# PRELIMINARY SITE PLANS FOR:

# HOPE CENTER MINISTRIES

11142 NC 55 E, DUNN, NC 28334
BLACK RIVER TOWNSHIP
HARNETT COUNTY
NORTH CAROLINA
ZONED RM CZD

## **OWNER**

HOPE CENTER MINISTRIES
P.O. BOX 641, 7440 NW 39TH EXP.
BETHANY, OK 73008-0641
northcarolina@hopecm.com

## SURVEYOR/LAND PLANNER

ENOCH ENGINEERS P.A.

1403 NC 50 S, BENSON, NC 27504

(919)-894-7765

general@enochengineers.com

## SHEET INDEX

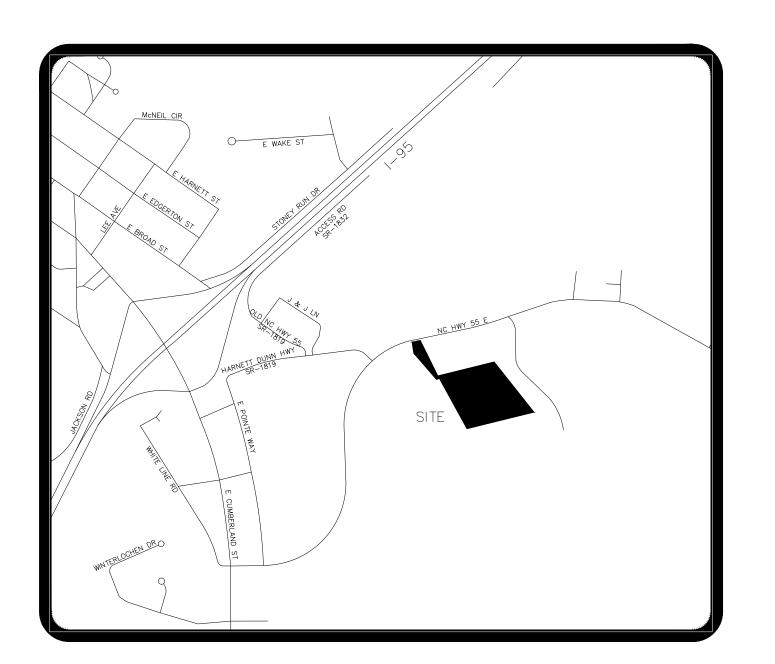
S-1 COVER S-2 PLAT PLAN

S-3 SITE PLAN

S-4 WATER LINE PROFILE

S-5 LANDSCAPE PLAN

S-6 DETAILS



DESIGNED BY:

Engineers, P.A.

Consulting Engineers & Surveyors

1403 NC Highway 50 South - Benson NC 27504

CONSULTING ENGINEERS & SURVEYORS
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Phone: (919) 894-7765 Fax: (919) 894-8190
E-mail: general@enochengineers.com
N.C. Firm License #C-2061

As the owner of record, I hereby formally consent to the proposed development shown on this site plan and all regulations and requirements of the Harnett County ordinances.

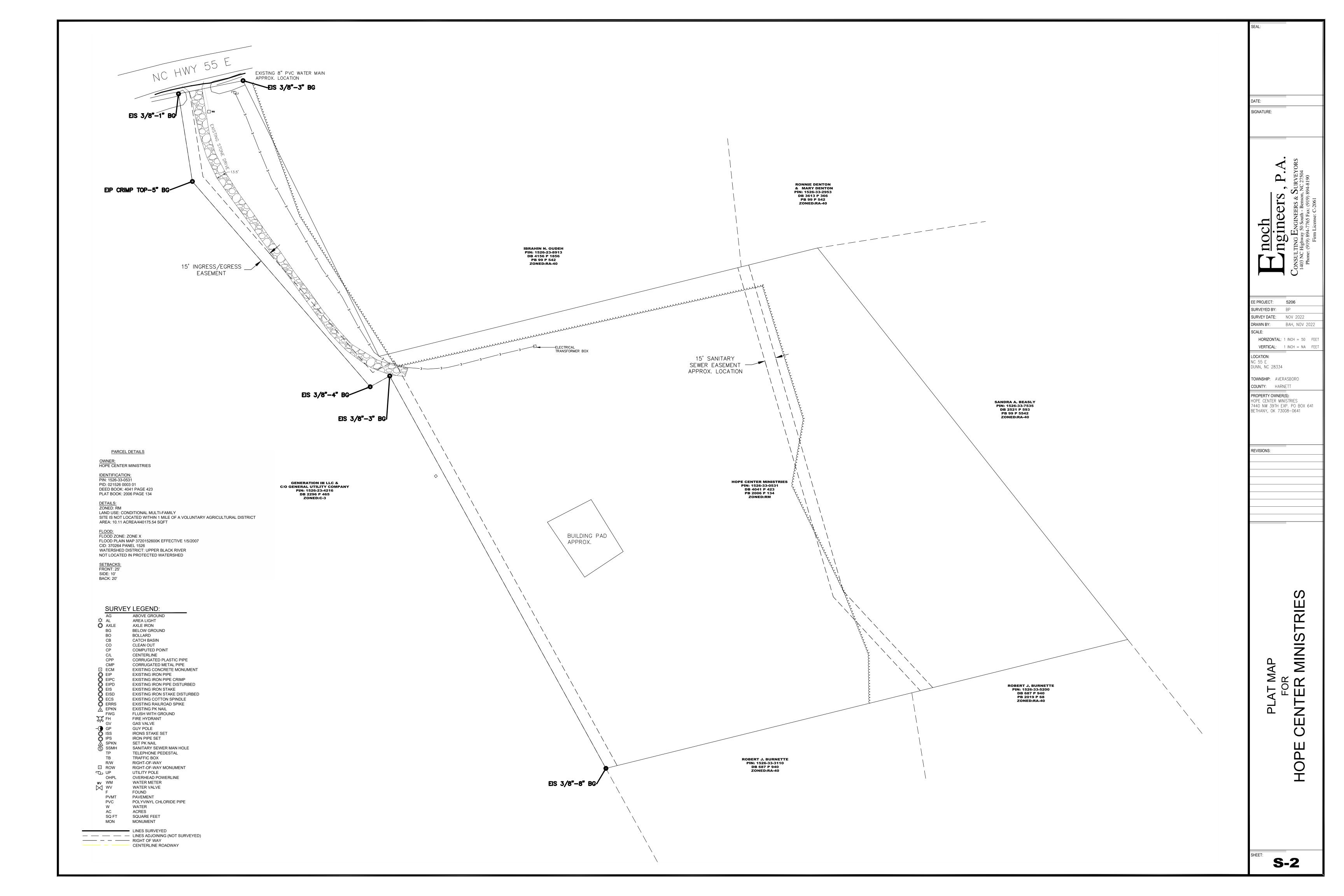
BEFORE YOU DIG!
CONTACT ONE-CALL CENTER
1-800-632-4949

