GENERAL SEISMIC NOTES:

- 1. CONTRACTOR TO PROVIDE COMPLETE SEISMIC ANCHORAGE AND BRACING FOR ALL MECHANICAL EQUIPMENT WEIGHING 400 POUNDS OR MORE THAT IS DIRECTLY MOUNTED ON THE FLOOR OR ROOF AND ALL MECHANICAL EQUIPMENT WEIGHING OVER 20 POUNDS THAT IS SUSPENDED FROM THE FLOOR, WALL OR SUPPORTED BY VIBRATION ISOLATORS TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE CRITERIA OUTLINED IN THE 2001 CALIFORNIA BUILDING CODE. REFER TO CHAPTER 16A. CONSIDER THE AFFECT OF TEMPERATURE CHANGE IN PREPARATION OF ANCHORAGE AND BRACING DETAILS. PROVIDE ANCHORAGE CALCULATIONS AND DETAILS CERTIFIED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL ENGINEER, STRUCTURAL ENGINEER
- 2. CONTRACTOR TO PROVIDE COMPLETE SEISMIC BRACING AND ANCHORAGE OF ALL PIPING. BRACING AND ANCHORAGE OF ALL PIPING. BRACING AND ANCHORAGE SHALL CONFORM TO SMACNA. "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS" OR OTHER PRE-APPROVED SYSTEMS.

AND THE CITY OF SANTA MONICA.

- 3. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE ANCHOR TYPE AND INSTALLATION REQUIREMENTS.
- 4. ALL PIPING AND CONDUIT CROSSING BUILDING SEISMIC SEPARATIONS SHALL BE PROVIDED WITH APPROVED FLEXIBLE CONNECTORS.

PLUMBING GENERAL NOTES:

- 1. THE WORK OF THIS SECTION SHALL BE INSTALLED IN THE STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES AND BE IN COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS.
- ARCHITECTURAL AND STRUCTURAL PLANS ARE CONSIDERED A PART OF THE DESIGN DRAWINGS AND ARE TO BE USED TO DEFINE DIAGRAM CONFIGURATIONS INCLUDING, BUT NOT LIMITED TO RELATIVE LOCATION OF MEMBERS, ELEVATION, LOCATION OF ALL OPENINGS, ETC.
- 3. COORDINATE LOCATIONS, SIZES, AND ELEVATIONS OF ALL SLEEVES THROUGH STRUCTURE WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS.
- 4. COORDINATE AND VERIFY EXACT LOCATION, SIZE, CONNECTION POINT, AND ELEVATION OF UTILITY SERVICE PIPING PRIOR TO TRENCHING OR INSTALLATION.
- 5. COORDINATE LOCATIONS OF VALVES, PIPING, AND PLUMBING EQUIPMENT WITH ARCHITECTURAL DRAWINGS IN REFERENCE TO WALL AND PARTITION CONSTRUCTION.
- 6. ALL VALVES AND APPURTENANCE SHALL BE LOCATED TO BE READILY ACCESSIBLE. PROVIDE AND INSTALL ACCESS PANELS FOR ALL VALVES AND APPURTENANCE INSTALLED WITHIN OR BEHIND WALLS AND NON-REMOVABLE CEILINGS.
- 7. COORDINATE PIPING AND EQUIPMENT LOCATIONS WITH OTHER TRADES. ANY PIPING INSTALLED WITHOUT COORDINATION IS SUBJECT TO REMOVAL AND REINSTALLATION WITHOUT ANY COST TO THE CONTRACT.

- 8. PROVIDE WATER HAMMER ARRESTORS ON ALL HOT AND COLD WATER PIPING SERVING FIXTURES OR EQUIPMENT WITH QUICK CLOSING VALVES. SIZE AND LOCATION SHALL COMPLY WITH PDI STD. WH-201.
- PROVIDE TRAP PRIMERS TO ALL FLOOR DRAINS AND FLOOR SINKS NOT RECEIVING A CONTINUOUS DISCHARGE OF WASTE WATER.
- 10. WHERE CONDITIONS ARE SHOWN OR NOTED AS EXISTING THEY ARE BASED ON THE BEST INFORMATION CURRENTLY AVAILABLE AT THE TIME OF PREPARATION OF THESE DRAWINGS. NO WARRANTY IS IMPLIED AS TO THE ACCURACY OF SAME HOWEVER, AND CONTRACTOR IS TO FIELD VERIFY ALL CONDITIONS.
- 11. PROVIDE OPENINGS AND SUPPORTS FOR EQUIPMENT AND SYSTEM COMPONENTS AS REQUIRED. ALL SUSPENDED ELEMENTS TO BE PROVIDED WITH APPROVED LATERAL OR SWAY BRACING.
- 12. COORDINATE LOCATION AND SIZE OF ACCESS PANELS SO THEY WILL PROVIDE USEFUL ACCESS TO SERVICE SYSTEM COMPONENTS.
- 13. PROVIDE FIRE BLOCKING OR DAMPER, AS APPLICABLE, WHERE SYSTEM COMPONENTS PENETRATE FIRE RATED SEPARATIONS BLOCKING/DAMPERS SHALL BE RATED IN ACCORDANCE WITH SEPARATION SERVED.
- 14. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS RECOMMENDATIONS. PROVIDE ALL COMPONENTS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
- 15. PROVIDE FLASHING AND/OR COUNTER FLASHING OF ALL EXTERIOR PENETRATIONS.
- 16. PROVIDE SLEEVES AND FIRESTOPPING ASSEMBLIES AT PIPE PENETRATIONS WITH CONSTRUCTION AND MATERIALS IN CONFORMANCE WITH STATE FIRE MARSHALL REQUIREMENTS AND UL BUILDING MATERIALS/FIRE RESISTIVE DIRECTORY.
- 17. ALL REQUIRED CLEANOUTS SHALL BE INSTALLED AS PER SEC. 707.0 AND 719.0 OF THE PLUMBING CODE.
- 18. ALL HOSE BIBBS SHALL BE EQUIPPED WITH AN APPROVED NON-REMOVABLE VACUUM BREAKER.
- 19. POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE ACCORDING TO THE METHOD SET IN SECTION 609.9 OF THE PLUMBING
- 20. ALL EXPOSED GAS PIPING SHALL BE KEPT TO AT LEAST SIX (6) INCHES ABOVE GRADE.
- 21. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF PLUMBING FIXTURES.
- 22. WHERE ACCESS PANEL ARE REQUIRED FOR EQUIPMENT, FIRE DAMEPERS, VALVES, TRANSFORMERS, ETC. THE GENERAL CONTRACTOR AND THE SUB CONTRACTORS SHALL COORDINATE THE LOCATIONS WITH THE ARCHITECT PRIOR TO INSTALLATION OF ACCESS PANELS.
- /7\ 23. SOUTH COAST AQMD CLEARANCE/PERMIT FOR BOILERS CONTACT #909-396-3529
- 24. ALL MATERIALS USED IN POTABLE WATER SYSTEM SYSTEM SHALL BE NSF 61 APPROVED, PER 604 OF THE 2010 C.P.C.

