

MECHANICAL NOTES

1.

MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE, INTENDED TO INDICATE DESIGN INTENT ONLY. THE MECHANICAL CONTRACTOR IS EXCLUSIVELY RESPONSIBLE TO COORDINATE SPECIFIC LOCATIONS OF ITEMS AND ADJUST AS REQUIRED TO ACCOMMODATE CODE REQUIREMENTS, EXISTING CONDITIONS (IF RENOVATION PROJECT), BUILDING STRUCTURE, SPRINKLER PIPING (IF ANY), LIGHTS, PLUMBING, ELECTRICAL WORK, AND THE WORK OF ALL OTHER TRADES. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. FIELD MODIFICATIONS (SUCH AS OFFSETS IN PIPING OR DUCTWORK (INCLUDING DIVIDED DUCTWORK) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST.
2.

ALL OF THE MECHANICAL INFORMATION IS PRESENTED ON AN X-REFERENCED BACKGROUND FLOOR PLAN. IN CASE OF CONFLICT BETWEEN BACKGROUND PLAN AND ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL FLOOR PLAN SHALL GOVERN.
3.

THE HVAC CONTRACTOR SHALL PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS OR METHODS MENTIONED, LISTED OR SCHEDULED ON THE DRAWINGS AND IN THESE SPECIFICATIONS, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND ALL INCIDENTALS NECESSARY REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS.
4.

THE ENGINEER WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES AND IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THOSE DOCUMENTS PREPARED BY THE ENGINEER.
5.

IF BIDDING CONTRACTOR WOULD LIKE TO SUBSTITUTE ANY SPECIFIED MECHANICAL DEVICES, HVAC EQUIPMENT, THERMOSTATS, COILS, FANS, INSULATION, HANGERS, PIPING, VFD's, ETC., THEY MUST PROVIDE SUBMITTAL TYPE DRAWINGS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO BIDDING THE PROJECT. IF THESE APPROVAL DRAWINGS ARE NOT SUBMITTED AND ACCEPTED, THE SPECIFIED EQUIPMENT MUST BE USED - NO EXCEPTIONS.
6.

THE HVAC CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF DRAWINGS REFLECTING "AS-BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND AND/OR CONCEALED WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER THE AS-BUILT DRAWINGS TO THE CM OR GC.
7.

THE INSTALLATION SHALL BE MADE SO THAT ALL COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM; IT SHALL BE COMPLETE WITH ALL ACCESSORIES NECESSARY FOR PROPER OPERATION. WHEN THE INSTALLATION IS COMPLETE, ALL EQUIPMENT SHALL BE EXECUTED IN CONFORMITY WITH THE BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS.
8.

TO ACCOMPLISH THESE RESULTS, THE HVAC CONTRACTOR SHALL CONSULT THE ARCHITECT'S FIELD LAYOUTS OF THE CONTRACTORS FOR THESE TRADES AND THEIR SHOP DRAWINGS. HE/SHE SHALL COORDINATE THEIR WORK ACCORDINGLY.
9.

DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGHING-IN MEASUREMENTS OR TO SERVE AS SHOP DRAWINGS. THE ARCHITECTURAL DRAWINGS AND DETAILS SHALL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT, WHERE THEY ARE NOT DEFINITELY LOCATED, THIS INFORMATION SHALL BE OBTAINED FROM THE ENGINEER.
10.

REFER TO THE ARCHITECTURAL PLANS FOR ALL BUILDING SECTIONS, INTERIOR, AND EXTERIOR ELEVATIONS. EQUIPMENT AND INSTALLATION METHODS SHOWN ON ARCHITECTURAL SECTIONS/DETAILS ARE CONSIDERED PART OF THE HVAC DOCUMENTS .
11.

MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERRABLE AS NECESSARY TO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR OR SUB-CONTRACTOR FOR SUCH SYSTEM WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR DRAWINGS.
12.

WHERE WORK OF THE CONTRACTOR CONNECTS TO THAT OF ANOTHER TRADE, OR TO PIPING OR EQUIPMENT IN PLACE, THE CONTRACTOR SHALL TAKE SUCH MEASUREMENTS IN THE FIELD AS MAY BE NECESSARY TO MAKE HIS WORK COME TRUE OR LINE UP WITH THAT WORK.
13.

HVAC CONTRACTOR SHALL FURNISH TO THE ARCHITECTURAL TRADES CONTRACTOR INFORMATION SUCH AS SIZE AND LOCATION CONCERNING ALL FRAMED OPENINGS AND EQUIPMENT BASES REQUIRED.
14.

UNLESS OTHERWISE INDICATED, ALL MOTORS SHALL BE FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR. UNLESS OTHERWISE INDICATED, THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE ALL STARTERS, SAFETY LINE SWITCHES AND CONTROLLERS.
15.

ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH CURRENT CODES, INCLUDING BUT NOT LIMITED TO:

A.

MICHIGAN BUILDING CODES

B.

MICHIGAN PLUMBING CODE

C.

MICHIGAN MECHANICAL & ENERGY CODES

D.

NATIONAL ELEC. CODE

E.

MICHIGAN REHABILITATION

F.

MICHIGAN BARRIER FREE CODES

G.

OSHA REQUIREMENTS

ALL CODES SHALL BE THE STATE OF MI LATEST ADOPTED EDITIONS AT THE TIME OF PLAN REVIEW.
16.

HVAC WORK SHALL BE DONE IN ACCORDANCE WITH THE MECHANICAL CODE AS LOCALLY ADOPTED, LOCAL REGULATIONS AND OTHER CODES OR REGULATIONS HAVING LEGAL JURISDICTION IN THE AREA. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTIONS AS MAY BE REQUIRED. PROVIDE FINAL CERTIFICATES OF INSPECTION TO THE GC UPON COMPLETION.
17.

ANY CHANGES IN THE WORK TO SECURE CERTIFICATES SHALL BE MADE BY THIS CONTRACTOR AT HIS OWN EXPENSE. IN THE EVENT PLANS AND SPECIFICATIONS CONFLICT WITH ANY RULES, REGULATIONS OR CODES APPLYING, SAID RULES, REGULATIONS AND CODES SHALL GOVERN THE CONTRACTOR.
18.

ALL HEATING AND COOLING WORK SHALL BE DONE IN FULL ACCORD WITH ASME, SMACNA AND ALL STATE, FEDERAL AND LOCAL CODES OR ORDINANCES WHICH MAY APPLY IN THE AREA.
19.

IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONTRACTOR MUST SELECT ONE OF THE SPECIFIED MANUFACTURERS FOR EACH PIECE OF EQUIPMENT AND, WHERE ONLY ONE MANUFACTURER IS SPECIFIED, THAT MAKE MUST BE USED. THESE ITEMS MAY NOT BE CHANGED EXCEPT BY PERMISSION OF THE ENGINEER.
20.

CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION. CONTRACTOR MAY CHANGE SHAPE OF DUCTS AS LONG AS THE FREE AREA NOTED ON PLANS IS RETAINED.
21.

IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES FOR PROPER EXECUTION OF THE WORK.
22.

FURNISH TO THE GC, FOR THE OWNER, TWO BOUND OPERATION MANUALS CONSISTING OF THE FOLLOWING:

A.

ONE COPY OF SHOP DRAWINGS OF EACH PIECE OF EQUIPMENT.

B.

INSTALLATION, OPERATING AND TROUBLESHOOTING MANUALS.

C.

PARTS LIST.

D.

THUMB DRIVE WITH ALL OF THE ABOVE IN PDF FORMAT.
23.

THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER IN SERVICING, OPERATING, SEASONAL CHANGE OVER, TEMPERATURE CONTROLS, ETC., OF MAIN PIECES OF EQUIPMENT.
24.

CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED BY HIM OR SUB-CONTRACTORS TO BE FREE FROM DEFECT IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK, AND HE SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS AND SHALL ALSO MAKE GOOD ANY DAMAGE CAUSED BY SUCH DEFECTS OR THE CORRECTION OF DEFECTS. THIS REQUIREMENT SHALL BE BINDING EVEN THOUGH IT WILL EXCEED PRODUCTS GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.
25.

CONTRACTOR SHALL SUBMIT HIS OWN AND EACH EQUIPMENT MANUFACTURER'S WRITTEN CERTIFICATES, WARRANTING THAT EACH ITEM OR EQUIPMENT FURNISHED COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. NOTE THAT GUARANTEE SHALL RUN FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK, NOT FROM THE DATE OF INSTALLATION OF A DEVICE OR PIECE OF EQUIPMENT.
26.

ALL WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST STANDARDS PRESCRIBED BY LOCAL AND/OR STATE CODES AND/OR ORDINANCES INCLUDING THE LATEST RULES OF THE NFPA.
27.

ALL EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED, SUCH DIRECTIONS SHALL BE FOLLOWED. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EXACT EQUIPMENT FURNISHED.
28.

UNTIL FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL PROTECT ALL MATERIALS.
29.

ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE EQUAL IN QUALITY AND CAPACITY TO THAT SPECIFIED AND HARMONIOUS IN DESIGN AS DETERMINED BY THE ENGINEER.
30.

HVAC WORK SHALL BE CAREFULLY EXECUTED BY SKILLED MECHANICS WELL VERSED IN THEIR PARTICULAR TRADES. IT SHALL ALSO HAVE A CLEAN, NEAT, WELL ARRANGED AND FINISHED APPEARANCE TO THE COMPLETE SATISFACTION OF THE OWNER AND THE ARCHITECT/ENGINEER.
31.

THE CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS WHICH WILL AFFECT THE WORK HE IS TO PERFORM. THE SUBMISSION OF A PROPOSAL BY THIS CONTRACTOR SHALL BE CONCLUSIVE EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS GIVEN PROPER CONSIDERATION AND EVALUATION OF THESE CONDITIONS IN THE PREPARATION OF HIS PROPOSAL. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE IN HIS BEHALF FOR EXTRA EXPENSE INCURRED DUE TO FAILURE OF NEGLECT ON HIS PART TO MAKE THIS VISIT AND EXAMINATION.
32.

PROVIDE SHOP DRAWINGS FOR APPROVAL FOR HVAC EQUIPMENT, DUCT INSULATION, DAMPERS, LOUVERS, GRILLES AND REGISTERS, TEMPERATURE CONTROL SYSTEMS, VALVES, ETC. SHOP DRAWINGS ARE THE BE THOROUGHLY CHECKED (AND NOTED SO ON FRONT COVER) BY THE CONTRACTOR PRIOR TO SUBMITTING THEM TO THE ENGINEER. REVIEW BY THE ENGINEER SHALL NOT BE CONSTRUED AS A COMPLETE CHECK, BUT ONLY THAT THE GENERAL METHOD OF CONSTRUCTION AND DETAILING IS SATISFACTORY. REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS WHICH MAY EXIST. IF THE CONTRACTOR IS APPROVED TO USE A MANUFACTURER OTHER THAN THE ONE SPECIFIED BY THE ENGINEER, IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE SUBSTITUTED EQUIPMENT WILL PHYSICALLY FIT IN THE SPACE PROVIDED FOR THE EQUIPMENT AND MAINTAIN THE SERVICE CLEARANCE REQUIREMENTS SET FORTH BY THE MANUFACTURER. SHOP DRAWING CHECKING BY THE ENGINEER IS A "COURTESY" CHECK ONLY. SHOP DRAWINGS ARE TO BE ELECTRONICALLY SUBMITTED IN PDF FORMAT ONLY.
33.

ALL CONDENSING GAS FIRED EQUIPMENT SHALL BE PROVIDED WITH CONDENSATE TRAPS AND NEUTRALIZATION KITS PER THE MICHIGAN PLUMBING CODE. PROVIDE SMALL CONDENSATE SUMP/PUMP SETS IF/AS REQUIRED AND DISCHARGE WITH 3" AIR GAP INTO NEARBY SERVICE SINK OR FLOOR DRAIN. ONLY PUMP CONDENSATE WHEN GRAVITY IS NOT POSSIBLE.
34.

LOCATE THERMOSTATS, TEMPERATURE SENSORS, HUMIDISTATS AND HUMIDITY SENSORS (IF ANY) AT HEIGHTS AS NOTED ON THE ARCHITECTURAL DRAWINGS. IF NOT NOTED ON THE ARCHITECTURAL DRAWINGS, THEY SHALL BE LOCATED AT A HEIGHT PER A.D.A. AND MICHIGAN BARRIER FREE CODES (UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS). COORDINATE LOCATIONS WITH OTHER EQUIPMENT, FURNITURE, AND DOOR SWINGS.
35.

ALL LOW VOLTAGE TEMPERATURE CONTROL WIRING SHALL BE PROVIDED BY THE HVAC CONTRACTOR UNLESS OTHERWISE NOTED. ELECTRICAL CONTRACTOR SHALL PROVIDE ANY 120/240/208/480 VOLT POWER WIRING FOR TEMPERATURE CONTROLS IF/AS REQUIRED - CONSULT W/ MC PRIOR TO BIDDING PROJECT.
36.

PROVIDE AND INSTALL TEMPERATURE CONTROLS AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
37.

ALL OUTSIDE AIR INTAKES MUST BE INSTALLED A MINIMUM OF TEN FEET (10'-0") FROM ANY EXHAUST AIR DISCHARGE, GAS METER, OR PLUMBING VENT.
38.

ALL ROOFTOP MECHANICAL EQUIPMENT SHALL MAINTAIN A MINIMUM DISTANCE OF 10'-0" FROM ROOF EDGE.
39.

ADJUST ALL MOTORS AS REQUIRED TO PROVIDE THE MOST EFFICIENT OPERATION WHILE MEETING DESIGN REQUIREMENTS.
40.

ALL EQUIPMENT, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.
41.

COORDINATE SIZE REQUIREMENTS OF ALL CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR/GROUND MOUNTED EQUIPMENT. REFER TO ARCHITECTURAL DETAILS AND SPECIFICATIONS FOR PAD REQUIREMENTS.
42.

ANY GAS FIRED EQUIPMENT (FURNACES/UNIT HEATERS/DOMESTIC WATER HEATERS, ETC.) THAT HAVE POWER COMBUSTION AIR INTAKES AND POWER FLUE GAS EXHAUSTS ARE TO BE PROVIDED WITH VENTS MADE OF MATERIALS APPROVED BY THE MFR. ROUTE INTAKES AND EXHAUSTS TO WALLS/ROOFS (WALLS ALWAYS PREFERRED UNLESS NOTED OTHERWISE), AND PROVIDE CONCENTRIC CAPS. PIPING SHALL BE CONCEALED WHEN RUNNING IN ANY ROOMS OTHER THAN STORAGE/MECHANICAL/JANITOR CLOSET SPACES. TERMINATIONS OUTDOORS SHALL BE A MINIMUM OF 10'-0" FROM OPERABLE WINDOWS, DOORS, AND OUTSIDE AIR INTAKE LOUVERS/GRILLES. INTAKE CAN NOT COME FROM NOR TERMINATE IN VENTILATED ATTIC SPACES. DO NOT EXCEED THE MAXIMUM EQUIVALENT LENGTH AS DETERMINED BY THE MFR.
43.

RTU'S SHALL BE EQUAL TO TRANE, BRYANT, CARRIER, DAIKIN, LENNOX, AMERICAN STANDARD.
44.

EXHAUST FANS SHALL BE EQUAL TO BROAN, PATTON, NUTONE, CARNES, GREENHECK OR ACME.
45.

MINI-SPLITS SHALL BE EQUAL TO MITSUBISHI, BRYANT, DAIKIN, CARRIER.
46.

ALL DUCTWORK DIMENSION NOTED ON DRAWINGS ARE INSIDE, CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. FOR INTERIOR LINED DUCTWORK, OVERSIZE DUCTWORK DURING FABRICATION AS REQUIRED TO MAINTAIN INSIDE CLEAR DIMENSIONS.
47.

PROVIDE FLEXIBLE DUCTWORK CONNECTIONS ON ALL DUCTWORK CONNECTING TO FANS, AIR HANDLING UNITS, ENERGY RECOVERY UNITS, AND FAN COIL UNITS.
48.

ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOW. ALL SPLIT DUCTWORK FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES, UPSTREAM OF SPLIT.
49.

DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCTWORK CONSTRUCTION STANDARD. IF THESE DRAWINGS OR SPECIFICATIONS LIST REQUIREMENTS THAT EXCEED SMACNA CONSTRUCTION STANDARDS, EXCEEDED DIRECTION SHALL BE FOLLOWED.
50.

HVAC TRADES TO ENSURE THAT ALL DUCT PENETRATIONS THRU CMU WALLS HAVE PROPER LINTELS. SEE ARCHITECTURAL DRAWINGS FOR LINTEL SIZES. ALL LINTELS ARE PROVIDED AND INSTALLED BY OTHERS UNLESS NOTED OTHERWISE ON DRAWINGS.
51.

PROVIDE AND INSTALL FIRE DAMPERS AND/OR SMOKE DAMPERS AND/OR FIRE/SMOKE DAMPERS WHERE REQUIRED - SEE ARCHITECTURAL DRAWINGS FOR FIRE AND SMOKE STOPS (IF ANY). INSTALL ALL FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
52.

MAINTAIN CLEARANCE OF A MINIMUM OF 6" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC. AND ALL FIRE RATED AND/OR FIRE/SMOKE RATED PARTITIONS/WALLS/CEILINGS, TO ALLOW FOR INSPECTIONS OF RATED WALLS.
53.

ACCESS PANELS IN DUCTWORK AND CEILINGS SHALL BE PROVIDED WHERE REQUIRED FOR FIRE AND/OR SMOKE DAMPERS, OPERATION, BALANCING, OR MAINTENANCE OF ALL MECHANICAL EQUIPMENT.
54.

PROVIDE AND INSTALL ONE (1) COMPLETE SET OF NEW AIR FILTERS UPON TURNOVER OF BUILDING TO OWNER. PROVIDE (1) SET OF SPARE FILTERS TO THE OWNER AT THE SAME TIME.
55.

PIPING SHALL BE AS FOLLOWS:

A.

GAS LINES:

a.

ABOVE GROUND: SCHEDULE 40 BLACK STEEL, THREADED.

b.

UNDERGROUND: IN CONFORMANCE WITH INTERNATIONAL FUEL GAS CODE, SECTION 403 AND 404. YELLOW POLY GAS PIPE, LABELED "GAS" AND ASTM D2513 APPROVED.

56.

COORDINATE ALL PIPE AND DUCT RISERS IN CHASES WITH ALL OTHER TRADES.

57.

ALL CONTRACTORS ARE TO COORDINATE THE LOCATIONS OF PLUMBING LINES, DUCTWORK, EQUIPMENT, GAS LINES, FIRE SUPPRESSION LINES, ETC. AS REQUIRED SO THAT CLEARANCES ABOVE ELECTRICAL PANELS ARE MAINTAINED PER 2023 NEC. REFERENCE ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.

58.

RUN ALL PIPING, CONDUIT, ETC. CONCEALED IN WALLS WHENEVER POSSIBLE. AVOID EXPOSED INSTALLATION UNLESS SPECIFICALLY REQUIRED AND/OR NOTED ON DRAWINGS. (TYPICAL UNLESS NOTED OTHERWISE). ANY EXPOSED INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

59.

DO NOT SUPPORT CEILINGS, OTHER BUILDING STRUCTURES, OR CONDUITS FROM DUCTWORK, PIPES OR CONDUIT. DO NOT ALLOW DUCTS, PIPES OR CONDUITS TO DIRECTLY TOUCH BUILDING WALLS, FLOORS, OR STRUCTURE AT ANY LOCATION.

60.

GAS PIPING SHALL HAVE DROPS AT BOTTOM OF GAS RISERS. BRANCHES SHALL BE TAKEN FROM TOP OR SIDE OF HORIZONTAL PIPE. PROVIDE SHUTOFF VALVES FOR EACH PIECE OF GAS BURNING EQUIPMENT. CAP ALL GAS PIPE OUTLETS AT ALL CONNECTIONS UNTIL CONNECTED TO GAS APPLIANCES.

61.

ALL OPENINGS IN CONSTRUCTION, THROUGH WHICH PIPING AND/OR DUCTWORK PASS SHALL BE SEALED UP AIR TIGHT AFTER INSTALLATION OF PIPING/DUCTWORK. PENETRATIONS OF FLOOR/CEILING ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE RATING SHALL BE PROTECTED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE, LATEST ADOPTED EDITION.

62.

FAILURE TO DETECT INTERIOR WORK, OR WORK NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE CODES SHALL NOT BE CONSTRUED AS ACCEPTANCE OF SUCH WORK.

63.

THE HVAC CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE HVAC INSTALLATION. REMOVE WEEKLY. UPON COMPLETION OF THE WORK, HE/SHE SHALL LEAVE ALL AREAS CLEAN INCLUDING BUT NOT LIMITED TO THE MECHANICAL ROOMS AND THE HVAC EQUIPMENT IN SAID ROOM.

64.

ALL CUTTING AND PATCHING IS THE RESPONSIBILITY OF THE TRADE REQUIRING THE WORK UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS/SPECIFICATIONS.

65.

ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

END OF MECHANICAL NOTES
- MECHANICAL SYMBOL SCHEDULE
- | | | | |
|----------|----------------------------|---------|-------------------------------|
| AFF | ABOVE FINISHED FLOOR | SA | MARK |
| AFG | ABOVE FINISHED GRADE | 400 CFM | AIR FLOW |
| AIO | ALL-IN-ONE | | |
| BC | BALANCE COCK | QU-1 | EQUIPMENT TAG |
| BFF | BELOW FINISHED FLOOR | | |
| BFG | BELOW FINISHED GRADE | | |
| BTVA | BUTTERFLY VALVE | | MANUAL BALANCING DAMPER |
| BV | BALL VALVE | | |
| CHVA | CHECK VALVE | | |
| CP | CIRCULATING PUMP | | |
| CU | CONDENSING UNIT | | FIRE/SMOKE DAMPER (FSD) |
| CV | CONTROL VALVE | | |
| DMR | DAMPER | T | THERMOSTAT |
| DWH | DOMESTIC WATER HEATER | | |
| EA | EXHAUST AIR | H | HUMIDITY SENSOR |
| EF | EXHAUST FAN | | |
| EH | ELECTRIC HEATER | | |
| ERV | ENERGY RECOVERY VENTILATOR | G | NATURAL GAS PIPING (7-11" WC) |
| FCU | FAN COIL UNIT | | |
| FD | FLOOR DRAIN | | ELBOW UP |
| FUT | FUTURE | | |
| GR | GRADE | | ELBOW DOWN |
| IE | INVERT ELEVATION | | |
| IV | INTAKE VENT | | |
| MMC | MICHIGAN MECHANICAL CODE | | CAP |
| OA | OUTSIDE AIR | | |
| OAI | OUTSIDE AIR INTAKE | | TEE UP |
| RA | RETURN AIR | | |
| RF | RELIEF FAN | | TEE DOWN |
| ROUGH-IN | ROUGH-IN | | |
| RTU | ROOFTOP UNIT | | |
| SA | SUPPLY AIR | | |
| TYP | TYPICAL | | |
| UNO | UNLESS NOTED OTHERWISE | | |
| V | VENT | | |
| VIF | VERIFY IN FIELD | | |
- LOUVER SPECIFICATIONS
1.

OUTSIDE AIR AND EXHAUST AIR LOUVERS SHALL BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

2.

OUTSIDE AIR LOUVERS (FOR AIO UNITS) SHALL BE ONE OF THE FOLLOWING:

A.

"THERMADUCT", MODEL RLA.

B.

"SUNVENT", MODEL LLA.

3.

EXHAUST LOUVERS SHALL BE EQUAL TO "RUSKIN", DRAINABLE, 37° BLADE ANGLE, 3" BLADE CENTERS, 0.100" EXTRUDED ALUMINUM BLADES, 3/4" X 0.031" ALUMINUM ALLOY, 0.08" MAXIMUM PRESSURE DROP. FRAME SHALL CONTAIN INTEGRAL CAULKING SLOTS. FRAME DEPTH AS REQUIRED FOR WALL CONSTRUCTION. LOUVERS SHALL BE COLOR ANODIZED, COLOR PER ARCHITECT. FLANGED FRAME. "GREENHECK" SERIES ESD-435 IS AN ACCEPTABLE EQUAL.
- MECHANICAL DEMOLITION NOTES:
1.

REMOVE ALL EXISTING HVAC EQUIPMENT ON SITE INCLUDING ABANDONED EQUIPMENT. REMOVE EQUIPMENT, BOILERS, STORAGE TANKS, DUCTWORK, HVAC PIPING, INSULATION, LOUVERS, DIFFUSERS, GRILLES, REGISTERS, DUCT HANGERS, CONTROLS, THERMOSTATS, ETC. REMOVE ALL BACK TO THE POINT OF CONCEALMENT. REMOVE FROM SITE AND DISPOSE OF IN A LEGAL MANNER. (PROOF OF LEGAL DISPOSAL IS REQUIRED AND SHALL BE PROVIDED TO CM OR GC FOR ALL HAZARDOUS MATERIALS)

2.

CAP ALL EXTERIOR WALL LOUVERS/GRILLES THAT ARE TO REMAIN AND NOT BE REMOVED/ PATCHED/REUSED. CAP WITH SHEET METAL ON THE INSIDE OF THE BUILDING WALL. FILL OPENINGS (WALL CAVITY OPENINGS) WITH STYROFOAM SHEETS. PAINT STYROFOAM SHEETS BEHIND FACE OF LOUVERS/GRILLES SO THAT PINK STYROFOAM COLOR CANNOT BE SEEN FROM THE OUTSIDE OF THE FACILITY. PAINT BLACK.

3.

UTILIZE SPRAY FOAM TO SEAL ANY OPENINGS LEFT AT SITE TO PREVENT RODENTS/INSECTS FROM ENTERING FACILITY THROUGH DEMOED PENETRATIONS.

4.

DEMOLITION WORK IS ONLY GENERALLY SHOWN ON THE DRAWINGS IF AT ALL. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO DETERMINE THE EXTENT OF THE DEMOLITION WORK REQUIRED AND INCLUDE IT IN HIS/HER BID. IT IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO VERIFY EXISTING SYSTEMS/EQUIPMENT THAT WILL NOT BE UTILIZED FOR NEW WORK AND REMOVE ACCORDINGLY - DO NOT ABANDON - REMOVE UNUSED ITEMS. CONFIRM ALL DEMOLITION QUANTITIES PRIOR TO BIDDING.

5.

OWNER RESERVES FIRST RIGHT TO ALL ITEMS THEY WISH TO SALVAGE. DISCUSS WITH OWNER/GC PRIOR TO STARTING DEMOLITION AND TAKE EXTRA CARE REMOVING THOSE ITEMS THAT OWNER WISHES TO SALVAGE.
- KTS

ENGINEERING

GROUP

MEP CONSULTING ENGINEER

491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM

KTS PROJECT NO. 25-0251
- NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.
- FSP

FUSCO,
SHAFFER &
PAPPAS, INC.
ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
PHONE 248.543.4100 FAX 248.543.4141
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-
- RENOVATION OF

CABOT APARTMENTS

13725 DEXTER AVENUE

DETROIT
- M&P SHEET INDEX
- | | |
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| M.202 | HVAC LOAD CALC REPORTS |
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| M.P.501 | ENLARGED M&P FLOOR PLANS |
| M.P.502 | ENLARGED M&P FLOOR PLANS |
| M.P.503 | ENLARGED M&P FLOOR PLANS |
| M.P.504 | ENLARGED M&P FLOOR PLANS |
| M.P.511 | ENLARGED M&P UNIT PLANS |
| M.P.512 | ENLARGED M&P UNIT PLANS |
| M.P.513 | ENLARGED M&P UNIT PLANS |
| M.P.514 | ENLARGED M&P UNIT PLANS |
| M.P.515 | ENLARGED M&P UNIT PLANS |
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| M.P.519 | ENLARGED M&P UNIT PLANS |
| M.P.520 | ENLARGED M&P UNIT PLANS |
| M.P.521 | ENLARGED M&P UNIT PLANS |
| M.P.522 | ENLARGED M&P UNIT PLANS |
| M.P.523 | ENLARGED M&P UNIT PLANS |
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MECHANICAL LEGEND & NOTES

DRAWING NUMBER
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**RENOVATION OF
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GENERAL HVAC DEMOLITION PLAN

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TRC22.066

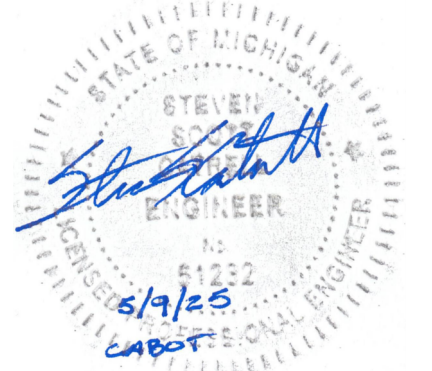
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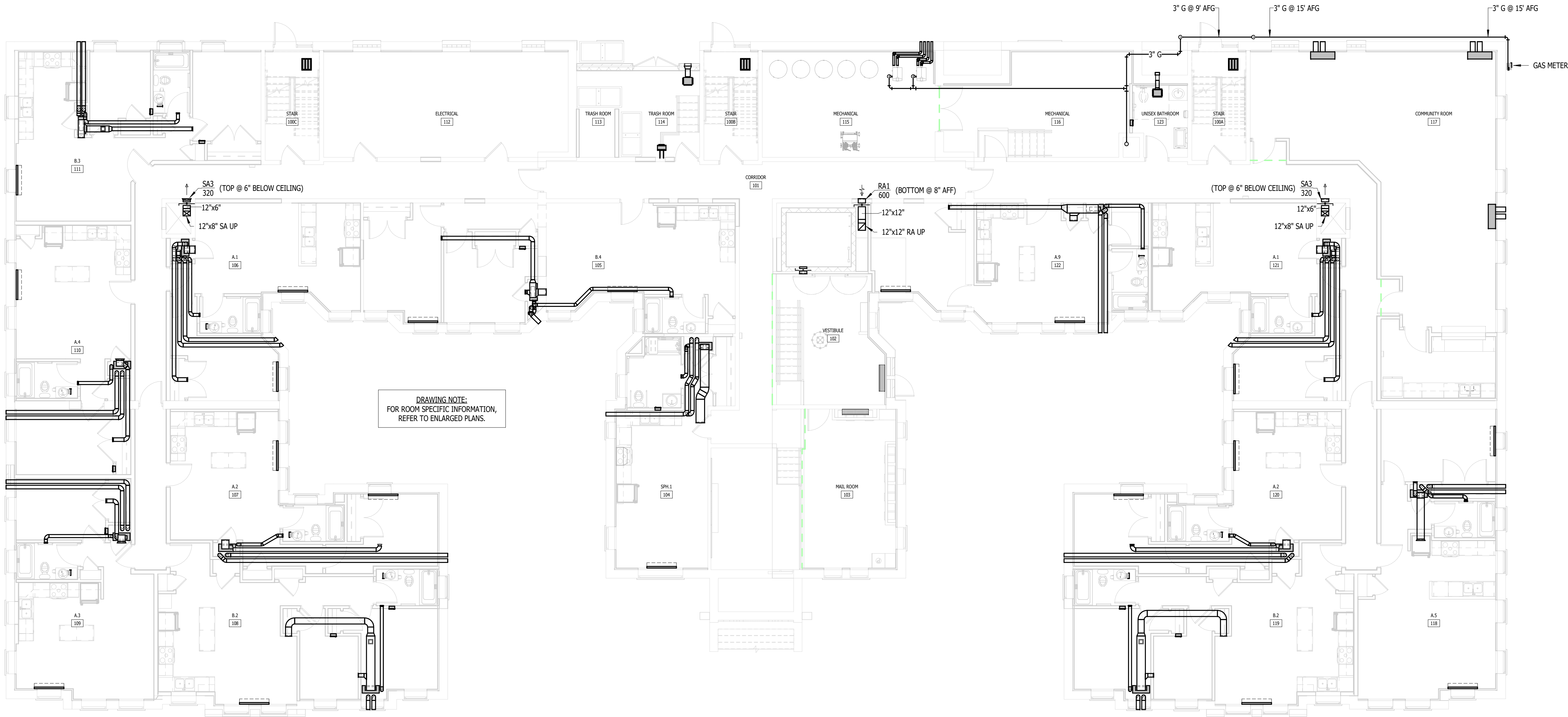
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M.D.101

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RENOVATION OF
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 **BASEMENT FLOOR MECHANICAL PLAN**
1/8" = 1'-0"

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FSP PROJECT NO.
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DRAWING TITLE

BASEMENT FLOOR MECHANICAL PLAN

DRAWING NUMBER

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989-567-1100
KTSENGINEERINGGROUP.COM
KTS PROJECT NO. 25-0251

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ARCHITECTS AND PLANNERS
550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
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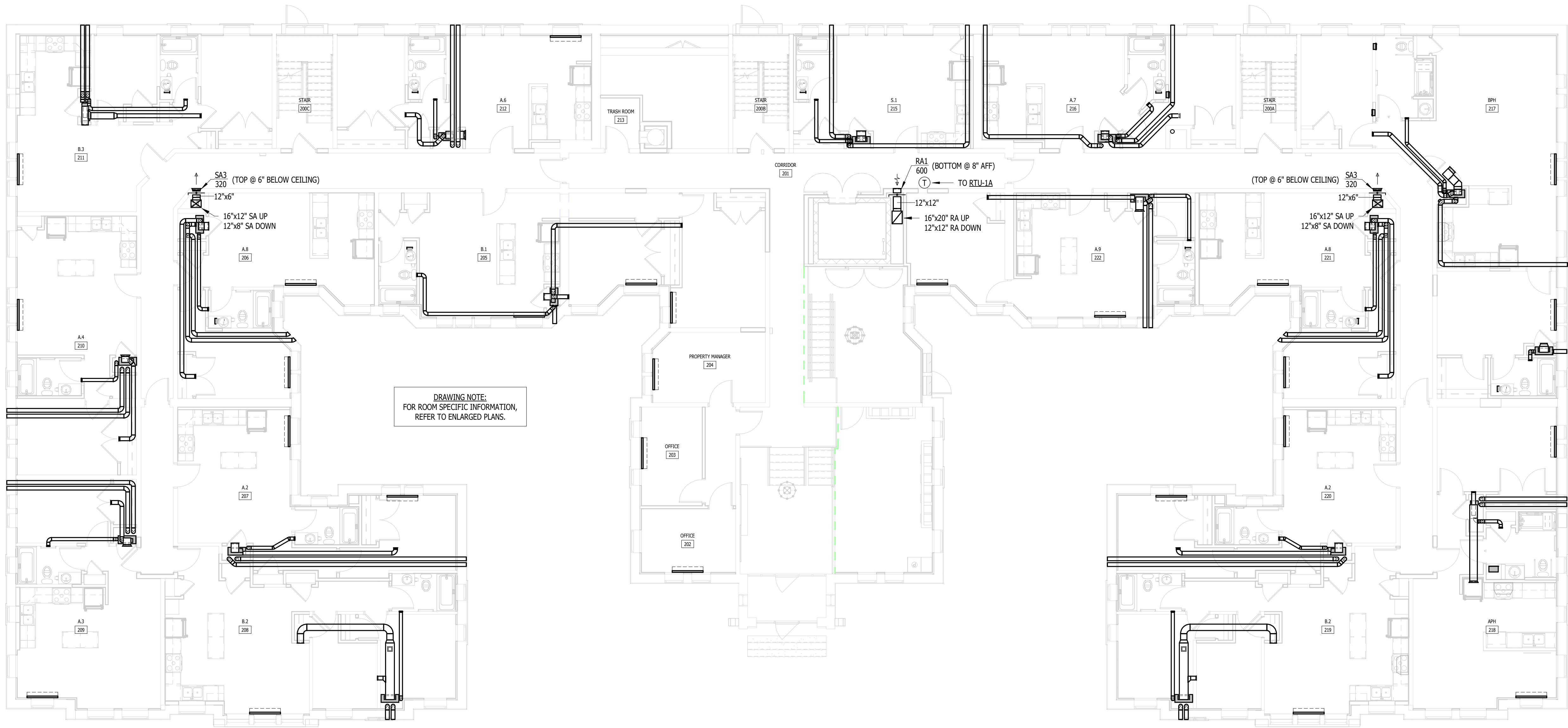
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RENOVATION OF
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 **FIRST FLOOR MECHANICAL PLAN**
1/8" = 1'-0"

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FIRST FLOOR MECHANICAL PLAN

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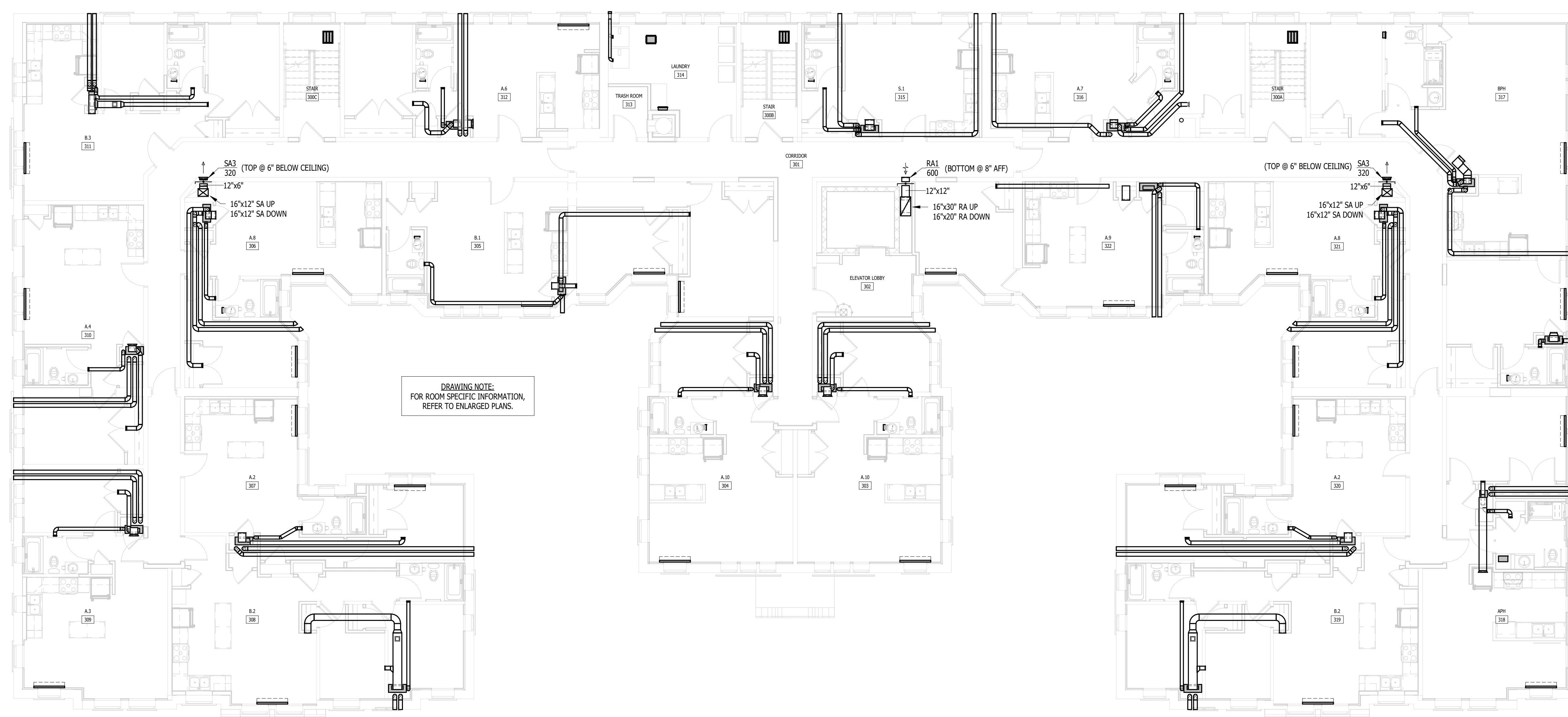
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SECOND FLOOR MECHANICAL PLAN

