





THESE DIMENSIONS & QUANTITIES ARE APPROXIMATE

PLUMBING GENERAL NOTES

- 1. CONFORM TO THE CODE SPECIFIED IN DRAWINGS, CODES, STANDARDS AND REGULATIONS REFERRED TO ARE MINIMUM STANDARDS... 2. INSTALL ALL PLUMBING SYSTEMS SPECIFIED IN DIVISION 22 AND 23... 3. DRAWINGS ARE DIAGRAMMATIC IN NATURE... 4. PROVIDE ACCESS TO VALVES, EQUIPMENT AND APPARATUS... 5. PIPING OR EQUIPMENT SHALL NOT BE INSTALLED IN ELECTRICAL EQUIPMENT ROOMS... 6. MOTOR QUANTITIES, SIZES AND EQUIPMENT WATTAGE RATINGS SPECIFIED HEREIN... 7. COORDINATE WITH THE LOCATION OF THE ENGINE-GENERATOR SET AND FUEL SUPPLY REQUIREMENTS... 8. COORDINATE WITH THE HVAC EQUIPMENT FOR FINAL LOCATIONS OF FLOOR DRAINS... 9. COORDINATE WATER HEATER LOCATIONS AND REQUIREMENTS FOR VENTS... 10. COORDINATE WITH FIRE PUMPS FOR FINAL LOCATIONS OF FLOOR SINKS... 11. COORDINATE PLUMBING REQUIREMENTS WITH EQUIPMENT AND FIXTURES SPECIFIED IN OTHER DIVISIONS... 12. ADHESIVES, SEALANTS, SEALANT PRIMERS, PAINTS, AND COATINGS USED INSIDE THE BUILDING... 13. METHYLENE CHLORIDE AND PERCHLOROETHYLENE SHALL NOT BE INTERNALLY ADDED IN PAINTS, COATINGS, ADHESIVES, OR SEALANTS THAT ARE APPLIED ON-SITE... 14. ALL PAINTS AND COATINGS THAT ARE WET-APPLIED ON SITE AND USED INSIDE THE BUILDING MUST MEET THE APPLICABLE VOC CONTENT LIMITS... 15. ALL ADHESIVES AND SEALANTS THAT ARE WET-APPLIED ON SITE AND USED INSIDE THE BUILDING MUST MEET THE APPLICABLE VOC CONTENT REQUIREMENTS... 16. ALL EXTERIOR APPLIED ADHESIVES, SEALANTS, COATINGS, AND WATERPROOFING MATERIALS MUST MEET VOC CONTENT LIMITS... 17. SMALL CONTAINERS OF ADHESIVES AND SEALANTS SUBJECT TO STATE OR FEDERAL CONSUMER PRODUCT VOC REGULATIONS ARE EXEMPT... 18. MATERIALS CONTAINING ASBESTOS OR ANY TRACE OF ASBESTOS RELATED MATERIALS SHALL NOT BE USED ON THIS PROJECT... 19. SCHEDULE WORK SO EXISTING SYSTEMS WILL NOT BE INTERRUPTED... 20. PERFORM WORK AT SUCH TIME AND IN SUCH MANNER AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND AS APPROVED BY THE ARCHITECT... 21. THE EXISTING INSTALLATION SHALL REMAIN AS IS EXCEPT AS OTHERWISE INDICATED ON THE DRAWINGS... 22. COORDINATE THE INSTALLATION OF NEW PIPING AND EQUIPMENT WITH EXISTING EQUIPMENT TO REMAIN OPERATIONAL... 23. REMOVE PIPING RENDERED USELESS DUE TO CHANGES... 24. RELOCATE AND REROUTE CONCEALED EXISTING PIPING EXPOSED BY THE REMOVAL OF WALLS AND RECONNECT... 25. EXERCISE CARE IN REMOVING PLUMBING FIXTURES WHICH ARE TO BE REUSED AND PROTECT FIXTURES WHICH ARE TO REMAIN IN PLACE WHILE WORK IS IN PROGRESS... 26. SLEEVES LEFT OPEN BY REMOVAL OF PIPING SHALL BE CUT FLUSH WITH THE FINISHED SLAB AND FILLED WITH GROUT FLUSH WITH BOTH SIDES OF SLAB... 27. EXISTING PLUMBING FIXTURES WHICH ARE REMOVED AND ARE NOT REUSED IN THE NEW WORK SHALL BE TURNED OVER TO THE OWNER... 28. MATERIAL AND EQUIPMENT WHICH HAS BEEN REMOVED AND NOT ACCEPTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR... 29. MATERIAL AND EQUIPMENT WHICH HAS BEEN REMOVED SHALL NOT BE USED IN THE NEW WORK... 30. WHERE EXISTING PIPING AND EQUIPMENT IS INDICATED ON THE DRAWINGS, ITS SIZE AND LOCATION SHALL BE VERIFIED... 31. EQUIPMENT AND MATERIALS SHALL, UNLESS OTHERWISE SPECIFIED HEREIN, BE NEW AND SHALL BE OF THE CUSTOMER'S STANDARD QUALITY... 32. MATERIALS AND EQUIPMENT SHALL BE UL LISTED AND BEAR THE UL LISTING MARK ON PRODUCTS FOR WHICH STANDARDS HAVE BEEN ESTABLISHED... 33. IN LIEU OF THE UL LISTING AND WITH AUTHORITY HAVING JURISDICTION APPROVAL, OR WHERE STANDARDS HAVE NOT BEEN ESTABLISHED BY UL AND UL LISTING IS NOT REGULARLY FURNISHED... 34. ARRANGE UTILITY CONNECTIONS, EXTENSION OF SERVICES AND INSTALLATION OF METERS WITH AUTHORITIES HAVING JURISDICTION... 35. PROVIDE CONCRETE FOUNDATIONS FOR THE FLOOR-MOUNTED PLUMBING EQUIPMENT... 36. WHERE PLUMBING WORK IS CONCEALED BY WALLS OR CEILINGS, OR IS INACCESSIBLE, PROVIDE AN ACCESS PANEL TO PROVIDE ACCESS FOR SERVICE AND MAINTENANCE... 37. FIRE-RATED ACCESS PANELS SHALL BE PROVIDED IN FIRE BARRIERS WITH RATINGS TO MATCH THE CONSTRUCTION FIRE RATING... 38. DURING BACKFILL, INSTALL UNDERGROUND WARNING TAPE CONTINUOUSLY ALONG LENGTH OF PIPING... 39. EXCEPT WHERE OTHERWISE SPECIFIED HEREIN, PAINTING SHALL BE DONE UNDER ANOTHER DIVISION... 40. WHERE GALVANIZING IS BROKEN DURING FABRICATION OR INSTALLATION, RECOAT EXPOSED AREAS WITH ZINC-RICH PAINT... 41. EXTERIOR FERROUS EQUIPMENT, PIPING AND SUPPORTS SHALL BE PAINTED WITH 2 COATS OF RUST PREVENTIVE PAINT... 42. EXPOSED INTERIOR UNINSULATED BLACK STEEL PIPING, AND EXPOSED NONGALVANIZED FERROUS ACCESSORIES, HANGERS, RODS, INSERTS, AND MECHANICAL JOINTS SHALL BE PREPARED AND PAINTED WITH 1 COAT OF RUST PREVENTIVE PAINT... 43. PROVIDE OFFSETS, TRANSITIONS, AND FITTINGS TO COORDINATE THE WORK OF EACH TRADE WITH THAT OF OTHER TRADES... 44. INSTALL WORK IN PHASES AS REQUIRED BY THE ARCHITECTURAL DOCUMENTS... 45. COMPILE AN OPERATION AND MAINTENANCE DOCUMENTATION AND COORDINATE THE DOCUMENTATION FOR EQUIPMENT AND SYSTEMS INSTALLED... 46. REFER TO DIVISION 01 FOR REQUIREMENTS FOR RECORD DRAWINGS... 47. A RECORD OF FIELD AND AS-INSTALLED CONDITIONS SHALL BE MAINTAINED AT THE SITE... 48. PREPARATION OF THE FINAL RECORD DRAWINGS, FIELD AND AS-INSTALLED CONDITIONS SHALL BE RECORDED ON DESIGN DRAWINGS... 49. UPON COMPLETION OF THE PROJECT, SUBMIT MARKED-UP DESIGN DRAWINGS INDICATING FIELD AND AS-INSTALLED CONDITIONS... 50. EQUIPMENT OPERATED PRIOR TO THE DATE OF SUBSTANTIAL COMPLETION SHALL BE MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

