PLUMBING FIXTURE SPECIFICATIONS

SYMBOL	DESCRIPTION
P-1	WATER CLOSET: Vitreous china, wall hung, siphon jet elongated bowl closet with 1-1/2" top spud, A[illegible]n Standard No. 2502.011. White moltex open front elongated seat with stainless steel check hinge, Church No. 950. [illegible] flush valve with vacuum breaker, 1" screwdriver angle stop, chrome plated supply pipe, chrome plated escutcheon w[illegible]se screw and 1-1/2" chrome plated flush pipe, Sloan Royal 110-3. Carrier with chrome plated closet cap nuts, tubular rigidity members, Zurn Series ZR-1200 with vent size as shown on the drawings for single closet or Zurn Series ZR-1209 for back to back closets.
P-1A	WATER CLOSET: Same as specified for P-1 above except fixture seat shall be mounted 20" above finished floor for handicapped usage.
P-2	URINAL: Wall hung, vitreous china, siphon jet urinal with wall hangers, 3/4" top spud, 2" outlet and integral flush spreader, American Standard No. 6500.011. Flush valve with vacuum breaker, 3/4" screwdriver angle stop, chrome plated supply pipe, chrome plated escutcheon with set screw and 3/4" chrome plated flush pipe, Sloan Royal 186. Carrier with bearing jacks and pipe uprights, Zurn Series Z-1222.
P-2A	URINAL: Same as specified above except lip of urinal shall be mounted 19" above finished floor.
P-3	LAVATORY: 20" x 18" acid resistant enameled cast iron with front overflow, back ledge and wall hanger, American Standard No. 4809.012. Supply faucet with renewable seat and washer, slow self-closing valves, 0.5 gpm flow control, vandal resistant aerator indexed hot, Chicago No. 700-E2805. 1-1/4" tailpiece with integral perforated grid strainer, American Standard No. 2411.015. 1-1/4" x 1-1/2" adjustable chrome plated cast brass P-trap with cleanout, ground joint and 1-1/2" IPS outlet, American Standard No. 4420.030. 1-1/2" chrome plated nipple to wall with chrome plated cast escutcheon and set screw, American Standard No. 4446.019. 3/8" dia. chrome plated flexible riser with 3/8" wheel handle angle stop, 3/8" chrome wall supply and escutcheon with set screw, American Standard No. 2503.080. Carrier with pipe uprights bearing plate and bearing jacks, Zurn Z-1224-2.
P-3A	LAVATORY: Same as specified for P-3 above except lavatory shall be mounted for handicapped usage.
P-4	LAVATORY: 20" x 27" vitreous china wall hung lavatory with 12" center faucet drillings shall be American Standard No. 9140.013. Supply faucet with renewable seats, renewable washers, 8" high gooseneck spout, 0.5 gpm, vandal resistant aerator and 4" wrist blade handles shall be Chicago No. 786-WC-E2805. Integral perforated grid strainer with 1-1/4" tailpiece shall be American Standard No. 7723.018. Chrome plated supplies to lavatory with wheel handle angle stops, 3/8" flexible risers, cast brass escutcheons with set screw and 3/8" chrome plated wall supplies shall be American Standard No. 2303.030. 1-1/4" x 1-1/2" chrome plated cast brass adjustable P-trap with cleanout, ground joint and 17 ga. outlet and cast brass escutcheon with set screw shall be American Standard No. 4402.061. Floor mounted upright standard chair carrier with concealed arm fixture supports shall be Zurn Z-1231 mounted for handicapped usage.
P-5	MOP RECEPTOR: 24" x 24" x 10" deep precast molded stone receptor with 3" inside caulked outlet drain with stainless steel strainer shall be Fiat Products Model MSB-2424. Supply faucet with vacuum breaker, wall brace, bucket hook, integral shank stops and 3/4" hose end shall be Chicago 897. 30" long heavy duty 5/8" dia. flexible cloth reinforced hose with female coupling and stainless steel wall bracket with rubber grip shall be Fiat No. 858-AA. Stainless steel mop hanger with three rubber tool grips shall be Fiat No. 889-CC. The Contractor shall seal the joints between receptor and floor and/or wall with Fiat No. 833-AA silicone sealant to provide a waterproof joint. The Contractor shall furnish and install 3" deep seal cast iron P-trap for receptor.