DRAWING NUMBER

M.103



M.103



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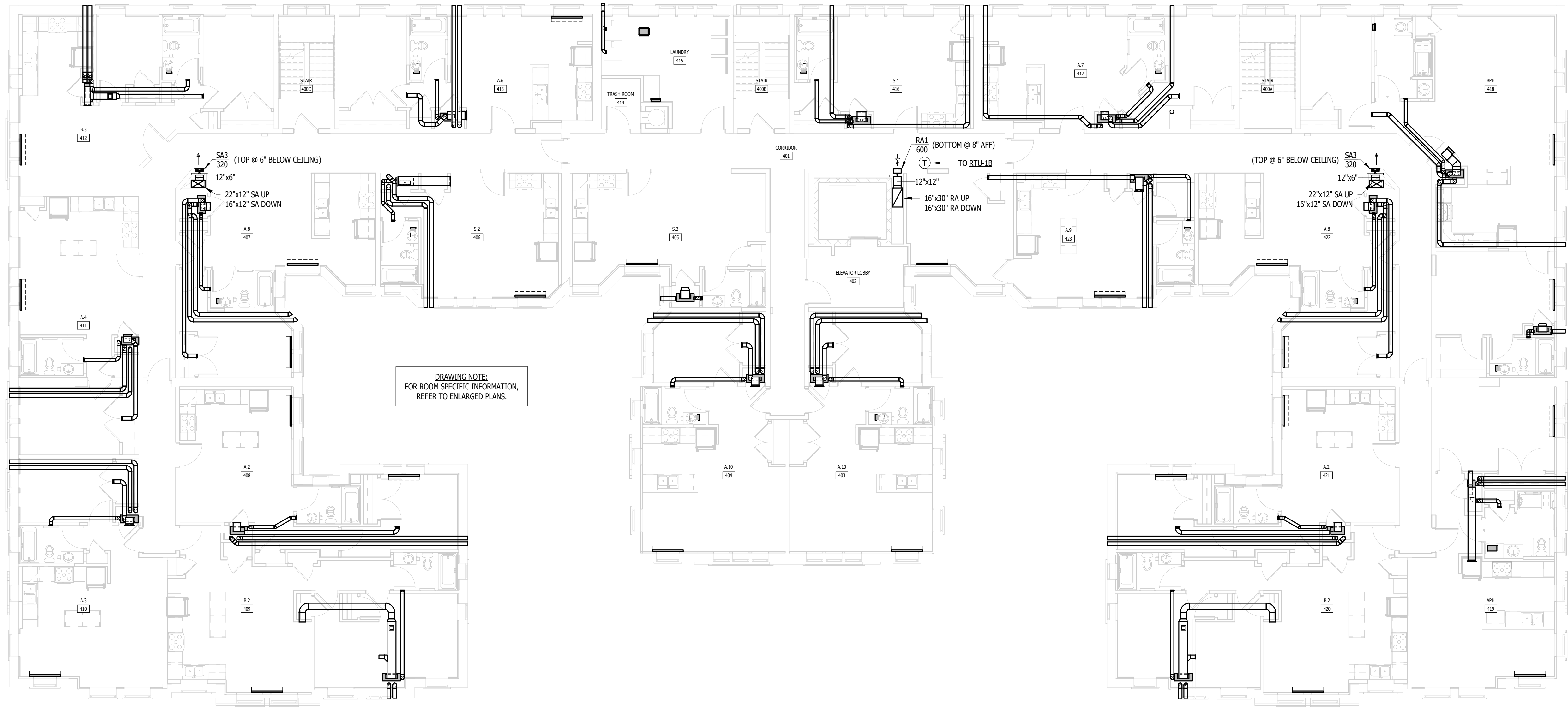
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THIRD FLOOR MECHANICAL PLAN
1/8" = 1'-0"

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DRAWING TITLE

THIRD FLOOR MECHANICAL PLAN

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M.104



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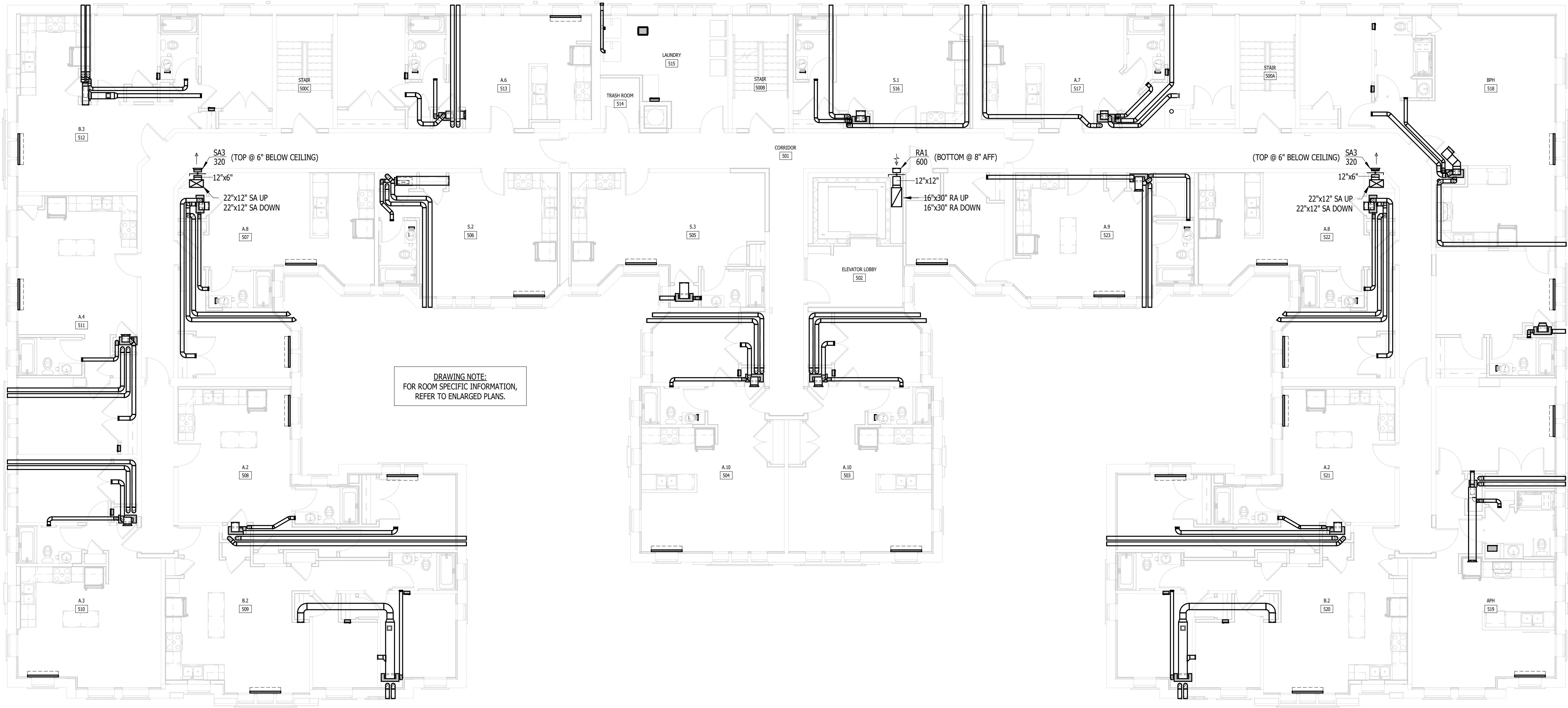
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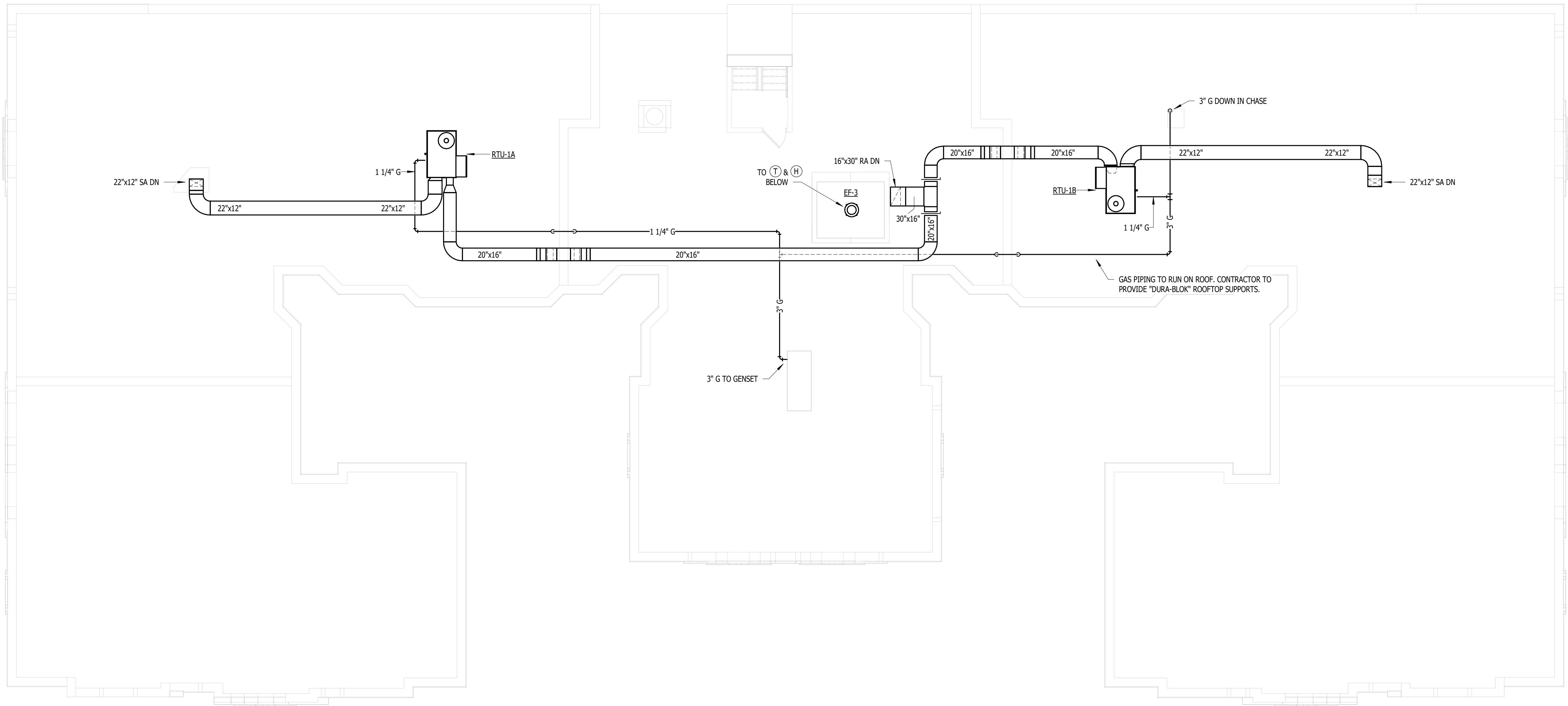
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DRAWING TITLE

ROOF MECHANICAL PLAN

DRAWING NUMBER

M.106



 **ROOF MECHANICAL PLAN**
1/8" = 1'-0"

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RENOVATION OF
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DETROIT

Zone Sizing Summary for Unit Type A.2
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.2
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 570.4 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.2 – 1 bed	11.4	7.9	75.0 / 65.2	56.7 / 55.8	-	July 17:00	0.70

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.2 – 1 bed	12.1	61.8 / 90.4	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.3
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.3
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 573.6 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.3 – 1 bed	11.5	9.1	74.6 / 62.5	53.4 / 52.5	-	September 17:00	0.70

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.3 – 1 bed	13.0	61.8 / 92.6	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.4
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.4
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 582.4 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.4 – 1 bed	11.5	8.5	75.1 / 64.3	55.4 / 54.6	-	July 17:00	0.69

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.4 – 1 bed	11.3	61.8 / 88.4	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.5
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.5
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 739.8 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.5 – 1 bed	11.7	8.5	75.8 / 64.8	55.9 / 55.1	-	August 17:00	0.54

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.5 – 1 bed	14.4	62.0 / 95.9	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.6
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.6
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 545.3 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.6 – 1 bed	11.8	9.6	72.5 / 60.1	50.1 / 49.1	-	April 17:00	0.73

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.6 – 1 bed	10.4	61.8 / 86.3	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.7
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.7
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 541.5 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.7 – 1 bed	11.9	9.7	72.6 / 60.1	50.0 / 49.0	-	April 17:00	0.74

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.7 – 1 bed	10.0	61.8 / 85.3	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.8
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.8
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 577.4 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.8 – 1 bed	11.5	8.6	75.3 / 64.3	55.4 / 54.6	-	August 17:00	0.69

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.8 – 1 bed	9.6	61.8 / 84.5	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type A.9
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type A.9
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 606.8 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit A.9 – 1 bed	11.6	8.5	75.3 / 64.5	55.6 / 54.8	-	July 17:00	0.66

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit A.9 – 1 bed	12.0	61.9 / 90.2	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type APH
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type APH
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 741.1 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit APH – 1 bed	11.7	9.0	73.8 / 62.2	52.8 / 51.9	-	May 17:00	0.54

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit APH – 1 bed	12.1	62.0 / 90.7	-	400	0.059	0.047	50

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KEY PLAN

FSP PROJECT NO.
TRC22.064

DRAWING TITLE

HVAC LOAD CALC REPORTS

DRAWING NUMBER

M.201

KTS

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SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM

KTS PROJECT NO. 25-0251

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ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
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Zone Sizing Summary for Unit Type B.1
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type B.1
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 862.3 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit B.1 – 2 bed	11.8	9.0	74.2 / 62.7	53.2 / 52.4	-	May 17.00	0.46

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit B.1 – 2 bed	11.4	62.1 / 89.0	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type BPH
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type BPH
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 1119.7 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit BPH – 2 bed	22.8	18.2	74.9 / 62.8	53.8 / 52.9	-	June 17.00	0.71

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit BPH – 2 bed	18.1	62.3 / 83.6	-	800	0.118	0.094	100

Zone Sizing Summary for Unit Type S.3
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type S.3
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 441.6 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit S.3 – 1 bed	11.4	8.6	74.9 / 63.7	55.0 / 54.1	-	July 17.00	0.91

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit S.3 – 1 bed	8.4	61.6 / 81.3	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type B.2
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type B.2
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 744.4 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit B.2 - 2 bed	11.6	8.7	76.0 / 64.7	55.9 / 55.0	-	August 17.00	0.54

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit B.2 - 2 bed	14.2	62.0 / 95.6	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type S.1
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type S.1
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 388.9 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit S.1 – 1 bed	11.6	9.4	74.0 / 61.5	52.1 / 51.2	-	May 17.00	1.03

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit S.1 – 1 bed	9.2	61.5 / 83.2	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type SPH.1
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type SPH.1
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 467.0 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit SPH.1 – 1 bed	11.5	8.6	75.0 / 63.9	55.0 / 54.2	-	July 17.00	0.86

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit SPH.1 – 1 bed	12.3	61.7 / 90.7	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type B.3
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type B.3
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 694.2 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit B.2 – 2 bed	11.8	8.9	74.1 / 62.7	53.3 / 52.4	-	May 17.00	0.58

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit B.2 – 2 bed	13.9	62.0 / 94.8	-	400	0.059	0.047	50

Zone Sizing Summary for Unit Type S.2
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Unit Type S.2
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 420.7 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Unit S.2 – 1 bed	11.2	8.5	74.9 / 63.6	55.0 / 54.0	-	July 17.00	0.95

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Unit S.2 – 1 bed	8.8	61.6 / 82.4	-	400	0.059	0.047	50

Zone Sizing Summary for Community Room
(In Alternative: Cabot Apartments)

Project: Cabot
Prepared by: KTS Engineering Group

Air System Information

Air System Name Community Room
Equipment Class TERM
Air System Type PKG-FC

Number of zones 1
Floor Area 1114.3 sqft
Location Detroit Coleman Young Intl, MI, USA

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data User-Modified

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
Community Room	27.3	20.3	75.3 / 64.2	59.6 / 56.7	-	July 17.00	1.08

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Community Room	26.8	57.4 / 78.5	-	1200	0.177	0.141	240

09.15.2026	OWNER REVISIONS
06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

FSP PROJECT NO.
TRC22064

DRAWING TITLE

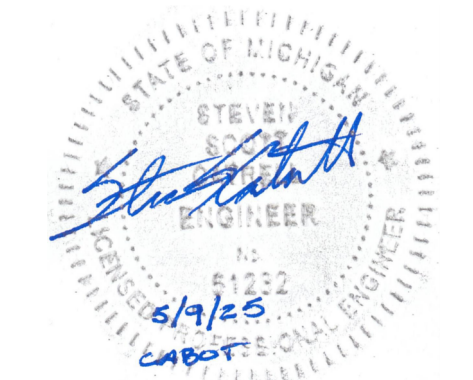
HVAC LOAD CALC REPORTS

DRAWING NUMBER

M.202

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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MICHIGAN

RENOVATION OF
CABOT APARTMENTS
13725 DEXTER AVENUE

DETROIT

09.15.2026	OWNER REVISIONS
06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

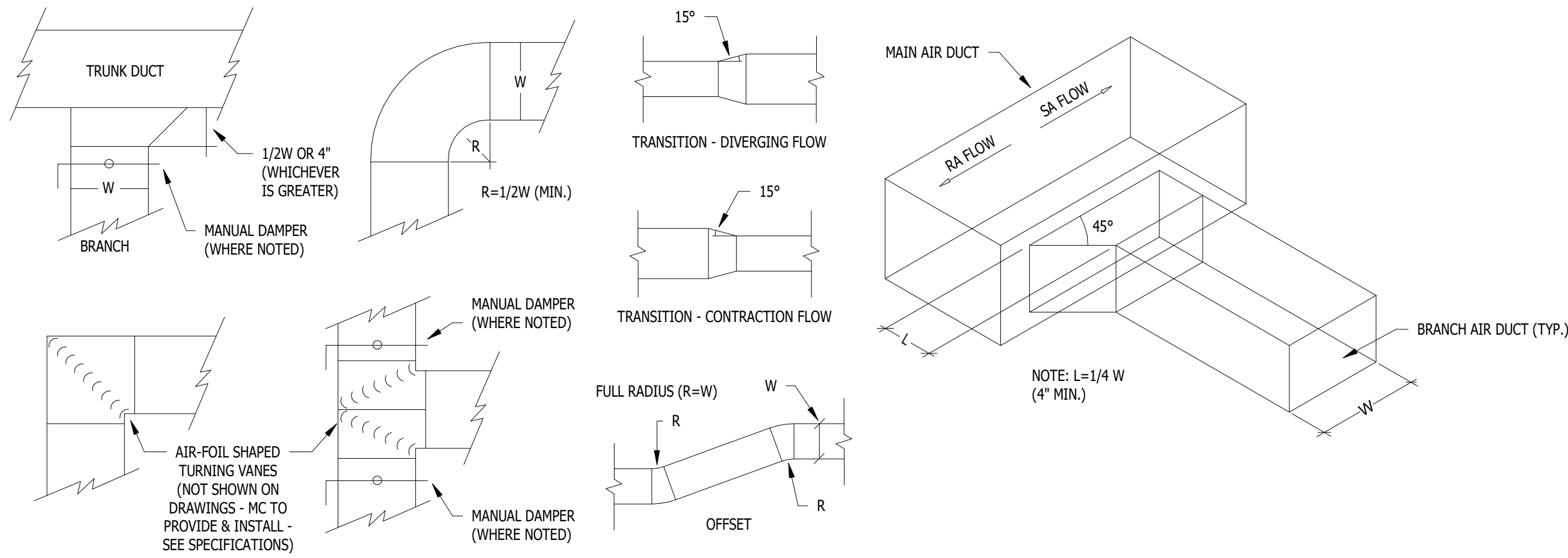
FSP PROJECT NO.
TRC22.064

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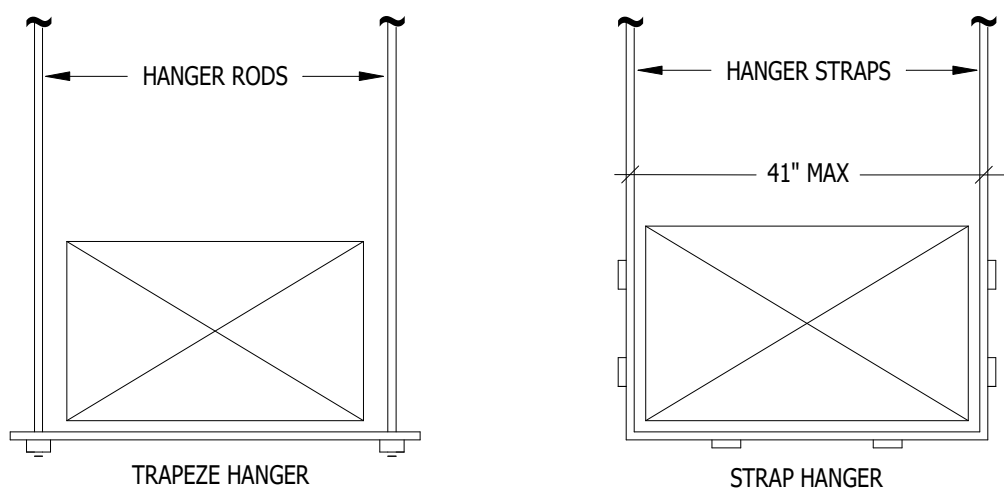
MECHANICAL DETAILS

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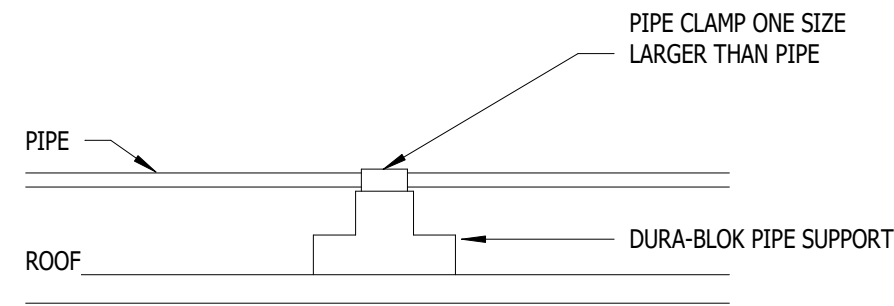
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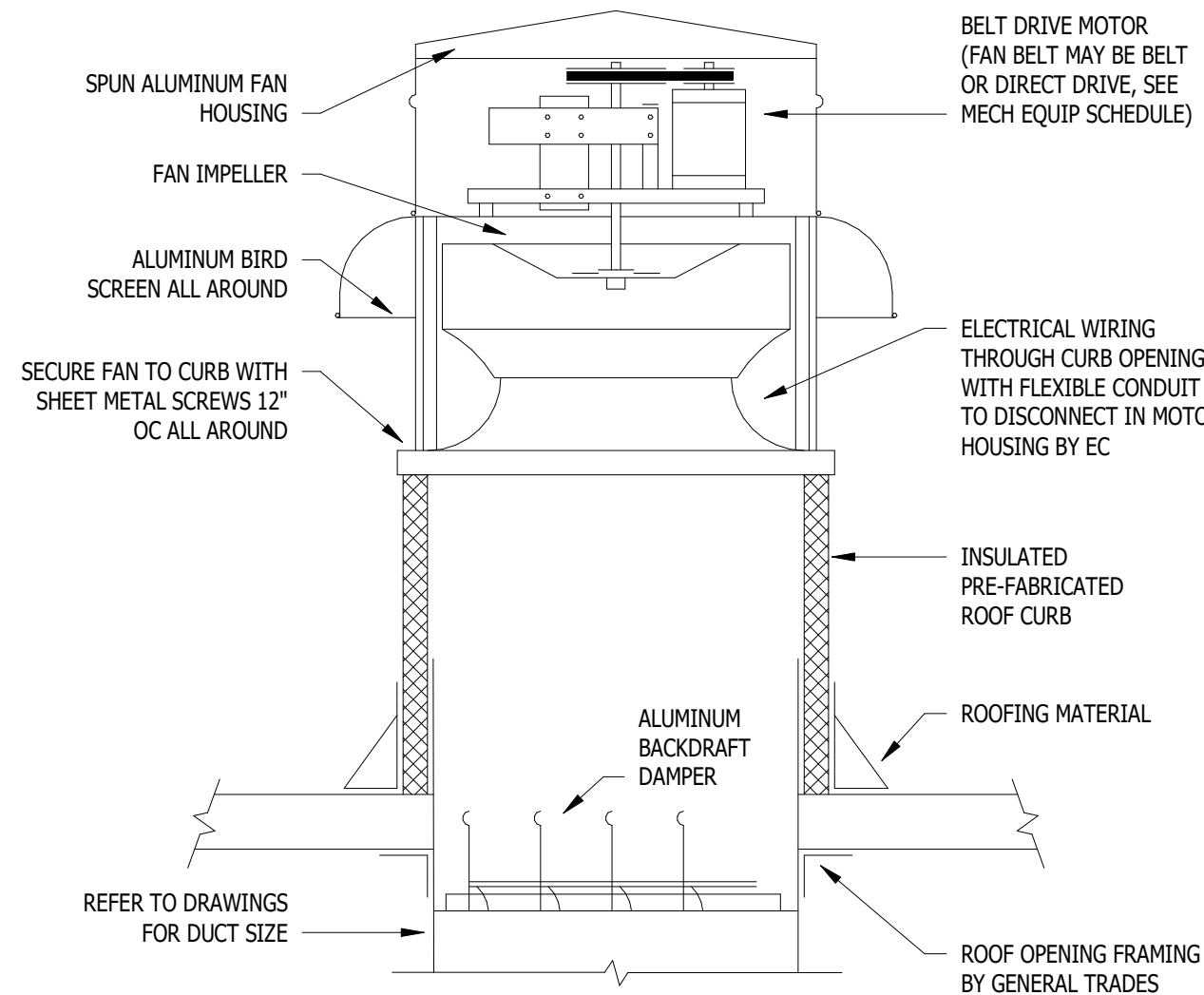
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DUCT INSTALLATION DETAILS
NOT TO SCALE



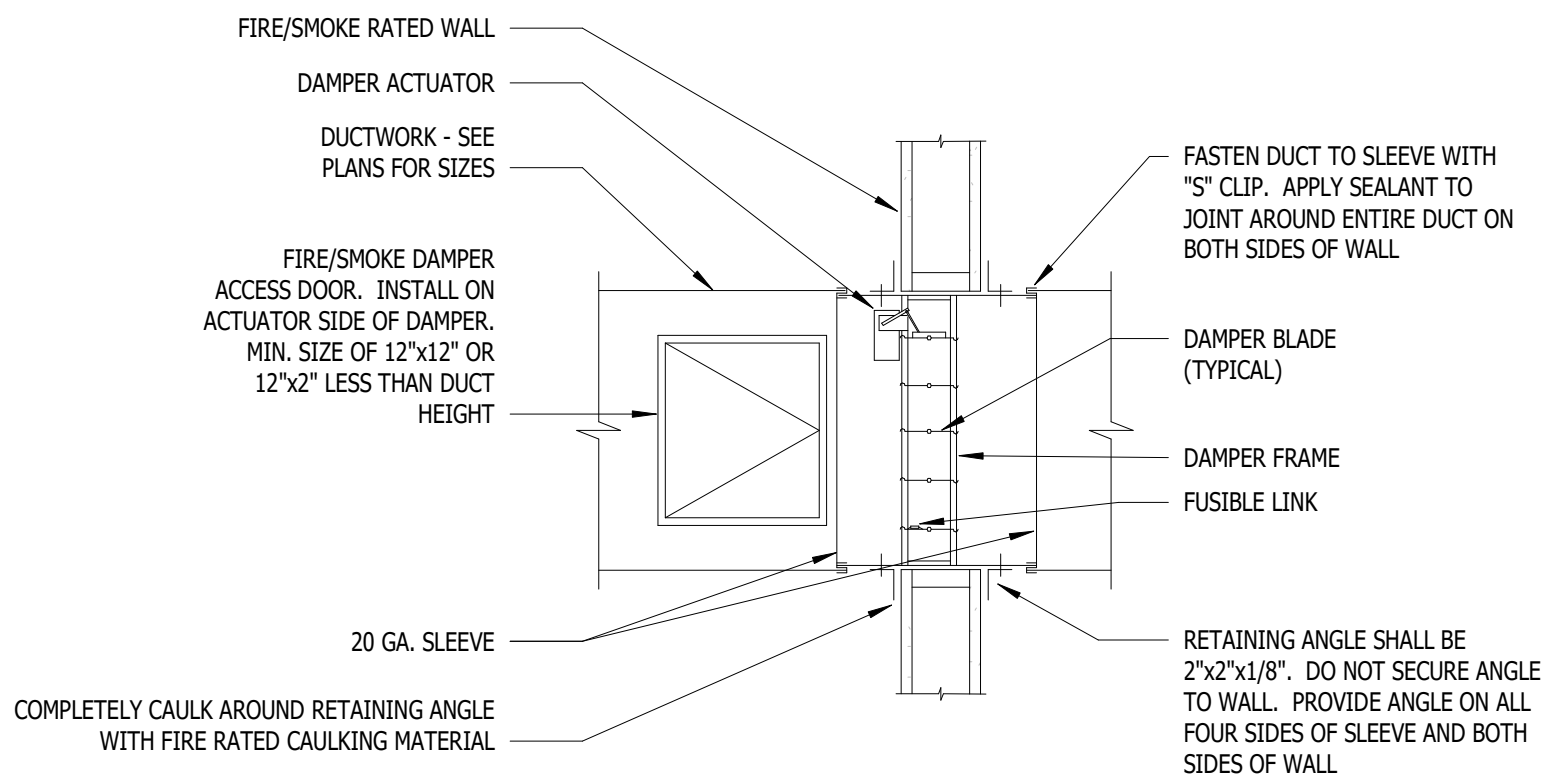
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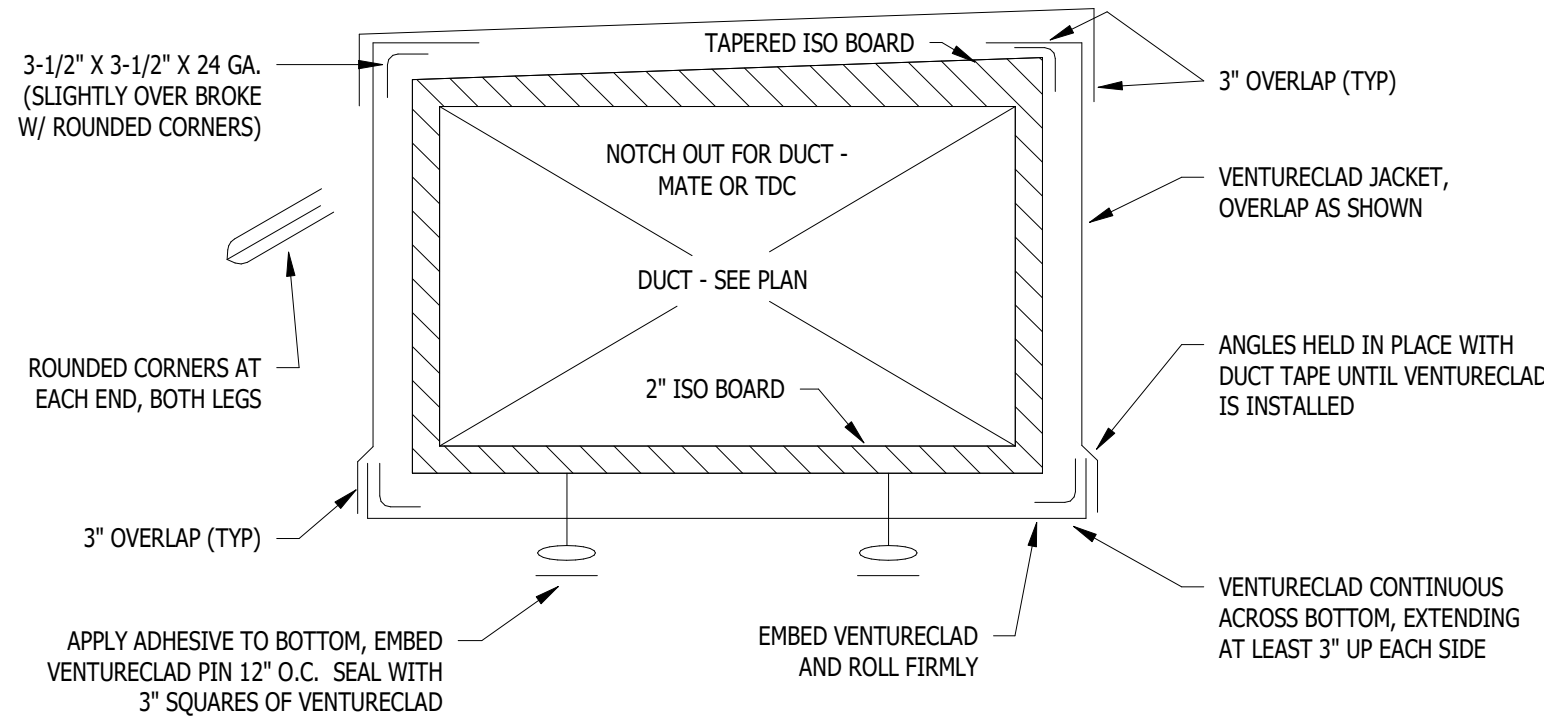
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GAS PIPING ROOF SUPPORT DETAIL
NOT TO SCALE



1
M.301
DOWNBLAST EXHAUST FAN DETAIL
NOT TO SCALE



4
M.301
COMBO FIRE/SMOKE DAMPER INSTALLATION DETAIL
NOT TO SCALE



2
M.301
VENTURECLAD DUCT INSULATION DETAIL
NOT TO SCALE

KTS

ENGINEERING

GROUP

MEP CONSULTING ENGINEER

491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM

KTS PROJECT NO. 25-0251

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

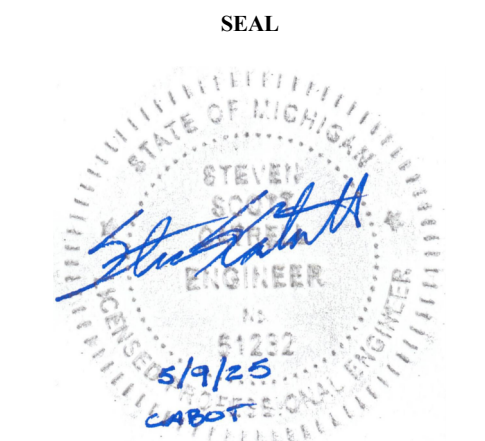
FSP

SHAFFER & PAPPAS, INC.

ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
PHONE 248.543.4100 FAX 248.543.4141

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MICHIGAN

RENOVATION OF
CABOT APARTMENTS
13725 DEXTER AVENUE

DETROIT

09.15.2026	OWNER REVISIONS
06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

FSP PROJECT NO.
TRC22.064

DRAWING TITLE

MECHANICAL SCHEDULES

DRAWING NUMBER

M.401

SEQUENCE OF OPERATION

RTU - 1(A/B):

- OWNER SHALL PROGRAM A SCHEDULE VIA THERMOSTAT. THERMOSTAT SHALL BE EQUAL TO "WHITE ROGERS" 1F85U-42PR, WIFI, PROGRAMMABLE.
- PROVIDE CLEAR PLASTIC THERMOSTAT LOCKBOX COVER.

HEATING: RTU FAN RUNS CONTINUOUSLY AND BURNERS SHALL CYCLE/STAGE TO MAINTAIN THERMOSTAT SETPOINT. OUTSIDE AIR DAMPER SHALL OPEN TO ALLOW 14% OUTSIDE AIR INTO THE SYSTEM.

COOLING: RTU FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPER SHALL OPEN TO ALLOW 14% OUTSIDE AIR INTO THE SYSTEM. COMPRESSOR SHALL CYCLE/STAGE AS REQUIRED TO MAINTAIN THERMOSTAT SETPOINT. ECONOMIZER WITH ENTHALPY CONTROLLER SHALL BE ENABLED AND UTILIZED WHEN AMBIENT AIR CONDITIONS WARRANT. BAROMETRIC RELIEF ON RTU WILL OPERATE TO REDUCE BUILDING PRESSURE.

AIO - 1:

- TENANTS SHALL PROGRAM AN OCCUPIED/UNOCCUPIED SCHEDULE VIA THERMOSTAT. THERMOSTATS EQUAL TO "HONEYWELL" TH4210.
- OA SHALL BE SET FOR 50 CFM

AIO - 2:

- TENANTS SHALL PROGRAM AN OCCUPIED/UNOCCUPIED SCHEDULE VIA THERMOSTAT. THERMOSTATS EQUAL TO "HONEYWELL" TH4210.
- OA SHALL BE SET FOR 80 CFM

EXHAUST FAN OPERATION:

- EF-1 SHALL BE INTERLOCKED WITH RESPECTIVE ROOM LIGHTS.
- EF-2 SHALL RUN CONTINUOUSLY - 24/7
- EF-3 SHALL BE INTERLOCKED WITH TEMPERATURE & HUMIDITY SENSORS IN ELEVATOR SHAFT. FAN SHALL BE ENERGIZED WHEN TEMPERATURE EXCEEDS 75°F OR HUMIDITY EXCEEDS 60%.

GAS LINE SIZING

LONGEST RUN FROM METER: 300'-0"		
EQUIPMENT	LOAD (MBH)	BRANCH SIZE
WATER HEATER - DWH-1A	201	1 1/4"
WATER HEATER - DWH-1B	201	1 1/4"
RTU - RTU-1A	150	1 1/4"
RTU - RTU-1B	150	1 1/4"
GENSET	752	2 1/2"
1,454 MBH = 3" GAS LINE		
UTILIZED TABLE 402.4 FROM THE 2018 INTERNATIONAL FUEL GAS CODE FOR NATURAL GAS WITH AN INLET PRESSURE OF LESS THAN 2 PSI & A PRESSURE DROP OF 0.5" W.C., USING SCH. 40 BLACK STEEL PIPING.		