- 23. WATER PIPE PIPING, PLUMBING FIXTURES SOLDER, AND FLUX WITH LEAD CONTENT SHALL COMPLY WITH THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 116875
- 24. ALL FAUCETS IN PUBLIC RESTROOMS SHALL BE SELF-CLOSING OR SELF-CLOSING METERING FAUCETS.

PLUMBING NOISE CONTROL NOTES:

- 1. ALL PLUMBING SHALL BE ISOLATED. PIPING SHALL NOT CONTACT STUDS, DRYWALL, OR OTHER STRUCTURE EXCEPT THROUGH AN ISOLATOR. STUDS AND STUD SPACING SHOULD BE SIZED SO THAT PIPING CAN BE INSTALLED WITHOUT CONTACT. PLUMBING SHOULD BE ATTACHED ONLY TO THE SIDE SERVED.
- SUPPLY PIPING SHOULD BE ISOLATED USING SPECIALTY PRODUCTS "ACOUSTO-PLUMB" ISOLATORS OR HUBBARD ENTERPRISES HOLDRITE ACOUSTICAL ISOLATORS.
- HORIZONTAL RUNS OF WASTE AND VENT PIPING SHALL BE ISOLATED USING FELT-LINED HANGERS. THE THICKNESS OF THE FELT SHALL BE 1/4-INCH MINIMUM.
- RISER CLAMPS FOR SUPPLY, WASTE, VENT, AND STORM DRAIN SHALL BE ISOLATED ON NEOPRENE PADS WITH STEEL DISTRIBUTION PLATES.
- HORIZONTAL PIPING (WASTE AND SUPPLY) THAT RUNS OVER BEDROOMS OR LIVING ROOMS SHALL BE WRAPPED IN FIBERGLASS PIPE INSULATION.
- WHERE TOILET TRAPS OCCUR IN THE CEILING SPACE OF THE UNIT BELOW, PACK MINERAL FIBER OR FIBERGLASS INSULATION FOR 12 INCHES AROUND THE WASTE PIPE.
- 7. THE ROOFTOP WATER HEATERS SHALL BE MOUNTED ON NEOPRENE MOUNTS (EQUAL TO MASON TYPE BR) AND PIPING ABOVE UNITS SHALL BE VIBRATION ISOLATED.
- 1. THE FIRE PROTECTION SYSTEM IS ON DEFERRED APPROVAL BASIS.

FIRE PROTECTION NOTES:

- 2. THE SUCCESSFUL C-16 LICENSED CONTRACTOR SHALL DESIGN AND INSTALL COMPLETE WET AUTOMATIC FIRE SPRINKLER SYSTEM COVERAGE FOR ALL AREAS, COMPLYING WITH NFPA 13 AND 24 AND CITY OF LOS ANGELES FIRE DEPARTMENT.
- LOCATE SPRINKLER HEADS SYMMETRICALLY AND FULLY COORDINATED WITH REFLECTED CEILING PLANS, GRILLES, DIFFUSERS, LIGHTING FIXTURES HISTORIC CEILING, ETC. COORDINATE & LOCATE PIPING OUT OF CONFLICT WITH DUCTS, CABLE TRAY, CONDUITS AND CEILING MOUNTED ACCESSORIES.
- 4. PRIOR TO COMMENCING WORK, SUBMIT SIX COPIES OF ALL DRAWINGS AND HYDRAULIC CALCULATIONS WITH WATER SUPPLY CRITERIA TO ALL GOVERNING AUTHORITIES, INCLUDING THE CITY OF LOS ANGELES FIRE DEPARTMENT, ARCHITECT AND THE OWNERS INSURING AGENCY AND OBTAIN APPROVAL STAMPS PRIOR TO INSTALLATION OF THE FIRE PROTECTION SYSTEMS.
- ALL WORK SHALL CONFORM TO THE STANDARDS OF THE CODES AND ORDINANCES LISTED IN THE CONTRACT DOCUMENTS.
- 6. PROVIDE WATER CURTIAN AT ALL VERTICAL OPENINGS WITH SPRINKLER HEADS SPACED NOT MORE THAN 6 FT. ON CENTER PER NFPA 13, SECTION 8.15.4
- 7. FIRE SPRINKLER INFORMATION FOR REFERENCE ONLY. FIRE SPRINKLERS ARE ON A SEPARATE PERMIT FROM THE "SANTA MONICA FIRE DEPARTMENT"

ABBREVATION	DEFINITION	ABBREVATION	DEFINITION
AB	ABOVE	MTD	MOUNTED
AFF	ABOVE FINISHED FLOOR	NC	NORMALLY CLOSED
AP	ACCESS PANEL	NIC	NOT IN CONTRACT
BEL	BELOW	NO	NORMALLY OPEN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CLG	CEILING	OFOI	OWNER FURNISHED,
CONN	CONNECTION		OWNER INSTALLED
CONT	CONTINUATION	RCIP	RECTANGULAR CAST
DIA	DIAMETER		IRON PIPE
DSP	DRY STANDPIPE	RI&C	ROUGH IN & CONNECT
EL/ELEV	ELEVATION	RVB	RECESSED VALVE BOX
EX/EXIST	EXISTING	SA	SAME AS
, FDC	FIRE DEPARTMENT CONN.	SS	STAINLESS STEEL
FFE	FINISHED FLOOR ELEVATION	SSD	SUBSOIL DRAINAGE
FL	FLOW LINE	SF	SQUARE FOOT
FUT	FUTURE	SPKR	SPRINKLER
FV	FLUSH VALVE	S=	SLOPE
GAL	GALLONS	TM∨	THERMOSTATIC MIXING
GPM	GALLONS PER MINUTE		VALVE
HCP	HANDICAPPED	TP	TRAP PRIMER
HDR	HEADER	TYP	TYPICAL
ΙE	INVERT ELEVATION	UON	UNLESS OTHERWISE NOTE
IRR	IRRIGATION	UC	UNDERCOUNTER
LAV	LAVATORY	UR	URINAL
MAX	MAXIMUM	UTR	UP THROUGH ROOF
MIN	MINIMUM	VBF	VENT BELOW FLOOR
		VTR	VENT THROUGH ROOF
		WC	WATER CLOSET

