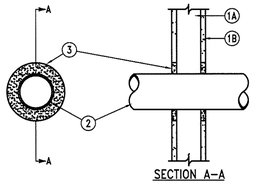
System No. WL2038
(Formerly System No. 614)
F Rating–1 Hr and 2 Hr (See Item 1)
T Rating–1 Hr and 2 Hr (See Item 1)



SECTION A–A

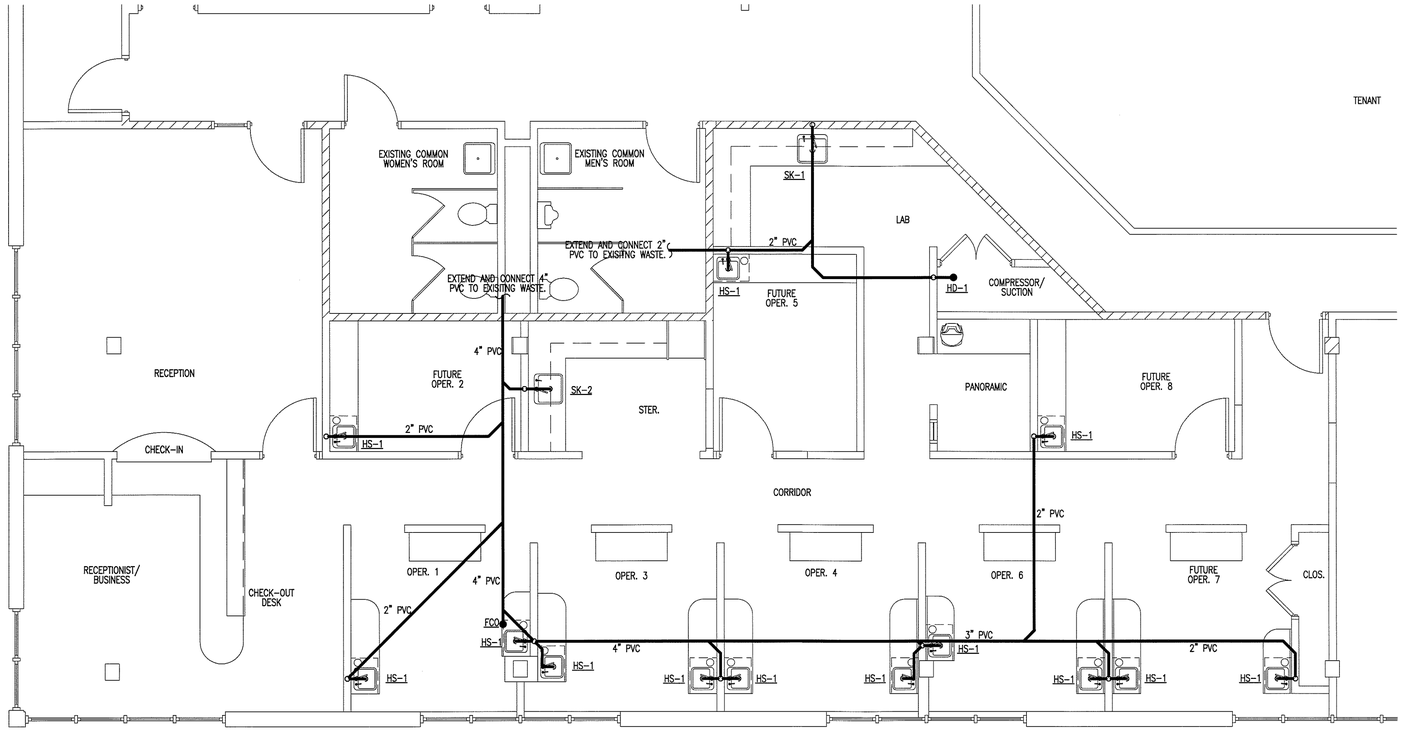
1. Wall Assembly – The 1 or 2 hr fire rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 series wall and partition designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. oc. steel studs to be min 2–1/2 in. wide and spaced max 24 in. oc.
   B. Wallboard, Gypsum *– 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series design in the UL Fire Resistance Directory. Max diameter of opening is 4–3/8 in.
   The hourly F and T ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through Penetrants – One nonmetallic pipe, conduit or tubing to be centered within the firestop system. The max. diam of the through penetrant and annular space within the firestop system is dependent upon the type of fill material (Item 3). Pipe, conduit or tubing to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:
   A. Polyvinyl Chloride (PVC) Pipe – Nom 2 in. diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping systems.
   B Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 2 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) piping systems.
   C. Rigid Nonmetallic Conduit+ – Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electric Code (NFPA No. 70).
3. Fill, Void or Cavity Material *– Sealant– In 2 hr fire rated assemblies, min 1–1/4 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. In 1 hr fire rated assemblies, min 5/8 in. thickness of fill material applied within the annulus, on both surfaces of wall. Additional fill material to be installed such that a min 5/8 in. thick crown is formed around the penetrating item and lapping a min 1 in. beyond the periphery of the opening.
   The max diam of the through penetrant and annular space within the firestop system is dependent upon the type of fill material as tabulated below:

Max Diam Of Through Penetrant In.	Nom Annular Space In.	Fill Material Type
1	1/2	FSP 1100 Putty
2	1	FS 1900 Sealant

International Protective Coatings Corp. – FSP 1100 Putty or FS 1900 Sealant.

+Bearing the UL Listing Mark
*Bearing the UL Classification Marking

3 / P-1 FIRE PENETRATION DETAIL
SCALE: N.T.S.



1 / P-1 PLUMBING PLAN
SCALE: 1/4"=1'-0"

PLUMBING NOTES:

1. PLUMBING TO BE INSTALLED IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
2. PLUMBING CONTRACTOR TO COORDINATE ALL WORK WITH OTHER TRADES.
3. ALL WASTE AND VENT PIPING TO BE SCHEDULE 40 P.V.C.
4. WATER LINES TO BE COPPER TYPE K (SOFT DRAWN) BELOW SLAB, AND TYPE L HARD COPPER ABOVE SLAB.
5. ALL P.V.C. UNDER SLAB SHALL BE A MINIMUM OF 2" NPS.
6. COPPER PIPING TO BE INSULATED WHERE IT PASSES THROUGH CONCRETE.
7. CONTRACTOR TO VERIFY NEED FOR BACKFLOW PREVENTER ASSEMBLY (BFPA) WITH LOCAL AUTHORITIES. IF REQUIRED BFPA TO BE 1" DOUBLE–CHECK TYPE. IF BUILDING BFPA IS INSTALLED, INSTALL EXPANSION TANK OR THERMAL EXPANSION VALVE UPSTREAM OF WATER HEATER. BFPA TO BE MOUNTED 12" A.F.F. AND 6" OF CLEARANCE ON EACH END AND MEET MANUFACTURERS RECOMMENDED ACCESS REQUIREMENTS.
8. PLUMBING CONTRACTOR SHALL (OR HAVE LOCAL MUNICIPALITY) PERFORM A WATER PRESSURE TEST. IF RESIDUAL WATER PRESSURE IS MORE THAN 60 PSI OR LESS THAN 35 PSI, CONTACT ENGINEER TO ASSESS NEED FOR A PRESSURE REDUCING VALVE (PRV) OR A PRESSURE BOOSTER SYSTEM.
9. INSULATE HOT & COLD WATER LINES IN ACCORDANCE WITH BUILDING CODE. INSULATE COLD WATER LINES WHERE SWEATING WOULD RESULT IN STRUCTURAL DAMAGE TO BUILDING DUE TO ROTTING OF WOOD OR STAINING OF CEILING TILES.
10. LAVATORIES ARE TO BE EQUIPPED WITH CLEAN–OUT TEES BELOW.
11. ALL FIXTURES ARE TO BE EQUIPPED WITH SHUT–OFF VALVES ON SUPPLY LINES.
12. ANY FIRE RATED ASSEMBLY PENETRATIONS ARE TO BE PER CODE. CONTRACTOR SHOULD REVIEW ALL FIRE RATING PENETRATIONS.
13. PIPING LOCATED WITHIN RETURN AIR PLENUM SHALL BE NON–COMBUSTIBLE.
14. THERMAL AND ACOUSTIC MATERIALS WITHIN PLENUM SPACES SHALL CONFORM TO REQUIREMENTS OF THE NORTH CAROLINA MECHANICAL CODE.
15. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL PIPING AND EQUIPMENT WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.
16. FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, WATER ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.
17. PLANS AND ISOMETRICS ARE DIAGRAMMATIC. THERE IS NO INTENT TO INDICATE ALL AND FITTINGS REQUIRED. GENERALLY, PIPING SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO AND PLUMB WITH WALL CONSTRUCTION.
18. SOIL AND WASTE PIPING SHALL BE LAID ON MINIMUM 1/4" PER FT. SLOPE FOR PIPE SIZES LESS THAN 3", AND MINIMUM 1/8" PER FT. FOR PIPE 3" AND LARGER UNLESS OTHERWISE NOTED.
19. UNLESS OTHERWISE NOTED, PLUMBING CONTRACT SHALL TERMINATE AT A POINT FIVE (5) FEET OUTSIDE THE BUILDING. FOR WORK BY OTHER CONTRACTORS OUTSIDE THE 5 FOOT TERMINATION, REFER TO SITE UTILITY DRAWINGS.
20. VALVES AND DEVICES INSIDE CHASES OR WALLS OR ABOVE NON–ACCESIBLE CEILINGS SHALL BE PROVIDED WITH APPROPRIATELY SIZED ACCESS PANEL COMPATIBLE WITH SURROUNDING FINISHES. SUCH ACCESS PANELS SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR FOR INSTALLATION BY THE GENERAL CONTRACTOR.
21. PLUMBING VENT PIPING PENETRATING ROOF SHALL BE INSTALLED BY THE PLUMBING CONTRACTOR. CUTTING OF HOLES AND FLASHING OF PENETRATIONS SHALL BE BY THE GENERAL CONTRACTOR.
22. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.
23. REFER TO THE HENRY SCHEIN DENTAL EQUIPMENT DRAWINGS FOR PLUMBING EQUIPMENT REQUIREMENTS, LOCATIONS, AND INSTALLATION DETAILS.

PLUMBING FIXTURE SCHEDULE

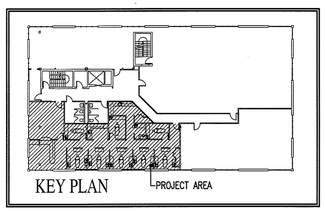
ITEM NO.	FIXTURE DESCRIPTION	MANUFACTURER	* MODEL NO.	CONNECTION SIZES C.W.	H.W.	WASTE	VENT	REMARKS
SK–1	SINGLE COMPARTMENT SINK	STERLING	PRO25226**	1/2"	1/2"	1–1/2"	1–1/2"	PLASTER TRAP AND MODEL TRIMMER INSTALLED
SK–2	SINGLE COMPARTMENT SINK	STERLING	PRO25226**	1/2"	1/2"	1–1/2"	1–1/2"	STERILE SINK AND FAUCET WITH SPRAYER
HS–1	HAND SINK	STERLING	B173**	1/2"	1/2"	1–1/2"	1–1/2"	OPERATORY SINK AND FAUCET
FCO	FLOOR CLEAN OUT	ZURN	Z–1400	--	--	--	--	SIZE DETERMINED UPON WASTE PIPE
HD–1	HUB DRAIN	CHARLOTTE PLASTICS	4"x2"	--	--	2"	1–1/2"	–
HB–1	CHROME HOSE BIBB	WOODFORD	24C	1/2"	--	--	–	MOUNT 18" A.F.F.

