LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	S OR W	SOIL OR WASTE (ABOVE GRADE)
	S OR W	SOIL OR WASTE (BELOW GRADE)
	V	SANITARY VENT
	CW	COLD WATER
	HW	120° HOT WATER
	HWR	HOT WATER RETURN
G	G	NATURAL GAS
MPG	MPG	MEDIUM PRESSURE GAS (5 P.S.I.)
MPG	MPG	MED. PRESSURE GAS (5 P.S.I.) BEL. GRD.
	FCO	FLOOR CLEANOUT
	COYB	CLEANOUT IN YARDBOX
	WCO	WALL CLEANOUT
	SOV IN YB	SHUT-OFF VALVE IN YARD BOX
	BV	BALL VALVE
	GV	GATE VALVE
	CV	CHECK VALVE
	GC	GAS COCK
	VTR	VENT THRU ROOF
	POD/POC	POINT OF CONNECTION
	I.E.	INVERT ELEVATION
	CONN	CONNECTION
	AP	ACCESS PANEL
	W/	WITH
	FLR	FLOOR
	CLG	CEILING
	ABV	ABOVE
	BEL	BELOW
	DN	DOWN
	YB	YARD BOX
	CFH	CUBIC FEET PER HOUR
	GRD	GRADE

GENERAL NOTES

1. BEFORE COMMENCEMENT OF WORK, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, ELEVATIONS AND CHARACTERISTICS OF ALL UTILITIES AND PIPING, AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR PROBLEMS.
2. EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR ACCESSIBLE FIXTURE LOCATIONS AND MOUNTING HEIGHTS. FURNISH ALL EXPOSED HOT WATER AND DRAIN PIPING BELOW ALL LAVATORIES AND SINKS WITH McGUIRE PROWRAP PRE-WRAPPED OFFSET TAILPIECES AND P-TRAPS. ALL WATER CLOSET FLUSHING LEVERS SHALL BE TO THE WIDE SIDE OF THE STALL.
4. TRAPS FOR ALL LAVATORIES AND SINKS SHALL TRAP STRAIGHT BACK TO WALL WITH ALL REQUIRED OFFSETS HAPPENING WITHIN THE WALL.
5. ALL PLUMBING WORK SHALL BE INSTALLED TO AVOID INTERFERENCE WITH ELECTRICAL AND MECHANICAL EQUIPMENT AND STRUCTURAL FRAMING.
6. ALL CLEANOUTS SHALL BE INSTALLED WHERE EASILY ACCESSIBLE. THE CONTRACTOR SHALL COORDINATE ALL CLEANOUT LOCATIONS WITH ALL EQUIPMENT, CABINETS, ETC., AND THE ARCHITECT PRIOR TO ANY INSTALLATION.
7. ALL PLUMBING FIXTURE VENTS SHALL TERMINATE A MINIMUM OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10 FEET FROM ANY OUTSIDE AIR INTAKES.
8. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS PIPE UNLESS OTHERWISE INDICATED ON PLANS.
9. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH VALVE AND PRIOR TO ALL EQUIPMENT CONNECTIONS.
10. ALL WORK SHALL BE PERFORMED AND ALL MATERIALS SHALL BE INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THIS PROJECT:
    - Part 1 2007 California Building Standards Administrative Code, Title 24 C.C.R.
    - Part 2 2007 California Building Code (CBC), Title 24 C.C.R. (2006 International Building Code of the International Code Council, with California Amendments)
    - Part 3 2007 California Electrical Code (CEC), Title 24 C.C.R. (2005 National Electrical Code of the National Fire Protection Association, NFPA)
    - Part 4 2007 California Mechanical Code (CMC), Title 24 C.C.R. (2006 Uniform Mechanical Code of the International Association of Plumbing and Mechanical Officials, IAPMO)
    - Part 5 2007 California Plumbing Code (CPC), Title 24 C.C.R. (2006 Uniform Mechanical Code of the International Association of Plumbing and Mechanical Officials, IAPMO)
    - Part 6 2007 California Energy Code, Title 24 C.C.R.
    - Part 7 2007 California Elevator Saftey Construction Code
    - Part 8 2007 California Historical Building Code, Title 24 C.C.R.
    - Part 9 2007 California Fire Code, Title 24 C.C.R. (2006 International Fire Code of the International Fire Code Council)
    - Part 10 2007 California Existing Building Code, Title 24 C.C.R. (2006 International Existing Building Code of the International Code Council, with Amendments)
    - Part 12 2007 California Referenced Standards, Title 24 C.C.R.

