

# PLUMBING BASIS OF DESIGN

- A. THIS BUILDING IS A NEW TWO-STORY CLASSROOM BUILDING WITH...OR...THIS BUILDING DESIGN IS A REMODEL OF THE ORIGINAL CONSTRUCTION BUILT IN 1900. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES, BUT IS NOT LIMITED TO THIS SCOPE. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS AND COORDINATING WITH ALL DISCIPLINES.
- B. COMPRESSED AIR.
- C. CODES AND STANDARDS (LATEST EDITIONS UNLESS OTHERWISE REQUIRED BY AHJ):
  - 1. AMERICANS WITH DISABILITIES ACT (ADA)
  - 2. NFPA 99: HEALTH CARE FACILITIES CODE
  - 3. WASHINGTON BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ):
    - a. 2015 INTERNATIONAL BUILDING CODE (IBC) WITH STATE AND LOCAL AMENDMENTS.
    - b. 2015 UNIFORM PLUMBING CODE (UPC) WITH STATE AND LOCAL AMENDMENTS.
    - c. 2015 NATIONAL FUEL GAS CODE (NFGC) NFPA 54, WAC 51-52
    - d. 2015 WASHINGTON STATE ENERGY CODE (WAC 51-11, WSEC)
- D. OUTDOOR DESIGN CONDITIONS (FOR INSULATION AND GAS FIRING CRITERIA):
  - 1. LOCATION: BOTHELL, WA
  - 2. WINTER: 40°F.
  - 3. ELEVATION: 75 FEET.
- E. SEISMIC:
  - 1. ANCHORAGE AND RESTRAINTS MUST BE COORDINATED WITH STRUCTURAL ENGINEER AND AUTHORITY HAVING JURISDICTION.

# ABBREVIATIONS

ABV	ABOVE
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
ARCH	ARCHITECT
ASR	AUTO FIRE SPRINKLER RISER
BAS	BUILDING AUTOMATION SYSTEM
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BWV	BACKWATER VALVE
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CR	STEAM CONDENSATE RETURN
CFE	CAP FOR FUTURE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CWFO	COLD WATER FIXTURE UNIT
DN	DOWN
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DDCVA	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DSN	DOWNSPOUT NOZZLE
DWG	DRAWING
DWV	DRAINAGE WASTE AND VENT
E	EXISTING
ELEC	ELECTRICAL
FA	FLOW ALARM
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FFA/FFB	FROM FLOOR ABOVE/BELOW
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FHV	FIRE HOSE VALVE
FIN	FINISHED
FO	FUEL OIL
FPS	FEET PER SECOND
FT	FEET
FT	FLUSH TANK
FU	FIXTURE UNIT
FV	FLUSH VALVE
G	GAS
GAL	GALLONS
GC	GAS COCK
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HD	HUB DRAIN
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATION
HWFO	HOT WATER FIXTURE UNIT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
IE	INVERT ELEVATION
IRR	IRRIGATION
LAV	LAVATORY
LBS	POUNDS (UNIT OF FORCE)
MAX	MAXIMUM
MBH	THOUSANDS BTU/HR
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MH	MANHOLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NIC	NOT IN CONTRACT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OW	OIL WASTE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
RI&C	ROUGH IN AND CONNECT
R	RELOCATE, RISE, RISER
RP	REDUCED-PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
RPM	REVOLUTIONS PER MINUTE
SD	STORM DRAIN
SF	SQUARE FEET
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SOV	SHUT-OFF VALVE
SPK	SPRINKLER
SS	SANITARY SEWER
TFA/TFB	TO FLOOR ABOVE/BELOW
TP	TRAP PRIMER
TS	TAMPER SWITCH
TT	TEST TEE
TYP	TYPICAL
UUR	URINAL
VB	VACUUM BREAKER
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WHA	WATER HAMMER ARRESTOR
WCO	WALL CLEANOUT
W/	WITH
YB	YARD BOX

