DRAWING ABBREVIATIONS AND SYMBOLS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ABV	ABOVE	REF	REFERENCE
CO	CLEANOUT	RD	ROOF DRAIN
CW	COLD WATER	SAN	SANITARY SEWER
EXT FCO	EXTERIOR FLOOR CLEANOUT	S/S	STAINLESS STEEL
		TYP	TYPICAL
FCO	FLOOR CLEAN OUT	V	SANITARY VENT
FF	FINISH FLOOR	VTR	VENT THROUGH ROOF
G	NATURAL GAS	W/O	
		WCO	WALL CLEAN OUT
HPG	HIGH PRESSURE NATURAL GAS	WHA	WATER HAMMER ARRESTOR

GENERAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
1	NOTE BY SYMBOL DESIGNATION		CONTINUATION OF SYSTEM OR LINE

NOTES:
1. ALL ABBREVIATIONS AND SYMBOLS ARE NOT NECESSARILY USED.
2. ALL MATERIALS, LABOR, COORDINATION, AND SUPERVISION IS BY CONTRACTOR UNLESS SPECIFICALLY NOTED "BY OWNER" OR "NIC". CONTRACTOR SHALL COORDINATE AND INSTALL EQUIPMENT WHEN NOTED "OWNER FURNISHED".
3. SYMBOLS USED, BUT NOT ON THE LEGEND ARE NOTED ON THE PLAN.

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SANITARY SEWER	FCO	FLOOR CLEANOUT
	PLUMBING VENT	WCO	WALL CLEANOUT
SD	STORM DRAIN		
	DOMESTIC COLD WATER	EXT FCO	EXTERIOR FLOOR CLEANOUT
	DOMESTIC HOT WATER		
G	GAS LINE	DBL EXT FCO	DOUBLE TWO-WAY EXTERIOR FLOOR CLEANOUT
	DIRECTION OF FLOW		
	BALL VALVE		ELBOW TURNING DOWN
	UNION		ELBOW TURNING UP
P 1	SANITARY WASTE OR VENT STACK / WASTE OR VENT NO.		CAPPED PIPE
	GATE VALVE WITH C.I. VALVE BOX		CONCENTRIC PIPE REDUCER/INCREASER
	STRAINER W/ BLOWDOWN GATE VALVE		ECCENTRIC PIPE REDUCER/INCREASER
WH	WALL HYDRANT		PIPE SLEEVE
RD	ROOF DRAIN	SLOPE	DIRECTION OF SLOPE (DNWARD)
VTR	VENT THRU ROOF		UNION

PIPING SCHEDULE

SYMBOL	SERVICE	PIPE MATERIAL	TYPE JOINT	FITTINGS	TEST
	SANITARY WASTE AND UNDERGROUND HVAC CONDENSATE DRAIN	SCHEDULE 40 DWV PVC	SOLVENT WELD (PER MANUFACTURER'S RECOMMENDATIONS)	SCHEDULE 40 DWV PVC	10 ft. FOR 6-HOURS
	SANITARY VENT	SCHEDULE 40 DWV PVC	SOLVENT WELD (PER MANUFACTURER'S RECOMMENDATIONS)	SCHEDULE 40 DWV PVC	10 ft. FOR 6-HOURS
	DOMESTIC WATER AND ABOVE GROUND HVAC CONDENSATE DRAIN	TYPE 'L' HARD DRAWN COPPER (TYPE 'K' FOR UNDERGROUND)	SWEAT WITH LEAD FREE SOLDER, SILVER SOLDER FOR UNDERGROUND	WROUGHT COPPER (CONTINUOUS NO JOINTS UNDER- FLOOR SLAB)	150 ft. FOR 24 HOURS