    PARTIAL LIST OF APPLICABLE NFPA STANDARDS:

NFPA 13	Automatic Sprinkler Systems (California Amended)	2002 Edition
NFPA 24	Private Fire Service Mains	2002 Edition
NFPA 72	National Fire Alarm Code (California Amended) (Note: See UL Standard 1971 for "Visual Devices")	2002 Edition

11. BEFORE FABRICATION OR INSTALLATION THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN THE FIELD.
12. ALL WASTE AND VENT PIPING SHALL SLOPE AT 2% UNLESS OTHERWISE INDICATED ON PLANS.
13. ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTERS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
14. ALL PLUMBING FIXTURES AND EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA STATE ENERGY COMMISSION TO COMPLY WITH EFFICIENCY STANDARDS PER SECTION 2-5314(A) OF THE TITLE-24 REGULATIONS.
15. ALL HOT WATER AND TEMPERED PIPING SHALL BE INSULATED. INSULATION SHALL HAVE A FLAME SPREAD OF NOT MORE THAN 25 AND A SMOKE DENSITY NOT EXCEEDING 50 PER CMC SEC. 1201.1.1.8 SEE SPECIFICATION FOR OTHER REQUIREMENTS.
16. PIPING THROUGH FIRE RATED WALLS SHALL BE PER U.L. FIRE RESISTANCE SYSTEM NO. WL1001. SEE ARCHITECTURAL PLANS FOR ALL WALL LOCATIONS.
17. ALL PIPING INTO STEM WALLS AND FOOTINGS SHALL BE DOUBLE HALF LAP WRAPPED WITH 1/8" THICK "ARMOFLEX" INSULATION TAPE. THE CONTRACTOR SHALL ALSO PROVIDE BLOCKED OUT AREAS IN STEM WALL AND FOOTING. ALL PIPING SHALL AVOID THE LOWER 8" OF THE FOOTING.
18. ALL EXTERIOR WATER SHUT OFF VALVES AND/OR SEWER CLEANOUTS BELOW GROUND SHALL BE INSTALLED IN YARD BOXES W/ THE COVERS CONSPICUOUSLY MARKED "WATER" AND "SEWER" RESPECTIVELY.
19. ALL FIXTURES SHALL MEET LOCAL CONSERVATION REQUIREMENTS.
20. ALL SHOWERS AND SHOWER SHALL HAVE ANTI-SCALD PRESSURE BALANCED VALVES. HANDLE POSITION STOPS SHALL BE ADJUSTED TO DELIVER A MAXIMUM MIXED WATER SETTING OF 120° F.
21. PROVIDE ALL SANITARY FLOOR DRAINS WITH TRAP PRIMER CONNECTIONS BEHIND ACCESS PANELS.
22. EACH SANITARY VENT SHALL RISE VERTICALLY TO A POINT NOT LESS THAN SIX (6) INCHES IN HEIGHT ABOVE THE FLOOD LEVEL RIM OF THE FIXTURE BEFORE CONNECTING TO ANY OTHER VENT.
23. CONDENSATE DRAIN FOR HEAT PUMP UNIT AT RESIDENT UNIT SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
24. ALL SHOWER TRAPS SHALL BE PROVIDED WITH SOLID JOINTS.
25. THE PLUMBING FIXTURES AND PLUMBING FITTINGS SHALL MEET THE STANDARDS NOTED BELOW:
    - A. WATER CLOSET = 1.6 GALLONS PER FLUSH MAXIMUM
    - B. SHOWER HEADS = 2.5 GALLONS PER MINUTE MAXIMUM
    - C. LAVATORY FAUCETS = 2.2 GALLONS PER MINUTE MAXIMUM
    - D. SINK FAUCETS = 2.2 GALLONS PER MINUTE MAXIMUM
    - E. URINALS = 1.0 GALLON PER FLUSH MAXIMUM (.125 MIN)
26. TRAP PRIMER SHALL BE PROVIDED WHERE INDICATED ON DRAWINGS OF TYPE SPECIFIED AND TO ALL FLOOR DRAINS & FLOOR SINKS EXCEPT FOR SHOWER FLOOR DRAINS.
27. ALL PIPE SIZES SHALL BE THE SAME AS THE UPSTREAM PIPE SIZES UNLESS OTHERWISE INDICATED ON PLAN.
28. CLEANOUT SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS AND AS PER CPC SECTION 707.
29. IN CASE OF A DIFFERENCE IN THE SPECIFICATIONS BETWEEN THE SPECIFICATIONS AND THE DRAWINGS, OR IN THE DRAWINGS, THE CONTRACTOR SHALL INCLUDE THE COST OF THE MOST EXPENSIVE ALTERNATE IN THE BID PROPOSAL. THE CONTRACTOR SHALL SECURE DIRECTION FROM THE ARCHITECT BEFORE START OF ANY CONSTRUCTION.
30. ALL PLUMBING PENETRATION THROUGH WALLS WHICH REQUIRE PROTECTED OPENINGS (OCCUPANCY SEPARATION WALLS, AREA SEPARATION WALLS, CORRIDOR WALLS AND WALLS TO CLOSE TO A REAL OR IMAGINARY PROPERTY LINE) ARE REQUIRED TO BE GALVANIZED OR CAST IRON PIPING.
31. CONTRACTOR SHALL BE IN COMPLIANCE WITH THE SPACING OF HANGERS AND SUPPORTS COVERED IN SECTION 314.0 AND TABLES 3-1 & 3-2 IN THE 2007 CPC. PIPING FIVE INCHES OR LARGER TO BE SUPPORTED AT 4 FOOT ON CENTERES AND BOTH SIDES HUBLESS COUPLINGS.

