PLUMBING LEGEND

SYMBOL	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING ABOVE GRADE (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
	VENT PIPING ABOVE OR BELOW GRADE (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
F	FIRE PROTECTION PIPING (F)
FS	FIRE SPRINKLING PIPING (FS)
GAS	NATURAL GAS PIPING (G)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALL VALVE (BV)
	HORIZONTAL SWING CHECK
	UNION
	Y-STRAINER
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	CLEANOUT (WALL OR CEILING) (CO)
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	TWO-WAY CLEANOUT (PROVIDE 18"x24"x4" CONCRETE PAD OUTSIDE)
	HOSE BIBB
	WALL HYDRANT
1	REFER TO KEYED NOTE
	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
FD	FLOOR DRAIN
FS	FLOOR SINK
	CONNECT NEW TO EXISTING
IE=100.00'	INVERT ELEVATION
1	DELTA CHANGE SYMBOL

NOTE: NOT ALL SYMBOLS MAY APPLY TO THIS PROJECT.

PLUMBING GENERAL NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, COORDINATE BUILDING BACKFLOW PREVENTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PROVIDE AS DIRECTED.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.
3. THE CONTRACTOR SHALL COORDINATE ALL WORK CLOSELY WITH MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK, CONDUIT AND STRUCTURAL ITEMS. SHOULD A CONFLICT OCCUR CONTRACTOR MUST NOTIFY THE ARCHITECT/ ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN.
4. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODES, INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION.
5. COORDINATE ROUTING OF ALL BELOW GRADE PIPING WITH GRADE BEAMS. ADJUST INVERT ELEVATIONS OR PIPE ROUTING TO CLEAR GRADE BEAMS.
6. DO NOT ROUGH-IN FROM THESE DRAWINGS. REFER TO LATEST ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS.
7. COORDINATE ALL FIXTURE AND EQUIPMENT LOCATIONS AND CONNECTION REQUIREMENTS WITH LATEST ARCHITECTURAL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY ROUGH-INS.
8. PROTECT EQUIPMENT AND WORK FROM DAMAGE DURING HANDLING AND INSTALLATION UNTIL COMPLETION OF CONSTRUCTION.
9. REMOVE ALL EXCESS MATERIAL AND DEBRIS AND CLEAN ALL EQUIPMENT UPON COMPLETION OF WORK. TOUCH UP WITH PAINT WHERE REQUIRED.
10. ALL CONNECTIONS BETWEEN PIPES OF DISSIMILAR MATERIALS SHALL BE MADE WITH DI-ELECTRIC UNIONS. PROVIDE ACCESS PANELS WHERE REQUIRED.
11. EACH VENT SHALL TERMINATE VERTICALLY NOT LESS THAN 6" ABOVE ROOF, MAINTAIN MINIMUM 15'-0" DISTANCE BETWEEN VENT TERMINALS THROUGH ROOF AND ALL FRESH AIR INTAKES, AND A MINIMUM 5'-0" FROM ANY EXTERIOR WALL.
12. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE CONTRACTORS BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY IN PERFORMANCE OF WORK.
13. CONTRACTOR TO PROVIDE (1) YEAR WARRANTY ON ALL ITEMS PROVIDED.