P-6	DRINKING FOUNTAIN: Vitreous china, wall hung fountain with anti-squirt bubbler, self closing valve, automatic volume control, screwdriver stop, 1-1/4" P-trap and wall hangers, American Standard 8310.112. Carrier with backing plate, Zurn ZN-1224. Fountain rim shall be mounted 30" above finished floor for handicapped.
P-7	WASH FOUNTAIN: 36" dia. wash fountain with molded reinforced polyester bowl, water saver spray head, soap dispenser, beehive strainer, thermostatic mixing valve set at 95°F, combination strainer-stop-check valves, slow close foot valve, reinforced tube assembly, Bradley Model AFC-TMV-WS-TA.
P-8	EMERGENCY EYE WASH-SHOWER STATION: Unit complete with 10" safety shower head, quarter turn self closing 1" shower valve with chain and handle, dual soft-flo eye wash heads, eye wash receptor, self closing, quick opening eyewash valve with foot and hand control, 1-1/4" painted galvanized pipe standard, 1-1/4" IPS outlet, 1-1/4" IPS inlet, and 9" diameter floor flange shall be Haws Model 8320-HFC.
P-9	SERVICE FAUCET: Supply faucet with vacuum breaker, wall brace, bucket hook, integral shank stops and 3/4" hose end, Chicago 897.
P-10	COUNTERTOP SINK: 19" x 16" x 12" deep compartment self rimming, 18 ga. stainless steel sink with 3 hole backledge and sound deadening, Elkay DLR-2222-12. Supply faucet with renewable seats and washers, 13 high rigid gooseneck spout, vacuum breaker, serrated hose end, Chicago 201-GN-2B-H13-E-22-E-7. Drain outlet with 1-1/2" dia. tailpiece and 6-1/2" high standpipe drain, Elkay LK-374. 1-1/2" x 1-1/2" cast brass P-trap with cleanout, ground joint and 1-1/2" IPS outlet, American Standard No. 4419.040. Supplies to sink shall be installed using Type "L" hard drawn copper equipped with globe valve stops. Install escutcheons on all piping entering base cabinet.
P-10A	COUNTERTOP SINK: Sink, trim and installation same as specified for P-10 above. Contractor shall furnish and install over left side of sink, one 8 liter polyethylene storage baffle for distilled water with wall bracket, Barnstead A-1052. Bottle faucet shall be mounted 12" above countertop.
P-11	COUNTERTOP SINK: 22" x 16" x 10" deep compartment, self-rimming, 18 ga: stainless steel sink with 3-hole back ledge and sound deadening, Elkay DLR-2522-12. Trim and installation shall be same as specified for P-10 above.
P-12	COUNTERTOP SINK: 33" x 22" overall, Type 304, 18-8, 18 ga. nickel bearing stainless steel self rimming sink with 30" x 16" x 10" deep single compartment, 3-hole back ledge, 1-3/4" radius corners and sound deadening as manufactured by Elkay. Trim and installation shall be same as specified for P-10 above.
P-12A	COUNTERTOP SINK: Sink and trim shall be same as specified for P-12 above. Contractor shall furnish and install over left side of sink, one 8 liter polyethylene storage baffle for distilled water with wall bracket, Barnstead A-1052. Baffle faucet shall be mounted 12" above countertop.
P-13	COUNTERTOP SINK: 21" x 16" x 7-1/2" deep compartment, self-rimming, 18 ga. stainless steel sink with 3-hole back ledge and sound deadening, Elkay LR 2219. Trim and installation shall be same as specified for P-10 above.
P-14	COUNTERTOP SINK: 16" x 13" x 10" deep compartment, self-rimming, 18 ga. stainless steel sink with 3-hole back ledge and sound deadening, Elkay DLR-1919-10. Trim and installation shall be same as specified for P-10 above.
P-15	COUNTERTOP SINK: 37" x 22" x 7-1/4" deep double compartment self-rimming, 18 ga. stainless steel sink with 3-hole back ledge and sound deadening, Elkay LR-3722. Supply faucet with renewable seats and washers, 13" high swing gooseneck spout, vacuum breaker, serrated hose end, Chicago 201-GN2B-H13-E22-E7. Drain outlets with 1-1/2" dia. tailpiece and 6-1/2" high standpipes, Elkay LK-374 1-1/2" inlet x 1-1/2" run and 1-1/2" center baffled outlet, Elkay LK-52. 1-1/2" x 1-1/2" cast brass P-trap with cleanout, ground joint and 1-1/2" IPS outlet, American Standard No. 4419.040. Supplies to sink shall be installed using Type "L" hard copper equipped with globe valve stops. Install escutcheons on all piping entering base cabinet.
