

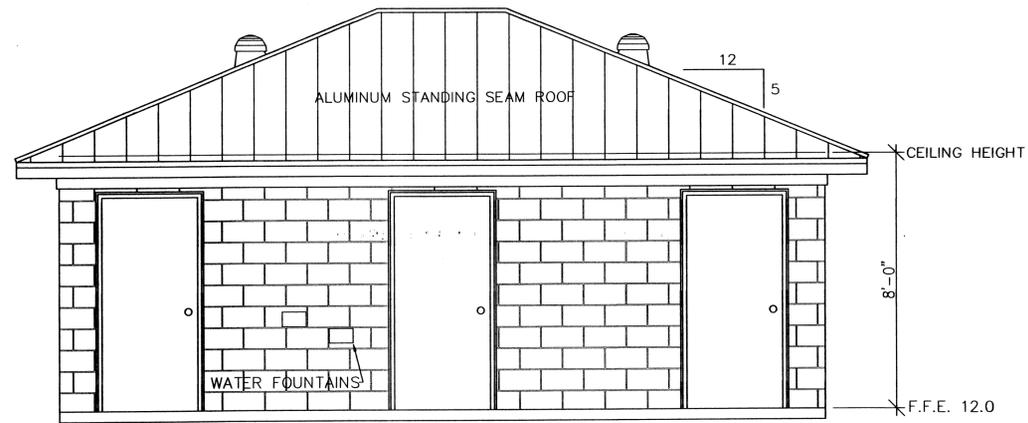




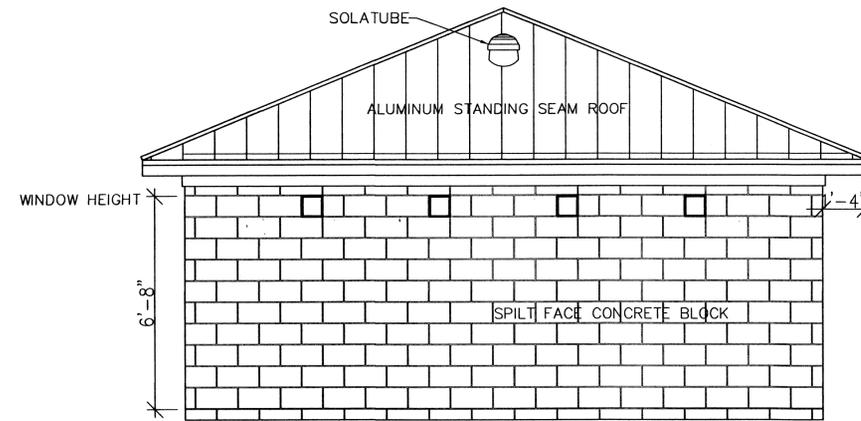




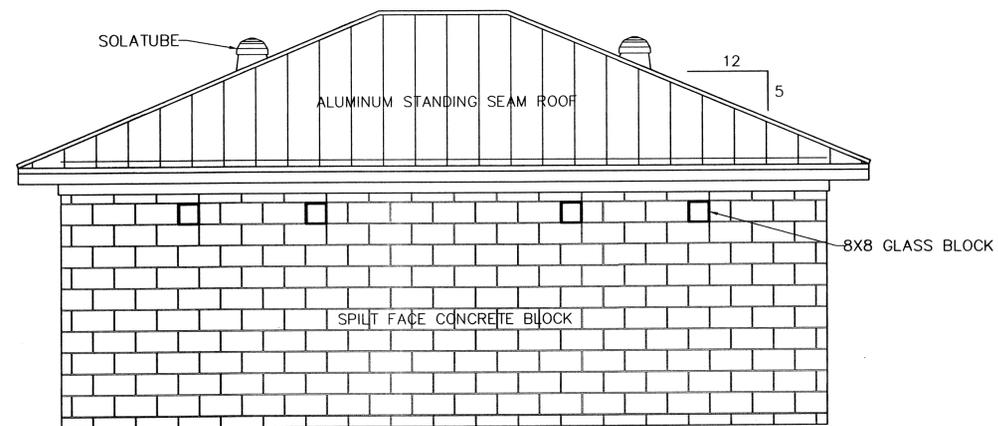
**East Coast Engineering & Surveying, P.C.**  
 ENGINEERS • PLANNERS • SURVEYORS  
 4918 Main Street  
 Post Office Box 2449  
 Shalotte, North Carolina 28409  
 Phone: 910.754.8029  
 Fax: 910.754.8049  
 Firm License Number C-3014



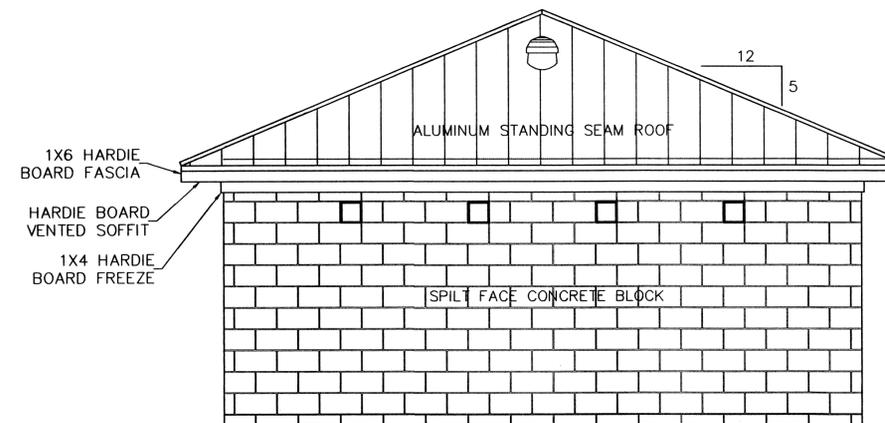
**E FRONT ELEVATION**  
 SCALE: 3/8" = 1'-0"



**H RIGHT ELEVATION**  
 SCALE: 3/8" = 1'-0"



**G REAR ELEVATION**  
 SCALE: 3/8" = 1'-0"



**F LEFT ELEVATION**  
 SCALE: 3/8" = 1'-0"

RESTROOMS ELEVATIONS  
 FOR:  
**TOWN OF SUNSET BEACH PARK**  
 SUNSET BEACH, NORTH CAROLINA

Date: 10-19-2015  
 Scale: AS SHOWN  
 Drawn By: MGB  
 Checked By: ACL/EB

**PRELIMINARY**  
 NOT ISSUED FOR  
 CONSTRUCTION  
**FOR APPROVAL**

THIS PLAN IS NOT ISSUED FOR  
 CONSTRUCTION WITHOUT AFFIXED  
 CORPORATE SEAL.

**EDWARD BRUNNER**  
 PROFESSIONAL ENGINEER  
 SEAL 29208  
 10/22/15  
 S3.0

LEAD DESIGN PROFESSIONAL  
 EDWARD BRUNNER P.E.  
 BRUNNER ASSOC'S, INC.  
 901 SHORELINE DRIVE WEST  
 SUNSET BEACH, NC 28468  
 910-579-6799



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**GAZEBO PLAN FOR TOWN OF SUNSET BEACH PARK**  
 SUNSET BEACH, NORTH CAROLINA

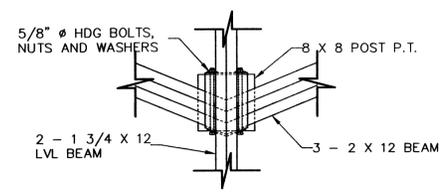
Date: 10-12-2015  
 Scale: AS SHOWN  
 Drawn By: MGB  
 Checked By: ACL/EB

**PRELIMINARY**  
 NOT ISSUED FOR CONSTRUCTION  
**FOR APPROVAL**  
 THIS PLAN IS NOT ISSUED FOR CONSTRUCTION WITHOUT APPLIED CORPORATE SEAL.

