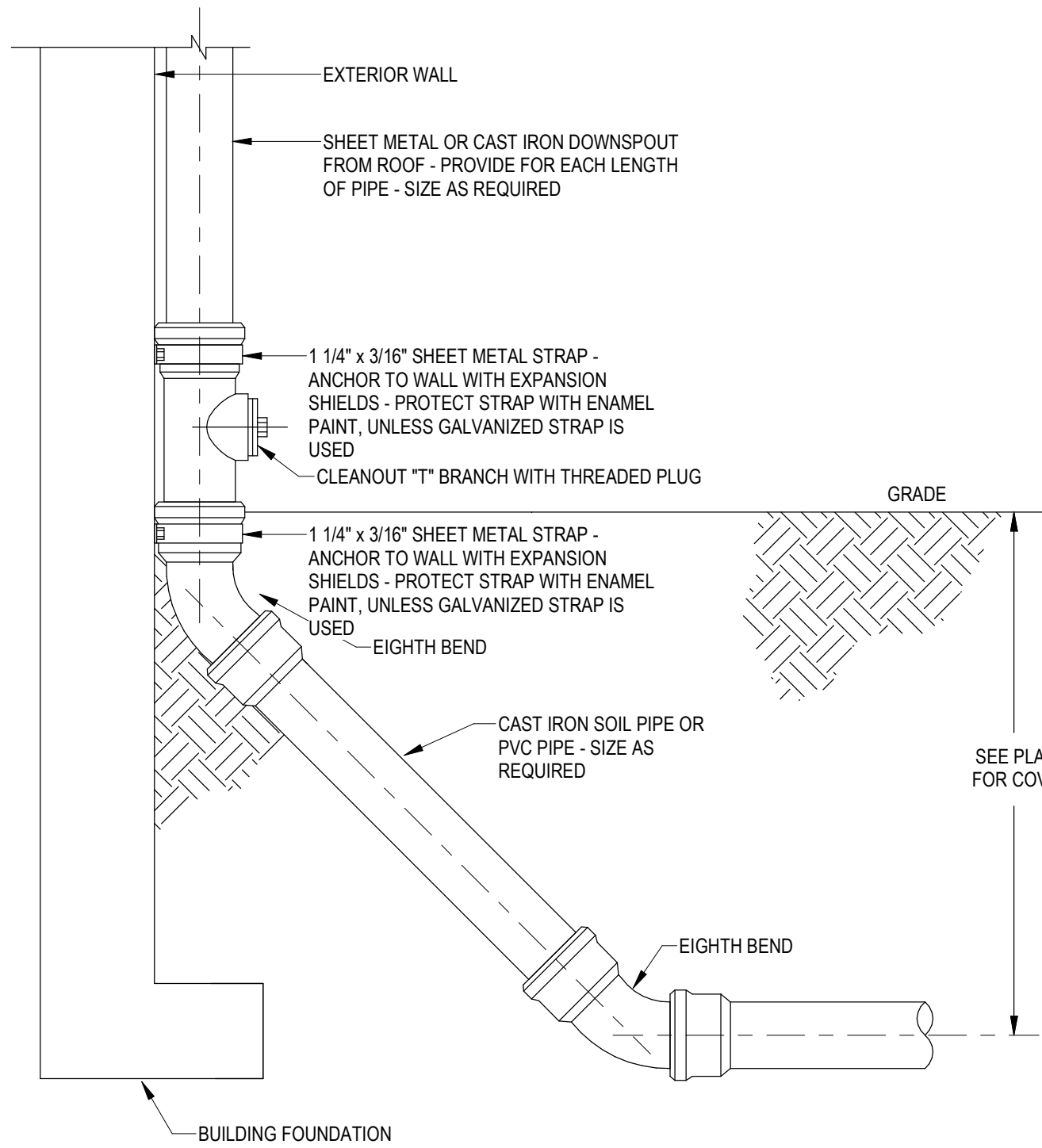
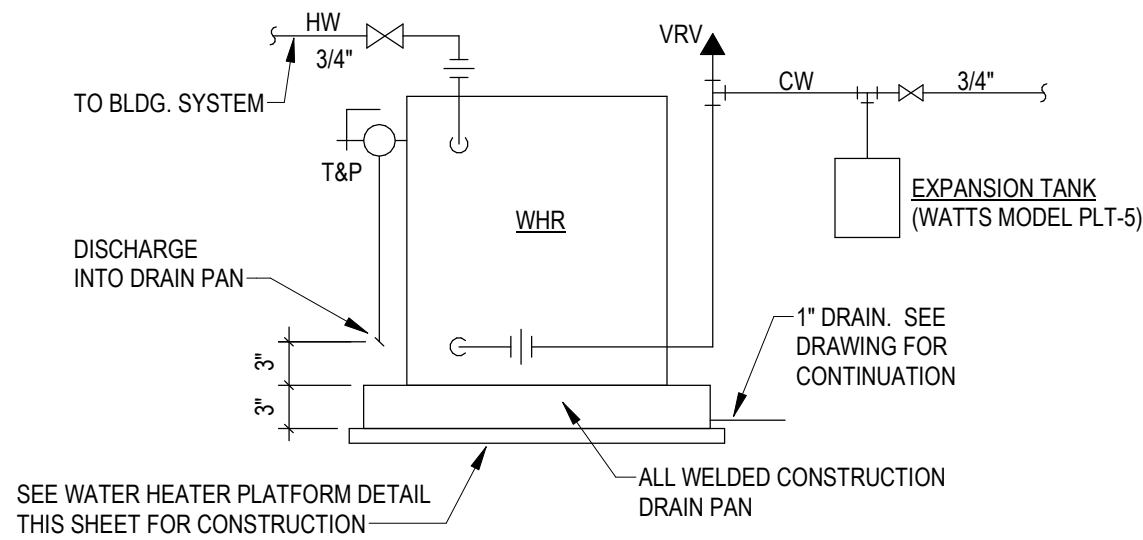


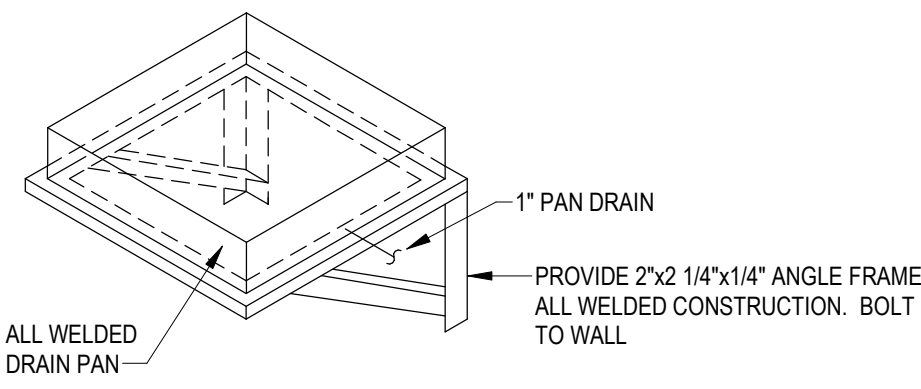
**BACKFLOW PREVENTER DRAIN DETAIL**  
NO SCALE



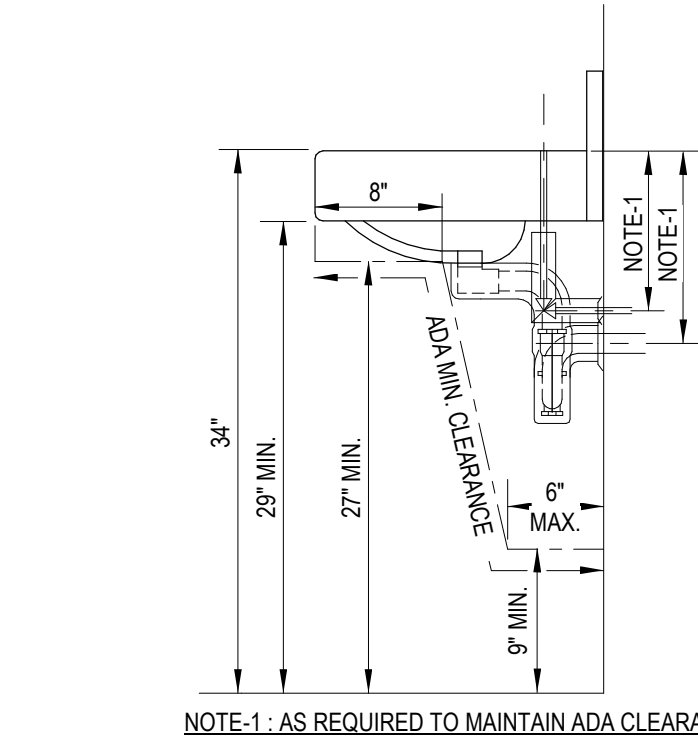
**DOWNSPOUT SHOE DETAIL**  
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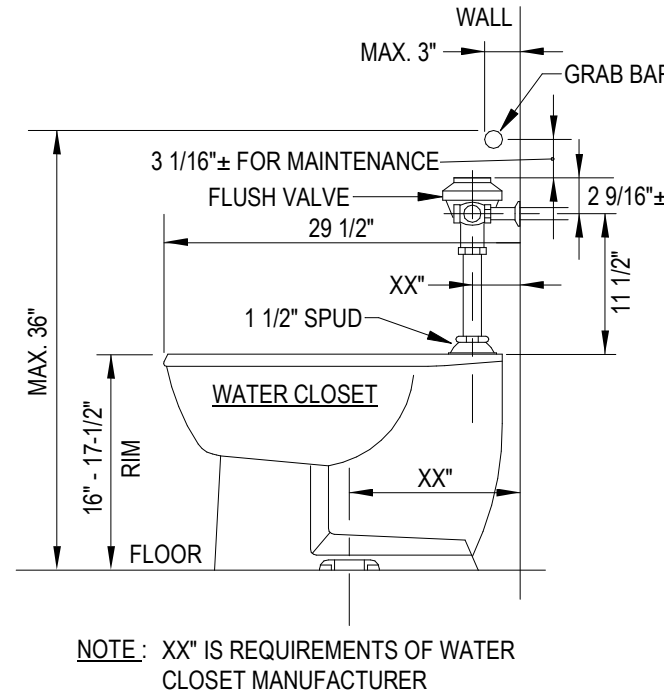
**DOMESTIC WATER HEATER DETAIL**  
NO SCALE



**WATER HEATER PLATFORM DETAIL**  
NO SCALE



**HANDICAPPED LAVATORY L  
INSTALLATION ADA REQUIREMENTS  
WALL MOUNTED**  
NO SCALE



**HANDICAPPED WC  
ROUGH-IN DETAIL**  
NO SCALE

## GENERAL PLUMBING NOTES (GPN):

- SEE SITE PLAN SHEET FOR THE EXTENT OF ALL PIPING LEAVING AND ENTERING BUILDING.
- MAKE PIPING CONNECTIONS AS REQUIRED TO ALL FIXTURES AND EQUIPMENT EVEN THOUGH ALL BRANCH MAINS, ELBOWS AND CONNECTIONS ARE NOT SHOWN.
- CHECK WITH ARCHITECTURAL WORKING DRAWING BEFORE ROUGH-IN PLUMBING FIXTURES.
- SLOPES AND INVERT ELEVATIONS OF SEWERS, MANHOLES, ETC., SHALL BE ESTABLISHED AND VERIFIED BY CONTRACTOR BEFORE ANY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPE WILL BE MAINTAINED AND NECESSARY INVERT ELEVATIONS OBTAINED.
- ALL PIPES SHALL BE COORDINATED WITH OTHER NEW DUCTS, PIPES, LIGHTS, STRUCTURAL SYSTEM, CEILING SUPPORTS AND FRAMING BEFORE INSTALLATION. MINOR PIPE OFFSETS SHALL BE PROVIDED AS REQUIRED. MEASUREMENTS FOR VERTICAL CLEARANCES SHALL BE TAKEN AT THE JOB SITE BEFORE INSTALLATION OF ANY PIPING.
- WASTE PIPE BELOW FLOOR, VENT PIPING ABOVE CEILING, PIPING OFFSET FOR CLARITY.
- DOMESTIC WATER PIPING SHALL BE INSTALLED ABOVE CEILINGS UNLESS NOTED OTHERWISE. DOMESTIC WATER PIPING SHOWN IN PIPE CHASE WALLS SHALL BE INSTALLED IN CHASE SPACE, PIPING OFFSET FOR CLARITY.
- DOMESTIC WATER PIPING SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FREEZING OR SPACES EXTERIOR TO BUILDING INSULATION.
- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS. COORDINATE HOT AND COLD WATER, SANITARY WASTE AND VENT PIPING AND ROUGH-IN INSTALLATION WITH ALL EQUIPMENT MANUFACTURERS' REQUIREMENTS.
- MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION.
- LIMITS OF CONTRACT: DOMESTIC WATER SERVICE, SANITARY AND STORM WATER PIPING SHALL BE EXTENDED UNDER THIS SECTION OF THE SPECIFICATIONS TO POINTS 5'-0" BEYOND THE BUILDING LINES, UNLESS OTHERWISE INDICATED ON THE DRAWINGS; WHERE THE PIPES SHALL BE CAPPED OR PLUGGED AND LEFT READY FOR CONNECTION AND EXTENSION BY OTHERS, AND THE LOCATIONS MARKED WITH A STAKE OR OTHER APPROVED MEANS.
- MODIFY FLUSH VALVE ON INDICATED HANDICAPPED WATER CLOSETS SO THAT OPERATOR IS ON RIGHT SIDE OF VALVE WHEN FACING THE PLUMBING FIXTURE. DOMESTIC COLD WATER SUPPLY RUNOUT SHALL BE LOCATED TO ACCOMMODATE MODIFICATION. SEE DRAWINGS FOR WATER CLOSETS TO BE MODIFIED.
- PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. COORDINATE INSTALLATION OF PIPES WITH ELECTRICAL PANELS WHEN SHOWN NEAR PANELS OR OVER ELECTRICAL ROOMS.

