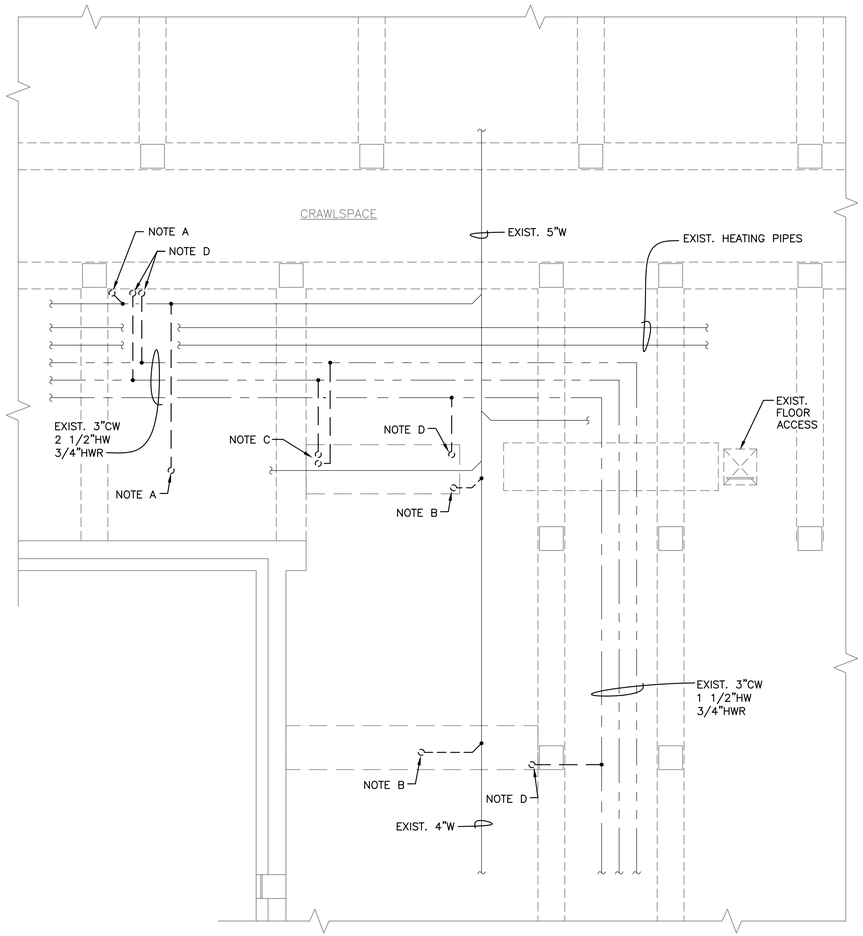
DEMO NOTES THIS SHEET

A. REMOVE WASTE STACK BACK TO SANITARY MAIN AND CAP.
B. REMOVE WASTE STACK BACK TO MAIN AND PREPARE FOR NEW WORK.
C. REMOVE WATER PIPING RISERS AND VALVES. CAP WATER PIPES AT MAINS.
D. REMOVE WATER PIPING RISERS AND VALVES. PREPARE PIPES FOR NEW WORK.

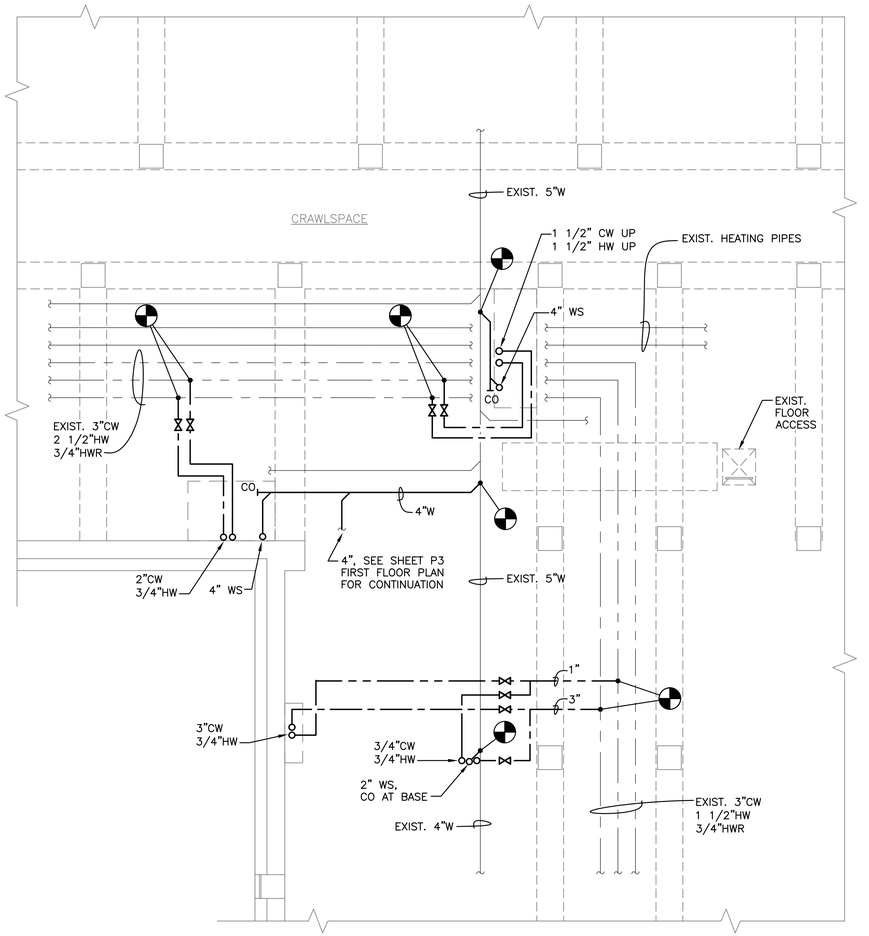
GENERAL NOTES

- REMOVE ALL EXIST. PLUMBING PIPING LOCATED WITHIN THE TOILET–SHOWER ROOM RENOVATION AREAS. REMOVE ALL UNUSED PLUMBING PIPING IN THE CRAWLSPACE WORK AREA. THESE DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING PLUMBING PIPING TO BE REMOVED
- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.



PARTIAL CRAWLSPACE PLAN - PLUMBING DEMOLITION

1/4" = 1'-0"



PARTIAL CRAWLSPACE PLAN - PLUMBING

1/4" = 1'-0"

MANN & ASSOCIATES, INC.
306 Market Street 2444
Roanoke, VA 24011
540-344-5513

UBO NOTATION:

0 1 2 3 5 10
1/4" = 1'-0"

PROJECT CODE: N/A

COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE
REVISIONS

PARTIAL CRAWLSPACE PLANS - PLUMBING

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

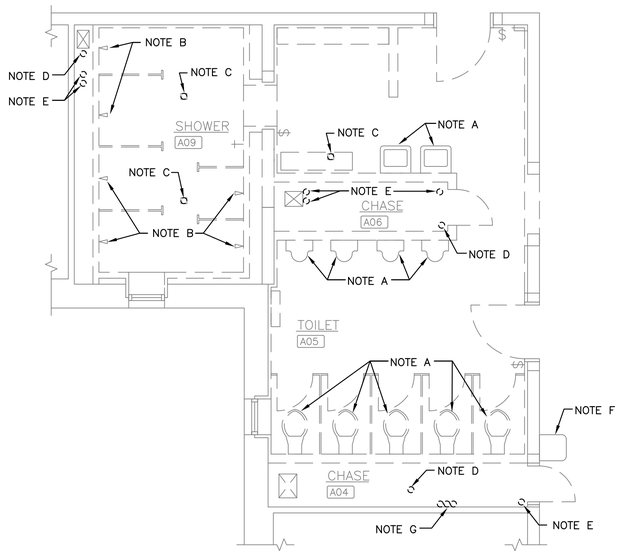
P1

DEMO NOTES THIS SHEET

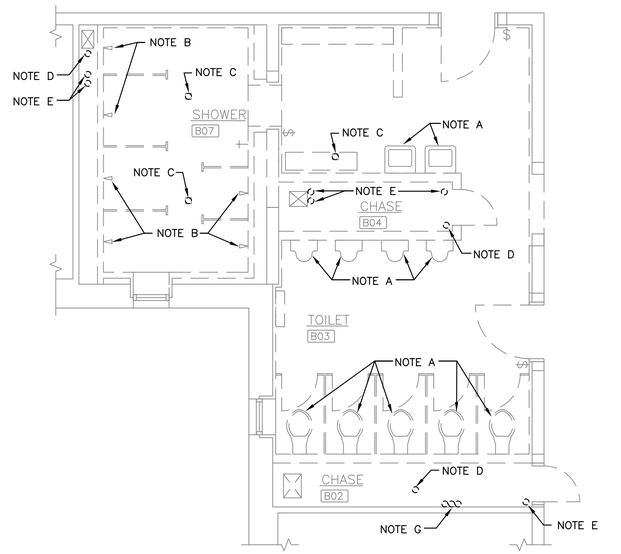
A. REMOVE PLUMBING FIXTURE AND ASSOCIATED PIPING, CARRIERS, TRIM, AND SUPPORTS.
B. REMOVE SHOWER VALVE AND ASSOCIATED PIPING, SHOWER HEADS, AND SUPPORTS.
C. REMOVE FLOOR DRAIN AND ASSOCIATED PIPING AND SUPPORTS.
D. REMOVE WASTE STACK AND ASSOCIATED VENT STACK. REMOVE ALL PIPING AND SUPPORTS IN CHASES. SEE SHEET P1 FOR PIPING IN CRAWLSPACE.
E. REMOVE CW AND HW PIPING RISERS AND VALVES. REMOVE ALL WATER PIPING AND SUPPORTS IN CHASES. SEE SHEET P1 FOR PIPING IN CRAWLSPACE.
F. REMOVE AND RETAIN ELECTRIC WATER COOLER FOR REINSTALLATION.
G. REMOVE PIPING TO LAVATORY IN DORM ROOM AND PREPARE FOR RECONNECTION.

GENERAL NOTES

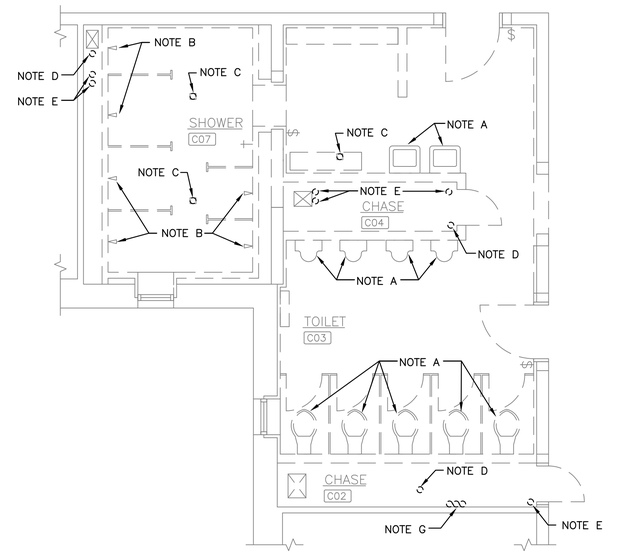
- REMOVE ALL EXIST. PLUMBING PIPING LOCATED WITHIN THE TOILET-SHOWER ROOM RENOVATION AREAS. THESE DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING PLUMBING PIPING TO BE REMOVED.



