

PLUMBING SPECIFICATIONS

PART ONE - GENERAL

- THE OWNER HAS CONTRACT LANGUAGE THAT NEEDS TO BE READ PRIOR TO BID SUBMISSION AS THERE ARE ITEMS THAT MAY SUPPLEMENT OR SUPERSEDE ITEMS NOTED HEREIN. THE OWNER'S CONTRACT DOCUMENTS HAS INFORMATION ON HOW WORK IS TO BE PERFORMED, HOW DOCUMENT SUBMITTALS ARE PROVIDED, RECORD DOCUMENTS ARE SUBMITTED, ETC. SEE THE ARCHITECTURAL DOCUMENTS FOR ADDITIONAL DIVISION 1 INFORMATION.
2. CODE USED IN DESIGN: IBC 2018, UMC-2018, UPC-2018 AND IECC-2018.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE APPLICABLE INTERNATIONAL BUILDING CODE (IBC), LOCAL MECHANICAL CODE (UMC, IMC, ETC.), LOCAL PLUMBING CODE (UPC, IPC, ETC.), NATIONAL ELECTRIC CODES (NEC) AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE CONTRACTOR MUST ARRANGE A VISIT TO THE WORK SITE PRIOR TO BID SUBMISSION TO FULLY UNDERSTAND THE EXISTING CONDITIONS. THE DRAWINGS ARE DIAGNOSTIC AND SHOW THE WORK INTENT BUT NOT NECESSARILY ALL EXISTING OBSTRUCTIONS, PIPES OR DUCT BENDS. DETERMINING SITE CONDITIONS AND ADJUSTING INSTALLATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL PROVIDE THE WORK SHOWN ON THE DRAWINGS AND SPECIFIED FOR THEIR INDIVIDUAL SECTIONS OF WORK. THE WORD "WORK" SHALL MEAN ALL LABOR, TRANSPORTATION, MATERIAL, EQUIPMENT, TOOLS, INSTALLATION, SUPERVISION AND ANY OTHER INCIDENTAL ITEMS OR SERVICES NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE COMPLETE SYSTEMS, WHICH SHALL BE PROVIDED WHETHER OR NOT SPECIFICALLY INDICATED OR NOTED.
6. ALL GENERAL CONDITIONS, SPECIAL REQUIREMENTS OR GENERAL REQUIREMENTS OF THE CONSTRUCTION SPECIFICATIONS ARE MADE PART OF THIS SPECIFICATION AND SHALL BE THE SAME FORCE AND EFFECT AS IF COMPLETELY REPRODUCED.
7. THE WORD "PROVIDE" SHALL MEAN FURNISH AND INSTALL, MAKE ALL FINAL CONNECTIONS AND LEAVE IN AN APPROVED COMPLETE OPERATING CONDITION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL FEES AND OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK.
9. THE CONTRACTOR SHALL CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL OTHER TRADES INCLUDING, BUT NOT LIMITED TO, THE CONTRACT DOCUMENTS, SHOP DRAWINGS, ETC. FOR ALL GENERAL CONSTRUCTION, STRUCTURAL, MECHANICAL, ELECTRICAL AND SPECIALTY CONTRACTOR WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF MATERIAL IN THE BUILDING AS PLANNED, WITHOUT INTERFERENCE WITH OTHER WORK. THE BIDDER IS RESPONSIBLE FOR PROVIDING ALL THE LAYOUTS NEEDED TO PREVENT CONFLICT WITH OTHER TRADES, TO PROVIDE ACCESS AND FOR THE PROPER EXECUTION OF THE WORK.
10. DRAWINGS ARE DIAGNOSTIC AND SCHEMATIC IN NATURE, AND INDICATE THE TYPE, SIZE, ARRANGEMENT AND LOCATION OF MATERIALS AND EQUIPMENT. WORK INCLUDES CERTAIN COMPONENTS, APPURTENANCES AND RELATED SPECIALTIES THAT MAY NOT BE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY ITEMS TO COMPLETE THE WORK IN ACCORDANCE WITH STANDARDS. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO CALL OUT FOR FINISHED WORK, TESTED AND READY FOR OPERATION. DO NOT SCALE DRAWINGS. ARRANGEMENT OF EQUIPMENT AND ROUTING OF PIPES AND DUCTWORK, ETC. INDICATED ON DRAWINGS SHALL BE ROUTED PLUMB AND AT RIGHT ANGLES TO BUILDING CONSTRUCTION AND MAY REQUIRE MODIFICATION DUE TO UNFORESEEN CONDITIONS AND REQUIRE ON SITE REVISIONS DURING CONSTRUCTION. (SEE ALSO "BIDDING".)
11. ALL WORK REQUIRED FOR IDENTICAL/SIMILAR ITEMS SHOWN ON THE DRAWINGS SHALL BE PROVIDED, ALTHOUGH EACH SPECIFIC IDENTICAL/SIMILAR ITEM MAY NOT BE SHOWN IN DETAIL.
12. THE CONTRACTOR SHALL SUBMIT ELECTRONIC PDF SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR ALL EQUIPMENT AND MATERIALS SPECIFIED HEREIN TO THE ENGINEER. THE ENGINEER SHALL REVIEW SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND ISSUE A WRITTEN ASSESSMENT TO THE OWNER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMMENCING FEES NECESSARY TO CHANGE PERMIT DOCUMENTS BASED ON ALTERNATE SUBMITTAL PACKAGES/EQUIPMENT SUBSTITUTIONS.
13. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION PRIOR TO BIDDING. THE OWNER'S REPRESENTATIVE SHALL PREAPPROVE ANY PROPOSED SUBSTITUTION IN WRITING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT OR MATERIALS WITH OTHER BUILDING TRADES, INCLUDING ALL STRUCTURAL, STRUCTURAL OR ARCHITECTURAL ELEMENTS. (SHOP DRAWING DOES NOT RELIEVE THE CONTRACTOR FROM SUBSTITUTE EQUIPMENT COORDINATION REQUIREMENTS.) SUBSTITUTED EQUIPMENT, ANYTHING DIFFERENT FROM SPECIFIED ON THE DOCUMENTS, MUST BE IDENTIFIED AS SUCH DURING THE SUBMITTAL PROCESS. THE CONTRACTOR SHALL IDENTIFY AND ANNOTATE ALL REVISED REQUIREMENTS PER BUILDING TRADE ON THE SHOP DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING DEBITS OR CREDITS IN WRITING FOR THE PROPOSED CHANGES PER BUILDING TRADE.
14. UPON COMPLETION OF CONSTRUCTION,
- 14.1. THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH AN ELECTRONIC CAD AND PDF SET OF AS-BUILT DOCUMENTS ACCURATELY SHOWING THE MATERIALS AND EQUIPMENT AS INSTALLED.
- 14.2. THE CONTRACTOR SHALL PROVIDE THE BUILDING OWNER OR REPRESENTATIVE WITH AN ELECTRONIC (PDF) MANUAL WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT PROVIDED, WITH CONTENT MEETING THE REQUIREMENTS NOTED BELOW.
- 14.2.1. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS.
- 14.2.2. MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
- 14.2.3. NAME, ADDRESS AND CONTACT NUMBER FOR AT LEAST ONE SERVICE AGENCY.
- 14.2.4. HVAC AND SERVICE HOT WATER CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD DETERMINED SET-POINTS SHALL BE PERMANENTLY RECORDED ON A CONTROLS DRAWING AT CONTROL DEVICES OR IN SYSTEM PROGRAMMING INSTRUCTIONS.
- 14.2.5. A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SET-POINTS.
- 14.2.6. COPIES OF GUARANTEES AND/OR WARRANTIES.
15. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY OWNER. REFRIGERATION COMPRESSORS SHALL BE GUARANTEED FOR A MINIMUM OF FIVE (5) YEARS FROM DATE OF OWNER'S ACCEPTANCE. IN ADDITION, THE CONTRACTOR SHALL GUARANTEE THAT THE INSTALLATION OF THE EQUIPMENT SHALL BE IN ACCORDANCE WITH THE CONTRACTOR'S INSTRUCTIONS WILL DEVELOP CAPACITY AND CHARACTERISTICS AS SPECIFIED AND WILL FULFILL EACH AND EVERY REQUIREMENT OF THE DRAWINGS AND SPECIFICATIONS. SHOULD THE INSTALLATION IN ANY WAY FAIL TO DO SO, THE CONTRACTOR WILL, WITHOUT DELAY AND WITHOUT COST TO THE OWNER, PROVIDE WHATEVER ADDITIONAL EQUIPMENT, MATERIAL, AND LABOR REQUIRED TO CORRECT THE DEFICIENCY AND COMPLY WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS.
16. CONTRACTOR SHALL CHECK AND VERIFY ALL SIZES, DIMENSIONS, AND CONDITIONS BEFORE STARTING ANY WORK. ANY DEVIATIONS OR PROBLEMS SHALL BE TRANSMITTED TO THE ENGINEER FOR REVIEW.
17. PROVIDE BASE AND COUNTER FLASHING FOR ITEMS PENETRATING THE ROOF OR EXTERIOR WALLS.
18. STARTERS, VFDs/DISCONNECT SWITCHES AND CONTROLS FOR MOTORS IF NOT UNIT MOUNTED AND/OR SUPPLIED BY THE EQUIPMENT MANUFACTURER, UNLESS NOTED SPECIFICALLY OTHERWISE SHALL FOLLOW:
- 18.1. VFDs TO BE SUPPLIED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. FINAL LOCATIONS COORDINATED WITH THE ENGINEER. WIRING BETWEEN THE VFD AND THE MOTOR SHALL BE SHIELDED POWER CABLE DESIGNED FOR VFD APPLICATIONS, GROUNDED AT BOTH ENDS.
- 18.2. UNLESS NOTED OTHERWISE, LOOSE MOTOR STARTERS, COMBINATION STARTERS, DISCONNECT SWITCHES, MOTOR RATED SWITCHES, TOGGLE SWITCHES, ETC. TO BE SUPPLIED AND INSTALLED BY THE ELECTRICS

