

PLUMBING FIXTURE SCHEDULE						
	FITTING			TRAD MTD.	DEMARKS	
TYPE	MANUFACTURER	TYPE	SUPPLY	IKAP	H/C	REWARNS
AB OUTLET VACUUM (DOUBLE) 90°	CHICAGO 987-909-VCP WITHOUT SHANK	WALL- MOUNTED	<sup>3</sup> ⁄8"	N/A	-	INDEXED FOR VACUUM
AB OUTLET NITROGEN (DOUBLE)	CHICAGO 987-909-VCP	WALL- MOUNTED	3⁄8"	N/A	-	INDEXED FOR NITROGEN
LAB OUTLET CO2 (DOUBLE)	CHICAGO 987-909-VCP WITHOUT SHANK	WALL- MOUNTED	<sup>3</sup> ⁄8"	N/A	-	INDEXED FOR CO2
AB OUTLET OXYGEN (DOUBLE)	CHICAGO 937-903-VCP WITHOUT SHANK	WALL- MOUNTED	<sup>3</sup> ⁄8"	N/A	-	INDEXED FOR OXYGEN
LAB OUTLET CA (DOUBLE)	CHICAGO 937-903-VCP WITHOUT SHANK	WALL- MOUNTED	<sup>3</sup> ⁄8"	N/A	-	INDEXED FOR COMPRESSED AIR
ECESSED SAFETY STATON WITH EYE/FACE WASH AND SHOWER	-	-	-	-	-	FURNISH WITH ELECTRIC LIGHT AND ALARM HORN & G3800LF THERMOSTATIC MIXING VALVE
LAB SINK	CHICAGO 930-317-SAM FAUCET	DECK MOUNTED	1⁄2"	N/A	Y	FURNISH WITH CHICAGO838-CP, PURE WATER FAUCET FOR RO/DI DECK MOUNTED TYGON LINED
REGULATOR	-	-	-	-	-	PROVIDE AT EACH GAS BRANCH UNDER COUNTER PRIOR TO OUTLETS. 316L VAR SS, 200 PSIG OUTLET, $\frac{1}{2}$ "F SWIVEL, 1000 PSIG INLET, W/ (2) $\frac{1}{4}$ "GAUGES - IN & OUT
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# LEGEND

SYMBOL			
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NDCW			
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CO2			
LVAC			
RODS			
RODR			

ABBR.	DESCRIPTION
	PIPING ON FLOOR BELOW
ETR	EXISTING TO REMAIN
ETBR	EXISTING TO BE REMOVED
CTE	PIPE CONNECT TO EXISTING
BV	BALL VALVE
DV	DRAIN VALVE
	BUTTERFLY VALVE
TMV	THERMOSTATIC MIXING VALVE
VIV	VALVE IN VERTICAL
TP	TRAP PRIMER
FD	FLOOR DRAIN
FS	FLOOR DRAIN SQUARE
W&T	WASTE AND TRAP
HBVB	HOSE BIBB w/ VACUUM BREAKER
	PIPE UNION
	PIPE CAP OR PLUG
	PIPE CONTINUATION
	PIPE UP THROUGH SLAB ABOVE
	PIPE DOWN THROUGH FLOOR SHOWN
	PIPE RISE/DROP
SA	SHOCK ABSORBER
CO	CLEANOUT
FCO	FLUSH FLOOR CLEANOUT
WCO	WALL CLEANOUT
S	SOIL PIPING
V	VENT PIPING
LW	LAB WASTE PIPING
LV	LAB VENT PIPING
TP	TRAP PRIMER PIPING
CW	DOMESTIC COLD WATER PIPING
HW	DOMESTIC HOT WATER PIPING
NDCW	NON-DOMESTIC COLD WATER PIPING
NDHW	NON-DOMESTIC HOT WATER PIPING
CA	COMPRESSED AIR PIPING
OX	OXYGEN PIPING
Ν	NITROGEN PIPING
CO2	CARBON DIOXIDE PIPING
LVAC	LABORATORY VACUUM PIPING
RO/DIS	REVERSE OSMOSIS/DEIONIZED WATER SUPPLY PIPING
RO/DIR	
TWS	
BOP	
BOI	BOTTOM OF TRAP
BOB	
CCMS	CUT CAP & MAKE SAFE
ETBR&R	EXISTING TO BE REMOVED & RELOCATED
BWV	BACK WATER VALVE
IW	INDIRECT WASTE
	ETBR LAB SINK
SK	NEW LAB SINK (BY OTHERS)

