

SEAL:

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**7-ELEVEN
STORE #41559**

1245 S. VOLUSIA AVENUE
Orange City, FL 32763

PROJECT NO: 2019.0743
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CWP2.0
CARWASH PLUMBING
SPECIFICATIONS

CHECKED: JL DRAWN: JR

SECTION 15B: PLUMBING

15B1 GENERAL INSTRUCTIONS

15B 1-1 GENERAL REQUIREMENTS
REQUIREMENTS UNDER DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL APPLY TO THIS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO BECOME THOROUGHLY ACQUAINTED WITH ITS CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION OR SECTION. WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT, APPLIANCES, TRANSPORTATION, SERVICES AND LABOR REQUIRED TO COMPLETE THE ENTIRE PLUMBING SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

THE SPECIFICATIONS AND THE DRAWINGS ARE COMPLEMENTARY, AND ANY PORTION OF WORK DESCRIBED IN ONE SHALL BE PROVIDED AS IF DESCRIBED IN BOTH. IN THE EVENT OF DISCREPANCIES ON THE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR OWNER OF SAME PRIOR TO PROCEEDING WITH THE WORK INVOLVED, IN ORDER THAT THE CORRECT PROGRESS OF THE WORK MAY BE PERFORMED.

15B 1-2 INSPECTION OF SITE

VISIT THE SITE OF THE PROPOSED WORK AND BECOME INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

15B 1-3 MATERIAL AND WORKMANSHIP

MATERIAL, EQUIPMENT, AND APPARATUS PROVIDED UNDER THIS CONTRACT SHALL BE NEW UNLESS OTHERWISE STATED HEREIN. OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE, AND FREE FROM DEFECTS. MODEL NUMBERS LISTED IN SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT NECESSARILY INTENDED TO DESIGNATE THE REQUIRED TRIM, WRITTEN DESCRIPTIONS OF THE TRIM GOVERN MODEL NUMBERS.

WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED. TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORKMANSHIP SHALL BE THE FINEST POSSIBLE BY EXPERIENCED MECHANICS. INSTALLATIONS SHALL BE MADE IN A MANNER THAT WILL COMPLY WITH APPLICABLE CODES AND LAWS.

INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, AND NOISE LEVEL, ETC. ABNORMAL NOISE CAUSED BY RATTLING EQUIPMENT OR PIPING AND SQUEAKS IN ROTATING COMPONENTS WILL NOT BE ACCEPTABLE. MATERIALS AND EQUIPMENT SHALL BE OF COMMERCIAL SPECIFICATION IN QUALITY, LIGHT DUTY AND RESIDENTIAL GRADE EQUIPMENT WILL NOT BE ACCEPTED UNLESS OTHERWISE INDICATED.

REMOVE FROM THE PREMISES WASTE MATERIAL PRESENT AS A RESULT OF WORK, INCLUDING CARTONS, CRATING, PAPER, STRIPS, AND/OR EXCESSIVE MATERIAL NOT USED IN BACKFILLING, ETC. CLEAN PIECES OF EQUIPMENT INSTALLED UNDER THIS CONTRACT TO PRESENT A NEAT AND CLEAN INSTALLATION AT THE TERMINATION OF THE WORK.

PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT SHALL BE REPAIRED OR REPLACED BY THIS CONTRACTOR, TO THE SATISFACTION OF AUTHORITIES AND REGULATIONS HAVING JURISDICTION.

15B 1-4 COORDINATION

COORDINATE WORK WITH THAT OF OTHER TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME WITH THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

UNLESS NOTED ELSEWHERE, GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION REGARDING CHASES AND OPENINGS WHEN REQUIRED. CONTRACTOR SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN A SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.

FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND VERIFICATION.

PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

15B 1-5 ORDINANCES AND CODES

WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE STRICT COMPLIANT WITH CURRENT APPLICABLE STANDARDS AS SET FORTH BY THE APPLICABLE CODES ADOPTED BY THE LOCAL AHJ INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AMERICAN GAS ASSOCIATION (AGA), AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), AMERICANS WITH DISABILITIES ACT (ADA) AND OTHER NATIONAL STANDARDS AND CODES WHERE APPLICABLE.