P-16	COUNTER SINK: 18" x 15" x 11" deep molded corrosion resistant modified epoxy resin sink with corner outlet and strap iron hangers, Durcon pattern 30. Sink drain with 1-1/2" dia. threaded outlet. Durcon SO-3 with 8" high beehive overflow stopper. Trap for sink shall be acid neutralizing sump type constructed of vitrified stoneware ceramic with capacity of 50 lbs. of lime-stone, Knight Model 401, Style BT. Connection from sink drain to trap shall be made using Duriron pipe with "MJ" type joints. Deck mounted faucet with renewable seats and washers. 13" high rigid gooseneck, vacuum breaker and serrated hose end, Chicago No. 929-GN-2B-H13-E22-E7. Supplies to sink shall be installed using Type "L" hard copper equipped with globe valve stops. Install escutcheons on all piping entering base cabinet. Distilled water bottle and bracket shall be same as specified for P-10A above except mounted on laboratory service rack.
P-17	COUNTER SINK: 24" x 18" x 10" deep molded corrosion resistant modified epoxy resin sink with end outlet and strap iron hangers, Durcon pattern 51. Sink trim and installation shall be same as specified for P-16 above.
P-18	COUNTER SINK: 31" x 21" x 10" deep molded corrosion resistant modified epoxy resin sink with center outlet and strap iron hangers, Durcon pattern 62. Sink trim and installation shall be same as specified for P-16 above.
P-19	COUNTER SINK: 18" x 15" x 11" deep molded corrosion resistant modified epoxy resin sink lined with 4 lbs. water tight lead liner, Durcon pattern 30 modified. Sink drain with 1-1/2" dia. threaded outlet, 6-1/2" standpipe drain, Elkay LK-374. 1-1/2" x 1-1/2" glass swivel P-trap with adapter fittings, Kimax No. 6700. Supply faucet and supplies shall be same as specified for P-16 above. Distilled water baffle and bracket shall be same as specified for P-10A above.
P-20	SHOP SINK: 24" x 18" x 16" deep Type 304 18-8 nickel bearing, 14 ga. stainless steel sink with channel rim, 8" high back splash with faucet drilling centered, center drain outlet, reinforced gussets, 1-5/8" O.D. legs and adjustable feet as manufactured by Elkay. Supply faucet with renewable seats. Washer, vacuum breaker and hose end, Chicago 305-VB. Sink drain with integral grid strainer, roto-handle and 1-1/2" outlet, Elkay LK-24-R. 1-1/2" adjustable cast brass P-trap with cleanout, ground joint, 1-1/2" IPS outlet, American Standard 4419.040. Supplies to sink shall be installed using Type "L" hard copper equipped with globe valve stops. Install escutcheons on all piping at wall.
THB	TOILET HOSE BIBB: Toilet hose bibbs, hot and cold, mounted in stainless steel wall box with vacuum breaker, hinged door and Allen key lock, Acorn No. 8156.
HB	HOSE BIBB: Rough brass with renewable washer, seat, wheel handle and vacuum breaker, Crane Model 58.
WH	WALL HYDRANT: Flush wall mounted hydrant with self-drain, vacuum breaker and for wall thickness as shown on the drawings, Woodford Model 65.
A	LABORATORY AIR OUTLET: Deck mounted turret with two service outlets at 90 degree angle, supply nipple, washer, locknut, serrated hose tip valve rated at 100 psi working pressure and color coded indexed for "air" service, T & S Model BL-4210-0.
G	LABORATORY GAS OUTLET: Deck mounted turret with two service outlets at 90 degree angle, supply nipple, washer, locknut, serrated hose valve for 30 psi working pressure and color coded indexed for "gas" service, T & S Model BL-4200-0.
S	LABORATORY STEAM OUTLET: Deck mount turret with two service outlets at 90 degree angle, supply nipple, washer, locknut, angle serrated hose tip valve for 40 psig steam working pressure, heat resisant valve handle, taflon washer, stainless steel seat and 1/2" IPS inlet, T & S Model BL-4403-0.

