NJRA Architects, Inc.
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ADDENDUM

Date Issued:	February 17, 2020
Project:	Intermountain Healthcare **Tooele Valley Dialysis Clinic Remodel** 2356 North 400 East, Suite #102 Tooele, Utah 84074
Addendum Number:	1

The Contractors submitting proposals on the above-captioned project shall be governed by the following addendum, changes and explanations to the drawings and specifications and shall submit their bids in accordance therewith.

Item Number	General Items Description
1	As indicated in the Notice to Contractors, all bids shall need to be Emailed to AnnaLisa Silcox with Intermountain Healthcare Corporate Office at AnnaLisa.Silcox@imail.org by **February 20, 2020- 2:00 p.m.**
2	All permit fees shall be paid by the Owner. Do not include in the bid.
3	Owner prefers daytime work. The building shall remain occupied during the construction and some work may need to be coordinated and scheduled with the Owner if required to happen off hour. Contractor shall coordinate with the Owner regarding noise control, working hours and utility shutdowns. Contact North Pointe medical Park facility Managing Director Michael Burnham for more information during construction.
4	Coordinate all roof, fire wall penetrations and saw cutting of concrete flooring with Mechanical, Plumbing and Electrical drawings. Field verify existing conditions before proceeding with the work. Patch & repair to match with adjacent existing or as noted in the construction documents.
5	As indicated in the construction documents and during pre-bid walkthrough- one layer of type-X gypsum board is required to be attached to the underside of floor joist above for a UL listed floor assembly rating of one hour. Re-route existing MC cable, J-boxes, electrical items etc. intertwined in the joist spaces or bring below new sheetrock in some areas as required. Contractor shall field verify existing conditions before proceeding with the work. Med gas lines shown in the revised mechanical demolition plan PD101 anchored to joist with Unistrut support is required to be re-installed as required, see attached mechanical addendum #1 for more information. Sheetrock around existing refrigerant lines serving upper floors where occurs. Contractor shall put back all existing insulation at the floor joist above before installing the gypsum board.
6	Contractor to note that AWI Premium grade millwork is required as indicated in the project specifications manual. However, AWI inspection and certification are **NOT** required for this project.
7	Impact resistant gypsum board is required at all corridors up to the height of 48" from floor.
8	As noted in the construction documents, drawings and specifications, provide cost for Future exam/ training room as Bid Additive Alternate #1 and include in the bid form

Item Number	General Items Description
	provided in the project manual. See construction documents for scope of work in the future room noted.
9	Contractor shall provide list of subs and breakdown of the bid to the Owner within 24 hours of the bid submittal.
10	As noted during the walkthrough- Vendor serving the existing building for Fire Alarm system and security system is BEST (Building Electronic Systems Technology) and are required to be contacted for bidding the portions managed by them in the building. Contact "Stephen Pullan" of BEST at 801-360-9310 for more information.
11	Asbestos inspection and any required abatement shall be performed by the Owner and report shall be provided to the contractor before the start of construction work.
12	As discussed during pre-bid walkthrough- all existing walls and gypsum ceiling of the existing X-ray room have lead shielding. Contractor shall provide and include abatement of lead from this room in the bid by adopting AHJ approved methods and procedures for safe handling and clearing of lead from the site.
13	As noted by Michael Burnham- Owner shall remove two existing Aluminum storefront system located at the building corridor along with the ceiling grid lights, exam room cabinets & millwork from the remodel area. Do not include in the demolition bid.
14	As noted by Michael Burnham- Owner shall provide and install the required temporary dust barrier wall outside the two removed Aluminum storefront systems at the building hallway, do not include in the bid. Contractor shall only provide and include in the bid temporary dust barrier outside the new door A143 that is required to be cut into the existing wall and continue dust barrier on each side of the door to cover the walls where sheet rock is being removed.
15	See attached Mechanical & Plumbing Addendum #1 from VBFA Engineers.

Sheet Number	Drawings
Mechanical & Plumbing	
MH101	See attached revised- Level 1 Mechanical Plan.
MH502	See attached revised- Mechanical Details.
PD101	See attached revised- Level 1 Plumbing Demolition Plan
PP100	See attached revised- Below Grade Plumbing Plan.
PP101	See attached revised- Level 1 Plumbing Plan.
PP601	See attached revised- Plumbing Schedules.

Specification Section	Project Manual
Architectural Sections	
08 71 00	Door Hardware: Hardware Group 8 on page 18 has been revised in this section to include lock at door A133. Refer to attached revised sheet (partial spec) for more information.

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Specification Section	Project Manual
Plumbing Sections	
22 11 16	Domestic Water Piping: Specifications section has been revised to include PEX piping. See attached revised specifications section for more information.

Attachments:
Mechanical Addendum #1, Revised Partial Spec section 08 71 00 (revised page), Revised Spec Section 22 11 16, Revised Sheet MH101, MH502, PD101, PP100, PP101 & PP601.

VBFA

ADDENDUM #1

DATE: February 17, 2020

PROJECT NO: 19605

PROJECT: Intermountain Healthcare Tooele Dialysis Clinic

The following revision, additions, deletions, and/or items of clarification shall hereby be included as an integral part of the Contract Documents for the above-listed project and shall be fully binding. All other requirements of the original plans and specification shall remain in effect in their respective order.

DIVISION – 22 & 23

DRAWINGS

SHEET - MH101 – LEVEL 1 MECHANICAL PLAN
1. Ductwork transitions added to avoid going up into the beam pockets.
2. Keyed note 14 updated.
3. Keyed note 16 added.

SHEET - MH502 – MECHANICAL DETAILS
1. “Rectangular Duct Depressed to Avoid an Obstruction Detail” added to sheet.

SHEET - PD101 – LEVEL 1 PLUMBING DEMOLITION PLAN
1. Keyed 6 added.

SHEET - PP100 – BELOW GRADE PLUMBING PLAN
1. Waste and vent added for CS-1.
2. 1-1/2” Vent line to WC-1 changed to 2” Vent.

SHEET - PP101 – LEVEL 1 PLUMBING PLAN
1. CS-1 added in Soiled (A128)
2. DCW main line resized for CS-1.

SHEET - PP601 – PLUMBING SCHEDULES
1. CS-1 added to plumbing fixture schedule

SPECIFICATIONS

SECTION - 22 11 16 – Domestic Water Piping
1. PEX added to the specification.

PRIOR APPROVALS

The following manufacturers, trade names and products are allowed to bid on a name brand only basis with the provision that they completely satisfy all and every requirement of the drawings, specifications and all addenda shall conform to the design, quality and standards specified, established and required for the complete and satisfactory installation and performance of the building and all its respective parts.