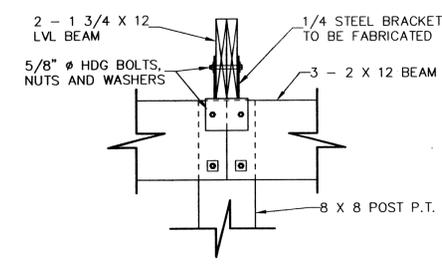


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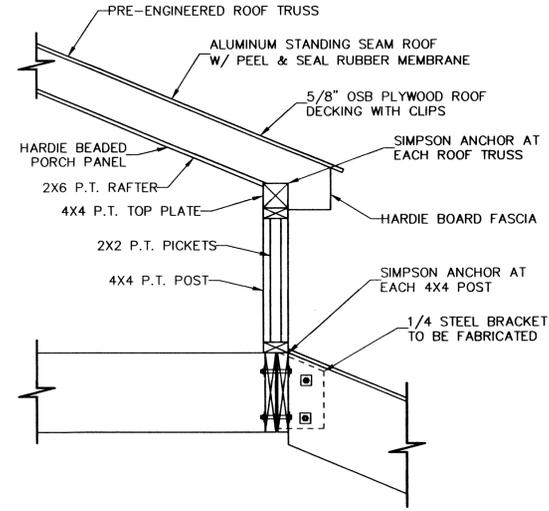
S5.0



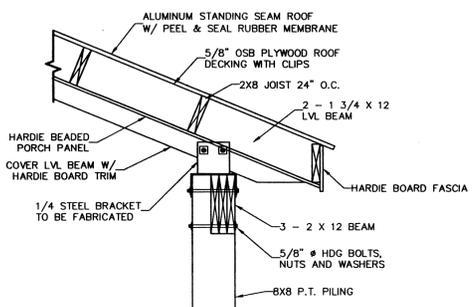
PLAN VIEW



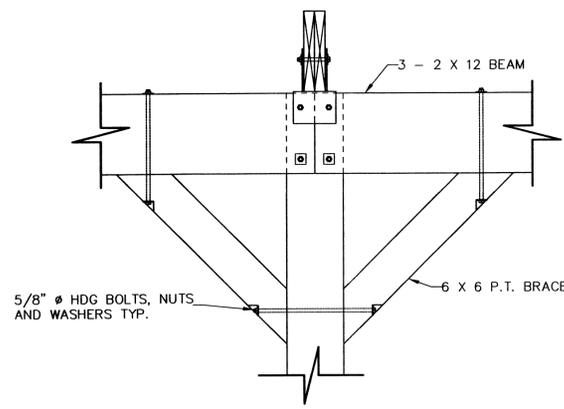
C POST DETAIL  
 SCALE: 1" = 1'-0"



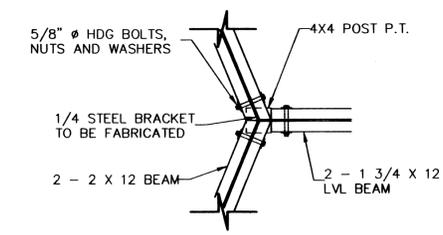
B CUPOLA SECTION  
 SCALE: 1" = 1'-0"



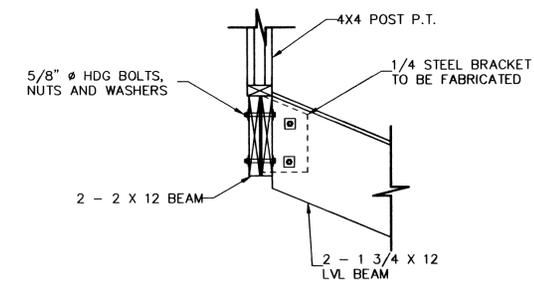
A POST SECTION  
 SCALE: 3/4" = 1'-0"



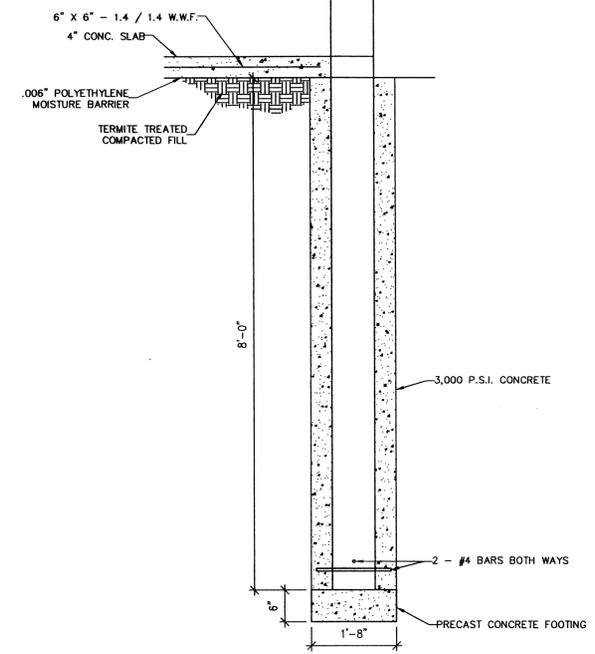
F BRACE DETAIL  
 SCALE: 1" = 1'-0"



PLAN VIEW



D CUPOLA DETAIL  
 SCALE: 3/4" = 1'-0"





**McDOWELL CONSULTING ENGINEERS**  
 P. O. BOX 367  
 HAMPSTEAD, NORTH CAROLINA 28443  
 TEL. (910) 270-3747 FAX. (910) 270-3779  
 NC LICENSE NO. C-2546

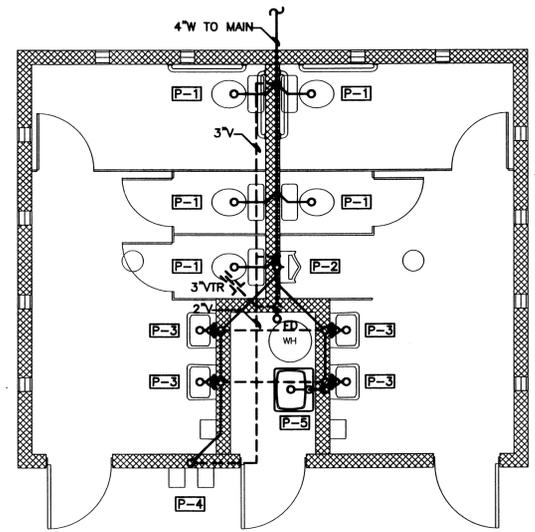


BATHROOM & GAZEBO  
 TOWN OF SUNSET BEACH PARK  
 SUNSET BEACH, NORTH CAROLINA

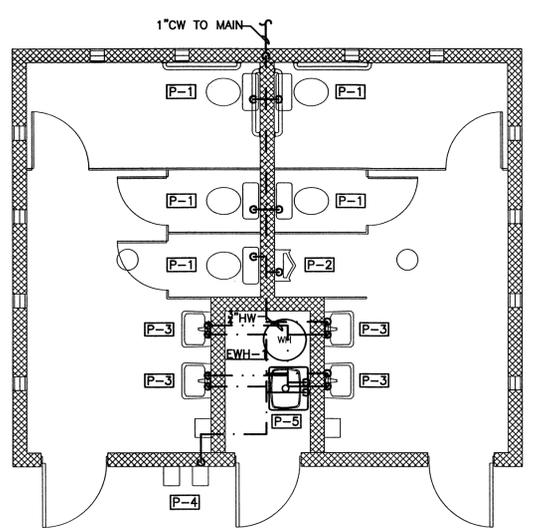
JOB NO. 07055  
 DWN BY:  
 DATE: 09/29/15  
 SCALE: AS SHOWN  
 SHEET