## PLUMBING LEGEND

ABOVE	ABV	
BACK FLOW PREVENTER	BFP	
BELOW	BEL	
CEILING	CLG	
CHECK VALVE	CO	
CLEANOUT	CO	
IN HORIZONTAL OR BELOW FLOOR	CO	
IN VERTICAL OR FLUSH WITH FLOOR	CO	
DIRECTION OF FLOW	CW	
DOMESTIC COLD WATER PIPE, NEW	HW	
DOMESTIC HOT WATER PIPE, NEW	DN	
DOWN	DSB	
DOWN SPOUT BOOT	EW	
ELECTRIC WATER COOLER	ET	
EXPANSION TANK	FD	
FLOOR DRAIN	FD	
BALL VALVE	H&CW	
HOT AND COLD WATER	L	
LAVATORY	MS	
MOP SINK	MS	
PIPING INDICATION WITH RESPECT TO WATER FLOW		
BOTTOM TAKEOFF		
SIDE CONNECTION		
CONNECTION (BOTTOM, TEE OR TOP)		
TOP TAKEOFF		
TURN DOWN OR FROM BELOW		
TURN UP OR DOWN		
TURN UP OR FROM ABOVE		
RAIN CONDUCTOR, NEW (BELOW FLOOR)	RC	
SHOCK ABSORBER	SA	
STRAINER	SA	
VENT PIPE, NEW	V	
VENT THRU ROOF	VTR	
WALL HYDRANT	WH	
WASTE PIPE	W	
WATER CLOSET	WC	

## FIXTURE CONNECTION SCHEDULE

MARK	FIXTURE	WASTE	VENT	COLD	HOT	REMARKS
WC	WATER CLOSET (FLUSH VALVE)	4"	2"	1"	-	FLOOR MOUNTED, HANDICAPPED#
L	LAVATORY	1 1/4"	1 1/2"	1/2"	1/2"	WALL MOUNTED, HANDICAPPED# 3/4" FINISH FLOOR TO RIM
EWC	ELECTRIC WATER COOLER (HI/LOW)	1 1/4"	1 1/2"	1/2"	-	WALL MOUNTED, HANDICAPPED# LOW UNIT 36" FF TO SPOUT OUTLET
MS	MOP SINK	3"	1 1/2"	1/2"	1/2"	FLOOR MOUNTED

# INSTALLATION SHALL MEET 2010 AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.

ADDITION TO JAMES C WEAVER BASEBALL CENTER

PITCHING LAB &  
WEIGHT ROOM

BLACKSBURG, VIRGINIA



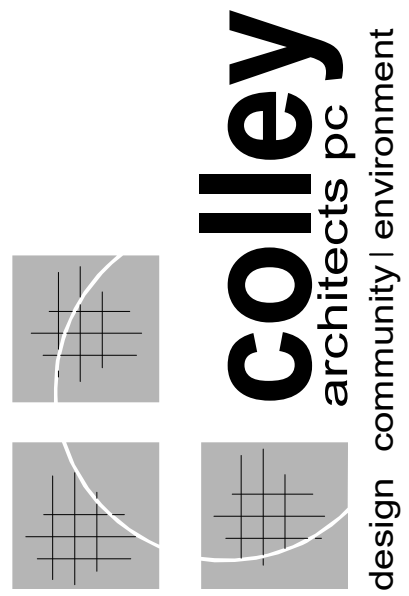
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WORK ORDER	A0122-21-492426
SCALE	AS NOTED
DRAWN	MDM/MGW
JOB	2108
SHEET	

P0.1

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BID SET

REVISIONS DATE

PLUMBING LEGEND, DETAILS,  
FIXTURE SCHEDULE AND  
NOTES

## BID SET

REVISIONS	DATE

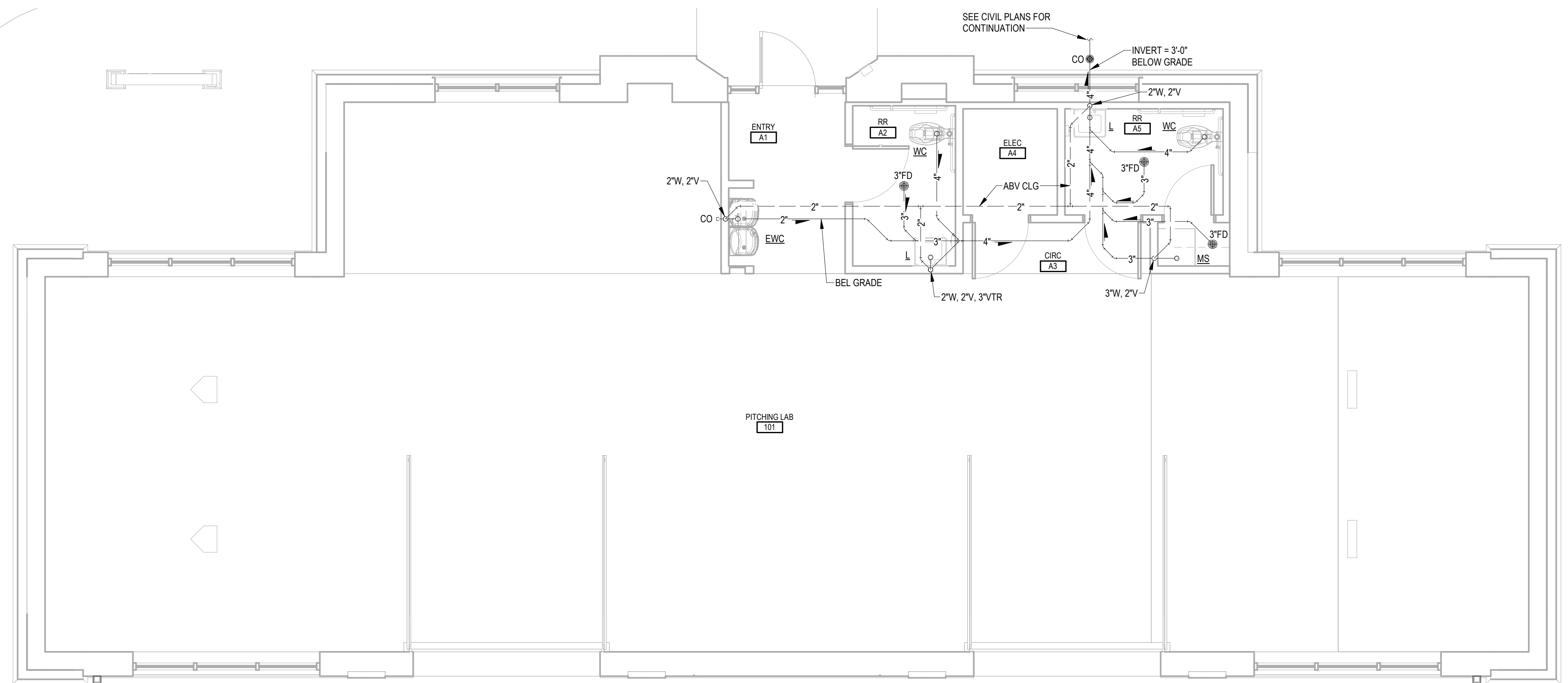
## FLOOR PLANS - PLUMBING

ADDITION TO JAMES C WEAVER BASEBALL CENTER  
**PITCHING LAB &  
WEIGHT ROOM**  
BLACKSBURG, VIRGINIA



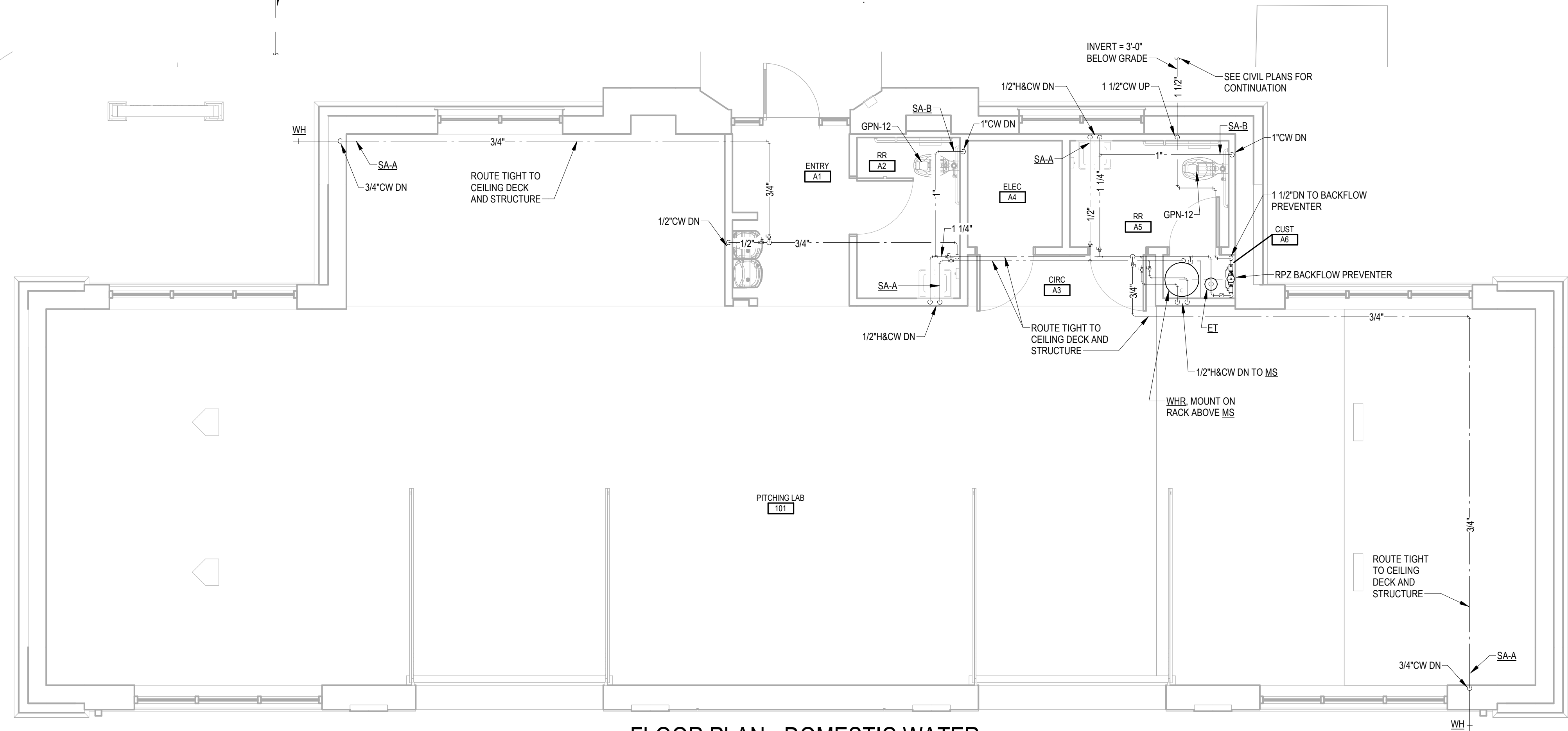
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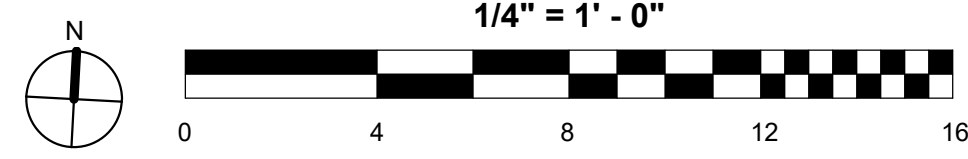
FLOOR PLAN - SANITARY