Biogen CAMBRIDGE, MA **BUILDING 8 - 2nd FLOOR** MS / TRAINING LABS ARCHITECTS Imai Keller Moore Architects 70 Phillips Street Watertown, MA 02472 (617.923.6010) MEP/FP RW Sullivan Engineering 529 Main Street #203 Boston, MA 02129 (617.523.8227) #140641.00 PAULD MECHANICAL No. 42798 Professional Seal Arch. Proj. #: 21473 Drawn By: KPZ/ BAK Issue Date: MAY 29, 2015 NONE P0.0

# PLUMBING LEGEND, SCHEDULES & **GENERAL NOTES**

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# SECTION 15400 - PLUMBING

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. GENERAL CONDITIONS AND SPECIAL CONDITIONS APPLY TO THIS SECTION. 1.02 WORK INCLUDED

- A. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATION CONSISTS OF FURNISHING ALL MATERIALS, LABOR, SUPERVISION, EQUIPMENT AND APPURTENANCES, TOOLS, PERMITS, AND SERVICE TO PERFORM ALL PLUMBING WORK, COMPLETE AND PLACE INTO APPROVED OPERATING CONDITIONS, INCLUDING ALL TESTS AND ADJUSTMENTS IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS AND APPLICABLE DRAWINGS.
- B. THE PRINCIPAL WORK UNDER THIS SECTION SHALL INCLUDE, BUT WILL NOT BE LIMITED TO, THE FOLLOWING MAJOR ITEMS:
- 1. OXYGEN, NITROGEN, CARBON DIOXIDE, VACUUM, WATER PIPES, RO/DI & COMPRESSED AIR PIPING.
- 2. LAB WASTE & VENT PIPING.
- 3. VALVES, LAB GAS OUTLETS, EMERGENCY SHOWER & EYEWASH, SINKS & FAUCETS.
- 4. HANGERS, SUPPORTS AND SLEEVES.
- 5. FINAL CONNECTIONS TO LAB EQUIPMENT
- 6. COORDINATION
- C. RELATED WORK: THE FOLLOWING WORK IS NOT INCLUDED IN THIS SECTION AND IS TO BE PERFORMED UNDER THE DESIGNATED SECTIONS:
- 1. FIRE PROTECTION WORK.
- 2. HEATING, VENTILATION AND AIR CONDITIONING WORK ...
- 3. ELECTRICAL WORK. 4. CUTTING AND PATCHING.
- 1.03 SUBMITTALS
- A. SUBMIT COMPLETE SHOP DRAWINGS IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL CONDITIONS. SHOP DRAWINGS SHALL INCLUDE EQUIPMENT, PIPING, VALVES, HANGERS, SUPPORTS, INSULATION AND PLUMBING FIXTURES. B. SUBMIT SAMPLES IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL
- CONDITIONS.
- 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
- A. THE PLUMBING SUBCONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK UNTIL ITS COMPLETION AND FINAL ACCEPTANCE AND REPLACE ANY WORK OR MATERIALS THAT HAVE BEEN DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
- B. MATERIALS AND FIXTURES SHALL BE PROPERLY PROTECTED AGAINST THEFT AND DAMAGE.
- 1.05 JOB CONDITIONS
- A. THE PLUMBING SUBCONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK AND SHALL FULLY ACQUAINT HIMSELF WITH THE CONDITIONS, CHARACTER AND EXTENT OF WORK REQUIRED.
- 1.06 GUARANTEE
- A. SUBMIT ALL GUARANTEES IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL CONDITIONS.
- 1.07 RECORD DRAWINGS
- A. PREPARE AND SUBMIT RECORD DRAWINGS IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL CONDITIONS.
- 1.08 CODES, ORDINANCES AND PERMITS
- A. ALL WORK AND MATERIALS ARE TO COMPLY IN EVERY RESPECT WITH THE LOCAL BUILDING LAWS AND MASSACHUSETTS STATE PLUMBING CODE, AND SUCH APPLICABLE BUILDING LAWS AND REGULATIONS ARE TO BE CONSIDERED AS PART OF THESE SPECIFICATIONS.
- B. THE PLUMBING SUBCONTRACTOR IS TO GIVE ALL REQUISITE NOTICES, FILE ALL REQUISITE PLANS RELATING TO HIS WORK WITH THE PROPER AUTHORITIES AND IS TO SECURE ALL PERMITS AND PAY ALL FEES FOR SAME. IF ANY WORK IS PERFORMED AND CHANGES ARE NECESSARY TO CONFORM TO THE ORDINANCES, THESE CHANGES SHALL BE MADE AT THE PLUMBING SUBCONTRACTOR'S EXPENSE.
- C. THE DRAWINGS AND SPECIFICATIONS SHALL BE FOLLOWED WHEN IN EXCESS 2 PART 2 PRODUCTS OF THE MINIMUM REQUIREMENTS OF THE CODE.
- 1.09 DRAWINGS AND SPECIFICATIONS
- A. THE DRAWINGS AND THESE SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER, AND ANY LABOR OR MATERIALS CALLED FOR BY EITHER, WHETHER OR NOT BY BOTH, SHALL BE FURNISHED AND INSTALLED BY THIS SUBCONTRACTOR.
- B. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE VARIOUS SYSTEMS AND PIPING. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, DEVICES AND ACCESSORIES WHICH MAY BE REQUIRED. THE PLUMBING SUBCONTRACTOR SHALL EXAMINE THE ENTIRE SET OF CONTRACT DRAWINGS AND CAREFULLY INVESTIGATE THE STRUCTURE AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY FOR THE COMPLETE SATISFACTORY OPERATION OF ALL SYSTEMS PROVIDING SUCH FITTINGS, VALVES, DEVICES AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE AND TO THE SATISFACTION OF THE ARCHITECT AND OWNER AT NO ADDITIONAL COST TO EITHER.