SYMBOL	DESCRIPTION
	TRAP PRIMER
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	BALANCING VALVE
	SHUT OFF VALVE IN CONCRETE YARD BOX
	ANGLE GATE VALVE
	SOLENOID VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	MIXING VALVE
	PLUG VALVE / GAS COCK
	RELIEF VALVE
	VACUUM RELIEF VALVE
	PRESSURE & TEMPERATURE RELIEF VALVE
	AUTOMATIC AIR VENT
	BACKWATER VALVE
	REDUCED - PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (RP)
	UNION
	STRAINER
	STRAINER WITH BLOW OFF HOSE BIBB
	PIPE ANCHOR
	PIPE ALIGNMENT GUIDE
	EXPANSION JOINT
	FLEXIBLE CONNECTOR
	CAP OR PLUG
	BLIND FLANGE
	CONCENTRIC REDUCER
	AQUASTAT
	WATER HAMMER ARRESTOR
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	CLEANOUT / WALL CLEANOUT
	FLOOR CLEANOUT / CLEANOUT TO GRADE
	YARD CLEANOUT / CLEANOUT TO GRADE
	TEST TEE
	WALL HYDRANT
	HOSE BIBB
	ROOF HYDRANT
	YARD HYDRANT
	THRUST BLOCK
	FLOOR DRAIN
	FLOOR SINK W/ GRATE AS SHOWN
	HUB DRAIN
	ROOF RECEPTOR
	STORM DRAIN
	OVERFLOW DRAIN
	DECK DRAIN, PLANTER DRAIN
	DOWN SPOUT NOZZLE
	SUB-METER

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

SYMBOL	DESCRIPTION
	DIRECTION OF SLOPE
	DIRECTION OF FLOW
	PIPE UP OR UP & DN
	PIPE DOWN
	PIPE DROP
	TOP CONNECTION - BRANCH LINE
	BOTTOM CONNECTION - BRANCH LINE
	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATION
	HOT WATER (140°F)
	VENT
	PIPING BELOW GRADE OR FLOOR
	PIPING ABOVE GRADE OR FLOOR
	SANITARY SEWER, WASTE OR SOIL
	STORM DRAIN, RAINWATER DRAIN PIPING
	OVERFLOW STORM DRAIN PIPING
	PUMPED DISCHARGE
	DRAIN LINE
	INDIRECT WASTE
	GREASE WASTE
	NATURAL GAS (7"W.C.)
	MEDIUM PRESSURE GAS (2 PSIG TO 5 PSIG)
	LOW PRESSURE GAS
	COMPRESSED AIR
	EXISTING PIPE
	TEMPERED WATER
	TEMPERED WATER RETURN
	PIPE SIZE (DIAMETER IN INCHES)
	EXISTING WORK TO REMAIN
	EXISTING WORK TO BE REMOVED
	FUTURE WORK
	EXISTING RELOCATED
	CENTER LINE
	POINT OF CONNECTION OR POINT OF DISCONNECTION
	SANITARY SEWER STACK
	VENT STACKS
	COLD WATER RISER
	HOT WATER RISER
	HOT WATER RECIRC. RISER
	GAS RISER
	STORM DRAIN RISER
	OVERFLOW DRAIN RISER
	COMPRESSED AIR RISER
	PLUMBING EQUIPMENT
	MISCELLANEOUS EQUIPMENT
	KEYED NOTE
	DETAIL NO. SHEET NO.
	POUNDS OR NUMBER

# FIRE PROTECTION

SYMBOL	DESCRIPTION
	FIRE MAIN
	AUTOMATIC WET SPRINKLER
	COMBINATION STAND PIPE
	DRY STAND PIPE
	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
	OS & Y GATE VALVE (OUTSIDE SCREW & YOKE GATE VALVE)
	OS & Y GATE VALVE WITH TAMPER SWITCH
	FIRE DEPARTMENT CONNECTION
	AUTO FIRE SPRINKLER RISER
	FIRE DEPARTMENT VALVE
	FIRE DEPARTMENT VALVE CABINET
	FIRE SPRINKLER FLOOR CONTROL VALVE
	SIEMESE FIRE DEPT. CONN.
	ROOF MANIFOLD
	FIRE HOSE VALVE
	FIRE ALARM BELL
	PRESSURE SWITCH
	FLOW ALARM
	FLOW SWITCH
	AUTOMATIC WET SPRINKLER RISER
	AUTOMATIC SPRINKLER DRAIN
	WET STANDPIPE RISER

