PLUMBING GENERAL NOTES

- SCOPE OF WORK:
- 1.1. FURNISH ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT AND FACILITIES NECESSARY TO FURNISH, FABRICATE, DELIVER, STORE AND INSTALL ALL WORK NOTED ON THE DRAWINGS.
- 1.2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK NECESSARY TO MAKE A COMPLETE SYSTEM WHETHER OR NOT SUCH DETAILS ARE MENTIONED IN THESE NOTES OR SHOWN ON THE PLANS, BUT WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE SYSTEM, EXCEPTING ONLY THOSE PORTIONS THAT ARE SPECIFICALLY MENTIONED HEREIN OR PLAINLY MARKED ON THE ACCOMPANYING DRAWINGS AS BEING INSTALLED UNDER ANOTHER SECTION OF THE SPECIFICATION.
- 2. CODES AND PERMITS: ALL EQUIPMENT, INSTALLATION, ETC... SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES, INCLUDING CALIFORNIA TITLE 24, CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING PARTS OF TITLE
- 24, CALIFORNIA CODE OF REGULATIONS (CCR): 2.1. TITLE 24, PART 2, CCR (2019 CALIFORNIA BUILDING CODE W/ AMENDMENTS)
- 2.2. TITLE 24, PART 3, CCR (2019 CALIFORNIA ELECTRICAL CODE W/ AMENDMENTS)
- 2.3. TITLE 24, PART 4, CCR (2019 CALIFORNIA MECHANICAL CODE W/ AMENDMENTS)
- 2.4. TITLE 24, PART 5, CCR (2019 CALIFORNIA PLUMBING CODE W/ AMENDMENTS)
- 2.5. TITLE 24, PART 9, CCR (2019 CALIFORNIA FIRE CODE W/ AMENDMENTS) CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS.
- 3. SITE INSPECTION: CONTRACTOR SHALL VISIT THE SITE OF WORK PRIOR TO SUBMISSION OF HIS BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH THE WORKING CONDITIONS & EXACT NATURE OF THE WORK. SUBMISSION OF A BID ACKNOWLEDGES FULL RESPONSIBILITY FOR FURNISHING A COMPLETE & FUNCTIONAL SYSTEM. NO CHANGES IN CONTRACT WILL BE MADE TO ACCOMMODATE OR ALLOW EXTRA FUNDING FOR ANY OMISSIONS WHICH RESULTS FROM A FAILURE TO THOROUGHLY MAKE THE EXAMINATION.
- 4. LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND DEPTHS OF UTILITIES PRIOR TO STARTING WORK OF THIS SECTION. MAKE REQUIRED ADJUSTMENTS TO CONNECT TO UTILITIES. IF INDICATED POINTS OF CONNECTION CANNOT BE MADE TO EXISTING UTILITIES AS FOUND. THE CONTRACTOR SHALL, BEFORE CONTINUING, NOTIFY THE ENGINEER PRIOR TO INSTALLING ANY WORK WHICH MAY BE AFFECTED.
- 5. ALL DIMENSIONS AND LOCATIONS PER ARCHITECTURAL DRAWINGS.
- 6. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY AVAILABLE SPACES FOR INSTALLING THE WORK. 7. COORDINATION: THE DRAWINGS ARE DIAGRAMMATIC & INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE BEST ARRANGEMENT OF ALL DUCT, PIPES, CONDUIT, ETC..
- 8. WORKMANSHIP: THE WORK SHALL BE ACCOMPLISHED IN A THOROUGH & WORKMANLIKE MANNER SATISFACTORY TO AND MEETING THE APPROVAL OF THE ENGINEER AND ARCHITECT.
- 9. GUARANTEE: CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR & MATERIAL ON ALL WORK AGAINST
- DEFECTS IN WORKMANSHIP & MATERIALS FOR A PERIOD OF ONE YEAR. 10. MATERIALS: ALL MATERIALS, APPLIANCES & EQUIPMENT SHALL BE NEW & THE BEST OF THEIR RESPECTIVE KIND. FREE
- FROM ALL DEFECTS AND OF THE MAKE, BRAND, AND QUANTITY SPECIFIED. 11. SUBMITTALS: CATALOG INFORMATION & CUTS OF ALL EQUIPMENT, DEVICES & TRIM SHALL BE SUBMITTED FOR REVIEW (SIX COPIES OF EACH). ALL SUBMITTALS TO BE APPROVED BY ARCHITECT, ENGINEER.
- 12. ALL HOT WATER SUPPLY AND RECIRCULATION PIPING TO BE INSULATED PER TITLE 24 TABLE 1-G AS FOLLOWS:

INSULATION THICKNESS, IN. (K=0.23(R-4.2)BTUH-IN/SQ.FT. F OR LESS) 1/2",3/4",1"

1-1/4" through 6"

- CLEAN-OUTS SHALL BE INSTALLED AS PER SECTION(S) 707 AND 719 OF THE PLUMBING CODE.
- 14. PROVIDE FELT WITH METAL BACKING VIBRATION ISOLATION SLEEVES OR PADS AT ALL PIPE HANGERS OR SUPPORTS AND ALL POINTS WHERE PIPING COMES IN CONTACT WITH ANY PORTION OF THE STRUCTURE. APPLIES TO ALL WATER AND WASTE PIPING. PROVIDE FELT AROUND ALL PVC PIPING AT SUPPORTS FOR THERMAL EXPANSION.
- 15. ALL PIPES, DUCTS AND CONDUITS SHALL BE SUPPORTED AND BRACED PER "SMACNA" GUIDE LINES.
- 16. PLUMBERS TAPE WILL NOT BE ACCEPTED AS A PERMANENT SUPPORT FOR ANY PIPING OR DEVICES
- 17. VALVES SHALL BE FULL PORT, BRONZE 1/4 TURN BALL TYPE BE NIBCO, MILWAUKEE, WATTS, CRANE, STOCKHAM OR EQUAL. 4" TO 6" SHALL BE GATE VALVE BRONZE BODY, RISING STEM BE NIBCO, MILWAUKEE, WATTS, CRANE, STOCKHAM OR EQUAL. SERVICE PRESSURE SHALL BE SUITABLE FOR SERVICE INTENDED. PROVIDE AND INSTALL IDENTIFICATION TAGS ON ALL VALVES. VALVES IN EXPOSED COMMON AREAS TO HAVE LOCKING HANDLES. NO IRON BODY VALVES WILL
- 18. PROVIDE AND INSTALL DIELECTRIC UNIONS BETWEEN ALL COPPER AND GALVANIZED & IRON PIPING & COMPONENTS. (AS WATTS, ZURN OR EQUAL).
- 19. PENETRATIONS IN WALLS, FLOORS, OR CEILINGS, WHICH REQUIRE PROTECTED OPENINGS SHALL BE FIRE-STOPPED. RE-STOPPING SHALL BE AN APPROVED MATERIAL, SECURELY INSTALLED AND CAPABLE OF MAINTAINING ITS INTEGRITY WHEN SUBJECTED TO THE TIME-TEMPERATURE CURVED OF SFM STD.# 12-43-3 AND STD.# 12-43-1. INSTALLATION INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE INSPECTION AUTHORITY AND BE MAINTAINED AT THE JOB SITE.
- 20. PROVIDE WATERTIGHT FLASHING WHEREVER PIPES PASS THROUGH EXTERIOR WALLS, ROOF AND FLOORS. 21. CUTTING AND PATCHING: ALL CUTTING & PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED. PROVIDE ALL NECESSARY REQUIREMENTS TO THE PROJECT MANAGER. PROTECTION AGAINST DUST AND DEBRIS SHALL BE TO THE SATISFACTION OF THE PROJECT MANAGER.
- 22. CLEANUP: UPON COMPLETION OF THE WORK UNDER THIS SECTION THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIALS. EQUIPMENT & DEBRIS INCIDENTAL TO THIS WORK & LEAVE HE PREMISES CLEAN AND ORDERLY. PROVIDE NEW CEILING TILES (TO MATCH EXISTING) IF ANY DAMAGED DURING CONSTRUCTION.
- 23. FIRE SPRINKLER SYSTEM TO BE HYDRAULICALLY DESIGNED BY FIRE SPRINKLER CONTRACTOR, ALL, EQUIPMENT. COMPONENTS & PIPE RUNS SHOWN FOR REFERENCE ONLY.
- 24. DELETED
- 25. WASTE PIPE SIZES THAT ARE 3 INCHES OR SMALLER SHALL BE EVALUATED AT 2% SLOPE.
- 26. WATER, SEWER, VENT, AND FIRE PIPES THROUGH CONCRETE WALLS AND FLOORS SHALL HAVE PIPE -SLEEVES WITH NON COMBUSTIBLE SEALING.
- 27. ALL HOSE BIBBS SHALL BE EQUIPPED WITH AN APPROVED NON REMOVABLE VACUUM BREAKER.
- 28. RUN A FULL SIZE DRAIN LINE FROM WATER HEATERS TEMPERATURE AND PRESSURE RELIEF VALVE TO NEAREST FLOOR SINK OR TO AN APPROVED LOCATION.
- 29. PROVIDE ACCESS DOORS TO ALL CONCEALED VALVES, STRAINERS, TRAP PRIMERS, ETC.. PROVIDE STAINLESS STEEL ACCESS PANELS & FRAMES FOR ALL TILED AREAS. 30. ALL PIPING IN FINISHED AREAS SHALL BE RUN CONCEALED. EXPOSED PIPING, WHERE NECESSARY, SHALL RUN AS HIGH
- AS POSSIBLE AND TIGHT TO THE WALLS. 31. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN TEN (10) FEET FROM OR AT LEAST THREE (3) FEET ABOVE ANY
- WINDOW, DOOR, AIR INTAKE OR VENT SHAFT. 32. ALL VENTS AND FLUE OUTLETS SHALL BE A MINIMUM OF 10 FEET FROM ANY FRESH AIR INTAKES.
- 33. WATER HEATERS SHALL BE SEISMICALLY BRACED.
- 34. INSTALL WATER HAMMER ARRESTORS ON EACH COLD AND HOT WATER FIXTURE BRANCH AS RECOMMENDED BY PLUMBING AND DRAINAGE INSTITUTE WH-210 STANDARD. DEVICES SHALL BE FACTORY MADE WITH PERMANENT CUSHION OF GAS OR AIR. PROVIDE ACCESS PANEL.
- 35. DELETED
- 36. SHOWER TUB-SHOWER COMBINATION SHALL HAVE INDIVIDUAL SHOWER CONTROL VALVE OF THE PRESSURE BALANCE
- OR THE THERMOSTATIC MIXING VALVE TYPE, SET AT 120'F MAXIMUM. 37. PLUMBING CONTRACTOR SHALL PRESSURE TEST EXISTING GAS LINES THAT IS BEING REUSED. PRESSURE TEST SHALL BE FOR 5 PSI SYSTEM AND SHALL COMPLY WITH 2019 CALIFORNIA PLUMBING CODE AND CITY OF LOS ANGELES BE FOR 5
- PSI SYSTEM AND SHALL COMPLY BUILDING ABO SAFETY MECHANICAL SECTION. 38. TRAP PRIMERS: PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR DRAINS. PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR SINKS NOT RECEIVING CONTINUOUS DISCHARGE OF WASTE WATER. PROVIDE AND INSTALL TRAP PRIMERS IN ACCESSIBLE LOCATIONS WITH ACCESS PANELS IF REQUIRED.
- 39. NEW POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE ACCORDING TO THE METHOD SET IN SECTION 609.9 OF THE PLUMBING CODE.

PLUMBING ENERGY REQUIREMENT NOTES

- THE CALIFORNIA ENERGY CONSERVATION STANDARDS HAVE BEEN REVIEWED AND THE DESIGN SUBMITTED CONFORMS SUBSTANTIALLY WITH THESE REGULATIONS:
- 1. THE BUILDER SHALL PROVIDE THE BUILDING OWNER, MANAGER, AND ORIGINAL OCCUPANTS THE FOLLOWING: 1.1. A LIST OF DOMESTIC WATER HEATING, FEATURES, MATERIALS COMPONENTS, AND CONSERVATION INSTALLED IN
 - THE BUILDING, AND INSTRUCTIONS ON HOW TO USE THEM EFFICIENTLY. 1.2. REQUIRED ROUTING MAINTENANCE ACTION SHALL BE CLEARLY STATE AND INCORPORATED ON A READILY
 - ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING THE MAINTENANCE MANUAL. 1.3. DOMESTIC WATER HEATERS SHALL BE CERTIFIED AND LISTED BY THE CALIFORNIA ENERGY COMMISSION.
 - EXCEPTION: NON-STORAGE TYPE ELECTRIC WATER HEATERS. SECTION 2-4314 (a). 1.4. UNFIRED HOT WATER STORAGE TANKS SHALL BE INSULATED TO A THERMAL RESISTANCE OF R-6. SECTION 2-5318
 - 1.5. ALL HOT WATER PIPING SHALL BE INSULATED IN ACCORDANCE WITH TABLE 2-53E. SECTION 2/53.E. INSULATION MINIMUM R-VALUE FOR PIPES 2" AND SMALLER IS R-4. INSULATION MINIMUM R-VALUE FOR PIPES 2' AND LARGER
 - 1.6. SERVICE WATER HEATER SYSTEMS SHALL BE EQUIPPED WITH AUTOMATIC TEMPERATURE CONTROLS CAPABLE OF ADJUSTMENT FROM THE LOWEST TO THE HIGHEST ACCEPTABLE TEMPERATURE SETTING FOR THE INTENDED USE. SECTION 2-5318 (b) (1).
 - 1.7. IF A CIRCULATING HOT WATER SYSTEM IS INSTALLED, IT SHALL HAVE A CONTROL CAPABLE OF AUTOMATICALLY TURNING OFF THE CIRCULATING PUMP(S) WHEN HOT WATER IS NOT REQUIRED. (INDICATE AQUASTAT). SECTION
 - 1.8. SHOWER HEADS, LAVATORY FAUCETS AND SINK (NOT INCLUDING SERVICE SINK FAUCET) SHALL MEET THE FLOW REQUIREMENTS OUTLINED IN THE APPLIANCE EFFICIENCY STANDARD. SECTION 2-5314 OR PER SPECIFICATION 1.9. LAVATORIES IN REST ROOMS OF PUBLIC AREA SHALL BE EQUIPPED WITH OUTLET DEVICES THAT LIMIT THE
 - NON-RECIRCULATING SYSTEMS. THESE SHALL BE EQUIPPED WITH DEVICES THAT LIMIT THE OUTLET TEMP. TO A MAX. OF 110 F. SECTION 2-5314(e). 1.9.1. ALL SYSTEMS, EQUIPMENT AND/OR BUILDING COMPONENTS SHALL COMPLY WITH THE APPLICABLE MANUFACTURER PROVISIONS AND INSTALLATION PROVISION OF TITLE 24, PART 6, CHAPTER 2, SECTIONS

FLOW OF HOT WATER TO THE MAXIMUM OF 0.5 GPM OR WITH SELF CLOSING FAUCETS. THAT LIMIT DELIVERY TO

A MAXIMUM OF 0.25 GAL. OF HOT WATER FOR CIRCULATING SYSTEMS AND TO A MAXIMUM OF 0.5 GAL. FOR

1.9.2. ALL APPLIANCES FOR WHICH A CALIFORNIA STANDARD HAS BEEN ESTABLISHED IN THE APPLIANCE EFFICIENCY REGULATIONS SHALL BE CERTIFIED BY THE MANUFACTURER AS COMPLIANT WITH THE

PLUMBING COMMISSIONING NOTES

- 1. THE PROJECT SCOPE SHALL INCLUDE THE PERFORMANCE OF ENHANCED LEED COMMISSIONING. COMMISSIONING IS DEFINED AS THE PROCESS OF VERIFYING AND DOCUMENTING THAT THE INSTALLATION AND PERFORMANCE OF SELECTED BUILDING SYSTEMS MEET THE SPECIFIED DESIGN CRITERIA AND THEREFORE SATISFIES THE DESIGN INTENT AND THE OWNER'S OPERATIONAL NEEDS.
- 2. THE COMMISSIONING PLAN WILL BE DEVELOPED AND MANAGED BY THE OWNER'S COMMISSIONING
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PARTICIPATION IN THE COMMISSIONING PROCESS, INCLUDING BUT
- NOT LIMITED TO THE FOLLOWING ACTIVITIES: COMPLETION AND DOCUMENTATION OF COMMISSIONING ACTIVITIES
- ATTENDING COMMISSIONING MEETINGS REVIEW AND COMMENT ON COMMISSIONING PLAN DOCUMENTS AND COMMISSIONING SCHEDULE
- COORDINATE STARTUP ACTIVITIES WITH COMMISSIONING AUTHORITY INCLUDING ALL PRE-FUNCTION TESTING PROVIDING ALL REQUIRED O&M MANUALS SCHEDULE AND COORDINATE REQUIRED TRAINING.
- 4. THE PLUMBING SYSTEMS TO BE COMMISSIONED INCLUDE BUT IS NOT LIMITED TO:
- HOT WATER HEATERS