- 1.10 COORDINATION OF TRADES
- A. THE PLUMBING SUBCONTRACTOR SHALL PROVIDE COORDINATION I AS REQUIRED BY THE CONTRACTOR.
- 1.11 OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL
  - A. INSTRUCT TO THE OWNER'S SATISFACTION SUCH PERSONS AS THE DESIGNATES, IN THE PROPER OPERATION AND MAINTENANCE OF T AND THEIR PARTS.
  - B. THIS SUBCONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APP THREE (3) SETS OF OPERATING AND INSTRUCTIONAL MANUALS, SPA LISTS, DRAWINGS, MANUFACTURER'S BULLETINS AND OTHER PERTI OF ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT. EACH SET ENCLOSED IN A SUITABLE HARD COVER BINDER.
- C. PROVIDE NAME, ADDRESS AND TELEPHONE NUMBERS OF THE
- MANUFACTURER'S REPRESENTATIVE AND SERVICE COMPANY FOR I SO THAT SERVICE PARTS CAN BE READILY OBTAINED.
- 1.12 CLEANUP
- A. AFTER COMPLETION OF THE WORK, ALL TOOLS AND OTHER EQUIPM BE REMOVED FROM THE BUILDING. ALL EXCESS MATERIALS SHALL REMOVED AND THE BUILDING LEFT BROOM CLEAN. ALL MATERIALS EQUIPMENT SURFACES SHALL BE CLEANED AND POLISHED IN ACCO WITH THE FINISH OF THE MATERIAL.
- 1.13 IDENTIFICATION
  - A. ALL STENCILING OF PIPING, MATERIALS AND EQUIPMENT AS OUTLINI HEREINAFTER FOR IDENTIFICATION PURPOSES SHALL BE PERFORM SUBCONTRACTOR.
  - B. THE STENCILING SHALL BE PAINTED ON THE APPARATUS IN FULL VII SHALL BE A COLOR THAT IS IN SHARP CONTRAST WITH THE BACKGF COLOR CODING TO BE IN ACCORDANCE WITH THE STANDARDS.
  - C. BEFORE STENCILING IS APPLIED, THE APPARATUS SHALL BE THORC CLEANED AND PAINTED, IF POSSIBLE.
  - D. LETTERS SHALL NOT BE LESS THAN 1-1/2" IN HEIGHT. ARROWS SHA LESS THAN 9" LONG.
  - E. ALL WATER PIPING SYSTEMS EXPOSED AND ABOVE FURRED CEILING BE IDENTIFIED AT INTERVALS OF APPROXIMATELY 20' AND AT EACH DIRECTION.
  - F. IN LIEU OF STENCILING, PIPING SYSTEMS MAY BE IDENTIFIED WITH A SNAP-ON COVERS DESIGNATING SERVICES AND DIRECTION OF FLOY LOCATION OF IDENTIFICATION COVERS SHALL BE NEAR ACCESS PA WHEREVER POSSIBLE AND ON BOTH SIDES OF VALVES. THE MARKE BE AS MANUFACTURED BY W.H. BRADY CO., WESTLINE PRODUCTS, NAMEPLATE CO., OR APPROVED EQUAL.