PROCURE AND PAY FOR PERMITS AND LICENSES REQUIRED FOR THE ACCOMPLISHMENT OF THE WORK HEREIN DESCRIBED, WHERE REQUIRED, OBTAIN, PAY FOR AND FURNISH CERTIFICATES OF INSPECTION TO OWNER. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY VIOLATION OF THE LAW. MAINTAIN NECESSARY SIGNAL LIGHTS AND GUARDS FOR THE SAFETY OF THE PUBLIC.

15B 1-6 PROTECTION OF EQUIPMENT AND MATERIALS

STORE AND PROTECT FROM DAMAGE EQUIPMENT AND MATERIAL AFTER DELIVERY TO JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR IS OBLIGATED TO FURNISH NEW EQUIPMENT AND MATERIAL OF A LIKE KIND AT HIS OWN EXPENSE.

KEEP PREMISES ROOM CLEAN FROM FOREIGN MATERIAL CREATED UNDER THIS CONTRACT. PIPING, EQUIPMENT ETC., SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE WORK.

PLUG OR CAP OPEN ENDS OF PIPING SYSTEMS DURING CONSTRUCTION WHEN NOT IN USE. PREVENT THE ENTRANCE OF DEBRIS INTO THE SYSTEMS.

KEEP THE MANUFACTURER-PROVIDED PROTECTIVE COVERINGS ON FLOOR DRAINS, FLOOR SINKS AND TRENCH DRAINS DURING CONSTRUCTION. REMOVE COVERINGS AT THE TERMINATION OF THE WORK AND PUNISH EXPOSED SURFACES.

15B 1-7 SUBSTITUTIONS

THE BASE BID SHALL INCLUDE ONLY THE PRODUCTS FROM MANUFACTURERS SPECIFICALLY NAMED AS "APPROVED" IN THE DRAWINGS AND IN THE SPECIFICATIONS. IF CONTRACTOR DESIRES TO SUBSTITUTE OTHER THAN SPECIFIED MATERIAL, HE SHALL SUBMIT WITH HIS BID A LIST OF SUCH ITEMS. ALTERNATE PROPOSAL FORM SHALL INDICATE ITEM, MANUFACTURER, MODEL NUMBER AND AMOUNT TO BE ADDED OR DEDUCTED FROM THE BASE BID IF THE OWNER ELECTS TO ALLOW SUBSTITUTION. EACH SUBSTITUTION ITEM SHALL BE SEPARATELY LISTED IN ORDER THAT PROPER REVIEW FOR APPROVAL BY THE ENGINEER AND/OR OWNER IS GIVEN.

THE TERMS "APPROVED", "APPROVED EQUAL", OR "EQUAL", REFER TO APPROVAL BY THE ENGINEER AND/OR OWNER AS AN ACCEPTABLE ALTERNATE BID. NO SUBSTITUTIONS WILL BE CONSIDERED FOR APPROVAL BY THE ENGINEER THAT ARE NOT BID AS AN ALTERNATE. NO SUBSTITUTIONS SHALL BE CONSIDERED FOR APPROVAL PRIOR TO AWARD OF CONTRACT.

COORDINATE AND VERIFY WITH OTHER TRADES WHETHER OR NOT THE SUBSTITUTED EQUIPMENT CAN BE INSTALLED WITHOUT MODIFICATION TO ASSOCIATED SYSTEMS OR ARCHITECTURAL OR ENGINEERING DESIGN. INCLUDE ADDITIONAL COSTS FOR ARCHITECTURAL AND ENGINEERING DESIGN FEES IN BID IF DRAWING MODIFICATIONS ARE REQUIRED BECAUSE OF SUBSTITUTED EQUIPMENT.