FIRE PROTECTION GENERAL NOTES

- . SEPARATE PLANS FOR ALL FIXED AND MOBILE FIRE PROTECTION EQUIPMENT, AND ALL FIRE ALARM SYSTEMS SHALL BE SUBMITTED TO THE FIRE MARSHALL FOR APPROVAL PRIOR TO INSTALLATION
- THE ENTIRETY OF THE BUILDING IS TO BE PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM. DESIGN/BUILD SPRINKLER SYSTEM PLANS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND COORDINATED WITH THE ARCHITECT PRIOR TO SUBMITTING TO THE CITY FIRE MARSHAL FOR APPROVAL.
- 3. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2-A-10B:C SHALL BE PROVIDED WITHIN 75 FEET MAXIMUM TRAVEL DISTANCE FOR EACH 6,000 SQUARE FEET OR PORTION THEREOF ON EACH FLOOR. (C.F.C.
- 1002, U.F.C. STANDARD 10-1, CALIFORNIA CODE REGULATIONS, TITLE 19 AND 3.29) 4. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 4-A-20B:C SHALL BE PROVIDED OUTSIDE OF EACH MECHANICAL, ELECTRICAL OR BOILER ROOM. (C.F.C. 1002, U.F.C. STANDARD 10-1, CALIFORNIA CODE
- REGULATIONS, TITLE 19 AND 3.29) 5. BATTERY CHARGING AREAS FOR POWERED INDUSTRIAL TRUCKS. INCLUDING FORKLIFTS SHALL BE PROVIDED
- WITH A FIRE EXTINGUISHER HAVING A MINIMUM RATING OF 4-A-20B:C WITHIN 20 FEET OF THE BATTERY CHARGING APPARATUS PER C.F.C 1108.4. 6. FIRE EXTINGUISHING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH LABC 904 AND COMPLY WITH THE
- 7. ALL VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEMS AND WATER FLOW
- SWITCHES ON ALL SPRINKLER SYSTEMS SHALL BE ELECTRONICALLY MONITORED WHERE THE NUMBER OF SPRINKLERS IS 100 OR MORE. (LABC 904.3.1, C.F.C. 1003.3.1)
- 8. STANDPIPE SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF C.B.C 904.5 AND U.B.C. STANDARD 9-2. (LABC 904.5.1., C.B.C. 1004.1.2.) 9. THE SUCCESSFUL C-16 LICENSED CONTRACTOR SHALL DESIGN AND INSTALL A COMPLETE AND APPROVED
- AUTOMATIC FIRE SPRINKLER SYSTEM. THE SYSTEM SHALL BE IN ACCORDANCE WITH CITY OF LOS ANGELES BUILDING CODE, NFPA 13, 14 & 20-2019 EDITIONS, CITY AND STATE CODES AND INSURANCE UNDERWRITERS 10. A COMBINED WET SYSTEM SHALL INCLUDE AUTOMATIC FIRE SPRINKLERS, WITH FIRE DEPARTMENT HOSE OUTLETS, DISTRIBUTION PIPING, INSPECTOR TEST, SYSTEM DRAIN, RISER CONTROL ASSEMBLY, FIRE
- DEPARTMENT CONNECTIONS, ALARM GONG AND PRESSURE SWITCH FOR ALARM TRANSMISSION AND SHALL BE APPROVED THROUGHOUT THE ENTIRE BUILDING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE SYSTEMS AND SHALL COORDINATE ALL REQUIREMENTS FOR ALARM SYSTEM, FIRE SPRINKLER HEADS, PRESSURE HEADS, PRESSURE TESTS, SYSTEM AUTHORITIES, FIRE DEPARTMENT, STATE, THE ENGINEER AND OTHER TRADES.
- 11. PRIOR TO COMMENCING WORK, SUBMIT THREE COPIES OF ALL DRAWINGS AND HYDRAULIC CALCULATIONS WITH WATER SUPPLY CRITERIA TO DSA, THAN SUBMIT TO ALL GOVERNING AUTHORITIES, INCLUDING THE CITY OF LOS ANGELES, THE LOS ANGELES FIRE AUTHORITY, BUILDING SAFETY DEPARTMENT AND FIRE MARSHAL OBTAIN THE STAMP OF APPROVAL FROM EACH PARTY PRIOR TO THE INSTALLATION OF FIRE PROTECTION SYSTEMS.
- 12. THE CONTRACTOR SHALL SUBMIT AND PAY FOR ALL PLAN CHECKS AND PERMITS REQUIRED FOR THE AUTOMATIC FIRE SPRINKLER SYSTEM. 13. LOCATE SPRINKLER HEADS IN CENTER OF CEILING TILES SYMMETRICALLY AND FULLY COORDINATED WITH
- REFLECTED CEILING PLANS, GRILLES, DIFFUSERS, LIGHTING FIXTURES, ETC. 14. ALL WORK SHALL CONFORM TO THE STANDARDS OF THE CODES AND ORDINANCES LISTED IN THE DIVISION 21
- SPECIFICATIONS. 15. REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR LOCATIONS OF ALL LIGHTING FIXTURES AND CEILING
- 16. THE CONSTRUCTION, REMODELING OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87.
- (C.F.C. 8701) 17. INTERIOR FINISHES SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATIONS PER LABC CHAPTER 8.
- 18. EMERGENCY PLANS SHALL BE SUBMITTED TO FIRE AND LIFE SAFETY FOR REVIEW AND APPROVAL PRIOR TO
- OCCUPANCY. (C.F.C. 1303.4.2, CALIFORNIA CODE REGULATIONS TITLE 19, 3.09) 19. BUILDING MUST BE EQUIPPED WITH AN AUTOMATIC FIRE EXTINGUISHING SYSTEM, COMPLYING WITH NFPA-13 OF

20. THE SPRINKLER SYSTEM MUST BE APPROVED BY THE PLUMBING DIVISION (903.2.7, 12.21A17(D)) PRIOR TO

- 21. DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME RETARDANT CONDITION PER CODE REGULATIONS
- TITLE 19 SECTION 1.14, 3.08, 3.21 AND C.F.C. 2501.5. INTERIOR FINSIH MATERIALS SHALL BE TESTED AS SPECIFIED
- 22. PLANS FOR STANDPIPES, SPRINKLER SYSTEMS AND FIRE ALARM SYSTEMS MUST BE SUBMITTED TO AND APPROVED BY FIRE PLAN CHECK PRIOR TO INSTALLATION OF THE EQUIPMENT.

PLUMBING SEISMIC NOTES

- 1. ALL EQUIPMENT ANCHORAGE SHALL BE DETAILIED ON DRAWINGS. DESIGN SHALL CONFORM TO 2019 CBC SECTION
 - 1632A AND TABLE 16A-0. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE NECESSARY ADDITIONAL SECONDARY STRUCTURAL MEMBER WI-IERE NEEDED TO ACHIEVE PROPER INSTALLATION AS PER SEISMIC REQUIREMENTS FOR ALL
 - PLUMBING EQUIPMENT AND PIPING. 3. ALL SEISMIC BRACING SHALL BE IN ACCORDANCE WITH "GUIDELINES FOR SEISMIC RESTRAINS OF MECHANICAL
 - THERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO APPROVAL OF THE STRUCTURAL ENGINEER, MECHANICAL ENGINEER AND THE FIELD REPRESENTATIVE OF DSA.

 - RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING SYSTEMS" PUBLISHED BY SMACNA. WHERE BRACING AND ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND DSA.

1. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED WITH SEISMIC RESTRAINTS PER "GUIDELINES FOR SEISMIC

- 3. A COPY OF THE GUIDELINES PUBLISHED BY SMACNA SHALL BE PROVIDED BY THE CONTRACTOR AND KEEP AT THE JOB SITE AT ALL TIMES.
- 1. ALL PIPES 2 1/2" I.D. AND LARGER SHALL HAVE SEISMIC BRACING, EXCEPT IN THE BOILER ROOM WHERE PIPING LARGER THAN 1" SHALL HA VIE SEISMIC BRACING.
- THE SEISMIC BRACING AND ANCHORAGE OF FIRE PROTECTION PIPING SHALL CONFORM TO THE LATEST EDITION OF NFPA-13. THE INSTALLATION OF THE SEISMIC BRACING AND ANCHORAGE OF FIRE SPRINKLER PIPING IS SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER. MECHANICAL ENGINEER AND DSA. CONTRACTOR TO DETAIL SEISMIC BRACING AND ANCHORAGE OF FIRE PROTECTION PIPING ON THE DRAWING AND SUBMIT SUPPORTING CALCULATIONS TO DSA & OBTAIN THEIR APPROVAL.

PLUMBING ABBREVIATIONS

- ABOVE FINISHED FLOOR BACKFLOW PREVENTER COFFEE MAKER CLEAN OUT DECK PLATE CLASSROOM SINK COLD WATER
- DISH WASHER DOWN
- AIR ADMITTANCE VALVE FAN COIL UNIT
- FLOOR DRAIN FLOOR
- HOSE BIBB
- HOT WATER HOT WATER RECIRCULATION

FLOOR SINK

- ICE MAKER LAVATORY
- LAUNDRY SINK
- MINIMUM
- MOP RECEPTOR
- OUTDOOR SINK REDUCED PRESSURE
- **ROOF TOP UNIT** SANITARY
- SHOWER SERVICE
- VENT VACUUM BREAKER VENT THRU ROOF
- WASTE WATER FILTER WALL HYDRANT
- WATER CLOSET * NOTE THAT NOT ALL ABBREVIATIONS LISTED IN THIS LEGEND WILL BE UTILIZED ON THIS PROJECT

- PLUMBING DRAWING NOTATIONS DRAWING NOTE REVISION SYMBOL
- PIPING FLOW DIRECTION * NOTE THAT NOT ALL NOTATIONS REPRESENTED IN THIS LEGEND WILL BE UTILIZED ON THIS PROJECT

PLUMBING RISER DESIGNATION

PLUMBING LINE REPRESENTATION

NEW COLD WATER PIPING NEW HOT WATER PIPING NEW HOT WATER RETURN PIPING NEW HOT WATER PIPING WITH TEMPERATURE MAINTENANCE CABLING — — — — — NEW VENT PIPING NEW SANITARY OR STORM WATER PIPING ABOVE GROUND

VALVE WITH HOSE BIBB

PLUG OUTLET

UNION

PANTRY SINK

NEW SANITARY OR STORM WATER PIPING BELOW GROUND G———G NEW GAS PIPING * NOTE THAT NOT ALL PIPING REPRESENTED IN THIS LEGEND WILL BE UTILIZED ON THIS PROJECT

PLUMBING LEGEND

GATE VALVE / / CHECK VALVE **→** BALL VALVE **₹** O,S & Y VALVE SOLENOID VALVE

FLOOR DRAIN PIPE UP \bigcirc PIPE DROP

 \longrightarrow BOTTOM CONNECTION **├** TOP CONNECTION [------

CLEANOUT -----₹ SHOCK ABSORBER VACUUM BREAKER ____ PIPE GUIDE

----| |-----

LAVATORY LAVATORY

LAVATORY (ELEVATION) MOP RECEPTOR MOP RECEPTOR (ELEVATION)

URINAL URINAL (ELEVATION)

WATER CLOSET WATER CLOSET (FLUSH VALVE-WALL HUNG)

WATER CLOSET (ELEVATION) WALL HUNG WATER CLOSET (ELEVATION)

* NOTE THAT NOT ALL SYMBOLS REPRESENTED IN THIS LEGEND WILL BE UTILIZED ON THIS PROJECT

PLUMBING DRAWING LIST

- PLUMBING LEGEND SYMBOLS AND ABBREVIATIONS
- P101 PLUMBING SPECIFICATIONS P201 PLUMBING RISER PLUMBING SCHEDULES
- P400 SITE PLAN PLUMBING WASTE AND VENT BELOW SLAB PLUMBING WASTE & VENT LEVEL 1 PLUMBING WASTE & VENT LEVEL 2
- PLUMBING WASTE & VENT ROOF PLUMBING DOMESTIC SERVICES LEVEL 1 PLUMBING DOMESTIC SERVICES LEVEL 2

PLUMBING DETAILS

5419 SUNSET BOULEVARD 5419 SUNSET BLVD. HOLLYWOOD CA, 90027



t +1 310 453 2800 | www.hlw.com

5419 SUNSET, LLC c/o MONTANA AVENUE CAPITAL **PARTNERS**

11100 Santa Monica Blvd., Suite 270 Los Angeles, CA 90025

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APPROVAL STAMP

SEAL/ SIGNATURE



PLUMBING LEGEND

ABBREVIATIONS Z000-000-0000

DATE: 04/30/21

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PLUMBING SPECIFICATIONS

1. <u>GENERAL:</u>

- 1.1. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS
- ALL PLUMBING WORK SHALL MEET THE REQUIREMENTS OF CALIFORNIA BUILDING CODE 2019 IN ACCORDANCE WITH REQUIREMENTS OF THE CALIFORNIA PLUMBING CODE 2019, AND ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL. OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR. THE PLUMBING SYSTEM DESIGN AND INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING, BUT NOT LIMITED TO, THE LATEST ADOPTED VERSIONS (BY JURISDICTION; LOCAL, COUNTY, AND STATE)
- 2019 CALIFORNIA TITLE 24 BUILDING STANDARDS

2019 CALIFORNIA PLUMBING CODE

- 2019 CALIFORNIA GREEN BUILDING CODE
- UNIFORM BUILDING CODE UNIFORM MECHANICAL CODE
- UNIFORM FIRE CODE NFPA STANDARDS
- APPLICABLE CITY BUILDING CODES
- ENERGY POLICY ACT OF 2005 (EPACT), AND ANY OTHER REGULATORY AGENCY HAVING JURISDICTION.
- A PRE-SELECTED LIST OF PLUMBING SUBCONTRACTORS WILL BE INVITED TO SUBMIT PROPOSALS FOR THE DESIGN AND INSTALLATION OF PLUMBING SYSTEMS MEETING THE REQUIREMENTS DESCRIBED IN THIS DOCUMENT AND APPROPRIATE FOR THE BUILDING UNDER
- 1.4. PROPOSALS SHALL INCLUDE PRELIMINARY SCHEMATIC DIAGRAMS, AND A LISTING OF ALL MAJOR EQUIPMENT INCLUDING MANUFACTURER AND MODEL NUMBERS. ANY EXCEPTIONS TO THE BID REQUIREMENTS SHALL BE LISTED. ANY WORK BY OTHER TRADES THAT WILL BE REQUIRED TO COMPLETE THE PLUMBING SYSTEM AND THAT IS NOT INCLUDED IN THE PROPOSAL SHALL ALSO BE
- BIDDING CONTRACTORS SHALL VISIT THE SITE BEFORE SUBMITTING A BID. NO EXTRA PAYMENT WILL BE MADE FOR ADDITIONAL WORK THAT WOULD HAVE BEEN MADE APPARENT BY THE SITE VISIT.
- 1.6. THE PLUMBING CONTRACTORS WILL BE ASKED TO PRESENT THEIR PROPOSALS IN A MEETING WITH PROJECT MANAGER, THE ARCHITECT, AND THE GENERAL CONTRACTOR. IN ADDITION TO THE COST, THE PROPOSAL WILL BE EVALUATED ON ITS ABILITY TO MEET PROGRAM REQUIREMENTS, AND ADAPTABILITY FOR FUTURE CHANGES. PROJECT MANAGER RESERVES THE RIGHT TO REJECT ANY OR ALL OF THE
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPE TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED. MAINTAIN HEADROOM AND SPACE
- 1.8. PLUMBING CONTRACTOR SHALL COORDINATE ALL ASPECTS OF THE PLUMBING SYSTEM WITH THE ARCHITECT, INCLUDING REVIEW OF ALL PROPOSED FIXTURES, AND FINISHES OF ALL PLUMBING
- 1.9. REFER TO BID INSTRUCTIONS FROM GENERAL CONTRACTOR REGARDING RESPONSIBILITY FOR PLAN CHECK FEES, PERMIT FEES, GOVERNMENTAL TAXES, FEES, AND OTHER COSTS ASSOCIATED WITH THIS
- 1.10. ACCURATE AS-BUILT DRAWINGS SHALL BE KEPT DURING CONSTRUCTION. AT THE COMPLETION OF THE PROJECT, TWO PRINTED SETS OF AS-BUILT DRAWINGS, ONE ELECTRONIC SET IN AUTOCAD FORMAT AND ONE ELECTRONIC SET IN PDF FORMAT SHALL BE DELIVERED TO THE PROJECT MANAGER PROJECT
- 1.11. SYSTEMS AND EQUIPMENT SHALL BE WARRANTED FOR ONE (1) YEAR FOR THE REPAIR OR REPLACEMENT OF ANY FAULTY EQUIPMENT, MATERIALS, OR WORKMANSHIP. SUCH REPAIRS OF REPLACEMENTS SHALL BE DONE AT NO COST TO PROJECT MANAGER. WARRANTY PERIOD COMMENCES UPON ACCEPTANCE OF SYSTEM BY PROJECT MANAGER. THE PLUMBING CONTRACTOR SHALL FURNISH WRITTEN GUARANTEE TO REPLACE ALL DEFECTIVE WORK AND MATERIALS FURNISHED UNDER THIS SECTION, AT NO COST TO THE OWNER, FOR THIS ONE (1) YEAR PERIOD.
- 1.12. THE MAXIMUM NATURAL GAS DELIVERY PRESSURE FROM PG&E IS APPROXIMATELY 7" W.C. FOR ANY NEW NATURAL GAS CONSUMING EQUIPMENT, VERIFY THE EXISTING NATURAL GAS PRESSURE AT THE EQUIPMENT POINT OF CONNECTION IS AT LEAST 4" W.C. PROVIDE LOW-PRESSURE CUT-OFF CONTROLS IN THE EVENT NATURAL GAS DELIVERY PRESSURE FALLS TO 2"
- 1.13. ENSURE ACCURATE DIVERSITY FACTORS ARE TAKEN INTO ACCOUNT TO CONFIRM THAT ALL NATURAL GAS-CONSUMING EQUIPMENT WILL BE MAINTAINED AT MINIMUM PRESSURES AT ALL TIMES.
- 1.14. THE LOCATIONS OF THE EXISTING SERVICES ARE BELIEVED TO BE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF THESE SERVICES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.
- 1.15. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH A U.L.-LISTED FIRE STOPPING ASSEMBLY MATCHED TO THE RATING OF THE PENETRATED
- 1.16. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS
- 1.17. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR, OR AS DIRECTED BY THE
- 1.18. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH
- STANDARDS 1.19. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING

PROTECTED FROM DAMAGE AND EXPOSURE TO THE OUTSIDE

VERIFY EXISTING PIPE SIZES, CLEARANCES, ETC. AND

1.20. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL

ALL MATERIAL AND EQUIPMENT ON SITE SHALL BE PROPERLY STORED SUCH THAT IT IS

- 1.21. INSURANCE: PROVIDE IN ACCORDANCE WITH BUILDING REQUIREMENTS AND POLICY SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND
- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.SCOPE OF
- 1.1. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN
- 1.2. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR BENEFICIAL OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND REQUIRED SIGN-OFFS AND APPROVALS FOR THE WORK

INSTALLED. DESIGN CRITERIA

2.1. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL PLUMBING SYSTEM SIZING AND