- 1.14 TESTING OF PIPING SYSTEMS
  - A. ALL PIPING SYSTEMS SHALL BE SUBJECTED TO TESTING WITH WAT AS NOTED AND SHALL HOLD TIGHT AT THE PRESSURE HEAD STATE TIME INTERVAL REQUIRED WITHOUT ADDING AIR OR WATER. WHILI SYSTEM IS BEING TESTED, REQUIRED HEAD OF PRESSURE SHALL B MAINTAINED UNTIL ALL JOINTS ARE INSPECTED.
  - B. ALL TESTS SHALL BE WITNESSED BY THE LOCAL INSPECTOR HAVING JURISDICTION AND THE ARCHITECT/ENGINEER, WITH 48-HOUR NOTION THESE AUTHORITIES.
  - C. ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED FOR TESTING A VARIOUS SYSTEMS OR ANY PART THEREOF SHALL BE FURNISHED E SUBCONTRACTOR.
  - D. GAS PIPING SYSTEMS: TEST ALL SECTIONS WITH AIR TO AT LEAST A PERIOD OF ONE HOUR.
  - E. TEST ALL WATER PIPING TO 150 PSI FOR ONE HOUR.
  - F. DEFECTIVE WORK: IF INSPECTION OR TEST SHOWS DEFECTS, SUCH WORK OR MATERIAL SHALL BE REPLACED, INSPECTION AND TESTS REPEATED. ALL REPAIRS TO PIPING SHALL BE MADE WITH NEW MAT CAULKING OF SCREWED JOINTS OR HOLES WILL BE ACCEPTABLE.
- 2.01 MATERIALS
- A. COPPER TUBING AND FITTINGS (TYPE L) (DOMESTIC & NON-DOMEST COLD WATER, TEMPERED WATER)
- 1. ALL JOINTS SHALL BE PRESS-FIT TYPE. SHALL BE USED FOR ALL PIPING.
- B. SPECIALTY GAS PIPE & FITTINGS
- 1. ALL PIPE AND FITTINGS SHALL BE SPECIALLY CLEANED AND PREF SPECIALTY OXYGEN SERVICE BY THE MANUFACTURER OR BY A SERVICE COMPANY AND RECEIVED SEALED ON THE JOB. EACH I TUBE SHALL BE PERMANENTLY LABELED AND DELIVERED PLUGG CAPPED. EACH FITTING SHALL BE INDIVIDUALLY SEALED AND MAI CONTRACTOR SHALL FURNISH DOCUMENTATION FROM THE MANUFACTURER OR CLEANING SERVICE CERTIFYING THAT ALL MATERIALS COMPLY WITH THE REQUIREMENTS OF THIS PARAGR INTENT OF THIS PARAGRAPH IS FOR ALL MATERIALS TO BE DIREC DELIVERED TO THE CONSTRUCTION SITE FROM THE MANUFACTU CLEANING SERVICE.
- 2. SPECIALTY GAS (NITROGEN, HELIUM) AND VACUUM PIPING SHALL BE ASTM B819 TYPE "L" HARD DRAWN SEAMLESS COPPER TUBE CAPPED WITH NITROGEN. PIPING SHALL BE STAMPED AS PER NFPA-99.
- 3. FITTINGS: FOR COPPER TUBING SHALL BE WROUGHT COPPER PRESSURE FITTINGS, DESIGNED EXPRESSLY FOR PRO-PRESS.