15B 1-8 OPERATION AND MAINTENANCE INSTRUCTIONS

COLLECT AND COMPILE A COMPLETE BROCHURE OF FIXTURES, MATERIALS, AND EQUIPMENT FURNISHED AND INSTALLED ON THIS PROJECT. INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, MANUFACTURER'S CATALOG SHEETS, WIRING DIAGRAMS, PARTS LISTS, APPROVED SHOP DRAWINGS, AND DESCRIPTIVE LITERATURE FURNISHED BY THE MANUFACTURER. INCLUDE AN INSIDE COVER SHEET THAT LISTS THE PROJECT NAME, DATE, OWNER, ARCHITECT, ENGINEER, GENERAL CONTRACTOR, SUB-CONTRACTOR, AND AN INDEX OF CONTENTS.

SUBMIT COPIES OF LITERATURE BOUND IN APPROVED BINDERS TO THE ARCHITECT AND OWNER AT THE TERMINATION OF THE WORK. PAPER CLIPS, STAPLES, RUBBER BANDS, AND MAILING ENVELOPES ARE NOT CONSIDERED APPROVED BINDERS. FINAL APPROVAL OF PLUMBING SYSTEMS WILL BE WITHHELD UNTIL THIS EQUIPMENT BROCHURE IS DEEMED COMPLETE BY THE ARCHITECT, ENGINEER, AND OWNER.

15B 1-9 SPARE PARTS

FURNISH TO OWNER WITH RECEIPT, THE SPARE PARTS TO INCLUDE FAUCET WASHERS AND O-RINGS, FLUSHOMETER REPAIR KITS AND WATER CLOSET TANK REPAIR KITS FOR THE FIXTURES FURNISHED FOR THIS PROJECT.

15B 1-10 EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF UNDERGROUND WORK UNDER THIS CONTRACT. TRENCHES SHALL BE OF SUFFICIENT WIDTH, CRIB OR BRACE TRENCHES TO PREVENT CAVE-IN OR SETTLEMENT. DO NOT EXCAVATE TRENCHES CLOSE TO COLUMNS AND WALLS OF NEW BUILDING WITHOUT PRIOR CONSULTATION WITH THE ARCHITECT. USE PUMPING EQUIPMENT IF REQUIRED TO KEEP TRENCHES FREE OF WATER. RAM DRY EARTH INTO PLACE AT SIDES OF PIPE, LEAVING JOINTS AND TOP OF PIPE EXPOSED UNTIL PIPING IS TESTED AND APPROVED. AFTER TESTING AND APPROVAL, FILL TRENCHES IN LAYERS OF WELL-TAMPED DRY EARTH IN A MANNER TO PREVENT FUTURE SETTLEMENT.

EXCAVATION AS HEREIN SPECIFIED SHALL BE CLASSIFIED AS COMMON EXCAVATION. COMMON EXCAVATION SHALL COMPRISE THE SATISFACTORY REMOVAL AND DISPOSITION OF MATERIALS AND OTHER SUBSTANCES AND OF ANY DESCRIPTION ENCOUNTERED, INCLUDING ROCK, IF ANY, WITHIN THE LIMITS OF WORK AS SPECIFIED IN THE DRAWINGS. EXCAVATION SHALL BE PERFORMED IN THE AREAS AND GRADES INDICATED ON THE DRAWINGS. EXCAVATED MATERIALS WITH A CONSISTED UNSUITABLE FOR BACKFILL, AND SURFACES OF EXCAVATED MATERIAL WHICH IS NOT REQUIRED FOR BACKFILL SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE, AND TO THE SATISFACTION OF THE ARCHITECT.