EQUIPMENT SCHEDULE

85 AIR COMPRESSORS: Duplex unit, base mounted, each compressor for minimum of 38 SCFM at 120 psig, 900 RPM, 10 HP 208 volt, 3 phase, 60 Hz power. With common 120 gallon vertical receiver conforming to ASME specifications for 200 psi working pressure, complete with pressure switch, pressure gauges, belt guards, intake filter and muffler, safety valve, automatic tank drain and shut-off valve, mechanical sequence control and magnetic starters. Quincy Model 350 (two required) or approved equal.

86 REFRIGERATED AIR DRYER: Self-contained, air cooled, capacity to cool 3 SCFM from 95°F saturated to -10°F dewpoint (atmospheric) with automatic drain valve, approximately 1/5 HP, 120 volts, single phase, 60 Hz. Hankinson, Ingersoll-Rand or approved equal.

87 COMPRESSED AIR FILTER DRYER: Automatic drain type, with metal bowl and sight glass rated at 250 psig and 175°F, 50-micron filter, capacity of 73 SCFM at 120 psig. Norgren 1-1/4" size F17-A00-A3D or approved equal.

88 SUMP AND PUMPS: Steel sump 36" diameter x 72" deep, 1/4" steel with gas tight cover. Each pump for 50 gpm at 40 ft. head, 1-1/2 HP, 1750 rpm, for use with 208 volt, 3 phase, 60 Hz voltage. Furnish unit with float switch, mechanical alternator and high level alarm contacts. Weinman Model 228MG-VS 1-1/2-4 or approved equal.

89 TIME CLOCKS: Seven-day time clocks, for use with 115 volt line and control voltage, unit shall have easy to read dial graduated into 7-day period with each day divided into 24-hour period in 30-minute increments. Dial shall allow setting of times by turning dial without removing nuts. Unit shall have 4-pole, single throw, normally open switching contacts suitable for 115 volt AC, 20 amp rating per pole. Unit shall have manual over-ride capability without disturbing preset schedules. Unit shall incorporate a spring wound carryover for power outages up to 10 hours. Case shall be steel for wall mounting, hinged cover with hasp for locking and knockouts. Furnish "on-off" trippers. Paragon 7007-0 or approved equal; see Electrical Control Diagrams.

90 JOCKEY PUMP: Furnish and install where shown on the plans, one Jockey Pump System, for Pressure Maintenance, complete with pump, driver, controller and accessories. Pump shall be peripheral turbine type, close coupled, bronze fitted, with stainless steel shaft, mechanical seals and a relief valve. Pump shall have a capacity of 5 gpm at a total head of 115 ft. at a minimum suction pressure of 20 psig and a 3/4 hp, 1750 rpm, 208 volt, three phase, 60 Hz drip-proof motor. Jockey pump controller shall be U.L. listed, all in a NEMA 1, wall mounted enclosure with hinged door, factory-wired and tested, for automatic operation, and shall include a pressure switch with independent adjustments for start and stop points, a fusible three-pole disconnect switch with a dual element fuses, hand-off automatic selector switch, running period timer, magnetic across-the-line motor contactor, thermal overload relays with external reset, and a control transformer. Aurora Model 935, Size GO5 or approved equal.