SCALE 1/4" = 1'-0"



FLOOR PLAN - DOMESTIC WATER

SCALE 1/4" = 1'-0"



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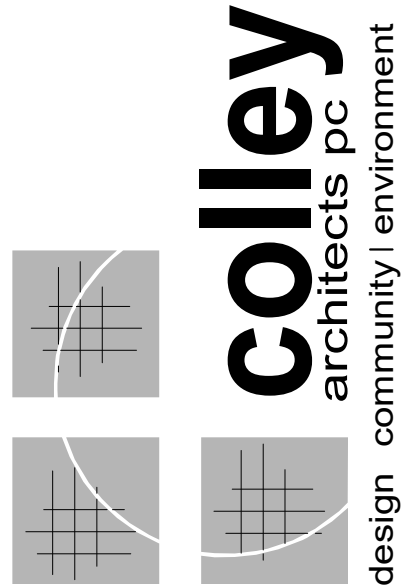
PLUMBING SYSTEMS NOTES & SPECIFICATIONS

1. CODES, STANDARDS AND REGULATIONS: MATERIALS, EQUIPMENT, INSTALLATION, DISINFECTION AND TESTING SHALL BE IN COMPLIANCE WITH, BUT NOT LIMITED TO, THE FOLLOWING CODES AND STANDARDS:
- A. LOCAL CODES OR ORDINANCES.
- B. VIRGINIA CONSTRUCTION CODE (VCC).
- C. PIPING, FITTINGS, EQUIPMENT AND FIXTURES THAT ARE CONNECTED TO POTABLE WATER SYSTEM SHALL MEET THE 1996 SAFE WATER DRINKING ACT AND THE 2011 REDUCTION OF LEAD IN DRINKING WATER ACT, AND WHERE APPLICABLE SHALL MEET NSF STANDARD 61 AND SHALL BE LABELED AND CERTIFIED.
2. SHOP DRAWINGS: FURNISH ELECTRONIC COPY OF PLUMBING MATERIALS AND EQUIPMENT TO ARCHITECT FOR REVIEW.
3. DESCRIPTION OF WORK:
- A. THE WORK INCLUDES PROVIDING A COMPLETE PLUMBING SYSTEM INCLUDING, BUT NOT NECESSARILY RESTRICTED TO, THE FOLLOWING:
- (1) SANITARY SEWER SYSTEM TO A POINT FIVE FEET AWAY FROM EXTERIOR BUILDING WALLS.
- (2) DOMESTIC WATER SYSTEM TO A POINT FIVE FEET AWAY FROM EXTERIOR BUILDING WALLS.
- (3) RAIN CONDUCTOR SYSTEM TO A POINT FIVE FEET AWAY FROM EXTERIOR BUILDING WALLS.
- (4) INSTALLATION AND CONNECTIONS TO EQUIPMENT FURNISHED BY OWNER.
- (5) CONNECTIONS TO FIXTURES AND EQUIPMENT PROVIDED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS.
- (6) MISCELLANEOUS WORK AS DESCRIBED HEREIN, AS SHOWN ON DRAWINGS, AND AS REQUIRED FOR A COMPLETE SYSTEM.
4. PIPE AND EQUIPMENT SUPPORTS, PIPE SLEEVES AND WALL, CEILING PLATES
- A. PROVIDE IN ACCORDANCE WITH THE VIRGINIA CONSTRUCTION CODE.
- B. PIPE SLEEVES:
- (1) PROVIDE SLEEVES FOR PIPING AND CONDUIT PASSING THROUGH CONCRETE FLOOR SLABS AND CONCRETE, MASONRY, TILE, AND GYPSUM WALL CONSTRUCTION. SLEEVES SHALL NOT BE PROVIDED FOR PIPING AND CONDUIT RUNNING EMBEDDED IN CONCRETE OR SLAB ON GRADE, EXCEPT THAT COPPER PIPING SHALL REQUIRE SLEEVES THROUGH SLABS ON GRADE. SLEEVES THROUGH STRUCTURAL MEMBERS SHALL BE ONLY AS DIRECTED BY ARCHITECT. IN INTERIOR WALL, PROVIDE 1/4-INCH SPACE ALL AROUND BETWEEN SLEEVE AND CONDUIT, PIPING, OR INSULATION OF PIPING.
- (2) SLEEVES PLACED IN EXTERIOR WALLS BELOW GRADE SHALL BE O.Z. GEDNEY TYPE "FSK" OR EQUAL, THUNDERLINK "LINK SEAL", OR EQUAL SLEEVE ASSEMBLIES SIZED FOR THE PIPE OR CONDUIT ENCOUNTERED, EXCEPT FOR CAST IRON PIPING. SLEEVE ASSEMBLY SHALL PROVIDE WATER-TIGHT SEAL AND ELECTRICAL INSULATION TO REDUCE CATHODIC REACTION. WHEN A SLEEVE PASSES THROUGH A WALL BELOW A CONCRETE SLAB ON GRADE, THE SEALING ASSEMBLY SHALL BE ON THE OUTSIDE OF THE WALL. WHEN A SLEEVE PASSES THROUGH A WALL INTO A CRAWL SPACE OR THE BUILDING INTERIOR, THE SEALING ASSEMBLY SHALL BE IN THE CRAWL SPACE OR INTERIOR OF THE BUILDING. PROVIDE SLEEVE ASSEMBLY FOR COPPER PIPING THROUGH SLAB ON GRADE, WITH SEALING ASSEMBLY LOCATED ON INTERIOR SIDE OF FLOOR SLAB. WHERE CAST IRON PIPES PASS THROUGH AN EXTERIOR WALL BELOW GRADE, PROVIDE AN IRON-PIPE SLEEVE TWO (2) PIPE SIZES GREATER THAN PIPE PASSING THROUGH. CAULK BETWEEN PIPE AND SLEEVE WITH A RUBBER-BASED COMPOUND. WHERE SLEEVES ARE LOCATED THROUGH FIRE-RATED WALLS AND FLOOR/CEILING ASSEMBLIES, PROVIDE SLEEVES AND PROTECT THE PENETRATION IN ACCORDANCE WITH UNDERWRITERS LABORATORIES, INC., FIRE RESISTANCE DIRECTORY, VOLUME II, RATINGS FOR THROUGH FIRESTOP PENETRATIONS. SLEEVES SHALL BE CONSTRUCTED OF 20 GAUGE GALVANIZED SHEET STEEL WITH LOCK SEAM JOINTS FOR ALL SLEEVES SET IN CONCRETE FLOOR SLABS TERMINATING FLUSH WITH THE FLOOR. ALL OTHER SLEEVES SHALL BE CONSTRUCTED OF GALVANIZED STEEL PIPE UNLESS OTHERWISE INDICATED.
5. SOIL, WASTE AND VENT, STORM WATER PIPING AND RAIN CONDUCTORS:
- A. CAST IRON SOIL PIPE AND FITTING: PIPE SHALL BE BELL AND SPIGOT, MODIFIED HUB, OR PLAIN END (NO-HUB) AS REQUIRED BY SELECTED JOINTING METHOD. PIPE AND FITTINGS SHALL BE LISTED BY NSF INTERNATIONAL, IAPMO, ICC OR OTHER THIRD-PARTY ORGANIZATION THAT IS ACCREDITED AS AN ANSI-GUIDE 65 ORGANIZATION AS LISTED ON WWW.ANSI.ORG.
- (1) MATERIAL (PIPE AND FITTINGS): ASTM A888, ASTM A74 OR CISPI 301, SERVICE WEIGHT.
- (2) RAIN CONDUCTOR PIPING MATERIAL (PIPE & FITTINGS): ASTM A888, SPECIFICATION FOR HUBLESS SOIL PIPE & FITTINGS.
- (3) JOINTS: PROVIDE ANY ONE OF THE FOLLOWING TYPES TO SUIT PIPE FURNISHED:
- A. MECHANICAL, COMPRESSION-TYPE (ASTM C564) MOLDED NEOPRENE GASKET. GASKETS SHALL SUIT CLASS OF PIPE BEING JOINTED. DUAL-SERVICE GASKETS WILL NOT BE ACCEPTED.
- B. MECHANICAL, MECHANICAL JOINT COUPLING (ASTM C564 AND ASTM C1277) SHALL CONSIST OF A STAINLESS-STEEL COUPLING AND NEOPRENE GASKETS (ASTM C564) (CSA CANCSA-8602), DO NOT INSTALL BELOW GRADE.
- (4) COATING: PROVIDE A HEAVY COAT OF ASPHALT OR BITUMASTIC PAINT ON PIPE BURIED IN EARTH OR INSTALLED IN CINDERS OR CONCRETE CONSTRUCTION.
- (5) CAST IRON SOIL PIPE MARKINGS: ALL CAST IRON SOIL PIPE SHALL BE CLEARLY MARKED WITH THE MANUFACTURER'S NAME, COUNTRY OF ORIGIN, EIGHT-DIGIT DATE CODE, PIPE DIAMETER AND LENGTH, RELEVANT ASTM STANDARD AND REGISTERED TRADEMARK OF THE THIRD-PARTY CERTIFIER.
- (6) MATERIAL TEST REPORTS: SUPPLIER OF CAST IRON SOIL PIPE SHALL BE ABLE TO SUPPLY MATERIAL TEST REPORTS IN ACCORDANCE WITH THE RELEVANT ASTM STANDARD AND SHALL INCLUDE TESTING AND ANALYSIS ON RADIOACTIVITY, DIMENSIONAL CHARACTERISTICS, TENSILE STRENGTH AND CHEMICAL/METALLURGICAL CONTENT. SUPPLIERS SHALL ALSO SUPPLY MSDS SHEETS ON ALL COATINGS.
- B. PLASTIC PIPE: MAY BE USED FOR PIPING AND SANITARY FORCED MAIN MAINS ABOVE GROUND. FOAM CORE PIPING IS NOT ACCEPTABLE. ALL PLASTIC PIPE, FITTINGS AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED TO NSF 14. (PVC SHALL NOT BE USED IN RETURN AIR PLENUMS.)
- (1) PIPE: PVC SCHEDULE 40 DWV, ASTM D 2665.
- (2) FITTINGS: PVC SCHEDULE 40 ASTM D3311 FITTINGS FOR SOLVENT JOINTS.
- (3) JOINTS: ASTM F656 PURPLE PRIMER, SOLVENT ASME ASTM D2564 (NOT PURPLE IN COLOR), JOINTS MADE IN ACCORDANCE WITH ASTM D2555.
6. WATER SERVICE CONNECTIONS TO BUILDING:
- A. ALL INTERIOR AND EXTERIOR COPPER TUBING SHALL BE CERTIFIED TUBE (NOT STANDARD TUBE OR STREAMLINE TUBE) MEETING ALL CHEMICAL, MECHANICAL AND DIMENSIONAL REQUIREMENTS OF THE APPLICABLE ASTM STANDARDS.
- B. FROM A DISTANCE OF APPROXIMATELY FIVE FEET OUTSIDE OF BUILDING AND UNDERGROUND INSIDE BUILDING TO 1'-0" ABOVE FLOOR, MATERIAL SHALL BE AS FOLLOWS: LESS THAN 3 INCH SIZE: ASTM B88, TYPE K, SEAMLESS, ANNEALED. FITTINGS AS SPECIFIED FOR INTERIOR DOMESTIC WATER PIPING USING BRAZED JOINTS WITH BRAZING ALLOYS (AWS A5.8).
7. INTERIOR DOMESTIC WATER PIPING
- A. COPPER TUBE AND FITTINGS:
- (1) TUBE: ASTM B88:
- A. ABOVE GROUND FLOOR: TYPE L, HARD DRAWN.
- B. BELOW GROUND FLOOR: TYPE K, HARD DRAWN.
- (2) FITTINGS: WROUGHT COPPER, ASME B16.22 OR CAST COPPER ALLOY ASME B16.18.
- (3) JOINTS:
- A. ABOVE GROUND FLOOR: ASTM B32 LEAD FREE SOLDER, ASTM B813 LEAD FREE FLUX. LEAD FREE SHALL MEAN LESS THAN 0.2 PERCENT LEAD.
- B. BELOW GROUND FLOOR: BRAZED WITH AWS A5.8 FILLER METAL (LEAD FREE).
8. VALVES: (DOMESTIC WATER)
- A. BALL VALVES: VALVES 2 1/2 INCH AND SMALLER SHALL BE RATED 150 PSI SWP AND 600 PSI NON-SHOCK WOG AND SHALL HAVE 2 PIECE CAST BRONZE BODIES, THE SEATS, FULL PORT, SEPARATE PACKOUT WITH ADJUSTABLE STEM PACKING, ANTI-BLOWOUT STEMS AND CHROME-PLATED BRASS/BRONZE BALL. VALVE ENDS SHALL HAVE FULL DEPTH ANSI THREADS OR EXTENDED SOLDER CONNECTIONS AND BE MANUFACTURED TO COMPLY WITH MSS-SP110. [NIBCO T585-70 (THREADED); S585-70 (SOLDER)]
- NOTE: WHERE PIPE IS INSULATED, BALL VALVES SHALL BE EQUIPPED WITH 2" EXTENDED HANDLES OF NON-THERMAL CONDUCTIVE MATERIAL. ALSO, PROVIDE A PROTECTIVE SLEEVE THAT ALLOWS OPERATION OF THE VALVE WITHOUT BREAKING THE VAPOR SEAL