# PLUMBING SPECIFICATIONS

	C. WATER VALVES	3.03 ON SITE PRE-TESTING OF SPECIALTY GAS SYSTEMS
DRAWINGS	1. BALL VALVES SHALL BE ALL BRONZE DESIGNED FOR 400 PSI WATER	A. CONNECTION TO EXISTING PIPING
	PRESSURE.	1. WHERE NEW SPECIALTY GAS PIPING AND NEW SPECIALTY GAS OUTLETS
	D. SPECIALTY GAS VALVES	ARE TO BE SUPPLIED FROM EXISTING PIPING. A BASELINE TEST (PRETEST)
	1 ALL VALVES AND GAUGES SHALL BE SPECIALLY CLEANED AND PREPARED	SHALL BE PERFORMED TO ESTABLISH THE QUALITY OF THE EXISTING PIPING
	FOR SPECIAL TY OXYGEN SERVICE BY THE MANUFACTURER VALVES AND	
	GAUGES SHALL BE SUPPLIED TO THE JUB SITE IN INDIVIDUAL SEALED	
PROVAL,	CONTAINERS AND CLEANED FOR SPECIALTY OXYGEN SERVICE. THE	OUTLETS OR TEST PORTS CLOSEST TO THE POINT OF THE NEW PIPING
ARE PARTS	SPECIALTY GAS SUBCONTRACTOR SHALL FURNISH DOCUMENTATION	CONNECTION TO EXISTING PIPE. THE BASELINE TEST SHALL BE PERFORMED
INENT DATA	CERTIFYING THAT ALL VALVES AND GAUGES COMPLY WITH THE	WITH THE GAS OF SYSTEM DESIGNATION.
SHALL BE	REQUIREMENTS OF THIS PARAGRAPH.	3. PRESSURE OUTLET BASELINE TEST
	2. ISOLATION AND SECTION VALVES	a) PERFORM PIPING PURGE (INSTALLATION WHITE CLOTH TEST AS
	a) SHALL BE FULL PORT PRO-PRESS TYPE.	DESCRIBED IN THIS SPECIFICATION WITH SYSTEM PRESSURE.
	E HANGERS AND SUPPORTS	
LAOITTILOL		
	1. ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY	WITH BIOGEN IDEC STANDARDS).
	MEANS OF APPROVED HANGERS AND SUPPORTS. PIPING SHALL BE	4. VACUUM INLET BASELINE TEST A.4.A.
MENT SHALL	SUPPORTED TO MAINTAIN REQUIRED GRADING AND PITCHING OF LINES.	a) PERFORM OPERATIONAL PRESSURE (VERIFICATION) TEST IN
BE	2. HANGERS FOR UNCOVERED (UNINSULATED) COPPER PIPING SHALL BE	CONFORMANCE WITH BIOGEN IDEC STANDARDS.
S AND	FACTORY APPLIED PLASTIC COATED STEEL CLEVIS HANGERS.	3.04 SPECIALTY GAS AND SPECIALTY VACUUM INSTALLATION TESTING AND
ORDANCE	3. HANGERS FOR ALL PIPING BELOW FLOOR SHALL BE STAINLESS STEEL	VERIFICATION
	CLEVIS HANGERS AND RODS.	A. GENERAL
	SYSTEMS PASSING THROUGH WALLS, FLOORS AND PARTITIONS SHALL BE	INSTALLATION TESTING OF ALL SPECIALTY GAS SYSTEMS AS OUTLINED IN
IED BY THIS	FURNISHED AND SET BY THIS SUBCONTRACTOR.	NFPA-99. NOTE ADDITIONAL REQUIREMENTS CONTAINED WITHIN THIS
	1. SLEEVES SHALL BE ONE PIECE GALVANIZED SCHEDULE 40 STEEL PIPING.	SPECIFICATION AS WELL AS IN NFPA-99.
IEW AND	2. ESCUTCHEONS SHALL BE CHROME PLATED HEAVY BRASS FITTING THE PIPE	2. CONNECTIONS TO PORTIONS OF EXISTING SYSTEMS SHALL BE TESTED PER
