ADDENDUM NUMBER FIVE

To the Drawings and Project Manual Dated:

DEC 15, 2025

Entitled:

Indiana University
Launch Accelerator for Biosciences
1302 Indiana Ave.
Indianapolis, IN 46202

Prepared By:

BSA
175 S. Rangeline Rd., Suite 200
Carmel, IN 46032

_____

Addendum Dated: JAN 30, 2026

IU Project #: 20250072
BSALS Project #: 00360481

CONTRACTOR QUESTIONS

1. See attached list of bidder questions with design team responses.

CHANGES TO THE PROJECT BID MANUAL

1. Remove bid bond requirement with bids for the **following packages only** in Bid Package 3:
    a. BE3-09A: Drywall, Framing, & Ceilings (Exterior & Interior)
    b. BE3-23A: HVAC, Mechanical & Plumbing
    c. BE3-26A: Electrical & Telecom

CHANGES TO THE PROJECT MANUAL

1. Division 22 sections previously issued in BP3 addendum 04 on January 26, 2026 for ongoing design development of the BP4 Build-Out Package are being reissued in their entirety to support pricing for bid event BE3-23A.

CHANGES TO THE DRAWINGS

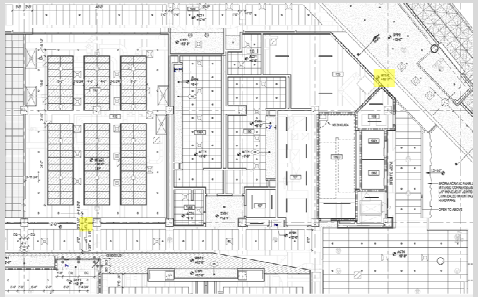
2. Plumbing series drawings previously issued in BP3 addendum 04 on January 26, 2026 for ongoing design development of the BP4 Build-Out Package are being reissued in their entirety to support pricing for bid event BE3-23A.

END OF ADDENDUM NUMBER FIVE

Attachments:

- Bidder RFI List with Responses
- Sections 22 0500, 22 0553, 22 1005, 22 1116, 22 1119, 22 1123, 22 1123.13, 22 1300, 22 1329, 22 1400, 22 3400, 22 4000, 22 6200, 22 6213, 22 8300
- Drawing P001, P501, P502, P503, P504, P505, P506, P507, P601, P602, PGV000, PGV1PH, PGV101, PGV102, PGV103, PGV104, PGV105, PGV201, PGV301, PGV401, PGV501, PGV502, PGV503, PGV601, PGV602, PP101, PP102, PP103, PP104, PP105, PP106, PP107, PW100, PW101, PW102, PW103, PW104, PW105, PW106, PW107

20250072 - IU LAB - BP3 Bidder RFI's

RFI #	Bid Package	Discipline	Sheet/Spec Section	Question	Answer	Response By	Addendum
96		Mechanical	BE3-23A	Substitution Request - Induced Dilution Exhaust Fans	Substitution request is rejected.	BSA	ADD-05
97		Mechanical	BE3-23A	Substitution Request - HVLS Propeller Fans	Substitution request is rejected.	BSA	ADD-05
98			BE3-23A	Does the CIC need to be included in our bid package with lack of information at this time?	No, this work needs to be excluded from base bid. Provide an alternate which includes an allowance for this work to be provided with bid submission.	FAW	ADD-05
		Architectural	BE3-09A	Can you please confirm what MTL-2 and MTL PNL are in the highlighted snip below on the 1st floor? Also, a cut through the MTL PNL? 	MTL-2 is intended to be a custom color soffit panel from the MCM fabricator to match the metal fascia shown in detail 3/A461, falling under spec section 05 7500, which includes "interior fascia, sills, and **ceiling panels**". More detail will be provided in BP4 CDs. "MTL PNL" called out in the RCP dimension is intended to be a custom color powder coated 0.250" thick aluminum panel sheet/system hung on Z-clips to create a "shroud" wrapping the storefront head & jambs on both the room interior and corridor side of the hallway partition. More information/details will be provided as part of BP4 CDs.	BSA	ADD-05

DIVISION 22 – PLUMBING

PROJECT: Launch Accelerator for Biosciences – Design Development

LOCATION: Indianapolis, Indiana

OWNER: Indiana University

NOTE: Specifications incorporate IU Engineering Services Plumbing Standards (Feb 2022) and are edited to match the project narrative provided by the Design Team.

SECTION 22 05 00 – COMMON WORK RESULTS FOR PLUMBING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes general requirements common to plumbing Work including, but not limited to:

1. Submittals, quality assurance, execution requirements, testing, and closeout.

2. Requirements for serviceability, access, sleeves, penetrations, labeling, and coordination.

1.2 REFERENCES

A. Codes and standards: Comply with governing Indiana codes identified in the project Plumbing Systems Overview and with referenced standards in each specification section.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with IU Engineering Services requirements including:

1. All plumbing devices shall be serviceable; Designer shall outline required clearances in Contract Documents.

2. Contract Documents shall include labels for all concealed device locations.

3. All pipe penetrations through interior walls shall be sleeved and sealed air-tight to prevent air transfer.

4. On potable systems, use PTFE (Teflon) tape; pipe dope is not permitted.

1.4 SUBMITTALS

A. Product data and shop drawings for piping, valves, specialties, fixtures, and equipment.

B. Test procedures and test reports for hydrostatic tests, drainage tests, and disinfection.

C. O&M manuals; training agenda; spare parts.

1.5 QUALITY ASSURANCE

A. Installer qualifications:

1. Licensed plumbing contractor in Indiana.

2. Fusion piping installers shall be manufacturer-trained/certified for the installed system.

B. Pressure testing: Hydrostatic test pressurized piping at 150% of operating pressure for minimum 2 hours; sanitary and storm drains test 1 hour at 10 feet of head.

PART 2 – PRODUCTS

2.1 GENERAL

A. Provide new materials. Provide products listed/approved for intended service.

B. Provide lead-free materials and joining methods for potable water systems per IU standards.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Keep piping out of dedicated electrical equipment spaces and electrical rooms; do not run piping in elevator equipment rooms/shafts, security rooms, MDF/IDF rooms, or telecom closets.

B. Pressurized piping shall not be located under or in building slab; accessible crawl space is acceptable.

C. Provide access panels where required to service concealed devices, including water hammer arrestors.

D. Provide pipe identification per Section 22 05 53.

3.2 CLEANING, FLUSHING, AND DISINFECTION

A. Obtain test water from a potable source.

B. Flush domestic water piping; disinfect potable systems per code and AWWA practices.

C. Provide final cleaning and restore areas affected by Work.

END OF SECTION 22 05 00

SECTION 22 05 53 – IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 – GENERAL

1.1 SUMMARY

A. Provide pipe and equipment identification and valve tagging/schedules for all plumbing systems.

1.2 REFERENCES

A. ANSI/ASME A13.1 – Scheme for the Identification of Piping Systems (IU standard requires labeling per A13.1).

PART 2 – PRODUCTS

2.1 PIPE MARKERS

A. Provide pre-printed, color-coded pipe markers with system name and direction of flow.

B. Provide additional hazard legends for laboratory special waste and non-potable water outlets.

2.2 VALVE TAGS

A. Provide engraved or stamped valve tags with unique ID numbers; provide corresponding valve schedule in closeout documents.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install markers at least every 25 feet in corridors and 50 feet in mechanical spaces, and at each penetration, valve, tee, and equipment connection.

B. Orient so readable from normal approach.

END OF SECTION 22 05 53

SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sanitary waste piping, above grade.
B. Chemical-resistant sanitary waste piping.
C. Domestic water piping, above grade.
D. Natural gas piping, above grade.
E. Vacuum piping, above grade.
F. Pipe flanges, unions, and couplings.
G. Pipe hangers and supports.
H. Pipe sleeve-seal systems.
I. Ball valves.
J. Balancing valves.
K. Flow-balancing valves.
L. Pressure reducing valves.
M. Strainers.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
C. Welders' Certificates: Submit certification of welders' compliance with ASME BPVC-IX.
D. Shop Drawings: For non-penetrating rooftop supports, submit detailed layout developed for this project, with design calculations for loadings and spacings.
E. Sustainable Design Documentation: For soldered copper joints, submit installer's certification that the specified installation method and materials were used.
F. Sustainable Design Documentation: For products meeting regulatory lead-content restrictions.
G. Project Record Documents: Record actual locations of valves.
H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
    1. See Section 01 60 00 - Product Requirements for additional provisions.
    2. Valve Repacking Kits: One for each type and size of valve.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.
B. Valves: Manufacturer's name and pressure rating marked on valve body.
C. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

B. Plenum-Installed Acid Waste Piping: Flame-spread index equal or below 25 and smoke-spread index equal or below 50 according to ASTM E84 or UL 723 tests.

2.02 SANITARY WASTE PIPING, ABOVE GRADE

A. Continuous Flexible Self-Plunging Waste Pipes: IAPMO IGC 361, provide to connect lavatories and sink tail piece to PVC sanitary waste piping.

B. Cast Iron Pipe: ASTM A74, service weight.
   1. Fittings: Cast iron.
   2. Joint Seals: ASTM C564 neoprene gaskets, or lead and oakum.

C. PVC Pipe: ASTM D2729.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 CHEMICAL-RESISTANT SANITARY WASTE PIPING

A. CPVC Pipe: ASTM D2846/D2846M, ASTM F441/F441M, or ASTM F442/F442M.
   1. Fittings: CPVC; ASTM D2846/D2846M, ASTM F437, ASTM F438, or ASTM F439.
   2. Joints: ASTM D2846/D2846M, solvent weld with ASTM F493 solvent cement.

2.04 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Pipe: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
   2. Joints: ASTM B32, alloy Sn95 solder.

2.05 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53/A53M Schedule 40 black.
   1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
   2. Joints: Threaded or welded to ASME B31.1.

B. Flexible Gas Piping:
   1. Corrugated Stainless Steel Tubing: Comply with ANSI LC 1/CSA 6.26.
   2. Comply with ASTM E84.
   3. Fittings: Provided by piping system manufacturer.

2.06 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
   3. Trapeze Hangers: Welded steel channel frames attached to structure.
   4. Vertical Pipe Support: Steel riser clamp.

2.07 PIPE SLEEVE-SEAL SYSTEMS

A. Manufacturers:
   1. BMW Company; _____: www.bmwcompany.com/#sle.
   2. GPT, a company of Enpro Industries, Inc; _____: www.gptindustries.com/#sle.

B. Modular Mechanical Seals:
   1. Elastomer-based interlocking links continuously fill annular space between pipe and wall-sleeve, wall or casing opening.
   2. Watertight seal between pipe and wall-sleeve, wall or casing opening.
   3. Size and select seal component materials in accordance to service requirements.
   4. Glass reinforced plastic pressure end plates.

2.08 BALL VALVES

A. Manufacturers:
   1. Anvil International; _____: www.anvilintl.com/#sle.
   2. Apollo Valves; _____: www.apollovalves.com/#sle.
   3. Nibco, Inc; _____: www.nibco.com/#sle.

B. Construction, 4 inch and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

2.9 BALANCING VALVES

A. Manufacturers:
   1. Anvil International; _____: www.anvilintl.com/#sle.
   2. ITT Bell & Gossett; _____: www.bellgossett.com/#sle.
   3. Taco, Inc; _____: www.taco-hvac.com/#sle.

B. Construction: Class 125, brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush drain.

C. Manual Operated Y-Pattern Globe, Size 1/2 to 2 inch:
   1. Class 125, brass or bronze body, multi-turn handwheel, memory stop, variable orifice, soldered connections, dual PT (hot and cold pressure-temperature) test ports for 300 psi, minus 4 to 250 deg F WOG service.

D. Automatic Flow Limiting Cartridge, Size 3/4 inch:
   1. Class 125, brass or bronze body, stainless steel cartridge, threaded connections with built-in union, dual PT (hot and cold pressure-temperature) test ports for 400 psi, 0.5 gpm WOG service.

E. Automatic Flow Limiting Cartridge with Ball Valve, Size 1/2 to 1 inch:
   1. Class 125, brass or bronze body, stainless steel cartridge, leak-proof stem, threaded or soldered connections with built-in union, dual PT (hot and cold pressure-temperature) test ports for 400 psi, 0.25 to 1.5 gpm WOG service.

F. Calibration: Control flow within five percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.

2.10 FLOW-BALANCING VALVES

A. Manufacturers:
   1. Anvil International; _____: www.anvilintl.com/#sle.
   2. Griswold Controls; _____: www.griswoldcontrols.com/#sle.
   3. Taco, Inc; _____: www.taco-hvac.com/#sle.

B. Construction: Class 125, Brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush drain.

C. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.

2.11 STRAINERS

A. Manufacturers:
   1. Armstrong International, Inc; _____: www.armstronginternational.com/#sle.
   2. Green Country Filter Manufacturing; _____: www.greencountryfilter.com/#sle.
   3. WEAMCO; _____: www.weamco.com/#sle.

B. Size 2 inch and Smaller:
   1. Threaded brass body for 175 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.
   2. Class 150, threaded bronze body 300 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

D. Install piping to maintain headroom, conserve space, and not interfere with use of space.

E. Group piping whenever practical at common elevations.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

H. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

I. Pipe Sleeve-Seal Systems:
   1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.

2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
3. Locate piping in center of sleeve or penetration.
4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
5. Tighten bolting for a watertight seal.
6. Install in accordance with manufacturer's recommendations.

3.04 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

3.05 TOLERANCES

A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.

B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.06 FIELD TESTS AND INSPECTIONS

A. Verify and inspect systems according to requirements by the Authority Having Jurisdiction. In the absence of specific test and inspection procedures proceed as indicated below.

B. Domestic Water Systems:
   1. Perform hydrostatic testing for leakage prior to system disinfection.
   2. Test Preparation: Close each fixture valve or disconnect and cap each connected fixture.
   3. General:
      a. Fill the system with water and raise static head to 10 psi above service pressure. Minimum static head of 50 to 150 psi. As an exception, certain codes allow a maximum static pressure of 80 psi.

C. Gas Distribution Systems:
   1. Test Preparation: Close each appliance valve or disconnect and cap each connected appliance.
   2. General Systems:
      a. Inject a minimum of 10 psi of compressed air into the piping system for a duration of 15 minutes and verify with a gauge that no perceptible pressure drop is measured.
      b. Ensure test pressure gauge has a range of twice the specific pressure rate selected with an accuracy of 1/10 of 1 pound.

D. Test Results: Document and certify successful results, otherwise repair, document, and retest.

3.07 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Disinfect water distribution system in accordance with Section 33 01 10.58.

B. Prior to starting work, verify system is complete, flushed, and clean.

C. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.

D. Maintain disinfectant in system for 24 hours.

E. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

3.08 SERVICE CONNECTIONS

A. Provide new sanitary sewer services. Before commencing work, check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

B. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, pressure reducing valve, and sand strainer.
   1. Provide sleeve in wall for service main and support at wall with reinforced concrete bridge. Calk enlarged sleeve and make watertight with pliable material. Anchor service main inside to concrete wall.

END OF SECTION

SECTION 22 11 16 – DOMESTIC WATER PIPING (POTABLE AND NON-POTABLE)

PART 1 – GENERAL

1.1 SUMMARY

A. Provide domestic cold and hot water distribution piping systems as shown.

B. Provide separate potable and non-potable systems where indicated; provide signage at non-potable outlets.

1.2 PERFORMANCE REQUIREMENTS

A. Maintain pressure at plumbing fixtures between 40 and 80 psig via booster pumps and/or pressure reducing valves.

B. Domestic hot water generation: Where available, utilize Citizens Energy Group (CEG) steam for IUPUI/IU Indianapolis; where steam is not available or approved by Owner, provide instantaneous/condensing gas-fired water heaters per Section 22 34 00.

C. Provide DHW supply temperature of 140°F; provide mixing valves to deliver 110°F to lavatories and showers; evaluate specialty equipment temperatures.

PART 2 – PRODUCTS

2.1 DOMESTIC WATER PIPE AND FITTINGS

A. NPS 2-1/2 inches and smaller:

1. Pipe: Type L hard drawn copper, ASTM B88.

2. Joints: Lead-free solder, ASTM B32. Press-fit joints, grooved joints, and tee-drills are not allowed.

3. Fittings: Cast bronze ANSI B16.18; wrought copper ANSI B16.22.

B. NPS 3 inches and larger:

1. Pipe: Type L hard drawn copper, ASTM B88; or stainless steel minimum Schedule 10.

2. Joints: Copper brazed, AWS A5.8; stainless steel welded or flanged.

3. Press-fit joints, grooved joints, and tee-drills are not allowed.

C. Chrome plate finish any bare pipe subject to chemical exposure.

2.2 VALVES

A. Domestic water isolation valves:

1. Ball valves: Bronze body, full port, stainless steel ball and stem, quarter turn.

2. Butterfly valves: Ductile iron body, lug type, stainless steel disc and stem.

3. Gate valves shall not be used unless preapproved by IU Engineering Services.

B. Provide shutoff valves at each fixture and equipment connection, at each branch takeoff from mains, at base of each riser, and at each battery of fixtures.

2.3 WATER HAMMER ARRESTORS

A. Provide bellows type water hammer arrestors with stainless steel body and bellows.

B. Provide at flush valves, quick-closing valves, and other potential locations per PDI WH-201.

C. Provide access panels at inaccessible locations.

2.4 HOSE BIBBS

A. Provide loose key hose bibbs in equipment rooms, public restrooms, and roofs for cleaning/maintenance.

B. Exterior hydrants and hose bibbs: frost proof, integral vacuum breaker type with recessed corrosion resistant valve box and trim; tamper resistant in public areas.

2.5 INSTALLATION NOTES (ANTI-STAGNATION)

A. Do not install arrangements that allow water to stagnate.

B. Valves installed for future connections shall not extend more than 24 inches from an active main.

C. Provide accessible check valves in individual hot and cold supplies serving mixing valve type faucets or assemblies having hose connections that are not equipped with integral check stops.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Pressurized piping shall not be located under or in building slab.

B. Install a shutoff valve immediately upstream of each strainer.

C. Insulation: Insulate all domestic water piping per energy code; where exposed/visible, use fiberglass insulation with PVC jacket; elsewhere use ASJ.

3.2 TESTING AND DISINFECTION

A. Hydrostatic test at 150% of operating pressure for minimum 2 hours.

B. Flush and disinfect potable systems; submit test results.

END OF SECTION 22 11 16

SECTION 22 11 19 – DOMESTIC WATER BACKFLOW PREVENTION

PART 1 – GENERAL

1.1 SUMMARY

A. Provide reduced-pressure-principle backflow preventers (RPZ) on building domestic water service, non-potable systems, irrigation, and make-up water lines where required by code and IU standards.

1.2 REQUIREMENTS

A. By-passes are not allowed.

B. Provide reduced pressure type in cold-water building supply main; provide two (2) in parallel.

C. Provide RPZ on make-up water lines for chilled water, heating water, cooling tower water, and where required by code; provide metering for all make-up water lines.

D. Incorporate brass strainer for each backflow device; provide inlet strainer with isolation valves; assemblies shall include test cocks and relief valve between two positive seating check valves.

E. Coordinate arrangement with IU Engineering Services and comply with local water utility requirements.

PART 2 – PRODUCTS

2.1 RPZ ASSEMBLIES

A. Reduced pressure principle assemblies: ASSE 1013, lead-free.

B. Accessories:

1. Valves: Ball with threaded ends NPS 2 and smaller; OS&Y gate with flanged ends NPS 2-1/2 and larger.

2. Air-gap fitting: match backflow connection; extend air-gap drain full size to floor drain.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Provide service clearances and access for testing and maintenance.

B. Extend relief discharge/air-gap drains full size to floor drain; do not reduce.

3.2 TESTING

A. Test and certify assemblies at startup and as required by AHJ/Owner.

END OF SECTION 22 11 19

SECTION 22 11 23 – DOMESTIC WATER PRESSURE BOOSTER PUMP SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

A. Provide packaged, skid-mounted, variable-speed triplex booster pump system serving building potable and non-potable cold water distribution as indicated.

1.2 PERFORMANCE REQUIREMENTS

A. Maintain fixture pressures 40–80 psig; provide redundancy such that one pump may be out of service and system maintains required pressure/flow.

B. Controls: Monitor outlet pressure and provide common failure alarm to IU BMS.

C. Provide manual by-pass arrangement as required by IU standards.

D. Provide expansion tank if frequent demand is expected.

PART 2 – PRODUCTS

2.1 PUMP PACKAGE

A. Packaged booster system with three (3) vertical multistage pumps, stainless steel wetted components, each with VFD and check valve.

B. Controller with lead/lag alternation, soft start, minimum run-time, and data display (flow, inlet/outlet pressure, alarms).

C. Provide suction and discharge isolation valves, pressure gauges/transducers, and relief valve.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Coordinate electrical power, controls, and BAS integration.

B. Provide vibration isolation where required.

C. Provide factory startup and commissioning reports.

END OF SECTION 22 11 23

SECTION 22 11 23.13 – NATURAL GAS PIPING AND ACCESSORIES

PART 1 – GENERAL

1.1 SUMMARY

A. Provide natural gas piping systems serving plumbing and mechanical equipment.

B. Coordinate meter location with utility company and IU.

1.2 PERFORMANCE REQUIREMENTS

A. Delivery pressure: 2 psig.

B. Regulate to 7–14 inches w.c. at equipment.

PART 2 – PRODUCTS

2.1 PIPE AND FITTINGS

A. Schedule 40 black steel pipe, ASTM A53.

B. Joints:

1. Welded for mains.
2. Threaded for branch piping in labs.

2.2 VALVES

A. Full-port ball valves, threaded or flanged.

2.3 REGULATORS

A. Line pressure regulators where required.

B. Vent regulators per code.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install per Indiana Fuel Gas Code.

B. Test piping at 1.5 times operating pressure.

C. Label piping per Section 22 05 53.

SECTION 22 13 00 – SANITARY WASTE AND VENT PIPING

PART 1 – GENERAL

1.1 SUMMARY

A. Provide gravity sanitary waste and vent piping systems for all plumbing fixtures and equipment.

B. Coordinate building sewer exits with site utilities (anticipated to the west).

1.2 PERFORMANCE REQUIREMENTS

A. Slopes:

1. Sanitary mains and branches: minimum 1/8 inch per foot unless code requires steeper.

2. Branch piping connected to low-flow fixtures: minimum 1/4 inch per foot to nearest sanitary main.

B. Cleanouts:

1. Provide at base of each stack.

2. Provide on horizontal runs at intervals not exceeding 50 feet per IU standard.

3. Provide wall cleanouts in lieu of floor cleanouts wherever practical; coordinate locations with architecture.

1.3 SUBMITTALS

A. Product data for pipe, fittings, couplings, cleanouts, and supports.

B. Test reports including dye testing where required to verify sanitary is not connected to storm.

PART 2 – PRODUCTS

2.1 PIPE AND FITTINGS

A. Underground sanitary and storm (NPS 15 and smaller): Extra Heavy (XH) cast iron, ASTM A888; bell and spigot hub connections.

B. Interior sanitary:

1. Cast iron: Extra Heavy (XH) cast iron, ASTM A888; bell and spigot hub connections with stainless steel clamps, FM 1680 Class 1, ASTM C1540.

2. Copper (where permitted/appropriate by design, typically NPS 3 and smaller): Type M, ASTM B88 with lead-free soldered joints and copper fittings.

2.2 COUPLINGS

A. Non-shielded flexible couplings are not permitted.

2.3 CLEANOUTS

A. Provide brass recessed cleanout fittings in floors with brass cover with three hold-down screws; plug recessed with slot in head.

B. Provide brass cleanouts in walls with protruding square head and brass cover with three screws.

C. Lubricate cleanout plugs with anti-seize lubricant prior to installation; remove/re-lubricate/reinstall prior to final completion.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Do not use double sanitary tee fittings; use wye with 1/8 bends.

B. Use appropriate branches/bends/long-sweep bends; do not change direction of flow more than 90 degrees.

C. Do not reduce drainage pipe size in direction of flow.

D. Drain and vent piping below slab shall be no less than NPS 3 inches.

E. Use test tees for testing waste/vent systems; do not separate and cap ends for testing.

3.2 TESTING

A. Test sanitary drains for 1 hour at 10 feet of head (minimum), unless stricter requirements apply.

B. Dye test waste lines installed for new construction or new connections to verify waste will not enter storm system.

END OF SECTION 22 13 00

SECTION 22 13 29 – LABORATORY WASTE AND VENT PIPING

PART 1 – GENERAL

1.1 SUMMARY

A. Provide laboratory/special (acid) waste and vent piping from laboratory fixtures to designated dilution point and connection to sanitary system as indicated.

B. Disposal of spent chemicals to drainage system is prohibited; comply with IU chemical disposal plan as provided by Owner.

1.2 MATERIAL SELECTION (PROJECT + IU STANDARD)

A. General: Provide chemically resistant drainage materials suitable for the waste stream and required locations.

B. Air plenums: Use Schedule 40 flame retardant PVDF (FR-PVDF) conforming to ASTM F1673 for pipe located within air plenums per IU standard.

C. Non-plenum interior and below-slab: Provide Schedule 40 polypropylene acid waste piping system (as indicated in project narrative) with manufacturer-listed electrofusion or fuse-seal joints, except where PVDF is required for plenum routing.

PART 2 – PRODUCTS

2.1 PIPING AND JOINTS

A. FR-PVDF (air plenums):

1. Pipe: Schedule 40 FR-PVDF, ASTM F1673.

2. Fittings: Socket fusion.

B. Polypropylene / PVDF joint method sizing (IU standard):

1. NPS 2 inches and smaller: mechanical joints.

2. NPS 2-1/2 inches and larger: fused seal joints.

C. Provide compatible transition fittings/couplings where changing materials or joining methods.

2.2 SUMPS AND EJECTORS

A. Pumping of Acid Waste drainage is not allowed.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Provide slope minimum 1/8 inch per foot unless stricter required.