- SELECTION OF EQUIPMENT, AND SHALL NOT OVERSIZE EQUIPMENT OR APPLY SAFETY FACTORS TO
- 2.2. THE CONTRACTOR IS HIGHLY ENCOURAGED TO PROVIDE LOW ENERGY AND LOW WATER USE SYSTEM DESIGNS BEYOND THOSE DESCRIBED HEREIN. IN MANY CASES. INCREASED ENERGY AND WATER EFFICIENCIES MAY BE REALIZED BY CAREFUL ATTENTION TO SELECTION OF EQUIPMENT AND SYSTEM DESIGN, BEYOND THE GUIDELINES SET HEREIN, AT NO COST IMPACT TO THE PROJECT.
- 2.3. ALL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED BY UNDERWRITERS LABORATORIES OR AS REQUIRED BY AUTHORITIES HAVING
- THE PLUMBING SYSTEM SHALL BE DESIGNED TO ACHIEVE THE ACOUSTICAL, INDOOR AIR QUALITY, ENERGY AND WATER USE REDUCTION GOALS OF THE PROJECT
- ALL PIPING SHALL BE DESIGNED TO MINIMIZE PRESSURE DROP THROUGHOUT THE SYSTEM, INCLUDING BUT NOT LIMITED TO, THE SIZING OF PIPE, THE TYPE OF FITTINGS TYPICALLY USED, AND THE SELECTION OF THE VALVES AND MISCELLANEOUS APPURTENANCES ON THE PIPING
- 45 DEGREE ELBOWS AND WYE FITTINGS SHALL BE USED WHENEVER POSSIBLE. NEMA PREMIUM EFFICIENCY MOTORS SHALL BE USED WITH A MINIMUM EFFICIENCY OF 98%. ECM MOTORS SHALL BE USED WHENEVER
- PRISSEDEUTY VALVES SHALL NOT BE USED, DUE TO THEIR HIGH PRESSURE-DROP. SWING CHECK VALVES SHOULD BE USED IN PLACE OF SPRING CHECK VALVES, WHEN APPROPRIATE FOR THE APPLICATION, DUE TO THEIR LOWER PRESSURE DROP. SILENT CHECK
- VALVES SHOULD BE CONSIDERED FOR BOOSTER AND CIRCULATION PROMPASION VALVES ARE REQUIRED AT ALL OF THE FOLLOWING LOCATIONS: AT EVERY INTERVAL OF ELEVATION CHANGE (I.E. EXTERIOR AT GRADE, ROOF, FIRST ENTRY POINT INTO FLOORS, AND DIVISION OF SERVICE), SEPARATE ISOLATION FOR MEN'S AND WOMEN'S RESTROOMS, AND AT
- ROCITE ALL NATURAL GAS (MAIN) LINES OUTSIDE OF THE BUILDING AS MUCH AS POSSIBLE. PROVIDE "FLOOD STOPS" (OR EQUIVALENT ANTI-FLOOD DEVICES) ON ANY PORTABLE CHILLERS. BREAK ROOM SINKS, AND ANY OTHER VALVES THAT HAVE THE POTENTIAL TO AFFECT AREAS WHERE FLOOD PREVENTION IS CRITICAL. IN THESE CRITICAL AREAS, PROVIDE
- REDUNDANT/BACKUP CONTAINMENT IN ADDITION TO ANTI-FLOOD PROMOBS: APPROPRIATE CAULK (OR ESCUTCHEON) OR FIRE SEAL IN ALL APPLICABLE WALL, ROOF,

RENETIFICATION SERS TO HAVE SLEEVES/CUSHIONS FOR NOISE CONTROL AND TO PROTECT SOFT

NOPPER)M COPPER PIPING OR EQUIVALENT FITTINGS SHALL BE USED. TYPE K ONLY UNLESS CALCULATIONS AND SERVICE ALLOW FOR TYPE L, DWV, OR ACR. ACR AND DMV NOT ALLOWED ON HYDRONIC SYSTEMS.

2.6. DISTRIBUTION MATERIALS

2.5. PIPING SYSTEMS

THE SERVICE DISTRIBUTION MAINS SHALL BE AS FOLLOWS:

EACH SHOWER, SINK, TOILET,

- HOT WATER, COLD WATER, CONDENSATE DRAIN: COPPER WITH SWEAT FITTINGS. STAINLESS STEEL SCHEDULE 10 PIPE (WELDED, NOT GROOVED) IS AN ACCEPTABLE ALTERNATIVE ON PIPING 3" AND SARGEARY WASTE: CAST IRON WITH STANDARD DUTY NO-HUB BANDS
- 2.6.1.3. SANITARY VENT: CAST IRON WITH STANDARD DUTY NO-HUB BANDS 2.6.1.4. DWV COPPER IS ACCEPTABLE FOR ABOVE-GRADE WASTE AND VENT PIPING STORM WATER: CAST IRON WITH STANDARD DUTY NO-HUB BANDS
- 2.6.1.6. FOR UNDERGROUND INSTALLATIONS, ENSURE MATERIALS ARE APPROPRIATE FOR APPLICATION 2.6.2. SANITARY DRAINAGE AND VENT PIPING: CAST IRON NO-HUB PIPING WITH HUSKY FITTINGS FOR DRAIN PIPING AND NO-HUB FITTINGS
- WATER PARENG TYPE "L" HARD COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS WITH
- (95-5) SOLDER JOINTS USING ALLOY GRADES SB5, E HA OR HB OR SILVER SOLDER ALLOYSPOSED PIPING AT FIXTURES: CP BRASS.
- PRESSURE REDUCING VALVE (DOMESTIC WATER) (IF WATER PRESSURE EXCEEDS 80 PSI, PROVIDE PRV & SET OUTLET PRESSURE AT 70 2.6.4.1. PSI) SIZE 1/3" TO 21/3" THREADED BRONZE BODY CONSTRUCTION RENEWABLE STAINLESS STEEL SEAT. HIGH TEMPERATURE RESISTING DIAPHRAGM, SPRING CAGE CONSTRUCTION AND STRAINER. JRG/CLA VAL MODEL

2.7. INDOOR AIR QUALITY

- CONDENSATE: CONDENSATE LINES SHALL BE GRAVITY DRAINED WHENEVER POSSIBLE. MINIMUM SLOPE
- **CONT**DENSATE DRAINS SHALL DISCHARGE TO THE SANITARY WASTE SYSTEM AND NOT THE STORM DRAIN SYSTEM. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR INSTALLING SANITARY ROOF RECEPTORS TO ACCEPT CONDENSATE DRAINAGE IF
- INSULATED TO PREVENT CONDENSATION FROM FORMING ON THE PIPING PROVIDE A SECONDARY CONDENSATE PAN OR DRAIN FOR ANY COOLING UNIT LOCATED
- ABOVE A CEILING OR FURRED SPACE. IF CONDENSATE PUMPS ARE REQUIRED, SEPARATE PUMPS ARE REQUIRED FOR EACH PAN. DRAIN LINES FROM SECONDARY CONTAINMENT PANS SHALL BE PLUMBED TO DAYLIGHT ABOVE DOORWAY OUTSIDE OF ROOM BEING SERVED BY
- WHERE CONDENSATE SUMP/PUMP IS USED, THE FLOAT CONTROL SHALL BE INTERLOCKED WITH THE AC CONTROL TO STOP THE COOLING UNIT IF THE CONDENSATE PUMP FAILS, AND SHALL BE MONITORED BY THE CONTROL SAYS TEMBEGREE TURNS IN THE MAIN CONDENSATE DRAIN LINES SHALL BE PROVIDED WITH A
- "T" CLEAN-OUT FITTING. ALL TAP CONNECTIONS TO THE MAIN SHALL BE ON 45-DEGREE PLUMBING VENT TERMINATIONS ALL VENT TERMINATIONS SHALL BE LOCATED A MINIMUM OF 25 FEET FROM OUTSIDE AIR

2.8. ACOUSTICS

PLUMBING SYSTEMS SHALL COMPLY WITH 2007 ASHRAE HANDBOOK - HVAC APPLICATION CHAPTER 47, "SOUND & VIBRATION

INTAKES AND OPENINGS INTO THE BUILDING. AS MUCH AS POSSIBLE, VENT TERMINATIONS

SHOULD ALSO BE LOCATED DOWNWIND (PREVAILING WIND DIRECTION) FROM OUTSIDE AIR

- CONTROL' CONSIDER ROUTING OF ALL WATER AND DRAIN LINES AWAY FROM NOISE SENSITIVE AREAS. INSULATE IF
- ALL PLUMBING PIPING SHALL BE ISOLATED. INSTALL NOISE ISOLATORS AT:
- DOMESTIC WATER SUPPLY AND RETURN PIPES (HOT AND COLD WATER) 2.8.3.2. WASTE/DRAIN PIPES 2.8.3.3. PATIO, TERRACE DRAINS
- VENT PIPES DO NOT REQUIRE NOISE ISOLATORS.
- INSTALL PIPES NO CLOSER THAN 1-1/2" FROM GYPSUM BOARD SURFACES.
- 2.8.6. IF PLASTIC AND/OR COPPER WASTE PIPES ARE USED, THEN WRAP THE ENTIRE PIPE WITH
- ACOUSTICAL PIPE WRAP TAPE OR INSULATION PIPES MUST NOT BE IN SOLID CONTACT WITH THE BUILDING. ISOLATE THE PIPES AS FOLLOWS: PENETRATIONS FOR PIPES THROUGH THE STRUCTURE (I.E. FLOOR SLAB, STUDS, OR SOLID
- WALLS) SHOULD BE OVERSIZED TO PREVENT CONTACT AND/OR TO ACCOMMODATE AN SUFFERIE DOUBLE STUD PLUMBING WALLS ARE USED, ROUTE AND SECURE PIPES THAT SERVE
- A PARTICULAR ROOM TO THE STUD ROW THAT SUPPORTS THE GYPSUM BOARD OF THAT PUMPS SHALL BE ISOLATED WITH DOUBLE NEOPRENE PADS LOADED TO THE MANUFACTURER'S
- PROVIDE FLEXIBLE CONDUIT AND PIPING TO ALL VIBRATION ISOLATED EQUIPMENT.
- THE PLUMBING SYSTEM MUST BE INSTALLED PER THE PLUMBING CODE WHERE A CODE REQUIREMENT APPEARS TO CONTRADICT PIPE ISOLATION REQUIREMENTS BRING THE CONFLICTING REQUIREMENTS TO THE ARCHITECT PRIOR TO INSTALLATION.
- UNLESS OTHERWISE DIRECTED BY ACOUSTICAL SPECIFICATION, LIMIT WATER VELOCITIES IN PIPING SYSTEMS TO 5
- INSULATE PIPING ABOVE SOUND SENSITIVE SPACES.

2.9. <u>PLUMBING FIXTURES:</u>

WATER CLOSETS SHALL BE AS PER SCHEDULE

- AUTOMATIC FLUSHOMETERS AND FAUCET VALVES SHALL NOT BE BATTERY-POWERED. REGENERATIVE OR HARD-WIRED FIXTURES ONLY.
- ALL PLUMBING FIXTURES SHALL BE SPECIFIED AS LOW-FLOW FIXTURES, PER THE WATER USE REDUCTION GOALS OF THE
- 2.9.2.1. ALL TOILETS SHALL HAVE A MAXIMUM FLOW RATE OF 1.28 GALLONS PER FLUSH. DUAL-FLUSH

- ALL URINALS SHALL HAVE A MAXIMUM FLOW RATE OF 0.125 GALLONS PER FLUSH. 2.9.2.3. ALL RESTROOM FAUCETS SHALL HAVE AERATORS LIMITING THE FLOW TO A MAXIMUM OF 0.5
- GALLONS PER MINISTROWERS SHALL HAVE A MAXIMUM FLOW RATE OF 2.0 GALLONS PER MINUTE. ALL BREAK ROOM SINKS SHALL HAVE A MAXIMUM FLOW RATE OF 1.5 GALLONS PER MINUTE. 2.9.2.6. ALL UTILITY, SERVICE AND MOP SINKS SHALL HAVE A MAXIMUM FLOW RATE OF 1.5 GALLONS
- THE PROJECT ARCHITECT SHALL APPROVE ALL PLUMBING FIXTURES. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING WATER PIPING TO ALL EMERGENCY EYEWASH AND SHOWER SAFETY EQUIPMENT PER CODE

REQUIRENMENTABING CONTRACTOR SHALL FURNISH AND INSTALL EMERGENCY WATER FIXTURES,

AND INSTALL TEMPERED WATER AND WATER HEATING EQUIPMENT IF NEEDED TO

PGTWATER HEATERS SHALL BE CHRONOMITE, A.O. SMITH, HUBBELL, BRADFORD-WHITE, STATE,

EMERGENCY WATER FIXTURES AS REQUIRED BY ©900 PROJECT ARCHITECT SHALL APPROVE EMERGENCY WATER FIXTURES.

2.10. <u>DOMESTIC HOT WATER HEATERS:</u>

PER MINUTE.

- INSULATE ALL EXPOSED HOT WATER LINES. PROVIDE A CENTRAL ELECTRIC DOMESTIC WATER HEATER IN ACCORDANCE WITH THE SCHEDULE 2.10.2. ON DRAWINGS
- OR APPROVED EQUAL. SCOPE OF WORK COORDINATION WITH OTHER TRADES:
- 3.1. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURIS**DASTINDN**ÇATED ON DRAWINGS AND HEREIN
- SPECIFIED. 3.2. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR BENEFICIAL OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE
- 3.3. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND REQUIRED SIGN-OFFS AND APPROVALS FOR THE WORK

INSTALLED. 3.3.1. MISCELLANEOUS SUBCONTRACTORS:

- INSULATION: THE INSULATION CONTRACTOR SHALL PROVIDE ALL WALL, ROOF, CEILING, AND FLOOR THERMAL INSULATION AS IDENTIFIED ON ARCHITECTURAL DRAWINGS. INSULATION REQUIRED FOR PLUMBING SYSTEMS, WHETHER MOUNTED ON PIPES, WALLS, ROOFS, CEILINGS, OR FLOORS, SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR. ALL EXTERIOR WATER PIPING, EXCEPT IRRIGATION PIPING, SHALL BE INSULATED FOR THERMAL
- AND FREEZE PROTECTION. FIRE STOPPING: THE PLUMBING CONTRACTOR SHALL PROVIDE ALL REQUIRED FIRE STOPPING AROUND PIPE PENETRATIONS IN FLOORS AND WALLS WHERE REQUIRED BY CODE. STEEL SUPPORTS: STEEL SUPPORTS FOR PLUMBING EQUIPMENT (IF ANY) SHALL BE COORDINATED WITH STRUCTURAL ENGINEER PRIOR TO STEEL BIDS. THE PLUMBING
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL STEEL PLUMBING EQUIPMENT SUPPORTS NOT SHOWN ON FINAL STRUCTURAL PROMPNASS OTHER STRUCTURAL OPENINGS: THE PLUMBING CONTRACTOR SHALL LOCATE AND SIZE ALL FLOOR OPENINGS FOR PIPING EXCEPT ARCHITECTURAL SHAFTS SHOWN ON ARCHITECTURAL DRAWINGS. ANY STRUCTURAL STEEL BEAM PENETRATIONS REQUIRED FOR PLUMBING SYSTEMS SHALL BE LOCATED AND DIMENSIONED BY THE PLUMBING CONTRACTOR PRIOR TO STRUCTURAL STEEL BIDS. ANY STRUCTURAL CONCRETE BEAM PENETRATIONS REQUIRED FOR PLUMBING SYSTEMS SHALL BE LOCATED AND DIMENSIONED BY THE
- PLUMBING CONTRACTOR PRIOR TO STRUCTURAL CONCRETE BIDS. ROOF CURBS: THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE STRUCTURAL ENGINEER AND GENERAL CONTRACTOR TO PROVIDE ALL ROOF CURBS FOR ROOF MOUNTED EQUIPMENT, ETC. NO CARPENTER MADE CURBS SHALL BE PROVIDED FOR ANY PLUMBING EQUIPMENT.
- HOISTING: PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR HOISTING AND RIGGING OF ALL PLUMBING EQUIPMENT. EQUIPMENT PADS: THE PLUMBING CONTRACTOR SHALL LOCATE AND DIMENSION ALL CONCRETE BASES, HOUSEKEEPING PADS, AND SLEEPERS RELATING TO THEIR WORK, TO BE PROVIDED BY OTHERS. CONCRETE FILL FOR INERTIA BASES SHALL BE SPECIFICALLY
- IDENTIFIED, INCLUDING DIMENSIONS AS WELL AS TIMING OF BASE INSTALLATION, TO THE GENERAL CONTRACTOR PRIOR TO CONCRETE BIDS. ROOFING: ROOFING CONTRACTOR SHALL PROVIDE ALL ROOFING INCLUDING CANT STRIPS AND COUNTER FLASHING AT THE SIDES OF ROOF

4. <u>SUBMITTALS:</u>

4.3.3.

- 4.1. ACCURATE AS-BUILT DRAWINGS SHALL BE KEPT DURING CONSTRUCTION. AT THE COMPLETION OF THE PROJECT, TWO PRINTED SETS OF AS-BUILT DRAWINGS, ONE ELECTRONIC SET IN AUTOCAD FORMAT AND ONE ELECTRONIC SET IN PDF FORMAT SHALL BE DELIVERED TO THE PROJECT MANAGER PROJECT
- 4.2. AFTER COMPLETION OF THE DESIGN, SUBMIT COMPLETE PLANS AND SPECIFICATIONS SHOWING PLUMBING EQUIPMENT LOCATIONS, SCHEMATIC DIAGRAMS FOR ALL PLUMBING SERVICES (E.G. DHW, DCW, NATURAL GAS, ETC.), WATER AND NATURAL GAS CAPACITY AND PRESSURE CALCULATIONS, AND ANY OTHER ITEMS NECESSARY FOR PROPER CHECKING, PERMITS, ETC.
- 4.3. SUBMIT ELECTRONIC SOFT COPIES OF SUBMITTALS. SUBMITTALS SHALL INCLUDE, BUT NOT BE LIMITED
- 4.3.1. PLUMBING FIXTURES 4.3.2. HOT WATER HEATERS

CIRCULATION PUMPS

- DOMESTIC WATER BOOSTER SYSTEMS 4.3.4. 4.3.5. ELECTRIC MOTORS VARIABLE FREQUENCY DRIVES
- PIPING AND PIPING AND ACCESSORIES 4.3.6.
- PRESSURE AND TEMPERATURE RATINGS FOR SOLDERED AND BRAZED JOINTS 4.4. AT THE COMPLETION OF THE PROJECT, THREE SETS OF THE OPERATION AND MAINTENANCE MANUALS, PLUS ONE SOFT COPY IN SEARCHABLE PDF FORMAT, SHALL BE DELIVERED TO THE PROJECT MANAGER PROJECT MANAGER. THE HARD COPIES OF THE OPERATION AND MAINTENANCE MANUAL SHALL BE BOUND IN A THREE RING BINDER AND INCLUDE, BUT NOT BE LIMITED TO, THE
- 4.4.1. FOLL TIMBING: OF CONTENTS. OPERATING INSTRUCTIONS FOR INSTALLATION AS A WHOLE AND FOR EACH PIECE OF EQUIPMENT. SERVICE TELEPHONE NUMBER OF THE INSTALLING CONTRACTOR.
- EQUIPMENT PARTS AND COMPONENTS SERVICE AND MAINTENANCE INSTRUCTIONS MAJOR EQUIPMENT SPECIFICATIONS AND SERVICE AND MAINTENANCE INSTRUCTIONS. ADDRESSES AND PHONE NUMBERS FOR ALL EQUIPMENT AND PARTS SUPPLIERS. WARRANTY LETTER FROM GENERAL CONTRACTOR, SUB-CONTRACTOR, AND EQUIPMENT

SUPPLIERS, AS APPROPRIATE, WITH STARTING AND ENDING DATES FOR WARRANTY PERIOD

MAINTENANCE AND OPERATIONS PERSONNEL. THE TRAINING SHALL COVER ALL ASPECTS OF THE

- CLEARLY STATED. COPY OF INSPECTION CERTIFICATES PROVIDED BY THE LOCAL CODE AUTHORITIES. "AS-BUILT" CONTROL SHOP DRAWINGS AND DIAGRAMS. 4.5. UPON COMPLETION OF THE INSTALLATION AND AT AN AGREED UPON DATE WITH THE PROJECT MANAGER PROJECT MANAGER, THE CONTRACTOR SHALL CONDUCT A TRAINING SESSION FOR
- PROPER OPERATION AND MAINTENANCE OF THE INSTALLED SYSTEM AND SHALL ENSURE THAT THE OPERATIONS PERSONNEL AND VENDORS ARE THOROUGHLY FAMILIAR WITH THE INSTALLED SYSTEM. 4.6. CALCULATIONS:
- HOT WATER AND NATURAL GAS CALCULATIONS AND EQUIPMENT SELECTIONS SHALL BE SUPERVISED AND REVIEWED BY A REGISTERED PROFESSIONAL ENGINEER. PROVIDE ALL CALCULATIONS TO PROJECT MANAGER PROJECT MANAGER FOR REVIEW.