TYPE	SIZE	MATERIAL	FITTINGS	LOCATION
SOIL, WASTE, VENT, STORM DRAIN AND SUBSOIL DRAINAGE	15" AND SMALLER	STD. WT. C.I. HUBLESS	STD. NO-HUB COUPLINGS	ABOVE GRADE
	15" AND SMALLER	SCHEDULE 40 PVC OR SOILD CORE ABS	SOCKET WELD TYPE	BELOW GRADE
DOMESTIC WATER AT BLDG. EXTERIOR		TYPE "L" COPPER	WROUGHT COPPER	ABOVE GRADE
		TYPE "K" COPPER	WROUGHT COPPER SILVER BRAZED	BELOW GRADE (16 MIL WRAPPED
DOMESTIC WATER	1/2"-2"	FLOWGUARD GOLD	CPVC FITTINGS	ABOVE GRADE
INSIDE OF BLDG.	/2 _	CTS CPVC PIPE	01 10 11111100	BELOW GRADE
DOMESTIC WATER	2½"-8"	CORZAN SCH. 80	CPVC FITTINGS	ABOVE GRADE
INSIDE OF BLDG.		CPVC PIPE		BELOW GRADE
NATURAL GAS LOW PRESSURE	2" AND SMALLER	SCHEDULE 40 BLACK STEEL	THREADED FITTINGS ANSI B16.3, BLACK MALLEABLE IRON 150 LBS. OR ANSI B16.11 FORGED STEEL	ABOVE GRADE
	2 1/2" AND LARGER	SCHEDULE 40 BLACK STEEL	STANDARD WELD	ABOVE GRADE
NATURAL GAS MEDIUM PRESSURE	ALL SIZES	SCHEDULE 40 BLACK STEEL	STANDARD WELD	ABOVE GRADE
CONDENSATE DRAIN	ALL SIZES	TYPE "M" HARD COPPER	WROUGHT COPPER	ABOVE GRADE
SUMP PUMP/ SEWAGE EJECTOR DISCHARGE PIPING	ALL SIZES	COPPER DWV TUBE	ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER JOINT	ABOVE GRADE & BELOW GRADE (16 MIL WRAPPED
IRRIGATION	1/2"-2"	FLOWGUARD GOLD CTS CPVC PIPE	CPVC FITTINGS	ABOVE GRADE & BELOW GRADE

CPVC 41 PLASTIC PIPES SIZING CHART

CPVC 41 PLASTIC PIPES SDR11 DOMESTIC

HOT & COLD WATER (SIZED ON 11.0 PSI/100')

CPVC 41 PLASTIC PIPES SCHED 80 DOMESTIC

HOT & COLD WATER (SIZED ON 11.0 PSI/100')

SIZE F.P.S. PER MIN. FLUSH VALVE FLUSH TANK

_

2-1/2" | 7 | 92 |

3" | 8 | 164

4" | 8 | 286

- | - |

VEL. MAX. GALLONS MAX. FIX. UNIT | MAX. FIX. UNIT |

205

631

1583

1583

VEL. |MAX. GALLONS | MAX. FIX. UNIT | MAX. FIX. UNIT

F.P.S. | PER MIN. | FLUSH VALVE | FLUSH TANK

0

13

CPVC 41 PLASTIC PIPES SCHED 80 DOMESTIC

SIZE | F.P.S. | PER MIN. | FLUSH VALVE | FLUSH TANK

2-1/2" | 7.2 | 90 | 195 | 316

450

600

1138

_

PIPE | VEL. |MAX. GALLONS |MAX. FIX. UNIT | MAX. FIX. UNIT |

HOT & COLD WATER (SIZED ON 3.0 PSI/100')