**P1**

P-#	FIXTURES	SPECIFICATIONS	PIPING REQUIRED		
			WASTE	CW	HW
P-1	WATER CLOSET/ADA FLOOR MOUNTED TANK TYPE - 1.6 GPF	AMERICAN STANDARD "CADET RIGHT HEIGHT" MODEL 2298.012 VITREOUS CHINA TOILET WITH ELONGATED BOWL AND TANK WITH SIDE TRIP LEVER, 16 1/2" RIM HEIGHT, 1.6 GPF, 12" ROUGH-IN, BOLT CAPS, COMPLIES WITH ANSI A112.19.2 & A117.1 SEAT : BEMIS/CHURCH DURAGUARD 2100 NSSC ANTI-MICROBIAL HEAVY DUTY WHITE ELONGATED OPEN FRONT SEAT WITH COVER. VALVE: McGUIRE NO. 2166 3/8"x12" FLEX CLOSET SUPPLY WITH STOP.	3"	1/2"	--
P-2	URINAL - HANDICAP 3/4" TOP SPUD - 1.0 GPF MANUAL FLUSH VALVE	AMERICAN STANDARD "ALLBROOK" MODEL 6541.132 1.0 GPF 3/4" TOP SPUD, WHITE VITREOUS CHINA, 2" IPS OUTLET, WALL HANGER. MOUNT RIM 17" AFF TO COMPLY WITH ADA. VALVE: SLOAN REGAL MODEL 1-186-1-ADA, 1GPF, CHROME FLUSH WITH ADA COMPLIANT HANDLE.	2"	1/2"	--
P-3	LAVATORY - WALL MTD. AUTOMATIC FAUCET ADA	AMERICAN STANDARD "LUCERNE" 0355.012 WALL MTD. WHITE VITREOUS CHINA 20"x18" LAVATORY WITH 4" FAUCET CENTERS. FAUCET: AMERICAN STANDARD "SELECTRONIC" ELECTRONIC LAVATORY FAUCET MODEL 6057.205/6056.205 , VANDAL RESISTANT 0.5 GPM AERATOR, 3/8" O.D. COPPER INLETS, PROVIDE POWER SUPPLY AND THERMOSTATIC MIXING VALVE. SUPPLIES: McGUIRE NO. 165 3/8"x12" FLEX ANGLE SUPPLY WITH STOP STRAINER; McGUIRE NO. 155-A GRID STRAINER WITH 1/4" TAILPIECE. TRAP AND SUPPLY INSULATION: McGUIRE PREWRAPPED PROWRAP INSULATION KIT MODEL NO.2150	1-1/2"	1/2"	1/2"
P-4	ELECTRIC WATER COOLER HANDICAP/ADA DUAL HEIGHT	HAWS MODEL NO. HWUACPB8 BARRIER-FREE DUAL-HEIGHT UNIT WITH FRONT AND SIDE PUSH BARS. SIMULATED RECESSED MODEL WITH LEAD FREE WATERWAYS, 8 GPH OF 50°F WATER AT 90AMF. HEAVY GAUGE UNIT WITH STAINLESS STEEL FINISH. TRAP AND SUPPLIES: McGUIRE NO. 8872 1 1/4" P-TRAP AND NIPPLE, McGUIRE NO. 165 ANGLE SUPPLY WITH STOP.	1-1/4"	1/2"	--
P-5	SERVICE SINK	E.L.MUSTEE UTILITUB MODEL NO. 19F SINGLE COMPARTMENT FLOOR MOUNTED SERVICE SINK. 24"x20", THERMOPLASTIC, PROVIDE WITH DRAIN AND FAUCET ASSEMBLY. TRAP AND SUPPLIES: TAILPIECE, McGUIRE NO. 8912 1 1/2" P-TRAP AND NIPPLE. McGUIRE NO. 2165 ANGLE SUPPLIES WITH STOPS.	1-1/2"	1/2"	1/2"



FLOOR PLAN - PLUMBING - WASTE  
 SCALE: 1/4"=1'-0"



FLOOR PLAN - PLUMBING - WATER  
 SCALE: 1/4"=1'-0"

**GENERAL PLUMBING SPECIFICATIONS**  
 GENERAL: THE ENTIRE PLUMBING SYSTEM SHALL BE IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE. SUBMIT THREE (3) COPIES OF PLUMBING INSPECTION CERTIFICATES TO OWNER. PLUMBING CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY GOVERNING AUTHORITIES FOR WORK DONE UNDER THIS CONTRACT. PROVIDE AND INSTALL ALL SUPPORTS, BRACKETS, MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND ACCEPTABLE PLUMBING SYSTEM. PLUMBING CONTRACTOR SHALL CLEAN ALL PLUMBING FIXTURES AFTER ALL CONSTRUCTION IS COMPLETE.

SOIL, WASTE AND VENT PIPING: WASTE PIPING AND VENT PIPING SHALL BE P.V.C. - D.W.C. SCHEDULE 40 PIPE. HOWEVER, COEXTRUDED PVC "FOAM CORE", ASTM F891, WILL NOT BE ALLOWED.

ALL PENETRATIONS THROUGH NON-COMBUSTIBLE CONSTRUCTION SHALL BE PACKED WITH NON-COMBUSTIBLE FIRE STOPPING MATERIAL.

GRADE WASTE AND VENT PIPING 1/4 INCH PER FOOT WHERE POSSIBLE BUT NOT LESS THAN 1/8 INCH PER FOOT, UNLESS SPECIFICALLY DIRECTED. MAINTAIN INVERTS WHERE INDICATED.

WATER HEATER. ALL FITTINGS SHALL BE SWEAT TYPE WROUGHT COPPER WITH WALL THICKNESS EQUAL TO PIPE WALL THICKNESS. ALL JOINTS SHALL BE MADE WITH 95-5 SOLDER OR SILVABRITE 100. NO SOLDER W/LEAD SHALL BE PERMITTED.

ALL ROUGHING-IN PIPING SHALL BE RUN CONCEALED. ALL EXPOSED WATER LINES, STOPS, TRAP AND WASTE PIPE AT THE FIXTURES SHALL BE CHROME PLATED BRASS, WHICH FOR THE MOST PART WILL BE FURNISHED WITH THE FIXTURES. CHROME PLATED ESCUTCHEON RINGS SHALL BE USED AT EACH POINT OF ENTRANCE OF CHROME PIPING INTO WALLS, FLOORS, OR CEILINGS. EXPOSED WORK SHALL BE UNIFORM IN HEIGHT AND LOCATION FOR EACH TYPE FIXTURE.

WATER PIPING UNDER GROUND OUTSIDE OF BUILDING SHALL BE AT LEAST 24 INCHES BELOW THE FINISHED GRADE SURFACE.

THERMAL INSULATION: ALL HOT AND COLD WATER PIPING INSIDE BUILDING AND IN CRAWL SPACE, ALL HOT WATER PIPING BELOW GRADE, AND COLD WATER PIPING BELOW GRADE WITHIN 3'-0" OF OUTSIDE SHALL BE INSULATED WITH 1" THICK "ARMAFLEX" OR IMCOA WITH SEALED JOINTS OR PREMOLDED FIBERGLASS WITH VAPOR BARRIER JACKET. IN LIEU OF INSULATING WATER PIPING IN HEATED WALLS PIPING MAY BE ENCASED IN BATT INSULATION WITHIN THE WALL OR FLOOR/CEILING.

WATER HEATERS: WATER HEATERS SHALL BE UL LISTED AND COMPLETE WITH ALL STANDARD FEATURES, FIVE (5) YEAR TANK WARRANTY, GLASS-LINED TANK, FOAM INSULATION ON THE TANK, ANODE ROD, AUTOMATIC TEMPERATURE CONTROL, AND AUTOMATIC HIGH-LIMIT SAFETY CUTOFF.

EACH WATER HEATER SHALL BE PROVIDED WITH AN ASME APPROVED PRESSURE AND TEMPERATURE RELIEF VALVE. UNITS NOT INSTALLED WITH VACUUM BREAKER ON COLD WATER SUPPLY LINE SHALL BE PROVIDED WITH ADA CERTIFIED VACUUM RELIEF VALVE PER ANSI Z21.22. A GATE VALVE SHALL BE INSTALLED ON SAME FLOOR AS UNIT AND NO FURTHER THAN 3 FEET ON THE COLD WATER SUPPLY.

