

∞	AND	HB	HOSE BIBB
∠	ANGLE	HC	HANDICAPPED
⊙	AT	HD	HEAD
⊕	CENTER LINE	HDWE	HARDWARE
⊕	PROPERTY LINE	HI	HIGH
⊕	DIAMETER OR ROUND	HORIZ	HORIZONTAL
⊕	EXISTING	HP	HIGH PRESSURE
(N)	NEW	HR	HOUR
⊥	PERPENDICULAR	HT	HEIGHT
#	POUND OR POLYMER	HVAC	HEATING, VENTILATING, AIR CONDITIONING
A/C	AIR CONDITIONING		
AP	ACCESS PANEL	ID	INSIDE DIAMETER (DIM.)
ADJ.	ADJUSTABLE	INSUL	INSULATION
ADM.	ADMINISTRATION	INT	INTERIOR
AGGR	AGGREGATE	IW	IRRIGATION WATER
AL	ALUMINUM		
APPROX	APPROXIMATE	LAV	LAVATORY
APPT	APPOINTMENTS	LPF	LIQUID PETROLEUM GAS
ARCH.	ARCHITECTURAL		
ASB	ASBESTOS	M	MEN
ASPH	ASPHALT	MACH	MACHINE
ASST	ASSISTANT	MATL	MATERIAL
AUTO.	AUTOMATIC	MECH	MECHANICAL
		MOR	MORTAR SINK
		MTL	METAL
		MGR	MANUFACTURER
		MH	MANHOLE
		MIN	MINIMUM
		MISC	MISCELLANEOUS
		MONIT	MISCELLANEOUS
BD	BOARD	N	NORTH
(BF)	BELOW FINISH FLOOR	NIC	NOT IN CONTRACT
(BG)	BELOW FINISH GRADE	NO. or #	NUMBER
BLDG	BUILDING	NOM	NOMINAL
BLKG	BLOCKING	NTS	NOT TO SCALE
BM	BEAM		
BOT	BOTTOM		
BV	BALL VALVE		
CB	CATCH BASIN		
CD	CONDENSATE DRAIN		
CEM	CEMENT		
CER	CERAMIC		
CI	CAST IRON		
CJ	CONCRETE JOINT		
CLG	CEILING	OA	OVERALL
CLKG	CAULKING	OAV	OXYGEN, AIR & VACUUM
CLR	CLEAR	OC	ON CENTER
CO	CLEANOUT	OVHD	OVERHEAD
COL	COLUMN	OX.	OXYGEN
COMP	COMPRESSED		
CONC	CONCRETE		
CONF	CONFERENCE	PTN	PARTITION
CONN	CONNECTION	PHYS	PHYSICAL
CONST	CONSTRUCTION	PR	PRESSURE REGULATOR
CONT	CONTINUOUS	PVC	POLY-VINYL CHLORIDE PIPE
CORR	CORRIDOR	PLAS	PLASTER
COTG	CLEANOUT TO GRADE	PLYWD	PLYWOOD
CP	CIRCULATING PUMP	POC	POINT OF CONNECTION
CKS	COUNTERSINK	PREFAB	PREFABRICATED
CNTR	CENTER	PREP	PREPARATION
CV	CHECK VALVE	PT	PLUGGED TEE
		PW	PROCESSED WATER
DBL	DOUBLE		
DCW	DOMESTIC COLD WATER	R	RISER
DEPT	DEPARTMENT	RAD.	RADIUS
DET	DETAIL	RO	ROOF DRAIN
DF	DRINKING FOUNTAIN	REF	REFERENCE
DHW	DOMESTIC HOT WATER	REINF	REINFORCED
DHWR	DOMESTIC HOT WATER RETURN	REQD	REQUIRED
DIA or Ø	DIAMETER	RM	ROOM
DIR	DIRECTOR	RWL	RAINWATER LEADER
DN	DOWN		
DR	DOOR		
DS	DOWNSPOUT	S	SINK OR SOUTH
DSP	DRY STANDPIPE	SA	WATER HAMMER ARRESTOR
DTW	DOMESTIC TEMPERED WATER	SB	SPLASH BLOCK
DWG	DRAWING	SCHD	SCHEDULE
		SOL	STORM DRAIN LINE
		SECT.	SECTION
E	EAST	SH	SHOWER
EA	EACH	SHT	SHEET