FIXTURE SCHEDULE

ITEM	FIXTURE	ROUGH-IN CONNECTIONS: TRAP	WASTE	VENT	HOT WATER	COLD WATER	GAS	STORM DRAIN	DESCRIPTION
WC 1	WATER CLOSET (ACCESSIBLE)	INT.	4"	2"	--	3/4"	--	--	A/S NO. 2998.012 "CADET", FLOOR MTD. SIPHON JET, ELONGATED BOWL, LOW CONSUMPTION 1.6 GPF. COMPLETE WITH FLUSH TANK, NO. 4112.600 TANK COVER LOCKING DEVICE, BOLT CAPS, NO 4112.800 TRIP LEVER LOCATED ON RIGHT SIDE, CHICAGO NO. 1006 LOOSE KEY STOP WITH RIGID SUPPLY AND OLSONITE NO. 95CC-SS SEAT
WC 2	WATER CLOSET	INT.	4"	2"	--	3/4"	--	--	A/S NO. 2234.015 "MADERA", AQUAMETER SIPHON JET, FLOOR MOUNTED, ELONGATED BOWL, WATER SAVER. COMPLETE WITH SLOAN OPTIMA PLUS NO. 8111-1.6-YO EXPOSED BATTERY OPERATED SENSOR FLUSH VALVE, OLSONITE NO. 95CC-SS SEAT AND A/S BOLT CAPS.
WC 3	WATER CLOSET (ACCESSIBLE)	INT.	4"	2"	--	1-1/4"	--	--	A/S NO. 2305.100 "MADERA ADA", AQUAMETER SIPHON JET, FLOOR MOUNTED, ELONGATED BOWL, WATER SAVER. COMPLETE WITH SLOAN OPTIMA PLUS NO. 8111-1.6-YO EXPOSED BATTERY OPERATED SENSOR FLUSH VALVE, OLSONITE NO. 95CC-SS SEAT AND A/S BOLT CAPS.
UR 1	URINAL	INT.	4"	2"	--	1"	--	--	SLOAN NO. WEUS 1000.1403-0.13 "SMOOTH" HIGH EFFICIENCY URINAL 1/8 GPF, WALL HUNG, SIPHON JET. COMPLETE SLOAN "HEU" SYSTEM EXPOSED BATTERY POWERED SENSOR FAUCET & ZURN NO. ZR-1222 WALL HANGER
UR 2	URINAL (ACCESSIBLE)	INT.	4"	2"	--	1"	--	--	SAME AS UR-1 EXCEPT MOUNTED AT ACCESSIBLE HEIGHT.
L 1	LAVATORY	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	A/S NO. 0355.012 "LUCERNE", 20" X 18", WALL HUNG. COMPLETE W/ CHICAGO NO. 2200-4E2805CP FITTING, ZURN NO. Z-1254 CARRIER WITH STEEL PLATE, CHICAGO NO. 1006 LOOSE KEY STOPS WITH RIGID SUPPLIES, McGUIRE NO. PW155WC DRAIN AND McGUIRE NO. VPW8090NCO P-TRAP AND SYMMONS MODEL 5-210-CK MIXING VALVE BELOW COUNTER SET AT 102° F.
L 2	LAVATORY (ACCESSIBLE)	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	SAME AS L-1 EXCEPT MOUNTED AT ACCESSIBLE HEIGHT.
L 3	LAVATORY	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	A/S NO. 9482.000 "OVALYN", 19" X 15", UNDERCOUNTER, COMPLETE WITH CHICAGO NO. 2200-4CP FAUCET WITH GRID DRAIN, CHICAGO NO. 1006 LOOSE KEY STOP WITH RIGID SUPPLY, McGUIRE NO. PW155WC DRAIN AND McGUIRE NO. PWV8090NCO P-TRAP INSULATION KITS AND SYMMONS MODEL 5-210-CK MIXING VALVE BELOW COUNTER SET AT 102° F.
S 1	KITCHEN SINK	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	JUST NO. DL-ADA-1933-A-GR, 3 HOLE PUNCHED, DOUBLE COMP, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF-RIMMING, 33" X 19" X 6½" DEEP, COMPLETE WITH McGUIRE NO. 151M CRUMB CUP STRAINER, IN-SINK-ERATOR EVOLUTION ESSENTIAL, 3/4 H.P., 120 V., 1 PHASE DISPOSER WITH WALL SWITCH AND SINK ADAPTER, CHICAGO NO. 1100-317VPAABCP FAUCET, CHICAGO NO. 1006-ABCP LOOSE KEY STOPS WITH BRAIDED STEEL SUPPLIES AND McGUIRE NO. 111C25G17 WASTE AND McGUIRE NO. 8090CNC P-TRAP AND PLUMBEREX NO. 3071WD WASTE DISPOSAL & P-TRAP COVER.