91 FIRE PUMP: Furnish and install where shown on plans, one Fire Pump System, complete with pump, driver, controller and accessories. The fire pump system shall be listed by Underwriter's Laboratories, Inc. and approved by Associated Factory Mutual. The unit shall meet all requirements of the National Fire Protection Pamphlet No. 20. Fire pump shall be a horizontally split case, vertical mounted, bronze fitted, single stage, double suction, centrifugal pump with bronze shaft sleeve, case wearing rings and packed stuffing boxes with lantern ring. Pumping unit shall include the following accessories: 1.) Automatic air release; 2.) Circulation relief valve; 3.) Eccentric tapered reducer at suction inlet; 4.) Pressure gauges; 5.) Splash shield between pump and motor; and 6.) A concentric increaser at the discharge. The driver shall be a vertical, solid shaft, open drip-proof, ball bearing type, AC, induction, squirrel cage motor: Wound for 208 volts, three phase, 60 Hz. Locked rotor current shall not exceed the values specified in NFPA Pamphlet No. 20. Each fire pump motor control shall be completely assembled, wired and tested by the manufacturer before shipment from the factory, and shall be marked "Fire Pump Controller". The controller shall be of the combined manual and automatic, across-the-line starting type and shall be complete with: Externally operable - disconnect switch, circuit breaker, magnetic starter, pressure switch, pilot lamp to indicate circuit breaker closed and power available, ammeter test link and voltmeter test studs and a NEMA 2 enclosure. The pump, driver; controller and all accessories shall be purchased under a unit contract. The pump shall be given a complete performance test with positive suction pressure. Certified performance curves shall be prepared and submitted for approval prior to shipment. Pump shall also be hydrostatically tested to twice the shut off pressure, but in no case less than 250 lbs. per square inch. Provide a fire pump remote alarm panel, listed by Underwriter's Laboratories, Inc. in a NEMA 1 wall mounted enclosure, and shall provide push button silencer and visual and audible alarm signals for (1) Pump Power failure in any phase, (2) Pump running, (3) Control transformer failure, and (4) Supervisory power failure. The pump manufacturer shall assume unit responsibility and shall provide the services of a factory trained engineer when needed for installation recommendations and adjustments, to instruct the owner's personnel on the systems and operation, and to be available for the field acceptance tests. Aurora Pump Model Number as shown, or approved equal.

Symbol	Model No.	Discharge Size	Suction Size	GPM	TDH, Ft.	Min. Suction PSIG	Motor HP
91	4-483-11A	4"	5"	500	115	20	25

92 FIRE PUMP FLOW METERING SYSTEM: The system shall be a venturi tube/manometer type complete with flow element, pressure connectors, three valve manifold, cleanouts, flow indicator graduated in gpm and with a wall mounting type assembly, complete with accessories. System shall have a rated pump capacity of 500 gpm and a maximum test flow of 1490 gpm. Overall system accuracy shall be within 1.5 percent of actual flow rate from 20 percent to full flow rate. System shall be U.L. listed and FM approved for Fire Pump testing. Aurora "Fire Flow" System, Model 6B, or approved equal.

93 DOMESTIC WATER PUMP: Furnish and install as shown on the plans one close-coupled type, end suction, single stage centrifugal pump, of bronze fitted construction. Pump shall be capable of delivering at design conditions a capacity of 160 gpm when operating against a total dynamic head of 108 feet. Pump shall have minimum efficiency at design capacity of 64 percent. Pump shall operate at a maximum speed of 1750 rpm. The pump shall be furnished with 10 hp, three phase, 60 Hz, 208 volts, 1750 rpm, drip-proof motor. Pump shall be furnished with mechanical seals. Weinman 1-1/2 KH, or approved equal.