Item	Manufacturer	Comments
Exhaust Fans	ACME	APPROVED
Exhaust Fans	S&P	APPROVED
Louver	Nailor	APPROVED
Louver	Air Rite Mfg.	APPROVED
Louver	United Enertech	APPROVED
Duct Mounted Access Doors	Nailor	APPROVED
Split System	LG	APPROVED
Split System	Samsung	APPROVED
Diffusers, Registers, Grilles	Hart & Cooley	APPROVED
Flexible Ducts	JPL	APPROVED
Gas Fired Furnace	American Standard	APPROVED
Condensing Units	American Standard	APPROVED

1 Gasketing	S773D		PE
1 Power Supply	BPS-24-1		SU
1 Battery Backup	B-24-5		SU
1 Card Reader	BY SECURITY CONTRACTOR		

Set: 6.0

Doors: A132A

1 Continuous Hinge	FM300	US32D	MA
1 Cylindrical Lock (storeroom)	CL3357 NZD	626	RU
1 Closer (surface)	DC6210	689	RU
1 Kickplate	K1050 10" X 2"LDW 3BE CSK	US32D	RO
1 Wall Stop	409	US32D	RO
1 Gasketing	S773D		PE

Set: 7.0

Doors: A124, A126, A143

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Cylindrical Lock (storeroom)	CL3357 NZD	626	RU
1 Electric Strike	1006-12/24	630	HS
1 Closer (surface)	DC6210	689	RU
1 Kickplate	K1050 10" X 2"LDW 3BE CSK	US32D	RO
1 Wall Stop	409	US32D	RO
1 Gasketing	S773D		PE
1 Power Supply	BPS-24-1		SU
1 Battery Backup	B-24-5		SU
1 Card Reader	BY SECURITY CONTRACTOR		

Set: 8.0

Doors: A133

6 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Cylindrical Lock (storeroom)	CL3357 NZD	626	RU
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
2 Kickplate	K1050 10" X 2"LDW 3BE CSK	US32D	RO
2 Wall Stop	409	US32D	RO
1 Gasketing	S773D		PE

Set: 9.0

Doors: A135, A139, A140

Revised page 18- Specifications Section 08 71 00

SECTION 221116 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Under-building-slab and aboveground domestic water pipes, tubes, and fittings inside buildings.

1.3 ACTION SUBMITTALS

A. Product Data: For transition fittings and dielectric fittings.

B. Delegated-Design Submittal:
1. Seismic calculations and detailed analysis: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacing. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices. Project specific design documentation and calculations shall be prepared and stamped by a registered professional engineer who is responsible for the seismic restraint design and who is licensed in the state where the project is being constructed (ASCE 7, 13.2.1.1).

1.4 INFORMATIONAL SUBMITTALS

A. System purging and disinfecting activities report.

B. Field quality-control reports.

1.5 FIELD CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Construction Manager or owner no fewer than two days in advance of proposed interruption of water service.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

B. Potable-water piping and components shall comply with NSF 14 and NSF 61. Plastic piping components shall be marked with "NSF-pw."

C. All piping shall be American made and tested; no import pipe will be permitted.

D. All exposed water supply piping in toilet rooms, custodial rooms and kitchens shall be chromium plated.

E. All piping installed in or passing through a plenum must be plenum rated, fire wrapped, or installed in a metal conduit.

2.2 COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ASTM B 88, Type K and ASTM B 88, Type L water tube, drawn temper.

B. Soft Copper Tube: ASTM B 88, Type K and ASTM B 88, Type L water tube, annealed temper.

C. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.

D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

E. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.

F. Copper Unions:

1. MSS SP-123.
2. Cast-copper-alloy, hexagonal-stock body.
3. Ball-and-socket, metal-to-metal seating surfaces.
4. Solder-joint or threaded ends.

G. Copper Pressure-Seal-Joint Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Elkhart Products Corporation.
b. NIBCO Inc.
c. Viega.

2. Fittings for NPS 2 and Smaller: Wrought-copper fitting with EPDM-rubber, O-ring seal in each end.

3. Fittings for NPS 2-1/2 to NPS 4: Cast-bronze or wrought-copper fitting with EPDM-rubber, O-ring seal in each end.

H. Copper Push-on-Joint Fittings:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Victaulic Company.

2. Description:

a. Cast-copper fitting complying with ASME B16.18 or wrought-copper fitting complying with ASME B 16.22.
b. Stainless-steel teeth and EPDM-rubber, O-ring seal in each end instead of solder-joint ends.

2.3 DUCTILE-IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe:

1. AWWA C151/A21.51, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.
2. Glands, Gaskets, and Bolts: AWWA C111/A21.11, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Standard-Pattern, Mechanical-Joint Fittings:

1. AWWA C110/A21.10, ductile or gray iron.
2. Glands, Gaskets, and Bolts: AWWA C111/A21.11, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

C. Compact-Pattern, Mechanical-Joint Fittings:

1. AWWA C153/A21.53, ductile iron.
2. Glands, Gaskets, and Bolts: AWWA C111/A21.11, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

D. Plain-End, Ductile-Iron Pipe: AWWA C151/A21.51.

2.4 PEX TUBE AND FITTINGS

A. PEX Distribution System: ASTM F 877, SDR 9 tubing.

B. Fittings for PEX Tube: ASTM F 1807, metal-insert type with copper or stainless-steel crimp rings and matching PEX tube dimensions.

2.5 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials:

1. AWWA C110/A21.10, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free unless otherwise indicated.
2. Full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys.

D. Flux: ASTM B 813, water flushable.

E. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

2.6 TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Sleeve-Type Transition Coupling: AWWA C219.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cascade Waterworks Manufacturing.
b. Dresser, Inc.; Piping Specialties Products.
c. Ford Meter Box Company, Inc. (The).
d. JCM Industries.
e. Romac Industries, Inc.
f. Smith-Blair, Inc.; a Sensus company.
g. Viking Johnson.

D. Plastic-to-Metal Transition Fittings:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Charlotte Pipe and Foundry Company.
b. Harvel Plastics, Inc.
c. Spears Manufacturing Company.

2. Description:

a. CPVC or PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions.
b. One end with threaded brass insert and one solvent-cement-socket or threaded end.

E. PP-to-Metal Transition Fittings:

1. Description:

a. PP one-piece fitting with manufacturer's Schedule 80 equivalent dimensions.
b. One end with threaded brass insert and one fusion-socket end.

2.7 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Nipples and Waterways:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Elster Perfection Corporation.
b. Grinnell Mechanical Products; Tyco Fire Products LP.
c. Matco-Norca.
d. Clearflow/Perfection Corp.
e. Precision Plumbing Products, Inc.
f. Victaulic Company.

2. Standard: IAPMO PS 66 or ASTM F-1545-97.
3. Electroplated steel nipple or waterway complying with ASTM F 1545 or ANSI/NSF-61 Compliant.
4. Pressure Rating and Temperature: **300 psig at 225 deg F.**
5. End Connections: Male threaded or grooved.
6. Lining: Inert and noncorrosive, propylene or LTHS.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Polypropylene pipe in or passing through plenums must be fire wrapped or installed in a metal conduit.

C. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

D. Install underground copper tube in PE encasement according to ASTM A 674 or AWWA C105/A21.5.

E. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve inside the building at each domestic water-service entrance. Comply with requirements for pressure gages in Division 22 Section "Meters and Gages for Plumbing Piping" and with requirements for drain valves and strainers in Division 22 Section "Domestic Water Piping Specialties."

F. Install shutoff valve immediately upstream of each dielectric fitting.

G. Install water-pressure-reducing valves downstream from shutoff valves. Comply with requirements for pressure-reducing valves in Division 22 Section "Domestic Water Piping Specialties."

H. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.
   1. Piping will be drained seasonally for freeze protection.

I. Rough-in domestic water piping for water-meter installation according to utility company's requirements.

J. Install seismic restraints on piping. Comply with SEI/ASCE 7 and with requirements for seismic-restraint devices in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment."

K. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

L. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

M. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

N. Install piping to permit valve servicing.

O. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.