PLUMBING FIXTURE SCHEDULE

CONNECTION SIZE W.	V.	C.W.	H.W.	ITEM	DESCRIPTION
-	-		-	WH-1 NON-FREEZE WATER HYDRANT	WATTS #HY-330-K-3 VACUUM BREAKER, 3/4" NPT OUTLET AND 'T' HANDLE. DEPTH AS REQUIRED FOR WALL THICKNESS.
AS NOTED ON PLANS				WALL CLEANOUT: (WCO)	MIFAB No. C1400-R6-36, STAINLESS STEEL ROUND WALL CLEANOUT ACCESS COVER.
AS NOTED ON PLANS				CLEANOUT: (CO) (FCO)	MIFAB No. C1000 SERIES, STAINLESS STEEL ROUND FLOOR CLEANOUT ACCESS COVER. HEAVY DUTY TOP, TAPER THREAD BRONZE PLUG, NICKLE BRONZE TOP
AS NOTED ON PLANS				WATER HAMMER ARRESTORS (WHA)	WATER HAMMER ARRESTORS MIFAB WHB-SERIES STAINLESS STEEL BELOWS TYPE
AS NOTED ON PLANS				ACCESS DOOR: (AD)	MIFAB 10" X 10" SQUARE STAINCOAT STEEL ACCESS DOOR WITH ANCHOR LUGS AND SATIN SMOOTH SECURE COVER.

NOTES
1. OR OWNER APPROVED EQUAL MANUFACTURERS.
2. PROVIDE SOLID JOINT CONNECTIONS ON TUB WASTE AND OVERFLOW, OR ACCESS PANEL IF SLIP JOINT CONNECTION IS USED (SLIP JOINT ONLY, WHERE ALLOWED BY CODE).
3. PROVIDE OFFSET TRAP FOR ALL ACCESSIBLE LAVATORIES AND SINKS.
4. ALL FLOOR DRAINS, HUB DRAINS AND FLOOR SINKS SHALL BE PROTECTED WITH TRAP PRIMERS WETHER SHOWN ON PLANS OR NOT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TRIM AND ACCESSORIES NECESSARY FOR A COMPLETE AND WORKING INSTALLATION.

GENERAL PLUMBING NOTES:

(THESE NOTES APPLY TO ALL SHEETS)
(REFER TO SHEETS FOR ANY ADDITIONAL GENERAL NOTES)

1. CONTRACTOR TO CHANGE LOCATION OF NEW PIPING, AS SHOWN, TO MEET FIELD CONDITIONS.
2. CONTRACTOR SHALL NOT SCALE DRAWINGS.
3. CONTRACTOR SHALL LAYOUT HIS WORK FROM ACTUAL FIELD MEASUREMENTS AND ACTUAL DIMENSIONS OF EQUIPMENT INSTALLED, ALL PIPING AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN REQUIRED CLEARANCES. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL LOCATIONS SUBJECT TO APPROVAL OF ARCHITECT.
4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL WALLS, PARTITIONS, CEILING HEIGHTS, AND EQUIPMENT.
5. ROUTE ALL PIPING CONCEALED, HIDDEN FROM VIEW AND AS HIGH AS POSSIBLE ABOVE CEILING LEVELS.
6. PRIOR TO BID SUBMITTAL THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS TO VERIFY FLOOR PLAN SCALE OF MECHANICAL DRAWINGS PRIOR TO ANY QUALITATIVE TAKE – OFF OF MATERIAL.
7. INSULATE ALL DOMESTIC WATER SUPPLY (HOT AND COLD) PIPING WITH 1–INCH THICK FIBERGLASS PIPE INSULATION. FIBERGLASS PIPE INSULATION SHALL HAVE AN ALL SERVICE JACKET (ASJ) WITH SELF–SEALING LAPS (OWENS CORNING SSL–11 OR EQUAL). ALL PIPING INSULATION USED ON THE PROJECT SHALL HAVE A FLAME SPREAD RATING NOT EXCEEDING 25 AN A SMOKE DEVELOPED RATING NOT EXCEEDING 50 AS DETERMINED BY TEST PROCEDURES ASTM E 84 NFPA 225 AND U.L. 723. THESE RATINGS MUST BE AS TESTED ON THE COMPOSITE OF INSULATION JACKET OR FACING AND ADHESIVE. COMPONENTS SUCH AS ADHESIVES MASTIC AND CEMENTS SHALL MEET THE SAME INDIVIDUAL RATINGS AS THE MINIMUM REQUIREMENTS.
8. SUPPORT INSULATION AT HANGERS AND SUPPORTS WITH A SHIELD OF GALVANIZED METAL EXTENDING NOT LESS THAN 4–INCHS ON EITHER SIDE OF THE SUPPORT BEARING AREA COVERING AT LEASE HALF OF THE PIPE CIRCUMFERENCE.
9. PERFORM WORK IN ACCORDANCE WITH APPLICABLE STATUES, ORDINANCES, CODES, AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS.