CONTRACTOR.

- 18.3. CONTROL AND INTERLOCKING WIRING SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR PERFORMING CONTROLS WORK. (SEE AUTOMATIC TEMPERATURE CONTROLS SECTION FOR ADDITIONAL INFORMATION WITH REGARD TO THIS WIRING RULE.)
19. ALL WORK SHOWN IS NEW UNLESS NOTED OTHERWISE.
20. MAINTAIN OCCUPANCY AND FIRE WALL SEPARATION INTEGRITY AS REQUIRED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ALL OCCUPANCY/FIREWALL SEPARATIONS AND SPECIFIC DETAILS FOR CONSTRUCTION. PROVIDE ALL NECESSARY FIRE RATED SMOKE FIRE DAMPERS, ACCESS DOORS, CAULKING, ETC. FOR APPROVED INSTALLATION.
21. IECC COMPLIANCE: THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH AND PERFORMING ALL REQUIREMENTS AND WORK SET FORTH IN THE IECC COMPLIANCE CERTIFICATE THAT IS INCLUDED IN THESE DOCUMENTS.

BIDDING

1. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. THE CONTRACTOR SHALL COMPARE THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS WITH THE EXISTING CONDITIONS. THE CONTRACTOR SHALL IDENTIFY AND NOTATE ALL WORK OR CONDITIONS THAT ARE IN DISCREPANCY FROM THE CONTRACT DOCUMENTS. ON OR BEFORE THE DATE OF THE BIDDING OPENING, THE CONTRACTOR SHALL, UPON DISCOVERY, IMMEDIATELY NOTIFY AND REPORT, IN WRITING, ANY DISCREPANCIES TO THE ENGINEER. NO EXTRAS OR CHANGE ORDERS WILL BE ALLOWED FOR FAILURE TO PERFORM THE PRE-BID SITE VISIT.
2. BASE PROPOSAL ON MANUFACTURER NAMES LISTED UNLESS "OR EQUAL" IS INDICATED. PROVIDE SUBSTITUTION REQUESTS A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO BID DATE CLOSING TO ALLOW TIME FOR DUE CONSIDERATION OF PROPOSED ALTERNATE. DETERMINATION OF SUBSTITUTION OF QUALITY RESTS SOLELY WITH THE ENGINEER.

PART TWO - PRODUCTS

PLUMBING EQUIPMENT

1. PROVIDE PLUMBING EQUIPMENT AS SPECIFIED AND/OR SCHEDULED HEREIN AND IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. EQUIPMENT SHALL OPERATE ACCORDING TO THE MANUFACTURER'S "OWNER'S OPERATING AND MAINTENANCE MANUAL" TROUBLE FREE AND CONFORMING TO THE ONE-YEAR WARRANTY.

PLUMBING PRODUCTS

1. PRODUCTS THAT CONTACT DRINKING WATER:
 - 1.1. DRINKING WATER SYSTEM COMPONENTS SHALL COMPLY WITH THE REQUIREMENTS OF NSF/ANSI 61 AND NSF/ANSI 372 RESTRICTING THE USE OF LEAD CONTAINING MATERIALS.
2. DOMESTIC WATER PIPING:
 - 2.1. ABOVE GROUND: TYPE "L" COPPER (ASTM B-88), WROUGHT FITTINGS (ASME B16.22), JOINTS: ANSI/ASTM B32, SOLDER: 95/5 TIN/ANTIMONY, 0.2% MAX LEAD, (SADDLE TAPS, SHARKBITE, PROPRESS, EXTRUDED OUTLETS ("PULLED TEES") OR SIMILAR FITTINGS NOT PERMITTED UNLESS SPECIFICALLY APPROVED, (SADDLE TAPS WHEN APPROVED UNDER EXTREME CIRCUMSTANCES TO BE POWERSTOP SADDLE BY POWERSEAL PIPELINE PRODUCTS CORP., MODEL 3425)
3. DEIONIZED WATER PIPING: POLYPROPYLENE, POLYPROPYLENE FITTINGS AND JOINTS PER CURRENT PROPERTY INSTALLATION.
4. DOMESTIC WASTE & VENT PIPING MATERIALS:
 - 4.1. ABOVE GROUND AND BELOW GRADE NO-HUB CAST IRON
 - 4.1.1. PIPE AND FITTINGS: SHALL BE MARKED WITH CISIP INSTITUTE AND LISTED BY NSF. NO-HUB COUPLINGS SHALL CONFORM TO CISPI STD 310 AND MARKED NSF. COUPLINGS SHALL BE HUSKY HIGH PERFORMANCE HEAVY DUTY SD-4000.
 - 4.1.2. EPOXY COATED PIPE AND FITTINGS: NEWAGE CASTING. COUPLINGS SHALL BE HUSKY HIGH PERFORMANCE HEAVY DUTY SD-4000 OR NEWAGE EXTRA HEAVY DUTY.
 - 4.1.3. CAST IRON PIPE SHALL CONFORM TO ASTM-A-888 OR CISPI 30.
 - 4.1.4. ALTERNATE ACCEPTABLE MATERIAL: DWV COPPER.
 - 4.2. STAINLESS STEEL ABOVE GROUND, GREASE WASTE PIPING: JOSAM STAINLESS STEEL PUSH-FIT DRAINAGE SYSTEM. (INCLUDES FLOOR SINKS & DRAINS) EACH JOINT TO BE COMPLETE WITH A JA-3000 SERIES JOINT CLAMP.
- 4.3. THIS PROJECT:

CAST IRON	EPOXY COATED	C.I.	STAINLESS STEEL	SCHEDULE 40

- | | | |
|-------------------|---|---|
| WASTE | X | |
| WASTE BELOW GRADE | | X |
| VENT | X | |
- 4.3. PVC SCH. 40 SOLID WALL PIPE AND PVC DWV FITTINGS: PIPE TO CONFORM TO ASTM D 1784. PVC PIPE TO BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785 AND D 2665. PVC FITTINGS TO ASTM D 2665. BURIED PIPE SHALL BE INSTALLED PER LOCAL CODE AND ASTM D 2321 AND F 1668. SOLVENT CEMENT JOINTS TO BE PRIMER (PER ASTM F 656) AND SOLVENT CEMENT (PER ASTM D 2564) (FOAM CORE PIPE NOT APPROVED.)
 - 4.3.1. PVC MAY ONLY BE USED BELOW GRADE WHERE ACCEPTABLE SOIL CONDITIONS ARE CONFIRMED TO EXIST.
 5. CONDENSATE DRAIN PIPING: TYPE "M" COPPER (ASTM B-88), WROUGHT FITTINGS (ASME B16.22), JOINTS: ANSI/ASTM B32, SOLDER: 95/5 TIN/ANTIMONY, 0.2% MAX LEAD.
 6. PIPE INSULATION: ALL DOMESTIC COLD WATER PIPING (IN UNCONDITIONED SPACES ONLY) AND ALL DOMESTIC HOT WATER PIPING ABOVE GROUND SHALL BE INSULATED WITH 1" THICK FIBERGLASS PIPE INSULATION WITH ALL-SERVICE JACKET AND MAXIMUM K VALUE OF 0.27 AT 75°F. WHERE CLEARANCE LIMITATIONS PREVENT THE USE OF FIBERGLASS INSULATION, A MINIMUM 3/4" THICK CLOSED CELL NEOPRENE PIPE INSULATION MAY BE USED. PROVIDE METAL SADDLES AND RIGID INSULATION AT HANGERS WHERE SYSTEM WEIGHT COMPRESSES INSULATION. PROVIDE ADA COMPLIANT INSULATION ON EXPOSED UNDER SINK PIPING.
 7. PIPE HANGERS: PIPE SIZES 1/2" TO 1 1/2": MALLEABLE IRON, CARBON STEEL, ADJUSTABLE SWIVEL, FLIP RING. PIPE SIZES 2" TO 4": CARBON STEEL, ADJUSTABLE, CLEVIS. PIPE SIZES 6" AND OVER THAT ARE SUBJECT TO EXPANSION & CONTRACTION: ADJUSTABLE STEEL YOKE, CAST IRON ROLL, DOUBLE HANGER. SYSTEM LOAD (PIPE FULL OF DESIGN LIQUID OR GAS) ON HANGER MUST NOT EXCEED MORE THAN 85% OF HANGER CAPACITY.
 8. FLOOR DRAINS, UNLESS OTHERWISE SPECIFICALLY SPECIFIED: MIFAB F1000(-C), HD STAINLESS STEEL STRAINER, CAST LACQUERED BODY, TRAP PRIMER CONNECTION, ANCHOR FLANGE, WEEPHOLES. WITH MEMBRANE CLAMP WHERE APPLICABLE. (2, 3, 4, 5, 6 INCH PIPE SIZE)
 9. WATER SUPPLY TO A DRINK DISPENSER, CARBONATED OR NON-CARBONATED TO HAVE A WATTS LF009QT-S. WATER SUPPLY TO A COFFEE MACHINE OR ICE MAKER TO BE COMPLETE WITH A WATTS 9D (UNLESS THE AH) REQUIRES A REDUCED PRESSURE PRINCIPAL OR FIELD TESTABLE DEVICE SUCH AS A WATTS LF009QT-S). PROVIDE A DRAIN FROM ALL BACKFLOW DEVICES.
 10. DOMESTIC HOT WATER RETURN BANCING VALVES: UNLESS NOTED OTHERWISE, CALIBRATED: OVENTROP MTR (ANSI/NF 372); DYNAMIC: HAYS 2517LF.

PLUMBING NOTES

1. DIELECTRIC FITTINGS SHALL BE USED WHEREVER DISSIMILAR METALS ARE JOINED.
2. PROVIDE ACCESS PANELS IN CEILINGS & WALLS TO ACCESS MECHANICAL/PLUMBING EQUIPMENT AND APPURTENANCES WHERE REQUIRED. DRYWALL CEILINGS: GFRG OR BAUCO+PLUS II. DRYWALL WALLS: BAUCO+PLUS II. RATED DRYWALL WALLS OR CEILINGS: ACUDOR FW-5050-DW. MINIMUM SIZE FOR ACCESS OF EQUIPMENT:

3. PLUMBING FIXTURES: PROVIDE CHROME PLATED ANGEL SAGS WITH ESCUTCHEON PLATES AT PLUMBING FIXTURES. ALL PLUMBING FIXTURES SHALL COMPLY WITH LOCAL REGULATIONS AND ADOPTED WATER CONSERVATION CODES.
4. DISINFECT ALL POTABLE WATER SYSTEMS IN ACCORDANCE WITH PLUMBING CODE AND/OR, AWWA STANDARD. PROVIDE WRITTEN CONFIRMATION TO OWNERS REPRESENTATIVE THAT THIS WORK HAS BEEN COMPLETED.
5. WHERE VITACUICK SYSTEMS ARE APPROVED ON A PER-PROJECT BASIS, "ROUST-A-BOUT" FITTINGS ARE NOT ALLOWED.
6. GAS REGULATORS SUPPLIED SHALL BE OF THE "LOCK UP" TYPE AND SHALL HAVE A STRAINER INSTALLED BEFORE THE REGULATOR. IN LOCATIONS WHERE SEISMIC OR BUILDING CODE REQUIREMENTS DICTATE AN EARTHQUAKE OR SEISMIC ACTUATED VALVE, THE CONTRACTOR SHALL PROVIDE AN ASCE/ANSTI 25-06 LISTED SEISMIC ACTUATED VALVE JUST AFTER THE UTILITY COMPANY METER.
7. ALL EQUIPMENT SHALL BE RATED IN EXCESS OF THE AVAILABLE FAULT CURRENT AT THE POINT OF CONNECTION.
8. WHERE VFDs (VSDs) AND MOTORS ARE PROVIDED BY THE MECHANICAL OR PLUMBING CONTRACTOR: VFD DRIVES SHALL MEET THE FOLLOWING MINIMUM STANDARDS - BUILT-IN BACNET MS/TP COMMUNICATIONS. INTEGRAL FUSED DISCONNECT OR 100% RATED AIR CIRCUIT BREAKER, ALLOW FOR A/C POWER SUPPLY VOLTAGE SURGES TO 25% OVER 480V, 480V TO 375V FROM 480V, FREQUENCY DEVIATION FROM 50 TO 65Hz, VOLTAGE SPIKES UP TO 2X NORMAL INCOMING VOLTAGE FOR 1 MILLISECOND, ACCEPT A 2% VOLTAGE IMBALANCE. VFDs TO BE DANFOSS VLT HVAC DRIVE FC102, ABB ACSH50, YASKAWA Z1000, MITSUBISHI FR-F800. EXTERIOR DRIVES RATED TO 40°CW WITHOUT DE-RATING. INTERIOR DRIVES RATED TO 40°CW WITHOUT DE-RATING. DRIVES MUST HAVE A dv/dt OUTPUT FILTER. BI-DIRECTIONAL COASTING MOTOR RESTART CAPABILITY. BROKEN BELT/LOAD ABNORMALITY DETECTION. ENCLOSURES TO BE RATED FOR THE INSTALLED LOCATION.
9. ELECTRIC MOTORS - MOTORS ON VFD SERVICE, TO HAVE A SHAFT GROUNDING DEVICE, OVER 100 HP TO HAVE A SHAFT GROUNDING DEVICE AND AN INSULATED BEARING ON THE NON-DRIVEN END OF THE MOTOR. (OPPOSITE END OF THE MOTOR RELATIVE TO WHERE THE SHAFT GROUNDING DEVICE IS LOCATED), MOTORS TO COMPLY WITH NEMA MG-1. MOTORS TO BE RATED FOR THE INSTALLED LOCATION.
10. PUMPS: EFFECTIVE 1 JANUARY 2020, EQUIPMENT REGULATED BY THE DEPARTMENT OF ENERGY PUMP STANDARDS SHALL BE TESTED USING THE PERC METHOD. PUMPS BEARING ONLY THE PE100 INDEX ARE NOT APPROVED. SUBMITTALS MUST NOTE THE PUMP EFFICIENCY INDEX AND THE DOE MINIMUM STANDARD.

