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ISSUE FOR:

CONSTRUCTION DOCUMENTS

REVISIONS:

Revision Number	Revision Description	Revision Date
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ISSUE: 05/06/2024
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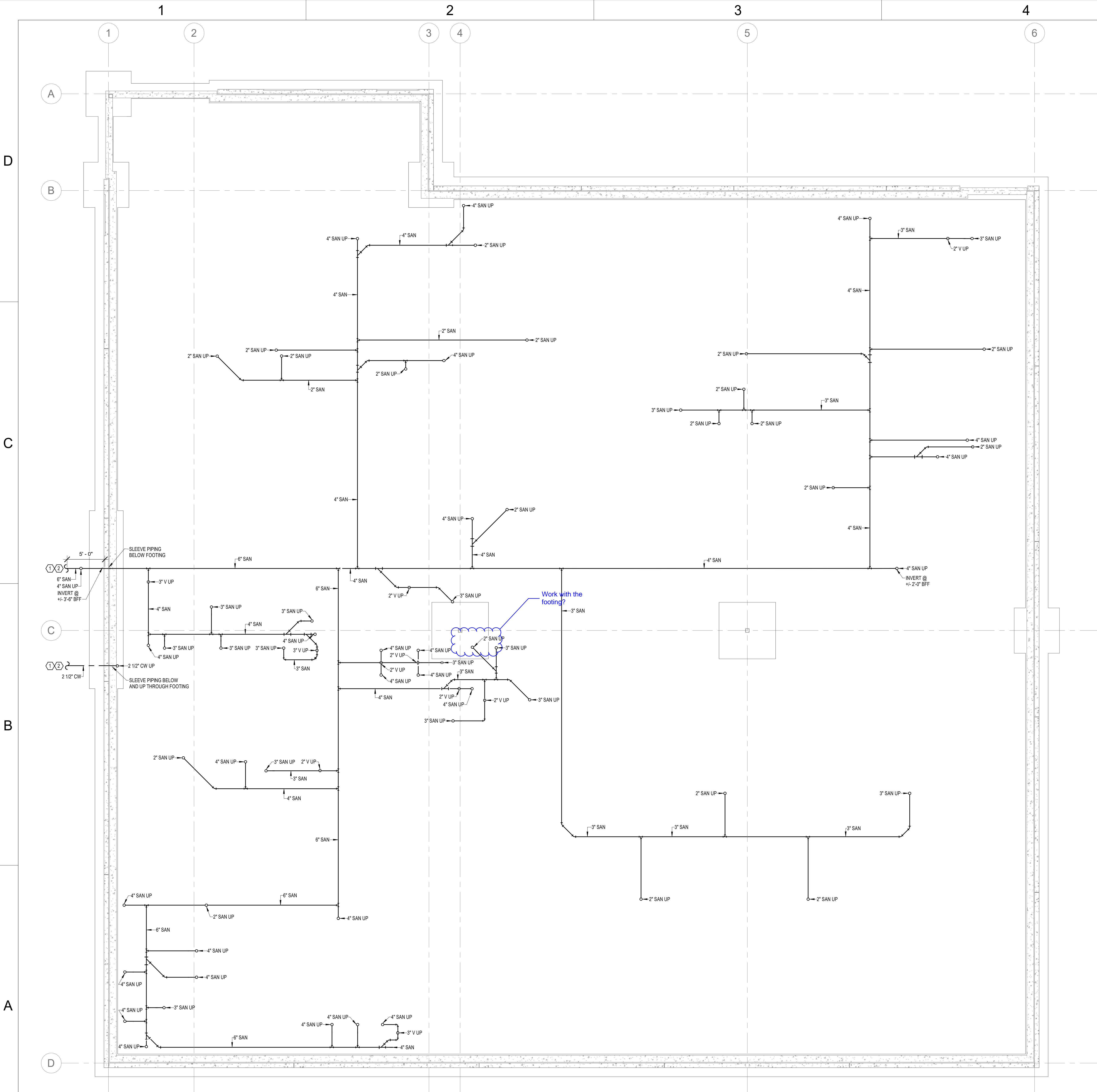
A/E # 22354

Novant ASC Leland

SHEET NAME
PLUMBING SYMBOLS AND ABBREVIATIONS

SHEET NUMBER

P000

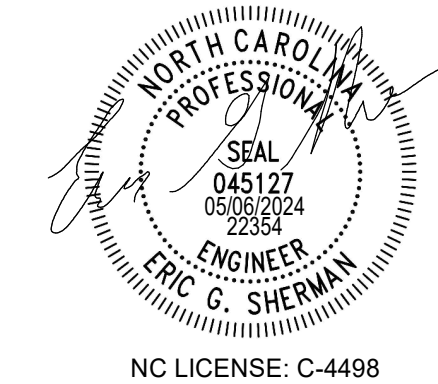


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 - B. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR FOR THE MEANS AND METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THIS WORK.
 - C. THE PLUMBING CONTRACTOR SHALL COORDINATE SANITARY PIPING INVERTS AND POINT OF CONNECTION WITH UTILITY CONTRACTOR.
 - D. THE PLUMBING CONTRACTOR SHALL VERIFY SANITARY PIPING INVERTS PRIOR TO THE START OF WORK.
 - E. ALL SANITARY PIPING IS BELOW FLOOR UNLESS NOTED OTHERWISE. ALL WATER AND VENT PIPING IS ABOVE CEILING UNLESS NOTED OTHERWISE.
 - F. PLUMBING CONTRACTOR SHALL ROUGH-IN AND MAKE FINAL CONNECTIONS TO EQUIPMENT AS REQUIRED.
 - G. COVER SHEET GENERAL NOTES APPLY TO ALL SHEETS.
 - H. CONTRACTOR TO COORDINATE WITH CIVIL CONTRACTOR/ ENGINEER AND STRUCTURAL ENGINEER/ FLATWORK CONTRACTOR FOR WALL/ ROOFING AND SITE UTILITY LOCATIONS.
 - I. CONTRACTOR TO COORDINATE WITH THE LOCAL UTILITIES COMPANY WHEN LOCATING AND ROUTING UTILITIES TO CONFORM WITH THEIR REQUIREMENTS AND STANDARDS.
 - J. CONTRACTOR TO BACKFILL AND PROTECT ALL BURIED PIPING PER ENGINEERS AND CIVIL ENGINEER SPECIFICATIONS WITH THE MOST STRINGENT REQUIREMENTS GOVERNING.
 - K. PIPE SLEEVES BELOW AND UP THROUGH FOOTINGS SHALL BE SCHEDULE 40 STEEL, TWICE THE DIAMETER OF THE PIPING IT IS SERVING.

- SHEET NOTES:**
- 1. SEE CIVIL PLANS FOR CONTINUATION.
 - 2. SANITARY AND WATER MAINS ROUTED OUT OF BUILDING AT THESE LOCATIONS. INVERT ELEVATION TAKEN AT BOTTOM OF PIPE AS NOTED. PIPING EXTENDS 9' BEYOND BUILDING FOOTPRINT.



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SHEET NAME
UNDERFLOOR PLAN -
PLUMBING DRAINAGE

SHEET NUMBER

PD200

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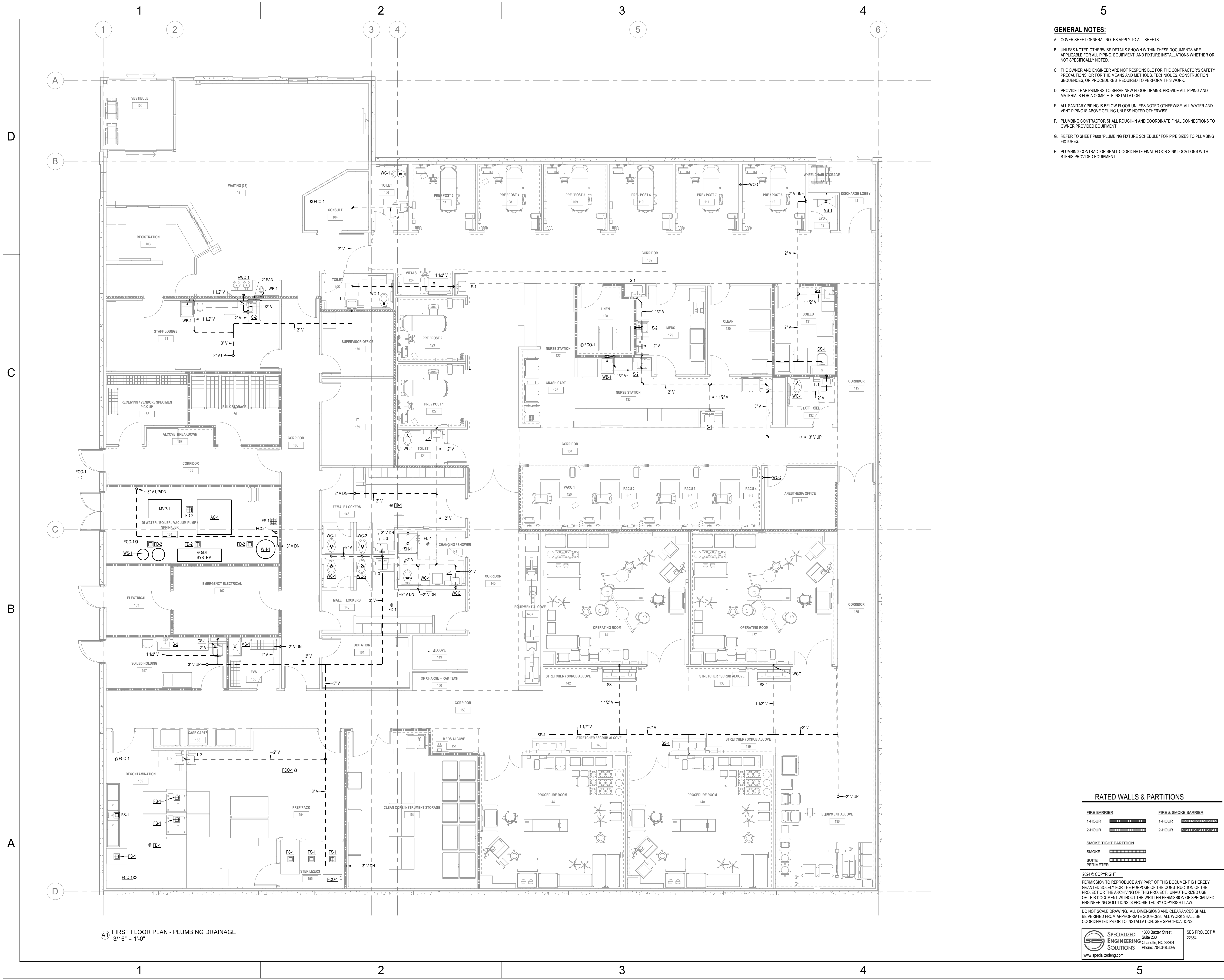
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SES PROJECT #
22354

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A1 FIRST FLOOR PLAN - PLUMBING DRAINAGE
3/16" = 1'-0"

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- D. PROVIDE TRAP PRIMERS TO SERVE NEW FLOOR DRAINS. PROVIDE ALL PIPING AND MATERIALS FOR A COMPLETE INSTALLATION.
- E. ALL SANITARY PIPING IS BELOW FLOOR UNLESS NOTED OTHERWISE. ALL WATER AND VENT PIPING IS ABOVE CEILING UNLESS NOTED OTHERWISE.
- F. PLUMBING CONTRACTOR SHALL ROUGH-IN AND COORDINATE FINAL CONNECTIONS TO OWNER PROVIDED EQUIPMENT.
- G. REFER TO SHEET P600 "PLUMBING FIXTURE SCHEDULE" FOR PIPE SIZES TO PLUMBING FIXTURES.
- H. PLUMBING CONTRACTOR SHALL COORDINATE FINAL FLOOR SINK LOCATIONS WITH STERIS PROVIDED EQUIPMENT.