PLUMBING SPECIFICATIONS

PART 1 GENERAL

1. MATERIALS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND REQUIREMENTS.
2. OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTION FEES, TAPPING FEES, CONNECTION CHARGES, AND UTILITY COMPANY SERVICE CHARGES.
3. INSTALLATION SHALL BE DONE IN A NEAT AND WORKABLE MANNER.
4. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED FOR EXACT SIZES OR LOCATIONS. THEY ARE NOT INTENDED TO DISCLOSE ABSOLUTE OR UNCONDITIONAL KNOWLEDGE OF ACTUAL FIELD CONDITIONS.

PART 2 – PRODUCTS

1. ALL DOMESTIC WATER PIPING INSIDE THE BUILDING ABOVE SLAB SHALL BE TYPE 'L' HARD DRAWN COPPER (TYPE 'K' FOR UNDERGROUND) WITH WROUGHT COPPER FITTINGS, SWEAT WITH LEAD FREE SOLDER.
2. ALL CONDENSATE PIPING ON THE ROOF SHALL BE TYPE 'M' COPPER. OR PVC WHERE ALLOWED BY CODE
3. DOMESTIC WATER AND CONDENSATE DRAIN PIPING BELOW SLAB AND OUTSIDE SHALL BE TYPE "K" SOFT SEAMLESS. NO JOINTS SHALL BE ALLOWED BELOW SLAB. ALL SLAB PENETRATIONS SHALL BE SLEEVED TO PROTECT PIPING FROM CORROSION BY CONCRETE.
4. COPPER PIPE FITTINGS SHALL BE WROUGHT COPPER SWEEP PATTERN FITTINGS, SOLDERED USING 95–5 LEAD–FREE SOLDER OR BRAZED WITH SIL–FOS.
5. ALL SANITARY WASTE, VENT AND STORM DRAINAGE PIPING INSIDE AND EXTENDING 30" OUTSIDE THE BUILDING SHALL BE SCHEDULE 40 PVC DWV EQUIVALENT TO CHARLOTTE PIPE AND MEET ASTM D–2665. EXTERIOR PVC PIPING 30" FROM BUILDING SHALL BE TYPE SDR–35 AND ASTM D–3034.
6. JOINTS FOR PVC PIPING SHALL BE SOLVENT WELD TYPE INSIDE AND UNDERSLAB TO A POINT 30" OUTSIDE THE BUILDING AND NEOPRENE PUSH–ON TYPE JOINTS BEYOND OUTSIDE 30" FROM THE BUILDING.
7. INSULATE AND HEAT TRACE ALL DOMESTIC HOT AND COLD WATER PIPING LOCATED IN AREAS SUBJECT TO FREEZING. INSULATION SHALL BE 1" THICK FIBERGLASS AS MANUFACTURED BY MANVILLE, OWENS–CORNING, OR KNAUF.
8. ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES. 2" AND SMALLER – SCREWED, 2 1/4" AND LARGER WELDED
9. ALL UNDERGROUND NATURAL GAS PIPING SHALL BE POLYETHYLENE (PE–2306) WITH HEAT FUSION JOINTS

PART 3 – EXECUTION

1. EXCAVATION, BACKFILLING AND TRENCH WORK SHALL BE DONE IN ACCORDANCE WITH O.S.H.A. AND EXISTING SAFETY STANDARDS.

A. PROVIDE SHORING AND CLEANING NECESSARY TO KEEP TRENCHES IN GOOD WORKING CONDITION, INCLUDING PUMPING OUT WATER.

B. IN MOSTLY ROCK MATERIAL, TRENCHES SHALL BE EXCAVATED TO AT LEAST 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH CRUSHED LIMESTONE. GRAVEL SHALL BE SCOOPED OUT UNDER PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.