PARTIAL FIRST FLOOR PLAN - PLUMBING DEMOLITION
1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN - PLUMBING DEMOLITION
1/4" = 1'-0"



PARTIAL THIRD FLOOR PLAN - PLUMBING DEMOLITION
1/4" = 1'-0"

0 1 2 3 5 10
1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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2444

COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE
REVISIONS

PARTIAL FLOOR PLANS - PLUMBING DEMOLITION

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

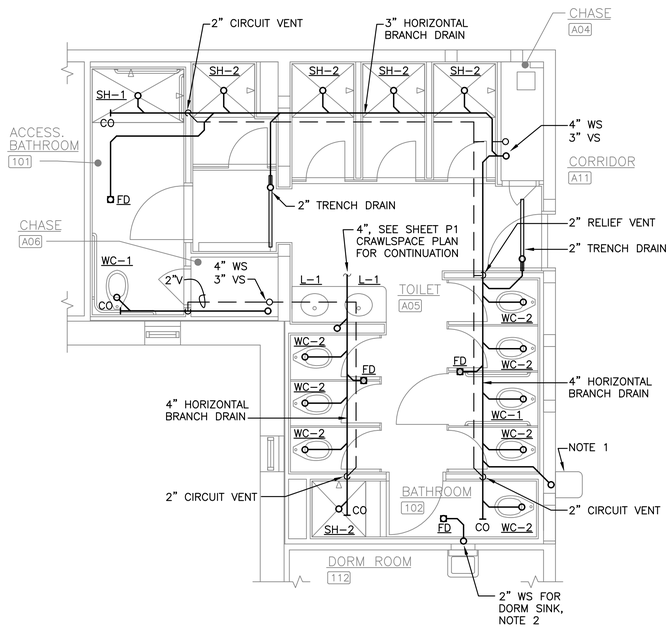
P2

NOTES THIS SHEET

1. INSTALL RELOCATED ELECTRIC WATER COOLER AND MAKE PIPE CONNECTIONS.
2. RECONNECT WASTE PIPES TO EXISTING LAVATORY IN DORM ROOM.
3. ROUTE VENT PIPING IN ATTIC FROM TOP OF WASTE STACKS AND VENT STACKS TO EXISTING VTR.
4. OPEN SIGHT HUB DRAIN FOR CONDENSATE DRAIN. PROVIDE TRAP SEAL IN HUB DRAIN. SEE ATTIC PLAN ON MECHANICAL DRAWINGS FOR CONDENSATE PIPE.

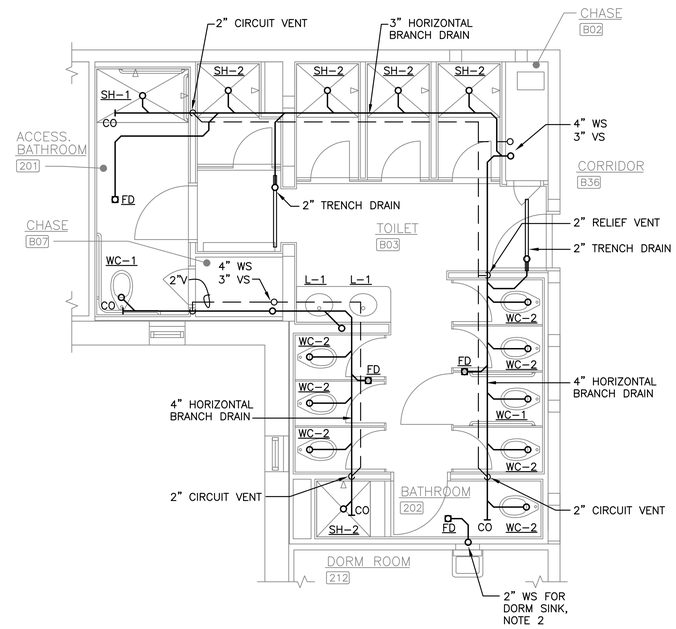
GENERAL NOTES

- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.



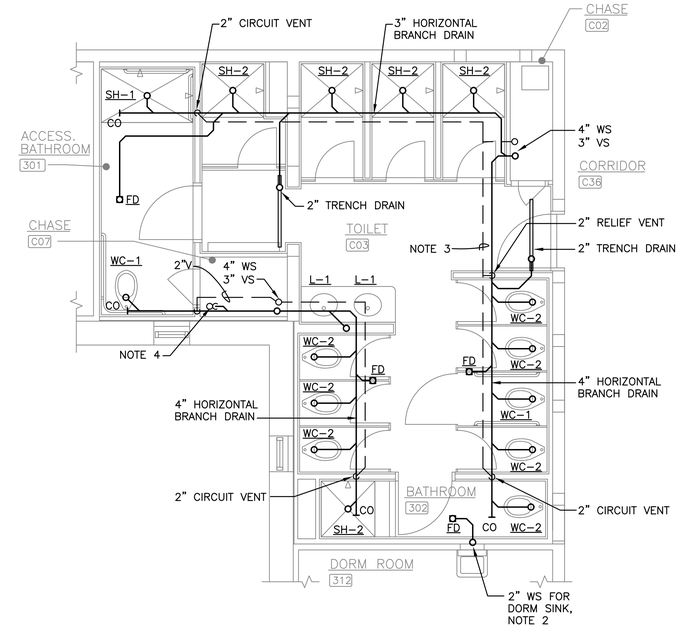
PARTIAL FIRST FLOOR PLAN - SANITARY

1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN - SANITARY

1/4" = 1'-0"



PARTIAL THIRD FLOOR PLAN - SANITARY

1/4" = 1'-0"

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE

REVISIONS

PARTIAL FLOOR PLANS - SANITARY

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

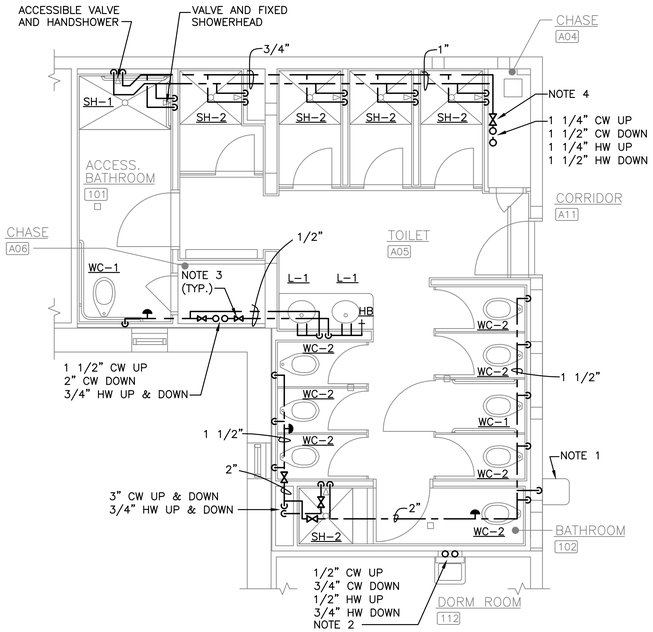
P3

NOTES THIS SHEET

1. INSTALL RELOCATED ELECTRIC WATER COOLER AND MAKE PIPE CONNECTIONS.
2. RECONNECT HOT AND COLD WATER PIPES TO EXISTING LAVATORY IN DORM ROOM.
3. LOCATE VALVES TO BE ACCESSIBLE FROM CHASE ACCESS DOOR.
4. STACK CW AND HW SHUTOFF VALVES. COORDINATE WITH DUCTWORK AND SANITARY WASTE/VENT PIPES SUCH THAT VALVES ARE ACCESSIBLE AND SERVICEABLE IN CHASE.

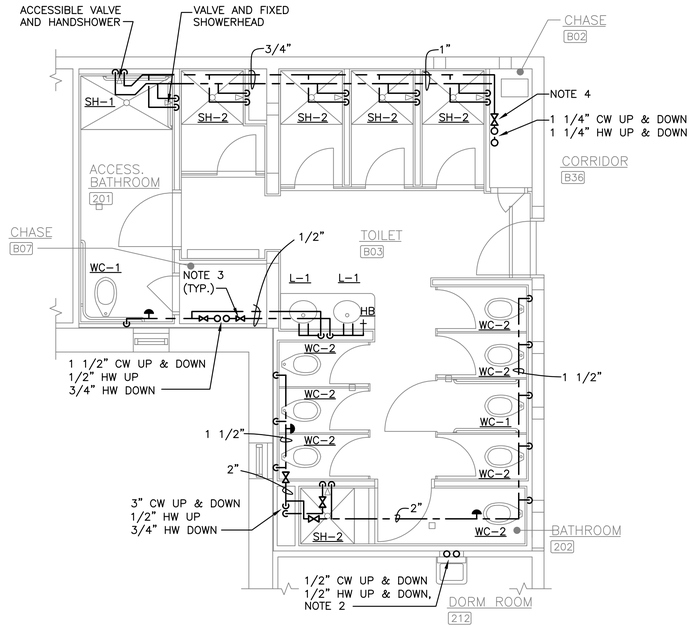
GENERAL NOTES

- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.



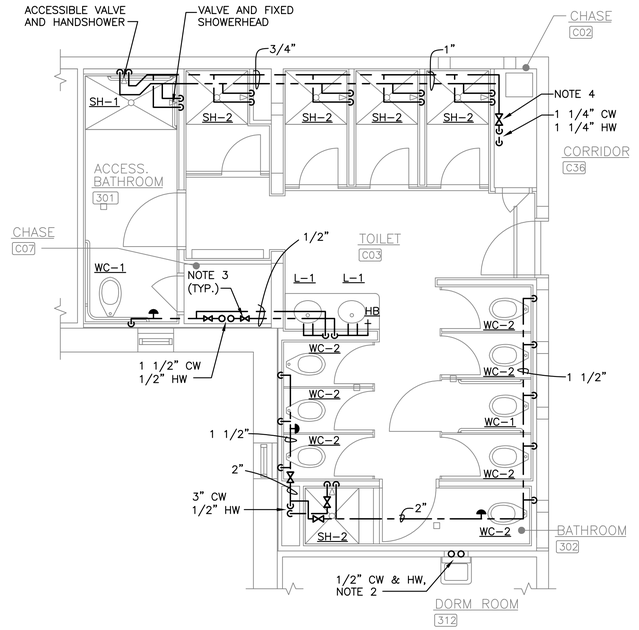
PARTIAL FIRST FLOOR PLAN - WATER

1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN - WATER

1/4" = 1'-0"



PARTIAL THIRD FLOOR PLAN - WATER

1/4" = 1'-0"