RATED WALLS & PARTITIONS

FIRE BARRIER		FIRE & SMOKE BARRIER	
1-HOUR		1-HOUR	
2-HOUR		2-HOUR	
SMOKE TIGHT PARTITION			
SMOKE			
SUITE PERIMETER			

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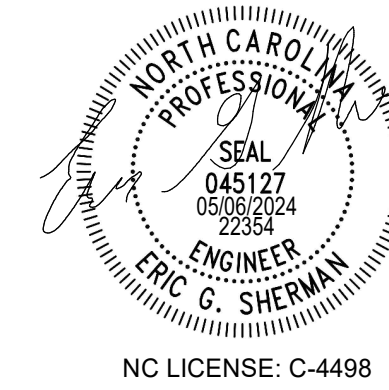
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SHEET NAME
**FIRST FLOOR PLAN -
PLUMBING DRAINAGE**

SHEET NUMBER

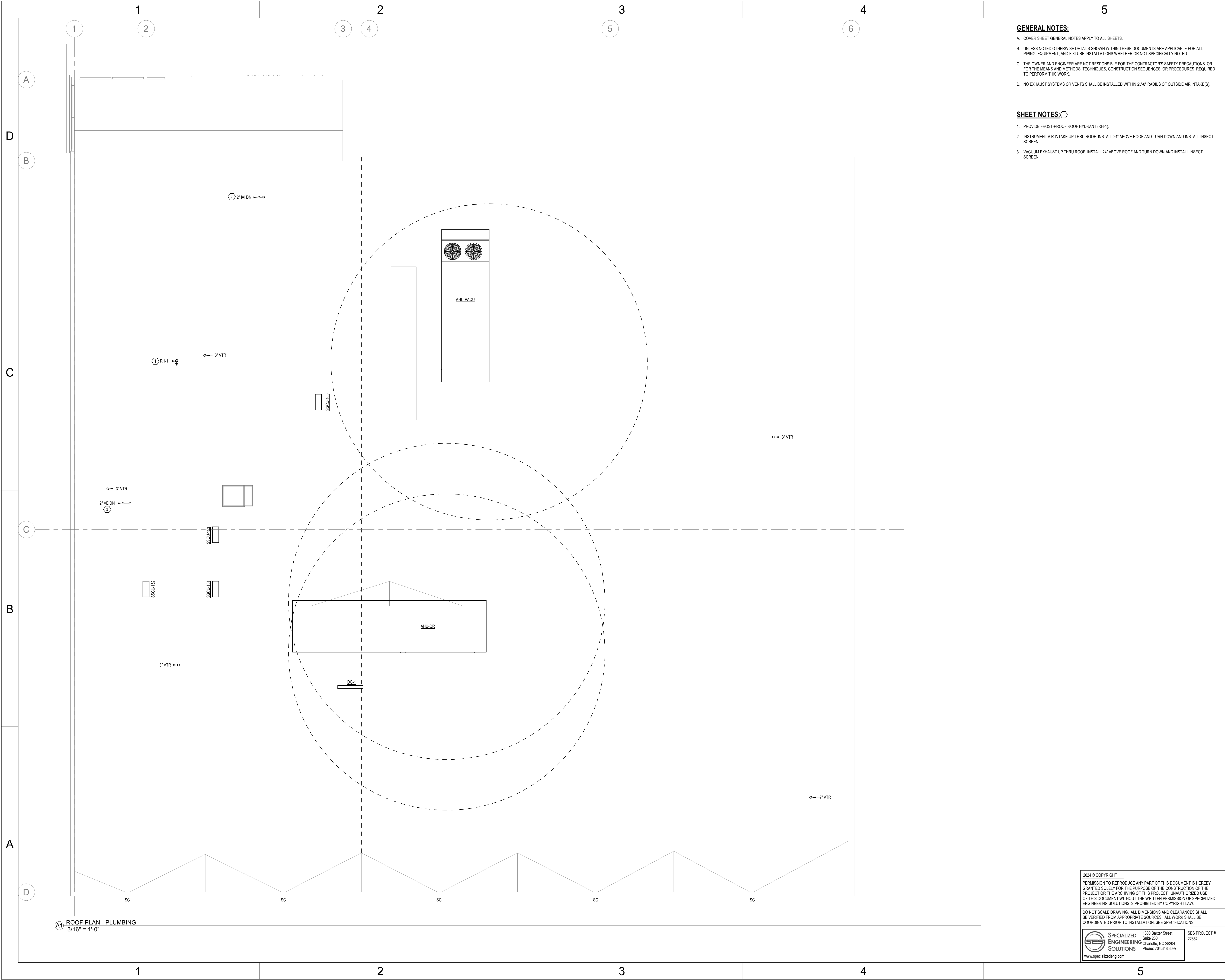
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 - D. NO EXHAUST SYSTEMS OR VENTS SHALL BE INSTALLED WITHIN 25'-0" RADIUS OF OUTSIDE AIR INTAKE(S).

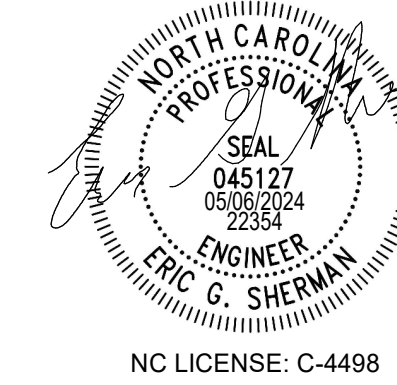
- SHEET NOTES:**
- 1. PROVIDE FROST-PROOF ROOF HYDRANT (RH-1).
 - 2. INSTRUMENT AIR INTAKE UP THRU ROOF. INSTALL 24" ABOVE ROOF AND TURN DOWN AND INSTALL INSECT SCREEN.
 - 3. VACUUM EXHAUST UP THRU ROOF. INSTALL 24" ABOVE ROOF AND TURN DOWN AND INSTALL INSECT SCREEN.

NOVANT HEALTH

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SHEET NAME
ROOF PLAN - PLUMBING

SHEET NUMBER

PD202

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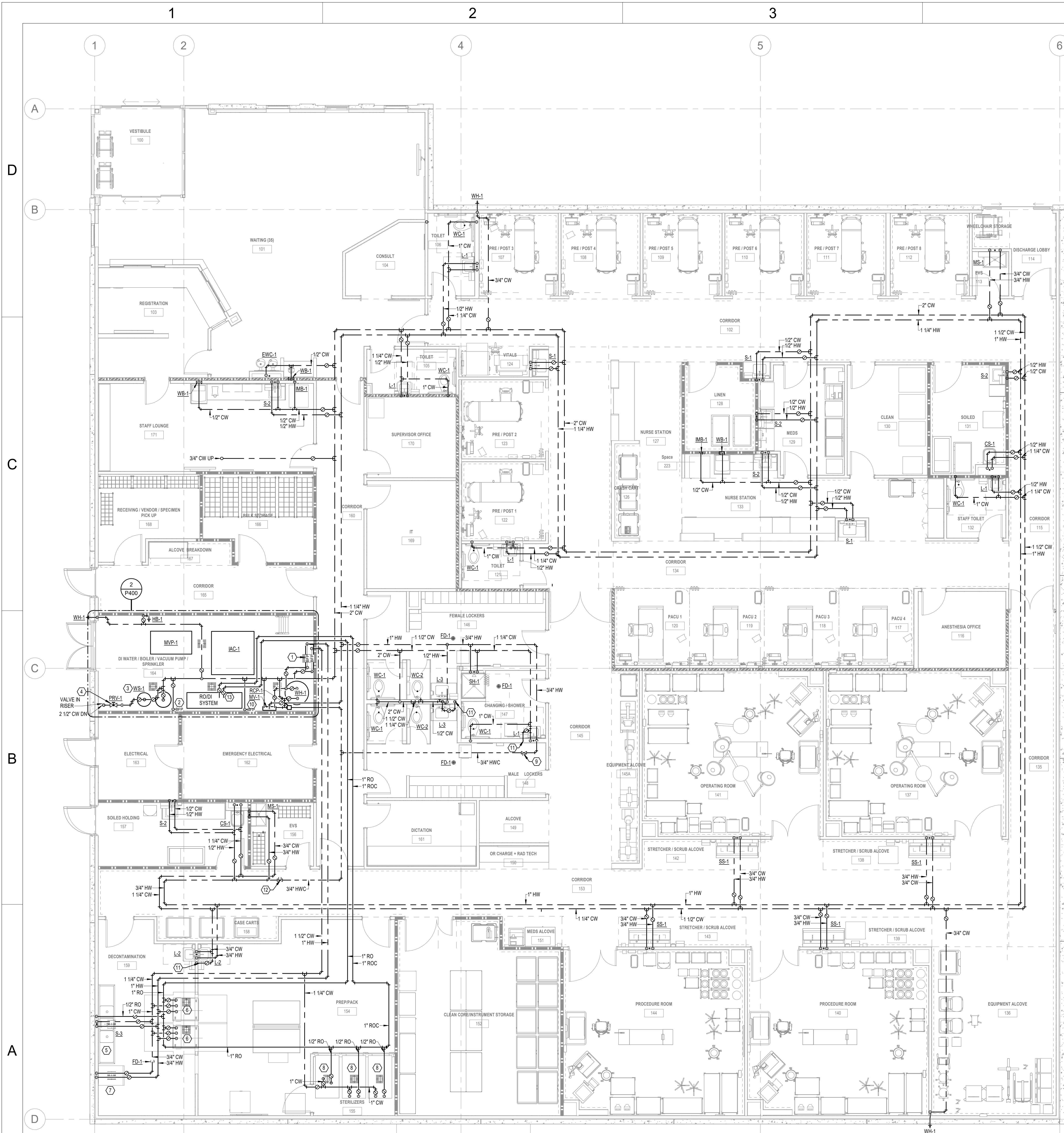
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A1 FIRST FLOOR PLAN - PLUMBING PIPE
3/16\"/>

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- THE PLUMBING CONTRACTOR SHALL BALANCE THE HOT WATER SYSTEM AFTER COMPLETION OF WORK.
- PROVIDE WATER HAMMER ARRESTERS ON ALL QUICK CLOSING VALVES AND FLUSH VALVES.
- PLUMBING CONTRACTOR SHALL PROVIDE ADDITIONAL BACKFLOW DEVICES AS REQUIRED BY LOCAL AHI.
- PROVIDE TRAP PRIMERS TO SERVE NEW FLOOR DRAINS AS INDICATED. PROVIDE ALL PIPING AND MATERIALS FOR A COMPLETE INSTALLATION.
- ALL SANITARY PIPING IS BELOW FLOOR UNLESS NOTED OTHERWISE. ALL WATER AND VENT PIPING IS ABOVE CEILING UNLESS NOTED OTHERWISE.
- PLUMBING CONTRACTOR SHALL ROUGH-IN AND COORDINATE FINAL CONNECTIONS TO OWNER PROVIDED EQUIPMENT.
- REFER TO SHEET P800 "PLUMBING FIXTURE SCHEDULE" FOR PIPE SIZES TO PLUMBING FIXTURES.
- PROVIDE ACCESS PANELS IN HARD CEILINGS AS REQUIRED FOR ACCESS TO PLUMBING VALVES AND EQUIPMENT.
- PROVIDE AND INSTALL CORZAN OR EQUAL CPVC PIPE AND FITTINGS FOR ROLDI SYSTEM.
- ALL REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE PROVIDED WITH WALL/FLOOR SUPPORT. MOUNT AT ACCESSIBLE HEIGHT FOR MAINTENANCE. DRAIN TO NEAREST FLOOR DRAIN. MANUFACTURER: WATTS 009 W/ AIR GAP FITTING OR EQUAL.

SHEET NOTES:

- REDUCED PRESSURE BACKFLOW PREVENTERS TO SERVE SPD EQUIPMENT (1-1/2" DCW AND 1" DHW).
- REDUCED PRESSURE BACKFLOW PREVENTER TO SERVE ROLDI SYSTEM MAKE-UP WATER (1" DCW). PROVIDE 1" THREADED CONNECTION FOR ROLDI INSTALLER TO CONNECT.
- BUILDING WATER SOFTENER LOCATION. WATER QUALITY TO BE VERIFIED.
- PROVIDE AND INSTALL PRESSURE REDUCING VALVE HORIZONTAL AT ACCESSIBLE HEIGHT FOR MAINTENANCE. PROVIDE WALL AND FLOOR SUPPORT. SET OUTGOING PRESSURE AT 65-70 PSI. FLOW TEST RESULTS: STATIC PRESSURE: 63 PSI. RESIDUAL PRESSURE: 60 PSI.
- AMSCO REPROCESSING SINK - PROVIDE 1/2" CW, 1/2" HW, 1/2" DI WATER. PROVIDE 1/2" AIR TO AIR GUN AND 1/2" CW TO WATER GUN. CW & HW PRESSURE SHALL BE SET AT 45 PSI DYNAMIC. DI WATER PRESSURE SHALL BE BETWEEN 20-125 PSI DYNAMIC. AIR SHALL CONNECT TO INSTRUMENT AIR COMP. AIR SHALL BE SET AT 30 PSI DYNAMIC. PROVIDE PRESSURE REDUCING VALVES (AS REQUIRED) AND SHOCK ARRESTORS ON DOMESTIC WATER. PROVIDE PRESSURE REGULATOR ON AIR AS REQUIRED.
- AMSCO 7053HP - PROVIDE 3/4" CW, 3/4" HW, 1/2" DI WATER AND 1/2" AIR. CW & HW PRESSURE SHALL BE SET AT 45 PSI DYNAMIC. DI WATER PRESSURE SHALL BE BETWEEN 20-125 PSI DYNAMIC. AIR PRESSURE SHALL BE BETWEEN 20-125 PSI DYNAMIC. PROVIDE PRESSURE REDUCING VALVES (AS REQUIRED) AND SHOCK ARRESTORS ON DOMESTIC WATER. PROVIDE PRESSURE REGULATOR ON AIR AS REQUIRED.
- KNOWAVE ULTRASONIC IRRIGATOR - PROVIDE 3/4" CW AND 3/4" HW. PRESSURE SHALL BE SET AT 30-70 PSI DYNAMIC. PROVIDE PRESSURE REDUCING VALVES (AS REQUIRED) AND SHOCK ARRESTORS ON DOMESTIC WATER.
- AMSCO 800 MEDIUM STEAM STERILIZER - PROVIDE 1" CW AND 1/2" AIR. CW PRESSURE SHALL BE SET AT 45 PSI DYNAMIC. AIR PRESSURE SHALL BE BETWEEN 20-125 PSI DYNAMIC. PROVIDE PRESSURE REDUCING VALVES (AS REQUIRED) AND SHOCK ARRESTORS ON DOMESTIC WATER. PROVIDE PRESSURE REGULATOR ON AIR AS REQUIRED.
- INSTALL BALANCING VALVE ON HWC. SET AT 1.0 GPM.
- REDUCED PRESSURE BACKFLOW PREVENTER TO SERVE BOILER EQUIPMENT (3/4" DCW). MECHANICAL CONTRACTOR SHALL CONNECT TO BACKFLOW PREVENTER. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
- INSTALL TRAP PRIMERS TO SERVE FLOOR DRAINS IN LOCKER ROOMS, SHOWER AND DECONTAM.
- INSTALL BALANCING VALVE ON HWC. SET AT 3.0 GPM.
- PROVIDE 1" FIP THREADED BALL VALVE CONNECTION FOR ROLDI INSTALLER TO CONNECT.