P. Install piping free of sags and bends.

Q. Install fittings for changes in direction and branch connections.

R. Install PEX piping with loop at each change of direction of more than 90 degrees.

S. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

T. Install pressure gages on suction and discharge piping for each plumbing pump and packaged booster pump. Comply with requirements for pressure gages in Division 22 Section "Meters and Gages for Plumbing Piping."

U. Install thermostats in hot-water circulation piping. Comply with requirements for thermostats in Division 22 Section "Domestic Water Pumps."

V. Install thermometers on inlet and outlet piping from each water heater. Comply with requirements for thermometers in Division 22 Section "Meters and Gages for Plumbing Piping."

W. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

X. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

Y. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Division 22 Section "Escutcheons for Plumbing Piping."

3.3 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints for Copper Tubing: Comply with CDA's "Copper Tube Handbook," "Brazed Joints" chapter.

E. Soldered Joints for Copper Tubing: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

F. Pressure-Sealed Joints for Copper Tubing: Join copper tube and pressure-seal fittings with tools recommended by fitting manufacturer.

G. Push-on Joints for Copper Tubing: Clean end of tube. Measure insertion depth with manufacturer's depth gage. Join copper tube and push-on-joint fittings by inserting tube to measured depth.

H. Joint Construction for Grooved-End Copper Tubing: Make joints according to AWWA C606. Roll groove ends of tubes. Lubricate and install gasket over ends of tubes or tube and fitting. Install coupling housing sections over gasket with keys seated in tubing grooves. Install and tighten housing bolts.

I. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

J. Joints for PEX Piping: Join according to ASTM F 1807.

K. Joints for Dissimilar-Material Piping: Make joints using adapters compatible with materials of both piping systems.

3.4 TRANSITION FITTING INSTALLATION

A. Install transition couplings at joints of dissimilar piping.

B. Transition Fittings in Underground Domestic Water Piping:

1. Fittings for NPS 1-1/2 and Smaller: Fitting-type coupling.
2. Fittings for NPS 2 and Larger: Sleeve-type coupling.

C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Plastic-to-metal transition fittings.

3.5 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric nipples/waterways.

C. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric nipples/waterways.

D. Dielectric Fittings for NPS 5 and Larger: Use dielectric nipples/waterways.

3.6 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for seismic-restraint devices in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment."

B. Comply with requirements for pipe hanger, support products, and installation in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."

1. Vertical Piping: MSS Type 8 or 42, clamps.
2. Individual, Straight, Horizontal Piping Runs:

a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.

E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
4. NPS 2-1/2: 108 inches with 1/2-inch rod.
5. NPS 3 to NPS 5: 10 feet with 1/2-inch rod.
6. NPS 6: 10 feet with 5/8-inch rod.
7. NPS 8: 10 feet with 3/4-inch rod.

F. Install supports for vertical copper tubing every 10 feet.

G. Install vinyl-coated hangers for PP piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1 and Smaller: 36 inches with 3/8-inch rod.
2. NPS 1-1/4 to NPS 2: 48 inches with 3/8-inch rod.
3. NPS 2-1/2 to NPS 3-1/2: 48 inches with 1/2-inch rod.
4. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
5. NPS 6: 48 inches with 3/4-inch rod.
6. NPS 8: 48 inches with 7/8-inch rod.

H. Install supports for vertical PP piping every 60 inches for NPS 1 and smaller, and every 72 inches for NPS 1-1/4 and larger.

I. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

3.7 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.

C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:
1. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.

2. Plumbing Fixtures: Cold- and hot-water-supply piping in sizes indicated, but not smaller than that required by plumbing code. Comply with requirements for connection sizes in Division 22 plumbing fixture Sections.
3. Equipment: Cold- and hot-water-supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.8 IDENTIFICATION

A. Identify system components. Comply with requirements for identification materials and installation in Division 22 Section "Identification for Plumbing Piping and Equipment."

B. Label pressure piping with system operating pressure.

3.9 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Piping Inspections:

a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.
2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph below and to ensure compliance with requirements.

c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

2. Piping Tests:

a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
d. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials.

Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

e. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
f. Prepare reports for tests and for corrective action required.

B. Domestic water piping will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.10 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Open throttling valves to proper setting.
4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

    a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide hot-water flow in each branch.
    b. Adjust calibrated balancing valves to flows indicated.

5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
6. Remove and clean strainer screens. Close drain valves and replace drain plugs.
7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
8. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.11 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:

    a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
    b. Fill and isolate system according to either of the following:

        1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.

2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.

c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
d. Repeat procedures if biological examination shows contamination.
e. Submit water samples in sterile bottles to authorities having jurisdiction.

B. Clean non-potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging procedures prescribed by authorities having jurisdiction or; if methods are not prescribed, follow procedures described below:

a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
b. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

C. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.

D. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.12 PIPING SCHEDULE

A. Some piping types and sizes mentioned in this section may not be used on this project.

B. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

C. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

D. All exposed water supply piping in toilet rooms, custodial rooms and kitchens shall be chromium plated.

E. Under-building-slab, domestic water, building-service piping, shall be one of the following:

1. Soft copper tube, ASTM B 88, Type K wrought-copper, solder-joint fittings; and brazed joints.

F. Aboveground domestic water piping, NPS 2 and smaller, shall be one of the following:
1. Hard copper tube, ASTM B 88, Type L; cast-copper, solder-joint fittings; and soldered joints.
2. Hard copper tube, ASTM B 88, Type L; copper pressure-seal-joint fittings; and pressure-sealed joints.
3. Hard copper tube, ASTM B 88, Type L; copper push-on-joint fittings; and push-on joints.

4. PEX tube, NPS 1 and smaller; fittings for PEX tube; and crimped joints.

G. Aboveground domestic water piping, NPS 2-1/2 to NPS 4, shall be one of the following:

1. Hard copper tube, ASTM B 88, Type L; cast-copper, solder-joint fittings; and soldered joints.
2. Hard copper tube, ASTM B 88, Type L; copper pressure-seal-joint fittings; and pressure-sealed joints.
3. Hard copper tube, ASTM B 88, Type L; grooved-joint, copper-tube appurtenances; and grooved joints.