1-1/4" | 4.25 |

3.85

5.75

-

3" | 7.9 | 160 |

4" 7.9 272

6" | 7.4 |

8" | 8 |

- | - |

0

631

1583

4824

9320

3107

18

1589

3/4" | 3.8 | 5

1-1/4" | 5.4 | 17

2" 7.2 56

3" | 8.0 | 170

4" | 8.0 | 298

6" | 8.0 | 680

1/2" | 2.8 | 1

3/4" | 3.8 | 5

1-1/4" | 5.0 | 17

1-1/2" | 5.0 | 27

2-1/2" | 5.0 | 75

2" | 5.0 | 49

3" | 5.0 | 107

4" | 5.0 | 186

5" | 5.0 | 290

6" 5.0 406

1" | 4.6 | 9 | -

410

DOMESTIC HOT WATER (SIZED ON 3.0 PSI/100') MAXIMUM

SIZE F.P.S. PER MIN. FLUSH VALVE FLUSH TANK

PIPE VEL. MAX. GALLONS MAX. FIX. UNIT MAX. FIX. UNIT

1-1/2" | 6.0 |

2-1/2" | 8.0

| 4.6 | 9

_

10

65

245

699

1743

2765

5000

_

12

24

158

380

747

1743

2765

120

851

2670

½" 0	0	0	0		1/2		2.8	1		_			_	6" PIPE	5.845					
SIZE F.P.S.	PER MIN. FLI	USH VALVE	FLUSH TANK		1/2				7111 V.	FLUSH _			\dashv	FRICTION LOSS FOR 6" TYPE	K COPPER	TUBE				
PIPE VEL.	MAX. GALLONS MAX				SIZI		VEL. F.P.S.	PER N		FLUSH		AX. FIX. UNI FLUSH TANK		REDUCED PRESS. BACKFLOV YARD MAIN LOSSES:	PREVENT	EK				
	COLD WATER (SIZED ON		')		PIPI			MAX. GA			<u>I/100') MAX</u>	<u>KIMUM</u> AX. FIX. UNI	7	WATER METER						
CPVC	41 PLASTIC PIPES SDR1	11 DOMESTIC		\dashv		חחויבי	STIC COLD	WATED /	217ED ^	או זיי סי	1/1003\ 1443	/		PUMP @ P1 LVL.				0	x	0.4
CPVC 41 PL	ASTIC PIPES SIZ	ZING CHA	RT				COP	PER SI	IZING	G CHAI	₹ <i>T</i>			LOW PRESSURE AVAILABLE LOSSES TO PUMP SUCTION						
	10716 7:7-7	711.10 0		$\overline{}$				DES -	. 					PUMP HEAD CALCULATION						
		- moderned M			- 5									TOTAL DEMAND						
	_	707-00-1-00-00	oing volume: s region:		2.8 ft³ amreg										SERVICE	SIZE	=		6"	
	1	Gross	s weight:		69 lb										TOTAL B	LDG. GPM	=		656	
	1	Other													TOTAL	I DO COTT			ere	
	\dashv		r protection: r Number:		one 5600035									BOILER/MECH MAKE-UP					10.0	
JELON ONADE	1	Insula	ation class (IEC 85):	F										COOLING TOWER				17.70	24.0	
BELOW GRADE &		Full lo	d speed: oad motor efficiency:		525 rpm 3,5 %									60 LBS. WASHER	1		01.0	=	26.4	
ABOVE GRADE &	7	Cosp	phi - power factor:	0,9	90									165 LBS. WA SHER		3 x	57.6	=	172.8	
		Starti	ing current: current:	42	20 / 210 A 2.4 / 26.2 A									EQUIPMENT						
·		(1,000 to 10,000	ce factor: d current:	46	15 5 / 23 A															
BELOW GRADE 16 MIL WRAPPED)		Rated	s frequency: d voltage:	3;	x 230 / 460	V									GPM		=		423	
ABOVE GRADE & BELOW GRADE		KVA	code:	K) Hz										TOTAL B	LDG. F.U.	=		2811.5	
ADOME 02:55	\dashv	Motor	r type:		aldor, TEFC) HP										The state of the s				ESSENTENCE CONTRACTOR	
ADOVE GRADE			rical data:	g may a				6-						RESTAURANT	2		50		100	
ABOVE GRADE	\dashv		d temperature range:	32	2 248 °F			0				P2 =	: 14.9 HP	FUTURE RESTAURANT						
OIVIDE		Liquid						4						EUTUDE DECTANGE						
ABOVE GRADE	7		sure stage, pipe connect ge size for motor:		50 Lb. 54TC			8						DIPPER WELL	1		1		1	
		Size,	pipe connection:	3"				12						SOAK SINK	1		2		2	
ABOVE GRADE		Conn	dard, pipe connection: nect code:	G				2024-1				1		JUICE DISPENSER	2		1		2	
	4	Max	pressure at stated temp	: 23	32 / 250 psi/	°F		16					_/	COFFEE MACHINE ESPRESSO MACHINE	2		1		2	
			llation: mum ambient temperati	ire: 10	04 °F			20						SODA GUN	2		1		2	
				_				(HP)						GLASS WASHER	1		3		3	
		And the second of the second o	rial code: e for rubber:	G E				0 P2	50	100	150	200 G	(US GPM)	3 COMP BAR SINK	1		3		3	
		Interces		31	4401 DIN W 16 AISI	vNr.		0				Eff pump		DUM P SINK	1		2		2	
ABOVE GRADE	7	Mater	rial, impeller:	St	ainless stee			40						ICE MACHINE ICE BIN TRENCH	2		0		0	
		Hercentee		1.4	4408 DIN W			53/2						HAND SINK	2		1		2	
BELOW GRADE		Mater Mater	rials: rial, pump housing:		ainless stee			80			1									
ABOVE GRADE	_	Mode		А				120						BAR						
ADOVE ODADE	\dashv	Pump	o version:	A				3935					1	CONVECTION OVEN	1		1		1	
			ovals on motor namepla		L Recognize	ed Compo	onent, CSA	160			2			STEAM TABLE	1		1		1	
BELOW GRADE	7	Туре	ller reduc.; of shaft seal;		JBE			200						HOT FOOD WELL COLD FOOD WELL	1		1		1	
