

SYMBOLS LIST		PIPING SYSTEMS	
SYMBOL	DESCRIPTION	UNDERGROUND PIPE SYMBOL	DESCRIPTION
	ELBOW		SANITARY, SOIL OR WASTE PIPE
	DOWN ELBOW UP		STORM SEWER PIPE
	TEE DN		SANITARY VENT PIPE
	TEE UP		EXISTING SANITARY, SOIL OR WASTE PIPE
	FIXTURE TRAP		EXISTING STORM SEWER PIPE
	CHECK VALVE		EXISTING SANITARY VENT PIPE
	BALANCING COCK		DOMESTIC COLD WATER PIPE
	BALANCING VALVE		NON-POTABLE WATER
	BALL VALVE / ISOLATION VALVE		DOMESTIC HOT WATER PIPE
	OS&Y VALVE		DOMESTIC HOT WATER RECIRC. PIPE
	GATE VALVE		SANITARY, SOIL OR WASTE PIPE
	GLOBE VALVE		STORM SEWER PIPE
	MIXING VALVE		OVERFLOW STORM SEWER PIPE
	WALL SLEEVE		SANITARY VENT PIPE
	UNION		ACID VENT PIPE
	FLOOR CLEAN OUT		PIPE TO BE REMOVED
	CLEAN OUT		EXISTING DOMESTIC COLD WATER PIPE
	PIPE CAP		EXISTING DOMESTIC HOT WATER PIPE
	WALL CLEAN OUT		EXISTING SANITARY, SOIL OR WASTE PIPE
	STRAINER		EXISTING STORM SEWER PIPE
	THERMOMETER		EXISTING SANITARY VENT PIPE
	PRESSURE GAUGE		
	HOSE BIB, EXTERIOR WITH BOX & KEY		
	HOSE BIB, EXTERIOR		
	HOSE BIB		
	HOSE BIB, SPECIAL USE		
	DOUBLE DETECTOR CHECK VALVE		
	WATER METER		
	WATER METER ASSEMBLY		
	PUMP		
	INLINE BACK FLOW PREVENTOR		
	FLOW ARROW		

ABBREVIATIONS			
ABBRV	DESCRIPTION	ABBRV	DESCRIPTION
AD	ACCESS DOOR	IW	INDIRECT WASTE
AFB	ABOVE FINISHED FLOOR	LAV	LAVATORY
ARCH	ARCHITECTURAL	MFR	MANUFACTURER
BV	BALL VALVE	MB	MOP BASIN
CI	CAST IRON	NIC	NOT IN CONTRACT
CL	CENTER LINE	NPW	NON-POTABLE WATER
CLG	CEILING	NTS	NOT TO SCALE
CO	CLEANOUT	RM	ROOM
CV	CHECK VALVE	SA	SANITARY
CW	COLD WATER	SE	SEWAGE EJECTOR
DFU	DRAIN FIXTURE UNITS	SK	SINK
DIA, Ø	DIAMETER	SP	SUMP PUMP
DN	DOWN	ST	STORM
DWG	DRAWING	SF	SQUARE FEET
EX	EXISTING	TMV	THERMOSTATIC MIXING VALVE
EA	EACH	TYP	TYPICAL
EWC	ELECTRIC WATER COOLER	U.C.	UNDER COUNTER
F	DEGREES FAHRENHEIT	U.F.U.	UPPER FLOOR UNIT
FL	FLOOR	V	VENT
HD	HUB DRAIN	VB	VACUUM BREAKER
HW	HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RECIRCULATING	WC	WATER CLOSET
IM	ICE MACHINE	FCO	FLOOR CLEANOUT

