAIN. DURA–COATED CAST IRON BODY W/ CAST IRON DOME. COMPLETE W/ UNDERDECK CLAMP, ROOF SUMP RECEIVER, & VANDAL–PROOF SECURED TOP. SEE PLANS FOR SIZES
OD–1	OVERFLOW ROOF DRAIN	–	–	–	–	–	ZURN MODEL No. ZC100–89–C–R–VP ROOF DRAIN. DURA–COATED CAST IRON BODY W/ CAST IRON DOME. COMPLETE W/ UNDERDECK CLAMP, 2" HIGH WATER DAM, ROOF SUMP RECEIVER, & VANDAL–PROOF SECURED TOP. SEE PLANS FOR SIZES
RR–1	ROOF RECEPTOR	2"	2"	2"	–	–	ZURN MODEL No. ZC100–89–C–R ROOF DRAIN. DURA–COATED CAST IRON BODY, W/ UNDERDECK CLAMP, 2" HIGH WATER DAM, ROOF SUMP RECEIVER, NO DOME REQUIRED
HB–1	RECESSED HOSE BIBB	–	–	–	¾"	–	ZURN Z1335–CL–PB–34UN RECESSED HOSE BIBB. POLISH BRONZE, HINGED COVER, CAM LOCK, KEY OPERATED CONTROL VALVE, STOP VALVE, & VACUUM BREAKER ADAPTER, SCREWDRIVER STOP
HB–2	HOSE BIBB – ROOF	–	–	–	¾"	–	ACORN MODEL No. 8126–CR HOSE BIBB COMPLETE W/ ROUGH CHROME FINISH, ¾" FPT INLET, INTEGRAL VACUUM BREAKER AND LOOSE KEY OPERATION. MOUNTED AT 12" ABOVE FINISHED ROOF. SUPPLY PIPING SHALL BE SECURELY FASTENED TO ROOF DECKING WITH NIBCO MODEL No. 724–5–A "HY–SET HANGER COUPLING".
ESH–1	EMERGENCY EYE SHOWER ACCESSIBLE	2"	2"	2"	1¼"	–	HAWS DRINKING FAUCET COMPANY, MODEL NO. 8309–WC SHOWER AND EYE–FACE WASH STATION. ABS PLASTIC, "SAFETY" GREEN SHOWER HEAD. INSTANT–ACTION STAY OPEN CHROME–PLATED BRASS BALL VALVE WITH PULL ROD EXTENDED TO BE WITHIN REACH OF WHEEL CHAIR USER. 1–1/4" GALVANIZED PIPE WITH 9" DIAMETER FLOOR FLANGE. EYE/FACE WASH WITH ABS PLASTIC SAFETY GREEN BOWL, BUNA–N COVERED ABS PLASTIC SOFT–FLO ANTI–SURGE HEAD IN "SAFETY" GREEN. INSTANT ACTION STAY OPEN BRASS BALL VALVE WITH NO FOOT TREADLE. 1–1/4" IPS SUPPLY AND 1–1/4" IPS WASTE TO FLOOR. ADA ACCESSIBLE
GPR–1	GAS PRESSURE REGULATOR	---	---	---	---	---	AMERICAN GAS PRESSURE REGULATOR MODEL No. 1813C. COMPLETE WITH 3/4" CONNECTIONS, 3/8" ORIFICE, AND MODEL No. 70017P137 (BROWN) SPRING FOR 126 CFH CAPACITY @ 5.0" – 10.5" WATER COLUMN W/ INLET CAPACITY OF 5 PSI WITH A DROP TO 3.5 PSI PER IPC TABLE 402.4(5). APPROVED GAS VALVES SHALL BE INSTALLED ON THE REGULATOR INLET AND OUTLET.
GPR–2	GAS PRESSURE REGULATOR	---	---	---	---	---	AMERICAN GAS PRESSURE REGULATOR MODEL No. 1813C. COMPLETE WITH 1 1/4" CONNECTIONS, 3/8" ORIFICE, AND MODEL No. 70017P137 (BROWN) SPRING FOR 2014 CFH CAPACITY @ 5.0" – 10.5" WATER COLUMN W/ INLET CAPACITY OF 5 PSI WITH A DROP TO 3.5 PSI PER IPC TABLE 402.4(5). APPROVED GAS VALVES SHALL BE INSTALLED ON THE REGULATOR INLET AND OUTLET.
BFP–1	REDUCED PRESSURE BACKFLOW PREVENTER	–	–	–	¾"	–	WATTS NO. SS009–QT–S SERIES, 3/4"SIZE, STAINLESS STEEL, REDUCED PRESSURE TYPE, COMPLETE WITH BALL VALVES, TEST COCKS AND DRAIN TO NEAREST FLOOR SINK.
BFP–2	REDUCED PRESSURE BACKFLOW PREVENTER	–	–	–	¾"	–	WATTS NO. 009–QT–S SERIES, 3/4"SIZE, STAINLESS STEEL, REDUCED PRESSURE TYPE, COMPLETE WITH BALL VALVES, TEST COCKS AND DRAIN TO NEAREST FLOOR SINK.

PUMP SCHEDULE

ITEM	SERVICE	MANUFACTURER AND MODEL	TYPE	CAPACITY		HP	RPM	VOLTS	PHASE	WGT	REMARKS
				GPM	HEAD, FT						
CP–1	STADIUM CLUB HOT WATER CIRCULATION	B&G SERIES	INLINE	10	15	1/12	1750	120	1	10	INLINE CIRCULATING PUMP FOR DOMESTIC HOT WATER, ALL BRONZE PROVIDE 7 DAY TIME CLOCK
CP–2	CONCESSION BLDG HOT WATER CIRCULATION	B&G SERIES	INLINE	5	5	1/12	1750	120	1	10	INLINE CIRCULATING PUMP FOR DOMESTIC HOT WATER, ALL BRONZE PROVIDE 7 DAY TIME CLOCK

GAS FIRED WATER HEATER SCHEDULE

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	STORAGE CAPACITY (GALLONS)	RECOVERY CAPACITY @ 60°AT (GAL./HR.)	OUTLET TEMP.	FLUE SIZE	GAS INPUT (BTUH)	ELECTRICAL V. / PH. / HZ.	OPER. WT. (LBS.)	REMARKS
WH–1	A.O. SMITH BTH–250	STADIUM CLUB	DOMESTIC HOT WATER	130 EA.	480	DOM.HW 140°	4"	250,000	120V–1ø–60HZ	1388	SPILL T&P RELIEFS O FLOOR SINK
WH–2	A.O. SMITH BTH–120	CONCESSION BLDG	DOMESTIC HOT WATER	60	230	DOM.HW 140°	4"	120,000	120V–1ø–60HZ	850	SPILL T&P RELIEFS O FLOOR SINK

ELECTRIC WATER HEATER SCHEDULE

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	STORAGE CAPACITY (GALLONS)	RECOVERY CAPACITY (GAL./HR.)	OUTLET TEMP.	ELECTRICAL KW	ELECTRICAL V. / PH. / HZ.	OPER. WT. (LBS.)	REMARKS
WH–3	CHRONOMITE SR–20L	SEE PLANS	DOMESTIC HOT WATER	INST.	INST.	120	5.5	277V–1ø–60HZ	10	

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SHEET TITLE
PLUMBING SCHEDULES

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Production Dept. | Project Manager | Project Engineer

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