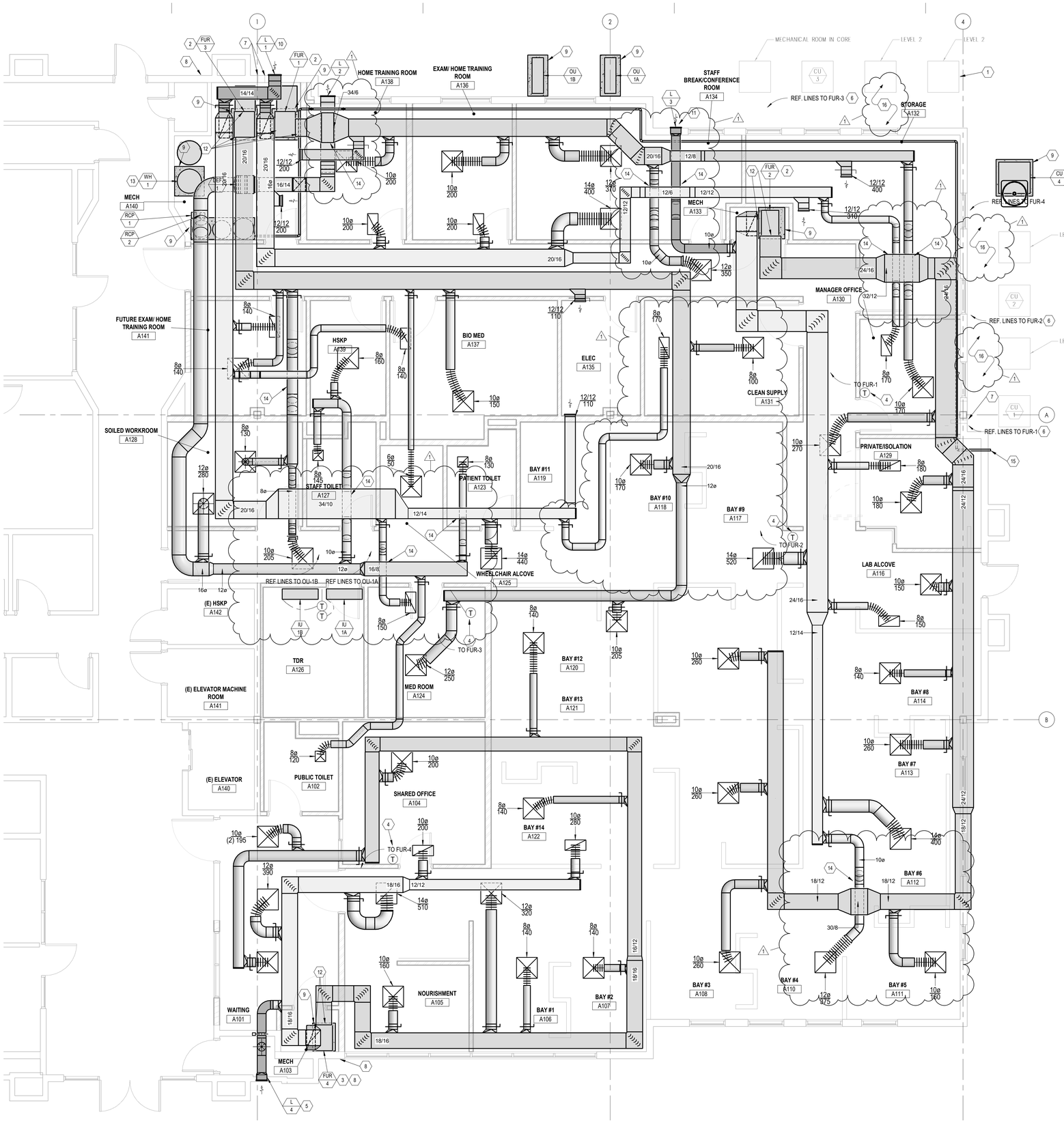
3.13 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball for piping NPS 3 and smaller. Use butterfly, with flanged ends for piping NPS 4 and larger.
2. Throttling Duty: Use ball valves for piping NPS 2 and smaller. Use butterfly valves with flanged ends for piping NPS 2-1/2 and larger.
3. Hot-Water Circulation Piping, Balancing Duty: Calibrated balancing valves.
4. Drain Duty: Hose-end drain valves.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

END OF SECTION 221116



1 LEVEL 1 MECHANICAL PLAN
SCALE: 1/4" = 1'-0"

NORTH

KEYED NOTES

1. EXISTING ELEMENTS SHOWN LIGHT TO REMAIN, TYPICAL.
2. RELOCATED EXISTING FURNACES.
3. NEW FURNACE.
4. PROVIDE NEW PROGRAMMABLE THERMOSTAT.
5. INSTALL OUTSIDE AIR LOUVER AND CONNECT TO RETURN SYSTEM WITH A 10 INCH ROUND DUCT TO FUR-4. INSTALL MANUAL DAMPER AND BALANCE TO 250 CFM. CONNECTION TO RETURN SYSTEM SHALL BE REASONABLY CLOSE TO THE FURNACE. ADJUST RETURN FROM EACH ROOM TO BALANCE OUTSIDE AIR.
6. RUN NEW REFRIGERANT LINES SETS FROM FURNACES TO CONDENSING UNITS. FIELD VERIFY WHICH CONDENSING UNITS SERVES EACH FURNACE BEFORE ANY DEMOLITION. INFORM ENGINEER OF ANY DISCREPANCIES ON THE DRAWINGS.
7. RECONNECT 4 INCH VENT AND COMBUSTION AIR TO NEW FURNACE LOCATION. REUSE EXISTING SYSTEM AS NECESSARY, TYPICAL.
8. INSTALL NEW 4 INCH VENT AND COMBUSTION AIR TO EXTERIOR. FOLLOW ALL MANUFACTURER RECOMMENDATIONS. INSTALL NEW VENT AND COMBUSTION AIR LOUVER ON EXTERIOR WALL.
9. PROVIDE 4 INCH THICK HOUSEKEEPING PAD.
10. INSTALL OUTSIDE AIR LOUVER AND CONNECT ONE 12 INCH ROUND DUCT TO THE RETURN AIR SYSTEM OF FUR-1 AND ONE 12 INCH DUCT TO THE RETURN AIR SYSTEM OF FUR-3. INSTALL MANUAL DAMPER IN EACH DUCT. BALANCE THE OUTSIDE AIR TO FUR -1 TO 410 CFM. BALANCE THE OUTSIDE AIR TO FUR-3 TO 445 CFM. CONNECTION TO RETURN SYSTEM SHALL BE REASONABLY CLOSE TO THE FURNACES. ADJUST RETURN FROM EACH ROOM TO BALANCE OUTSIDE AIR.
11. REPLACE EXISTING OUTSIDE AIR HOOD WITH LOUVER. CONNECT TO RETURN SYSTEM WITH A 12 INCH ROUND DUCT TO FUR-2. INSTALL MANUAL DAMPER AND BALANCE TO 315 CFM. CONNECTION TO RETURN SYSTEM SHALL BE REASONABLY CLOSE TO THE FURNACE. ADJUST RETURN FROM EACH ROOM TO BALANCE OUTSIDE AIR.
12. COORDINATE FINAL CONNECTION WITH FURNACE OPENINGS.
13. ROUTE WITH A 4 INCH CONCENTRIC VENT SET TO THE EXTERIOR WALL.
14. CONTRATOR SHALL CLOSELY COORDINATE AREA WHERE DUCTWORK CROSSES. NO PLUMBING, FIRE PROTECTION, OR ELECTRICAL WILL BE ABLE TO RUN UNDERNEATH AREA.
15. SALT LINE FOR WATER SOFTENER. SYSTEM INSTALLED AND COORDINATED BY VENDOR.
16. COORDINATE EXISTING REFRIGERANT LINES WITH FIRE RATING PENETRATIONS.

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Intermountain Healthcare

Dialysis Clinic Expansion

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NJRA Project # 19230.00
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LEVEL 1 MECHANICAL PLAN

MH101

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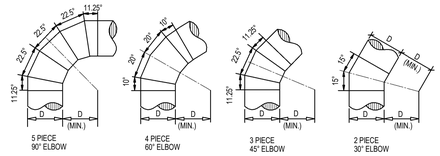

5 PIECE 90° ELBOW | 4 PIECE 60° ELBOW | 3 PIECE 45° ELBOW | 2 PIECE 30° ELBOW

1 ROUND DUCT ELBOW DETAILS

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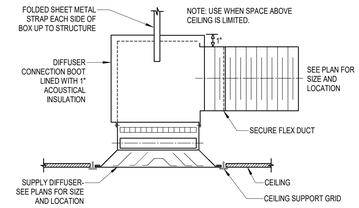

2 SUPPLY DIFFUSER W/ FLEX DUCT DETAIL

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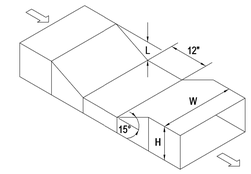

3 RECTANGULAR DUCT DEPRESSED TO AVOID AN OBSTRUCTION DETAIL

N.T.S.