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE

REVISIONS

PARTIAL FLOOR PLANS - WATER

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM

DRAWN BY: DAR

CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

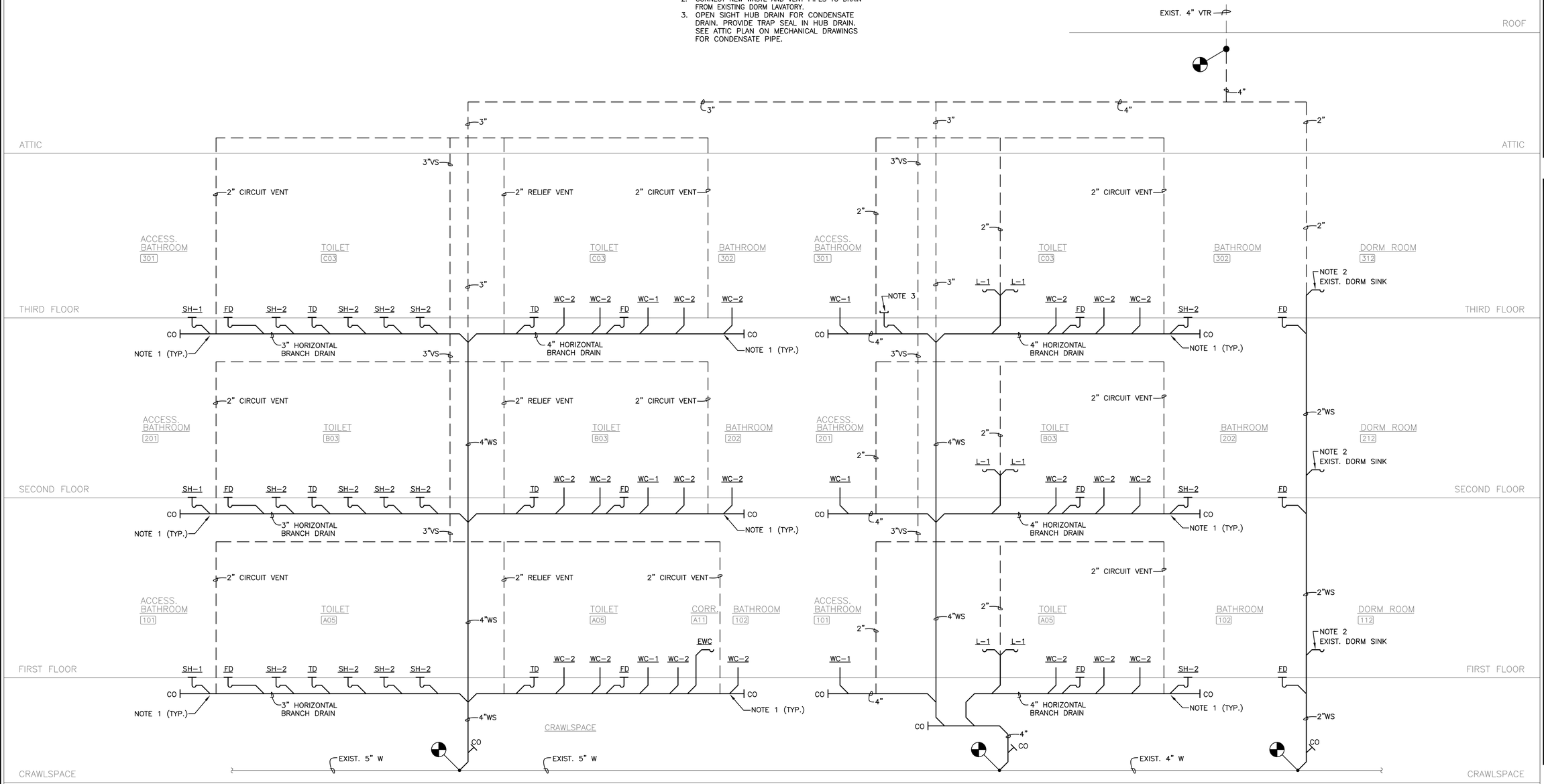
PROJECT NO: 116442

DATE: 11/20/24

P4

NOTES THIS SHEET

1. EACH FIXTURE DRAIN SHALL CONNECT HORIZONTALLY TO THE SIDE OF THE HORIZONTAL BRANCH THAT IS BEING CIRCUIT VENTED.
2. CONNECT NEW WASTE AND VENT PIPES TO DRAIN FROM EXISTING DORM LAVATORY.
3. OPEN SIGHT HUB DRAIN FOR CONDENSATE DRAIN. PROVIDE TRAP SEAL IN HUB DRAIN. SEE ATTIC PLAN ON MECHANICAL DRAWINGS FOR CONDENSATE PIPE.



SANITARY WASTE & VENT DIAGRAMS

SCHEMATIC

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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COMMONWEALTH OF VIRGINIA
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SANITARY WASTE AND VENT DIAGRAMS

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

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Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

P5

PLUMBING FIXTURE SCHEDULE SEE FIXTURE SCHEDULE NOTE 1

MARK	DESCRIPTION	FIXTURE WASTE	VENT	C.W.	H.W.	MANUFACTURER	MODEL	CATALOG NO.	REMARKS	MTG HGT
WC-1	FLOOR WATER CLOSET, FLUSH VALVE-ACCESSIBLE	4"	2"	1"	---	AMERICAN STANDARD	MADERA	3043.001	FLOOR MOUNTED, TOP SPUD, ELONGATED FRONT, 1.28 GPF. BEMIS 1955SSCT SEAT. PROVIDE TOTO ECOPOWER TET1LA32 SENSOR TOILET FLUSH VALVE. SEE SCHEDULE NOTE 3.	16-1/2" TO RIM
WC-2	FLOOR WATER CLOSET, FLUSH VALVE	4"	2"	1"	---	AMERICAN STANDARD	MADERA	3451.001	FLOOR MOUNTED, TOP SPUD, ELONGATED FRONT, 1.28 GPF. BEMIS 1955SSCT SEAT. PROVIDE TOTO ECOPOWER TET1LA32 SENSOR TOILET FLUSH VALVE.	15" TO RIM
L-1	OVAL LAVATORY -ACCESSIBLE	1-1/2"	1-1/2"	1/2"	1/2"	KOHLER	PENNINGTON	K-2196-1	DROP-IN OVAL LAVATORY, TOTO ECOPOWER TEL105-D10E SENSOR FAUCET, THERMOSTATIC MIXING VALVE, 0.5 GPM AERATOR, OFFSET GRID DRAIN STRAINER, TRUBRO MODEL #102-Z WASTE & WATER PIPE INSULATION. ANGLE SUPPLIES & STOPS, SEE FIXTURE SCHEDULE NOTE 2.	COUNTER TOP, SEE ARCH.
SH-1	ROLL-IN SHOWER ACCESSIBLE	2"	1-1/2"	1/2"	1/2"	MOEN	POSI-TEMP	8372HD(IPS) T8370 TRIM	SINGLE-HANDLE PRESSURE BALANCED SHOWER VALVES, INTEGRAL SHUT-OFF VALVES, ADA COMPLIANT. COMMERCIAL, ALL METAL CHROME TRIM KIT. PROVIDE QUANTITY OF TWO SHOWER VALVES: ONE ON LONG WALL FOR HANDSHOWER AND ONE ON SHORT WALL FOR FIXED SHOWERHEAD. MOEN MODEL 3668EP HANDSHOWER WITH 24" SLIDE BAR, 59" METAL HOSE, AND DROP ELL, 1.75 GPM, CHROME FINISH. FIXED SHOWER HEAD, NIAGARA MODEL EARTH N2915-CH WITH MOEN CL123815 CHROME SHOWER ARM. SEE SHOWER ELEVATIONS ON ARCHITECTURAL DRAWINGS FOR MOUNTING DIMENSIONS.	
SH-2	SHOWER	2"	1-1/2"	1/2"	1/2"	MOEN	POSI-TEMP	8372HD(IPS) T8370 TRIM	SINGLE-HANDLE PRESSURE BALANCED SHOWER VALVE, INTEGRAL SHUT-OFF VALVES. COMMERCIAL, ALL METAL CHROME TRIM KIT. FIXED SHOWER HEAD, NIAGARA MODEL EARTH N2915-CH WITH MOEN CL123815 CHROME SHOWER ARM. SEE SHOWER ELEVATIONS ON ARCHITECTURAL DRAWINGS FOR MOUNTING DIMENSIONS.	
SH-1 SH-2 FD	SHOWER DRAIN AND FLOOR DRAIN	2"	1-1/2"	---	---	SCHLUTER	---	KERDI-DRAIN	PVC BODY, 4" SQUARE STAINLESS STEEL "CLASSIC #6E" COVER. PROVIDE AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WITH ALL ACCESSORIES, INCLUDING SEALING AND BONDING COMPONENTS, AS REQUIRED FOR A COMPLETE DRAINAGE ASSEMBLY COMPATIBLE WITH THE MEMBRANE WATERPROOFING SYSTEM. PROVIDE WITH PROSET TRAP GUARD.	
TD	TRENCH DRAIN	2"	1-1/2"	---	---	SCHLUTER	---	KERDI-LINE	SCHLUTER KERDI-LINE LINEAR DRAIN, 47 1/4" LENGTH, 2 1/8" WIDTH, OFFSET DRAIN, WITH GRATE FRAME ASSEMBLY, "SOLID" GRATE DESIGN W/ VANDAL-RESISTANT LOCKING MECHANISM. ALL COMPONENTS SHALL BE STAINLESS STEEL, WITH BRUSHED FINISH FOR ALL EXPOSED SURFACES. PROVIDE AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WITH ALL ACCESSORIES, INCLUDING SEALING AND BONDING COMPONENTS, AS REQUIRED FOR A COMPLETE DRAINAGE ASSEMBLY COMPATIBLE WITH THE MEMBRANE WATERPROOFING SYSTEM. PROVIDE WITH PROSET TRAP GUARD.	
HB	HOSE BIBB	---	---	1/2"	---	CHICAGO	---	293-E27CP	INSIDE SILL FITTING, POLISHED CHROME FINISH, SOLID BRASS BODY CONSTRUCTION, 2-1/4" TEE HANDLE, 1/2" NPT FEMALE INLET, 3/4" MALE HOSE THREAD OUTLET, SLOW COMPRESSION RENEWABLE CARTRIDGE, VACUUM BREAKER. PROVIDE QUICK-CONNECT FITTING PER UNIVERSITY STANDARDS.	16"
EWC	RELOCATED ELECTRIC WATER COOLER-ACCESSIBLE	1-1/2"	1-1/2"	1/2"	---	EXIST.	---	---	RELOCATE SINGLE UNIT AND INSTALL PER ADA DIMENSIONS. 120 VOLT. ANGLE SUPPLY AND STOP.	SCHEDULE NOTE 4

FIXTURE SCHEDULE NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR INSTALLATION DETAILS, DIMENSIONS, AND CLEARANCES.
2. PROVIDE THERMOSTATIC MIXING VALVE SET AT 109°F MAX., WILKINS MODEL ZW1070, ASSE 1070. MOUNTED BELOW FIXTURE. MOUNT HIGH UNDER LAVATORY TO CONCEAL FROM VIEW.
3. INSTALL FLUSH VALVES TO MAINTAIN 1-1/2" MINIMUM CLEARANCE BELOW GRAB BAR.
4. INSTALL SUCH THAT BOTTOM EDGE OF APRON IS EXACTLY 27" ABOVE FINISH FLOOR.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	ITEM TO BE REMOVED
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	HOT WATER RECIRC PIPING
	SANITARY PIPING
	VENT PIPING
	PIPE TURN DOWN
	PIPE TURN UP
	ISOLATION VALVE
FD	FLOOR DRAIN
	NEW TO EXISTING CONNECTION
	SHOCK ARRESTOR
CW	COLD WATER
HW	HOT WATER
EXIST.	EXISTING
W	SANITARY WASTE
V	SANITARY VENT
WS	WASTE STACK
VS	VENT STACK
CO	CLEANOUT