PART THREE - EXECUTION

1. THE CONTRACTOR SHALL PROVIDE ALL SLEEVES, OPENINGS, CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THE WORK. CUTTING AND PATCHING SHALL BE DONE BY WORKMEN SKILLED IN THE TRADES REQUIRED AND PAID BY THE CONTRACTOR REQUIRING THE WORK COMPLETED. SYSTEMS PASSING THROUGH WATER TIGHT WALLS AND FLOORS SHALL BE FIRE PROOFED. SYSTEMS PASSING THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRE PROOFED WITH THE MATERIAL APPROVED FOR THE FIRE AND TEMPERATURE RATING OF THE ASSEMBLY AND U.L. LISTED. (IF THE ARCHITECT HAS NOT PROVIDED A STANDARD DRAWING/ASSEMBLY FOR AN APPLICATION AND ONE IS NOT AVAILABLE, THE CONTRACTOR IS RESPONSIBLE TO OBTAIN AN "ENGINEERING JUDGEMENT" AND ASSOCIATED DRAWING FOR THE APPLICATION.)
2. EQUIPMENT LOCATED ON A ROOF WHERE NO PARAPET OR GUARD RAIL, 42" HIGH OR MORE, EXIST, MUST BE INSTALLED A MINIMUM OF 10 FEET FROM THE ROOF EDGE. IF NOT POSSIBLE A STATIC LINE ANCHOR POINT PER ANS/ASSE STANDARDS IS TO BE PROVIDED.
3. THE CONTRACTOR SHALL PROVIDE ALL RIGGING, HANDLING OF MATERIALS AND EQUIPMENT, AND THE NECESSARY PROTECTION FOR MATERIALS AND EQUIPMENT.
4. THE CONTRACTOR WILL PROTECT THE WORK AND MATERIAL AGAINST DIRT, THEFT, INJURY OR DAMAGE UNTIL ACCEPTED BY OWNER. ALL WORK SHALL BE TURNED OVER TO OWNER CLEAN AND IN NEW CONDITION.
5. WHERE FLOOR DRAINS OR FLOOR SINKS OR SIMILAR FIXTURES ARE INSTALLED IN FLOORS THAT ARE NOT SLAB-ON-GRADE, OR PIPE PASS THROUGH SAID FLOORS AND THE FLOOR IS TO BE MULED TO ASSEMBLY PER THE OPENING CREATED TO ATTACH THE DRAIN AND THE DRAINING TUBING OR PIPING ASSEMBLY THROUGH THE FLOOR MUST USE A LISTED SYSTEM TO BE TEMPERATURE AND FIRE RATED TO MATCH THE RATING OF THE FLOOR (MIN 2 HOUR).
6. PROVIDE TRAP PRIMERS (OR TRAP DRAINS WHERE APPROVED) FOR FLOOR DRAINS, FLOOR SINKS AND OTHER DEVICES WHERE TRAP SEALS EXIST.
7. EQUIPMENT CONDENSATE DRAINS: FAN COIL, AHU AND OTHER SIMILAR EQUIPMENT CONDENSATE DRAINS MAY OR MAY NOT BE DOCUMENTED ON THE PROJECT DRAWINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE CONDENSATE DRAINS TO AN APPROVED RECEPTOR, SIZE DRAIN TO MATCH OR EXCEED CODE MINIMUMS. PROVIDE A CONDENSATE PUMP WHERE REQUIRED (IE: LITTLE GIANT NUTGEN)
8. EACH CONTRACTOR SHALL PROVIDE ALL FOUNDATIONS, HANGERS, AND SUPPORTS FOR ALL EQUIPMENT SUPPLIED AND/OR INSTALLED UNDER THEIR WORK. ANY EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH VIBRATION ISOLATION AND FLEXIBLE CONNECTIONS TO PIPING AND OR DUCTWORK IF APPLICABLE. MISCELLANEOUS STEEL AND ANCHORS REQUIRED FOR THE INSTALLATION OF THE EQUIPMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE RETENTION OF A STRUCTURAL ENGINEER OR OTHER DESIGN DISCIPLINE TO COMPLETE THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. EG: THE USE OF CONCRETE ANCHORS WILL REQUIRE DOCUMENTATION APPROVAL FROM A STRUCTURAL ENGINEER RETAINED BY THE CONTRACTOR.
9. WHERE PIPES OR CONDUITS PASS THROUGH WALLS, FLOORS, OR CEILINGS IN FINISHED AREAS, THEY SHALL BE FURNISHED WITH ESCUTCHEON PLATES (COLOR PER ARCHITECT AND/OR INTERIOR DESIGNER).
10. PIPES AND/OR CONDUITS PASSING THROUGH WALL, FLOORS AND PARTITIONS SHALL BE PROTECTED BY A MINIMUM OF 1/2" THICK PASSAGE WATER PROOFING OR DAMP PROOFING SHALL BE WATER TIGHT. SLEEVES/PIPS PASSING THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRE PROOFED WITH MATERIAL APPROVED FOR THE FIRE AND TEMPERATURE RATING OF THE ASSEMBLY AND U.L. LISTED. (IF THE ARCHITECT HAS NOT PROVIDED A STANDARD DRAWING/ASSEMBLY FOR AN APPLICATION AND ONE IS NOT AVAILABLE, THE CONTRACTOR IS RESPONSIBLE TO OBTAIN AN "ENGINEERING JUDGEMENT" AND ASSOCIATED DRAWING FOR THE APPLICATION.)
11. AT THE CONCLUSION OF THE JOB, EACH PIECE OF EQUIPMENT, VALVE, SWITCH, STARTER, PANEL, PIPE, LINE, CONDUIT, DUCT, ETC., SHALL BE CLEARLY IDENTIFIED WHETHER EXPOSED OR CONCEALED, COVERED OR UNCOVERED, IN ACCORDANCE WITH OSHA AND ANSI REGULATIONS. IDENTIFY PIPES NEAR EACH VALVE WITH "BRANDY-PERMA CODE PIPE TAPE" OR T & B WESTLINE "TEL-A-PIPE" INDICATING DIRECTION OF FLOW, SERVICE, ZONE, AND SIZE. TAPE SHALL BE APPLIED TO PIPE, VALVE, OR CONDUIT OR DUCT. IDENTIFY AND LABEL EACH SYSTEM WITH 2-INCH LAQUERED BRASS TAGS WITH STAMPED LETTERS FASTENED WITH "S" HOOKS OR CHAINS. EQUIPMENT IS TO BE IDENTIFIED AS TO FUNCTION AND PURPOSE BY MEANS OF PERMANENTLY ATTACHED LAMINATED ENGRAVED PHENOLIC NAMEPLATES WITH BEVELED EDGES, AND WHITE LETTERS ON BLACK BACKGROUND. (NO ADHESIVE LABELS ALLOWED).
12. AT THE CONCLUSION OF THE WORK, ALL EQUIPMENT AND SYSTEMS SHALL BE CLEAN, ADJUSTED, AND TESTED TO PROVIDE A QUIET OPERATING, STABLE, AND SAFELY OPERATING SYSTEM(S). DEMONSTRATE OPERATION OF THE SYSTEM(S) TO THE OWNER'S DESIGNATED REPRESENTATIVE. THE TEST AND BALANCE WORK SHALL BE PERFORMED IN ACCORDANCE WITH NEBB OR AABC STANDARDS, BY INDEPENDENT, APPROVED, AND CERTIFIED TEST AND BALANCE PERSONNEL.
13. IN LOCATIONS WHERE SEISMIC DESIGN REQUIREMENTS EXIST, THE MECHANICAL/PLUMBING CONTRACTOR IS RESPONSIBLE FOR RETAINING AND PAYING FOR THE DESIGN SERVICES OF A STRUCTURAL ENGINEER TO CREATE THE DESIGN AND INSTALLATION OF SEISMIC RESTRAINTS AND/OR MECHANICAL/PLUMBING SYSTEMS SEISMIC RESTRAINT SUPPORT, PER THE PROJECT BUILDING CODE. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT MECHANICAL SYSTEMS SHOP DRAWINGS BASED UPON MULTI DISCIPLINE COORDINATION. INCLUDED WITH THE SHOP DRAWING SUBMISSION SHALL BE SEISMIC RESTRAINT DRAWINGS NOTING WHERE SEISMIC SUPPORT IS REQUIRED. FOR EACH AREA NOTED NEEDING SEISMIC RESTRAINTS, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND SEISMIC DETAILING THE REQUIRED SUPPORT. THE SEISMIC SUPPORT DRAWINGS SHALL BE SIGNED AND SEALED BY A REGISTERED STRUCTURAL ENGINEER IN THE SAME STATE AS THE PROJECT. IN ADDITION TO THE PROJECT DESIGN TEAM REVIEW, THE

SEISMIC SUPPORT DRAWINGS WILL BE ISSUED TO THE LOCAL BUILDING DEPARTMENT FOR REVIEW AS PART OF A DEFERRED SUBMITTAL FOR THE BUILDING DOCUMENTS. COMMENCEMENT OF CONSTRUCTION PRIOR TO BUILDING DEPARTMENT REVIEW IS AT THE CONTRACTOR'S RISK.

14. PIPE HANGERS: PIPE SIZES 1/2" TO 1 1/2" - 5'-0" MAX SPACING, 3/8" MIN. ROD DIAMETER; PIPE SIZES 2" TO 3" - 8'-0" MAX SPACING, 1/2" MIN. ROD DIAMETER. PIPE SIZES 4 TO 6'-10'-0" MAX SPACING, 5/8" MIN. ROD DIAMETER.
15. WATER PROOFING AND FLASHING OF PIPE PENETRATIONS THROUGH THE EXTERIOR WALL AND ROOF SHALL BE THE RESPONSIBILITY OF THE INSTALLING MECHANICAL/PLUMBING CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER, MEA AND METHODS WITH GENERAL CONTRACTOR/OWNER FOR THE VARIOUS BUILDING SYSTEMS. ROOFING MEMBRANE PENETRATIONS MUST BE PERFORMED BY A CONTRACTOR THAT IS WARRANTY APPROVED FOR THE SPECIFIC ROOFING SYSTEM.
16. CONTRACTOR SHALL OBTAIN FROM THE ARCHITECT THE EXACT LOCATION OF EQUIPMENT, PLUMBING FIXTURES, FLOOR DRAINS AND ANY OTHER APPARATUS SPECIFIED IN THESE DRAWINGS.
17. PROVIDE CLEAN OUTS IN SANITARY, WASTE AND DRAIN LINES AS SHOWN AND AS REQUIRED BY LOCAL CODE. ALL CLEANOUTS SHALL BE READILY ACCESSIBLE. PROVIDE TWO WAY CLEANOUTS IN GREASE WASTE LINES AT 50 FOOT INTERVALS OR LESS.
18. PROVIDE BALANCE VALVE FOR HOT WATER RETURN SYSTEM AS REQUIRED.
19. PROVIDE PRESSURE REDUCING VALVES IN PLUMBING SYSTEMS AS REQUIRED.
20. PROVIDE HEAT TRAPS (INTEGRAL OR EXTERNAL) FOR ALL WATER HEATING EQUIPMENT.
21. INSTALL CONDENSATE PIPING, WITH P-TRAP, FULL SIZE FROM EQUIPMENT TO FLOOR SINK, MOP SINK OR TAILPIPE (3/4" MAXIMUM CONDENSATE DRAIN LINE SIZE FOR TAILPIPE).