15B1-11 COINCIDENTAL DAMAGE

CONTRACTOR SHALL REPAIR STREETS, SIDEWALKS, DRIVES, PAVING, WALLS AND FINISHES ETC., THAT HE DAMAGES IN THE COURSE OF THIS PROJECT. REPAIR MATERIALS SHALL MATCH EXISTING CONSTRUCTION. REPAIR WORK SHALL MEET REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND MEET THE SATISFACTION OF THE ARCHITECT. ****CONFORM TO REQUIREMENTS OF DIVISION TWO OF THIS SPECIFICATION****

15B 1-12 CUTTING AND PATCHING

OBTAIN PERMISSION FROM THE ARCHITECT BEFORE CUTTING WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED BY THE PROJECT. DO NOT DISTURB STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. CUT HOLES AS SMALL AS POSSIBLE. EQUIPMENT AND MATERIAL DAMAGED BY CONSTRUCTION, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. PATCHING SHALL MATCH ORIGINAL MATERIAL AND CONSTRUCTION. REPAIR AND REFINISH AREAS DISTURBED BY WORK TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

15B 1-13 ROUGH-IN

BEFORE STARTING CONSTRUCTION, COORDINATE WITH OTHER CONTRACTORS REGARDING ROUGH-IN WITH GENERAL CONSTRUCTION. CONCEAL PIPING, CONDUIT AND ROUGH-IN EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE SHOWN.

15B 1-14 STRUCTURAL STEEL

STRUCTURAL STEEL USED FOR PIPE SUPPORTS, EQUIPMENT SUPPORTS, ETC., SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36.

SUPPORT PLUMBING EQUIPMENT AND PIPING FROM THE BUILDING STRUCTURE. DO NOT SUPPORT PLUMBING EQUIPMENT FROM CEILINGS, OTHER MECHANICAL OR ELECTRICAL COMPONENTS, AND OTHER NON-STRUCTURAL ELEMENTS.

15B1-15 ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS WHERE INDICATED OR REQUIRED FOR ACCESS TO CONCEALED VALVES AND EQUIPMENT INSTALLED UNDER THIS CONTRACT. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS, MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION, AND COLOR BEFORE ORDERING.

15B 1-16 PENETRATIONS

SEAL FLOOR, EXTERIOR WALL AND ROOF PENETRATIONS WATER AND WEATHERTIGHT WITH APPROPRIATE NON-SHRINK, NON-HARDENING COMMERCIAL CONSTRUCTION SEALANT. SEAL ROOF PENETRATIONS WITH 4 POUND PER SQUARE FOOT LEAD FLASHING. PROVIDE A SLEEVE, AND SEAL NON-FIRE-RATED FLOOR AND WALL PENETRATIONS WITH FIBERGLASS PACKING AND SILICONE CAULK (FOR ACOUSTICAL INSULATION).

COORDINATE FIRE RATING REQUIREMENTS AND LOCATIONS WITH THE ARCHITECT. SEAL PIPING PENETRATIONS OF FIRE-RATED ASSEMBLIES WITH 3M # CP-25 FIRE BARRIER CAULK (PROVIDE THICKNESS AND METHOD AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN THE FIRE RESISTANCE RATING OF FIRE-RATED ASSEMBLIES.

SEAL EXTERIOR WALL PENETRATIONS BELOW GRADE WITH CAST IRON WALL PIPES AND MODULAR MECHANICAL SLEEVE SEALS, MANUFACTURED BY THUNDERLINE/LINK SEAL, CALPICO, INC AND METAFLEX.

PROVIDE SLEEVES FOR HORIZONTAL PIPE PASSING THROUGH OR UNDER FOUNDATION. SLEEVES SHALL BE CAST IRON SOIL PIPE TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED.

PROVIDE SLEEVES FOR VERTICAL PIPE PASSING THROUGH SLAB ON GRADE. SLEEVES SHALL BE SCHEDULE 40 PVC PIPE, TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED. SEAL WATER-TIGHT WITH SILICONE CAULK.