PLUMBING OUTLINE SPECIFICATIONS

SECTION 15100

1. ALL WORK SHALL COMPLY WITH THE 2021 VIRGINIA UNIFORM STATEWIDE BUILDING CODE AND VIRGINIA TECH DESIGN AND CONSTRUCTION GUIDELINES.
2. PROVIDE COMPLETE SUBMITTAL INFORMATION FOR FIXTURES, EQUIPMENT AND DEVICES. SEE OUTLINE SPECIFICATION SECTION 01330.
3. RECORD ALL CHANGES IN THE WORK ON THE PROJECT RECORD DRAWINGS. SEE OUTLINE SPECIFICATION SECTION 01770.
4. PROVIDE DETAILED OPERATION AND MAINTENANCE MANUALS FOR ALL EQUIPMENT. SEE OUTLINE SPECIFICATION SECTION 01782.
5. PLUMBING EQUIPMENT, MATERIALS AND LABOR SHALL INCLUDE A ONE YEAR WARRANTY.
6. DRAWINGS INDICATE GENERAL LAYOUT OF PIPING AND EQUIPMENT. COORDINATE INSTALLATION WITH OTHER TRADES AND PROVIDE ADDITIONAL FITTINGS, OFFSETS AND TRANSITIONS AS REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR CRITICAL INSTALLATION DIMENSIONS.
7. ALL WORK SHALL BE NEW AND IS INCLUDED IN THE CONTRACT UNLESS SPECIFICALLY NOTED TO BE EXISTING OR N.I.C. (NOT IN CONTRACT) OR BY OWNER.
8. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID, FABRICATION OR ORDERING OF EQUIPMENT. VERIFY SITE CONDITIONS INCLUDING LOCATION FOR CONNECTIONS OF WATER AND SANITARY WASTE PIPING.
9. MOST EXISTING PIPING IS NOT SHOWN ON THESE DRAWINGS. WHERE EXISTING PIPING IS SHOWN, IT IS FOR INFORMATION PURPOSES AND IS BASED ON EXISTING DRAWINGS. VERIFY EXISTING CONSTRUCTION IN THE FIELD PRIOR TO BIDDING AND CONSTRUCTION. IF EXISTING PIPES ARE SMALLER THAN INDICATED SIZE, NOTIFY THE A/E IMMEDIATELY.
10. THE EXISTING BUILDING WILL BE OCCUPIED DURING THE ENTIRE PERIOD OF CONSTRUCTION. COORDINATE ALL WORK WITH THE OWNER IN ORDER TO MINIMIZE DISRUPTION OF THE USE OF THE EXISTING BUILDING. SEE OUTLINE SPECIFICATION SECTION 01000 FOR ADDITIONAL LIMITATIONS ON WORK HOURS AND ACCESS.
11. SEE OUTLINE SPECIFICATION SECTION 02220 AND DEMOLITION NOTES ON SHEET D1 FOR ADDITIONAL INFORMATION PERTAINING TO DEMOLITION.
12. IN ADDITION TO DEMOLITION WORK INDICATED, PROVIDE MISCELLANEOUS SELECTIVE DEMOLITION OF EXISTING CONSTRUCTION AS REQUIRED FOR PROPER INSTALLATION OF THE PROPOSED CONSTRUCTION. REMOVE ALL COMPONENTS WHICH ARE NOT REQUIRED FOR THE PROPOSED CONSTRUCTION INCLUDING HANGERS, ANCHORS, MOUNTING BRACKETS, AND OTHER MISCELLANEOUS COMPONENTS. THESE DRAWINGS DO NOT PURPORT TO SHOW ALL MISCELLANEOUS DEMOLITION.
13. SEE SHEET T1 FOR IMPORTANT NOTES PERTAINING TO ASBESTOS-CONTAINING AND LEAD-CONTAINING MATERIALS.
14. CONFIRM LOCATION OF EXISTING AND NEW ELECTRICAL PANELBOARDS. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELBOARDS.
15. COORDINATE ALL WORK WITH FIRE RATED ASSEMBLIES. PROVIDE FIRESTOPPING AT PENETRATIONS OF RATED ASSEMBLIES AND AT FLOORS. FIRESTOP ALL DUCT AND PIPE PENETRATIONS OF FLOOR SLABS (INCLUDING ATTIC FLOOR) AS SPECIFIED ON THE ARCHITECTURAL DRAWINGS.. ALL MATERIALS LOCATED IN RETURN AIR PLENUMS SHALL BE LISTED FOR INSTALLATION IN PLENUMS. SEE OUTLINE SPECIFICATION SECTION 07840.
16. COORDINATE INSTALLATION OF EQUIPMENT AND OTHER DEVICES TO PROVIDE ACCESS FOR SERVICING.
17. PROVIDE ALL MISCELLANEOUS COMPONENTS REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, WHETHER OR NOT THESE COMPONENTS ARE SPECIFIED HEREIN.
18. MOUNT ALL EQUIPMENT PLUMB AND LEVEL WITH SUBSTANTIAL FASTENERS SUITABLE FOR THE LOAD. ALL COMPONENTS SHALL BE RIGIDLY ANCHORED FOR LONG LIFE UNDER HARD USE.
19. METAL ACCESS DOORS SHALL BE PROVIDED AS REQUIRED FOR ALL COMPONENTS REQUIRING ACCESS. COORDINATE LOCATIONS WHERE ACCESS DOORS WILL BE REQUIRED FOR CLEANOUTS, VALVES, SHOCK ARRESTORS OR OTHER DEVICES. SEE OUTLINE SPECIFICATION SECTION 08310.
20. THE DESIGN SHOWN IS BASED ON THE MANUFACTURERS AND MODELS SCHEDULED AND IS INTENDED ONLY TO SHOW THE GENERAL SIZE, CONFIGURATION, LOCATION, CONNECTIONS AND/OR SUPPORT FOR EQUIPMENT OR SYSTEMS SPECIFIED WITH RELATION TO THE OTHER BUILDING SYSTEMS.
21. PROVIDE SLEEVES FOR ALL PIPE PENETRATIONS IN MASONRY WALLS AND CONCRETE. ANCHOR SLEEVES TO ADJACENT STRUCTURE.
22. INSTALL PIPING AND PIPE HANGERS PER ASME B31.9. SUPPORT PIPING AND SPACE HANGERS IN ACCORDANCE WITH VIRGINIA PLUMBING CODE, TABLE 308.5.
23. WATER PIPING, ABOVE GROUND: COPPER, TYPE L, ASTM B 88M, SOLDER FITTINGS. FLUSH CLEAN AND DISINFECT.
24. SANITARY WASTE AND VENT PIPING: SCHEDULE 40 PVC, DWV, ASTM D2665. FITTINGS SHALL BE PVC WITH SOLVENT WELD JOINTS WITH ASTM D 2564 SOLVENT CEMENT. MATCH PIPING MATERIAL WHERE CONNECTING TO EXISTING.
25. INSTALL ALL PIPING ABOVE CEILINGS AS HIGH AS POSSIBLE. COORDINATE PIPING WITH DUCTS & ELECTRICAL WORK TO PERMIT INSTALLATION OF THE SUSPENDED CEILINGS AT THE SPECIFIED HEIGHTS. RELOCATE EXIST. PIPING AS REQUIRED FOR INSTALLATION OF THE SUSPENDED CEILINGS AT THE SPECIFIED HEIGHTS. ALL PIPING SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS, EXCEPT IN CRAWLSPACE AND ATTIC.
26. INSTALL CLEANOUTS IN ACCORDANCE WITH VIRGINIA PLUMBING CODE. CLEANOUTS SHALL BE SAME MATERIAL AS DRAIN PIPING. LOCATE AT CHANGES OF DIRECTION GREATER THAN 45 DEGREES IN HORIZONTAL RUNS, AT BASE OF STACKS, AND NEAR THE JUNCTION OF THE BUILDING DRAIN AND THE BUILDING SEWER.
27. ISOLATION VALVES FOR WATER PIPING SHALL BE QUARTER TURN BALL VALVES, MSS SP-110, CLASS 150 WITH LEVER HANDLE AND THREADED ENDS. SOLDERED ENDS SHALL NOT BE USED.
28. PROVIDE SURESEAL TRAP SEALER IN ALL FLOOR DRAINS AND HUB DRAINS.
29. WATER HAMMER ARRESTERS: ASSE 1010, INSTALLED WHERE INDICATED AND IN LOCATION CONCEALED FROM PUBLIC VIEW. PROVIDE ACCESS TO WATER HAMMER ARRESTER.
30. INSULATE ALL NEW WATER PIPING WITH FIBERGLASS PIPE WRAP WITH ALL SERVICE VAPOR BARRIER JACKET. REPAIR EXISTING PIPE INSULATION WHERE DAMAGED DURING THIS PROJECT. FLAME SPREAD/SMOKE DEVELOPED INDEX OF 25/50 MAXIMUM, K-VALUE OF 0.24. MINIMUM THICKNESS OF 1" THICKNESS FOR HOT WATER AND 1/2" FOR COLD WATER. SEAL COLD WATER PIPE INSULATION WITH VAPOR BARRIER MASTIC. INSULATION SHALL BE CONTINUOUS AT HANGERS WITH RIGID BLOCKS AND GALVANIZED INSULATION SHIELDS.
31. PLUMBING FIXTURES SHALL BE WHITE VITREOUS CHINA UNLESS INDICATED OTHERWISE AND SHALL BE IN COMPLIANCE WITH ASME 112.18, ASME A112.19.2 AND ANSI A117.1, AND MEET ADA REQUIREMENTS WHERE REQUIRED. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND CAULK TO WALL AND FLOOR SURFACES WITH COLOR TO MATCH FIXTURE. FURNISH AND INSTALL FIXTURES COMPLETE WITH ALL TRIM INCLUDING SUPPLIES, CHROME ESCUTCHEONS, WASTE AND VENT CONNECTIONS, FITTINGS, CARRIERS, HANGERS AND SUPPORTS, BOLT CAPS, FAUCETS, VALVES AND TRAPS. ALL TRIM SHALL BE BRASS WITH POLISHED CHROME FINISH. TRAPS SHALL BE 17 GAUGE WITH CLEANOUT PLUG.
32. WATER SUPPLY TO FIXTURES TO INCLUDE CHROME ESCUTCHEONS, ANGLE SUPPLY VALVE WITH QUARTER-TURN LOOSE KEY. FLEXIBLE SUPPLIES TO BE CHROME PLATED COPPER TUBE RISERS OR BRAIDED STAINLESS STEEL.
33. PROVIDE CHROME ESCUTCHEONS AT PIPE PENETRATIONS OF WALLS AND FLOORS.
34. LABEL WATER PIPES PER ASME A13.1. LABEL DIRECTION OF FLOW.
35. VERIFY AND DEMONSTRATE TO OWNER THE OPERATION OF ALL EQUIPMENT AND CONTROLS.
36. PERFORM TESTING OF WATER, SANITARY AND VENT PIPES PER VIRGINIA PLUMBING CODE. DISINFECT WATER PIPING PER LOCAL HEALTH DEPARTMENT REQUIREMENTS. PROVIDE ALL NECESSARY TESTS AND COORDINATE INSPECTIONS AND APPROVAL PER VA TECH REQUIREMENTS.

MANN & ASSOCIATES, INC.
306 Market Street 2444
Roanoke, VA 24011
540-344-5513

UBO NOTATION:

0 1 2 3 5 10
1/4" = 1'-0"

PROJECT CODE: N/A

COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE
REVISIONS

SCHEDULES & OUTLINE SPECIFICATIONS - PLUMBING

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

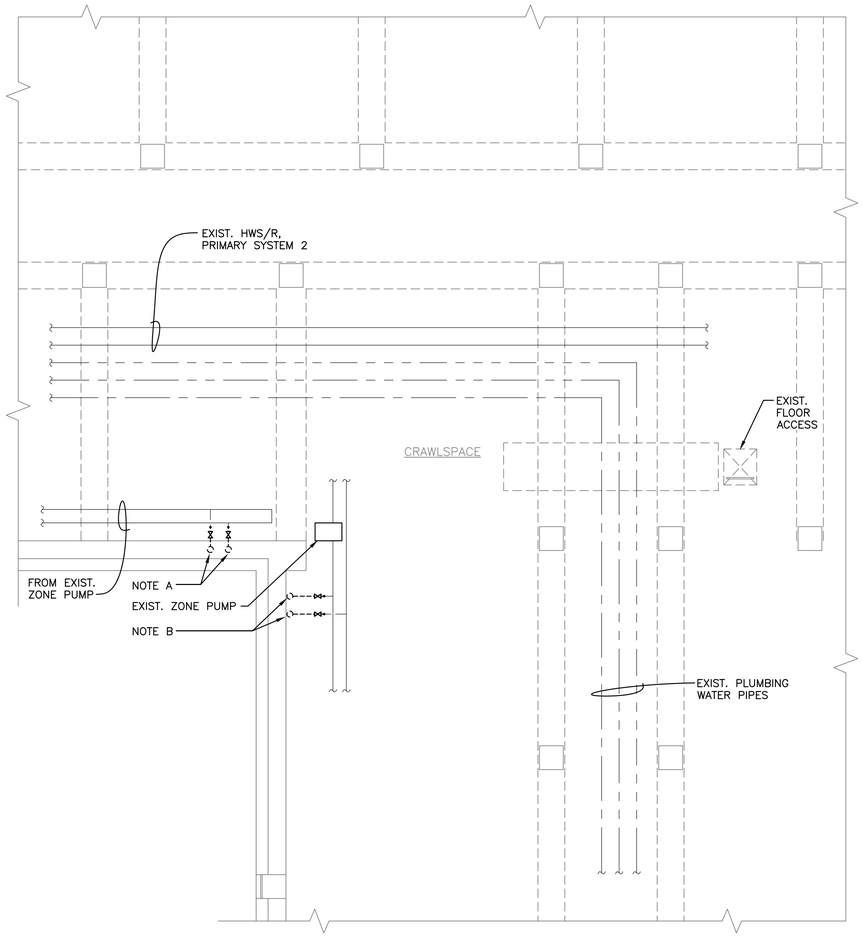
P6

DEMO NOTES THIS SHEET

A. REMOVE HEATING PIPE RISERS, VALVES, AND RUNOUTS. CAP AT MAIN PIPE.
B. REMOVE HEATING PIPE RISERS, VALVES, AND PREPARE BRANCH PIPES FOR RECONNECTION.