C. IN MOSTLY EARTH OR SAND MATERIAL, THE LAST 6" OF EXCAVATION SHALL BE DONE BY HAND. TRENCH BOTTOM SHALL BE SCOOPED OUT AT PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.

D. BACKFILLING AND TAMPING SHALL BE CAREFULLY DONE BY HAND SIMULTANEOUSLY ALONG BOTH SIDES OF THE PIPE USING ROCK FREE EARTH, CRUSHED STONE OR SAND UNTIL THE PIPE IS COVERED TO A DEPTH OF AT LEAST 12". THE REST OF THE FILL–UP TO THE TOPSOIL LAYER MAY BE GRAVEL OR ROCK FREE EARTH. ACCEPTABLE SOIL MATERIALS FOR BACK FILL AND FILL SHALL BE FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS AND OTHER DELETERIOUS MATTER HAVING A PLASTICITY INDEX LESS THAN 30. BACKFILL SHALL BE DONE IN LAYERS OF NOT MORE THAN 8" AND EACH LAYER SHALL BE COMPACTED. THE LAST 12" OF BACKFILL SHALL BE ROCK FREE TOPSOIL.

E. SURFACE SHALL BE RESTORED TO ITS ORIGINAL CONDITION.

2. PRESSURE REDUCING VALVE SHALL BE SET AT 70 PSI MAXIMUM. PRESSURE RELIEF VALVE SHALL BE SET AT 80 PSI MAXIMUM.
3. EXPOSED HOT AND COLD WATER TRIM IN FINISHED AREAS SHALL BE CHROME FINISHED.
4. ALL HORIZONTAL AND VERTICAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODE RECOM–MENDATIONS. SUPPORTS SHALL SECURELY HOLD PIPING, PREVENT VIBRATION, COMPENSATE FOR ALL STATIC AND OPERATIONAL CONDITIONS OF THE VARIOUS SYSTEMS AND SHALL NOT BE SUBJECT TO ELECTROLYTIC ACTION. SHOCK ABSORBERS SERVICING FIXTURES WITH FLUSH VALVES SHALL BE SECURELY ANCHORED IN THEIR VERTICAL POSITION. ACCEPTABLE METHODS OF SUPPORT WILL BE THE SUMMER SYSTEM, POSIFIX, STAKFIX, PIPEFIX, HOLDRITE OR CHANNEL.
5. PROVIDE J.R. SMITH OR APPROVED EQUAL SHOCK ABSORBERS #5005 THRU 5050 SIZE AS RECOMMENDED BY MANUFACTURER INSTALLED ON HOT AND COLD WATER BRANCH LINES CONTAINING SINGLE LEVER FAUCETS, FLUSH VALVES OR EQUIPMENT WITH QUICK CLOSING VALVES BETWEEN THE LAST TWO FIXTURES AS SHOWN ON THE CONTRACT DRAWINGS.
6. SANITARY WASTE LINES SHALL BE UNIFORMLY GRADED TO ELEVATIONS SHOWN. IF NO ELEVATIONS ARE GIVEN, SEWERS SHALL BE PITCHED NOT LESS THAN 1/4" PER FOOT FOR ALL PIPING 2–1/2" IN DIAMETER AND SMALLER AND 1/8" PER FOOT FOR ALL PIPING 3" IN DIAMETER AND LARGER.
7. SUPPORT HORIZONTAL PIPING AS FOLLOWS:

NOMINAL PIPE SIZE (IN.)	MAXIMUM DISTANCE BETWEEN SUPPORT (FT.)	MINIMUM HANGER DIAMETER (IN.)
1/2	6	
3/4 TO 1–1/2	6	3/8
2 TO 2–1/2	10	3/8
3 TO 6	12	1/2