15B 1-17 EXTERIOR UTILITY CONNECTIONS

TERMINATE DOMESTIC WATER, STORM, AND SEWER LINES AT A POINT APPROXIMATELY FIVE FEET FROM THE BUILDING WALLS, OR AS SHOWN ON THE DRAWINGS. MAKE CONNECTION TO THE VARIOUS SERVICES PROVIDED BY OTHERS AND COORDINATE CONNECTION REQUIREMENTS WITH CML ENGINEER. VERIFY THAT INSTALLATION WILL TIE INTO THE VARIOUS SERVICES PROVIDED BY OTHERS AT THE INDICATED INVERT. IF THE INSTALLATION WILL NOT TIE INTO THE INDICATED INVERT, ELEVATION POINT, OR MAJOR PROPER FALL, NOTIFY ARCHITECT AND CML ENGINEER SO THAT AN ALTERNATIVE WILL BE DETERMINED.

PROVIDE SERVICE PIPING ACCESSORIES REQUIRED TO COMPLETE UTILITY CONNECTIONS THAT ARE NOT FURNISHED BY THE SERVING UTILITY.

15B 1-18 SYSTEM TESTING AND ADJUSTING

UPON COMPLETION OF EACH PHASE OF THE INSTALLATION, TEST EACH SYSTEM IN CONFORMANCE WITH LOCAL CODE REQUIREMENTS AND AS NOTED BELOW. FURNISH LABOR AND EQUIPMENT REQUIRED TO TEST PLUMBING WORK INSTALLED UNDER THIS CONTRACT, AND ASSUME COSTS INVOLVED IN MAKING THE TESTS, AND REPAIRING AND/OR REPLACING DAMAGE RESULTING THEREFROM.

NOTIFY THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION THREE (3) WORKING DAYS PRIOR TO MAKING PLUMBING SYSTEM TESTS. LEAVE CONCEALED WORK UNCOVERED UNTIL THE REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF NECESSARY DUE TO CONSTRUCTION PROCEDURE, TESTS ON PORTIONS OF THE WORK MAY BE MADE, AND WHEN SATISFACTORY, THE WORK MAY BE CONCEALED. TEST PIPING BEFORE INSULATION IS INSTALLED, AND BEFORE BACKFILL. PIPES, JOINTS, FLANGES, VALVE STEMS, ETC., SHALL BE LEAK TIGHT. REPAIR OR REPLACE SYSTEM DEFECTS WITH NEW MATERIALS. CAULKING OF DEFECTIVE JOINTS, CRACKS OR GAPS WILL NOT BE PERMITTED. REPEAT TESTS AFTER DEFECTS HAVE BEEN ELIMINATED. MAKE TESTS IN THE PRESENCE OF THE ADMINISTRATIVE AUTHORITY AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE.

UPON COMPLETION OF THE SYSTEMS INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE ARCHITECT AND ENGINEER, MAKE GENERAL OPERATING TESTS TO DEMONSTRATE THAT EQUIPMENT AND SYSTEMS ARE IN PROPER WORKING ORDER, AND ARE FUNCTIONING IN CONFORMANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. AS A PART OF THESE TESTS, OPEN EVERY WATER OUTLET TO ENSURE COMPLETE SYSTEM FLUSHING, REMOVE AND CLEAN FAUCET AERATORS, CLEAN STRAINERS, LIGHT PILOT LIGHTS, AND OPERATE EVERY PIECE OF EQUIPMENT FURNISHED UNDER THIS CONTRACT TO DEMONSTRATE PROPER FUNCTIONING.

TEST THE DRAINAGE AND VENT SYSTEM BY PLUGGING OPENING WITH TEST PLUGS, EXCEPT THOSE AT THE TOP OF THE STACKS. FILL THE SYSTEM WITH WATER. TEST RESULTS WILL BE SATISFACTORY IF THE WATER LEVEL REMAINS STATIONARY FOR NOT LESS THAN ONE (1) HOUR. SUBJECT THE DRAINAGE AND VENT SYSTEM TO A PRESSURE OF AT LEAST TEN (10) FEET OF WATER. IF LEAKS DEVELOP, REPAIR THEM AND REPEAT THE TEST.