INSTALLATION AND EXECUTION:

- 5.1. INDUSTRY STANDARDS AND MANUFACTURERS' RECOMMENDATIONS, DIAGRAMS OR REQUIREMENTS SHALL BE STRICTLY ADHERED TO FOR INSTALLATION OF MATERIALS AND EQUIPMENT. 5.2. PROVIDE PROTECTIVE COVERS, SKIDS, PLUGS OR CAPS TO PROTECT EQUIPMENT AND MATERIALS FROM DAMAGE AND DETERIORATION DURING CONSTRUCTION.
- POROUS MATERIALS, SUCH AS PIPE INSULATION, SHALL BE PROTECTED FROM WEATHER. ALL EQUIPMENT AND MATERIAL SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. THOROUGHLY CLEAN ALL EQUIPMENT, PIPING, ETC. FREE OF DUST, SCALE, FILINGS, PLASTER, GREASE,
- OIL. PAINT AND OTHER CONSTRUCTION DEBRIS USING LOW- OR NON-VOC CLEANING PRODUCTS ONLY. SANITIZE THE DOMESTIC WATER PIPING SYSTEMS AND PROVIDE CERTIFICATION AS REQUIRED BY THE HEALTH DEPARTMENT FOR ALL NEW BUILDINGS AND MAJOR RENOVATIONS OF EXISTING BUILDINGS. VIDEO SCOPE THE EXISTING UNDERGROUND SANITARY WASTE PIPING SYSTEM FROM THE UPPER TERMINALS OF THE WASTE SYSTEM IN THE BUILDING TO THE CONNECTION BUILDING LATERAL WITH THE
- SEPARATED JOINTS FOR ALL MAJOR RENOVATIONS OF EXISTING 5.8. **BOULDINGS**T IDENTIFICATION 5.8.1. NAMEPLATES SECURELY FASTENED IN A CLEARLY VISIBLE LOCATION TO THE EQUIPMENT HOUSING

SANITARY SEWER MAIN IN THE STREET TO DETERMINE IF THERE ARE ANY DEFICIENCIES, BREAKS OR

- OR FRAME SHALL IDENTIFY ALL PLUMBING EQUIPMENT. NAMEPLATES SHALL INCLUDE THE EQUIPMENT DESIGN PLAN MARK AND BRIEF DESCRIPTION OF THE AREA OR SYSTEM SERVED, SUCH AS: "DWH-1: DOMESTIC WATER HEATER 1". WHERE STARTERS ARE PROVIDED, PROVIDE ADDITIONAL NAMEPLATE INDICATING EQUIPMENT MARK, SUCH AS "P-1", MOUNTED ON STARTER
- NAMEPLATES SHALL BE 2-1/2" X 3/4" MINIMUM, EITHER 1/6" THICK BAKELITE WITH ENGRAVED WHITE CORE LETTERS AND BEVELED EDGE, OR ALUMINUM WITH BLACK ENAMELED BACKGROUND AND ETCHED OR ENGRAVED; NATURAL ALUMINUM LETTERING
- MANUFACTURER'S NAMEPLATE SHALL BE CLEAN AND LEGIBLE AND INSTALLED IN A CLEARLY VISIBLE LOCATION. PIPING IDENTIFICATION
- IDENTIFY PIPING WITH SYMBOL IDENTIFICATION (E.G. HW) AND DIRECTION OF FLOW ARROWS COMPLYING WITH ANSI A 13.1 COLOR STANDARDS AND BUILDIN G CODES.
- ABOVE INACCESSIBLE CEILINGS SHALL BE IDENTIFIED AT EACH ACCESS PANEL. CONCEALED PIPING ABOVE ACCESSIBLE CEILINGS SHALL BE IDENTIFIED WITHIN 10 FEET OF EACH WALL PENETRATION (BOTH SIDES OF WALLS). WHERE CAPPED PIPING IS PROVIDED FOR FUTURE CONNECTIONS, PROVIDE LEGIBLE AND

IDENTIFY PIPING AT APPROXIMATELY EVERY 25 FEET WHERE UNCONCEALED. CONCEALED PIPING

- DURABLE METAL TAGS INDICATING SYMBOL IDENTIFICATION. 5.10. VALVE IDENTIFICATION 5.10.1. ALL VALVES, EXCEPT ISOLATION SHUT-OFF VALVES LOCATED AT EQUIPMENT, SHALL BE TAGGED WITH BRASS TAGS NOT LESS THAN 1-1/2" IN DIAMETER OR 1-1/4" 1-1/4" WITH DEPRESSED BLACK FILLED LETTERS OR NUMBERS. VALVES SHALL BE LABELED WITH SERVICE (E.G. HW, HWR) AND NUMBER CORRESPONDING TO PIPING DIAGRAM LISTING. DIRECTORY SHALL INCLUDE SERVICE, LOCATION, NORMAL POSITION (E.G. NC OR NO), AND USE, LOCATED IN A BOUND MANUAL OR FRAMED DIRECTORY WITH PLASTIC LENS IN THE MAIN MECHANICAL
- NICKEL-PLATED BEADED CHAIN. COMMISSIONING 5.11.1. IF THE PROJECT IS SUBMITTING FOR (OR DESIGNING TO) LEED, THIS PROJECT WILL BE COMMISSIONED IN ACCORDANCE WITH LEED REQUIREMENTS. FOR PROJECTS NOT PURSUING (OR DESIGNING TO) LEED. THE COMMISSIONING PROCESS IS TO FOLLOW THE STRUCTURE PROVIDED BY THE CALIFORNIA COMMISSIONING COLLABORATIVE (WWW.CACX.ORG). A THIRD PARTY HIRED BY PROJECT MANAGER WILL SERVE AS COMMISSIONING AUTHORITY. THE PLUMBING CONTRACTOR

SHALL PROVIDE FIELD PERSONNEL TO ASSIST COMMISSIONING AGENT AS REQUIRED TO

PREPARE A SCHEDULE FOR PLUMBING SYSTEM TESTING, FLUSHING AND CLEANING, EQUIPMENT

CONTROLS RELATED TO PLUMBING/IRRIGATION SYSTEMS (IF THE WORK FALLS UNDER THE

ROOM TAGS SHALL BE INSTALLED ON HAND WHEELS OR STEMS WITH A BRASS HOOK OR

- COMPLETE COMMISSIONING WORK ALL FINDINGS AND RECOMMENDATIONS UNCOVERED DURING THE FOLLOWING ACTIVITIES AND STUDIES SHALL BE MAINTAINED IN THE COMMISSIONING LOG TO ENSURE FINAL RESCONTINUES ONLY AUTHORITY DIRECTS AND COORDINATES ALL COMMISSIONING ACTIVITIES AND PROVIDES PRE-FUNCTIONAL CHECKLISTS AND FUNCTIONAL TEST PROCEDURES FOR THE CONTRACTORS' USE. COOPERATE WITH THE COMMISSIONING AUTHORITY IN DEVELOPMENT OF THE PRE-FUNCTIONAL CHECKLISTS AND FUNCTIONAL TEST PROCEDURES. FURNISH ADDITIONAL
- INFORMATION AS REQUESTED BY THE COMMISSIONING **SUNTERCTY**ORS TO ATTEND COMMISSIONING MEETINGS NECESSARY TO FACILITATE THE COMMISSIONING PROCESS.
- START-UP AND TESTING, ADJUSTING, AND BALANCING START AND COMPLETION FOR USE BY THE COMMISSIONING AUTHORITY; UPDATE THE SCHEDULE AS APPROPRIATE. PROVIDE A PRESSURE/TEMPERATURE TEST PORT (I.E. "PETE'S PLUG") AT EACH WATER SENSOR THAT IS AN INPUT POINT TO THE CONTROL SYSTEM.
- COMMISSIONING AUTHORITY WILL PROVIDE A LIST OF DEFICIENCIES AFTER THE FUNCTIONAL TESTING AND TRENDING PERIOD. THE CONTRACTOR IS RESPONSIBLE FOR MAKING CORRECTIONS AND PROVIDING COMMISSIONING AUTHORITY VERIFICATION. THE FOLLOWING SYSTEMS SHALL BE COMMISSIONED:
- DOMESTIC HOT WATER HEATERS/SYSTEMS 5.11.8.2. DOMESTIC WATER BOOSTER PUMPING SYSTEMS 5.11.8.3. PIPING SYSTEMS AND EQUIPMENT
- 5.11.8.4. PLUMBING FIXTURES 5.11.8.5. IRRIGATION SYSTEMS (IF THE WORK FALLS UNDER THE PURVIEW OF THE PLUMBING
- PURVIEW OF THE PLUMBING CONTRACTOR) METERING DEVICES 5.11.9. COMMISSIONING FOR PLUMBING SYSTEMS SHALL INCLUDE THE FOLLOWING:
- DEVELOP COMMISSIONING REQUIREMENTS SPECIFIC TO PLUMBING SYSTEMS (AND INCORPORATE COMMISSIONING REQUIREMENTS INTO CONSTRUCTION DOCUMENTS. COMMISSIONING REQUIREMENTS SHALL INCLUDE TROUBLESHOOTING INSTRUCTIONS FOR
- SYSTEMS THAT ARE NOT PERFORMING CORRECTLY. PROVIDE BUILDING MANAGEMENT AND MAINTENANCE STAFF WITH A BINDER OF DETAILED INFORMATION ON PLUMBING SYSTEMS AND CONTROLS, INCLUDING OPERATION INSTRUCTIONS, SPECIFICATION SHEETS, MANUFACTURER INFORMATION, AND REPLACEMENT
- AND REPAIR INFORMATION. PROVIDE TRAINING ON PLUMBING SYSTEMS FOR BUILDING MAINTENANCE AND MANAGEMENT STAFF, AS WELL AS BUILDING OCCUPANTS.
- PROVIDE A COMMISSIONING REPORT TO BUILDING MANAGEMENT AND MAINTENANCE STAFF AND PROJECT MANAGER ENERGY TEAM AT THE TIME OF OCCUPANCY. 5.11.10. COMMISSIONING SUBMITTALS: PROVIDE PLUMBING SUBMITTALS TO COMMISSIONING AUTHORITY FOR REVIEW.
- SUBMIT TEST AND BALANCE PLAN FOR COMMISSIONING AUTHORITY REVIEW. UPDATED SUBMITTALS: KEEP THE COMMISSIONING AUTHORITY INFORMED OF ALL CHANGES TO CONTROL SYSTEM DOCUMENTATION MADE DURING PROGRAMMING AND SETUP; REVISE AND RESUBMIT WHEN SUBSTANTIAL CHANGES ARE MADE. O & M MANUALS: SUBMIT MANUALS RELATED TO ITEMS THAT WERE COMMISSIONED TO

COMMISSIONING AUTHORITY FOR REVIEW; MAKE CHANGES RECOMMENDED BY

COMMISSIONING AUTHORITY.

5.11.10.2.

- PRESSURE TESTING PLUMBING PIPING
- SANITARY WASTE AND VENT PIPING WITHIN BUILDING TO BUILDING WALL, INCLUDING CONDENSATE 6.1.1. DRAIN LINES FROM COOLING COILS TEST WITH WATER IN ACCORDANCE WITH THE IAPMO UPC TO A MINIMUM PRESSURE OF 10 FEET (W.G.). KEEP WATER IN SYSTEM FOR AT LEAST 1 HOUR BEFORE INSPECTION STARTS. ACCEPTABLE ALTERNATE: TEST WITH AIR AT 5 PSIG AND HOLD PRESSURE FOR AT LEAST 1 HOUR; NOTE: THIS ALTERNATIVE METHOD MAY NOT BE USED FOR PLASTIC PIPING.
- FOR MODIFICATIONS TO EXISTING PLUG THE OUTLET OF THE DRAIN PIPING, AND FILL PIPE WITH WATER TO THE POINT OF OVERFLOW. AFTER 15 MINUTES, CHECK PIPING FOR LEAKS. NO LOSS OF WATER FROM THE PIPING FOR THE DURATION OF THE TEST INDICATES THAT THE SYSTEM MEETS THE REQUIREMENTS OF THE PROJECT. (PER UPC).
- SANITARY SEWER PIPING BEYOND BUILDING WALL (OTHER THAN FORCE MAIN COMPLETELY FILL SYSTEM WITH WATER AND LET STAND FOR AT LEAST 1 HOUR BEFORE INSPECTION STARTS, AND VISUALLY INSPECT TO ENSURE THAT ALL JOINTS ARE TIGHT. FOR PARTIAL SYSTEM TESTS, TEST WITH WATER IN ACCORDANCE WITH THE IAPMO UPC TO A MINIMUM PRESSURE OF 10 FEET (W.G.). KEEP WATER IN SYSTEM FOR AT LEAST 1
- HOUR BEFORE INSPECTION STARTS 6.1.2.1.2. ACCEPTABLE ALTERNATE: TEST WITH AIR AT 5 PSIG AND HOLD PRESSURE FOR AT LEAST 1 HOUR; NOTE: THIS ALTERNATIVE METHOD MAY NOT BE USED FOR PLASTIC PIPING. SANITARY SEWER FORCE MAIN: 6.1.2.2.1. TEST WITH WATER AT 1.5 TIMES OPERATING PRESSURE, 25 PSIG MINIMUM FOR 4 HOURS.
- 6.1.2.3. POTABLE WATER INSIDE BUILDING TO SITE MAIN: TEST WITH WATER AT 1.5 TIMES OPERATING PRESSURE, 100 PSIG MINIMUM FOR 4 6.1.2.3.1.
- 6.1.2.3.2. FLUSH AND SANITIZE ALL POTABLE WATER LINES BEFORE USE. 6.1.2.4. NON-POTABLE WATER
- 6.1.2.4.1. TEST WITH WATER AT 1.5 TIMES OPERATING PRESSURE, 100 PSIG MINIMUM FOR 4 PROJECT MANAGER AND/OR THE LOCAL AUTHORITY HAVING JURISDICTION SHALL APPROVE ANY ALTERNATE TESTING, OTHER THAN THOSE LISTED ABOVE.
- ALL PRESSURE TESTING RESULTS SHALL BE SUBMITTED TO THE COMMISSIONING AGENT FOR 6.1.2.6. CONDUCTIVITY TESTING FOR PIPING GROUNDS SHALL BE COMPARED TO CODE REQUIREMENTS, AND TEST DATA SUBMITTED TO COMMISSIONING AGENT FOR REVIEW.

TRAINING:

GENERAL TRAINING: UPON COMPLETION OF WORK, PROVIDE OWNER'S OPERATING PERSONNEL TWO INSTRUCTION PERIODS IN OPERATION AND MAINTENANCE OF MATERIAL AND EQUIPMENT. EACH PERIOD SHALL BE A MINIMUM OF 4 HOURS CONTINUOUS; FIRST PERIOD TO BE IMMEDIATELY UPON COMPLETION, AND SECOND PERIOD WITHIN WARRANTY PERIOD

8. <u>CLOSE-OUT</u>:

8.1. O&M MANUAL: PRIOR TO ACCEPTANCE AND THE START OF THE WARRANTY PERIOD, SUBMIT THREE (3) COPIES OF OPERATIONS AND MAINTENANCE MANUALS, AND ONE ELECTRONIC COPY IN SEARCHABLE PDF FORMAT, MANUALS SHALL BE BOUND IN ONE OR MORE 3-RING BINDERS WITH INDEX AND TABS AND INCLUDE THE FOLLOWING:

MAJOR EQUIPMENT SPECIFICATIONS AND SERVICE AND MAINTENANCE INSTRUCTIONS.

ADDRESSES AND PHONE NUMBERS FOR ALL EQUIPMENT AND PARTS SUPPLIERS.

- TABLE OF CONTENTS. OPERATING INSTRUCTIONS FOR INSTALLATION AS A WHOLE AND FOR EACH PIECE OF EQUIPMENT. SERVICE TELEPHONE NUMBER OF THE INSTALLING CONTRACTOR. EQUIPMENT PARTS AND COMPONENTS SERVICE AND MAINTENANCE INSTRUCTIONS.
- WARRANTY LETTER FROM GENERAL CONTRACTOR, SUB-CONTRACTOR, AND EQUIPMENT SUPPLIERS, AS APPROPRIATE, WITH STARTING AND ENDING DATES FOR WARRANTY PERIOD

8.1.8. COPY OF INSPECTION CERTIFICATES PROVIDED BY THE LOCAL CODE AUTHORITIES.

8.1.9. "AS-BUILT" CONTROL SHOP DRAWINGS AND DIAGRAMS.