S 2	WORK SINK ADA	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	JUST NO. SL-ADA-1921-A-GR, 3 HOLE PUNCHED, SINGLE COMPARTMENT, 18 GAUGE-TYPE 304 STAINLESS STEEL, SELF-RIMMING, 19" X 21" X 5" DEEP. COMPLETE WITH CHICAGO NO. 1100-E2805-5-369ABCP FITTING, CHICAGO NO. 1006-ABCP LOOSE KEY STOPS WITH RIGID SUPPLIES, McGUIRE NO. PW1152WC DRAIN AND McGUIRE NO. VPW8090NCO P-TRAP.
S 3	REVERSE OSMOSIS SINK ADA	1-1/4"	2"	1-1/2"	--	1/2"	--	--	JUST NO. US-ADA-1616-A, SINGLE HOLE PUNCHED, SINGLE COMPARTMENT, 18 GAUGE-TYPE 304 STAINLESS STEEL, UNDERMOUNT, 16" X 16" X 5" DEEP. COMPLETE WITH BRUSHED STAINLESS STEEL TOMLINSON 1020896 FITTING, CHICAGO NO. 1006-ABCP LOOSE KEY STOPS WITH RIGID SUPPLIES, AND WATER TECHNIQUES MODEL NO. WT-10UC-RO, 10 GALLON REVERSE OSMOSIS SYSTEM COMPLETE WITH MODEL NO. WT-5GAL-HP, 5 GALLON STORAGE TANK
S 4	NURSE SINK ADA	1-1/4"	2"	1-1/2"	1/2"	1/2"	--	--	JUST SL-ADA-2017-A-GR, 20" X 17" X 5" DEEP, SINGLE COMPARTMENT, 18 GAUGE-TYPE 302 STAINLESS STEEL, SINGLE HOLE PUNCHED, COMPLETE WITH CHICAGO NO. 116.113.21.1 GOOSNECK SENSOR FAUCET, STEEL CUP STRAINER AND CHICAGO NO. 1006-ABCP STOPS WITH RIGID SUPPLIES, L.A. PATTERN P-TRAP AND CHICAGO NO. 240.631.00.1 TRANSFORMER AND NO AERATOR.
SH 1	SHOWER	--	--	--	3/4"	3/4"	--	--	ACORN NO. 532-F-QD-Z, "ZENITH BUILT-IN SHOWERS", "SAFTI-TROL" PRESSURE-BALANCING MIXING VALVE, FLOW CONTROL 2.0GPM, ACCESSIBLE TYPE DIVERTER WITH VOLUME CONTROL, QUICK DISCONNECT FOR HAND SHOWER, FIXED SHOWER HEAD WITH UP AND DOWN BALL JOINT.
SS 1	SERVICE SINK	3"	3"	2"	3/4"	3/4"	--	--	WILLIAMS MTB-2424 COMPLETE WITH V-70 VINYL BUMPER GUARDS ON FRONT AND SIDE, CAST BRASS DRAIN WITH REMOVABLE S.S. STRAINER AND T-10VB FITTING WITH INTEGRAL STOPS, PAIL HOOK, WALL BRACE, AND VACUUM BREAKER, C-T40 STAINLESS STEEL MOP HANGER AND A-20 BUMPER GUARDS.
FD 1	FLOOR DRAIN	1-1/4"	2"	1½"	--	½" T.P.	--	--	ZURN NO. ZN-415-B-P, CAST IRON, COMPLETE WITH ROUND NICKEL-BRONZE TOP, CLAMPING COLLAR, TRAP PRIMER CONNECTION AND P-TRAP.
FS 1	FLOOR SINK	2"	2"	1½"	--	½" T.P.	--	--	ZURN NO. Z-1901-NH-2-P, CAST IRON, COMPLETE WITH ACID-RESISTING ENAMELED INSIDE, CAST IRON HALF GRATE, DOME STRAINER, SEEPAGE FLANGE, TPAP PRIMER CONN. AND P-TRAP.
AD 1	AREA DRAIN	2"	3"	2"	--	½" T.P.	--	--	ZURN NO. Z-504-G-NH-Y, GALVANIZED CAST IRON, COMPLETE WITH SEDIMENT TRAP, , TRAP PRIMER CONN., STRAINER, 12" DIA. TOP DRAIN, SEEPAGE PAN, AND COMBINATION MEMBRANE FLASHING CLAMP AND FRAME, HEAVY DUTY FLANGE SLOTTED GRATE.
HB 1	HOSE BIBB	--	--	--	--	3/4"	--	--	ACORN MODEL 8136 POST HYDRANT COMPLETE WITH VACUUM BREAKER AND REMOVABLE KEY HANDLE
RHB 1	RECESSED HOSE BIBB	--	--	--	--	3/4"	--	--	ACORN NO. 8104 RECESSED WALL MOUNTED, ROUGH CHROME PLATED WITH INTERNAL VACUUM BREAKER. LOCKABLE BOX.
TP 1	TRAP PRIMER	--	--	--	--	1/2"	--	--	P.P.P. TRAP PRIMER VALVE, BRASS BODY, ADJUSTABLE, COMPLETE WITH 1/2" COPPER TYPE "L" PIPE TO RECPTOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND COMPLETE BEHIND ACCESS PANEL.
WHA 1	WATER HAMMER ARRESTOR	--	--	--	--	--	--	--	P.P.P. MODEL SC, WITH COPPER BARREL. (SIZED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS)