B. Provide cleanouts as required by code and IU standards; coordinate wall cleanouts where possible.

C. Fusion/mechanical jointing shall be performed by manufacturer-trained installers and documented.

END OF SECTION 22 13 29

SECTION 22 14 00 – STORM DRAINAGE PIPING AND ACCESSORIES

PART 1 – GENERAL

1.1 SUMMARY

A. Provide storm drainage piping from roof drains and area drains to site system.

B. Design rainfall: 4 inches/hour, 100-year storm.

1.2 SYSTEM DESCRIPTION

A. Primary and overflow roof drains combined into single interior downspouts below roof.

PART 2 – PRODUCTS

2.1 PIPE AND FITTINGS

A. Below slab: Service-weight hub-and-spigot cast iron with neoprene gaskets.

B. Above grade: No-hub cast iron with heavy-duty couplings.

2.2 DRAINS

A. Roof drains: Cast iron body with flashing collar.

B. Area/areaway drains: Cast iron with ductile iron grates.

C. Trench drains: Polymer concrete with ductile iron grates.

2.3 ACCESSORIES

A. CISPI no-hub restraints on vertical risers.

B. Insulation on horizontal storm piping under roof.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Slope horizontal piping minimum 1/8 inch per foot.

B. Test storm piping with water test.

C. Coordinate penetrations and flashings.

SECTION 22 34 00 – GAS-FIRED DOMESTIC WATER HEATERS

PART 1 – GENERAL

1.1 SUMMARY

A. Provide condensing, gas-fired domestic water heaters serving potable and non-potable hot water systems where steam is not available or where approved by Owner/IU Engineering Services.

1.2 PERFORMANCE REQUIREMENTS

A. Domestic hot water systems shall be designed for 140°F supply temperature and shall include mixing valves to deliver 110°F to lavatories and showers (IU standard).

B. Provide modular staging for low and high demand as indicated in project narrative.

C. Provide condensate neutralization and code-compliant venting.

PART 2 – PRODUCTS

2.1 WATER HEATERS

A. Fully condensing, modulating, sealed combustion type.

B. Stainless steel heat exchanger; minimum 10:1 turndown (or better).

C. Provide controls capable of BAS interface (Modbus/BACnet gateway as required by project).

D. Provide manufacturer-certified startup.

2.2 ACCESSORIES

A. Venting: Positive pressure condensing vent system listed for appliance; coordinate routing and terminations.

B. Condensate: Neutralizer kit and indirect waste to receptor.

C. Recirculation: Provide ECM wet-rotor variable speed recirculation pumps and thermostatic balancing valves where indicated.

PART 3 – EXECUTION

3.1 INSTALLATION AND STARTUP

A. Verify gas pressure and provide regulators as required; avoid routing high pressure gas (>2 psi) inside building.

B. Provide combustion air, venting, and condensate per manufacturer and code.

C. Startup, combustion tuning, and Owner training by manufacturer.

END OF SECTION 22 34 00

SECTION 22 40 00 – PLUMBING FIXTURES

PART 1 – GENERAL

1.1 SUMMARY

A. Provide plumbing fixtures complete with trim, carriers, and accessories.

B. Fixtures shall comply with IU Engineering Services Plumbing Standards and project narrative.

1.2 PERFORMANCE REQUIREMENTS

A. Water efficiency per LEED indoor water use reduction.

B. ADA compliance per ICC A117.1 and 2010 ADA Standards.

PART 2 – PRODUCTS

2.1 WATER CLOSETS

A. Wall-hung vitreous china, siphon jet.

B. 1.28 gpf with hard-wired electronic flush valves.

2.2 URINALS

A. Wall-hung vitreous china.

B. 0.125 gpf with hard-wired electronic flush valves.

2.3 LAVATORIES

A. Integral solid surface countertop basins.

B. Electronic sensor-operated faucets, 0.5 gpm, with ASSE 1070 mixing valves.

2.4 SINKS

A. Stainless steel counter insert.

B. Manual two-handle faucets, 1.0 gpm.

2.5 SPECIALTY FIXTURES

A. Emergency showers and eyewashes per ANSI Z358.1.

B. Electric water coolers, filtered, bottle filling, high-low type.

C. Mop basins with hose-end faucet and vacuum breaker.

D. Wall hydrants: non-freeze, recessed, lockable.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Set fixtures plumb and level.

B. Provide ADA insulation on exposed traps.

C. Adjust sensors and verify flows.

SECTION 22 62 00 – LABORATORY COMPRESSED AIR GENERATION SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Provide central compressed air system including compressors, dryers, receiver, filtration, pressure reduction, and controls as indicated.

1.2 PERFORMANCE REQUIREMENTS

A. Provide two (2) oil-free compressor packages for redundancy, each sized for 100% of load (per project narrative).

B. Provide desiccant drying to ≤ -40°F pressure dew point and filtration to achieve ISO 8573-1 Class 1.2.1 (per project narrative).

C. Provide BAS alarm point for general trouble.

PART 2 – PRODUCTS

2.1 COMPRESSORS

A. Oil-free rotary-tooth compressors with VSD; integral controls and sequencing.

B. Capacity: approximately 200 cfm at 125 psig each (verify during design).

2.2 DRYERS, FILTERS, RECEIVER

A. Desiccant dryers: duplex for redundancy; sized for peak flow.

B. Coalescing and particulate filters: redundant arrangement; performance as indicated.

C. Receiver: vertical 400 gallon, epoxy coated; provide relief valve, gauge, and accessories.

PART 3 – EXECUTION

3.1 STARTUP AND COMMISSIONING

A. Provide factory start-up, training, and performance test including dew point verification and representative outlet quality testing.

END OF SECTION 22 62 00

SECTION 22 62 13 – LABORATORY COMPRESSED AIR PIPING

PART 1 – GENERAL

1.1 SUMMARY

A. Provide compressed air distribution piping and appurtenances from central compressed air plant to laboratory outlets and equipment.

1.2 PERFORMANCE REQUIREMENTS

A. Design pressure: 100 psig distribution unless otherwise indicated; provide point-of-use regulators as required.

B. Provide ISO 8573-1 Class 1.2.1 air quality at points of use (as stated in project narrative).

PART 2 – PRODUCTS

2.1 PIPING

A. Copper tubing:

1. 125 psig and less: Type L copper tubing with soldered joints.

2. 126 psig and greater: Type K copper tubing with brazed joints.

3. Copper shall be cleaned and capped; ASTM B280.

B. Joints: Brazed AWS A5.8, BCuP-5 for Type K where required.

C. Fittings: Wrought copper ANSI B16.22, cleaned and bagged.

2.2 VALVES

A. Isolation valves (NPS 3 and smaller): Full port, 3-piece, bronze body, stainless steel ball and stem, oxygen cleaned and bagged.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Provide proper supports; provide drip legs/condensate management as required.

B. Pressure test per Section 22 05 00 and IU standard hydrostatic requirements.

END OF SECTION 22 62 13

SECTION 22 83 00 – LABORATORY PURIFIED / HIGH PURITY WATER PIPING

PART 1 – GENERAL

1.1 SUMMARY

A. Provide purified water distribution loop piping from central purified water system to points of use.

B. Provide looped mains to minimize dead legs (IU standard for RO/distilled piping).

1.2 MATERIAL REQUIREMENTS

A. Provide Schedule 80 virgin polypropylene piping.

B. Fittings/Joints: Fuse seal; use manufacturer's recommended fusion method (project basis includes infrared butt fusion where applicable).

C. Valves: Same material and manufacturer as piping.

D. Provide self-closing valves and faucets at outlets.

PART 2 – PRODUCTS

2.1 PIPING

A. Schedule 80 virgin polypropylene; translucent/unpigmented where required for visual inspection and purity assurance.

B. Provide loop configuration; avoid dead legs; future branches limited per IU anti-stagnation practices.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Fusion joining by trained personnel; record fusion parameters.

B. Flush/recirculate per system supplier; verify resistivity/conductivity at loop and representative outlets as required by Owner.

END OF SECTION 22 83 00

ABBREVIATIONS

AC	AIR COMPRESSOR	ID	INSIDE DIAMETER
AAP	AREA ALARM PANEL	IE	INVERT ELEVATION
ADJ	ADJUSTABLE	IM	ICE MAKER
AFF	ABOVE FINISHED FLOOR	IN	INCHES
ALT	ALTERNATE	IN WC	INCHES WATER COLUMN
AP	ACCESS PANEL	IW	INDIRECT WASTE
AV	ACID VENT		
AW	ACID WASTE	LA	LABORATORY AIR
		LAV	LAVATORY
BAS	BUILDING AUTOMATION SYSTEM	LV	LABORATORY VACUUM
BHP	BRAKE HORSEPOWER	LWT	LEAVING WATER TEMPERATURE
BOP	BOTTOM OF PIPE ELEVATION		
BOT	BOTTOM	MA	MEDICAL AIR
BTU	BRITISH THERMAL UNIT	MAP	MASTER ALARM PANEL
BTUH	BRITISH THERMAL UNITS PER HOUR	MB	MOP BASIN
		MBH	ONE THOUSAND BTUH
CA	COMPRESSED AIR	MFR	MANUFACTURER
CFM	CUBIC FEET PER MINUTE	MH	MANHOLE
CLG	CEILING		
CO	CLEANOUT	N2	NITROGEN
CO2	CARBON DIOXIDE	N2O	NITROUS OXIDE
CM	COFFEE MAKER	NIC	NOT IN CONTRACT
CTR	CENTER	NPSH	NET POSITIVE SUCTION HEAD
		NPT	NATIONAL PIPE THREAD
D	DRAIN LINE	NTS	NOT TO SCALE
DCW	DOMESTIC COLD WATER		
DDCA	DOUBLE DETECTOR CHECK ASSEMBLY	O2	OXYGEN
DET	DETAIL	OC	ON CENTER
DFU	DRAINAGE FIXTURE UNIT	OD	OUTSIDE DIAMETER
DHR	DOMESTIC HOT WATER RETURN	OFD	OVERFLOW DRAIN
DHW	DOMESTIC HOT WATER		
DI	DEIONIED WATER	P	PUMP
DIA	DIAMETER	PH	PHASE
DIM	DIMENSION	PRV	PRESSURE REDUCING VALVE
DN	DOWN	PSF	POUNDS PER SQUARE FOOT
DW	DISHWASHER	PSI	POUNDS PER SQUARE INCH
		PSIG	POUNDS PER SQUARE INCH GAUGE
EA	EACH		
EFF	EFFICIENCY	RD	ROOF DRAIN
EJ	EXPANSION JOINT	RO	REVERSE OSMOSIS WATER
ELEC	ELECTRICAL	RPM	REVOLUTIONS PER MINUTE
ELEV	ELEVATION	RPZ	REDUCED PRESSURE ZONE
EP	ELEVATOR PIT		BACKFLOW PREVENTER
EPP	ELEVATOR PIT PUMP	RV	RELIEF VALVE
EQUIP	EQUIPMENT		
ET	EXPANSION TANK	S	STORM
ES	EMERGENCY SHOWER	SAN	SANITARY
EW	EYEWASH	SCH	SCHEDULE
EWC	ELECTRIC WATER COOLER	SD	SUBSOIL DRAIN
EWH	ELECTRIC WATER HEATER	SF	SQUARE FEET
EWT	ENTERING WATER TEMPERATURE	SH	SHOWER
EXT	EXTERIOR	SP	SUMP PIT
		S/S	STAINLESS STEEL
F	FAHRENHEIT	STD	STANDARD
FCO	FLOOR CLEANOUT	STM	STORM
FD	FLOOR DRAIN		
FLA	FULL LOAD AMPERES	TD	TRENCH DRAIN
FLR	FLOOR	TDH	TOTAL DYNAMIC HEAD
FPM	FEET PER MINUTE	TEMP	TEMPERATURE
FT	FEET	TMV	THERMOSTATIC MIXING VALVE
FTHD	FEET HEAD	TP	TRAP PRIMER
FTG	FOOTING	TYP	TYPICAL
G	GAS	UR	URINAL
GA	GAUGE		
GAL	GALLON	V	VENT
GM	GAS METER	VAC	VACUUM
GPH	GALLONS PER HOUR	VFD	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
GWH	GAS WATER HEATER		
		W	WASTE/WATER
H2	HYDROGEN	WAGD	WASTE ANESTHETIC GAS DISPOSAL
HB	HOSE BIBB	WC	WATER CLOSET
HD	HUB DRAIN	WCO	WALL CLEANOUT
HE	HELIUM	WH	WALL HYDRANT
HP	HORSEPOWER	WM	WASHING MACHINE
HT	HEAT TRACE		
HTR	HEATER	ZVB	ZONE VALVE BOX

FITTINGS

	FLANGE
	UNION
	ANCHOR
	PIPE GUIDE
	PIPE SLEEVE
	ELBOW DOWN
	ELBOW UP
	PIPE CAP

VALVES

	GAS SHUT OFF VALVE
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	BALANCING VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
S	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	THERMOSTATIC MIXING VALVE
	REDUCED PRESSURE BACKFLOW PREVENTER
	STRAINER
	PIPE FLEXIBLE CONNECTION
	GAS REGULATOR
	THERMOMETER
	PRESSURE GAUGE
HB	WALL HYDRANT/HOSE BIBB
	FILTER
S	WATER METER
	VACUUM BREAKER
	PIPING OR EQUIPMENT TO BE DEMOLISHED
	EYE WASH STATION

GENERAL SYMBOLS

	EQUIPMENT TAG
	KEYNOTE
	POINT OF NEW CONNECTION TO EXISTING WHEN ON DEMO SHEET: END POINT OF DEMO
	ELEVATION SYMBOL
1 / P-1	DETAIL REFERENCE (TOP=DETAIL NUMBER, BOTTOM=DRAWING NUMBER)
REFER / P-1	PLAN CONTINUATION REFERENCE (BOTTOM=DRAWING NUMBER)
1 / P-1	SECTION DESIGNATION (TOP=SECTION NUMBER, BOTTOM=DRAWING NUMBER)

PIPING ANNOTATION

AV	ACID VENT
AW	ACID WASTE
CA	COMPRESSED AIR
CO2	CARBON DIOXIDE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHR	DOMESTIC HOT WATER RETURN
DI	DEIONIZED WATER
DT	DRAIN TILE
DX	DIRECT EXPANSION REFRIGERANT
H2	HYDROGEN
He	HELIUM
IW	INDIRECT WASTE
LA	LAB COMPRESSED AIR
LV	LAB VENT
LVAC	LAB VACUUM
MA	MEDICAL COMPRESSED AIR
MVAC	MEDICAL VACUUM
MW	MEDICAL WASTE
N2	NITROGEN
N2O	NITROUS OXIDE
NG	NATURAL GAS
O2	OXYGEN
OD	OVERFLOW DRAIN LINE
SAN	SANITARY WASTE LINE
STRM	STORM
V	VENT LINE
WAGD	WASTE ANALYTICAL GAS
0° AIR	ZERO DEGREE AIR

DRAINS AND CLEANOUTS

	FLOOR SINK
FD	FLOOR DRAIN
RD	ROOF DRAIN
	PIPE TRAP
	CLEANOUT
FCO	FLOOR CLEANOUT

SHEET INDEX - PLUMBING

BSA

SWITCH PLACEHOLDER FAMILY
TYPE FOR CORRECT BSA OFFICE

SMITHGROUP

500 GRISWOLD
SUITE 1700
DETROIT, MI 48226
313.983.3600
smithgroup.com

LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

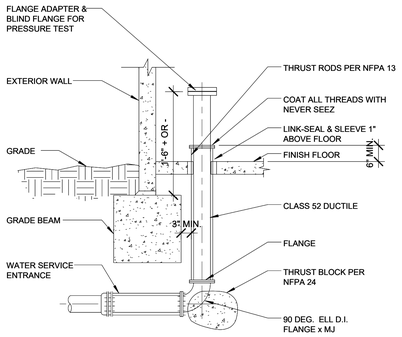
MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE
1	09/29/2025	BP3-100% DD: CORE AND SHELL PACKAGE

Plumbing Symbols and Abbreviations

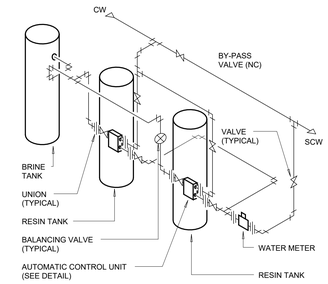
DATE **REF: SHEET INDEX**

BSA PROJECT NO. **00360481**

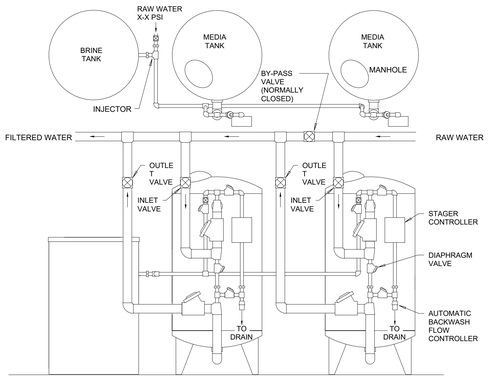
P001

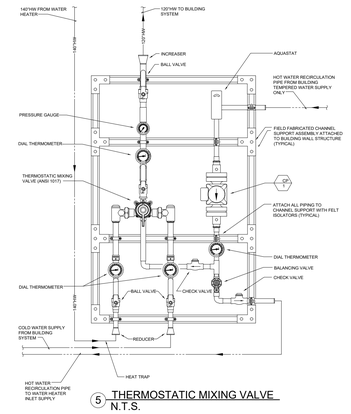


2 WATER SERVICE
N.T.S.

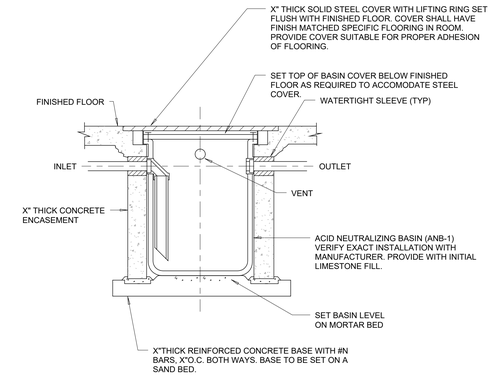


3 WATER SOFTENER
N.T.S.

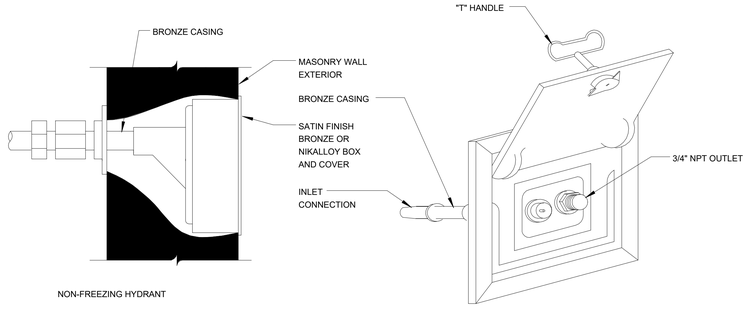




5 THERMOSTATIC MIXING VALVE
N.T.S.



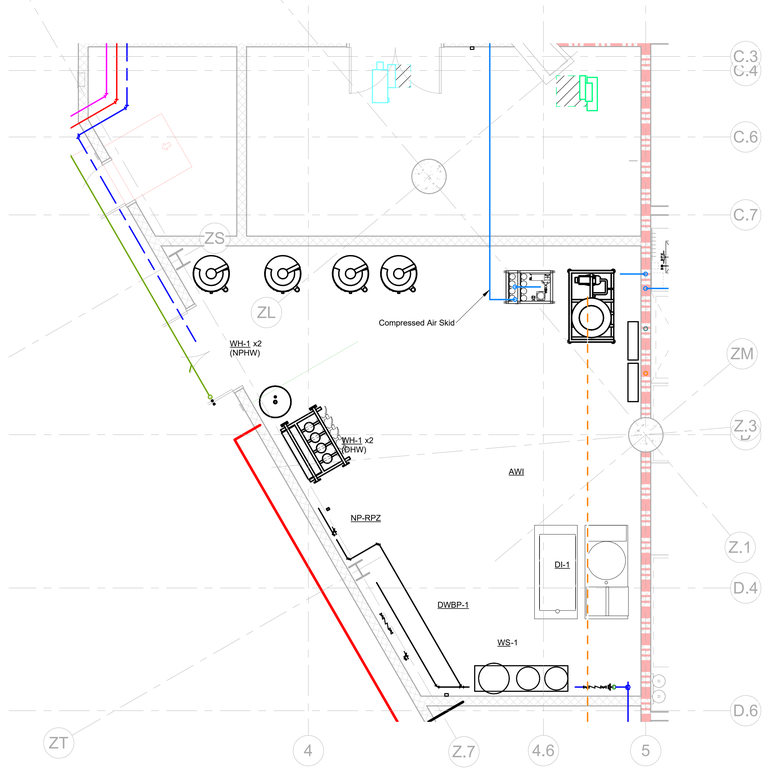
6 Acid Basin
1/8" = 1'-0"



NON-FREEZING HYDRANT

CAST BRONZE NON-FREEZE BOX TYPE WALL HYDRANT WITH 3/4" HPT OUTLET, "T" HANDLE, POLISHED FACE, HINGED LOCKING COVER, INTEGRAL VACUUM BREAKER.

4 WALL HYDRANT
1/8" = 1'-0"



1 PLUMBING PIPING PLAN - LEVEL 1 - Callout 1
1/4" = 1'-0"

BSA

SWITCH PLACEHOLDER FAMILY
TYPE FOR CORRECT BSA OFFICE

SMITHGROUP

500 GRISWOLD
SUITE 1700
DETROIT, MI 48226
313.983.3600
smithgroup.com

LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP3-100% CORE AND SHELL PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE
1	09/29/2025	BP3-100% DD: CORE AND SHELL PACKAGE

PLUMBING DETAILS

DATE **REF: SHEET INDEX**

BSA PROJECT NO. **00360481**

P501

1/30/2026 1:37:59 PM
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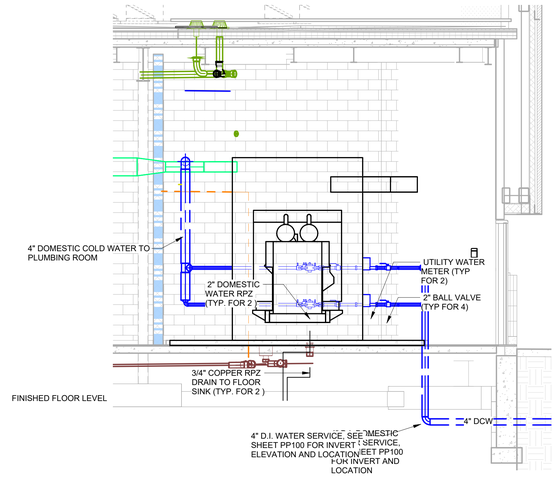
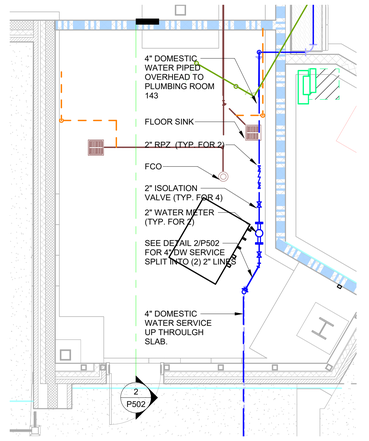
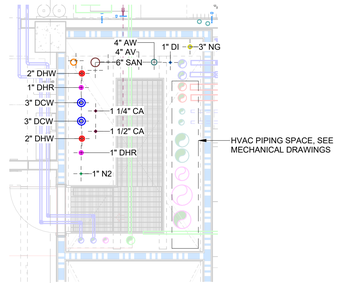


2 INCOMING DOMESTIC WATER SERVICE
1/4" = 1'-0"



1 DOMESTIC WATER SERVICE ENTRANCE
1/4" = 1'-0"



3 PIPING SHAFT RISER DETAIL - LEVEL 3
1/4" = 1'-0"

BSA LifeStructures
175 S. Rangeline Rd, Suite 200
Carmel, IN 46032
ph 317.819.7878 fx 317.819.7288

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smithgroup.com

LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	12/15/2025	BP1-CD; ASI #4
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING DETAILS 2

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

P502

1. CONTRACTOR IS TO REVIEW EACH OF THESE DETAILS WITH THE MANUFACTURER OF THE APPLIANCE AND THE CONTRACTOR WHO IS RESPONSIBLE FOR FURNISHING AND INSTALLING THAT APPLIANCE.

2. CONTRACTOR IS TO CONFIRM THAT THE DETAIL MATCHES THE APPLIANCE MANUFACTURERS' REQUIREMENTS (INCLUDING ADDRESSING ANY TRIM THAT MIGHT BE FURNISHED BY THE APPLIANCE MANUFACTURER THAT NEEDS TO BE INSTALLED BY A CONTRACTOR). IF A CHANGE NEEDS TO BE MADE, ADJUST THE PROVISION OF THE DETAIL ACCORDINGLY.

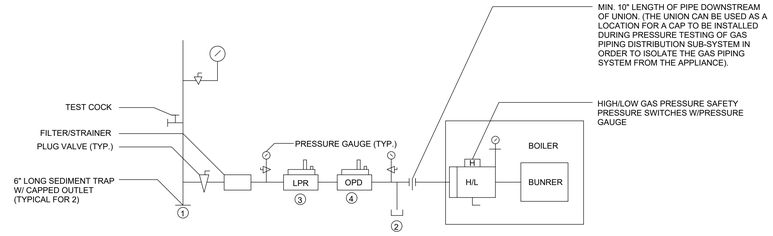
3. CONTRACTOR IS TO INCLUDE THE GAS TRAIN DETAILS SHOWN ON THIS DRAWING, ADJUSTED AS DESCRIBED DIRECTLY ABOVE, IF REQUIRED, IN THEIR SUBMITTALS (I.E. ALL DETAILS ARE TO BE INCLUDED IN SUBMITTALS WHETHER THEY NEEDED TO BE ADJUSTED OR NOT).

4. CONTRACTOR IS TO PROVIDE UNIONS (AND TEMPORARY CAPS) IN THE GAS PIPING DISTRIBUTION WHERE REQUIRED, IN ORDER TO ACCOMMODATE HOW THE CONTRACTOR WILL EXECUTE THE PRESSURE TESTING OF THE GAS PIPING NETWORK WITH NITROGEN.

5. CONTRACTOR IS TO PROVIDE UNIONS (AND TEMPORARY CAPS) IN THE GAS PIPING DISTRIBUTION WHERE REQUIRED, IN ORDER TO ACCOMMODATE HOW THE CONTRACTOR WILL EXECUTE THE PURGING OF THE NITROGEN USED FOR PRESSURE TESTING WITH NATURAL GAS (PURGE MUST BE DISCHARGED TO THE OUTDOORS). CONTRACTOR IS TO CONSIDER IF EACH CIRCUIT, OR EVERY CIRCUIT, NEEDS TO BE PURGED.