- 51. FACTORY-TRAINED TECHNICIANS SHALL GIVE INSTRUCTIONS ON EACH MAJOR PIECE OF EQUIPMENT AND ON ALL SPECIALTY SYSTEMS AND EQUIPMENT... 52. PROVIDE PROTECTIVE COVERS, SKIDS, PLUGS OR CAPS TO PROTECT EQUIPMENT AND MATERIALS FROM DAMAGE OR DETERIORATION DURING CONSTRUCTION... 53. STORE EQUIPMENT AND MATERIAL UNDER COVER, AND OFF THE GROUND OR FLOORS EXCEPT TO BE REMOVED, UNIONS ARE NOT REQUIRED IF FLANGES OR ROLL-GROOVED MECHANICAL JOINT COUPLINGS ARE PROVIDED... 54. PROVIDE DUST AND DEBRIS PROTECTION FOR EQUIPMENT, MOTORS, AND BEARINGS OPERATED DURING CONSTRUCTION... 55. REMOVE DUST, DIRT, RUST, STAINS, AND TEMPORARY COVERS ON EQUIPMENT AND IN EQUIPMENT ROOMS... 56. CLEAN ALL EQUIPMENT ROOM SURFACES AND ACCESSORIES UNTIL FINAL COMPLETION OF WORK... 57. REMOVE EXCESS MATERIAL FROM THE PROJECT SITE... 58. UTILIZE SERVICE PROCEDURES TO MAXIMIZE RECYCLING AND DISPOSAL OF EQUIPMENT CONTAINING REFRIGERANTS... 59. EQUIPMENT SHALL BE INSTALLED AND CONNECTED AS SPECIFIED HEREIN OR INDICATED ON THE DRAWINGS... 60. PROVIDE ROUGHING TRAPS, TAIL PIECES, FITTINGS, WATER STOPS, AND CONNECTING PIPING AS REQUIRED... 61. FINAL CONNECTIONS TO LAUNDRY EQUIPMENT SHALL BE MADE BY THE LAUNDRY VENDOR... 62. FOR EQUIPMENT THAT DOES NOT HAVE WATER CROSS CONNECTION WITHIN, PROVIDE CHECK VALVES IN THE COLD AND HOT WATER SUPPLIES... 63. IN UNFINISHED AREAS DESIGNATED FOR FUTURE BUILD-OUT, INSTALL PIPING, CONDUIT AND EQUIPMENT TIGHT AGAINST THE STRUCTURE TO MAXIMIZE FUTURE CEILING HEIGHT... 64. FIELD-INSTALLED EQUIPMENT CONTROLS OR SENSOR WIRING SHALL BE INSTALLED IN CONDUIT... 65. WHERE WATER PIPE SIZES AT EQUIPMENT VARY FROM THE PIPE SIZE INDICATED ON THE DRAWINGS, PROVIDE APPROPRIATE REDUCERS/INCREASERS DIRECTLY ADJACENT TO THE PIPE-EQUIPMENT UNIONS... 66. UNLESS OTHERWISE SPECIFIED HEREIN OR INDICATED ON THE DRAWINGS, THE SIZE OF THE VALVES, PIPING, AND ACCESSORIES DEDICATED TO A PIECE OF EQUIPMENT SHALL NOT BE LESS THAN PIPE SIZE TO WHICH THEY ARE CONNECTED... 67. PROVIDE HANGER AND PIPING SUPPORT AS SPECIFIED IN SECTIONS OF DIVISION 22, 23 AND AS RECOMMENDED BY PIPING MANUFACTURER... 68. PIPING SUPPORT SPACING SHALL BE FROM CENTER TO CENTER OF THE SUPPORT... 69. SUPPORT CONNECTED PIPING AND EQUIPMENT INDEPENDENTLY OF EACH OTHER... 70. ADJUST HANGERS, CLAMPS, AND SUPPORTS SO THAT LOADING AND SUPPORT IS UNIFORM... 71. SUSPEND HANGER RODS SEPARATELY FROM THE STRUCTURE... 72. ISOLATE BARE COPPER TUBING FROM FERROUS METAL HANGERS, CHANNEL STRUT SUPPORTS, AND BUILDING COMPONENTS... 73. PROVIDE PENETRATION SEALS AS SPECIFIED UNDER DIVISION 22 AND 23 IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS... 74. FILL VOIDS WITH INSULATION OR INSULATION AND SLEEVES AT AREAS WHERE NEEDED FOR ACOUSTIC PURPOSES OR TO MAINTAIN ROOM PRESSURE... 75. PROVIDE FIRESTOP AT ABANDONED PENETRATIONS AND PENETRATIONS THROUGH FIRE- AND SMOKE-RATED CONSTRUCTION... 76. LABEL PIPING AND EQUIPMENT AS SPECIFIED UNDER DIVISION 22 AND 23 IN ACCORDANCE WITH ASME B31.9 FOR MEDICAL SYSTEMS... 77. PIPING WITH TEMPERATURE MAINTENANCE CABLE SHALL BE ADDITIONALLY LABELED, "ELECTRONICALLY TRACED" ON THE OUTSIDE OF THE INSULATION JACKET... 78. PROVIDE NUMBERED BRASS TAGS ON VALVES EXCEPT AT PLUMBING FIXTURES... 79. VALVES IN MEDICAL GAS SYSTEMS SHALL BE IDENTIFIED AS REQUIRED BY NFPA 99... 80. TAGS ON NEW VALVES SHALL CONTINUE THE NUMBERING SEQUENCE OF EXISTING VALVES... 81. PROVIDE FOR EACH SYSTEM A SCHEDULE AND PIPING DIAGRAM OF VALVES.