94 DOMESTIC WATER PRESSURIZATION TANK: Pressurized diaphragm type, ASME certified for 125 psig working pressure, vertical tank arrangement with flexible diaphragm securely sealed within tank permanently separating the 60 psig air charge from the system water. Tank capacity 87 gallons, 19:1 gallon draw-down capacity at 60 psig. Furnish 1-1/4" NPT system inlet connection, 1" NPT air charge connection with globe valve. Amtrol "Well-X-Trol" Model WX-252 (22" diameter x 62" high) or approved equal.

95 Thru **97** PROPELLER FANS: Panel frame design, V-belt driven, AMCA rated. Provide barometric damper on outlet of each fan. Provide 1750 rpm totally enclosed, 208 volt, 60 Hz., 3 phase motors. Wheels shall be high performance airfoil cast aluminum, and motor sheave shall be adjustable. Each fan shall deliver 2550 cfm with 0.375" S.P. W.G. 828 rpm, 3/4 hp motor. Western WVI-30G or approved equal.

FLOOR DRAIN SCHEDULE

FD-1 FLOOR DRAIN: 2" outlet, cast iron body drain with flashing clamping device, 5" square nickel bronze heel proof top and vandal resistant securing screws. Zurn ZN-415-Y with 2" cast iron deep seal P-trap.

FD-2 FLOOR DRAIN: 3" outlet, cast iron body drain with concrete anchor flange, cast iron sediment bucket, cast iron strainer, Zurn Z-507-5 with 3" cast iron deep seal P-trap.

FD-3 FLOOR DRAIN: 3" outlet, cast iron body drain with 7" round polished bronze grid strainer and 7" round integral funnel strainer, slotted securing screws, Zurn ZB-415-B-E with 3" cast iron deep seal P-trap.

FD-4 FLOOR DRAIN: 4" outlet, cast iron body drain with 9" dia. top, cast iron strainer, concrete anchor flange, flashing clamping device, Zurn Z-508 with 4" cast iron deep seal P-trap.

FD-5 FLOOR DRAIN: 2" outlet, cast iron body drain with concrete anchor flange, cast iron sediment bucket, cast iron strainer, Zurn Z-507-5. Solids interceptor trap with cast iron housing, removable basket strainer and flush mounted with floor, Zurn Z-1181.

FD-6 FLOOR DRAIN: 2" outlet, cast iron body drain with flashing clamping device, 6" high removable standpipe domed strainer, Zurn ZB-415-P with 2" cast iron deep seal P-trap.

FD-7 FLOOR DRAIN: 4" outlet, cast iron body drain with concrete anchor flange, secondary strainer, cast iron strainer, Zurn Z-508. P-trap not required for this drain.

66 thru **68** HEAT EXCHANGERS: Liquid to liquid heat exchanger, U-tube type with removable tube sheet, 125 psig inlet and outlet flange connections, novable, cast iron cradles, cast iron bonnets, 3/4" O.C. x 19 BWG copper tubes. Units shall be arranged as shown on the drawings. Design fouling factors shall be as scheduled below. All circuits are water circuits (with the exception of the shell side of Symbols 66 and 68 which is a 35% aqueous solution of ethylene glycol and water). Heat exchangers shall be ASME code design and labeled for 125 psig working pressure at 200°F temperature. Furnish complete calculations showing required heat transfer area and complete dimensional drawings for each unit. Plate and frame type heat exchangers as manufactured by Tranter, or approved equal, may be utilized providing units proposed will provide equal heat transfer performance at pressure drops not exceeding those specified 10%. Contractor shall submit revised 1/4" scale equipment room plans showing revised piping and equipment arrangements for approval. Bell & Gossett, Patterson-Kelly, Therm-X-Changer, Sims, Omega Corp. heat exchangers or approved equal.

Sym.	Max. Length Ft.	TUBE SIDE GPM	TUBE SIDE Temp. In	TUBE SIDE Temp. Out	TUBE SIDE Press. Drop, Ft.	TUBE SIDE F. F.	SHELL SIDE GPM	SHELL SIDE Temp. In	SHELL SIDE Temp. Out	SHELL SIDE Press. Drop, Ft.	SHELL SIDE F. F.	Passes	Bell & Gossett No.	Service
66	10	123	180°	190°	6	0.0005	*46	220°	191.5°	3	0.0005	4	QWU-107-43	Solar Coll.
67	10	34	40°	110°	3	0.001	60	150°	110°	10	0.0005	4	QWU-810-43	Dom. HW
68	10	53	110°	90°	4	0.0005	*64	62°	80°	9	0.0005	4	WU-88-44	AC #7 Pre-heat

*35% solution ethylene glycol and water.