③ GENERAL NOTES
N.T.S.

NOTE:
1. PRESSURE GAUGES CAN BE USED DURING PIPE PRESSURE TESTING TO ESTABLISH TEST PRESSURE
2. PRESSURE GAUGES CAN BE USED DURING NORMAL OPERATION TO TROUBLESHOOT AND CHECK FILTER.
3. CONTRACTOR TO PROVIDE INCREASERS AND DECREASER THAT MATCH THE INLET AND OUTLET PIPE SIZE DIAMETERS OF THE LPR AND OPD.



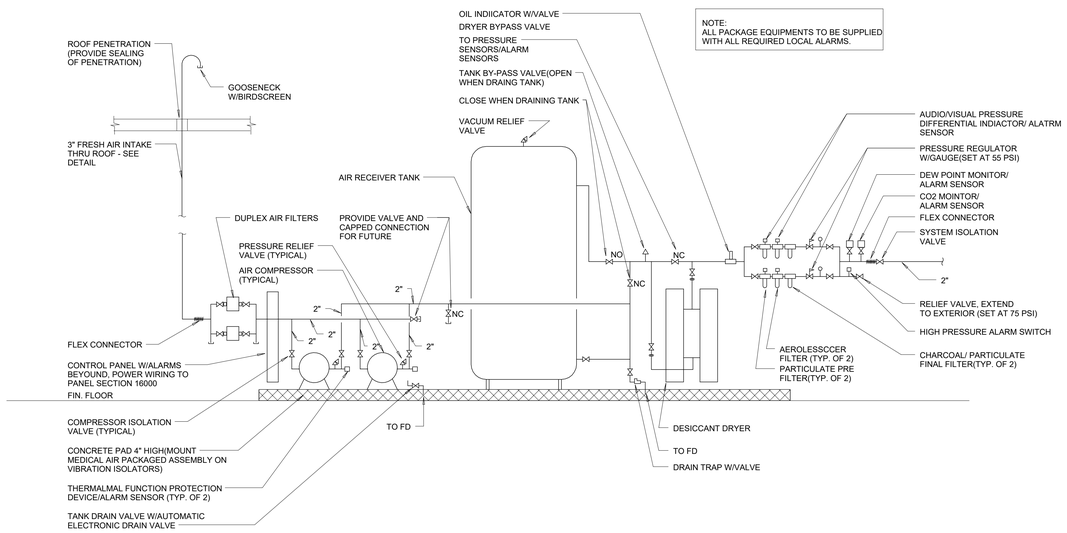
① F/I PER NFPA 54-2024 (NOT REQUIRED BY NFPA54-2024

② F/I PER NFPA 54-2024 (REQUIRED BY NFPA54-2024; PARA. 7.6.3 & 9.6.8)

③ LPR=LINE PRESSURE REGULATOR (REQUIRED BY NFPA 54-2024; PARA 5.7)

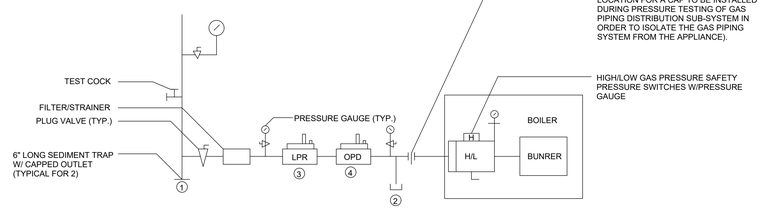
④ OPD=OVERPRESSURE PROTECTION DEVICE REQUIRED BY NFPA 54-2024; PARA 5.8 WHERE GAS PRESSURE D.S OF THE SERVICE REGULATOR (CEG) > 2 PSIG FOR APPLIANCES DESIGNED TO OPERATE AT A GAS PRESSURE OF 14" W.C. OR LESS

② DHW HEATERS DHW-1A, 1B, 2A, & 2B
N.T.S.



④ LAB AIR COMPRESSOR-
N.T.S.

NOTE:
1. PRESSURE GAUGES CAN BE USED DURING PIPE PRESSURE TESTING TO ESTABLISH TEST PRESSURE
2. PRESSURE GAUGES CAN BE USED DURING NORMAL OPERATION TO TROUBLESHOOT AND CHECK FILTER.
3. CONTRACTOR TO PROVIDE INCREASERS AND DECREASER THAT MATCH THE INLET AND OUTLET PIPE SIZE DIAMETERS OF THE LPR AND OPD.



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① CONNECTION DETAIL FOR HHW BOILER HB-1, HB-2, & HB-3
N.T.S.

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
4	01/30/2026	ADDENDUM #5
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	12/15/2025	BP1-CD; ASI #4
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING DETAILS 3

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

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KEY NOTES:

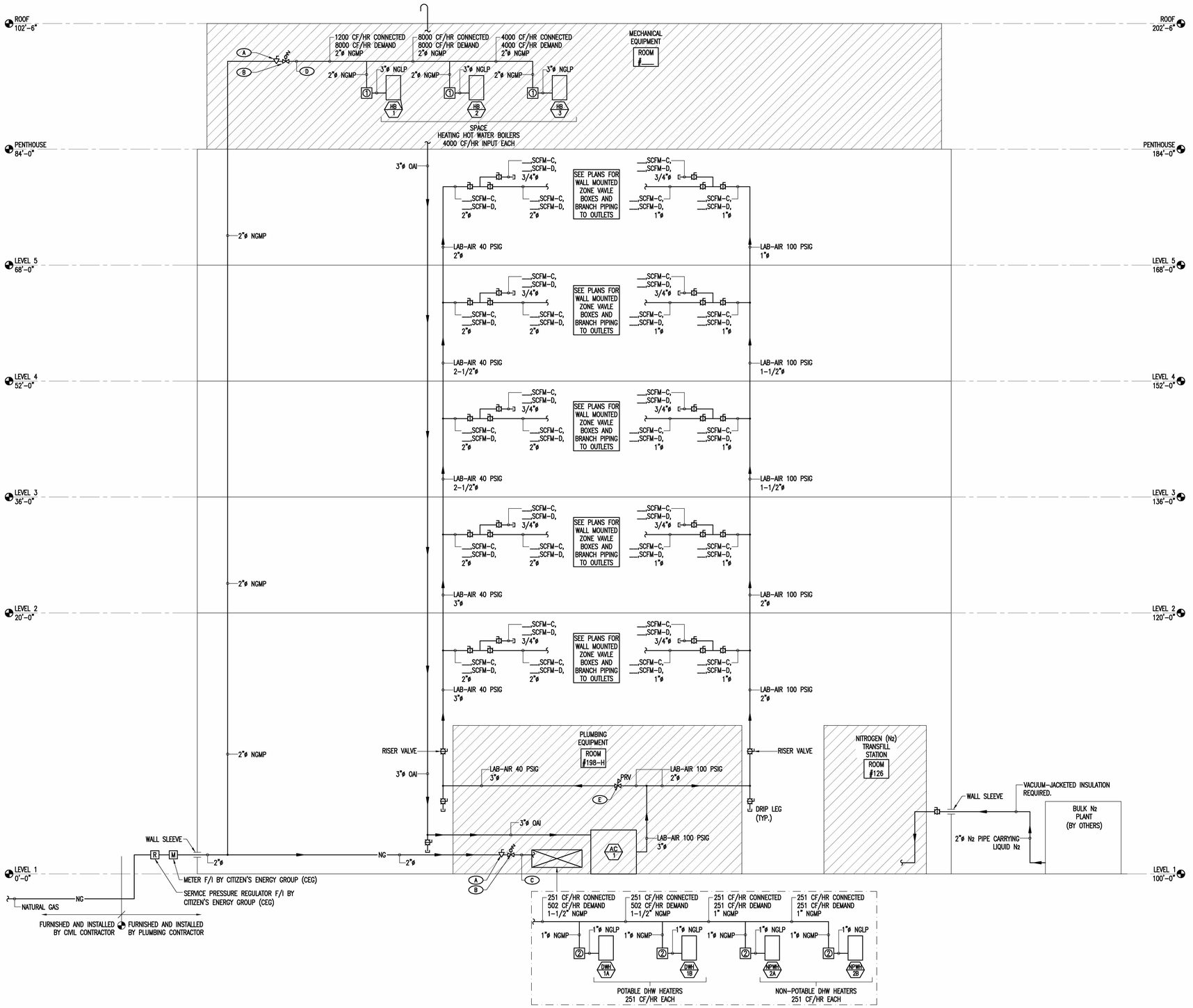
(A) (NATURAL GAS): PROVIDE A MANUAL OPERATED SHUTOFF VALVE THAT CAN BE CLOSED DURING NORMAL OPERATION AND IN CASE OF EMERGENCY; THIS VALVE SHALL BE LOCATED IN CONSPICUOUS LOCATION NEAR THE EXIT; THIS VALVE SHALL BE TAGGED "NATURAL GAS SHUTOFF VAVLE CLOSE IN EMERGENCY".

(B) (NATURAL GAS): PROVIDE AN AUTOMATICALLY OPERATED SHUTOFF VALVE (SOLENOID VALVE) THAT IS ACTIVATED BY A BUILDING OCCUPANCY USING A REMOTELY LOCATED PUSH BUTTON HARD-WIRED KILL SWITCH; THIS KILL SWITCH SHALL BE CONNECTED TO THE BUILDING AUTOMATIC SYSTEM AS AN ALARM (BINARY INPUT).

(C) NATURAL GAS SUPPLY TO DOMESTIC HOT WATER HEATERS.

(D) NATURAL GAS SUPPLY TO HEATING HOT WATER BOILERS.

(E) PRESSURE REDUCING VALVE USED TO DROP 100 PSIG TO 40 PSIG.
(100 PSIG SERVES OSC'S AND PLUS SOME EQUIPMENT WHILE THE 40 PSIG SERVES FUME HOODS).



GAS/VAC RISER DIAGRAM
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LAUNCH ACCELERATOR FOR BIOSCIENCES

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING NATURAL AND LAB GAS RISER DIAGRAM

DATE REF: SHEET INDEX
BSA PROJECT NO. 00360481

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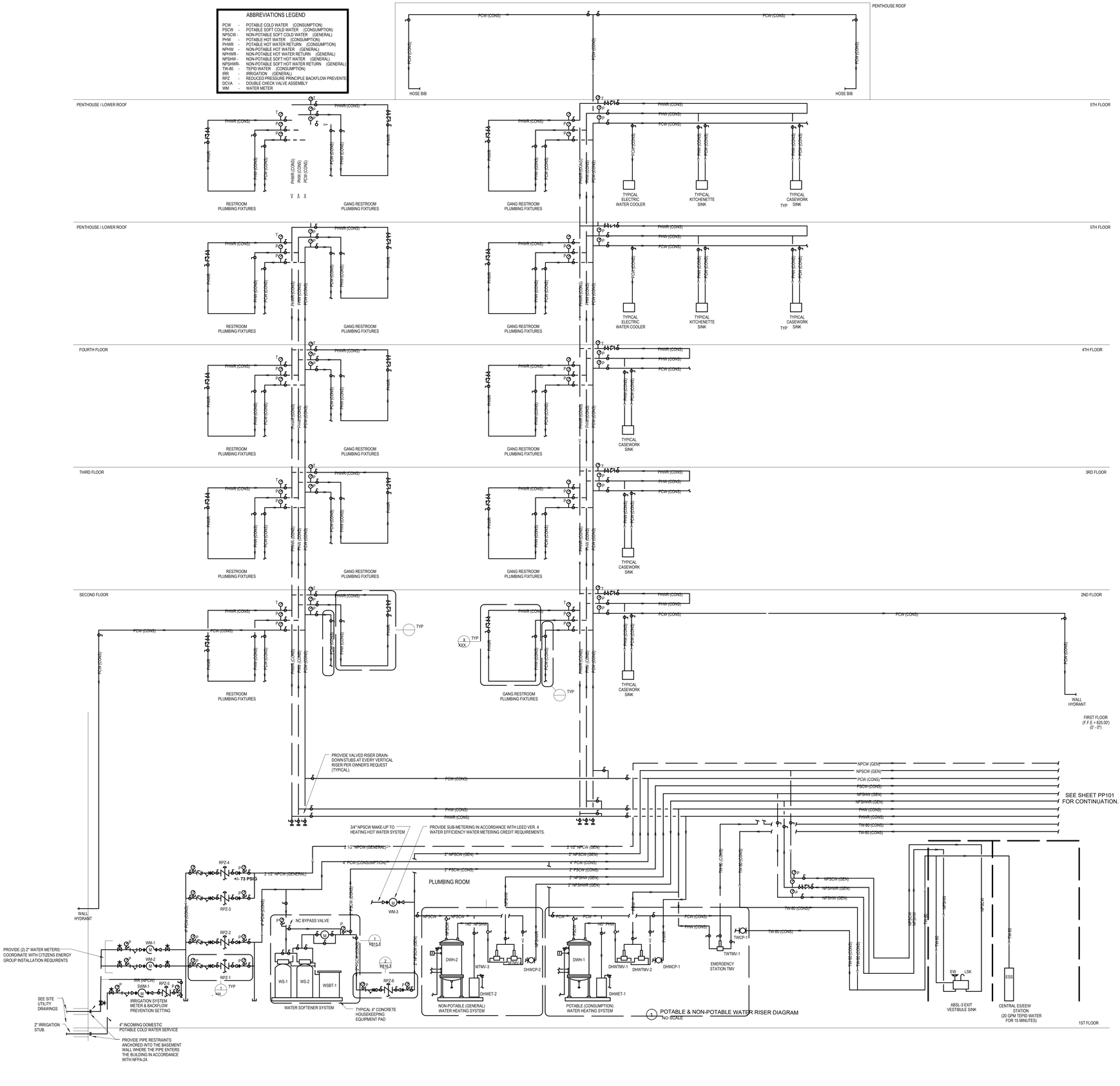

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE

PLUMBING WATER PIPING RISER DIAGRAM

DATE REF: SHEET INDEX

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P505

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION

PLUMBING WASTE AND VENT RISER DIAGRAMS

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

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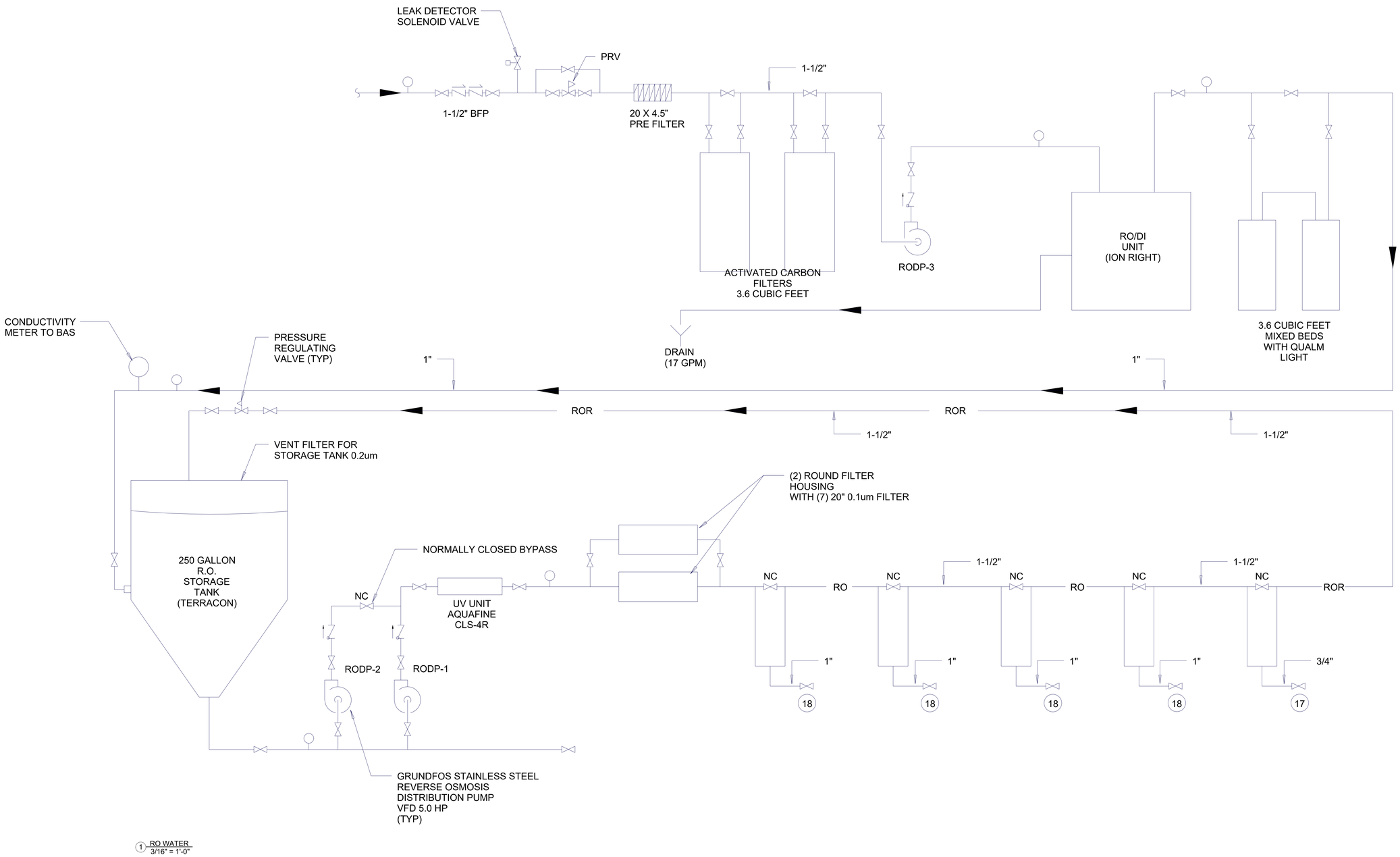

1 RO WATER
3/16" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION

LABORATORY PURE WATER DIAGRAM

DATE	REF: SHEET INDEX
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P507

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE TYPE	ADA	FIXTURE		FAUCET OR FLUSH VALVE			P-TRAP		DRAIN		SUPPLIES AND STOPS		SEAT		ROUGH-IN				CARRIER		MOUNTING	NOTE	TAG
			MANUFACTURER	MODEL	MANUFACTURER	MODEL	FLOWRATE	MANUFACTURER	MODEL	MANUFACTURER	MODEL	MANUFACTURER	MODEL	MANUFACTURER	MODEL	SAN [IN]	VENT [IN]	DCW [IN]	DHW [IN]	MANUFACTURER	MODEL			
EWC	ELECTRIC WATER COOLER - BILEVEL WITH BOTTLE FILLER	YES	ELKAY	LVRCGRNTLBWSK	--	--	1.1 GPM	2" PVC P-TRAP		--	--	MCGUIRE	H2165CC	--	--	1 1/2	1	1/2	--	--	--	WALL	--	EWC
HB-1	HOSE BIBB	NO	WOODFORD	21	--	--	--	--	--	--	--	--	--	--	--	--	--	3/4	--	--	--	WALL - 36" AFF	5	HB-1
L-1	LAVATORY - 120" 4 STATION	YES	SLOAN	FD-84000	SLOAN	(4) ETF-420	0.5 GPM	MCGUIRE	PW215WCPRO	MCGUIRE	--	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	--	--	WALL WITH SUPPORT BACKING	1	L-1
L-2	LAVATORY - 90" 3 STATION	YES	SLOAN	FD-84000	SLOAN	(3) ETF-420	1.5 GPM	MCGUIRE	PW215WCPRO	MCGUIRE	--	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	ZURN	Z1231	WALL - RIM TO BE AT 34" AFF	3, 4, 6	L-2
L-3	LAVATORY - SINGLE STATION	YES	SLOAN	Q80R-81000 SS	SLOAN	(1) ETF-420	1.5 GPM	MCGUIRE	PW215WCPRO	MCGUIRE	--	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	ZURN	Z1231	WALL - RIM TO BE AT 34" AFF	3, 4, 6	L-3
MB-1	MOP BASIN	NO	FIAT	TSB 500	CHICAGO FAUCETS	897-RCF	2.2 GPM							--	--	3	1 1/2	1/2	1/2	--	--	FAUCET CENTER LINE TO BE 42" AFF	2	MB-1
HS	HAND SINK	YES	SLOAN	EHS-1000	CHICAGO FAUCETS	50-317XKABCP	1.5 GPM	MCGUIRE	B8912	ELKAY	LK-18	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	--	--	DROP IN	6, 7	HS
LS-1	INTEGRAL BASIN LAB SINK	NO	INTEGRAL	BY OTHERS	CHICAGO FAUCETS	LWM1-A11-A	1.5 GPM	MCGUIRE	B8912	ELKAY	LK-18	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	--	--	DROP IN	6, 7	LS-1
LS-2	INTEGRAL BASIN LAB SINK-ADA	YES	ELKAY	DLR221910	CHICAGO FAUCETS	930-GN8EVBET-317XK	1.5 GPM	MCGUIRE	B8812	ELKAY	LK-18	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	--	--	DROP IN	--	LS-2
BR	SINGLE COMPARTMENT STAINLESS STEEL	NO	KOHLER	K-3894	CHICAGO FAUCETS	786-GN8AE3ABCP	1.5 GPM	MCGUIRE	B8812	ELKAY	LK-18	MCGUIRE	LFST10	--	--	1 1/2	1 1/2	1/2	1/2	--	--	DROP IN	--	BR
SH-1	SHOWER	YES	ACORN	B8S-36-3F	MOEN	T9342OBM2S	2.5 GPM	--	--	--	--	--	--	--	--	3	1 1/2	1/2	1/2	--	--	--	3	SH-1
UR-A	URINAL - ADA	YES	SLOAN	WEUS-7006.1402	SLOAN	8186-0.125	0.125 GPM	INTEGRAL TO UNIT	--	--	--	--	--	--	--	2	1 1/2	3/4	--	ZURN	Z1222	WALL - RIM TO BE AT 24" AFF	3	UR-A
UR-1	URINAL	NO	SLOAN	WEUS-7006.1402	SLOAN	8186-0.125	1.28 GPF	INTEGRAL TO UNIT	--	--	--	--	--	BEMIS	1955SSCT	3	1 1/2	1 1/2	--	ZURN	1203-H	WALL MOUNT	3	UR-1
WC-A	WATER CLOSET - ADA	YES	TOTO	CT728CUG	TOTO	TET6GB323#CP	1.28 GPF	INTEGRAL TO UNIT	--	--	--	--	--	BEMIS	1955SSCT	3	1 1/2	1 1/2	--	ZURN	1203-H	WALL MOUNT	3	WC-A
WC-3	WATER CLOSET	NO	TOTO	CT728CUG	TOTO	TET6GB323#CP	1.6 GPF	INTEGRAL TO UNIT	--	--	--	--	--	BIG JOHN	4W	3	1 1/2	1 1/2	--	ZURN	1203-H	WALL MOUNT	1, 3	WC-3
WH-1	WALL HYDRANT	NO	WOODFORD	68	--	--	--	--	--	--	--	--	--	--	--	--	--	3/4"	--	--	--	WALL - 24" AFF	--	WH-1

NOTE:
1 - SENSOR TYPE WITH HARDWIRED THERMOSTATIC MIXING VALVE & TRANSFORMER
2 - PROVIDE WITH HOSE BRACKET, MOP HANGER, ALUMINUM BUMPER GUARDS, AND STAINLESS STEEL WALL GUARDS.
3 - PROVIDE WHITE COLOR FIXTURE.
4 - OFFSET GRID DRAIN INCLUDED WITH MCGUIRE PW215WCPRO.
5 - INCLUDE NIDEL 8A THREADED ON VACUUM BREAKER.
6 - FURNISH AND INSTALL BRASSCRAFT S8-30A F FLEXIBLE STAINLESS STEEL BRAIDED SUPPLIES, 30" LENGTH. LOOSELY COIL AND TIE EXCESS LENGTH.
7 - DEPTH OF SINK 6".
8 - PROVIDE FOR STAND ALONE COFFEE MAKER, ICE MAKER, AND WATER DISPENSER.

GAS FIRED WATER HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	INPUT [MBTUH/HR]	EFFICIENCY	STORAGE CAPACITY [GAL]	RECOVERY RATE AT 100 F RISE [GPH]	WATER TEMPERATURE [F]	COMBUSTION AIR INTAKE		EXHAUST		DCW INLET [IN]	DHW OUTLET [IN]	GAS		ELECTRICAL			DETAIL	NOTE
								MATERIAL	SIZE	MATERIAL	SIZE			INLET [IN]	PRESSURE [IN-WC]	VOLTAGE	PHASE	AMPERAGE		
DWH-1	A.O.SMITH	BTH-251(A)	251000	97%	100	289	140	PVC	6	PVC	6	1 1/2	1 1/2	1 1/2	7 - 14	120	1	3		1, 2
NPWH-1	A.O.SMITH	BTH-251(A)	251000	97%	100	289	140	PVC	6	PVC	6	1 1/2	1 1/2	1 1/2	7 - 14	120	1	3		1, 2

NOTE:
1 - PROVIDE WITH PVI CONDENSATE NEUTRALIZATION KIT.
2 - PROVIDE ET-1 EXPANSION TANK ON INCOMING WATER LINE FOR EACH TANK.