- OR DISTURBING THE INSULATION. MEMORY STOPS, WHICH ARE FULLY ADJUSTABLE AFTER INSULATION IS APPLIED, SHALL BE INCLUDED. [NIBCO T585/70NS (THREADED); S585-ONS (SOLDER)]
- B. CHECK VALVES: VALVES 2-1/2 INCH AND SMALLER SHALL BE Y-PATTERN SWING-TYPE MANUFACTURED IN ACCORDANCE WITH MSS-SP80, CLASS 125, BRONZE ASTM B-62 BODY WITH TFE SEAT DISC, WHERE HIGHER OPERATING PRESSURES APPROACH 150 PSI, CLASS 150 VALVES OF LIKE CONSTRUCTION SHALL BE USED. VALVE ENDS SHALL BE THREADED OR SOLDER-TYPE. [CLASS 125 NIBCO T413-Y (THREADED); S413-Y (SOLDER); CLASS 150 NIBCO T433-Y (THREADED); S433-Y (SOLDER)]
- C. WALL HYDRANTS: WATTS LFHY-42 LEAD-FREE, (JOSAM SERIES 71050) OR EQUAL. CAST BRONZE, NON-FREEZE TYPE WITH POLISHED BRONZE FACE, INTEGRAL VACUUM BREAKER, RENEWABLE SEAT, LOOSE KEY, FOR SERVICING FROM OUTSIDE. MOUNT 18" ABOVE FINISHED GRADE.
- D. SHOCK ABSORBERS: JOSAM "ABSORBOTRON" 75000 SERIES, SMITH 5000 SERIES "HYDROTROLS", ZURN Z1700 "SHOKTROLS", WADE "SHOKSTOP", OR EQUAL, BELLOWS TYPE, LEAD-FREE, STAINLESS STEEL. (5-44 MAX. 11 PSF), 5A-8 MAX. 32 PSF). PROVIDE ON BOTH HOT AND COLD-WATER BRANCHES. JOB FABRICATED AIR CHAMBERS WILL NOT BE PERMITTED. O-RING TYPE SHOCK ABSORBERS WILL NOT BE ACCEPTED. (ASME/ANSI A112.26.1 OR ASSE 1010)
- E. TEMPERING VALVE (LEONARD OR EQUAL): INDIVIDUAL FIXTURE TEMPERING VALVES: PROVIDE WATTS MODEL SERIES LFUSG-B-M2 UNDER-SINK GUARDIAN ASSE 1070 THERMOSTATIC TEMPERING VALVE FOR SINGLE LAVATORY. PROVIDE AT ALL LAVATORY LOCATIONS. SET VALVE FOR MINIMUM 105 DEG. F., MAXIMUM 109 DEG. F.
9. BACKFLOW PREVENTERS: PROVIDE BACKFLOW PREVENTION DEVICES AT ALL LOCATIONS SHOWN OR SPECIFIED. DEVICE SHALL BE SAME SIZE AS LINE IN WHICH INSTALLED. LISTED BELOW IS A LIST OF CONNECTION TO THE POTABLE WATER SYSTEM THAT SHALL BE PROTECTED AGAINST BACKFLOW OR BACK SIPHONAGE:
- (1) REDUCED PRESSURE BACKFLOW PREVENTER (ASSE 1013; AWWA C511; CSA CANCSA-864-4): WATTS SERIES 999, SERIES 999 OR EQUAL, COMPLETE WITH STRAINER, TEST COCKS, AND VALVES. INSTALL TOP OF BACKFLOW PREVENTER 4'-0" ABOVE FLOOR.
- A. WATER MAKE-UP TO HEATING SYSTEMS
- B. WATER MAKE-UP TO COOLING SYSTEMS
- C. WATER SERVICE ENTRANCES
- (2) HOSE VACUUM BREAKER TYPE (ASSE 1011; CSA CANCSA-864-2):
- A. WATTS NO. 1F8C, NP3 OR EQUAL, WITH NON-REMOVABLE AND MANUAL DRAIN FEATURE. WALL HYDRANT (IF NOT PROVIDED AS AN INTEGRAL PART OF THE HYDRANT)
- B. WATTS NO. 1F8A, 1F8AC (CHROME FINISHED) OR EQUAL, LEAD FREE, WITH NON-REMOVABLE FEATURE. HOSE BIBBS AND SINKS WITH THREADED OUTLETS
10. STRAINERS: INSTALL ON INLET OF REDUCED PRESSURE ZONE, BACKFLOW PREVENTER, DOUBLE CHECK BACKFLOW PREVENTERS, SUCTION SIDE OF PUMPS AND WHERE SHOWN ON DRAWINGS. STRAINER ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH WORKING PRESSURE. PROVIDE WITH BRONZE OR STAINLESS-STEEL SCREEN WITH VALVED AND CAPPED BLOW-OFF OUTLET.
- (1) WATER: 2-1/2 INCH AND SMALLER, 20 MESH SCREEN.
- (2) BODY: 3 INCH OR SMALLER, BRASS OR BRONZE WITH FDA APPROVED EPOXY COATING SUITABLE FOR POTABLE WATER.
11. PLUMBING FIXTURES:
- A. GENERAL: FIXTURES EQUAL TO THOSE AS HEREINAFTER SPECIFIED SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL SUPPLIES, WASTE AND VENT CONNECTIONS, ALL FITTINGS, ALL NECESSARY HANGERS AND SUPPORTS, BOLT CAPS, FAUCETS, VALVES AND TRAPS. ALL TRIM SHALL BE BRASS WITH POLISHED CHROMIUM PLATED FINISH WITH CHROME SETSCREW ESCUTCHEON AT THE WATER SUPPLY. SUPPLY PIPES SHALL BE CHROMIUM PLATED COPPER WITH CHROME SETSCREW ESCUTCHEONS AT WALL. TRAPS SHALL BE (17 GAUGE) CAST BRASS WITH CLEANOUT PLUG. ALL FIXTURES SHALL BE WHITE. HANDICAPPED LAVATORIES SHALL HAVE BOTH WATER SUPPLIES AND TRAP INSULATED AND WRAPPED WITH HANDY-SHIELD (BY PLUMBEREX), HANDI LAV-GUARD (BY TRUEBRO) OR PROWRAP (BY MCGUIRE), WHERE BELOW VANDAL GUARD ENCLOSURE OR EQUAL BY TRUEBRO. COLOR SHALL BE WHITE AND FASTENERS SHALL REMAIN OUT OF SIGHT.
- B. PROVIDE LOOK-SHIELD, LOOSE-KEY OR SCREWDRIVER PATTERN POLISHED CHROMIUM PLATED ANGLE STOPS, WITH EACH LAVATORY FAUCET. FAUCETS FOR MOP SINK AND FLUSH VALVES SHALL BE FURNISHED WITH INTEGRAL STOPS. ALL ELECTRIC WATER COOLERS SHALL HAVE A DI-ELECTRIC FITTING ON THE WATER SUPPLY AND PVC TRAP ON WASTE.
- C. FIXTURES: SUBSTITUTE FIXTURES LARGER THAN THE BASIS OF DESIGN MUST BE CONFIRMED TO PROVIDE REQUIRED ADA CLEARANCES, COORDINATE WITH ARCHITECT.
- | DESIGNATION | STANDARD FIXTURE TYPE  |
|-------------|--|
| MS          | MOP SINK: FIAT MODEL MSB-2424, 24-INCH X 24-INCH X 10 INCH MOLDED STONE MOP SERVICE BASIN, WITH E-77-AA VINYL BUMPER GUARD, STAINLESS STEEL DRAIN BODY, COMBINATION S.S. DOME STRAINER AND LINT BASKET, 800-4A SUPPLY FITTING WITH VACUUM BREAKER, FOUR ARM HANDLES, INTEGRAL STOPS, WALL BRACE, PAIL-HOOK, THREADED SPOUT, 832-AA RUBBER HOSE AND WALL HOOK AND 889-CC MOP HANGER, PROVIDE MSG 2424 STAINLESS STEEL WALL GUARDS, 2 PANELS FOR CORNER.   |
| WC          | HANDICAPPED FIXTURE TYPE (ADA)<br>WATER CLOSET: AMERICAN STANDARD MADERA 3043.001, 1.28 GPF WATER-SAVING, VITREOUS CHINA, ELONGATED SIPHON JET BOWL, FLOOR MOUNTED, 16-1/8 INCHES HIGH, 1 1/2-INCH TOP SPUD, BEMIS #1655CT WHITE EXTRA HEAVY DUTY SOLID PLASTIC OPEN FRONT SEAT WITHOUT COVER, CHECK HINGE, TOTO ECOPOWER TETILA FLUSH VALVE MOUNTED 11-1/2 INCHES ABOVE BOWL WITH VACUUM BREAKER AND VANDAL-RESISTANT CONTROL CAP ASSEMBLY.   |
| L           | LAVATORY: AMERICAN STANDARD LUCERNE 0355.012, 20-1/2-INCH X 18-1/4 INCH CONCEALED ARMS, VITREOUS CHINA, WALL-HUNG LAVATORY, FAUCET LEDGE, SLOAN "OPTIMA" EBF-650-BDM BATTERY-POWERED SENSOR-FAUCET, 0.50 GPM VANDAL-RESISTANT FLOW DEVICE, GRID DRAIN AND TAILPIECE MOUNT TOP OF FRONT RIM 34 INCHES ABOVE FINISHED FLOOR. PROVIDE CONCEALED ARMS CARRIER SIMILAR TO JOSAM 17100 SINGLE FLOOR-MOUNTED LAVATORY CARRIER WITH LEVELING AND SECURING SCREWS, STRUCTURAL UPRIGHTS AND BLOCK BASES.   |
| EWC         | DRINKING FOUNTAIN/BOTTLE FILLING STATION (ARI 1010): ELKAY EZST1GBWSSK BOTTLE FILLING STATION AND B-LEVEL ADA NON-FILTERED REFRIGERATED COOLER, LEAD-FREE, FRONT AND SIDE PUSHBARS, BOTTLE FILLING STATION WITH SENSOR OR TOUCHLESS ACTIVATION AND 1.1 GPM FILL, SHUT OFF TIMER, AIR COOLED, HERMETICALLY SEALED REFRIGERATION SYSTEM, MINIMUM CAPACITY 8.0 GPH OF 50 DEG. F. WATER AT 90 DEG. F. AMBIENT, 80 DEG. F. INLET WATER, STAINLESS STEEL BASIN, STAINLESS STEEL CABINET, FLEXIBLE BUBBLER GUARD, 115 VOLT, 60 HZ, 6 AMPS. PROVIDE COORDINATED EWC CARRIER SIMILAR TO JOSAM SERIES T7560-WCBL WITH DOUBLE HANGER PLATES, DOUBLE BEARING PLATES, ADJUSTABLE SUPPORTING RODS, STRUCTURAL UPRIGHTS, WELDED FEET AND CHROME-PLATED TRIM. MOUNT UNIT ON WALL SO LOW SIDE SPOUT OUTLET IS 36 INCHES ABOVE FINISHED FLOOR. |
12. CLEANOUTS: SAME SIZE AS PIPE SERVED UP TO 4 INCHES. CLEANOUTS SHALL BE EASILY ACCESSIBLE. ALL CLEANOUT PLUGS SHALL BE BRONZE, SET IN WHITE GREASE. (ASTM A74, ASME A112.3.1, ASME A112.36.2M) COVERS SHALL BE SET FLUSH WITH FINISHED FLOOR OR WALL. PROVIDE CARPET MARKERS IN ALL CARPETED AREAS.
- (1) BASE OF VERTICAL STACKS: JOSAM 58600-COT WITH STAINLESS STEEL WALL COVER, LOCATED 24 INCHES ABOVE FLOOR.
- (2) EXTERIOR CLEANOUTS: JOSAM SERIES 55000-X CAST IRON FLOOR CLEANOUT WITH CAST IRON VANDAL RESISTANT TRACTOR COVER.
13. FLOOR DRAINS:
- A. ALL FLOOR DRAINS SHALL BE FURNISHED WITH 4-INCH DEEP SEAL P-TRAP. ALL FLOOR DRAINS SHALL CONFORM TO ASME A112.6.3 OR CSA B79.
- (1) JANITOR ROOMS: JOSAM 30000-E SERIES COATED CAST IRON FLOOR DRAIN, ADJUSTABLE SINIK NIKALOY SECURED ROUND OR SQUARE TRACTOR STRAINER, AND PERFORATED

