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NOTES & LEGENDS

PLUMBING SYMBOLS LEGEND

	COLD WATER PIPE
	HOT WATER PIPE
	HOT WATER RETURN PIPE
	SOIL OR WASTE PIPE
	VENT PIPE
	STORM
	FIRE
	TURNE DOWN
	TEE, OUTLET DOWN
	TEE, OUTLET UP
	TEMPERATURE AND PRESSURE RELIEF DRAIN PIPING
	EMERGENCY DRAIN PAN PIPING
	GATE VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	GAS PIPE
	PLUMBING FIXTURE DESIGNATION (UNDER LINED)

ABBREVIATIONS

A/C	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BTU	BRITISH THERMAL UNIT
CO	CLEANOUT
CONN	CONNECTION
CW	COLD WATER
DN	DOWN
DFUS	DRAINAGE FIXTURE UNITS
ED	EQUIPMENT DRAIN
EX	EXISTING
FU	FIXTURE UNIT
FL	FLOOR
FCO	FLOOR CLEANOUT
GPM	GALLONS PER MINUTE
GC	GENERAL CONTRACTOR
GCO	GRADE CLEANOUT
GW	GREASE WASTE
HW	HOT WATER
HWR	HOT WATER RETURN
IN	INCHES
MIN	MINIMUM
PC	PLUMBING CONTRACTOR
SAN OR S	SANITARY
SSD	SECONDARY STORM DRAIN
SD	STORM DRAIN
V	VENT
VTR	VENT TO ROOF
WCO	WALL CLEANOUT
W	WASTE
WTR	WATER
WSFUS	WATER SUPPLY FIXTURE UNITS
W	WITH
W/O	WITHOUT

PLUMBING GENERAL NOTES

- GENERAL REQUIREMENTS:**
- PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - GENERAL AND SPECIAL CONDITIONS ARE HEREBY MADE AN INTEGRAL PART OF THE PLUMBING SPECIFICATIONS INsofar AS THE GENERAL AND SPECIAL CONDITIONS ARE APPLICABLE TO THE PLUMBING WORK, UNLESS OTHERWISE SPECIFIED.
 - SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.
 - PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ACREAGE CHARGES, FACILITIES CHARGES AND BOND PROFFER ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.
 - WARRANTY: PROVIDE A ONE YEAR WARRANTY, FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER, FOR ALL PLUMBING MATERIALS AND EQUIPMENT.
 - 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.
 - 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.
 - 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.
 - PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR ALL LOCATIONS OF PLUMBING FIXTURES, WALLS, DOORS, WINDOWS, ETC.
 - PLUMBING PIPING 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.
 - 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.
 - 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.
 - PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
 - ATTACH HANGERS TO STRUCTURE, HANGERS SHALL NOT ATTACH TO THE DECK.
 - PROVIDE ACCESS DOORS FOR VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC., CONCEALED IN MASONRY WALLS, GYPSUM BOARD WALLS AND/OR CEILINGS THAT WILL REQUIRE MAINTENANCE ACCESS. ACCESS DOORS SHALL BE LOCATED IN CEILING ONLY.
 - PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, SEISMIC BRACING, PIPE IDENTIFICATION, DOMESTIC WATER SYSTEM, SANITARY WASTE AND VENT SYSTEM, STORM DRAIN SYSTEM, NATURAL GAS SYSTEM
 - REFER TO UNIT PLANS FOR LOCATION OF STACKS AND RISERS. COORDINATE LOCATION WITH 2X6 WALLS NOTED ON ARCHITECTURAL PLANS.
 - PC SHALL SUBMIT FIXTURE AND EQUIPMENT SUBMITTALS AS FOLLOWS: FIXTURES AND EQUIPMENT FOR UNITS, FIXTURE AND EQUIPMENT FOR AMENITY AREAS AND ALL OTHER PUBLIC SPACES. INDIVIDUAL FIXTURE SUBMITTALS WILL NOT BE REVIEWED. PC SHALL SUBMIT SPECIFIED FIXTURES AS INDICATED BY OWNER AND ID DRAWINGS. DEVIATIONS FROM SPECIFIED FIXTURES SHALL HAVE A WRITTEN EXPLANATION ALONG WITH FIXTURE SUBMITTAL FOR REVIEW.
- PLUMBING FIXTURES AND EQUIPMENT:**
- PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT. INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESCUTCHEONS, ETC.
 - PLUMBING FIXTURES AND EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
 - 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 CLEARANCE, PIPING, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS REQUIRED BY THE EQUIPMENT'S INSTALLATION INSTRUCTIONS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BASE BID.
- FIRE STOPPING:**
- FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYSTEM(S) WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE(S) OR SYSTEM(S) WITH AN "F" RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.
- SEISMIC BRACING:**
- PROPERLY SUPPORT AND BRACE VERTICALLY AND HORIZONTALLY ALL PIPING, APPARATUS, EQUIPMENT, ETC. IN ACCORDANCE WITH APPLICABLE CODES TO PREVENT EXCESSIVE MOVEMENT DURING SEISMIC CONDITIONS.