* FIXTURE MODEL NUMBERS LISTED ARE FOR DESCRIPTION ONLY.
** VERFIY WITH OWNER

WASTE AND WATER CALCULATIONS

FIXTURE TYPE	QUANTITY	WASTE FIXTURE UNITS PER UNIT	WASTE FIXTURE UNITS TOTAL	HOT WATER FIXTURE UNITS PER UNIT	HOT WATER FIXTURE UNITS TOTAL	COLD WATER FIXTURE UNITS PER UNIT	COLD WATER FIXTURE UNITS TOTAL	TOTAL WATER FIXTURE UNITS PER UNIT	TOTAL WATER FIXTURE UNITS TOTAL
SINK	2	2	4	1	2	1	2	1.4	2.8
HAND SINK	12	2	24	1	12	1	12	1.4	16.8
HUB DRAIN	1	2	2	0	0	0	0	0	0
HOSE BIBB	1	0	0	0	0	0.5	0.5	0.5	0.5
TOTAL			30		14		14.5		20.1

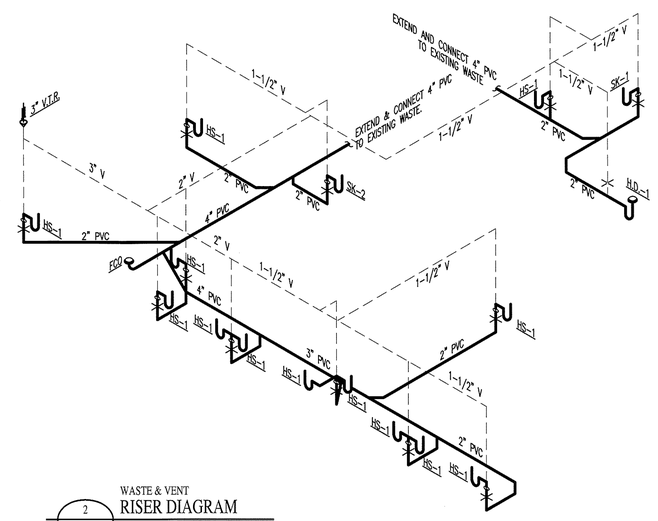
1. 4" WASTE LINE SLOPED AT 1/8" PER 1'–0" IS ADEQUATE FOR 180 FIXTURE UNITS — GPM=19.6
2. 1" WATER LINE IS ADEQUATE FOR 20 GPM.



KEY PLAN

PIPING LEGEND	
SYMBOL	DESCRIPTION
H	HOT WATER
C	COLD WATER
	VENT PIPING
	SEWER PIPING

WALL LEGEND	
	1–HOUR RATED FIRE WALL



WASTE & VENT
2 / P-1 RISER DIAGRAM
SCALE: N.T.S.

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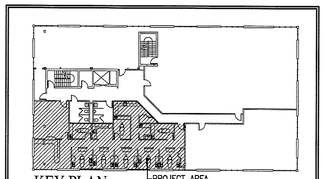
NEW TENANT UPFIT:
DR. MARTIN CLARK DENTISTRY
Raleigh, North Carolina

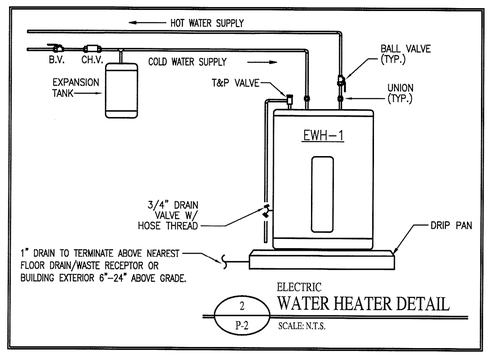
DRAWING NAME
PLUMBING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 25043 ENGINEER KEVIN BENCE
9/17/08