- STAINLESS STEEL BASKET.
- (2) TOILETS: JOSAM SERIES 30000-A CAST IRON BODY AND FLANGED COLLAR, AND SECURED SIX INCH DIAMETER NIKALOY STRAINER.
- B. TRAP SEALER:
- (1) SURE SEAL MODEL SS PRE-ASSEMBLED INLINE FLOOR DRAIN TRAP SEALER. SEALER SHALL BE CONSTRUCTED OF HIGH-DENSITY POLYETHYLENE (HDPE) HOUSING AND KEEPER PIN, HEAVY DUTY SILICONE DIAPHRAGM AND SOFT EPDM SEALING GASKETS. RATED FOR FLOOR ASSE-1072 2F-GW THIRD PARTY TESTING AND LISTED BY IAPMO. PROVIDE IN ALL FLOOR DRAINS.
- (2) PROSET MODEL TG39G-3" PREASSEMBLED INLINE FLOOR DRAIN TRAP GUARD INSERT. THE TRAP GUARD DEVICE SHALL BE CONSTRUCTED OF PVC INSERT, "O" RINGS FOR 4 GRADUATED SIZES, ELASTOMERIC PVC FLEXIBLE MATERIAL DIAPHRAGM, SEALED TO PIPE WITH ADHESIVE CAULK. RATED FOR ASME A112.6.3, NSF/ANSI 14 AND CSA B79.
- (3) MIFAB "MI-GARD" SILICON RUBBER FLOOR DRAIN TRAP SEAL DEVICE WITH UV RESISTANT ABS PLASTIC FRAME, SILICON RUBBER SEALING FLAPPER AND FOUR FLEXIBLE SEALING RIBS. TESTED AND CERTIFIED TO ASSE 1072 AND LISTED WITH IAPMO AND ICC.
14. ROOF DRAINS AND CONNECTIONS: DOWNSPOUT SHOE: NEENAH FOUNDRY MODEL R-4929-C SERIES, RECTANGULAR WITH CLEANOUT, CAST IRON, WITH BOLTING LUGS, OF SIZE TO FIT STORM SEWER PIPE AND METAL CONDUCTOR.
15. INSULATION:
- A. ALL DOMESTIC WATER PIPING AND ALL HORIZONTAL STORM PIPING ABOVE LOWEST FLOOR TO JUST BELOW FITTING AT TOP OF VERTICAL PORTION OF STACK AND FITTINGS AT TOP AND BOTTOM OF VERTICAL SECTIONS OF HORIZONTAL OFFSETS SHALL BE INSULATED. INSULATION SHALL BE JOHNS MANVILLE, OWENS CORNING, OR ARMSTRONG. ALL MATERIALS AND PVC TYPE FITTING COVERS USED SHALL HAVE COMPOSITE FLAME-SPREAD RATINGS NOT EXCEEDING 25 AND A SMOKE-DEVELOPED RATING NOT EXCEEDING 50, AS TESTED UNDER PROCEDURE ASTM E-84, NFPA 90A AND 90B.
- B. PIPING INSULATION: FIBERGLASS INSULATION SHALL BE 1 INCH THICK (1.5 INCH THICK FOR SOIL AND STORM WATER PIPING 8 INCH AND LARGER) AND SHALL HAVE A MINIMUM THERMAL RESISTANCE (R) OF 4.0 PER INCH OF THICKNESS AT A MEAN TEMPERATURE OF 75 DEG. F. FIBERGLASS INSULATION SHALL HAVE A WHITE KRAFT TAPE TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS YARN JACKET, LAP JOINTS, TAPE AND SEAL.
16. WATER HEATER:
- A. THE WATER HEATER SHALL BE PATRIOT MODEL NO. PCE 20 10MSA AS MANUFACTURED BY STATE WATER HEATERS OR AN APPROVED EQUAL. HEATER SHALL BE RATED AT 4.5 KW, 208 VOLTS, 3-PHASE, 60 CYCLE AC, AND LISTED BY UNDERWRITERS' LABORATORIES. MODELS SHALL MEET THE STANDARD LOSS REQUIREMENTS OF THE U.S. DEPARTMENT OF ENERGY AND CURRENT EDITION OF ASHRAE/IESNA 90.1. TANK SHALL BE 20-GALLON CAPACITY. HEATER SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH EXTRUDED HIGH DENSITY ANODE ROD. ALL INTERNAL SURFACES OF THE HEATER EXPOSED TO WATER SHALL BE GLASS LINED WITH AN ALKALINE BOROSILICATE COMPOSITION THAT HAS BEEN FUSED-TO-STEEL BY FIRING AT A TEMPERATURE RANGE OF 1400 DEG. F. TO 1600 DEG. F. ELECTRIC HEATING ELEMENTS SHALL BE MEDIUM WATT WITH ZINC PLATED COPPER SHEATH. EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUTOFF SWITCH. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING. HEATER TANK SHALL HAVE A THREE-YEAR LIMITED WARRANTY AS OUTLINED IN THE WRITTEN WARRANTY. FULLY ILLUSTRATED INSTRUCTION MANUAL TO BE INCLUDED.
- B. ALL WATER HEATERS SHALL HAVE AN ANSI Z21.22 RATED TEMPERATURE AND PRESSURE RELIEF VALVE WITH TEST LEVER. VALVES SHALL HAVE AN AGA TEMPERATURE RATED CAPACITY OF NOT LESS THAN THE INSTALLED HEATING CAPACITY. PIPE RELIEF VALVES TO NEAREST FLOOR DRAIN. DISCHARGE PIPE SHALL TERMINATE NO MORE THAN 6 INCHES ABOVE AND NOT LESS THAN TWO TIMES THE DISCHARGE PIPE DIAMETER ABOVE THE FLOOR OR DRAIN PAN FLOOD LEVEL RIM.
- C. PROVIDE A ANSI Z21.22 RATED VACUUM RELIEF VALVE ON COLD WATER SUPPLY TO EACH HEATER. NO VALVES OR CONNECTIONS SHALL BE MADE BETWEEN VACUUM RELIEF VALVE AND HEATER. STANDBY HEAT LOSS FOR WATER HEATERS SHALL CONFORM TO REQUIREMENTS OF SECTION 4.3.1 OF ANSI C72.1 AND ASHRAE STANDARD 90.75.
- D. ALL WATER HEATERS SHALL HAVE WARRANTIES EQUAL TO THOSE SPECIFIED FOR USAGE OR APPLICATION.
- E. PROVIDE A WATTS MODEL PLT-5 POTABLE WATER EXPANSION TANK ON THE COLD-WATER SUPPLY TO THE WATER HEATER. UNIT SHALL HAVE A THERMALLY FUSED EPOXY LINER AND BUTYL DIAPHRAGM. PRE-CHARGE TANK TO DOMESTIC WATER SYSTEM STATIC PRESSURE. SUPPORT TANK FROM BUILDING STRUCTURE.
17. INSTALLATION:
- A. GENERAL:
- (1) SUSPENDED HORIZONTAL PIPING SHALL BE SUPPORTED BY ADJUSTABLE WROUGHT STEEL CLEVIS HANGERS. WHERE SUPPORTS BEAR ON COPPER PIPE, THEY SHALL BE COPPER PLATED. WHERE SUPPORTS BEAR ON INSULATED PIPING, PROVIDE INSULATION SHIELD. CHAIN, STRAP, WIRE OR OTHER MAKESHIFT DEVICES WILL NOT BE PERMITTED AS HANGERS OR SUPPORTS.
- (2) INSTALL BRANCH PIPING FOR WATER AND WASTE, FROM THE RESPECTIVE PIPING SYSTEMS AND CONNECT TO ALL FIXTURES, VALVES, COCKS, OUTLETS, AND EQUIPMENT, INCLUDING THOSE FURNISHED BY THE OWNER OR SPECIFIED IN OTHER SECTIONS OF THESE SPECIFICATIONS.
- (3) WELDED JOINTS SHALL BE FUSION WELDED BY QUALIFIED WELDERS IN ACCORDANCE WITH ANSI B31.1 SECTION 6, UNLESS OTHERWISE REQUIRED. MITERING OR NOTCHING PIPE TO FORM ELBOWS AND TEES AND DRILLING OR PUNCHING TO MAKE CONNECTIONS WILL NOT BE PERMITTED.
- (4) COMPRESSION GASKET JOINTS FOR CAST IRON SEWER PIPE SHALL BE MADE WITH NEOPRENE COMPRESSION GASKETS CONFORMING TO ASTM C564.
- (5) NO-HUB JOINTS FOR CAST IRON PIPES SHALL BE MADE WITH NEOPRENE GASKETS (ASTM C564) AND STAINLESS-STEEL CLAMPS CONFORMING TO ASTM C564 AND ASTM C1277.
- (6) MECHANICAL JOINTS ELASTOMERIC SEALING SLEEVE FOR CAST IRON PIPE SHALL BE IN ACCORDANCE WITH ASTM C564.
- (7) SOLVENT CEMENT FOR PVC PIPING SHALL BE HANDLED IN ACCORDANCE WITH ASTM F402.
- (8) PLASTIC PIPE SHALL NOT PENETRATE A FIRE ASSEMBLY OR SMOKESTOP.
- (9) PROVIDE CHROME PLATED ESCUTCHEONS AT ALL LOCATIONS WHERE PIPING PENETRATES FLOORS, WALLS AND CEILINGS IN EXPOSED LOCATIONS.
- (10) WHERE SUPPORTS BEAR ON INSULATED PIPING, PROVIDE INSULATION SHIELDS.
- (11) EXTERIOR COLD-WATER MAIN SHALL HAVE A MINIMUM OF 36-INCH COVER UNLESS INDICATED OTHERWISE ON DRAWINGS.
- B. PIPING SHALL CONFORM TO THE FOLLOWING:
- (1) WASTE AND RAIN CONDUCTORS:
- A. SLOPE SOIL, WASTE AND RAIN CONDUCTOR PIPING AS FOLLOWS:
- | PIPE SIZE                                 | MINIMUM PITCH    |
|---|------------------|
| SOIL, WASTE AND VENT 2-1/2 INCH & SMALLER | 1/4" TO THE FOOT |
| 3 INCH & LARGER                           | 1/8" TO THE FOOT |
| RAIN CONDUCTORS                           | 1/8" TO THE FOOT |
- B. CHANGES IN DIRECTION OF PIPING SHALL BE MADE WITH FITTINGS.
- C. CONTRACTOR IS CAUTIONED TO VERIFY INVERT OF SANITARY SEWER AND TO COORDINATE INVERTS OF NEW WORK TO SUIT CONDITIONS ENCOUNTERED.
- D. SANITARY SEWER SHALL BE PROVIDED COMPLETE WITH ALL PLUMBING FIXTURES, DRAINS, ETC., PROPERLY CONNECTED AND VENTED IN ACCORDANCE WITH THE APPLICABLE CODES. ALL VENTS THROUGH THE ROOF SHALL EXTEND TWELVE INCHES ABOVE THE ROOF.
- (2) DOMESTIC WATER:
- A. GRADE ALL LINES TO FACILITATE DRAINAGE. PROVIDE HOSED-END DRAIN VALVES AT LOCATIONS INDICATED ON THE DRAWINGS. ALL UNNECESSARY TRAPS IN CIRCULATING LINES SHALL BE AVOIDED.
- B. CONNECT BRANCH LINES AT BOTTOM OF MAIN SERVING FIXTURES BELOW AND PITCH DOWN SO THAT MAIN MAY BE DRAINED THROUGH FIXTURE. CONNECT BRANCH LINES TO TOP OF MAIN SERVING ONLY FIXTURES LOCATED ON FLOOR ABOVE.
18. PROTECTION OF ELECTRICAL EQUIPMENT: PLUMBING AND SPRINKLER PIPING SHALL NOT BE INSTALLED DIRECTLY OVER ELECTRICAL PANELBOARDS, SWITCHBOARDS OR MOTOR CONTROL