SHOCK ARRESTOR SIZING TABLE

DRAWING SYMBOL	FIXTURE UNITS	PCI WH201 STANDARD DESIGNATION	ARRESTOR SIZE	APPROVED MANUFACTURERS
SA-A	1-11	A	1/2"	- SIOUX CHIEF - WATTS - PPP INC.
SA-B	12-32	B	3/4"	
SA-C	33-60	C	1"	
SA-D	61-113	D	1 1/4"	REMARKS
SA-E	114-154	E	1 1/2"	INSTALL SHOCK ARRESTORS PER PDI WH201 GUIDELINES
SA-F	155-330	F	2"	

WOOD SHRINKAGE NOTES

- THE FOLLOWING ACTIONS ARE REQUIRED (GC TO COORDINATE WITH ALL TRADES AS REQUIRED):**
- ALL HOLES AND NOTCHES FOR HORIZONTAL PLUMBING PIPES ARE TO BE OVERSIZED TO COMPENSATE FOR SHRINKAGE.
 - SWING JOINTS AND FLEXIBLE CONNECTIONS (FERRO FITTING), OFFSETS AND EXPANSION/CONTRACTION JOINTS ARE TO BE UTILIZED IN THE FABRICATION OF PIPING TO ALLOW FOR SHRINKAGE.
 - VENTS ARE TO BE INSTALLED WITH DOUBLE FLASHING TO PERMIT MOVEMENT.
 - HANGERS FOR PIPING BELOW 4TH FLOOR ARE REQUIRED TO BE ADJUSTED SEVERAL MONTHS AFTER COMPLETION OF CONSTRUCTION.
 - SLIP JOINTS ARE REQUIRED FOR ALL SHEET METAL, VERTICAL DOWN-SPOUTS, VENTS, ETC. TO COMPENSATE FOR SHRINKAGE.
 - RIGID ELECTRICAL CONDUIT INSTALLED VERTICALLY SHOULD BE PROVIDED WITH FLEXIBLE JOINTS TO PERMIT MOVEMENT.
 - ALL ROOF DRAINS ARE TO BE ADJUSTED TO THE FINISHED ROOF SURFACE AT THE TIME OF OCCUPANCY AND ALSO EVERY YEAR PRIOR TO RAINY SEASON.
 - VERTICAL MECHANICAL AND SPRINKLER SYSTEMS ARE TO BE INSTALLED TO COMPENSATE FOR WOOD SHRINKAGE.