SUBMITTALS NOTES

- 1. SUBMITTALS SHALL INCLUDE PIPING, FITTINGS, FIXTURES, EQUIPMENT AND ACCESSORIES, AS SPECIFIED IN SECTIONS OF DIVISION 22, 23 AND ON DRAWINGS... 2. EACH SUBMITTAL SHALL BE SUBMITTED IN SUCH A WAY TO ALLOW TIME FOR REVIEW, POSITION, RESUBMITTAL TIME FOR ACQUISITION FABRICATION, SHIPPING, AND INTEGRATION INTO THE CONSTRUCTION SEQUENCE... 3. SUBMITTALS SHALL INDICATE COMPLIANCE WITH EACH REQUIREMENT SPECIFIED IN DIVISION 22 AND 23, ON THE DRAWINGS, AND INDICATE MANUFACTURER'S INSTALLATION INSTRUCTIONS... 4. RESUBMITTALS SHALL INCLUDE A WRITTEN EXPLANATION OF HOW EACH REVIEW COMMENT IS RESOLVED... 5. SHOP DRAWINGS SHALL NOT BE REPRODUCTION OR ELECTRONIC VERSION OF DESIGN DRAWING... 6. APPROVED TRADE SHOP DRAWINGS SHALL BE UTILIZED AS THE BASIS FOR THE COORDINATION DRAWINGS... 7. SHOP AND COORDINATION DRAWINGS SHALL INCLUDE DIMENSIONS AND ELEVATIONS OF PLUMBING WORK INCLUDING EQUIPMENT, PIPING WITH FITTINGS, VALVES, ACCESSORIES AND SLEEVES... 8. NO WORK SHALL BE FABRICATED AND/OR INSTALLED PRIOR TO RECEIPT BY THE CONTRACTOR OF APPROVED TRADE SHOP AND APPROVED COORDINATION DRAWINGS.

GENERAL PIPING INSTALLATION NOTES

- 1. INSTALL ALL PIPING, FITTINGS, AND JOINTS IN ACCORDANCE WITH THE APPLICABLE MANUFACTURER'S INSTRUCTIONS... 2. CUT PIPING TO MEASUREMENTS ESTABLISHED AT THE SITE AND WORKED INTO PLACE WITHOUT SPRINGING OR FORCING... 3. USE CONCENTRIC RIGID FITTINGS BETWEEN DIFFERENT SIZE PIPES... 4. SLOPE WATER AND DRAL VACUUM PIPING TO DRAIN BACK TO THE MAINS... 5. PROVIDE PLASTIC PIPE MANUFACTURER'S RECOMMENDED EXPANSION AND CONTRACTION LOOPS... 6. PLASTIC PIPING SHALL NOT BE STORED IN DIRECT SUNLIGHT OR AT TEMPERATURES HIGHER THAN 90°F... 7. DO NOT MIX PLASTIC PIPE AND FITTING MANUFACTURERS... 8. PITCH NATURAL LP GAS PIPING DOWN TO THE MAIN OR LOW POINT 0.5" PER 10'... 9. ISOLATE JOINTS BETWEEN DISSIMILAR METALS AND CONNECTIONS TO TANKS WITH DIELECTRIC FITTINGS... 10. PROVIDE ADAPTERS WHERE PIPING OF DIFFERENT MATERIALS CONNECT TOGETHER... 11. OBTAIN MANUFACTURER TRAINING CERTIFICATION PRIOR TO INSTALLATION OF SPECIALTY PIPING JOINTS... 12. PAINT COPPER PIPING INSTALLED UNDERGROUND OR IN CONTACT WITH CONCRETE OR CMU CONSTRUCTION WITH 2 COATS OF ASPHALTUM OR SLEEVED IN SEAMLESS POLYETHYLENE CONTINUOUS SLEEVE... 13. INSTALL DRAINAGE PIPING, WATER PIPING AND GAS PIPING OUTSIDE THE BUILDING IN TRENCHES SEPARATE FROM EACH OTHER... 14. AS APPLICABLE TO THE BUILDING AND SITE PLUMBING WORK, EXCAVATION, SHORING, BRACING, BACKFILLING, AND COMPACTION SHALL CONFORM TO DIVISION 22, 23 AND 31, EARTHWORK, EXCEPT AS SUPERSEDED HEREIN... 15. AT MINIMUM EXCAVATIONS SHALL COMPLY WITH OSHA 29 CFR 1926.651 AND 29 CFR 1926.652, OR WHERE APPLICABLE, AN OSHA APPROVED STATE PLAN... 16. CONNECT UNDERGROUND PIPING TO THE EXTERIOR SERVICE LINES, OR CAPPED OR PLUGGED IF THE EXTERIOR SERVICE IS NOT IN PLACE... 17. BLOCK DUCTILE IRON WATER PIPE WITH CONCRETE POURED IN CONTACT WITH UNDISTURBED EARTH... 18. INSTALL PIPING BELOW THE LEVEL OF FOOTINGS 12" HORIZONTALLY FROM THE FOOTING FOR EACH 12" OF DEPTH BELOW THE FOOTING... 19. BURIED PIPING SHALL BE PROTECTED AGAINST FROST, CORROSION, AND PHYSICAL DAMAGE... 20. INSTALL PIPING TO PERMIT FREE EXPANSION AND CONTRACTION, AS CONTROLLED BY PIPE ANCHORS... 21. GROUP EXPOSED PIPE TOGETHER AND ARRANGE CONTROL VALVES AT FIXTURES FOR EASE OF OPERATION... 22. INSTALL PIPING SO AS TO PRESERVE ACCESS TO VALVES AND EQUIPMENT AND TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE... 23. PROVIDE LINE SIZE DIRT POCKETS IN GAS PIPING, MINIMUM 6" LONG, TERMINATE WITH THREADED CAP OR FLANGE.