DRAIN/CLEANOUT SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	BODY MATERIAL	STRAINER/COVER		OPTIONS		DETAIL	NOTE
					SIZE [IN]	FINISH				
FCO	ZURN	ZB1400	VARIES	CAST IRON	VARIES	BRONZE	NL	--	--	ROUND COVER
FD-4	ZURN	ZH415	SANITARY	CAST IRON	VARIES	NICKEL BRONZE	NL	--	--	ROUND STRAINER, PROVIDE "PRO SEAL" TRAP GUARD
FD-2	ZURN	ZH415	SANITARY	CAST IRON	VARIES	NICKEL BRONZE	NL	--	--	ROUND STRAINER, PROVIDE "PRO SEAL" TRAP GUARD
RD-4	ZURN	Z100	STORM	CAST IRON	4"	CAST IRON	IC	--	--	PROVIDE SS GRAVEL GUARD ON ROOF
RD-6	ZURN	Z100	STORM	CAST IRON	6"	CAST IRON	IC	--	--	PROVIDE SS GRAVEL GUARD ON ROOF
OD-4	ZURN	Z100	STORM	CAST IRON	4"	CAST IRON	IC	--	--	PROVIDE SS GRAVEL GUARD ON ROOF
OD-5	ZURN	Z100	STORM	CAST IRON	6"	CAST IRON	IC	--	--	PROVIDE SS GRAVEL GUARD ON ROOF
WCO	ZURN	Z1441	VARIES	CAST IRON	VARIES	STAINLESS STEEL	--	--	--	ROUND COVER

NOTE: 1 - XXX

AIR COMPRESSOR SCHEDULE

TAG	SERVICE	LOCATION	TYPE	SYSTEM DEMAND w/o SAFETY FACTOR		SYSTEM DEMAND w/ 25% SAFETY FACTOR and 10% PURGE		INSTALLED EQUIPMENT CAPACITY		INSTALLED EQUIPMENT CAPACITY (for each of three (3) modules)		REDUNDANCY		FIRM EQUIPMENT CAPACITY (two (2) modules operating)		MOTOR DATA											TANK CAPACITY	EQUIPMENT DIMENSIONS			HOUSEKEEPING PAD DIMENSIONS			WEIGHT		VIBRATION ISOLATION		BASIS OF DESIGN		KEYED REMARKS
				FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	DUTY	STANDBY	FLOW (scfm)	PRESSURE (psig)	NUMBER of MOTORS (per whole system)	ABSORBED POWER (per each compressor)	RATED POWER (per each motor)	ROTATIONAL SPEED	VOLTAGE	PHASE	FREQ	CURRENT DRAW (per each motor)	CURRENT DRAW (per whole system)	ALTERNATE POWER SYSTEM		VARIABLE SPEED DRIVE (VSD) (per whole system)		SYSTEM OPERATION		LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT	SHIPPING	OPERATING	TYPE	MIN. STATIC DEFLECTION	MANUFACTURER	MODEL NUMBER	
																									(yes or no)	(branch)	(yes or no)	(#)	(continuous or intermittent)													
																														(gal)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(lbs)	(lbs)	(#)	(inches)			
AC-1	LAB COMPRESSED AIR (LAB-AIR)	1st Floor Equipment Room # 143	TRIPLEX Oil-Less (no oil anywhere) Scroll Compressor (w/o VSD)		110	65	110	102	110	34	110	2	1	68	110	3	n/a	15	3600	460	3	60	n/a	53.7	yes	n/a	no	0	intermittent	240	100	72	97	112	84	4	3648	3648	Integral	Integral	BEACON MEDAES	LAS-15-T-240-V-Txx-40	1-4

GENERAL REMARKS:

KEYED REMARKS:

1. The package can accommodate a single point of connection for power including the capacity to provide 120 volts to the control panel.
2. The package produces a sound pressure level (SPL) of 79 dBA with all three (3) modules operating simultaneously.
3. The package generates 103,073 btu/hr of sensible heat with five (5) modules operating simultaneously (maximum ambient dry bulb temperature is 105 F; design conditions are 75 F dry bulb).
4. A clearance of at least three (3) feet is required around all four (4) sides of this compressor package; however, a five (5) foot clearance is recommended in front o

63.7

LABORATORY PURE WATER SYSTEM
DISTRIBUTION OF ASTM TYPE 2 / TYPE II TO EACH LAB SINK

- **DESIGN PEAK DELIVERY (LOOP/PUMPS): 8 GPM**
- **RO PERMEATE PRODUCTION: ~3–4 GPM** (≈4,300–5,800 GPD)
- **STORAGE TANK: ~500 GALLONS NOMINAL** (TARGET ~400 GAL USABLE)
- **PUMPS:** DUPLEX RECIRC PUMPS, EACH CAPABLE OF **8 GPM** AT DESIGN HEAD
- **CONTROLS:** RO MAKE-UP MAINTAINS TANK LEVEL; LOOP RUNS CONTINUOUS; CONDUCTIVITY-RESISTIVITY MONITORING, ALARMS, DIVERT-TO-DRAIN ON OFF-SPEC
- DUPLEX CARBON FILTERS, UV STERILIZER, MIXED BED WORKER & POLISHER DI TANKS

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING SCHEDULES 1

DATE
BSA PROJECT NO. 00360481

REF: SHEET INDEX

P601

BACKFLOW PREVENTER SCHEDULE

TAG	LOCATION	BASIS OF DESIGN		SIZE (IN)	SYSTEM	PRESSURE DROP	STRAINER	WATER TEMPERATURE (°F)	DETAIL	REMARKS
		MANUFACTURER	MODEL							

GAS HOT WATER HEATER SCHEDULE

TAG	BASIS OF DESIGN		INPUT (MBTU/HR)	EFFICIENCY	STORAGE CAPACITY (GAL)	RECOVERY RATE AT 100 °F RISE (GPH)	WATER TEMP (°F)	COMBUSTION AIR INTAKE		EXHAUST		DCW INLET	DWH OUTLET	GAS		ELECTRICAL			DETAILS	REMARKS
	MANUFACTURER	MODEL						MATERIAL	SIZE	MATERIAL	SIZE			INLET	PRESSURE (IN-WC)	V	PH	A		

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2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING SCHEDULES

DATE REF: SHEET INDEX

BSA PROJECT NO. 00360481

P602

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ABBREVIATIONS

AC	AIR COMPRESSOR	ID	INSIDE DIAMETER
AAP	AREA ALARM PANEL	IE	INVERT ELEVATION
ADJ	ADJUSTABLE	IM	ICE MAKER
AFF	ABOVE FINISHED FLOOR	IN	INCHES
ALT	ALTERNATE	IN WC	INCHES WATER COLUMN
AP	ACCESS PANEL	IW	INDIRECT WASTE
AV	ACID VENT		
AW	ACID WASTE	LA	LABORATORY AIR
		LAV	LAVATORY
BAS	BUILDING AUTOMATION SYSTEM	LV	LABORATORY VACUUM
BHP	BRAKE HORSEPOWER	LWT	LEAVING WATER TEMPERATURE
BOP	BOTTOM OF PIPE ELEVATION		
BOT	BOTTOM	MA	MEDICAL AIR
BTU	BRITISH THERMAL UNIT	MAP	MASTER ALARM PANEL
BTUH	BRITISH THERMAL UNITS PER HOUR	MB	MOP BASIN
		MBH	ONE THOUSAND BTUH
CA	COMPRESSED AIR	MFR	MANUFACTURER
CFM	CUBIC FEET PER MINUTE	MH	MANHOLE
CLG	CEILING		
CO	CLEANOUT	N2	NITROGEN
CO2	CARBON DIOXIDE	N2O	NITROUS OXIDE
CM	COFFEE MAKER	NIC	NOT IN CONTRACT
CTR	CENTER	NPSH	NET POSITIVE SUCTION HEAD
		NPT	NATIONAL PIPE THREAD
D	DRAIN LINE	NTS	NOT TO SCALE
DCW	DOMESTIC COLD WATER		
DDCA	DOUBLE DETECTOR CHECK ASSEMBLY	O2	OXYGEN
DET	DETAIL	OC	ON CENTER
DFU	DRAINAGE FIXTURE UNIT	OD	OUTSIDE DIAMETER
DHR	DOMESTIC HOT WATER RETURN	OFD	OVERFLOW DRAIN
DHW	DOMESTIC HOT WATER		
DI	DEIONIED WATER	P	PUMP
DIA	DIAMETER	PH	PHASE
DIM	DIMENSION	PRV	PRESSURE REDUCING VALVE
DN	DOWN	PSF	POUNDS PER SQUARE FOOT
DW	DISHWASHER	PSI	POUNDS PER SQUARE INCH
		PSIG	POUNDS PER SQUARE INCH GAUGE
EA	EACH		
EFF	EFFICIENCY	RD	ROOF DRAIN
EJ	EXPANSION JOINT	RO	REVERSE OSMOSIS WATER
ELEC	ELECTRICAL	RPM	REVOLUTIONS PER MINUTE
ELEV	ELEVATION	RPZ	REDUCED PRESSURE ZONE
EP	ELEVATOR PIT		BACKFLOW PREVENTER
EPP	ELEVATOR PIT PUMP	RV	RELIEF VALVE
EQUIP	EQUIPMENT		
ET	EXPANSION TANK	S	STORM
ES	EMERGENCY SHOWER	SAN	SANITARY
EW	EYEWASH	SCH	SCHEDULE
EWC	ELECTRIC WATER COOLER	SD	SUBSOIL DRAIN
EWH	ELECTRIC WATER HEATER	SF	SQUARE FEET
EWT	ENTERING WATER TEMPERATURE	SH	SHOWER
EXT	EXTERIOR	SP	SUMP PIT
		S/S	STAINLESS STEEL
F	FAHRENHEIT	STD	STANDARD
FCO	FLOOR CLEANOUT	STM	STORM
FD	FLOOR DRAIN		
FLA	FULL LOAD AMPERES	TD	TRENCH DRAIN
FLR	FLOOR	TDH	TOTAL DYNAMIC HEAD
FPM	FEET PER MINUTE	TEMP	TEMPERATURE
FT	FEET	TMV	THERMOSTATIC MIXING VALVE
FTHD	FEET HEAD	TP	TRAP PRIMER
FTG	FOOTING	TYP	TYPICAL
G	GAS	UR	URINAL
GA	GAUGE		
GAL	GALLON	V	VENT
GM	GAS METER	VAC	VACUUM
GPH	GALLONS PER HOUR	VFD	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
GWH	GAS WATER HEATER		
		W	WASTE/WATER
H2	HYDROGEN	WAGD	WASTE ANESTHETIC GAS DISPOSAL
HB	HOSE BIBB	WC	WATER CLOSET
HD	HUB DRAIN	WCO	WALL CLEANOUT
HE	HELIUM	WH	WALL HYDRANT
HP	HORSEPOWER	WM	WASHING MACHINE
HT	HEAT TRACE		
HTR	HEATER	ZVB	ZONE VALVE BOX

FITTINGS

	FLANGE
	UNION
	ANCHOR
	PIPE GUIDE
	PIPE SLEEVE
	ELBOW DOWN
	ELBOW UP
	PIPE CAP

VALVES

	GAS SHUT OFF VALVE
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	BALANCING VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
S	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	THERMOSTATIC MIXING VALVE
	REDUCED PRESSURE BACKFLOW PREVENTER
	STRAINER
	PIPE FLEXIBLE CONNECTION
	GAS REGULATOR
	THERMOMETER
	PRESSURE GAUGE
HB	WALL HYDRANT/HOSE BIBB
	FILTER
S	WATER METER
	VACUUM BREAKER
	PIPING OR EQUIPMENT TO BE DEMOLISHED
	EYE WASH STATION

GENERAL SYMBOLS

	EQUIPMENT TAG
	KEYNOTE
	POINT OF NEW CONNECTION TO EXISTING WHEN ON DEMO SHEET: END POINT OF DEMO
	ELEVATION SYMBOL
1 / P-1	DETAIL REFERENCE (TOP=DETAIL NUMBER, BOTTOM=DRAWING NUMBER)
REFER / P-1	PLAN CONTINUATION REFERENCE (BOTTOM=DRAWING NUMBER)
1 / P-1	SECTION DESIGNATION (TOP=SECTION NUMBER, BOTTOM=DRAWING NUMBER)

PIPING ANNOTATION

AV	ACID VENT
AW	ACID WASTE
CA	COMPRESSED AIR
CO2	CARBON DIOXIDE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHR	DOMESTIC HOT WATER RETURN
DI	DEIONIZED WATER
DT	DRAIN TILE
DX	DIRECT EXPANSION REFRIGERANT
H2	HYDROGEN
He	HELIUM
IW	INDIRECT WASTE
LA	LAB COMPRESSED AIR
LV	LAB VENT
LVAC	LAB VACUUM
MA	MEDICAL COMPRESSED AIR
MVAC	MEDICAL VACUUM
MW	MEDICAL WASTE
N2	NITROGEN
N2O	NITROUS OXIDE
NG	NATURAL GAS
O2	OXYGEN
OD	OVERFLOW DRAIN LINE
SAN	SANITARY WASTE LINE
STRM	STORM
V	VENT LINE
WAGD	WASTE ANALYTICAL GAS
0° AIR	ZERO DEGREE AIR

DRAINS AND CLEANOUTS

	FLOOR SINK
FD	FLOOR DRAIN
RD	ROOF DRAIN
	PIPE TRAP
	CLEANOUT
FCO	FLOOR CLEANOUT

SHEET INDEX - PLUMBING

BSA

SWITCH PLACEHOLDER FAMILY
TYPE FOR CORRECT BSA OFFICE

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE
1	09/29/2025	BP3-100% DD: CORE AND SHELL PACKAGE

Gas/Vac Symbols and Abbreviations

DATE — REF: SHEET INDEX

BSA PROJECT NO. — 00360481

PGV000

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

KEYPLAN
PROJECT NORTH
REFER TO CIVIL DRAWINGS FOR TRUE NORTH

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	01/30/2026	ADDENDUM #5

Gas/Vac Penthouse Plan

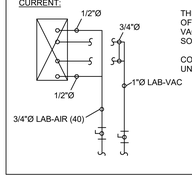
DATE **REF: SHEET INDEX**
BSA PROJECT NO. **00360481**

PGV1PH

Fume hood to be furnished and installed by Others as part of the current construction of the fit-out portion of the project. Contractor to furnish and install a 1/2" diameter LAB-AIR (40) pipe to the left side of the hood and a 1/2" diameter LAB-AIR (40) pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection). Contractor to furnish and install a 3/4" diameter LAB-VAC pipe to the left side of the hood and a 3/4" diameter LAB-VAC pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection).

The right and left connection points will be approximately 4" above the top of the hood where the fume hood manufacturer terminates their internal piping. Contractor to make the final connections between the piping they provide and the piping provided as an integral part of the fume hood itself.

CURRENT:

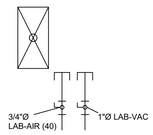


THE SOURCE OF LAB-VAC IS COMPRISED OF MULTIPLE OF/OI UNDERCOUNTER VACUUM PUMPS (i.e. NO CENTRAL SOURCE OF LAB-VAC AVAILABLE).

CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

Fume hood to be furnished and installed by Others in the future. Contractor to furnish and install a single 3/4" diameter LAB-AIR (40) pipe adjacent to the location where the future fume hood is to be provided (the 3/4" diameter LAB-AIR (40) pipe shall be valved and capped for future extension). Contractor to furnish and install a single 1" diameter LAB-VAC pipe adjacent to the location where the future fume hood is to be provided (the 1" diameter LAB-VAC pipe shall be valved and capped for future extension).

FUTURE



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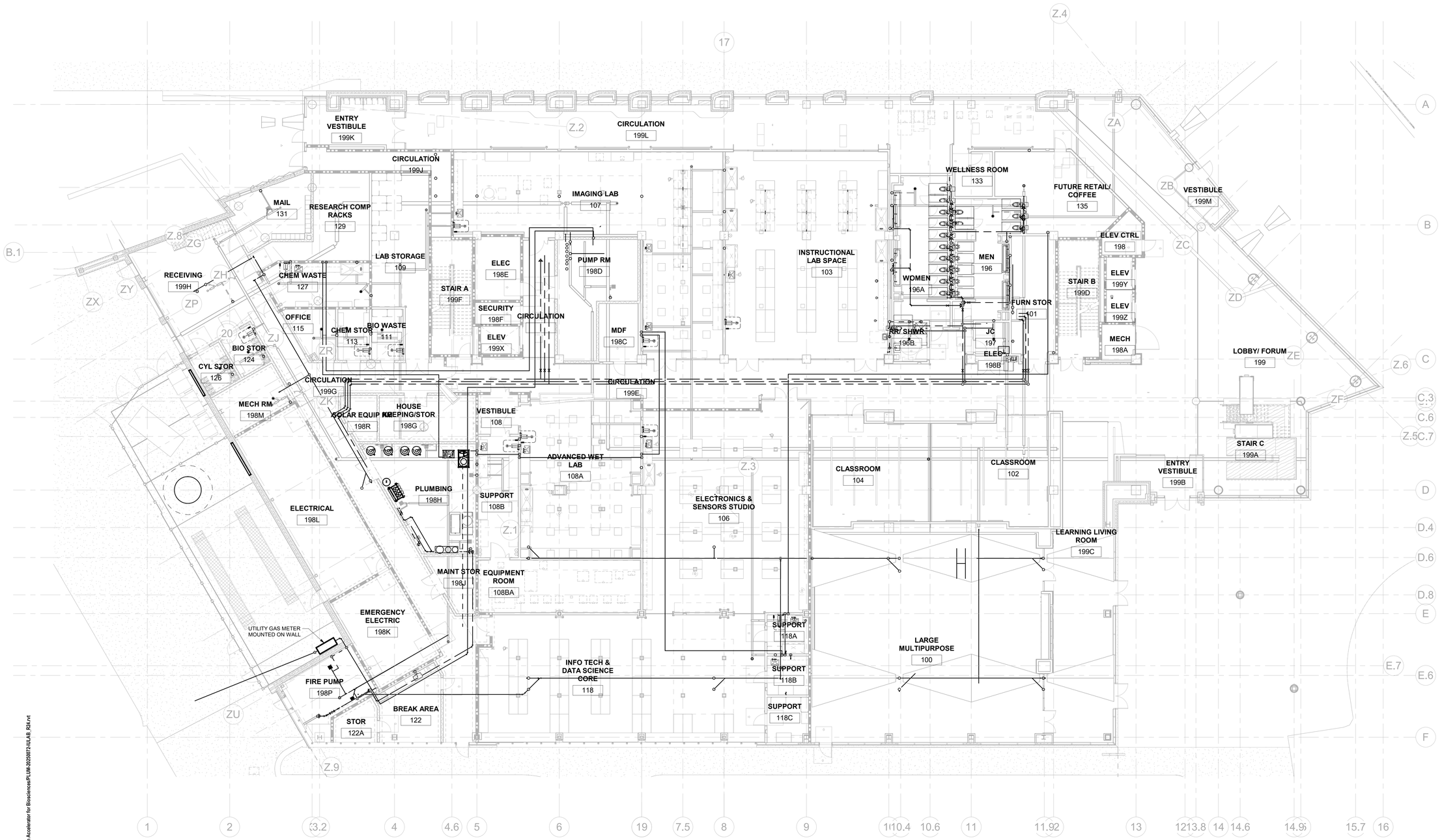
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

PROVIDE NV ALLOWANCE
FOR FIFTEEN (15) LAB-AIR (100)
COUNTERTOP CONNECTIONS ALONG
WITH BRANCH PIPING

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	

2 1ST FLOOR NOTES
N.T.S.



1 GAS PIPING PLAN - LEVEL 1
3/32" = 1'-0"

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac First Floor Plan

DATE REF: SHEET INDEX
BSA PROJECT NO. 00360481

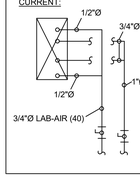
PGV101

1/30/2026 10:01:57 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

Fume hood to be furnished and installed by Others as part of the current construction of the fit-out portion of the project. Contractor to furnish and install a 1/2" diameter LAB-AIR (40) pipe to the left side of the hood and a 1/2" diameter LAB-AIR (40) pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection). Contractor to furnish and install a 3/4" diameter LAB-VAC pipe to the left side of the hood and a 3/4" diameter LAB-VAC pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection).

The right and left connection points will be approximately 4" above the top of the hood where the fume hood manufacturer terminates their internal piping. Contractor to make the final connections between the piping they provide and the piping provided as an integral part of the fume hood itself.

CURRENT:



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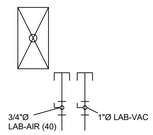
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

Fume hood to be furnished and installed by Others in the future. Contractor to furnish and install a single 3/4" diameter LAB-AIR (40) pipe adjacent to the location where the future fume hood is to be provided (the 3/4" diameter LAB-AIR (40) pipe shall be valved and capped for future extension). Contractor to furnish and install a single 1" diameter LAB-VAC pipe adjacent to the location where the future fume hood is to be provided (the 1" diameter LAB-VAC pipe shall be valved and capped for future extension).

FUTURE



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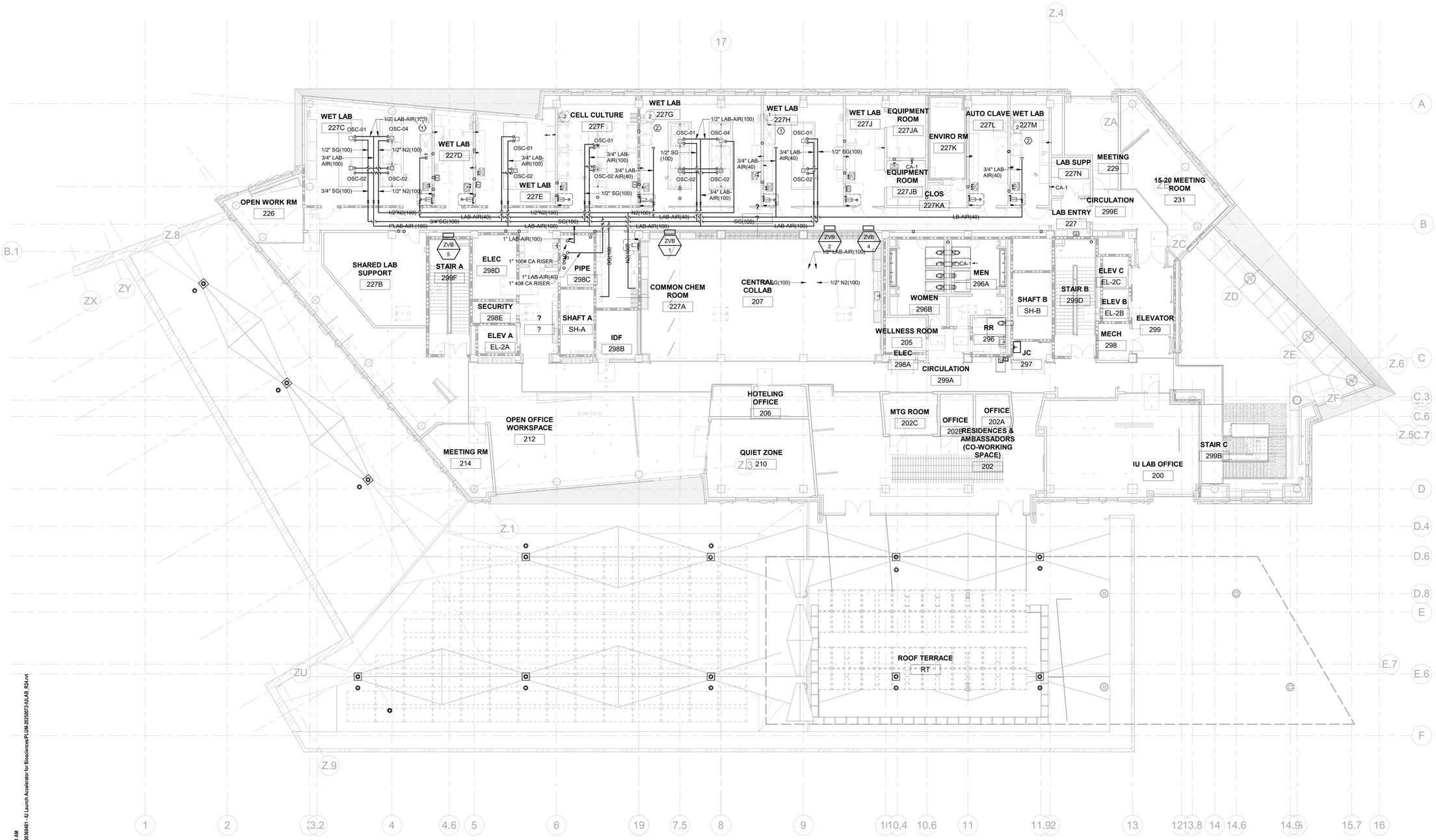
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

PROVIDE NV ALLOWANCE FOR FIFTEEN (15) LAB-AIR (100) COUNTERTOP CONNECTIONS ALONG WITH BRANCH PIPING

LAB GAS KEYNOTES

NUMBER	KEYNOTE
1	1/2" CA TO FUME HOOD PIPING.
2	1/2" CA STUB WITH VALVE AND CAP FOR FUTURE.



1 GAS PIPING PLAN - LEVEL 2
3/32" = 1'-0"

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Second Floor Plan

DATE REF: SHEET INDEX

BSA PROJECT NO. 00360481

PGV102

1/30/2026 10:02:11 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250972-IULAB_R24.rvt

Fume hood to be furnished and installed by Others as part of the current construction of the fit-out portion of the project. Contractor to furnish and install a 1/2" diameter LAB-AIR (40) pipe to the left side of the hood and a 1/2" diameter LAB-AIR (40) pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection). Contractor to furnish and install a 3/4" diameter LAB-VAC pipe to the left side of the hood and a 3/4" diameter LAB-VAC pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection).

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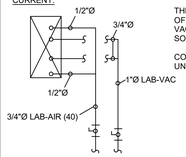

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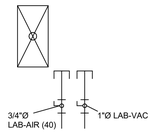
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

Fume hood to be furnished and installed by Others in the future. Contractor to furnish and install a single 3/4" diameter LAB-AIR (40) pipe adjacent to the location where the future fume hood is to be provided (the 3/4" diameter LAB-AIR (40) pipe shall be valved and capped for future extension). Contractor to furnish and install a single 1" diameter LAB-VAC pipe adjacent to the location where the future fume hood is to be provided (the 1" diameter LAB-VAC pipe shall be valved and capped for future extension).