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SPECIFICATIONS

Southern Nevada Health District

SNHD LAB EXPANSION
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Las Vegas, Nevada 89106

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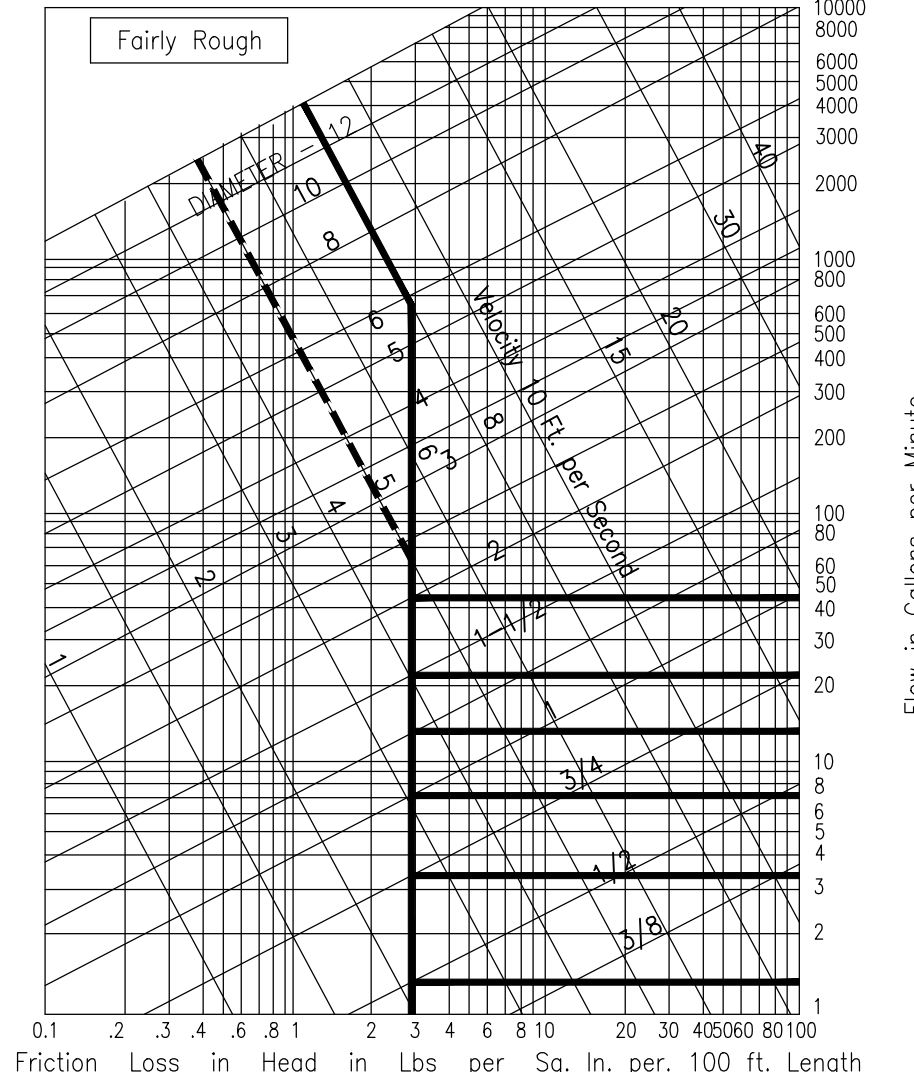
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DOMESTIC WATER BRANCH PIPE SIZING CALC

PROJECT: SNHD LAB 625 SHADOW LANE DATE: 05/24/2021

PROJECT NO.: L20211 BY: P.E. CHECKED BY: P.E.

Friction Loss in Head in Lbs per Sq. In. per. 100 ft. Length



STATIC HEAD =	9	FT. x	0.43 =	3.87	PSI
PRESSURE AVAIL. =	34.	(SERVICE PRESS.) - (3.87 + 25 (REQ. PRESS.) + 0	(METER)) =	5.13
LONGEST RUN =	115	FT.			
50 % FITTING LENGTH =	58	FT.			
TOTAL LENGTH =	173	FT.			
ALLOWABLE FRICTION LOSS/100 FT. =	$\frac{(5.13) * 100}{173} = 2.97$				

COLD WATER	MAX. FLOW (GPM)	FLUSH TANK F.U.	FLUSH VALVE F.U.	VELOCITY (FPS)
1/2"	1.4	0	-	2.1
3/4"	3.3	3	-	2.6
1"	7.2	8	-	3.1
1 1/4"	13	18	-	3.5
1 1/2"	21	32	-	4.0
2"	42	95	31	4.7

HOT WATER	MAX. FLOW (GPM)	FLUSH TANK F.U.	FLUSH VALVE F.U.	VELOCITY (FPS)
1/2"	1.4	-	-	2.1
3/4"	3.3	-	-	2.6
1"	7.2	-	-	3.1
1 1/4"	13	-	-	3.5
1 1/2"	21	-	-	4.0
2"	42	-	-	4.7