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MECHANICAL DETAILS

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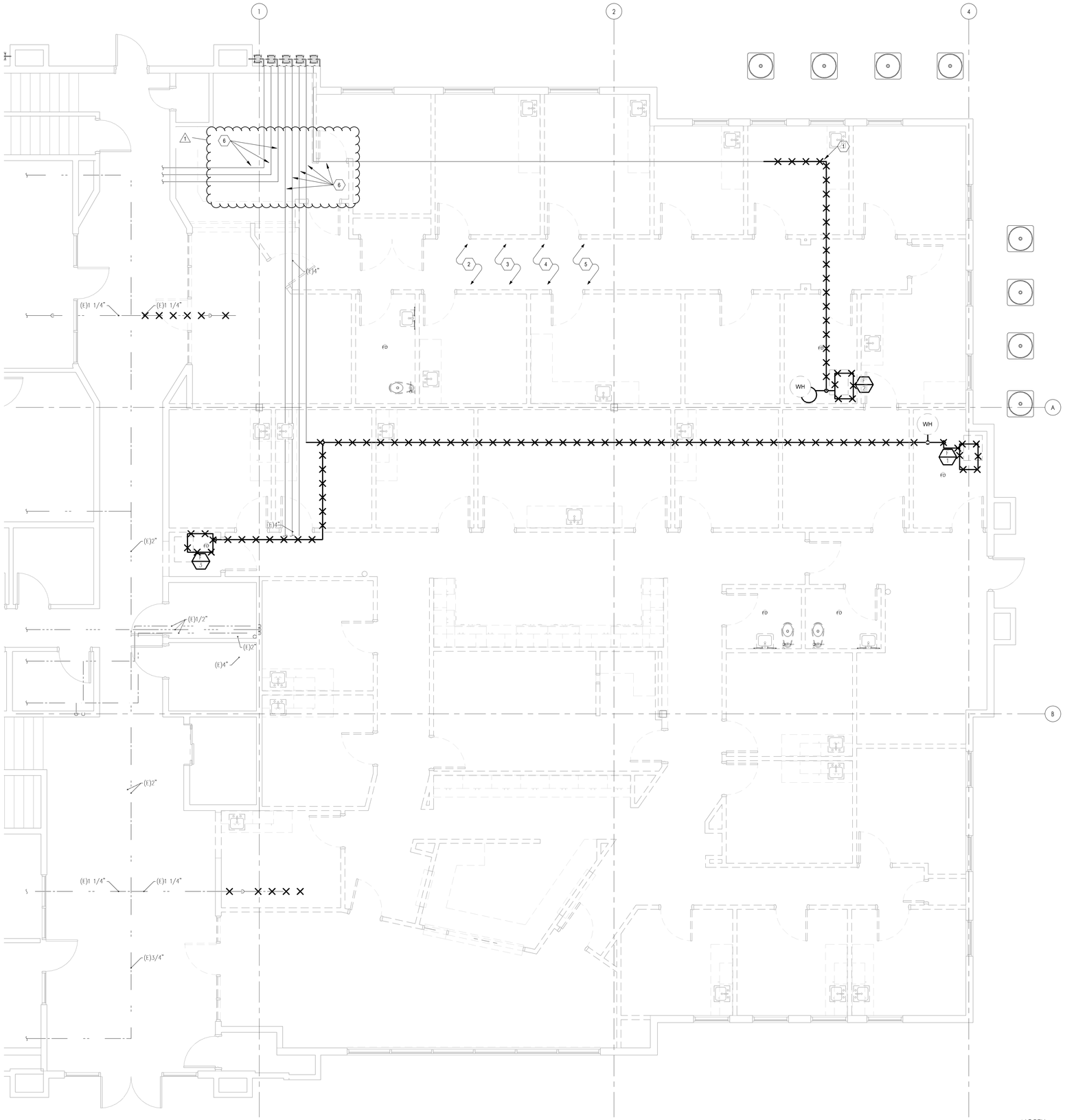

1 LEVEL 1 PLUMBING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES

1. EXISTING ELEMENTS SHOWN DARK AND INDICATED WITH AN "X" TO BE DEMOLISHED, TYPICAL.
2. DEMOLISH ALL DOMESTIC WATER LINES BACK TO MAIN.
3. DEMOLISH ALL VENT LINES.
4. DEMOLISH ALL WASTE LINES. CUT BELOW CONCRETE AND CAP. PATCH FLOOR.
5. DEMOLISH ALL FIRE SPRINKLER PIPING BACK TO RISER.
6. DISASSEMBLE ALL GAS LINES. REASSEMBLE GAS LINES AFTER SHEETROCK HAS BEEN INSTALLED TO JOISTS. COORDINATE ALL SHUTDOWNS WITH EFFECTED TENANTS. PIPES SHALL BE DISASSEMBLED AND REINSTALLED OVER WEEKEND TO MITAGATE OPERATIONAL DOWN TIME. PROVIDE TEMPERARY HEAT AS NECESSARY.

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LEVEL 1
PLUMBING
DEMOLITION
PLAN

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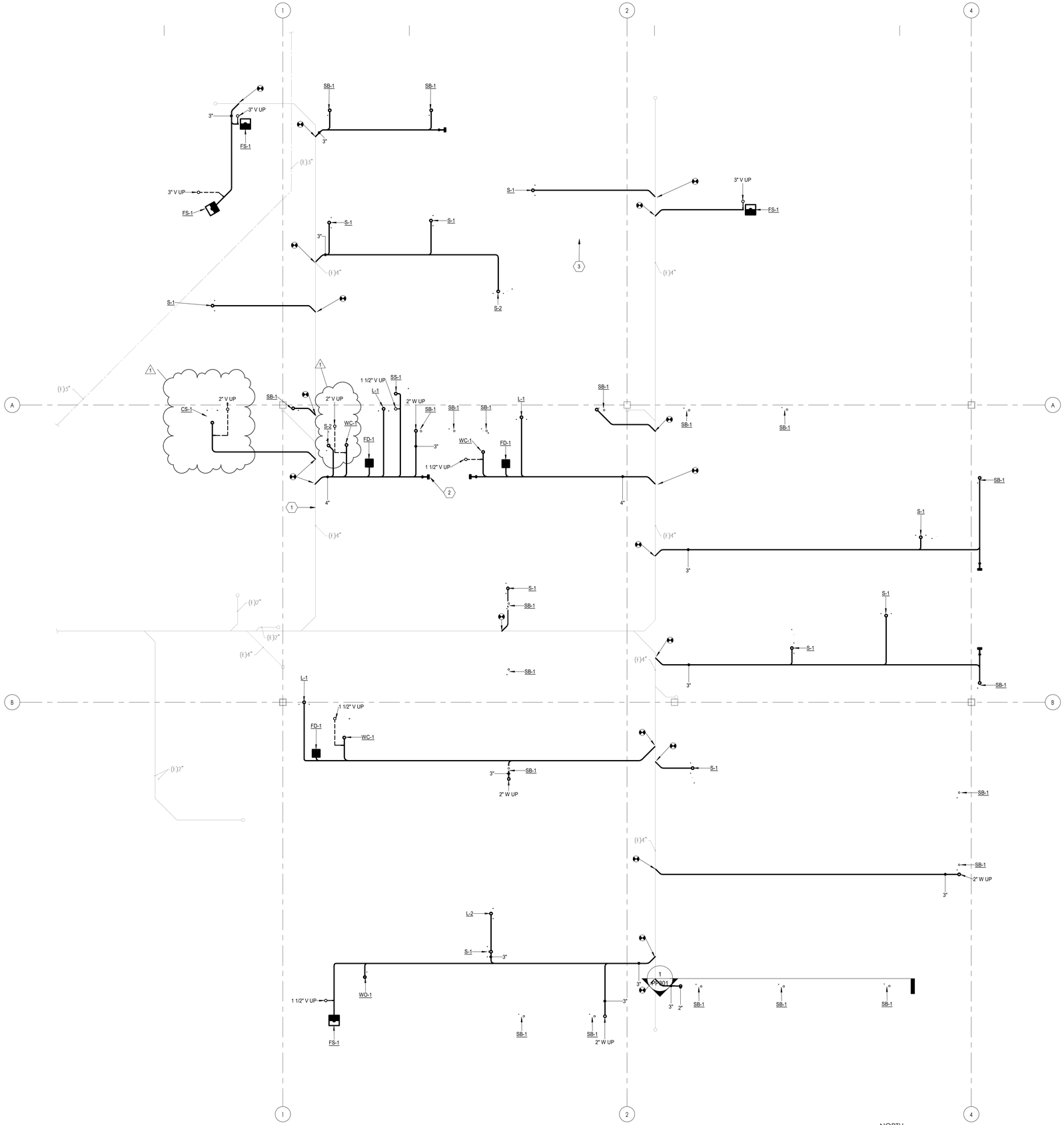