FUTURE



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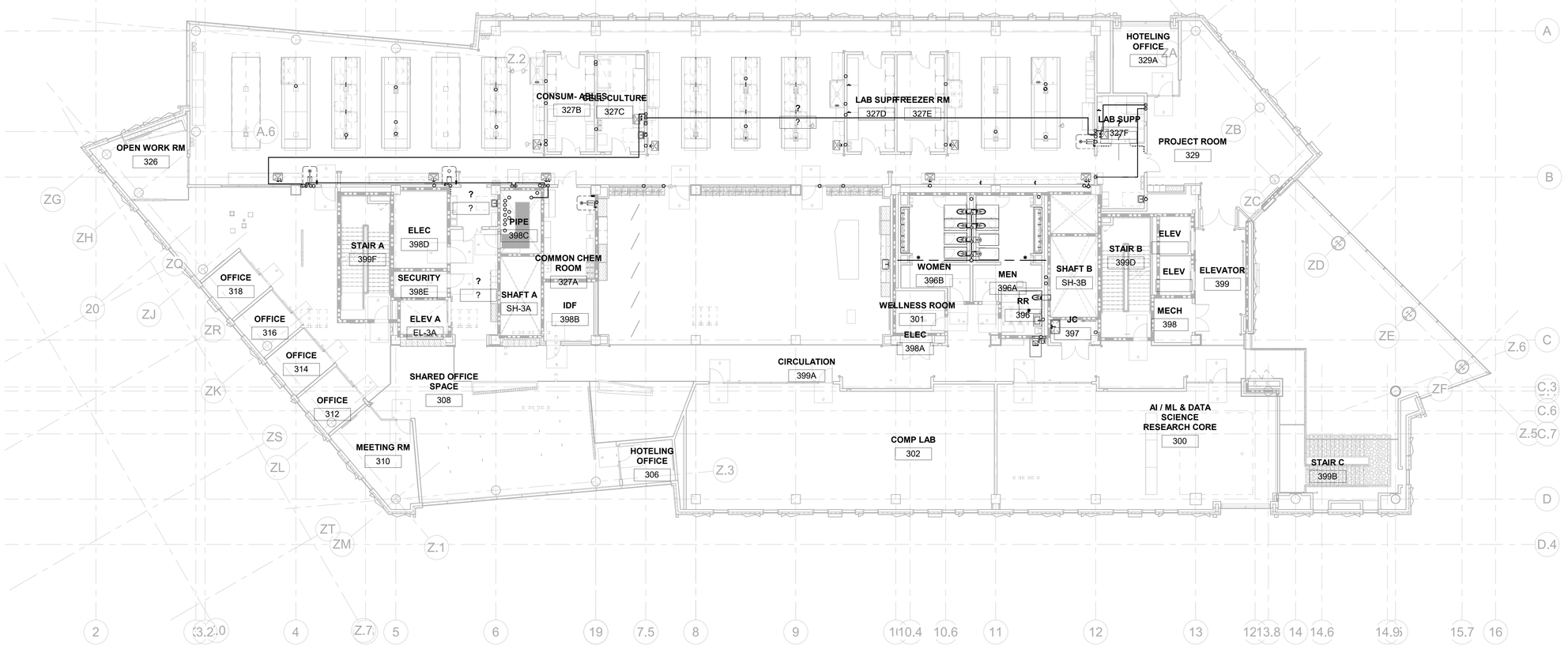
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

PROVIDE NV ALLOWANCE FOR FIFTEEN (15) LAB-AIR (100) COUNTERTOP CONNECTIONS ALONG WITH BRANCH PIPING

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	

2 3RD FLOOR NOTES
1/8" = 1'-0"



1 GAS PIPING PLAN - LEVEL 3
3/32" = 1'-0"

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Third Floor Plan

DATE
BSA PROJECT NO. 00360481

REF: SHEET INDEX

PGV103

Fume hood to be furnished and installed by Others as part of the current construction of the fit-out portion of the project. Contractor to furnish and install a 1/2" diameter LAB-AIR (40) pipe to the left side of the hood and a 1/2" diameter LAB-AIR (40) pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection). Contractor to furnish and install a 3/4" diameter LAB-VAC pipe to the left side of the hood and a 3/4" diameter LAB-VAC pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection).

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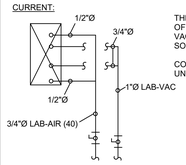
CURRENT:



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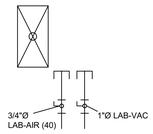
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

Fume hood to be furnished and installed by Others in the future. Contractor to furnish and install a single 3/4" diameter LAB-AIR (40) pipe adjacent to the location where the future fume hood is to be provided (the 3/4" diameter LAB-AIR (40) pipe shall be valved and capped for future extension). Contractor to furnish and install a single 1" diameter LAB-VAC pipe adjacent to the location where the future fume hood is to be provided (the 1" diameter LAB-VAC pipe shall be valved and capped for future extension).

FUTURE



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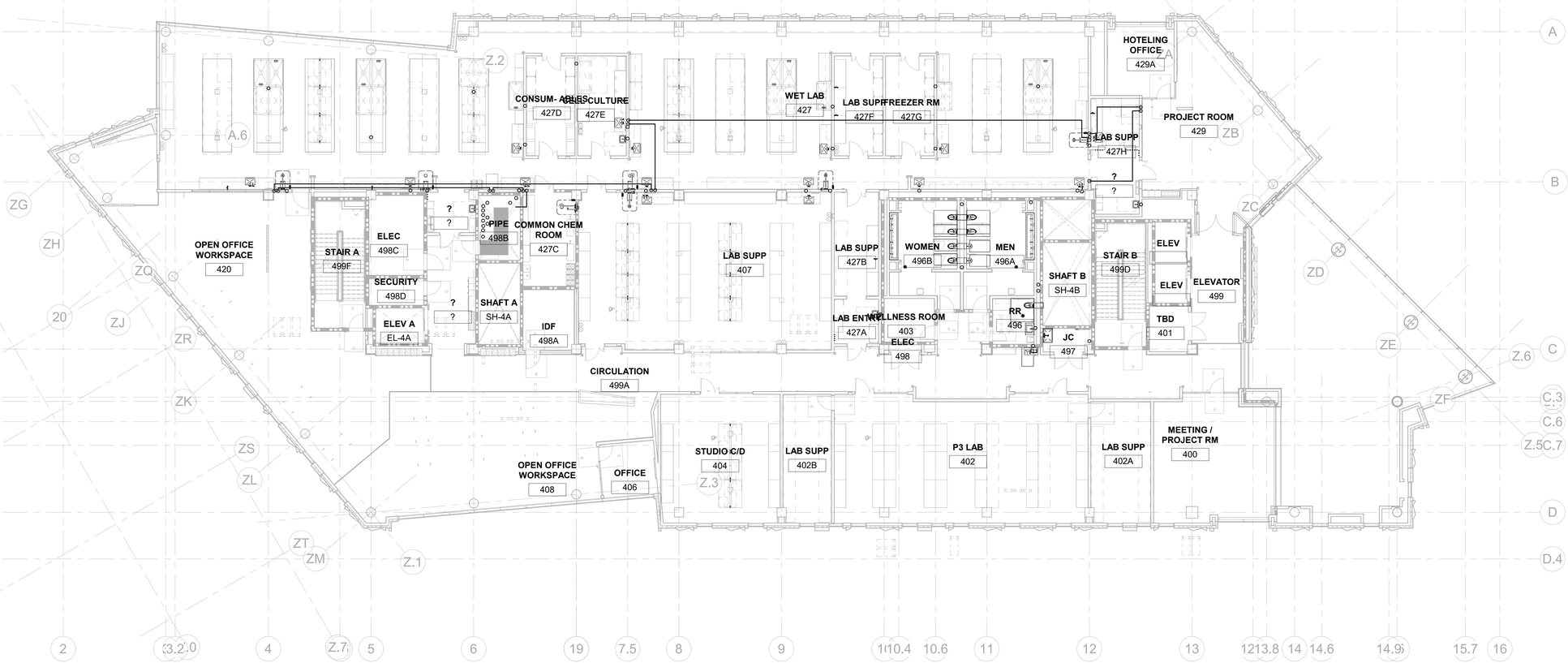
CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

PROVIDE NV ALLOWANCE
FOR FIFTEEN (15) LAB-AIR (100)
COUNTERTOP CONNECTIONS ALONG
WITH BRANCH PIPING

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	

2 4TH FLOOR NOTES
1/8" = 1'-0"



1 GAS PIPING PLAN - LEVEL 4
3/32" = 1'-0"

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175 S. Rangeline Rd, Suite 200
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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Fourth Floor Plan

DATE
BSA PROJECT NO. 00360481

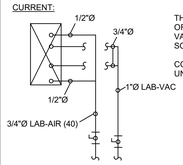
REF: SHEET INDEX

PGV104

Fume hood to be furnished and installed by Others as part of the current construction of the fit-out portion of the project. Contractor to furnish and install a 1/2" diameter LAB-AIR (40) pipe to the left side of the hood and a 1/2" diameter LAB-AIR (40) pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection). Contractor to furnish and install a 3/4" diameter LAB-VAC pipe to the left side of the hood and a 3/4" diameter LAB-VAC pipe to the right side of the hood (i.e. it is assumed that the fume hood will have a dual point connection).

The right and left connection points will be approximately 4" above the top of the hood where the fume hood manufacturer terminates their internal piping. Contractor to make the final connections between the piping they provide and the piping provided as an integral part of the fume hood itself.

CURRENT:

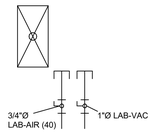


THE SOURCE OF LAB-VAC IS COMPRISED OF MULTIPLE OF/OI UNDERCOUNTER VACUUM PUMPS (i.e. NO CENTRAL SOURCE OF LAB-VAC AVAILABLE).

CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

Fume hood to be furnished and installed by Others in the future. Contractor to furnish and install a single 3/4" diameter LAB-AIR (40) pipe adjacent to the location where the future fume hood is to be provided (the 3/4" diameter LAB-AIR (40) pipe shall be valved and capped for future extension). Contractor to furnish and install a single 1" diameter LAB-VAC pipe adjacent to the location where the future fume hood is to be provided (the 1" diameter LAB-VAC pipe shall be valved and capped for future extension).

FUTURE



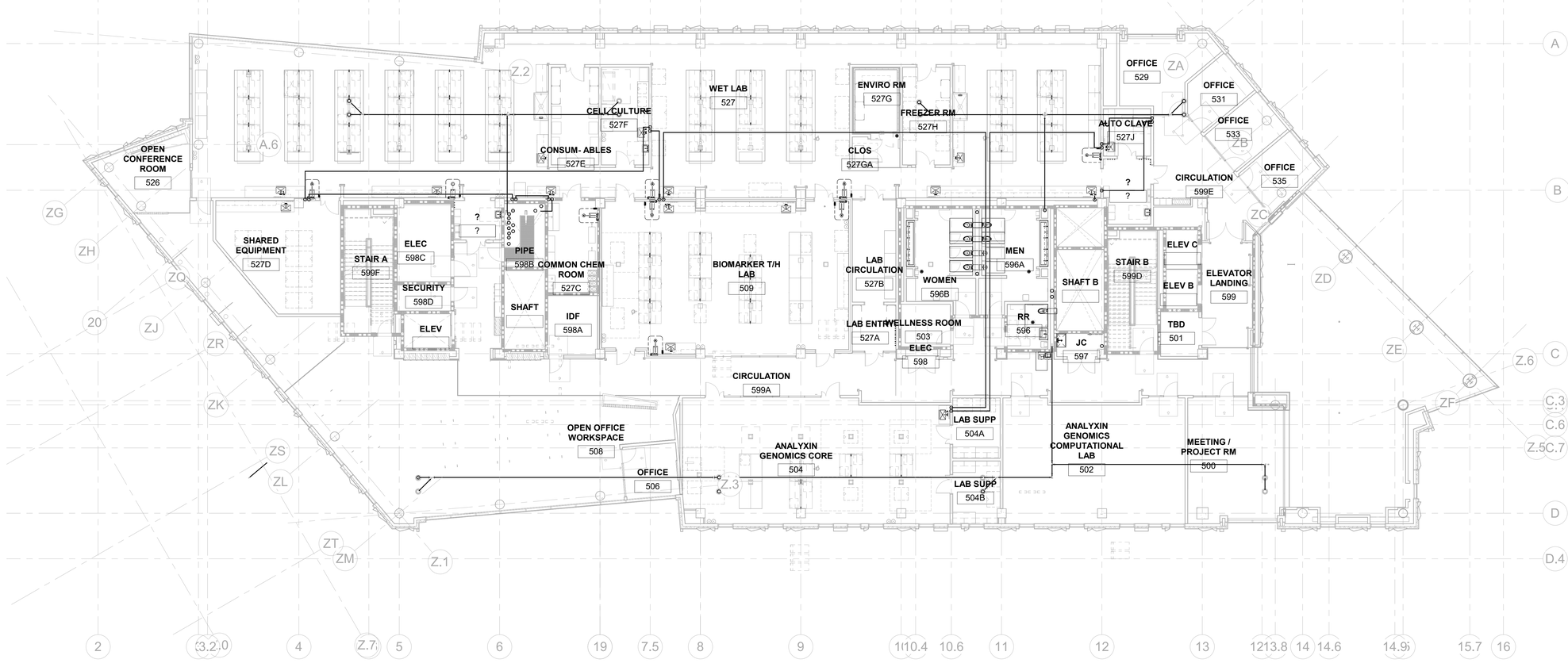
THE SOURCE OF LAB-VAC IS COMPRISED OF MULTIPLE OF/OI UNDERCOUNTER VACUUM PUMPS (i.e. NO CENTRAL SOURCE OF LAB-VAC AVAILABLE).

CONNECT THIS PIPE TO THE NEAREST UNDERCOUNTER VACUUM PUMP.

PROVIDE NV ALLOWANCE
FOR FIFTEEN (15) LAB-AIR (100)
COUNTERTOP CONNECTIONS ALONG
WITH BRANCH PIPING

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 GAS PIPING PLAN - LEVEL 5
3/32" = 1'-0"

2 5TH FLOOR NOTES
1/8" = 1'-0"

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Fifth Floor Plan

DATE
BSA PROJECT NO. 00360481

REF: SHEET INDEX

PGV105

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INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

KEYPLAN
PROJECT NORTH
REFER TO CIVIL DRAWINGS FOR TRUE NORTH

ISSUED / REVISIONS SCHEDULE

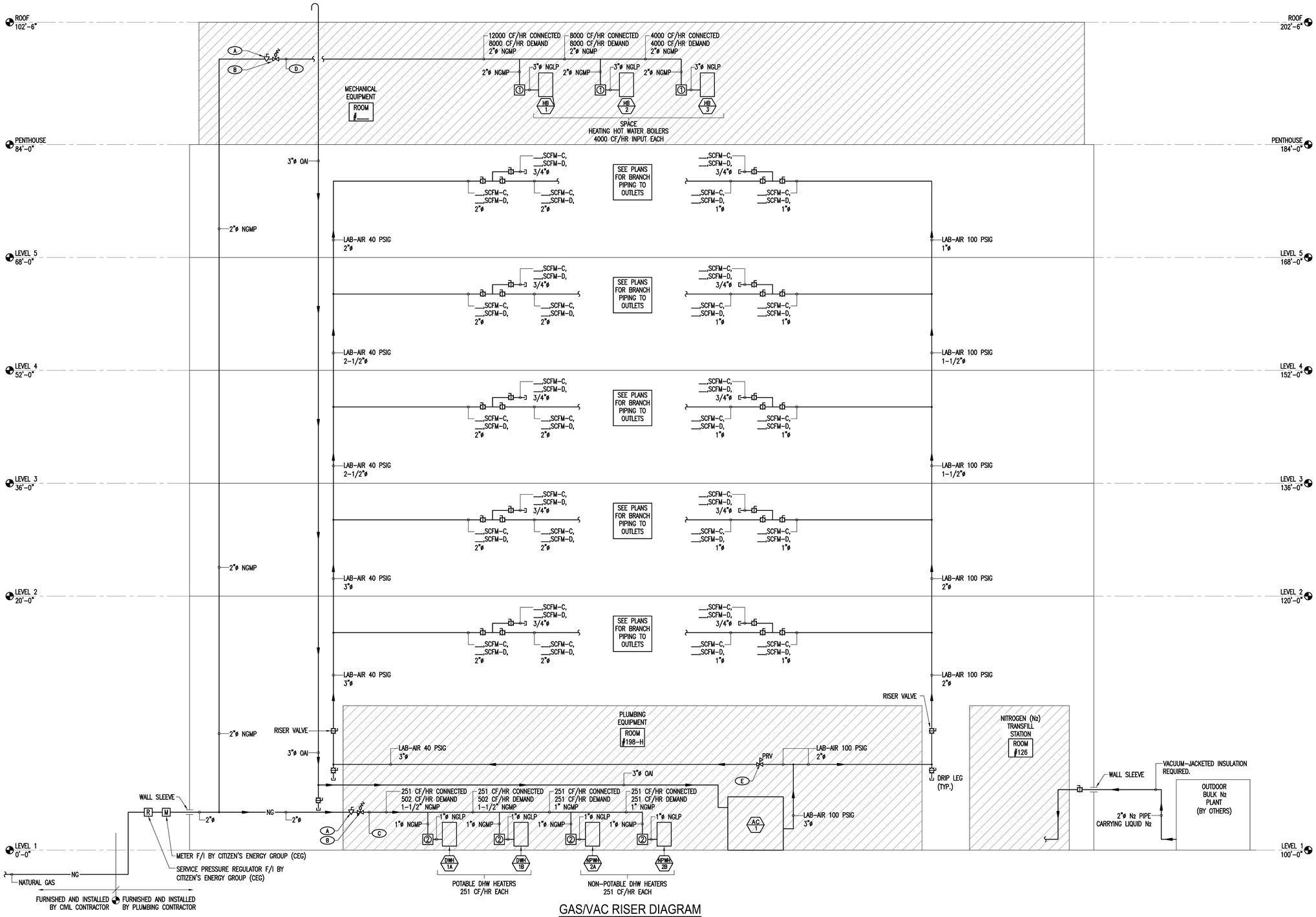
MARK	DATE	DESCRIPTION
1	01/30/2026	ADDENDUM #5

Gas/Vac Enlarged Plans and Sections

DATE **REF: SHEET INDEX**

BSA PROJECT NO. **00360481**

PGV201



GAS/VAC RISER DIAGRAM

N.T.S.

KEY NOTES:

- (A) (NATURAL GAS): PROVIDE A MANUAL OPERATED SHUTOFF VALVE THAT CAN BE CLOSED DURING NORMAL OPERATION AND IN CASE OF EMERGENCY; THIS VALVE SHALL BE LOCATED IN CONSPICUOUS LOCATION NEAR THE EXIT; THIS VALVE SHALL BE TAGGED "NATURAL GAS SHUTOFF VAVLE CLOSE IN EMERGENCY".
- (B) (NATURAL GAS): PROVIDE AN AUTOMATICALLY OPERATED SHUTOFF VALVE (SOLENOID VALVE) THAT IS ACTIVATED BY A BUILDING OCCUPANCY USING A REMOTELY LOCATED PUSH BUTTON HARD-WIRED KILL SWITCH; THIS KILL SWITCH SHALL BE CONNECTED TO THE BUILDING AUTOMATIC SYSTEM AS AN ALARM (BINARY INPUT).
- (C) (NATURAL GAS): SUPPLY TO DOMESTIC HOT WATER HEATERS.
- (D) (NATURAL GAS): SUPPLY TO HEATING HOT WATER BOILERS.
- (E) PRESSURE REDUCING VALVE USED TO DROP 100 PSIG TO 40 PSIG. (100 PSIG SERVES OSC'S AND SOME EQUIPMENT WHILE THE 40 PSIG SERVES FUME HOODS).

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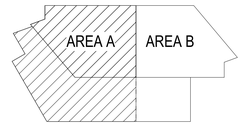
INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE



KEYPLAN
PROJECT NORTH
REFER TO CIVIL DRAWINGS FOR TRUE NORTH

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	01/30/2026	ADDENDUM #5

Gas/Vac Riser Diagram

DATE REF: SHEET INDEX
BSA PROJECT NO. 00360481

PGV301

1/30/2026 10:24:02 AM
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BACKFLOW PREVENTER SCHEDULE

TAG	LOCATION	BASIS OF DESIGN		SIZE (IN)	SYSTEM	PRESSURE DROP	STRAINER	WATER TEMPERATURE (°F)	DETAIL	REMARKS
		MANUFACTURER	MODEL							

GAS HOT WATER HEATER SCHEDULE

TAG	BASIS OF DESIGN		INPUT (MBTU/HR)	EFFICIENCY	STORAGE CAPACITY (GAL)	RECOVERY RATE AT 100 °F RISE (GPH)	WATER TEMP (°F)	COMBUSTION AIR INTAKE		EXHAUST		DCW INLET	DWH OUTLET	GAS		ELECTRICAL			DETAILS	REMARKS
	MANUFACTURER	MODEL						MATERIAL	SIZE	MATERIAL	SIZE			INLET	PRESSURE (IN-WC)	V	PH	A		

AIR COMPRESSOR SCHEDULE

TAG	SERVICE	LOCATION	TYPE	SYSTEM DEMAND w/o SAFETY FACTOR		SYSTEM DEMAND w/ 25% SAFETY FACTOR and 10% PURGE		INSTALLED EQUIPMENT CAPACITY		INSTALLED EQUIPMENT CAPACITY (for each of three (3) modules)		REDUNDANCY		FIRM EQUIPMENT CAPACITY (two (2) modules operating)		MOTOR DATA												TANK CAPACITY	EQUIPMENT DIMENSIONS			HOUSEKEEPING PAD DIMENSIONS			WEIGHT		VIBRATION ISOLATION		BASIS OF DESIGN		KEYED REMARKS
				FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	FLOW (scfm)	PRESSURE (psig)	DUTY	STANDBY	FLOW (scfm)	PRESSURE (psig)	NUMBER of MOTORS (per whole system)	ABSORBED POWER (per each compressor)	RATED POWER (per each motor)	ROTATIONAL SPEED	VOLTAGE	PHASE	FREQ	CURRENT DRAW (per each motor)	CURRENT DRAW (per whole system)	ALTERNATE POWER SYSTEM		VARIABLE SPEED DRIVE (VSD) (per whole system)		SYSTEM OPERATION		LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT	SHIPPING	OPERATING	TYPE	MIN. STATIC DEFLECTION	MANUFACTURER	MODEL NUMBER	
																(#)	(bhp)	(mhp)	(rpm)	(volts)	(#)	(Hz)	(amps)	(amps)	(yes or no	(branch)	(yes or no)	(#)	(continuous or intermittent)	(gal)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(lbs)	(lbs)	(#)	(inches)			
AC-1	LAB COMPRESSED AIR (LAB AIR)	1st Floor Equipment Room # 143	TRIPS EX Oil-Less (no oil anywhere) Scroll Compressor (w/o VSD)		110	65	110	102	110	34	110	2	1	68	110	3	n/a	15	3600	460	3	60	n/a	53.7	yes	n/a	no	0	intermittent	240	100	72	97	112	84	4	3648	3648	Integral	Integral	BEACON MEDAES	LAS-15-T-240-V-Txx-40	1-4

GENERAL REMARKS:

KEYED REMARKS:

1. The package can accommodate a single point of connection for power including the capacity to provide 120 volts to the control panel.
2. The package produces a sound pressure level (SPL) of 79 dBA with all three (3) modules operating simultaneously.
3. The package generates 103,073 btu/hr of sensible heat with five (5) modules operating simultaneously (maximum ambient dry bulb temperature is 105 F; design conditions are 75 F dry bulb).
4. A clearance of at least three (3) feet is required around all four (4) sides of this compressor package; however, a five (5) foot clearance is recommended in front of the

53.7

VACUUM PUMP SCHEDULE (IP--2024-01-04---ivw)

TAG	SERVICE	LOCATION	TYPE	REDUNDANCY (pump/motor/VSD)		SYSTEM DEMAND w/o SAFETY FACTOR		SYSTEM DEMAND w/ 10% SAFETY FACTOR		INSTALLED EQUIPMENT CAPACITY (per each pump/motor/VSD)		INSTALLED EQUIPMENT CAPACITY (per whole system)		FIRM EQUIPMENT CAPACITY (per whole system)		MOTOR DATA														TANK CAPACITY	EQUIPMENT DIMENSIONS			HOUSEKEEPING PAD DIMENSIONS			WEIGHT		VIBRATION ISOLATION		BASIS OF DESIGN		KEYED REMARKS
				DUTY	STANDBY	FLOW (scfm)	PRESSURE (in. Hg)	FLOW (scfm)	PRESSURE (in. Hg)	FLOW (scfm)	PRESSURE (in. Hg)	FLOW (scfm)	PRESSURE (in. Hg)	FLOW (scfm)	PRESSURE (in. Hg)	NUMBER of MOTORS (per whole system)	ABSORBED POWER (per each pump)	RATED POWER (per each pump)	ROTATIONAL SPEED	VOLTAGE	PHASE	FREQ	CURRENT DRAW (per each motor)	CURRENT DRAW (per whole system)	ESSENTIAL ELECTRICAL SYSTEM (EES)		VARIABLE SPEED DRIVE (VSD) (per whole system)		SYSTEM OPERATION		LENGTH	WIDTH	HEIGHT	LENGTH	WIDTH	HEIGHT	SHIPPING	OPERATING	TYPE	MIN. STATIC DEFLECTION	MANUFACTURER	MODEL NUMBER	
																(#)	(bhp)	(mhp)	(rpm)	(volts)	(#)	(Hz)	(amps)	(amps)	(yes or no	(branch)	(yes or no)	(#)	(continuous or intermittent)	(gal)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(lbs)	(lbs)	(#)	(inches)			
VP-1	MEDICAL-SURGICAL VACUUM (MS-VAC)- Current Build + Future Addition	8th Floor	QUADRAFLEX LUBRICATED (oil-free) (oil in crankcase) ROTARY SCREW w/ VSD	3	1	250	19	300	19	124	19	496 (four (4) pumps, motors and VSD's)	19	372 (three (3) pumps, motors and VSD's)	19	4	n/a	20	600-7000	460	3	60	29.6	118.4 (four (4) motors)	yes	CRITICAL	yes	4	Intermittent	240	211	111	103	240	144	4	6000	6000	tbd	tbd	BEACON MEDAES	MSV-O20-Q-240 V-HCV	1

GENERAL REMARKS:

LINE PRESSURE REGULATOR (LPR) and OVERPRESSURE PROTECTION DEVICE (OPD) for MECHANICAL EQUIPMENT

Equipment Tag	Service	Location	Energy Input Required (btu/hr)	Connected Natural Gas Flow (ft3/hr)	Demanded Natural Gas Flow (ft3/hr)	Piping System Normal Operating Pressure (psig)	APPLIANCE PRESSURE VALUES			LPR/OPD	LPR/OPD Pipe Sizes	
							SAFETY-LOW (in. H2O w.c.)	NORMAL OPERATION (in. H2O w.c.)	SAFETY-HIGH (in. H2O w.c.)	OUTLET PRESSURE SETPOINT (in. H2O w.c.)	INLET PIPE DIAMETER (in.)	OUTLET PIPE DIAMETER (in.)
HB-1	Space + OAI Heating Hot Water Boiler	Penthouse	4,000,000	4,000	4,000	4	4	7-10	14	10	3	3
HB-2	Space + OAI Heating Hot Water Boiler	Penthouse	4,000,000	4,000	4,000	4	4	7-10	14	10	3	3
HB-3	Space + OAI Heating Hot Water Boiler	Penthouse	4,000,000	4,000	0	4	4	7-10	14	10	3	3
Sub-Totals				12,000	8,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A