ELECTRIC HEATER SCHEDULE

COMMENTS:

1. UNIT SHALL BE FAN FORCED

2. UNIT SHALL HAVE THERMAL CUTOUT

3. UNIT SHALL BE RECESSED

4. UNIT SHALL BE SURFACE MOUNTED

5. UNIT SHALL HAVE BUILT IN THERMOSTAT

6. PROVIDE WALL MOUNTED THERMOSTAT

7. PROVIDE TAMPER-RESISTANT WALL MOUNTED THERMOSTAT

8. PROVIDE B10 WALL MOUNT BRACKET

TAG	BASIS OF DESIGN		TYPE	VOLT/Ø	KW	AMPS	BTUH	COMMENTS
	MANUFACTURER	MODEL						
EH-1	BERKO	CZ1548T	WALL MOUNT	208/1	1.125	5.4	3840.0 Btu/h	1 - 3, 5
EH-2	BERKO	BKOC2504W	BASEBOARD	208/1	1.0	4.8	3412.0 Btu/h	2, 4, 5
EH-3	BERKO	HUHA320	UNIT HEATER	208/1	3.0	14.5	10240.0 Btu/h	1, 2, 7, 8
EH-4	BERKO	QFF4004	CEILING MOUNT	208/1	3.0	16.7	10240.0 Btu/h	1 - 3, 7
EH-5 (A-C)	BERKO	VFK204F	WALL MOUNT	208/1	1.5	7.2	5118.0 Btu/h	1, 2, 4, 7
EH-6	BERKO	QTS1504T	TOE KICK	208/1	0.563	<varies>	1920.0 Btu/h	1 - 3, 5

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

GENERAL SCHEDULE NOTES:				SPECIFIC TAG NOTES:					
A. ACCEPTABLE MANUFACTURERS WITH DIMENSIONS AND PERFORMANCE EQUAL TO SCHEDULED ITEM: PRICE, CARNES OR T & B.				1. BLADES PARALLEL TO SHORT DIMENSION. OPPOSED BLADE STEEL VOLUME DAMPER. 2. BLADES PARALLEL TO LONG DIMENSION. OPPOSED BLADE STEEL VOLUME DAMPER.					
TAG	MANUFACTURER	MODEL/SERIES	FACE SIZE	DESCRIPTION	BORDER TYPE	MATERIAL	COLOR	NOTES	
SA1	TITUS	300RS	6"x6"	DOUBLE DEFLECTION, INDIVIDUALLY ADJUSTABLE BLADES	SURFACE	STEEL	WHITE	1	
SA2	TITUS	300RS	10"x6"	DOUBLE DEFLECTION, INDIVIDUALLY ADJUSTABLE BLADES	SURFACE	STEEL	WHITE	1	
SA3	TITUS	300RS	12"x6"	DOUBLE DEFLECTION, INDIVIDUALLY ADJUSTABLE BLADES	SURFACE	STEEL	WHITE	1	
SA4	TITUS	300RS	14"x6"	DOUBLE DEFLECTION, INDIVIDUALLY ADJUSTABLE BLADES	SURFACE	STEEL	WHITE	1	
EA1	TITUS	350RL	6"x6"	3/4" BLADE SPACING, 35° FIXED DEFLECTION	SURFACE	STEEL	WHITE	2	
RA1	TITUS	350RL	12"x12"	3/4" BLADE SPACING, 35° FIXED DEFLECTION	SURFACE	STEEL	WHITE	2	

EXHAUST FAN SCHEDULE

COMMENTS:

1. PROVIDE WITH FACTORY MOUNTED DISCONNECT

2. PROVIDE WITH ELECTRONICALLY COMMUTATED MOTOR WITH FACTORY CONTROLS

3. CONTINUOUS OPERATION RATED & THERMALLY PROTECTED MOTOR

4. VIBRATION ISOLATION

5. ALUMINUM HOUSING

6. GALVANIZED BIRDSCREEN

7. BACKDRAFT DAMPER

8. STANDARD CURB CAP FOR FLAT ROOF

9. DECORATIVE GRILLE

TAG	BASIS OF DESIGN		CFM	E.S.P. (in-wg)	RPM	DRIVE TYPE	SONES	VOLTAGE	DISCONNECT BY		CONTROL	COMMENTS
	MANUFACTURER	MODEL							M.T.C.	E.T.C.		
EF-1	GREENHECK	SP-A125	100	0.25	1100	DIRECT	0.7	120	X		SEE SEQUENCE OF OPERATION	1 - 4, 7, 9
EF-2	GREENHECK	CSP-A390-VG	225	0.25	999	DIRECT	1.3	120	X		SEE SEQUENCE OF OPERATION	1 - 4, 7
EF-3	GREENHECK	G-095-VG	350	0.25	1028	DIRECT	4.2	120	X		SEE SEQUENCE OF OPERATION	1 - 8

MINI-SPLIT DUCTLESS FCU SCHEDULE

COMMENTS:

1. INDOOR UNIT IS ELECTRICAL POWERED FROM OUTDOOR UNIT

2. OUTDOOR UNIT SHALL BE HYPER HEAT

3. PROVIDE DISCONNECT SWITCH

4. PROVIDE BRANCH BOX

5. PROVIDE FACTORY LINESET

6. PROVIDE HAIL GUARD

7. PROVIDE WALL MOUNTED WIRED REMOTE CONTROLLER FOR EACH INDOOR UNIT

8. PROVIDE SINGLE POINT ELECTRICAL CONNECTION

9. PROVIDE CONDENSER WALL BRACKET - STAINLESS STEEL FINISH

INDOOR UNIT(S)							OUTDOOR UNIT									
TAG	BASIS OF DESIGN		TYPE	TOTAL COOLING CAP. 95°DB/75°WB	TOTAL HEATING CAP. 47°F	TOTAL HEATING CAP. 5°F	TAG	BASIS OF DESIGN		SEER2	EER2	NOMINAL TONS	UNIT ELECTRICAL			
	MANUFACTURER	MODEL						MANUFACTURER	MODEL				FAN FLA	MCA	MOCF	V/Ø/HZ
FCU-1A	MITSUBISHI	MS2-GL12NA	WALL MOUNT	12000.0 Btu/h	14400.0 Btu/h	13200.0 Btu/h	CU-1	MITSUBISHI	MX2-SM36NAMHZ2	23.0	15.0	3.0	0.6+0.6	51.0	51.0	208/1/60
FCU-1B	MITSUBISHI	MS2-GL24NA	WALL MOUNT	22500.0 Btu/h	27600.0 Btu/h	25300.0 Btu/h										

AIO HVAC UNIT SCHEDULE

COMMENTS:																	
1. PROVIDE INTEGRATED ERV OPTION					2. PROVIDE 1,800 WATT ELECTRIC HEAT OPTION					3. PROVIDE OPTIONAL KIT FOR WALL MOUNTED THERMOSTAT							
TAG	BASIS OF DESIGN		CFM SUPPLY	E.S.P.	CFM OA (MINIMUM)	COOLING DATA				TOTAL HEATING BTUH	ELECTRICAL DATA			DISCONNECT BY		UNIT WEIGHT	COMMENTS
	MANUFACTURER	MODEL				E.A.T. DB	E.A.T. WB	L.A.T. DB	TOTAL BTUH		VOLTAGE	MCA	MOCF	M.T.C.	E.T.C.		
AIO-1	EPHOC	VERTICAL STACK	400 CFM	0.50 in-wg	50 CFM	80.0 °F	67.0 °F	95.0 °F	15,000 Btu/h	20100 Btu/h	208	20	30		X	170 lb	1 - 3
AIO-2	EPHOC	WALL MOUNT PRO	400 CFM	0.50 in-wg	80 CFM	80.0 °F	67.0 °F	95.0 °F	15,000 Btu/h	20600 Btu/h	208	20	30		X	100 lb	1 - 3

ROOF TOP UNIT SCHEDULE

COMMENTS:

1. PROVIDE FIELD INSTALLED 24" ROOF CURB FOR FLAT ROOF.

2. PROVIDE FACTORY INSTALLED UNPOWERED CONVENIENCE OUTLET.

3. PROVIDE FACTORY INSTALLED DIGITAL CONTROLS.

4. PROVIDE FACTORY INSTALLED HINGED ACCESS PANELS.

5. PROVIDE FACTORY INSTALLED LOW-LEAK ECONOMIZER W/ DIFFERENTIAL ENTHALPY SENSOR.

6. PROVIDE FACTORY INSTALLED NON FUSED DISCONNECT SWITCH.

7. PROVIDE FACTORY INSTALLED STANDARD ALUMINIZED EXCHANGER.

8. PROVIDE FIELD INSTALLED FILTRATION - MERV13.

TAG	BASIS OF DESIGN		CFM SUPPLY	E.S.P.	CFM OA (MINIMUM)	COOLING DATA				HEATING DATA		ELECTRICAL DATA			DISCONNECT BY		UNIT WEIGHT	COMMENTS	
	MANUFACTURER	MODEL				NOMINAL TONS	E.A.T. DB	E.A.T. WB	L.A.T. DB	SENS. BTU/H	TOTAL BTU/H	INPUT MAX MBH	OUTPUT MAX MBH	MCA	MOCF	VOLTAGE			M.T.C.
RTU-1A	Carrier	48GCFJ05J	1600 CFM	1.00 in-wg	225 CFM	4	80.0 °F	67.0 °F	95.0 °F	37,800 Btu/h	49,900 Btu/h	150	120	24	30	208/3	X	675 lb	1 - 8
RTU-1B	Carrier	48GCFJ05J	1600 CFM	1.00 in-wg	225 CFM	4	80.0 °F	67.0 °F	95.0 °F	37,800 Btu/h	49,900 Btu/h	150	120	24	30	208/3	X	675 lb	1 - 8

1. PLUMBING PLANS ARE DIAGRAMMATIC IN NATURE, INTENDED TO INDICATE DESIGN INTENT ONLY. THE PLUMBING CONTRACTOR IS EXCLUSIVELY RESPONSIBLE TO COORDINATE SPECIFIC LOCATIONS OF ITEMS AND ADJUST AS REQUIRED TO ACCOMMODATE CODE REQUIREMENTS, EXISTING CONDITIONS (IF RENOVATION PROJECT), BUILDING STRUCTURE, SPRINKLER PIPING (IF ANY), LIGHTS, HVAC, ELECTRICAL WORK, AND THE WORK OF ALL OTHER TRADES. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. FIELD MODIFICATIONS (SUCH AS OFFSETS IN PIPING) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCE SHALL BE PROVIDED AT NO ADDITIONAL COST.
2. ALL OF THE PLUMBING INFORMATION IS PRESENTED ON AN X-REFERENCED BACKGROUND FLOOR PLAN. IN CASE OF CONFLICT BETWEEN BACKGROUND PLAN AND ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL FLOOR PLAN SHALL GOVERN.
3. THE PLUMBING CONTRACTOR SHALL PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS OR METHODS MENTIONED, LISTED OR SCHEDULED ON THE DRAWINGS AND IN THESE SPECIFICATIONS, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND ALL INCIDENTALS NECESSARY REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS.
4. THE ENGINEER WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES AND IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THOSE DOCUMENTS PREPARED BY THE ENGINEER.
5. IF BIDDING CONTRACTOR WOULD LIKE TO SUBSTITUTE ANY SPECIFIED PLUMBING DEVICES, VALVES, FIXTURES, WATER HEATERS, PIPING, INSULATION, HANGERS, ETC., THEY MUST PROVIDE SUBMITTAL TYPE DRAWINGS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO BIDDING THE PROJECT. IF THESE APPROVAL DRAWINGS ARE NOT SUBMITTED AND ACCEPTED, THE SPECIFIED EQUIPMENT MUST BE USED NO EXCEPTIONS.
6. THE PLUMBING CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF DRAWINGS REFLECTING "AS-BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND AND/OR CONCEALED WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER THE AS-BUILT DRAWINGS TO THE GC OR GC.
7. THE INSTALLATION SHALL BE MADE SO THAT ALL COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM; IT SHALL BE COMPLETE WITH ALL ACCESSORIES NECESSARY FOR PROPER OPERATION. WHEN THE INSTALLATION IS COMPLETE, ALL EQUIPMENT SHALL BE OPERATIVE AND IN PROPER ADJUSTMENT. ALL WORK SHALL BE EXECUTED IN CONFORMITY WITH THE BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS.
8. TO ACCOMPLISH THESE RESULTS, THE PLUMBING CONTRACTOR SHALL CONSULT THE ARCHITECT'S FIELD LAYOUTS OF THE CONTRACTORS FOR THESE TRADES AND THEIR SHOP DRAWINGS. HE/SHE SHALL COORDINATE THEIR WORK ACCORDINGLY.
9. DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGHING-IN MEASUREMENTS OR TO SERVE AS SHOP DRAWINGS. THE ARCHITECTURAL DRAWINGS AND DETAILS SHALL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT. WHERE THEY ARE NOT DEFINITELY LOCATED, THIS INFORMATION SHALL BE OBTAINED FROM THE ENGINEER.
10. REFER THE TO THE ARCHITECTURAL PLANS FOR ALL BUILDING SECTIONS, INTERIOR, AND EXTERIOR ELEVATIONS. PLUMBING EQUIPMENT AND INSTALLATION METHODS SHOWN ON ARCHITECTURAL SECTIONS/DETAILS ARE CONSIDERED PART OF THE PLUMBING DOCUMENTS.
11. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERRABLE AS NECESSARY TO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR OR SUB-CONTRACTOR FOR SUCH SYSTEM WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR DRAWINGS.
12. WHERE WORK OF THE CONTRACTOR CONNECTS TO THAT OF ANOTHER TRADE, OR TO PIPING OR EQUIPMENT IN PLACE, THE CONTRACTOR SHALL TAKE SUCH MEASUREMENTS IN THE FIELD AS MAY BE NECESSARY TO MAKE HIS WORK COME TRUE OR LINE UP WITH THAT WORK.
13. THE PLUMBING CONTRACTOR SHALL FURNISH TO THE ARCHITECTURAL TRADES CONTRACTOR INFORMATION SUCH AS SIZE AND LOCATION CONCERNING ALL FRAMED OPENINGS AND EQUIPMENT BASES REQUIRED.
14. UNLESS OTHERWISE INDICATED, ALL MOTORS FOR PLUMBING SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR. UNLESS OTHERWISE INDICATED, THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE ALL STARTERS, SAFETY LINE SWITCHES AND CONTROLLERS.
15. ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH CURRENT CODES, INCLUDING BUT NOT LIMITED TO:
 - A. MICHIGAN BUILDING CODES
 - B. MICHIGAN PLUMBING CODE
 - C. MICHIGAN MECHANICAL & ENERGY CODES
 - D. NATIONAL ELEC. CODE
 - E. MICHIGAN REHABILITATION
 - F. MICHIGAN BARRIER FREE CODES
 - G. OSHA REQUIREMENTS

ALL CODES SHALL BE THE STATE OF MI LATEST ADOPTED EDITIONS AT THE TIME OF PLAN REVIEW
16. PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE PLUMBING CODE AS LOCALLY ADOPTED. LOCAL REGULATIONS AND OTHER CODES OR REGULATIONS HAVING LEGAL JURISDICTION IN THE AREA. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTIONS AS MAY BE REQUIRED. PROVIDE FINAL CERTIFICATES OF INSPECTION TO THE GC UPON COMPLETION.
17. ANY CHANGES IN THE WORK TO SECURE CERTIFICATES SHALL BE MADE BY THIS CONTRACTOR AT HIS OWN EXPENSE. IN THE EVENT PLANS AND SPECIFICATIONS CONFLICT WITH ANY RULES, REGULATIONS OR CODES APPLYING, SAID RULES, REGULATIONS AND CODES SHALL GOVERN THE CONTRACTOR.
18. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONTRACTOR MUST SELECT ONE OF THE SPECIFIED MANUFACTURERS FOR EACH PIECE OF EQUIPMENT AND, WHERE ONLY ONE MANUFACTURER IS SPECIFIED, THAT MAKE MUST BE USED. THESE ITEMS MAY NOT BE CHANGED EXCEPT BY PERMISSION OF THE ENGINEER.
19. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION.
20. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES FOR PROPER EXECUTION OF THE WORK.
 21. FURNISH TO THE GC, FOR THE OWNER, TWO BOUND OPERATION MANUALS CONSISTING OF THE FOLLOWING:
 - A. ONE COPY OF SHOP DRAWINGS OF EACH PIECE OF EQUIPMENT.
 - B. INSTALLATION, OPERATING AND TROUBLESHOOTING MANUALS.
 - C. PARTS LIST.
 - D. THUMB DRIVE WITH ALL OF THE ABOVE IN PDF FORMAT.
 22. THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER IN SERVICING, OPERATING, ETC., OR MAIN PIECES OF EQUIPMENT.
 23. CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED BY HIM OR SUB-CONTRACTORS TO BE FREE FROM DEFECT IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK, AND HE SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS AND SHALL ALSO MAKE GOOD ANY DAMAGE CAUSED BY SUCH DEFECTS OR THE CORRECTION OF DEFECTS. THIS REQUIREMENT SHALL BE BINDING EVEN THOUGH IT WILL EXCEED PRODUCTS GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.
 24. CONTRACTOR SHALL SUBMIT HIS OWN AND EACH EQUIPMENT MANUFACTURER'S WRITTEN CERTIFICATES, WARRANTING THAT EACH ITEM OR EQUIPMENT FURNISHED COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. NOTE THAT GUARANTEE SHALL RUN FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK, NOT FROM THE DATE OF INSTALLATION OF A DEVICE OR PIECE OF EQUIPMENT.
 25. ALL WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST STANDARDS PRESCRIBED BY LOCAL AND/OR STATE CODES AND/OR ORDINANCES INCLUDING THE LATEST RULES OF THE NFPA, AND AMERICAN STANDARDS ASSOCIATION, AND WITH ANY PREVAILING RULES AND REGULATIONS PERTAINING TO ADEQUATE PROTECTION AND/OR GUARDING OF ANY HAZARDOUS LOCATIONS.
 26. ALL EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED, SUCH DIRECTIONS SHALL BE FOLLOWED.
 27. UNTIL FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL PROTECT ALL MATERIALS.
 28. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE EQUAL IN QUALITY AND CAPACITY TO THAT SPECIFIED AND HARMONIOUS IN DESIGN AS DETERMINED BY THE ENGINEER.
 29. PLUMBING WORK SHALL BE CAREFULLY EXECUTED BY SKILLED MECHANICS WELL VERSED IN THEIR PARTICULAR TRADES. IT SHALL ALSO HAVE A CLEAN, NEAT, WELL ARRANGED AND FINISHED APPEARANCE TO THE COMPLETE SATISFACTION OF THE OWNER AND THE ARCHITECT/ENGINEER.

- THE CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS WHICH WILL AFFECT THE WORK HE IS TO PERFORM. THE SUBMISSION OF A PROPOSAL BY THIS CONTRACTOR SHALL BE CONCLUSIVE EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS GIVEN PROPER CONSIDERATION AND EVALUATION OF THESE CONDITIONS IN THE PREPARATION OF HIS PROPOSAL. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE IN HIS BEHALF FOR EXTRA EXPENSE INCURRED DUE TO FAILURE OF NEGLECT ON HIS PART TO MAKE THIS VISIT AND EXAMINATION.
31. PROVIDE SHOP DRAWINGS FOR APPROVAL FOR PLUMBING FIXTURES, PIPING, VALVES, PUMPS, INSULATION, CONTROL SEQUENCES, ETC. SHOP DRAWINGS ARE TO BE THOROUGHLY CHECKED (AND NOTED SO ON FRONT COVER) BY THE CONTRACTOR PRIOR TO SUBMITTING THEM TO THE ENGINEER. REVIEW BY THE ENGINEER SHALL NOT BE CONSTRUED AS A COMPLETE CHECK, BUT ONLY THAT THE GENERAL METHOD OF CONSTRUCTION AND DETAILING IS SATISFACTORY. REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS WHICH MAY EXIST. IF THE CONTRACTOR IS APPROVED TO USE A MANUFACTURER OTHER THAN THE ONE SPECIFIED BY THE ENGINEER, IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE SUBSTITUTED EQUIPMENT WILL PHYSICALLY FIT IN THE SPACE PROVIDED FOR THE EQUIPMENT AND MAINTAIN THE SERVICE CLEARANCE REQUIREMENTS SET FORTH BY THE MANUFACTURER. SHOP DRAWING CHECKING BY THE ENGINEER IS A "COURTESY" CHECK ONLY. SHOP DRAWINGS ARE TO BE ELECTRONICALLY SUBMITTED IN PDF FORMAT ONLY.
32. ALL CONDENSING GAS FIRED EQUIPMENT SHALL BE PROVIDED WITH CONDENSATE NEUTRALIZATION KITS PER THE MICHIGAN PLUMBING CODE. PROVIDE SMALL CONDENSATE SUMP/PUMP SETS IF/AS REQUIRED AND DISCHARGE WITH 3" AIR GAP INTO NEARBY SERVICE SINK OR FLOOR DRAIN. ONLY PUMP CONDENSATE WHEN GRAVITY IS NOT POSSIBLE.
33. ALL PLUMBING EQUIPMENT PROVIDED SHALL MEET THE REQUIREMENTS OF ASHRAE 2021 EDITION, SECTION 90.1 (ENERGY REQUIREMENTS).
34. PLUMBING FIXTURES SHALL BE EQUAL TO KOHLER, AMERICAN STANDARD, MANSFIELD, GERBER. FLOOR DRAINS SHALL BE EQUAL TO ZURN OR WADE. SINKS EQUAL TO JUST, ELKAY, DAYTON, KRAUS. WATER HEATERS EQUAL TO AO SMITH OR LOCHINVAR.
35. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE INDOOR STOPS. STOPS SHALL BE CHROMED BRASS WITH CHROMED BRASS TUBING AND COMPRESSION FITTINGS. PVC SUPPLIES AND/OR FLEXIBLE PLASTIC ARE NOT ACCEPTABLE.
36. PLUMBING FIXTURES SHALL BE CAULKED AT WALL AND FLOOR JOINTS WITH COMMERCIAL GRADE SILICONE CAULK, COLOR PER ARCHITECT.
37. ALL SHUTOFF VALVES 1/2" TO 2" SHALL BE 1/4 TURN BALL VALVES. SHUTOFF VALVES 2-1/2" AND LARGER SHALL BE BUTTERFLY VALVES.
38. PROVIDE ACCESS PANELS FOR ALL VALVES CONCEALED IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS. WHEREVER PANEL SHALL BE FIRE RATED WHEN LOCATED IN FIRE ASSEMBLIES, PROVIDE 1/4 TURN LOCKS. LOCK IN ACCESSIBLE AREAS ACCESS PANELS.
39. COORDINATE EXACT FLOOR DRAIN LOCATIONS WITH ARCHITECTURAL DRAWINGS. SET FLOOR DRAINS BELOW FINISHED FLOOR AS REQUIRED FOR ARCHITECTURALLY SPECIFIED FLOOR. FLOOR DRAIN TYPE SHALL BE ADJUSTABLE HEIGHT TYPE.
40. SURFACES OF ALL FLOOR DRAINS, CLEANOUTS, AND OTHER EQUIPMENT SHALL BE CLEANED AND LEFT IN FIRST CLASS CONDITION. FLOOR DRAINS SHALL BE SEALED DURING CONSTRUCTION TO PREVENT DEBRIS FROM ENTERING THE SANITARY SYSTEM.
41. CLEANOUT COVERS SHALL BE FLUSH WITH GROUND OR SLAB. COVERS SHALL BE BRONZE TOP WITH SCORED SURFACES AND LABELED "CO".
42. CHARACTER OF PIPING WORK SHALL BE AS FOLLOWS:
- A. ALL PIPING SHALL BE INSTALLED SO AS TO PERMIT COMPLETE DRAINAGE.
 - B. ALL PIPING SHALL BE INSTALLED SO AS TO BE FREE FROM POCKETS CAUSED BY SAGGING. SPECIAL CARE SHALL BE TAKEN TO ENSURE UNHINDERED EXPANSION AND CONTRACTION OF PIPING. EXPANSION AND CONTRACTION OF PIPING SHALL BE PROVIDED FOR IN A SATISFACTORY, APPROVED AND SAFE MANNER BY MEANS OF LOOPS OR OFFSETS OR SWING CONNECTIONS, WHERE MECHANICAL EXPANSION JOINTS ARE NOT SPECIFICALLY CALLED FOR. CORRUGATED COPPER PIPE SLEEVES SHALL BE USED AT ALL CONSTRUCTION EXPANSION JOINTS.
 - C. RISER AND VERTICAL PIPES ARE TO BE RUN PLUMB, STRAIGHT AND TRUE AND HAVE NO UNNECESSARY OFFSETS. NO PIPING SHALL BE INSTALLED IN SUCH A MANNER AS TO INTERFERE WITH NECESSARY HEADROOM OR WITH DOORS OR WINDOWS.
 - D. PIPING SUSPENDED FROM CEILING OR BENEATH FLOOR SLABS SHALL BE KEPT AS CLOSE TO CONSTRUCTION AS POSSIBLE, CONSISTENT WITH THE INSTALLATION AND PITCH REQUIREMENTS.
 - E. ALL THREADED PIPE JOINTS SHALL BE MADE TIGHT, STEEL TO STEEL, USING AN APPROVED THREAD PASTE, TO BE APPLIED ON MALE THREADS ONLY. REAM OUT ALL THREADED PIPE ENDS, TURN ON END AND RATTLE BEFORE INSTALLING. CLEAN AND SWAB OUT ALL PIPING BEFORE INSTALLING.
43. PIPING MATERIALS:
- A. SANITARY LINES: SCHEDULE 40 PVC
 - B. SOIL, WASTE AND VENT: SCHEDULE 40 PVC
 - C. WATER PIPING, DOMESTIC, ABOVE GROUND
 - a. MAINS: TYPE L COPPER TUBING, WROUGHT COPPER FITTINGS
 - b. BRANCHES INTO APARTMENTS AFTER BALL VALVES: PEX PIPING, BRASS CRIMP FITTINGS
 - D. WATER PIPING, DOMESTIC, BELOW GROUND: TYPE K COPPER TUBING, WROUGHT COPPER FITTINGS
44. ALL CONTRACTORS ARE TO COORDINATE THE LOCATIONS OF PLUMBING LINES, DUCTWORK, EQUIPMENT, GAS LINES, FIRE SUPPRESSION LINES, ETC. AS REQUIRED SO THAT CLEARANCES ABOVE ELECTRICAL PANELS ARE MAINTAINED PER 2023 NEC. REFERENCE ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.
45. IF DISSIMILAR METALS ARE TO BE JOINED, APPROVED INSULATION UNIONS SHALL BE UTILIZED.
46. COORDINATE ALL PIPE RISERS IN CHASES WITH ALL OTHER TRADES.
47. RUN ALL PIPING AND RELATED PLUMBING CONCEALED IN WALLS WHENEVER POSSIBLE. AVOID EXPOSED INSTALLATION UNLESS SPECIFICALLY REQUIRED. (TYPICAL UNLESS NOTED OTHERWISE)
48. DO NOT SUPPORT CEILINGS, OTHER BUILDING STRUCTURES, OR CONDUITS FROM DUCTWORK, PIPES OR CONDUIT. DO NOT ALLOW DUCTS, PIPES OR CONDUITS TO DIRECTLY TOUCH BUILDING WALLS, FLOORS, OR STRUCTURE AT ANY LOCATION.
49. SANITARY AND WASTE LINES SHALL PITCH DOWN NOT LESS THAN 1/8" PER FOOT IN THE DIRECTION OF FLOW AND SHALL BE PROVIDED WITH ACCESSIBLE CLEANOUTS AT ALL TURNS AND EVERY 100' ON STRAIGHT RUNS. PROVIDE VENTS AS SHOWN ON THE DRAWING OR REQUIRED BY THE PLUMBING CODE. VENTS EXTENDING THROUGH THE ROOF SHALL BE PVC, MINIMUM 3".
50. SOIL, VENT AND DRAIN PIPING SHALL BE RUN AS DIRECT AS POSSIBLE. MAKE ALL CONNECTIONS TO FLOOR DRAINS, FIXTURES, ETC. WITH PVC TRAPS, PROVIDING CLEANOUT WITH FITTED PVC THREADED PLUGS.
51. ALL PIPING SHALL BE THOROUGHLY CLEANED AND SWABBED OUT BEFORE INSTALLATION IN SUCH A MANNER THAT ALL DEBRIS, CONSTRUCTION DIRT AND FOREIGN PARTICLES SHALL BE ENTIRELY REMOVED FROM THE PIPING.
52. ALL DOMESTIC WATER PIPING SHALL BE PROPERLY STERILIZED PER MICHIGAN DEPARTMENT OF PUBLIC HEALTH AND LOCAL MUNICIPALITIES PRIOR TO BEING PUT INTO OPERATION.
53. WATER AND PRESSURIZED PLUMBING LINES SHALL BE TESTED PER MICHIGAN PLUMBING CODE, LATEST ADOPTED EDITION.
54. ALL SYSTEMS SHALL BE THOROUGHLY CLEANED, TESTED, AND BALANCED AS REQUIRED.
55. ALL OPENINGS IN CONSTRUCTION, THROUGH WHICH ANY AND ALL PLUMBING PIPING PASS SHALL BE SEALED UP AIR TIGHT AFTER INSTALLATION OF ALL PIPING. PENETRATIONS OF FLOOR/CEILING ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE RATING SHALL BE PROTECTED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE, LATEST ADOPTED EDITION.
56. IF THIS IS A RENOVATION/ADDITION PROJECT, ANY SLAB CUTS AND REPAIRS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR TO DETERMINE IF THEY SHOULD BE INCLUDED IN THE PLUMBING CONTRACTOR'S BID.
57. FAILURE TO DETECT INFERIOR WORK, OR WORK NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE CODES SHALL NOT BE CONSTRUED AS ACCEPTANCE OF SUCH WORK.
58. THE PLUMBING CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE PLUMBING INSTALLATION. REMOVE WEEKLY. UPON COMPLETION OF THE WORK HE/SHE SHALL LEAVE ALL AREAS CLEAN, INCLUDING BUT NOT LIMITED TO THE PLUMBING ROOM AND THE PLUMBING EQUIPMENT IN THAT SAID ROOM.
59. ALL CUTTING AND PATCHING IS THE RESPONSIBILITY OF THE TRADE REQUIRING THE WORK, WITH THE EXCEPTION OF ANY REQUIRED ROOF WORK, WHICH WILL BE THE RESPONSIBILITY OF THE ROOFING CONTRACTOR.
60. ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- END OF PLUMBING NOTES

AAV	AIR ADMITTANCE VALVE		WC-1	FIXTURE TAG
AFF	ABOVE FINISHED FLOOR			
AFG	ABOVE FINISHED GRADE		CW	COLD WATER PIPING
BC	BALANCE COCK			
BFF	BELOW FINISHED FLOOR		HW	HOT WATER PIPING
BFG	BELOW FINISHED GRADE			
BT	BATHTUB			
BTVA	BUTTERFLY VALVE		HWR	HOT WATER PIPING
BV	BALL VALVE			
CHVA	CHECK VALVE		SAN	SANITARY PIPING
CO	CLEANOUT			
CP	CIRCULATING PUMP		V	VENT PIPING
CV	CONTROL VALVE			
DW	DISHWASHER		RC	RAIN CONDUCTOR
DWH	DOMESTIC WATER HEATER			
FCO	FLOOR CLEANOUT		ORC	OVERFLOW RAIN CONDUCTOR
FD	FLOOR DRAIN			
FUT	FUTURE			
GR	GRADE			
HB	HOSE BIBB			
IE	INVERT ELEVATION			
MPC	MICHIGAN PLUMBING CODE			
RI	ROUGH-IN			
RS	ROOF SUMP			
S	SINK			
SH	SHOWER			
SD	SHOWER DRAIN			
TYP	TYPICAL			
UNO	UNLESS NOTED OTHERWISE			
V	VENT			
VIF	VERIFY IN FIELD			
VTR	VENT THRU ROOF			
WC	WATER CLOSET			
WCO	WALL CLEANOUT			
WH	WALL HYDRANT			
WMB	WASHING MACHINE BOX			

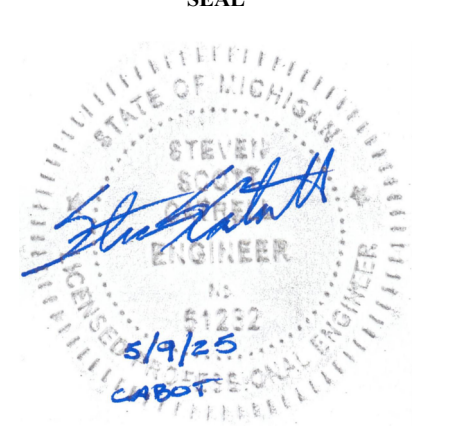
HEAT-RESISTANT COLD AND HOT WATER PIPING (INCLUDING VALVES, ELBOWS, FITTINGS) SHALL HAVE THE FOLLOWING INSULATION: "THERMA-CEL", SOLD BY "GRAINGER". MUST MEET ASTM E84, 25/50 SMOKE/FLAME RATING, SEMI-SLIT, GRAY COLOR, TEMPERATURE RANGE: -40°F TO +200°F. THICKNESS PER ASHRAE 90.1, 2007. INSULATION MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATION. THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND RE-INSTALL UTILIZE MANUFACTURER'S ELBOW FITTINGS, DO NOT SIMPLY BEND INSULATION AROUND ELBOWS AND COVER WITH BLACK ELECTRICAL TAPE (OR SIMILAR). UTILIZE THE TAPE THAT IS SOLD AND RECOMMENDED BY THE MANUFACTURER.

M.D.001	MECHANICAL LEGEND & NOTES
M.D.011	MECHANICAL DEMOLITION PLAN
M.101	BASEMENT FLOOR MECHANICAL PLAN
M.102	FIRST FLOOR MECHANICAL PLAN
M.103	SECOND FLOOR MECHANICAL PLAN
M.104	THIRD FLOOR MECHANICAL PLAN
M.105	FOURTH FLOOR MECHANICAL PLAN
M.106	ROOF MECHANICAL PLAN
M.201	HVAC LOAD CALC REPORTS
M.202	HVAC LOAD CALC REPORTS
M.201	MECHANICAL DETAILS
M.401	MECHANICAL SCHEDULES
P.001	PLUMBING LEGEND & NOTES
P.D.101	PLUMBING DEMOLITION PLAN
P.100	UNDERGROUND PLUMBING PLAN
P.101	BASMENT FLOOR PLUMBING PLAN
P.102	FIRST FLOOR PLUMBING PLAN
P.103	SECOND FLOOR PLUMBING PLAN
P.104	THIRD FLOOR PLUMBING PLAN
P.105	FOURTH FLOOR PLUMBING PLAN
P.106	ROOF PLUMBING PLAN
P.201	SANITARY ISOMETRICS
P.202	SANITARY ISOMETRICS
P.203	SANITARY ISOMETRICS
P.301	PLUMBING DETAILS
P.401	PLUMBING SCHEDULES
M.P.501	ENLARGED M&P FLOOR PLANS
M.P.502	ENLARGED M&P FLOOR PLANS
M.P.503	ENLARGED M&P FLOOR PLANS
M.P.504	ENLARGED M&P FLOOR PLANS
M.P.511	ENLARGED M&P UNIT PLANS
M.P.512	ENLARGED M&P UNIT PLANS
M.P.513	ENLARGED M&P UNIT PLANS
M.P.514	ENLARGED M&P UNIT PLANS
M.P.515	ENLARGED M&P UNIT PLANS
M.P.516	ENLARGED M&P UNIT PLANS
M.P.517	ENLARGED M&P UNIT PLANS
M.P.518	ENLARGED M&P UNIT PLANS
M.P.519	ENLARGED M&P UNIT PLANS
M.P.520	ENLARGED M&P UNIT PLANS
M.P.521	ENLARGED M&P UNIT PLANS
M.P.522	ENLARGED M&P UNIT PLANS
M.P.523	ENLARGED M&P UNIT PLANS

The image shows the logo for KTS Engineering Group. The letters 'KTS' are in a large, bold, blue sans-serif font. Below 'KTS' is the word 'ENGINEERING' in a smaller, blue, all-caps sans-serif font, with horizontal lines extending from the left and right sides. Below 'ENGINEERING' is the word 'GROUP' in a blue, all-caps sans-serif font, also with horizontal lines extending from the left and right sides. To the right of the logo, the text 'MEP CONSULTING ENGINEER' is written in a blue, all-caps sans-serif font. Below this, the address '491 E. WRIGHT AVE.' is written in a blue, all-caps sans-serif font, followed by 'SHEPHERD, MI, 48863' and '989-567-1100' on separate lines. Below the address is the website 'KTSENGINEERINGGROUP.COM' in a blue, all-caps sans-serif font. At the bottom, the text 'KTS PROJECT NO. 25-0251' is written in a blue, all-caps sans-serif font.



