

DIVISION 15A - PLUMBING

1. DESCRIPTION OF THE WORK

- Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
 - Plumbing fixtures, water heaters, and any other equipment necessary.
 - Cold and hot water piping and insulation.
 - DWV piping.
 - Connection of all equipment, drain, vent, water.
- All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
 - The National Electrical Code.
 - 2012 N.C. Building Code Plumbing Edition
 - American Society of Sanitary Engineering Standard 1010.
- These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- Obtain all permits, licenses, inspections, etc., required for the work and pay for the same.

- 1.2. INTENT**
- The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

- 1.3. COORDINATION**
- Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
 - Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
 - Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rises one below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bw valve. Notify engineer of backwater valve requirement, any issue prior to bid.
- 1.4. SHOP DRAWINGS**
- Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

- PART 2 - PRODUCTS**
- 2.1. FIXTURES**
- Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.
 - Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
 - All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
 - Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator ice maker, exterior hose bibbs and all other plumbing fixtures.
 - Provide trap primers for all floor drains in areas not served by hose bibbs.

2.2. PIPING

- Drain waste: All waste piping shall be Schedule 40 PVC-DWV with the following exceptions: Use cast iron piping in all return air plenums and penetrations of rated walls/floors/ceilings. Review Arch. and Mech. drawings. Use ABS or cast iron piping for drainage of fluid temperature greater than 140 deg. F for a minimum distance of 10'-0".
- Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22) PEX piping with copper fittings may be used with owner/tenant approval and as allowed per code.
- Cold water piping below grade: Type "K" copper (ASTM-B88) soft drawn.
- Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- Solder: 95/5. Lead free.
- Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.

2.3. CLEANOUTS

- Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.

2.4. SHOCK ARRESTERS

- Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.

PART 3 - EXECUTION

3.1. CONNECTIONS

- This contract includes complete connection of cold water, hot water, drainage, and vent piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
- The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
- Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.

3.2. SERVICE ACCESS

- All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

3.3. ROUTING OF PIPING

- Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.

- Space pipe hangers 6"-0" on center for one inch and smaller pipe, 4'-0" on center for 1-1/4 inch and larger pipe. Provide expansion loops as required.
 - Pipe hangers for insulated lines shall have multiple saddles to protect insulation.
- 3.4. INSULATION**
- All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=8.5 min.) in unconditioned areas. See NCBC-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. 504.5 of the NCBC 2012 Energy Conservation Code.
 - Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply pipes.

3.5. INSPECTIONS AND TESTS

- Before being concealed, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

3.6. STERILIZATION OF PIPING

- Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

3.7. SERVICE PRESSURE

- Provide approved water-pressure reducing valve (PRV) if static pressure exceeds 80 psi to reduce pressure to 80 psi static or less as required per NCBC-Plumbing Sect. 604.8.

3.8. DRAINDOWN

- Contractor to provide for complete plumbing system drain down.

3.9. CLEAN UP

- During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.

3.10. GUARANTEES

- Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
- Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

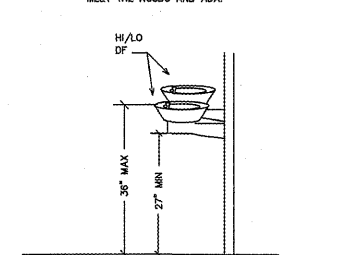
GENERAL NOTES - PLUMBING

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
- THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
- THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
- ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
- ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR 2 - HOURS AT 150 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
- PROVIDE MIN. 10" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
- VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
- PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
- VERIFY/HIGH TEMPERATURE HOT WATER AT 140 DEGREES F. PROVIDE/VERIFY LOW TEMPERATURE HOT WATER AT 110 DEGREES F. VERIFY LTHW FROM ALL LAVATORY/HAND SINK FAUCETS. PROVIDE THERMOSTATIC MIXING VALVE(S) WHERE REQUIRED FOR LTHW.
- PROVIDE CLEANOUTS AS REQUIRED BY CODE. NOT MORE THAN 100 FEET FOR 4" DRAIN.

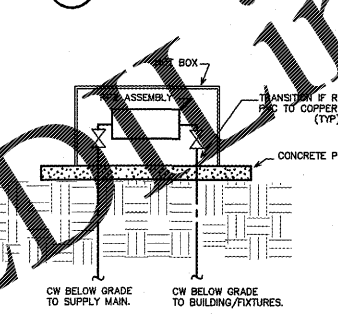
LOAD SUMMARY - PLUMBING

WASTE DEMAND (FD)	WATER DEMAND (FD)	WATER DEMAND (GPM)
146.0	212.0	92.6

NOTE: ALL MOUNTING HEIGHTS SHALL MEET THE NCBC AND ADA.