- 24. MECHANICAL COUPLINGS ON DRAINAGE PIPING, DURING THE TORQUE PROCESS, IF ANY ONE BAND OF THE COUPLING BREAKS, REPLACE THE ENTIRE COUPLING... 25. IN BLACK STEEL PIPING, BRANCHES TWO OR MORE PIPE SIZES LESS THAN THE MAIN MAY BE USED USING FORGED STEEL BRANCH CONNECTIONS, WELDS AND THREADS... 26. PROVIDE UNIONS IN EACH PIPING CONNECTION TO EACH PIECE OF EQUIPMENT WHERE EQUIPMENT MAY BE REMOVED, UNIONS ARE NOT REQUIRED IF FLANGES OR ROLL-GROOVED MECHANICAL JOINT COUPLINGS ARE PROVIDED... 27. CAST IRON DRAIN AND VENT PIPING: INSTALL HUB AND SPIGOT PIPING WITH HUBS UPSTREAM... 28. EXTEND VENT PIPING MINIMUM 12" ABOVE THE ROOF... 29. BLACK STEEL COMPRESSED AIR PIPING 1.5" AND LARGER MAY BE WELDED IN LIEU OF USING THREADED FITTINGS... 30. PIPING TO FIXTURES AND EQUIPMENT SHALL BE BRACED SO THAT THERE IS NO HORIZONTAL OR VERTICAL MOVEMENT IN THE PIPING... 31. PIPING AND PIPING JOINTS SHALL BE LEAK FREE... 32. TEST SOIL, WASTE, AND VENT, AND RAINWATER, AND FOOD SERVICE WASTE AND VENT SYSTEMS PIPING AS SPECIFIED IN DIVISION 22 AND 23... 33. PRESSURE TEST WATER SYSTEMS AS SPECIFIED DIVISION 22 AND 23... 34. TEST NATURAL GAS SYSTEM PIPING BY SAPPING OPENINGS AND APPLYING AN AIR PRESSURE OF 100 PSIG FOR 2 HOURS WITHOUT ANY LEAKS... 35. SELECT AND LOCATE VIBRATION ISOLATORS FOR UNIFORM LOADING AND DEFLECTION, ACCORDING TO WEIGHT DISTRIBUTION OF PIPING AND EQUIPMENT... 36. THERE SHALL BE NO DIRECT CONTACT OF PIPING AND EQUIPMENT WITH WALLS, FLOORS, STRUCTURAL COMPONENTS, OR ANY OTHER NON-ISOLATED ITEM... 37. VIBRATION ISOLATORS SHALL NOT CAUSE ANY CHANGE IN POSITION OF PIPING AND EQUIPMENT... 38. ISOLATED MOUNTING SYSTEMS FOR EQUIPMENT SHALL PERMIT EQUIPMENT MOTION IN ALL DIRECTIONS... 39. INERTIA BASES SHALL BE ARRANGED WITH SPRING ISOLATOR LOCATIONS SUCH THAT A HORIZONTAL PLANE PASSING THROUGH THE TOP OF THE ISOLATORS WILL PASS THROUGH OR ABOVE THE CENTER OF GRAVITY OF THE EQUIPMENT AND BASE... 40. CLEAN ALL FOREIGN MATTER FROM BETWEEN INERTIA BASES AND BUILDING FLOOR, BETWEEN EQUIPMENT BOTTOM AND TOP OF INERTIA BASE, AND BETWEEN ISOLATOR SPRINGS... 41. CLEAN ISOLATOR SPRINGS AND ENSURE THEY ARE STRAIGHT AND VERTICAL... 42. VERIFY THAT FREE STANDING SPRING ISOLATORS ARE ADJUSTED, WITH SPRINGS PERPENDICULAR TO EQUIPMENT BASES, AND ADJUSTMENT BOLTS ARE TIGHTENED ON EQUIPMENT MOUNTINGS... 43. ISOLATORS SHALL NOT INCORPORATE A LEVELING BOLT OF GREATER LENGTH THAN THAT SUPPLIED FROM THE MANUFACTURER... 44. EXTENT OF HANGER MOUNTED ISOLATORS FOR COMPRESSED AIR, VACUUM, AND DOMESTIC WATER PIPING FROM THE SOURCE OUTLET SHALL BE 50 FT DISTANCE FROM EQUIPMENT FOR 4" AND SMALLER PIPE AND 60 FT FOR 6" AND LARGER PIPE... 45. THE FIRST 3 HANGERS FROM THE SOURCE EQUIPMENT SHALL BE TYPE PSH (PRE-COMPLETED SPRING HANGER) AND HAVE THE SAME APPROPRIATE DEFLECTION AS THE SOURCE EQUIPMENT ISOLATORS UP TO A MAXIMUM OF 2"... 46. INSTALL WITH HOUSINGS AS CLOSE TO THE STRUCTURE FRAME AS POSSIBLE... 47. WHERE HANGER MOUNTED ISOLATORS WILL BE CONCEALED BY NON-ACCESSIBLE CEILINGS, INSTALL THE HANGERS IMMEDIATELY BELOW THE CEILINGS FOR ACCESS AND MAINTENANCE... 48. DIFFERENT PING REQUIRING THE SAME TYPE OF ISOLATOR WITH THE SAME MINIMUM STATIC DEFLECTION MAY BE SUPPORTED ON A COMMON TRAPEZOID SUPPORT THAT IS ISOLATED WITH THE SAME TYPE OF ISOLATORS... 49. VERTICAL PIPING RUNNING BETWEEN FLOORS AND LOCATED WITHIN THE MAXIMUM DISTANCE AS SCHEDULED, SHALL USE AN EXTENDED RISER CLAMP SUPPORTED BY 2 TYPE FS (FREE-STANDING SPRING) ISOLATORS HAVING A MINIMUM 1" STATIC DEFLECTION... 50. WHERE THE DISTANCE FROM THE SOURCE EQUIPMENT TO THE SUPPLY OR DISCHARGE PIPE IS LESS THAN 5 TIMES THE HOSE DIAMETER, PROVIDE A FLEXIBLE METAL HOSE WITH LENGTH TO PROVIDE AT LEAST ONE 360 DEGREE LOOP... 51. RESTRAINTS SHALL BE INSTALLED AFTER THE EQUIPMENT IS MOUNTED, PIPED, CONNECTED, AND OPERATING TO ENSURE THAT NO CONTACT OCCURS DURING NORMAL EQUIPMENT OPERATION... 52. INSTALLATION OF SEISMIC RESTRAINTS SHALL NOT CAUSE ANY CHANGE OF POSITION OF EQUIPMENT OR COMPONENTS RESULTING IN STRESS AND MISALIGNMENT... 53. NO RIGID CONNECTIONS BETWEEN EQUIPMENT OR COMPONENTS AND THE BUILDING STRUCTURE SHALL BE MADE THAT DEGRADE THE VIBRATION ISOLATED SYSTEM SPECIFIED HEREIN... 54. EQUIPMENT THAT IS INTERNALLY VIBRATION ISOLATED AND RESTRAINED SHALL HAVE ITS ENTIRE UNIT ASSEMBLY SEISMICALLY ATTACHED TO THE STRUCTURE... 55. DO NOT BRACE A SYSTEM TO TWO DIFFERENT STRUCTURES, SUCH AS A WALL AND A CEILING... 56. AFTER INSTALLATION, VIBRATION ISOLATOR AND SEISMIC RESTRAINTS MANUFACTURER SHALL VERIFY THAT ISOLATOR AND RESTRAINTS ARE INSTALLED AND OPERATING PROPERLY AND SHALL SUBMIT A CERTIFICATE SO STATING.