**GENERAL PLUMBING NOTES:**

- ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE ILLINOIS PLUMBING CODE, THE LATEST EDITION OF THE CHICAGO BUILDING CODE, THE LATEST EDITION OF THE CITY OF CHICAGO PLUMBING CODE, AND ALL RELATIVE AMENDMENTS.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED PERMITS AND FEES.
- DRAWINGS ARE GENERALLY DIAGRAMMATIC. ROUTING OF PIPING, DUCTWORK, CONDUITS, RACEWAYS, ETC. AS SHOWN ON THE DRAWINGS DOES NOT INTEND TO SHOW EVERY RISE, DROP, OFFSET, FITTING NOR EVERY STRUCTURAL ELEMENT THAT MAY BE ENCOUNTERED DURING THE INSTALLATION OF THIS WORK. PLUMBING CONTRACTOR SHALL MAKE ANY REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS, SUCH AS OFFSETS, BENDS, OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER OR DELAY IN THE COMPLETION DATE OF THE PROJECT.
- COORDINATE & VERIFY WITH GENERAL CONTRACTOR AND RELATED DISCIPLINES, PRIOR TO START OF ANY WORK, ALL WORK TO BE PERFORMED OUTSIDE OF THE 5'-0" BUILDING PERIMETER LIMITS OF CONSTRUCTION.
- ALL PIPING PASSING THRU FLOORS, WALLS, CEILINGS OR ROOF SHALL HAVE A DUCTILE IRON PIPE SLEEVE INSTALLED AROUND THE PIPE AND/OR INSULATION. SLEEVES THROUGH FOUNDATION WALLS SHALL BE AT LEAST 2 PIPE SIZES LARGER THAN THE SERVICE PIPE. PROVIDE AN ESCUTCHEON PLATE AROUND PENETRATIONS EXPOSED TO VIEW. ESCUTCHEON PLATES SHALL BE LARGE ENOUGH TO COVER THE ENTIRE HOLE. ALL PENETRATIONS SHALL BE SEALED TO MAINTAIN THE WALL/FLOOR/ROOF FIRE & INSULATION RATINGS.
- ALL FLOOR MOUNTED EQUIPMENT NOT PROVIDED ON A SKID IS TO BE INSTALLED ON 4" THICK CONCRETE HOUSEKEEPING PAD.
- REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR FINISHED CEILING HEIGHTS, AND LOCATION OF WALL, ROOF, AND FLOOR OPENINGS.
- PROVIDE HANGERS AND SUPPLEMENTAL SUPPORT STEEL FOR ALL EQUIPMENT AND PIPING. ALL WATER SUPPLY PIPING SHALL BE SUSPENDED WITH CLEVIS AND/OR TRAPEZE PIPE HANGERS. PIPE COVERING PROTECTION SADDLES OR SHEET METAL INSULATION SHIELDS.
- THE HOT WATER SUPPLY FOR EACH LAVATORY AND SINK IS TO BE INSULATED. THE P-TRAP AND WASTE DRAIN PIPE FOR EACH ADA ACCESSIBLE LAVATORY AND SINK IS TO BE INSULATED.
- CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID OR DOING ANY WORK. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS.
- PROVIDE ACCESS TO ALL VALVES AND SYSTEM COMPONENTS REQUIRING ACCESS. ALL PIPING ACCESSORIES AND EQUIPMENT IN MECHANICAL ROOMS SUCH AS ISOLATION VALVES, RECIRCULATION PUMPS, ETC. SHALL BE INSTALLED AT A REASONABLE HEIGHT IN ORDER TO FACILITATE MAINTENANCE.
- EXCEPT FOR PIPING ASSOCIATED WITH THE SUMP PUMPS, PLUMBING PIPING SHALL NOT BE ROUTED THROUGH OR OVER ANY ELEVATOR SHAFTS, ELEVATOR EQUIPMENT AREAS, ELECTRICAL EQUIPMENT AREAS, OR COMMUNICATIONS AREAS.
- PLUMBING CONTRACTOR TO GIVE ALL LOCATIONS AND DIMENSIONS OF ALL REQUIRED ACCESS PANELS TO THE GENERAL CONTRACTOR. GENERAL CONTRACTOR WILL SUBMIT TO THE ARCHITECT/ENGINEER FOR APPROVAL ALL FINISH REQUIREMENTS PRIOR TO INSTALLATION.
- TRENCHING, EXCAVATION, AND BACKFILL OPERATIONS SHALL BE IN ACCORDANCE WITH ARTICLE 3, SECTION 306 OF THE CHICAGO BUILDING CODE.
- IN ANY CASE WHERE NEW EQUIPMENT IS INSTALLED AND HAS TO BE CONNECTED TO EXISTING SYSTEMS, THE CONTRACTOR SHALL VERIFY THE CAPACITIES AT THE INDICATED POINT OF CONNECTION. SHOULD THE EXISTING CONDITION REQUIRE THE NEW BRANCH TO BE ROUTED TO ANOTHER LOCATION, THE CONTRACTOR SHALL PERFORM THIS WORK AS PART OF HIS CONTRACT.