ABOVE GRADE		Impel	llers:	3	.o II			200				1		SODA GUN	2		1		2	
16 MIL WRAPPED)	4	Rated	d flow: d head:	22	20.1 US GPI	М		240			1			ESPRESSO MACHINE	2		1		2	
BELOW GRADE		Techi Spee	nical: ed for pump data:	34	197 rpm			92	2 %		_			JUICE DISPENSER	2		1		2	
	\dashv		number:	57	003907496	144		280				n = 92 %	0	ICE BIN TRENCH COFFEE MACHINE	2		0		2	
ABOVE GRADE		Produ	uct Number:	96	3419174			(ft) 10	0 %			H = 202		ICE MACHINE	2		1		2	
AROVE CRADE	1		cription uct name:		alue RN 45-3-2 A	4-G-G-F	KUBE	(ft)					N 45-3-2	WATER DISPENSER	2		1		2	
DELOW GRADE						EU X 1		, , , , DL)	1		3.2			PRE RINSE SINK	2		2		4	
BELOW GRADE	7	55.500	VAIL. FOR PRESS. LO RESSURE AVAIL FOR	AND AND ADDRESS OF THE PARTY OF		17 22 - 4	100 FT. / 530	FT TOLS			100000000000000000000000000000000000000	8 PSI 6 PSI/100'		SCRAP SINK	1		0		0	
		PF	RV STATION MIN. SET								87.0	PSI		DUM P SINK	1		2		2	
NOUVE GNADE			OTAL LOSSES		(STATIC	+ RE SIDUAL	+ PRV)				2 PSI		PREP SINK MOP SINK	1		3		3	
ABOVE GRADE	┪		ESIDUAL RV									PSI PSI		3 COMP POT SINK	1		6		6	
LOCATION			DSSES:									n Dev		HAND SINK	4		1		4	
	4	P1	1 LEVEL	700										· w/ Official						
	1		AX. PRESS AT 6TH FL		0.0					0.43		8 PSI		KITCHEN	<u></u>					
	\neg		RV STATION MIN. SET RESS. LOSS: (P1 TO 6			L J		80	x	0.434		2 PSI		LAUNDRY SINK	1		2		2	
			RV STATION MAX. SE RV STATION MIN. SET	and the second second second	The section of the se							PSI PSI		CLOTHES WASHER	1		4		4	
			ONE 2 HOT WATER CA			-					- 1000	n Der		ADD. HOSE BIBB	36		1		36	
														1ST HOSE BIBB	1		2.5		2.5	
			RES SURE A VAIL FOR			17.28 x 1	00 FT. / 530	FT. TDL)				6 PSI/100'		SERVICE SINK	14		3		42	
		(F-540)	RV STATION MIN. SET VAIL. FOR PRESS. LO	DOMESTIC STREET							0.000.000.000	PSI PSI		DRINK, FOUNTAIN	14		0.5		28 1	
			DTAL LOSSES RV STATION MIN. SET	PRFSS		STATIC	+ RE SIDUAL	. + PRV)			_	PSI PSI		SINK	4		1.5		6	
			RV								-	PSI		URNIAL (FV)	5		4		20	
			ESIDUAL								30.0	D PSI		LAVATORY	29		1		135 29	
D			OSSES:											WATER CLOSET (FV)	27		5		135	
			AX. PRESS AT 6TH FL	R. CLG.							55.2	B PSI		PUBLIC						
		PF	RESS. LOSS: (P1 TO 6	TH FLR.	CLG.)			80	X	0.434	34.7	2 PSI			10					
			RV STATION MAX. SE RV STATION MIN. SET									PSI PSI		SINK SHOWER	19		1.5 2		0 38	
			ONE 2 COLD WATER O	A SECTION AND A SECTION AS	to the second of the property of the	1 1					00.0	n per		3/4" TUB	45		10		450	
						orange Weil E					-			TUB/SHOWER	220		4		880	
			RESSURE AVAIL FOR		N (35.87 x 1	00 FT. / 525	FT. TDL)				4 PSI/100'		WATER CLOSET (FT) LAVATORY	276 286		2.5		690 286	
			RV STATION MIN. VAIL. FOR PRESS. LO	99						l l	_	PSI PSI		WATER CLOSET (ET)	270		2.5			
			DTAL LOS SES									O PSI		PRIVATE	NO.		UNITS(CW)	WI I	F.U.(CW)	
		PF	The state of the s								7.03.403.403.403.4	D PSI					FIXTURE		TOTAL	
		_	DSSES: ESIDUAL	1							30.0	D PSI		CONCLUSION:	BOOSTE	R PUMP S	YSTEM RE	QUIRED		
			1 LEVEL							- I										
			AX. PRESS P1 LEVEL		•							D PSI		AVAIL. FOR PRESS. LOSS			=	-67.72	PSI	
			RV STATION MAX. SE RV STATION MIN. SET	ACM OF THE LOCAL COMMO	-creative Managements					İ		PSI PSI		TOTAL SYSTEM LOSS			=	102.72	PSI	
		No.	ONE 1 HOT WATER CA		- Cal	• •			1		50.0	n Del						400 70	551	
														OTHER			=		PSI	
			RESSURE AVAIL FOR		N (35.87 x 1	00 FT. / 525	FT. TDL)				7 PSI 3 PSI/100'		6" METER 6" BACKFLOW DEVICE			=	595	PSI	
		1000	RV STATION MIN. + PI VAIL. FOR PRESS. LO		AIN (P1 TO	P5 LEVE	L)	47.00	+	23.8		7 PSI 7 PSI			0 FEET X 0.	.434	=	34.72 8	PSI PSI	
			OTAL LOS SES								_	PSI		WATER SOFTENER			=	25		
			ESIDUAL RV				<i>i</i> .					PSI PSI		FIXTURE OUT LET			=	30	PSI	
			OSSES:								20.0	n nei		SYSTEM LOS SES:						
			1 LEVEL								70.0			DEGIGN TRESOURE					1 01	
			RESS. GAIN AX. PRESS P5 LEVEL					55	х	0.434	_	7 PSI 7 PSI		DESIGN PRESSURE			_	35	PSI	
			RV STATION MIN. SET		(15)		i.					D PSI		MAX. SERVICE MAIN PRESSI	JRE		=	45	PSI	
			ONE 1 COLD WATER O			1 1			-	1	50.0	D PSI		MIN.SERVICE MAIN PRESSUR	RE		=	35	PSI	
															A 4-401			9537255	encountries.	