EACH WATER HEATER AND ITS INSTALLATION SHALL COMPLY WITH THE LATEST ISSUE AND ALL ADDENDA THERETO OF THE STATE BOILER INSPECTION LAWS AND REGULATIONS. ALL WIRING AND CONTROLS ASSOCIATED WITH THE HEATERS SHALL BE U.L. APPROVED AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

EACH HEATER TANK SHALL BE FITTED WITH APPROVED "DIP" TUBE AND LABELED TO SHOW APPROVAL FOR INSTALLATION.

DISCHARGE RELIEF VALVE FROM EACH WATER HEATER SHALL BE PIPED FULL SIZE TO WITHIN SIX (6) INCHES OF THE FLOOR OVER A FLOOR DRAIN, DRIP PAN OR OTHER SAFE LOCATION. DISCHARGE PIPE SHALL BE SUPPORTED AND ANCHORED SO THAT IT WILL NOT PUT UNDUE STRAIN ON THE RELIEF VALVE BODY OR MOUNTING COUPLING.

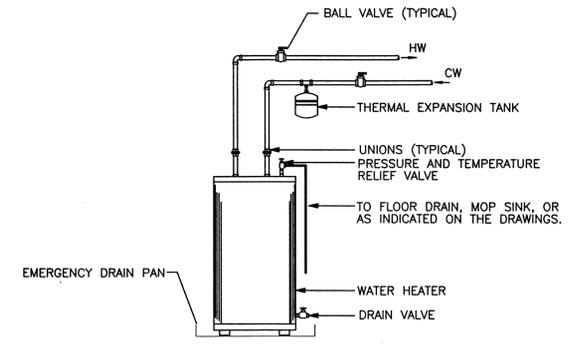
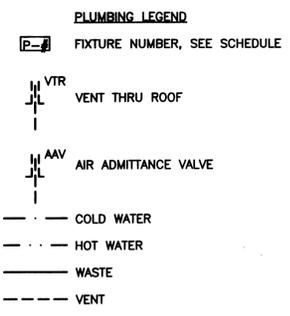
SUBMITTAL: THE CONTRACTOR SHALL WITHIN (15) DAYS OF RECEIPT OF PROPERLY SIGNED CONTRACT SUBMIT TO THE ARCHITECT/ENGINEER FOR APPROVAL (5) COPIES OF A LIST OF SUPPLIES AND MANUFACTURER'S MATERIAL AND EQUIPMENT TO BE USED ON THIS PROJECT.

SUBSTITUTION OF MATERIALS AND/OR EQUIPMENT FOR THAT SPECIFIED WILL NOT BE ACCEPTED WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO RECEIPT OF BIDS.

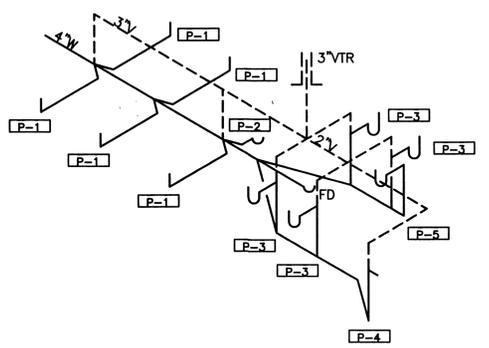
GUARANTEE: THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER STATING THE DAY THE GUARANTEE BEGINS AND ENDS.

WATER HEATER (EWH): STATE M/N PCE 40 20LSA, 40 GALLON ELECTRIC WATER HEATER WITH ONE (1) 4500 WATT ELEMENT, 240 VOLT, SINGLE PHASE, WITH 3 YEAR WARRANTY. FURNISH WITH A.S.M.E. APPROVED RELIEF VALVE, WATERGUARD EXPANSION TANK M/N ETC-2X, AND DRAIN PAN. CONNECTION SIZES: C=1 1/2", H=1 1/2".

- PLUMBING GENERAL NOTES:**
- PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR COMPLETE AND PROPERLY FUNCTIONING PLUMBING SYSTEMS. WARRANTY ALL WORK AND ALL MATERIALS, EQUIPMENT AND DEVICES FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE.
  - WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
    - A. NORTH CAROLINA PLUMBING CODE
    - B. ASPE
    - C. UL
    - D. ANSI
    - E. ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES
  - DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR DIMENSIONS, UNLESS DIMENSIONED.
  - ALL MATERIALS, EQUIPMENT AND DEVICES SHALL, AS A MINIMUM, MEET THE REQUIREMENTS OF UL WHERE UL STANDARDS ARE ESTABLISHED FOR THOSE ITEMS. ALL ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.
  - ALL ITEMS SHALL BE NEW, UNLESS NOTED OTHERWISE.
  - ALL MATERIALS AND EQUIPMENT SHALL BE CURRENT PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS.
  - COORDINATE LOCATION OF PLUMBING WORK WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES.
  - INSTALL ALL EQUIPMENT AND MATERIAL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN PRINTED INSTRUCTIONS AND RECOMMENDATIONS.
  - COORDINATE WITH AND OBTAIN PERMITS AND INSPECTIONS FROM AUTHORITY HAVING JURISDICTION AND INCLUDE ALL FEES IN BID.
  - PROVIDE OWNER WITH CERTIFICATES OF FINAL INSPECTION AND ACCEPTANCE FROM AUTHORITY HAVING JURISDICTION.
  - ALL EQUIPMENT AND PIPE ABOVE CEILING SHALL BE SUPPORTED FROM BUILDING STRUCTURE ABOVE, UNO.
  - WHERE PIPES PENETRATE FIRE RATED BARRIERS (WALLS, FLOORS AND CEILINGS) SEAL OPENING AROUND PIPES AND DUCTWORK WITH U.L. LISTED FIRE STOPPING MATERIAL TO MAINTAIN THE FIRE RATING OF THE BARRIER. PER NC BUILDING CODE VOLUME 1, PENETRATIONS OF NONRATED WALLS, PARTITIONS AND FLOORS OF NONCOMBUSTIBLE CONSTRUCTION SHALL BE FIRE-STOPPED WITH NONCOMBUSTIBLE MATERIAL.
  - PROVIDE EXPANSION-DEFLECTION JOINTS WHERE PIPE CROSSES BUILDING EXPANSION OR SEISMIC JOINTS.
  - PRIOR TO BIDDING, THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE JOBSITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED AND SHALL INCLUDE IN HIS BID ALL LABOR, MATERIAL AND OPERATIONS REQUIRED FOR A COMPLETE JOB. (NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES PRIOR TO BID.)
  - CLEANOUTS, LINE SIZE, UNO.
  - FLOOR DRAINS, LINE SIZE, UNO.
  - FLOOR DRAINS WITH SUBSCRIPT CO TO HAVE INTEGRAL CLEANOUT AND SHALL BE SIMILAR TO REGULAR FLOOR DRAIN SPECIFIED, UNO.
  - FLOOR DRAINS AND FLOOR SINKS SHALL BE PROVIDED WITH TRAP PRIMERS OR ALTERNATE METHODS AS APPROVED BY AUTHORITY HAVING JURISDICTION.



(A) ELECTRIC WATER HEATER  
 SCALE: NONE



WASTE RISER  
 SCALE: NONE

**PRELIMINARY**  
 NOT ISSUED FOR CONSTRUCTION  
 FOR APPROVAL

GENERAL MECHANICAL SPECIFICATIONS

ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE NC MECHANICAL CODE.

**SHEET METAL WORK:** THIS CONTRACTOR SHALL FURNISH ALL DUCTWORK AND ASSOCIATED SHEET METAL WORK AS CALLED FOR ON THE DRAWINGS AND REQUIRED FOR A COMPLETE DUCTED AIR DISTRIBUTION SYSTEM. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH BEST PRACTICES OF SHEET METAL WORK AND SMACNA STANDARDS.