PLUMBING FIXTURE SPECIFICATIONS


MARK	DESCRIPTION
<u>WC-1</u>	WATER CLOSET (ACCESSIBLE) - AMERICAN STANDARD CADET MODEL #2467.016, FLOOR MOUNTED, VITREOUS CHINA, 2 1/8" TRAPWAY, ELONGATED BOWL, PRESSURE ASSISTED SIPHON JET, 1.6 GPF. SEAT: AMERICAN STANDARD MODEL #5901.100, OPEN FRONT, LESS COVER. MOUNT TO ADA REQUIREMENTS.
<u>L-1</u>	LAVATORY (ACCESSIBLE) - AMERICAN STANDARD #0355.012, LUCERNE VITREOUS CHINA, WITH FRONT OVERFLOW AND FAUCET LEDGE AT 4" OC, WITH SELF SUPPORTING CARRIER. FAUCET: ZURN #6915-XL, BATTERY POWERED, SENSOR ACTIVATED, WATER SENSE CERTIFIED. TRAP: 1 1/4" X 1 1/2" ADJUSTABLE P-TRAP. STAINLESS STEEL BRAIDED RISERS WITH LOOSE KEY STOPS. MOUNT TO ADA REQUIREMENTS. PROVIDE PIPE PROTECTION PER ADA REQUIREMENTS.
<u>LS-1</u>	LAB SINK - LAB FIXTURES MODEL #U59E, UNDERMOUNT SINK, 28"x15"x12" DEEP, FAUCET: T&S MODEL #B-0502-537K FLOOR MOUNTED DOUBLE PEDAL VALVE W/DUMMY RIGID GOOSE NECK AND SHORT ELBOW, 2.2 GPM.
<u>S-1</u>	SINK (ACCESSIBLE) -ELKAY MODEL LRAD3322, 33"x22"x6" DEEP, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF RIMMING, FAUCET: ELKAY MODEL #LKD2433, SIDE SPRAY, BLADE TYPE HANDLES, GOOSENECK, REMOVABLE STRAINER, 1 1/2" ADJUSTABLE P-TRAP. SUPPLIES: FLEXIBLE RISERS WITH STOPS. PROVIDE WITH INSINKERATOR GARBAGE DISPOSAL MODEL #75941.
<u>EW-C-1</u>	ELECTRIC WATER COOLER - (ACCESSIBLE) ELKAY #LZST8WSLK, WALL MOUNT, BARRIER FREE ACCESS, WITH BOTTLE FILLER. 8.0 GPH OF 50°F WATER BASED ON 80° INLET / 90°F AMBIENT. 115V/60PH, 370 WATTS. MOUNT TO ADA REQUIREMENTS. REFRIGERANT SHALL BE NON-CFH/NON-HCFC.
<u>FD-1</u>	FLOOR DRAIN - JAY R. SMITH #2010A, CAST IRON BODY, ADJUSTABLE ROUND STRAINER, TRAP PRIMER CONNECTION.
<u>FD-2</u>	FLOOR DRAIN - JAY R. SMITH #2010B, CAST IRON BODY, ADJUSTABLE SQUARE STRAINER, TRAP PRIMER CONNECTION.
<u>EW-1</u>	EMERGENCY EYEWASH - GUARDIAN EQUIPMENT MODEL #GBF1849. BARRIER FREE, DECK MOUNTED WITH 2 GS-PLUS SPRAY HEADS ON CHROME PLATED BRASS SUPPLY ARMS. PROVIDE WITH GUARDIAN TEMPERING VALVE MODEL #G3600LF.
<u>IMB-1</u>	ICE MAKER BOX - GUY GRAY MODEL #BIM875, RECESSED, GALVANIZED STEEL. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	ROUGH-IN (INCHES)						REMARKS
		C.W.	TW	HW	V	S/W	TRAP	
<u>WC-1</u>	WATER CLOSET	1	-	-	2	4	-	FLOOR MOUNT - ACCESSIBLE
<u>L-1</u>	LAVATORY	1/2	-	1/2	1 1/2	2	1 1/4 x 1 1/2	WALL HUNG - ACCESSIBLE
<u>LS-1</u>	LAB SINK	1/2	-	1/2	1 1/2	2	1 1/4 x 1 1/2	UNDERMOUNT
<u>S-1</u>	SINK	1/2	-	1/2	1 1/2	2	-	COUNTERTOP - ACCESSIBLE
<u>EW-1</u>	WATER COOLER	1/2	-	-	1 1/2	2	-	ACCESSIBLE
<u>FD-1</u>	FLOOR DRAIN	-	-	-	2	3	-	SIZE AS SHOWN UNLESS NOTED OTHERWISE
<u>FD-2</u>	FLOOR DRAIN	-	-	-	2	3	-	SIZE AS SHOWN UNLESS NOTED OTHERWISE
<u>EW-1</u>	EYEWASH	-	1/2	-	-	-	-	
<u>IMB-1</u>	ICE MAKER BOX	1/2	-	-	-	-	-	

PROVIDE STOPS ON ALL FIXTURES NOT FURNISHED WITH INTEGRAL STOPS. REFER TO PLANS FOR TEMPERED/HOT WATER LOCATIONS.

RECIRCULATING PUMP SCHEDULE

MARK	MANUFACTURER MODEL	SERVICE	FLOW GPM	HEAD FT	MOTOR		REMARKS
					HP	V/PH/HZ	
	B&G ECOCIRC	HWR	0.5	15	-	115	1, 2, 3

1. PROVIDE SUPPLEMENTAL SUPPORT STEEL WITH NEOPRENE ISOLATION PAD.
2. PUMP SHALL OPERATE PER PIPE MOUNTED AQUASTAT.
3. SET AQUASTAT TO PUMP "ON" AT 110° F AND "OFF" AT 120° F.



MAY 24 2021



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SCHEDULES
Southern Nevada Health District
SNHD LAB EXPANSION
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Las Vegas, Nevada 89106

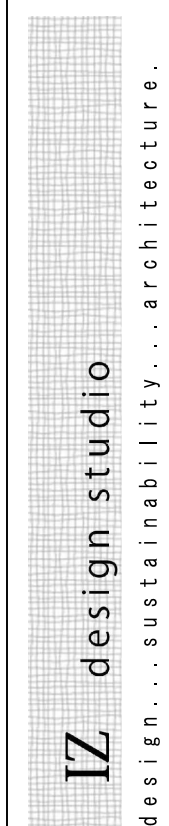
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Project Number	20427
Date	05/24/2021
Drawn By	MSA
Checked By	PE

P002



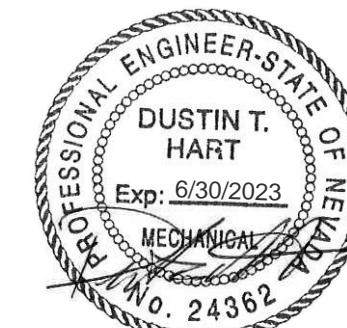
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DIAGRAMS
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SNHD LAB EXPANSION
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Las Vegas, Nevada 89106

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1. ALL WATER PIPING SHALL BE INSTALLED ON THE INTERIOR SIDE OF THE BUILDING.
2. THE CUTTING, NOTCHING AND BORING OF HOLES IN FLOOR JOIST AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL PLUMBING ROUGH-IN LOCATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURES AND EQUIPMENT LOCATIONS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS REQUIRED TO ACCOMMODATE HIS WORK.
5. SANITARY DRAINAGE PIPING SHALL BE SLOPED: UNDER 3" AT 1/4" PER FOOT, 3" AND LARGER AT 1/8" PER FOOT.
6. PLUMBING CONTRACTOR SHALL COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES PRIOR TO COMMENCING WORK.
7. ALL PLUMBING FIXTURES SHALL BE WATER CONSERVATION TYPE AS MANDATED BY LOCAL BUILDING DEPARTMENT.
8. ALL WATER CLOSETS DESIGNATED AS ACCESSIBLE SHALL BE INSTALLED SUCH THAT THE ACTUATOR IS OPERABLE FROM THE WIDE SIDE OF THE WATER CLOSET.
9. PRIOR TO INSTALLATION OF SEWER AND WATER PIPING BELOW GRADE COORDINATE EXISTING LOCATIONS AND DEPTHS OF BURIAL WITH CIVIL AND FOUNDATION DRAWINGS AND CORRESPONDING ENGINEERS.
10. REFER TO THE PLUMBING DIAGRAMS THAT APPLY TO THE WORK ON THIS DRAWING. THESE DIAGRAMS PROVIDE GUIDANCE AS TO INSTALLATION INTENT AND DO NOT NECESSARILY SHOW ALL COMPONENTS REQUIRED.