ROUND.	PASSING THROUGH FINISHED FLOOR, WALL OR CEILING AND SHALL BE SET	BIOGEN IDEC STANDARDS.
	IN MASTIC AT ALL SLEEVES THROUGH FLOORS.	a) ALL SYSTEMS THAT ARE BREACHED AND COMPONENTS THAT ARE
	G LAB WASTE & VENT PIPING SHALL BE PVDE TO MATCH EXISTING SYSTEM VIE	SUBJECT TO ADDITIONS RENOVATIONS OR REPLACEMENT (IF NEW GAS
_		SOURCES: BULK, MANIFOLDS, COMPRESSORS, DRYERS, ALARMS ETC.)
ALL NOT BE	3 PART 3 - EXECUTION	SHALL BE INSPECTED AND TESTED.
	3.01 SPECIALTY PIPING	b) SYSTEMS SHALL BE DEEMED BREACHED AT THE POINT OF PIPELINE
IGS SHALL	A. SPECIALTY GAS PIPING SHALL BE TESTED TO 50 PSI ABOVE THE SYSTEM	INTRUSION BY PHYSICAL SEPARATION OR BY SYSTEM COMPONENT
CHANGE OF	PRESSURE FOR ONE HOUR.	REMOVAL, REPLACEMENT OR ADDITION.
	3.02 SPECIALTY GAS AND VACUUM INSTALLATION	c) BREACHED PORTIONS OF THE SYSTEM SUBJECT TO INSPECTION AND
	A THE ENTIRE SPECIALTY GAS AND SPECIALTY VACUUM SYSTEM SHALL BE	TSTING SHALL BE CONFINED TO ONLY THE SPECIFIC ALTERED ZONE
	INSTALLED IN ACCORDANCE WITH BIOGEN IDEC. STANDARDS EXCEPT WHERE	COMPONENTS IN THE IMMEDIATE ZONE OR AREA THAT IS LOCATED
NELS	AMENDED BY THESE SPECIFICATIONS.	UPSTREAM FOR VACUUM SYSTEMS AND DOWNSTREAM FOR PRESSURE
ERS SHALL	B. ALL TOOLS USED ON SPECIALTY GAS/VACUUM PIPING SHALL BE SEPARATE	GASES AT THE POINT OR AREA OF INTRUSION.
SETON	FROM TOOLS USED BY OTHER TRADES. INSTALLERS SHALL PRESENT	3. THE TESTING SHALL INCLUDE ALL COMPONENTS OF THE SYSTEM OR
	CERTIFICATION DOCUMENTATION BEFORE BEGINNING WORK.	PORTIONS THEREOF, INCLUDING BUT NOT LIMITED TO:
	C. THE INSTALLATION OF EQUIPMENT AND INDIVIDUAL COMPONENTS SHALL BE	a) PIPELINES
	MADE IN ACCORDANCE WITH THE INSTRUCTIONS OF THE MANUFACTURER	
	THESE INSTRUCTIONS SHALL BE SUBMITTED TO THE OWNER AND MADE PART	C) AREA ALARMIS
= ANY	OF THE CONTRACT SPECIFICATIONS.	d) ZONE VALVES
BE	D. ALL PIPING, VALVES, FITTINGS AND COMPONENTS FOR SPECIALTY GAS AND	e) STATION OUTLETS
	SPECIALTY VACUUM USE SHALL BE SUPPLIED CLEANED, PREPARED AND	f) TERMINAL OUTLETS.
G	CERTIFIED FOR SPECIALTY OXYGEN SERVICE BY THE MANUFACTURER AND BE	4. THE SPECIALTY GAS SUBCONTRACTOR IS TO PROVIDE PURGE VALVES AND
ICE GIVEN	RECEIVED SEALED ON THE JOB.	ISOLATION VALVES AT ALL DEAD ENDS AND POINTS OF CONNECTIONS TO
	E. PIPING	PIPING SYSTEMS OR AT ALL PHASING BREAK POINTS FOR THE PROPER
ANY OF THE	1 PIPE SHALL BE CUT SOLIARE WITH A TUBING CUTTER WITH SHARP CUTTING	EXECUTION OF TESTING AND CERTIFICATION