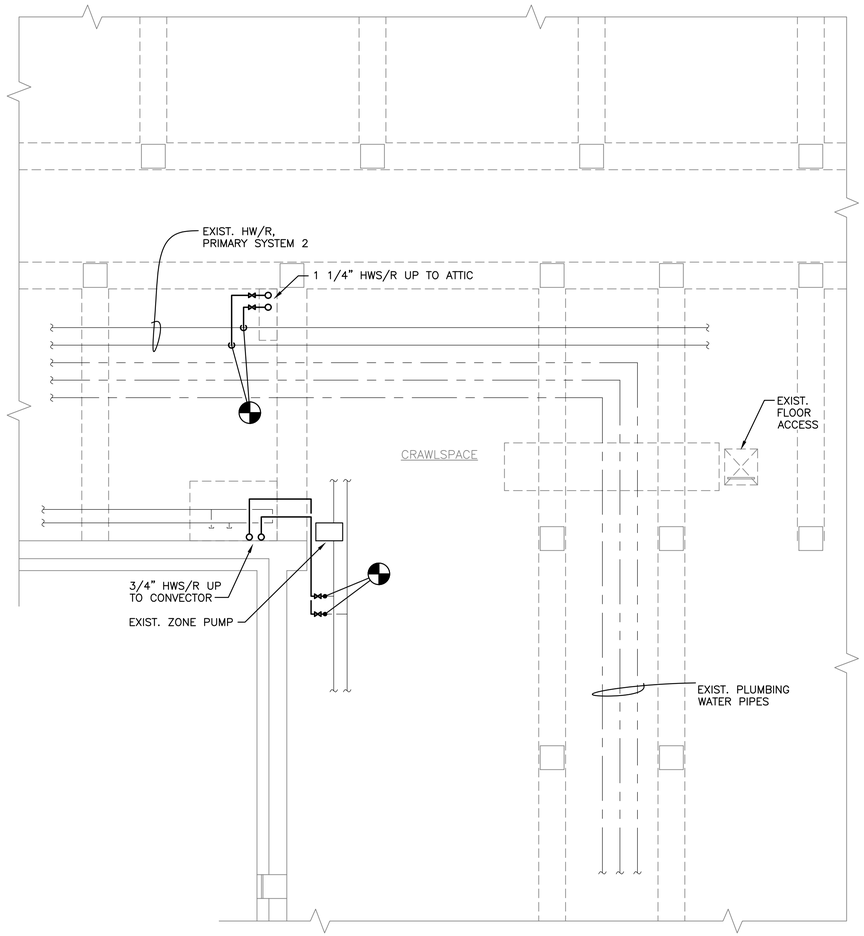
GENERAL NOTES

- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY DUCT AND PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.



PARTIAL CRAWLSPACE PLAN - MECHANICAL DEMOLITION

1/4" = 1'-0"



PARTIAL CRAWLSPACE PLAN - MECHANICAL

1/4" = 1'-0"

MANN & ASSOCIATES, INC.
306 Market Street 2444
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540-344-5513

UBO NOTATION:

0 1 2 3 5 10
1/4" = 1'-0"

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PARTIAL CRAWLSPACE PLANS - MECHANICAL

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

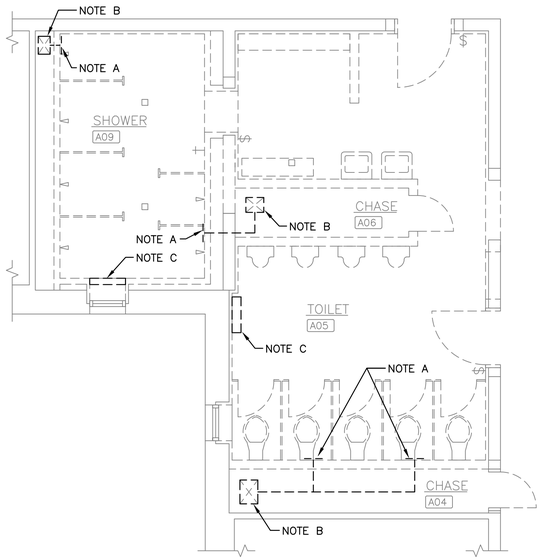
The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

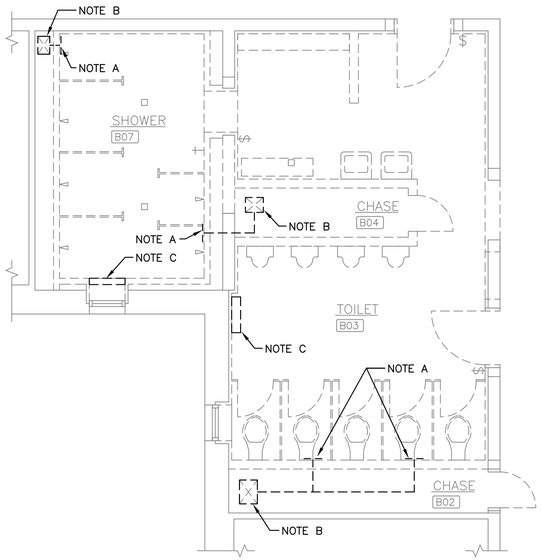
M1

DEMO NOTES THIS SHEET

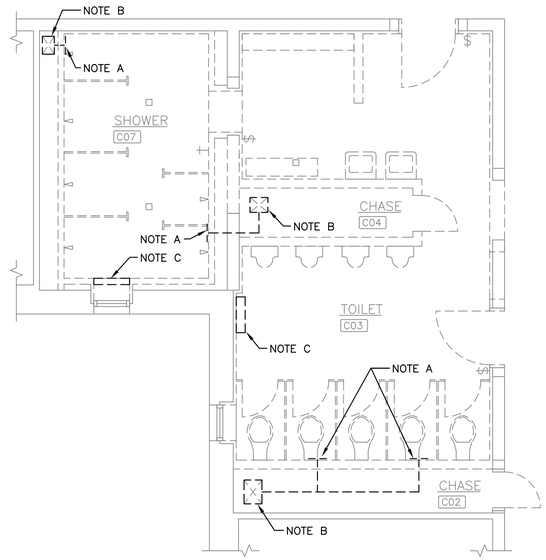
A. REMOVE EXHAUST REGISTERS.
B. REMOVE EXHAUST DUCT AND SUPPORTS IN CHASE AND THROUGH FLOOR. SEE ARCHITECTURAL DRAWINGS FOR CONCRETE INFILL OF OPENING.
C. REMOVE HEATING CONVECTOR AND ASSOCIATED PIPING.



PARTIAL FIRST FLOOR PLAN - MECHANICAL DEMOLITION
1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN - MECHANICAL DEMOLITION
1/4" = 1'-0"



PARTIAL THIRD FLOOR PLAN - MECHANICAL DEMOLITION
1/4" = 1'-0"

0 1 2 3 5 10
1/4" = 1'-0"

PROJECT CODE: N/A

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PARTIAL FLOOR PLANS - MECHANICAL DEMOLITION

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

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The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

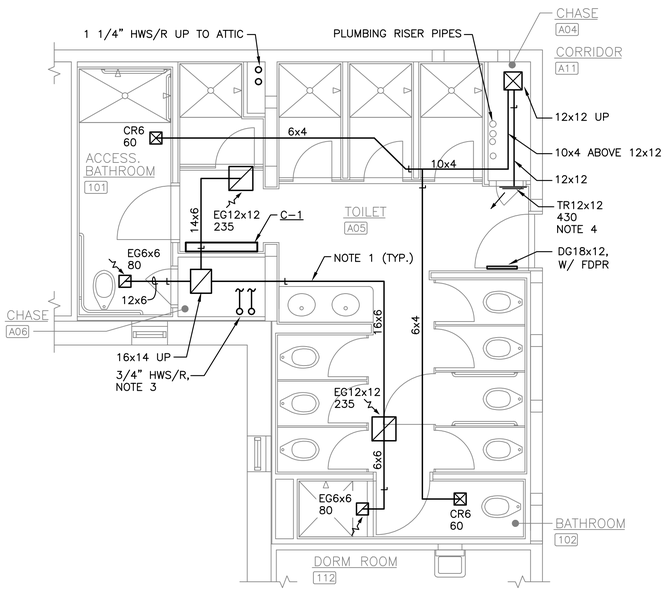
M2

NOTES THIS SHEET

1. INSTALL DUCTWORK SUCH THAT DUCT INSULATION IS TIGHT TO CEILING SLABS. INSULATE AND SEAL DUCTWORK AS IT IS INSTALLED, TO OBTAIN MAXIMUM HEIGHT FOR DUCTWORK.
2. TRANSITION DUCT ABOVE THIRD FLOOR CEILING AS REQUIRED TO CLEAR EXISTING ATTIC/ROOF STRUCTURE.
3. PROVIDE 1/2" RUNOUTS TO CONVECTOR.
4. INSTALL SUPPLY REGISTER 2" BELOW CEILING.

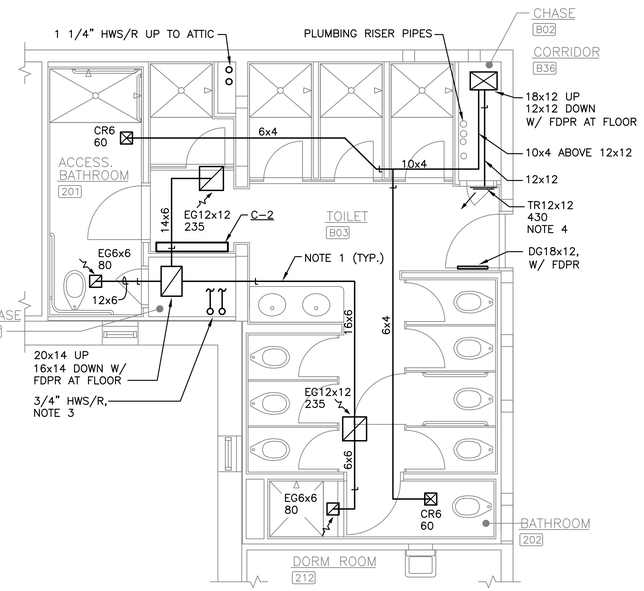
GENERAL NOTES

- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY DUCT AND PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.