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MICHIGAN

**RENOVATION OF
CABOT APARTMENTS
13725 DEXTER AVENUE**

DETROIT

09.15.2026	OWNER REVISIONS
06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

PLUMBING LEGEND & NOTES

DRAWING NUMBER



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SEAL



MICHIGAN

**RENOVATION OF
CABOT APARTMENTS
13725 DEXTER AVENUE**

DETROIT

09.15.2026	OWNER REVISIONS
06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN



GENERAL PLUMBING DEMOLITION PLAN

FSP PROJECT NO.
TRC22.066

DRAWING TITLE

PLUMBING DEMOLITION PLAN

DRAWING NUMBER

P.D.101

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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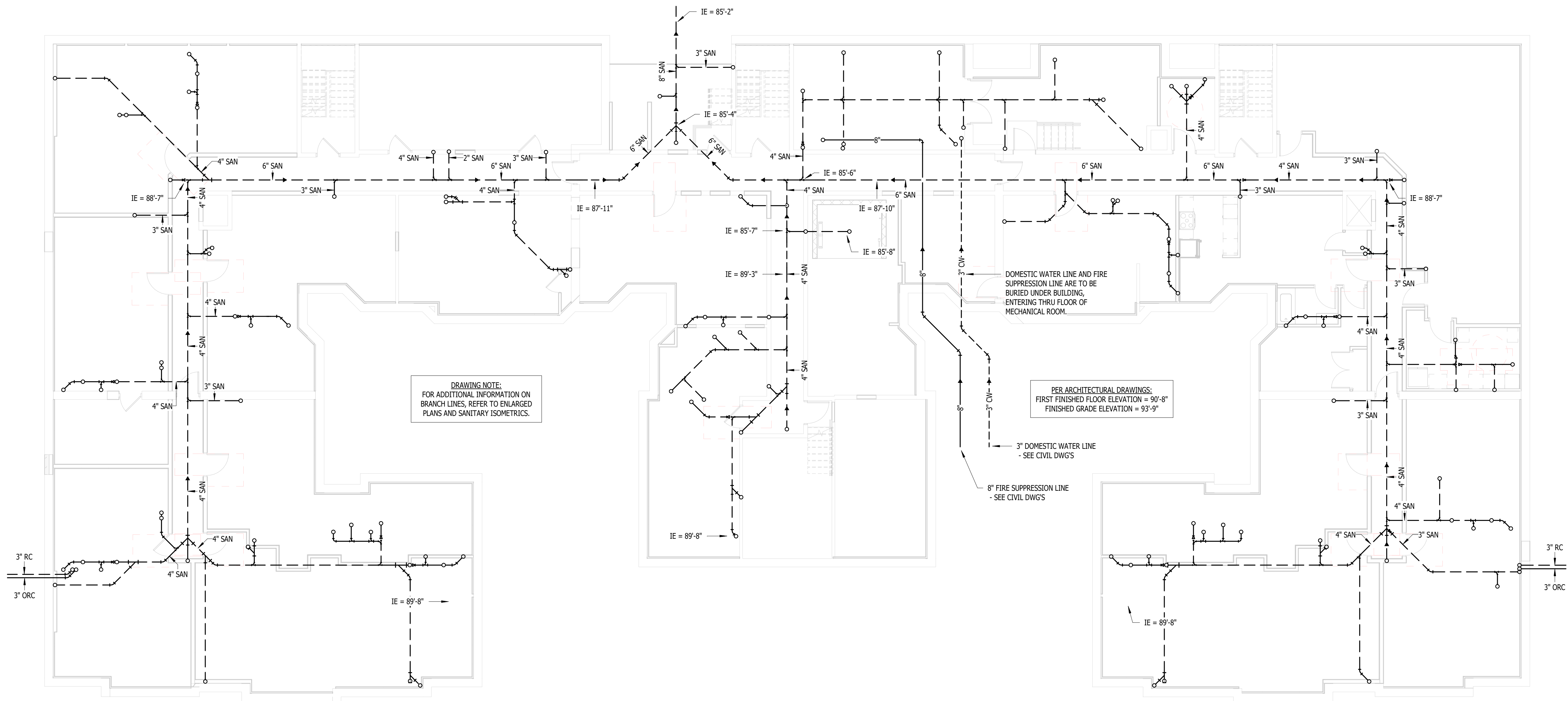
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MICHIGAN

RENOVATION OF
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13725 DEXTER AVENUE

DETROIT



UNDERGROUND PLUMBING PLAN
1/8" = 1'-0"

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KEY PLAN

FSP PROJECT NO.
TRC22.064

DRAWING TITLE

UNDERGROUND PLUMBING PLAN

DRAWING NUMBER

P.100



MEP CONSULTING ENGINEER
491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM
KTS PROJECT NO. 25-0251

FUSCO,
SHAFFER &
PAPPAS, INC.
ARCHITECTS AND PLANNERS
550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
PHONE 248.543.4100 FAX 248.543.4141

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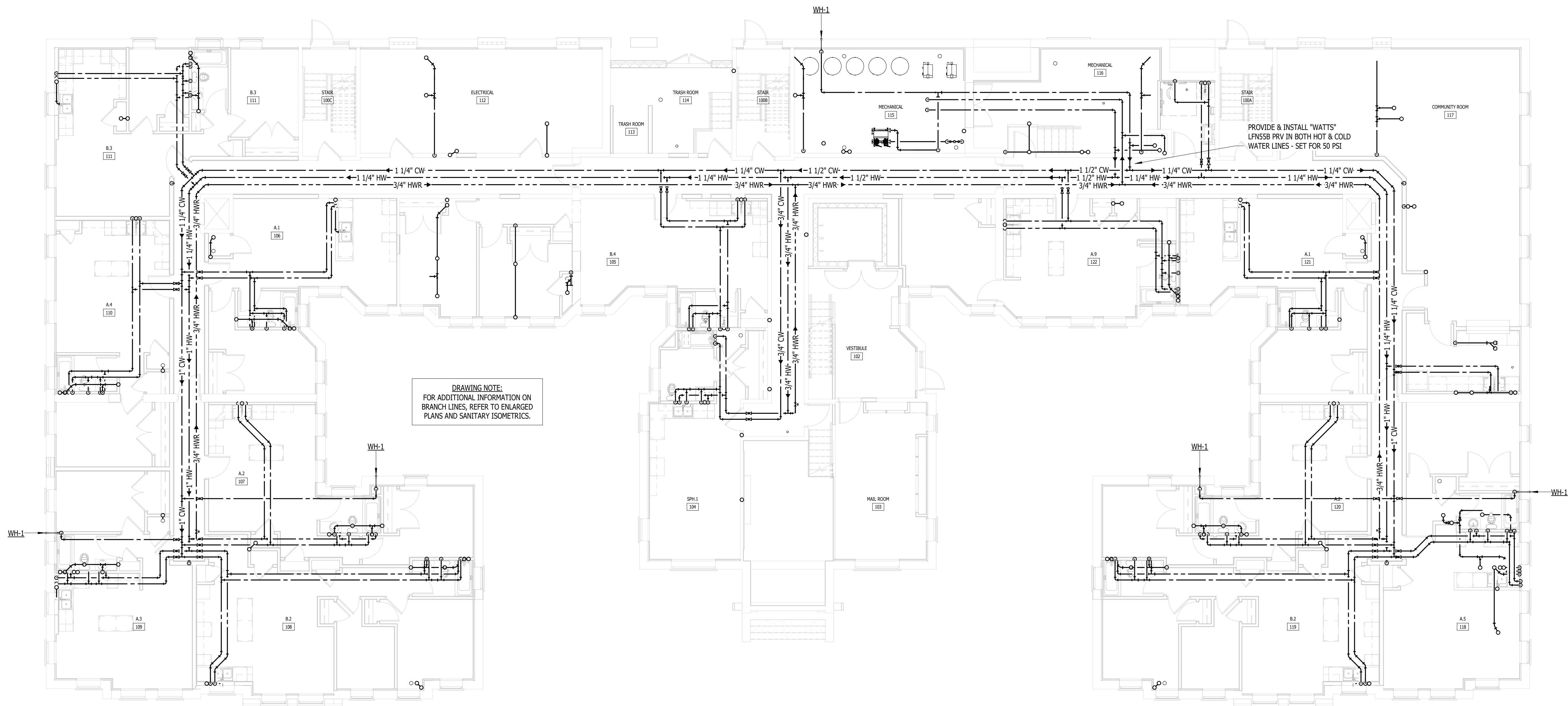
FSP PROJECT NO.
TRC22.064

DRAWING TITLE

BASEMENT PLUMBING PLAN

DRAWING NUMBER

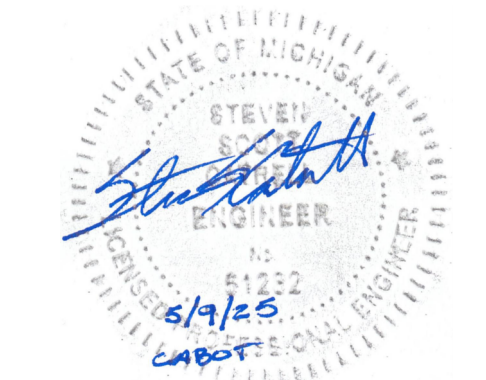
P.101



BASEMENT PLUMBING PLAN
1/8" = 1'-0"



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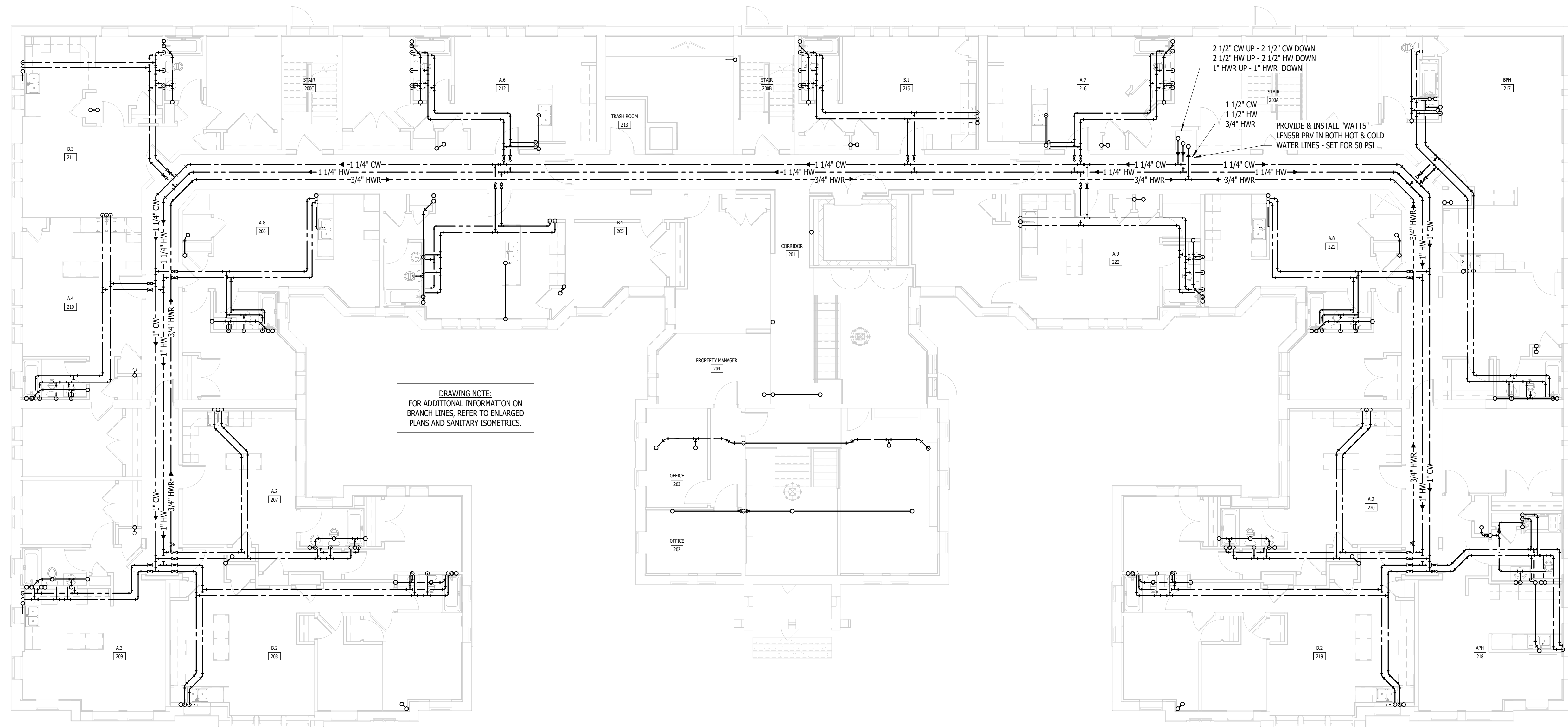
FSP PROJECT NO.
TRC22.066

DRAWING TITLE

FIRST FLOOR PLUMBING PLAN

DRAWING NUMBER

P.102



DRAWING NOTE:
FOR ADDITIONAL INFORMATION ON
BRANCH LINES, REFER TO ENLARGED
PLANS AND SANITARY ISOMETRICS.

2 1/2" CW UP - 2 1/2" CW DOWN
 2 1/2" HW UP - 2 1/2" HW DOWN
 1" HWR UP - 1" HWR DOWN

STAIR
 200A

1 1/2" CW
 1 1/2" HW
 3/4" HWR

PROVIDE & INSTALL "WATTS"
 LFN58 PRV IN BOTH HOT & COLD
 WATER LINES - SET FOR 50 PSI





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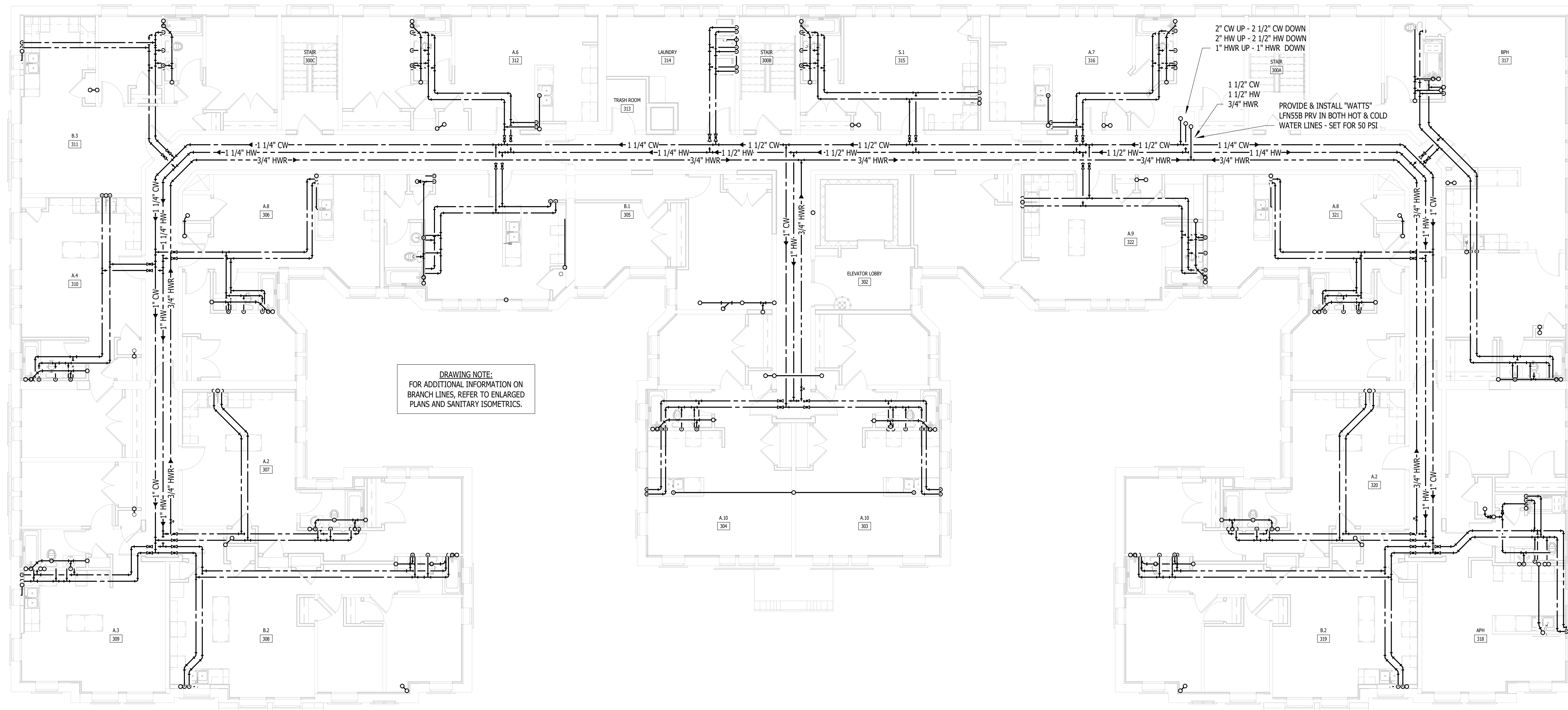
FSP PROJECT NO
TRC22.066

DRAWING TITLE

SECOND FLOOR PLUMBING PLAN

DRAWING NUMBER

P.103



DRAWING NOTE:
FOR ADDITIONAL INFORMATION ON
BRANCH LINES, REFER TO ENLARGED
PLANS AND SANITARY ISOMETRICS.

 **SECOND FLOOR PLUMBING PLAN**
1/8" = 1'-0"



MEP CONSULTING ENGINEER
491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM
KTS PROJECT NO. 25-0251

FUSCO,
SHAFFER &
PAPPAS, INC.
ARCHITECTS AND PLANNERS
550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
PHONE 248.543.4100 FAX 248.543.4141

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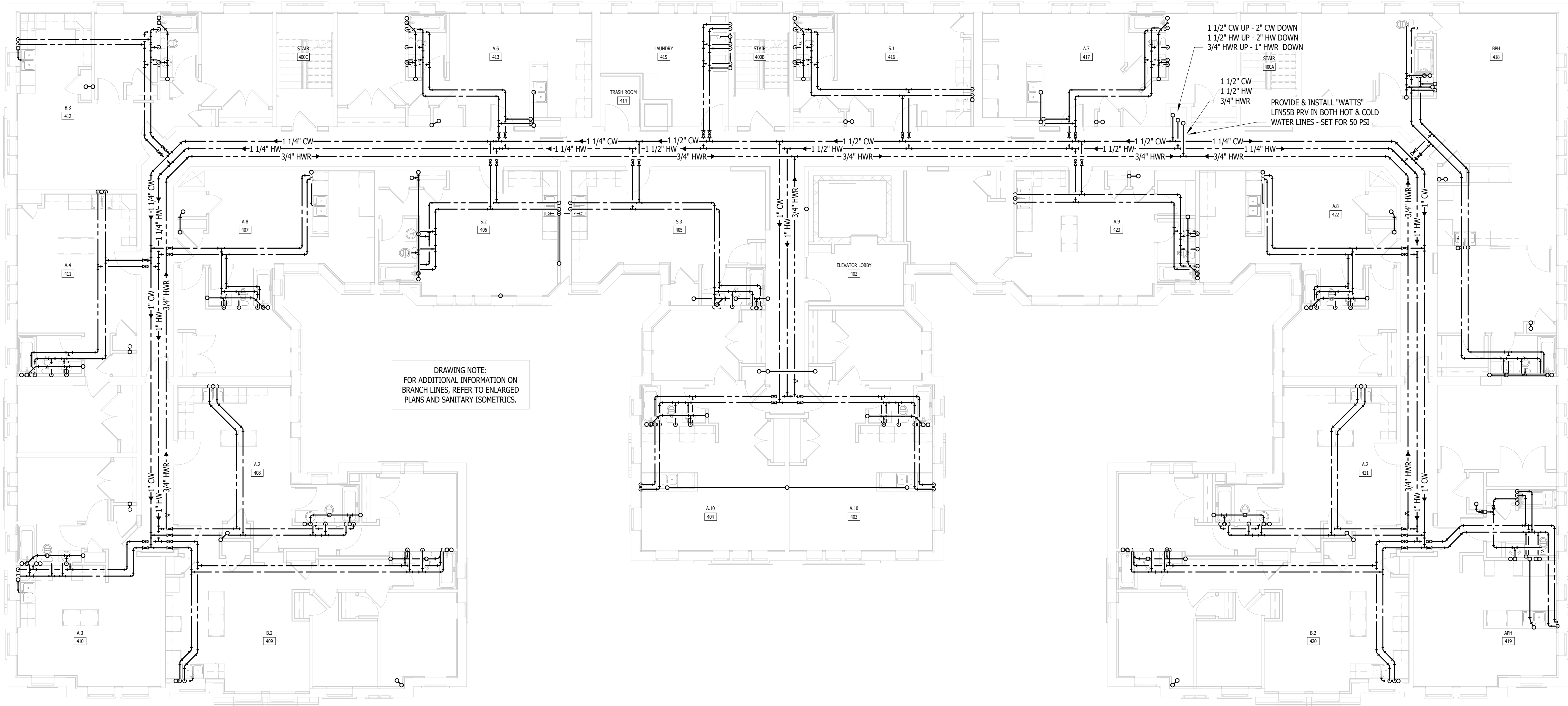
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THIRD FLOOR PLUMBING PLAN
1/8" = 1'-0"

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DRAWING TITLE

THIRD FLOOR PLUMBING PLAN

DRAWING NUMBER

P.104



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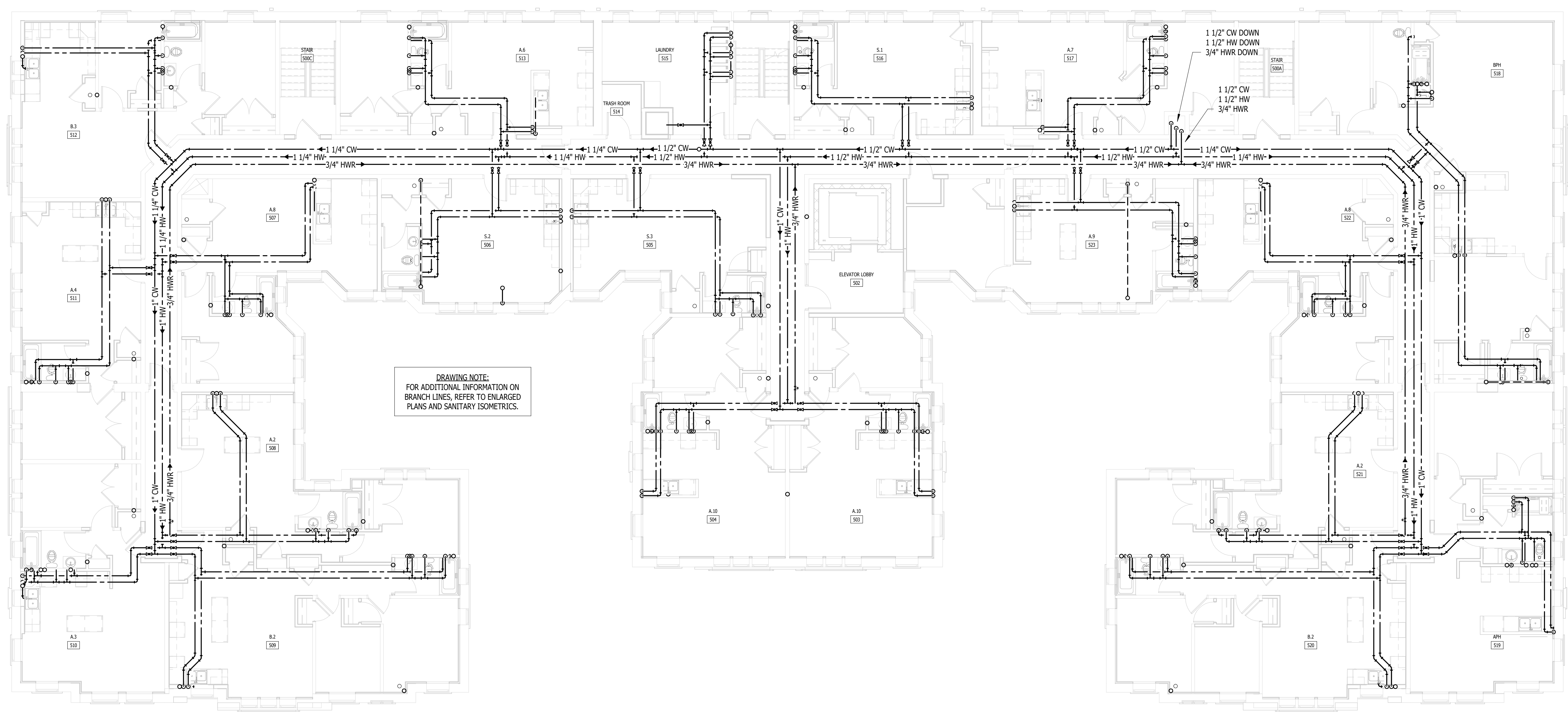
FSP PROJECT NO.
TRC22.066

DRAWING TITLE

FOURTH FLOOR PLUMBING PLAN

DRAWING NUMBER

P.105



 **FOURTH FLOOR PLUMBING PLAN**
1/8" = 1'-0"



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SHEPHERD MI, 48883
989-567-1100
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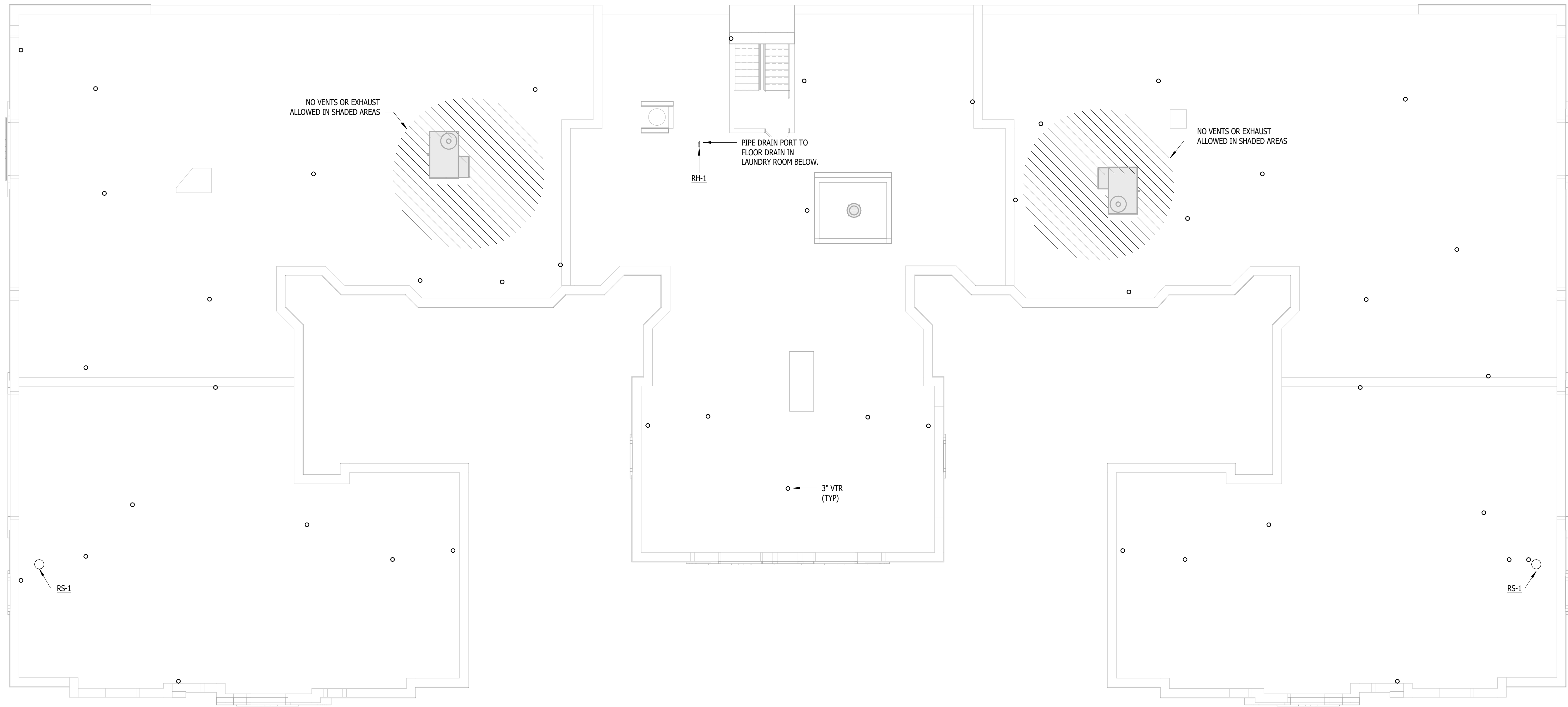
FSP PROJECT NO.
TRC22.064

DRAWING TITLE

ROOF PLUMBING PLAN

DRAWING NUMBER

P.106



 **ROOF PLUMBING PLAN**
1/8" = 1'-0"

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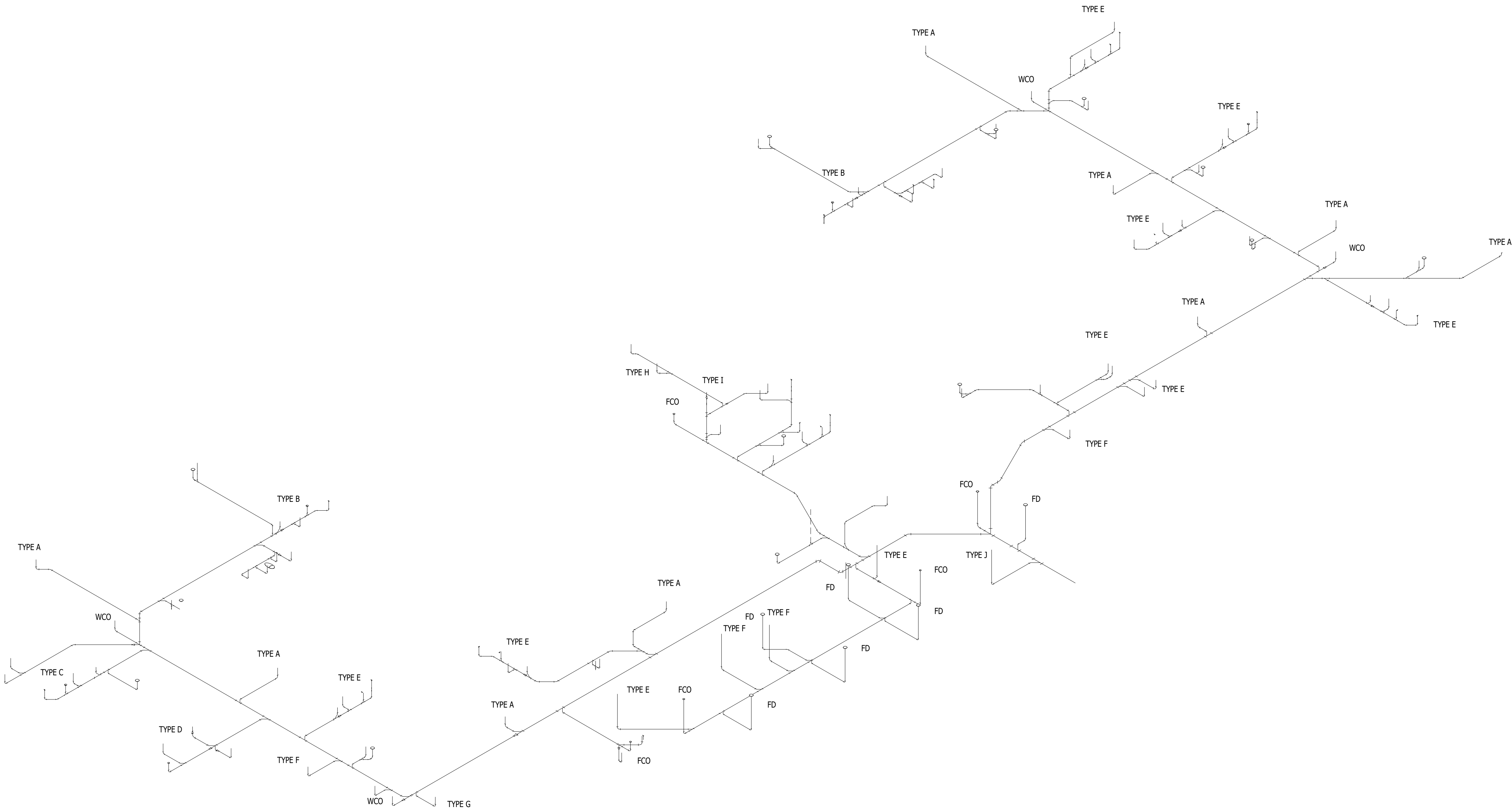
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SANITARY ISOMETRIC
NOT TO SCALE

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DRAWING TITLE

PLUMBING ISOMETRIC

DRAWING NUMBER

P.201

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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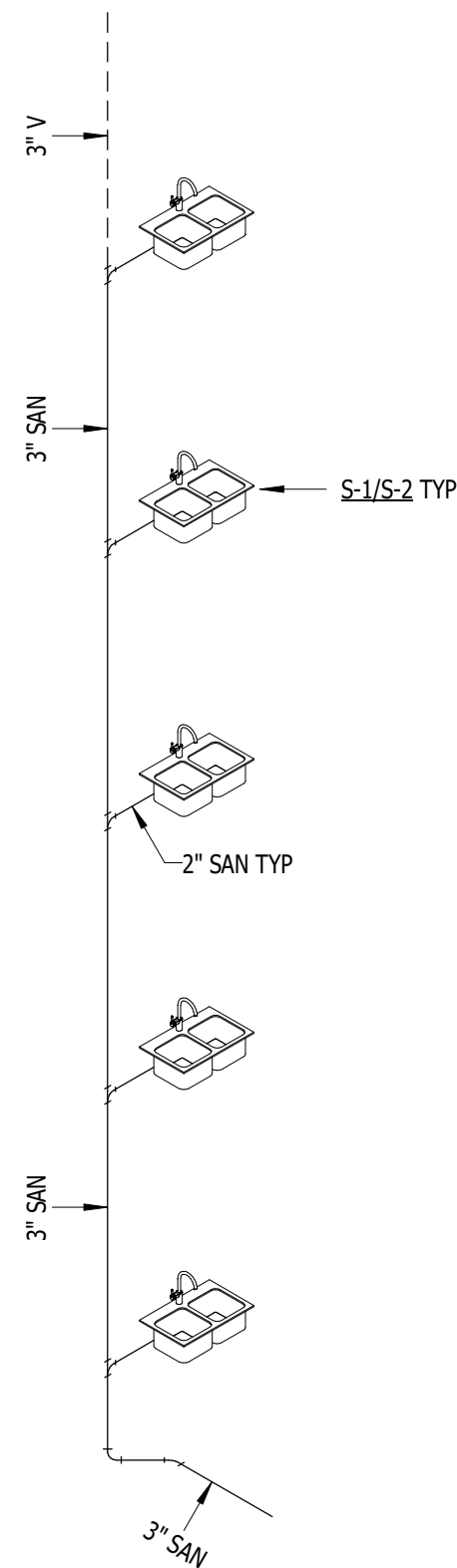
FSP PROJECT NO.
TRC22.064

DRAWING TITLE

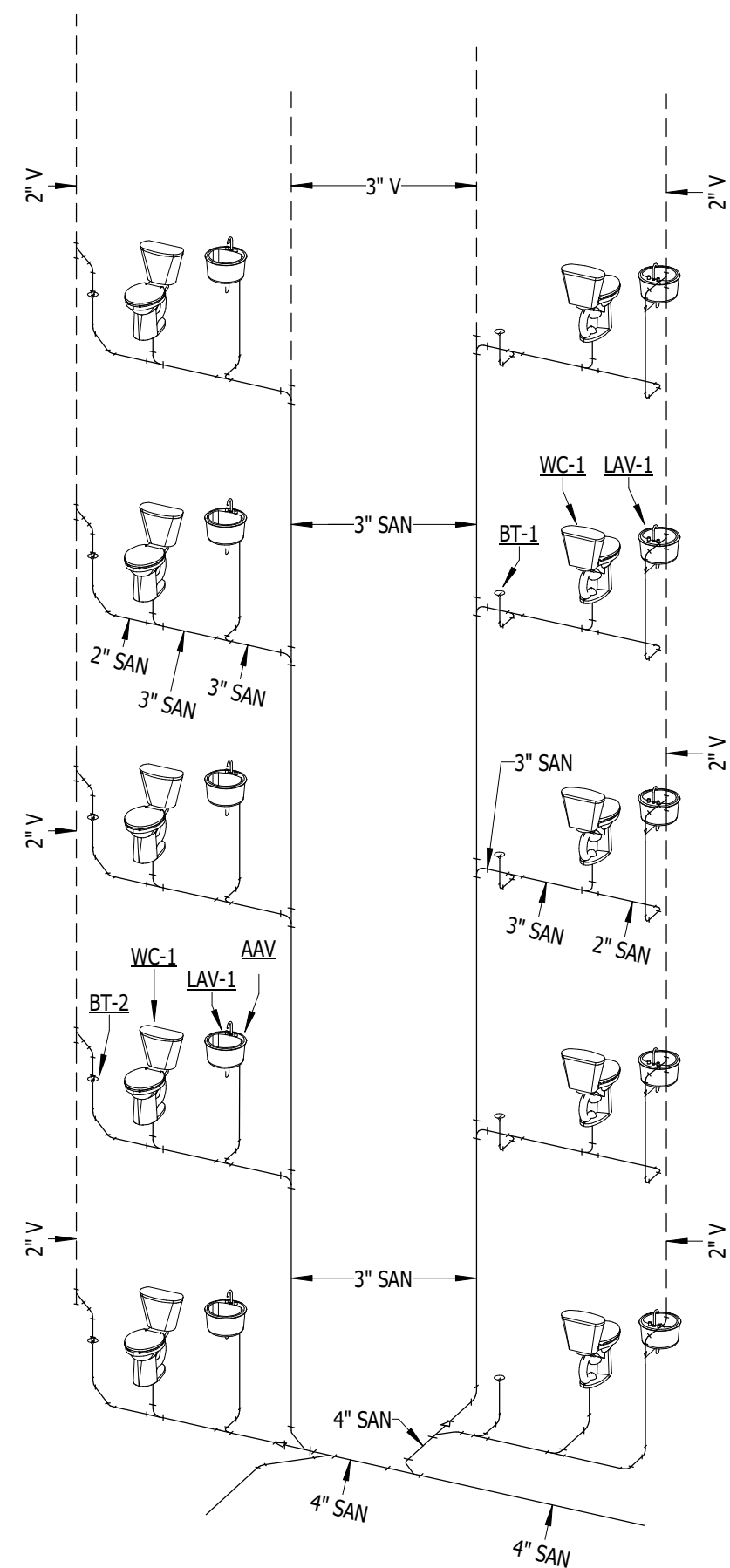
PLUMBING ISOMETRICS

DRAWING NUMBER

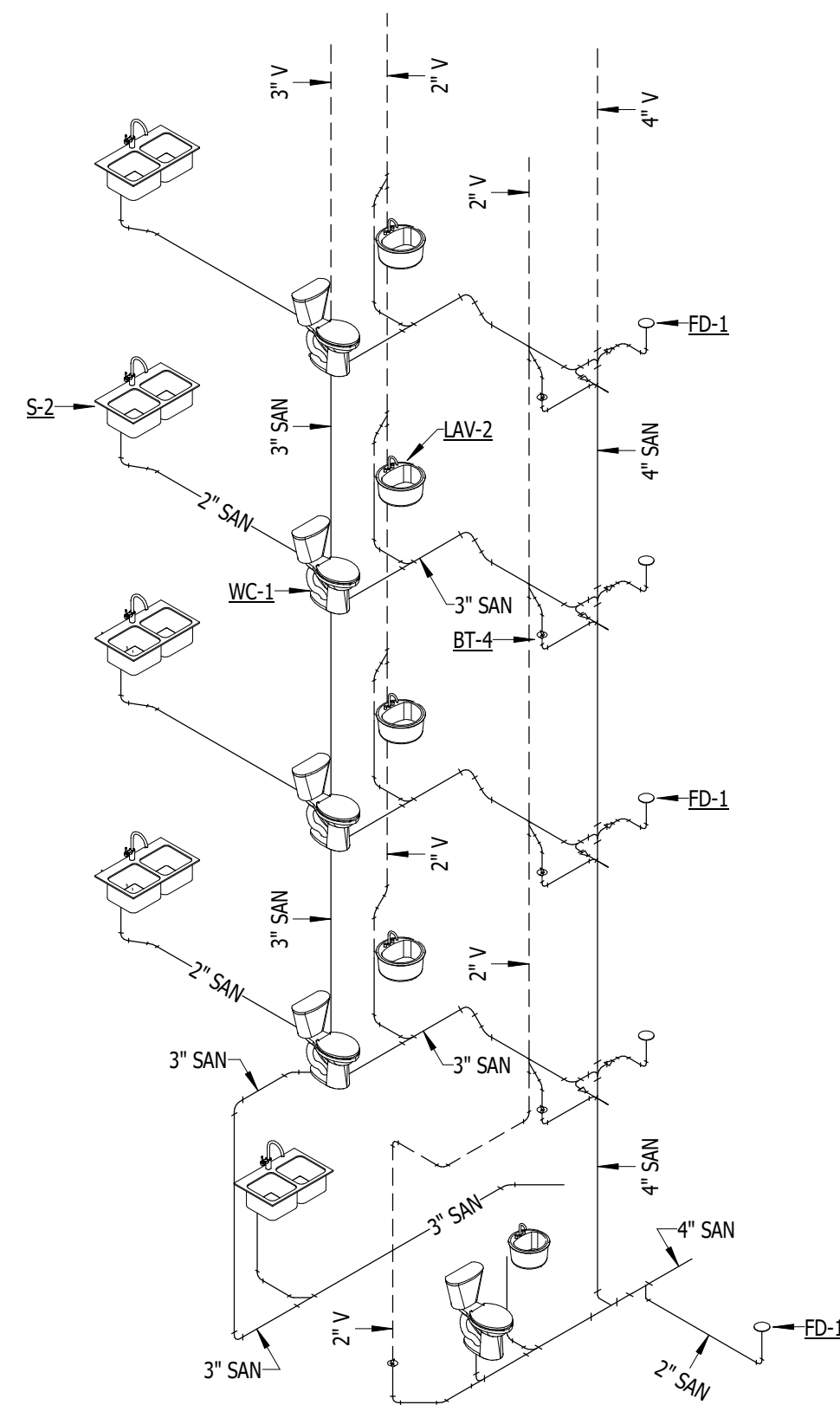
P.202



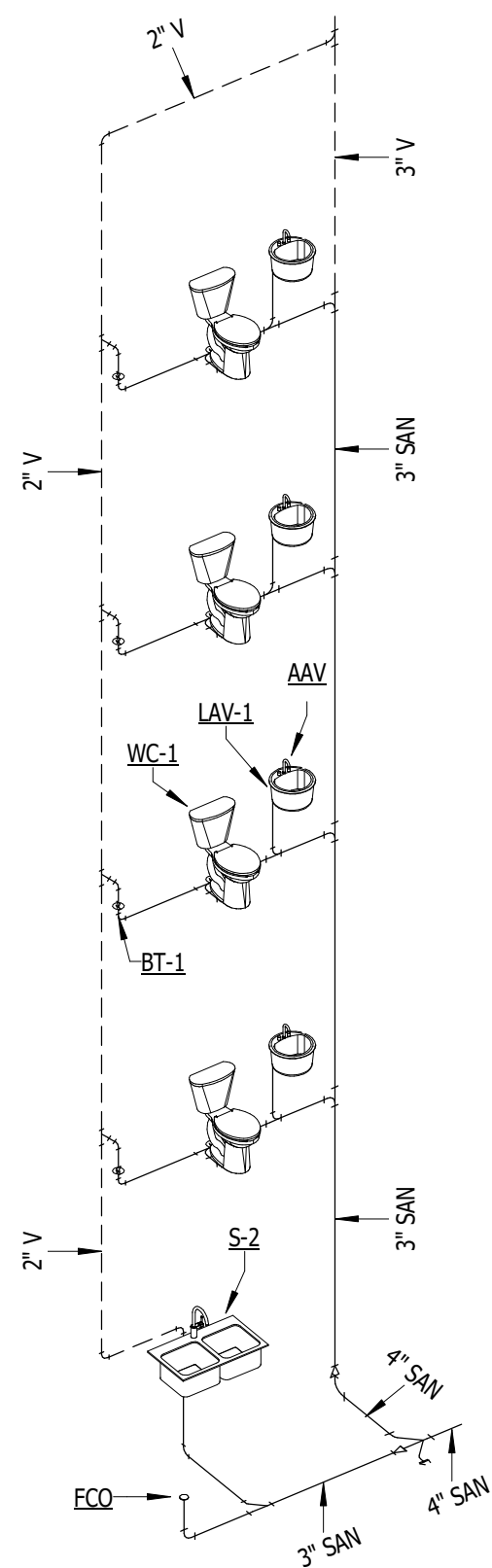
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P.202
TYPE A
NOT TO SCALE