- CENTERS, UNLESS THE PIPE IS A MINIMUM OF 6 FEET ABOVE THE ELECTRICAL EQUIPMENT OR ABOVE A STRUCTURAL CEILING (CONCRETE CAP OR SIMILAR). IF COMPLIANCE WITH THIS REQUIREMENT IS NOT POSSIBLE, NOTIFY THE ENGINEER IMMEDIATELY. IF THE PIPING IS DIRECTLY ABOVE AND AT LEAST 6 FEET ABOVE THE ELECTRICAL EQUIPMENT, PROVIDE A GALVANIZED STEEL DRAIN PAN INSTALLED DIRECTLY UNDER THE PIPING. DRAIN PAN SHALL HAVE MINIMUM 2-INCH HIGH SIDES WITH A DRAIN PIPE CONNECTION AT THE LOWEST POINT AND SHALL BE FULL WIDTH OF THE ELECTRICAL EQUIPMENT BEING PROTECTED. EXTEND DRAINPIPE TO EXTERIOR OR TO NEAREST FLOOR DRAIN.
19. PROTECTION OF PLASTIC PIPE: ALL PLASTIC PIPING SHALL BE INSTALLED WITH SUFFICIENT DISTANCE AND/OR INSULATION RELATIVE TO RECESSED LIGHT FIXTURES IN ACCORDANCE WITH PLASTICS PIPE INSTITUTE (PPI) TECHNICAL NOTE 56 "INSTALLATION OF PLASTIC PRESSURE PIPING MATERIALS NEAR IC-RATED AND NON-IC-RATED RECESSED LIGHTING FIXTURES".
20. TESTS:
- A. GENERAL: CONTRACTOR SHALL PROVIDE ALL INSTRUMENTS, MATERIALS, AND LABOR REQUIRED. TESTS SHALL BE MADE IN THE PRESENCE OF THE OWNER OR AUTHORITY HAVING JURISDICTION, OR AS OTHERWISE DIRECTED BY THE ARCHITECT, WHO SHALL BE GIVEN FIVE (5) DAYS NOTICE BY THIS CONTRACTOR OF HIS READINESS TO PERFORM SUCH TESTS. ANY LEAKS THAT DEVELOP DURING THE TESTS SHALL BE REPAIRED BY REMAKING THE JOINT OR REPLACING PIPE AND FITTINGS. TEMPORARY CAULKING WILL NOT BE PERMITTED. NO PIPING SHALL BE INSULATED OR CONCEALED UNTIL IT HAS BEEN TESTED, WITH RESULTS ACCEPTABLE TO THE ARCHITECT. AIR TESTING WILL BE ACCEPTABLE WHERE PERMITTED BY THE VIRGINIA CONSTRUCTION CODE. DO NOT PERFORM AIR TESTING ON SYSTEMS WHERE PLASTIC PIPING ARE INSTALLED. TEST SYSTEMS EITHER IN ITS ENTIRETY OR IN SECTIONS.
- B. SOIL, WASTE, VENT AND STORM WATER SYSTEMS: CONDUCT TESTS BEFORE TRENCHES ARE BACKFILLED OR FIXTURES ARE CONNECTED. CONDUCT WATER TEST AS DIRECTED IN ACCORDANCE WITH THE VIRGINIA CONSTRUCTION CODE AND THIS SPECIFICATION.
- (1) WATER TEST: IF ENTIRE SYSTEM IS TESTED, TIGHTLY CLOSE ALL OPENINGS IN PIPES EXCEPT HIGHEST OPENING AND FILL SYSTEM WITH WATER TO POINT OF OVERFLOW. IF SYSTEM IS TESTED IN SECTIONS, TIGHTLY PLUG EACH OPENING EXCEPT HIGHEST OPENING OF SECTION UNDER TEST, FILL EACH SECTION WITH WATER AND TEST WITH AT LEAST 10-FOOT HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, TEST AT LEAST UPPER 10 FEET OF NEXT PRECEDING SECTION SO THAT EACH JOINT OR PIPE EXCEPT UPPERMOST 10-FOOT HEAD OF WATER, KEEP WATER IN SYSTEM, OR IN PORTION UNDER TEST, FOR AT LEAST 15 MINUTES BEFORE INSPECTION STARTS. SYSTEM SHALL THEN BE TIGHT AT ALL JOINTS.
- C. POTABLE WATER SYSTEM: TEST AFTER INSTALLATION OF PIPING AND DOMESTIC WATER HEATERS, BUT BEFORE PIPING IS CONCEALED, BEFORE COVERING IS APPLIED AND BEFORE PLUMBING FIXTURES ARE CONNECTED. FILL SYSTEMS WITH WATER AND MAINTAIN HYDROSTATIC PRESSURE OF 125 PSIG OR AT 50 PERCENT HIGHER THAN ACTUAL OPERATING PRESSURE WHICH EVER IS GREATER FOR ONE HOUR DURING INSPECTION AND PROVE TIGHT WITHOUT ANY LOSS OF PRESSURE.
21. DISINFECTION: AFTER TESTS HAVE BEEN SUCCESSFULLY COMPLETED, THOROUGHLY FLUSH AND DISINFECT THE INTERIOR DOMESTIC WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH THE VIRGINIA CONSTRUCTION CODE.
22. CLEANING:
- A. REMOVE TRASH, PLASTER, DUST, PAINT SPOTS AND ALL FOREIGN MATTER FROM INSIDE AND OUTSIDE OF ALL FIXTURES AND EQUIPMENT.
- B. THE CONTRACTOR SHALL CHECK EACH LENGTH OF PIPE BEFORE IT IS PUT IN PLACE TO MAKE CERTAIN THERE IS NOT FOREIGN MATERIAL (STONES, SAND, ETC.) IN THE SYSTEMS. PROVIDE TEMPORARY BYPASS AROUND EQUIPMENT IF OR AS REQUIRED. ALL PLUMBING PIPES SHALL BE THOROUGHLY FLUSHED WITH WATER TO REMOVE CONSTRUCTION DEBRIS BEFORE FINAL CONNECTIONS ARE MADE TO EQUIPMENT AND FIXTURES.
23. REPORTS: REPORT OF CLEANING, STERILIZING AND TESTING: CONTRACTOR SHALL VERIFY IN WRITING BEFORE COMPLETION OF THE JOB THAT ALL SPECIFIED CLEANING PROCEDURES, TESTS AND STERILIZING HAVE BEEN PERFORMED, WITH RESULTS AS SPECIFIED OR AS REQUIRED BY CODES.



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REVISIONS	DATE

PLUMBING SPECIFICATIONS

ADDITION TO JAMES C WEAVER BASEBALL CENTER

PITCHING LAB & WEIGHT ROOM

BLACKSBURG, VIRGINIA



LPA

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VIRGINIA TECH UBO APPROVAL	DATE	10 . 08 . 21
	WORK ORDER	A0122-21-492426
	SCALE	AS NOTED
	DRAWN	MDMMGW
	JOB	2108
	SHEET	

P1.2



HVAC SPECIFICATIONS

1.

SCOPE OF THE WORK: WORK SHALL INCLUDE COMPLETE SYSTEMS, PROVIDE SUPERVISION, LABOR, MATERIAL, EQUIPMENT, MACHINERY, PLANT AND ITEMS NECESSARY FOR COMPLETE SYSTEMS TESTED AND READY FOR OPERATION.
2.

REGULATIONS: MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION.
3.

DRAWINGS: THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. WHERE VARIANCES OCCUR INCLUDE THE ITEMS OF BETTER QUALITY, GREATER QUANTITY OR HIGHER COST.
4.

COORDINATION OF WORK: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER RELATION OF HIS WORK TO THE BUILDING STRUCTURE AND TO THE WORK OF OTHER TRADES. CONTRACTOR SHALL PROVIDE DIMENSIONS AND LOCATIONS OF ALL OPENINGS, AND SIMILAR ITEMS TO THE PROPER TRADES AND SHALL INSTALL WORK AS REQUIRED SO AS NOT TO DELAY THE BUILDING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY HIS WORK OR WORKMEN. REPAIRING OF DAMAGED WORK SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL COST.
5.

VISITING THE SITE: EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE BEFORE PRICING THE JOB TO FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS TO BE MET IN THE EXECUTION OF THE WORK UNDER THIS CONTRACT. NO ADDITIONAL COMPENSATION WILL BE ALLOWED RELATING TO SITE CONDITIONS.
6.

SHOP DRAWINGS: SHOP DRAWINGS ARE REQUIRED FOR ALL MATERIAL AND EQUIPMENT THAT IS SPECIFIED BY A MANUFACTURER'S NAME OR AS INDICATED IN THE TECHNICAL SPECIFICATIONS. FURNISH ELECTRONIC PDFS AS REVIEWED BY THE CONTRACTOR. SUBMITTAL DATA FOR RELATED EQUIPMENT SHALL BE SUBMITTED AT ONE TIME. INDIVIDUAL SUBMITTALS WILL BE ALLOWED FOR EQUIPMENT WHICH IMPACTS THE CONSTRUCTION PHASING. IDENTIFY SUBMITTALS WITH PROJECT NAME AND NUMBER, CONTRACTOR'S NAME, MANUFACTURER, MODEL OR STYLE, AND CONTRACTOR'S REVIEW STAMP. SUBMITTALS SHALL BE DETAILED, DIMENSIONED DRAWINGS SHOWING CONSTRUCTION, SIZE AND ARRANGEMENT, SERVICE CLEARANCES, PERFORMANCE CHARACTERISTICS, AND CAPACITY. SUBMITTALS NOT PROPERLY IDENTIFIED OR CONTAINING INFORMATION OF A GENERAL NATURE WILL NOT BE REVIEWED AND WILL BE RETURNED UNCHECKED.
7.

ACCESSIBILITY: LOCATE EQUIPMENT WHICH MUST BE SERVICED OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS WHERE POSSIBLE. OTHERWISE, FURNISH ACCESS PANELS OF SUFFICIENT SIZE AND LOCATED SO THAT THE CONCEALED EQUIPMENT CAN BE SERVICED.
8.

ROUGH-IN: ROUGH-IN OPENINGS SHALL ALIGN VERTICALLY AND HORIZONTALLY WITH BUILDING STRUCTURE. THERMOSTATS SHALL BE MOUNTED A MAXIMUM OF 48" TO TOP OF THERMOSTAT.
9.

CUTTING AND PATCHING: THE CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING NECESSARY TO INSTALL HIS WORK. PATCHING SHALL MATCH ADJACENT SURFACES. NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT THE APPROVAL OF THE ENGINEER.
10.

CLEANING: EQUIPMENT AND PIPING SHALL BE CLEANED TO REMOVE FOREIGN MATERIALS. PROVIDE TEMPORARY FILTERS FOR AIR UNITS THAT ARE OPERATED DURING CONSTRUCTION. PLUG OR CAP OPENINGS IN EQUIPMENT, PIPING AND MATERIALS UNTIL CONNECTION IS MADE TO THE SYSTEM. REMOVE FROM THE PREMISES ALL UNUSED MATERIAL AND DEBRIS RESULTING FROM THE PERFORMANCE OF HVAC WORK.
11.

WIRING: STARTERS THAT ARE SPECIFIED TO BE FURNISHED AS AN INTEGRAL PART OF THE MECHANICAL EQUIPMENT SHALL BE COMPLETE WITH PROPERLY SIZED OVERLOAD PROTECTORS. TEMPERATURE CONTROL WIRING, EQUIPMENT CONTROL WIRING AND CONTROL INTERLOCK WIRING FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. CONTROL WIRING SHALL NOT INCLUDE ANY WIRING WHICH CARRIES MOTOR CURRENT. ALL WIRING SHALL BE IN METAL CONDUIT AND SHALL COMPLY WITH THE ELECTRICAL SPECIFICATIONS.
12.

QUIET OPERATION: SYSTEMS SHALL OPERATE UNDER CONDITIONS OF LOAD WITHOUT UNUSUAL OR EXCESSIVE NOISE OR VIBRATION. UNUSUAL OR EXCESSIVE NOISE OR VIBRATION SHALL BE CORRECTED.
13.

TESTING AND BALANCING: CONTRACTOR SHALL TEST ALL NEW EQUIPMENT TO ASSURE THAT THE PROPER SEQUENCE OF CONTROL IS ESTABLISHED AND OPERATING IN A SAFE MANNER. THE AIR QUANTITIES FOR THE AIR HANDLING UNITS SHALL BE BALANCED FOR THE CFMS INDICATED ON THE DRAWING.
14.

INSTRUCTIONS TO OWNER: INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF THE MECHANICAL SYSTEMS UNTIL THE OWNER IS FULLY PREPARED TO OPERATE AND MAINTAIN THE SYSTEMS. HOWEVER, LENGTH OF INSTRUCTION TIME SHALL BE LIMITED TO ONE (1) FULL DAY.
15.

OPERATING AND MAINTENANCE: PROVIDE THE OWNER WITH TWO (2) BOUND SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT AND CONTROLS.
16.

GARANTEE: EQUIPMENT, MATERIALS AND LABOR REQUIRED BY THESE CONTRACT DRAWINGS SHALL BE GUARANTEED TO BE FREE FROM DEFECTIVE MATERIALS OR WORKMANSHIP FOR ONE (1) YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT UNLESS SPECIFIED FOR A LONGER PERIOD IN OTHER PORTIONS OF THE SPECIFICATIONS. DEFECTIVE MATERIALS OR WORKMANSHIP OCCURRING DURING THIS PERIOD SHALL BE CORRECTED AT NO ADDITIONAL COST.
17.

