

Order Plans

### PLUMBING DEMOLITION NOTES

1. THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY EXISTING CONDITIONS AND DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID. ANY DISCREPANCIES NOTED BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING.
2. PLUMBING CONTRACTOR SHALL REMOVE EXISTING PLUMBING FIXTURES AND EQUIPMENT AS INDICATED, INCLUDING ASSOCIATED HOT WATER, COLD WATER, WASTE AND VENT PIPING, UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DEMOLITION PLAN FOR LOCATIONS.
3. PLUMBING CONTRACTOR SHALL REMOVE UNUSED HW & CW BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS. TERMINATE WITH SHUT-OFF VALVE AND CAP.
4. PLUMBING CONTRACTOR SHALL TERMINATE UNUSED BRANCH WASTE PIPING WITH A CLEAN-OUT AT THE MOST REMOTE END OR ABANDONED AND CAPPED WITHIN 12" OF THE MAIN IT CONNECTS. (NO DEAD-ENDS ALLOWED)
5. PLUMBING CONTRACTOR SHALL REMOVE UNUSED VENT BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS THEN CAP.
6. PLUMBING CONTRACTOR SHALL VERIFY PROPER OPERATION OF ALL EXISTING EQUIPMENT PRIOR TO BEGINNING WORK. ANY PROBLEMS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT IMMEDIATELY.
7. WITH THE REMOVAL OF EXISTING WALLS, SOME EXISTING WASTE, VENT, STORM DRAIN, OR DOMESTIC WATER PIPING MAY BE DISCOVERED. ANY EXISTING PIPING DISCOVERED THAT IS ACTIVE SHALL BE OFFSET BY THE P.C. TO NEW WALLS. ANY EXISTING PIPING DISCOVERED THAT IS ABANDONED SHALL BE REMOVED.

### 2012 NORTH CAROLINA ENERGY CONSERVATION CODE

#### COMMERCIAL ENERGY EFFICIENCY - PLUMBING SUMMARY

<b>501.1 METHOD OF COMPLIANCE</b>	<input type="checkbox"/> 2012 NCECC CHAPTER 5	<input type="checkbox"/> COMCHECK PROVIDED (2012 NCECC)
	<input type="checkbox"/> ASHRAE 90.1-2010 PRESCRIPTIVE	<input type="checkbox"/> COMCHECK PROVIDED (90.1-2010)
	<input type="checkbox"/> ASHRAE 90.1-2010 PERFORMANCE	<input type="checkbox"/> ENERGY MODELING DATA PROVIDED
<b>501.2 APPLICATION COMPLIANCE</b>		
	<input type="checkbox"/> 506.2.1 EFFICIENT MECH EQUIPMENT	<input type="checkbox"/> 506.2.4 HI EFFICIENCY DOMESTIC HW
	<input type="checkbox"/> 506.2.2 REDUCED LTG DENSITY	<input type="checkbox"/> 506.2.5 ONSITE RENEWABLE ENERGY
	<input type="checkbox"/> 506.2.3 ENERGY RECOVERY SYSTEMS	<input type="checkbox"/> 506.2.6 DAYLIGHTING CONTROLS

**504.2 SERVICE WATER-HEATING EQUIPMENT PERFORMANCE EFFICIENCY**

SYSTEM DESCRIPTION - ELECTRIC WATER HEATER (WH), 30 GAL TANK TYPE, 1.5 KW

<b>STORAGE WATER HEATERS, ELECTRIC:</b>	
SIZE CATEGORY (≤ 12 KW):	1.5 KW
STORAGE TOTAL:	30 GALLONS
MINIMUM ENERGY FACTOR REQUIRED:	0.97 - 0.00132 x 50 = 0.93
ENERGY FACTOR OF SPECIFIED HEATER(S):	0.98

### PLUMBING MATERIALS AND NOTES

**DOMESTIC WATER PIPING:**

1. DOMESTIC WATER PIPING AND JOINTS BELOW GRADE: PROVIDE TYPE "K" SOFT ANNEALED SEAMLESS COPPER TUBING (ASTM B 88) WITH NO JOINTS FOR PIPING 2 1/2" AND SMALLER. PROVIDE DUCTILE IRON PIPE AND FITTINGS (AWWA C151, AWWA C110) WITH RUBBER GASKET JOINTS AND RODS (AWWA C111) PIPING 3" AND LARGER.
2. DOMESTIC WATER PIPING AND JOINTS ABOVE GRADE: PROVIDE TYPE "L" HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.16). JOINTS 2" AND SMALLER SHALL BE LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32). JOINTS 2 1/2" AND LARGER SHALL BE BOUP SILVER/PHOSPHORUS COPPER BRAZED JOINTS (AWS A5.8) OR PROVIDE COPPER PIPE AND FITTINGS AS SPECIFIED ABOVE EXCEPT WITH GROOVED ENDS (ASTM B 88, ASME B16.16) AND JOINTS UTILIZING GROOVED MECHANICAL COUPLINGS MEETING (ASTM F1476).
3. STERILIZE THE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
4. INSULATE DOMESTIC WATER PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND JACKET. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTU/H X 50. FT. FOLLOW SCHEDULE BELOW:

SERVICE TYPE	PIPE SIZES	INSULATION THICKNESS
DOMESTIC HOT WATER & CIRCULATION	1/2" - 1 1/4"	1 1/2"
DOMESTIC HOT WATER & CIRCULATION	1 1/2" - 4"	2"
DOMESTIC COLD WATER	1/2" - 1 1/4"	1/2"
DOMESTIC COLD WATER	1 1/2" - 4"	1"

5. DOMESTIC WATER PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC GASKET FOR EXPOSED PIPING IN MECHANICAL ROOMS.
6. PROVIDE TWO-PIECE, BRONZE OR BRASS BODY, FULL PORT, 800 PSI WOG, BALL TYPE SHUT-OFF VALVES WITH BLOW-OUT PROOF STEMS AND ADJUSTABLE PACKING GLANDS. VALVES SHALL BE LEAD FREE PER NSF 61, ANNEX G REQUIREMENTS. INSTALL VALVES IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
7. PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, HANGERS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.
8. PROTECT COPPER PIPING AGAINST CONTACT WITH ALL MASONRY. WHERE COPPER IS SLEAVED THROUGH MASONRY, PROVIDE COPPER OR RED BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 1/8" ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.
9. DOMESTIC WATER PIPING SHALL BE SLOPED FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.
10. BALANCE THE DOMESTIC HOT WATER CIRCULATION SYSTEM TO THE PERFORMANCE SPECIFICATIONS INDICATED ON THE PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
11. DOMESTIC WATER SUPPLY PIPING SHALL BE TESTED AND PROVED WATER TIGHT UNDER A WATER PRESSURE OF NO LESS THAN THE WORKING PRESSURE OF THE SYSTEM, OR AN AIR TEST OF NO LESS THAN ONE-HUNDRED (100) PSI. THIS PRESSURE SHALL BE HELD FOR AT LEAST FIFTEEN (15) MINUTES. WATER USED IN TESTING SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY.

**SANITARY WASTE / VENT AND STORM PIPING:**

1. SANITARY WASTE AND STORM DRAIN PIPING BELOW GRADE: PROVIDE SERVICE WEIGHT CAST IRON HUB AND SPOUT PIPE (ASTM A 74) WITH COMPRESSION JOINTS (CSPI HSN) AND NEOPRENE GASKETS (ASTM C 244) OR NO-HUB PIPE AND FITTINGS (CSPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CSPI 310).
2. SANITARY WASTE/VENT AND STORM DRAIN PIPING ABOVE GRADE: PROVIDE SERVICE WEIGHT CAST IRON NO-HUB PIPE AND FITTINGS (CSPI 301) WITH NEOPRENE GASKET AND STAINLESS STEEL CLAMP JOINTS (CSPI 310).
3. SLOPE SANITARY WASTE AND STORM DRAIN PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2 1/2" AND SMALLER AND 1/8" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE.
4. PROVIDE CLEAN-OUTS AT THE BASE OF SANITARY WASTE STACKS AND STORM DRAIN RISERS AND EVERY TURN IN PIPING IN EXCESS OF 45° AND NO FURTHER THAN 100'-0" APART IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
5. PROVIDE FLOOR CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CARPET, TILE, ETC. YARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18" CONCRETE PAD.
6. WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME AND BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS AND ESOUTCHES FOR ALL TOILETRIES.
7. SANITARY WASTE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER HEAD PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.
8. INSULATE MECHANICAL ROOM FLOOR DRAIN BODIES, P-TRAP AND HORIZONTAL SANITARY PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
9. INSULATE ROOF DRAIN BODIES AND HORIZONTAL SANITARY AND SECONDARY STORM DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
10. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255).