EDF	ELECTRIC DRINKING FOUNTAIN	SL	SIMILAR
ELEC	ELECTRICAL	SL	SPRINKLER LINE
ELEV	ELEVATION	SPEC	SPECIFICATION
EMER	EMERGENCY	SOV	SHUT-OFF VALVE
ENCLOS.	ENCLOSURE	SERF	SERVICE SINK
EO	ELECTRICAL OUTLET	SST	STAINLESS STEEL
EP	ELECTRICAL PANEL	STD	STANDARD
EQ	EQUAL	STL	STEEL
EQUIP	EQUIPMENT	STR	STORAGE
(E)	EXISTING	STRUCT	STRUCTURAL
EXP.	EXPANSION	SUPV	SUPERVISOR
EXP.	EXPOSED	SUSP	SUSPENDED
EXT	EXTERIOR	S&W	SOIL & WASTE
FA	FIRE ALARM	TC	TOP OF CURB
FCO	FLOOR CLEANOUT	TEL	TELEPHONE
FD	FLOOR DRAIN	TER	TERRAZZO
FDN	FOUNDATION	THK	THICK
FEX	FIRE EXTINGUISHER	TOT	TOP OF CONCRETE
FEC	FIRE EXTINGUISHER CABINET	TP	TRAP PRIMER
FI	FIRE HYDRANT	TRANS	TRANSCRIPTION
FHO	FIRE HOSE CAB.	TREAT.	TREATMENT
FHMS	FLAT HEAD METAL SCREW	TYP	TYPICAL
FIN.	FINISH	TV	TEMPERING VALVE
FL	FLOOR		
FLASH.	FLASHING		
FM	FIRE MAIN	UL	UNDERWRITERS LABORATORY
FOC	FACE OF CONCRETE	UON	UNLESS OTHERWISE NOTED
FOD	FACE OF FINISH	URINAL	URINAL
FR	FRAME		
FRPF	FIREPROOFING		
FS	FLOOR SINK	V	VENT
FSH	FIRE SPRINKLER HEAD	VA	VALVE
FSL	FIRE SPRINKLER LINE	V	VENTRIFIED CLAY
FTR	FLUE THRU ROOF	VCR	VENT THRU ROOF
FUNC	FUNCTION	VO	VENT OFFSET
FURR	FURRING		
FUT	FUTURE	W	WASTE LINE
		W/	WITH
GA	GAUGE	WC	WATER CLOSET
GALV	GALVANIZED	WCO	

SYMBOL	DESCRIPTION
	BALL VALVE
	BRANCH TOP CONNECTION
	BRANCH BOTTOM CONNECTION
	CAPPED PIPE
	CHECK VALVE
	CLEANOUT
	CLEANOUT TO GRADE
	CIRCULATING PUMP
	CONDENSATE DRAIN
	CONDENSATE "P" TRAP
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RETURN
	EXISTING WASTE OR SOIL & WASTE
	FIRE HYDRANT
	FLOOR CLEANOUT
	FLOOR SINK
	GAS
	GAS COCK
	GAS PRESSURE REGULATOR
	GATE VALVE
	HOSE BIBB
	PIPE RISER (ELBOW)
	PIPE DROP (ELBOW)
	PIPE DROP OR RISER
	POINT OF CONNECTION
	PROCESS WASTE
	SHUT-OFF VALVE
	SHUT-OFF VALVE IN YARDBOX
	SOIL & WASTE
	TRAP PRIMER
	VENT
	VENT OFFSET
	VENT THRU ROOF
	WALL CLEANOUT
	WASTE
	WATER HAMMER

SECTION 1 BASIC MECHANICAL MATERIALS AND METHODS	1.12 PERMITS AND FEES	B. SOIL, WASTE AND VENT PIPING ABOVE FLOOR: STANDARD WEIGHT COATED CAST IRON PIPE AND STAINLESS STEEL/ NEOPRENE GASKET FITTING, OR A.B.S. OR P.V.C. SCHEDULE 40, AS APPROVED BY LOCAL AUTHORITY IN CONCEALED LOCATIONS.