1 DF DETAIL
SCALE: NOT TO SCALE



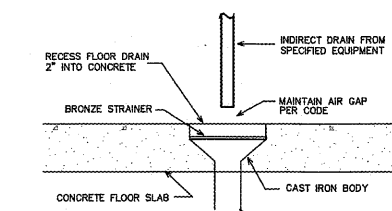
2 RPZ/HOT BOX DETAIL
SCALE: NOT TO SCALE

SYMBOL LEGEND - PLUMBING

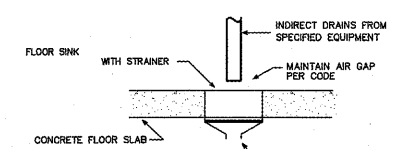
SYMBOL	DESCRIPTION (U.O.N.)
---	WASTE PIPING (W)
---	VENT PIPING (V)
---	COLD WATER PIPING (CW)
---	HOT WATER PIPING (HW)
---	HIGH TEMPERATURE HW PIPING (HTHW) 140 DEG. F
---	LOW TEMPERATURE HW PIPING (LTHW) 110 DEG. F
---	HW RETURN PIPING (HWR)
○	CLEANOUT FINISH FLOOR
+	WALL HORIZONTAL CLEANOUT
○	CLEANOUT FINISH GRADE-PROVIDE FLUSH CONCRETE COVER AND BRONZE COVER
+	DIELECTRIC UNION
+	SHUT-OFF VALVE
+	CHECK VALVE
+	BALANCING VALVE
+	CIRCULATION PUMP
+	VENT THRU ROOF (VTR)
+	ABOVE FINISHED FLOOR
+	UNLESS OTHERWISE NOTED
+	FREEZE PROOF, HOSE BIBB (FPFB/HB)
+	THERMOSTATIC MIXING VALVE (TMV)