69 SUPPLEMENTAL HEATING CONVERTER: Steam to hot water converter with capacity to heat 149 gpm of water in shell from 84°F to 110°F (1937 MBH) with 0.0005 fouling in tubes and 0.001 fouling in shell, using approximately 2025 lbs. per hr. of steam at 10 psig (15 psig at control valve). Unit shall be arranged with water in shell and steam in tubes. Water friction shall not exceed 8 ft. Furnish 3", 150 lb. flange steam connection, 4" flange water connections and 2025 NPT condensate connections, vent and drain connections, support cradles, and removable U-tube bundle with 3/4" O.D. seamless copper tubes. ASME code design and labeled (125 psi). Bell & Gossett Model QWU-84-26 with TCS cast iron head, 8" diameter shell x 4 ft. tube length, 2 pass; Patterson Kelly, Therm-X-Changer, Sims, or approved equal.

70 DOMESTIC HOT WATER GENERATOR: Vertical ASME coded design, steam to hot water with steam in the tubes, capacity to heat 30 gpm from 40° to 120°F (1,200,000 Btuh) using approximately 1254 lbs. per hour of steam entering control valve at 15 psig and entering tubes at 10 psig, with a minimum heating surface of 20 sq. ft. and a shell volume of 12 gallons. Furnish temperature and pressure relief valve and steam control valve sized for 10 psig drop for pneumatic operation. Aerco No. SW3A-04, Brade, or approved equal.

71 CONDENSATE RETURN UNITS: Arrangement as scheduled, steel or cast iron receivers (steel model numbers shown), gauge glass, overflow, drain and vent connections, float switch, high level alarm contacts; pumps shall be 1750 rpm vertical submerged centrifugal or turbine type mounted inside the receiver with bronze impellers and stainless steel shafts. Furnish mechanical alternator on duplex units. Roth, Aurora, Chicago, Weil, or approved equal.

Symbol	Pumped GPM	Motor HP	Electrical Volts	Discharge Press.	Receiver Size	Arrangement	Roth Model No
71	18	2	208/3/60	50	15	Duplex	68F
71A	3	1/4	115/1/60	15	8	Simplex	6F

72 and **73** PRESSURE REDUCING STATION: One-step design, pilot operated, with iron body and stainless steel seats, flanged, ASA, 125 pound design, and with capacities as scheduled. McAlear Model 228P, Spence, Keckley, Fisher, Jordan, or approved equal.

Symbol	Flow Rate, Lbs. Hr.	Initial Pressure	Discharge Pressure	Valve Size	Service
72	3300	40	15	2-1/2"	Main PRV
73	40	15	5	1/2"	Humidifiers

74 INDOOR COOLING TOWER SUMP: 6'-0" diameter by 9'-0" high open steel tank, welded construction of 1/4" black steel plate, angle reinforced with 2-1/2" x 2-1/2" x 1/4" angle rolled and welded to tank at top, bottom and center of tank. All joints ground smooth, interior surfaces to have 2 coats of Plasite No. 7155 coating, exterior to be primed and painted. Provide connections, ladder, anti-vortex plate and other accessories as detailed on drawings. Kohlhaas Tank Co., or approved equal.

75 BASKET STRAINER: 8" size basket strainer, bolted type bonnet, semi-steel body construction, 125 pound flange fittings, stainless steel basket with 1/8" perforations. Sarco or approved equal.