DRAWN: EDM
CHECKED:
DATE: 9/17/08
SCALE: AS NOTED
JOB NO.: 8103
SHEET: P-1



KEY PLAN



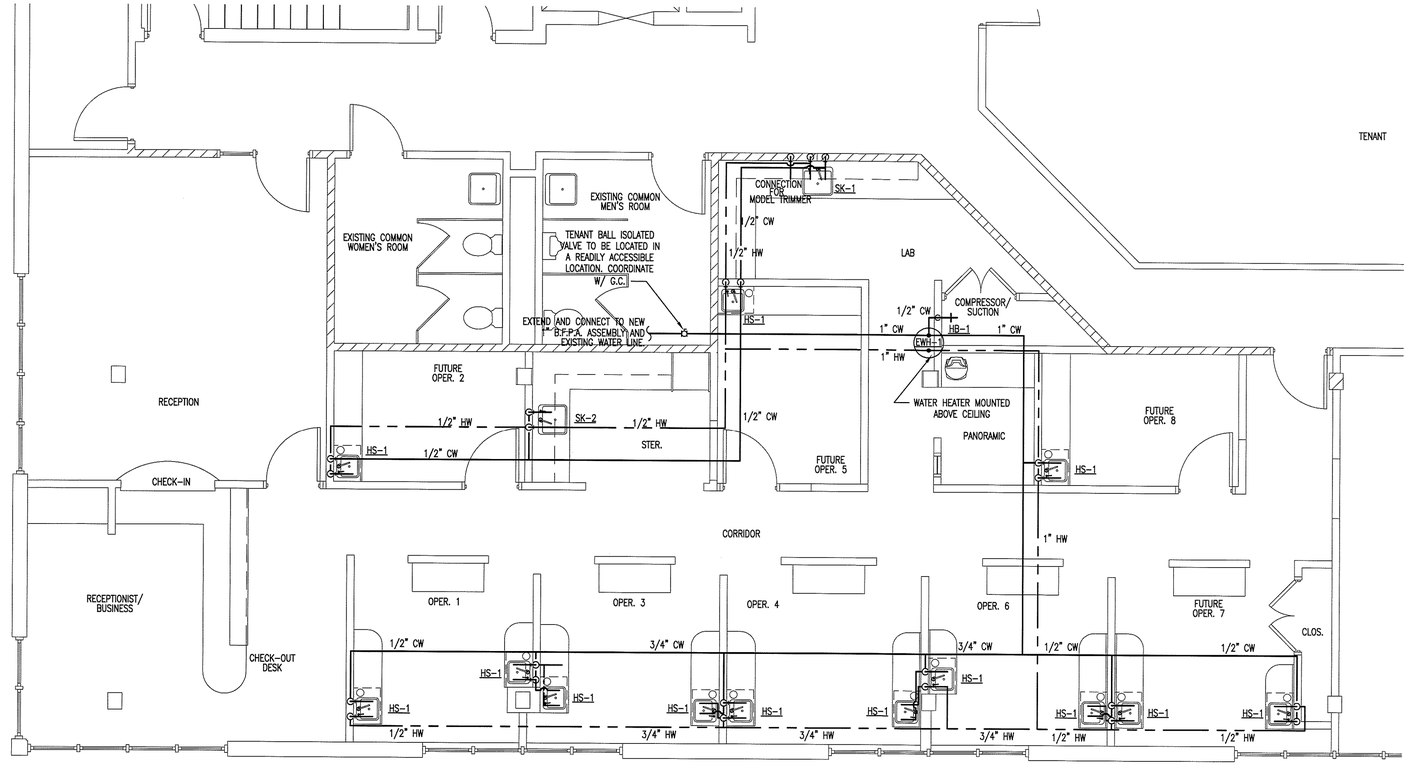
2 P-2 ELECTRIC WATER HEATER DETAIL

SCALE: N.T.S.