PAINTING: GENERAL - PAINT MECHANICAL EQUIPMENT AND MATERIALS WHERE NOT CONCEALED. PAINTING IN CONCEALED SPACES SHALL BE LIMITED TO EQUIPMENT AND MATERIALS NOT OTHERWISE PROTECTED FROM RUSTING SUCH AS HANGERS AND SUPPORTS. PAINT SHALL BE PRODUCTS OF SHERWIN-WILLIAMS, PITTSBURGH, PRATT-LAMBERT OR EQUAL. SURFACE PREPARATION, PRIMING AND PAINT APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. GALVANIZED SURFACES SHALL BE PRETREATED WITH A PHOSPHORIC ACID CLEANING SOLUTION AND PRIMED. AFTER PREPARATION EACH ITEM SHALL BE PAINTED, EXCEPT COLOR OF PAINT FOR EQUIPMENT AND MATERIAL WHERE NOT CONCEALED, SHALL BE AS SELECTED BY THE OWNER. PAINTING IS NOT REQUIRED OF ITEMS WITH A FACTORY-FINISH COAT. PATCH PAINTING IS REQUIRED OF ANY DAMAGED AREAS TO MATCH FACTORY-FINISH COAT. NAMEPLATES ON EQUIPMENT SHALL NOT BE PAINTED.
18.

IDENTIFICATION OF EQUIPMENT: EACH MAJOR PIECE OF EQUIPMENT SHALL BE IDENTIFIED BY MARKING THAT WILL READ THE SAME AS THE IDENTIFICATION SHOWN ON THE DRAWINGS. STENCIL LETTERS SHALL BE 2 INCHES HIGH UPPER CASE PAINTED WITH WHITE ENAMEL ON EQUIPMENT AND BLACK ENAMEL ON PIPING AND CONDUIT. IDENTIFICATION SHALL BE PAINTED ON EACH PIPE OR CONDUIT WHERE EXPOSED OR ACCESSIBLE AND SHALL BE PLACED EVERY 15 FEET ALONG THE PIPE OR CONDUIT.
19.

DUCTWORK:

A.

GENERAL: DUCTWORK SHALL BE ZINC-COATED SHEET STEEL OR ALUMINUM, CONSTRUCTED AND INSTALLED AS RECOMMENDED BY THE LATEST EDITION OF SMACNA.

B.

DUCT CLEARANCE SHALL BE ESTABLISHED AT THE JOB SITE BEFORE ANY DUCTS ARE FABRICATED. CONTRACTOR WILL NOT BE ALLOWED ANY EXTRA COSTS FOR DUCTS FABRICATED AND THEN FOUND NOT TO FIT.

C.

HINGED ACCESS DOORS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 90A AT ALL AUTOMATIC DAMPERS, HEATERS, THERMOSTATS, AND OTHER APPARATUS REQUIRING SERVICE AND INSPECTION IN THE DUCT SYSTEM. ACCESS DOORS SHALL BE 15" X 18" OR AS LARGE AS PRACTICAL.

D.

DUCT SUPPORTS SHALL CONSIST OF NOT LESS THAN 1" X 16-GAUGE GALVANIZED STRAP IRON HANGERS SPACED NOT OVER 4'-0" ON CENTER.
20.

AIR DEVICES:

A.

DIFFUSERS, REGISTERS AND GRILLES SHALL BE METAL,AIRE OR EQUAL UNLESS NOTED OTHERWISE. CEILING DEVICES SHALL HAVE WHITE BAKED ENAMEL FINISH. ALL OTHER DEVICES SHALL HAVE PRIME FINISH.

B.

DOOR GRILLES SHALL BE 300 DG TELESCOPING FRAME WITH V (W LIGHT TIGHT) CORE. FURNISH TO GENERAL CONTRACTOR FOR INSTALLATION BY DOOR MANUFACTURER.

C.

TRANSFER GRILLES IN WALL SHALL BE METAL-AIRE 300 DG-DF. FINISH SHALL BE COORDINATED WITH ARCHITECT.
21.

WALL LOUVERS: WALL LOUVERS (4" ALUMINUM); LOUVERS SHALL BE RUSKIN MODEL L375D OR EQUAL, STATIONARY DRAINABLE BLADE WITH 4" DEEP FRAME AND 0.08" THICK EXTRUDED ALUMINUM CONSTRUCTION. BLADES SHALL BE POSITIONED AT APPROXIMATELY 37 DEGREE ANGLE AND SPACED NOT TO EXCEED 4 INCHES ON CENTER. A CHANNEL IN EACH BLADE SHALL DRAIN WATER TO DOWNSPOUTS IN JAMBS AND MULLIONS TO PREVENT WATER CASCADE FROM BLADE TO BLADE. PROVIDE COMPLETE WITH 1/2" MESH MATCHING BIRD SCREEN IN REMOVABLE FRAME AND EXTENDED SILL. LOUVER SHALL BE AMCA CERTIFIED FOR AIR PERFORMANCE AND WATER PENETRATION. WATER PENETRATION SHALL NOT OCCUR WHILE THE FREE AREA VELOCITY IS MAINTAINED LESS THAN 1,000 FEET PER MINUTE. LOUVERS ARE BASICALLY SIZED AT 400 CFM PER SQUARE FEET OF LOUVER FACE AREA, WITH A STATIC PRESSURE DROP NOT TO EXCEED 0.10 INCHES WATER COLUMN FOR A 48" X 48" LOUVER. FINISH SHALL BE AS SELECTED BY THE ARCHITECT.
22.

ELECTRIC CEILING HEATERS (CH-1): FURNISH AND INSTALL TRANE OR EQUAL ELECTRIC CEILING HEATERS WITH CAPACITIES AS INDICATED ON THE DRAWINGS. CEILING HEATER SHALL BE COMPLETE WITH RECESSED ENCLOSURE (10 INCH MAX.), POWDER COATED FRONT PANEL, HEATING ELEMENT, THERMAL LIMIT SWITCH, DISCONNECT SWITCH, AND FACTORY INSTALLED THERMOSTAT. HEATER ELEMENTS SHALL BE NON-GLOWING DESIGN WITH NICKLE CHROMIUM ALLOY RESISTANCE WIRE IN STEEL SHEATH WITH BRAZED STEEL FINS. FAN MOTOR SHALL BE PERMANENTLY LUBRICATED WITH TOTALLY ENCLOSED ROTOR. MOUNT UNIT RECESSED IN T-BAR CEILING OR SURFACE MOUNTED AS INDICATED ON THE DRAWINGS. COORDINATE COLOR SELECTION WITH ARCHITECT.
23.

VERTICAL DISCHARGE UNIT HEATERS (EH-1) : FURNISH AND INSTALL ELECTRIC VERTICAL UNIT HEATERS OF CAPACITIES AND VOLTAGE AS INDICATED ON DRAWINGS. HEATERS SHALL BE U.L. LABELED AND APPROVED CASING SHALL BE CONSTRUCTED OF HEAVY-GAGE FURNITURE STEEL. IT SHALL BE PHOSPHATIZED AND COMPLETELY DIP PAINTED WITH A HEAVY-DUTY BAKED ENAMEL. MOTOR SHALL BE OF THE TOTALLY ENCLOSED CONTINUOUS FAN-DUTY SLEEVE BEARING TYPE EQUIPPED WITH BUILT-IN THERMAL OVERLOAD PROTECTION. EACH UNIT SHALL BE EQUIPPED WITH A COMBINATION FAN GUARD/MOTOR SUPPORT RESILIENTLY MOUNTED AT FOUR POINTS TO ABSORB ANY MOTOR VIBRATION. THE FAN MOTOR SHALL BE WIRED WITHIN THE UNIT HEATER TO THE ELECTRIC HEATING COIL, POWER SUPPLY, THUS ELIMINATING NEED FOR EXTERNAL MOTOR STARTERS OR A SEPARATE FAN MOTOR CIRCUIT TO THE UNIT. FAN SHALL BE OF THE DIRECT-DRIVE, BROAD-BLADED PROPELLER FAN TYPE THAT HAS BEEN STATICALLY AND DYNAMICALLY BALANCED AT THE FACTORY TO ELIMINATE VIBRATION. ELECTRIC COIL SHALL BE OF THE FINNED STEEL SHEATHED TYPE AND SHALL HAVE BUILT-IN OVERHEAT PROTECTION. U.L. THE UNIT HEATER SHALL HAVE A U.L. LABEL ATTACHED TO THE UNIT HEATER. THE UNIT SHALL BE EQUIPPED WITH LOUVERS FOR VERTICAL DIFFUSION. THE UNIT SHALL BE CONTROLLED AS SHOWN ON DRAWINGS. THERMOSTAT LOCATION SHALL BE AS SHOWN ON DRAWINGS.
24.

CEILING EXHAUST FANS (CEF-1, CEF-2) : BACKWARD CURVED NON-OVERLOADING STEEL OR ALUMINUM BLADES MOUNTED IN A SQUARE STEEL ENCLOSURE. MOTOR SHALL BE MOUNTED ON RUBBER IN SHEAR VIBRATION ISOLATORS AND DISCONNECT SWITCH WIRED TO MOTOR. UNIT SHALL BE SUITABLE FOR MOUNTING AT ANY ANGLE. POWER UNIT SHALL BE ACCESSIBLE WITHOUT DISCONNECTING DUCTWORK. HOUSING SHALL BE INTERNALLY AND ACOUSTICALLY LINED WITH 1" THICK FIBERGLASS INSULATION. MOTOR OPERATED DAMPERS SHALL BE PROVIDED WHERE INDICATED FOR 120 V, TWO-POSITION SERVICE. VERIFY DUCT SIZE AT INSTALLATION LOCATION. DUCT COLLAR SHALL INCLUDE AN ALUMINUM BACKDRAFT DAMPER
25.

SEQUENCE OF OPERATIONS:

A.

ELECTRIC HEATERS (EH-1): EACH UNIT SHALL BE CONTROLLED BY A LOW VOLTAGE WALL-MOUNTED THERMOSTAT. UPON A CALL FOR HEATING, THE SUPPLY FAN SHALL ENERGIZE, AND THE ELECTRIC HEAT SHALL STAGE ON. DURING SUMMER OPERATION, THE UNIT SHALL OPERATE IN SUMMER VENTILATION MODE VIA LOW VOLTAGE WALL-MOUNTED SUMMER-FAN SWITCH.

B.

ELECTRIC HEATERS (CH-1): EACH UNIT SHALL BE CONTROLLED BY A UNIT-MOUNTED THERMOSTAT. UPON A CALL FOR HEATING, THE SUPPLY FAN SHALL ENERGIZE, AND THE ELECTRIC HEAT SHALL STAGE ON.

C.

CEILING EXHAUST FANS (CEF-1): EACH UNIT SHALL BE INTERCONNECTED WITH LIGHTING CIRCUIT.

D.

CEILING EXHAUST FAN (CEF-2): EACH UNIT SHALL BE CONTROLLED BY WALL MOUNTED THERMOSTAT.

GENERAL NTOES:

1.

ALL EQUIPMENT AND DUCTWORK SHALL BE COORDINATED WITH OTHER DUCTS, PIPES, LIGHTS, STRUCTURAL SYSTEM, CEILING SUPPORTS AND FRAMING BEFORE INSTALLATION. MINOR DUCT OFFSETS AND MINOR DUCT TRANSITIONS SHALL BE PROVIDED AS REQUIRED. WHERE TRANSITIONS ARE REQUIRED, CROSS SECTIONAL AREA OF DUCT SHALL NOT BE REDUCED. MEASUREMENTS FOR VERTICAL CLEARANCES OF DUCTWORK SHALL BE TAKEN AT THE JOB SITE BEFORE FABRICATION OF ANY DUCTWORK.
2.

ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS.
3.

MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION.
4.

CONTRACTOR SHALL SEAL AND FLASH ALL PENETRATIONS IN ROOF AND WALLS.
5.

VERIFY ROOF AND WALL OPENINGS WITH STRUCTURE.
6.

VERIFY THE LOCATION OF ALL THERMOSTATS, TEMPERATURE SENSORS, PANELS AND CONTROL INSTRUMENTS WITH THE ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
7.

REFER TO ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS TO COORDINATE THE EXACT LOCATIONS OF DIFFUSERS, REGISTERS, GRILLES, AND OTHER MECHANICAL EQUIPMENT WITH CEILING GRID, LIGHTS, BEAMS AND OTHER BUILDING COMPONENTS.
8.

CONTRACTOR SHALL PROVIDE ALL SUPPORTS REQUIRED TO MOUNT MECHANICAL EQUIPMENT AND DUCTWORK.
9.

HVAC CONTRACTOR SHALL ADJUST CFM FOR CEILING DEVICES AND AIR UNITS AS SHOWN ON THE FLOOR PLANS.
10.