- 9. <u>VALVES:</u>
- 9.1.1. BRONZE RISING STEM, 200 PSI SIMILAR TO NIBCO T-111 (THREADED), S-111 (SWEAT). 9.2. BALL VALVES: 9.2.1. TWO-PIECE, BRONZE, END ENTRY, 600 PSI WWP; SIMILAR TO NIBCO T-585-70 (THREADED), S585-70

9.3.1. BRONZE, THREADED CAP, TEFLON DISC; SIMILAR TO NIBCO T-433 (THREADED), S-433 (SWEAT). 9.4. PROVIDE WATER HAMMER ARRESTORS ON ALL WITH QUICK CLOSING FIXTURES. WHERE REQUIRED.

- 10.1. ALL INSULATION (INCLUDING JACKET, FACING AND ADHESIVE) SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255 AND UL 273; NOT
- EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50. 10.2. PROVIDE PVC SHIELDED PREMOLDED FIBERGLASS INSULATION FITTINGS ON ALL VALVES AND PIPE
- 10.2.1. PROVIDE VAPOR BARRIER ON ALL COLD WATER VALVES AND FITTINGS. 10.3. PIPE INSULATION SHALL BE SECTIONAL COVERED FIBERGLASS SECURED IN PLACE WITH ADHESIVE
- TAPE BANDS 1 INCH WIDE. 10.3.1. INSULATION SHALL NOT BE SECURED WITH STAPLES. 10.4. PROVIDE 1/2 INCH THICK INSULATION WITH VAPOR BARRIER ON ALL COLD WATER PIPING, UNLESS

10.5. PROVIDE 1 INCH THICK INSULATION ON ALL HOT WATER PIPING.

- 11.1. SUPPORT ALL PIPING FROM BUILDING CONSTRUCTION BY PROVIDING INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), AND ACCEPTABLE BRACKETS. SUBMIT ALL METHODS FOR
- 11.2. PROVIDE TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS FOR GROUPED LINES AND SERVICES. 11.3. PROVIDE ADDITIONAL FRAMING WHERE BUILDING CONSTRUCTION IS INADEQUATE. SUBMIT FOR

11.4. SUSPENDED HORIZONTAL PIPING:

- SUPPORT ALL PIPING INDEPENDENTLY FROM STRUCTURE USING HEAVY IRON-HINGED TYPE HANGERS, SIMILAR TO GRINNELL CLEVIS NO. 260.
- PROVIDE WALL BRACKETS FOR WALL-SUPPORTED PIPING, AND PROVIDE PIPE SADDLES FOR

PROVIDE ELECTROPLATED SOLID-BAND HANGERS SIMILAR TO AUTO- GRIP, FOR TWO-INCH AND

- FLOOR-MOUNTED PIPING. PROVIDE SUPPORTS WITH COPPER LINING FOR UNINSULATED COPPER PIPING. SUSPEND PIPING FROM INSERTS, USING BEAM CLAMPS WITH RETAINING CLAMP OR LOCKNUT,
- STEEL FISH PLATES, CANTILEVER BRACKETS OR OTHER ACCEPTED MEANS. BEAM CLAMPS SHALL BE SIMILAR TO GRINNELL FIGURES 61, 87, 131, OR 225.
- SUSPEND PIPING BY RODS WITH DOUBLE NUTS. PROVIDE ADDITIONAL STEEL FRAMING, AS REQUIRED AND ACCEPTED WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS. SUPPORT BRANCH FIXTURE WATER PIPING IN CHASES WITH COPPER-PLATED METAL BRACKETS,

SECURED TO STUDS, SIMILAR TO HOLDRITE NOS. 102-18, 107-18, 102-26, OR 101-26.

PROVIDE 180 DEGREE ARC GALVANIZED METAL COVERING SHIELDS ON HANGERS FOR INSULATED PIPING WITHOUT INCOMPRESSIBLE INSULATING BLOCK IN INSULATION AT

- MAXIMUM HANGER SPACING AS INDICATED. PIPE 1 INCH AND SMALLER SHALL BE EVERY 8 FEET.
- PIPE 1-1/4 INCH AND LARGER SHALL BE EVERY 10 FEET. 11.5.3. COPPER TUBING 1-1/4 INCH AND SMALLER SHALL BE EVERY 6 FEET. COPPER TUBING 1-1/2 INCH AND LARGER SHALL BE EVERY 10 FEET.

CAST IRON: EVERY 5 FEET AND AT EVERY FITTING OR JOINT.

- 11.6. EXPANSION ANCHORS: PROVIDE SMOOTH WALL, NON-SELF-DRILLING INTERNAL PLUG EXPANSION TYPE ANCHORS
- CONSTRUCTED OF AISC 12L14 STEEL AND ZINC PLATED IN ACCORDANCE WITH FED. SPEC. DO NOT EXCEED 1/4 OF AVERAGE VALVES FOR A SPECIFIC ANCHOR SIZE USING 2000 PSIG (13,800 KPA) CONCRETE ONLY, FOR MAXIMUM WORKING LOADS.
- PROVIDE SPACING AND INSTALL ANCHORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. 11.6.4. EXPANSION ANCHORS SHALL BE UL LISTED AND SIMILAR TO HILTI HDI.
- 12.1. DISINFECT COMPLETE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE BUILDING CODE
- SECTION PIPE IDENTIFICATION: 13.1. WATER PLUMBING PIPING SHALL BE IDENTIFIED BY SYSTEM AND FLOW ARROW. IDENTIFICATION SHALI NOT BE SPACED LESS THAN 20 FEET
- 14.1. COATED CAST IRON BODY, DOME BOTTOM STRAINER, THREADED, P-TRAP, SIMILAR TO J.R.SMITH
- TRAP PRIMER VALVE 15.1. FURNISH AND INSTALL SIUOX CHIEF ELECTRONIC TRAP PRIMER MODEL 695-ES01. PROVIDE DISTRIBUTION WHERE INDICATED ON DRAWINGS. INSTALL AS PER MANUFACTURER'S REQUIREMENTS. VACUUM BREAKERS:

16.1. VACUUM BREAKER SHALL BE ANTI-SIPHON ANTI-SPILL AND SHALL BE INSTALLED IN ACCORDANCE W/

THE MANUFACTURER'S INSTRUCTION - BRONZE BODY W/ VALVE ASSEMBLY. SPRINGS SHALL BE

STAINLESS STEEL. THE VALVE SHALL BE CONSTRUCTED WITH A MOLDED DIAPHRAGM SEPARATING THE

AIR INLET FROM THE POTABLE WATER SUPPLY TO PREVENT SPILLAGE. COORDINATE WITH ARCHITECT FOR ACCESS PANEL

ESCUTCHEONS ON BOTH SIDES OF THE

LOCATIONS.

CONSTRUCTION.

17.1. PROVIDE AT ALL LOW POINTS IN WATER SYSTEMS.

18.1. ESCUTCHEONS: PROVIDE EXPOSED PIPING BOTH BARE AND COVERED, WITH CHROME PLATED CAST

BRASS OR CAST IRON ESCUTCHEONS WHERE PASSING FLOORS, CEILINGS, WALL OR PARTITIONS.

COORDINATE WITH ARCHITECT SLEEVES: PROVIDE NO. 22 USSG GALVANIZED IRON SLEEVES EXTENDED THROUGH CONSTRUCTION: FLOORS, CEILINGS, WALLS, AND PARTITIONS. FOR INSULATED PIPING, SIZE TO ALLOW INSULATION TO PASS THROUGH SLEEVE. SPACE BETWEEN PIPE AND SLEEVE (OPENING) IN FIRE RATED CONSTRUCTION SHALL NOT EXCEED ONE-HALF INCH, AND SHALL BE COMPLETELY PACKED WITH MINERAL WOOL OR EQUIVALENT NONCOMBUSTIBLE MATERIAL, AND SHALL BE CLOSED OFF BY CLOSE-FITTING METAL

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HOLLYWOOD CA, 90027

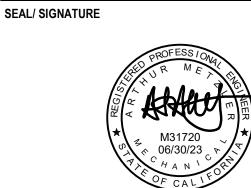
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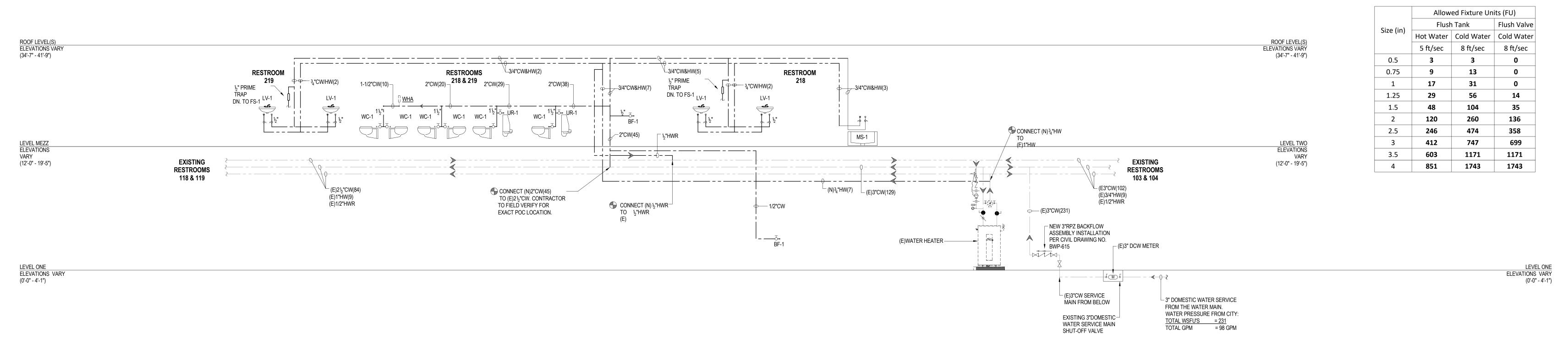


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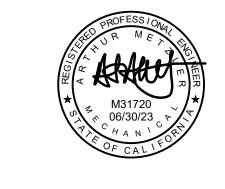
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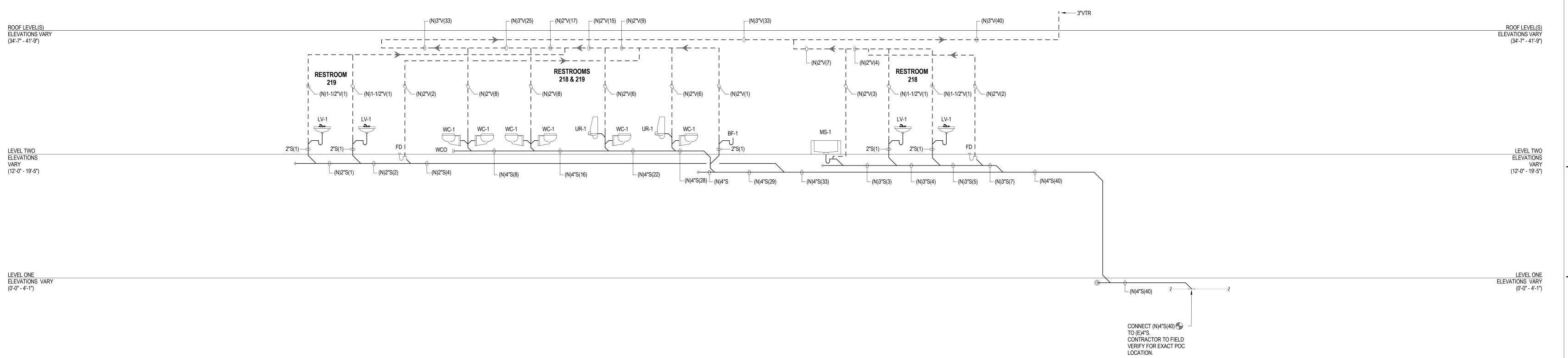
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DOMESTIC WATER RISER DIAGRAM
NOT TO SCALE



| | | | | PLUMBIN | NG AF | PPLIA | NCE | AND I | FIXTUF | RE SCH | EDULE | | | | |
|--------------|---------------|--------------------------------------------------------|--------------------------------------------------------|-----------|--------|---------------|-------|---------------|--------|---------------------|-----------|-----------------|----------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EQUIPMENT ID | DESCRIPTION | MANUFACTURER / MODEL NO. | TRIM AND ACCESSORIES | FLOW RATE | COLD W | ATER FILTERED | HOT \ | WATER TEMP °F | WAS' | TE PIPE INDIRECT | VENT PIPE | WATER (F.U.) | DRAINAGE (D.F.U.) | ELECTRIC SENSOR | REMARKS |
| LV-1 | LAVATORY | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | 0.08 GPC | 1/2" | - | 1/2" | 110° | 2" | - | 2" | 2 | 2 | YES | WALL MOUNT LAVATORY WITH SENSOR ACTIVATED FAUCET, PROVIDE CHROME PLATED 1 1/4" GRID STRAINER OUTLET TUBE AND 3/8" SUPPLIES. PROVIDE DEARBORN BRASS 1 1/2"LA CODE TRAP - |
| WC-1 | WATER CLOSET | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | 1.28 GPF | 3/4" | - | - | - | 4" | - | 2" | 2.5 | 4 | YES | TOILET SHALL BE A WALL MOUNTED, FLUSH VALVE TYPE, ADA ACCESSIBLE, ELONGATED FRONT BOWL WITH AN OPEN FRONT TOILET SEAT. |
| UR-1 | URINAL | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | .125 GPM | 3/4" | - | - | - | 4" | - | 2" | 2.5 | 4 | YES | URINAL SHALL BE A WALL MOUNTED, FLUSH VALVE, ADA ACCESSIBLE, INSTALL WALL MOUNTED URINAL ON NEW WATTS MODEL CA-321 FIXTURE SUPPORT |
| MS-1 | MOP SINK | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | 2 GPM | 3/4" | - | 3/4" | 110° | 2" | - | 2" | 2 | 2 | - | INSTALL FLOOR MOUNTED FIXTURE WITH MODEL 7721.038 FLAT GRID DRAIN AND WALL MOUNTED FAUCET WITH INTEGRAL VACUUM BREAKER |
| BF-1 | BOTTLE FILLER | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | REFER TO MODULAR CONSULTANTS DESIGN FOR SPECIFICATIONS | - | 1/2" | Υ | - | - | 2" | - | 1-1/2" | - | 1 | - | - |

| P.S.I. @ STREET HI/LOW : | 103/69 | P.S.I. |
|----------------------------------------------|----------|--------|
| P.S.I. @ REGULATOR : | 75 | P.S.I. |
| TOTAL GPM OF FIXTURES : (208 WSFU) LOSSES : | 93 | G.P.M. |
| LOSS THRU 2" METER : (EXISTING) | 3.6 | P.S.I. |
| | 4.0 | P.S.I. |
| LOSS THRU 3" BACKFLOW DEVICE : (WILKINS 375) | 12.0 | P.S.I. |
| STATIC HEAD LOSS 25 FT. X 0.434 : | 10.9 | P.S.I. |
| RESIDUAL PRESSURE @ FIXTURE : | 25.0 | P.S.I. |
| TOTAL LOSSES : | 55.5 | P.S.I. |
| MINIMUM PRESSURE ALLOWABLE FOR FRICTION LOSS | | |
| ALLOWABLE FRICTION LOSS PER 100 FEET OF PIPE | 55.5) = | 13.5 P |
| 300 FT. RUN X 100 = 3.5 P.S.I./10 | 0 F1. | |

| | PIPE MAT | TERIAL SCHEDULE | |
|----------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| SERVICE | PIPE | FITTINGS | REMARKS |
| DOMESTIC WATER SYSTEM | HARD DRAWN COPPER TUBING, ASTM B88 | WROUGHT COPPER FITTINGS, ASTM B16.22 OR CAST COPPER ASTM B16.18 WITH 95-5 SOLDER JOINTS | TYPE K FOR UNDERGROUND USE |
| DOMESTIC COLD WATER SYSTEM | SEAMLESS COPPER TUBING, TYPE L HARD DRAWN, ASTM B88 | WROUGHT COPPER FITTINGS, ASTM B16.22 OR CAST COPPER ASTM B16.18 WITH SOLDER JOINTS | ABOVE FLOOR USE |
| SOIL, WASTE AND VENT | SERVICE WEIGHT CAST IRON SOIL PIPE | SERVICE WEIGHT CAST IRON BELL AND SPIGOT SOIL PIPE FITTINGS WITH NEOPRENE GASKET JOINTS | UNDER FLOOR AND UNDERGROUND USE UP TO 5'-0" OUTSIDE THE BUILDING |
| SOIL, WASTE AND VENT | NO-HUB CAST IRON SOIL PIPE | CAST IRON NO-HUB TYPE PIPE FITTINGS WITH STANDARD DUTY COUPLING JOINTS FOR ALL PIPING UP TO 5" AND HEAVY DUTY COUPLINGS FOR PIPING 6" AND LARGER | ABOVE FLOOR USE |
| CONDENSATE DRAIN | SEAMLESS COPPER TUBING, TYPE L HARD DRAWN, ASTM B88 | WROUGHT COPPER FITTINGS, ASTM B16.22 OR CAST COPPER ASTM B16.18 WITH 50-50 SOLDER JOINTS | ABOVE FLOOR USE |

| | | PL | UMBING DRA | IN SCHEDUL | E | |
|-------------|-------------|--------------|------------|---------------|----------|-------------------------------|
| DRAIN TYPE | DESIGNATION | MANUFACTURER | MODEL# | STRAINER | LOCATION | REMARKS |
| FLOOR DRAIN | FD | WATTS | FD-100-A5 | NICKEL BRONZE | BATHROOM | COORDINATE GRATE W/ ARCHITECT |

| PLUMBING FI | XTURE FLOW RATES | | PLUMBING FIXTURE FLOW RATE NOTES |
|-------------------------------------|-----------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FIXT | URE FLOW RATES | | LAVATORY FAUCETS SHALL NOT HAVE A FLOW RATE OF LESS THAN .8 GPM AT 20 PSI |
| FIXTURE TYPES | MAXIMUM ALLOWABLE FLOW RATE | NOTES | 2. KITCHEN FAUCETS MAY TEMPORARILY INCREASE FLOW ABOVE THE MAXIMUM RATE, BUT NOT ABOVE 2.2GPM @ 60PSI AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GPM @ |
| SHOWERHEADS | 1.8 GPM @ 80 PSI | | 60PSI. |
| LAVATORY FAUCETS, RESIDENTIAL | 1.2 GPM @ 60 PSI | 1 | WHERE COMPLYING FAUCETS ARE UNAVAILABLE, AERATORS RATED AT .35 GPM OR OR OTHER MEANS MAY BE USED TO ACHIEVE |
| LAVATORY FAUCETS, NONRESIDENTIAL | 0.35 GPM @ 60 PSI | 3 | REDUCTION. 4. INCLUDES SINGLE AND DUAL FLUSH WATER CLOSETS WITH AN EFFECTIVE FLUSH OF 1.28 GALLONS OR |
| KITCHEN FAUCETS | 1.5 GPM @ 60 PSI | 2 | LESS. |
| METERING FAUCETS | 0.9 GALLONS/CYCLE | | 4.1. <u>SINGLE FLUSH TOILETS</u> - THE EFFECTIVE FLUSH VOLUME SHALL NOT EXCEED 1.28 GALLONS. THE |
| WASH FOUNTAINS | 1.8 [RIM SPACE (IN.) / 20 GPM @ 60 PSI] | | EFFECTIVE FLUSH VOLUME IS THE AVERAGE FLUSH VOLUME WHEN TESTED IN ACCORDANCE WITH ASME A112.19.233.2. |
| METERING FAUCETS FOR WASH FOUNTAINS | .20 [RIM SPACE (IN.) / 20 GPM @ 60 PSI] | | 4.2. DUAL FLUSH TOILETS - THE EFFECTIVE FLUSH VOLUME SHALL NOT EXCEED 1.28 GALLONS THE |
| GRAVITY TANK TYPE WATER CLOSETS | 1.28 GALLONS/FLUSH | 4 | EFFECTIVE FLUSH VOLUME IS DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO |
| FLUSHOMETER TANK WATER CLOSETS | 1.28 GALLONS/FLUSH | 4 | REDUCED FLUSHES AND ONE FULL FLUSH. FLUSH VOLUMES WILL BE TESTED IN ACCORDANCE WITI ASME A112.19.2 AND ASME |
| FLUSHOMETER VALVE WATER CLOSETS | 1.28 GALLONS/FLUSH | 4 | A112.19.14. |
| URINALS | 0.125 GALLONS/FLUSH | | |

| PLU | MBING 1 | TRAP PRIME | R |
|-------------|-------------|--------------|------------|
| ГҮРЕ | DESIGNATION | MANUFACTURER | MODEL# |
| TRAP PRIMER | TP100 | WATTS | LFTP300-DR |
| TRAP PRIMER | TP101 | WATTS | LFTP300-DR |