- 1 2" VENT UP IN WALL.
- 2 2" WASTE AND VENT IN WALL FROM FIXTURE.
- 3 CONNECT NEW 4" WASTE TO EXISTING 4" WASTE. FIELD VERIFY EXACT LOCATION, SIZE AND INVERT PRIOR TO COMMENCING WORK.
- 4 3" VENT THRU ROOF AT A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
- 5 PROVIDE CONDENSATE PUMP IF GRAVITY DRAIN IS NOT PRACTICAL.
- 6 ROUTE 3/4" CD DOWN IN WALL TO TAILPIECE OF SINK.
- 7 3" WASTE UP IN WALL. BRANCH 2" WASTE IN WALL TO LAVATORY SINKS AND DRINKING FOUNTAIN.
- 8 PROVIDE 2" DIRECT DRAIN CONNECTION TO LAB EQUIPMENT, WITH P-TRAP. COORDINATE DRAIN LOCATION IN FIELD WITH EQUIPMENT REPRESENTATIVE.
- 9 PROVIDE SINK WITH CHEMICAL NEUTRALIZATION KIT ON DRAIN LINE.



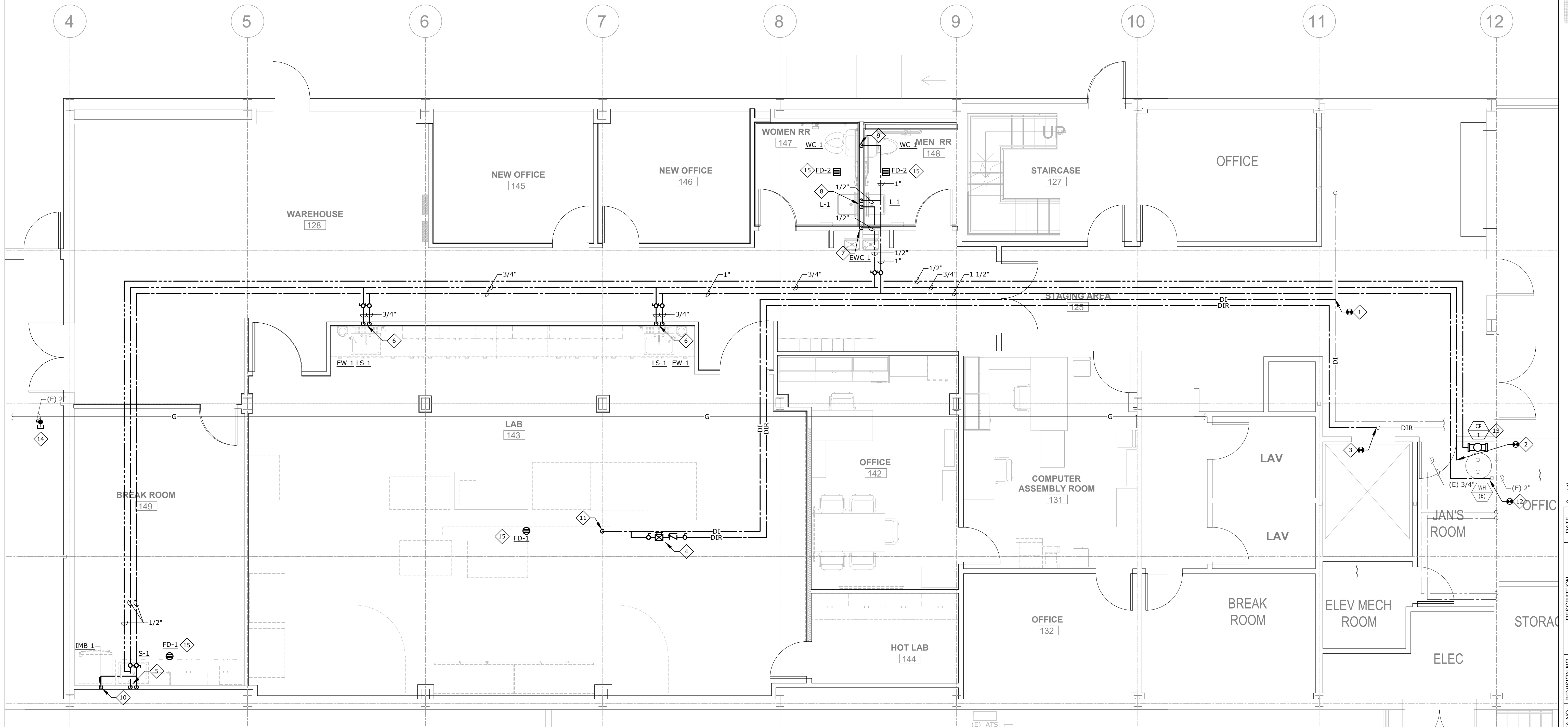
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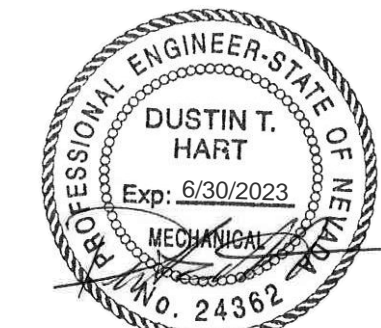
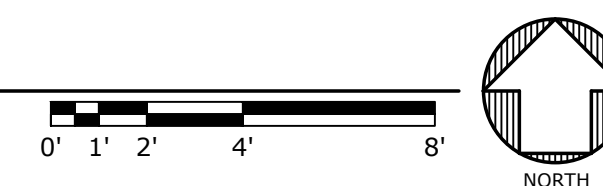
- 1 CONNECT NEW 3/4" DI WATER LINE TO EXISTING 3/4" DI WATER IN CORRIDOR.
- 2 CONNECT NEW 3/4" HW TO EXISTING 3/4" HW MAIN DOWNSTREAM OF WATER HEATER.
- 3 CONNECT NEW 3/4" DI RETURN WATER LINE TO EXISTING 3/4" DI WATER RETURN IN CORRIDOR.
- 4 PROVIDE LINE-SIZE CHECK VALVE, BACKFLOW PREVENTER VALVE, AND ISOLATION VALVES ON DI WATER RETURN LINE. VALVES SHALL MATCH BUILDING STANDARDS.
- 5 1/2" HW AND CW DOWN TO SINK.
- 6 3/4" HW AND CW DOWN TO LAB SINK. ROUTE WATER PER MANUFACTURERS REQUIREMENTS TO THE EYEWASH.
- 7 1/2" CW DOWN TO ELECTRIC WATER COOLER.
- 8 1/2" HW AND CW DOWN TO EACH THERMOSTATIC MIXING VALVE (LEONARD 270-LF OR EQUIVALENT). ROUTE 1/2" TW AND CW TO EACH LAVATORY AND SET DISCHARGE TEMPERATURE TO 105°F.
- 9 1" CW DOWN IN WALL TO EACH WATER CLOSET.
- 10 1/2" CW DOWN TO ICE MAKER BOX.
- 11 3/4" DI WATER DOWN TO LIAISON XL, ATELICA CH AND ATELICA IM PER MANUFACTURERS RECOMMENDATIONS.
- 12 CONNECT NEW 1 1/2" CW TO EXISTING 2" CW MAIN.
- 13 SEE A/P003 FOR MORE INFORMATION.

14 VALVE AND CAP EXISTING GAS STUB FOR FUTURE USE.

15 PROVIDE PRESSURE DEPENDANT TRAP PRIMER.



PLUMBING - DOMESTIC WATER PLAN



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