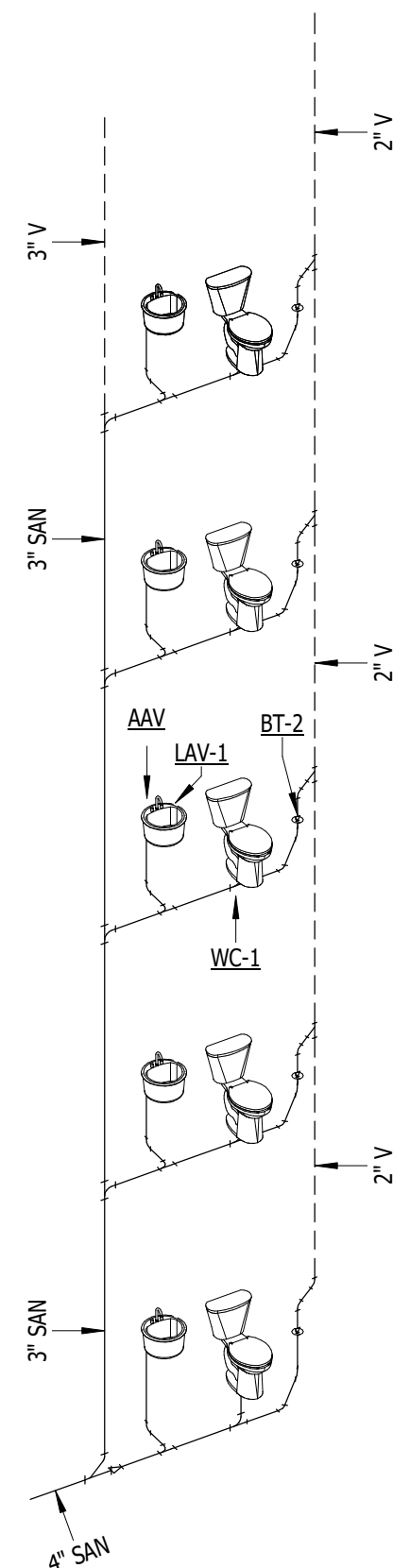
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P.202
TYPE B
NOT TO SCALE



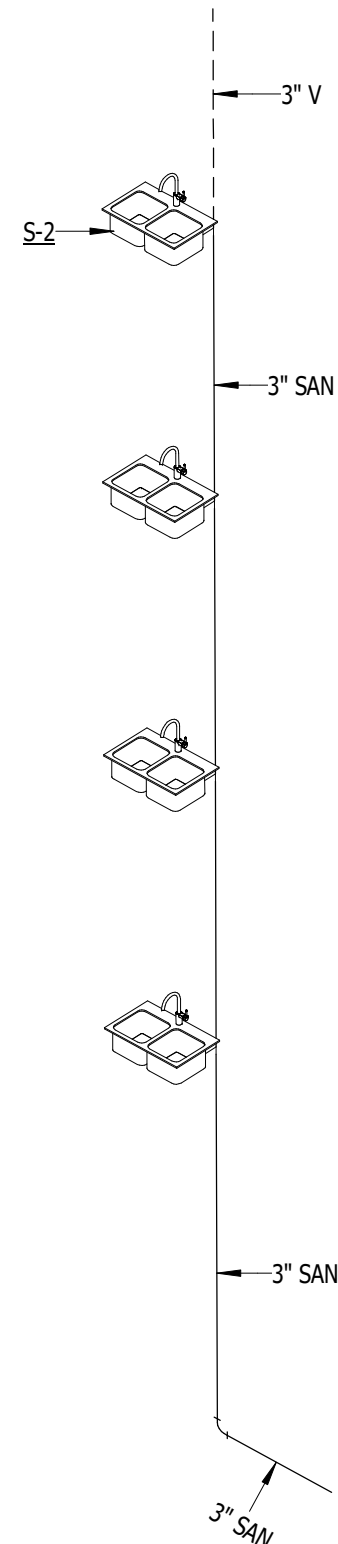
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P.202
TYPE C
NOT TO SCALE



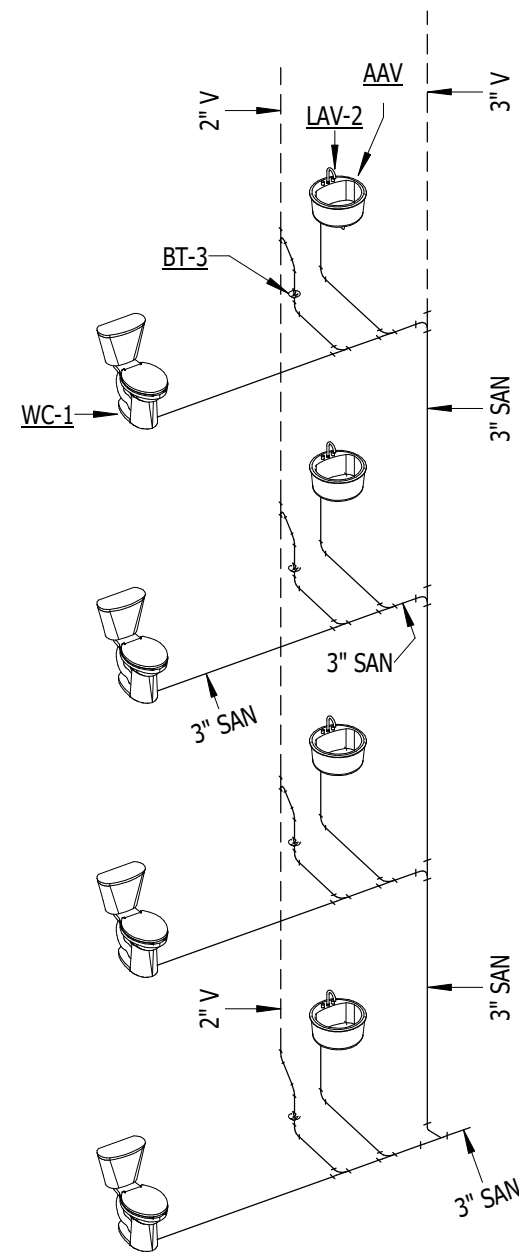
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P.202
TYPE D
NOT TO SCALE



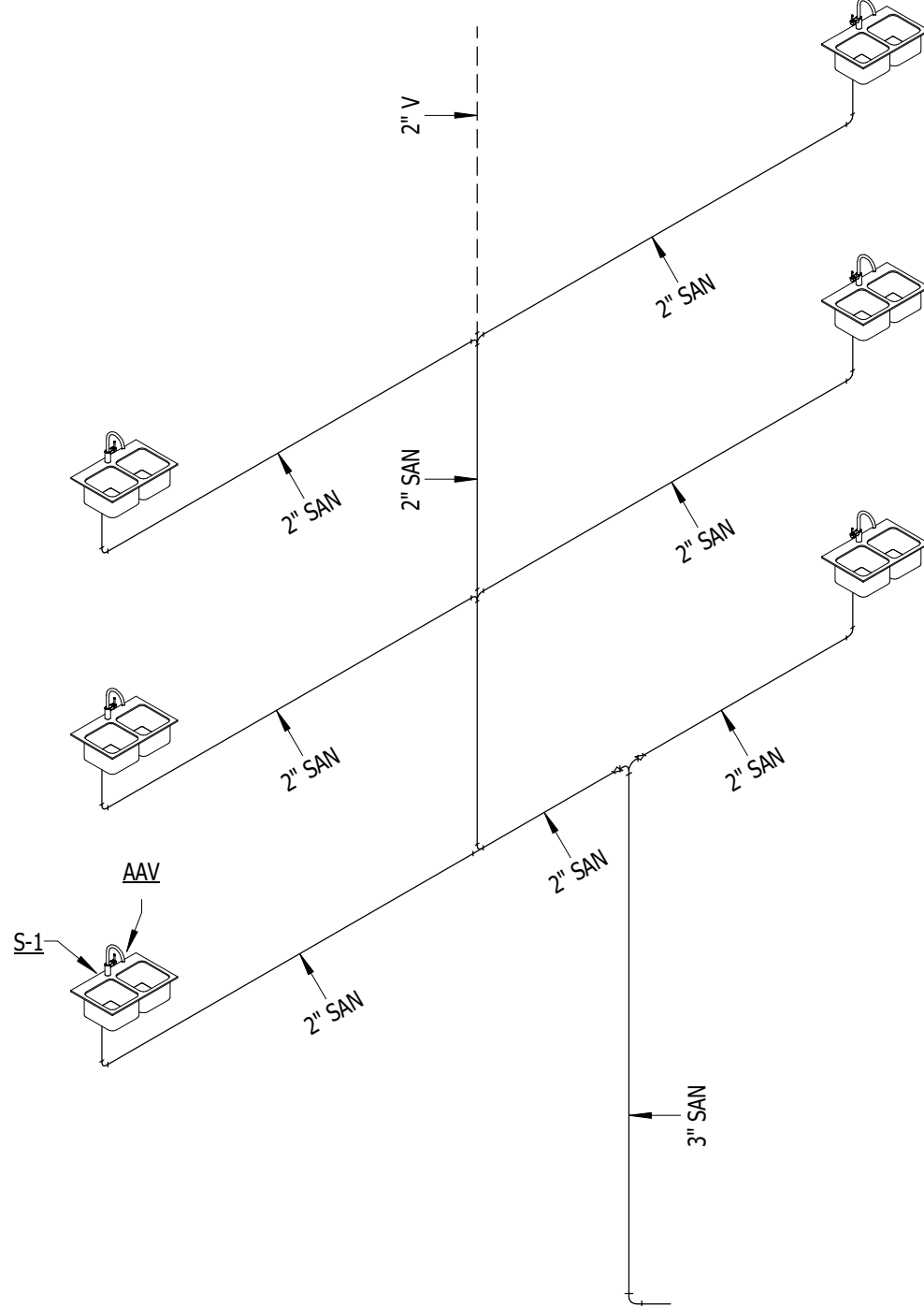
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NOT TO SCALE



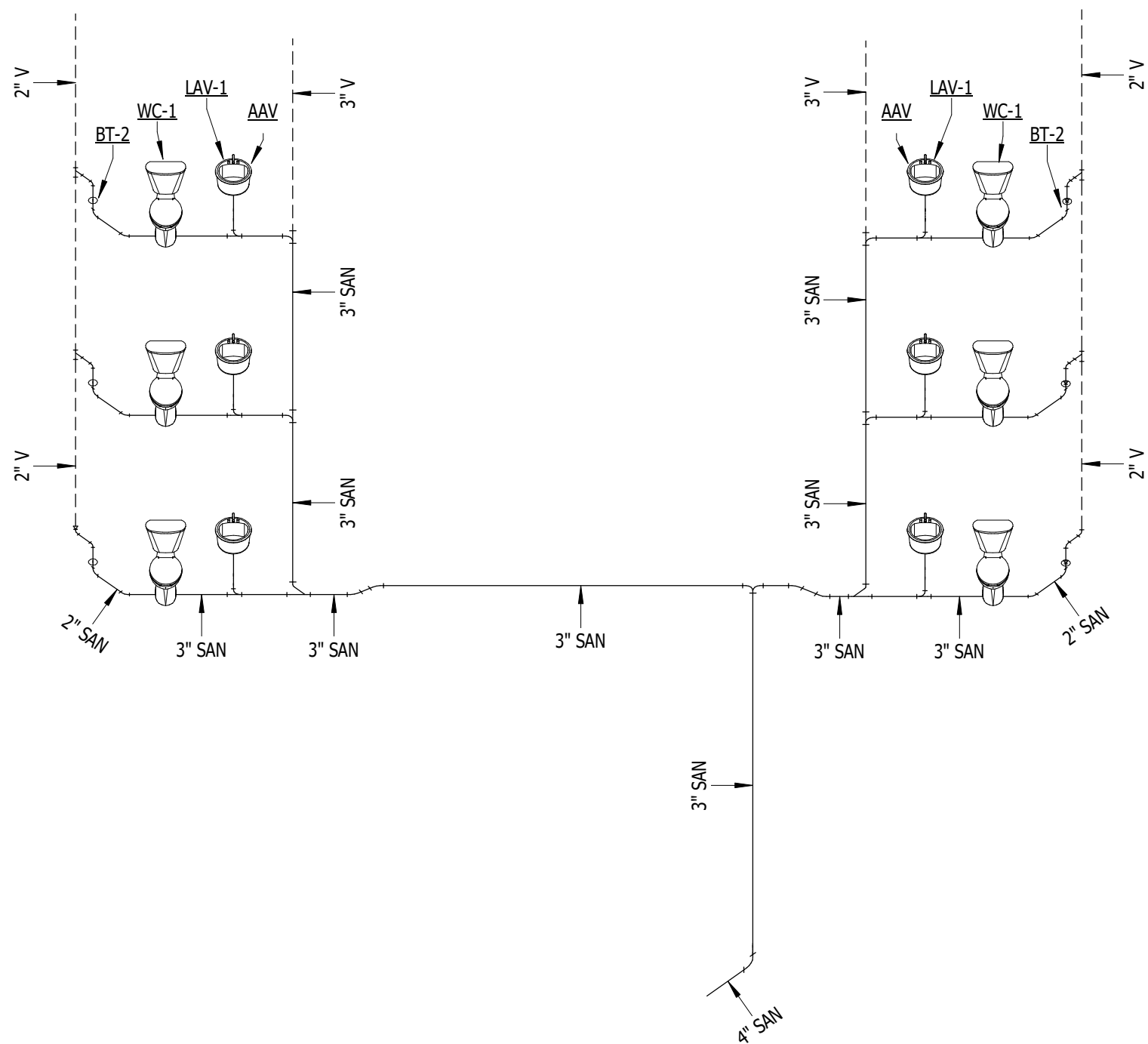
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P.202
TYPE F
NOT TO SCALE



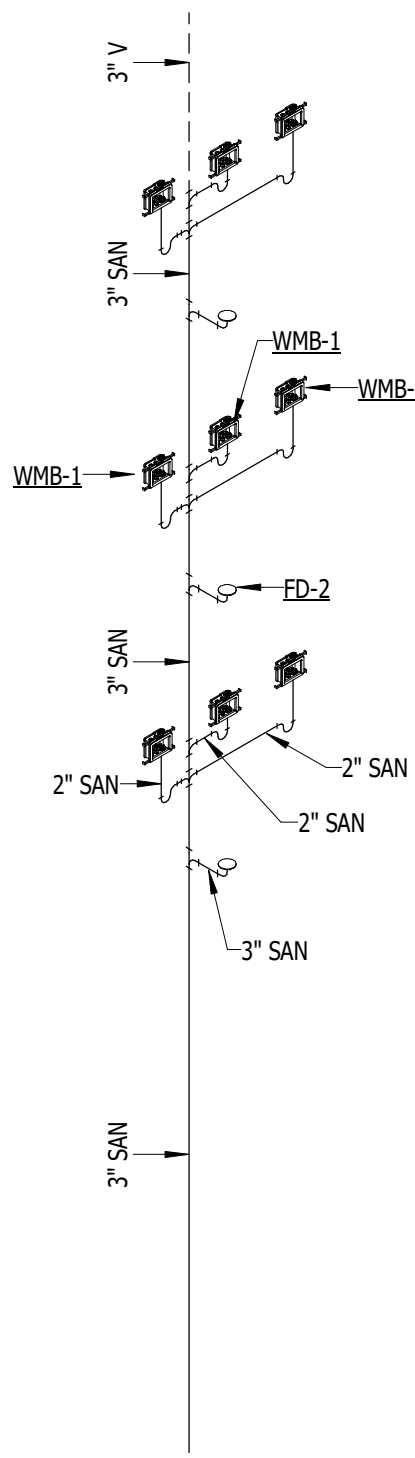
1
P.203
TYPE G
NOT TO SCALE



2
P.203
TYPE H
NOT TO SCALE



3
P.203
TYPE I
NOT TO SCALE



4
P.203
TYPE J
NOT TO SCALE

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MEP CONSULTING ENGINEER

491 E. WRIGHT AVE.
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989-567-1100
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SHAFFER &
PAPPAS, INC.
ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
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Cabot
61222
6/9/25
CABOT

RENOVATION OF
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13725 DEXTER AVENUE

MICHIGAN

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FSP PROJECT NO.
TRC22.064

DRAWING TITLE

PLUMBING ISOMETRICS

DRAWING NUMBER

P.203



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DOMESTIC WATER BOOSTER PUMP SCHEDULE											
COMMENTS: 1. OPTIONAL EQUIPMENT TO INCLUDE GENERAL ALARM CONTACT RELAY, MONITORS, SENSOR FAIL, LOW SUCTION(LEVEL & HIGH SYSTEM AND VFD FAULTS.											
TAG	MANUFACTURER	MODEL	TYPE	FLOW RATE (EACH PUMP)	BOOST PRESSURE (FT)	BOOST PRESSURE [PSI]	PUMP MODEL	PUMP TYPE	VOLTS/Ø	MAIN DISCONNECT	VFD MODEL
BP-1	QUANTUMFLO	PRODIGY- DUPLEX	PACKAGED SYSTEM	72 GPM	120.33	52.09 psi	QES_321-5-6.54	END SUCTION	280/3	60 A	F.C. 5 HP

DOMESTIC WATER HEATER SCHEDULE										
COMMENTS: 1. MODULATING BURNER - 5:1 TURNDOWN 2. SEALED COMBUSTION										
				3. PROVIDE WITH TEMPERATURE & PRESSURE RELIEF VALVE.			5. PROVIDE CONCENTRIC VENT KIT			
				4. PROVIDE AUDIBLE ALARM			6. PROVIDE CONDENSATE NEUTRALIZATION KIT			
TAG	MANUFACTURER	MODEL	DESCRIPTION	RECOVERY GPH	RISE OF RECOVERY	EWT	LWT	INPUT RATE (BTUH)	FUEL TYPE	
DWH-1(A, B)	LOCHINVAR	AWN201PM	ARMOR CONDENSING WATER HEATER	234	100 °F	40 °F	140 °F	201,000	NATURAL GAS	

HOT WATER CIRCULATION PUMP SCHEDULE										
COMMENTS: 1. PUMP SHALL OPERATE ON SETPOINT TEMPERATURE CONTROL MODE TO MAINTAIN A CONSTANT TEMPERATURE IN THE SYSTEM WHEN ENABLED. PROVIDE WITH EXTERNAL SENSOR FOR OPERATION.										
TAG	BASIS OF DESIGN		PUMP TYPE	HEAD (FEET)	DESIGN FLOW RATE	MAX FLOW RATE	MOTOR TYPE	RATED SPEED (RPM)	MOTOR POWER	
CP-1	BELL & GOSSETT	ECOCIRC XL 20-35	WET ROTOR CIRCULATOR	15	12.0 GPM	35.0 GPM	ECM	3800	62 W	

HOT WATER HEATER STORAGE TANK SCHEDULE														
COMMENTS: 1. LOCK-TEMP BAFFLE 2. MAGNESIUM ANODE														
				3. 160 PSI WORKING PRESSURE			5. PROVIDE LIFTING LUGS							
				4. PROVIDE TEMPERATURE & PRESSURE GAUGE			6. PROVIDE T&P RELIEF VALVE							
TAG	MANUFACTURER	MODEL	DESCRIPTION	GALLON CAP.	DIMENSIONS									
ST-1	LOCHINVAR	RJS120M	Commercial Jacketed and Insulated Storage Tank	119	62" H x 29 1/2" Ø - 350 LBS									

DIGITAL MIXING VALVE SCHEDULE						
COMMENTS: 1. PROVIDE STANDARD 1.0 CONTROLLER						
TAG	MANUFACTURER	MODEL	INLET / OUTLET SIZE	MIN FLOW RATE	CERTIFICATIONS	
DMV-1	LEONARD VALVE	PMV-150-LF	1 1/4" / 1 1/2"	0.25 GPM	ASSE 1017, CSA, UL	

BUILDING WSFU CALCULATIONS						
FLOOR LEVEL	FIXTURE TYPE	QUANTITY	LOAD VALUES (WSFU)			TOTAL WSFU
			COLD	HOT	TOTAL	
1	BATHROOM GROUP - PRIVATE	13	2.7	1.5	3.6	46.8
1	BATHROOM GROUP - PUBLIC	1	6	3	8	8
1	DISHWASHING MACHINE	14	0	1.4	1.4	19.6
1	KITCHEN SINK	14	1	1	1.4	19.6
2	BATHROOM GROUP	17	2.7	1.5	3.6	61.2
2	DISHWASHING MACHINE	16	0	1.4	1.4	22.4
2	KITCHEN SINK	16	1	1	1.4	22.4
3	BATHROOM GROUP	19	2.7	1.5	3.6	68.4
3	DISHWASHING MACHINE	18	0	1.4	1.4	25.2
3	KITCHEN SINK	18	1	1	1.4	25.2
3	WASHING MACHINE	3	2.25	2.25	3	9
4	BATHROOM GROUP	20	2.7	1.5	3.6	72
4	DISHWASHING MACHINE	19	0	1.4	1.4	26.6
4	KITCHEN SINK	19	1	1	1.4	26.6
4	WASHING MACHINE	3	2.25	2.25	3	9
5	BATHROOM GROUP	20	2.7	1.5	3.6	72
5	DISHWASHING MACHINE	19	0	1.4	1.4	26.6
5	KITCHEN SINK	19	1	1	1.4	26.6
5	WASHING MACHINE	3	2.25	2.25	3	9

596.2

PLUMBING FIXTURE SPECIFICATIONS				
FOR ALL SINKS, LAVATORIES, FAUCETS, VALVES, ETC. THAT COULD POSSIBLY SCALD EMPLOYEES, CUSTOMERS, OR VISITORS. PROVIDE AND INSTALL A THERMOSTATIC MIXING VALVE EQUAL TO "WATTS", MODEL LFUSG-B-M2. MOUNT UNDER SINK OR LAVATORY SHROUD. SET MIXED WATER TEMPERATURE AT 110° F MAXIMUM PER MICHIGAN PLUMBING CODE AND ADA CODES. 0.5 GPM MINIMUM FLOW RATE, 3.1 GPM MAXIMUM FLOW RATE, 45 PSI PRESSURE LOSS. LAVATORY SHROUD SHALL NOT BE CAULKED TO WALL SO VALVES/TRAP CAN BE ACCESSED.				
TAG FIXTURE TYPE	BASIS OF DESIGN	FIXTURE DESCRIPTION	BASIS OF DESIGN	FAUCETS, FITTINGS, AND ACCESSORIES DESCRIPTION
BT-1 BATHTUB/ SHOWER COMBO	BESTBATH 4ETSF6030A165	TUB-SHOWER COMBO, RIGHT HAND DRAIN PLACEMENT, MULTI-PIECE MODULE, GELCOAT/FIBERGLASS CONSTRUCTION WITH FULL INTEGRAL PLYWOOD BACKING IN THE WALLS, EIGHT INCH TILE WALL FINISH, WHITE FINISH. PROVIDE OPTIONAL ACCESSORIES: SOAP DISH	MOEN 8389EP15	SINGLE HANDLE PRESSURE BALANCING TUB/SHOWER SYSTEM. CHROME PLATED METAL CONSTRUCTION, PRESSURE BALANCING CYCLE VALVE WITH 1/4 TURN STOPS, 1/2" CC CONNECTIONS, VANDAL RESISTANT SCREWS AND SHOWER HEAD. ADJUSTABLE TEMPERATURE LIMIT STOP & PRESSURE BALANCING MECHANISM. 1.5 GPM. ASME A112.18.1/CSA B125.1 CERTIFIED. PROVIDE DRAIN & OVERFLOW, POLISHED CHROME FINISH.
BT-2 BATHTUB/ SHOWER COMBO	BESTBATH 4ETSF6030A165	SAME AS BT-1, EXCEPT LEFT HAND DRAIN PLACEMENT	MOEN 8389EP15	SAME AS BT-1
BT-3 BATHTUB/ SHOWER COMBO	BESTBATH 4ETSF6030A165	ADA TUB-SHOWER COMBO, RIGHT HAND DRAIN PLACEMENT, MULTI-PIECE MODULE, GELCOAT/FIBERGLASS CONSTRUCTION WITH FULL INTEGRAL PLYWOOD BACKING IN THE WALLS, EIGHT INCH TILE WALL FINISH, WHITE FINISH. PROVIDE OPTIONAL ACCESSORIES FOR ADA COMPLIANCE: GRAB BAR, FOLDING SEAT, SOAP DISH.	MOEN 8343	THREE-FUNCTION ADA TUB/SHOWER SYSTEM. STATIONARY SHOWERHEAD, HAND-HELD SHOWER WITH NON-POSITIVE PAUSE, 69" METAL HOSE, 30" SLIDE BAR, DROP ELL, AND TUB FILLER. CHROME PLATED METAL CONSTRUCTION, PRESSURE BALANCING CYCLE VALVE WITH 1/4 TURN STOPS, 3 FUNCTION TRANSFER VALVE, 1/2" CC CONNECTIONS. ADJUSTABLE TEMPERATURE LIMIT STOP & PRESSURE BALANCING MECHANISM. 2.5 GPM. ASME A112.18.1/CSA B125.1 CERTIFIED. PROVIDE DRAIN & OVERFLOW, POLISHED CHROME FINISH.
BT-4 BATHTUB/ SHOWER COMBO	BESTBATH 4ETSF6030A165	SAME AS BT-3, EXCEPT LEFT HAND DRAIN PLACEMENT	MOEN 8343	SAME AS BT-3
FD-1 FLOOR DRAIN	ZURN EZ1-PV2-ST	PVC BODY, ADJUSTABLE WITH EZ1 TECHNOLOGY, 2" PIPE SIZE WITH TRAP, BOTTOM OUTLET. NICKEL BRONZE 5" x 5" SQUARE STRAINER.	ZURN Z1072-2	BARRIER TRAP SEAL FOR 2" PIPE SIZE.
FD-2 FLOOR DRAIN	ZURN EZ1-PV3-ST	SAME AS FD-1, EXCEPT 3" PIPE SIZE.	ZURN Z1072-3	BARRIER TRAP SEAL FOR 3" PIPE SIZE.
LAV-1 LAVATORY	N/A N/A	CULTURED MARBLE TOP & LAVATORY.	AMERICAN STANDARD 7075.000	COLONY PRO SINGLE CONTROL, METAL LEVER HANDLE, METAL POP-UP DRAIN, METAL BODY WITH METAL LEVER HANDLE, WASHERLESS 35 MM CERAMIC DISC VALVE CARTRIDGE WITH INTEGRAL HOT LIMIT SAFETY STOP. 24" COLOR-CODED BRAIDED FLEXIBLE SUPPLY HOSES WITH 3/8" COMPRESSION CONNECTIONS. 1.2 GPM MAX FLOW RATE. POLISHED CHROME FINISH, ADA APPROVED.
LAV-2 LAVATORY, ADA	N/A N/A	ADA COMPLIANT CULTURED MARBLE TOP & LAVATORY. 6" MAX DEPTH.	AMERICAN STANDARD 7075.000	COLONY PRO SINGLE CONTROL, METAL LEVER HANDLE, METAL POP-UP DRAIN, METAL BODY WITH METAL LEVER HANDLE, WASHERLESS 35 MM CERAMIC DISC VALVE CARTRIDGE WITH INTEGRAL HOT LIMIT SAFETY STOP. 24" COLOR-CODED BRAIDED FLEXIBLE SUPPLY HOSES WITH 3/8" COMPRESSION CONNECTIONS. 1.2 GPM MAX FLOW RATE. POLISHED CHROME FINISH, ADA APPROVED.
RH-1	ZURN Z1388XL	EXPOSED, LEAD FREE, NON-FREEZE ROOF HYDRANT. DURA-COATED CAST IRON HEAD AND LIFT HANDLE WITH LOCK OPTION, GALVANIZED STEEL CASING, BRONZE & STAINLESS STEEL COMPONENTS. 3/4" INLET CONNECTION, 3/4" MALE HOSE THREAD OUTLET CONNECTION.	N/A	N/A
RS-1 ROOF SUMP	ZURN Z100C	FROET BI-FUNCTIONAL ROOF DRAIN WITH 45° PRIMARY OUTLET CONNECTION. POWDER COATED CAST IRON DEEP SUMP BODY WITH COMBINATION MEMBRANE FLASHING CLAMP GUARD, CAST IRON DOME. 3" PIPE SIZE.	N/A	N/A
S-1 SINK	ELKAY ECTSR33229TBG	ELKAY CROSSTOWN 18 GAUGE STAINLESS STEEL 33" x 22" x 9" EQUAL DOUBLE BOWL MOUNT SINK KIT. SINK IS HANDMADE/FABRICATED FROM 18 GUAGE 304 STAINLESS STEEL WITH A POLISHED SATIN FINISH, REAR CENTER DRAIN PLACEMENT, AND FULL SPRAY SIDES AND BOTTOM WITH SIDES AND BOTTOM PADS. ORDER WITH LK35 STRAINER BASKET & TAILPIECE.	MOEN 7402SRS	HIGH ARC SPOUT, LEVER STYLE HANDLE, PULL DOWN SPOUT, STREAM OR SPRAY MODES, STAINLESS FINISH, ADA APPROVED. PROVIDE & INSTALL DISPOSAL EQUAL TO "ISE" BADGER 5, CONTINUOUS FEED, 1/2 HP, 120V, 6.3 AMPS, WITH DISHWASHER DRAIN CONNECTION, WITH FACTORY POWER CORD INSTALLED.
S-2 SINK, ADA	ELKAY ECTSRAD33226TBG	ELKAY CROSSTOWN 18 GAUGE STAINLESS STEEL 33" x 22" x 6" EQUAL DOUBLE BOWL MOUNT ADA SINK KIT. SINK IS HANDMADE/FABRICATED FROM 18 GUAGE 304 STAINLESS STEEL WITH A POLISHED SATIN FINISH, REAR CENTER DRAIN PLACEMENT, AND FULL SPRAY SIDES AND BOTTOM WITH SIDES AND BOTTOM PADS. ORDER WITH LK35 STRAINER BASKET & TAILPIECE.	MOEN 7402SRS	HIGH ARC SPOUT, LEVER STYLE HANDLE, PULL DOWN SPOUT, STREAM OR SPRAY MODES, STAINLESS FINISH, ADA APPROVED. PROVIDE & INSTALL DISPOSAL EQUAL TO "ISE" BADGER 5, CONTINUOUS FEED, 1/2 HP, 120V, 6.3 AMPS, WITH DISHWASHER DRAIN CONNECTION, WITH FACTORY POWER CORD INSTALLED.
WC-1 WATER CLOSET, FT	AMERICAN STANDARD 788AA104	CADET CHAIR HEIGHT, ELONGATED, TANK TYPE. VITREOUS CHINA, 1.28 GPF, 16 1/2" RIM HEIGHT, FULLY GLAZED 2 1/8" TRAPWAY WITH 3" FLAPPER FLUSH VALVE. WHITE FINISH, CHROME FINISH TRIP LEVER. INCLUDES SLOW-CLOSE SEAT, FLOOR BOLTS, WAX RING GASKET WITH CLOSET BOLTS, AND COLOR MATCH BOWL CAPS KIT. ADA APPROVED. PLUMBER RESPONSIBLE FOR ORDERING UNIT WITH TRIP LEVER ON THE OPEN SIDE OF THE TOILET.	N/A	N/A
WC-2 WATER CLOSET, FV	AMERICAN STANDARD 3043.001	MADERA FLOWWISE ELONGATED, FLOOR MOUNT FLUSH VALVE.VITREOUS CHINA, 16 1/2" RIM HEIGHT, FULLY GLAZED 2 1/8" TRAPWAY, DIRECT-FED SIPHON JET, 1 1/2" INLET SPOUT, 2 BOLT CAPS INCLUDED. WHITE FINISH, ADA APPROVED. PROVIDE ELONGATED OPEN FRONT SEAT WITH SELF SUSTAINING CHECK HINGES AND STAINLESS STEEL HARDWARE.	SLOAN REGAL 111-1.6	1.6 GPF, XL SWEAT SOLDER ADAPTER KIT, POLISHED CHROME FINISH, FIXTURE CONNECTION TOP SPUD, SINGLE FLUSH. ADA APPROVED.
WH-1 WALL HYDRANT	ZURN Z1321XL	EXPOSED ANTI-SIPHON, AUTOMATIC DRAINING, INTEGRAL BACKFLOW PREVENTER, COPPER CASING, 1/2 TURN CERAMIC DISC CARTRIDGE. STAINLESS STEEL FACE WITH OPERATING KEY LOCK. ORDER ACCORDINGLY FOR WALL THICKNESS.	N/A	N/A
WMB-1 WASHING MACHINE BOX	OATEY 38470	2-HOUR RATED WASHING MACHINE OUTLET BOX. TOP OR BOTTOM MOUNTED SUPPLY LINES. 1/4 TURN BRASS BALL VALVES. ADJUSTABLE METAL SUPPORT BRACKET SHALL BE INSTALLED ON TOP OR BOTTOM OF UNIT FOR SUPPORT IN STUD WALL. 2" DRAIN WITH 1/4 TURN TEST CAP.	N/A	N/A

FSP PROJECT NO.
TRC22.064

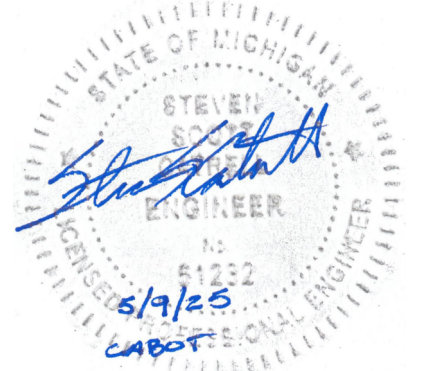
DRAWING TITLE

PLUMBING SCHEDULES

DRAWING NUMBER

P.401

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.