FOR EXACT LOCATIONS OF CEILING DEVICES, SEE REFLECTED CEILING PLAN.
11.

PROVIDE ACCESS DOORS OF SUFFICIENT SIZE FOR ALL CONCEALED CONTROLS, DAMPERS OR ANY ITEMS REQUIRING ACCESS.
12.

ALL REMOTE MOUNTED TEMPERATURE CONTROL DEVICES AND TEMPERATURE CONTROL WIRING SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
13.

CEILING GRID AND OTHER ITEMS SHALL NOT BE SUPPORTED FROM OR IN CONTACT WITH FAN COIL UNITS. CONDUIT, WIRING, PIPING AND SUPPORTS SHALL NOT BE LOCATED BELOW FAN COIL ACCESS PANELS.
14.

CONTRACTOR SHALL MAKE ALL REASONABLE EFFORTS TO AVOID RUNNING DUCTWORK OVER ELECTRICAL ROOMS. WHERE DUCTWORK MUST BE INSTALLED ABOVE ELECTRICAL ROOMS, DUCTWORK AND PIPING SHALL BE RUN AS HIGH AS POSSIBLE. AND CONTRACTOR SHALL AVOID RUNNING DUCTWORK AND PIPING DIRECTLY OVER PANELS. CONTRACTOR SHALL AVOID RUNNING DUCTWORK IN IT ROOMS UNLESS ABSOLUTELY NECESSARY.
15.

INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF THE MECHANICAL SYSTEMS UNTIL THE OWNER IS FULLY PREPARED TO OPERATE AND MAINTAIN THE MECHANICAL SYSTEM. HOWEVER, LENGTH OF INSTRUCTION TIME SHALL BE LIMITED TO ONE-HALF DAY.
16.

SYSTEMS SHALL OPERATE UNDER CONDITIONS OF LOAD WITHOUT UNUSUAL OR EXCESSIVE NOISE OR VIBRATION. UNUSUAL OR EXCESSIVE NOISE OR VIBRATION SHALL BE CORRECTED.
17.

EQUIPMENT, MATERIALS AND LABOR REQUIRED BY THESE CONTRACT DRAWINGS SHALL BE GUARANTEED TO BE FREE FROM DEFECTIVE MATERIALS OR WORKMANSHIP FOR ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT UNLESS SPECIFIED OTHERWISE. DEFECTIVE MATERIALS OR WORKMANSHIP OCCURRING DURING THIS PERIOD SHALL BE CORRECTED AT NO ADDITIONAL COST.

HVAC LEGEND

ABOVE FINISHED FLOOR CAPACITY	A.F.F CAP	
CUBIC FEET PER MINUTE	CFM	
DEGREES FAHRENHEIT	°F	
DIAMETER	DIA	Ø
DOOR UNDERCUT	UC	
DRY BULB	DB	
ENTERING AIR TEMPERATURE	EAT	
FEET	FT	
HORSEPOWER	HP	
HOOR	HR	
INCH	IN	
KILOWATT	KW	
LEAVING AIR TEMPERATURE	LAT	
POUNDS	LBS	
PRESSURE DROP	PD	
THERMOSTAT OR TEMPERATURE SENSOR	T'STAT	Ⓣ
THOUSAND BTU PER HOUR	MBH	
WALL SWITCH		Ⓢ

ELECTRIC HEATERS: TRANE

MARK	TYPE	CAPCITY, KW	V / PH	UNIT WEIGHT	MODEL	NOTES
EH-1	VERTICAL	10	480 / 3	50	UHEC10	1, 4
CH-1	CEILING	2	277 / 1	50	UHAA15	1, 2, 3

NOTES:

1. PROVIDE DISCONNECT SWITCH.
2. PROVIDE A FACTORY MOUNTED THERMOSTAT.
3. PROIVE UNIT WITH FULLY RECESSED OR SURFACE TRIM KIT AS REQUIRED.
4. CONTROLLED BY LOW VOLTAGE (24V) WALL-MOUNTED THERMOSTAT AND SUMMER FAN SWITCH. PROVIDE UNIT WITH CONTACTOR AND LOW VOLTAGE CONTROL TRANSFORMER FOR OPERATION OF LOW VOLTAGE THERMOSTAT.

FANS: GREENHECK

MARK	CFM	ESP. IN. H2O	MAX SONES	MOTOR WATTS	VOLTS/PH	UNIT WEIGHT, LBS.	MODEL	NOTES
CEF-1	70	0.25	0.5	14	120 / 1	231	SP-A90	1, 2
CEF-2	50	0.25	0.5	14	120 / 1	231	SP-A90	1, 2

NOTES:

1. PROVIDE FACTORY INSTALLED DISCONNECT SWITCH.
2. PROVIDE SPEED CONTROLLER FOR AIR BALANCE OF FAN.

GRILLES, REGISTERS AND DIFFUSERS: METAL AIRE

MARK	SERVICE	TYPE	FACE SIZE, IN. x IN.	NECK SIZE, IN. x IN.	MAX AIR P.D., IN. H2O	MAX N.C.	MODEL #	NOTES
A	TRANSFER	SURFACE MOUNTED GRILLE	6x6	6x6	0.05	20	DG	1

NOTES:

1. PROVIDE MOUNTING FRAME FOR INSTALLATION IN SIDEWALL AS REQUIRED.



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VIRGINIA TECH UBO APPROVAL

DATE 10 . 08 . 21

WORK ORDER A0122-21-492426

SCALE AS NOTED

DRAWN RWR

JOB 2108

SHEET

M0.1

ADDITION TO JAMES C WEAVER BASEBALL CENTER

PITCHING LAB &  
WEIGHT ROOM

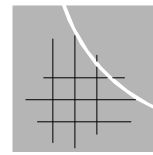
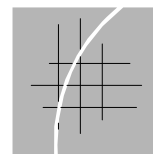
BLACKSBURG - VIRGINIA

SPECIFICATIONS, SCHEDULES  
AND LEGEND - HVAC

BID SET

REVISIONS DATE

SUITE 200 200 N. MAIN STREET  
BLACKSBURG, VA 24060  
P. 540.953.ARCH (2724)  
F. 540.953.2725



colley  
architects pc

design community/ environment

## BID SET

REVISIONS	DATE

### FLOOR PLAN - HVAC

ADDITION TO JAMES C WEAVER BASEBALL CENTER  
**PITCHING LAB &  
WEIGHT ROOM**  
BLACKSBURG - VIRGINIA

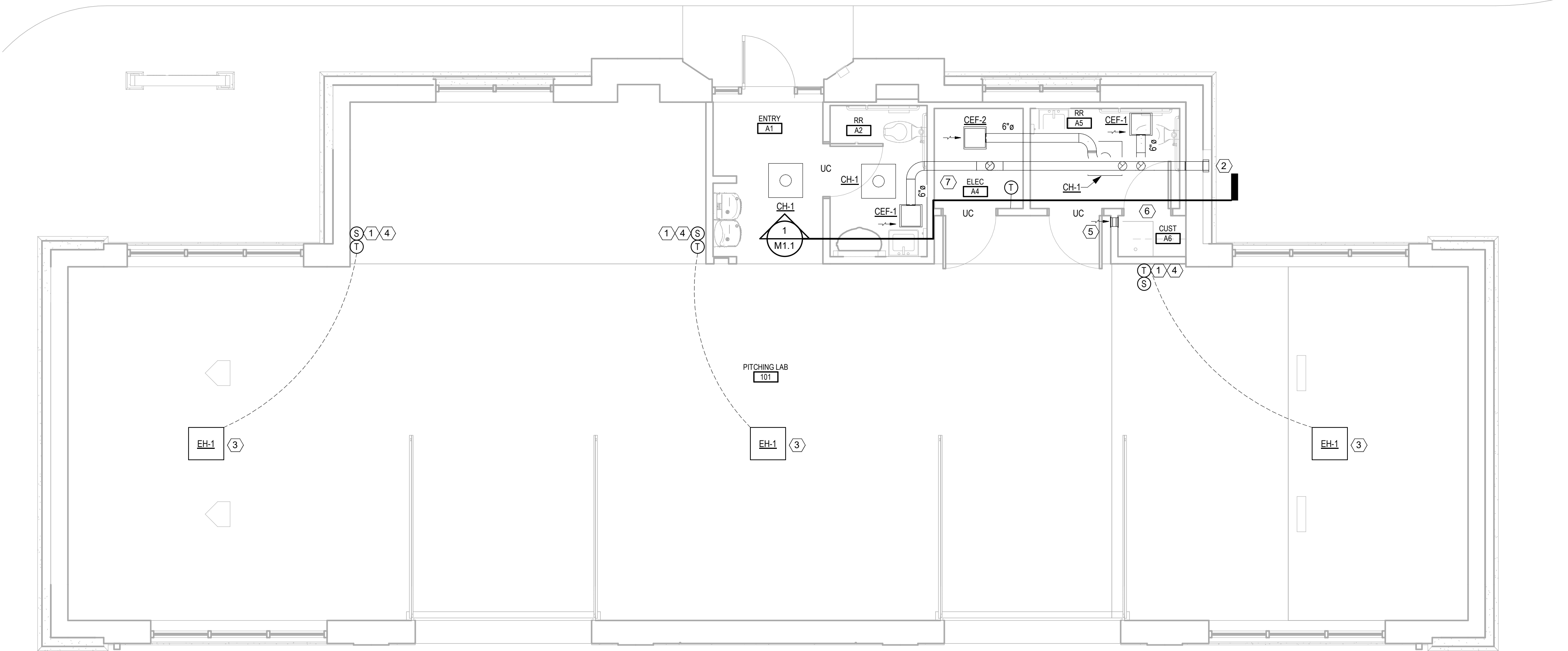


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# M1.1

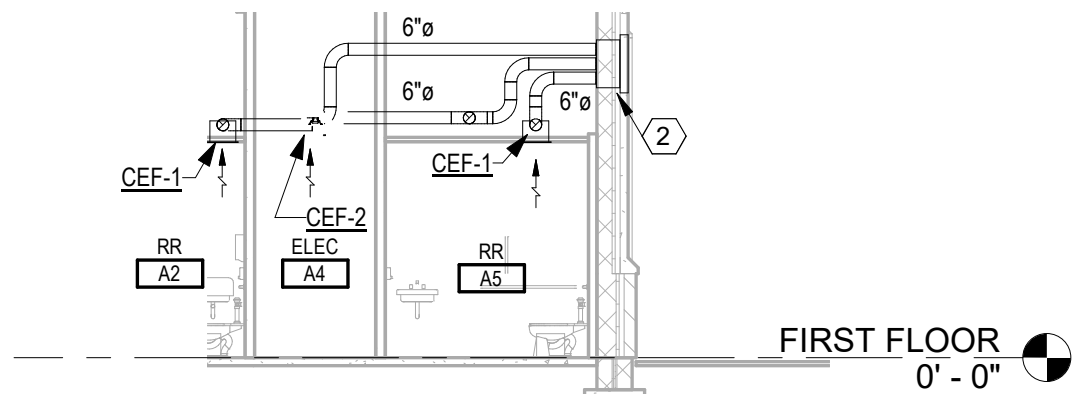
#### PLAN NOTES:

- LOW VOLTAGE SUMMER FAN SWITCH.
- 6"x24" EXHAUST LOUVER WITH MIN. 0.37 SF FREE AREA. TERMINATE THREE STACKED 6"Ø DUCTS AT 6"x24" PLENUM BEHIND LOUVER INCLUDE BIRD SCREEN. SEE ARCH DRAWINGS FOR ELEVATION OF LOUVER. FINISH BY ARCH.
- MOUNT HEATER AS HIGH AS POSSIBLE WHILE MAINTAINING MANUFACTURER REQUIRED CLEARANCES.
- INCLUDE LOCKING METAL COVER AT SENSOR.
- 6"x6" TRANSFER DUCT WITH 6x6 GRILLE MARK "A" ON BOTH SIDES. GRILLES MOUNTED APPROXIMATELY 10'-0" A.F.F.
- 6"x6" DOOR GRILLE.
- COORDINATE DUCTWORK WITH ELECTRICAL PANELS IN THIS ROOM.



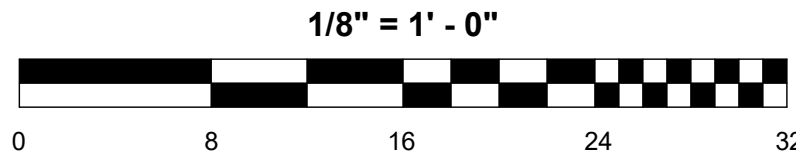
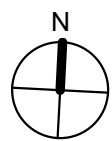
### FLOOR PLAN - HVAC

SCALE 1/4" = 1'-0"



### CEILING EXHAUST FAN DUCTWORK

SCALE 1/8" = 1'-0"



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