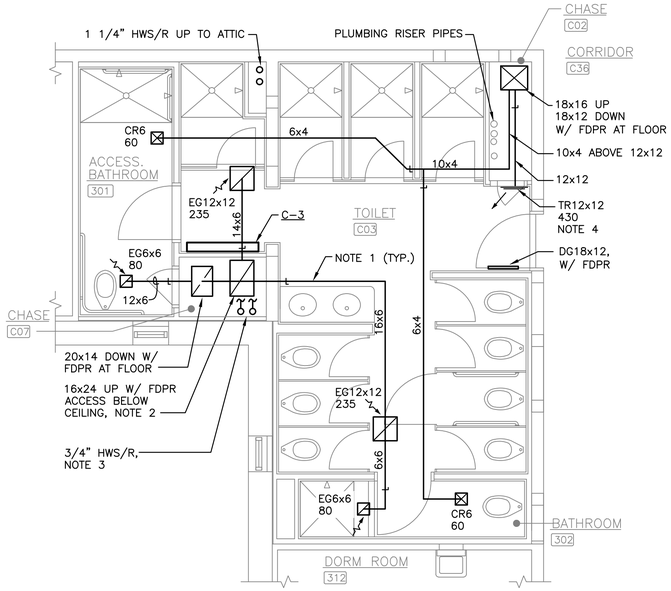
PARTIAL FIRST FLOOR PLAN - MECHANICAL

1/4" = 1'-0"



PARTIAL SECOND FLOOR PLAN - MECHANICAL

1/4" = 1'-0"



PARTIAL THIRD FLOOR PLAN - MECHANICAL

1/4" = 1'-0"

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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PROFESSIONAL ENGINEER

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REVISIONS

PARTIAL FLOOR PLANS - MECHANICAL

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM

DRAWN BY: DAR

CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

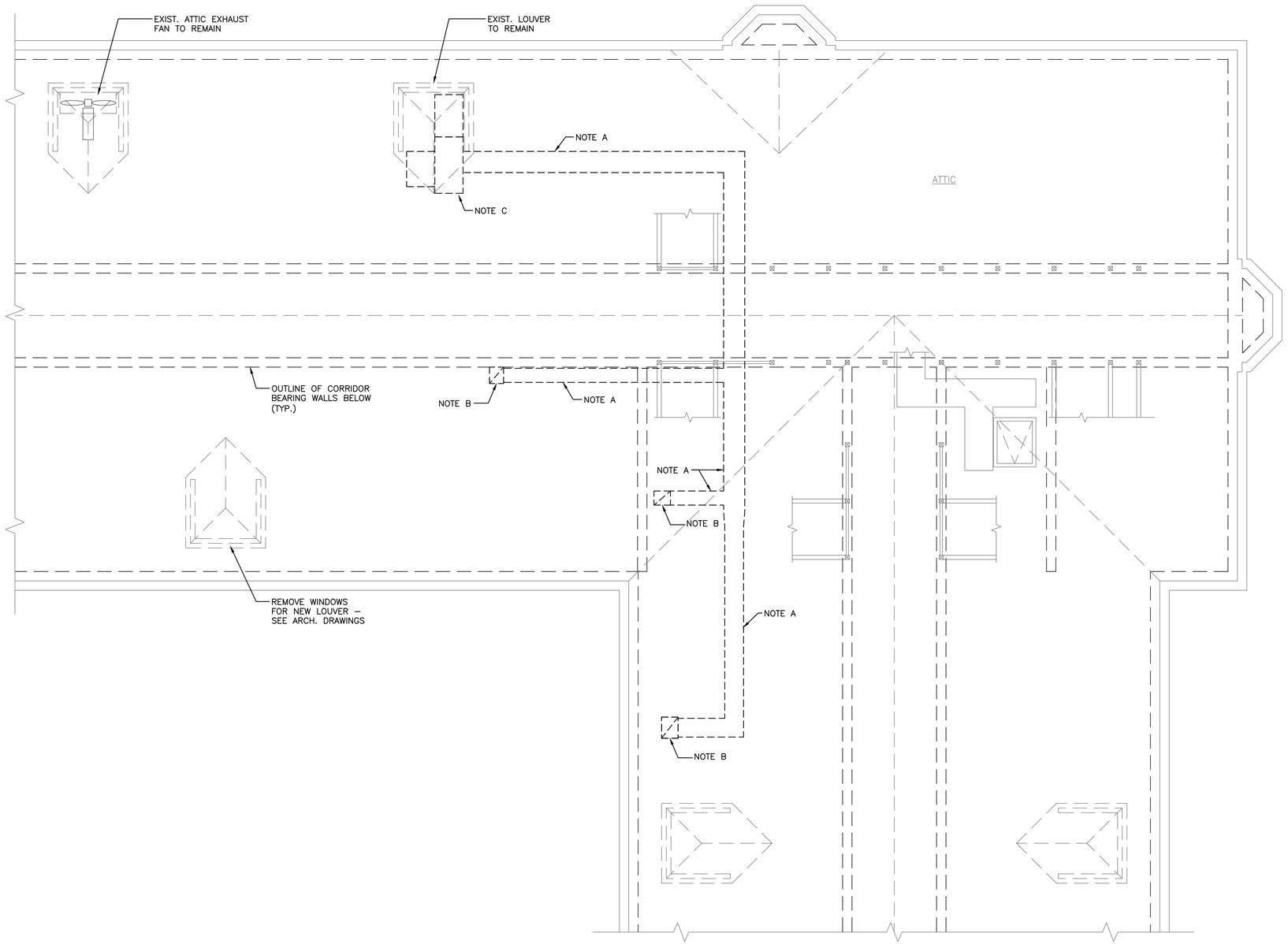
PROJECT NO: 116442

DATE: 11/20/24

M3

DEMO NOTES THIS SHEET

A. REMOVE ALL EXHAUST DUCTWORK IN ATTIC. REMOVE SUPPORTS AND DAMPERS.
B. REMOVE EXHAUST DUCT THROUGH ATTIC FLOOR. SEE ARCHITECTURAL DRAWINGS FOR CONCRETE INFILL OF OPENING.
C. REMOVE EXHAUST FAN, SUPPORTS, AND ASSOCIATED DEVICES. EXISTING LOUVER TO REMAIN FOR REUSE.



PARTIAL ATTIC PLAN - EXISTING CONDITIONS / MECHANICAL DEMOLITION

1/4" = 1'-0"

0 1 2 3 5 10
1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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COMMONWEALTH OF VIRGINIA
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11/20/24
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REVISIONS

PARTIAL ATTIC PLAN - EXISTING CONDITIONS / MECHANICAL DEMOLITION

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

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Blacksburg, Virginia

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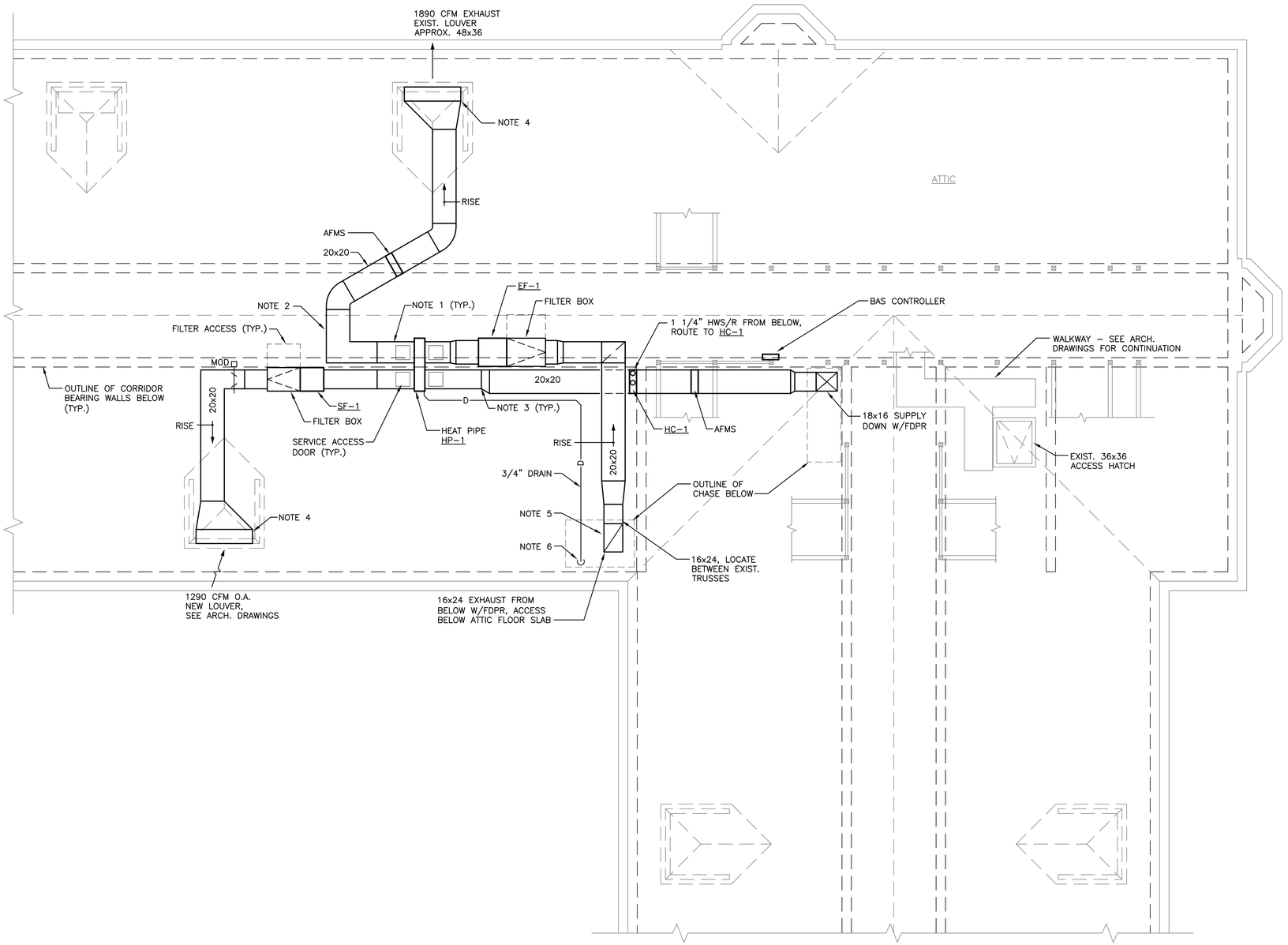
M4



NOTES THIS SHEET

1. MOUNT DUCTWORK, FANS, HEATPIPE, AND ALL COMPONENTS TO CONCRETE FLOOR. PROVIDE UNISTRUT OR ANGLE SUPPORT FRAMES. DO NOT SUPPORT MECHANICAL WORK FROM ROOF TRUSSES. COORDINATE THE DUCT AND EQUIPMENT LAYOUT WITH THE EXISTING PLUMBING VENT PIPES (NOT SHOWN).
2. MOUNT DUCT 4" ABOVE EXISTING FLOOR SLAB AT THIS LOCATION. INSULATE DUCT PRIOR TO INSTALLATION. DUCTS AT OTHER LOCATIONS SHALL BE MOUNTED APPROX. 18" ABOVE EXISTING FLOOR SLAB. COORDINATE DUCT INSTALLATION WITH ATTIC ACCESS WALKWAY. SEE ARCHITECTURAL DRAWINGS.
3. INCREASE DUCT SIZE TO HEAT PIPE/FAN DUCT CONNECTION.
4. CONNECT DUCT PLENUM TO FULL SIZE OF LOUVER. PLENUM TO BE 12" MINIMUM DEPTH. SLOPE BOTTOM OF PLENUM AS REQUIRED TO CLEAR EXISTING STRUCTURE.
5. TRANSITION DUCT ABOVE THIRD FLOOR CEILING AS REQUIRED TO CLEAR EXISTING ATTIC/ROOF STRUCTURE.
6. CONDENSATE DRAIN PIPE FROM HEAT PIPE, DOWN TO OPEN SIGHT HUB DRAIN IN THIRD FLOOR CHASE.

