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ALLEN/COOK CONSTRUCTION

Fluor Daniel

Titan Mechanical, Inc.
Design-Build Engineering - Mechanical Contracting

UNIVERSITY OF NEW ENGLAND

COLLEGE OF PHARMACY

716 STEVENS AVENUE,
PORTLAND, ME

DATE DESCRIPTION

BID SET

Date Issued 01/08/08

Project Number 06506

SHEET NAME
PLUMBING LEGEND,
SCHEDULE &
NOTES

Drawn By SMS

Checked By DWM

PO.1

PLUMBING SYMBOL LEGEND

	THERMOMETER
	PRESSURE GAUGE WITH PETCOCK
	WATER HAMMER ARRESTER WITH SHUTOFF VALVE
	STRAINER - "Y" TYPE
	P-TRAP
	ROOF DRAIN
	FLOOR DRAIN
	FLOOR SINK
	SHOWER HEAD
	TRAP PRIMER (REFER TO SPECIFICATIONS FOR TYPE)
	UNION
	PETCOCK
	BALANCING VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CURB GATE VALVE & BOX
	BACKWATER VALVE
	CHECK VALVE
	BACKFLOW PREVENTER (DOUBLE CHECK VALVE TYPE)
	BACKFLOW PREVENTER ASSEMBLY (RPD) WITH SHUTOFF VALVES
	THERMOSTATIC MIXING VALVE
	SOLENOID VALVE
	SHUTOFF VALVE (REFER TO SPECIFICATIONS FOR TYPE)
	GAS VALVE
	OS&Y GATE VALVE
	VALVE IN PIPE DROP
	VALVE IN PIPE RISER
	ANGLE VALVE
	WALL HYDRANT (WH) OR HOSE BIBB (HB)
	PRESSURE REDUCING VALVE (* = PSI SETTING)
	GAS PRESSURE REGULATOR
	DRAIN
	TEMPERATURE & PRESSURE RELIEF VALVE (T&P)
	WATER METER
	GAS METER
	CONNECT TO EXISTING
	FIXTURE TYPE (REFER TO SPECIFICATIONS FOR TYPE)
	EMERGENCY SHOWER/EYEWASH
	PUMP
	ADA ACCESSIBLE FIXTURE
	OVERFLOW STORM - WALL OUTLET
	EMERGENCY GAS REMOTE PUSH BUTTON

PLUMBING PIPING LEGEND

	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATION
	HOT WATER 150° F
	HOT WATER RECIRCULATION 150° F
	TEMPERED OR TEPID WATER
	TEMPERED OR TEPID WATER RECIRCULATION
	NON-POTABLE COLD WATER
	NON-POTABLE HOT WATER
	NON-POTABLE HOT WATER RECIRCULATION
	WASTE OR SANITARY
	WASTE OR SANITARY BURIED
	ACID WASTE
	ACID WASTE BURIED
	STORM
	STORM BURIED
	OVERFLOW STORM
	VENT
	ACID VENT
	VAPOR VENT
	GREASE WASTE
	GREASE WASTE BURIED
	CONDENSATE WASTE
	CONDENSATE WASTE - PUMP DISCHARGE
	INDIRECT WASTE
	PUMPED DISCHARGE
	GAS (NATURAL)
	LIQUEFIED PETROLEUM GAS
	HIGH PRESSURE GAS
	GAS VENT
	DIRECTION OF FLOW
	REMOVE EXISTING PIPING OR EQUIPMENT
	EXISTING PIPING OR EQUIPMENT
	COMPRESSED AIR
	HIGH PRESSURE COMPRESSED AIR
	PIPE DOWN
	PIPE DROP
	PIPE RISE
	PIPE ANCHOR
	PIPE GUIDE OR SLEEVE
	PIPE EXPANSION FITTING
	VIBRATION ISOLATION FITTING
	PLUGGED OR CAPPED PIPE
	CLEANOUT PLUG (WITH FINISHED PLATE FOR W/O)
	FLOOR CLEANOUT
	RUNNING TRAP
	HEAT TRACE CABLE
	TEMPERATURE MAINTENANCE CABLE

PLUMBING LABORATORY LEGEND

	ACID WASTE
	ACID WASTE BURIED
	ACID VENT
	GAS (NATURAL)
	LIQUEFIED PETROLEUM GAS
	HIGH PRESSURE GAS
	DEIONIZED WATER
	DEIONIZED WATER RECIRCULATION
	REVERSE OSMOSIS WATER
	REVERSE OSMOSIS WATER RECIRCULATION
	LABORATORY COLD WATER
	LABORATORY HOT WATER
	LABORATORY HOT WATER RECIRCULATION
	TEMPERED OR TEPID HOT WATER
	TEMPERED OR TEPID HOT WATER RECIRCULATION
	COMPRESSED AIR
	LABORATORY AIR
	CLEAN COMPRESSED AIR
	LABORATORY AIR OUTLET
	LABORATORY VACUUM OUTLET

LEGEND NOTE

THESE ARE THE GENERAL LEGENDS OF SYMBOLS AND ABBREVIATIONS, AND SHALL BE USED AS A DICTIONARY TO DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS DEFINED ARE NECESSARILY USED ON THIS PROJECT.