RATED WALLS & PARTITIONS

FIRE BARRIER		FIRE & SMOKE BARRIER	
1-HOUR		1-HOUR	
2-HOUR		2-HOUR	
SMOKE TIGHT PARTITION		SMOKE	

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SHEET NAME
FIRST FLOOR PLAN -
PLUMBING PIPE

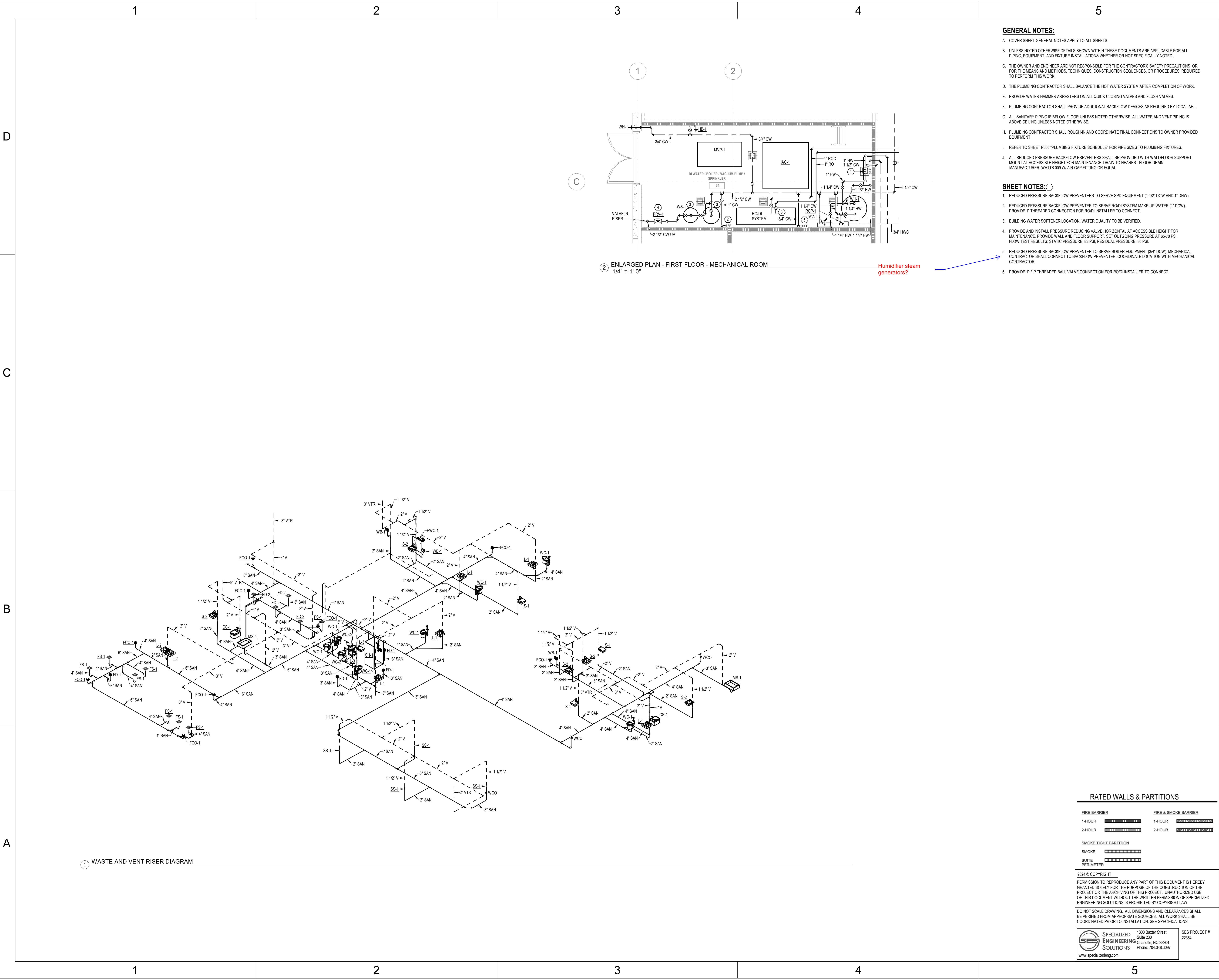
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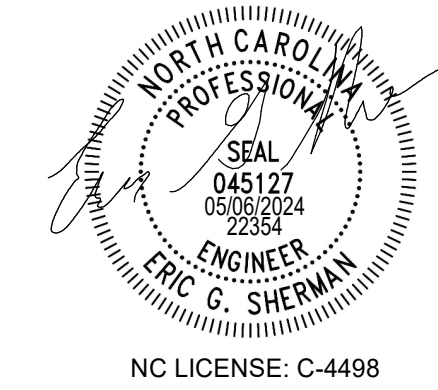
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 - E. PROVIDE WATER HAMMER ARRESTERS ON ALL QUICK CLOSING VALVES AND FLUSH VALVES.
 - F. PLUMBING CONTRACTOR SHALL PROVIDE ADDITIONAL BACKFLOW DEVICES AS REQUIRED BY LOCAL A.H.J.
 - G. ALL SANITARY PIPING IS BELOW FLOOR UNLESS NOTED OTHERWISE. ALL WATER AND VENT PIPING IS ABOVE CEILING UNLESS NOTED OTHERWISE.
 - H. PLUMBING CONTRACTOR SHALL ROUGH-IN AND COORDINATE FINAL CONNECTIONS TO OWNER PROVIDED EQUIPMENT.
 - I. REFER TO SHEET P600 "PLUMBING FIXTURE SCHEDULE" FOR PIPE SIZES TO PLUMBING FIXTURES.
 - J. ALL REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE PROVIDED WITH WALL/FLOOR SUPPORT. MOUNT AT ACCESSIBLE HEIGHT FOR MAINTENANCE. DRAIN TO NEAREST FLOOR DRAIN. MANUFACTURER: WATTS 600 W AIR GAP FITTING OR EQUAL.
- SHEET NOTES:**
- 1. REDUCED PRESSURE BACKFLOW PREVENTERS TO SERVE SPD EQUIPMENT (1-1/2" DCW AND 1" DHW).
 - 2. REDUCED PRESSURE BACKFLOW PREVENTER TO SERVE RDI SYSTEM MAKE-UP WATER (1" DCW). PROVIDE 1" THREADED CONNECTION FOR RDI INSTALLER TO CONNECT.
 - 3. BUILDING WATER SOFTENER LOCATION, WATER QUALITY TO BE VERIFIED.
 - 4. PROVIDE AND INSTALL PRESSURE REDUCING VALVE HORIZONTAL AT ACCESSIBLE HEIGHT FOR MAINTENANCE. PROVIDE WALL AND FLOOR SUPPORT. SET OUTGOING PRESSURE AT 65-70 PSI. FLOW TEST RESULTS: STATIC PRESSURE: 83 PSI. RESIDUAL PRESSURE: 80 PSI.
 - 5. REDUCED PRESSURE BACKFLOW PREVENTER TO SERVE BOILER EQUIPMENT (3/4" DCW). MECHANICAL CONTRACTOR SHALL CONNECT TO BACKFLOW PREVENTER. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
 - 6. PROVIDE 1" FIP THREADED BALL VALVE CONNECTION FOR RDI INSTALLER TO CONNECT.

2 ENLARGED PLAN - FIRST FLOOR - MECHANICAL ROOM
1/4" = 1'-0"

Humidifier steam generators?



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SHEET NAME
PLUMBING RISERS AND
ENLARGED PLANS

SHEET NUMBER

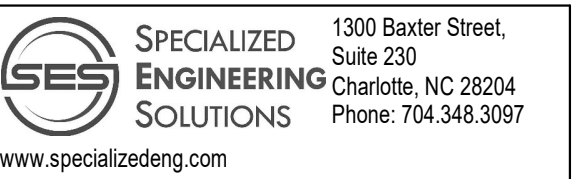
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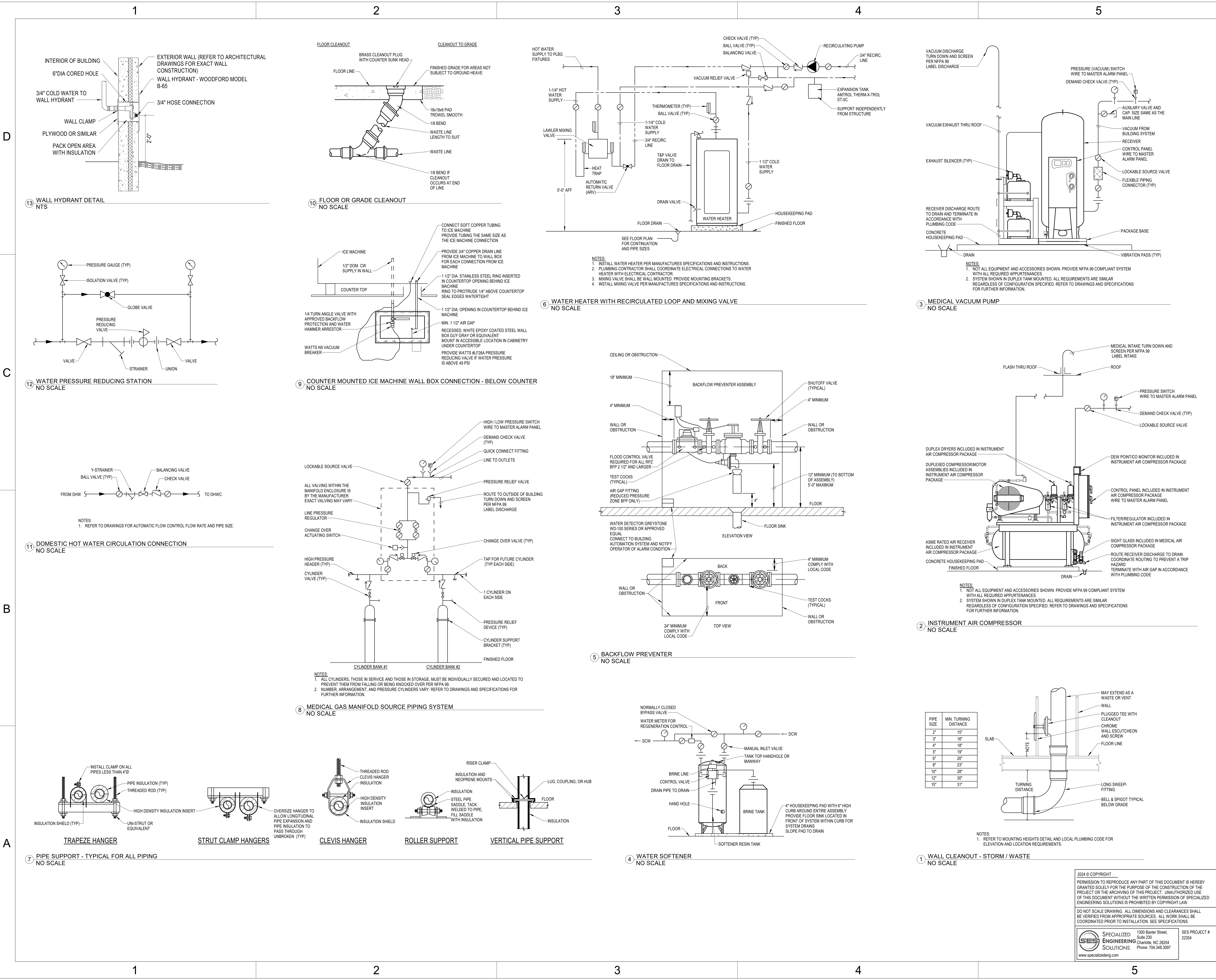
FIRE BARRIER		FIRE & SMOKE BARRIER	
1-HOUR		1-HOUR	
2-HOUR		2-HOUR	
SMOKE TIGHT PARTITION			
SMOKE			
SUITE PERIMETER			