GENERAL NOTES

- SEE ARCHITECTURAL DRAWINGS FOR KEY PLANS.
- SEE TOILET ELEVATIONS AND DETAILS ON THE ARCHITECTURAL DRAWINGS FOR INSTALLATION NOTES AND MOUNTING HEIGHTS.
- VERIFY DUCT AND PIPE SIZES, ITEMS TO BE REPLACED, AND OTHER EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR STARTING WORK.
- DO NOT CUT OR DRILL ANY COMPONENT OF THE ROOF STRUCTURE, INCLUDING DIAGONAL BRACING.

PARTIAL ATTIC PLAN - MECHANICAL

1/4" = 1'-0"

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

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PARTIAL ATTIC PLAN - MECHANICAL

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

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Blacksburg, Virginia

PROJECT NO: 116442

DATE: 11/20/24

M5

FAN SCHEDULE

UNIT	CFM	S.P.	DRIVE	RPM	MOTOR			MAX SONES	SELECTION BASED ON GREENHECK	WEIGHT LBS.	AREA SERVED	CONTROL	NOTES
					HP/WATTS	VOLTS	PH						
SF-1	1290	1.0	DIRECT	1725	1/2 HP	120	1	12	SQ-120	67	TOILET MAKE-UP AIR	BAS, CONTINUOUS	1,2,3.4.5
EF-1	1890	1.0	DIRECT	1725	1.0 HP	120	1	17	SQ-140	104	TOILET EXHAUST AIR	BAS, CONTINUOUS	1,2,4,5

SCHEDULE NOTES: ALL SELECTIONS AT 2100' ELEVATION
1. INLINE CENTRIFUGAL FAN, ALUMINUM WHEEL, SPEED CONTROLLER, ELECTRICAL DISCONNECT. PROVIDE FLEX CONNECTORS AT INLET AND OUTLET DUCT CONNECTIONS.
2. PROVIDE BASE MOUNT VIBRATION ISOLATORS FOR INSTALLATION ON STAND IN ATTIC.
3. INTAKE MOTOR OPERATED DAMPER TO BE INTERLOCKED AND OPEN WHEN FAN IS ENERGIZED.
4. PROVIDE FILTER BOX WITH ANGLE FILTERS, MERV 8.
5. PROVIDE STARTER, CONTROL TRANSFORMER, AND HOA SWITCH. COORDINATE REQUIREMENTS WITH BAS.

HEAT PIPE

UNIT	AIRSTREAM	AIRFLOW CFM	AIR PRESSURE DROP	DUCT WIDTH	DUCT HEIGHT	AREA SERVED
HP-1	OUTSIDE SUPPLY	1290	0.57	14"	30"	TOILET MAKE-UP AIR
	EXHAUST	1890	0.64	19"	30"	TOILET EXHAUST AIR

SCHEDULE NOTES:
1. HEATPIPE TECHNOLOGIES MODEL HRM, HA-AMG-10612A-03000-01420-0800X-01890.
2. OVERALL 45"x33"x9" DIMENSIONS. UNIT MUST FIT THROUGH EXISTING NOMINAL 36"X36" ATTIC ACCESS HATCH.
3. COPPER TUBES, ALUMINUM FINS, GALVANIZED FLANGED CASING, R410A REFRIGERANT.
4. PROVIDE CONDENSATE PAN.
5. PROVIDE INSULATED ACCESS DOORS FOR CLEANING ALL PORTIONS OF COIL.

HYDRONIC HEATING COIL

UNIT	AIRFLOW CFM	CAPACITY MBH	FLOW RATE GPM	DUCT WIDTH	DUCT HEIGHT	AREA SERVED
HC-1	1290	111	11.1	20"	20"	TOILET MAKE-UP AIR

SCHEDULE NOTES:
1. MAXIMUM 470 FPM AIR VELOCITY, 0.1" AIR PRESSURE DROP, 1.5' WATER PRESSURE DROP.
2. BASED ON 180F HEATING WATER, 0'F ENTERING AIR, 80'F LEAVING AIR.
3. COPPER TUBES, ALUMINUM FINS, GALVANIZED FLANGED CASING.

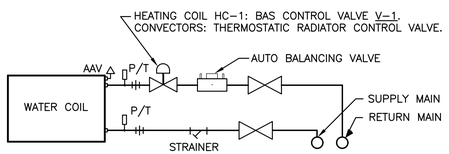
CONVECTOR

UNIT	CAPACITY MBH	FLOW RATE GPM	OVERALL LENGTH	CABINET DEPTH	CABINET HEIGHT	AREA SERVED
C-1	10	1.4	54"	6"	32"	TOILET A05
C-2	10	1.4	54"	6"	32"	TOILET B03
C-3	10	1.4	54"	6"	32"	TOILET C03

SCHEDULE NOTES:
1. CONVECTOR EQUAL TO VULCAN SFG-A, SLOPED TOP, LOUVERED INLET, INTEGRAL STAMPED PENCIL-PROOF LOUVERS, 16 GAUGE STAINLESS-STEEL.
2. OVERALL LENGTH INCLUDES END POCKETS AND ACCESS PANELS FOR VALVE KIT. VERIFY LENGTH WITH ACTUAL WALL FRAMING PRIOR TO ORDERING.
3. CAPACITY BASED ON AVERAGE 180F WATER.
4. UNIT TO HAVE COIL VALVE KIT WITH ISOLATION VALVES, STRAINER, AUTO BALANCING VALVE, THERMOSTATIC CONTROL VALVE WITH DIAL, AND ASSOCIATED CONNECTIONS.
5. 1/2" RUNOUTS.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	ITEM TO BE REMOVED
10x6	10X6 DUCT
ER6 7S	6" EXHAUST REGISTER, 75 CFM
HWS/R	HOT WATER SUPPLY/RETURN PIPING
D	CONDENSATE DRAIN
SF	SUPPLY FAN
EF	EXHAUST FAN
HP	HEAT PIPE
HC	HEATING COIL
	DISCONNECT/RECONNECT TO EXISTING
	MANUAL VOLUME DAMPER
MOD	MOTOR OPERATED DAMPER
DG	DOOR GRILLE
TR	HIGH SIDEWALL SUPPLY REGISTER
ER	EXHAUST REGISTER
CR	CEILING REGISTER
EXIST.	EXISTING
O.A.	OUTSIDE AIR
FDPR	FIRE DAMPER
AFMS	AIRFLOW MEASURING STATION
	MANUAL BALL VALVE
	CONTROL VALVE