5419 SUNSET BOULEVARD5419 SUNSET BLVD.
HOLLYWOOD CA, 90027



5419 SUNSET, LLC c/o MONTANA AVENUE CAPITAL

PARTNERS
CLIENT
11100 Santa Monica Blvd., Suite 270
Los Angeles, CA 90025

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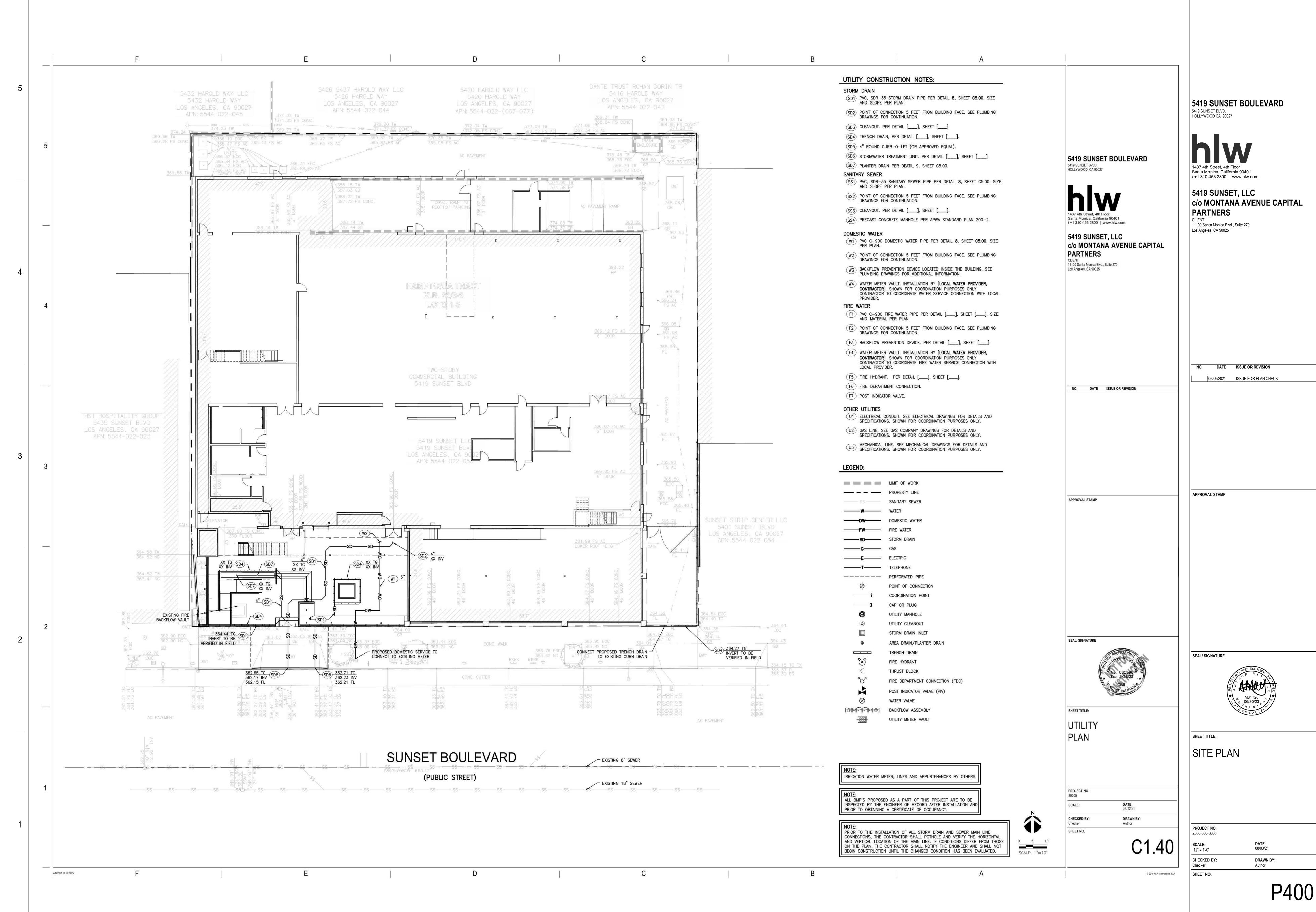
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PLUMBING SCHEDULES

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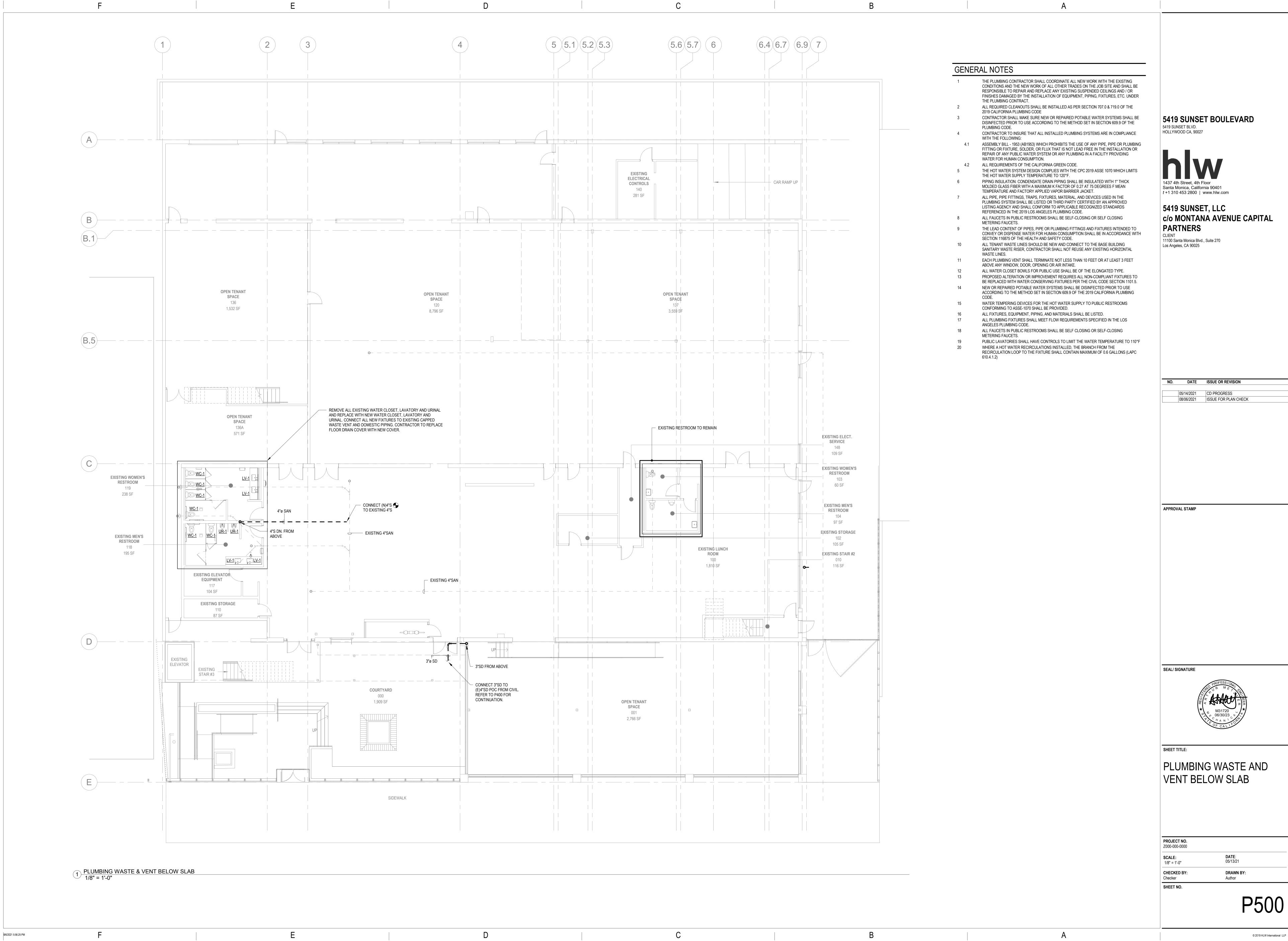
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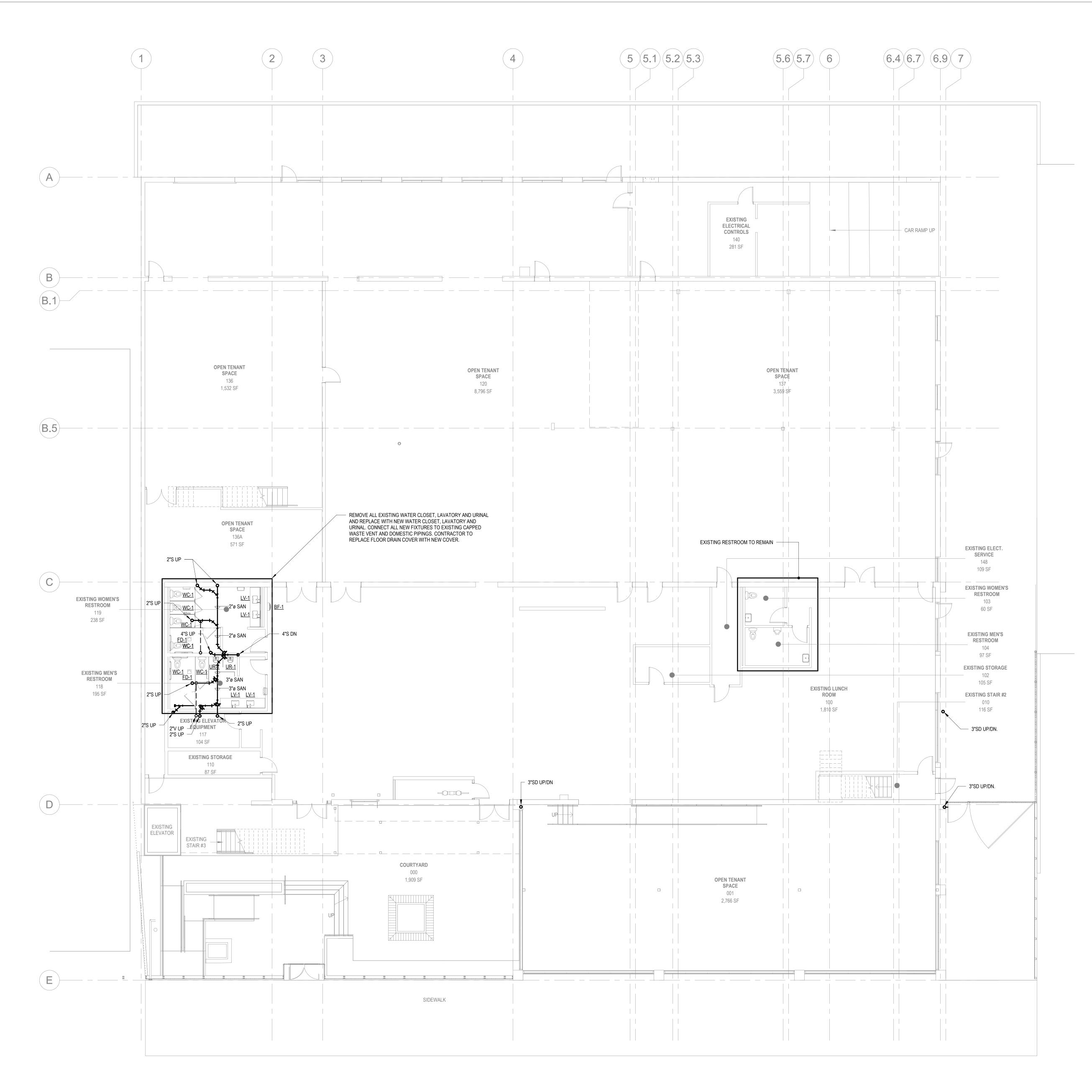
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- THE PLUMBING CONTRACTOR SHALL COORDINATE ALL NEW WORK WITH THE EXISTING CONDITIONS AND THE NEW WORK OF ALL OTHER TRADES ON THE JOB SITE AND SHALL BE RESPONSIBLE TO REPAIR AND REPLACE ANY EXISTING SUSPENDED CEILINGS AND / OR FINISHES DAMAGED BY THE INSTALLATION OF EQUIPMENT, PIPING, FIXTURES, ETC. UNDER THE PLUMBING CONTRACT.
- ALL REQUIRED CLEANOUTS SHALL BE INSTALLED AS PER SECTION 707.0 & 719.0 OF THE 2019 CALIFORNIA PLUMBING CODE
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- 4.2 ALL REQUIREMENTS OF THE CALIFORNIA GREEN CODE.
 THE HOT WATER SYSTEM DESIGN COMPLIES WITH THE CPC 2019 ASSE 1070 WHICH LIMITS
- THE HOT WATER SUPPLY TEMPERATURE TO 120°F.

 6 PIPING INSULATION: CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 1" THICK MOLDED GLASS FIBER WITH A MAXIMUM K FACTOR OF 0.27 AT 75 DEGREES F MEAN
- TEMPERATURE AND FACTORY APPLIED VAPOR BARRIER JACKET.

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5419 SUNSET BOULEVARD

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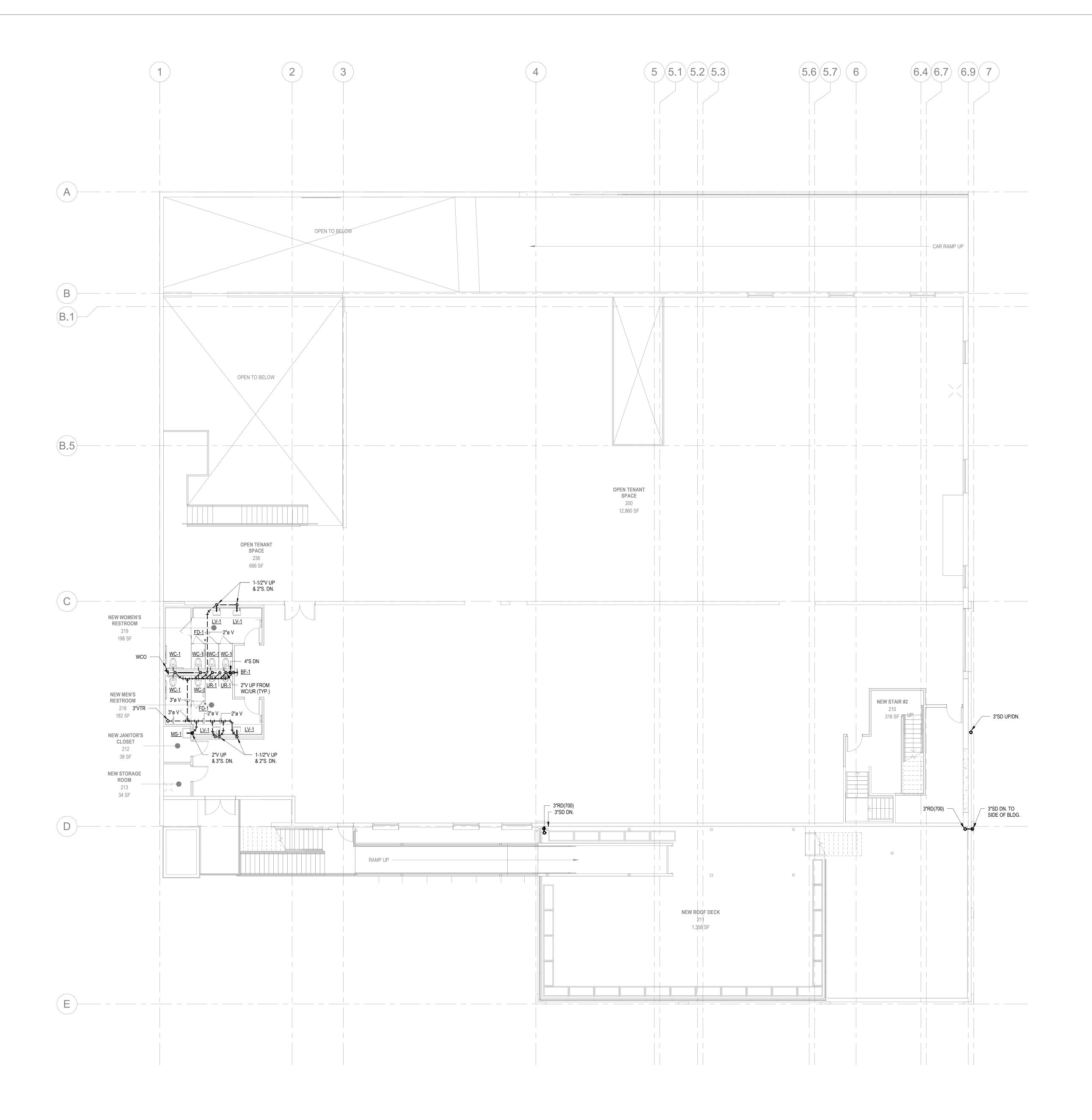
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PLUMBING WASTE & VENT LEVEL 1