PLUMBING CALCULATIONS AND BOOSTER PUMP CURVE

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7 7

HAND SINK 3 COMP PO PREP SINK MOP SINK DUMP SINK SCRAP SIN	T SINK	4 1 1		1 6 2		4 6 2			
PREP SINK Mop Sink Dump Sink	T SINK	1		2		1987			
MOP SINK Dump sink						2			
DUMP SINK		1							
				3		3			
SCDAD SIMI		1		2		2			
SCRAL SIN	K	1		0		0			
PRE RINSE		1		2		2			
SINK		2		2		4			
WATER DIS	March 1	2		1	-	2			
ICE MACHII	7.	2		1	,	2			
ICE BIN TRE	TATACON CANADA MARCANA	2		0		0			
COFFEE MA	Vi attivita ili attivita di at	2		1		2			
JUICE DISPI		2		1		2	-		
ESPRESSO	MACHINE	2		1		2			
SODA GUN	MET 1	2		1		2			
HOT FOOD	ON THE STATE OF TH	1		1		1			
COLD FOOL		1		1		1			
STEAM TAI	()본그(보고)	1		1		1			
CONVECTION	ON OVEN	1		1		1			
CONTRACTOR AND A STATE OF THE S					-				
BAR									
				5.00		2.00			
HAND SINK	N2:	2		1		2			
ICE MACHII		2		1		2			
ICE BIN TRE	A CONTRACTOR OF THE PARTY OF TH	1		0		0			
DUMP SINK		1		2		2			
3 COMP BA	TOTAL MARKANINA	11		3		3			
GLASS WA	SHER	1		3		3			
SODA GUN	ours.	2		1		2			
COFFEE MA	The state of the s	2		1		2			
ESPRESSO		2		1		2			
JUICE DISP	West Company of the C	2		1		2			
SOAK SINK		1		2		2			
DIPPER WEI	LL.	1		1		1			
F1	COTALIE								
ru i URE Ri	ESTAURANT								
DECT	uT.								
RESTAURA	N I	2		50		100			
		TAT	Do Err						
		TOTAL BL	.DG. F.U.	=		2811.5			
						144 E W			
		GPM		=		423			
EOLUGIA-									
EQUIPMEN	II.			Į					
A STATE OF BRIDE	A OUTED	i alexandra				No. of the latest the			
	A STATE OF THE STA	3	X	57.6	=	172.8			
	N MELL				=	26.4			
60 LBS. WA		<u> </u>				240			
60 LBS. WA	OWER					24.0			
60 LBS. WA						10.0			
60 LBS. WA	OWER	T-0	Do			10.0			
60 LBS. WA	OWER	TOTAL BL	DG. GPM	=		1,000 and 100			
60 LBS. WA	OWER	The Best Code Some Section 1	- Commontagness Tourn			10.0 656			
60 LBS. WA COOLING T BOILER/ME	OWER CH MAKE-UP	TOTAL BL	- Commontagness Tourn	=		10.0			
60 LBS. WA COOLING T BOILER/ME	OWER CH MAKE-UP	SERVICE :	- Commontagness Tourn			10.0 656		656	GPM
60 LBS. WA COOLING T BOILER/ME BOILER/ME	OWER CH MAKE-UP MAND AD CALCULATION	SERVICE :	- Commontagness Tourn			10.0 656			
60 LBS. WA COOLING T BOILER/ME TOTAL DEM PUMP HEA LOW PRESS	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE	SERVICE :	- Commontagness Tourn			10.0 656			GPM PSI
60 LBS. WA COOLING T BOILER/ME TOTAL DEM PUMP HEA LOW PRESS	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION	SERVICE :	- Commontagness Tourn			10.0 656 6"		35	PSI
TOTAL DEMPUMP HEALOW PRESS	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL.	SERVICE :	- Commontagness Tourn		0	10.0 656	0.434	35 0	PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER	SERVICE !	SIZE		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW	SERVICE !	SIZE		0	10.0 656 6"	0.434	35 0 8	PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES:	SERVICE !	SIZE R		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I	SERVICE S	SIZE R TUBE		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I	PREVENTE COPPER 5.845	R TUBE I.D.		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEN PUMP HEALOW PRESS LOSSES TO PUMP @ PI WATER ME REDUCED P YARD MAII FRICTION L	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL	PREVENTE COPPER 5.845	SIZE R TUBE		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEN PUMP HEALOW PRESS LOSSES TO PUMP @ PI WATER ME REDUCED P YARD MAII FRICTION L	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I	PREVENTE COPPER 5.845 50	R TUBE I.D.		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PE WATER ME REDUCED P YARD MAII FRICTION L	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA	PREVENTE COPPER 5.845 50 4: 1.85	R TUBE I.D.		0	10.0 656 6"	0.434	35 0 8	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L HAZEN WIL	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA	SERVICE SERVIC	R TUBE I.D. FT.	=		10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA	SERVICE S PREVENTE C COPPER 5.845 50 4: 1.85 Q 4.87	R TUBE I.D.		0 X	10.0 656 6"	0.434 FT.	35 0 8	PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE 5.845 50 4.3 1.85 Q 4.87 d	R TUBE I.D. FT.	0.01667		10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.2 1.85 Q 4.87 d 656	R TUBE I.D. FT. = CAPACIT	0.01667	x	10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X x = =	SERVICE : PREVENTE COPPER 5.845 50 4.87 d 656 130	R TUBE I.D. FT. = CAPACIT' COEF, OF	0.01667 Y IN GPM ROUGHNE	x	10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X x = = = =	SERVICE S PREVENTE COPPER 5.845 50 4.2 1.85 Q 4.87 d 656	R TUBE I.D. FT. = CAPACIT' COEF, OF	0.01667 Y IN GPM ROUGHNE	x	10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X x = =	SERVICE : PREVENTE COPPER 5.845 50 4.87 d 656 130	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE	x	10.0 656 6"		35 0 8 5	PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA x = = N VELOCITY:	SERVICE : PREVENTE COPPER 5.845 50 4.87 d 656 130	R TUBE I.D. FT. = CAPACIT' COEF, OF	0.01667 Y IN GPM ROUGHNE	x SS IN INCHES	10.0 656 6"		0.83	PSI PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X x = = = =	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6"		0.83	PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE : PREVENTE COPPER 5.845 50 4.87 d 656 130	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE	x SS IN INCHES	10.0 656 6"		0.83 7.85	PSI PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: O SS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6"		0.83 7.85	PSI PSI PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PE WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA x = = N VELOCITY: = SSES AVAIL AT PUMP SI	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6"		0.83 7.85	PSI PSI PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE PUMP HEA	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X = = N VELOCITY: = SSES AVAIL AT PUMP SI AD REQUIRED:	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6"		7.85 13.83 21.17	PSI PSI PSI PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE PUMP MEA	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6"		7.85 13.83 21.17	PSI PSI PSI PSI PSI PSI PSI PSI PSI