ALL DUCTWORK SHALL BE GALVANIZED SHEET IRON THROUGHOUT EXCEPT WHERE OTHERWISE SHOWN AND FABRICATED IN ACCORDANCE WITH THE FOLLOWING TABLE (ALL DUCT SIZES ON CONTRACT DRAWINGS ARE SHEET METAL FABRICATION SIZES):

MAXIMUM DIMENSION OF DUCT	GAUGE	TRANSVERSE JOINT	BRACING
UP TO 12"	26	DRIVE SLIPS 7"-10" CENTERS	NONE

DUCTS 25 INCHES OR SMALLER IN MAXIMUM DIMENSION SHALL BE SUPPORTED WITH 1 INCH FLAT BAND HANGERS; DUCTS 25 INCHES AND LARGER SHALL BE SUPPORTED BY 3/4 INCH X 1-1/2 INCH ANGLE IRON AND ROUND ROD. SUPPORTS SHALL BE NOT MORE THAN 8 FEET ON CENTERS, PROPERLY FASTENED AND PLACED TO BUILDING STRUCTURES AND SHALL EXTEND AND BE RIVETED TO THE BOTTOM OF DUCTS.

UNLESS OTHERWISE SPECIFIED, FURNISH AND INSTALL ALL NECESSARY LINTELS, PROPERLY SIZED, SHEET METAL SLEEVES AND ESCUTCHEON COLLARS WHERE DUCTWORK RISES THROUGH FLOORS OR PASSES THROUGH WALLS OR CEILING.

FURNISH AND INSTALL FLEXIBLE COLLARS IN THE DUCTWORK CONNECTIONS TO AIR HANDLING FANS TO PREVENT NOISE TRANSMISSION BETWEEN SECTIONS.

ALL CHANGES IN DUCT DIRECTION SHALL BE LONG RADIUS ELBOWS OR SHALL BE FITTED WITH TURNING VANES. IT IS ACCEPTABLE TO CHANGE RECTANGULAR DUCTWORK TO THE EQUIVALENT SIZE IN ROUND PROVIDED THE CONTRACTOR COORDINATES ALL CLEARANCE ISSUES.

**EQUIPMENT:** MECHANICAL AND ELECTRICAL CONTRACTORS SHALL COORDINATE PRIOR TO ORDERING EQUIPMENT TO VERIFY CONSISTANT VOLTAGES. PRIOR TO EQUIPMENT BEING ENERGIZED, VOLTAGE TO EQUIPMENT CIRCUITS SHALL BE VERIFIED AS INSTALLED TO MATCH EQUIPMENT NAMEPLATE.

**OPERATING INSTRUCTIONS, CERTIFICATES AND WARRANTIES:** THE ORIGINAL OF ALL INSPECTION CERTIFICATES SHALL BE DELIVERED TO THE OWNER AND ONE (1) COPY EACH TO THE ENGINEER PRIOR TO REQUEST FOR FINAL PAYMENT.

THREE (3) COPIES OF OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUFACTURER'S WARRANTIES FOR ALL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE PROVIDED TO THE OWNER PRIOR TO SUBMITTING REQUEST FOR FINAL PAYMENT.

PRIOR TO FINAL PAYMENT TO THE CONTRACT, THE CONTRACTOR SHALL BE RESPONSIBLE TO TRAIN THE AUTHORIZED PERSONNEL ON HOW TO SERVICE, START-UP AND SHUT-DOWN THE VARIOUS SECTIONS OF THE SYSTEM. UPON COMPLETION OF THIS PHASE OF THE CONTRACT, THE CONTRACTOR SHALL SECURE A LETTER OF ACCEPTANCE FROM THE OWNER THAT HE IS SATISFIED WITH THE CONDITIONS STIPULATED HEREIN. UPON ACCEPTANCE OF THIS LETTER AND AT THE DISCRETION OF THE ENGINEER, THE FINAL PAYMENT WILL BE MADE.

THE CONTRACTOR SHALL PROVIDE A WRITTEN GUARANTEE OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SYSTEM ACCEPTANCE.

THE WORK UNDER THIS CONTRACT WILL BE ACCEPTED ONLY AS AN ENTIRE SYSTEM UPON SATISFACTORY COMPLETION OF THE REQUIRED TESTS. NO PARTIAL ACCEPTANCE OF ANY PART OR PORTION OF APPARATUS WILL BE MADE.

INSTALL AND CONNECT ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND DO ALL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE AS JUDGED BY THE ENGINEER.

ALL EQUIPMENT AND PIPING SHALL BE SO INSTALLED THAT NO OBJECTIONABLE NOISES FROM EQUIPMENT, PIPING OR AIR DISTRIBUTION ARE AUDIBLE IN THE FINISHED AREAS.

**GUARANTEE:** THIS CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FOLLOWING FINAL INSPECTION AND ACCEPTANCE OF THE BUILDING BY THE ENGINEER AND OWNER. THIS APPLIES TO ALL MATERIALS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT, REGARDLESS OF SOURCE.

THE ONE (1) YEAR GUARANTEE PERIOD WILL START ON THE DAY OF FINAL INSPECTION AND ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A LETTER WITH TWO (2) COPIES STATING THE BEGINNING AND ENDING DATES OF THE GUARANTEE BASED ON THE AFOREMENTIONED STARTING DATES.

**EXTENDED GUARANTEE:** PROVIDE AN ADDITIONAL FOUR (4) YEAR GUARANTEE ON ALL COMPRESSORS BEYOND THE ABOVE MENTIONED ONE (1) YEAR GUARANTEE PERIOD.

**ENERGY CODE COMPLIANCE:** HVAC EQUIPMENT SELECTED MEETS PERFORMANCE REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE SECTION 506.2.1 ANY SUBSTITUTIONS MUST MEET THIS STANDARD AS WELL. UPON FINAL INSPECTION THE CONTRACTOR SHALL PROVIDE TO OWNER MANUALS AND EVIDENCE OF AIR BALANCE. CONTRACTOR SHALL SCHEDULE DESIGN PROFESSIONAL AND ASSIST TO COMPLETE SYSTEM INSTALLATION STATEMENT IN ACCORDANCE WITH THE NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE SECTION 503.2.9.

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT  
METHOD OF COMPLIANCE: ENERGY CODE

Prescriptive  Energy Cost Budget

Thermal Zone 3H

Exterior design conditions  
winter dry bulb 26° F  
summer dry bulb 92° F DB/76° F WB

Interior design conditions  
winter dry bulb 70° F  
summer dry bulb 75° F  
relative humidity 50%

Building heating load 18.5 MBTU/H  
Building cooling load 1.5 TONS

Mechanical Spacing Conditioning System \_\_\_\_\_

Unitary  
description of unit \_\_\_\_\_  
heating efficiency 9.0 HSPF MIN.  
cooling efficiency 15.0 SEER MIN.  
heat output of unit SEE SCHEDULES  
cooling output of unit SEE SCHEDULES

boiler  
total boiler output. If oversized, state reason.  
N/A

chiller  
total chiller capacity. If oversized, state reason.  
N/A

List equipment efficiencies N/A

Equipment schedules with motors (mechanical systems)  
motor horsepower SEE SCHEDULES  
number of phases SEE SCHEDULES  
minimum efficiency SEE SCHEDULES  
motor type ODP  
# of poles 4

Additional prescriptive compliance method : 506.2.1 More Eff. Mech Equip.

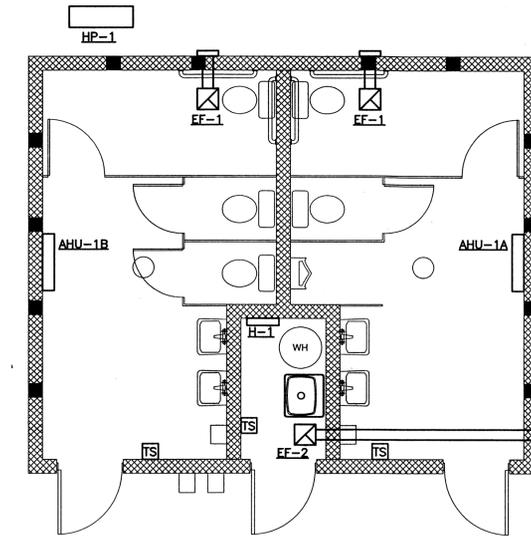
DESIGNER STATEMENT:  
To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment of the 2012 North Carolina State Energy Code.