TEST THE DOMESTIC WATER SYSTEM BY FILLING IT WITH WATER AND THEN ISOLATING THE SYSTEM FROM ITS SOURCE. KEEP THE SYSTEM CLOSED FOR A PERIOD OF TWENTY-FOUR HOURS, WITH NO FIXTURE BEING USED. THE PRESSURE DIFFERENTIAL FOR THIS TEST PERIOD SHALL NOT EXCEED 10 PSIG. TEST WATER PIPING TO A 125 PSI HYDROSTATIC PRESSURE.

15B 1-19 GUARANTEE

THE WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLATION, AND CONNECTION OF PLUMBING SYSTEMS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. BY SIGNING THE CONTRACT, THE CONTRACTOR ACKNOWLEDGES THAT HE HAS AGREED TO TAKE HIMSELF WITH THE SITE AND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, AND THE DRAWINGS AND SPECIFICATIONS PERTAINING THERETO, AND HE INDICATES THAT HE WILL COMPLY WITH THE REQUIREMENTS AND INTENT OF PERTINENT DOCUMENTS IN THE PERFORMANCE OF THE WORK.

GUARANTEE THAT THE PLUMBING INSTALLED UNDER THIS CONTRACT IS FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF JOB ACCEPTANCE BY THE OWNER. THIS SHALL INCLUDE A GUARANTEE OF FREE CIRCULATION OF LIQUIDS THROUGHOUT THE SYSTEM AS INTENDED WITHOUT LEAKS, EXCESSIVE NOISE, OR WATER HAMMER. IF DEFECTS OCCUR DURING THE ONE YEAR GUARANTEE PERIOD, REPAIR OR REPLACE SUCH DEFECTS AT NO EXPENSE TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER, ARCHITECT AND ENGINEER.

15B2 PLUMBING PIPING

15B 2-1 PIPING MATERIALS

MATERIALS SPECIFIED OR NOTED ON THE DRAWINGS ARE SUBJECT TO THE APPROVAL OF LOCAL CODE AUTHORITIES. VERIFY APPROVAL BEFORE INSTALLING ANY MATERIAL OR JOINING METHOD.

AT BUILDING SERVICE ENTRANCE, NO JOINTS SHALL BE INSTALLED UNDER OR WITHIN 5 FEET OF THE BUILDING. INSTALL DOMESTIC WATER PIPING BELOW GRADE OUTSIDE BUILDING AT ADEQUATE DEPTH TO PREVENT FREEZING.

DOMESTIC WATER PIPING: DOMESTIC WATER PIPING (COLD, HOT, SOFT, OR RINSE OPTION TYPE) INSTALLED ABOVE OR BELOW THE FLOOR SLAB INSIDE THE BUILDING SHALL BE EITHER COPPER (TYPE K1), CPVC PLASTIC PIPE (ASTM D 2846), OR PVC PLASTIC PIPE (ASTM D 1785). LABEL ALL CARWASH EQUIPMENT PIPE AS NON-POTABLE WATER.

INTERIOR WASTE AND VENT BELOW SLAB: WASTE AND VENT PIPE BELOW SLAB INSIDE BUILDINGS SHALL BE STANDARD WEIGHT CAST IRON SOIL PIPE WITH 1" AND SPIGOT FITTINGS WITH NEOPRENE GASKET JOINTS. HUBLESS WASTE AND VENT PIPE IS NOT PERMITTED BELOW GRADE. PVC DWV ASTM D2665 PIPE WITH PVC MEETING ASTM B1784, CELL CLASS 12454-B WITH ASTM 2665 SOCKET FITTINGS WITH SOLVENT WELD JOINTS IS ALSO PERMITTED WHERE APPROVED BY CODE.

INTERIOR WASTE AND VENT ABOVE SLAB: WASTE AND VENT PIPE ABOVE SLAB INSIDE BUILDING SHALL BE HUBLESS CAST IRON SOIL PIPE AND FITTINGS WITH HUBLESS COUPLINGS. PVC DWV ASTM D2665 PIPE WITH PVC MEETING ASTM B1784, CELL CLASS 12454-B WITH ASTM 2665 SOCKET FITTINGS WITH SOLVENT WELD JOINTS IS ALSO PERMITTED WHERE APPROVED BY CODE.