PART 1 – GENERAL	A. OBTAIN, PAY FOR, AND DELIVER PERMITS, CERTIFICATION OF INSPECTION, AND OTHER SUCH ITEMS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. DELIVER CERTIFICATION TO THE CONSTRUCTION MANAGER PRIOR TO FINAL ACCEPTANCE OF THE WORK. AN INSPECTION CERTIFICATE FOR EACH CLASS OF WORK REQUIRING INSPECTION MUST BE SUBMITTED PRIOR TO OR WITH THE FINAL PAYMENT INVOICE. THE RESPONSIBLE TRADE CONTRACTOR MUST MAKE APPLICATION FOR THE INSPECTION, COORDINATE SAME AND PAY THE REQUIRED INSPECTION FEE.	C. HOT & COLD WATER PIPING ABOVE FLOOR: TYPE 1/2" COPPER, HARD DRAWN. BELOW GROUND OUTSIDE OF BUILDING: TYPE "K" SOFT DRAWN COPPER TUBING WITH JOINT GUNTS.
1.1 SUMMARY	1.13 EXTENDED WARRANTIES A. WORK FURNISHED UNDER THE CONTRACT SHALL BE WARRANTED AGAINST DEFECTS IN WORKMANSHIP AND (CONTRACTOR FURNISHED) MATERIALS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR, OR AS OTHERWISE SPECIFIED, FROM THE DATE OF FINAL ACCEPTANCE OF THE INSTALLATION. DEFECTS OF WORKMANSHIP DEVELOPING DURING THIS PERIOD SHALL BE REMEDIED, AND DEFECTIVE MATERIAL REPLACED, WITHOUT ADDITIONAL COST. WHEN DEFECTS IN A TRADE CONTRACTOR'S WORK CAUSES DAMAGE TO THE WORK OF THE OTHER TRADE CONTRACTORS, SUCH DAMAGE SHALL BE REPAIRED BY THE TRADE CONTRACTOR CAUSING DAMAGE AND WORK RESTORED TO ITS ORIGINAL CONDITION, AT THE EXPENSE OF THE TRADE CONTRACTOR THAT CAUSED THE DAMAGE.	D. CONDENSATE DRAIN PIPING: TYPE "M" COPPER WITH 95-5 TIN ANTIMONY SOLDER AND WROUGHT COPPER FITTINGS OR E. INDIRECT WASTE PIPING: TYPE "M" COPPER WITH 95-5 TIN ANTIMONY SOLDER AND WROUGHT COPPER FITTINGS OR P.V.C. SCHEDULE 40, AS APPROVED BY LOCAL AUTHORITY.
A. LABOR, MATERIALS, TOOLS, AND SERVICES FOR A COMPLETE INSTALLATION OF EQUIPMENT AND SYSTEM CONTAINED IN THE CONTRACT DOCUMENTS.	PART 2 – PRODUCTS	F. UNDERGROUND GAS PIPING: SCHEDULE 40 BLACK STEEL PIPE WITH LONG RADIUS STEEL WELDING FITTINGS INCLUDING CATHOLIC PROTECTION OR POLYETHYLENE AS APPROVED BY LOCAL GAS COMPANY AND AUTHORITY HAVING JURISDICTION. INSTALLATION OF GAS SERVICE PIPING IN VENTED CONDUIT AND MEETING WITH THE LOCAL GAS COMPANY'S APPROVAL.