KEYED NOTES

1. EXISTING ELEMENTS SHOWN LIGHT, TYPICAL.
2. CONTRACTOR RESPONSIBLE FOR COORDINATING AND LOCATING ALL CLEANOUTS PER CODE IN ADDITION TO CLEANOUTS CALLED OUT ON PLANS, TYPICAL.
3. WALLS SHOWN FROM ABOVE, TYPICAL.

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

NORTH

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BELOW GRADE PLUMBING PLAN

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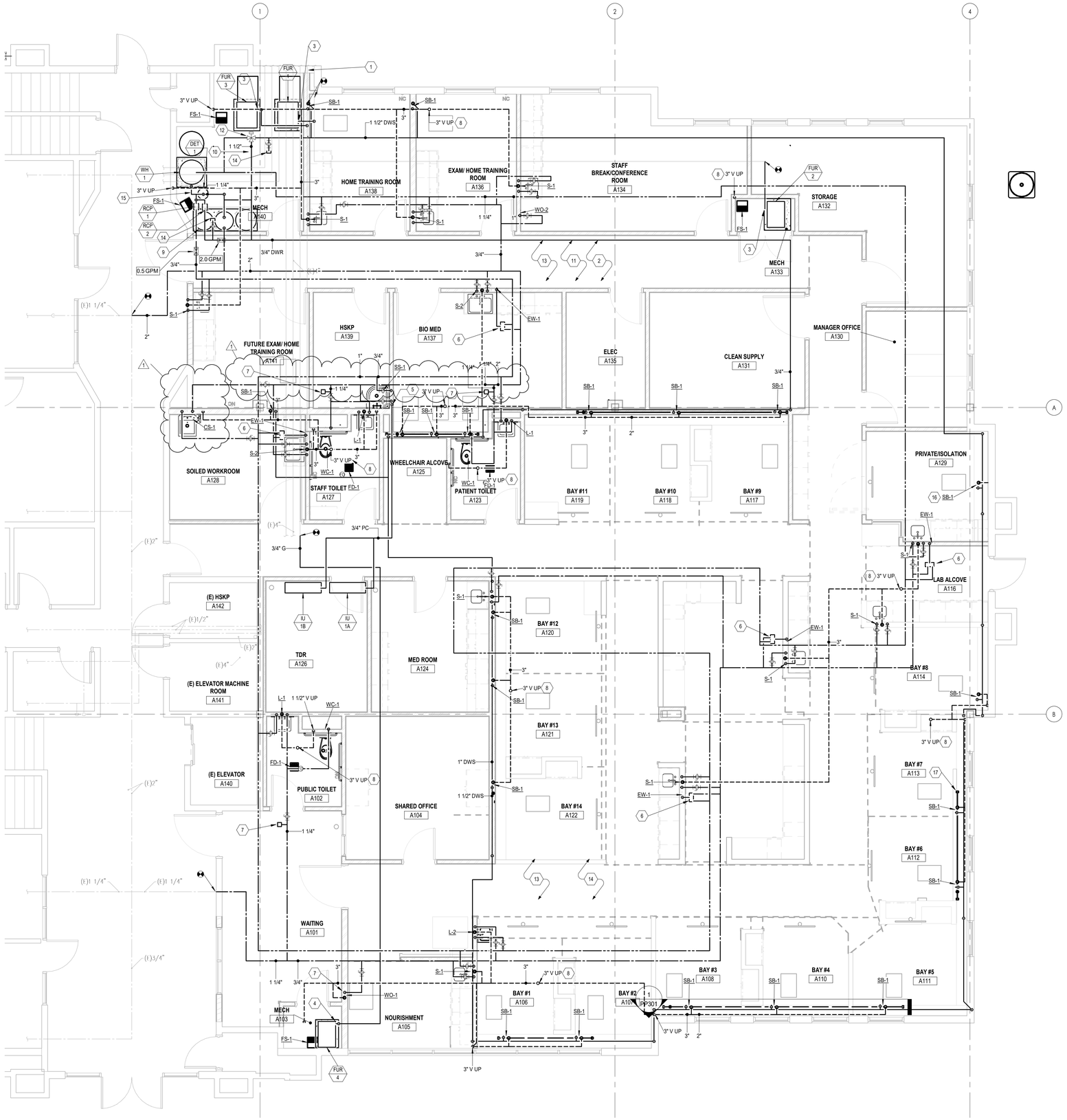

1 LEVEL 1 PLUMBING PLAN

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

NORTH

KEYED NOTES

1. EXISTING ELEMENTS SHOWN LIGHT TO REMAIN, TYPICAL.
2. INSTALL NEW FIRE SPRINKLERS.
3. RELOCATE EXISTING PRV
4. INSTALL NEW 4 OZ PRV.
5. DROP DOWN WALL AND TERMINATE IN SERVICE SINK.
6. THERMOSTATIC MIXING VALVE INSTALLED IN CEILING.
7. PROVIDE HAMMER ARRESTOR ON ALL FAST ACTING VALVES, TYPICAL.
8. FIELD VERIFY LOCATION OF EXISTING VENT LINES PENETRATING LEVEL 2 FLOOR. CONNECT NEW VENT LINES TO EXISTING VENT LINES PENETRATING LEVEL 2 FLOOR. RUN ADDITIONAL PIPING AS NECESSARY.
9. OWNER PROVIDED WATER SOFTENER.
10. CONNECT TO OWNER PROVIDED WATER SOFTENER.
11. ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE THROUGHOUT EACH REMODELED COMPARTMENT, TYPICAL. FIRE SPRINKLERS SHALL BE INSTALLED TO MEET NFPA 13-2016 REQUIREMENTS, TYPICAL.
12. INSTALL THERMOSTATIC MIXING VALVE FOR REVERSE OSMOSIS APPLICATIONS.
13. INSTALL FIRE SPRINKLER SPRINKLERS AND PIPING AS NECESSARY FOR THE REMODELED SPACE, INCLUDING NEW FLOOR PLAN, CEILING PLAN, AND CEILING HEIGHT ADJUSTMENTS. REFER TO THE ARCHITECTURAL SHEETS FOR COMPLETE SCOPE OF THE PROJECT.
14. VALVE AND CAP FOR OWNER TO CHLORINATE LINE.
15. CONNECT RETURN LINE TO WATER HEATER PER MANUFACTURER RECOMMENDATIONS.
16. SEE ARCHITECTURAL PLANS FOR ELEVATION AND EXACT LOCATION OF SUPPLY BOX, TYPICAL.
17. TYPICAL CLEANOUT, SEE PP301 FOR SECTION.
18. DISASSEMBLE GAS PIPING FOR SHEETROCK INSTALLATION TO JOISTS.