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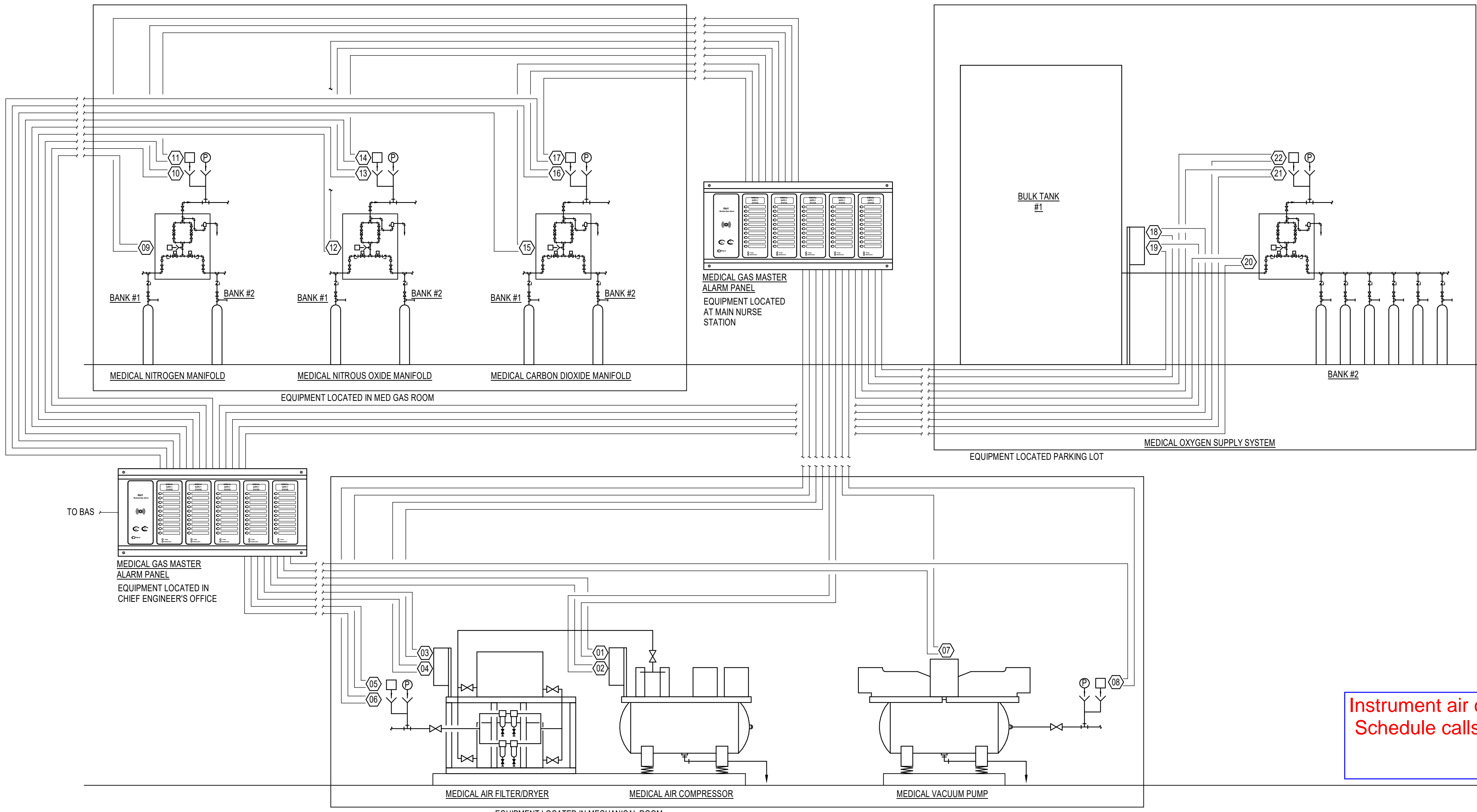
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PLUMBING DETAILS

SHEET NUMBER
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CONSTRUCTION DOCUMENTS

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Instrument air compressor?
Schedule calls out alarms

DIRECT DIGITAL CONTROL POINTS LIST - MEDICAL GAS SYSTEM								
POINT ID	POINT DESCRIPTION	SOURCE (1)	TYPE (2)	IO (3)	SETPOINT ADJUSTMEN T	ALARMS (4)	APPLICATIONS (5)	UNITS
01	MEDICAL AIR SYSTEM EQUIPMENT TROUBLE	O	B	I	NO	G, C, F	E, A, G	-
02	RESERVE COMPRESSOR IN USE	O	B	I	NO	G, C, F	E, A, G	-
03	DEW POINT HIGH	O	B	I	NO	H, F	E, A, G	ABOVE 35°F
04	CARBON MONOXIDE HIGH	O	B	I	NO	H, F	E, A, G	ABOVE 10 PPM
05	MEDICAL AIR MAINLINE PRESSURE HIGH	O	B	I	NO	H, F	E, A, G	20% ABOVE
06	MEDICAL AIR MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
07	MEDICAL VACUUM SYSTEM EQUIPMENT TROUBLE	O	B	I	NO	G, C, F	E, A, G	-
08	MEDICAL VACUUM MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
09	MEDICAL NITROGEN SYSTEM CHANGEOVER TO SECONDARY SUPPLY	O	B	I	NO	G, C, F	E, A, G	-
10	MEDICAL NITROGEN MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
11	MEDICAL NITROGEN MAINLINE PRESSURE HIGH	O	B	I	NO	H, F	E, A, G	20% HIGH
12	MEDICAL NITROUS OXIDE SYSTEM CHANGEOVER TO SECONDARY SUPPLY	O	B	I	NO	G, C, F	E, A, G	-
13	MEDICAL NITROUS OXIDE MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
14	MEDICAL NITROUS OXIDE MAINLINE PRESSURE HIGH	O	B	I	NO	H, F	E, A, G	20% HIGH
15	MEDICAL CARBON DIOXIDE SYSTEM CHANGEOVER TO SECONDARY SUPPLY	O	B	I	NO	G, C, F	E, A, G	-
16	MEDICAL CARBON DIOXIDE MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
17	MEDICAL CARBON DIOXIDE MAINLINE PRESSURE HIGH	O	B	I	NO	H, F	E, A, G	20% HIGH
18	MEDICAL OXYGEN SYSTEM EQUIPMENT TROUBLE	O	B	I	NO	G, C, F	E, A, G	-
19	MEDICAL OXYGEN BULK SUPPLY LOW	O	B	I	NO	G, L, F	E, A, G	LESS THAN 1 DAY
20	MEDICAL OXYGEN SYSTEM CHANGEOVER TO SECONDARY SUPPLY / RESERVE IN USE	O	B	I	NO	G, C, F	E, A, G	-
21	MEDICAL OXYGEN MAINLINE PRESSURE LOW	O	B	I	NO	L, F	E, A, G	20% BELOW
22	MEDICAL OXYGEN MAINLINE PRESSURE HIGH	O	B	I	NO	H, F	E, A, G	20% HIGH

REMARKS
(1) E = ELECTRIC P = PNEUMATIC S = REFERENCED POINT FROM HARDWARE ELSEWHERE ON DDC NETWORK O = BY OTHERS
(2) A = ANALOG B = BINARY
(3) I = INPUT O = OUTPUT
(4) G = GENERAL C = CRITICAL H = HIGH LIMIT L = LOW LIMIT F = FAILURE
(5) T = TRENDING E = EVENT HISTORY A = ARCHIVE TT = TOTALIZATION G = GRAPHICAL POINT

SEQUENCE OF OPERATION
DESCRIPTION:
THE MEDICAL GAS SYSTEM CONSISTS OF MEDICAL AIR COMPRESSORS, MEDICAL VACUUM PUMPS, BULK OXYGEN SUPPLY, NITROUS OXIDE MANIFOLD, NITROGEN MANIFOLD, CARBON DIOXIDE MANIFOLD, SENSORS, ALARM PANELS AND ALARM WIRING ALL PROVIDED AND INSTALLED BY THE MEDICAL GAS INSTALLING CONTRACTOR. CONTROLS CONTRACTOR SHALL PROVIDE DDC INTERFACE EQUIPMENT AND WIRING FROM DDC INTERFACE TO FACILITY DDC SYSTEM.

REQUIREMENTS:
ALL CONTROL DEVICES REQUIRED TO MONITOR THESE SYSTEMS AND ALARMS AND COMMUNICATE THEM TO THE USER INTERFACE SHALL BE POWERED USING THE LIFE SAFETY BRANCH OF THE EMERGENCY POWER SYSTEM. REFER TO ELECTRICAL DRAWINGS FOR CIRCUIT REQUIREMENTS.

ALL ALARMS ASSIGNED TO THE USER INTERFACE SHALL INCLUDE THE PRIMARY COMPUTER DISPLAY, AN AUDIBLE INDICATION AT THE PRIMARY COMPUTER DISPLAY AND ISSUANCE OF TEXT MESSAGES TO ALL ASSIGNED PERSONNEL.

ALL CONTROL DEVICES REQUIRED TO MONITOR ALARMS SHALL INCLUDE SELF DIAGNOSTICS AND SEND AN ALARM TO THE USER INTERFACE WHENEVER A FAULT OR TROUBLE IS DETERMINED.

FAILURE OF THE BAS COMMUNICATIONS WITH ANY EQUIPMENT OR DEVICES SHALL INITIATE AN ALARM TO THE USER INTERFACE.

THE ALARM ALGORITHM SHALL TAKE PRIORITY OVER ALL OTHER NON-LIFE SAFETY ALGORITHMS.

ALARMS AND MONITORING:
MONITOR ALL POINTS IDENTIFIED AND ALARM TO THE USER INTERFACE. ALARM SHALL BE ASSIGNED LIFE SAFETY PRIORITY.

GENERAL NOTES:
1. WIRE ALL SENSORS AND CONTROL DEVICES BACK TO CONTROLLER.
2. COORDINATE EQUIPMENT INTERFACES WITH OTHER TRADES.
3. WIRING DIAGRAM IS INTENDED TO BE DIAGRAMMATIC ONLY. COORDINATE LOCATIONS OF ALL PANELS, EQUIPMENT AND SENSORS WITH OTHER TRADES.
4. ALL WIRING SHALL BE INSTALLED IN METALLIC CONDUIT.
5. INDEPENDENTLY ROUTE SIGNAL WIRING FROM INDIVIDUAL DEVICES TO EACH ALARM PANEL OR DDC INTERFACE DEVICE. DO NOT COMBINE MULTIPLE DEVICE ALARMS IN A COMMON CABLE.
6. LABEL ALL CABLES AND INDIVIDUAL WIRES FOR PURPOSE SERVED. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. ALL EQUIPMENT AND CONNECTIONS MAY NOT BE APPLICABLE TO THIS PROJECT.

1 MEDICAL GAS SYSTEM MASTER ALARMS
NO SCALE

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DO NOT SCALE DRAWING. ALL DIMENSIONS AND CLEARANCES SHALL BE VERIFIED FROM APPROPRIATE SOURCES. ALL WORK SHALL BE COORDINATED PRIOR TO INSTALLATION. SEE SPECIFICATIONS.

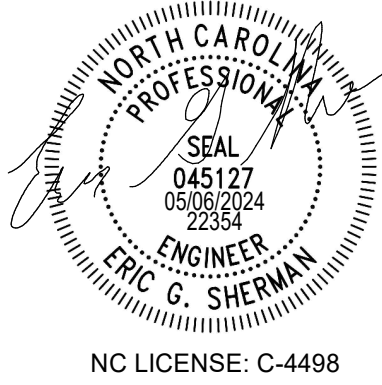
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Novant ASC Leland

SHEET NAME
PLUMBING DETAILS

SHEET NUMBER
P501

CONSTRUCTION DOCUMENTS

Novant ASC Leland

5/2/2024 1:51:59 PM

D

System No. W-1-2026

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner described in the individual U400 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** - Wall framing shall consist of min 3-1/2" (89 mm) wide steel channel studs spaced max 24 in. (610 mm) OC. When dam of opening exceeds width of stud cavity, additional lengths of steel stud installed to frame on opening around stud (item 2).

B. **Gypsum Board** - 5/8 in. (16 mm) thick, 4 ft (122 in) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 or U400 Series Design in the UL Fire Resistance Directory. Max dam of opening is 3-2 1/2 in. (84 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Steel Stud - Max 24 in. (610 mm) dam No. 28 gauge (or heavier) galv steel vent duct or No. 26 gauge (or heavier) spiral wound galv steel duct. One steel duct to be installed either concentrically or eccentrically within the firestop system. An annular space of min 0.1 in. (2 mm), joint contact to max 1-1/2 in. (38 mm) is required within the firestop system. Steel duct to be rigidly supported on both sides of the wall assembly.

3. Firestop System - The firestop system shall consist of the following:

A. **Packing Material** - (Optional, Not Shown) - Polyethylene backer rod, mineral wool batt insulation or fiberglass batt insulation friction fit into annular space for 1 hr rated wall assembly only. Packing material to be recessed from both surfaces of wall to accommodate the required thickness of the material (item 3B).

B. **Fill, Void or Cavity Material** - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) dam bead of fill material shall be applied at the joint contact location between the steel duct and the gypsum board. For 2 hr Rated walls when LC150 or LE600 Sealant is used, fill material thickness installed full depth of gypsum board layer on each side of wall assembly.