B. PRINCIPAL FEATURES OF THE WORK INCLUDED ARE:	2.1 MATERIALS AND EQUIPMENT	G. GAS PIPING ABOVE GROUND: SCHEDULE 40 BLACK STEEL WITH 125 POUND BLACK MALLEABLE IRON SCREWED FITTINGS. GAS PIPING COMPOUND AT JOINTS IN COMPLIANCE WITH NFPA BULLETIN #45 AND LOCAL APPLICABLE CODES AND SUITABLE FOR NATURAL GAS SERVICE. INSTALL MOISTURE TRAPS ON HVAC UNITS, WATER HEATERS, AND KITCHEN EQUIPMENT
1. PLUMBING SYSTEM AND RELATED PIPING INSULATION. 2. DOMESTIC WATER PIPING, VALVES, CONNECTIONS AND RELATED PIPING INSULATION. 3. LIMITED AREA FIRE PROTECTION (SPRINKLER SYSTEMS) 4. EXCAVATING AND BACKFILLING FOR MECHANICAL WORK. COORDINATE WITH APPROPRIATE TRADE. 5. ANCHOR BOLTS, SLEEVES, SUPPORTS AND SIMILAR ITEMS TO BE BUILT INTO CONCRETE OR MASONRY. 6. PREPARATION AND SUBMITTAL OF SHOP DRAWING AND PRODUCT DATA. 7. MAINTAINING A RECORD SET OF BLUE LINE PRINTS AND MAKING THEM TO INDICATE LOCATIONS OF CONCEALED ITEMS, AND DEVIATIONS MADE TO SUIT CONDITIONS AND PRODUCTION OF MECHANICAL AS-BUILT (RECORD) DRAWINGS.	A. WITHIN THE CONTRACT DOCUMENTS RELATING TO PLUMBING WORK, MANUFACTURER'S NAMES, CATALOG NUMBERS, AND OTHER PROPRIETARY REFERENCES TO MATERIALS AND EQUIPMENT ARE MADE. SUCH REFERENCES ARE MADE TO ESTABLISH THE STANDARDS OF QUALITY AND TYPE REQUIRED, AND NOT TO LIMIT COMPETITION. ACCEPTABLE MANUFACTURER'S OF COMPETITIVE PRODUCTS ARE LISTED IN APPLICABLE SECTIONS AS "APPROVED EQUALS". REASONABLE REQUESTS FOR SUBSTITUTION OR ADDITIONS TO "APPROVED EQUALS" WILL BE CONSIDERED, BUT THE MECHANICAL ENGINEER WILL BE THE SOLE JUDGE OF ACCEPTABILITY OF ITEMS PROPOSED AS SUBSTITUTES.	H. STORM PIPING BELOW GROUND: STANDARD WEIGHT COATED CAST IRON PIPE AND STAINLESS STEEL/ NEOPRENE GASKET FITTING, OR A.B.S. OR P.V.C. SCHEDULE 40, AS APPROVED BY LOCAL AUTHORITY IN CONCEALED LOCATIONS.
1.2 JOB CONDITIONS.	3.1 LOCATIONS	I. STORM PIPING ABOVE GROUND: STANDARD WEIGHT COATED CAST IRON PIPE AND STAINLESS STEEL/ NEOPRENE GASKET FITTING, OR A.B.S. OR P.V.C. SCHEDULE 40, AS APPROVED BY LOCAL AUTHORITY.
A. SUBMITTAL OF BID IMPLIES BIDDER HAS READ APPLICABLE PARAGRAPHS OF THE SPECIFICATIONS AND WILL BE BOUND BY THEIR CONDITIONS.	3.2 UTILITIES EXCAVATING AND BACKFILLING	J. TRAPS AND VENTS FOR SERVICE SINK: A.B.S. OR P.V.C. SCHEDULE 40, AS APPROVED BY LOCAL AUTHORITY.
1.3 LOCAL CONDITIONS	A. PERFORM TRENCHING, EXCAVATING, BACKFILLING FOR PLUMBING WORK IN ACCORDANCE WITH THE APPROPRIATE SECTIONS AND AS SET FORTH BELOW	2.2 INSULATION
A. CONFORM WITH LOCAL CONDITIONS. COORDINATE WITH LOCAL UTILITIES ON SIZE OF UTILITY SERVICE.	PART 3 – EXECUTION	A. INSULATE ALL HOT AND COLD WATER COPPER PIPING WITH AT LEAST 1/2" THICK FOAM RUBBER OR FOAM PLASTIC TYPE PIPE INSULATION
1.4 INTENT	3.1 CONNECTIONS	2.3 FIXTURES
A. THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS) DESCRIBE THE PLUMBING WORK OF THIS PROJECT ANY ITEMS MENTIONED IN ONE PART SHALL BE AS BINDING AS THOUGH MENTIONED IN BOTH.	A. PLUMBING LAYOUTS INDICATED ON DRAWINGS ARE DIAGRAMMATIC. EXACT LOCATIONS OF PIPES, AND EQUIPMENT MAY VARY BECAUSE OF CONFLICTS WITH WORK OF OTHER TRADES. WORK OUT CONFLICTS WHERE RELOCATION'S WILL NOT AFFECT OPERATION OR APPEARANCE OF SYSTEMS.	A. ALL FIXTURES: AS INDICATED ON DRAWINGS WITH EQUAL PRODUCTS FURNISHED BY AMERICAN STANDARD, KOHLER, ELIER OR EQUAL.