RR 1	ROOF RECEPTOR	2"	2"	2"	--	--	--	--	ZURN NO. Z-122-NH-R-C, CAST IRON DRAIN. COMPLETE WITH CAST IRON FLASHING CLAMP, CAST IRON DOME STRAINER, SUMP RECEIVER AND P-TRAP.
RD 1	ROOF DRAIN	SEE ROOF PLAN FOR SIZES							ZURN NO. ZC-100-ERC, CAST IRON DOME STRAINER, ADJUSTABLE EXTENSION SLEEVE, FLASHING COLLAR, GRAVEL STOP, CAST IRON DOME STRAINER, SUMP RECEIVER AND UNDERDECK CLAMP.
OD 1	OVERFLOW DRAIN	SEE ROOF PLAN FOR SIZES							ZURN NO. ZC-100-89-ERC, CAST IRON DOME STRAINER, COMPLETE W/ CLAMPING FLANGE AND 2" HIGH WATER DAM.
GWH 1	GAS WATER HEATER	--	--	3"	1½"	1½"	1"	--	A.O. SMITH "CYCLONE XI" NO. BTH-120, GLASS LINED, 60 GALLON STORAGE, 120,000 BTU/HR INPUT, RECOVERY = 154 G.P.H. AT 90 DEGREES F. RISE, 3" PVC VENT, APPROXIMATE OPERATING WEIGHT = 961 LBS., COMPLETE WITH RED BRASS NIPPLES. MUST COMPLY WITH TITLE 24 REQUIREMENTS. (120 VOLT ELECTRONIC IGNITION)
GWH 2	GAS WATER HEATER	--	--	4"	1½"	1½"	1"	--	A.O. SMITH "CYCLONE XI" NO. BTH-150, GLASS LINED, 100 GALLON STORAGE, 150,000 BTU/HR INPUT, RECOVERY = 192 G.P.H. AT 90 DEGREES F. RISE, 4" DIRECT VENT, APPROXIMATE OPERATING WEIGHT = 1,389 LBS., COMPLETE WITH RED BRASS NIPPLES. MUST COMPLY WITH TITLE 24 REQUIREMENTS. (120 VOLT ELECTRONIC IGNITION)
EWH 1	ELECTRIC WATER HEATER	--	--	3"	1"	1"	--	--	A.O. SMITH NO. DEL-40, GLASS LINED, 40 GAL. STORAGE, 6 KW ELEMENT, 208 VOLT, 3 PHASE, RECOVERY =25 G.P.H. @ 100° F. RISE, APPROX. OPER. WT. = 460 LBS., COMPLETE WITH RED BRASS NIPPLES. MUST HAVE ASHRAE 90.1B-1992 STICKER OR OTHERWISE COMPLY WITH TITLE 24 REQUIREMENTS.
EWH 2	ELECTRIC WATER HEATER	--	--	3"	1"	1"	--	--	A.O. SMITH NO. DEL-10, GLASS LINED, 10 GAL. STORAGE, 6 KW ELEMENT, 208 VOLT, 3 PHASE, RECOVERY =25 G.P.H. @ 100° F. RISE, APPROX. OPER. WT. = 150 LBS., COMPLETE WITH RED BRASS NIPPLES. MUST HAVE ASHRAE 90.1B-1992 STICKER OR OTHERWISE COMPLY WITH TITLE 24 REQUIREMENTS.
IWH 1	INSTA-HOT WATER HEATER	--	--	--	½"	½"	--	--	STIEBEL ELTRON MODEL NO. DHC 6-2, WITH COPPER SHEATHED ELEMENT, COPPER WATER VESSEL, MECAHNICAL PRESSURE DIFFERENTIAL FLOW SWITCH AND DOUBLE POLE SAFETY HIGH LIMIT WITH MANUAL RESET. 4.5 KW. ELEMENT 208V. 1Ø 60Hz. J-BOX (INSTALL PER MANUFACTURER'S INSTRUCTIONS)
ET 1	EXPANSION TANK	--	--	--	--	--	--	--	AMTROL "THERM-X-TROL" NO. ST-12C WITH MAX. WORKING PRESSURE OF 125 PSIG. TOTAL TANK VOLUME = 6.4 GAL. FACTORY PRECHARGED TO 40 PSIG. SET T/PRV TO 125 PSI. MAX. OP. WT. = 36LBS.
ET 2	EXPANSION TANK	--	--	--	--	--	--	--	AMTROL "THERM-X-TROL" NO. ST-20V-C WITH MAX. WORKING PRESS. OF 125 PSIG. TOTAL TANK VOL. = 8.0 GAL. FACTORY PRECHARGED TO 40 PSIG. SET T/PRV TO 125 PSI. MAX. OP. WT. = 41LBS.
ET 3	EXPANSION TANK	--	--	--	--	--	--	--	AMTROL "THERM-X-TROL" NO. ST-30V-C WITH MAX. WORKING PRESS. OF 125 PSIG. TOTAL TANK VOL. = 14.0 GAL. FACTORY PRECHARGED TO 40 PSIG. SET T/PRV TO 125 PSI. MAX. OP. WT. = 84LBS.
EWC 1	ELECTRIC WATER COOLER ADA	1-1/4"	2"	1½"	--	½"	--	--	HAWS NO. H1011.8, HI-LO, STAINLESS STEEL, WALL MOUNTED, COMPLETE WITH BACK PLATE AND PANEL, JUNCTION BOX, 1/5 HP, 115 VOLT, 60 CYCLE, 1 PHASE. (FINISH AS SELECTED BY ARCHITECT.)