LINE PRESSURE REGULATOR (LPR) and OVERPRESSURE PROTECTION DEVICE (OPD) for PLUMBING EQUIPMENT---Domestic Ho

Equipment Tag	Service	Location	Energy Input Required (btu/hr)	Connected Natural Gas Flow (ft3/hr)	Demanded Natural Gas Flow (ft3/hr)	Piping System Normal Operating Inlet Pressure (psig)	APPLIANCE PRESSURE VALUES			LPR/OPD	LPR/OPD Pipe Sizes	
							SAFETY-LOW (in. H2O w.c.)	NORMAL OPERATION (in. H2O w.c.)	SAFETY-HIGH (in. H2O w.c.)	OUTLET PRESSURE SETPOINT (in. H2O)	INLET PIPE DIAMETER (in.)	OUTLET PIPE DIAMETER (in.)
DHW-1A	Potable DHW Heater	1st Floor	251,000	251	251	4	4	7-10	14	10	2	2
DHW-1B	Potable DHW Heater	1st Floor	251,000	251	0	4	4	7-10	14	10	2	2
DHW-2A	Non-Potable DHW Heater	1st Floor	251,000	251	251	4	4	7-10	14	10	2	2
DHW-2B	Non-Potable DHW Heater	1st Floor	251,000	251	0	4	4	7-10	14	10	2	2
Sub-Totals				1,004	502	N/A	N/A	N/A	N/A	N/A	N/A	N/A

GRAND TOTAL (Connected vs. Demand Flow Rates, ft3/hr)	13,004	8,502

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

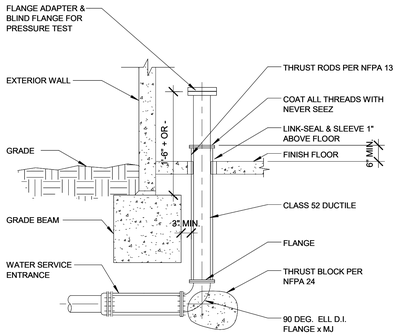
ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
3	01/30/2026	ADDENDUM #5
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Equipment Schedules

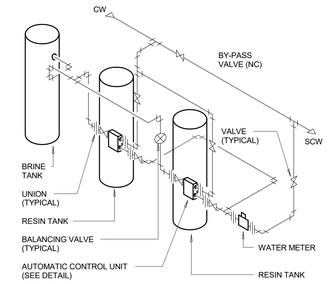
DATE REF: SHEET INDEX

BSA PROJECT NO. 00360481

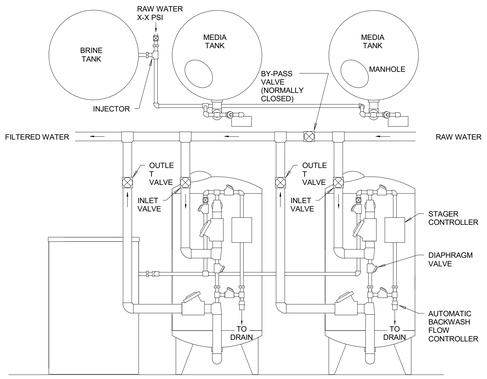
PGV401

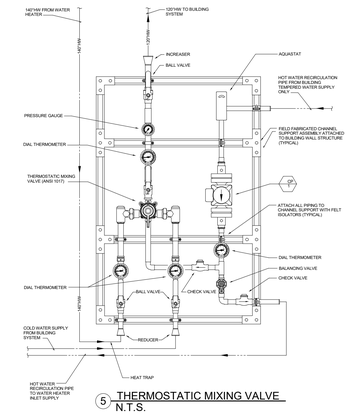


2 WATER SERVICE
N.T.S.

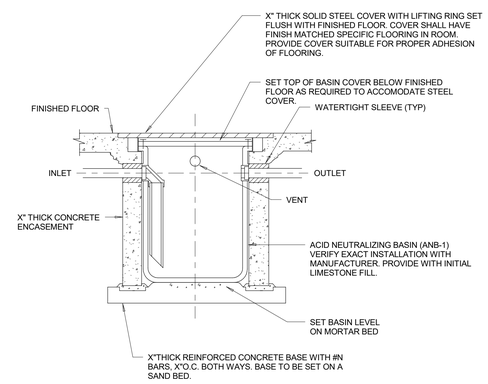


3 WATER SOFTENER
N.T.S.

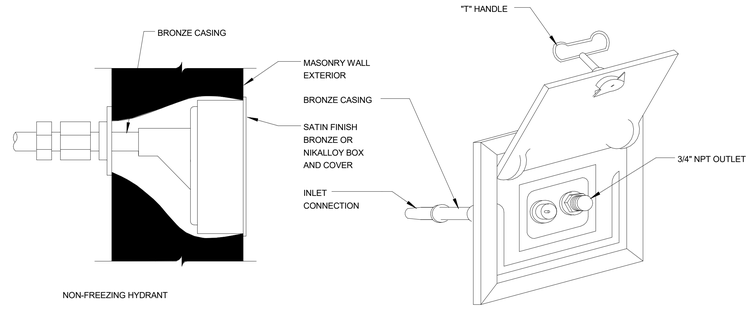




5 THERMOSTATIC MIXING VALVE
N.T.S.



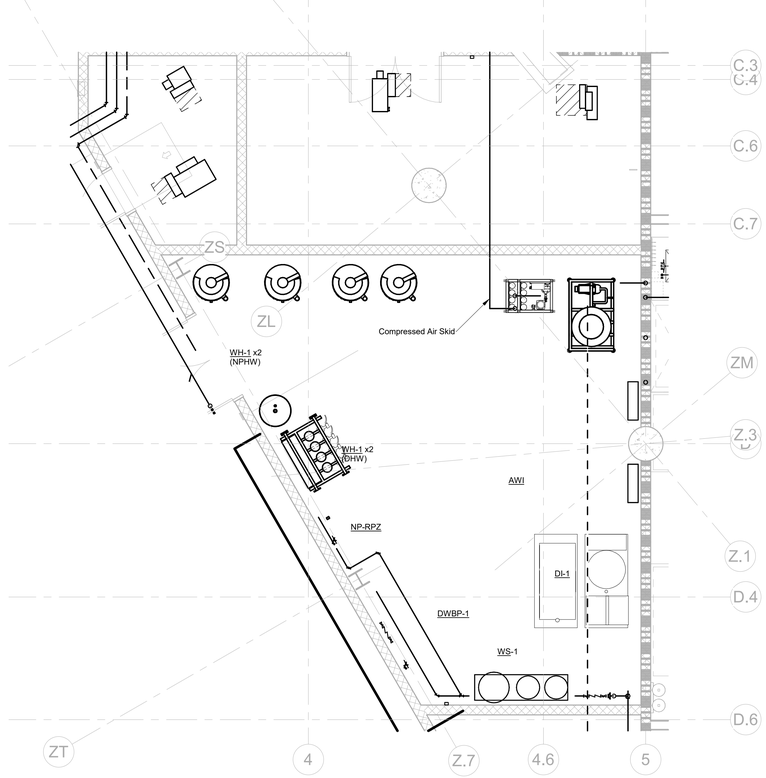
6 Acid Basin
1/8" = 1'-0"



NON-FREEZING HYDRANT

CAST BRONZE NON-FREEZE BOX TYPE WALL HYDRANT WITH 3/4" HPT OUTLET, "T" HANDLE, POLISHED FACE, HINGED LOCKING COVER, INTEGRAL VACUUM BREAKER.

4 WALL HYDRANT
1/8" = 1'-0"



1 PLUMBING PIPING PLAN - LEVEL 1 - Callout 1
1/4" = 1'-0"

BSA

SWITCH PLACEHOLDER FAMILY
TYPE FOR CORRECT BSA OFFICE

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP3-100% CORE AND SHELL PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE
1	09/29/2025	BP3-100% DD: CORE AND SHELL PACKAGE

Gas/Vac Details

DATE REF: SHEET INDEX
BSA PROJECT NO. 00360481

PGV501

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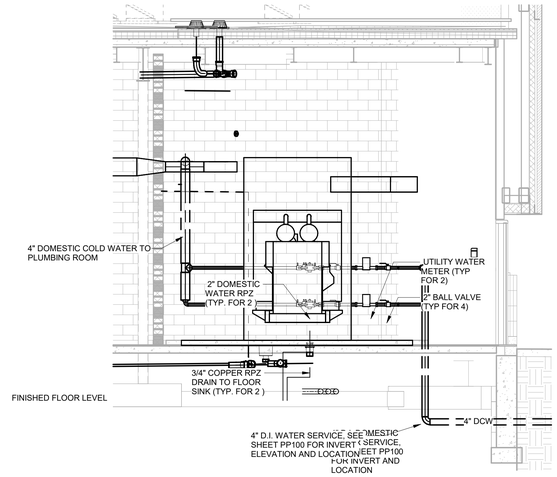
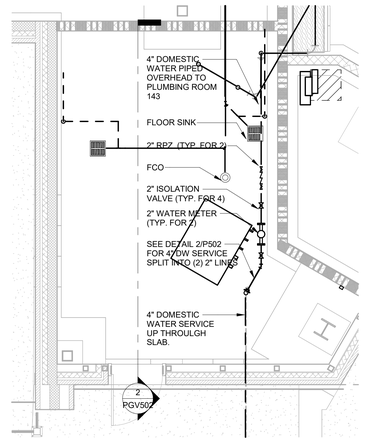
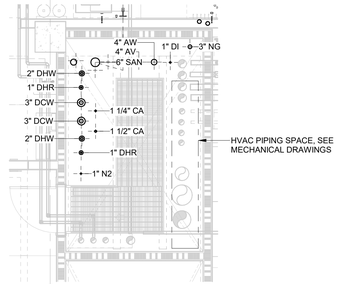


2 INCOMING DOMESTIC WATER SERVICE
1/4" = 1'-0"



1 DOMESTIC WATER SERVICE ENTRANCE
1/4" = 1'-0"



3 PIPING SHAFT RISER DETAIL - LEVEL 3
1/4" = 1'-0"

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
5	01/30/2026	ADDENDUM #5
4	01/19/2026	BP3-CD: ADDENDUM 03
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	12/15/2025	BP1-CD; ASI #4
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Details

DATE
BSA PROJECT NO. 00360481

REF: SHEET INDEX

PGV502

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Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

1. CONTRACTOR IS TO REVIEW EACH OF THESE DETAILS WITH THE MANUFACTURER OF THE APPLIANCE AND THE CONTRACTOR WHO IS RESPONSIBLE FOR FURNISHING AND INSTALLING THAT APPLIANCE.

2. CONTRACTOR IS TO CONFIRM THAT THE DETAIL MATCHES THE APPLIANCE MANUFACTURERS' REQUIREMENTS (INCLUDING ADDRESSING ANY TRIM THAT MIGHT BE FURNISHED BY THE APPLIANCE MANUFACTURER THAT NEEDS TO BE INSTALLED BY A CONTRACTOR). IF A CHANGE NEEDS TO BE MADE, ADJUST THE PROVISION OF THE DETAIL ACCORDINGLY.

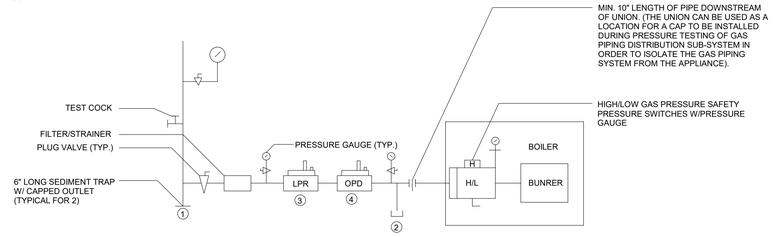
3. CONTRACTOR IS TO INCLUDE THE GAS TRAIN DETAILS SHOWN ON THIS DRAWING, ADJUSTED AS DESCRIBED DIRECTLY ABOVE, IF REQUIRED, IN THEIR SUBMITTALS (I.E. ALL DETAILS ARE TO BE INCLUDED IN SUBMITTALS WHETHER THEY NEEDED TO BE ADJUSTED OR NOT).

4. CONTRACTOR IS TO PROVIDE UNIONS (AND TEMPORARY CAPS) IN THE GAS PIPING DISTRIBUTION WHERE REQUIRED, IN ORDER TO ACCOMMODATE HOW THE CONTRACTOR WILL EXECUTE THE PRESSURE TESTING OF THE GAS PIPING NETWORK WITH NITROGEN.

5. CONTRACTOR IS TO PROVIDE UNIONS (AND TEMPORARY CAPS) IN THE GAS PIPING DISTRIBUTION WHERE REQUIRED, IN ORDER TO ACCOMMODATE HOW THE CONTRACTOR WILL EXECUTE THE PURGING OF THE NITROGEN USED FOR PRESSURE TESTING WITH NATURAL GAS (PURGE MUST BE DISCHARGED TO THE OUTDOORS). CONTRACTOR IS TO CONSIDER IF EACH CIRCUIT, OR EVERY CIRCUIT, NEEDS TO BE PURGED.

③ GENERAL NOTES
N.T.S.

NOTE:
1. PRESSURE GAUGES CAN BE USED DURING PIPE PRESSURE TESTING TO ESTABLISH TEST PRESSURE
2. PRESSURE GAUGES CAN BE USED DURING NORMAL OPERATION TO TROUBLESHOOT AND CHECK FILTER.
3. CONTRACTOR TO PROVIDE INCREASERS AND DECREASER THAT MATCH THE INLET AND OUTLET PIPE SIZE DIAMETERS OF THE LPR AND OPD.



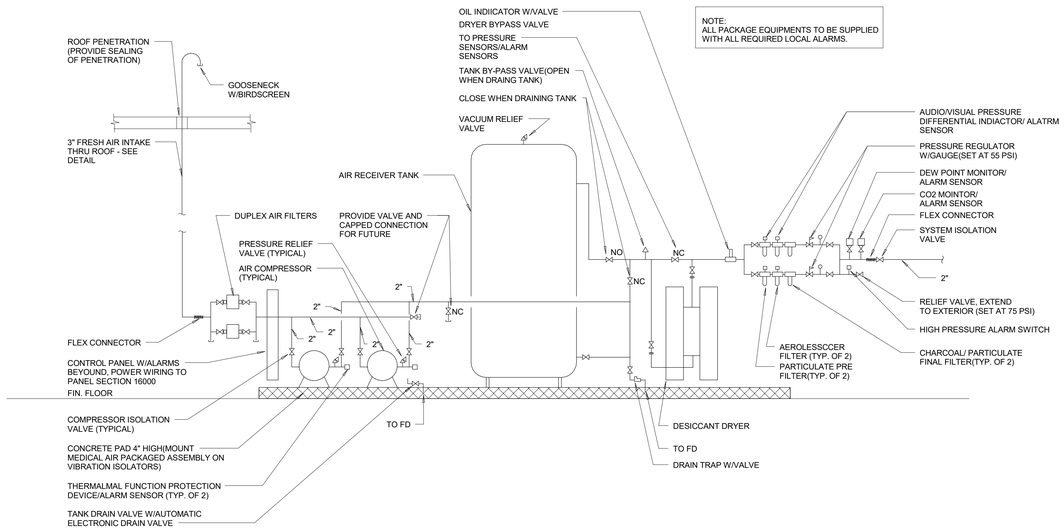
① F/I PER NFPA 54-2024 (NOT REQUIRED BY NFPA54-2024

② F/I PER NFPA 54-2024 (REQUIRED BY NFPA54-2024; PARA. 7.6.3 & 9.6.8)

③ LPR=LINE PRESSURE REGULATOR (REQUIRED BY NFPA 54-2024; PARA 5.7)

④ OPD=OVERPRESSURE PROTECTION DEVICE REQUIRED BY NFPA 54-2024; PARA 5.8 WHERE GAS PRESSURE D.S OF THE SERVICE REGULATOR (CEG) > 2 PSIG FOR APPLIANCES DESIGNED TO OPERATE AT A GAS PRESSURE OF 14" W.C. OR LESS

② DHW HEATERS DHW-1A, 1B, 2A, & 2B
N.T.S.



④ LAB AIR COMPRESSOR-
N.T.S.

NOTE:
1. PRESSURE GAUGES CAN BE USED DURING PIPE PRESSURE TESTING TO ESTABLISH TEST PRESSURE
2. PRESSURE GAUGES CAN BE USED DURING NORMAL OPERATION TO TROUBLESHOOT AND CHECK FILTER.
3. CONTRACTOR TO PROVIDE INCREASERS AND DECREASER THAT MATCH THE INLET AND OUTLET PIPE SIZE DIAMETERS OF THE LPR AND OPD.

① F/I PER NFPA 54-2024 (NOT REQUIRED BY NFPA54-2024

② F/I PER NFPA 54-2024 (REQUIRED BY NFPA54-2024; PARA. 7.6.3 & 9.6.8)

③ LPR=LINE PRESSURE REGULATOR (REQUIRED BY NFPA 54-2024; PARA 5.7)

④ OPD=OVERPRESSURE PROTECTION DEVICE REQUIRED BY NFPA 54-2024; PARA 5.8 WHERE GAS PRESSURE D.S OF THE SERVICE REGULATOR (CEG) > 2 PSIG FOR APPLIANCES DESIGNED TO OPERATE AT A GAS PRESSURE OF 14" W.C. OR LESS

① CONNECTION DETAIL FOR HHW BOILER HB-1, HB-2, & HB-3
N.T.S.

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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
4	01/30/2026	ADDENDUM #5
3	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
2	12/15/2025	BP1-CD; ASI #4
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

Gas/Vac Details

DATE REF: SHEET INDEX

BSA PROJECT NO. 00360481

PGV503

1/30/2026 10:03:02 AM
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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

KEYPLAN
PROJECT NORTH
REFER TO CIVIL DRAWINGS FOR TRUE NORTH

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	01/30/2026	ADDENDUM #5

CEG Natural Gas Meter/Regulator Plan

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PGV601

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

KEYPLAN
PROJECT NORTH
REFER TO CIVIL DRAWINGS FOR TRUE NORTH

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	01/30/2026	ADDENDUM #5

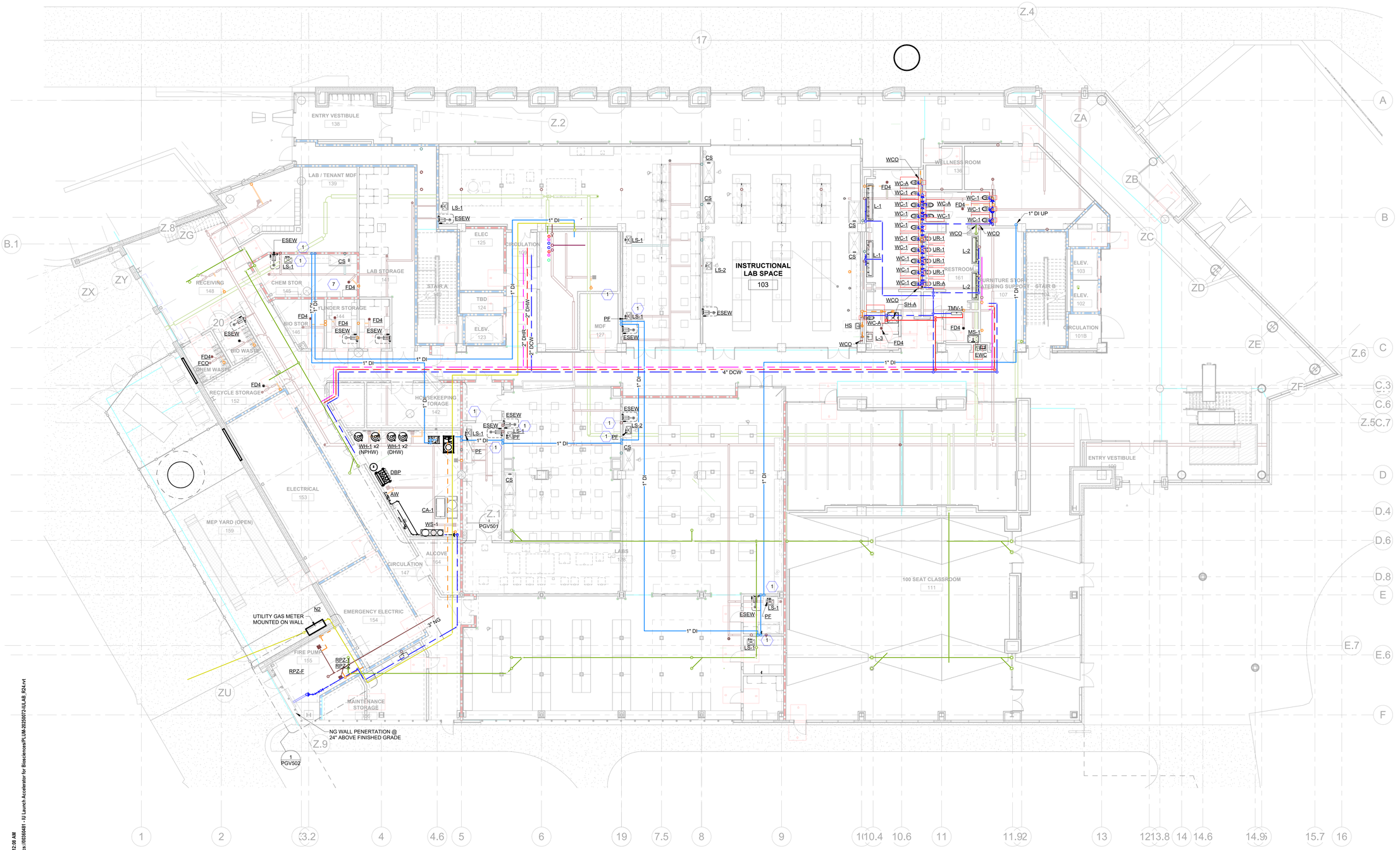
Messer Bulk Nitrogen Plant Layout

DATE	**REF: SHEET INDEX**
BSA PROJECT NO.	**00360481**

PGV602

1/30/2026 10:10:34 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING PIPING KEYNOTES	
NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - LEVEL 1
3/32" = 1'-0"

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CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING PIPING PLAN - LEVEL 1

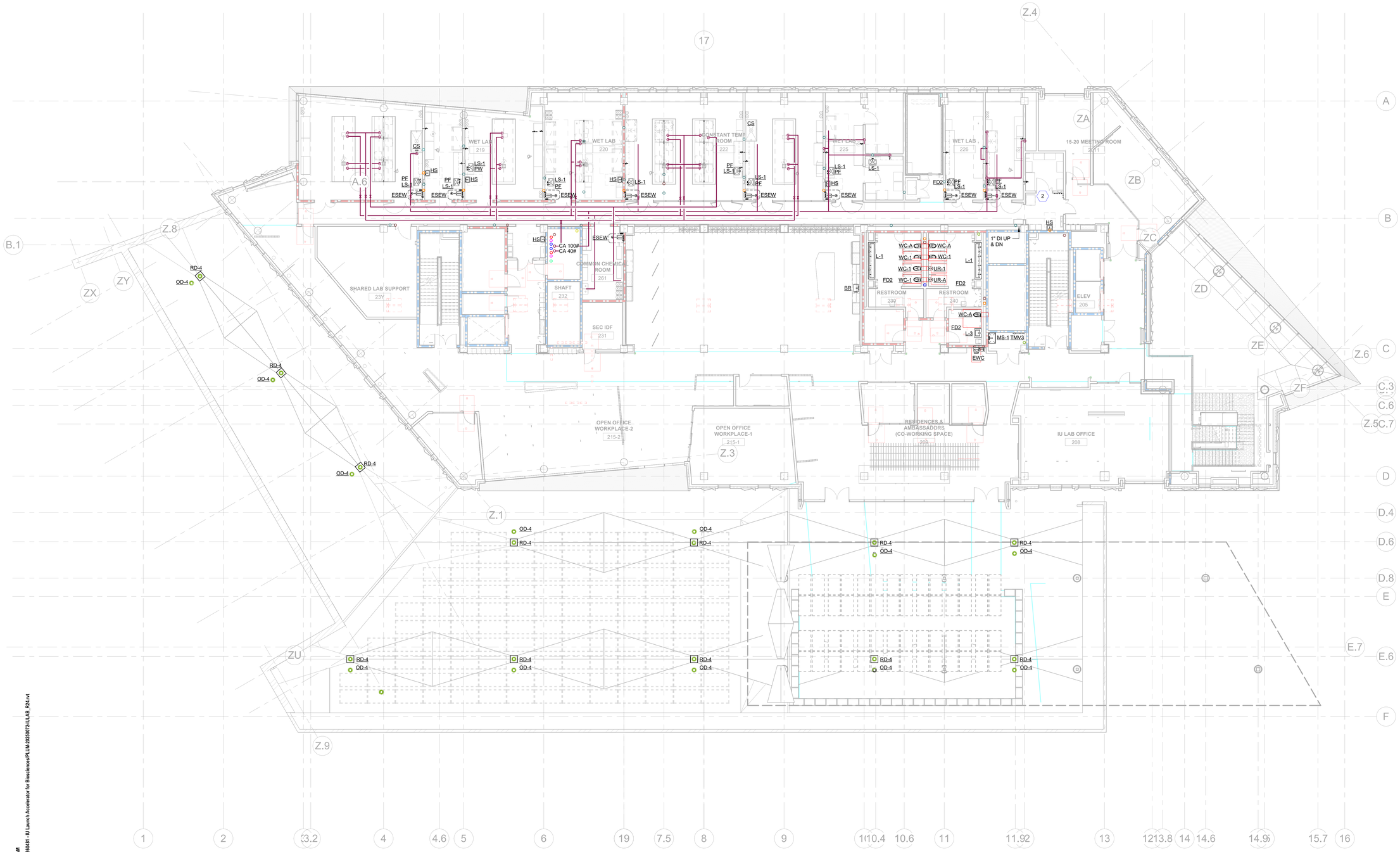
DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP101

1/30/2026 11:12:06 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - LEVEL 2
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING PIPING PLAN - LEVEL 2