B. THE CONTRACT DOCUMENTS FORM A GUIDE FOR A COMPLETE PLUMBING INSTALLATION. WHERE AN ITEM IS REASONABLY NECESSARY BUT NOT SPECIFICALLY MENTIONED, SUCH AS PIPING OFFSETS, DRAINS, ETC., FOR A COMPLETE SYSTEM, PROVIDE SAME.	B. LOCATE EQUIPMENT REQUIRING PERIODIC SERVICING SO THAT IT IS READILY ACCESSIBLE. DO NOT BACK UP SERVICE SIDES TO WALLS, NOR PLACE IT TOO CLOSE TO OTHER EQUIPMENT TO MAKE SERVICE IMPRACTICAL. EQUIPMENT SERVICE CLEARANCE SHALL MEET MINIMUM ACCEPTABLE DISTANCE AS RECOMMENDED BY EQUIPMENT MANUFACTURER.	2.4 CLEANOUTS, FLOOR DRAINS, FLOOR SINKS, AND ROOF DRAINS.
C. PLUMBING LAYOUTS INDICATED ON DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATIONS OF PIPES, AND EQUIPMENT SHALL BE GOVERNED BY THE DRAWINGS OF RELATED TRADES.	3.3 CUTTING AND PATCHING	A. ALL ACCESSORIES, AS INDICATED ON DRAWING WITH EQUAL PRODUCTS FURNISHED BY WADE, JOSAM, OR ZURN BEING ACCEPTABLE.
1.5 DEVIATIONS	A. REPAIR OR REPLACE ROUTINE DAMAGE CAUSED BY CUTTING IN PERFORMANCE OF CONTRACT.	2.5 EQUIPMENT
A. NO DEVIATIONS FROM SPECIFICATIONS AND DRAWINGS SHALL BE MADE WITHOUT FULL KNOWLEDGE AND WRITTEN CONSENT OF CONSTRUCTION MANAGER.	B. PERFORM REPAIRS WITH MATERIALS WHICH MATCH EXISTING AND INSTALL IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THESE SPECIFICATIONS OR THE BEST STANDARDS OF THE INDUSTRY.	A. SHUTOFF VALVES UNDERNEATH LAVATORIES, TANK TYPE WATER CLOSETS, AND KITCHEN EQUIPMENT WITH CHROME PLATED ANGLE STOP VALVES WITH CHROME PLATED ESCUTCHEON PLATES.
B. SHOULD CONTRACTOR FIND, DURING PROGRESS OF WORK, CONDITIONS WHICH DICTATE A MODIFICATION OF ANY PARTICULAR REQUIREMENTS, REPORT SUCH ITEM PROMPTLY FOR DECISION OF INSTRUCTIONS.	3.4 CONNECTION TO EQUIPMENT	B. HOSE BIBBS – AS SCHEDULED ON DRAWINGS.
1.6 QUALITY ASSURANCE	A. CONNECT OR INSTALL EQUIPMENT SHOWN ON MECHANICAL DRAWINGS THAT REQUIRE PLUMBING	C. VACUUM BREAKERS – AS SCHEDULED ON DRAWINGS.
A. COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES.	1. ROUGH – IN PIPING AND CONNECT EQUIPMENT 2. PROVIDE PIPING, SHUTOFF VALVES, AND UNIONS REQUIRED FOR A COMPLETE INSTALLATION,	D. BACKFLOW PREVENTERS – AS SCHEDULED ON DRAWINGS.
B. COMPLY WITH APPLICABLE REQUIREMENTS OF RECOGNIZED INDUSTRY ASSOCIATIONS WITH PROMULGATE STANDARDS FOR THE VARIOUS TRADES. (SEE INDIVIDUAL SECTIONS OF DIVISION 15)	3.5 SERVICE OF SYSTEM	E. GAS COCK – PLUS VALVE IRON BODY, BRONZE TAPERED PLUG, LUBRICATED, THREADED ENDS. RATED FOR 200 CWP, AGA AND UL LISTED.
C. EMPLOY ONLY QUALIFIED JOURNEYMEN FOR THIS WORK. EMPLOY COMPETENT, QUALIFIED PLUMBERS TO SUPERVISE THE WORK.	A. EMPLOY COMPETENT, QUALIFIED PERSONNEL IN OPERATION OF THE EQUIPMENT.	PART 3 – INSTALLATION
1.7 CODES AND STANDARDS	B. PROVIDE FOR PROPER OPERATION AND CLEANLINESS.	3.1 PIPING

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