WATER COIL CONNECTION DETAIL

SCHEMATIC — TYPICAL FOR CONVECTORS AND HEATING COIL HC-1

MECHANICAL OUTLINE SPECIFICATIONS

SECTION 15000

1. ALL WORK SHALL COMPLY WITH THE 2021 VIRGINIA UNIFORM STATEWIDE BUILDING CODE AND CURRENT VIRGINIA TECH DESIGN AND CONSTRUCTION STANDARDS.
2. PROVIDE COMPLETE SUBMITTAL INFORMATION FOR EQUIPMENT AND DEVICES. SEE OUTLINE SPECIFICATION SECTION 01330.
3. RECORD ALL CHANGES IN THE WORK ON THE PROJECT RECORD DRAWINGS. SEE OUTLINE SPECIFICATION SECTION 01770.
4. PROVIDE DETAILED OPERATION AND MAINTENANCE MANUALS FOR ALL EQUIPMENT. SEE OUTLINE SPECIFICATION SECTION 01782.
5. MECHANICAL EQUIPMENT, MATERIALS AND LABOR SHALL INCLUDE A ONE YEAR WARRANTY.
6. DRAWINGS INDICATE GENERAL LAYOUT OF PIPING, DUCTWORK AND EQUIPMENT. THE CONTRACTOR SHALL INVESTIGATE ALL STRUCTURAL, ELECTRICAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL ARRANGE THE MECHANICAL WORK ACCORDINGLY. PROVIDE ADDITIONAL FITTINGS, OFFSETS AND TRANSITIONS AS REQUIRED TO PROPERLY COMPLETE THE WORK, WHETHER OR NOT SUCH COMPONENTS ARE INDICATED ON THE DRAWINGS.
7. ALL WORK SHALL BE NEW AND IS INCLUDED IN THE CONTRACT UNLESS SPECIFICALLY NOTED TO BE EXISTING OR NOT IN CONTRACT.
8. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID, FABRICATION OR ORDERING OF EQUIPMENT.
9. MOST EXISTING DUCTWORK AND PIPING IS NOT SHOWN ON THESE DRAWINGS. WHERE EXISTING DUCTWORK AND PIPING IS SHOWN, IT IS FOR INFORMATION PURPOSES AND IS BASED ON EXISTING DRAWINGS. VERIFY EXISTING CONSTRUCTION IN THE FIELD PRIOR TO BIDDING AND CONSTRUCTION. IF EXISTING DUCTWORK OR PIPING ARE SMALLER THAN INDICATED SIZE, NOTIFY THE A/E IMMEDIATELY.
10. THE EXISTING BUILDING WILL BE OCCUPIED DURING THE ENTIRE PERIOD OF CONSTRUCTION. COORDINATE ALL WORK WITH THE OWNER IN ORDER TO MINIMIZE DISRUPTION OF THE USE OF THE EXISTING BUILDING. SEE OUTLINE SPECIFICATION SECTION 01000 FOR PHASING OF THE WORK AND ADDITIONAL LIMITATIONS ON WORK HOURS AND ACCESS.
11. SEE OUTLINE SPECIFICATION SECTION 02220 FOR ADDITIONAL INFORMATION PERTAINING TO DEMOLITION.
12. SEAL ALL DUCTS IN THE AREA OF WORK FOR THE DURATION OF THE WORK SO THAT NO FOREIGN MATERIAL WILL ENTER THE HVAC SYSTEM.
13. IN ADDITION TO DEMOLITION WORK INDICATED, PROVIDE MISCELLANEOUS SELECTIVE DEMOLITION OF EXISTING CONSTRUCTION AS REQUIRED FOR PROPER INSTALLATION OF THE PROPOSED CONSTRUCTION. REMOVE ALL COMPONENTS WHICH ARE NOT REQUIRED FOR THE PROPOSED CONSTRUCTION, INCLUDING HANGERS, ANCHORS, MOUNTING BRACKETS, AND OTHER MISCELLANEOUS COMPONENTS. THESE DRAWINGS DO NOT PURPORT TO SHOW ALL MISCELLANEOUS DEMOLITION.
14. SEE SHEET T1 FOR IMPORTANT NOTES PERTAINING TO ASBESTOS-CONTAINING AND LEAD-CONTAINING MATERIALS.
15. CONFIRM LOCATION OF EXISTING AND NEW ELECTRICAL PANELBOARDS. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELBOARDS.
16. COORDINATE ALL WORK WITH FIRE RATED ASSEMBLIES. PROVIDE FIRESTOPPING AT PENETRATIONS OF RATED ASSEMBLIES AND AT FLOORS. FIRESTOP ALL DUCT AND PIPE PENETRATIONS OF FLOOR SLABS (INCLUDING ATTIC FLOOR) AS SPECIFIED O THE ARCHITECTURAL DRAWINGS. ALL MATERIALS LOCATED IN RETURN AIR PLENUMS SHALL BE LISTED FOR INSTALLATION IN PLENUMS. SEE OUTLINE SPECIFICATION SECTION 07840.
17. COORDINATE INSTALLATION OF EQUIPMENT AND OTHER DEVICES TO PROVIDE ACCESS FOR SERVICING.
18. PROVIDE ALL MISCELLANEOUS COMPONENTS REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, WHETHER OR NOT THESE COMPONENTS ARE SPECIFIED HEREIN.
19. METAL ACCESS DOORS SHALL BE PROVIDED AS REQUIRED FOR ALL COMPONENTS REQUIRING ACCESS. COORDINATE LOCATIONS WHERE ACCESS DOORS WILL BE REQUIRED FOR VALVES, DAMPERS, SENSORS OR OTHER DEVICES. SEE OUTLINE SPECIFICATION SECTION 08310.
20. THE DESIGN SHOWN IS BASED ON THE MANUFACTURERS AND MODELS SCHEDULED AND IS INTENDED ONLY TO SHOW THE GENERAL SIZE, CONFIGURATION, LOCATION, CONNECTIONS AND/OR SUPPORT FOR EQUIPMENT OR SYSTEMS SPECIFIED WITH RELATION TO THE OTHER BUILDING SYSTEMS.
21. DUCTWORK SHALL BE INSTALLED TO PERMIT THE INSTALLATION OF CEILINGS AND LIGHT FIXTURES AT THE INDICATED HEIGHTS. REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR COORDINATION. ADJUST DUCT LOCATIONS TO AVOID INTERFERENCE WITH EXIST. EMBEDDED JUNCTION BOXES. ROUTE DUCTWORK IN THE ATTIC AND IN CHASES TO ALLOW ACCESS AND TO MAINTAIN A CLEAR WALKING PATH. SEE ARCHITECTURAL DRAWINGS FOR ATTIC ACCESS WALKWAY LOCATION.
22. GALVANIZED SHEET METAL DUCTWORK CONSTRUCTION AND SUPPORT SHALL COMPLY WITH SMACNA STANDARDS. PROVIDE TURNING VANES OR LONG RADIUS ELBOWS AND MANUAL DAMPERS FOR BALANCING. AT EACH TAKEOFF TO A REGISTER, PROVIDE LOW-LOSS CONICAL OR TAPERED 45 DEGREE RECTANGULAR BRANCH TAKEOFF WITH MANUAL DAMPER. MANUAL VOLUME DAMPER TO HAVE LOCKING HANDLE WITH EXTENDED SHAFT AND STANDOFF FOR INSULATION THICKNESS. DUCTS SHALL BE FASTENED AND SEALED PER MECHANICAL CODE AND ENERGY CODE FOR 2.0 INCHES STATIC PRESSURE AND SMACNA SEAL CLASS A.
23. INSULATE ALL DUCTWORK. SEAL ALL INSULATION JOINTS VAPOR TIGHT. INSULATE WITH FIBERGLASS DUCT WRAP WITH ALL SERVICE VAPOR BARRIER JACKET. FLAME SPREAD/SMOKE DEVELOPED INDEX OF 25/50 MAXIMUM, K-VALUE OF 0.36, MINIMUM INSTALLED R6.
24. PROVIDE INSULATED DUCT ACCESS DOOR FOR ALL COMPONENTS REQUIRING SERVICE OR MONITORING.
25. CEILING EXHAUST REGISTERS (ER) TO BE METALAIRE ALUMINUM RH SERIES FOR SURFACE MOUNT IN MIDDLE OF CEILING TILE. PROVIDE ALUMINUM OPPOSED BLADE DAMPER. SIDEWALL REGISTERS (TR) AND CEILING REGISTERS (CR) TO BE ALUMINUM MODEL V4004, DOUBLE DEFLECTION WITH ALUMINUM DAMPER, FOR WALL OR CEILING TILE MOUNTING. REGISTERS TO HAVE FACTORY-APPLIED BRIGHT WHITE FINISH. DOOR GRILLES (DG) TO BE SIGHT-PROOF, BRUSHED STAINLESS STEEL, ANEMOSTAT MODEL FLDL-UL WITH 90 MINUTE FIRE DAMPER, AND MODEL AFDL FOR NON-RATED DOORS.
26. FILTER BOX SHALL BE PRE-FABRICATED FOR FAN/DUCT MOUNTING, ANGLE FILTERS, STANDARD 2" THICK, 20x25x2, MERV 8 FILTER SIZES. GALVANIZED CONSTRUCTION WITH DUCT FLANGES FOR MOUNTING AND WITH HINGED, GASKETED, AND LATCHED DOOR.
27. FIRE DAMPERS SHALL BE 1-1/2 HR, UL LISTED, STYLE B/BC OUT OF AIRSTREAM, DYNAMIC TYPE, EQUAL TO RUSKIN DIBD2-OW. FIRE DAMPERS SHALL BE OUT-OF-FLOOR TYPE TO MINIMIZE SIZE OF OPENING IN EXISTING CONCRETE FLOORS. PROVIDE INSULATED DUCT ACCESS DOOR ADJACENT TO ALL DAMPERS. COORDINATE MOUNTING ANGLES AND SLEEVE LENGTH WITH RATED FLOOR AND WALL CONSTRUCTION AND INSTALL PER MANUFACTURER'S UL INSTALLATION INSTRUCTIONS. PROVIDE ACCESS TO FIRE DAMPERS AND PERMANENT LABEL WITH 1/2" HIGH LETTERS.
28. PROVIDE IDENTIFICATION MARKINGS FOR EQUIPMENT, PIPING AND CONTROLS. NAMEPLATES SHALL BE PLASTIC LAMINATE WITH 1/4" LETTERS.
29. HEATING WATER AND CONDENSATE DRAIN PIPING SHALL BE ASTM 88, TYPE L COPPER TUBING WITH SOLDERED FITTINGS. INSTALL PIPING, HANGERS AND SUPPORTS PER ASME B31.9 AND VMC TABLE 305.4. PROVIDE MANUAL AIR VENTS AT HIGH POINTS, DRAINS AT LOW POINTS. PROVIDE UNIONS AT ALL EQUIPMENT CONNECTIONS AND ON EACH SIDE OF CONTROL VALVES.
30. INSULATE PIPING PER ENERGY CODE REQUIREMENTS WITH FIBERGLASS PIPE WRAP WITH ALL SERVICE VAPOR BARRIER JACKET. FLAME SPREAD/SMOKE DEVELOPED INDEX OF 25/50 MAXIMUM, K-VALUE OF 0.24. INSULATION SHALL BE CONTINUOUS AT HANGERS WITH GALVANIZED INSULATION SHIELDS. SEAL ALL JOINTS OF CONDENSATE DRAIN PIPE INSULATION WITH MANUFACTURER'S APPROVED VAPOR BARRIER MASTIC OR TAPE. HEATING WATER PIPING – 2" THICK. CONDENSATE DRAIN PIPING – 3/4" THICK. LABEL WITH PIPE MARKERS AT 20' INTERVALS.
31. ISOLATION VALVES FOR WATER PIPING LESS THAN 2" SHALL BE FULL PORT BRONZE BALL VALVES, MSS SP-110, RATED FOR 250 PSI AND 250 F, WITH LEVER HANDLE AND THREADED ENDS. SOLDERED ENDS SHALL NOT BE USED. VALVES FOR 2" AND LARGER PIPING SHALL BE FLANGED BUTTERFLY VALVES, HIGH PERFORMANCE TYPE BY XOMOX.
32. ALL CONVECTOR PIPING SHALL BE CONCEALED WITHIN OR BELOW THE UNIT. COORDINATE ALL PIPE PENETRATIONS WITH THE WATERPROOFING SYSTEM AND CERAMIC TILE INSTALLATION, TO INSURE A WATERTIGHT INSTALLATION.
33. PROVIDE FLEXIBLE CONNECTORS AT CONNECTION OF DUCTWORK TO FANS.
34. INSTALL PIPING AND PIPE HANGERS PER ASME B31.9. SUPPORT PIPING AND SPACE HANGERS IN ACCORDANCE WITH VIRGINIA MECHANICAL CODE, TABLE 305.4.
35. TEST AND BALANCE ALL EQUIPMENT FOR PROPER OPERATION, AIRFLOW, WATER FLOW, PRESSURES, CAPACITY, ACCEPTABLE SPACE TEMPERATURES AND NOISE LEVELS. PERFORM TAB AND RECORD RESULTS PER AABC OR NEBB STANDARDS AND SUBMIT REPORT FOR REVIEW. INDEPENDENT CERTIFIED TAB CONTRACTOR SHALL BE USED.
36. START-UP EQUIPMENT AND PERFORM FUNCTIONAL TEST IN ALL OPERATING MODES. PROGRAM CONTROLS AND INSTRUCT OWNER'S MAINTENANCE PERSONNEL ON THE OPERATION OF EQUIPMENT AND CONTROLS. PROVIDE FINAL FILTER CHANGE.

BAS CONTROLS-SEQUENCE OF OPERATION

CONTROLS WILL BE PROVIDED BY THE UNIVERSITY UNDER SEPARATE CONTRACT USING THE CAMPUS BAS SYSTEM VENDOR. THE CONTRACTOR SHALL COORDINATE THE PROJECT WITH THE CONTROLS VENDOR.

CONTROLS WILL INCLUDE ALL DDC CONTROLLERS, SOFTWARE, PROGRAMMING, SENSORS, DAMPERS, ACTUATORS, TRANSFORMERS, WIRING, INTERLOCKS AND OTHER DEVICES TO ENABLE THE SEQUENCE OF OPERATION. CONTROLS SHALL BE COORDINATED WITH THE EQUIPMENT PROVIDED. CONTROL VALVES AND CONTROL DAMPER ACTUATORS SHALL BE FURNISHED BY SIEMENS, AND SHALL BE INSTALLED BY THE CONTRACTOR.

SF-1, EF-1, HEATING COIL, AND HEAT PIPE: INLINE FANS FOR TOILET VENTILATION AND EXHAUST SHALL RUN CONTINUOUSLY AND BE CONTROLLED AND MONITORED BY BAS SYSTEM. THE MOTOR OPERATED DAMPER AT THE OUTSIDE AIR INLET SHALL BE OPEN WHENEVER SF-1 IS OPERATING.

THE HEATING COIL CONTROL VALVE V-1 SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN 70'F LEAVING AIR TEMPERATURE.

THE AIRFLOW MONITORING STATIONS SHALL MEASURE AND MONITOR THE OUTSIDE AIR SUPPLY AIRFLOW AND THE EXHAUST AIRFLOW.

UPON DETECTION OF TEMPERATURES BELOW 35'F ENTERING OR LEAVING THE HEATING COIL HC-1, THE SUPPLY FAN SF-1 SHALL BE DE-ENERGIZED AND THE MOTOR OPERATED DAMPER CLOSED TO PREVENT FREEZING THE COIL.

PROVIDE DUCT TEMPERATURE SENSORS AT THE INLET AND OUTLET OF THE HEAT PIPE HP-1 SUPPLY AIR AND EXHAUST AIR, AND THE HEATING COIL HC-1 TO MONITOR PERFORMANCE.

0 1 2 3 5 10

1/4" = 1'-0"

PROJECT CODE: N/A

UBO NOTATION:

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COMMONWEALTH OF VIRGINIA
JOHN M. MANN
Lic. No. 21023
11/20/24
PROFESSIONAL ENGINEER

DATE

REVISIONS

SCHEDULES, DETAILS, & OUTLINE SPECIFICATIONS - MECHANICAL

VAWTER HALL
TOILET / SHOWER ROOM RENOVATION - PHASE II
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESIGNED BY: JMM
DRAWN BY: DAR
CHECKED BY: JMM CBL

The Architects Alliance Inc.
Blacksburg, Virginia

PROJECT NO: 116442
DATE: 11/20/24

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