PLUMBING VIBRATION AND SEISMIC CONTROL NOTES

- 1. PROVIDE VIBRATION ISOLATORS FOR THE FOLLOWING SYSTEMS AND SOURCE EQUIPMENT: COMPRESSED AIR AND AIR COMPRESSORS, AND VACUUM AND VACUUM PUMPS, AND DOMESTIC WATER AND WATER BOOSTER PUMPS, AND SUSPENDED DRINKING WATER COMPRESSORS... 2. SELECT AND LOCATE VIBRATION ISOLATORS FOR UNIFORM LOADING AND DEFLECTION, ACCORDING TO WEIGHT DISTRIBUTION OF PIPING AND EQUIPMENT... 3. THERE SHALL BE NO DIRECT CONTACT OF PIPING AND EQUIPMENT WITH WALLS, FLOORS, STRUCTURAL COMPONENTS, OR ANY OTHER NON-ISOLATED ITEM... 4. VIBRATION ISOLATORS SHALL NOT CAUSE ANY CHANGE IN POSITION OF PIPING AND EQUIPMENT... 5. ISOLATED MOUNTING SYSTEMS FOR EQUIPMENT SHALL PERMIT EQUIPMENT MOTION IN ALL DIRECTIONS... 6. INERTIA BASES SHALL BE ARRANGED WITH SPRING ISOLATOR LOCATIONS SUCH THAT A HORIZONTAL PLANE PASSING THROUGH THE TOP OF THE ISOLATORS WILL PASS THROUGH OR ABOVE THE CENTER OF GRAVITY OF THE EQUIPMENT AND BASE... 7. CLEAN ALL FOREIGN MATTER FROM BETWEEN INERTIA BASES AND BUILDING FLOOR, BETWEEN EQUIPMENT BOTTOM AND TOP OF INERTIA BASE, AND BETWEEN ISOLATOR SPRINGS... 8. CLEAN ISOLATOR SPRINGS AND ENSURE THEY ARE STRAIGHT AND VERTICAL... 9. VERIFY THAT FREE STANDING SPRING ISOLATORS ARE ADJUSTED, WITH SPRINGS PERPENDICULAR TO EQUIPMENT BASES, AND ADJUSTMENT BOLTS ARE TIGHTENED ON EQUIPMENT MOUNTINGS... 10. ISOLATORS SHALL NOT INCORPORATE A LEVELING BOLT OF GREATER LENGTH THAN THAT SUPPLIED FROM THE MANUFACTURER... 11. EXTENT OF HANGER MOUNTED ISOLATORS FOR COMPRESSED AIR, VACUUM, AND DOMESTIC WATER PIPING FROM THE SOURCE OUTLET SHALL BE 50 FT DISTANCE FROM EQUIPMENT FOR 4" AND SMALLER PIPE AND 60 FT FOR 6" AND LARGER PIPE... 12. THE FIRST 3 HANGERS FROM THE SOURCE EQUIPMENT SHALL BE TYPE PSH (PRE-COMPLETED SPRING HANGER) AND HAVE THE SAME APPROPRIATE DEFLECTION AS THE SOURCE EQUIPMENT ISOLATORS UP TO A MAXIMUM OF 2"... 13. HANGERS SHALL BE TYPE SH (SPRING HANGER) AND HAVE A MINIMUM 1" STATIC DEFLECTION... 14. INSTALL WITH HOUSINGS AS CLOSE TO THE STRUCTURE FRAME AS POSSIBLE... 15. WHERE HANGER MOUNTED ISOLATORS WILL BE CONCEALED BY NON-ACCESSIBLE CEILINGS, INSTALL THE HANGERS IMMEDIATELY BELOW THE CEILINGS FOR ACCESS AND MAINTENANCE... 16. DIFFERENT PING REQUIRING THE SAME TYPE OF ISOLATOR WITH THE SAME MINIMUM STATIC DEFLECTION MAY BE SUPPORTED ON A COMMON TRAPEZOID SUPPORT THAT IS ISOLATED WITH THE SAME TYPE OF ISOLATORS... 17. VERTICAL PIPING RUNNING BETWEEN FLOORS AND LOCATED WITHIN THE MAXIMUM DISTANCE AS SCHEDULED, SHALL USE AN EXTENDED RISER CLAMP SUPPORTED BY 2 TYPE FS (FREE-STANDING SPRING) ISOLATORS HAVING A MINIMUM 1" STATIC DEFLECTION... 18. WHERE THE DISTANCE FROM THE SOURCE EQUIPMENT TO THE SUPPLY OR DISCHARGE PIPE IS LESS THAN 5 TIMES THE HOSE DIAMETER, PROVIDE A FLEXIBLE METAL HOSE WITH LENGTH TO PROVIDE AT LEAST ONE 360 DEGREE LOOP... 19. RESTRAINTS SHALL BE INSTALLED AFTER THE EQUIPMENT IS MOUNTED, PIPED, CONNECTED, AND OPERATING TO ENSURE THAT NO CONTACT OCCURS DURING NORMAL EQUIPMENT OPERATION... 20. INSTALLATION OF SEISMIC RESTRAINTS SHALL NOT CAUSE ANY CHANGE OF POSITION OF EQUIPMENT OR COMPONENTS RESULTING IN STRESS AND MISALIGNMENT... 21. NO RIGID CONNECTIONS BETWEEN EQUIPMENT OR COMPONENTS AND THE BUILDING STRUCTURE SHALL BE MADE THAT DEGRADE THE VIBRATION ISOLATED SYSTEM SPECIFIED HEREIN... 22. EQUIPMENT THAT IS INTERNALLY VIBRATION ISOLATED AND RESTRAINED SHALL HAVE ITS ENTIRE UNIT ASSEMBLY SEISMICALLY ATTACHED TO THE STRUCTURE... 23. DO NOT BRACE A SYSTEM TO TWO DIFFERENT STRUCTURES, SUCH AS A WALL AND A CEILING... 24. AFTER INSTALLATION, VIBRATION ISOLATOR AND SEISMIC RESTRAINTS MANUFACTURER SHALL VERIFY THAT ISOLATOR AND RESTRAINTS ARE INSTALLED AND OPERATING PROPERLY AND SHALL SUBMIT A CERTIFICATE SO STATING.

PLUMBING INSULATION NOTES

- 1. INSULATE PIPING AS SPECIFIED IN SECTIONS OF DIVISION 22 AND 23... 2. WHERE EXISTING INSULATION IS DAMAGED DUE TO THE NEW WORK, REPAIR DAMAGE TO MATCH EXISTING WORK OR REPLACE DAMAGED PORTION WITH INSULATION SPECIFIED FOR NEW WORK... 3. INSULATE UNIT-MOUNTED MEDICAL VACUUM PUMP AND AIR COMPRESSOR CHILLED WATER PIPING AND SURFACES SUBJECT TO SWEATING WITH FLEXIBLE ELASTOMERIC TAPE... 4. INSULATE INSULATION AFTER PIPING HAS BEEN TESTED AND APPROVED... 5. PROTECT INTERIOR FIBERGLASS PIPING INSULATION EXPOSED TO DAMAGE WITH A CORRUGATED ALUMINUM JACKET... 6. PROTECT INTERIOR SITE INSULATED TANKS WITH A CORRUGATED ALUMINUM JACKETS... 7. PROTECT EXTERIOR PIPING INSULATION, EXCEPT FLEXIBLE ELASTOMERIC, WITH A CORRUGATED ALUMINUM JACKET... 8. PROTECT EXTERIOR FLEXIBLE ELASTOMERIC INSULATION WITH A UV RESISTANT WHITE ACRYLIC LATEX COATING.

PLUMBING FIXTURES NOTES

- 1. SET FIXTURES LEVEL AND IN ALIGNMENT WITH WALLS... 2. CAULK BETWEEN FIXTURES AND MOUNTING SURFACES WITH A WHITE NON-HARDENING MILDEW-RESISTANT SILICONE SEALANT... 3. WRIST BLADE HANDLES ON FAUCET FITTINGS SHALL BE ALIGNED PERPENDICULAR TO THE SPOUT WHEN IN THE OFF POSITION... 4. SET P-TRAPS TRUE AND LEVEL, TIGHTEN AND SECURE ALL JOINTS... 5. LOCATE TRANSFORMERS FOR HARD-WIRED SENSOR FLUSH VALVES AND FAUCETS AS INDICATED ON THE DRAWINGS... 6. COORDINATE FAUCET HOLE PUNCH WITH SINK OR MILLWORK... 7. INSTALL FIXTURES AND TRIM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS... 8. FOR SINKS AND LAVATORIES INSTALLED IN COUNTER, COORDINATE WITH COUNTERTOP SUPPLIER FOR SIZE OF OPENING... 9. FOR UNDER-MOUNT SINKS AND LAVATORIES, COORDINATE WITH COUNTERTOP SUPPLIER FOR BASIN OPENING... 10. PROVIDE ROUGH-IN FOR PLUMBING RELATED FIXTURES... 11. FOR EXPOSED DRAINAGE PIPING THAT IS NOT CHROMIUM-PLATED, PRIME AND PAINT SILVER... 12. FOR EQUIPMENT PRESSURE PIPING, ROUGH-IN EACH END OF PIPE WALL OR 6" ABOVE FLOOR, UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR REQUIRED DIFFERENTLY BY THE EQUIPMENT MANUFACTURER... 13. PROVIDE VACUUM BREAKERS FOR EQUIPMENT CONNECTIONS REQUIRING WATER, AND NOT HAVING BUILT-IN BACKFLOW PREVENTION... 14. PROVIDE INDIRECT DRAINS WITH WASTE CONNECTIONS AND EXTEND OVER THE APPROPRIATE FLOOR SINK AND TURN DOWN WITH AN INDIRECT CONNECTION... 15. TEST PLUMBING FIXTURES FOR SOUNDNESS, STABILITY OF SUPPORT, AND OPERATION... 16. OPEN AND CLEAN ALL FAUCET AERATORS/STRAINERS, AND FLUSH VALVE DIAPHRAGMS/PISTONS OF START-UP FILM AND CONSTRUCTION DEBRIS.