**DOMESTIC WATER:**

- ALL WATER SUPPLIED TO EQUIPMENT BY OTHER TRADES SHALL HAVE AN ISOLATION VALVE AND AN APPROVED BACKFLOW PREVENTER WHICH SHALL BE SUPPLIED AND INSTALLED BY THIS CONTRACTOR.
- ALL DOMESTIC WATER SUPPLIES TO FIXTURES AND EQUIPMENT SHALL HAVE AIR CHAMBERS.
- ALL WATER SUPPLY AND RETURN PIPING SHALL BE INSULATED, INCLUDING ALL PIPING ABOVE CEILINGS, IN PIPE CHASES, AND IN WALLS. SEE SPECIFICATIONS FOR TYPE AND THICKNESS OF INSULATION. PROVIDE VALVE HANDLE EXTENSIONS ON ALL INSULATED PIPING.
- ALL HOT WATER SUPPLY PIPING SHALL BE INSTALLED TO COMPENSATE FOR EXPANSION OF THE PIPE BY INSTALLING PIPE ANCHORS, GUIDES, EXPANSION JOINTS, PIPE OFFSETS, OR LOOPS. EXPANSION JOINTS TO ACCOMMODATE MOVEMENT IN (3) AXIS(S).
- ALL INTERIOR AND EXTERIOR HOSE BIBBS/WALL HYDRANTS SHALL RECEIVE THE WATER SUPPLY DOWNSTREAM OF A STRAINER AND DOUBLE CHECK VALVE TYPE BACKFLOW PREVENTER INSTALLED INSIDE THE BUILDING AT NO MORE THAN 48" ABOVE THE FLOOR AND ACCESSIBLE TO MAINTENANCE.
- MOP SINKS ONLY WITH HOSE THREADED FAUCETS SHALL HAVE A VACUUM BREAKER ON THE SUPPLY AFTER THE VALVE, LOCATED 7"-6" ABOVE FINISHED FLOOR.
- EACH GROUP OF FIXTURES SUPPLIED WITH A BRANCH FROM THE MAIN SHALL HAVE AN ISOLATION VALVE NEAR THE POINT OF CONNECTION TO THE MAIN. ALL EQUIPMENT SUPPLIED BY COLD AND/OR HOT WATER SHALL HAVE AN ISOLATION VALVE ON THE WATER SUPPLY.
- PITCH ALL SUPPLY AND RETURN LINES TO DRAIN COMPLETELY THROUGH LOWER EQUIPMENT FIXTURES, UNIONS, AND DRAIN VALVES. INSTALL A 1/2" DRAIN VALVE WITH 3/4" HOSE THREAD AND VACUUM BREAKER OUTLET IN ALL MAIN PIPING RUNS WHICH WOULD NOT BE ABLE TO DRAIN THRU A LOWER PIECE OF EQUIPMENT.
- ALL WATER DISTRIBUTION SYSTEMS, POTABLE AND NONPOTABLE, SHALL BE IDENTIFIED BY COLOR MARKING OR METAL TAGS AS REQUIRED BY ASME A13.1.
- COPPER PIPE ABOVE GROUND SHALL BE (TYPE L) MINIMUM, SWEAT WITH WROUGHT FITTINGS.
- PROVIDE UNIONS AND/OR FLANGES TO DISCONNECT ALL PERTINENT EQUIPMENT INCLUDING BUT NOT LIMITED TO PUMPS, WATER HEATERS, TANKS, FILTERS AND VALVE TRAINS.