SIGNED: [Signature]  
NAME: STEVEN H. EVERHART JR., P.E.  
TITLE: PROFESSIONAL ENGINEER

SPLIT SYSTEM HEAT PUMP SCHEDULE

UNIT NUMBER		AHU-1A, 1B
AREA SERVED		
MANUFACTURER		mitsubishi
MODEL NUMBER		MSZ-GE12NA
UNIT WEIGHT (LBS)		33
FAN	TOTAL AIR CFM	350
	OUTSIDE AIR CFM	-
	FAN H.P.	1/3
	EXT. S.P. (IN. H2O)	0.4
	POWER SUPPLY	208/230/60/1
COOLING CAPACITY	TOTAL CAPACITY COOLING (BTUH)	11,700
	SENSIBLE CAPACITY COOLING (BTUH)	8,600
	ENTERING AIR TEMP.	80/67
HEATING CAPACITY	ENTERING AIR TEMP.	70 °F
	HIGH TEMPERATURE (BTUH) 47°F DB °	11,200
	LOW TEMPERATURE (BTUH) 17°F DB °	6,800
	AUXILIARY COIL CAPACITY	N/A
	POWER SUPPLY	208/230/60/1
MINIMUM AMPACITY		1
MAX. OVERCURRENT PROTECTION		VA OUTDOOR
AIR COOLED HEAT PUMP	UNIT NUMBER	HP-1
	MODEL NUMBER	MXZ-3C24NA
	UNIT WEIGHT	135
	ENTERING AIR TEMP.	95°F
	FAN TYPE	PROPELLER
	FAN H.P.	1/8
	COMPRESSOR	RECIP
POWER SUPPLY	208/230/60/1	
MINIMUM AMPACITY		23
MAX. OVERCURRENT PROTECTION		25
ACCESSORIES		(1)

(1) PROVIDE WALL MOUNTED, PROGRAMMABLE ELECTRONIC THERMOSTAT WITH AUTO CHANGEOVER.



FLOOR PLAN - MECHANICAL  
SCALE: 1/4"=1'-0"

ELECTRIC UNIT HEATER SCHEDULE

UNIT NO.	TYPE	CFM	MANUFACTURER & MODEL	HEAT CAP. KW	POWER SUPPLY	DESCRIPTION & ACCESSORIES
H-1	WALL	175	MARKEL E3312SRPW	1	120-1-60	1, 2, 4

(1) MARKEL MANUFACTURING CO.; OR EQUAL.  
(2) HORIZONTAL AIR DELIVERY, NICKEL CHROMIUM RESISTANCE COIL.  
(3) VERTICAL AIR DELIVERY, NICKEL CHROMIUM RESISTANCE COIL.  
(4) BUILT IN CONTACTORS AND CONTROL TRANSFORMER.  
(5) REMOTE LINE VOLTAGE THERMOSTAT.

EXHAUST FAN SCHEDULE

TAG	CFM	RPM	S.P. IN.	W.G.	WATTS/HP	SONES	ELECTRIC	MANUFACTURER MODEL NUMBER	DESCRIPTION & ACCESSORIES
EF-1	75	700	.25		50 WATTS	3.0	120-1-60	GREENHECK SP-B90	1, 2, 3
EF-2	225	1000	.25		83 WATTS	3.4	120-1-60	GREENHECK SP-A250	1, 2, 3

(1) CABINET CEILING FAN, DIRECT DRIVE, CENTRIFUGAL, SPRING LOADED ALUMINUM BACKDRAFT DAMPER.  
(2) ALUMINUM, WHITE ENAMEL CEILING GRILLE.  
(3) ALUMINUM HOODED WALL CAP WITH BUILT-IN BIRDSCREEN AND DAMPER.



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NC LICENSE NO. C-2546



BATHROOM & GAZEBO  
TOWN OF SUNSET BEACH PARK  
SUNSET BEACH, NORTH CAROLINA

**PRELIMINARY**

NOT ISSUED FOR CONSTRUCTION

**FOR APPROVAL**

JOB NO. 07055  
DWN BY:  
DATE: 10/14/15  
SCALE: AS SHOWN  
SHEET

M1

**DETAILED ELECTRICAL SPECIFICATIONS**  
 SCOPE: FURNISH ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND SUPERVISION NECESSARY TO INSTALL COMPLETE ELECTRICAL POWER AND LIGHTING SYSTEM IN THE BUILDING AS FURTHER DESCRIBED ON THE ELECTRICAL CONTRACT DRAWINGS.

SUPPLY ALL MATERIALS, FITTINGS AND HARDWARE NECESSARY FOR COMPLETE OPERATING SYSTEMS WITHIN THE OBVIOUS INTENT OF THE DRAWINGS. NO ATTEMPT HAS BEEN MADE TO DETAIL OR LIST EACH AND EVERY ITEM OF MATERIAL. THE ELECTRICAL CONTRACTOR IS CAUTIONED TO READ THE ENTIRE PROJECT DRAWINGS AND SPECIFICATIONS TO ASSURE HIMSELF OF A THOROUGH KNOWLEDGE OF BUILDING CONSTRUCTION, STRUCTURAL RESTRICTIONS TO ELECTRICAL CONTRACT WORK AND TO ASSURE THAT NO REFERENCE ANYWHERE IN THE PROJECT DRAWINGS AND SPECIFICATIONS TO WORK BY THE ELECTRICAL CONTRACTOR IS OVERLOOKED.

**CODES, PERMITS AND INSPECTIONS:** THE LATEST EDITION OF THE STATE BUILDING CODE WHICH INCLUDES THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE IS HEREBY MADE A PART OF THIS SPECIFICATION. CODE REQUIREMENTS SHALL TAKE PRECEDENCE OVER THESE SPECIFICATIONS WHERE THE CODE REQUIREMENTS EXCEED THAT OF THE SPECIFICATIONS. HOWEVER, THE SPECIFICATIONS SHALL BE FOLLOWED WHERE THEY EXCEED CODE REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, OBTAIN THE SERVICES OF THE LOCAL ELECTRICAL INSPECTOR TO MAKE ALL REQUIRED DURING CONSTRUCTION AND COMPLETED ELECTRICAL SYSTEM INSPECTIONS.

**CONDUCTORS:** ALL CONDUCTORS SHALL BE COPPER (#10 AWG AND SMALLER SHALL BE SOLID, AND #8 AWG AND LARGER STRANDED) WITH THHN/THWN INSULATION, INSTALLED IN CONDUIT. MC CABLE MAY BE USED FOR CONCEALED BRANCH CIRCUITS. CONDUCTORS SHALL BE #12 AWG MINIMUM EXCEPT WITHIN LIGHT FIXTURES, LOW VOLTAGE CONTROLS OR COMMUNICATION/FIRE ALARM EQUIPMENT. CONDUCTOR COLOR CODE SHALL CONFORM TO THE NEC. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINAL TO TERMINAL OR PULL BOX TO PULL BOX. JOINTS SHALL BE MADE WITH IDEAL "WIRENUTS."

**RACEWAYS:** INTERIOR RACEWAYS SHALL BE ELECTRICAL METALLIC TUBING (EMT). EXTERIOR RACEWAYS SHALL BE PVC.

SUPPORT 1-1/2 INCH AND LARGER CONDUIT 10 FEET O/C OR LESS, AND 1 INCH AND SMALLER 6 FEET O/C MAXIMUM. RACEWAYS SHALL BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH BOLTS, SCREWS, STRAPS, HANGER RODS AND BRACKETS. ALL METALLIC HARDWARE SHALL BE GALVANIZED OR CADMIUM PLATED. NAILS, WIRE AND/OR PERFORATED STRAPS WILL NOT BE ACCEPTED.