COLD WATER PRESSURE CALCULATION

REVISION	DATE	BY	CHECK		
				TITLE: COLD WATER PRESSURE CALCULATION	PAGE NUMBER: 2
				SITE: ORANGE, CA	DEPARTMENT: PLUMBING
				BLDG: O.C. HEALTH CARE AGENCY	JOB NUMBER: 28068
				FIXTURE TYPE: (FT or FV): FV	

REFERENCES:

CALIFORNIA PLUMBING CODE, 2007
AMERICAN SOCIETY OF PLUMBING ENGINEERS, ASPE DATA BOOK

(1). COLD WATER DEMAND = 181.5 FU
HOT WATER DEMAND = 44.5 FU
TOTAL BUILDING DEMAND = 226 FU = 98 GPM

(2). PRESSURE AVAILABLE AT WATER METER
STATIC = 58 PSI = 58 PSI

(3). PRESSURE LOSSES:
- A. BLDG WATER METER = 3 PSI
- B. BLDG REDUCED PRESSURE BACKFLOW PREVENTER = 13 PSI
- C. SITE PIPING PRESSURE LOSSES 1 PSI
- C. PRESSURE REQUIRED AT FIXTURE = 25 PSI
- D. STATIC HEAD ENTER HEIGHT 15 X 0.4331 = 6 PSI
- SUB-TOTAL = 48 PSI