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KEY PLAN

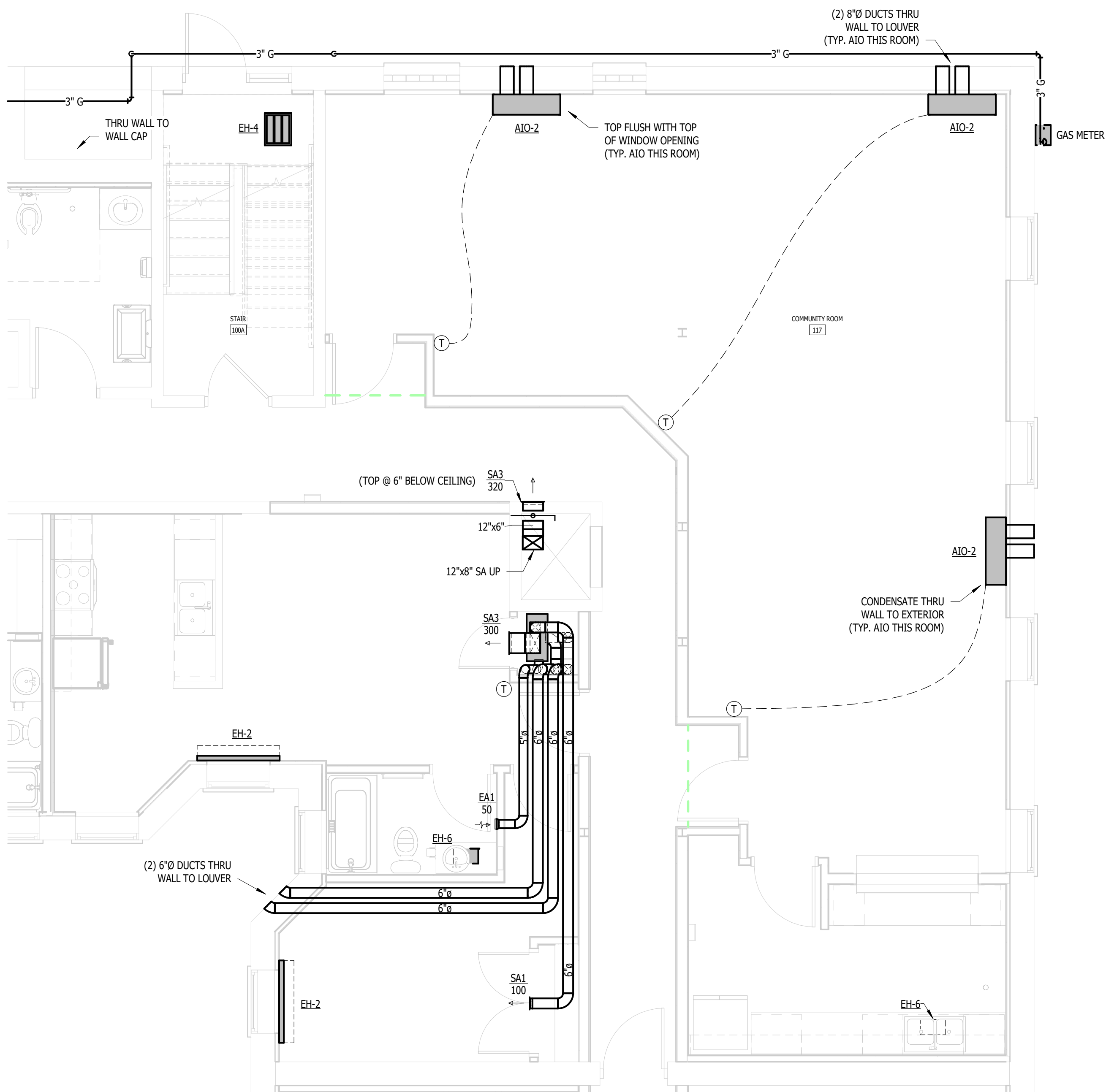
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TRC22.064

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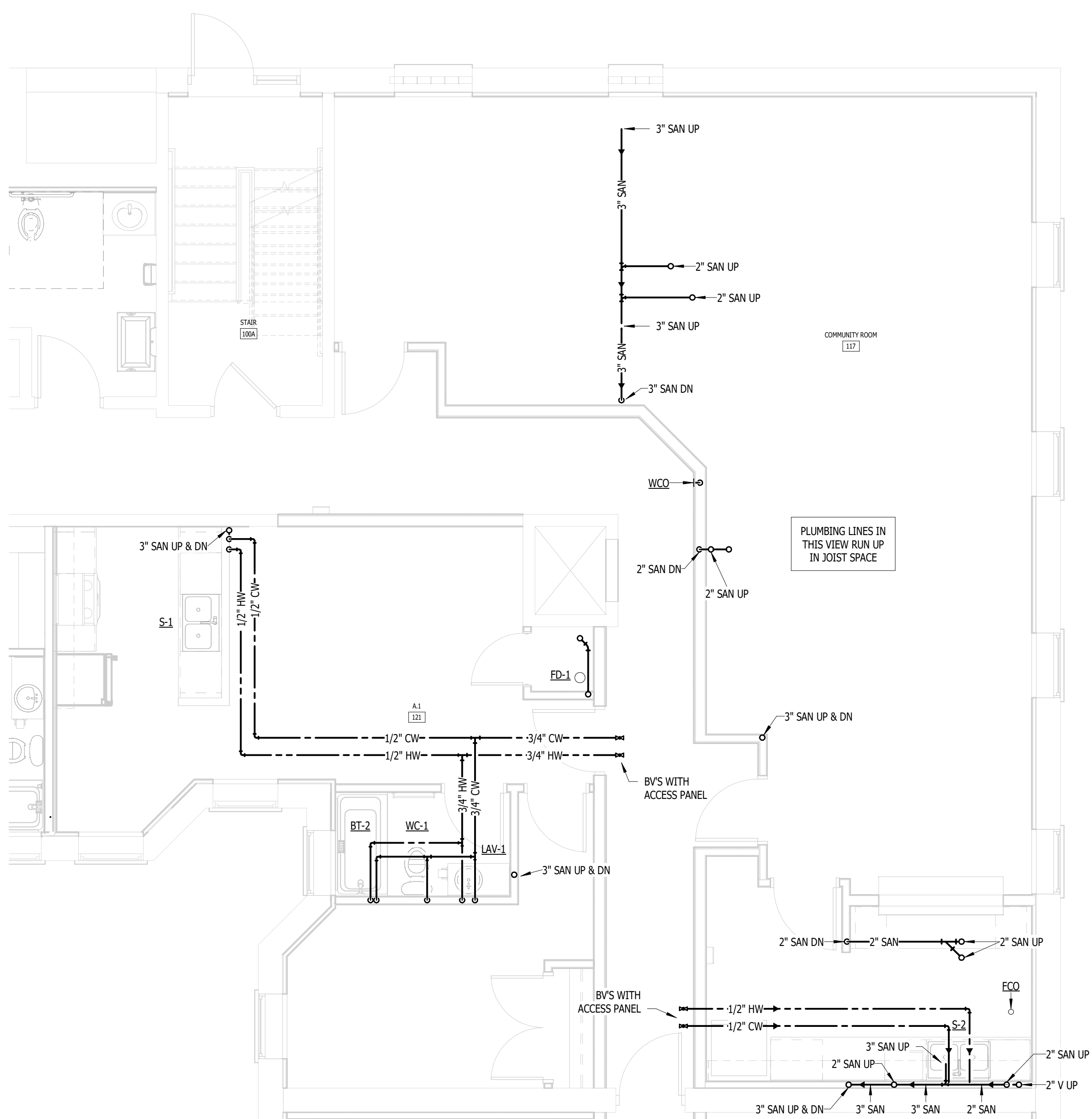
ENLARGED M & P - COMMUNITY

DRAWING NUMBER

M.P.501



2
M.P.501
ENLARGED BASEMENT FLOOR PLAN - MECHANICAL
NOT TO SCALE



1
M.P.501
ENLARGED BASEMENT FLOOR PLAN - PLUMBING
NOT TO SCALE

KTS

ENGINEERING

GROUP

MEP CONSULTING ENGINEER

491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM

KTS PROJECT NO. 25-0251

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FUSCO,
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ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
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Blue Shaffer

ENGINEER

61222

6/9/25

CABOT

2
M.P.502

TRASH ROOM (BASEMENT FLOOR) - MECHANICAL

NOT TO SCALE

BVS WITH FUSCO
4
M.P.502

TRASH ROOM (BASEMENT FLOOR) - PLUMBING

NOT TO SCALE

1
M.P.502

ENLARGED PLAN - MAILROOM + VESTIBULE - MECHANICAL

NOT TO SCALE

3
M.P.502

ENLARGED PLAN - MAILROOM + VESTIBULE - PLUMBING

NOT TO SCALE

RENOVATION OF
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KEY PLAN

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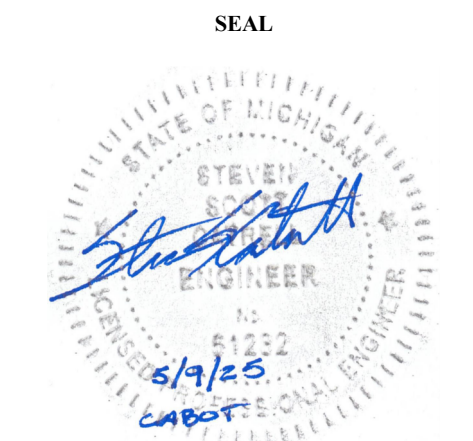
ENLARGED M & P - TRASH + MAIL + VESTIBULE

DRAWING NUMBER

M.P.502

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

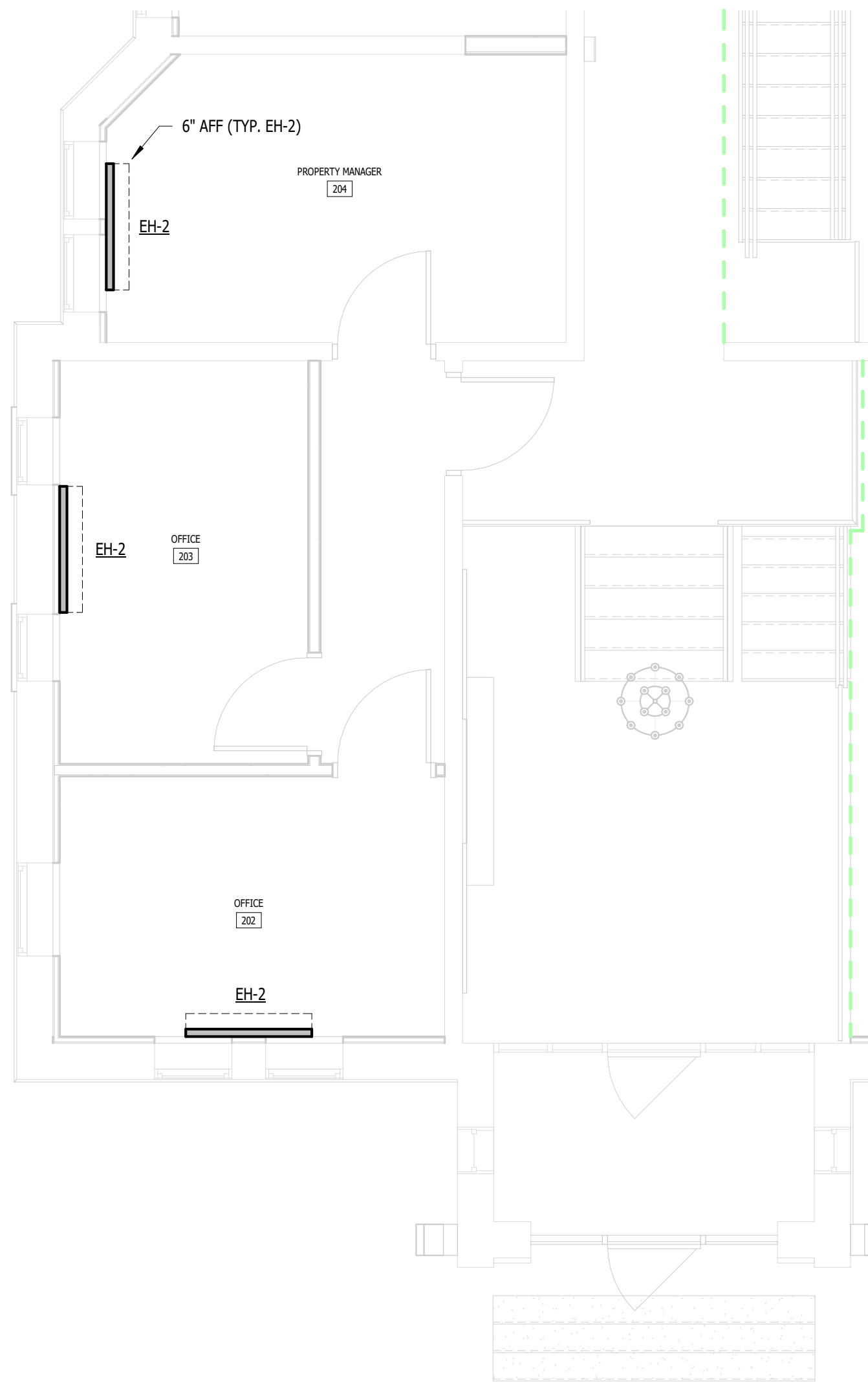
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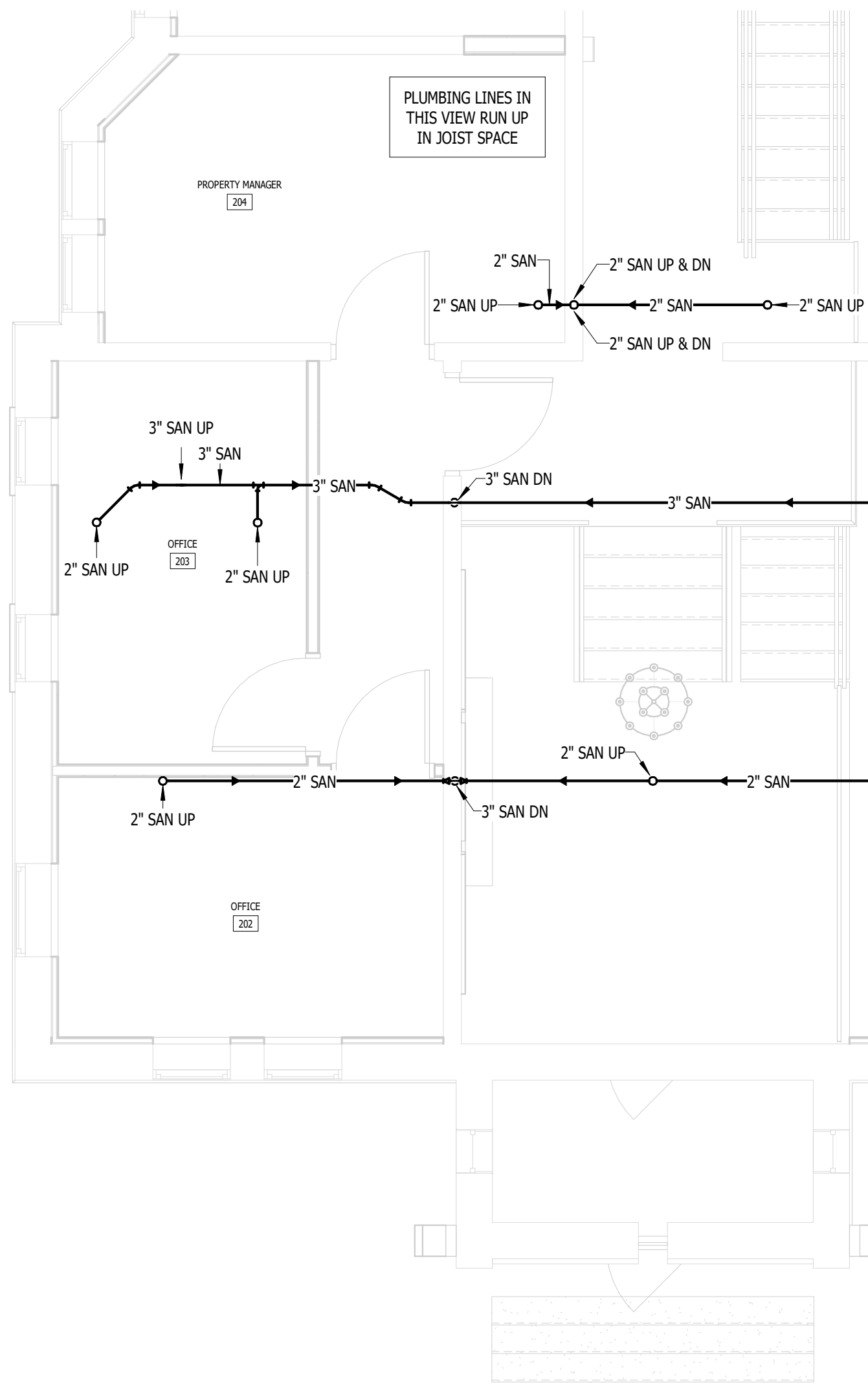
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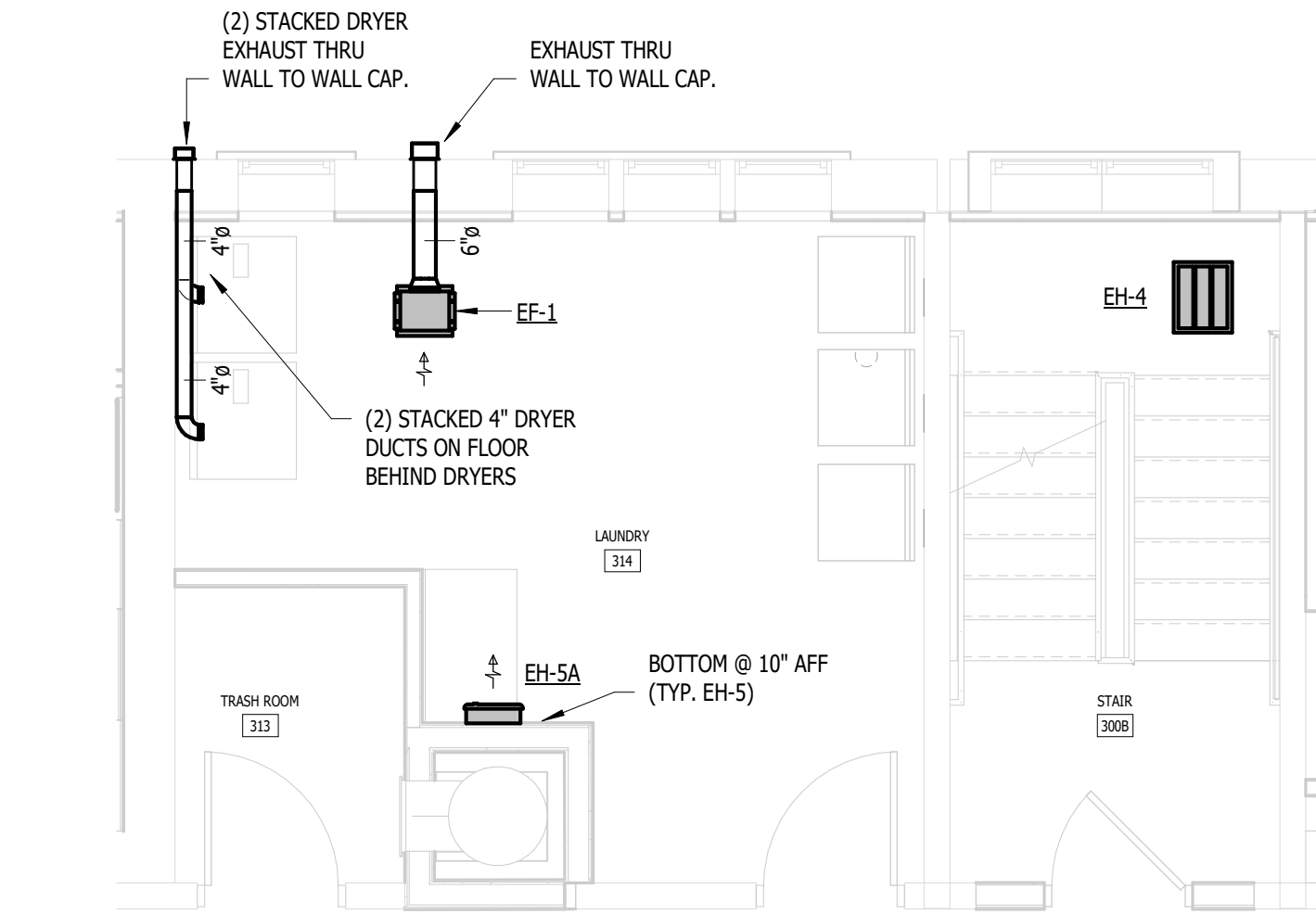
DETROIT



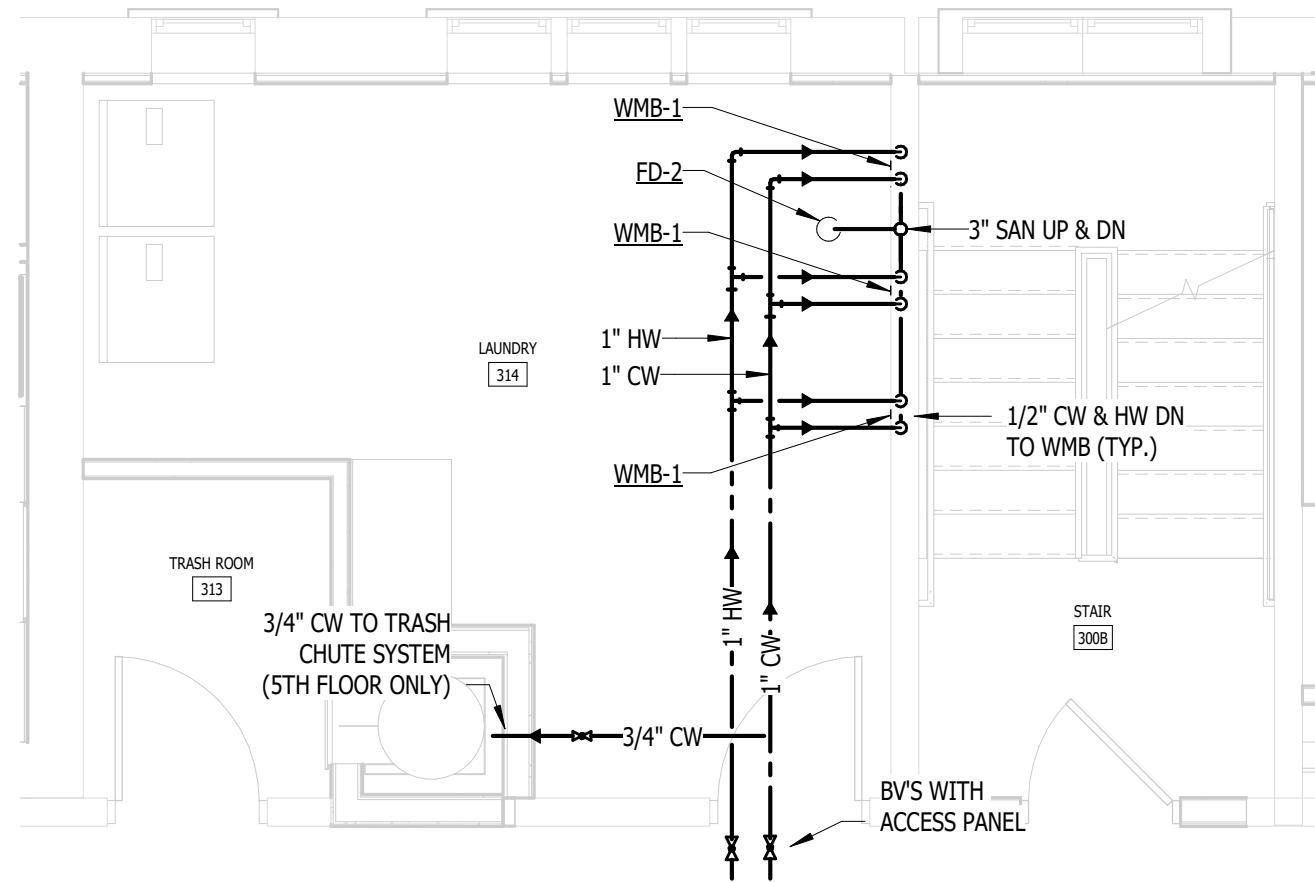
4
M.P.503
OFFICE ENLARGED PLAN - MECHANICAL
NOT TO SCALE



3
M.P.503
OFFICE ENLARGED PLAN - PLUMBING
NOT TO SCALE



2
M.P.503
ENLARGED PLAN - LAUNDRY (2ND-4TH FLOOR) - MECHANICAL
NOT TO SCALE



1
M.P.503
ENLARGED PLAN - LAUNDRY (2ND-4TH FLOOR) - PLUMBING
NOT TO SCALE

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DRAWING TITLE

ENLARGED M & P - OFFICES + LAUNDRY

DRAWING NUMBER

M.P.503

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ENGINEERING
GROUP

MEP CONSULTING ENGINEER

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KTS PROJECT NO. 25-0251

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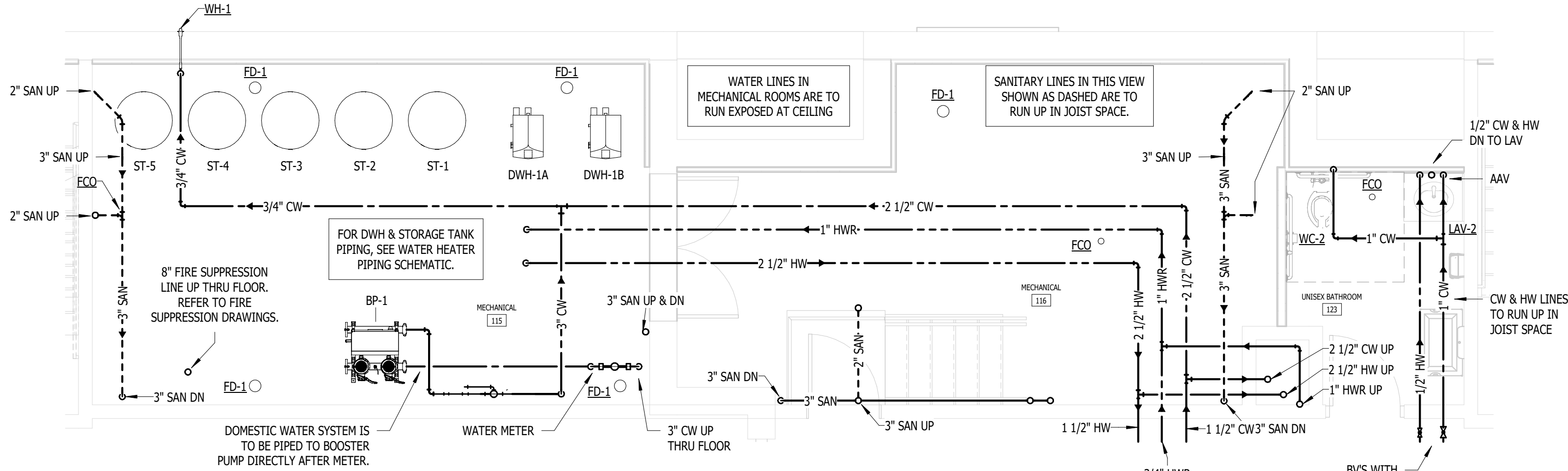
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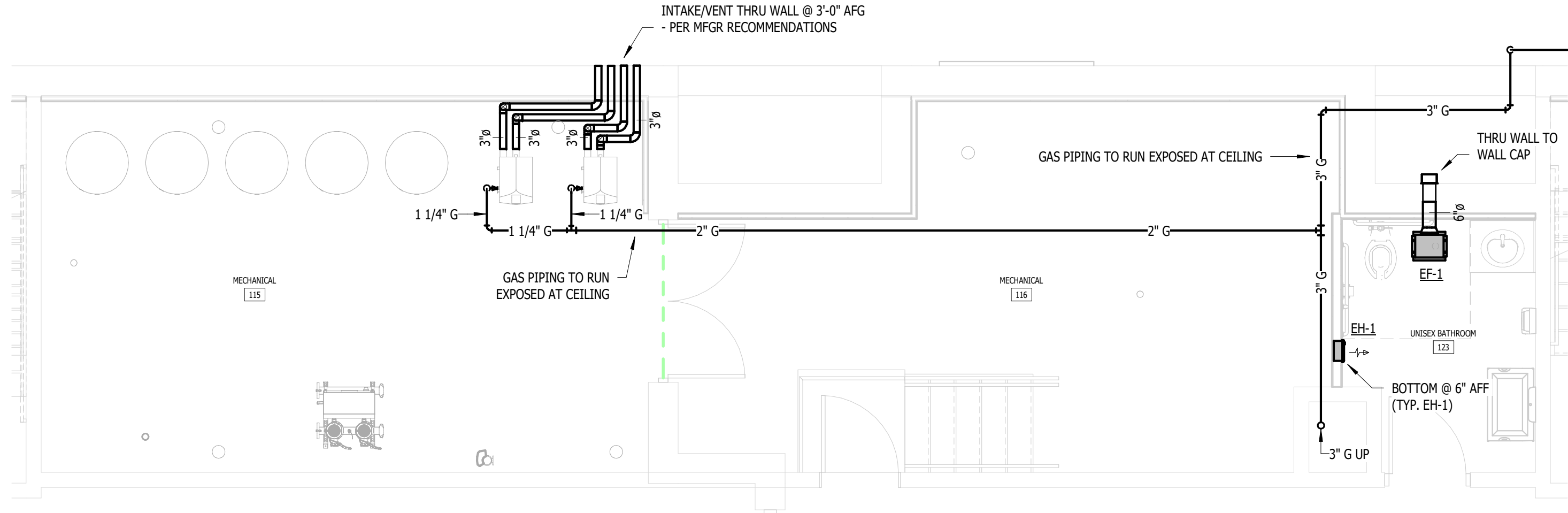


2

M.P.504

ENLARGED BASEMENT FLOOR PLAN - PLUMBING

NOT TO SCALE



1

M.P.504

ENLARGED BASEMENT FLOOR PLAN - MECHANICAL

NOT TO SCALE

RENOVATION OF
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DRAWING TITLE

ENLARGED M & P - MECHANICAL

DRAWING NUMBER

M.P.504



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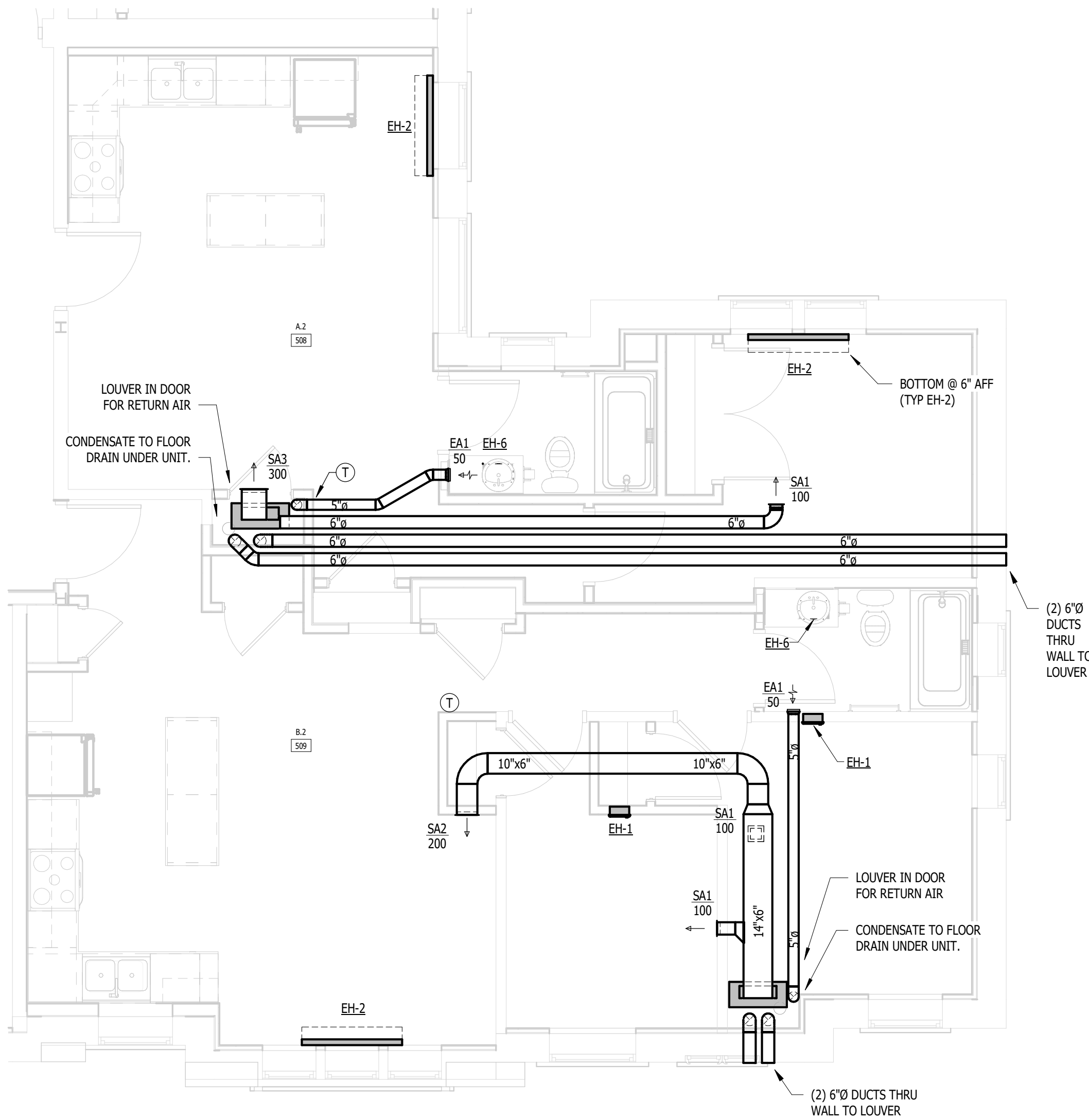
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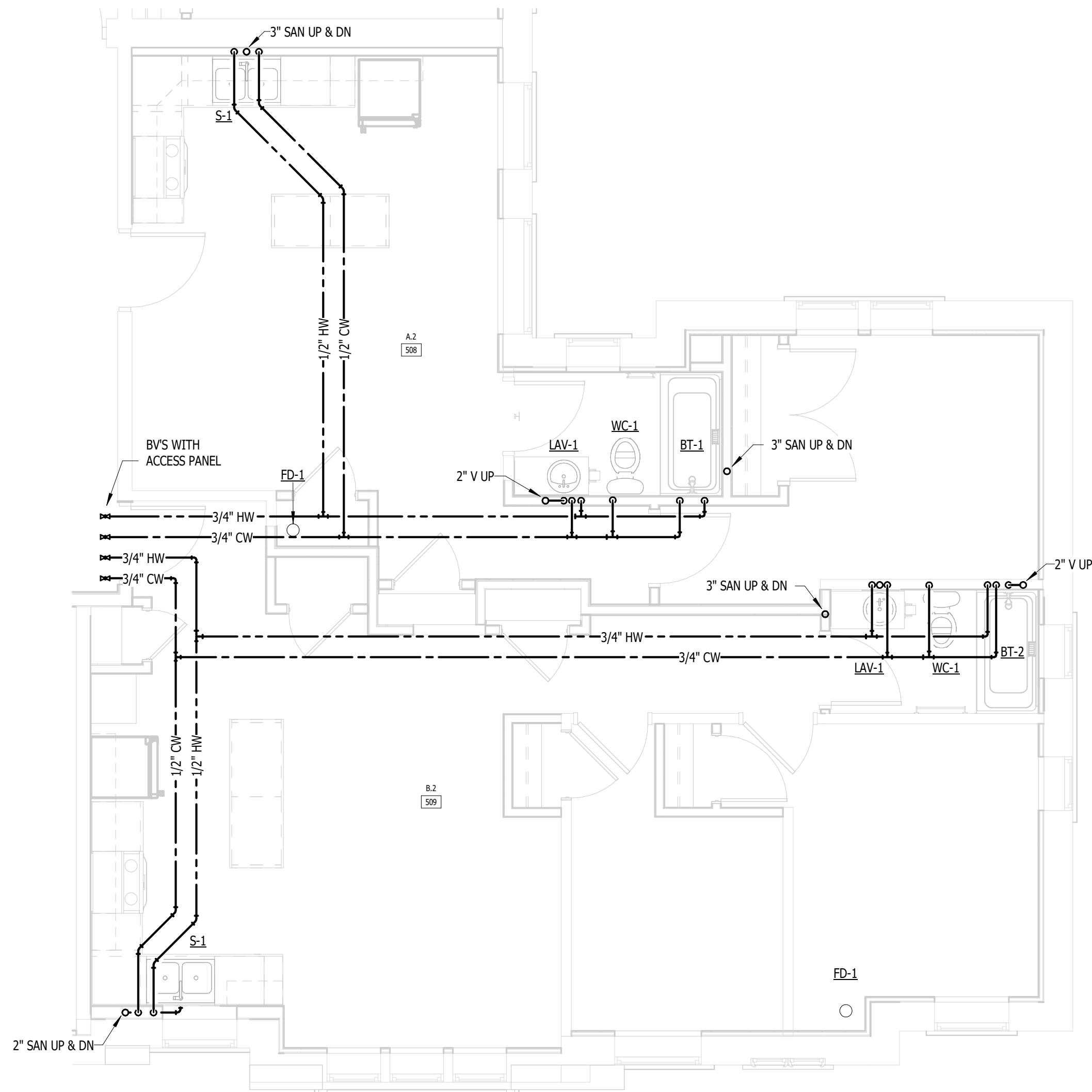
ENLARGED M & P - A-2, B-2

DRAWING NUMBER

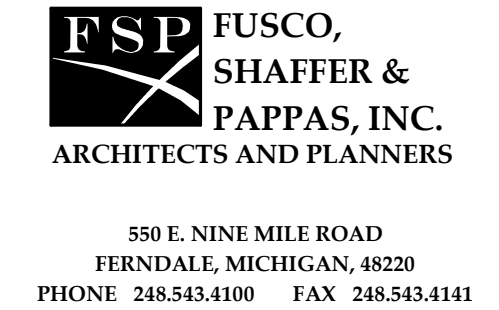
M.P.511



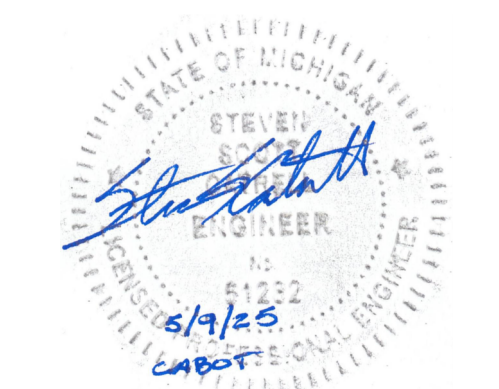
2 UNIT A.2, B.2 (BASEMENT - 4TH FLOOR) - MECHANICAL
M.P.511/ NOT TO SCALE



1 UNIT A.2, B.2 (BASEMENT - 4TH FLOOR) - PLUMBING
M.P.511/ NOT TO SCALE



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MICHIGAN

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[illegible]

KEY PLAN

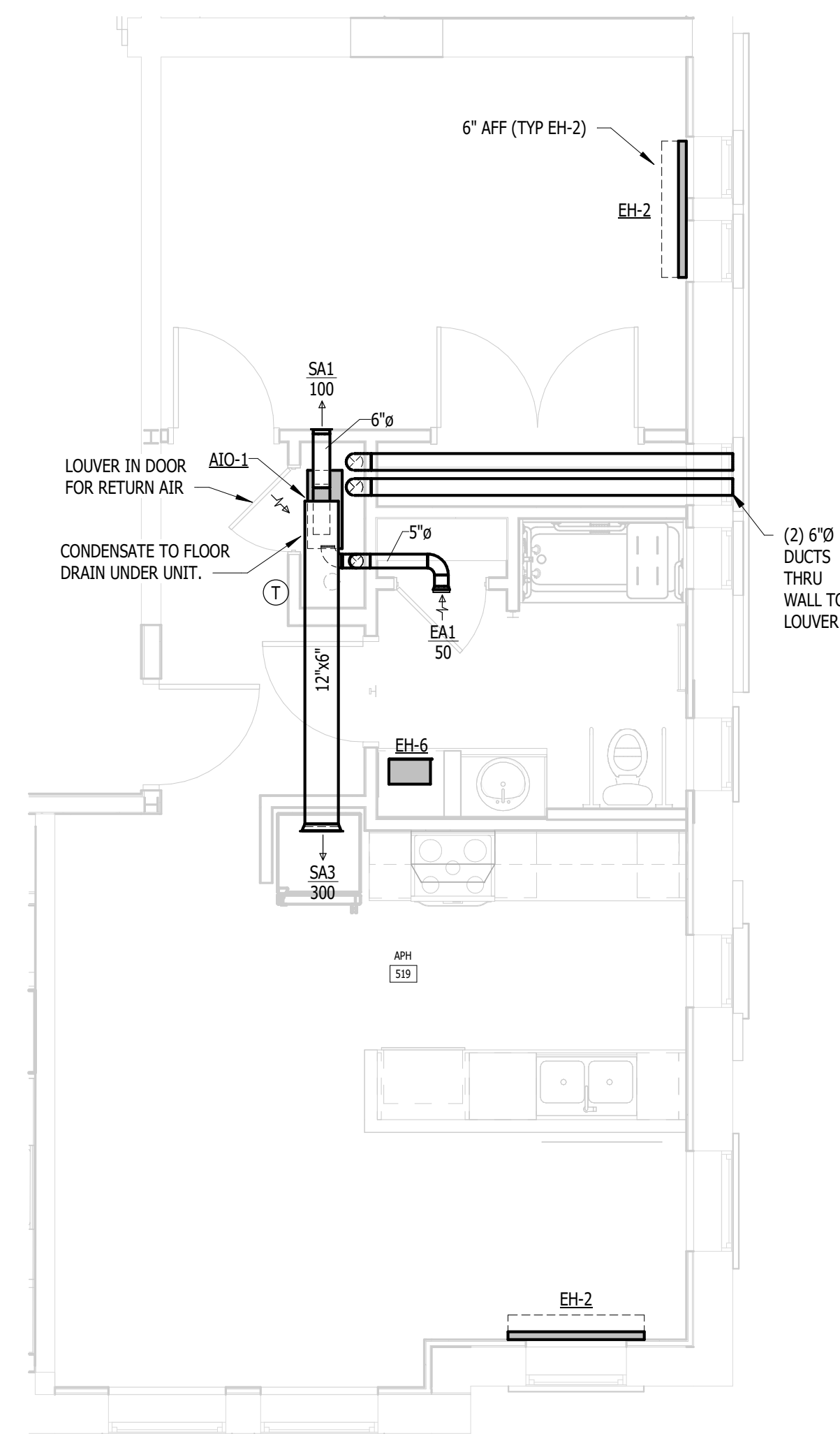
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TRC22.066