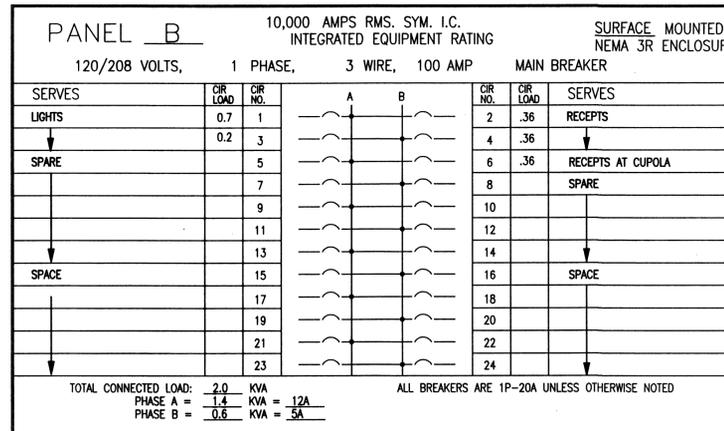
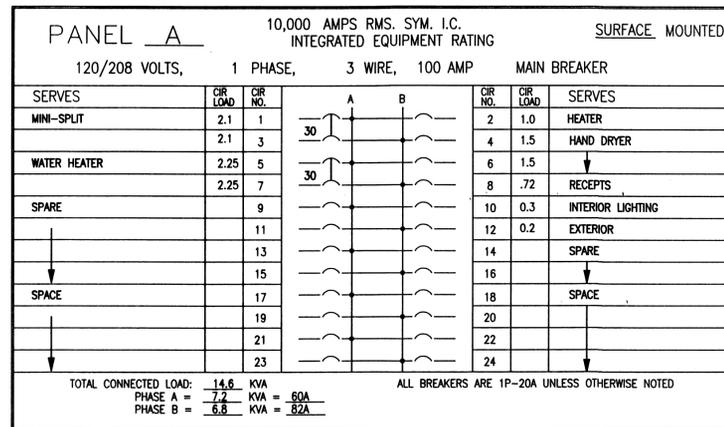
EXPOSED CONDUIT SHALL BE RUN STRAIGHT AND TRUE PARALLEL AND PERPENDICULAR TO PRIMARY BUILDING LINES.

**BOXES AND DEVICES:** ALL BOXES, PANELS AND EQUIPMENT SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE AND SHALL NOT DEPEND ON THE FEEDER RACEWAYS FOR SUPPORT. ALL ITEMS SHALL BE CAREFULLY ALIGNED SO THAT COVERS WILL FINISH FLUSH AND STRAIGHT. ALL UNUSED KNOCKOUTS SHALL BE CLOSED WITH BLANKING DEVICES. BOXES IN CONCRETE OR MASONRY SHALL BE 3-1/2 INCH DEEP (MINIMUM) SQUARE 16 GAUGE GALVANIZED STEEL - STEEL CITY SERIES GW. BOXES INSTALLED IN WOOD PARTITIONS SHALL BE STEEL CITY 3-1/2 INCH DEEP GANGABLE SQUARE CORNER TYPE. RECEPTACLES SHALL BE HUBBELL 5362 OR EQUAL. DEVICE PLATES SHALL BE STAINLESS STEEL.

**GROUNDING:** THE ELECTRICAL SYSTEM AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. GREEN EQUIPMENT GROUND WIRE SHALL BE USED WITH ALL FEEDERS AND BRANCH CIRCUITS.

**PANELBOARDS:** PROVIDE AS SCHEDULED. SQUARE D, GE, CUTLER HAMMER OR SIEMENS.

**SERVICE:** THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SERVICE WITH THE UTILITY COMPANY. ALL CHARGES ASSOCIATED WITH SERVICE SHALL BE PAID BY THE E.C. PROVIDE UTILITY REQUIRED METERING PROVISIONS. PROVIDE CONDUIT FOR UTILITY SECONDARY IF REQUIRED. EC SHALL WORK DIRECTLY WITH THE UTILITY AND SHALL COMPLETE AND SUBMIT ALL LOAD DATA SHEETS REQUIRED FOR SERVICE APPLICATION.



**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION
—	CONDUIT
⊙	JUNCTION BOX
⊞	DISCONNECT SWITCH; FUSED; NONFUSED
FPN	FUSE PER NAMEPLATE
S <sub>m</sub>	MOTOR TOGGLE SWITCH
⊙	MOTOR
⊞	EXISTING OR BY OTHERS
⊙	LIGHT FIXTURE
S <sub>1</sub> , S <sub>2</sub> , S <sub>3</sub> , S <sub>4</sub>	SINGLE POLE SWITCH, 3 WAY, 4 WAY
AFF	ABOVE FINISHED FLOOR
⊞	DUPLEX RECEPT
⊞ WP, ⊞ GFI	WEATHERPROOF, GROUND FAULT
⊞	SINGLE RECEPTACLE
H⊞	WALL BOX OCCUPANCY SENSOR

**ELECTRICAL SUMMARY**

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:

Energy Code:  Prescriptive  Performance  
 ASHRAE 90.1:  Prescriptive  Performance

Lighting schedule

lamp type required in fixture See Fixture Schedule  
 number of lamps in fixture See Fixture Schedule  
 ballast type used in the fixture See Fixture Schedule  
 number of ballasts in fixture See Fixture Schedule  
 total wattage per fixture See Fixture Schedule

Building Area      Space by Space       
 total interior wattage specified vs allowed 198/349  
 total exterior wattage specified vs allowed 198/780 - TLT BLDG  
760/1400 - GAZEBO

Additional Prescriptive Compliance

- 506.2.1 More Efficient Mechanical Equipment
- 506.2.2 Reduced Lighting Power Density
- 506.2.3 Energy Recovery Ventilation Systems
- 506.2.4 Higher Efficiency Service Water Heating
- 506.2.5 On-Site Supply of Renewable Energy
- 506.2.6 Automatic Daylighting Control System
- N/A EXISTING/RENOVATION

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building complies with the requirements of Chapter 5 of the 2012 North Carolina State Energy Code.

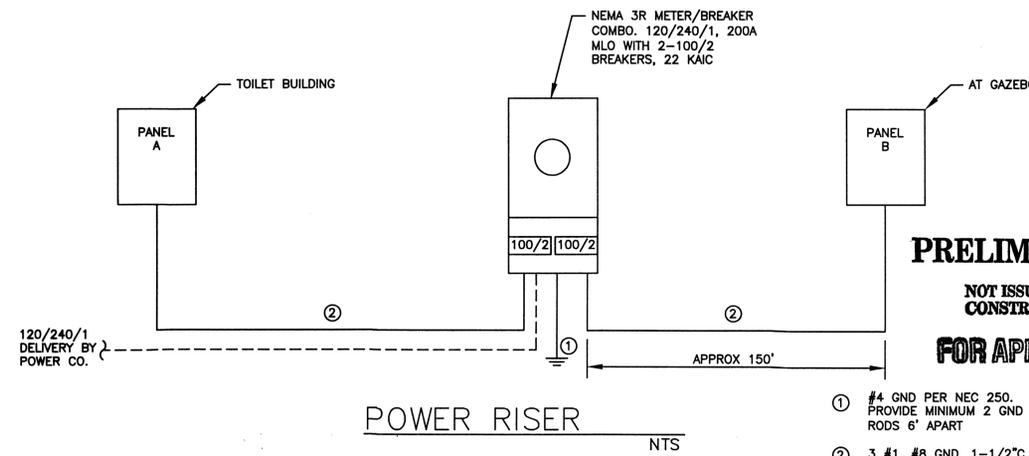
SIGNED: Gregory McDowell  
 NAME: Gregory McDowell  
 TITLE: Professional Engineer

**LIGHTING FIXTURE SCHEDULE**

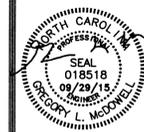
MARK	TYPE	MOUNTING	MANUFACTURER CATALOG NO.	BALLAST (QT) TYPE	LAMPS (QT) TYPE	TOTAL WATTS	VOLTS	REMARKS
A	BULKHEAD DOWNLIGHT	SURFACE	TERON BERL180-120-GRL-WH		LED	22	120	WHITE FINISH UL WET LABEL
B	DOWNLIGHT	SURFACE	METALUX SS232	1) ELECTRONIC	2) F32T8	58	120	
C	LED ROPE	SURFACE NOTE 1	JESCO DL-AC-FLEX-27 NOTE 2		LED	5/LF	120	2700K UL DAMP LABEL
ER	REMOTE EMERGENCY DOUBLE HEAD	SURFACE	SURE-LITES 6T6DWCX		INCLUDED			MATCH "EX" BATTERY VOLTAGE UL WET LABEL
EX	EXIT/EM COMBO	UNIVERSAL	SURE-LITES LPX70RWHKH		LED (EXIT) INCLUDED (EM)	5	120	90 MIN BATTERY

NOTES:

1. PROVIDE MANUFACTURER'S MOUNTING CLIPS INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE CONTINUOUS LENGTH AS SHOWN ON PLANS.