FIXTURE SCHEDULE - PLUMBING *

- EWH-1* ELECTRIC WATER HEATER #1, #2
A.O. SMITH MODEL EJC-10, 10 GALLON, 1,650 WATTS, 120V, 3/4" INLET AND OUTLET. PROVIDE DRAIN PAN, EXPANSION TANK AND PRESSURE RELIEF VALVE.
- EWH-2* ELECTRIC WATER HEATER #3
A.O. SMITH MODEL DRE-52-18, 50 GALLON, 18,000 WATT, 240V, 1 PH, 74 GPH RECOVERY AT 100 DEGREE TEMPERATURE RISE. 1-1/2" INLET AND OUTLET. PROVIDE DRAIN PAN, EXPANSION TANK AND PRESSURE RELIEF VALVE.
- ET* EXPANSION TANK
AMTRON MODEL ST-5, 2.0 GALLON. STEEL CONSTRUCTION. 1/2" NPT. 1/2" INLET AND OUTLET.
- WC* WATER CLOSET (WALL MOUNT FLUSH VALVE)
KOHLER KINGSTON WATER CLOSET, K-4325, WHITE, 1/2" NPT. TOP SLOD. INSTALL TO BE ADA COMPLIANT. VERIFY REQUIRED. PROVIDE OPEN FRONT SEAT, SLOAN ROYAL 111-1.6 FLUSHMETER. PROVIDE LAV DUTY (500 LB) FIXTURE BARRIERS/PIPING FOR MULTIPLE UNIT BATTERY INSTALLATION INCLUDING HIGH-SET FOR ADA UNITS. COORDINATE CARRIER MODEL/WIDTH REQUIREMENTS IN WALL/CHASE WITH ARCH.
- WC* WATER CLOSET (ADA WATER MOUNT FLUSH VALVE)- FAMILY RESTROOM
KOHLER HIGHLINE WATER CLOSET, K-4105, 1.6 GPF, ADA COMPLIANT, W/OPEN FRONT ADA SEAT. PROVIDE SLOAN ROYAL 111-1.6 FLUSHMETER, WAX SEAL, BOLT KIT.
- UR* URINAL
KOHLER MODEL K-5018-ET, 3/4" TOP SPUD, ADA COMPLIANT WITH PROPER INSTALLATION. 0.5 GPF, 2" OULET DRAIN. ANSI COMPLIANT. PROVIDE SLOAN MODEL SF-2400 AC POWERED SENSOR FAUCET. PROVIDE SLOAN ROYAL 111-1.6 FLUSHMETER, 0.5 GPF, 3/4" IPS SUPPLY. PROVIDE PROPER FIXTURE BARRIERS/PIPING FOR BATTERY INSTALLATION. COORDINATE CARRIER MODEL/WIDTH REQUIREMENTS IN WALL/CHASE WITH ARCH.
- LF* LAVATORY (WALL MOUNTED)- FAMILY RESTROOM
KOHLER CHESAPEAKE WALL MOUNTED LAVATORY, K-1728, WHITE COLOR. ADA COMPLIANT, PROVIDE SLOAN SF-2400 AC POWERED SENSOR FAUCET. INSTALL FAUCET WITH ANY REQUIRED ACCESSORIES. COORDINATE WITH ELECTRICAL/G.C. PROVIDE DRAIN WITH GRID STRAINER, P-TRAP AND SHUT-OFF VALVES. VERIFY COORDINATE FAUCET TRIM AND SINK FAUCET DRILLING (MODEL) FOR 4" CENTERS OR AS REQUIRED. WITH OWNER/ARCH.
- LS* 3- STATION LAVATORY (ACCESSIBLE)
BRADLEY EXPRESS LAVATORY SYSTEM #ELX-3, 3 DRAINS W/GRID STRAINERS. INSTALL MOUNTING ADA COMPLIANT. VERIFY COLOR WITH ARCH. FURNISH WITH SLOAN SF-2400 0.5 GPF ELECTRONIC SENSOR FAUCET WITH BATTERY BACK-UP. PROVIDE BAK-CHEK TEE, SLOAN GANG ADAPTER KIT SP-35-A FOR SINGLE ADAPTER/OUTLET CONNECTION. INSTALL GANG ADAPTER PER MFR. VERIFY COMPATIBILITY/CLEARANCES WITH LAV UNIT.
- FD* FLOOR DRAIN
ZURN MODEL Z415 WITH HEEL-PROOF TYPE B STRAINER, CAST IRON W/NICKEL BRONZE TOP, 5" DRAIN WITH 3" CONNECTION. PROVIDE TRAP PRIMER CONNECTION. RECESS 2" INTO FLOOR SLAB WHERE REQUIRED.
- FOR* RECESSED FLOOR DRAIN
ZURN MODEL Z415 WITH HEEL-PROOF TYPE B STRAINER, CAST IRON WITH NICKEL BRONZE TOP, 5" DRAIN WITH 3" CONNECTION. PROVIDE TRAP PRIMER CONNECTION. RECESS 2" INTO FLOOR SLAB WHERE REQUIRED.
- FS-1* FLOOR SINK #1
ZURN PVC FLOOR SINK MODEL FD-2370-PV4, 12" X 12", 1/2 GRATE, WITH 4" PIPE CONNECTION. VERIFY GRATE REQUIREMENTS.
- FS-2* FLOOR SINK #2 - NOT USED
ZURN PVC FLOOR SINK MODEL FD-2370-PV2, 12" X 12", 1/2 GRATE, WITH 2" PIPE CONNECTION. VERIFY GRATE REQUIREMENTS.
- TMV* THERMOSTATIC MIXING VALVE
WATTS SERIES LHMV MIXING VALVE WITH CHECK VALVES. INSTALL IN ACCESSIBLE LOCATION. SET OUTFLOW TO SPECIFIED TEMPERATURE (LTHW).
- HB* WALL HOSE BIBB- RECESSED IN WALL/IN WALL BOX
ZURN Z-1330-C, 3/4" WALL HYDRANT WITH VANDAL RESISTANT VACUUM BREAKER. ENCASED WITH KEY LOCK. MOUNT COVER/BOX FLUSH TO WALL. VERIFY LOCATION/COORDINATE WITH STRUCTURE, OWNER, ARCH.
- FPFB* FREEZE PROOF HOSE BIBB- RECESSED IN WALL/IN WALL BOX
ZURN Z-1320-C, 3/4" NON FREEZE WALL HYDRANT WITH VANDAL RESISTANT VACUUM BREAKER. ENCASED WITH KEY LOCK. MOUNT COVER/BOX FLUSH TO WALL. VERIFY LOCATION/COORDINATE WITH STRUCTURE, OWNER, ARCH.
- RPZ* 3" REDUCED PRESSURE BACKFLOW PREVENTER W/HOT BOX
WATTS MODEL #LF009-OT-FDA, 3" REDUCED PRESSURE BACKFLOW PREVENTER, "LEAD FREE" CONSTRUCTION. PROVIDE WATTS WATTSBOX WB-N3 ALUMINUM ENCLOSURE. WITH 1000W HEATER. PROVIDE POURED-IN-PLACE CONCRETE SLAB PER ENCLOSURE REQUIREMENTS. COORDINATE W/H/W SPECIFICATIONS. VERIFY ENCLOSURE COMPATIBILITY WITH RPZ.
- DF* DRINKING FOUNTAIN
MURDOCK DRINKING FOUNTAIN MODEL GR05-BPS, ADA COMPLIANT, PIPE TO SINGLE DRAIN/SUPPLY LINE. PROVIDE FREEZE RESISTANT VALVE SYSTEM OPTION (-FRA4). VERIFY COLOR, H/L/W SIDE MODEL WITH ARCH, OWNER.