(4). PRESSURE AVAILABLE FOR FRICTION LOSS = 58 - 48 = 10 PSI

(5). PIPE FRICTION LOSS WITHIN BUILDINGS:
- A. MEASURED LENGTH = 150 FT
- EQUIVALENT LENGTH 1.5 = 225 FT

(6). ALLOWABALE FRICTION LOSS = 10 x 100 / 225 = 4.2 PSI/100'

MAIN PIPE SIZING CHART FOR FRICTION LOSS = 4.2 PSI/100' WITH VELOCITY NOT OVER 6'/SEC

PIPE SIZE	GPM	FU (FT)	FU (FV)	PIPE SIZE	GPM	FU (FT)	FU (FV)
0.5	2	1	#N/A	3	130	507	397
0.75	5	5	#N/A	4	240	1174	1174
1	10	13	#N/A	6	500	3151	3151
1.25	15	21	#N/A	8	900	6281	6281
1.5	30	52	13				
2	60	171	74	-	-	-	-
2.5	90	316	187	-	-	-	-

F.T. ANDREWS INC.
CONSULTING ENGINEERS

REFERENCES: CALIFORNIA PLUMBING CODE, 2007

REVISION	DATE	BY	CHECK		
				TITLE: WASTE & COLD WATER FIXTURE UNIT (FU) CALCULATION	PAGE NUMBER: 1
				LOCATION: ORANGE, CA	DEPARTMENT: PLUMBING
				BUILDING: HEALTH CARE AGENCY	JOB NUMBER: 28068

	FIXTURE	QUANTITY	TRAP SIZE	WASTE F.U.	TOTAL W F.U.	CW F.U.	TOTAL CW F.U.	HW F.U.	TOTAL HW F.U.
1	WC (F.V.)	20	INT.	4	80	5	100	-	-
2	URINAL	4	INT.	2	8	4	16	-	-
3	LAV	17	1-1/4"	1	17	1	17	1	17
4	SINK	5	1-1/2"	2	10	2	10	1.5	7.5
5	SERVICE SINK	2	3"	3	6	3	6	3	6
6	SHOWERS	4	2"	2	8	2	8	2	8
7	DRINKING FOUNTAIN	4	2"	1	4	0.5	2	0	-
8	HOSE BIBB (IST)	1	-	0	0	2.5	2.5	0	-
9	HOSE BIBB (ADD.)	15	-	0	0	1	15	0	-
10	FLOOR DRAIN	15	2"	0	0	0	-	0	-
11	FLOOR SINK	2	2"	1	2	0	-	0	-
12	CLOTH WASHER	2	2"	3	6	4	8	3	6
13	DISH WASHER	1	1-1/2"	0	0	1	1	0	-
	TOTAL	92			141		185.5		44.5
	TOTAL CW GPM =	98							

FIXTURE SCHEDULE CONT'D

ITEM	FIXTURE	ROUGH-IN CONNECTIONS: TRAP	WASTE	VENT	HOT WATER	COLD WATER	GAS	STORM DRAIN	DESCRIPTION
MV 1	MIXING VALVE	SEE PLUMBING PLAN FOR SIZES							LEONARD MODEL NO. '2N' WATER TEMPERATURE CONTROL STATION, COMPLETE WITH HIGH/LOW FLOW THERMOSTATIC MIXING VALVES, FULL PORT BALL VALVES, PRESSURE REDUCING VALVE, PRESSURE GAUGES, DIAL THERMOMETERS, 1" INLET, 1" OUTLET, 3/4" RETURN PIPING CONNECTION WITH CIRCULATING PUMP (CP-1) ON HOT WATER RETURN, AQUASTAT, CIRCUIT SETTER TO BALANCE SYSTEM, AND CHECK VALVE. ENTIRE ASSEMBLY SHALL BE MOUNTED ON GALVANIZES STRUT, FACTORY PREASSEMBLED AND TESTED AS A COMPLETE SYSTEM.
EV 1	EARTHQUAKE VALVE	SEE PLUMBING PLAN FOR SIZES							PACIFIC SEISMIC PRODUCTS, INC, KOSO, FULL LINE SIZE, CALIFORNIA SEISMIC SAFETY VALVE, MAX. PRESSURE 60 PSI, CA-DSA NO. 45R-113R, (ASCE/ANSI 25-97), UL LISTED.
DSB 1	DOWNSPOUT BOOT	--	--	--	--	--	--	3"	ZURN Z192 4"x3" RECTANGULAR TRANSITIONING CAST IRON DOWNSPOUT BOOT WITH 5/16" DIA CAST HOLES FOR FLAT HEAD BOLTS.
DF 1	DRINKING FOUNTAIN ADA	1-1/4"	2"	1½"	--	½"	--	--	HAWS NO. 3150, HI-LO PEDESTAL MOUNTED DRINKING FOUNTAIN COMPLETE WITH "EVIROGARD" BUBBLER 5725 IN WESTWOOD BROWN MEDIUM SANDBLAST TEXTURE.
WB 1	WASHER BOX	--	2"	1½"	3/4"	3/4"	--	--	GUY GRAY FIRE RATED CLOTHES WASHER BOX, PROVIDE WATER HAMMER ARRESTORS ON BOTH HOT AND COLD WATER.
CP 1	CIRCULATING PUMP	--	--	--	3/4"	--	--	--	B&G SERIES 100, INLINE TYPE, 5 G.P.M. AT 8 FEET OF HEAD, 1/12 H.P., 120 VOLT, 1 PHASE, 1,750 RPM.