**NATURAL GAS PIPING:**

1. NATURAL GAS PIPING AND FITTINGS ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, ASTM B 16.3. PROVIDE FORGED STEEL WELDING TYPE FITTINGS (ASTM A234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER PROVIDE WELDED JOINTS (ASME B31.9) FOR PIPE 2 1/2" AND LARGER.
2. SPACE GAS PIPING HANGER RODS 7'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 50'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE NEXT SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW ORTEE. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
3. PROVIDE A CERTIFIED SHUT-OFF VALVES MINIMUM 125 PSI RATED, NON-LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRASS PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
4. GAS PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.80. REGULATORS SHALL BE CAST IRON OR DIE-CAST ALUMINUM CONSTRUCTION WITH INTERCHANGEABLE ZINC-PLATED STEEL SPRINGS, ZINC-PLATED STEEL DIAPHRAGM PLATE, NITRILE RUBBER SEAT AND INTERCHANGEABLE ALUMINUM ORIFICE AND ULTRAVIOLET-STABILIZED MINERAL FILLED NYLON SEAL PLUG. REGULATOR SHALL BE SINGLE-PORT SELF-CONTAINED WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET AND NO PRESSURE SENSING PIPING EXTERNAL TO THE REGULATOR. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT SHUTOFF. OVERPRESSURE PROTECTION DEVICE SHALL BE FACTORY MOUNTED ON REGULATOR. WHEN USING VENTLESS REGULATORS, MOUNT REGULATOR IN A HORIZONTAL UPRIGHT POSITION. IF VENTED TYPE REGULATORS ARE USED, INSTALL VENT PIPING (FULL SIZE DRIVING) FROM GAS PRESSURE REGULATOR TO OUTDOORS AND TERMINATE IN WEATHERPROOF HOOD.
5. PAINT ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). STENCIL "GAS" ON PIPE AT 12'-0" CENTERS FOR ALL LOW PRESSURE PIPING (15 PSI). STENCIL "5-PSI GAS" ON PIPE AT 6'-0" CENTERS FOR 5 PSI GAS PIPING.
6. GAS PIPING SHALL BE BONDED IN ACCORDANCE WITH 2018 NFPA SECTION 310, ELECTRICAL BONDING.

### PLUMBING GENERAL NOTES

**GENERAL REQUIREMENTS:**

1. PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.
3. PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ADEQUATE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSIDERED TO BE A PART OF THIS CONTRACT.
4. WARRANTY: PROVIDE A ONE YEAR WARRANTY, FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER, FOR ALL PLUMBING MATERIALS AND EQUIPMENT.
5. COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.
6. FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE EFFECTED AREAS.
7. WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.
8. ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
9. ALL VALVES, BACKFLOW PREVENTERS, BOOSTER PUMPS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANS/NF 372 AND NSF 61, ANNEX G.
10. CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTING SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.
11. PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR ALL LOCATIONS OF PLUMBING FIXTURES, WALLS, DOORS, WINDOWS, ETC.
12. PLUMBING PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. PLUMBING PIPING IN EXPOSED AREAS SHALL BE RUN TIGHT TO UNDERSIDE OF STRUCTURE. PROVIDE ACCESS DOORS FOR CONCEALED SPECIALTIES.
13. PLUMBING PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL CONTRACTOR.
14. DO NOT INSTALL PLUMBING PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PLUMBING PIPING SHOWN IN EXTERIOR WALLS ON THE CONDITIONED SIDE OF THE WALL INSULATION.
15. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
16. ATTACH HANGERS TO STRUCTURE, HANGERS SHALL NOT ATTACH TO THE DECK.
17. PROVIDE ACCESS DOORS FOR VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC. CONCEALED IN MASONRY WALLS, GYPSUM WALLS AND/OR CEILINGS THAT WILL REQUIRE MAINTENANCE ACCESS.
18. PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, SEISMIC BRACING, IDENTIFICATION, NATURAL GAS SYSTEM.

**PLUMBING FIXTURES AND EQUIPMENT:**

1. PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT INCLUDING SINKS, TUBS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESOUTCHES, ETC.
2. PLUMBING FIXTURES AND EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
3. NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED. EQUALS TO PRODUCTS SPECIFIED HEREIN.
4. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT INCLUDING BUT NOT LIMITED TO: PROVIDING MAINTENANCE ACCESS CLEARANCES, SOUND, ELECTRICAL REWIRING OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS PERFORMED BY OTHERS. EQUIPMENT INSTALLATION INSTRUCTIONS, ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BIDD.

**TESTING:**

1. FIELD VERIFY ALL PENETRATIONS, PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEMONSTRATION OR SYSTEMS WHICH HAS BEEN TESTED AND LISTED AS COMPLIANT WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. PROVIDE A TEST REPORT (S) OR SYSTEM(S) WITH AN "F" RATING EQUAL TO THE RATING OF THE ASSEMBLY TO BE PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.

**SEISMIC BRACING:**

1. PROPERLY SUPPORT AND BRACE VERTICALLY AND HORIZONTALLY ALL PIPING, APPARATUS, EQUIPMENT, ETC. IN ACCORDANCE WITH APPLICABLE CODES TO PREVENT EXCESSIVE MOVEMENT DURING SEISMIC CONDITIONS.