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 ALL PIPE, PIPE FITTINGS, TRAPS, FIXTURES, MATERIAL, AND DEVICES USED IN THE PLUMBING SYSTEM SHALL BE LISTED OR THIRD PARTY CERTIFIED BY AN APPROVED LISTING AGENCY AND SHALL CONFORM TO APPLICABLE RECOGNIZED STANDARDS
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11100 Santa Monica Blvd., Suite 270 Los Angeles, CA 90025

PARTNERS

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t +1 310 453 2800 | www.hlw.com

5419 SUNSET, LLC

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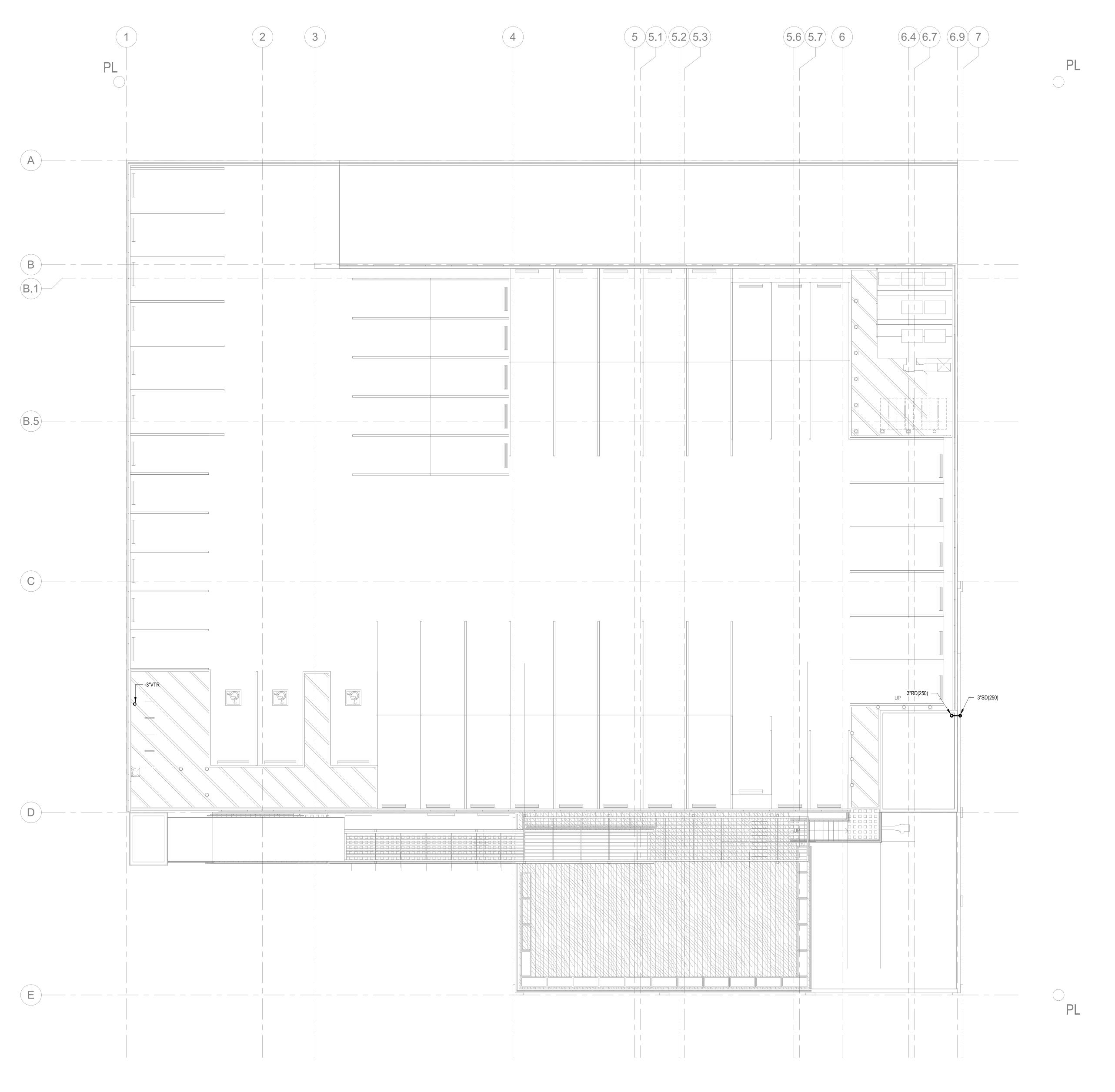
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PLUMBING WASTE & VENT LEVEL 2

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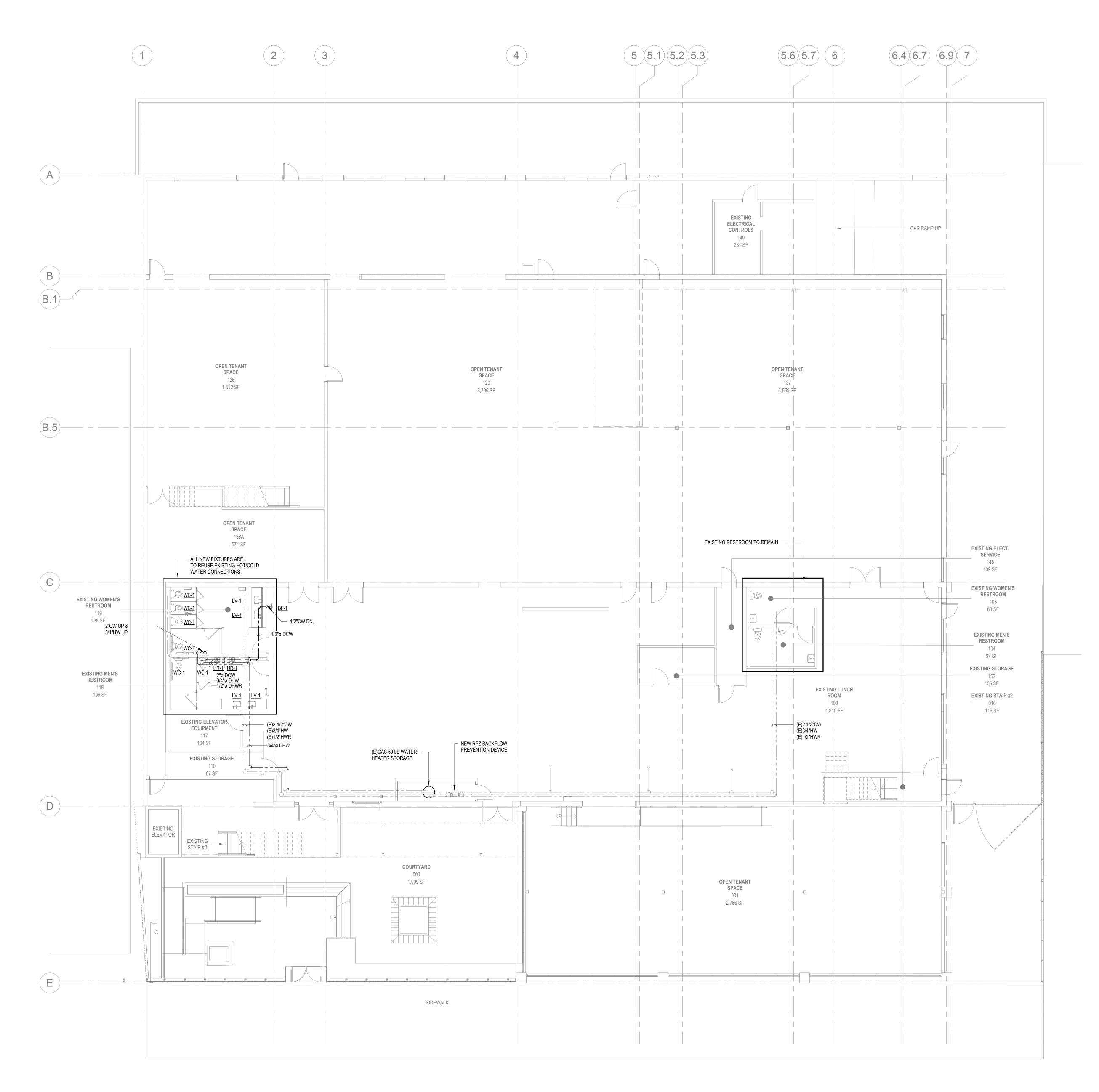
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SHEET TITLE:

PLUMBING WASTE & VENT ROOF

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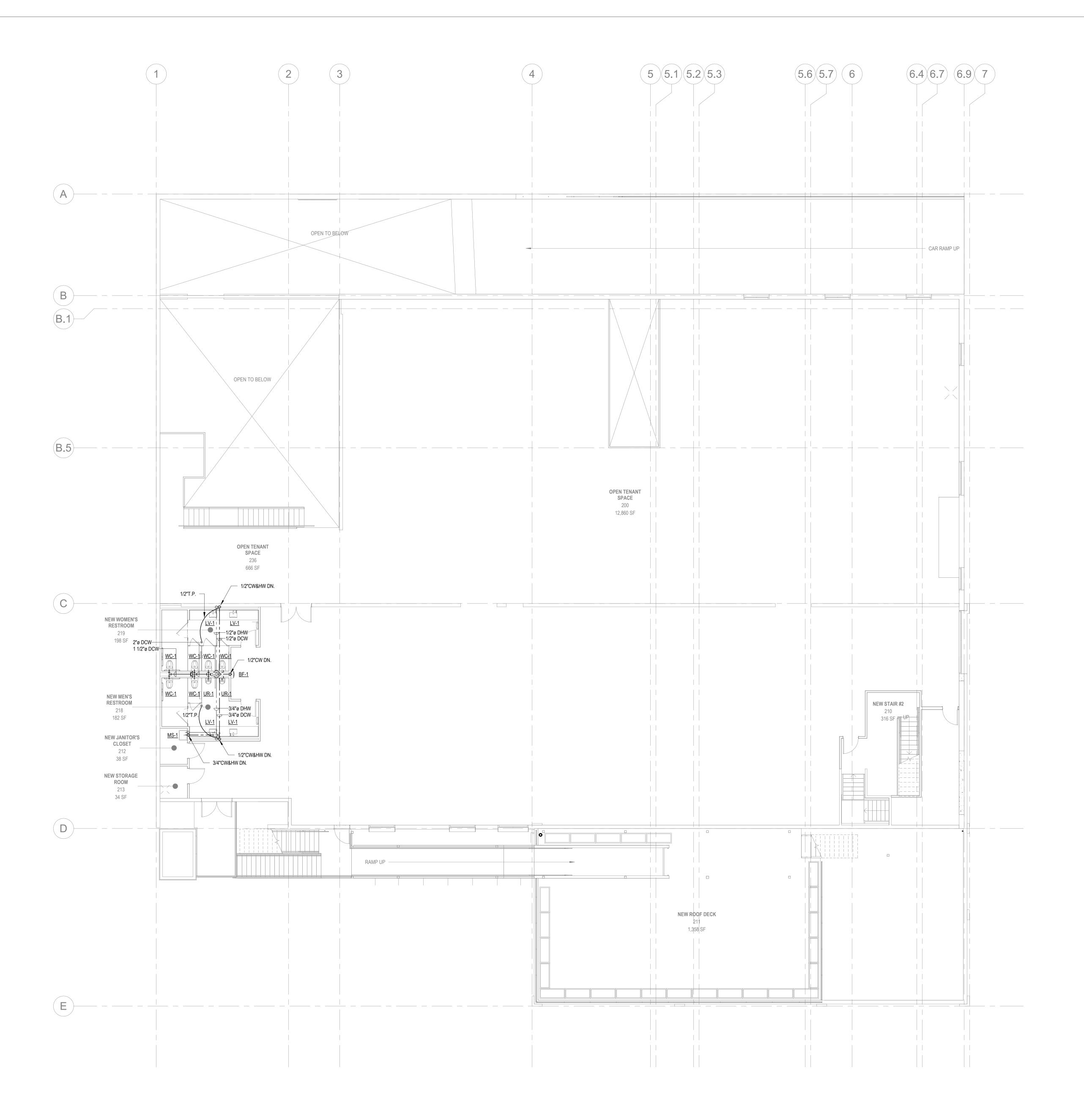
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PLUMBING DOMESTIC SERVICES LEVEL 1

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| | | | |
| | 05/14/2021 | CD PROGRESS | |
| | 08/06/2021 | ISSUE FOR PLAN CHECK | |

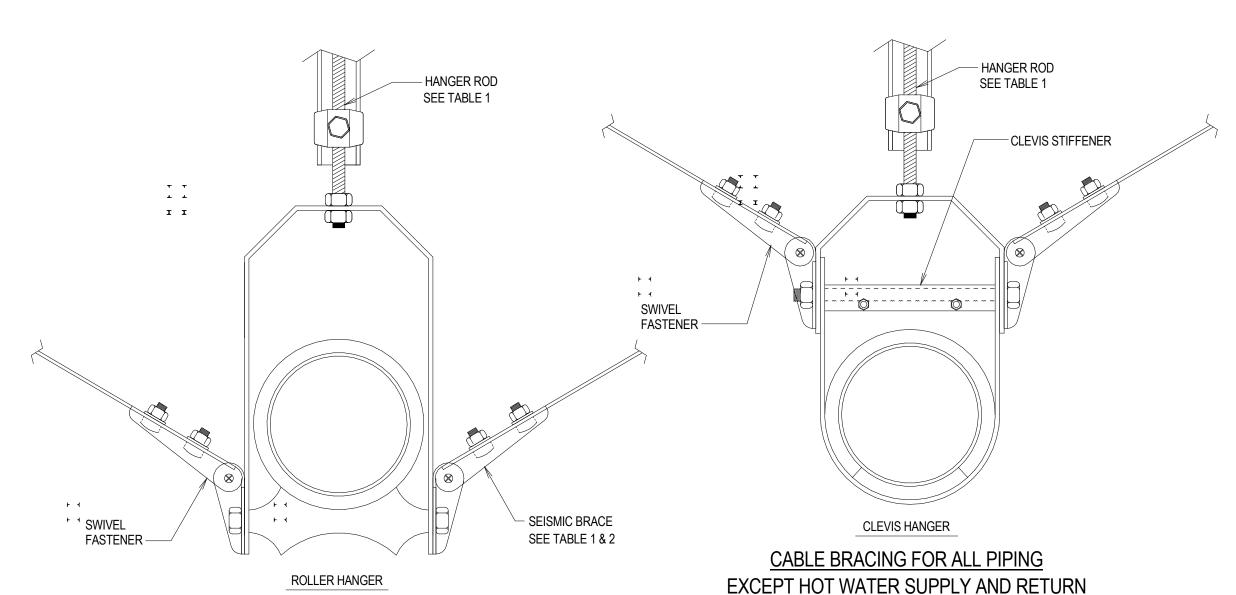
APPROVAL STAMP

SEAL/ SIGNATURE



PLUMBING DOMESTIC SERVICES LEVEL 2

| PROJECT NO. Z000-000-0000 | | |
|----------------------------------|------------------------|--|
| SCALE: 1/8" = 1'-0" | DATE : 04/30/21 | |
| CHECKED BY: Checker | DRAWN BY: Author | |
| SHEET NO | | |



CABLE BRACING FOR HOT WATER SUPPLY AND RETURN PIPING NOT TO SCALE

STEEL ANGLE

MAXIMUM LENGTH

9'-6" (2.9 M)

2 x 2 x 1/8

2 x 2 x 1/4

3 x 3 x 1/4

4 x 4 x 1/4

1. LONGITUDINAL BRACING OF HOT WATER AND STEAM PIPING MUST BE

- 3. REFER TO ASHRAE'S SEISMIC RESTRAINT MANUAL "A PRACTICAL GUIDE TO

DESIGNED FOR EACH PROJECT.

- 2. FOR SPACING OF BRACES AND MEMBER SIZES, REFER TO GENERAL REQUIREMENTS AND SCHEDULES ON THIS DRAWING.
- SEISMIC RESTRAINT" FOR ALTERNATIVE METHODS OF BRACING.