FIRE SPRINKLER SYSTEM

1. DESIGN AND PROVIDE LABOR AND MATERIALS FOR THE COMPLETE INSTALLATION OF AN AUTOMATIC WET PIPE FIRE EXTINGUISHING SPRINKLER SYSTEM WITH THE ATTENDANT ACCESSORIES FOR THE ENTIRE AREA.
2. STUDY THE GENERAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS AND FIELD SURVEY THE EXISTING BUILDING IN ORDER TO BECOME FAMILIAR WITH THE BUILDING AND DETAILS AS THEY APPLY TO THE WORK OF THIS SECTION. COOPERATE WITH OTHERS SO THAT THERE WILL BE NO CONFLICT OF SPACE REQUIRED. DUCTWORK AND ELECTRICAL WORK SHALL TAKE PRECEDENCE OVER OTHER WORK, EXCEPT WHERE IT IS ABSOLUTELY NECESSARY TO MAINTAIN COVERAGE PROTECTION.
3. THE INSTALLATION OF THE ENTIRE SPRINKLER SYSTEM SHALL COMPLY WITH ALL RULES AND REGULATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE GOVERNING BUILDING CODE, REQUIREMENTS OF NFPA PAMPHLET 13, AND OTHER LOCAL AUTHORITIES EXERCISING JURISDICTION.
4. IT SHALL BE THE FIRE PROTECTION CONTRACTOR'S RESPONSIBILITY, PRIOR TO BID, TO VERIFY PRESSURE AT THE PROJECT SITE BY PERFORMING A FLOW TEST. DETERMINE IF THE AVAILABLE STATIC AND RESIDUAL PRESSURE WILL ADEQUATELY PROVIDE THE FIRE EXTINGUISHING SYSTEM WITH THE NECESSARY PRESSURE OR IF A FIRE PUMP, BREAK TANK AND NECESSARY APPURTENANCES ARE REQUIRED.
5. PROVIDE SCHEDULE 10 AND SCHEDULE 40 BLACK STEEL PIPE AND FITTINGS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA FOR APPLICABLE FIRE PROTECTION SYSTEMS. CONFORM TO ASTM NFPA 13 2002 EDITION TABLE 6.3.1.1. PROVIDE PIPING WITH MALLEABLE IRON, CAST IRON, STEEL WELDED OR SCREWED FITTINGS. VICTAULIC GROOVED FITTINGS MAY BE USED ABOVE GRADE IN ACCESSIBLE LOCATIONS ONLY.
6. ALL HEADS SHALL BE UL LISTED AND FM APPROVED, AND COMPLY WITH THE LATEST REQUIREMENTS OF NFPA 13 WITH RESPECT TO ORIFICE SIZE. SPRINKLER HEADS WITH "O" RING DESIGN SHALL NOT BE ACCEPTABLE. TYCO MODEL B, FRB, OR APPROVED EQUAL UNLESS STATED OTHERWISE.

PLUMBING SCOPE & SPECIFICATION

THE WORK OF THIS SECTION SHALL INCLUDE, BUT NOT BE LIMITED TO:

A. A DOMESTIC COLD WATER DISTRIBUTION SYSTEM TO SERVE ALL FIXTURES.
B. A SANITARY SOIL WASTE AND VENT SYSTEM TO SERVE ALL FIXTURES.

DRAWINGS ARE DIAGRAMMATIC; CONFIRM DIMENSIONS AND LOCATIONS IN THE FIELD, ADVISE OF MAJOR DISCREPANCIES.

GUARANTEE LABOR AND MATERIALS FOR ONE YEAR.

ADHERE TO APPLICABLE LOCAL CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE CITY CODES.

PRODUCE RECORD DRAWINGS.

CONTRACTOR SHALL OBTAIN REQUIRED PERMITS AND PAY ALL FEES.

VALVES

VALVES SHALL BE MANUFACTURED BY NIBCO, HAMMOND, POWELL, STOCKHAM, WATTS OR EQUIVALENT APPROVED BY THE ENGINEER.

BALL VALVES SHALL HAVE CAST BRONZE BODY, BLOWOUT PROOF STEMS, FULL SIZE PORT, 316 STAINLESS STEEL TRIM, TEFLON SEAT AND SEAL AND THRUST WASHERS. VALVES 2" AND SMALLER SHALL BE NIBCO T-585-70-66 OR APPROVED EQUIVALENT.

WHERE VALVES ARE INSTALLED IN INSULATED PIPING, PROVIDE WITH EXTENDED NECK SO VALVE OPERATOR AND STOP PLATE CLEARS THE FULL THICKNESS INSULATION SO THE LEVER OR HANDLE WILL NOT DAMAGE THE INSULATION.

INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.

INSTALL VALVES FOR SHUT-OFF AND ISOLATING SERVICE AT EACH PIECE OF EQUIPMENT, AT VERTICAL RISERS, AND WHERE SHOWN ON THE DRAWINGS.

PROVIDE ACCESS WHERE VALVES ARE NOT EXPOSED.

UNIONS

UNIONS IN COPPER OR BRASS LINES SHALL BE BRASS, THREADED PATTERN UNIONS.

EXCAVATION

EXCAVATE TRENCHES FOR UNDERGROUND PIPING TO THE REQUIRED DEPTH.

CUT THE BOTTOM OF THE TRENCH OR EXCAVATION TO UNIFORM GRADE.

SHOULD ROCK BE ENCOUNTERED, EXCAVATE 6" BELOW GRADE, FILL WITH BEDDING MATERIAL (SAND) AND TAMP WELL.

LAY OUT ALIGNMENT OF PIPE TRENCHES TO AVOID OBSTRUCTIONS. PROVIDE ASSURANCE THAT PROPOSED ROUTE OF PIPE WILL NOT INTERFERE WITH BUILDING FOUNDATION BEFORE ANY CUTTING IS BEGUN. SHOULD INTERFERENCE BE FOUND, CONTACT THE ARCHITECT/ENGINEER BEFORE PROCEEDING.

BACKFILL

BACKFILL SHALL NOT BE PLACED UNTIL THE WORK HAS BEEN INSPECTED, TESTED AND APPROVED. USE SUITABLE FRIABLE SOILS AS BACKFILL MATERIAL. DO NOT USE PEAT, SILT, MUCK, DEBRIS OR OTHER ORGANIC MATERIALS. DEPOSIT BACKFILL IN UNIFORM LAYERS.

PLACE BACKFILL MATERIAL IN UNIFORM LAYERS, 8" MAXIMUM LOOSE MEASURE. COMPACT TO NOT LESS THAN 95% OF MAXIMUM SOIL DENSITY AS DETERMINED BY ASTM D698 STANDARD PROCTOR.

PLUMBING PIPING HANGERS

SUPPORT PIPING TO MAINTAIN LINE AND GRADE, WITH PROVISION FOR EXPANSION AND CONTRACTION. USE APPROVED CLEVIS-TYPE OR TRAPEZE-TYPE HANGERS CONNECTED TO STRUCTURAL MEMBERS OF THE BUILDING. SINGLE PIPE RUNS TO BE SUPPORTED BY APPROVED CLEVIS TYPE HANGERS. MULTIPLE PIPE RUNS TO BE SUPPORTED BY APPROVED TRAPEZE TYPE HANGERS. DO NOT SUPPORT PIPING FROM OTHER PIPING OR STRUCTURAL JOIST BRIDGING. REVIEW STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION. WHERE INSULATION OCCURS, DESIGN HANGERS TO PROTECT INSULATION FROM DAMAGE. MAXIMUM VERTICAL SPACING SHALL BE 10 FOOT. MAXIMUM HORIZONTAL SPACING FOR COPPER TUBING 1-1/2" AND SMALLER SHALL BE 6 FOOT AND FOR 2" AND LARGER SHALL BE 10 FOOT. MAXIMUM HORIZONTAL SPACING FOR CAST IRON PIPING SHALL BE 5 FOOT.

CLEANING, TESTING AND ADJUSTING

THIS CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, INSTRUCTIONS, AND SUPERVISION REQUIRED IN THE PERFORMANCE OF ALL TESTS. CLEANING AND MAKING NECESSARY ADJUSTMENTS TO OPERATION OF ALL FIXTURES AND EQUIPMENT.