76 DAY TANK: Storage capacity for 60 gallons of No. 2 or Diesel fuel oil (2'-0" diameter x 3'-0" long) fabricated of 3/16" steel, sandblasted, cleaned, and with exterior primed with red lead. Furnish gauge glass with shut-off valves for visual indication of oil level. Furnish 1" supply fitting, 1-1/2" vent and overflow fitting with 1-1/4" line piped back to the storage tank and 1" fuel oil supply line to engine from tank. Day tank to be UL approved. Furnish and install two McDonnell Miller No. 80 liquid level switches - one for high oil level shut-off of the fuel oil pump and one for starting the oil pump on low oil level. Locate the two level switches 14 inches apart.

77 FUEL OIL STORAGE TANK: 2000 gallon storage capacity fabricated of black steel, approximately 5'-4" diameter x 12'-0" long, UL approved, manhole, fill vent, supply and return connections, remote liquid level gauge located within the boiler room, with tank constructed and installed in accordance with the requirements of NFPA Pamphlet No. 31. An access manhole shall extend above grade and be furnished with a watertight cover. The buried tank shall have three or more feet of cover. Kohlhaas, Modern Welding, or approved equal. Gauges to be UL listed. See fuel oil storage tank detail.

78 FUEL OIL RECIRCULATING PUMP SET: Duplex arrangement with 100 percent standby pump and motor, gear type positive displacement pump, 130 gph capacity (each) at 30 psi discharge pressure and 15" Hg suction vacuum. 1/2 horsepower, 1750 rpm, V-belt driven motor for use with 120 volt, 60 Hz, single phase current. Furnish strainers, changeover and pressure relief bypass valves, and set entire unit in steel pan with 1-1/2" lip. Lobee, Viking, Gordon Piatt, or approved equal.

79 REFRIGERATED AIR DRYER: Self-contained air-cooled, capacity to cool pneumatic temperature control air from 95°F saturated to -10° dewpoint (atmospheric) with automatic drain valve. Approximately 1/5 horsepower, 120 volt, single phase. Hankison, Van-Air, or Ingersol-Rand. Dryer shall be of the cycling type and not run continuously.

80 and **81** CHILLED WATER AND HOT WATER FILTERS: Furnish and install where indicated on drawings water filters with wool cartridge, steel shell, cast iron head and base, 125 psi operating pressure. Pressure gauges shall be installed on the entering and leaving side of filter assembly. Cuno or approved equal.

Symbol	No. of Cartridges	Inlet and Outlet Size, In.	Model No.	Service	Unit Flow Rate at 2 psi Initial Pressure Drop
80	6	1-1/2"	3AX2	ChW	40 GPM
81	6	1-1/2"	3AX2	HW	40 GPM

82 And **82A** EXPANSION TANK: Pressurized diaphragm type, ASME certified and stamped for 125 psig water working pressure. Tank shall be vertical or horizontal as shown and shall contain a flexible diaphragm securely sealed within the tank permanently separating the 12 psig air charge from the system water. Furnish line size air purger and float type air vent with shut-off valve between purger and air vent, and sized as scheduled. Amtrol, Inc., or approved equal.

Symbol	Service	Tank Volume, Gallons	Acceptance Volume, Gallons	Extrol Size
82	Solar Collector Circuit	21	5	AX-40
82A	Solar Heated Hot Water	21	5	AX-40

83 ETHYLENE GLYCOL PUMP: Gear pump design, complete with wall bracket, base plate, motor coupling, and suitable for use with ethylene glycol. Capacity - 9 gpm at 30 psig with a 1/2 horsepower, 115 volt, 60 Hz, 1750 rpm, single phase motor. Lobee Model 4 LAL, or approved equal.

84 BYPASS FEEDERS: For solar collector, hot and chilled water circuits, provide bypass type feeders with 1/2" valved connections, 7 gallon size, 150 psig working pressure.

STATE OF NEW MEXICO — JESSE A. CHACON — REGISTERED PROFESSIONAL ENGINEER

STATE OF NEW MEXICO — JESSE A. CHACON

U.N.M. MECHANICAL ENGINEERING BLDG.

EQUIPMENT SCHEDULE - HVAC

pacheco and graham · architects

project	date	sheet
320/7627	11/20/78	M-2