WATER HEATER SCHEDULE							
MARK	TANK VOLUME	RECOVERY	TEMPERATURE RISE	ELEMENT SIZE	POWER	MANUFACTURER	MODEL
EWH-1	30 GAL.	18GPH	100°	4.5 KW	208/1ø	RHEEM/RUDD	82SV30-2

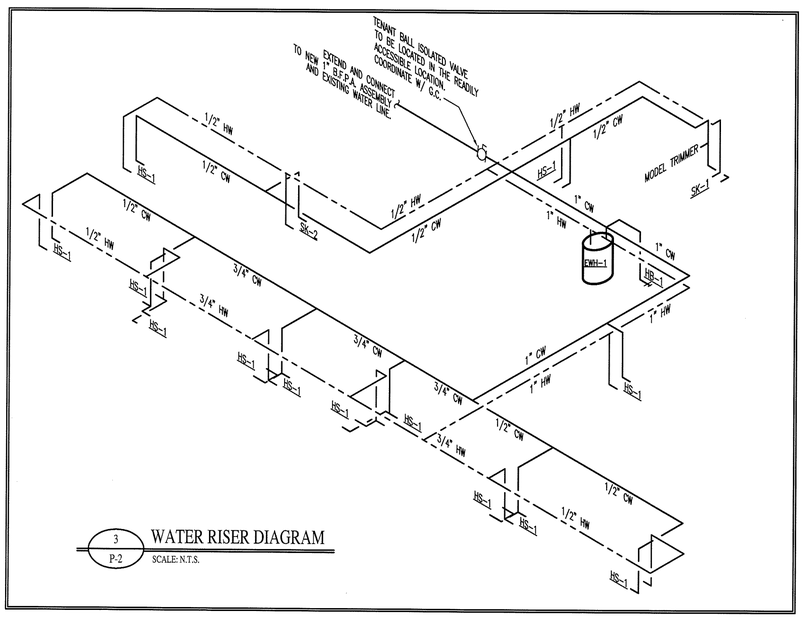
WALL LEGEND	
	1-HOUR RATED FIRE WALL

PIPING LEGEND	
SYMBOL	DESCRIPTION
H	HOT WATER
C	COLD WATER
	VENT PIPING
	SEWER PIPING



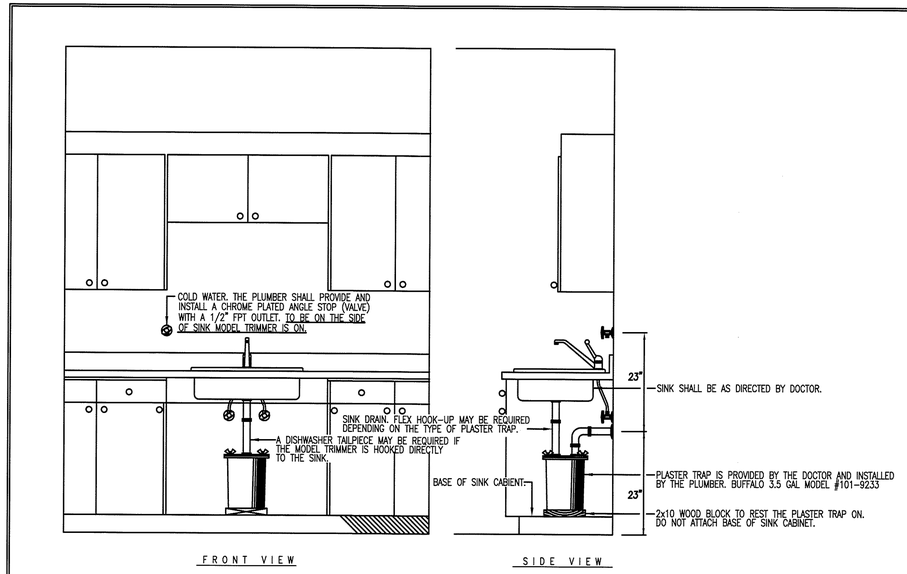
1 P-2 WATER PIPING PLAN

SCALE: 1/4"=1'-0"



3 P-2 WATER RISER DIAGRAM

SCALE: N.T.S.



4 P-2 PLASTER TRAP DETAIL

SCALE: N.T.S.