RODDING SEWERS

ALL SANITARY SOIL AND STORM SEWER LINES, BOTH IN THE BUILDING AND OUT SHALL BE RODDED OUT AND FLUSHED OUT AFTER COMPLETION OF CONSTRUCTION AND PRIOR TO FINISH FLOOR BEING INSTALLED. ALL WORK MUST BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION. ALL FLOOR DRAIN AND CLEANOUT LOCATIONS MUST BE INCLUDED IN THIS WORK

PIPE SLOPE

BUILDING SEWERS SHALL BE RUN IN PRACTICAL ALIGNMENT AND AT A UNIFORM SLOPE OF NOT LESS THAN ONE-FOURTH (1/4) OF AN INCH PER FOOT TOWARD THE POINT OF DISPOSAL. WHEN APPROVED BY THE AUTHORITY HAVING JURISDICTION AND WHERE IT IS IMPRACTICAL, DUE TO THE DEPTH OF THE STREET SEWER OR TO THE STRUCTURAL FEATURES OR TO THE ARRANGEMENT OF ANY BUILDING OR STRUCTURE, TO OBTAIN A SLOPE OF ONE-FOURTH (1/4) OF AN INCH PER FOOT, ANY SUCH PIPE OR PIPING FOUR (4) INCHES THROUGH SIX (6) INCHES MAY HAVE A SLOPE OF NOT LESS THAN ONE-EIGHTH (1/8) INCH PER FOOT AND ANY SUCH PIPE OR PIPING EIGHT (8) INCHES AND LARGER MAY HAVE A SLOPE OF NOT LESS THAN ONE-SIXTEETH (1/16) INCH PER FOOT.

PIPING INSULATION

ALL COLD WATER PIPING, FITTINGS AND VALVES SHALL BE INSULATED WITH NOMINAL 1" WALL THICKNESS IMCOLOCK PIPE INSULATION, OR AN APPROVED EQUAL HAVING FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DENSITY OF 50 OR LESS WHEN TESTED BY ASTM E-84 METHOD.

ALL HOT WATER AND HOT WATER RETURN PIPING, FITTINGS AND VALVES SHALL BE INSULATED WITH NOMINAL 1" WALL THICKNESS IMCOLOCK PIPE INSULATION, HAVING A CONDUCTIVITY NOT EXCEEDING 0.28 BTU PER inch/h X ft² X °F.

IMCOLOCK PIPE INSULATION MAY BE SLIPPED ONTO THE PIPE PRIOR TO CONNECTION OR APPLIED AFTER THE PIPE IS INSTALLED, AT THE CONTRACTOR'S OPTION. ALL BUTT JOINTS AND MITER JOINTS SHALL BE CLOSED USING IMCOA'S FUSE SEAL JOINING SYSTEM OR FACTORY APPROVED CONTACT ADHESIVE. IMCOLOCK PIPE INSULATION SHALL BE INSTALLED ACCORDING TO THE PROCEDURES OUTLINED BY THE MANUFACTURER.

FITTING COVER INSULATION SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDED PROCEDURES. SWEAT FITTINGS SHALL BE INSULATED WITH MITER CUT PIECES OF IMCOLOCK PIPE INSULATION THE SAME SIZE AS ON ADJACENT PIPING. THREADED FITTINGS SHALL BE INSULATED WITH SLEEVED FITTING COVERS FABRICATED FROM MITER CUT PIECES OF IMCOLOCK PIPE INSULATION ACCORDING TO THE MANUFACTURER'S SLEEVING SIZE RECOMMENDATIONS AND SHALL BE OVERLAPPED 2" AND SEALED TO THE ADJACENT PIPE INSULATION. ALL VALVES SHALL BE INSULATED WITH CUT PIECES OF IMCOLOCK PIPE INSULATIONS. ALL JOINTS AND MITER CUT PIECES ARE TO BE SEALED USING IMCOA'S FUSE SEAL JOINING SYSTEM OR FACTORY APPROVED CONTACT ADHESIVE.

INSTALL THERMAL INSULATION ON CLEAN, DRY SURFACES AFTER ALL TESTING AND INSPECTION IS COMPLETED. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS AND WITH MANUFACTURERS INSTRUCTIONS.