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LEVEL 1 PLUMBING PLAN

PP101

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PLUMBING FIXTURE SCHEDULE

MT	FIXTURE	CW (IN)	HW (IN)	W (IN)	V (IN)	DESCRIPTION	SPECIFICATION
CS-1	CLINIC SINK	1	1/2	4	2	FLOOR MOUNTED, FLUSH VALVE, SPRAY HOSE, FOOT CONTROLS	KOHLER K-6676 TYRRELL FLOOR MOUNTED CLINIC SINK; CHICAGO 814-VBCP FAUCET, 7-1/2" SPOUT WITH PAIL HOOK, PIPE SUPPORT AND ATMOSPHERIC VACUUM BREAKER, SLOAN REGAL 117 XL FLUSH VALVE; CHICAGO 910-GSL0777-19KCP WALL MOUNTED BEDPAN WASHER WITH FOOT PEDALS VACUUM BREAKER AND HAND HELD SPRAY HOSE. PROVIDE 10" HIGH CONCRETE BASE FOR CLINIC SINK.
EW-1	EMERGENCY EYEWASH	1/2	1/2	---	---	COUNTER MOUNTED, TEPID WATER	GUARDIAN G5022BP EYEWASH/DRENCH HOSE DECK MOUNTED UNITS WITH SLOAN ETF-470A SINGLE CHECK VALVES ON HOT AND COLD LINES AND GUARDIAN G3600LF THERMOSTATIC MIXING VALVE. INSTALL THE EYEWASH/DRENCH HOSE UNIT ON THE COUNTER NEXT TO THE SINK. INSTALL THE MIXING VALVE ABOVE THE CEILING WITH THE OUTLET TEMPERATURE SET TO 75-80°F.
FD-1	FLOOR DRAIN	---	---	2	1-1/2	FLOOR DRAIN	FLOOR DRAIN: SMITH FIGURE 2005Y-P050 FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH 6-INCH ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED GRATE. PROVIDE TRAP GUARD TYPE TRAP SEAL DEVICE.
FS-1	MECHANICAL ROOM FLOOR SINK	---	---	3	1-1/2	MECHANICAL ROOM FLOOR SINK	FLOOR SINK: SMITH FIGURE 3100Y CAST IRON FLANGED RECEPTOR WITH ACID RESISTANT INTERIOR COATING, NICKEL BRONZE RIM AND SECURED 1/2 GRATE AND ALUMINUM DOME BOTTOM STRAINER.
L-1	PUBLIC TOILET ROOM LAVATORY	1/2	1/2	1-1/2	1-1/2	WALL HUNG, VITREOUS CHINA, GOOSENECK FAUCET WITH WRISTBLADES	LAVATORY: KOHLER K2030, GREENWICH, 20" X 18", VITREOUS CHINA, WITH FRONT OVERFLOW, 8" CENTERS. CHICAGO 786-GN2FCXKABCP FAUCET, WITH WRIST BLADE HANDLES, GN2 5-1/4" RIGID/SWING GOOSENECK WITH PLAIN END SPOUT AND 0.5 GPM LAMINAR FLOW CONTROL IN SPOUT INLET. WATTS LFUSG-B-M2 THERMOSTATIC MIXING VALVE WITH SLOAN ETF-470-A SINGLE CHECK VALVES ON HOT AND COLD LINES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH 1/4 TURN ANGLE STOPS. CHICAGO 327-XCP OPEN-GRID STRAINER AND CAST BRASS P-TRAP WITH CLEANOUT PLUG. SMITH 0700-Z CONCEALED ARM CHAIR CARRIER WITH FOOT SUPPORT. PROVIDE ADA COMPLIANT UNDER COUNTER PIPING WRAP BY TRUE-BRO. COLOR TO BE WHITE.
L-2	LAVATORY	1/2	1/2	1-1/2	1-1/2	WALL HUNG, VITREOUS CHINA, GOOSENECK FAUCET WITH WRISTBLADES	LAVATORY: KOHLER K2030, GREENWICH, 20" X 18", VITREOUS CHINA, WITH FRONT OVERFLOW, 8" CENTERS. CHICAGO 786-GN2FCXKABCP FAUCET, WITH WRIST BLADE HANDLES, GN2 5-1/4" RIGID/SWING GOOSENECK WITH PLAIN END SPOUT AND 1.5 GPM LAMINAR FLOW CONTROL IN SPOUT INLET. WATTS LFUSG-B-M2 THERMOSTATIC MIXING VALVE WITH SLOAN ETF-470-A SINGLE CHECK VALVES ON HOT AND COLD LINES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH 1/4 TURN ANGLE STOPS. CHICAGO 327-XCP OPEN-GRID STRAINER AND CAST BRASS P-TRAP WITH CLEANOUT PLUG. SMITH 0700-Z CONCEALED ARM CHAIR CARRIER WITH FOOT SUPPORT. PROVIDE ADA COMPLIANT UNDER COUNTER PIPING WRAP BY TRUE-BRO, COLOR TO BE WHITE.
S-1	TYPICAL SINK	1/2	1/2	2	1-1/2	INTEGRAL, GOOSENECK FAUCET WITH WRISTBLADES	SINK: INTEGRAL SINK. CHICAGO 895-317GN2FCXKABCP FAUCET, WITH WRIST BLADE HANDLES, 5-1/4" GN2 RIGID/SWING GOOSENECK SPOUT WITH 1.5 GPM LAMINAR FLOW CONTROL IN SPOUT INLET. WATTS LFUSG-B-M2 THERMOSTATIC MIXING VALVE WITH SLOAN ETF-470-A SINGLE CHECK VALVES ON HOT AND COLD LINES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH 1/4 TURN ANGLE STOPS AND CAST BRASS P-TRAP WITH CLEANOUT PLUG. REPLACE QUATURN COMPRESSION OPERATING CARTRIDGE WITH CERAMIC 1/4-TURN OPERATING CARTRIDGE. PROVIDE WITH PLAIN END SPOUT.
S-2	WORKROOM SINK	1/2	1/2	2	1-1/2	ADA, COUNTER MOUNTED, STAINLESS STEEL, GOOSENECK FAUCET WITH WRISTBLADES	SINK: JUST SLN-ADA-2131-A-GR 16" X 28" X 6-1/2" I.D. COUNTER MOUNT 18 GA. STAINLESS STEEL SINK WITH 3 HOLE 8" CENTERS DRILLING, INTEGRA STAINLESS STEEL FLAT GRID AND REAR CENTER DRAIN LOCATION. CHICAGO 786-GN8FCXKABCP FAUCET, WITH WRIST BLADE HANDLES, 8" GN8 RIGID/SWING GOOSENECK SPOUT WITH 1.5 GPM LAMINAR FLOW CONTROL IN SPOUT INLET. WATTS LFUSG-B-M2 THERMOSTATIC MIXING VALVE WITH SLOAN ETF-470-A SINGLE CHECK VALVES ON HOT AND COLD LINES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH 1/4 TURN ANGLE STOPS AND CAST BRASS P-TRAP WITH CLEANOUT PLUG.
SB-1	SUPPLY BOX	3/4	---	2	1-1/2	SINGLE TEMP HOSE BOX, WASTE OUTLET, VACUM BREAKER	HOSE AND SUPPLY BOX: ACORN 8181 STAINLESS STEEL RECESSED SUPPLY AND WASTE HOSE BOX WITH VACUUM BREAKER 3/4" MALE HOSE THREAD AND WHEEL HANDLE. PROVIDE WITH ABS P-ASSEMBLY.
SS-1	CORNER MOUNTED SERVICE SINK	1/2	1/2	3	1-1/2	CORNER FLOOR MOUNTED	SERVICE SINK (FLOOR MOUNTED); KOHLER K6710, WHITBY, 28 X 28-INCH, ENAMELED CAST IRON FLOOR-MOUNTED CORNER MODEL, K9146-3" DRAIN WITH STRAINER, NO. K8940 REMOVABLE VINYL-COATED RIM GUARD; CHICAGO 897-CP FAUCET WITH VACUUM BREAKER, SCREWDRIVER STOPS IN SHANKS, 5 FOOT RUBBER HOSE AND CHICAGO 853 WALL HOOK. WATTS LFUSG-B-M2 THERMOSTATIC MIXING VALVE. WATTS # 7 DUAL CHECK VALVES ON HOT AND COLD LINES, INSTALLED IN CEILING ABOVE SERVICE SINK WITH ACCESS DOOR IF HARD CEILING.
WC-1	TYPICAL FLOOR MOUNTED WATER CLOSET	1	---	4	2	FLOOR MOUNTED	WATER CLOSET: KOHLER K-96057 HIGHCLIFF ULTRA VITREOUS CHINA, FLOOR MOUNTED, ELONGATED BOWL, 1-1/2" TOP SPUD, ADA TOILET WITH K-4670-C LUSTRA OPEN-FRONT SEAT. SLOAN ROYAL-111-1.28 GPF FLUSH VALVE; INSTALL ACTUATOR ON WIDE SIDE OF FIXTURE.
WO-1	WATER OUTLET	1/2	---	2	1-1/2	FLUSH MOUNTED IN WALL, WATER SUPPLY, DRAIN	WATER OUTLET BOX: WATER-TITE 82148 WASHING MACHINE OUTLET BOX WITH DRAIN QUARTER TURN BALL VALVE WITH WATER ARRESTOR FOR USE WITH ICE MACHINE. INSTALL ONLY COLD WATER BALL VALVE. NOTCH COUNTERTOP BACK-SPLASH AND INSTALL OUTLET BOX DRAIN FLUSH WITH COUNTERTOP. MATCH ARCHITECTURAL ELEVATIONS.
WO-2	WATER OUTLET	1/2	---	---	---	FLUSH MOUNTED IN WALL, WATER SUPPLY	FRIDGE CONNECTION: WATER-TITE AB9700HACP WATER OUTLET BOX WITH QUARTER TURN BALL VALVE AND WATER HAMMER ARRESTOR.