PLUMBING FIXTURE CONNECTION SCHEDULE

FIXTURE TYPE	HOT WATER	COLD WATER	WASTE OR SAN	VENT
WATER CLOSET (FLUSH VALVE)	---	1"	4"	2"
WATER CLOSET (TANK TYPE)	---	1/2"	3"	2"
URINAL	---	3/4"	2"	1 1/2"
LAVATORY	1/2"	1/2"	1 1/2"	1 1/2"
JANITOR MOP BASIN	1/2"	1/2"	3"	1 1/2"
JANITOR SINK	1/2"	1/2"	3"	1 1/2"
SHOWER	1/2"	1/2"	2"	1 1/2"
BATH/SHOWER	1/2"	1/2"	2"	1 1/2"
SINK	1/2"	1/2"	1 1/2"	1 1/2"
ELECTRIC WATER COOLER	---	---	1 1/2"	1 1/2"
ELECTRIC WATER COOLER (DOUBLE STATION)	---	(2) 1/2"	(2) 1 1/2"	(2) 1 1/2"
DRINKING FOUNTAIN	---	1/2"	1 1/2"	1 1/2"
CLOTHES WASHER	1/2"	1/2"	2" STANDPIPE	1 1/2"
EMERGENCY SHOWER & EYE/FACE WASH	1 1/4" (NOTE 4)	---	---	---
EMERGENCY EYE/FACE WASH	1/2" (NOTE 4)	---	1 1/2"	1 1/2"
EMERGENCY SHOWER	1 1/4" (NOTE 4)	---	---	---
EMERGENCY HAND HELD EYEWASH	1/2" (NOTE 4)	---	---	---
LABORATORY CUP SINK	---	1/2" (NOTE 5)	1 1/2" (NOTE 6)	1 1/2" (NOTE 6)
LABORATORY COUNTER SINK	1/2" (NOTE 5)	1/2" (NOTE 5)	1 1/2" (NOTE 6)	1 1/2" (NOTE 6)
LABORATORY OR KITCHEN HAND SINK	1/2"	1/2"	1 1/2"	1 1/2"
GLASS WASHER	1/2" (NOTE 7)	1/2" (NOTE 7)	2" (NOTE 6)	1 1/2" (NOTE 6)

NOTE:
 1 - FOR KITCHEN EQUIPMENT CONNECTION REQUIREMENTS REFER TO KITCHEN DESIGN DRAWINGS.
 2 - FOR PHOTO LABORATORY AND SCIENCE LABS EQUIPMENT CONNECTION REQUIREMENTS, REFER TO ARCH DRAWINGS AND SPECIFICATIONS.
 3 - SEE ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE MOUNTING HEIGHTS.
 4 - WATER TEMPERATURE SHALL BE 85°F.
 5 - NON-POTABLE WATER SOURCE.
 6 - ACID PROOF MATERIAL.
 7 - PURE WATER SOURCE WHEN REQUIRED ON PLANS.
 8 - SEE LABORATORY EQUIPMENT SPECIFICATIONS & DRAWINGS FOR ADDITIONAL INFORMATION & REQUIREMENTS.