TOTAL DEN PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C Q C d YARD MAII V TOTAL LOS PRESSURE PUMP HEA FIXTURE OU WATER SOI	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00	PSI PSI PSI PSI PSI PSI PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X = = N VELOCITY: = SSES AVAIL AT PUMP SI AD REQUIRED: DTLET FTENER	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF. OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6"		7.85 13.83 21.17 30.00 25.00 34.72	PSI PSI PSI PSI PSI PSI PSI PSI PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PE WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LLIAMS FORMULA X = = N VELOCITY: = SSES AVAIL AT PUMP SI AD REQUIRED: ITLET FTENER	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845	R TUBE I.D. FT. CAPACIT' COEF, OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER MEI REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS BOILER LOS BOILER LOS	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION	R TUBE I.D. FT. CAPACIT' COEF. OF INSIDE DIA	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00	PSI
TOTAL DEMPUMP HEALOW PRESS LOSSES TO PUMP @ PI WATER ME REDUCED PYARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEALOW WATER SOI STATIC PIPING LOS SUB-TOTAL	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS BOILER LOS BUB-TOTAL LESS PRES	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S E PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS BOILER LOS BUB-TOTAL LESS PRES	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S E PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER MEI REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LESS PRES TOTAL PU	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BAC KFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S ED:	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER MEI REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LESS PRES TOTAL PU	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S ED:	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55	PSI
TOTAL DEMPUMP HEAL LOSSES TO LA LOSSES LOSSES TO LA LOSSES LOSS	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S PED:	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q x (350'x4.0	= 0.01667 Y IN GPM ROUGHNE A. OF PIPE d	x SS IN INCHES	10.0 656 6" x	FT.	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PE WATER ME REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LES S PRESS TOTAL PU PRESS. AVA DOMESTIC	OWER CH MAKE-UP MAND AD CALCULATION SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: O SS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S E PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S ED: HARGE:	R TUBE I.D. FT. CAPACIT' COEF. OF INSIDE DIA Q X (350'x4.0	0.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES	10.0 656 6" x	0.434	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER MEI REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LESS PRES TOTAL PU PRESS. AVA DOMESTIC PUMP #1	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X = = N VELOCITY: = SSES AVAIL AT PUMP SI AD REQUIRED: UTLET FTENER SSES L: (TOTAL SYSTEM BURE AVAILABLE I MP HEAD REQUIR AIL. AT PUMP DISC COLD WATER BOO 219	SERVICE S PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S PED: CHARGE:	R TUBE I.D. FT. CAPACIT' COEF. OF INSIDE DIA Q x (350'x4.0) UCTION:	O.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES = 80 20 HP, 308	10.0 656 6" x	0.434 0.434	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PT WATER MET REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS SUB-TOTAL LESS PRESS TOTAL PU PRESS. AVA DOMESTIC PUMP #1 PUMP #2	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP SED: HARGE: STER PUM GPM @ GPM @ GPM @	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q X (350'x4.0 SUCTION: P SELECT 202 202	O.01667 Y IN GPM ROUGHNE A. OF PIPE d ION (BP-1) FT. TDH FT. TDH	x SS IN INCHES = 80 20 HP, 308 20 HP, 308	10.0 656 6" x	0.434 0.434 0V, 3PH., 60	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PT WATER MET REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS SUB-TOTAL LESS PRESS TOTAL PU PRESS. AVA DOMESTIC PUMP #1 PUMP #2	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S PED: CHARGE:	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q X (350'x4.0 SUCTION: P SELECT 202 202	O.01667 Y IN GPM ROUGHNE A. OF PIPE 2 d	x SS IN INCHES = 80 20 HP, 308 20 HP, 308	10.0 656 6" x	0.434 0.434	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ PT WATER MET REDUCED P YARD MAII FRICTION L 4.52 1.85 C Q C d YARD MAII V TOTAL LOS PRESSURE A PUMP HEA FIXTURE OU WATER SOI STATIC PIPING LOS SUB-TOTAL LESS PRESS TOTAL PU PRESS. AVA DOMESTIC PUMP #1 PUMP #2	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	PREVENTE COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP SED: HARGE: STER PUM GPM @ GPM @ GPM @	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q X (350'x4.0 SUCTION: P SELECT 202 202	O.01667 Y IN GPM ROUGHNE A. OF PIPE d ION (BP-1) FT. TDH FT. TDH	x SS IN INCHES = 80 20 HP, 308 20 HP, 308	10.0 656 6" x	0.434 0.434 0V, 3PH., 60	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L HAZEN WILL 4.52 1.85 C Q C d YARD MAII FRICTION L WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LESS PRESS TOTAL PU PRESS. AVA DOMESTIC PUMP #1 PUMP #2 PUMP #3	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE O PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X	SERVICE S E PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S ED: HARGE: STER PUM GPM @ GPM @ GPM @ GPM @	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q X (350'x4.0 SUCTION: P SELECT 202 202	O.01667 Y IN GPM ROUGHNE A. OF PIPE d ION (BP-1) FT. TDH FT. TDH	x SS IN INCHES = 80 20 HP, 308 20 HP, 308	10.0 656 6" x	0.434 0.434 0V, 3PH., 60	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI
TOTAL DEM PUMP HEA LOW PRESS LOSSES TO PUMP @ P1 WATER ME REDUCED P YARD MAII FRICTION L HAZEN WILL 4.52 1.85 C Q C d YARD MAII FRICTION L WATER SOI STATIC PIPING LOS BOILER LOS SUB-TOTAL LESS PRESS TOTAL PU PRESS. AVA DOMESTIC PUMP #1 PUMP #2 PUMP #3	OWER CH MAKE-UP MAND AD CALCULATION. SURE AVAILABLE D PUMP SUCTION I LVL. TER RESS. BACKFLOW N LOSSES: OSS FOR 6" TYPE I 6" PIPE TDL LIAMS FORMULA X = = N VELOCITY: = SSES AVAIL AT PUMP SI STENER SURE AVAILABLE MP HEAD REQUIR AIL. AT PUMP DISC COLD WATER BOO 219 219 219	SERVICE S E PREVENTE (COPPER 5.845 50 4.87 d 656 130 5.845 2.447 UCTION PRESS.) AT PUMP S ED: HARGE: STER PUM GPM @ GPM @ GPM @ GPM @	R TUBE I.D. FT. CAPACIT COEF. OF INSIDE DIA Q X (350'x4.0 SUCTION: P SELECT 202 202	O.01667 Y IN GPM ROUGHNE A. OF PIPE d ION (BP-1) FT. TDH FT. TDH	x SS IN INCHES = 80 20 HP, 308 20 HP, 308	10.0 656 6" x	0.434 0.434 0V, 3PH., 60	7.85 13.83 21.17 30.00 25.00 34.72 14.00 5.00 108.72 21.17 87.55 202.25 108.72	PSI