**SANITARY STORM & VENT:**

- ALL SANITARY AND STORM PIPING SHALL SLOPE AT 1/4" PER FOOT FOR 2-1/2" AND SMALLER, AT 1/8" PER FOOT FOR 3" TO 6", AND 1/16" FOR 8" AND LARGER PIPING UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- ALL HORIZONTAL DRAINS SHALL BE PROVIDED WITH CLEANOUTS LOCATED NO MORE THAN 100 FEET APART, EXCEPT THAT THE MAXIMUM SHALL BE 50 FEET FOR DRAINS 4" OR LESS, 150 FEET FOR DRAINS 10" OR LARGER.
- ALL SOIL STACKS SHALL RUN FULL SIZE THROUGH THE ROOF.
- INSULATE ALL HORIZONTAL RUNS OF STORM PIPING ADJACENT TO ROOF DRAINS.
- THE DIAMETER OF ALL VENTS SHALL BE AT LEAST ONE-HALF THE DIAMETER OF THE DRAIN LINE SERVED BUT NOT LESS THAN 1-1/2".
- CATCH BASINS AND MANHOLES ARE THE RESPONSIBILITY OF THE SITE CONTRACTOR.

- IN AREAS SUCH AS MECHANICAL/ELECTRICAL ROOMS, WHERE A TRAP SEAL IS SUBJECT TO LOSS BY EVAPORATION, PROVIDE A DEEP SEAL TRAP (CONSISTING OF A 4-INCH SEAL), A TRAP FILLER WITH MINERAL OIL, OR A TRAP PRIMER PER MANUFACTURER'S REQUIREMENTS.

**SOLAR:**

- ALL SOLDER CONNECTIONS IN COLLECTOR LOOP SHALL USE A MINIMUM OF 95%/5% TIN/SILVER SUITABLE TO 400°F AND 150 PSI.
- BALANCING VALVES SHALL BE USED TO PRODUCE EQUAL FLOW THROUGH ALL COLLECTOR ARRAYS.
- INSTALL AIR VENTS AT THE OUTLET AND INLET OF EACH ARRAY OF COLLECTORS IN THE HIGH POINTS OF THE COLLECTOR ARRAY PIPING.
- HEAT EXCHANGERS SHALL BE FLAT PLATE, COPPER-BRAZED STAINLESS STEEL DOUBLE WALL CONSTRUCTION.

**INSULATION:**

- DOMESTIC HOT & COLD WATER-SUSPENDED PIPING: HEAVY DENSITY, FIBERGLASS PIPE INSULATION. 1/2" THICK, WITH FLAME RETARDANT VAPOR BARRIER JACKET, AS MANUFACTURED BY OWENS-CORNING OR JOHNS-MANVILLE. ALL PIPING SHALL BE INSULATED AS WELL AS ALL WATER PIPING IN EXTERIOR WALLS WHERE FREEZING MAY OCCUR.
- STORM DRAIN-SUSPENDED PIPING: HEAVY DENSITY, FIBERGLASS PIPE INSULATION 1/2" THICK, WITH FLAME RETARDANT VAPOR BARRIER JACKET, AS MANUFACTURED BY OWENS-CORNING OR JOHNS-MANVILLE. INSULATE ALL INTERIOR HORIZONTAL & VERTICAL LEADERS FROM ROOF DRAINS TO PREVENT CONDENSATION.
- VENTS-EXPOSED PIPING: HEAVY DENSITY, FIBERGLASS PIPE INSULATION, 1/2" THICK, WITH FLAME RETARDANT VAPOR BARRIER JACKET, AS MANUFACTURED BY OWENS-CORNING OR JOHNS-MANVILLE WITH PVC JACKET. INSULATE INTERIOR, EXPOSED, HORIZONTAL VENT PIPING & VERTICAL LEADERS FROM VTR TO PREVENT CONDENSATION.