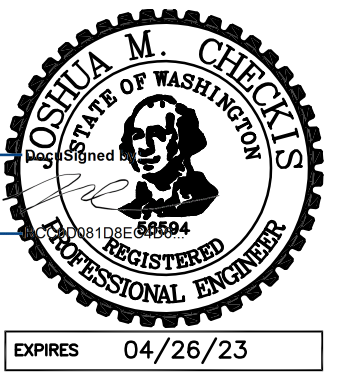
# PLUMBING DRAWING LIST

SHEET NUMBER	SHEET NAME	PERMIT SET
P0.0	PLUMBING LEGEND AND ABBREVIATIONS	X
P2.1	LEVEL 1 - PLUMBING PLAN	X

# DEFERRED SUBMITTALS

1. FIRE SPRINKLER DESIGN
2. SEISMIC BRACING FOR MECHANICAL AND PLUMBING SYSTEMS, INCLUDING EQUIPMENT, PIPING, AND DUCTWORK.
3. PIPE SYSTEM CERTIFICATION AND ANALYSIS:
  - A. DESIGN: DESIGN AND CALCULATE REQUIREMENTS FOR THERMAL EXPANSION OF PIPING SYSTEMS AND FOR SELECTING AND DESIGNING EXPANSION JOINTS AND LOOPS.
  - B. ANCHOR DETAILS: DETAIL FABRICATION OF EACH ANCHOR. SHOW DIMENSIONS AND METHODS OF ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE. SUPPORTS, ANCHORS, AND GUIDES SHALL BE DESIGNED FOR COMBINED GRAVITY, SEISMIC, PRESSURE, AND THERMAL LOADS.
  - C. ALIGNMENTS GUIDE DETAILS: DETAIL FIELD ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE.
  - D. SCHEDULE: EACH EXPANSION JOINT SHALL BE SCHEDULE WITH MANUFACTURER, TYPE, MATERIAL, SIZE, PRESSURE RATING, END CONNECTIONS, AND LOCATION.
  - E. FULLY COORDINATE WITH DESIGN OF SEISMIC RESTRAINT AND ANCHORAGE.

\*FOR ALL ITEMS LISTED ABOVE, THE PLUMBING AND/OR MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN SUBMITTAL WITH DOCUMENTATION AND ENGINEERING REQUIRED TO SATISFY REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ). THE DELEGATED DESIGN SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO ANALYSIS DATA SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.



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# UW BOTHELL STEM4 BACKFILL TENANT IMPROVEMENT

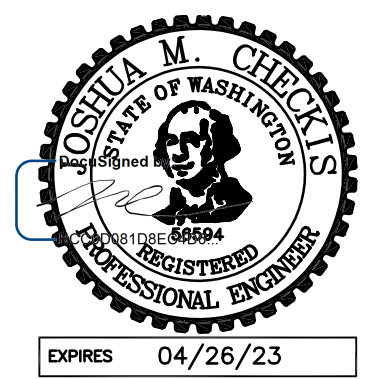
DISCOVERY HALL  
 11222 NE 180TH ST  
 ROOMS #150 and #152  
 BOTHELL, WA 98011

REVISIONS		
NO.	DATE	BY
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ISSUE DATES	
DESIGN APPROVAL:	
PERMIT SUBMITTAL:	
PERMIT RECEIVED:	
BID DOCS:	
CONSTR. DOCS:	