SPECIFIED TECHNOLOGIES INC. - SpecShield Series SSS Sealant, SpecShield LCI Sealant, SpecShield LC150 Sealant, or SpecShield LE600 Sealant

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PAGE 1 OF 2

System No. W-1-3014

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner described in the individual U400 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 in x 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-5/8 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the dam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4-5 in. (102 to 152 mm) wide and 4-5 in. (102 to 152 mm) higher than the dam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.

B. **Gypsum Board** - 5/8 in. (16 mm) thick, 4 ft (122 in) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 or U400 Series Design in the UL Fire Resistance Directory. Max dam of opening is 18 in. (457 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants - One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe** - Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** - Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tube.

D. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

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System No. W-1-3014

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner described in the individual U400 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 in x 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-5/8 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the dam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4-5 in. (102 to 152 mm) wide and 4-5 in. (102 to 152 mm) higher than the dam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.

B. **Gypsum Board** - 5/8 in. (16 mm) thick, 4 ft (122 in) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 or U400 Series Design in the UL Fire Resistance Directory. Max dam of opening is 18 in. (457 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants - One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe** - Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** - Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tube.

D. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

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System No. W-1-3014

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner specified in the individual U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:

A. **Steel Studs** - "C" or "T" shaped studs, min 1/2 in. (12.7 mm) wide by 1-1/2 in. (38 mm) deep, fabricated from min No. 25 gauge (0.0159 in) thick galv steel. spaced max 24 in. (610 mm) OC.

B. **Gypsum Board** - 1 in. (25 mm) thick, 24 in. (610 mm) wide gypsum inner panels installed vertically. Max dam of circular cutout in gypsum inner panel is 10 in. (254 mm).

C. **Gypsum Board** - 1/2 in. (12.7 mm) or 5/8 in. (15.9 mm) thick, 48 in. (1219 mm) wide gypsum boards. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max dam of circular cutout in gypsum board is 10 in. (254 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Metallic Sleeve - Cylindrical sleeve fabricated from min No. 36 gauge (0.3 mm) thick galv steel and having a max 2 in. (51 mm) lap along the longitudinal seam. Length of the sleeve to be equal to the thickness of the wall. Sleeve installed by cutting the sheet down to a diam smaller than the through opening, inserting the rod through the opening and welding the rod to the sleeve against the circular cutouts in the gypsum board layers. The ends of the sleeve shall be flush with each surface of the wall.

3. Through Penetrant - One metallic pipe, tube or conduit installed concentrically or eccentrically within the firestop system. The annular space between the pipe, tube or conduit and the periphery of the sleeve opening shall be min 0.1 in. (2 mm), joint contact to max 2 in. (51 mm). Pipe, tube or conduit to be rigidly supported on both sides of wall assembly. One of the following types and sizes of pipe, tube or conduit may be used:

A. **Steel Pipe** - Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.

C. **Conduit** - Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit, steel electrical metallic tubing (EMT) or flexible steel pipe.

D. **Firestop System** - The firestop system consists of the following items:

A. **Packing Material** - Min 1/2 in. (12.7 mm) thick polyethylene backer rod installed in annular space as a permanent form. Packing material to extend through the thickness of wall assembly.

B. **Fill, Void or Cavity Material** - Sealant - Putty, Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with finished surface of wall. At the joint contact location, apply min 1/4 in. (6 mm) dam bead of fill material shall be applied at the penetrant interface.

SPECIFIED TECHNOLOGIES INC. - SpecShield Series SSS Sealant, SpecShield LCI Sealant, or SpecShield Putty

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C

System No. W-1-168

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating - 1/4, 3/4 and 1 Hr (See Items 2 and 4)

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner described in the individual U400, U400 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** - Wall framing shall consist of min 3-5/8 in. (89 mm) wide steel studs spaced max 24 in. (610 mm) OC.

B. **Gypsum Board** - Thickness, type, number of layers and fasteners, as specified in the individual U400, U400 or U400 Series Design. Max height of opening is 6 in. (152 mm). Max width of opening is 36 in. (914 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants - Multiple pipes or conduits installed in single layer entry within the firestop system. The annular space between the pipes and conduits and the edges of the opening shall be min 1/4 in. (6 mm) joint contact to max 3 in. (76 mm). The separation between pipes and conduits to be min 1/4 in. (6 mm) to max 3 in. (76 mm). Pipes and conduits to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or conduits may be used:

A. **Steel Pipe** - Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 4 in. (102 mm) diam (or smaller) rigid steel pipe or steel electrical metallic tubing (EMT).

When dam of pipe or conduit is greater than 2 in. (51 mm), FT and FTH Ratings are 1/4 hr. Otherwise, T, FT and FTH Ratings are 3/4 hr or 1 hr as detailed in Item 4.

3. Firestop System - (Optional, Not Shown) - Foam backer rod, mineral wool batt insulation or glass fiber insulation packed into opening and recessed min 5/8 in. (16 mm) from each surface of the wall to accommodate fill material.

4. Fill, Void or Cavity Material - Sealant - Min 5/8 in. (16 mm) thickness of fill material installed to completely fill annular space between pipes, conduits and gypsum wallboard flush with each surface of wall. Min 1/4 in. (6 mm) dam bead of fill material shall be applied at the joint contact location between the steel duct and the gypsum board. For 2 hr Rated walls when LC150 Sealant is used with max 2 in. (51 mm) dam pipe or conduit, FT and FTH Ratings are 3/4 hr. Otherwise, when SpecShield LCI Sealant or SpecShield SSS Sealant is used with max 2 in. (51 mm) dam pipe or conduit, FT and FTH Ratings are 1 hr.

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System No. W-1-149

F Ratings - 1 and 2 hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard wall assembly shall be constructed of the materials and in the manner described in the individual U400 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 in x 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the dam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4-5 in. (102 to 152 mm) wide and 4-5 in. (102 to 152 mm) higher than the dam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.

B. **Gypsum Board** - 5/8 in. (16 mm) thick, 4 ft (122 in) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U400 or U400 Series Design in the UL Fire Resistance Directory. Max dam of opening is 36 in. (914 mm) for steel stud walls. Max dam of opening is 14-1/2 in. (368 mm) for wood stud walls.

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed in an angle or greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0.1 in. (2 mm) joint contact to max 1-1/2 in. (38 mm). For maximum 1 in. (25 mm) diam (or smaller) pipes, annular space shall be min 0.1 in. (2 mm), joint contact to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** - Nom 3/4 in. (19 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 3/4 in. (19 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) flexible steel conduit.

D. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.

E. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the joint contact location between the penetrating item and the gypsum board, apply min 1/4 in. (6 mm) dam bead of fill material shall be applied at the gypsum boardthrough penetrant interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC. - SpecShield Series SSS Sealant or SpecShield LCI Sealant

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System No. W-1-2005

F Ratings - 2 hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Wall Assembly - Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Block*. Max dam of opening is 14 in. (356 mm).

2. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall range from min 0.1 in. (joint contact) to max 1-1/8 in. (30 mm). Pipes, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** - Nom 12 in. (305 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 12 in. (305 mm) diam (or smaller) rigid galv steel pipe or steel electrical metallic tubing (EMT).

C. **Copper Tubing** - Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tubing.

D. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Firestop System - The firestop system shall consist of the following:

A. **Packing Material** - (Optional, Not Shown) - Mineral wool batt insulation, polyethylene backer rod or glass fiber batt insulation friction fit into annular space. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material** - Sealant - Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. At joint contact location, apply min 1/4 in. (6 mm) dam bead of sealant at the pipe/concrete interface on the top surface of the floor or both surfaces of wall.

SPECIFIED TECHNOLOGIES INC. - Penet Sealant or SpecShield Series SSS Sealant or SpecShield LCI Sealant

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System No. C-BJ-1058

F Ratings - 2 hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft
W Rating - Class 1

Section A-A

1. Floor or Wall Assembly - Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Block*. Max dam of opening is 14 in. (356 mm).

2. Through Penetrants - One metallic pipe, conduit or tubing to be installed within the firestop system. The annular space shall range from min 0.1 in. (joint contact) to max 1-1/8 in. (30 mm). Pipes, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** - Nom 12 in. (305 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 12 in. (305 mm) diam (or smaller) rigid galv steel pipe or steel electrical metallic tubing (EMT).

C. **Conduit** - Nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing or min 6 in. (152 mm) diam (or smaller) rigid galv steel pipe.

D. **Copper Tubing** - Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tubing.

E. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Firestop System - The firestop system shall consist of the following:

A. **Packing Material** - (Optional, Not Shown) - Mineral wool batt insulation, polyethylene backer rod or glass fiber batt insulation friction fit into annular space. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material** - Sealant - Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. At joint contact location, apply min 1/4 in. (6 mm) dam bead of sealant at the pipe/concrete interface on the top surface of the floor or both surfaces of wall.

SPECIFIED TECHNOLOGIES INC. - Penet Sealant or SpecShield Series SSS Sealant or SpecShield LCI Sealant

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B

System No. C-AJ-5087

F Ratings - 2 hr
T Rating - 1 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Floor or Wall Assembly - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete floor or min 5 in. (127 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete wall. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units (CUTV) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Beams - (Optional) - Nominal 30 in. (762 mm) diam (or smaller) S40 (or heavier) steel pipe or No. 30 in. (762 mm) or 36 in. (914 mm) I-beam steel beam with square end flange spot welded to the beam at approx mid-height. Beam cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

3. Through Penetrants - One metallic pipe to be installed either concentrically or eccentrically within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes may be used:

A. **Steel Pipe** - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.

D. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

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System No. C-AJ-1080

F Ratings - 3 hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Pipe Coverings - One of the following types of pipe coverings shall be used:

A. **Pipe and Equipment Covering Materials** - Nom 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units joined on the outside with all service joints. Longitudinal joints sealed with metal fasteners or factory applied self-sealing top tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. Annular space shall be min 1/2 in. (13 mm) thick to max 1-1/2 in. (38 mm). When the non-pipe diam is less than 2 in. (51 mm), annular space may be min 1/4 in. (6 mm).

See **Pipe and Equipment Covering Materials** (BRCU) category in Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe Covering Materials** - Nom 2 in. (51 mm) thick unfaced mineral fiber pipe insulation having a nominal density of 3.5 pcf (56 kg/m³) (or heavier) and used to the outside diam of pipe or tube. Pipe insulation secured with min No. 3-1/2 in. (89 mm) steel wire spaced max 12 in. (305 mm) OC.

See **Shathing Materials** (BRCU) category in Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

2. Firestop System - The firestop system shall consist of the following:

A. **Packing Material** - Min 1/2 in. (12.7 mm) thickness of min 1/2 pcf (16 kg/m³) mineral wool batt insulation compressed and firmly packed into annular space. Packing material to be recessed from top surface of floor or both surfaces of wall to accommodate the required thickness of fill material (item 1B).

B. **Fill, Void or Cavity Material** - Sealant - Min 1/2 in. (12.7 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. When min annular space is less than 1/2 in. (12.7 mm), fill material to be installed to min 1 in. (25 mm) thickness.

SPECIFIED TECHNOLOGIES INC. - SpecShield Series SSS Sealant or SpecShield LCI Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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System No. C-AJ-1080

F Ratings - 3 hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Floor or Wall Assembly - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf) concrete. Floor may also be constructed of any UL Classified Concrete Block*. Max dam of opening is 32 in.

2. Through Penetrants - One metallic pipe, conduit or tubing to be installed within the firestop system. The annular space shall range from min 0.1 in. (joint contact) to max 2 in. (51 mm). Pipes, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** - Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.

C. **Conduit** - Nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing or min 6 in. (152 mm) diam (or smaller) rigid galv steel pipe.

D. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.

E. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Firestop System - The firestop system shall consist of the following:

A. **Packing Material** - (Optional, Not Shown) - Mineral wool batt insulation, polyethylene backer rod or glass fiber batt insulation friction fit into annular space. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material** - Sealant - Min 1/2 in. (12.7 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. At joint contact location, apply min 1/4 in. (6 mm) dam bead of sealant at the pipe/concrete interface on the top surface of the floor or both surfaces of wall.

SPECIFIED TECHNOLOGIES INC. - SpecShield Series SSS Sealant or SpecShield LCI Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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System No. C-AJ-1079

F Ratings - 3 and 4 hr (See Item 3C)
T Ratings - 0, 1/4, 1/2 and 3/4 hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft

Section A-A

1. Floor or Wall Assembly - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf) concrete. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units (CUTV) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Beams - (Optional) - Nominal 30 in. (762 mm) diam (or smaller) S40 (or heavier) steel pipe or No. 30 in. (762 mm) or 36 in. (914 mm) I-beam steel beam with square end flange spot welded to the beam at approx mid-height. Beam cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

3. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall range from min 0.1 in. (joint contact) to max 2 in. (51 mm). Pipes, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** - Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.

B. **Iron Pipe** - Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.

C. **Conduit** - Nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing or min 6 in. (152 mm) diam (or smaller) rigid galv steel pipe.

D. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.

E. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

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System No. C-AJ

WATER HEATER SCHEDULE													
MARK	STORAGE CAPACITY	STORAGE WATER TEMPERATURE [°F]	RECOVERY @ 100°F RISE [GPH]	DISTRIBUTION WATER TEMPERATURE [°F]	MAXIMUM SYSTEM FLOW [GPM]	ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS
						KW	FLA	VOLTAGE	PHASE	DISCONNECT BY			
WH-1	120	140	147	120	203	36	43.3	480 V	3	ELECTRICAL	AO SMTH	DRE-120-36	(1)(2)(3)(4)(5)
REMARKS: 1. PROVIDE WITH RELIEF VALVE, DIELECTRIC CONNECTIONS, THERMOMETERS ON INLET / OUTLET, AND EXPANSION TANK. 2. PROVIDE WITH HOT WATER CIRCULATION PUMP WITH TIMECLOCK / AQUASTAT. 3. PROVIDE WITH ASSE 1017 MIXING VALVE STATION RATED FOR MINIMUM TO MAXIMUM FLOW RATE SCHEDULED. SYSTEM SHALL INTEGRATE WITH BAS, LAWLOR OR APPROVED EQUAL. 4. MOUNT ON 4" HOUSEKEEPING PAD. 5. "SCCR" - VALUE INDICATED IS AVAILABLE SHORT CIRCUIT CURRENT (SCC) IN KILOAMPS AT THE EQUIPMENT BASED ON PRELIMINARY DESIGN PHASE CALCULATIONS. EQUIPMENT SCCR SHALL BE MINIMUM 120% OF THE AVAILABLE SCC. RATING SHALL BE ADJUSTED IF REQUIRED BASED ON FINAL SCC CALCULATION. EQUIPMENT INDICATED WITH 5 KA MAY BE PROVIDED WITH 5 KA SCCR. REVIEW SCCR WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.													

D

ALARM PANEL SCHEDULE											
MARK	LOCATION		V	O	A	CO2	N	N2O	WAGD	IA	REMARKS
	ROOM NAME	ROOM NUMBER									
AP-1	ON CHARGE + RAD TECH	150	X		X				X		(1)(2)
AP-2	NURSE STATION	133	X	X							(1)(2)
AP-3	NURSE STATION	127	X	X						X	(1)(2)
AP-4	PREP/PAK	154								X	(1)(2)
MAP-1	REGISTRATION	103	X	X	X					X	(1)(2)
MAP-2	SUPERVISOR OFFICE	170	X	X	X					X	(1)(2)

- REMARKS:**
- CONTRACTOR SHALL PROVIDE ANY AND ALL NECESSARY INTERCONNECTIONS FOR A COMPLETE AND OPERABLE SYSTEM. INTERCONNECTIONS MAY INCLUDE BUT ARE NOT LIMITED TO POWER WIRING, COMMUNICATIONS WIRING, PIPING, SUPPORTS, ETC.
 - CONTRACTOR SHALL PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE OPERATING AND NFPA 99 COMPLIANT SYSTEM. APPURTENANCES INCLUDE BUT ARE NOT LIMITED TO SENSORS, DEMAND CHECK VALVES, GAUGES, IDENTIFICATION LABELS, ETC. REFER TO PLANS, DETAILS, AND SPECIFICATIONS FOR FURTHER INFORMATION.

ZONE VALVE SCHEDULE											
MARK	LOCATION		O	V	A	CO2	N	N2O	WAGD	IA	REMARKS
	ROOM NAME	ROOM NUMBER									
ZV-1	STRETCHER / SCRUB ALCOVE	142	1/2	1	1/2				3/4		(1)(2)
ZV-1	STRETCHER / SCRUB ALCOVE	138	1/2	1	1/2				3/4		(1)(2)
ZV-2	CORRIDOR	145	3/4	1							(1)(2)
ZV-3	CORRIDOR	160	3/4	1							(1)(2)
ZV-4	CORRIDOR	163								1/2	(1)(2)
ZV-5	STRETCHER / SCRUB ALCOVE	143	1/2	3/4							(1)(2)

C

- REMARKS:**
- CONTRACTOR SHALL PROVIDE ANY AND ALL NECESSARY INTERCONNECTIONS FOR A COMPLETE AND OPERABLE SYSTEM. INTERCONNECTIONS MAY INCLUDE BUT ARE NOT LIMITED TO PIPING, SUPPORTS, ETC.
 - CONTRACTOR SHALL PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE OPERATING AND NFPA 99 COMPLIANT SYSTEM. APPURTENANCES INCLUDE BUT ARE NOT LIMITED TO REGULATORS, CONTROLS, ALARMS, VALVES, FLEXIBLE CONNECTIONS, RELIEF VALVES, VENT PIPING, GAUGES, ETC. REFER TO PLANS, DETAILS, AND SPECIFICATIONS FOR FURTHER INFORMATION.
 - EQUIPMENT SHALL BE FURNISHED WITH A CONTROL PANEL, CAPABLE OF INTERFACING WITH THE BUILDING AUTOMATION SYSTEM. DDC CONTRACTOR SHALL PROVIDE INTEGRATION OF EQUIPMENT WITH DDC SYSTEM. REFER TO CONTROLS SCHEMATIC FOR FURTHER INTEGRATION REQUIREMENTS.

BOTTLE GAS MANIFOLD SCHEDULE												
MARK	SERVICE	TYPE	DELIVERY PRESSURE	TOTAL NUMBER OF BOTTLES	NUMBER OF BANKS	DISTRIBUTION SYSTEM PIPE CONNECTION SIZE	MANUFACTURER	MODEL	ELECTRICAL DATA			REMARKS
									VOLTAGE	PHASE	DISCONNECT BY	
MA-1	MEDICAL AIR	HIGH PRESSURE	55	6	2	1"	BEACON MEDAES	MNE-303-ARR-A-1	120 V	1	ELECTRICAL	
O2-1	OXYGEN	HIGH PRESSURE	55	12	4	1"	BEACON MEDAES	MNE-406-O2-A-1	120 V	1	ELECTRICAL	

- REMARKS:**
- CONTRACTOR SHALL PROVIDE ANY AND ALL NECESSARY INTERCONNECTIONS FOR A COMPLETE AND OPERABLE SYSTEM. INTERCONNECTIONS MAY INCLUDE BUT ARE NOT LIMITED TO PIPING, SUPPORTS, ETC.
 - CONTRACTOR SHALL PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE OPERATING AND NFPA 99 COMPLIANT SYSTEM. APPURTENANCES INCLUDE BUT ARE NOT LIMITED TO REGULATORS, CONTROLS, ALARMS, VALVES, FLEXIBLE CONNECTIONS, RELIEF VALVES, VENT PIPING, GAUGES, ETC. REFER TO PLANS, DETAILS, AND SPECIFICATIONS FOR FURTHER INFORMATION.
 - EQUIPMENT SHALL BE FURNISHED WITH A CONTROL PANEL, CAPABLE OF INTERFACING WITH THE BUILDING AUTOMATION SYSTEM. DDC CONTRACTOR SHALL PROVIDE INTEGRATION OF EQUIPMENT WITH DDC SYSTEM. REFER TO CONTROLS SCHEMATIC FOR FURTHER INTEGRATION REQUIREMENTS.

PUMP SCHEDULE.												
MARK	FLOW [GPM]	TOTAL HEAD [FT]	TYPE OF FLUID	SUCTION / DISCHARGE SIZE [IN]	ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS
					HP	FLA	VOLTAGE	PHASE	DISCONNECT BY			
RCP-1	3.0	20	H2O	3/4"	0.265	1.8	120 V	1	MECHANICAL	5	GRUNDFOS	UPS 26-60 FC (1)(2)(3)(4)(5)(6)

B

- REMARKS:**
- PERFORMANCE BASED ON FLUID AND CONDITIONS INDICATED IN THIS SCHEDULE.
 - PROVIDE WITH THE FOLLOWING ACCESSORIES: DISCONNECT, SUCTION DIFFUSER, CHECK VALVE, VENTURI FLOW MEASURING DEVICE, FLEXIBLE CONNECTORS, UNIONS, AND TEMPERATURE AND PRESSURE GAUGES ON EACH CONNECTION.
 - PROVIDE AQUASTAT, TIMER, FLEX CONNECTORS, DISCONNECT, ECM MOTOR AND CONTROLLER.
 - ALL WETTED COMPONENTS SHALL BE NSF 61 AND NSF 372 COMPLIANT.
 - PROVIDE BASNET INTERFACE.
 - "SCCR" - VALUE INDICATED IS AVAILABLE SHORT CIRCUIT CURRENT (SCC) IN KILOAMPS AT THE EQUIPMENT BASED ON PRELIMINARY DESIGN PHASE CALCULATIONS. EQUIPMENT SCCR SHALL BE MINIMUM 120% OF THE AVAILABLE SCC. RATING SHALL BE ADJUSTED IF REQUIRED BASED ON FINAL SCC CALCULATION. EQUIPMENT INDICATED WITH 5 KA MAY BE PROVIDED WITH 5 KA SCCR. REVIEW SCCR WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

You don't need all these accessories for circ pump. Edit for the application.

If you are controlling this way, be sure to coordinate with mechanical controls. Currently not covered there or in your details.

PRESSURE REDUCING VALVE SCHEDULE						
MARK	SERVICE	SIZE [IN]	REGULATING OR REDUCING VALVE		MANUFACTURER	MODEL
			INLET PRESSURE	OUTLET PRESSURE		
PRV-1	DOMESTIC COLD WATER	2-1/2	80	70	WATTS	LF229-S-B (1)(2)

- REMARKS:**
- CAPACITIES BASED ON CONDITIONS INDICATED IN SCHEDULE.
 - PROVIDE WITH THE FOLLOWING ACCESSORIES: INLET AND OUTLET PRESSURE GAUGES, INLET STRAINERS, FULL SIZE BYPASS, AND ISOLATION VALVES.