DRAWING TITLE

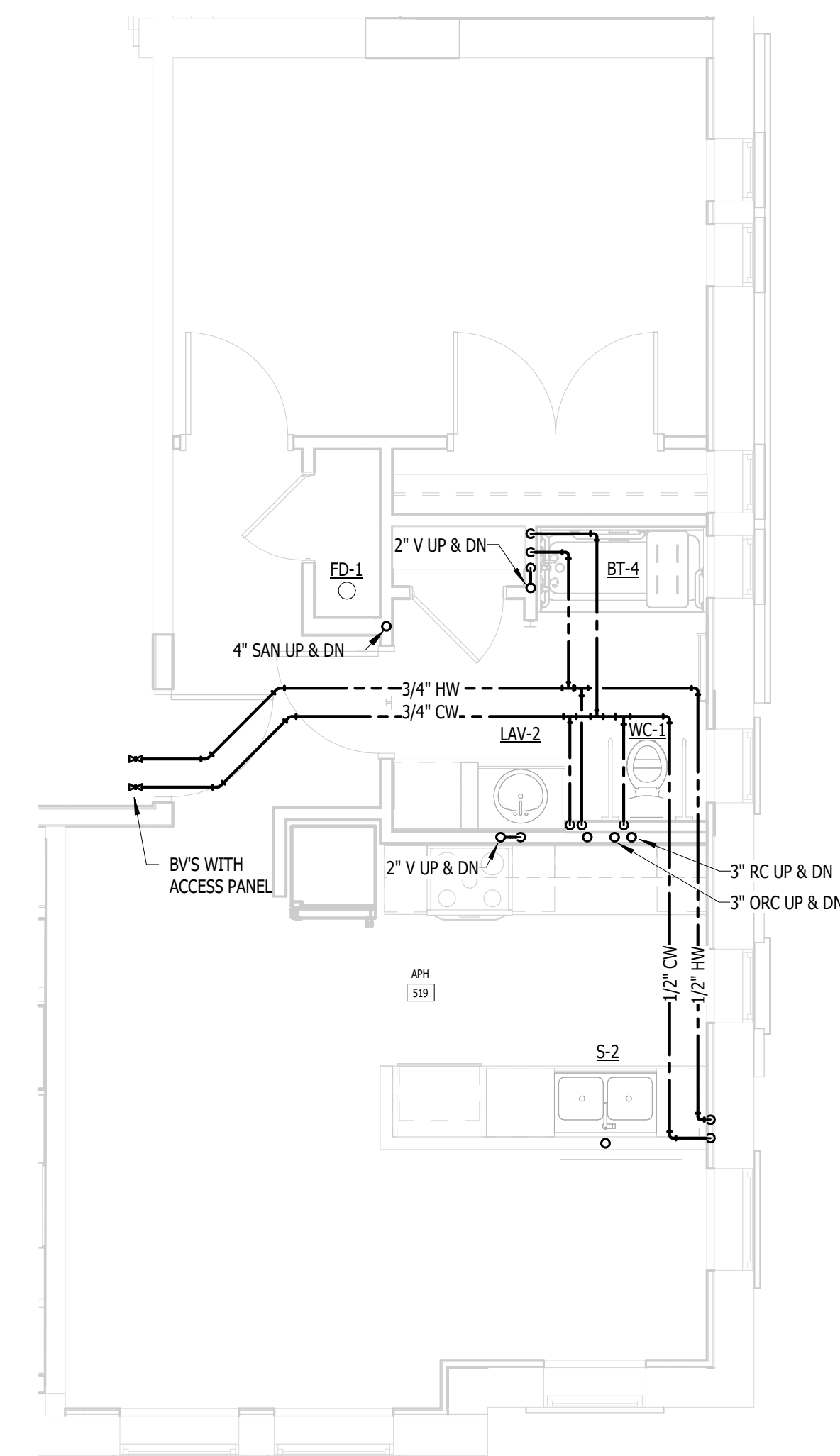
ENLARGED M & P - APH

DRAWING NUMBER

M.P.512



2 UNIT APH (1ST - 4TH FLOOR) - PLUMBING
M.P.512 NOT TO SCALE



1
M.P.512

UNIT APH (1ST - 4TH FLOOR) - PLUMBING

NOT TO SCALE

DRAWING NUMBER



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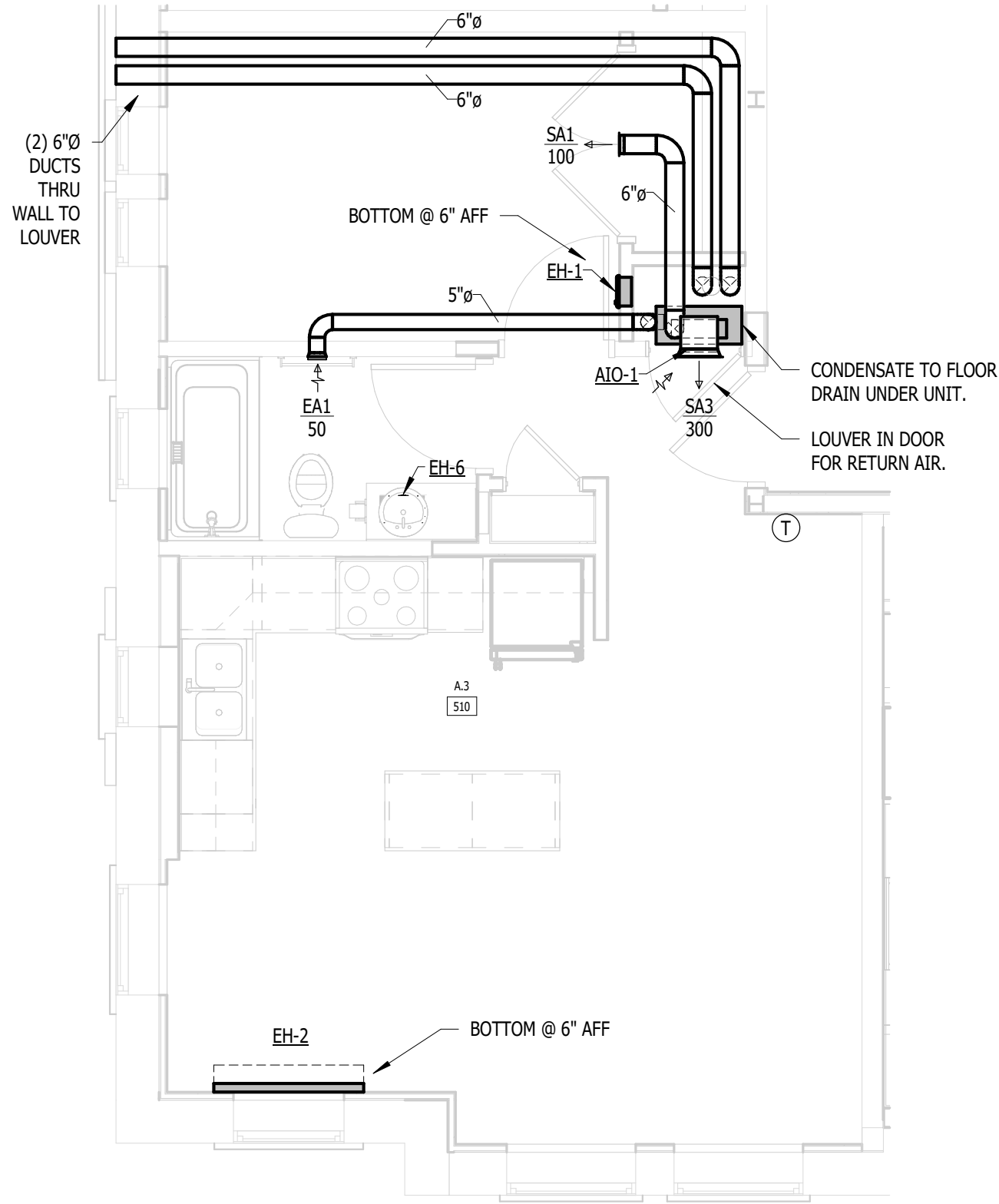
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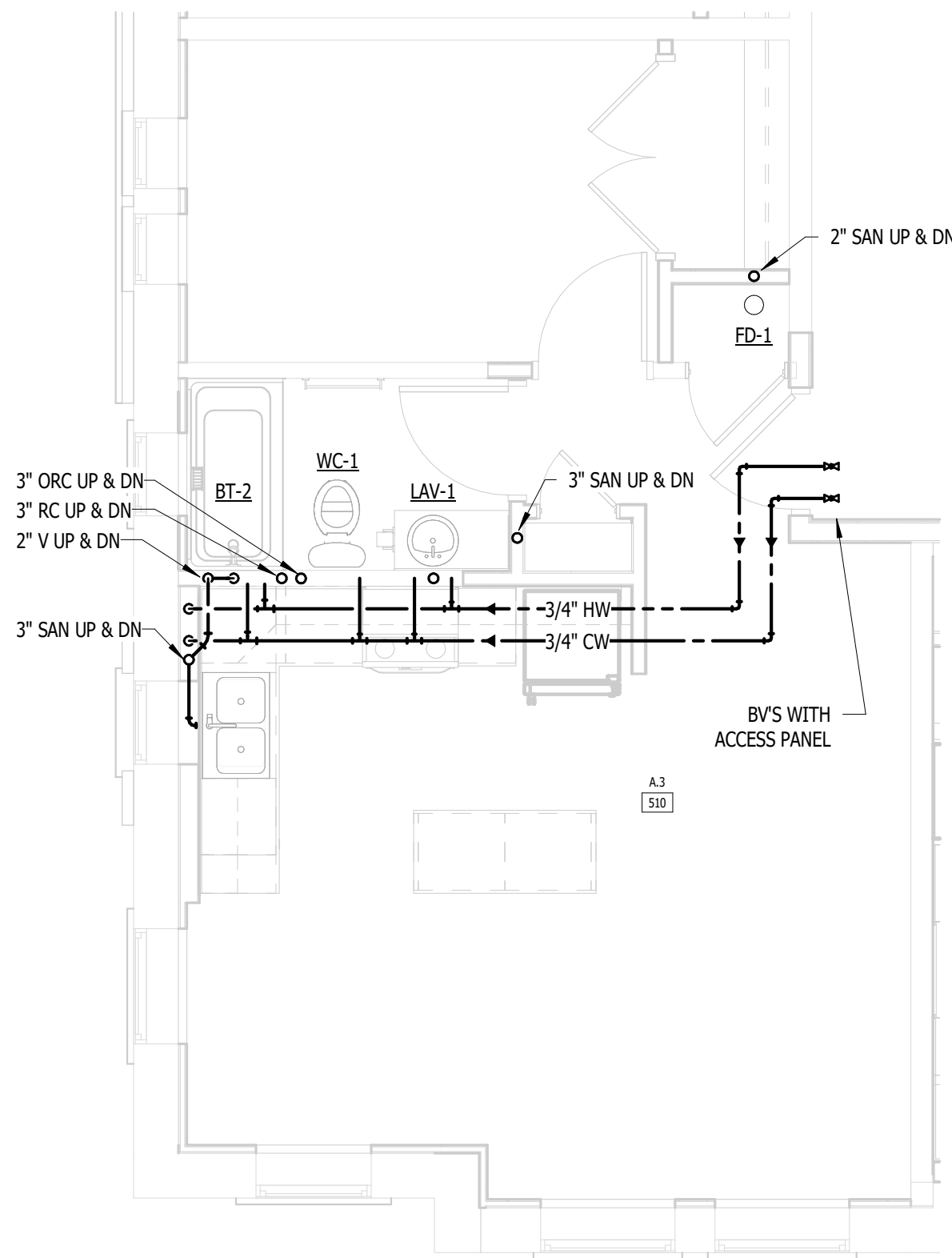
ENLARGED M & P - A-3, A-5

DRAWING NUMBER

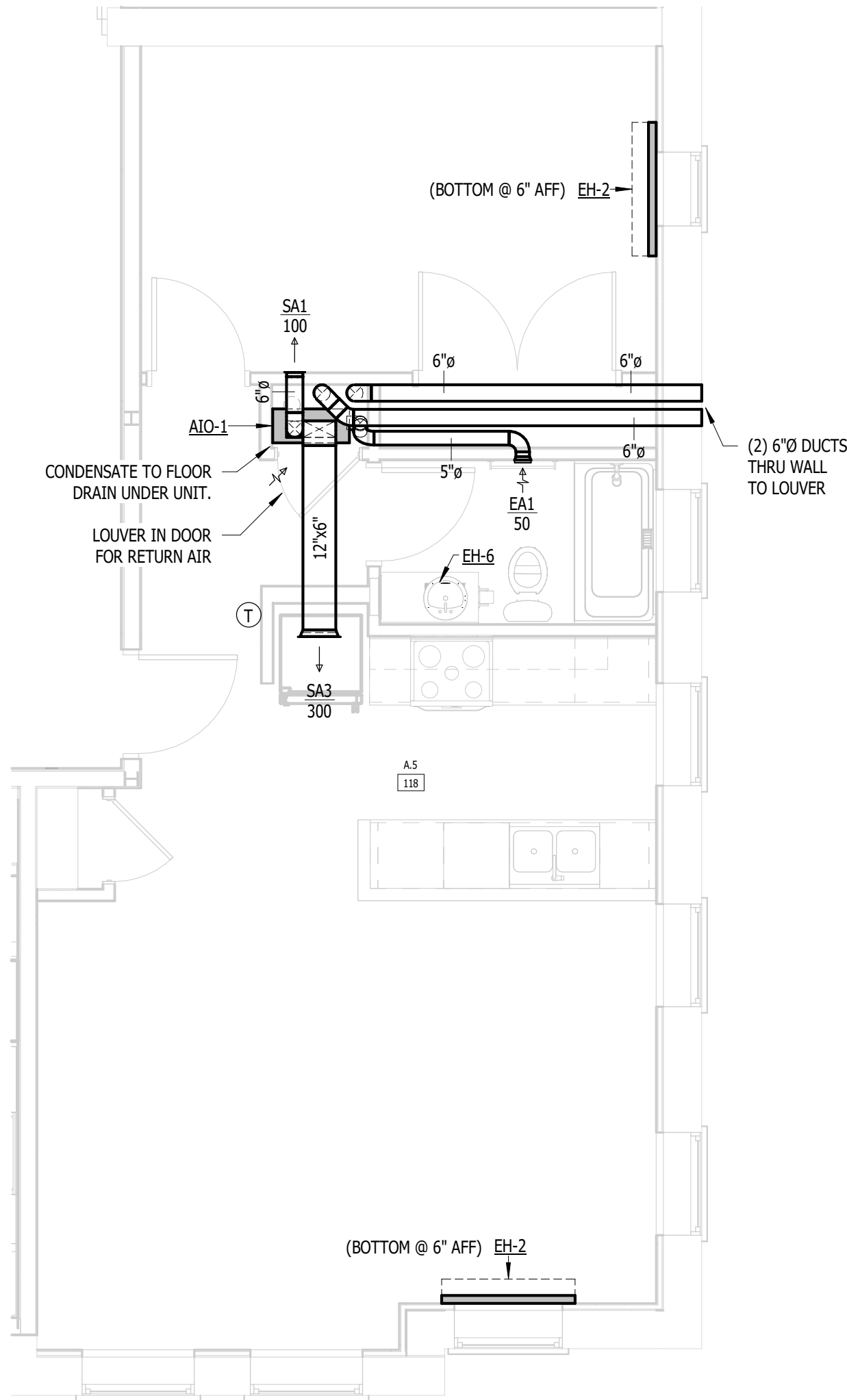
M.P.513



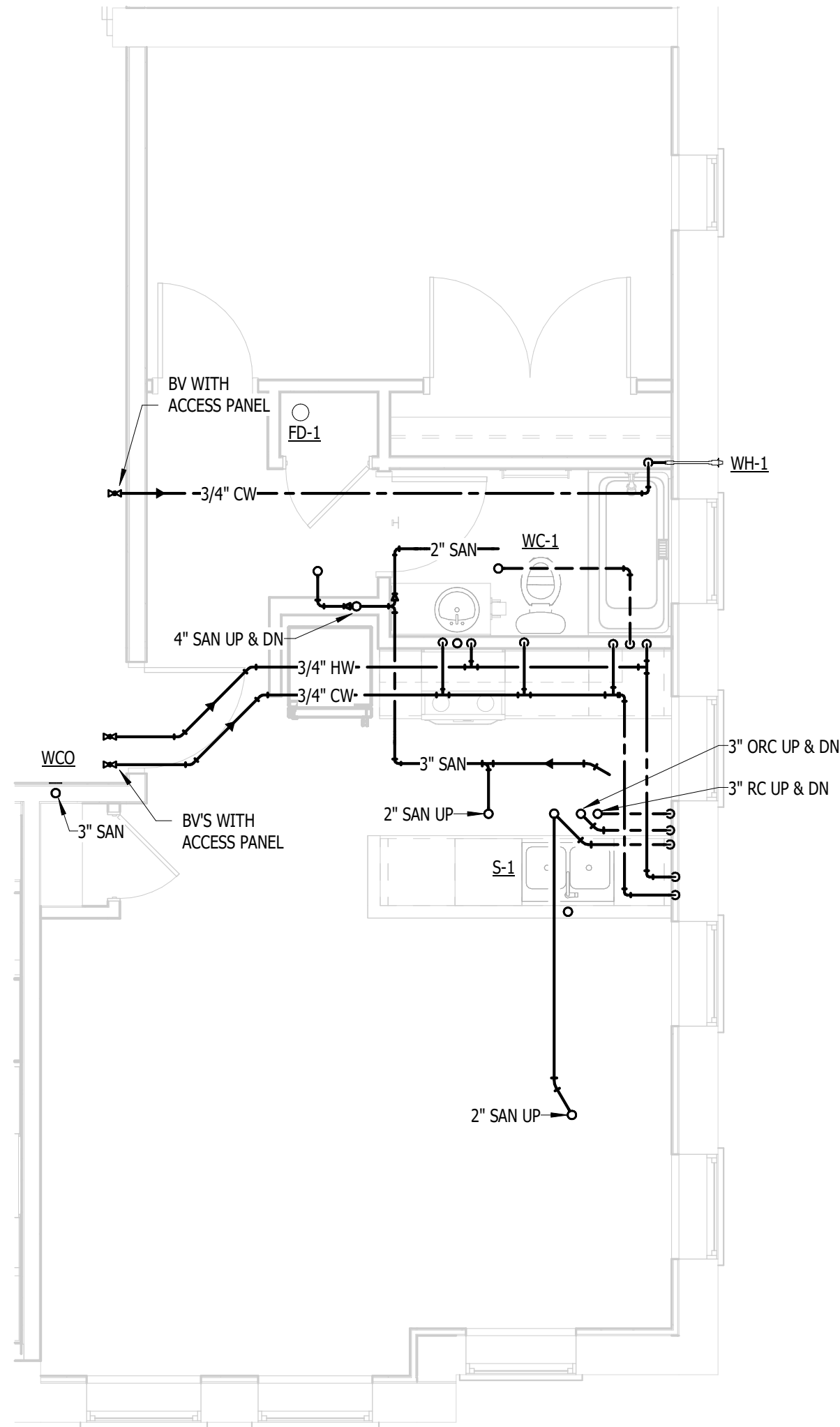
4
M.P.513
UNIT A.3 (BASEMENT - 4TH FLOOR) - MECHANICAL
NOT TO SCALE



3
M.P.513
UNIT A.3 (BASEMENT - 4TH FLOOR) - PLUMBING
NOT TO SCALE



2
M.P.513
UNIT A.5 (BASEMENT FLOOR) - MECHANICAL
NOT TO SCALE



1
M.P.513
UNIT A.5 (BASEMENT FLOOR) - PLUMBING
NOT TO SCALE



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ARCHITECTS AND PLANNERS
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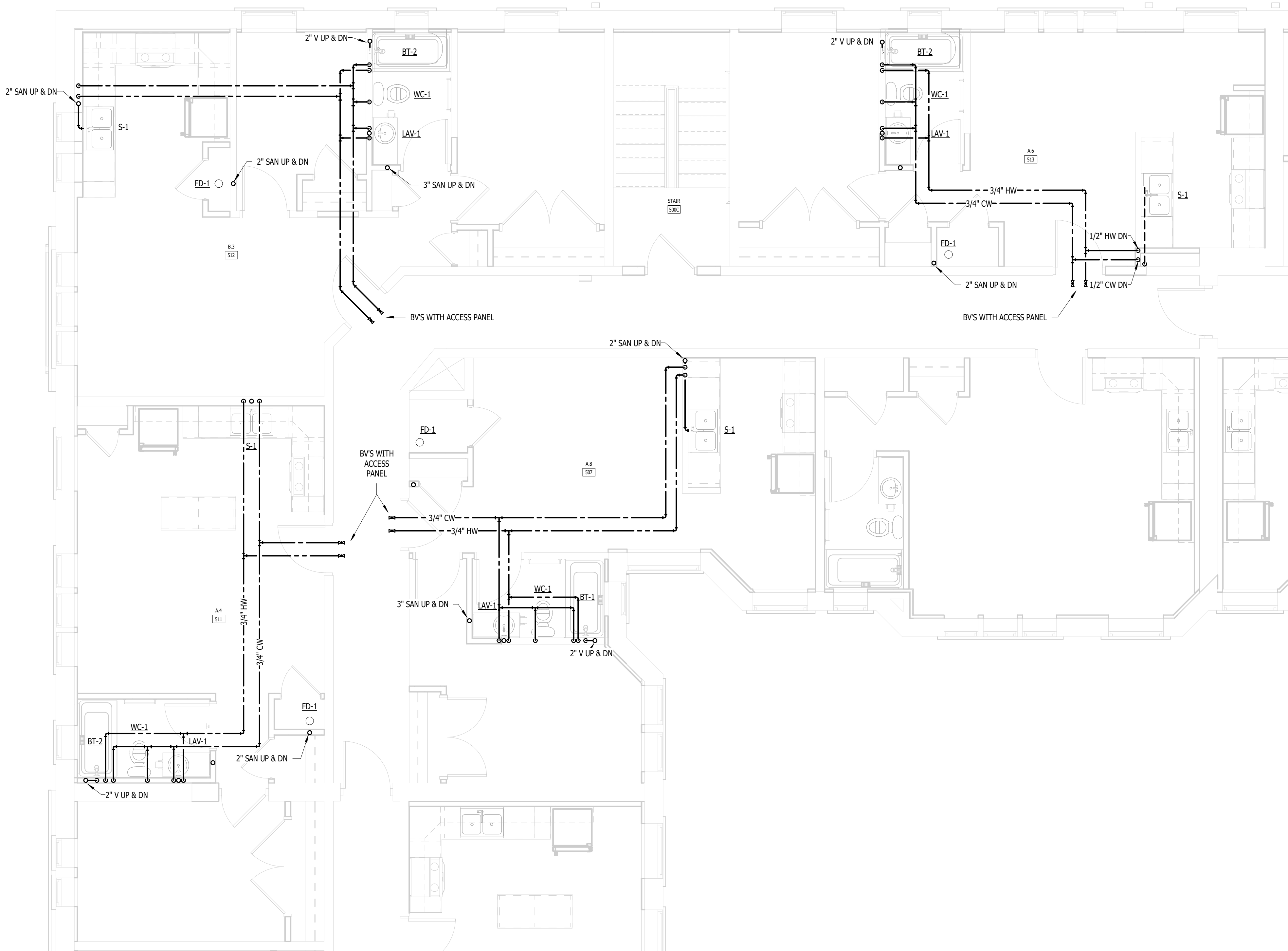
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DRAWING TITLE

ENLARGED M & P - A.4, A.6, A.8, B.3

DRAWING NUMBER

M.P.514



1
M.P.514
UNITS A.4, A.6, A.8, B.3 (BASEMENT FLOOR- 4TH FLOOR) - PLUMBING
NOT TO SCALE



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05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

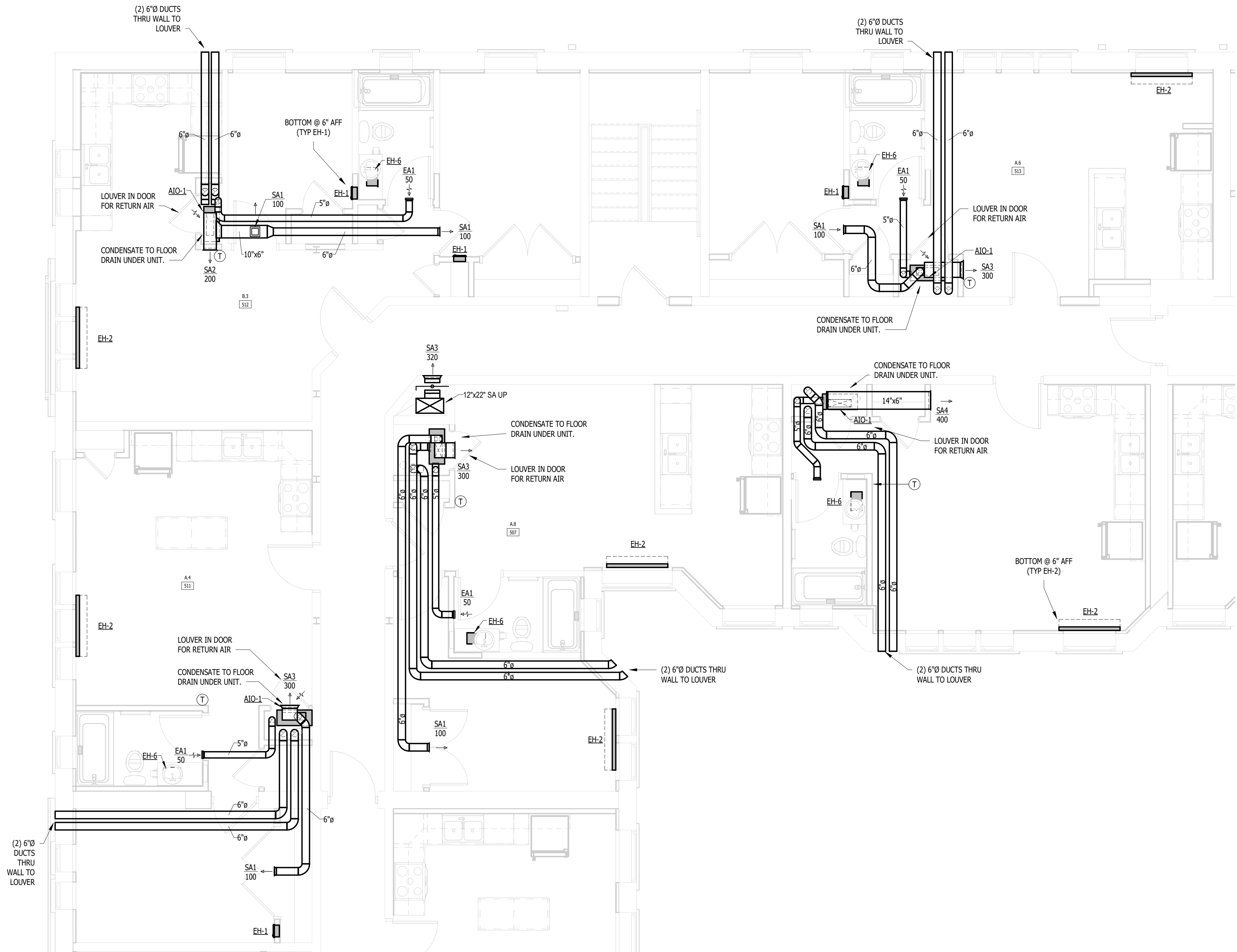
FSP PROJECT NO.
TRC22.064

DRAWING TITLE

ENLARGED M & P - A.4, A.6, A.8, B.3

DRAWING NUMBER

M.P.515

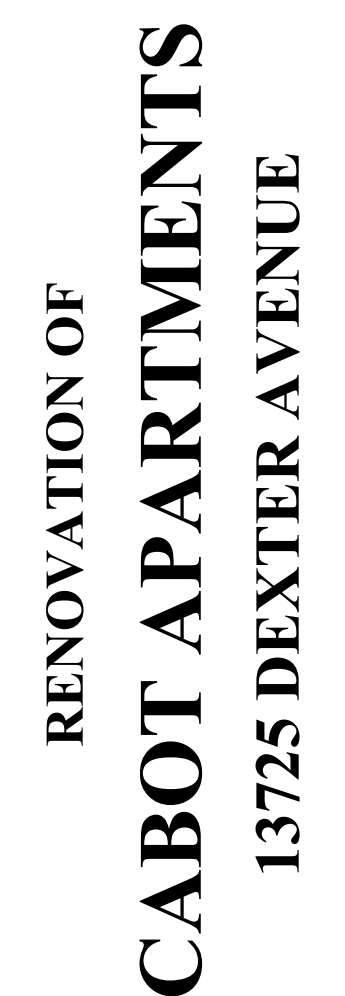


1
M.P.515

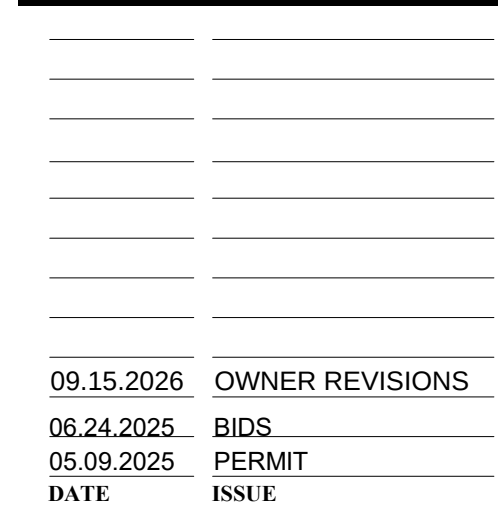
UNITS A.4, A.6, A.8, B.3 (BASEMENT FLOOR- 4TH FLOOR) - MECHANICAL
NOT TO SCALE



SEAL



DETROIT



KEY PLAN

DRAWING TITLE

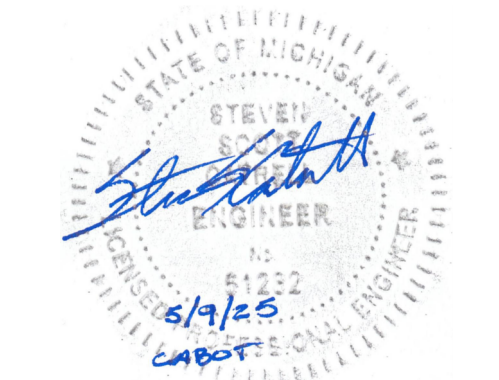
DRAWING NUMBER

M.P.516

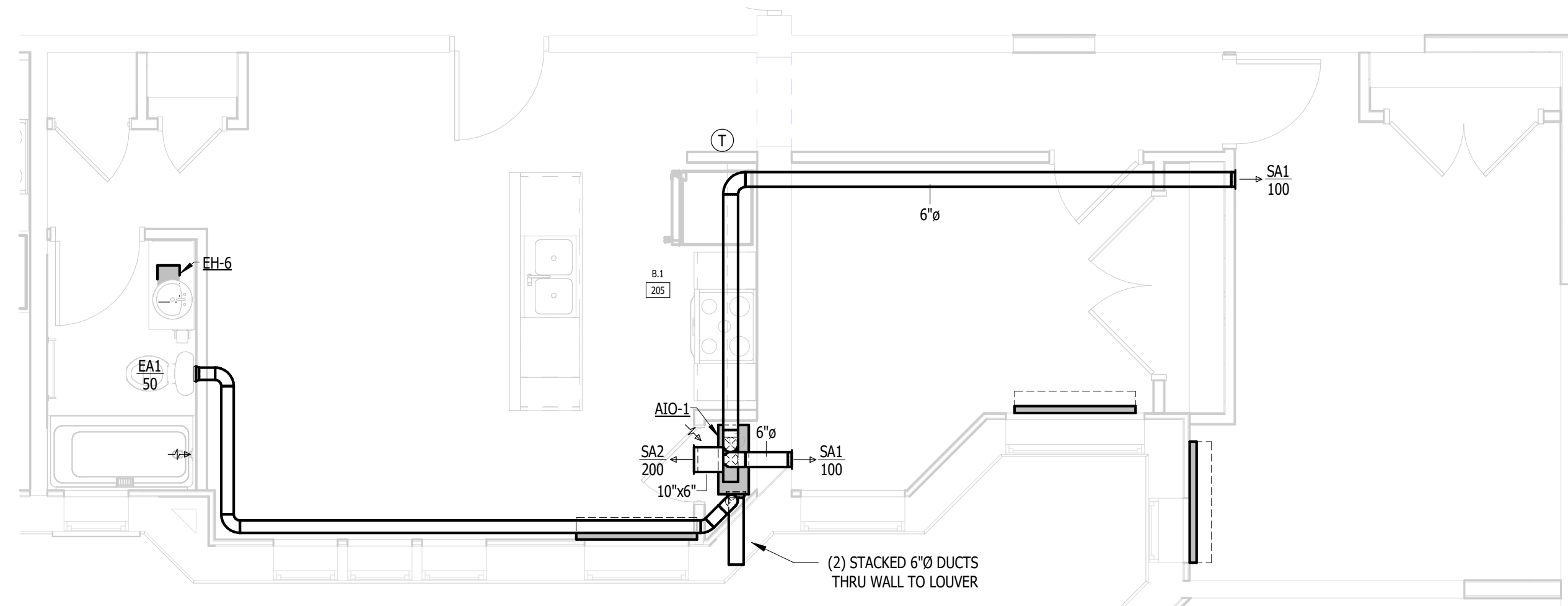


NOTE: IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

SEAL

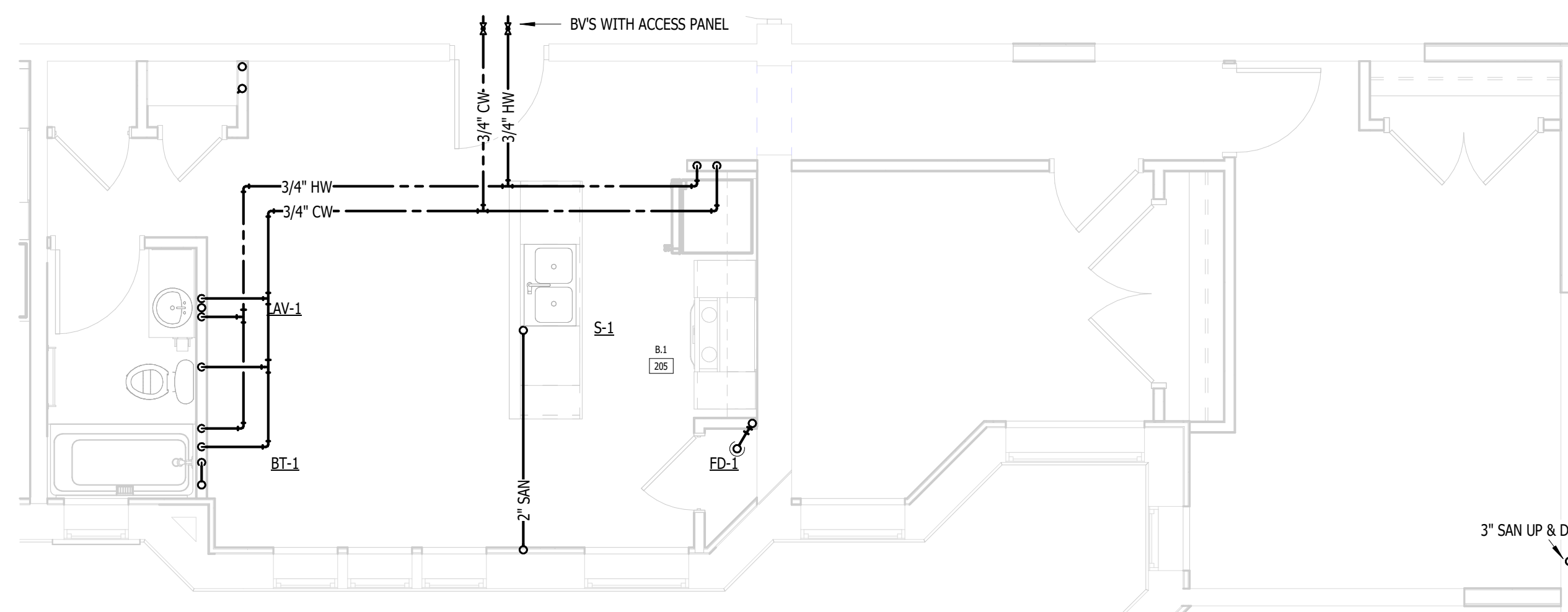


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2
M.P.517

UNITS B.1 (1ST-2ND FLOOR) - MECHANICAL
NOT TO SCALE



1
M.P.517

UNITS B.1 (1ST-2ND FLOOR) - PLUMBING
NOT TO SCALE

DETROIT

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06.24.2025	BIDS
05.09.2025	PERMIT
DATE	ISSUE

KEY PLAN

FSP PROJECT NO.
TRC22.066

DRAWING TITLE

ENLARGED M & P - B.1

DRAWING NUMBER

M.P.517

KTS

ENGINEERING

GROUP

MEP CONSULTING ENGINEER

491 E. WRIGHT AVE.
SHEPHERD MI, 48883
989-567-1100
KTSENGINEERINGGROUP.COM

KTS PROJECT NO. 25-0251

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

FSP

FUSCO,
SHAFFER &
PAPPAS, INC.