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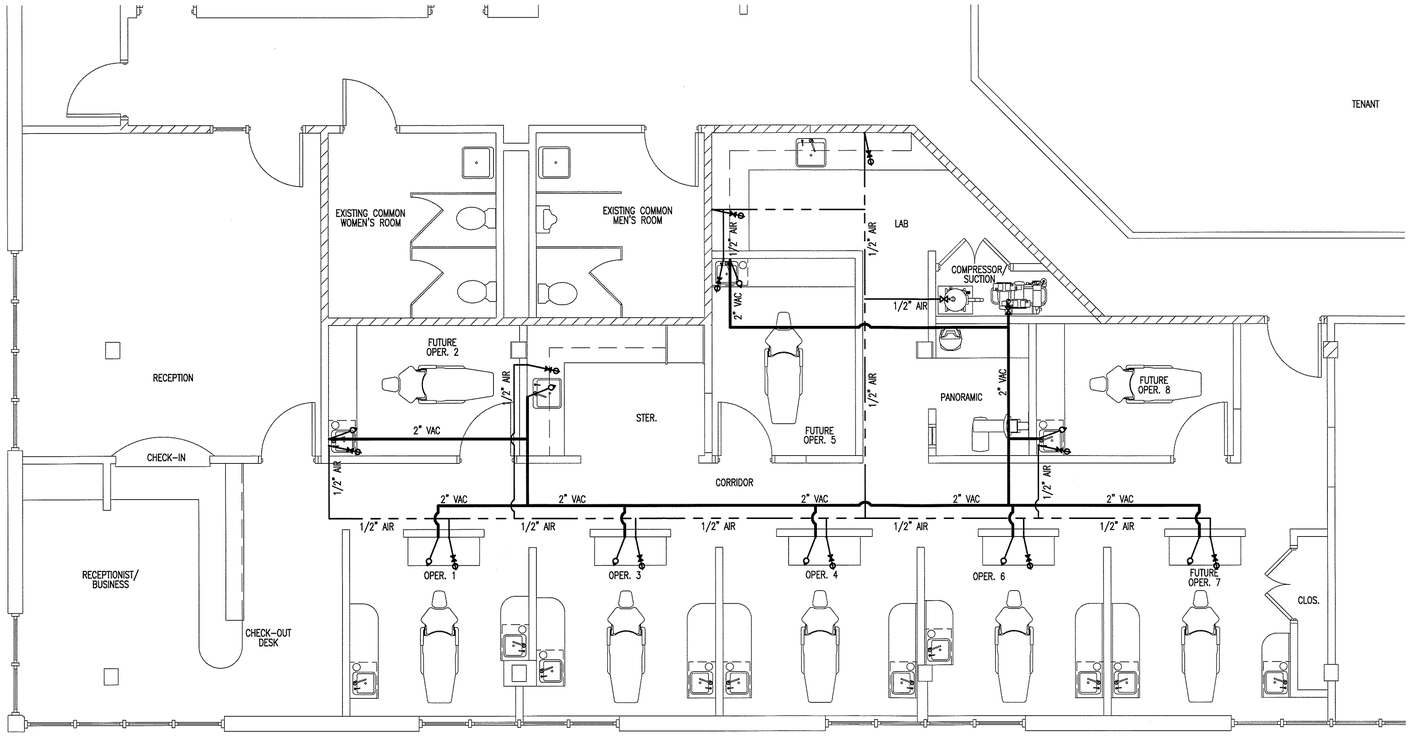
Raleigh, North Carolina

DRAWING NAME
WATER PIPING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 25043 ENGINEER KEVIN BENNETT
9/17/08

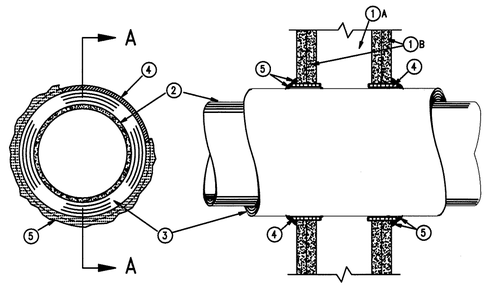
DRAWN: EDM
CHECKED: KMB
DATE: 9/17/08
SCALE: AS NOTED
JOB NO.: 8103
SHEET: P-2



VACUUM AND AIR PIPING PLAN
1 / P-3
SCALE: 1/4" = 1'-0"

SYSTEM No. W-L-5009

F Ratings – 1, and 2 hr (See Item 1)
T Ratings – 3/4, 1, and 1-1/2 hr (See Item 3)
L Rating At Ambient – 2 CFM per sq ft
L Rating At 400 °F – less than 1 CFM per sq ft



SECTION A-A

1. Wall Assembly – The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. O.C. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC.