PLUMBING GENERAL NOTES

- THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:
- THESE GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
 - DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND COORDINATION OF CONTRACTUAL WORK FOR OPERATIONS AND CONNECTIONS TO OTHER SYSTEMS.
 - WHEN COMMERCIAL TYPE KITCHENS OCCUR, INSTALL KITCHEN EQUIPMENT PLUMBING ACCESSORIES FURNISHED BY KITCHEN EQUIPMENT CONTRACT, INCLUDING BUT NOT LIMITED TO: FAUCETS, VACUUM BREAKERS, SOLENOIDS, PRESSURE REDUCING VALVES, GAS SUPPLY HOSES, DRAINS, SINK TAILPIECES, AND OTHER TRIM SUPPLIED WITH EQUIPMENT. REVIEW THE KITCHEN DESIGN DOCUMENTS AND SPECIFICATIONS AS PART OF THIS CONTRACT FOR ADDITIONAL WORK AND COORDINATION REQUIRED.
 - WHEN LABORATORIES OCCUR, INSTALL LABORATORY EQUIPMENT AND ACCESSORIES INCLUDING BUT NOT LIMITED TO: SINKS, FAUCETS, TRAPS, TAILPIECES, DRAINS, GAS COCKS, EMERGENCY SAFETY EQUIPMENT, VACUUM BREAKERS, AND ALL PLUMBING TRIM SUPPLIED WITH LABORATORY EQUIPMENT OR CASEWORK. REVIEW THE LABORATORY DESIGN DOCUMENTS AND SPECIFICATIONS AS PART OF THIS CONTRACT FOR ADDITIONAL WORK AND COORDINATION REQUIRED.
 - PROVIDE ALL SERVICES TO HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO: GAS SUPPLY PIPING, CONDENSATE PIPING, COLD WATER SUPPLY PIPING, DRAINS, AND CONNECTIONS TO AIR HANDLING UNITS, FAN COIL UNITS, UNIT HEATERS, BOILERS, CHILLERS, ETC. ALSO, PROVIDE ADDITIONAL DEVICES INCLUDING BUT NOT LIMITED TO: BACKFLOW PREVENTERS, REGULATORS, UNIONS, TRAPS, AND SHUT-OFF VALVES REQUIRED FOR AFOREMENTIONED EQUIPMENT. REFER TO HVAC DRAWINGS FOR ADDITIONAL INFORMATION AND COORDINATION.
 - PROVIDE PIPE EXPANSION JOINTS AND APPROVED SEISMIC LOOPS ON PIPING PASSING THRU ALL BUILDING EXPANSION JOINT AND SEISMIC JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS. REVIEW ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT BUILDING EXPANSION AND SEISMIC JOINT LOCATIONS AND EXPANSION DIMENSIONS.
 - REFER TO SITE PLAN AND CIVIL ENGINEER'S DOCUMENTS FOR ADDITIONAL INFORMATION PERTAINING TO COORDINATION OF SITE UTILITIES, BOTH EXISTING AND NEW.
 - IN RENOVATION WORK, COORDINATE SYSTEMS SHUTDOWN WITH OWNER IN ORDER TO MAKE NEW PIPING CONNECTIONS. ALLOW MINIMUM OF TEN (10) DAYS ADVANCE NOTICE FOR OWNER APPROVAL TO PROCEED WITH CONTRACT WORK.

WATER PRESSURE CALCULATION

FIXTURE	QTY	FU	TOTAL	GPM
WATER CLOSET	18	10	180	
URINAL	7	5	45	
LAVATORY	18	1	18	
SHOWER	2	2	4	
SINK	40	2	80	
KITCHEN SINK	4	1.5	6	
SERVICE SINK	6	3	18	
DRINKING FOUNTAIN	4	5	20	
CLOTHES WASHER	1	3	3	
DISHWASHER	7	6	42	
ICE MAKER	2	0.5	1	
COFFEE MAKER	3	0.5	1.5	
CAGE WASHER	1	175	175	
LARGE STERILIZER	1	127	127	
STERILIZER	1	24	24	
FUME HOOD	4	2	8	
HOSE BIBB	1	2.5	2.5	
ADD HOSE BIBB	3	1	3	
WASH DOWN STATIONS	4	3	12	
954.5 FU = 205 GPM				
REAGENT GRADE III GENERATION EQUIPMENT			10 GPM	
HVAC MAKE-UP			10 GPM	
HVAC HUMIDIFIER MAKE-UP			2 GPM	
227 GPM				

STATIC LOSS TO HEIGHT (65' X .4335)	28.18 PSI
RESIDUAL THRU FLUSH VALVE	25 PSI
PRESSURE LOSS THRU METER	4 PSI
OTHER LOSSES	8 PSI
TOTAL PRESSURE LOSS	65.18 PSI
STATIC GAIN	13 PSI
PRESSURE AVAILABLE FOR FRICTION	8 PSI
TOTAL PIPE LENGTH (+15% FOR FITTINGS)	250 FT
AVAILABLE FRICTION /100 FEET	3.13 PSI / 100'