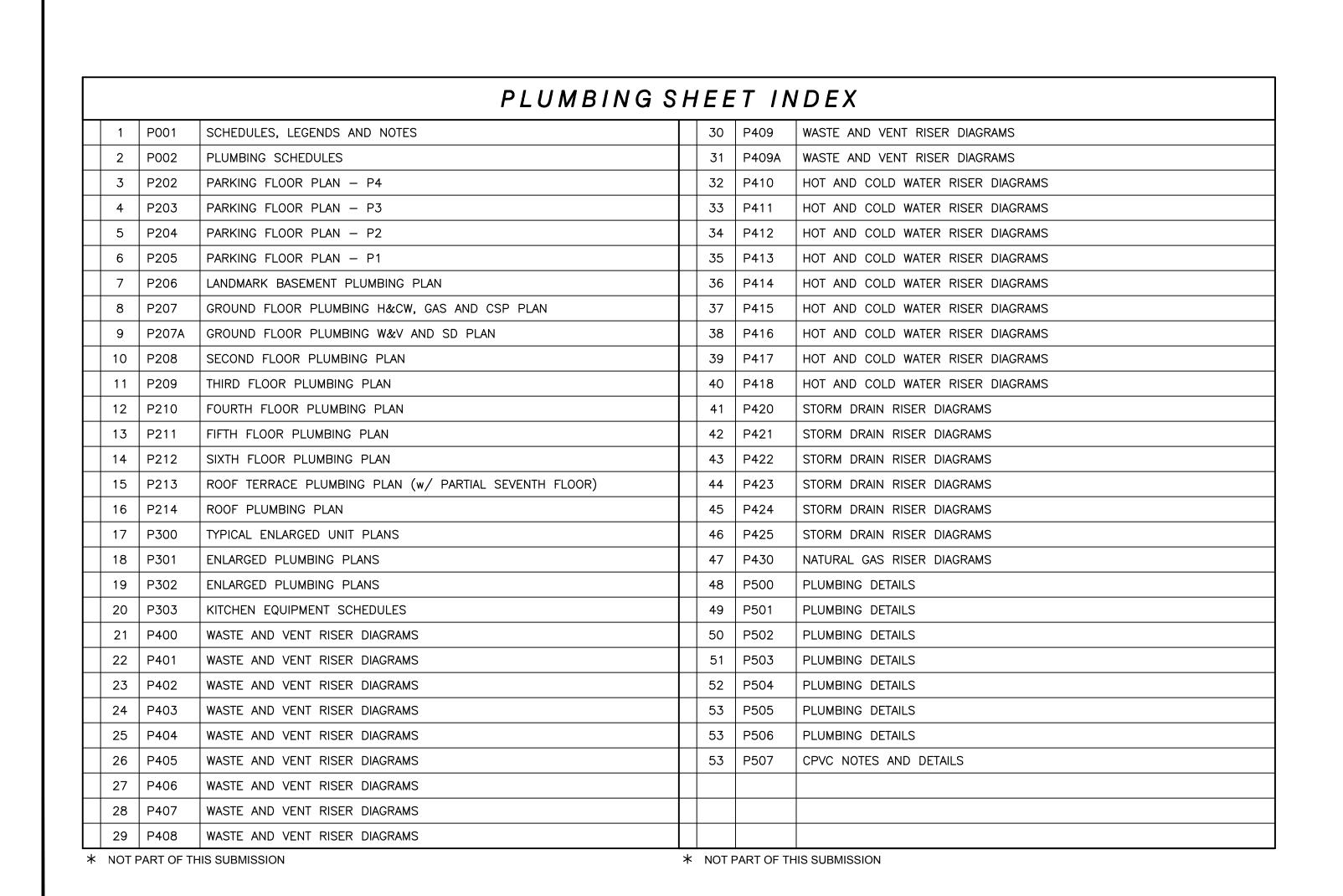
SYMBOL	ABBREV.	DESCRIPTION
	S OR W	SOIL OR WASTE ABOVE GRADE OR FLOOR
	S OR W	SOIL OR WASTE BELOW GRADE OR FLOOR
SD	SD	STORM DRAIN ABOVE GRADE OR FLOOR
— —SD— —	SD	STORM DRAIN BELOW GRADE OR FLOOR
OD	OD	OVERFLOW STORM DRAIN ABOVE GRADE OR FLOOR
— OD — —	OD	OVERFLOW STORM DRAIN BELOW GRADE OR FLOOR
— — PD — —	PD	PERIMETER DRAIN BELOW GRADE OR FLOOR
——SSD——	SSD	SUBSOIL DRAINAGE BELOW GRADE OR FLOOR
		PARKING GARAGE EMERGENY DRAIN
——ED——	ED	ABOVE GRADE OR FLOOR PARKING GARAGE EMERGENY DRAIN
— —ED— —	ED	BELOW GRADE OR FLOOR
GW	GW	GREASE WASTE ABOVE GRADE OR FLOOR
—— GW——	GW	GREASE WASTE BELOW GRADE OR FLOOR
	V	VENT
	CW	COLD WATER
PCW	PCW	PUMPED COLD WATER
ICW	ICW	INDUSTRIAL COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RETURN
	G	GAS
—— MPG ——	MPG	MEDIUM PRESSURE GAS
D	D	INDIRECT DRAIN
——CD——	CD	CONDENSATE
———TW———	TW	TEMPERED WATER
IRR-	IRR	IRRIGATION
CSP	CSP	COMBINATION SPRINKLER/STANDPIPE
——————————————————————————————————————	SPR	SPRINKLER
——F——	F	FIRE SERVICE
•	POC	POINT OF CONNECTION
		ANCHOR
<u> </u>	BC	BALANCING VALVE OR COCK
	BFV	BUTTERFLY VALVE
''' 	BV	BALL VALVE
	CHV	CHECK VALVE
<u> </u>	CO/FCO/WCO	CLEANOUT/FLOOR CLEANOUT/WALL CLEANOUT
X	CV	CONTROL VALVE
	FC	FLEXIBLE CONNECTOR
\longrightarrow	GV/SOV	GATE VALVE OR SHUT-OFF VALVE
	OS & Y	OUTSIDE SCREW & YOKE GATE VALVE
	PC	PLUG COCK
	PRV	PRESSURE REDUCING VALVE
<u> </u>	PG	PRESSURE GAGE
PS	PS	PRESSURE SWITCH
	RPBP	REDUCED PRESSURE
—————————————————————————————————————		BACKFLOW PREVENTER
<u> </u>	RV	SAFETY OR RELIEF VALVE
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	STR.	STRAINER
	SV	SOLENOID VALVE
Щ	TH	THERMOMETER
	TS	TEMPERATURE SWITCH
	U	UNION
	WHA	WATER HAMMER ARRESTOR
	FS	FLOOR SINK WITH GRATE AS SHOWN
	FD	FLOOR DRAIN
	_	
	IWR	INDIRECT WASTE RECEPTOR

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<u>CONSULTANTS</u>

June 25, 2013

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