   B. Wallboard, Gypsum* – Two layers of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Diam of opening cut in gypsum wallboard layers on each side of the wall assembly (concentric with pipe, Item 2) to be 1/2 to 3/4 in. larger than outside diameter of pipe insulation (Item 3) such that, when installed, a 1/4 to 3/8 in. annular space will be present between the pipe insualtion and the gypsum wallboard around the entire circumference of the opening. Max. diam of opening is 4 in.

2. Copper Pipe – Nom 2 in. diam (or smaller) Type L (or heavier) copper pipe. A max of one pipe is permitted in the firestop system. Pipe to be installed near center of stud cavity width and is to be rigidly supported on both sides of the wall assembly.

3. Pipe Insulation – Plastic* – Nom 5/8 in. thick acrylonitrile butadiene/polyvinyl cloride (AB/PVC) flexible foam supplied in the form of tubes with skin. Pipe insulation to be sized to outside diam of copper pipe.

   See Plastics (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component pipe insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

4. Fill, Void, or Cavity Materials – Wrap Strip – Nom. ⅛ in. thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. wide strips. Nom. 2 in. wide strip tightly wrapped around pipe insulation (foil side out) with seam butted. Wrap strip layers securely bound with steel wire or aluminum foil tape and slid into annular space approx 1-1/4 in. such that the approx 3/4 in. of the wrap strip width protrudes from the wall surface. Wrap strip installed symmetrically on both sides of wall.

   Minnesota Mining & Mfg. Co. – FS-195+

5. Fill, Void or Cavity Materials – Caulk – Min. 1/4 in. diam. continuous bead applied to leading edge of wrap strip layer (Item 4) prior to insertion of wrap strip layer into annular space. After insertion of wrap strip in annular space, a nom 1/4 in. diam continuous bead is to be applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layer approx 3/4 in. from the wall surface.

   Minnesota Mining & Mfg. Co. – CP 25WB+.

#Bearing the UL Recognized Component Marking
*Bearing the UL Classification Marking

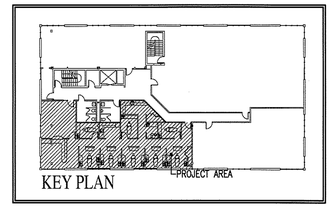
2 / P-3 FIRE PENETRATION DETAIL
SCALE: N.T.S.

NOTES:

1. ALL COMPRESSED AIR PIPING TO TYPE F COPPER WITH BRAZED JOINTS IN ACCORDANCE WITH NFPA 99C.
2. ALL VACUUM PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR.
3. VACUUM PIPING MAIN LINE SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS. BRANCH LINES TO BE TYPE F COPPER WITH BRAZED JOINTS IN ACCORDANCE WITH NFPA 99C.
4. REFER TO THE HENRY SCHEIN DENTAL EQUIPMENT DRAWINGS FOR PIPING REQUIREMENTS, LOCATIONS, AND DETAILS.

WALL LEGEND	
▨	1-HOUR RATED FIRE WALL

PIPING LEGEND	
— — — — AIR — —	COMPRESSED AIR PIPING
——— VAC ———	VACUUM PIPING
——○——	VACUUM
——⋈——	AIR



KEY PLAN

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DRAWING NAME
VACUUM AND AIR PIPING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 25043 ENGINEER KEVIN BENDER
9/17/08

DRAWN	EDM
CHECKED	MK
DATE	9/17/08
SCALE	AS NOTED
JOB NO.	8103
SHEET	P-3