INDIRECT AND CONDENSATE DRAIN INSIDE BUILDING: INDIRECT AND CONDENSATE DRAIN PIPE INSTALLED INSIDE THE BUILDING SHALL BE TYPE "M" HARD COPPER WITH WROUGHT COPPER FITTINGS FOR 1" AND SMALLER AND "DWV" COPPER WITH WROUGHT COPPER DRAINAGE PATTERN FITTINGS FOR 1 1/2" AND LARGER. HARD TEMPER COPPER TUBE AND SOLDERED CONNECTIONS MADE WITH 95/5 SOLDER. INSTALL CLEANOUTS AT ELBOWS GREATER THAN 45 DEGREES.

INDIRECT AND CONDENSATE DRAIN OUTSIDE BUILDING: INDIRECT AND CONDENSATE DRAIN PIPE INSTALLED OUTSIDE THE BUILDING ABOVE GROUND SHALL BE TYPE "M" FOR 1" AND SMALLER AND "DWV" FOR 1 1/2" AND LARGER. HARD TEMPER COPPER TUBE WITH WROUGHT COPPER DRAINAGE PATTERN FITTINGS AND SOLDERED CONNECTIONS MADE WITH 95/5 SOLDER. TERMINATE AT NEAREST ROOF DRAIN, GUTTER OR OTHER LOCATION AS SHOWN ON DRAWINGS. INSTALL CLEANOUTS AT ELBOWS GREATER THAN 45 DEGREES.

GAS AND PIPING: SCHEDULE 40 BLACK CARBON STEEL WITH MALLEABLE IRON THREADED FITTINGS. PAINT ALL GAS PIPING EXPOSED TO WEATHER WITH ONE COAT OF PRIMER, AND TWO COATS OF RUST-PROOF PAINT. COLOR SHALL MATCH BUILDING COLORS. COORDINATE WITH GENERAL CONTRACTOR.

15B 2-2 PIPING AND EQUIPMENT INSULATION

DOMESTIC COLD WATER, HOT WATER, INDIRECT AND CONDENSATE DRAIN PIPE (WITHIN BUILDING): 1" ONE-PIECE FIBERGLASS COVERING WITH FIRE-RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAIN TEED CORP. OWENS-CORNING OR ARMSTRONG. FOR PIPING AT HANGERS PROVIDE 8" LONG SECTIONS OF HIGH DENSITY, HIGH TEMPERATURE CALCIUM SULFATE. 1" JOINTS-MANVILLE FIBERGLASS BY KNAUF OR 8" LONG STYROFAM BILLETS BY DOW. INSULATION SHALL BE CONTINUOUS ALONG THE PIPE SURFACE, EXCEPT AT VALVES, UNIONS, AND WHERE PIPING IS EXPOSED AT FIXTURES. PROVIDE 1" FIBERGLASS INSULATION ON VENT PIPING WITHIN SIX FEET OF VENT THROUGH THE ROOF. PROVIDE FIBERGLASS INSULATION ON DOMESTIC COLD AND HOT WATER PIPES INSTALLED IN WALLS AND CHASES. PROVIDE FIBERGLASS INSULATION ON DOMESTIC COLD AND HOT WATER PIPES INSTALLED IN WALLS AND CHASES.

COVER FITTINGS WITH ZESTON, KNAUF, OR EQUAL ONE-PIECE PVC PREMOULDED INSULATING COVERS. FITTING COVERS, JACKETS AND ADHESIVES SHALL NOT EXCEED FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPMENT RATING OF 50 PER ASTM E84. AT ALL ELBOWS AND TEES, FILL VOIDS BETWEEN COVERS AND PIPING WITH FIBERGLASS INSULATION AND TAPE JOINTS. INSTALL PIPE INSULATION IN CONJUNCTION WITH MANUFACTURER'S RECOMMENDATIONS. WHERE PREMOULDED INSULATING FITTINGS ARE NOT APPROVED BY LOCAL AUTHORITIES, MITER INSULATION AT FITTINGS.