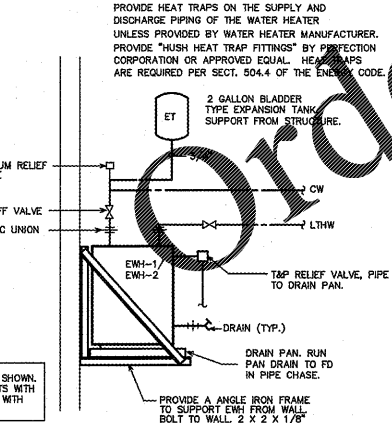
3 FDR DETAIL
SCALE: NOT TO SCALE



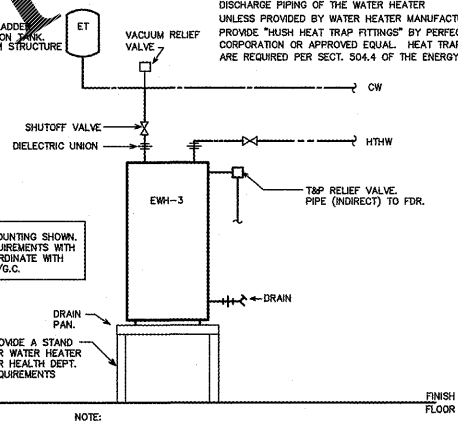
4 FLOOR SINK DETAIL
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AMOUNT	ITEM	GPH
2	HAND SINK (70X) FD (LTHW)	7.0
1	3 COMP SINK	58.9
	TOTAL	65.9 GPH

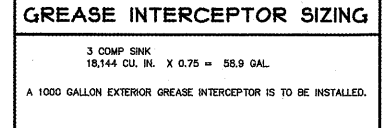
WATER HEATER SIZING (EWH-3)



5 EWH-1/EWH-2 DETAIL
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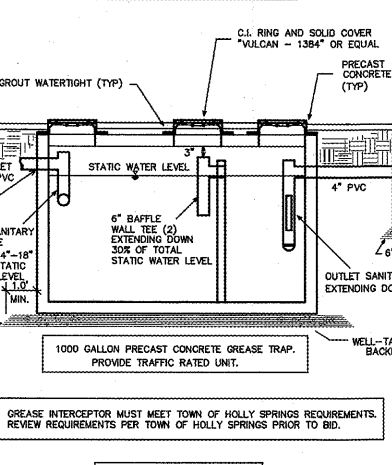
6 EWH-3 DETAIL
SCALE: NOT TO SCALE



GREASE INTERCEPTOR SIZING

NOTE: ALL PRECAST CONC. TANKS AND ACCESSORIES TO BE EQUAL IN ALL RESPECTS TO THOSE MFG. BY STAY-RIGHT TANK CO. PROVIDE VENTING PER CODE/MFR.

NOTE: VERIFY LOCATION/INVERT REQUIREMENTS FOR EXTERIOR GREASE INTERCEPTOR. PROVIDE INLET AND/OR OUTLET VENTING AS REQUIRED PER MFR/LOCAL CODE. PROVIDE NEW ASPHALT/CONCRETE #7/AS REQUIRED. COORDINATE W/SITE.

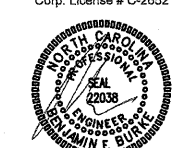


7 GREASE INTERCEPTOR DETAIL
SCALE: NOT TO SCALE



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PROJECT TITLE
SUGG FARM
PICNIC SHELTER
2401 GRIGSBY AVE.
HOLLY SPRINGS, NORTH CAROLINA

PROJECT NO.
1732

DRAWING TITLE
PLUMBING SPECIFICATIONS

REVISION	11/27/18
TOWN COMMENTS	12/17/18
OWNER COMMENTS	4/06/19

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