**MATERIALS: (HUB & SPIGOT)**

- UNDERGROUND STORM, DRAINAGE, AND VENT PIPE SHALL BE: CAST-IRON PIPE, HUB SPIGOT: ASTM A-74; ASTM A-888; CISPI 301
- ABOVE-GROUND STORM, DRAINAGE AND VENT PIPE SHALL BE: CAST-IRON PIPE, HUB & SPIGOT: ASTM A-74; CISPI 301; ASTM A888 COPPER OR COPPER-ALLOY PIPE: ASTM B-42; ASTM B-302 COPPER OR COPPER-ALLOY TUBING (TYPE K OR L): ASTM 75; ASTM B-88; ASTM B-251; ASTM B-306 GALVANIZED STEEL PIPE: ASTM A-53
- UNDERGROUND WATER SERVICE PIPE SHALL BE: COPPER OR COPPER-ALLOY TUBING (TYPE K); ASTM B-74; ASTM B-88; ASTM B-251; ASTM B-447 DUCTILE IRON WATER PIPE (CEMENT LINED); AWWA C-151; AWWA C-115
- ABOVE-GROUND WATER DISTRIBUTION PIPE SHALL BE: ALL SIZES - COPPER OR COPPER-ALLOY TUBING (TYPE K OR L); ASTM B-74; ASTM B-88; ASTM B-251; ASTM B-4476" AND LARGER - GALVANIZED STEEL PIPE: ASTM A-53
- ABOVE-GROUND SOLAR PIPE SHALL BE: ALL SIZES - BRAZED COPPER OR COPPER-ALLOY PIPING (TYPE K OR L).
- GASKETED BELL AND SPIGOT C.I. PIPING IS RESERVED FOR UNDERGROUND USE. ABOVE GROUND SHALL BE CAULKED JOINTS.

**MATERIALS: (HUBLESS)**

- UNDERGROUND STORM, DRAINAGE, AND VENT PIPE SHALL BE: HUBLESS CAST-IRON PIPE: ASTM A-888; CISPI 301
- ABOVE-GROUND STORM, DRAINAGE AND VENT PIPE SHALL BE: HUBLESS CAST-IRON PIPE: CISPI 301; ASTM A888 COPPER OR COPPER-ALLOY PIPE: ASTM B-42; ASTM B-302 COPPER OR COPPER-ALLOY TUBING (TYPE K OR L): ASTM 75; ASTM B-88; ASTM B-251; ASTM B-306 GALVANIZED STEEL PIPE: ASTM A-53
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- ABOVE-GROUND SOLAR PIPE SHALL BE: ALL SIZES - BRAZED COPPER OR COPPER-ALLOY PIPING (TYPE K OR L).
- SHIELDED COUPLINGS SHALL BE STAINLESS STEEL: CISPI 310 WITH STAINLESS STEEL CORRUGATED SHIELD; STAINLESS-STEEL BANDS AND TIGHTENING DEVICES; AND ASTM C 564, RUBBER SLEEVE.

**MATERIALS: (PVC)**

- ABOVE-GROUND & UNDERGROUND STORM, DRAINAGE, AND VENT PIPE SHALL BE: SOLID WALL PVC PIPE: ASTM D 2665, CSA B137.2. PVC SOCKET FITTINGS SHALL BE ASTM D 2665, SOCKET TYPE, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS.

**ACCESSIBILITY:**

- PER ILLINOIS ACCESSIBILITY CODE, CURBS IN ACCESSIBLE SHOWER STALLS SHALL BE NO HIGHER THAN 1/2 INCH. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A RECESSED FLOOR, IF REQUIRED, IN ORDER TO MEET THIS REQUIREMENT. COORDINATE FLOOR/SHOWER BASE HEIGHT WITH ARCHITECTURAL.

**NOTES**

- ALL DIMENSIONS SHALL BE CHECKED AND CO-RELATED WITH THE STRUCTURAL DRAWINGS AND ANY AMBIGUITY SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF THE ARCHITECT BEFORE COMMENCEMENT OF THE WORK.
- ALL DIMENSIONS ARE IN CENTIMETERS UNLESS AND OTHERWISE SPECIFIED.
- ALL LEVELS ARE FINISHED LEVELS.
- ALL MARGINS, CLEARANCES ETC. REQUIRED AS PER BYE-LAWS SHOULD BE CHECKED AND PROVIDED BY THE CONTRACTOR AND ANY DEFICIENCIES FOUND SHOULD BE IMMEDIATELY BROUGHT TO THE NOTICE OF ARCHITECT BEFORE COMMENCEMENT OF WORK.

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GERENAL NOTES AND SYMBOLS - PLUMBING

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