A

PLUMBING FIXTURE SCHEDULE									
MARK	TYPE	DESCRIPTION	PIPING CONNECTIONS				MANUFACTURER	MODEL	REMARKS
			COLD WATER	HOT WATER	WASTE	VENT			
CS-1	CLINICAL SINK	AMERICAN STANDARD WALL HUNG CLINIC SERVICE SINK, MODEL 951269-020, WHITE VITREOUS CHINA WALL FLUSHING RM, BLOW OUT OPERATION WITH 1-1/2" TOP SPUD, 28-30" RM HEIGHT, FLUSH VALVE: SLOAN WES 111, MANUAL DUAL FLUSH, 1-1/2" TOP SPUD, 1.6 GPF. BED PAN WASHER: CHICAGO MODEL 910-0777-19C0P, BED PAN CLEANER WITH REMOTE PEDAL VALVE AND LOOSE KEY, WALL MOUNTED, CHROME PLATED, FULL FLOW, 25 DEGREE, MALE ROSE SPRAY, 3/4" WHITE VINYL HOSE WITH INSULATED HANDLE, INCLUDES ELEVATED VACUUM BREAKER ASSEMBLY. NOTE: PROVIDE 783204-075 FRONT STAINLESS STEEL RM GUARD. PROVIDE WALL MOUNTED CARRIER.	1 1/4"	1/2"	4"	2"			
EW-1	ELECTRIC WATER COOLER	ELKAY MODEL LPR828, SWIRL FLO BLEVELEADA FOUNTAIN FILTERED REFRIGERATED STAINLESS STEEL, WALL MOUNTED, 8.0 GPH, POWER: 115V/60HZ, FLA 4.5, WATTS 370. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. P-TRAP: MCQUIRE 8902 1-1/4" x 1-1/2" CAST P-TRAP AND WALL BEND. NOTE: PROVIDE WALL MOUNTED CARRIER.	1/2"	-	2"	1 1/2"			
HB-1	INTERIOR HOSE BIBB	WOODFORD MODEL 24, ANTI-SIPHON VACUUM BREAKER PROTECTED WALL FAUCET, LOOSE TEE KEY TYPE, CHROME FINISH.	1/2"	-	-	-			
IMB-1	ICE MAKER BOX	GUY GREY MODEL MDWB18A, COMMERCIAL ICE MAKER BOX, WHITE POWDER COATED STEEL, BOX WITH 3/8" COLD WATER OUTLET, 1/4 TURN SHUT OFF AND SHOCK ARRESTOR. NOTE: PLUMBING CONTRACTOR SHALL VERIFY BOX HEIGHT AND LOCATION FOR ICE MAKER.	1/2"	-	-	-			
L-1	WALL HUNG LAVATORY (ADA)	AMERICAN STANDARD "LUCERNE" MODEL 0356-015 21"x18" WHITE VITREOUS CHINA, WALL MTD LAVATORY WITH FRONT OVERFLOW AND 8" CENTERS FOR FAUCET. FAUCET: CHICAGO FAUCETS 786-GN2FC319XKABCP, WITH 5-1/4" RIGID/SWING GOOSENECK SPOUT, QUARTER-TURN CERAMIC DISC CARTRIDGE, 1.5 GPM VANDAL RESISTANT LAMINAR-FLO CONTROL, INSERT IN SPOUT INLET AND 6" ELBOW BLADE HANDLES. DRAIN: MCQUIRE 1550C OFFSET LAVATORY GRID STRAINER. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. P-TRAP: MCQUIRE 8902 1-1/4" x 1-1/2" CAST P-TRAP AND WALL BEND. NOTE: PROVIDE TRUEBRO LAV GUARD SUPPLY AND TRAP COVERS. PROVIDE CONCEALED ARM WALL MOUNTED CARRIER. PROVIDE THERMOSTATIC MIXING VALVE (ASSE 1070) AT PUBLIC RESTROOMS.	1/2"	1/2"	2"	2"			
L-2	WALL HUNG LAVATORY WITH EMERGENCY EYEWASH (ADA)	AMERICAN STANDARD "LUCERNE" MODEL 0356-015 21"x18" WHITE VITREOUS CHINA, WALL MTD LAVATORY WITH FRONT OVERFLOW AND 8" CENTERS FOR FAUCET. FAUCET: FAUCET: SPEAKMAN SEF-1800-CA-8A-NW-T, FAUCET WITH EYEWASH, DECK MOUNTED GOOSENECK BODY, VANDAL RESISTANT 4" WRIST BLADE HANDLES, 2.8 GPM AT 30 PSI, INVERTED DIRECTIONAL LAMINAR FLOW. MIXING VALVE: SPEAKMAN MODEL SE-370 THERMOSTATIC MIXING VALVE. PROVIDE MOUNTING BRACKET. DRAIN: MCQUIRE 1550C OFFSET LAVATORY GRID STRAINER. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. P-TRAP: MCQUIRE 8902 1-1/4" x 1-1/2" CAST P-TRAP AND WALL BEND. NOTE: PROVIDE TRUEBRO LAV GUARD SUPPLY AND TRAP COVERS. PROVIDE CONCEALED ARM WALL MOUNTED CARRIER.	1/2"	1/2"	2	2"			
L-3	INTEGRAL BOWL LAVATORY (ADA)	INTEGRAL BOWL LAVATORY BY OTHERS. PLUMBING CONTRACTOR TO ROUGH-IN AND CONNECT. FAUCET: CHICAGO FAUCETS 420-E2805ABCP, DECK MOUNTED MANUAL SINK, SINGLE LEVER FAUCET WITH 4" CENTERS, 0.5 GPM VANDAL RESISTANT LAMINAR SPRAY. DRAIN: MCQUIRE 1550C OFFSET LAVATORY GRID STRAINER. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. P-TRAP: MCQUIRE 8902 1-1/4" x 1-1/2" CAST P-TRAP AND WALL BEND. NOTE: PROVIDE TRUEBRO LAV GUARD SUPPLY AND TRAP COVERS. PROVIDE THERMOSTATIC MIXING VALVE (ASSE 1070) AT PUBLIC RESTROOMS.	1/2"	1/2"	2"	2"			
MS-1	MOP SINK	FIAT MODEL SB3624-8324AA-MSG, 36"x24"x6" TERRAZZO MOP SERVICE BASIN, 6" DEPTH, HOSE & HOSE BRACKET, STAINLESS STEEL WALL GUARDS. FAUCET: CHICAGO MODEL 540-LD8975WV31TOP, 8" WIDESPREAD WALL-MOUNTED MOP SINK FAUCET, 5-3/4" RIGID VACUUM BREAKER SPOUT AND PAL HOOK, QUANTUM COMPRESSION CARTRIDGES, 4" WRIST BLADE HANDLES. P-TRAP: 3". NOTE: PROVIDE HOSE AND HOSE BRACKET ASSEMBLIES AND WALL GUARDS. PROVIDE CHECK VALVES ON HOT AND COLD WATER PIPING SERVING MOP SINK.	3/4"	3/4"	3"	2"			
MV-1	MIXING VALVE	LAWLOR MODEL 85038, 801 RECIRCULATION SYSTEM WITH ARV, MASTER WATER MIXING VALVE, THERMOSTATIC TYPE WITH LIQUID-FILLED THERMAL MOTOR, VALVE SHALL BE EQUIPPED WITH UNION AND END STOP AND CHECK INLETS WITH REMOVABLE STAINLESS STEEL STRAINERS. SYSTEM SHALL INCLUDE RETURN PIPING FOR RECIRCULATION CONNECTION AND AN AUTOMATIC RETURN VALVE (ARV) FOR THERMOSTATIC BALANCING OF THE SYSTEM. PROVIDE OPTIONAL HOSE CONNECTION FOR TESTING. NOTE: MIXING VALVE IS ASSE 1017 APPROVED.	1"	1"	-	-			
RH-1	ROOF HYDRANT	WOODFORD MODEL SRH4MS, EXTERIOR FREEZELESS ROOF HYDRANT.	3/4"	-	-	-			
S-1	INTEGRAL BOWL SINK	INTEGRAL BOWL SINK BY OTHERS. PLUMBING CONTRACTOR TO ROUGH-IN AND CONNECT. FAUCET: CHICAGO FAUCETS 786-GN2FC319XKABCP, WITH 5-1/4" RIGID/SWING GOOSENECK SPOUT, QUARTER-TURN CERAMIC DISC CARTRIDGE, 1.5 GPM VANDAL RESISTANT LAMINAR-FLO CONTROL, INSERT IN SPOUT INLET AND 6" ELBOW BLADE HANDLES. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. DRAIN: MCQUIRE 151A STAINLESS STEEL BASKET STRAINER. P-TRAP: MCQUIRE NO. 8912 (1-1/2"x1-1/2") 17 GA. HEAVY CAST P-TRAP WITH CLEANOUT PLUG. NOTE: PROVIDE TRUEBRO LAV GUARD SUPPLY AND TRAP COVERS.	1/2"	1/2"	2"	1 1/2"			
S-2	SINK (ADA)	ELKAY MODEL LRAD191865, 19"x18"x6.5", 18 GA. TYPE 304 STAINLESS STEEL, COUNTER MOUNTED SINK WITH HREE HOLE DRILLING, 8" CENTERS, REAR CENTER DRAIN OUTLET. FAUCET: CHICAGO FAUCETS 786-GN2FC319XKABCP, WITH 5-1/4" RIGID/SWING GOOSENECK SPOUT, QUARTER-TURN CERAMIC DISC CARTRIDGE, 1.5 GPM VANDAL RESISTANT LAMINAR-FLO CONTROL, INSERT IN SPOUT INLET AND 6" ELBOW BLADE HANDLES. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. DRAIN: MCQUIRE 151A STAINLESS STEEL BASKET STRAINER. P-TRAP: MCQUIRE NO. 8912 (1-1/2"x1-1/2") 17 GA. HEAVY CAST P-TRAP WITH CLEANOUT PLUG. NOTE: PROVIDE TRUEBRO LAV GUARD SUPPLY AND TRAP COVERS.	1/2"	1/2"	2"	1 1/2"			
S-3	THREE COMPARTMENT SINK	PROVIDED BY OWNER. PLUMBING CONTRACTOR TO ROUGH-IN AND CONNECT. FAUCET: PROVIDED BY OWNER. ANGLE STOP: 1/2" WHEEL HANDLE SUPPLY STOPS. DRAIN: MCQUIRE 151A STAINLESS STEEL BASKET STRAINER. P-TRAP: 2" COPPER. DRAIN PIPING SHALL BE TYPE 1 COPPER. NOTE: EACH SINK BASIN SHALL DRAIN INDEPENDENTLY.	1/2"	1/2"	2"	2"			
SH-1	TRANSFER TYPE SHOWER (ADA)	COMFORT DESIGNS MODEL SSS3828BF 625, OUTSIDE DIMENSIONS 42"x37" 1/2"x48", SOLID SURFACE, CENTER DRAIN, FOLD UP SEAT. DRAIN - PROVIDE WITH SHOWER. SHOWER VALVE: POWERS HYDROGUARD ET07-G-1-N, 1 & P MIXING VALVE, INTEGRAL SERVICE STOPS, INTEGRAL CHECK STOPS, STAINLESS STEEL HAND HELD SHOWER, 1.5 GPM, 60" METAL HOSE, IN-LINE VACUUM BREAKER. 3/8" SLIDE BAR, ASSE 1016 APPROVED, CHROME PLATED. NOTE: VERIFY SHOWER AS RIGHT OR LEFT. PROVIDE FRONT LEGS FOR FOLD UP SEAT.	1/2"	1/2"	2"	1 1/2"			
SS-1	SCRUB SINK	PROVIDED BY OWNER. PLUMBING CONTRACTOR TO ROUGH-IN AND CONNECT. FAUCET: PROVIDED BY OWNER. ANGLE STOP: MCQUIRE LPH5101K ANGLE SUPPLY STOPS. P-TRAP: MCQUIRE NO. 8912 1-1/2"x1-1/2" 17 GA. HEAVY CAST P-TRAP WITH CLEANOUT PLUG. NOTE: WALL CARRIER PROVIDED BY OWNER. PLUMBING CONTRACTOR TO INSTALL.	3/4"	3/4"	2"	2"			
WB-1	WALL BOX	GUY GREY MODEL MWB-19, WHITE POWDER COATED STEEL BOX WITH 2" CENTER DRAIN, WALL BOX TO HAVE 1-1/2" COLD WATER THREADED HOSE CONNECTION WITH 1/4" TURN SHUT OFF AND SHOCK ARRESTOR. NOTE: PLUMBING CONTRACTOR SHALL VERIFY DRAIN BOX HEIGHT AND WITH ICE MACHINE AND COFFEE MAKER LOCATION.	1/2"	-	2"	1 1/2"			
WC-1	WATER CLOSET (ADA)	AMERICAN STANDARD "MADARA" MODEL 2234-001 "BARRIER FREE" WHITE VITREOUS CHINA, FLOOR MOUNTED ELONGATED SIPHON JET TOILET WITH 1-1/2" TOP SPUD, 1.6 GPF, 10" OR 12" ROUGH-IN, 16.5" RM HEIGHT. FLUSH VALVE: SLOAN WES 111, MANUAL DUAL FLUSH, 1-1/2" TOP SPUD, 1.6 GPF. SEAT: SEAT: CHURCH MODEL NO. 35555C EXTRA HEAVY WEIGHT SOLID PLASTIC ELONGATED OPEN FRONT SEAT WITH DURAGUARD ANTIMICROBIAL AGENT, SELF SUSTAINING CHECK HINGE.	1"	-	4"	2"			

PLUMBING FIXTURE SCHEDULE						
MARK	TYPE	DESCRIPTION	PIPING CONNECTIONS			
			COLD WATER	HOT WATER	WASTE	VENT
WC-2	WATER CLOSET	AMERICAN STANDARD MODEL "MADARA" MODEL 2234-001 "BARRIER FREE" WHITE VITREOUS CHINA, FLOOR MOUNTED ELONGATED SIPHON JET TOILET WITH 1-1/2" TOP SPUD, 1.6 GPF, 10" OR 12" ROUGH-IN, 15" RM HEIGHT. FLUSH VALVE: SLOAN WES 111, MANUAL DUAL FLUSH, 1-1/2" TOP SPUD, 1.6 GPF. SEAT: SEAT: CHURCH MODEL NO. 35555C EXTRA HEAVY WEIGHT SOLID PLASTIC ELONGATED OPEN FRONT SEAT WITH DURAGUARD ANTIMICROBIAL AGENT, SELF SUSTAINING CHECK HINGE.	1"	-	4"	2"
WH-1	WALL HYDRANT	WOODFORD MODEL B65, ANTI-SIPHON FREEZELESS WALL HYDRANT, EXTERIOR BOX AND DOOR, CHROME FINISH.	3/4"	-	-	-

- REMARKS:**
- REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR ADDITIONAL REQUIREMENTS, ROUGH IN DIMENSIONS, AND COORDINATION OF ACCESSORIES. FIXTURE MOUNTING LOCATIONS AND OPERATION OF FIXTURE SHALL NOT INTERFERE WITH ADJACENT ACCESSORIES OR THEIR OPERATION.
 - CONTRACTOR SHALL COORDINATE ALL FIXTURES WITH OTHER TRADES. ANY CONFLICTS OR ADJUSTMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
 - COORDINATE SINK BASINS AND DRAIN OUTLETS WITH CASEWORK AND KNEE GUARDS. PROVIDE OFFSET TAILPIECES AS REQUIRED TO ACCOMMODATE INSTALLATION AND COMPLY WITH ADA REQUIREMENTS.
 - COORDINATE FLUSH VALVE INSTALLATION WITH GRAB BARS IN ALL LOCATIONS.
 - COORDINATE MOUNTING OF FAUCET SPOUTS WITH BASINS. FAUCET SHALL NOT DISCHARGE DIRECTLY INTO BASIN DRAIN AND SHALL PROVIDE SUFFICIENT CLEARANCE BETWEEN STREAM AND BASIN TO ALLOW FOR UNOBSTRUCTED HAND WASHING WITHOUT CONTACT WITH THE BASIN. CONTRACTOR SHALL OBTAIN AND COORDINATE WITH SHOP DRAWINGS FROM COUNTER AND CASEWORK MANUFACTURERS.
 - COORDINATE DRAIN GRATE WITH FLOOR SLOPING AND FLOORING PATTERN FOR ALL FLOOR DRAINS, FLOOR SINKS, AND TRENCH DRAINS. DRAIN SHALL BE SET SUCH THAT DRAIN GRATE IS FLUSH WITH FINISHED FLOOR SURFACE AND COORDINATED WITH PATTERN. REFER TO ARCHITECTURAL PLANS AND DETAILS FOR ADDITIONAL INFORMATION.
 - ALL PUBLIC LAVATORIES SHALL REQUIRE AN ASSE 1070 TEMPERATURE LIMITING DEVICE.