15B 2-3 PIPING JOINTS

COPPER TUBING: JOINTS IN HARD TEMPER TUBING SHALL BE SOLDERED JOINTS USING LEAD-FREE 95/5 SOLDER EXCEPT WHERE TUBING IS INSTALLED BELOW GRADE OR BELOW THE BASE SLAB, IN WHICH CASE JOINTS SHALL BE SOLDERED WITH SILVER SOLDER (SILFOS). JOINTS IN SOFT TEMPER COPPER TUBING SHALL BE OF THE FLARED TYPE INSTALLED IN COMPLIANCE WITH THE FITTING MANUFACTURER'S RECOMMENDATIONS.

THREADED STEEL PIPE: THREADED JOINTS SHALL BE FULL AND CLEAN, CUT WITH NOT MORE THAN THREE (3) THREADS EXPOSED BEYOND THE FITTINGS. MAKE JOINTS TIGHT WITH GRAPHITE BASE PIPE JOINT COMPOUND AND PAINT EXPOSED THREADS OF FERROUS PIPE WITH AN OXY-RESISTING PAINT AFTER PIPING HAS BEEN TESTED AND PROVEN TIGHT. NO CAULKING, LAMP-WICK OR OTHER MATERIAL WILL BE PERMITTED FOR CORRECTION OF DEFECTIVE JOINTS.

WELDED STEEL PIPE: WELDED JOINTS SHALL BE OF THE BUTT WELDED SINGLE "V" TYPE. BEVEL PIPE AT A 45 DEGREE ANGLE TO WITHIN 1/16" OF THE INSIDE WALL, AND BUILD UP THE WELD TO ONE FOURTH GREATER DEPTH THAN THE PIPE WALL THICKNESS. WELDING SHALL BE EITHER ELECTRIC OR OXY-ACETYLENE, PERFORMED IN CONFORMANCE WITH ASME CODE FOR PRESSURE PIPE WELDING, AND ONLY BY EXPERIENCED CERTIFIED WELDER.

CAST IRON PIPE BELOW GRADE: JOINTS IN BALL AND SPIGOT CAST IRON WASTE AND VENT PIPING SHALL BE NEOPRENE COMPRESSION GASKETS, TYPE AS OF EQUAL.

CAST IRON PIPE ABOVE GRADE: JOINTS IN HUBLESS PIPE SHALL BE STANDARD CISEP #85 COUPLING BY ANACO HUSKY OR APPROVED EQUAL JOINTS IN SOFT PIPING 6" AND LARGER SHALL BE LIGHT DUTY COUPLINGS MEETING ASTM C566 AND 1580, ANACO HUSKY #SD-4000 OR CLAMP-ALL "H" JOINTS 12" IN. LB.

PVC PIPE: CLEAN JOINTS FREE FROM DEBRIS AND MOISTURE. APPLY PVC PRIMER MEETING ASTM F856 TO EACH JOINT. APPLY SOLVENT CEMENT MEETING ASTM D2564 AND MAKE JOINT WHILE WET IN ACCORDANCE WITH ASTM D2855.

CPVC PIPE: CLEAN JOINTS FREE FROM DEBRIS AND MOISTURE. MAKE CONNECTION OF NEW WASTE PIPE TO AN EXISTING DISSIMILAR WASTE PIPE USING MISSION OR FIBRO NEOPRENE COUPLINGS WITH STAINLESS STEEL CLAMPS. COAT STAINLESS STEEL BANDS WITH PASTIC WHERE INSTALLED UNDERGROUND.

CPVC PIPE: CLEAN JOINTS FREE FROM DEBRIS AND MOISTURE. APPLY CPVC PRIMER MEETING ASTM F856 PM EACH JOINT. APPLY SOLVENT CEMENT MEETING ASTM F493 AND MAKE JOINT WHILE WET IN ACCORDANCE WITH ASTM D2855.