- ① #4 GND PER NEC 250. PROVIDE MINIMUM 2 GND RODS 6' APART
- ② 3 #1, #8 GND, 1-1/2" C



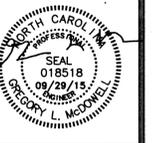
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**E1**



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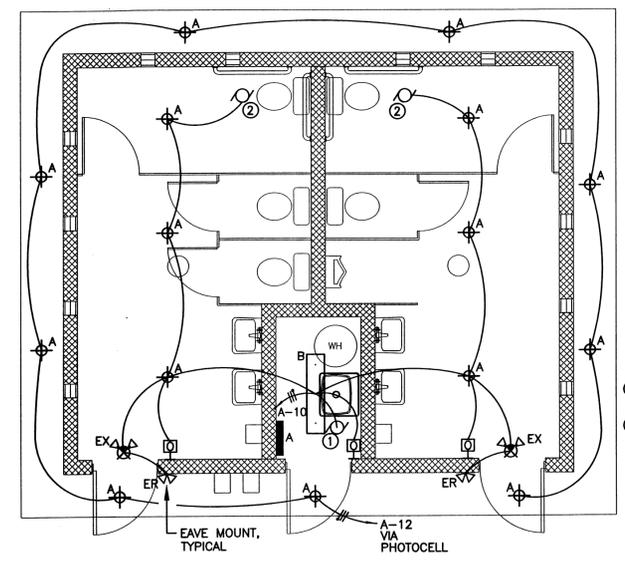


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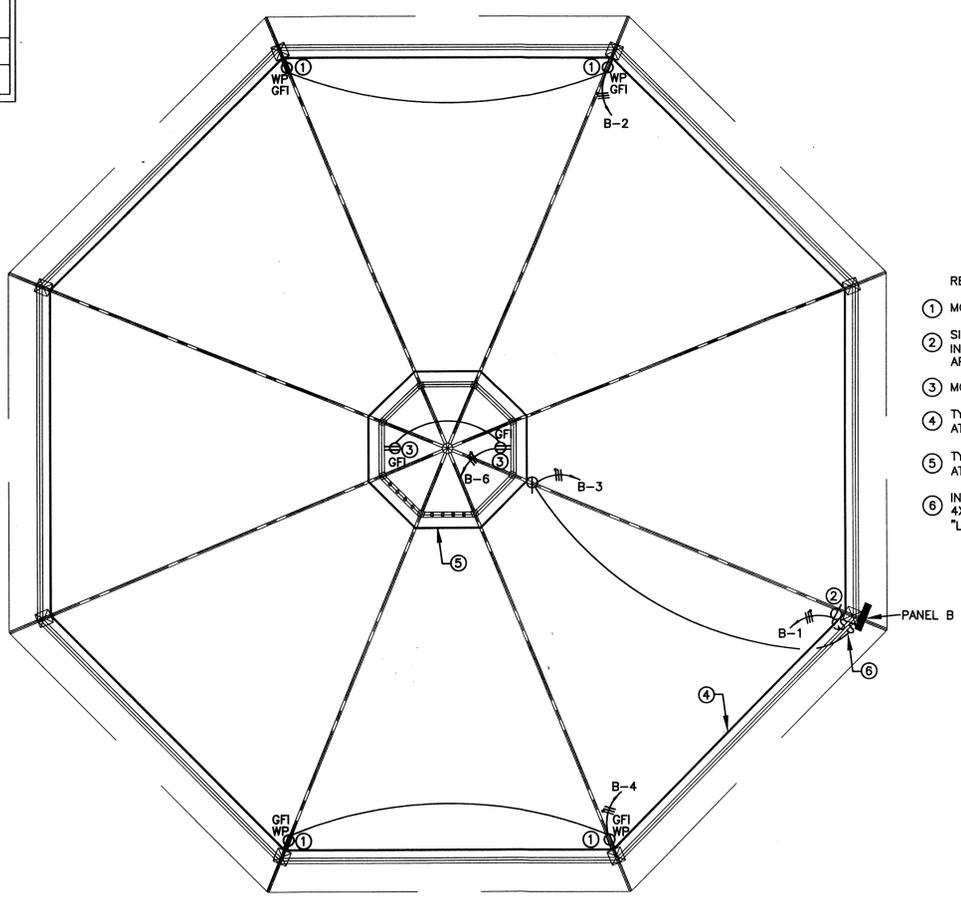
**E2**

OCCUPANCY SENSOR LEGEND	
SYMBOL	DESCRIPTION
□	WALL BOX OCCUPANCY SENSOR GREENGATE ONW-P-1001-MV-W



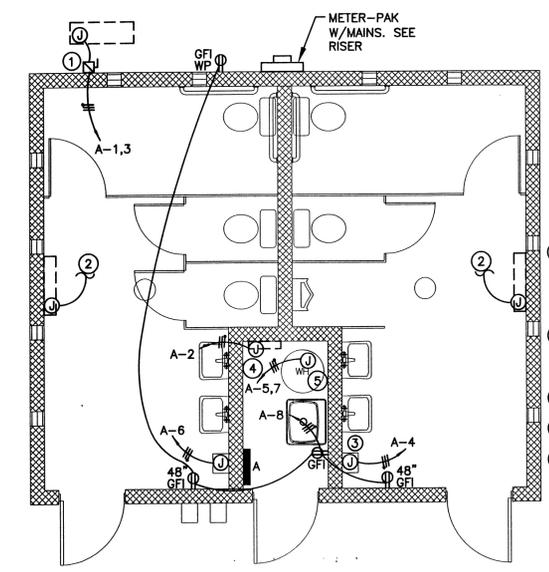
**FLOOR PLAN - LIGHTING**  
 SCALE: 1/4"=1'-0"

- REFERENCE NOTES:
- 1 T-STAT CONTROLLED EXHAUST FAN. WIRE UNSWITCHED
  - 2 SWITCH FAN W/LIGHTS



**FLOOR PLAN - ELECTRICAL**  
 SCALE: 1/4"=1'-0"

- REFERENCE NOTES:
- 1 MOUNT RECEPTACLE ON POST 12" AFF
  - 2 SINGLE RECEPTACLE W/WEATHERPROOF IN USE COVER FOR LED ROPE LTG "C". APPROX. AFF
  - 3 MOUNT ON OPEN SIDE WALL CUPOLA
  - 4 TYPE "C" LIGHTING FIXTURE CONTINUOUS AT APPROX. 10" AFF
  - 5 TYPE "C" LIGHTING FIXTURE CONTINUOUS AT APPROX. 16" AFF
  - 6 INSTALL SWITCHES IN LOCKABLE NEMA 4X ENCLOSURE. LABEL ENCLOSURE "LIGHT SWITCHES"



**FLOOR PLAN - ELECTRICAL**  
 SCALE: 1/4"=1'-0"

- REFERENCE NOTES:
- 1 240/30/2/3R. FUSE FOR MINI-SPLIT OUTDOOR UNIT. 240/1, MCA=23A, MOP=25A. HOMERUN 2 #10, #10 GND, 3/4" C
  - 2 CONNECT INDOOR MINI-SPLIT UNIT VIA OUTDOOR UNIT PER MANUFACTURER'S INSTRUCTIONS.
  - 3 CONNECT 120V HAND DRYER
  - 4 CONNECT 1KW 120V HEATER
  - 5 CONNECT 240V, 4.5KW WATER HEATER. HOMERUN 2 #10, #10 GND, 1/2" C

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