SUPPORT STRUCTURE SEISMIC CABLE BRACE -SEISMIC CABLE SEE TABLE 2-- ROD STIFFENER IF REQUIRED PIPE HANGER -

GENERAL REQUIREMENTS FOR BRACING OF PIPES

LONGITUDINAL SEISMIC CABLE BRACE GUIDELINES

FOR CLEVIS SUPPORTED SYSTEMS

- 1. BRACING SCHEDULES IN TABLE 1 APPLY TO STEEL AND COPPER PIPE WITH WELDED, BRAZED AND GROOVED CONNECTIONS.
- 2. BRACING OF PLASTIC PIPES WITH SOLVENT WELDED CONNECTIONS, STEEL OR COPPER PIPE WITH SCREWED CONNECTIONS AND NO HUB PIPE WITH SHEILD AND CLAMP CONNECTIONS ARE TO BE BRACED AT 1/2 OF THE SPACING

IN LENGTH, AS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE

- FROM TABLE 1. 3. BRACE ALL PIPING AS DESCRIBED IN a, b, AND c. EXCEPTION: PIPING SUSPENDED BY INDIVIDUAL HANGERS 12-INCHES OR LESS
- SUPPORT WHERE THE HANGER IS ATTACHED, NEED NOT BE BRACED. BRACE ALL FUEL OIL PIPING, GAS PIPING, SUCH AS FUEL GAS, MEDICAL GAS PIPING, AND COMPRESSED AIR PIPING THAT IS 1-INCH NOMINAL DIAMETER OR LARGER.
- b. BRACE ALL PIPING LOCATED IN BOILER ROOMS, MECHANICAL EQUIPMENT
- ROOMS, AND REFRIGERATION MECHANICAL ROOMS THAT IS 1 1/4-INCHES NOMINAL DIAMETER AND LARGER. c. Brace all Pipes 2 1/2-inches nominal diameter and larger.
- 4. PIPES WHERE THERMAL EXPANSION IS A CONSIDERATION, AN ANCHOR POINT MAY BE USED AS THE SPECIFIED LONGITUDINAL BRACE PROVIDED THAT IT HAS A CAPACITY EQUAL TO OR GREATER THAN A LONGITUDINAL BRACE. THE LONGITUDINAL BRACES AND CONNECTIONS MUST BE CAPABLE OF RESISTING THE ADDITIONAL FORCE INCLUDED BY EXPANSION AND CONTRACTION.
- 5. FOR FUEL OIL AND ALL GAS PIPING, AS SPECIFIED IN 3(a), THE BRACING DETAILS, SCHEDULES, AND NOTES MAY BE USED, EXCEPT THAT TRANSVERSE BRACING SHALL BE AT 25-FEET MAXIMUM, AND LONGITUDINAL BRACING SHALL BE AT 40-FEET MAXIMUM.
- 6. TRANSVERSE BRACING FOR ONE PIPE SECTION MAY ALSO ACT AS LONGITUDINAL BRACING FOR A PIPE SECTION OF THE SAME SIZE CONNECTED PERPENDICULAR TO IT IF THE BRACING IS INSTALLED WITHIN THE LIMITS OF TABLE 4.
- 7. PROVIDE FLEXIBILITY IN JOINTS WHERE PIPES PASS THROUGH BUILDING SEISMIC JOINTS OR EXPANSION JOINTS OR WHERE RIGIDLY SUPPORTED PIPES CONNECT TO EQUIPMENT WITH VIBRATION ISOLATORS. FOR THREADED PIPING, THE FLEXIBILITY MAY BE PROVIDED BY THE INSTALLATION OF SWING JOINTS. FOR PIPING WITH MANUFACTURED BALL JOINTS, SELECT THE LENGTH OF FEET PER FOOT OF HEIGHT ABOVE THE BASE WHERE SEISMIC SEPARATION OCCURS.
- 8. A RIGID PIPING SYSTEM SHALL NOT BE BRACED TO DISSIMILAR PARTS OF THE BUILDING OR TO TWO DISSIMILAR BUILDING SYSTEMS THAT MAY RESPOND DIFFERENTLY DURING AN EARTHQUAKE.
- 9. CAST IRON PIPE OF ALL TYPES, GLASS PIPE, AND ANY OTHER PIPE JOINED WITH A SHIELD AND CLAMP ASSEMBLY, WHERE THE TOP OF THE PIPE IS 12-INCHES OR MORE FROM THE SUPPORTING STRUCTURE, SHALL BE BRACED ON EACH SIDE OF A CHANGE IN DIRECTION OF 90-DEGREES OR MORE. RISER JOINTS SHALL BE BRACED OR STABILIZED BETWEEN FLOORS.
- 10. VERTICAL RISERS SHALL BE LATERALLY SUPPORTED WITH A RISER CLAMP AT EACH FLOOR. FOR BUILDINGS GREATER THAN 6-STORIES HIGH, ALL RISERS SHALL BE ENGINEERED INDIVIDUALLY.

| | TADLE 4 | | | | | | TABLE-3 CONNECTION TO STRUCTURE | | | | | | | |
|------------------------------------------------------------------------------|---------|----|-------|-----------------|------|-------------|------------------------------------------------------------|------------------------------------------------------|----------------------------------------------|-----------------------------------------------------|--|--|--|--|
| TABLE-4 MAX OFFSET LENGTH FOR PIPE | | | | | | | EXPANSION ANCHORS INTO A CONCRETE SLAB DIA. x EMBED. | EXPANSION ANCHORS INTO A CONCRETE DECK DIA. x EMBED. | STEEL BOLTS INTO STRUCTURAL STEEL DIA. | LAG BOLTS INTO A WOOD STRUCTURE DIA. x EMBED. | | | | |
| | | | | | | | in (mm) | in (mm) | in (mm) | in (mm) | | | | |
| MAXIMUM PIPE STEEL PIPE WITH COPPER PIPE WITH BRAZED CONNECTIONS CONNECTIONS | | | | AZED ECTIONS | А | 3/8 x 2 1/2 | 3/8 x 3 | 3/8 | 3/8 x 3 | | | | | |
| in | (mm) | FT | (M) | FT | (M) | | | 1/2 x 3 | 1/2 | | | | | |
| 1 | (25) | 3 | (.09) | | | В | 1/2 x 3 | | | 1/2 x 4 | | | | |
| 2 | (51) | 4 | (1.2) | | | | 5/8 x 3 1/2 | 3/4 x 5 1/4 | 1/2 | | | | | |
| 2 1/2 | (64) | | | 2 | (.6) | С | | | | TWO 1/2 x 4 | | | | |
| | | | | | | D | TWO 1/2 x 3 | TWO 1/2 x 3 | 5/8 | TWO 5/8 x 5 | | | | |
| | | | | | | E | TWO 5/8 x 3 1/2 | TWO 5/8 x 5 | 5/8 | TWO 5/8 x 5 | | | | |
| | | | | | | F | FOUR 5/8 x 3 1/2 | FOUR 5/8 x 5 | 3/4 | FOUR 5/8 x 5 | | | | |

NOT TO SCALE

16 GAUGE ZINC COATED SHEET STEEL SADDLE AT LEAST 12" LONG.

3. FOR LONGITUDINAL CABLE BRACE SEE LONGITUDINAL CABLE CONNECTION

DETAIL ON THIS SHEET. BRACE EACH SIDE OF CLEVIS HANGER SUPPORT.

5. REFER TO ASHRAE'S SEISMIC RESTRAINT MANUAL "A PRACTICAL GUIDE TO

4. FOR SPACING OF BRACES AND MEMBER SIZES, REFER TO GENERAL

SEISMIC RESTRAINT" FOR ALTERNATIVE METHODS OF BRACING.

REQUIREMENTS AND SCHEDULES ON THIS DRAWING.

1. FOR INSULATED PIPES WITH VAPOR BARRIER, PROVIDE RIGID

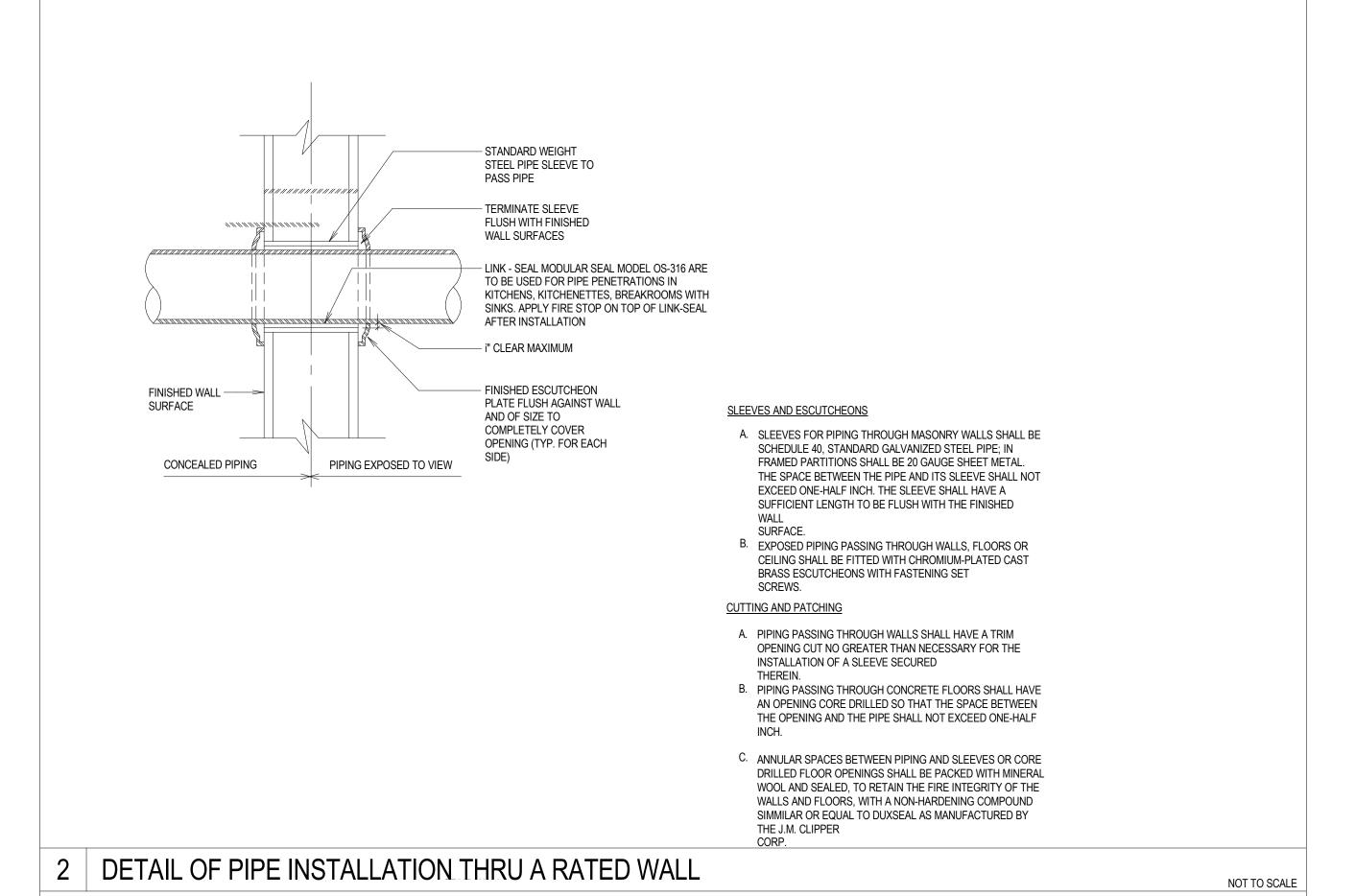
INSULATION INSERT AT HANGER LOCATIONS. ALSO PROVIDE

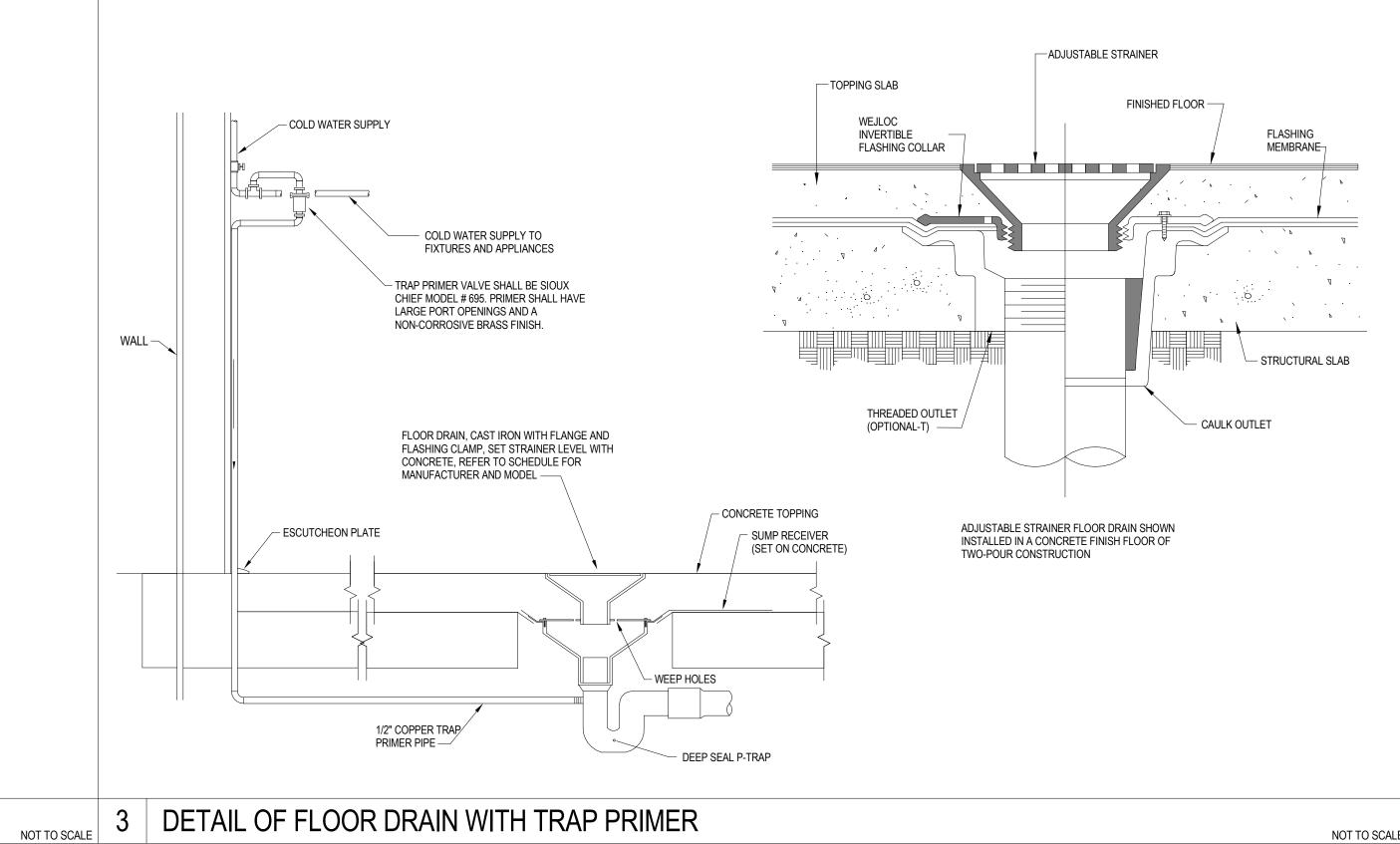
2. FOR INSULATED PIPES WITHOUT VAPOR BARRIER, ELIMINATE

12" LONG WELDED TO PIPE.

SHEET STEEL SADDLE AND PROVIDE PIPE SADDLE AT LEAST

| | 1 0011 3/0 | X 0 | | 5/4 | | | 1001(3/07 | | | | | | | |
|-------|------------|---------------|--------|------------|----------------|------|------------------|----------------|----------------|---------------------|--------------------|-----------------------------------|--------------------------|--------------------------|
| | | | | | | | | ADLE | 4 DID | | | | | |
| | | | | | | | l | ARLF. | -1 2121 | E BRACIN | G | | | |
| PIPE | SIZE | | (. WT. | | MAX. BRAC | | | CABLE BRACE | SOLID BRACE | BRACE CONNECTION | HANGER ROD DIA. | MAXIMUM UNBRACED ROD LENGTH | CONNECTION HANGER ROD | CONNECTION HANGER ROD |
| in | (mm) | lbs per FT |) kg) | TRAN FT | ISVERSE (M) | LONG | GITUDINAL (M) | MEMBER | MEMBER | TO STRUCTURE | in | in | TO STRUCTURE CABLE | TO STRUCTURE SOLID |
| 1 | (25) | 2.8 | (4.1) | 50 | (15.2) | 80 | (24.4) | А | А | В | 3/8 | 20 | А | А |
| 1 1/4 | (32) | 3.8 | (5.6) | 50 | (15.2) | 80 | (24.4) | А | А | В | 3/8 | 20 | Α | А |
| 1 1/2 | (38) | 4.5 | (6.6) | 50 | (15.2) | 80 | (24.4) | А | А | В | 3/8 | 20 | Α | А |
| 2 | (51) | 6.2 | (9.2) | 50 | (15.2) | 80 | (24.4) | А | А | В | 3/8 | 20 | Α | A |
| 2 1/2 | (64) | 9.1 | (13.5) | 50 | (15.2) | 80 | (24.4) | Α | Α | В | 1/2 | 29 | Α | A |
| | | | | | | • | | | | | | ' | | |





SEAL/ SIGNATURE

NOT TO SCALE

APPROVAL STAMP



PLUMBING DETAILS

5419 SUNSET BOULEVARD

5419 SUNSET BLVD. HOLLYWOOD CA, 90027

Santa Monica, California 90401

5419 SUNSET, LLC

11100 Santa Monica Blvd., Suite 270

NO. DATE ISSUE OR REVISION

05/14/2021 CD PROGRESS

08/06/2021 ISSUE FOR PLAN CHECK

PARTNERS

Los Angeles, CA 90025

c/o MONTANA AVENUE CAPITAL

t +1 310 453 2800 | www.hlw.com

| PROJECT NO. Z000-000-0000 | | |
|------------------------------|------------------------|--|
| SCALE: 12" = 1'-0" | DATE : 04/30/21 | |
| CHECKED BY: Checker | DRAWN BY: Author | |
| SHEET NO. | | |

DETAIL OF PIPE HANGERS AND SUPPORTS

TABLE-2 BRACE MEMBERS

CHANNEL

(2.7 mm)

1 5/8 x 1 5/8

1 5/8 x 1 5/8

1 5/8 x 3 1/4

1 5/8 x 3 1/4

STRETCHED

in (mm)

3/16

1/4

3/8

| STANDARD | ALLOWABLE

CABLE

1/4

5/16

3/8

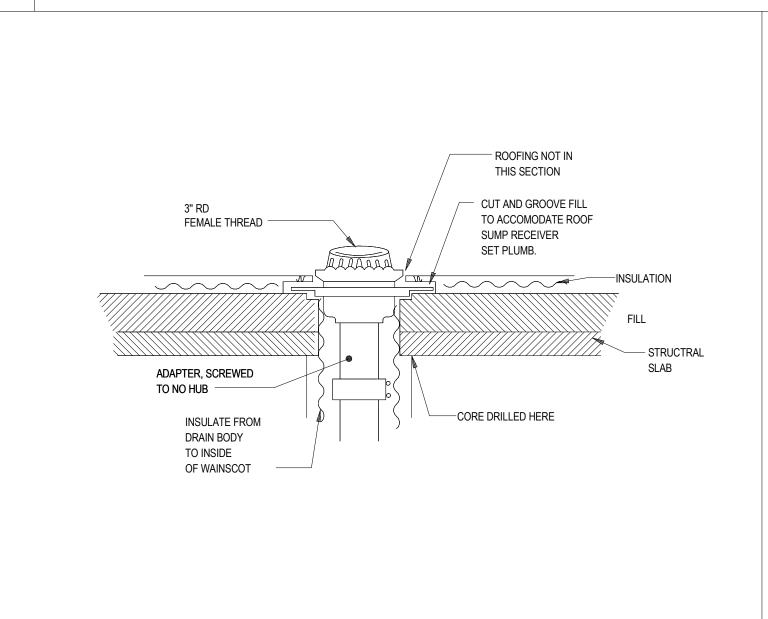
STEEL LOADS

in (mm) lbs (kg)

1000

2100

3000



4 DETAIL OF NEW ROOF DRAIN THRU EXISTING ROOF SLAB

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