DRAINAGE SYSTEMS NOTES

- 1. WHERE EXTRA HEAVY-DUTY COUPLINGS ARE REQUIRED FOR UNDERGROUND CONNECTIONS, COAT THE STAINLESS-STEEL BOLTS WITH ASPHALTIC PAINT SEALER... 2. CONCRETE PIPE BURIED UNDER DRIVEWAYS OR PARKING AREAS SHALL BE CLASS IV V AND HAVE NOT LESS THAN 3" OF COVER... 3. PROVIDE P-TRAPS IN RAINWATER PIPING CONNECTING TO COMBINATION SEWERS... 4. PROPERLY LOCATE AND INSTALL CLEANOUTS SO THAT THEY ARE ACCESSIBLE AND IN COMPLIANCE WITH CODES... 5. SET TRAPS TRUE AND LEVEL... 6. DRAINS SHALL NOT BE FIELD MODIFIED, EXCEPT GRATES MAY BE MODIFIED WHERE REQUIRED FOR ABOVE FLOOR INDIRECT DRAINAGE PIPING... 7. WHERE WATERPROOF LINERS ARE USED WITH THE BUILDING CONSTRUCTION, SECURE TO THE PLUMBING DRAIN BODY WITH THE CLAMPING RING, MAKING A WATERTIGHT CONNECTION... 8. PROVIDE TRAP SEAL PROTECTION FOR EACH DRAIN, EXCEPT SHOWER DRAINS... 9. OMIT GRATES OF DRAINS RECEIVING PIPED DISCHARGE FROM MECHANICAL EQUIPMENT SO PIPES CAN TURN DOWN INTO BASKET, UNLESS PROVIDED OTHERWISE... 10. SET SQUARE DRAINAGE GRATES WITH SIDES PARALLEL TO THE ADJACENT WALLS... 11. INSTALL DRAINS AND MANUFACTURED TRENCH DRAINAGE SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS... 12. INSTALL SUMP AND SEWAGE PUMPS AND RELATED EQUIPMENT AND RAIL SYSTEMS PER THE MANUFACTURER'S RECOMMENDATIONS... 13. SUMP AND SEWAGE PUMPS SHALL NOT BE USED FOR Dewatering. IF PUMPS ARE USED IN AN EMERGENCY, REPLACE WITH NEW UNITS... 14. INSTALL GREASE INTERCEPTORS PER MANUFACTURER'S RECOMMENDATIONS, AS INDICATED ON THE DRAWINGS... 15. INSTALL GREASE LEVEL DETECTOR PROBE ASSEMBLY IN THE CENTER OF REMOVAL OF INTERCEPTORS... 16. FOR BACKWATER VALVES: PROVIDE PROPERLY SIZED AND INSTALLED CONCRETE PADS AND BOXES WITH ALUMINUM ACCESS PANELS TO ALLOW ACCESS FOR CLEANING AND MAINTENANCE TO BACKWATER VALVES... 17. COORDINATE THE SIZE OF ARCHITECTURAL DOWNSPOUTS WITH SIZE OF DOWNSPOUT BOOTS... 18. INSTALLER SHALL ENSURE PROPER VENT PIPING AND PIPING THROUGH ROOFS PENETRATION METHODS AND PROCEDURES FOR FLAT ROOFS AND SLOPING SHINGLE ROOFS... 19. INSTALLER SHALL PERFORM PROPER METHODS AND PROCEDURES OF ROOF DRAIN INSTALLATION FOR PLASTIC MEMBRANE AND BUILT-UP ASPHALTIC ROOFS, AND METAL DECK CONSTRUCTION... 20. ENSURE A SMOOTH AND NON-OBJECTED FLOW OF LIQUID FOR EVERY DRAINAGE PIPE, FREE FROM CONSTRUCTION OR NATURAL SEDIMENT DEBRIS THAT MAY HAVE ENTERED DURING CONSTRUCTION.

WATER SYSTEMS NOTES

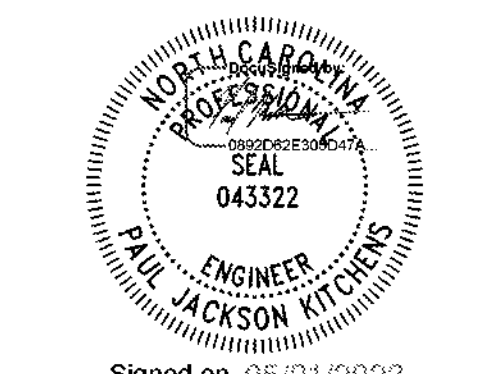
- 1. ROLL-GROOVED COUPLINGS, FITTINGS, VALVES, AND SPECIALTIES SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER AND STAMPED FOR QUALITY ASSURANCE AND TRACEABILITY... 2. FURNISH PIPING AND EQUIPMENT WITH AIRPLENUMS... 3. BALL JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS... 4. PROVIDE AN ISOLATION VALVE IN THE COLD WATER SERVICE LINE NEAR THE POINT OF ENTRANCE INTO THE BUILDING... 5. INSTALL UNDERGROUND VALVES ON A POURED-IN-PLACE 16" X 16" X 4" CONCRETE BASE PAD... 6. FOR UNDERGROUND VALVES INSTALL VALVE BOXES, WITH COVERS FLUSH WITH FINISHED GRADE... 7. FOR UNDERGROUND VALVES INSTALL VALVE BOXES, WITH COVERS FLUSH WITH FINISHED GRADE... 8. FOR UNDERGROUND VALVES INSTALL VALVE BOXES, WITH COVERS FLUSH WITH FINISHED GRADE... 9. PROVIDE GLOBE VALVES IN EACH WATER SUPPLY CONNECTION TO SINKS, WATER COOLERS, AND ANY FIXTURE PROVIDED BY OTHERS... 10. INSTALL STOP VALVE UPSTREAM OF AUTOMATIC FLOW BALANCING VALVE... 11. DEFLECTION OF THE INLET TO EACH PUMP, PRESSURE REDUCING VALVE, FLOW CONTROL VALVE, THERMOSTATIC MIXING VALVE, BACKFLOW PREVENTER, AND AS INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN... 12. INSTALL WALL HYDRANTS 18" ABOVE FINISHED GRADE... 13. IN GRASSES AREAS, FOR BOX TYPE YARD HYDRANTS, INSTALL TOP OF BOX AT 1" ABOVE FINISHED GRADE... 14. ENSURE THAT ROOF HYDRANTS WILL WINTERIZE AND PROVIDE MANUFACTURER'S WINTERIZING INFORMATION TO OWNER... 15. DRAIN LINE FROM EACH BACKFLOW PREVENTER SHALL BE DWV COPPER RUN FULL SIZE TO FLOOR DRAIN... 16. INSTALL PRESSURE TYPE VACUUM BREAKERS A MINIMUM OF 12" ABOVE THE OVERFLOW LEVEL OF THE DEVICE BEING SERVED... 17. INSTALL ATMOSPHERIC TYPE VACUUM BREAKER A MINIMUM OF 6" ABOVE THE OVERFLOW LEVEL OF THE DEVICE BEING SERVED... 18. INSTALL VACUUM BREAKERS WHERE SPILLAGE OF WATER WILL NOT CAUSE DAMAGE TO ROOM SURFACES OR EQUIPMENT... 19. CONNECT TRAP PRIMER LINES TO THE DRAIN TAILPIECES WHERE FIELD CONDITIONS PROHIBIT CONNECTION TO THE TRAP PRIMER CONNECTIONS ON THE DRAIN BODIES... 20. INSTALL TRAP PRIMERS WITH A STRAIGHT DOWNWARD SLOPE TO ALLOW DRAINAGE FROM THE TRAP PRIMER VALVE... 21. INSTALL WATER HAMMER ARRESTERS IN ACCORDANCE WITH PDI WH201-2017... 22. INSTALL WATER HEATERS AND STORAGE TANKS LEVEL AND STABLE... 23. SUPPORT THERMAL EXPANSION TANKS WITH HANGERS INDEPENDENTLY FROM ADJACENT PIPING OR ON THE FLOOR WHERE FLOOR BASES ARE PROVIDED... 24. CONNECT MIXING VALVES TO THE PIPING SYSTEMS PER THE MANUFACTURER'S PUBLISHED INSTALLATION RECOMMENDATIONS... 25. EMERGENCY FIXTURE WATER TEMPERING VALVES SHALL BE ACCESSIBLE TO READ THERMOMETERS AND ADJUST TEMPERATURE SETTING AS REQUIRED... 26. FOR WATER PRESSURE BOOSTER SYSTEMS, HYDRO-PNEUMATIC TANKS SHALL BE LOCATED WITHIN THE BUILDING WITH REQUIRED PROVISIONS AS INDICATED ON THE DRAWINGS... 27. BOLT TANKS TO FOUNDATIONS... 28. INSTALL WATER METER, PIPING, VALVES, AND ACCESSORIES PER THE MANUFACTURER'S REQUIREMENTS... 29. FOLLOWING THE INSTALLATION OF THE HOTTEMPERED WATER PIPING SYSTEMS, ENERGIZE, TEST AND MAKE ADJUSTMENTS AS REQUIRED TO ALL RELATED COMPONENTS TO THE SYSTEM FOR ADEQUACY... 30. PERFORM HOT WATER TEMPERATURE CHECKS AT EACH FIXTURE, AND VERIFY THAT THE CORRECT WATER TEMPERATURE, AS INDICATED ON THE DRAWINGS, IS FLOWING FROM EACH HOT WATER OUTLET... 31. AFTER TEMPERATURE MAINTENANCE CALIBRATION AND PRIOR TO PIPING INSULATION INSTALLATION, TEST THE CABLE.