**PIPE IDENTIFICATION:**

1. PIPE IDENTIFICATION SHALL MATCH THE FACILITY'S EXISTING STANDARD, IF NO STANDARD EXISTS, THEN THE PIPE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI A13.1.
2. PROVIDE PIPING LABELS FOR ALL PLUMBING PIPING. PIPING LABELS SHALL BE ACRYLIC FACED, WRAP-AROUND TYPE. EACH LABEL SHALL INDICATE THE PIPING CONTENTS, DIRECTION OF FLOW AND SHALL BEAR THE MANUFACTURER'S STANDARD COLOR FOR THE SERVICE INDICATED.

### PLUMBING LEGEND

EXISTING PIPING	NEW PIPING	ABBR.	DESCRIPTION
---	---	CW	COLD WATER PIPING
---	---	HW	HOT WATER PIPING
---	---	HWR	HOT WATER RETURN PIPING
---	---	W	SANITARY WASTE PIPING
---	---	V	SANITARY VENT PIPING
---	---	SD	STORM DRAIN PIPING - BEL. GRADE
---	---	SD	STORM DRAIN PIPING - ABV. CEILING
---	---	ESD	EMERGENCY STORM DRAIN PIPING
---	---	G	NATURAL GAS PIPING
---	---	GW	GREASE LADEN WASTE PIPING
---	---	D	DRAIN
---	---		EXISTING PIPING TO BE REMOVED
---	---		ELBOW DOWN
---	---		ELBOW UP
---	---		PIPE CONTINUES
---	---		PIPE CAP
---	---		BALL VALVE
---	---	CV	CHECK VALVE
---	---	BV	BALANCING VALVE / CHECK SETTING
---	---		GAS COCK
---	---	PRV	PRESSURE REDUCING/REGULATING VALVE
---	---		OLEFINOID VALVE
---	---	RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
---	---		DIRECTION OF FLOW
---	---		PIPE REDUCER
---	---	FCO	FLOOR CLEAN OUT
---	---	WCO	WALL CLEAN OUT
---	---	YCO	YARD CLEAN OUT
---	---	FD	FLOOR DRAIN
---	---	FS	FLOOR SINK
---	---	RD	ROOF DRAIN
---	---	HB	HOSE BIBB/WALL HYDRANT
---	---	SA	SHOCK ARRESTOR - SUFFIX INDICATES PSI SIZE
---	---		THERMOMETER
---	---		PRESSURE GAUGE
---	---	TP	TRAP PRIMER
---	---	CIE	CONNECT TO EXISTING
---	---		POINT OF DEMOLITION

ADDITIONAL ABBREVIATIONS	
ABV	ABOVE FINISHED FLOOR
AFF	ABOVE FINISHED GRADE
AVR	ACID VENT THRU ROOF
BAS	BUILDING AUTOMATION SYSTEM
BEL	BELOW FINISHED FLOOR
BFT	BELOW FINISHED FLOOR PHASE
BTUH	BRITISH THERMAL UNIT / HOUR
CFM	CUBIC FEET PER HOUR
CLD	CEILING
CONT	CONTINUATION
DN	DRAINAGE FIXTURE UNIT (WASTE)
DN	DOWN
EX	EXISTING
FE	FINISHED FLOOR ELEVATION
FL	FLOOR
FR	FROM
FU	FIXTURE UNITS
GPC	GALLONS PER CYCLE (METERING)
GPF	GALLONS PER FLUSH
GPM	GALLONS PER MINUTE
HP	HORSE POWER
INV	INVERT ELEVATION
INDIRECT WASTE	
KW	KILOWATT
LAV	LAVATORY
MBH	1000 BTUH
MFG	MANUFACTURER
MH	MOUNTING HEIGHT
PH	PHASE
PSI	POUNDS PER SQUARE INCH
SF	SQUARE FEET
SFU	SUPPLY FIXTURE UNITS
T&P	TEMPERATURE AND PRESSURE
TWP	TEMPERED WATER
UR	TYPICAL
UR	URINAL
VB	VACUUM BREAKER
VLV	VALVE
VTR	VENT THRU ROOF
WC	WATER COLUMN
EC	ELECTRICAL CONTRACTOR
FSEC	FOOD SERVICE EQUIP. CONTRACTOR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR

### PLUMBING DRAWING INDEX

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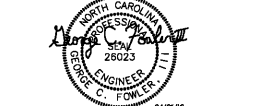
LEGEND AND NOTES  
- PLUMBING

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REVISIONS

NO	DATE	DESCRIPTION:

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