PLUMBING MATERIALS AND NOTES

- DOMESTIC WATER PIPING:**
- DOMESTIC WATER PIPING AND JOINTS BELOW GRADE: PROVIDE CPVC SCH 80 PIPING FOR INCOMING WATER SERVICE.
 - DOMESTIC WATER PIPING AND JOINTS ABOVE GRADE: PEX PIPING EQUAL TO UPONOR, SDR9 CROSSLINKED POLYETHYLENE (PEX-A), ASTM F879 AND ASTM F877. PEX TUBING SHALL COMPLY WITH NSF 14 AND NSF 61 AND BEAR THE NSF-PW MARKING. PROVIDE JOINTS EQUAL TO ASTM F1960 COLD EXPANSION FITTING. REINFORCING COLD EXPANSION FITTINGS SHALL BE MANUFACTURED FROM THE SAME SOURCE AS PEX-A PIPING AND MARKED F1960. CPVC IS AN APPROVED EQUAL FOR LARGER DIAMETER PIPING.
 - STERILIZE THE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
 - 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 BTUH x SQ. FT. FOLLOW SCHEDULE BELOW:
- | SERVICE TYPE | PIPE SIZES | INSULATION THICKNESS |
|----------------------------------|---------------|----------------------|
| DOMESTIC HOT WATER & CIRCULATION | 1/2" - 1 1/4" | 1" |
| DOMESTIC HOT WATER & CIRCULATION | 1 1/2" - 4" | 1 1/2" |
| DOMESTIC COLD WATER | 1/2" - 1 1/4" | 1/2" |
| DOMESTIC COLD WATER | 1 1/2" - 4" | 1" |
- 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 PENUMA RATED.
 - PROVIDE FULL PORT, BALL TYPE SHUT-OFF VALVES AND INSTALL IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
 - PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS 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.
 - PROTECT COPPER PIPING AGAINST CONTACT WITH ALL MASONRY WHERE COPPER IS SLEEVED 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 15# ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.
 - DOMESTIC WATER PIPING SHALL BE SLOPED FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.
- SANITARY WASTE / VENT AND STORM PIPING:**
- SANITARY WASTE AND STORM DRAIN PIPING BELOW GRADE: PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PVC PIPE IS NOT APPROVED.
 - SANITARY WASTE/VENT AND STORM DRAIN PIPING ABOVE GRADE: PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS APPROVED FOR AREAS ABOVE SLAB. DO NOT INSTALL PVC PIPING IN RETURN AIR PLENUMS.
 - 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. SLOPE ALL KITCHEN WASTE PIPING AT 1/4" PER FOOT MINIMUM.
 - PROVIDE CLEAN-OUTS AT THE BASE OF SANITARY WASTE STACKS AND STORM DRAIN RISERS AND AT 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.
 - 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"x6" CONCRETE PAD.
 - WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME PLATED BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS, AND ESCUTCHEONS FOR ALL LAVATORIES.
 - INSULATE MECHANICAL ROOM FLOOR DRAIN BODIES, P-TRAP AND HORIZONTAL DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
 - 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.
 - SUMP PUMP DISCHARGE PIPING: PROVIDE SCHEDULE 80 PVC/CPVC (ASTM A53) AND FITTINGS (ASME B16.3) WITH THREADED JOINTS. SLOPE SUMP DISCHARGE LINE AT 1% SLOPE TOWARDS SUMP PUMP
- NATURAL GAS PIPING:**
- 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) OR 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.
 - NATURAL GAS PIPING AND FITTINGS OUTSIDE BELOW GRADE: POLYETHYLENE, SDR-11, ASTM D2513 PIPE AND FITTINGS WITH HEAT FUSION SOCKET JOINTS. POLYETHYLENE PIPE AND FITTING MATERIALS SHALL BE COMPATIBLE AND BY SAME MANUFACTURER TO ENSURE UNIFORM MELTING AND PROPER BOND. FABRICATED FITTINGS SHALL NOT BE USED.
 - PROVIDE CONNECTION BETWEEN BURIED PLASTIC GAS SERVICE PIPING AND METALLIC RISER IN ACCORDANCE WITH THE GAS CODE. PROVIDE METALLIC RISER CONSISTING OF HDPE FUSED COATING ON STEEL PIPE FOR CONNECTION TO ABOVE GROUND BUILDING DISTRIBUTION PIPING. UNDERGROUND HORIZONTAL METALLIC PORTION OF RISER SHALL BE AT LEAST TWENTY FOUR INCHES IN LENGTH BEFORE CONNECTING TO THE PLASTIC SERVICE PIPE. AN APPROVED TRANSITION FITTING OR ADAPTOR MEETING DESIGN PRESSURE RATING AND PLASTIC PIPE MANUFACTURERS RECOMMENDATIONS SHALL BE USED WHERE THE PLASTIC JOINS THE METALLIC RISER.
 - GAS PIPING SHALL BE INSTALLED TO THE REQUIREMENTS OF THE STATE BUILDING CODE AND NFPA STANDARD NO. 54. SPACE GAS PIPING HANGER RODS 8'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 20'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE. PIPING SHALL BE SUPPORTED BY ROD HANGERS IN THE PIPE RUN 12" OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE PER THE STATE BUILDING CODE AND ASCE 7. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
 - PROVIDE A G.A. CERTIFIED SHUT-OFF VALVES MINIMUM 125 PSI RATED, NON-LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRONZE PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
 - GAS PRESSURE REGULATORS SHALL BE CSA CERTIFIED (221.80) FOR 2 PSI INLET PRESSURE, OUTLET PRESSURE RANGE OF 7 TO 11 INCHES WATER COLUMN. WHEN USING VENTLESS REGULATORS, MOUNT REGULATOR IN A HORIZONTAL UPRIGHT POSITION. IF VENTED TYPE REGULATORS ARE USED, INSTALL VENT PIPING (FULL SIZE OPENING) FROM GAS PRESSURE REGULATORS TO OUTDOORS AND TERMINATE IN WEATHERPROOF HOOD.
 - PAINT ALL EXTERIOR 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 (0.5 PSI). STENCIL "2-PSI GAS" ON PIPE AT 6'-0" CENTERS FOR 2 PSI GAS PIPING.



MECKLENBURG COUNTY
CODE ENFORCEMENT

The Design In These Construction Documents Have Been Reviewed For Compliance With The State Building Code. It Is The Responsibility Of The Contractor To Construct This Project With Good Engineering Practice And In Accordance With The North Carolina State Building Code.