PLUMBING ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR	MEP	MECHANICAL, ELECTRICAL & PLUMBING
AD	AREAWAY DRAIN	MGAAP	MEDICAL GAS AREA ALARM PANEL
AFB	ABOVE FINISHED FLOOR	MGC	MASTER GAS CONTROL
AFG	ABOVE FINISHED GRADE	MGLAC	MEDICAL GAS LOCAL ALARM PANEL
AHU	AIR HANDLING UNIT	MGMAP	MEDICAL GAS MASTER ALARM PANEL
AN	ACID NEUTRALIZATION TANK	MGV	MEDICAL GAS VALVE BOX
AV	ACID VENT	MV	MEDICAL VACUUM
AVTR	ACID VENT THRU ROOF	N	NITROGEN
AW	ACID WASTE	NIC	NOT IN CONTRACT
BFP	BACKFLOW PREVENTER DEVICE	NC	NORMALLY CLOSED
BOP	BOTTOM OF PIPE	NO	NORMALLY OPEN
BOS	BOTTOM OF STEEL	NP	NON-POTABLE WATER
BGF	BOTTOM OF FOOTING	OX	OXYGEN
BTU	BRITISH THERMAL UNIT	ORD	OVERFLOW ROOF DRAIN
BWV	BACKWATER VALVE	OVS	OVERFLOW STORM
CFH	CUBIC FEET PER HOUR	OWO	OVERFLOW WALL OUTLET (STORM)
CO	CLEANOUT	P	PITCH
COND	CONDENSATE	PD	PUMPED DISCHARGE
CTE	CONNECT TO EXISTING	PRV	PRESSURE REDUCING VALVE
CV	CHECK VALVE	PSI	POUNDS PER SQUARE INCH
CW	COLD WATER	RD	ROOF DRAIN
DF	DRINKING FOUNTAIN	RO	REVERSE OSMOSIS WATER
DFU	DRAINAGE FIXTURE UNITS	RPD	REDUCED PRESSURE BACKFLOW PREVENTER
DI	DEIONIZED WATER	RT	RUNNING TRAP
DIR	DEIONIZED WATER RECIRCULATION	RTU	ROOF TOP UNIT
DIST	DISTILLED WATER	RWC	RAIN WATER CONDUCTOR
DN	DOWN	S	SOL
EL	ELEVATION	SAN	SANITARY
EOSC	EMERGENCY OXYGEN SUPPLY CONNECTION	SF, SQ FT	SQUARE FEET
EWC	ELECTRIC WATER COOLER	SFU	SUPPLY FIXTURE UNITS
EW	ELECTRIC WATER HEATER	SI	SOLIDS INTERCEPTOR
EX	EXISTING	SP	SUMP PUMP/SEWAGE PUMP
EXP	EXPANSION TANK	SS	SOIL STACK
FCO	FLOOR CLEANOUT	ST	STORM
FCU	FAN COIL UNIT	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
FD	FLOOR DRAIN	TD	TRENCH DRAIN
FS	FLOOR SINK	TOF	TOP OF FOOTING
G	GAS (NATURAL)	TP	TRAP PRIMER
GI	GREASE INTERCEPTOR	TMV	THERMOSTATIC MIXING VALVE
GPM	GALLONS PER MINUTE	TW	TEMPERED OR TEPID WATER
GRU	GREASE RECOVERY UNIT	TWR	TEMPERED OR TEPID WATER RECIRCULATION
GSV	GAS SOLENOID VALVE	TYP	TYPICAL
GT	GREASE TRAP	UH	UNIT HEATER
GV	GAS VENT	UR	URINAL
GW	GREASE WASTE	V	VENT
HB	HOSE BIBB	VB	VACUUM BREAKER
HC	HANDICAPPED ACCESSIBLE	VIF	VERIFY IN FIELD
HW	HOT WATER	VS	VENT STACK
HWR	HOT WATER RECIRCULATION	VTR	VENT THRU ROOF
INV	INVERT	V V	VAPOR VENT
IW	INDIRECT WASTE	W	WASTE
KW	KILOWATT	W&T	WASTE & TRAP
LA	LABORATORY AIR	W&V	WASTE & VENT
LAV	LAVATORY	WC	WATER CLOSET
LF	LINEAR FEET	WCO	WALL CLEANOUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT
LV	LABORATORY VACUUM	WHA	WATER HAMMER ARRESTER
MA	MEDICAL AIR	WS	WASTE STACK
MBH	THOUSAND B.T.U. PER HOUR	YH	YARD HYDRANT
MEDGAS, MGI	MEDICAL GAS		

AIR COMPRESSOR SCHEDULE

MARK	SERVICE	VOLTAGE	SCFM	DEW POINT	RECEIVER	OPER. WT. (LB.)	REMARKS
AC-1	LABORATORY AIR	460	60	3	30 TOTAL	-40°F	120 GALLON ? 2 (EA) 5 HP OIL LESS SCROLLS PACKAGED WITH DRYER

VACUUM PUMP SCHEDULE

MARK	SERVICE	VOLTAGE	SCFM @ 19" HG	RECEIVER	OPER. WT. (LB.)	REMARKS	
VAC-1	LABORATORY VACUUM	460	60	3	17.0 EA	120 GALLON ?	ROTARY VANE DUPLEX UNIT

GAS PRESSURE REGULATOR SCHEDULE

MARK	SERVICE	CAPACITY	INLET PRESSURE	OUTLET PRESSURE	ORRIFICE SIZE	SPRING COLOR	REMARKS
GPR-1	NATURAL GAS	8842	5.5 PSI	7" w.c.	1"	ORANGE	

BID SET - NOT FOR CONSTRUCTION