51 1113		5. THE SPECIAL IT GAS SUBCONTRACTOR SHALL BE RESPONSIBLE FOR
	TO FULL BORE OF THE PIPE OR TUBE AND ALL CHIPS SHALL BE REMOVED.	SUPPLYING THE BOTTLED GAS, GAUGES, ADAPTERS, ANALYZER AND ALL
150 PSI FOR	TOOLS USED IN CUTTING AND REAMING SHALL BE KEPT FREE FROM OIL,	OTHER NECESSARY EQUIPMENT TO CONDUCT THE TESTING AND
	GREASE OR OTHER LUBRICANTS NOT SUITABLE FOR SPECIALTY OXYGEN	VERIFICATION.
	SERVICE. ALL CUTS SHALL BE CLEANED AND RESTORED TO ORIGINAL PIPE	6. ALL INSTALLATION TESTS AND VERIFICATION TESTS SHALL BE OBSERVED BY
I DEFECTIVE	DIMENSIONS. WHERE CONTAMINATION HAS OCCURRED, THE ITEMS	REPRESENTATIVES OF BIOGEN
SHALL BE	AFFECTED SHALL BE RE-CLEANED IN ACCORDANCE WITH BIOGEN IDEC	7. TESTING SHALL BE PERFORMED IN THE FOLLOWING SEQUENCE AND SHALL
	STANDARDS	
TERIAE. NO		
	2. PURGE PORTS SHALL CONSIST OF A VALVED 1/2 PIPE AND SHALL BE	a) INSTALLATION TESTS:
	LOCATED AT:	INITIAL BLOWDOWN TEST
	3. CHANGES OF DIRECTION IN SPECIALTY VACUUM PIPING MAINS SHALL BE	INITIAL PRESSURE TEST
	MADE WITH T-FITTING AND CLEANOUT PLUG. THE CLEANOUT SHALL BE MADE	CROSS-CONNECTION TEST
TIC HOT &	WITH A WROUGHT COPPER STREET MALE ADAPTER WITH CAST BRASS CAP.	PIPING PURGE TEST
	THE CLEANOUT SHALL BE ACCESSIBLE FOR RODDING.	STANDING PRESSURE TEST
WATER	4 VACUUM LINE SERVING FACH ROOM SHALL HAVE AN ISOLATION VALVE WITH	b) VERIFICATION TESTS
	A GLANGUT BETWEEN THE ISOLATION VALVE AND VACUUM INLET(S).	
	F. VALVES AND GAUGES	CROSS CONNECTION TEST
PARED FOR	1. FURNISH AND INSTALL ANY AND ALL VALVES INCLUDING PURGE VALVES,	INDIVIDUAL PRESSURIZATION TEST
CLEANING	REQUIRED TO ISOLATE SECTIONS OF THE PIPING SYSTEMS EXTENDING INTO	PRESSURE DIFFERENTIAL TEST
LENGTH OF	AREAS FOR CONSTRUCTION AT A LATER DATE. PROVIDE ALL VALVES TO	VALVE TEST
GED AND	PROPERLY TEST EACH SYSTEM WITH RESPECT TO THE CONSTRUCTION	ALARM TEST
RKED. THF	PHASING AND AS ESSENTIALLY INDICATED ON THE DRAWINGS PROVIDE ALL	PIPING PURGE TEST
סאוסוכ		
	IN PERFORMING AS REQUIRED BY THE HOSPITAL.	
КАРН. ТНЕ	IDENTIFY ALL ISOLATION AND PHASING VALVES AS SUCH AND INDICATE ON	FINAL HE-IN LEST
CTLY	TAG OR PLASTIC SIGN THAT VALVE IS TO REMAIN OPEN AND THAT	OPERATIONAL PRESSURE TEST
JRER OR	ANESTHESIA DEPARTMENT IS TO BE NOTIFIED IF CLOSED.	SPECIALTY GAS CONCENTRATION TEST
	2. INSTALL ISOLATION VALVES ON LATERALS ADJACENT TO RISERS	SPECIALTY AIR PURITY TEST