PIPE SCHEDULE

SEE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS

SERVICE	LOCATION	MATERIAL
DOMESTIC WATER	COLD WATER	TYPE "L" COPPER TUBING W/ WROUGHT COPPER SWEAT FITTINGS
	HOT WATER	SAME AS ABOVE W/ 1" THICK MANVILLE MICRO-LOCK INSULATION
SANITARY WASTE	ABOVE FLOOR	NO-HUB CAST IRON W/ "TYLER" WIDE BODY S.S. COUPLINGS
	BELOW FLOOR	NO-HUB CAST IRON W/ "TYLER" WIDE BODY S.S. COUPLINGS
SANITARY VENT	CONCEALED	NO-HUB CAST IRON W/ "TYLER" 2-BAND S.S. COUPLINGS
	EXPOSED	SCHEDULE. 40 GALVANIZED STEEL W/ BLK. C.I. DRAINAGE FITTINGS
INDIRECT WASTE	CONCEALED	TYPE "L" COPPER TUBING W/ WROUGHT COPPER SWEAT FITTINGS
	EXPOSED	SAME AS ABOVE W/ 1" THICK MANVILLE MICRO-LOCK INSULATION
GAS	CONCEALED	SCHEDULE 40 BLACK STEEL W/ BANDED MALLEABLE IRON FITTINGS
	EXPOSED	SCHEDULE 40 GALVANIZED STEEL W/ BANDED MALLEABLE IRON FITTINGS
	BELOW GRADE	SCHEDULE 40 SDR-11 P.E. PIPE AND FITTINGS W/ SOCKET FUSION WELD

GAS PRESSURE REGULATOR SCHEDULE

ITEM NO.	BUILDING SERVED	C.F.H.	SERVICE PRESSURE	PRESSURE RANGE	INLET SIZE	AMERICAN METER CO. MODEL	ORIFICE SIZE	TOTAL DEVELOPED LENGTH
GPR 1	1	334	5 P.S.I.	8.5-14 INCHES WC	3/4"	CS200	3/8"	350'
GPR 2	2	544	5 P.S.I.	8.5-14 INCHES WC	3/4"	CS200	3/8"	350'
GPR 3	3	644	5 P.S.I.	8.5-14 INCHES WC	3/4"	CS200	3/8"	350'

BACKFLOW PREVENTER SCHEDULE

ITEM	FIXTURE	LOCATIONS	COLD WATER	DESCRIPTION
BFP 1	BACKFLOW PREVENTER	BLDGS. 1,2 & 3 ROOF	3/4"	WILKINS MODEL 975XL, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, 3/4-INCH, COMPLETE WITH STRAINER, BALL VALVES, AND AIR GAP FITTING.

County of Orange
OC PUBLIC WORKS
Architecture & Engineering

Revisions

Sym.	Descrip.	Date	By

0742

Consultants

F.T. Andrews, Inc. Consulting Engineers
Job Number: 28068

Drawn ___ Chkd. ___ Date 11-26-09

A-E Seal

A-E ALEXANDER + HIBBS, AIA, INC.
Architecture and Planning

Design CC Chkd. SA Date Nov. 26, 2009

Sht Title PLUMBING SCHEDULES, LEGEND & NOTES
Project COUNTY OF ORANGE HEALTH CARE AGENCY
401 SOUTH TUSTIN STREET

401 SOUTH TUSTIN STREET
ORANGE, CA 92866

PROJ. NO. 100-042-P210-4200

Plan No. 52333-03608

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0742 COUNTY OF ORANGE HEALTH CARE AGENCY 401 SOUTH TUSTIN STREET