PIPING SLEEVES

ALL COPPER PIPES PASSING THROUGH CONCRETE OR CINDER WALLS AND FLOORS OR OTHER CORROSIVE MATERIAL SHALL BE PROTECTED AGAINST EXTERNAL CORROSION BY A PROTECTIVE SHEATHING OR WRAPPING OR OTHER MEANS THAT WILL WITHSTAND ANY REACTION FROM THE CORROSIVE MATERIAL. MINIMUM WALL THICKNESS OF MATERIAL SHALL BE 0.025 TO 0.0059 INCH.

PLUMBING FIXTURES

PROVIDE PLUMBING FIXTURES AS SPECIFIED OR EQUIVALENT APPROVED BY THE ENGINEER.

PIPE MATERIAL LIST

ABOVE GRADE, INSIDE BUILDING

DOMESTIC WATER PIPING

SEAMLESS ASTM B 88 TYPE L COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. SOLDER MATERIAL SHALL BE 95.5 PERCENT LEAD FREE, ASTM B 32. THE USE OF DRILLED-T CONNECTIONS IS NOT PERMITTED.

SANITARY WASTE AND VENT PIPING

NO-HUB CAST IRON SOIL PIPE AND FITTING SYSTEM CONFORMING TO CISPI STANDARD NO. 301-04A. ELASTOMERIC SEALING SLEEVES SHALL CONFORM TO ASTM STANDARD C 564. COUPLINGS SHALL CONFORM TO CISPI STANDARD 310-04.

BELOW GRADE, INSIDE BUILDING

DOMESTIC WATER PIPING

ASTM B 88 TYPE K COPPER WATER TUBE WITH WROUGHT COPPER FITTINGS, ANSI B16.22. ALL JOINTS SHALL BE BRAZED.

SANITARY WASTE AND VENT PIPING

SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM D-1784-82 WITH SOLVENT WELDED JOINTS.

PLUMBING FIXTURE SPECIFICATION

TYPE:	WH-1
DESCRIPTION:	WALL HYDRANT, CONCEALED BOX TYPE, NON-FREEZE, 3/4" MALE HOSE THREAD OUTLET, SELF-DRAINING WITH ANTI-SIPHON VACUUM BREAKER. CHROME PLATED BRONZE HEAD CASTING HOUSED WITHIN SATIN FINISH NICKEL BRONZE BOX WITH LOCKING HINGED COVER. LOOSE TEE OPERATING KEY. MIFAB MHY-20.
ROUGH-IN:	3/4" COLD WATER. INSTALL WITH BOTTOM OF BOX AT 12" A.F.F. OR AS DIRECTED BY ARCHITECT / OWNER.
TYPE:	ECO
DESCRIPTION:	EXTERIOR CLEANOUT TO GRADE. BOTTOM OUTLET DUCTILE IRON BODY, ADJUSTABLE 6-1/2" DIAMETER DUCTILE IRON RING AND COVER WITH VANDAL-RESISTANT SCREWS. IF LOCATED IN ASPHALT OR DIRT PROVIDE 18" X 18" X 12" CONCRETE PAD. SIOUX CHIEF 834-64DIRV.
TYPE:	FCO
DESCRIPTION:	FLOOR CLEANOUT, BOTTOM OUTLET DUCTILE IRON BODY, ADJUSTABLE 6-1/2" DIAMETER NICKEL BRONZE RING AND COVER WITH VANDAL-RESISTANT SCREWS. SIOUX CHIEF 834-64DNRV.

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PROJECT NAME & LOCATION:

ISSUED FOR	DATE
BID	-
PERMIT	-
CONSTRUCTION	-

REVISIONS	
DATE	DESCRIPTION
06.05.19	FOR PERMIT

PROJECT NO.

SHEET TITLE
PLUMBING SPECIFICATIONS, NOTES AND LEGEND

SHEET NO.
P2.0

SHEET 7 OF 8