ARCHITECTS AND PLANNERS

550 E. NINE MILE ROAD
FERNDALE, MICHIGAN, 48220
PHONE 248.543.4100 FAX 248.543.4141

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RENOVATION OF
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13725 DEXTER AVENUE

DETROIT

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KEY PLAN

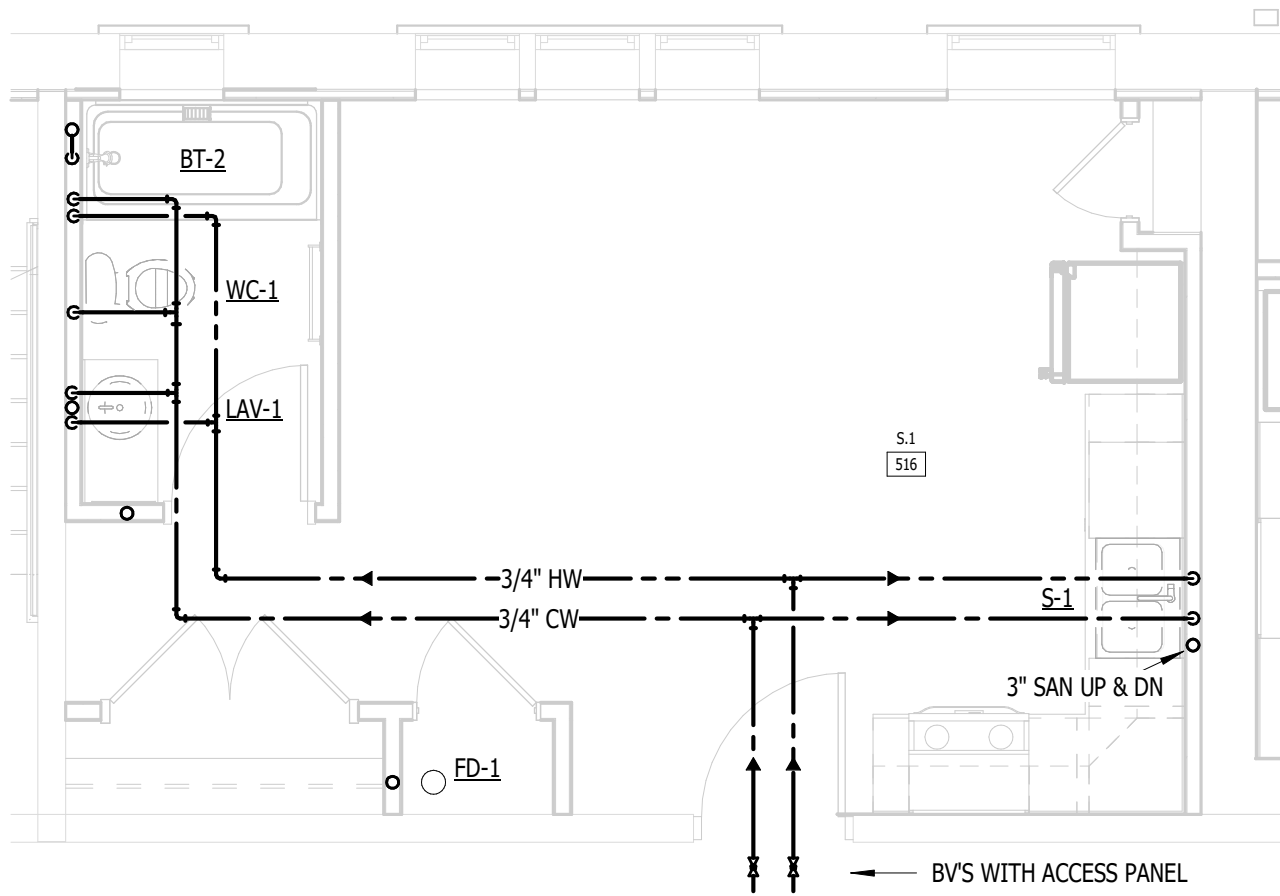
FSP PROJECT NO.
TRC22.064

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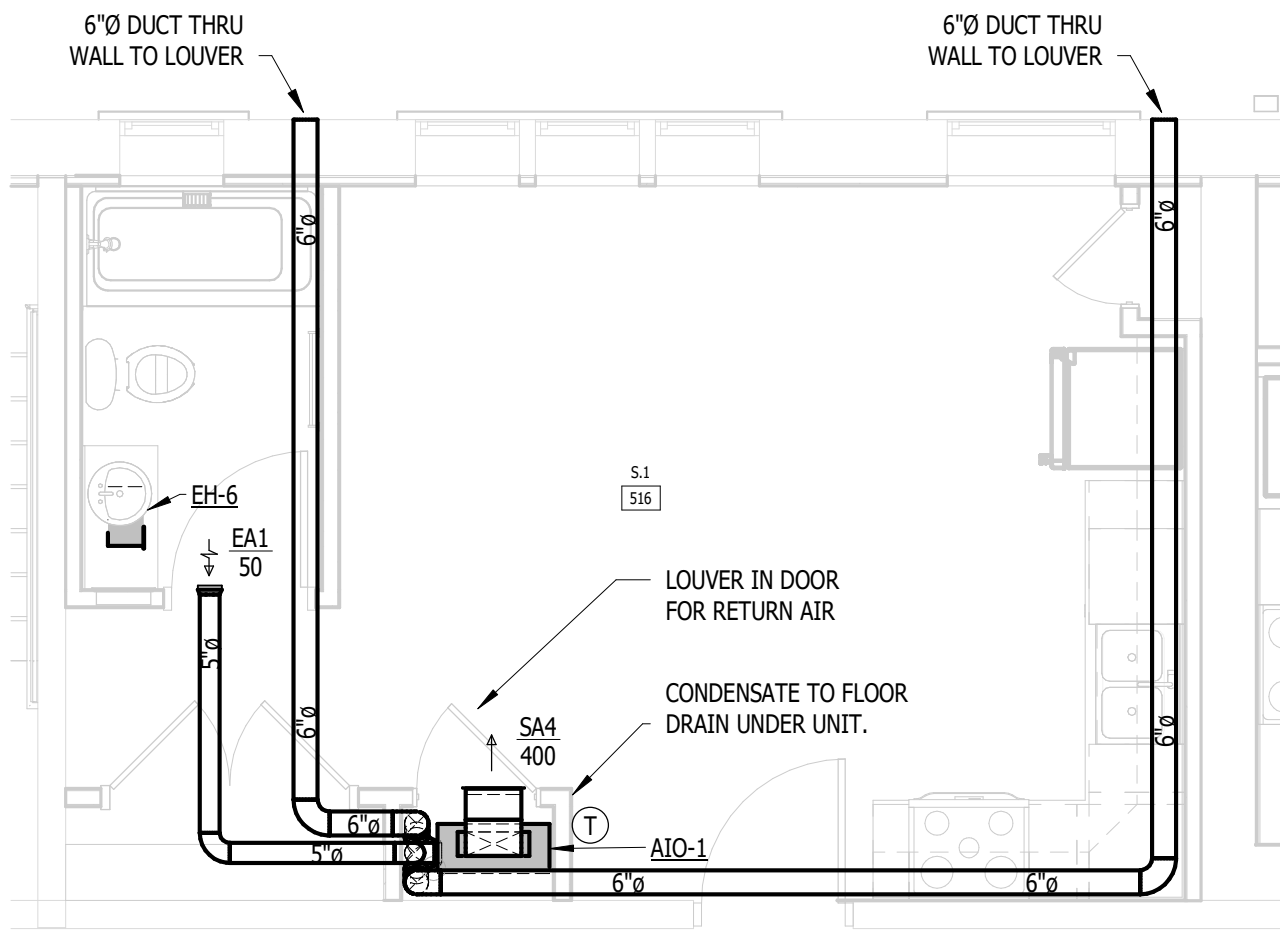
ENLARGED M & P - S.1

DRAWING NUMBER

M.P.518



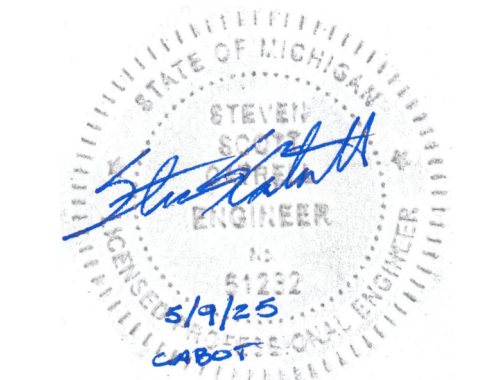
1 UNITS S.1 (1ST-4TH FLOOR) - PLUMBING
M.P.518/ NOT TO SCALE



2 UNITS S.1 (1ST-4TH FLOOR) - MECHANICAL
M.P.518/ NOT TO SCALE

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**RENOVATION OF
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DETROIT

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KEY PLAN

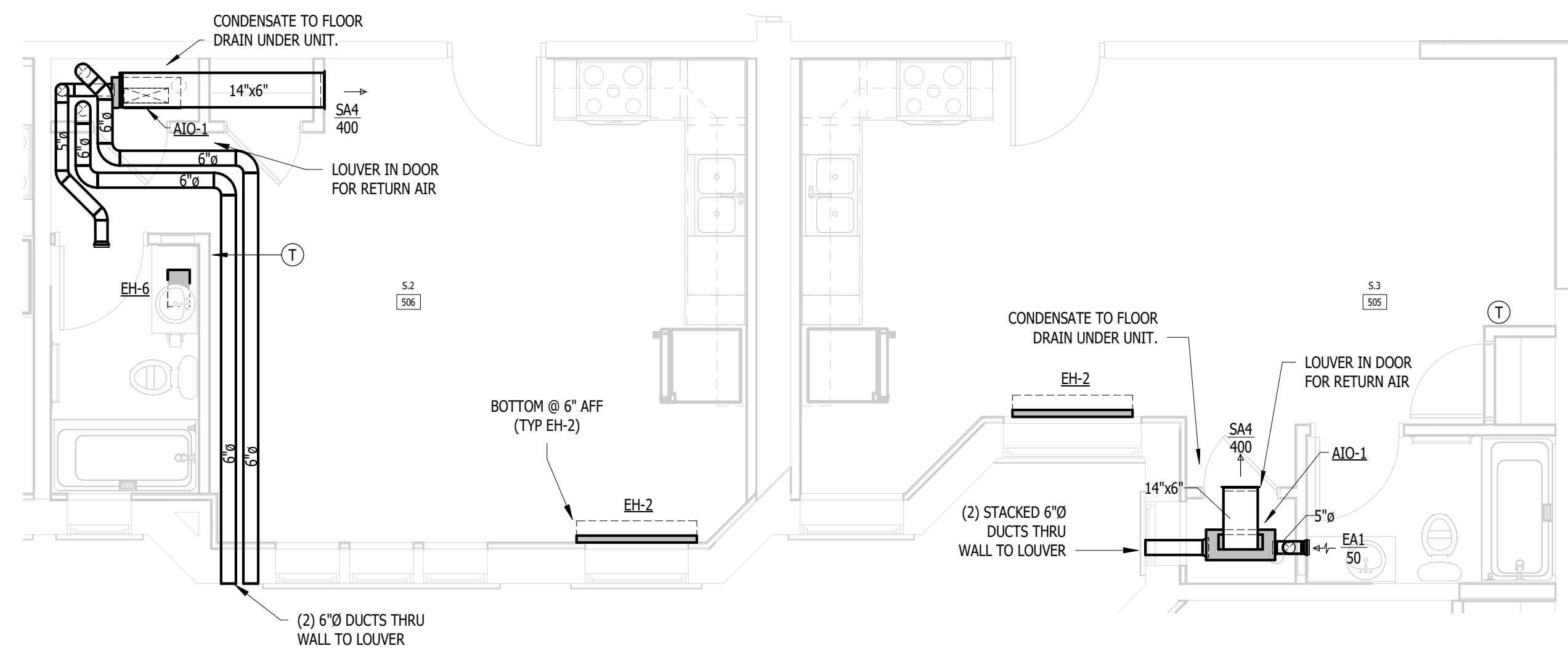
FSP PROJECT NO.
TRC22.066

DRAWING TITLE

ENLARGED M & P - S.2, S.3

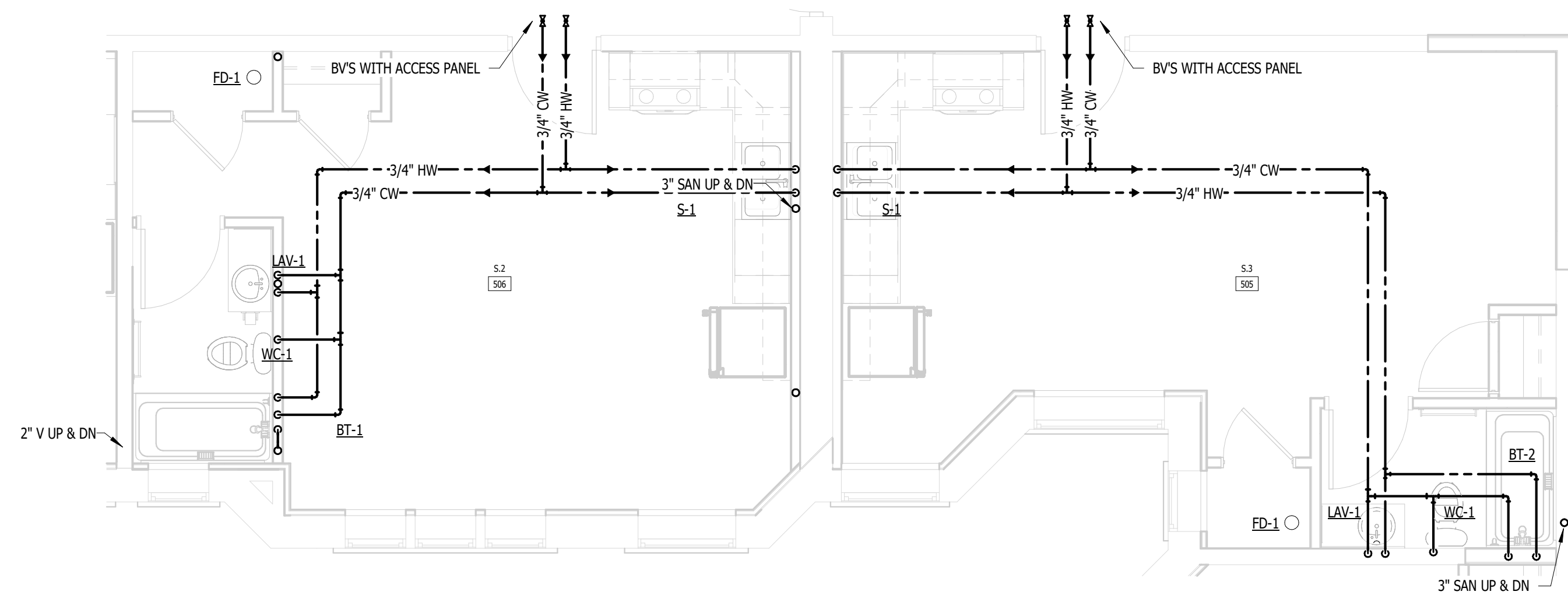
DRAWING NUMBER

M.P.519



2
M.P.519

UNITS S.2, S.3 (3RD-4TH FLOOR) - MECHANICAL
NOT TO SCALE



1
M.P.519

UNITS S.2, S.3 (3RD-4TH FLOOR) - PLUMBING
NOT TO SCALE

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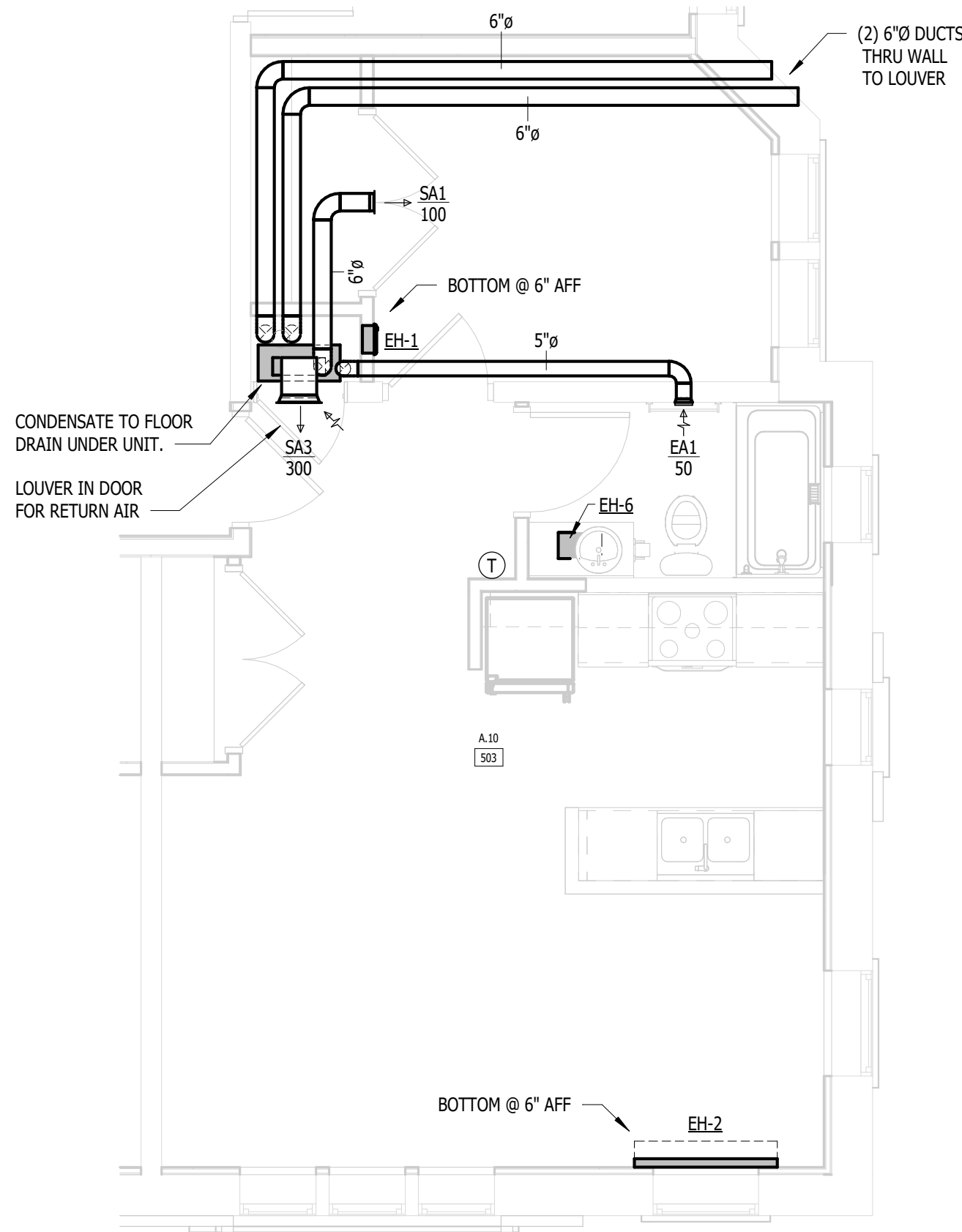
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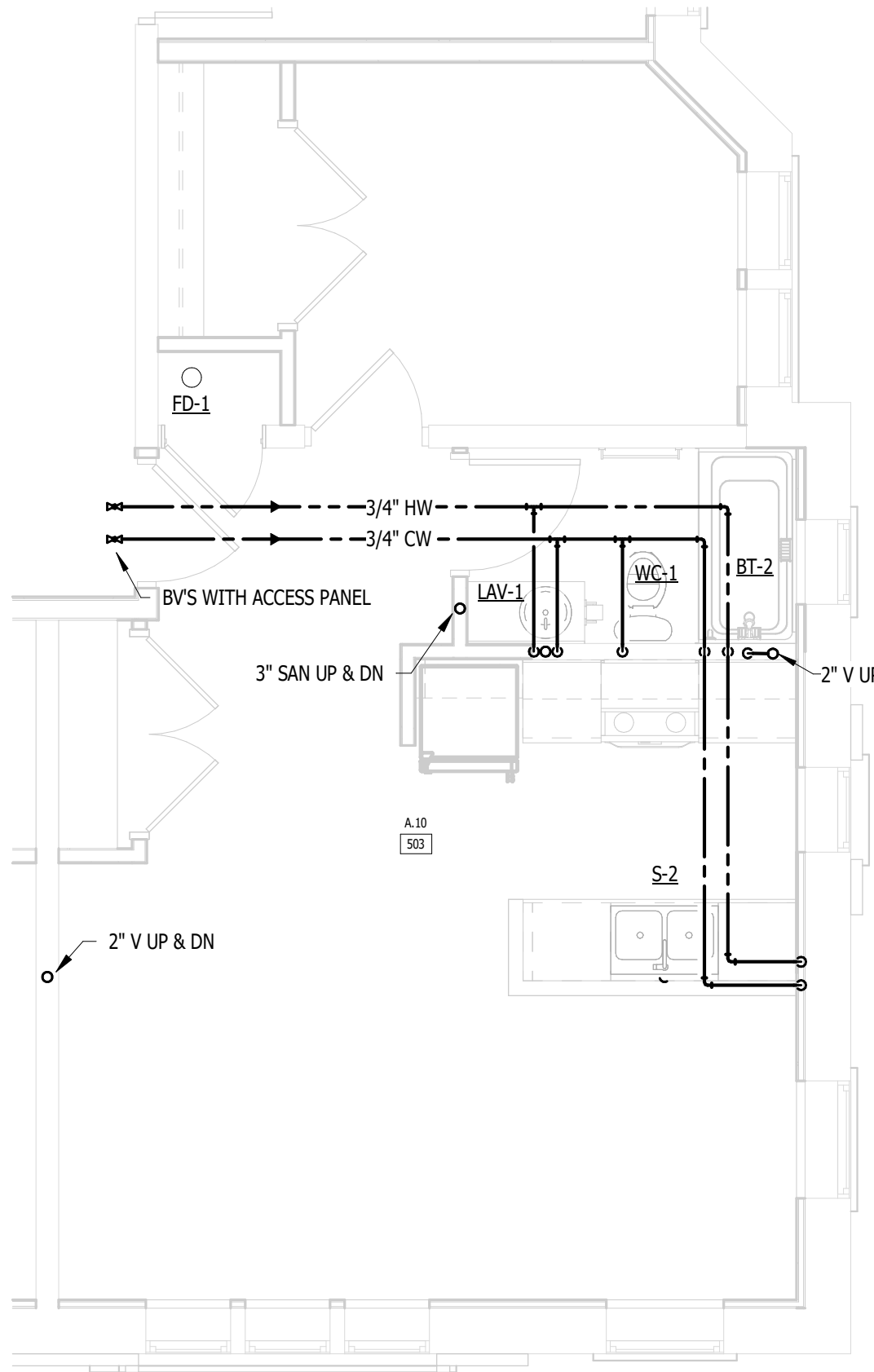
DETROIT

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DATE	ISSUE

KEY PLAN



2 UNITS A.10 (2ND-4TH FLOOR) - MECHANICAL
M.P.520 NOT TO SCALE



1 UNITS A.10 (2ND-4TH FLOOR) - PLUMBING
M.P.520 NOT TO SCALE

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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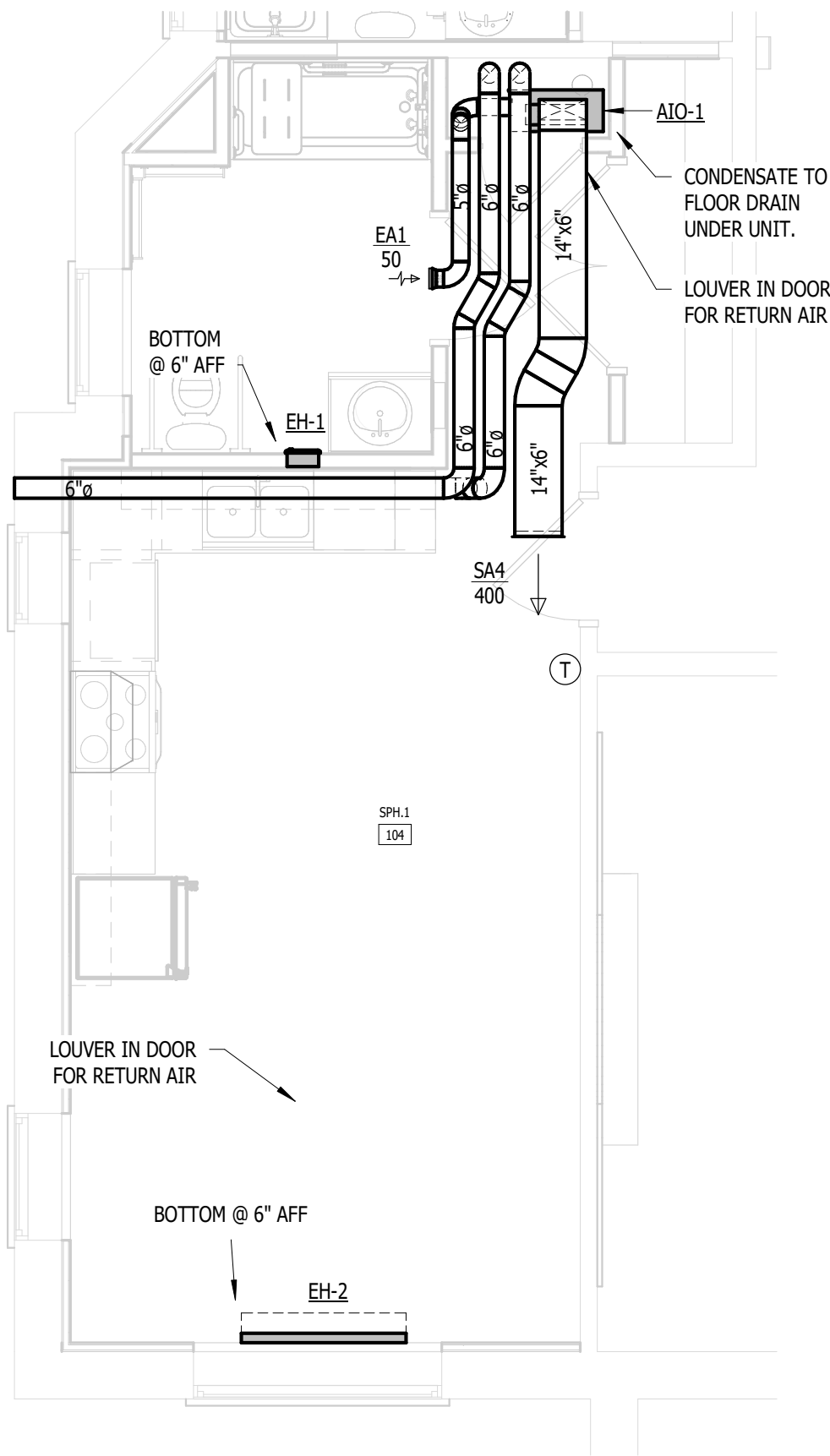
FSP PROJECT NO.
TRC22.066

DRAWING TITLE

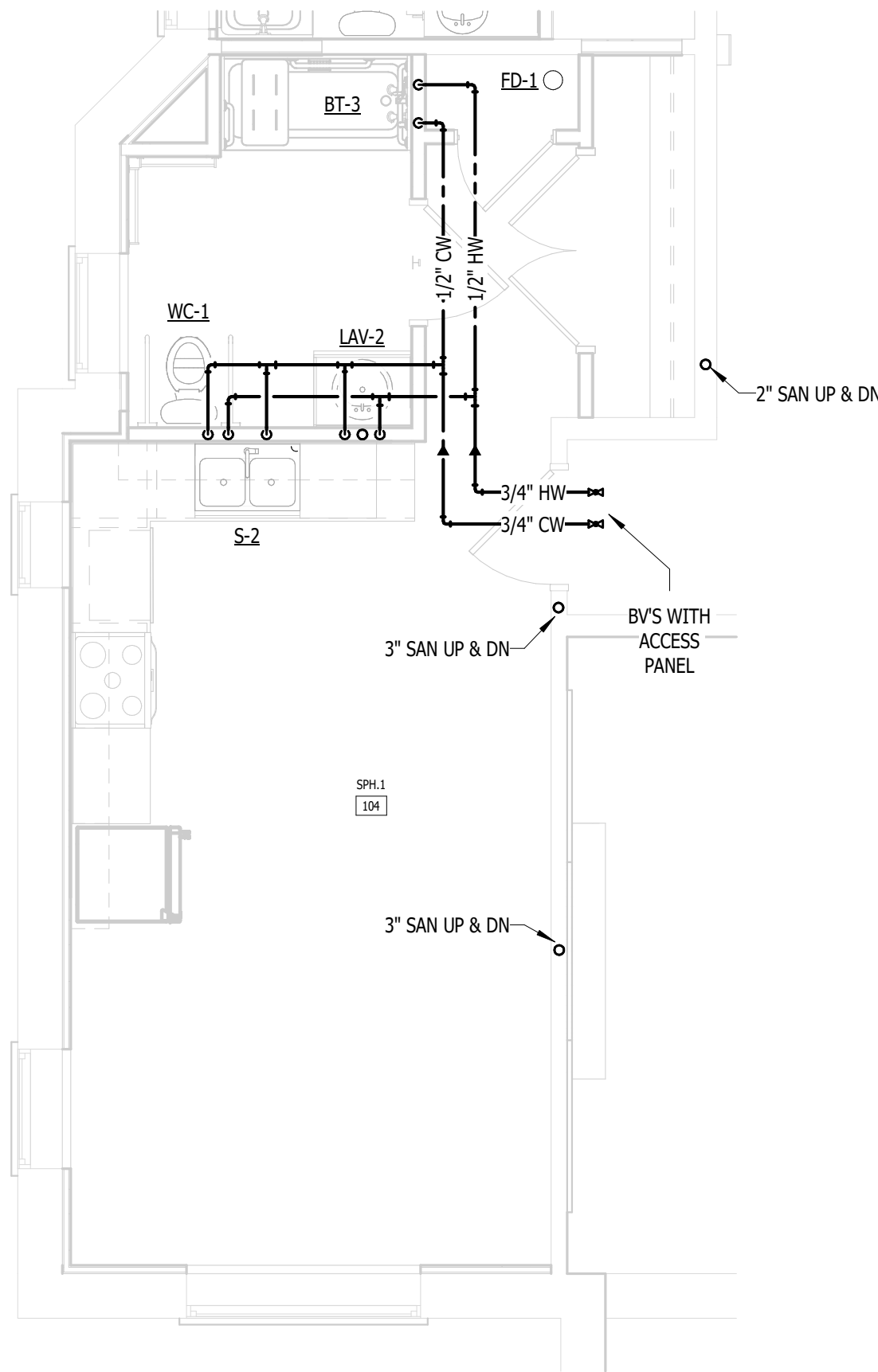
ENLARGED M & P - SPH.1

DRAWING NUMBER

M.P.521



2 UNITS SPH.1 (BASEMENT FLOOR) - MECHANICAL
M.P.521/ NOT TO SCALE



1 UNITS SPH.1 (BASEMENT FLOOR) - PLUMBING
M.P.521/ NOT TO SCALE

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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KEY PLAN

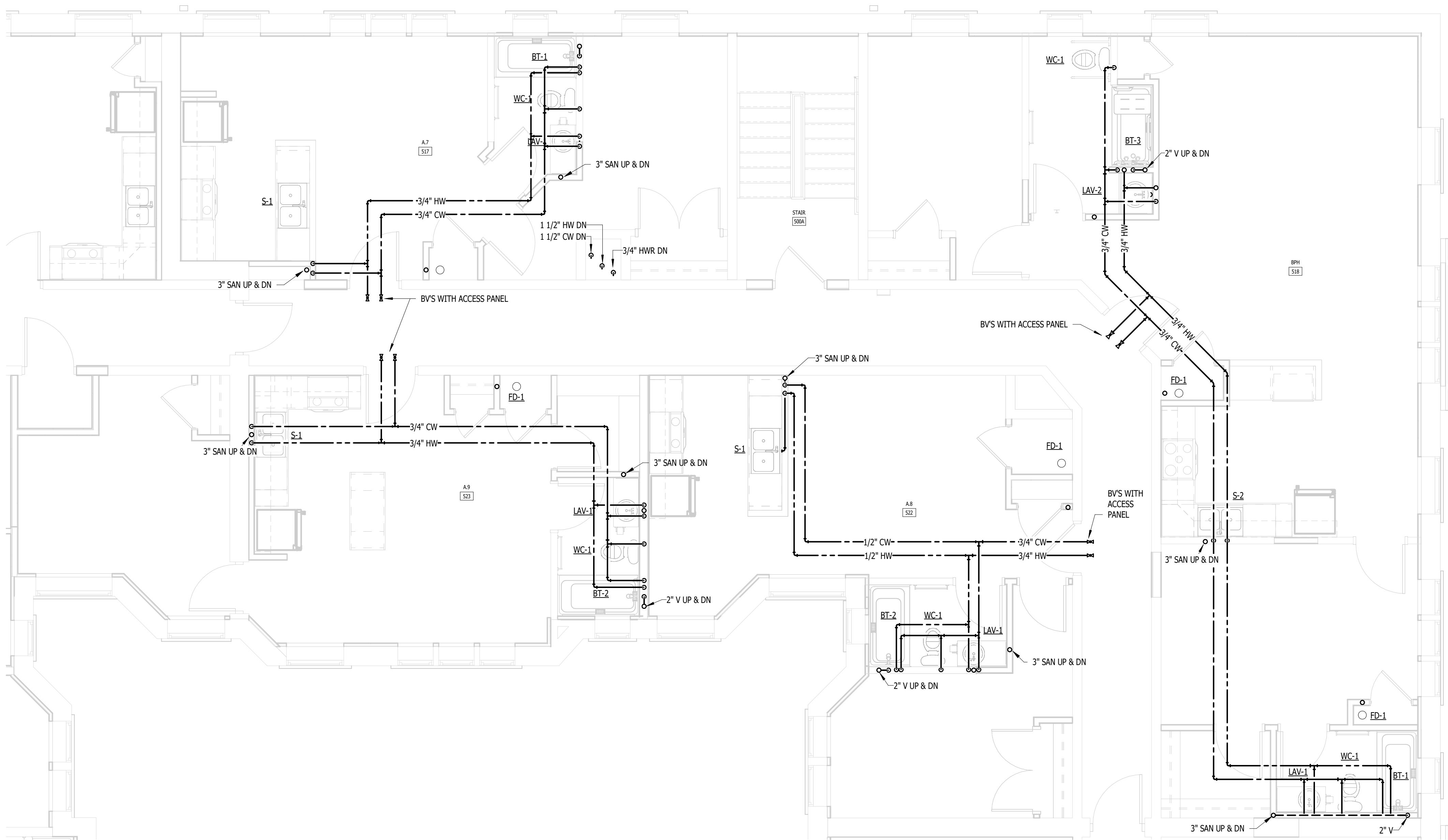
FSP PROJECT NO.
TRC22.064

DRAWING TITLE

ENLARGED M & P - A.7, A.8, A.9, BPH

DRAWING NUMBER

M.P.522



1
M.P.522
NOT TO SCALE
UNITS A.7, A.8, A.9, BPH (1ST-4TH FLOOR) - PLUMBING

NOTE | IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO EXAMINE THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND TO PROVIDE LABOR AND MATERIAL FOR THEIR RESPECTIVE AREA OF WORK FOR A COMPLETE AND FINISHED INSTALLATION IN COMPLIANCE WITH THE INTENT OF THE DRAWINGS AND THE SPECIFICATIONS. SUBMITTAL OF PROPOSAL IMPLIES THAT THE CONTRACTOR/SUBCONTRACTOR HAS REVIEWED ALL CONTRACT DOCUMENTS AND IS FULLY CONVERSANT WITH AND AWARE OF ALL REQUIREMENTS OF ALL DIVISIONS.

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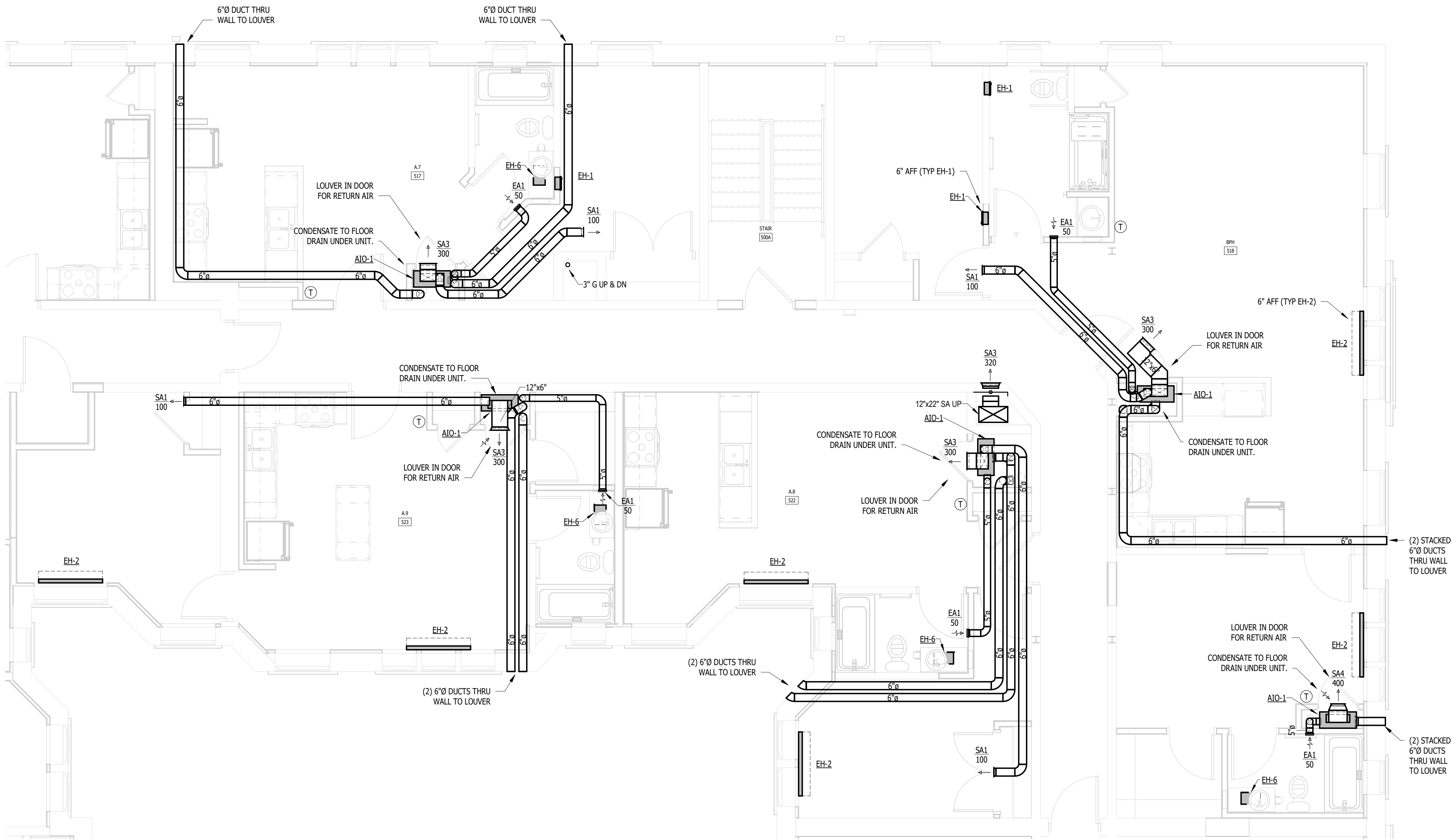
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1 UNITS A.7, A.8, A.9, BPH (1ST-4TH FLOOR) - MECHANICAL
M.P.523 NOT TO SCALE

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KEY PLAN

FSP PROJECT NO.
TRC22.064

DRAWING TITLE

ENLARGED M & P - A.7, A.8, A.9, BPH

DRAWING NUMBER

M.P.523