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SHEET NAME: PLUMBING GENERAL NOTES

ORIG SUBMISSION: 05/21/23

SHEET: P-002

PERMIT SET























































THESE DRAWINGS & DATA  
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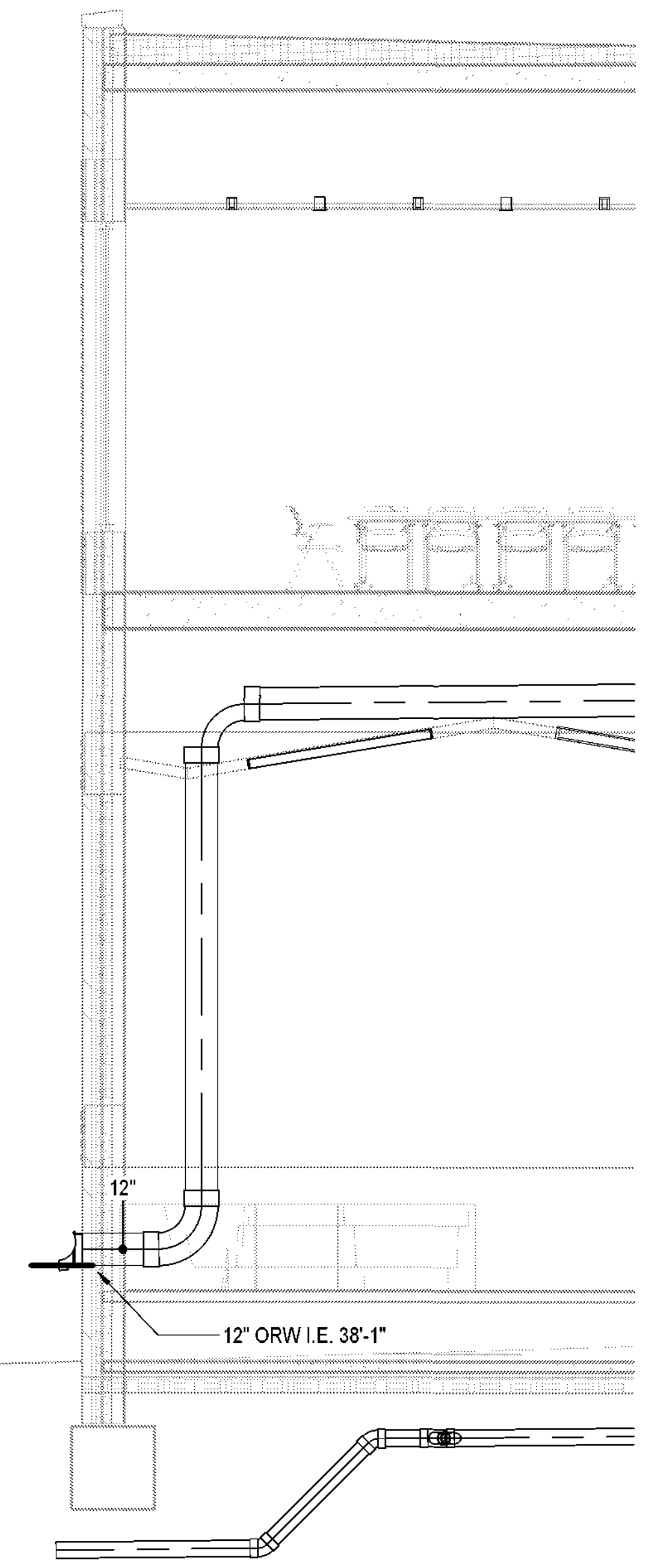
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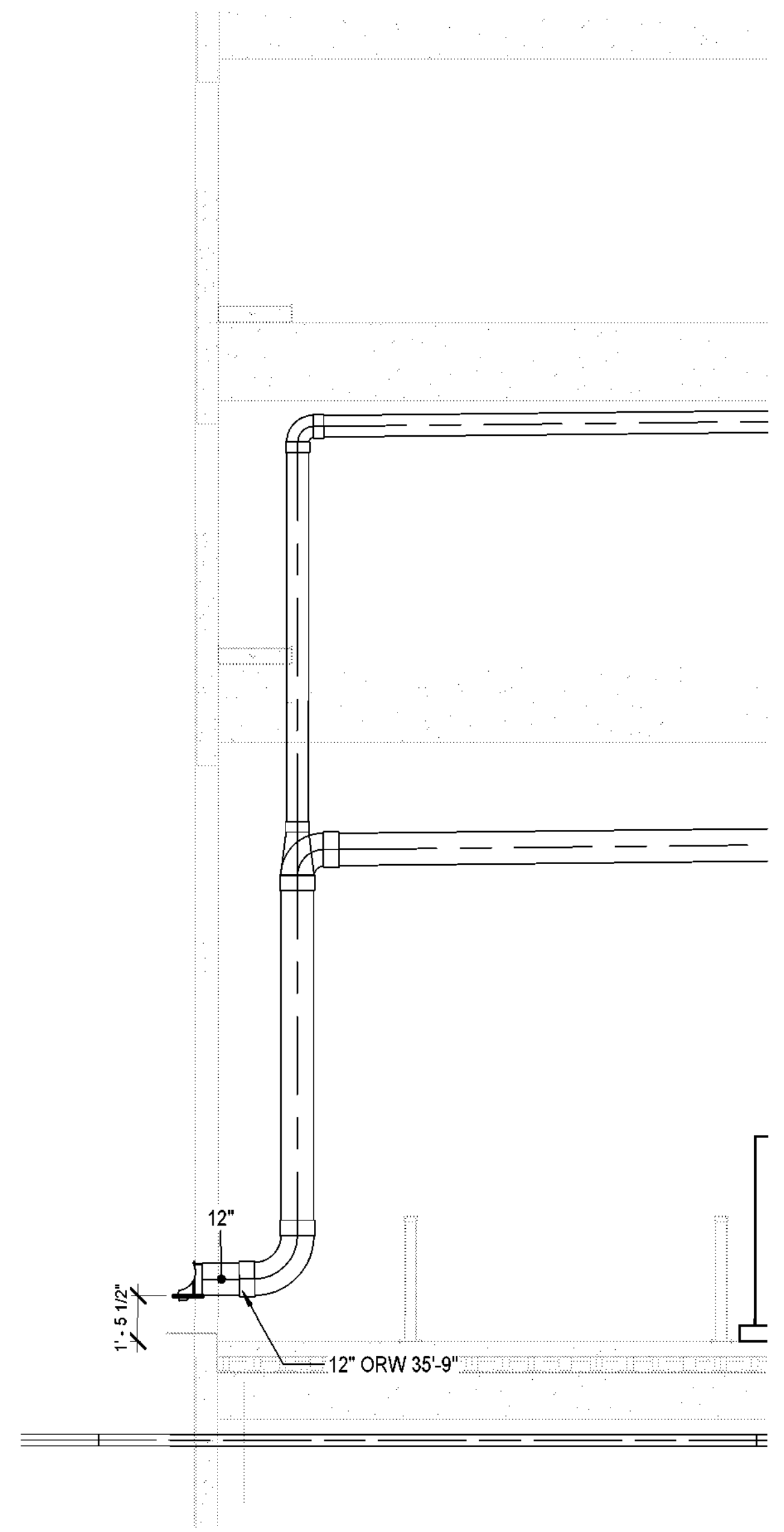
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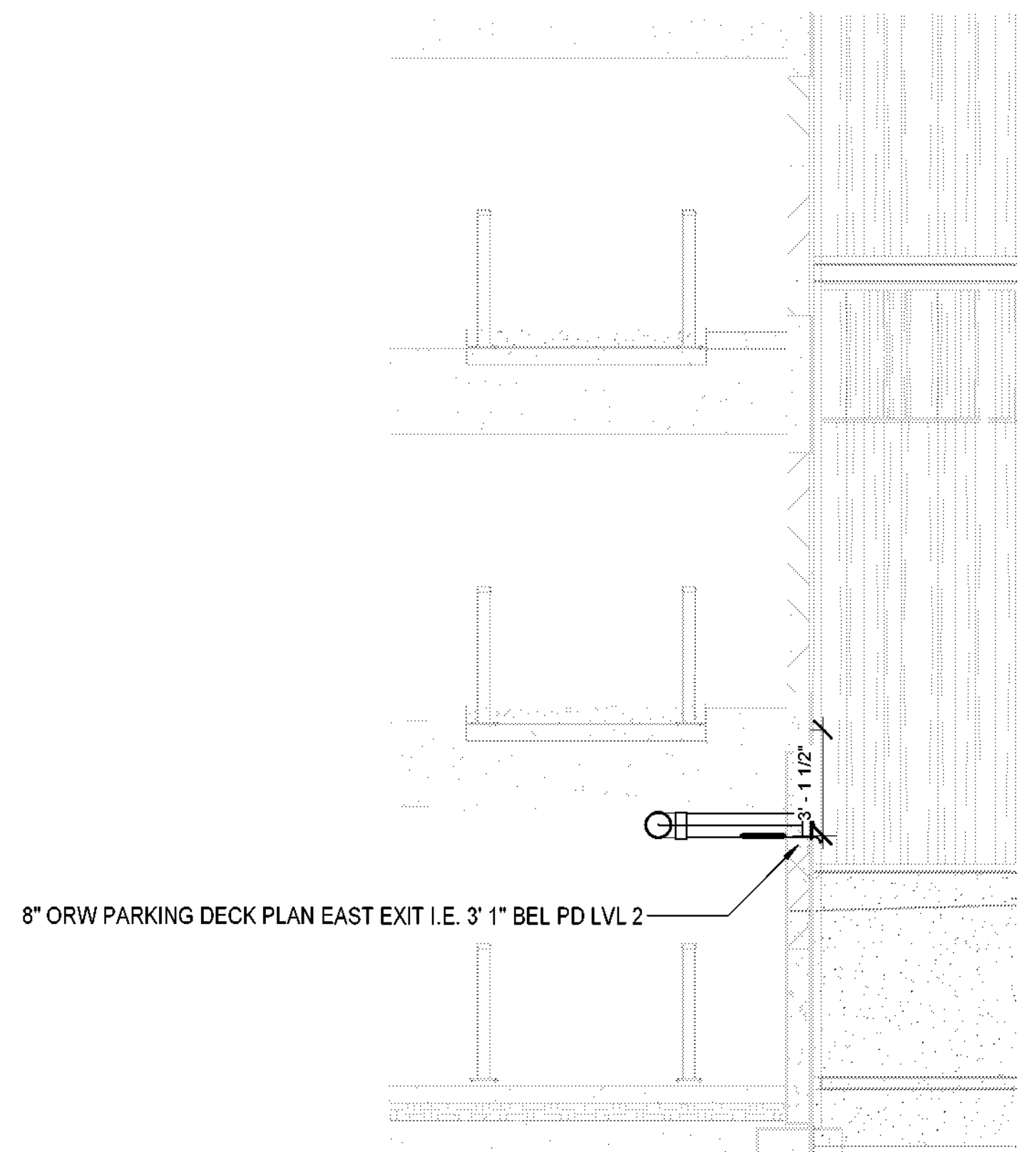
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**1 OVERFLOW RAINWATER PLAN EAST EXIT**  
1/4" = 1'-0"



**2 OVERFLOW RAINWATER EAST PARKING DECK EXIT**  
1/4" = 1'-0"



**3 OVERFLOW RAINWATER WEST PARKING DECK EXIT**  
1/4" = 1'-0"



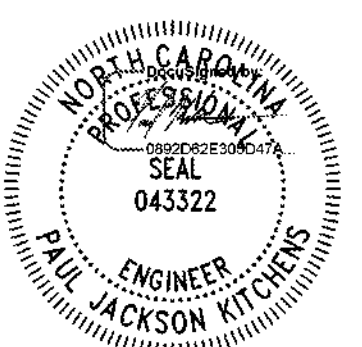
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**Project Grace**

Grace Street  
Wilmington, NC 28401

LS3P PROJECT: 7701-177600

A	DATE	DESCRIPTION
0	2023.05.22	PERMIT SET

SHEET NAME:  
**OVERFLOW  
RAINWATER  
DISCHARGE  
POINTS**

ORIG SUBMISSION: 2023.05.22

SHEET: **P-702**

PERMIT SET