3. LOCK IN OPEN POSITION ALL MAIN, SECTION, AND RISER VALVES.

SOURCE EQUIPMENT VERIFICATION

LABELING

		Bio
8.	ALL INSTALLATION TESTS SHALL BE PERFORMED BY THE INSTALLER OR REPRESENTATIVE PRIOR TO THE CERTIFICATION TESTS, TESTED GAS SHALL	
9.	BE OIL-FREE DRY NITROGEN. THIS CONTRACTOR SHALL SUBMIT INSTALLATION TEST REPORTS AND	MS / TRAINI
•	RESULTS TO THE ARCHITECT/ENGINEER OR HIS REPRESENTATIVE FOR REVIEW. INSTALLATION TEST REPORTS SHALL NOTE DATE, TIME AND	
	PRESSURE READINGS FOR TESTS SECTIONS AS WELL AS RESULTS OF BLOWDOWN, PURGE AND CROSS-CONNECTION TESTS FOR TESTED	Imai Keller Mo 70 Phillips Stro Watertown, M
10.	SECTIONS AND OUTLETS. THE SPECIALTY GAS SUBCONTRACTOR SHALL ASSIST AS REQUIRED THE	(617.923.6010 MED/ED
	SPECIALTY GAS VERIFIER IN THE VERIFICATION OF SPECIALTY GAS	MEP/FP DW/ Sullivan F
	SYSTEMS.	529 Main Stre Boston, MA 02
5. INS 1	STALLATION TESTS	(617.523.8227 #140641.00
	a) AFTER INSTALLATION OF THE PIPING BUT BEFORE INSTALLATION OF STATION OUTLETS AND OTHER SPECIALTY GAS COMPONENTS, THE LINES	
2.	INITIAL PRESSURE TEST	
	a) BEFORE ATTACHMENTS OF SYSTEM COMPONENTS (E.G. PRESSURE	
	ACTIVATING SWITCHES FOR ALARMS, MANIFOLDS, PRESSURE GAUGES	
	OR PRESSURE RELIEF VALVES), STATION OUTLETS, WITH TEST CAPS IN PLACE, AND BEFORE CLOSING WALLS AND CEILINGS, EACH SECTION OF	
	THE PIPING SYSTEM SHALL BE SUBJECTED TO A TEST PRESSURE OF 150	
	PSIG. THIS TEST PRESSURE SHALL BE MAINTAINED UNTIL EACH JOINT HAS BEEN EXAMINED FOR LEAKAGE BY MEANS OF SOAPY WATER OR OTHER	
	EQUALLY EFFECTIVE MEANS OF LEAK DETECTION SAFE FOR USE WITH OXYGEN. THE SOURCE SHUTOFF VALVE SHALL BE CLOSED. LEAKS, IF	
	WITH THIS PARAGRAPH.	
	b) NITROGEN SYSTEMS SHALL BE TESTED SIMILARLY, EXCEPT TEST	
~	PRESSURE SHALL BE (250) PSIG.	
ქ.	a) PRIOR TO CLOSING THE WALLS, IT SHALL BE DETERMINED THAT NO CROSS-CONNECTION OF PIPING SYSTEMS EXISTS. TEST PROCEDURES	
	SHALL BE THOSE AS OUTLINED IN BIOGEN IDEC STANDARDS. VACUUM	
л	INLETS SHALL BE TESTED FOR CROSS-CONNECTIONS AT THIS TIME.	
4.	a) IN ORDER TO REMOVE PARTICULATE MATTER IN THE PIPELINES. A HEAVY.	
	INTERMITTENT PURGING OF THE PIPE LINE SHALL BE DONE. THE	June 1
	APPROPRIATE ADAPTER SHALL BE OBTAINED, AND A HIGH-FLOW PURGE	MINIMA STATES
	SHALL BE PUT ON EACH OUTLET. THE OUTLET SHALL BE ALLOWED TO	M Di V
	CLEAN WHITE CLOTH.	ANN ANNA
5.	STANDING PRESSURE TEST	
	a) PRESSURE GAS: AFTER THE COMPLETELY ASSEMBLED STATION OUTLETS	Profe
	AND ALL OTHER SYSTEM COMPONENTS HAVE BEEN INSTALLED, ALL	
	PRESSURE TEST AT 20 PERCENT ABOVE THE NORMAL OPERATING LINE	
	PRESSURE. AFTER THE PIPING SYSTEM IS FILLED WITH THE TEST GAS,	
	THE SUPPLY VALVE AND ALL OUTLETS SHALL BE CLOSED AND THE	
	SOURCE OF TEST GAS DISCONNECTED, THE PIPING SYSTEM SHALL	
	REPAIRED, AND RETESTED IN ACCORDANCE WITH BIOGEN IDEC	
	STANDARDS.	
	b) VACUUM: AFTER THE COMPLETELY ASSEMBLED STATION INLETS AND ALL	
	OTHER SYSTEM COMPONENTS HAVE BEEN INSTALLED, ALL PIPING	
	AT A VACUUM BETWEEN 12"HGV AND FULL VACUUM. DURING THE TEST.	
	THE SOURCE OF TEST VACUUM SHALL BE DISCONNECTED FROM THE	
	PIPING SYSTEM. THERE SHALL BE NO CHANGE IN VACUUM OTHER THAN	— —
	THAT ATTRIBUTED TO CHANGES OF AMBIENT TEMPERATURE. LEAKS, IF	
	OWNER.	(
		PROJECTNORTH
		Arch Proi #·
		<u>Drawn</u> By:
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E, MA - 2nd FLOOR

# ING LABS

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Arch. Proj. #:	21473
Drawn By:	KPZ/ BAK
ssue Date:	MAY 29, 2015
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# UMBING **FICATIONS**

CD SET

# \_\_\_\_\_ 2'-6"X 6'-0" MLB MS 4000 1 PLUMBING DEMOLITION PLAN



# Biogen

CAMBRIDGE, MA BUILDING 8 - 2nd FLOOR

# MS / TRAINING LABS

ARCHITECTS

Imai Keller Moore Architects 70 Phillips Street Watertown, MA 02472 (617.923.6010) MEP/FP

RW Sullivan Engineering 529 Main Street #203 Boston, MA 02129 (617.523.8227) #140641.00















Drawn By:	KPZ/ BAK
ssue Date:	MAY 29, 2015
Scale:	1/4"=1'-0"



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# PLUMBING DEMOLITION PLAN

CD SET



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CAMBRIDGE, MA