24"x36" SCALE:
PLOT DATE: ----
CAD FILE:
JOB NUMBER: 21-019
CHECKED: CS
DRAWN:
STATUS: PERMIT SET

TITLE  
**PLUMBING LEGEND AND ABBREVIATIONS**  
 SHEET NUMBER  
**P0.0**



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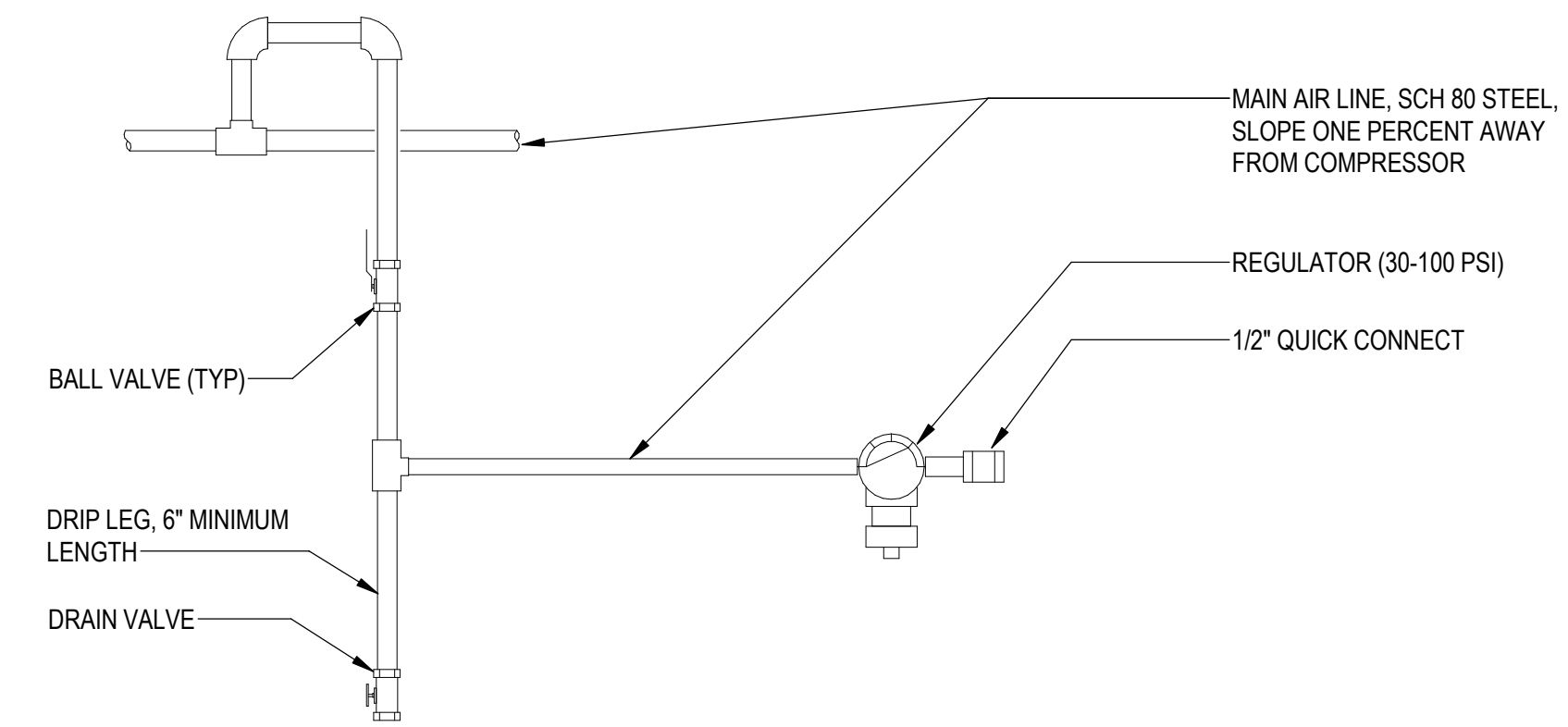
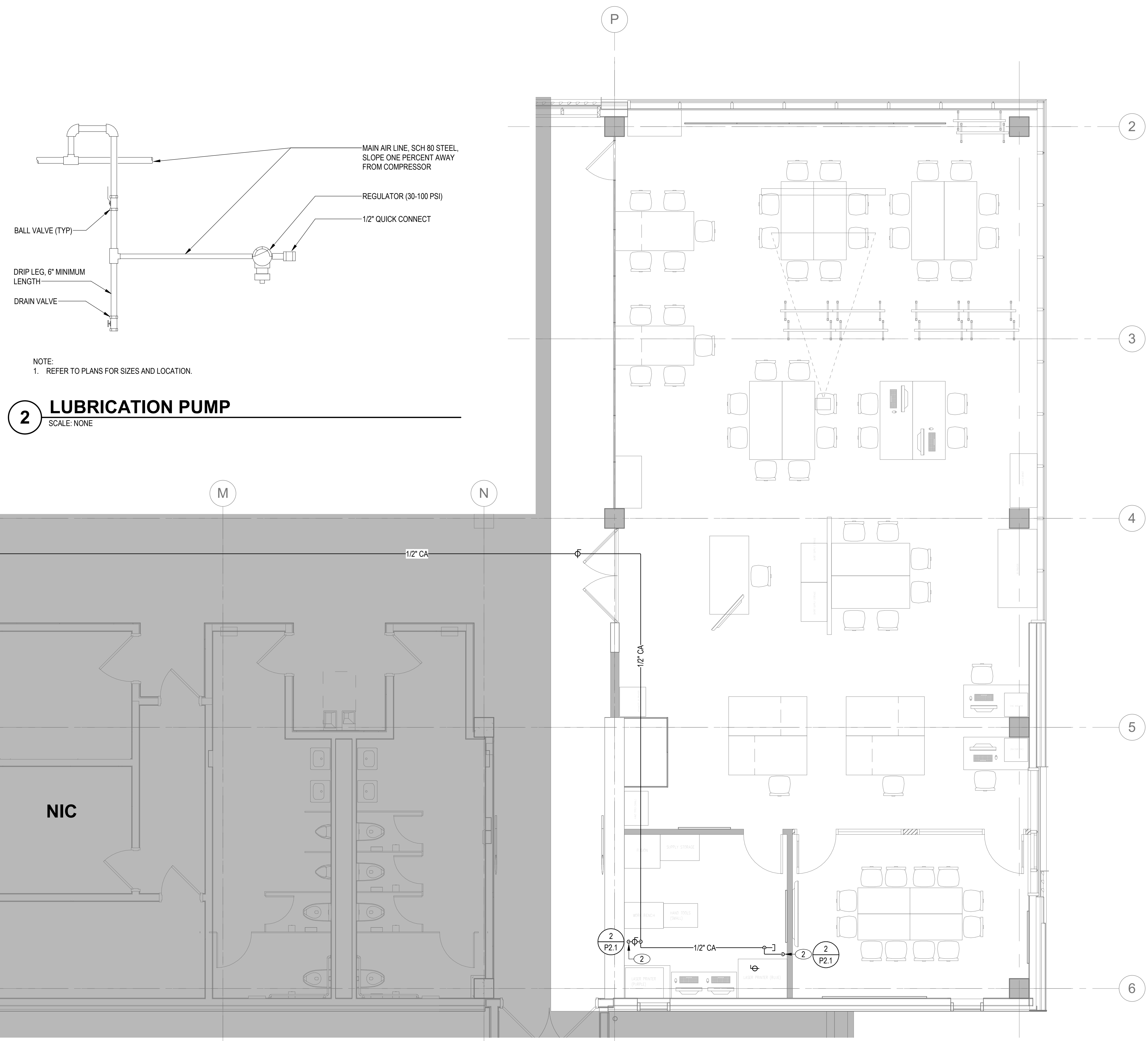
  

ISSUE DATES	
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24"x36" SCALE:	
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TITLE  
**LEVEL 1 - PLUMBING  
PLAN**  
SHEET NUMBER  
**P2.1**



NOTE:  
1. REFER TO PLANS FOR SIZES AND LOCATION.

**2 LUBRICATION PUMP**  
SCALE: NONE

**KEYED NOTES**

1. CONNECT TO EXISTING COMPRESSED AIR TAP IN THIS VICINITY. FIELD VERIFY EXACT LOCATION AND SIZE.
2. 1/2" CA SURFACE MOUNTED. OUTLET AT XX AFF. PROVIDE 1/4" TURN SHUT-OFF VALVE AND ADJUSTABLE PRESSURE REGULATOR. REFER TO DETAIL. (TYP2)

**1 LEVEL 1 - FLOOR PLAN - PLUMBING**  
SCALE: 1/4" = 1'-0"