8. HANGERS FOR PIPING GREATER THAN 1" SHALL PASS OVER THE INSULATION. PROVIDE SADDLES FOR INSULATED PIPING.
9. INSULATION SHALL BE APPLIED WITH JOINTS TIGHTLY BUTTED. OPEN CRACKS, VOIDS AND DEPRESSIONS SHALL BE FILLED WITH HYDRAULIC SETTING CEMENT. LAPPING MATCHING THE FINISH SHALL BE PASTED NEATLY OVER JOINTS.
10. FITTINGS AND VALVES SHALL BE INSULATED WITH THE SAME TYPE INSULATION AS THE PIPING OR WITH HYDRAULIC SETTING CEMENT, BUILT–UP TO THE SAME THICKNESS AS LINES. COVER SHALL BE SAME AS ADJACENT PIPING OR PVC PREFORMED JACKET.
11. PROVIDE AND INSTALL A CUT–OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS–FIRED PIECE OF EQUIPMENT.
12. THE SYSTEM TESTS DESCRIBED HEREIN ARE MINIMUM REQUIREMENTS. HOWEVER, ADDITIONAL TESTS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION SHALL ALSO BE PERFORMED.
13. DOMESTIC WATER PIPING SHALL BE TESTED HYDROSTATICALLY AT 85 PSI. IN ADDITION PIPING SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
14. THE DOMESTIC WATER SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY BY OPENING OUTLETS AND FLOWING WATER UNTIL IT RUNS CLEAR. AFTER PIPE CLEANING IS COMPLETED, THE STRAINERS SHALL BE REMOVED, CLEANED, AND REPLACED. THEN THE ENTIRE DOMESTIC WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION.
15. THE SANITARY WASTE SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY WITH FLOWING WATER UNTIL IT RUNS CLEAR.
16. THE ENTIRE SANITARY WASTE SYSTEM SHALL BE TESTED AGAINST A HEAD PRESSURE OF 10', FOR 6 HOURS WITHOUT LEAKAGE.

CITY OF KENEDY
PLUMBING PLAN CHECKING NOTES

1. NEW WATER METER RECEIPT (FROM CITY OF KENEDY TAP SALES OFFICE) WILL BE PROVIDED BY THE OWNER AND THE CIVIL ENGINEER. THESE DRAWINGS DO NOT INCLUDE WATER SUPPLY PIPING BEYOND 5'–0" FROM THE BUILDING. SITE UTILITY ITEMS SUCH AS WATER METERS ARE THE RESPONSIBILITY OF THE CIVIL ENGINEER.
2. APPROVED CITY OF KENEDY WATER AND WASTE WATER DEPT. UTILITY PLOT PLANS SHOWING THE NEW WATER METER WILL BE PROVIDED BY THE OWNER AND THE CIVIL ENGINEER THESE PLUMBING DRAWINGS DO NOT INCLUDE WATER SUPPLY PIPING BEYOND 5'–0" FROM THE BUILDING. SITE UTILITY ITEMS SUCH AS WATER METERS ARE THE RESPONSIBILITY OF THE CIVIL ENGINEER.

NOTE:

1. ROUTE ALL PIPING HIDDEN FROM VIEW AS HIGH AS POSSIBLE ABV. CLG.
2. COORDINATE ROUTING OF ALL PIPING WITH ALL OTHER TRADES. OFFSET PIPING AS NECESSARY.
3. UNLESS OTHERWISE NOTED, ALL PIPING SHOWN SHALL BE ROUTED ABV. CLG.
4. REFERENCE PLUMBING RISER DIAGRAMS FOR ADDITIONAL SIZES, WHA SIZES AND LOCATIONS, AND ADDITIONAL INFO.

GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS)
ALL MATERIALS, FIXTURES AND DEVICES SHALL CONFORM TO APPROVED APPLICABLE STANDARDS

GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS)
ALL PLUMBING SHALL BE IN ACCORDANCE WITH CITY OF KENEDY PLUMBING CODES

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PLUMBING LEGEND, SCHEDULE & DETAILS

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