DRAINAGE FIXTURE SCHEDULE				
MARK	TYPE	DESCRIPTION	VENT SIZE	WASTE SIZE
EOC-1	EXTERIOR CLEANOUT	ZURN MODEL Z1400, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, WITH GAS AND WATER TIGHT THREADED ABS TAMPERED PLUG, AND TOP ASSEMBLY, CAST IRON EXTRA-HEAVY DUTY SECURED TOP.	-	2"
FOO-1	FLOOR CLEANOUT	ZURN MODEL Z1400-2S, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, WITH GAS AND WATER TIGHT THREADED ABS TAMPERED PLUG, AND TOP ASSEMBLY, TYPE "B" LIGHT DUTY POLISHED STAINLESS STEEL TOP.	-	4"
FD-1	FLOOR DRAIN	ZURN Z-415B-2S-P FLOOR DRAIN DURA COATED CAST IRON BODY, COMBINATION INVERTIBLE MEMBRANE CLAMP/ADJUSTABLE COLLAR, BOTTOM OUTLET, NO-HUB CONNECTION WITH 5" ROUND TYPE "B" POLISHED STAINLESS STEEL STRAINER. NOTE: SET FLOOR DRAINS BELOW FINISHED FLOOR TO ALLOW FOR FLOOR SLOPE. COORDINATE WITH ARCH DOCUMENTS. NOTE: DRAINS SHALL BE PROVIDED WITH TRAP PRIMER CONNECTION.	2"	3"
FD-2	FLOOR DRAIN	ZURN Z610-YC-P 12-1/2" SQUARE TOP FLOOR DRAIN, DURA COATED CAST IRON BODY, SEEPAGE PAN, COMBINATION INVERTIBLE MEMBRANE FLASHING CLAMP, BOTTOM OUTLET, NO-HUB CONNECTION, HEAVY DUTY CAST IRON SLOTTED GRATE WITH SUSPENDED CAST IRON SEDIMENT BUCKET. NOTE: SET FLOOR DRAINS BELOW FINISHED FLOOR TO ALLOW FOR FLOOR SLOPE. COORDINATE WITH ARCH DOCUMENTS. NOTE: DRAINS SHALL BE PROVIDED WITH TRAP PRIMER CONNECTION.	2"	3"
FS-1	FLOOR SINK	ZURN Z1901 SAN-FLORE RECEPTOR 12"x12"x4" DEEP CAST IRON BODY AND SQUARE, LIGHT DUTY GRATE WITH 1/2" SLOTTED OPENINGS, WHITE ACID RESISTING PORCELAIN ENAMEL, INTERIOR AND TOP, COMPLETE WITH WHITE A.R.C. ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER. PROVIDE 1/2 GRATE AT EQUIPMENT LOCATIONS. WITH WHITE ABS ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER. PROVIDE 1/2 GRATE AT EQUIPMENT LOCATIONS.	2"	4"

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PLUMBING PIPING INSULATION SCHEDULE										
PIPING SYSTEM FLUID	TEMP. RANGE DEG. F.	THICKNESS IN INCHES FOR PIPE SIZES THROUGH SIZE LISTED					TYPE	JACKET TYPE (2)	NCIS PLATE NUMBER (1)	REMARKS
	<1	1 - 1.25	1.5 - 3	4 - 6	>= 8					
INDOOR HOT WATER AND HOT WATER REGR	105 - 140	1	1	1.5	1.5	1.5	MF	ASJ-SSL	1-100	
INDOOR COLD WATER	40 - 60	0.5	0.5	1	1	1	MF, E	ASJ-SSL	1-100, 1-200	
INDOOR CONDENSATE AND EQUIPMENT DRAINS	BELOW 60	0.5	0.5	0.5	0.5	0.5	MF, E	ASJ-SSL	1-100, 1-200	(5)

ABBREVIATIONS: MF = MINERAL FIBER/FIBERGLASS, E = ELASTOMERIC, CG = CELLULAR GLASS

REMARKS:

- NCIS NATIONAL COMMERCIAL AND INDUSTRIAL INSULATION STANDARD PLATE NUMBER REFERENCED ARE PROVIDED TO CLARIFY THE SCOPE OF INSTALLATION. INSTALL INSULATION AND ACCESSORY COMPONENTS PER APPLICABLE NCIS AND MANUFACTURERS RECOMMENDATIONS
- "JACKET TYPE" IS FOR INSULATION ONLY. REFER TO SPECIFICATIONS FOR INSTALLATIONS REQUIRING ADDITIONAL FIELD APPLIED JACKETING SUCH AS METAL OR PVC.
- HEAT TRACED PIPING SHALL BE INSULATED TO THICKNESS INDICATED OR TO THICKNESS SPECIFIED FOR SPECIFIC SYSTEM, WHICHEVER IS GREATER.
- UNDERGROUND REFRIGERANT PIPING SHALL BE INSULATED AS SPECIFIED FOR ABOVEGROUND PIPING AND INSTALLED IN PVC CONDUIT.
- INCLUDES AIR CONDITIONING CONDENSATE, P-TRAPS FOR FLOOR DRAINS/SINKS RECEIVING AIR CONDITIONING CONDENSATE OR ICE MAKER DRAIN PIPING, AND SANITARY DRAINAGE PIPING FROM ELECTRIC WATER COOLERS TO MAIN.
- INSULATION PRODUCT TO BE PLENUM RATED AND FULLY COMPLIANT PER APPLICABLE MECHANICAL AND PLUMBING CODES AS A UL LISTED AND LABELED PIPE INSULATION, UL CATEGORY INSULATED PLASTIC PIPE ASSEMBLIES (BSMP) FOR INSTALLATION OVER POLYMER PIPES (I.E. PVC, POLYETHYLENE AND POLYPROPYLENE).

WATER SOFTENER SCHEDULE												
MARK	MAX OPERATING WEIGHT [LBS]	MAX SIZE SOFTENER TANK (HXØ) [IN]	MAX SIZE BRINE TANK (HXØ) [IN]	PEAK FLOW RATE [GPM]	PEAK FLOW P.D. [PSI]	CONTINUOUS FLOW RATE [GPM]	CONTINUOUS FLOW P.D. [PSI]	ELECTRICAL DATA		MANUFACTURER	MODEL	REMARKS
								VOLTAGE	DISCONNECT BY			
WS-1	2075	21"x67"	24"x50"	85	25	65	15	120 V	ELECTRICAL CONTRACTOR	CULLIGAN	CTM-120 HWB NHWB MT	(1)(2)

REMARKS:

- EXCHANGE CAPACITY AND FLOW RATE IS PER TANK.
- SYSTEM SHALL BE PROGRESSIVE FLOW. PROVIDE WITH REQUIRED CONTROLS AND FLOW SENSORS FOR PROPER CYCLING OF TANKS.

INSTRUMENT AIR COMPRESSOR SCHEDULE																					
MARK	SERVICE	DELIVERY PRESSURE	SCFM AT DELIVERY PRESSURE EACH COMP	CONFIGURATION	DIMENSIONS			INTAKE CONNECTION SIZE	DISTRIBUTION SYSTEM PIPE CONNECTION SIZE	TANK VOLUME [GAL]	SOUND DATA [dBA]	HEAT DISSIPATION [BTU/H]	ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS	
					L	W	H						HP	FLA	VOLTAGE	PHASE	DISCONNECT BY				SCCR
IAC-1	INSTRUMENT AIR	200	15.5	DUPLEX	66"	65"	79"	2"	3/4"	120	76	12,725	5	15.2	480 V	3	ELECTRICAL	5	POWEREX	IPD0504	(1)(2)(3)(4)(5)(6)(7)(8)

REMARKS:

- CONTRACTOR SHALL PROVIDE ANY AND ALL NECESSARY INTERCONNECTIONS FOR A COMPLETE AND OPERABLE SYSTEM. INTERCONNECTIONS MAY INCLUDE BUT ARE NOT LIMITED TO POWER WIRING, COMMUNICATIONS WIRING, PIPING, DRAINS, SUPPORTS, ETC.
- CONTRACTOR SHALL PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE OPERATING AND NFPA 99 COMPLIANT SYSTEM. APPURTENANCES INCLUDE BUT ARE NOT LIMITED TO AFTERCOOLERS, RECEIVERS, DRYERS, FILTERS, REGULATORS, CONTROLS, ALARMS, VALVES, FLEXIBLE CONNECTIONS, MUFFLERS, RELIEF VALVES, DRAIN VALVES, GAUGES, ETC. REFER TO PLANS, DETAILS, AND SPECIFICATIONS FOR FURTHER INFORMATION.
- CONTRACTOR SHALL PROVIDE VIBRATION ISOLATION PADS ISOLATING EQUIPMENT FROM STRUCTURE.
- CONTRACTOR SHALL PROVIDE AND INSTALL EQUIPMENT ON A HOUSEKEEPING PAD.
- EQUIPMENT SHALL BE FURNISHED WITH A CONTROL PANEL CAPABLE OF INTERFACING WITH THE BUILDING AUTOMATION SYSTEM. DDC CONTRACTOR SHALL PROVIDE INTEGRATION OF EQUIPMENT WITH DDC SYSTEM. REFER TO CONTROLS SCHEMATIC FOR FURTHER INTEGRATION REQUIREMENTS.
- MAINTAIN MANUFACTURER RECOMMENDED AND/OR REQUIRED CLEARANCES.
- PROVIDE HIGH PRESSURE TO LOW PRESSURE REGULATORS FOR REQUIRED PRESSURE AT AIR LINES AND EQUIPMENT IN SPD.
- "SCCR" - VALUE INDICATED IS AVAILABLE SHORT CIRCUIT CURRENT (SCC) IN KILOAMPS AT THE EQUIPMENT BASED ON PRELIMINARY DESIGN PHASE CALCULATIONS. EQUIPMENT SCCR SHALL BE MINIMUM 120% OF THE AVAILABLE SCC. RATING SHALL BE ADJUSTED IF REQUIRED BASED ON FINAL SCC CALCULATION. EQUIPMENT INDICATED WITH 5 KA MAY BE PROVIDED WITH 5 KA SCCR. REVIEW SCCR WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

Alarms and monitoring not called out on your control sheet.

MEDICAL VACUUM PUMP SCHEDULE																				
MARK	SERVICE	SCFM AT DELIVERY EACH COMP	CONFIGURATION	DIMENSIONS			INTAKE CONNECTION SIZE	DISTRIBUTION SYSTEM PIPE CONNECTION SIZE	TANK VOLUME [GAL]	SOUND DATA [dBA]	HEAT DISSIPATION [BTUH]	ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS	
				L	W	H						HP	FLA	VOLTAGE	PHASE	DISCONNECT BY				SCCR
MVP-1	MEDICAL VACUUM	37	DUPLEX	64"	35"	80"	2"	2"	60	71	10,180	5	13.7	480 V	3	ELECTRICAL	5	BEACON MEDAES	VLV55D-060H-D	(1)(2)(3)(4)(5)(6)(7)


REMARKS:

- CONTRACTOR SHALL PROVIDE ANY AND ALL NECESSARY INTERCONNECTIONS FOR A COMPLETE AND OPERABLE SYSTEM. INTERCONNECTIONS MAY INCLUDE BUT ARE NOT LIMITED TO POWER WIRING, COMMUNICATIONS WIRING, PIPING, DRAINS, SUPPORTS, ETC.
- CONTRACTOR SHALL PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE OPERATING AND NFPA 99 COMPLIANT SYSTEM. APPURTENANCES INCLUDE BUT ARE NOT LIMITED TO RECEIVERS, REGULATORS, CONTROLS, ALARMS, VALVES, FLEXIBLE CONNECTIONS, DRAIN VALVES, GAUGES, ETC. REFER TO PLANS, DETAILS, AND SPECIFICATIONS FOR FURTHER INFORMATION.
- CONTRACTOR SHALL PROVIDE VIBRATION ISOLATION PADS ISOLATING EQUIPMENT FROM STRUCTURE.
- CONTRACTOR SHALL PROVIDE AND INSTALL EQUIPMENT ON A HOUSEKEEPING PAD.
- EQUIPMENT SHALL BE FURNISHED WITH A CONTROL PANEL CAPABLE OF INTERFACING WITH THE BUILDING AUTOMATION SYSTEM. DDC CONTRACTOR SHALL PROVIDE INTEGRATION OF EQUIPMENT WITH DDC SYSTEM. REFER TO CONTROLS SCHEMATIC FOR FURTHER INTEGRATION REQUIREMENTS.
- MAINTAIN MANUFACTURER RECOMMENDED AND/OR REQUIRED CLEARANCES.
- "SCCR" - VALUE INDICATED IS AVAILABLE SHORT CIRCUIT CURRENT (SCC) IN KILOAMPS AT THE EQUIPMENT BASED ON PRELIMINARY DESIGN PHASE CALCULATIONS. EQUIPMENT SCCR SHALL BE MINIMUM 120% OF THE AVAILABLE SCC. RATING SHALL BE ADJUSTED IF REQUIRED BASED ON FINAL SCC CALCULATION. EQUIPMENT INDICATED WITH 5 KA MAY BE PROVIDED WITH 5 KA SCCR. REVIEW SCCR WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

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