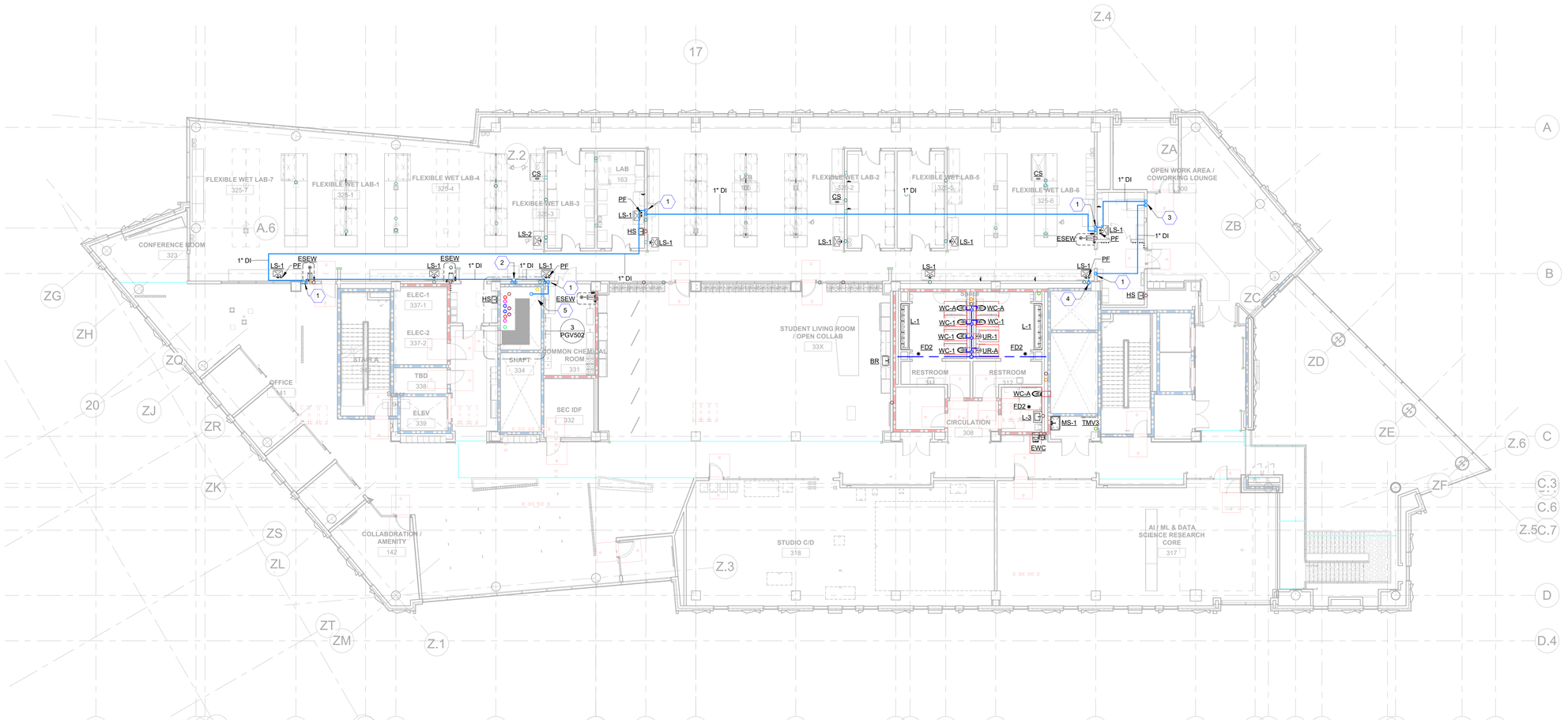
DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP102

1/30/2026 11:12:25 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING PIPING KEYNOTES

NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - LEVEL 3
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

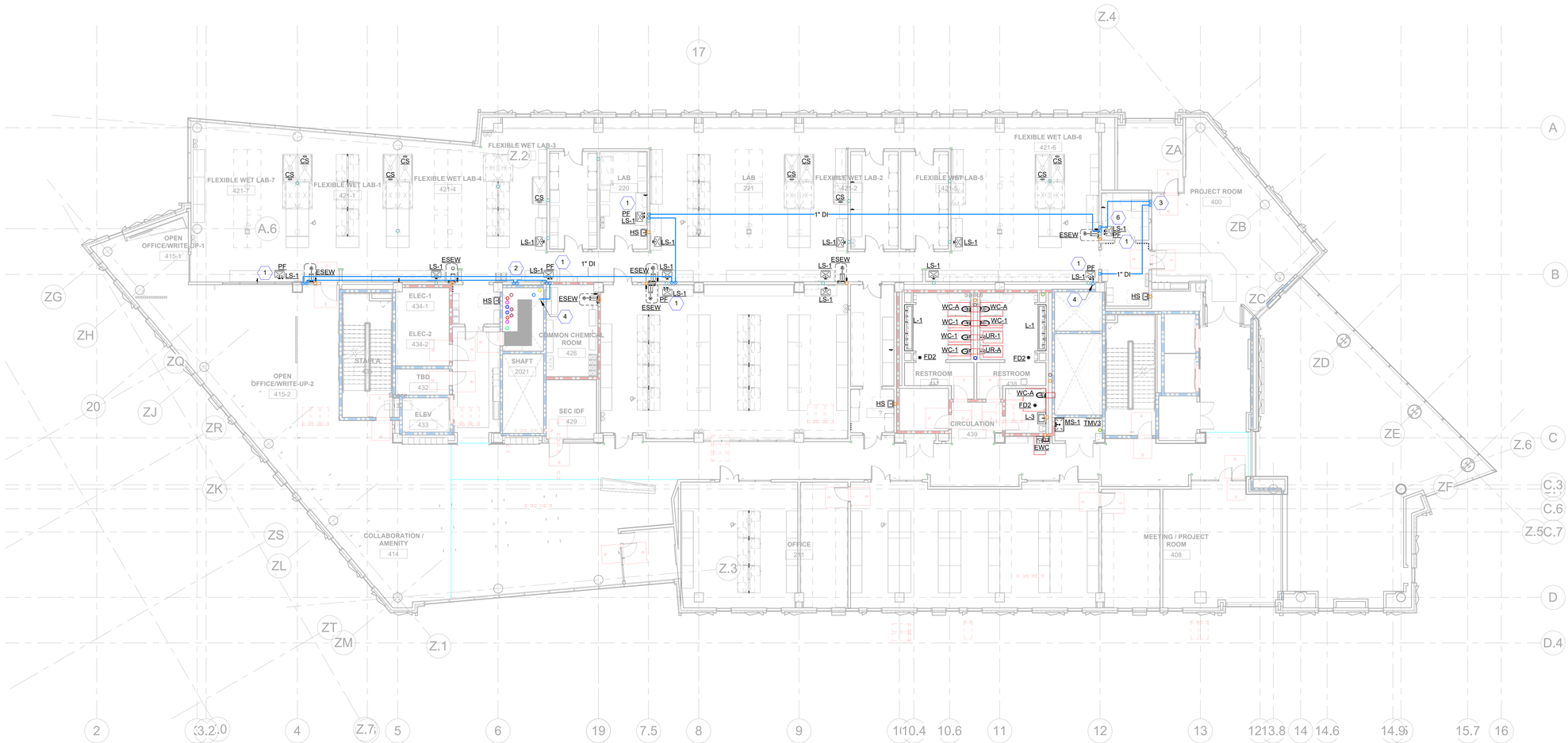
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING PIPING PLAN - LEVEL 3

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP103

PLUMBING PIPING KEYNOTES	
NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - LEVEL 4
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

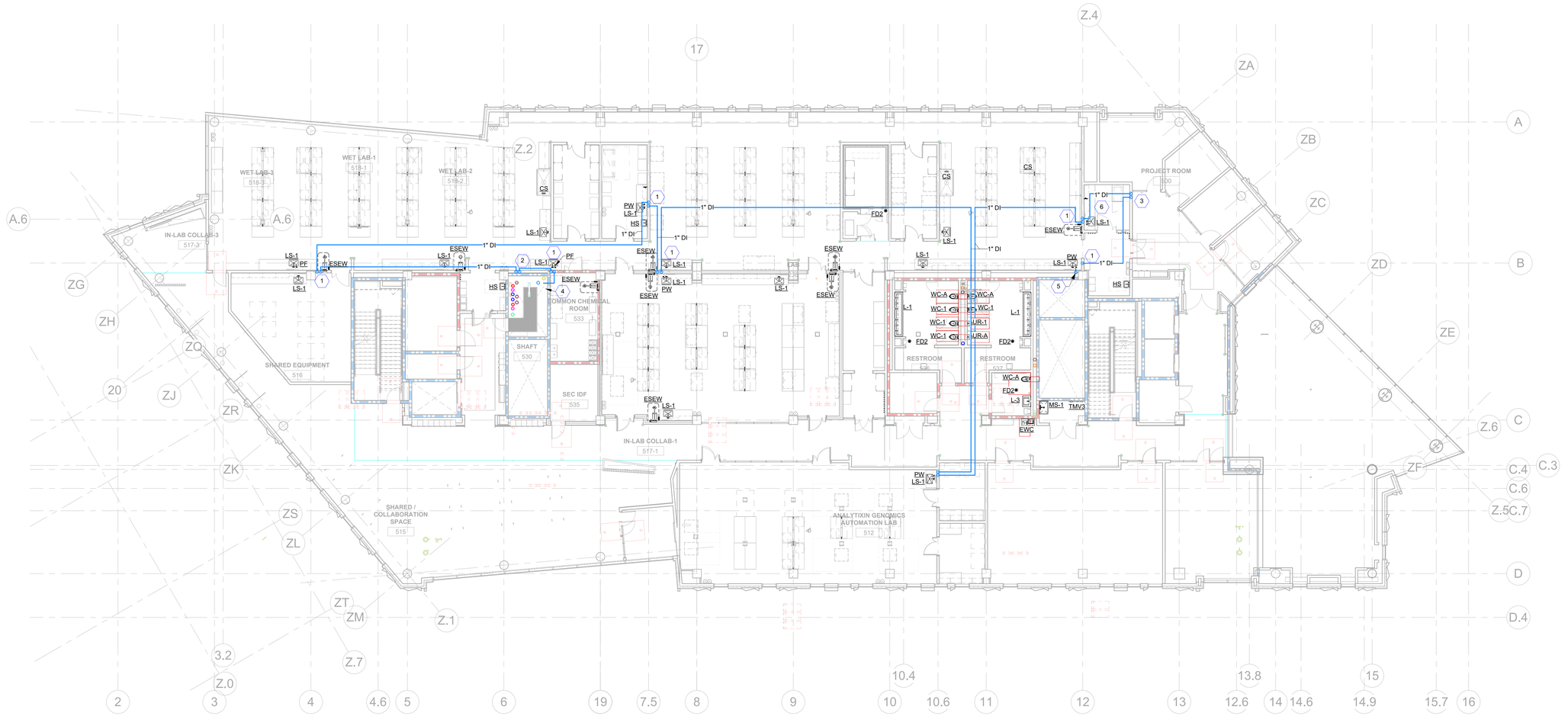
PLUMBING PIPING PLAN - LEVEL 4

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP104

1/30/2026 11:12:53 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250724-IULAB_R24.rvt

PLUMBING PIPING KEYNOTES	
NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - LEVEL 5
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

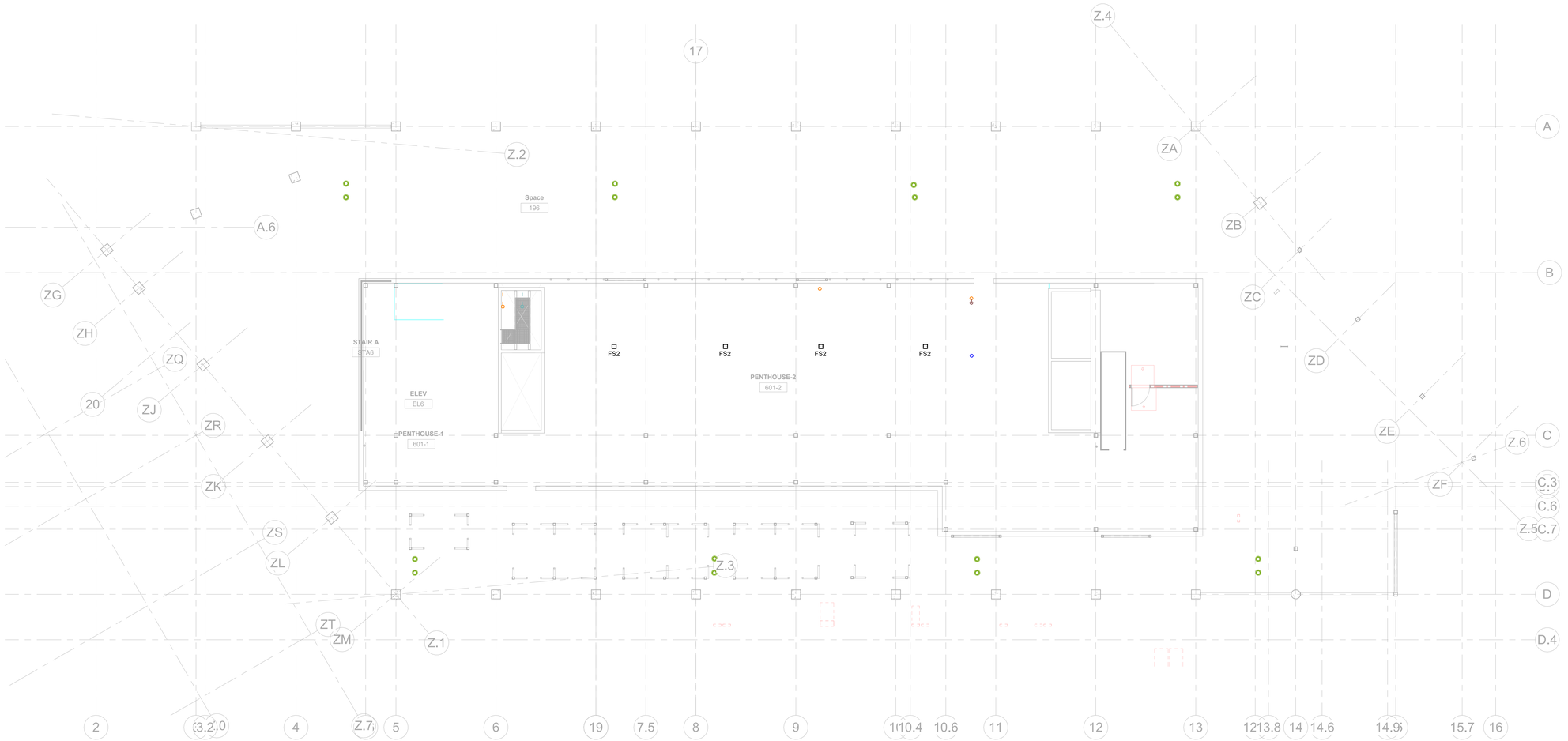
PLUMBING PIPING PLAN - LEVEL 5

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP105

1/30/2026 11:13:09 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING PIPING KEYNOTES	
NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - PENTHOUSE
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

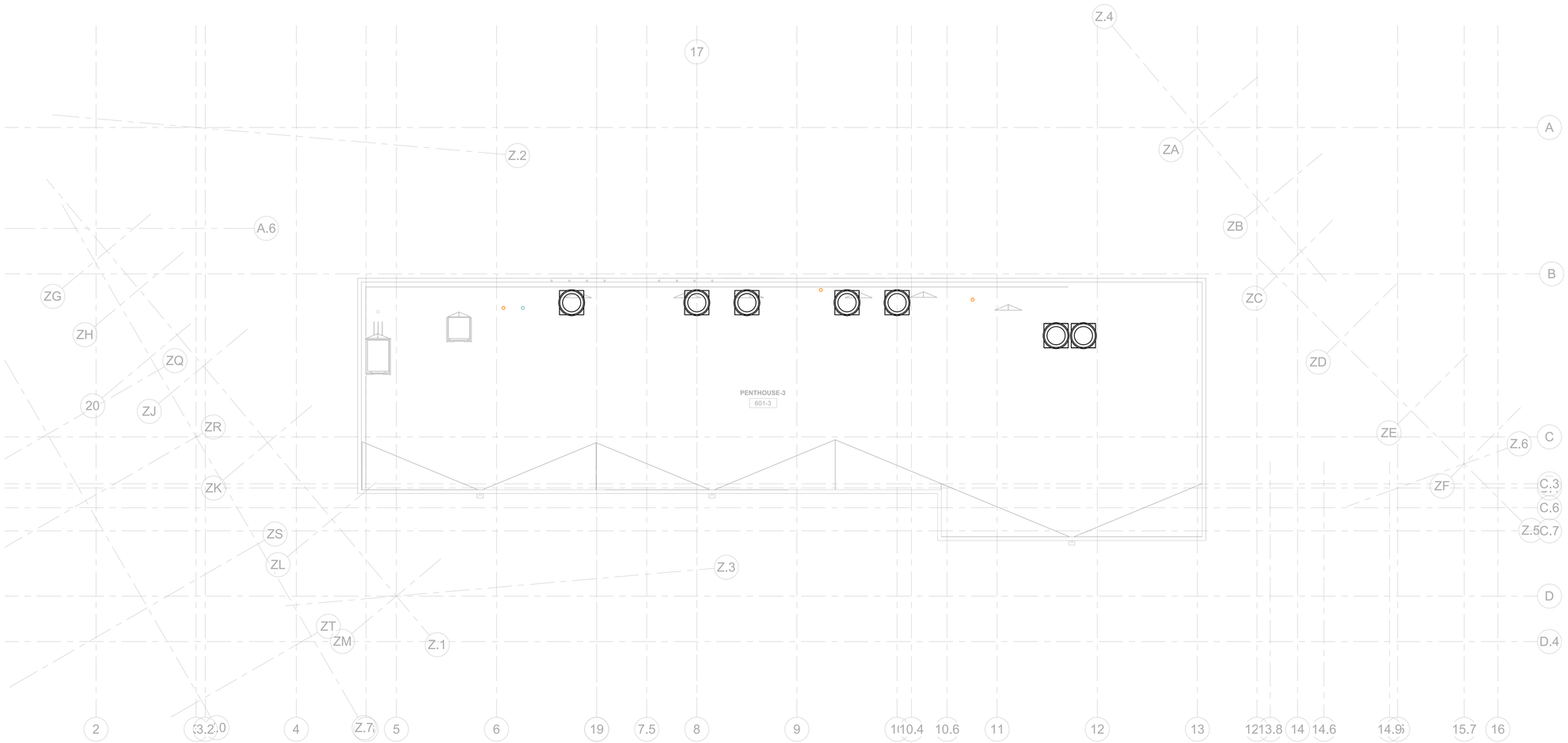
PLUMBING PIPING PLAN - PENTHOUSE

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP106

1/30/2026 11:13:14 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250724ULAB_R24.rvt

PLUMBING PIPING KEYNOTES	
NUMBER	KEYNOTE
1	3/4" PW DN TO DECK MOUNTED PF.
2	3/4" PW DN TO ICE MAKER.
3	3/ 4" PW DN TO STERILIZER SUPPLY.
4	1" PW UP & DN.
5	1" PURE WATER DOWN.
6	PIPE PURE WATER TO DECK MOUNT FAUCET AND UNDERCOUNTER GLASSWARE WASHER
7	



1 PLUMBING PIPING PLAN - ROOF
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING PIPING PLAN - ROOF

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PP107

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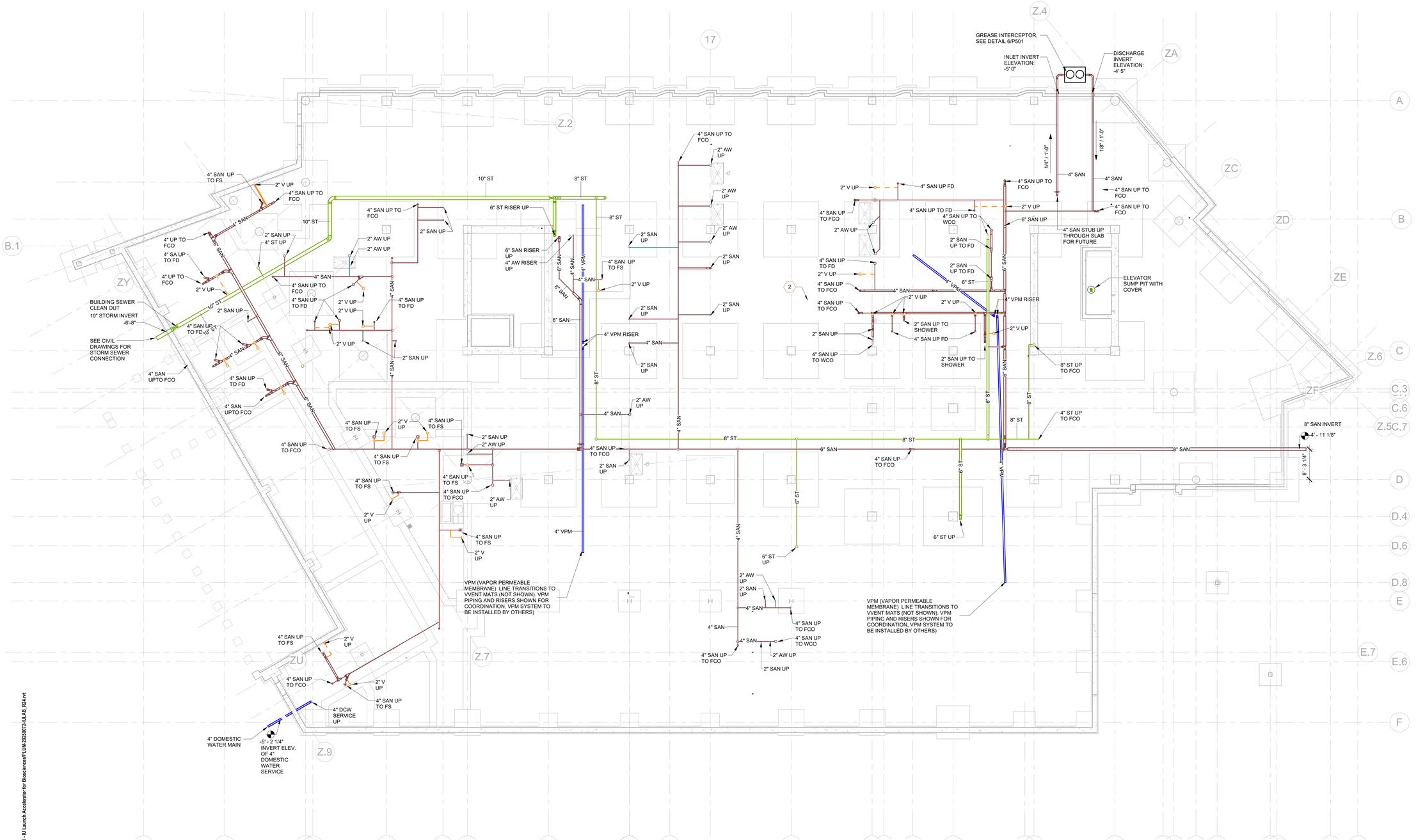
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt



1 PLUMBING VENT AND WASTE - UNDERGROUND
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
6	01/19/2026	BP3-CD: ADDENDUM 03
5	01/12/2026	BP3-CD: ADDENDUM 02
4	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
3	12/15/2025	BP1-CD; ASI #4
2	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE
1	09/29/2025	BP1- CD: SITE AND FOUNDATION PACKAGE

PLUMBING WASTE & VENT PLAN - UNDERGROUND

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW100

1/30/2026 11:13:26 AM
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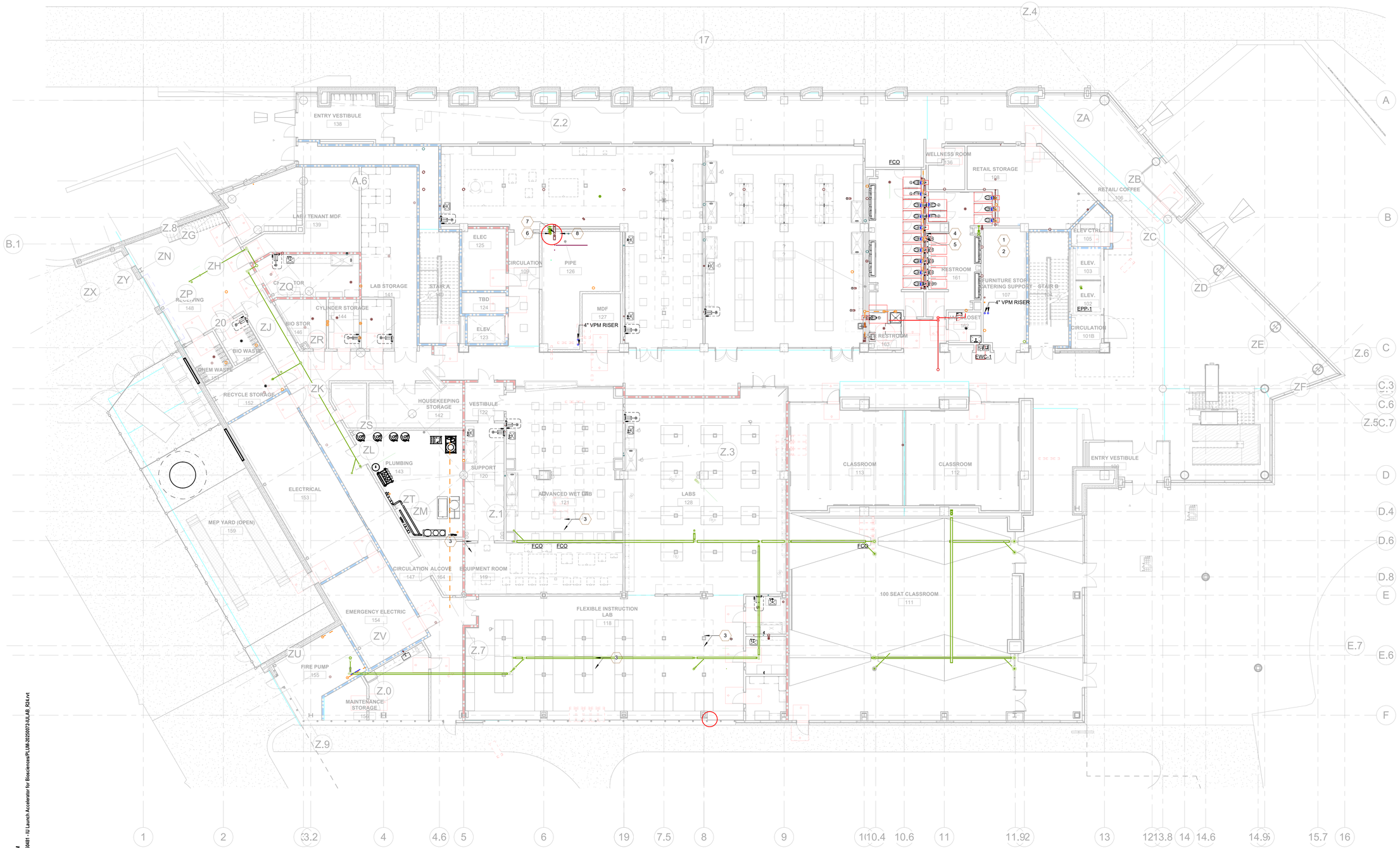