GAS FIRED WATER HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	INPUT LOAD (BTUH)	EFFICIENCY (%)	TYPE	RECOVERY RATE @ 100 F DELTA T	TANK SIZE (GAL)	FLUE SIZE (IN)	HEIGHT/ DIAMETER (IN)	V/PH	NOTES
WH-1	AO SMITH BTH-199	MECH (A140)	199900	97	N. GAS	235	100	4	77/28	120/1	1

1. PROVIDE WITH CONECENTRIC VENT SET.
2. SET LEAVING DISCHARGE TEMPERATURE FOR WATER HEATER TO 140 DEGREE FAHRENHEIT.

RECIRCULATION PUMP SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID			ELECTRICAL			NOTES
				FLOW RATE (GPM)	WORKING FLUID	HEAD LOSS (FT)	CONSTRUCTION	MOTOR SIZE (HP)	MOTOR SPEED (RPM)	VOLT/PH/HZ	
RCP-1	B&G PR 3/4	MECH A140	DOMESTIC	0.5	WATER	5	LEAD-FREE BRONZE	1/6	1725	115/1/60	
RCP-2	B&G PR3/4	MECH A140	DOMESTIC	2	WATER	5	LEAD-FREE BRONZE	1/6	1725	115/1/60	

DOMESTIC EXPANSION TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID	PHYSICAL				NOTES
				WORKING FLUID	MIN. TANK/ ACCEPTANCE (GAL)	TANK SIZE (GAL)	RELIEF VALVE (PSIG)	DIA./ HEIGHT (IN)	NPT FITTING (IN)	
DET-1	AMTROL ST-12-C	MECH A140	DOMESTIC	WATER	0.9	2	150	12/18	0.75	1

1. TANK LINER SUITABLE FOR POTABLE WATER

PIPING MINIMUM INSULATION THICKNESS

TEMPERATURE RANGE (OF)	CONDUCTIVITY, BTU IN/H FT2-OF	MEAN RATING TEMPERATURE OF	PIPE SIZE (IN)					
			<1	1 to >1-1/2	1-1/2 to <4	4 to <8	8 & Larger	NOTES
>350	0.32 TO 0.34	250	4.5	5.0	5.0	5.0	5.0	1,2,3,4
251-350	0.29 TO 0.32	200	3.0	4.0	4.5	4.5	4.5	1,2,3,4
201-250	0.27 TO 0.30	150	2.5	2.5	2.5	3.0	3.0	1,2,3,4
141-200	0.25 TO 0.29	125	1.5	1.5	2.0	2.0	2.0	1,2,3,4
105-140	0.22 TO 0.28	100	1.0	1.0	1.5	1.5	1.5	1,2,3,4
40-60	0.21 TO 0.27	75	0.5	0.5	1.0	1.0	1.0	1,2,3,4
>40	0.20 TO 0.26	50	1.0	1.0	1.0	1.0	1.5	1,2,3,4

1. INSULATION THICKNESS FOR RUNOUT PIPING BETWEEN THE CONTROL VALVE AND HVAC EQUIPMENT MAY BE REDUCED TO 1"
2. INSULATION THICKNESS FOR PIPING LOCATED OUTDOORS OR EXPOSED TO OUTSIDE AIR SHALL BE INCREASED BY 1".
3. WHERE SCHEDULED THICKNESS DIFFERS FROM SPECIFICATIONS THE THICKER DIMENSION SHALL BE USED.
4. REFER TO ASHRAE-90.1-2016 TABLE 6.8.3-1 AND 6.8.3-2 FOR ADDITIONAL INFORMATION.

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	NJRA Project #	19230.00
	Construction Documents	February 03, 2020
1	Addendum #1	02/17/20

PLUMBING SCHEDULES

PP601

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