1 PLUMBING VENT AND WASTE PLAN - LEVEL 1
3/32" = 1'-0"

1/30/2026 11:15:56 AM
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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE

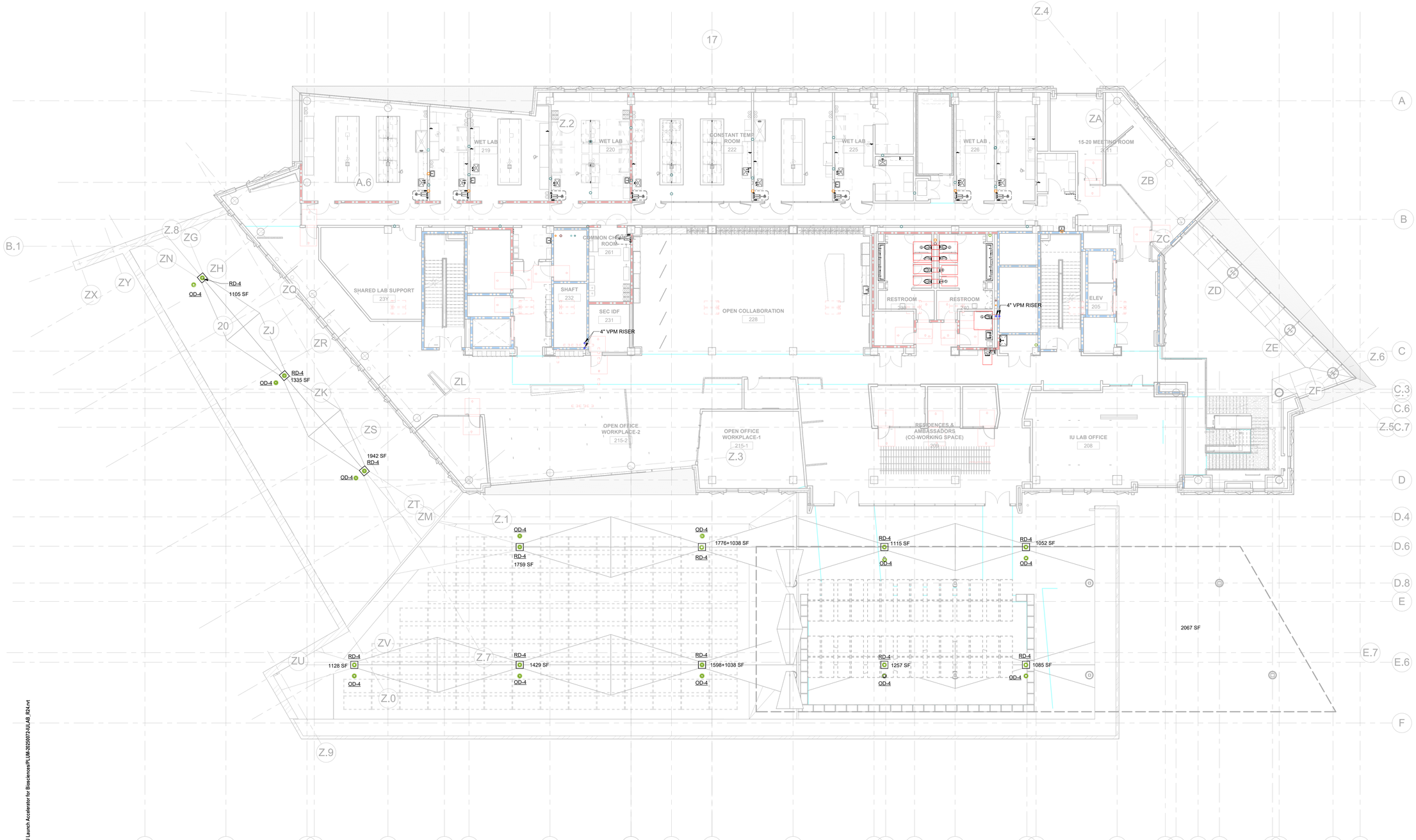
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING WASTE & VENT PLAN - LEVEL 1

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW101

PLUMBING VENT KEYNOTES	
NUMBER	KEYNOTE
1	PENTHOUSE ROOF TO DRAIN THROUGH SCUPPER ONTO FLOOR 5 ROOF.



1 PLUMBING VENT AND WASTE PLAN - LEVEL 2
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

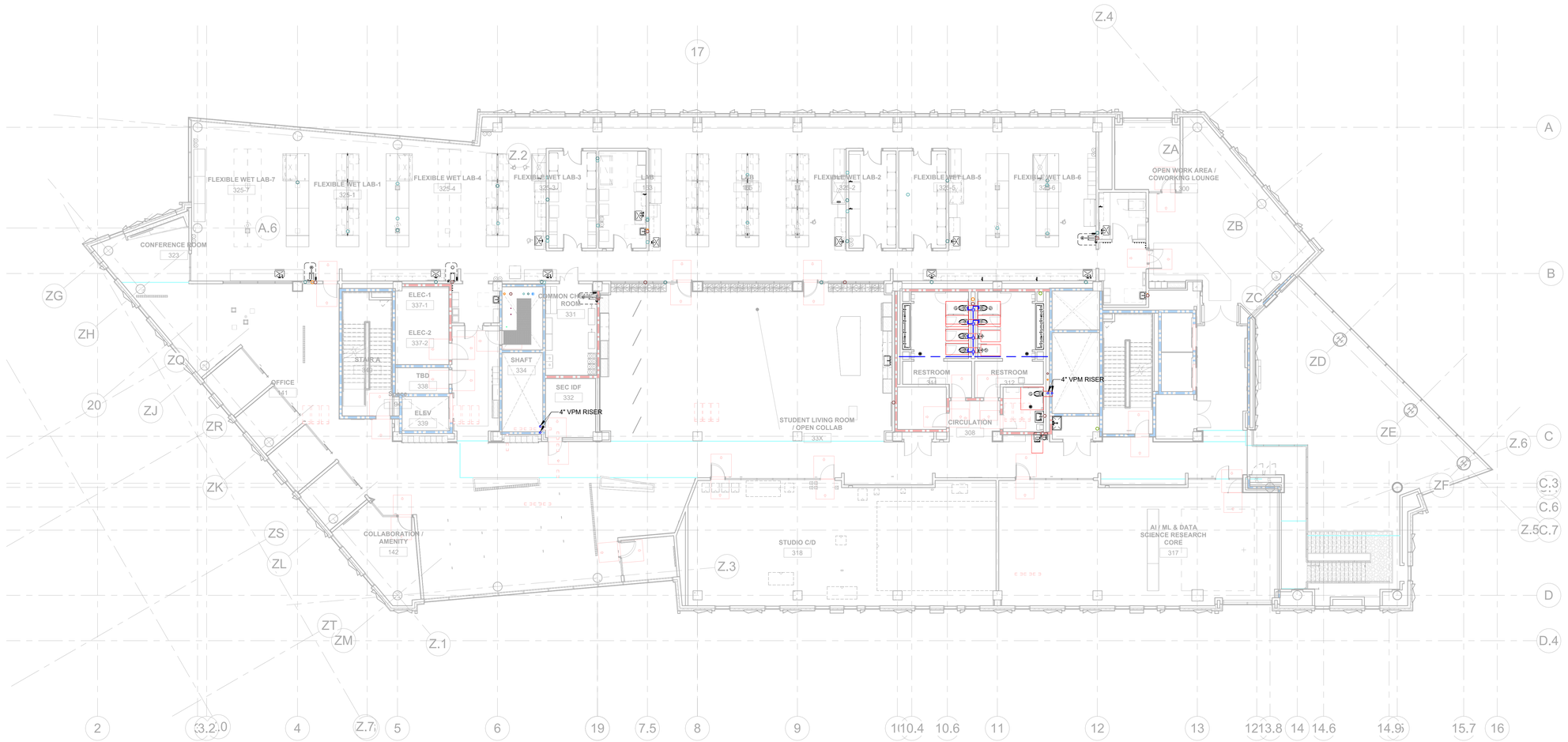
PLUMBING WASTE & VENT PLAN - LEVEL 2

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW102

10/3/2025 11:14:02 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING VENT KEYNOTES	
NUMBER	KEYNOTE
1	PENTHOUSE ROOF TO DRAIN THROUGH SCUPPER ONTO FLOOR 5 ROOF.



1 PLUMBING VENT AND WASTE PLAN - LEVEL 3
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING WASTE & VENT PLAN - LEVEL 3

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW103

1/30/2026 11:14:11 AM
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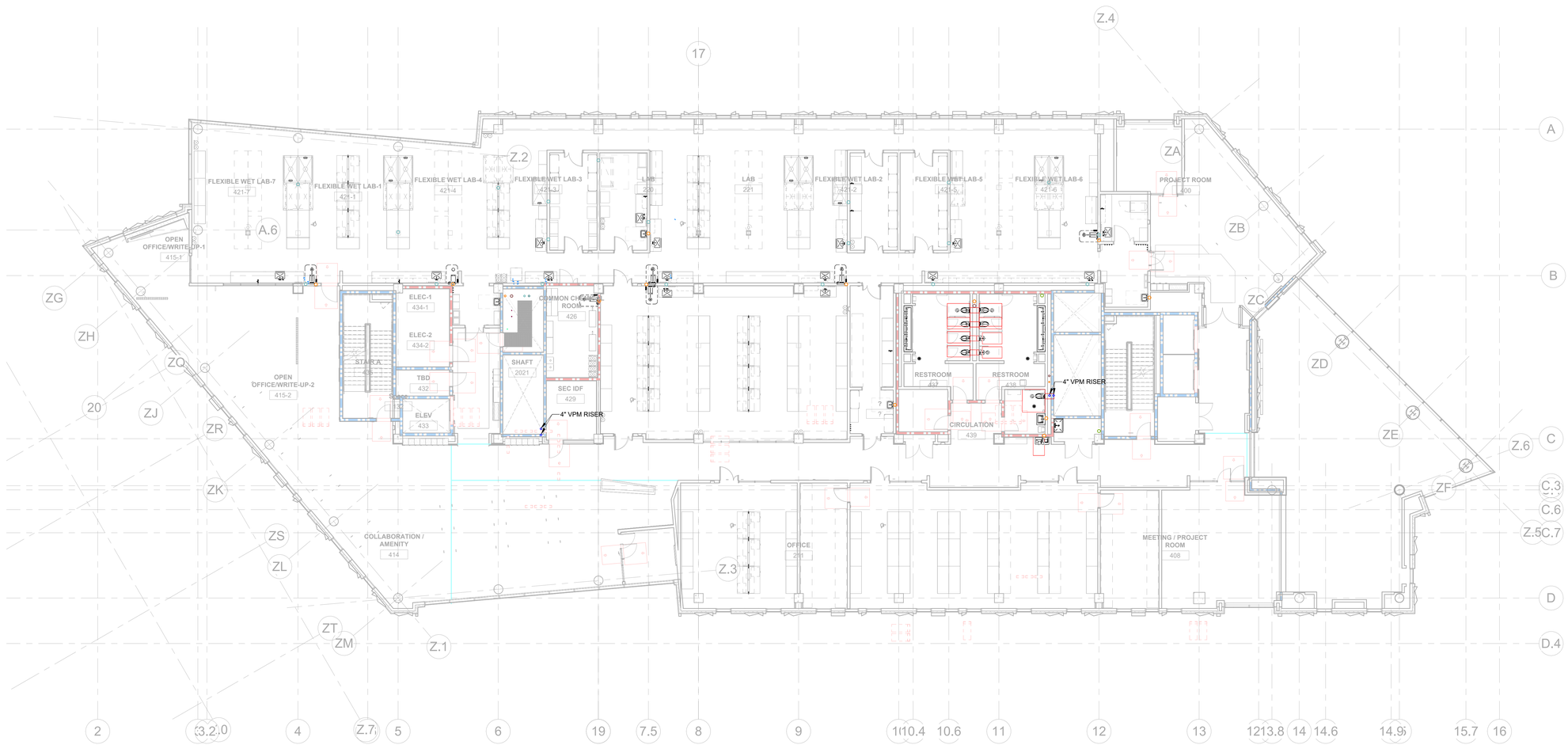
PLUMBING VENT KEYNOTES	
NUMBER	KEYNOTE
1	PENTHOUSE ROOF TO DRAIN THROUGH SCUPPER ONTO FLOOR 5 ROOF.



1 PLUMBING VENT AND WASTE PLAN - LEVEL 4
3/32" = 1'-0"

BSA LifeStructures
175 S. Rangeline Rd, Suite 200
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ph 317.819.7878 fx 317.819.7288

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313.983.3600
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LAUNCH ACCELERATOR FOR BIOSCIENCES

INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

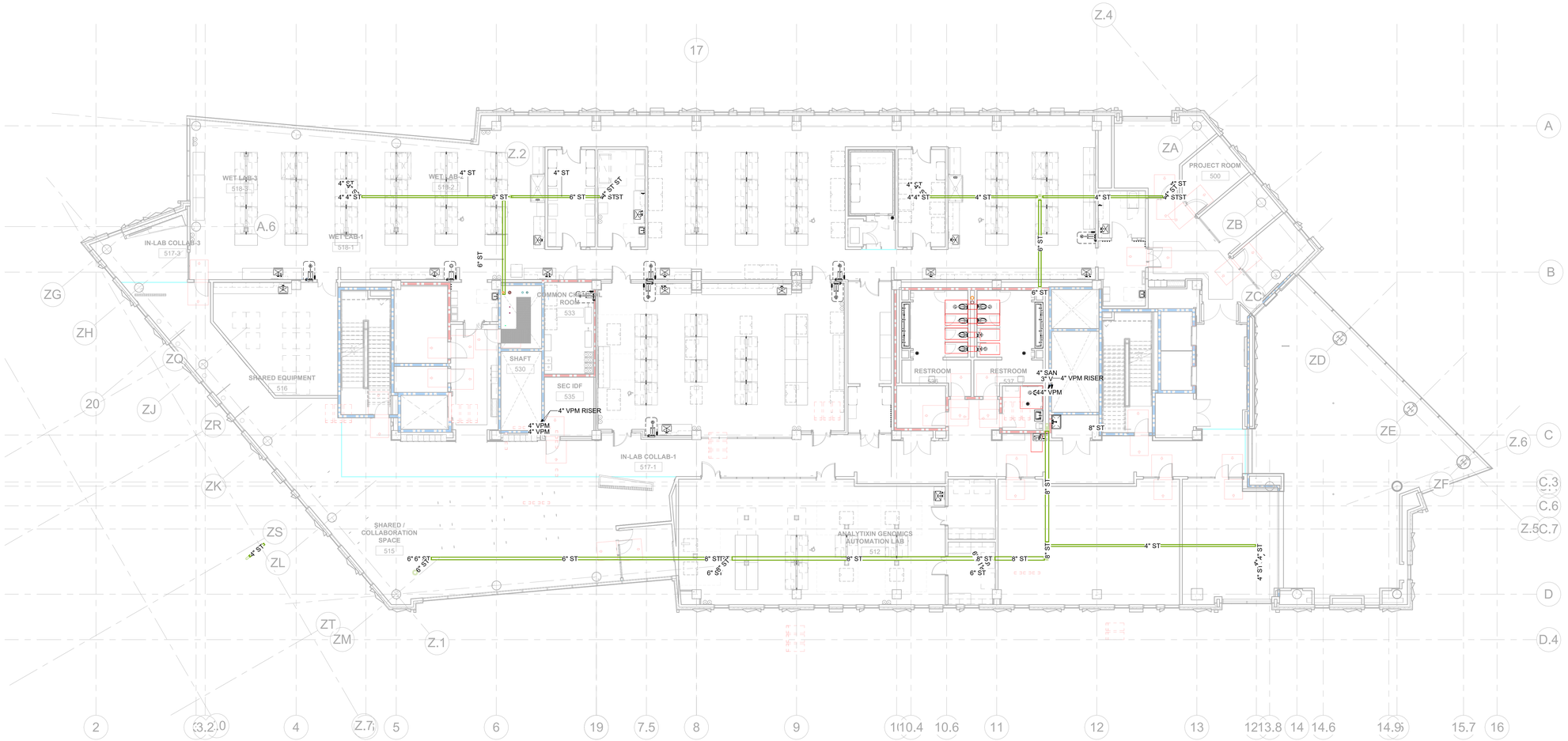
PLUMBING WASTE & VENT PLAN - LEVEL 4

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW104

1/30/2026 11:14:20 AM
Autodesk Docs://00360481 - IU Launch Accelerator for Biosciences/PLUM-20250072-IULAB_R24.rvt

PLUMBING VENT KEYNOTES	
NUMBER	KEYNOTE
1	PENTHOUSE ROOF TO DRAIN THROUGH SCUPPER ONTO FLOOR 5 ROOF.



1 PLUMBING VENT AND WASTE PLAN - LEVEL 5
3/32" = 1'-0"

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING WASTE & VENT PLAN - LEVEL 5

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW105

1/30/2026 11:14:39 AM
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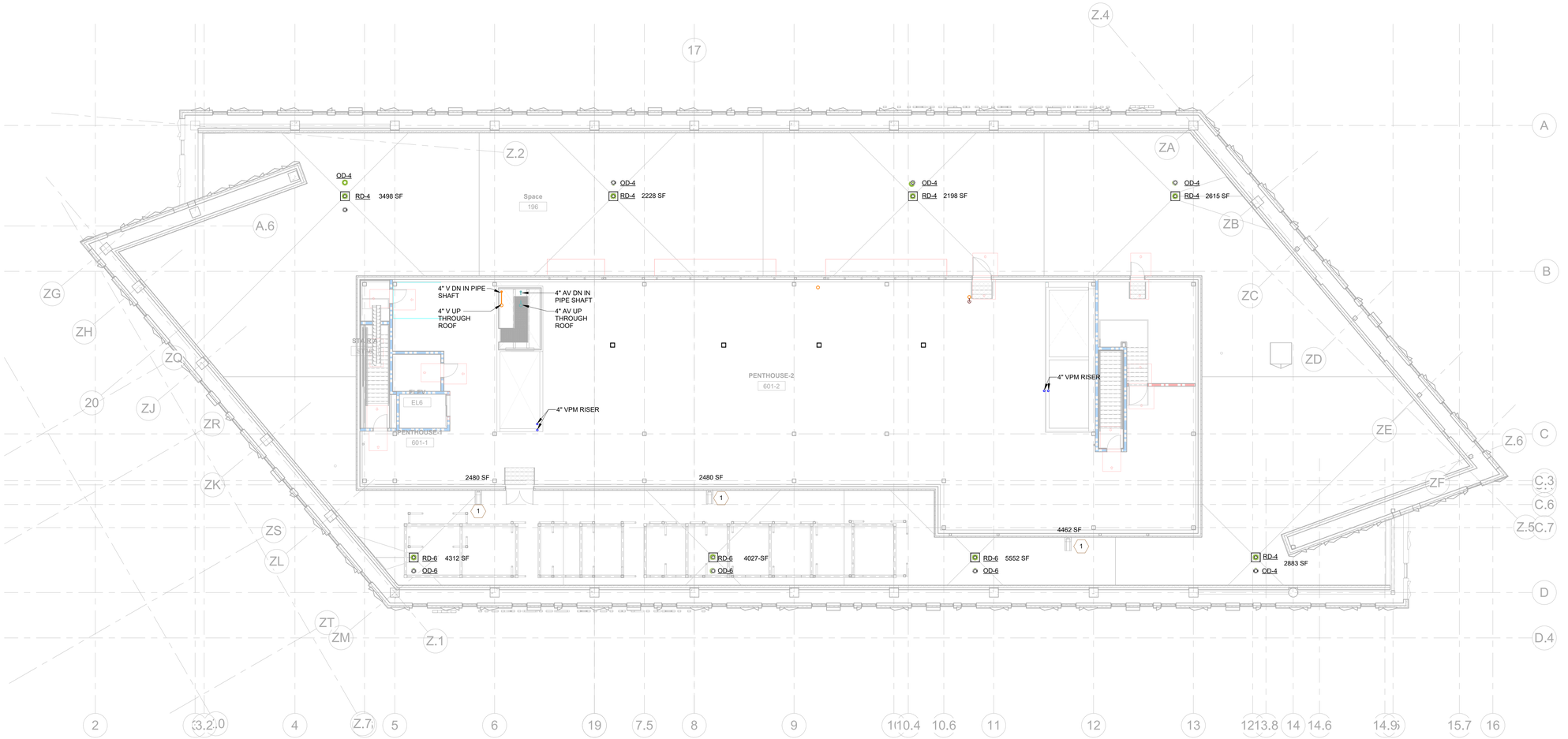
PLUMBING VENT KEYNOTES	
NUMBER	KEYNOTE
1	PENTHOUSE ROOF TO DRAIN THROUGH SCUPPER ONTO FLOOR 5 ROOF.



1 PLUMBING VENT AND WASTE PLAN - PENTHOUSE
3/32" = 1'-0"

BSA

SWITCH PLACEHOLDER FAMILY
TYPE FOR CORRECT BSA OFFICE

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CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP3-100% CORE AND SHELL PACKAGE

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING WASTE & VENT PLAN - PENTHOUSE

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW106

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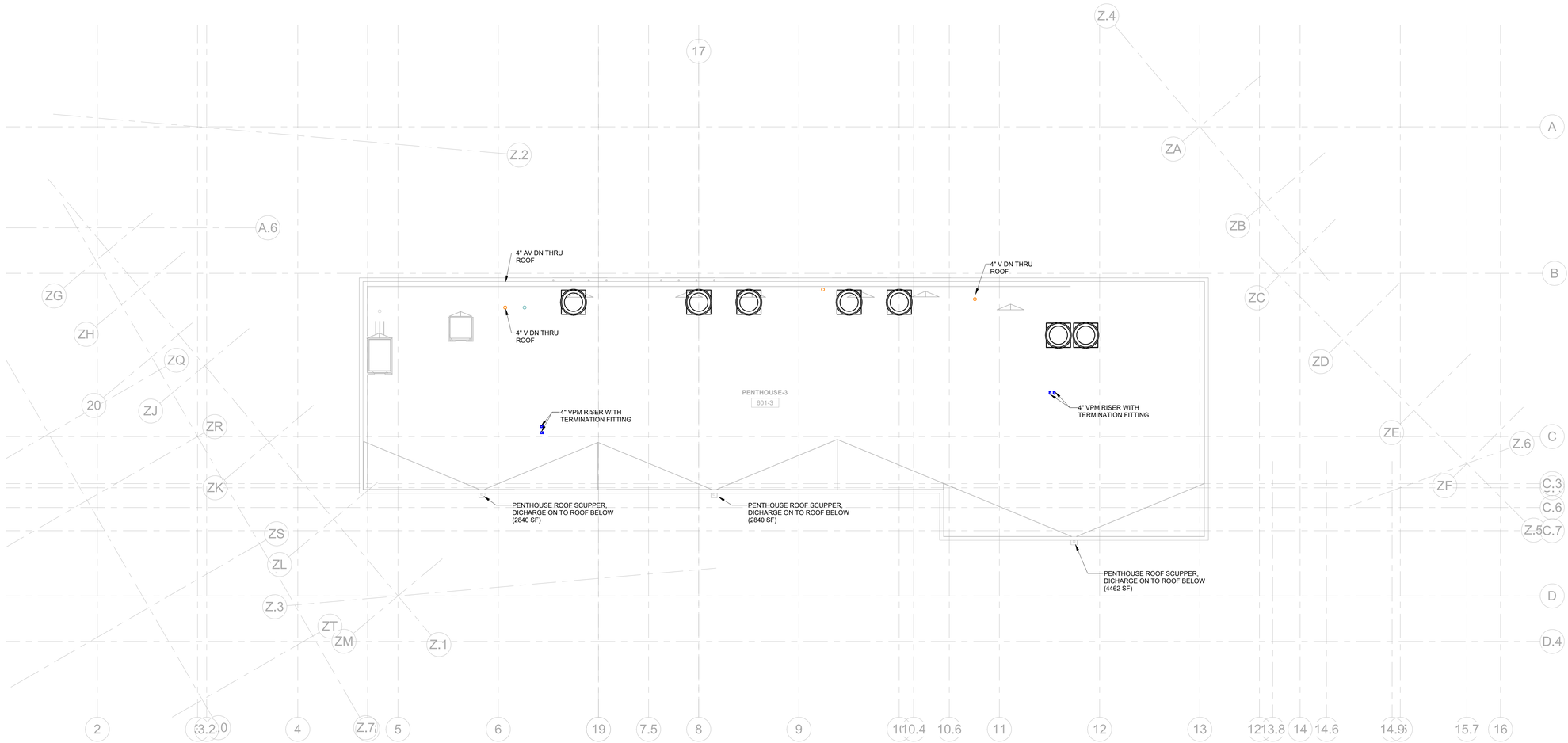
INDIANAPOLIS, INDIANA

CLIENT PROJECT NO. - 20250072

CUMULATIVE DOCUMENTS

BP4-100% DD: BUILD-OUT PACKAGE



1 PLUMBING VENT AND WASTE PLAN - ROOF
3/32" = 1'-0"

ISSUED / REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
2	12/15/2025	BP4-100% DD: BUILD-OUT PACKAGE
1	09/29/2025	BP4-50% DD: BUILD OUT PACKAGE

PLUMBING WASTE & VENT PLAN - ROOF

DATE	REF: SHEET INDEX
BSA PROJECT NO.	00360481

PW107

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