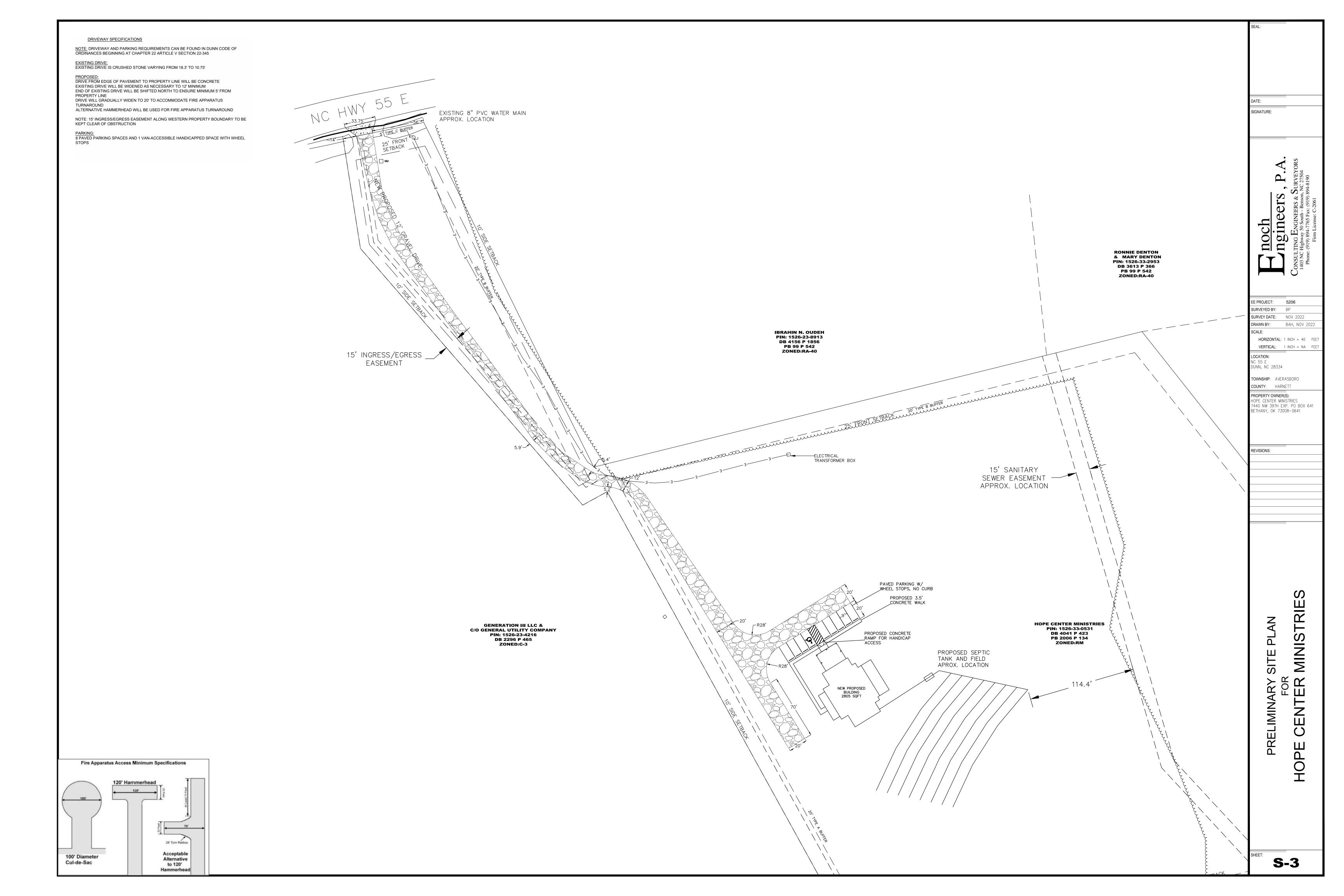
DATE: **NOVEMBER 10, 2022** 

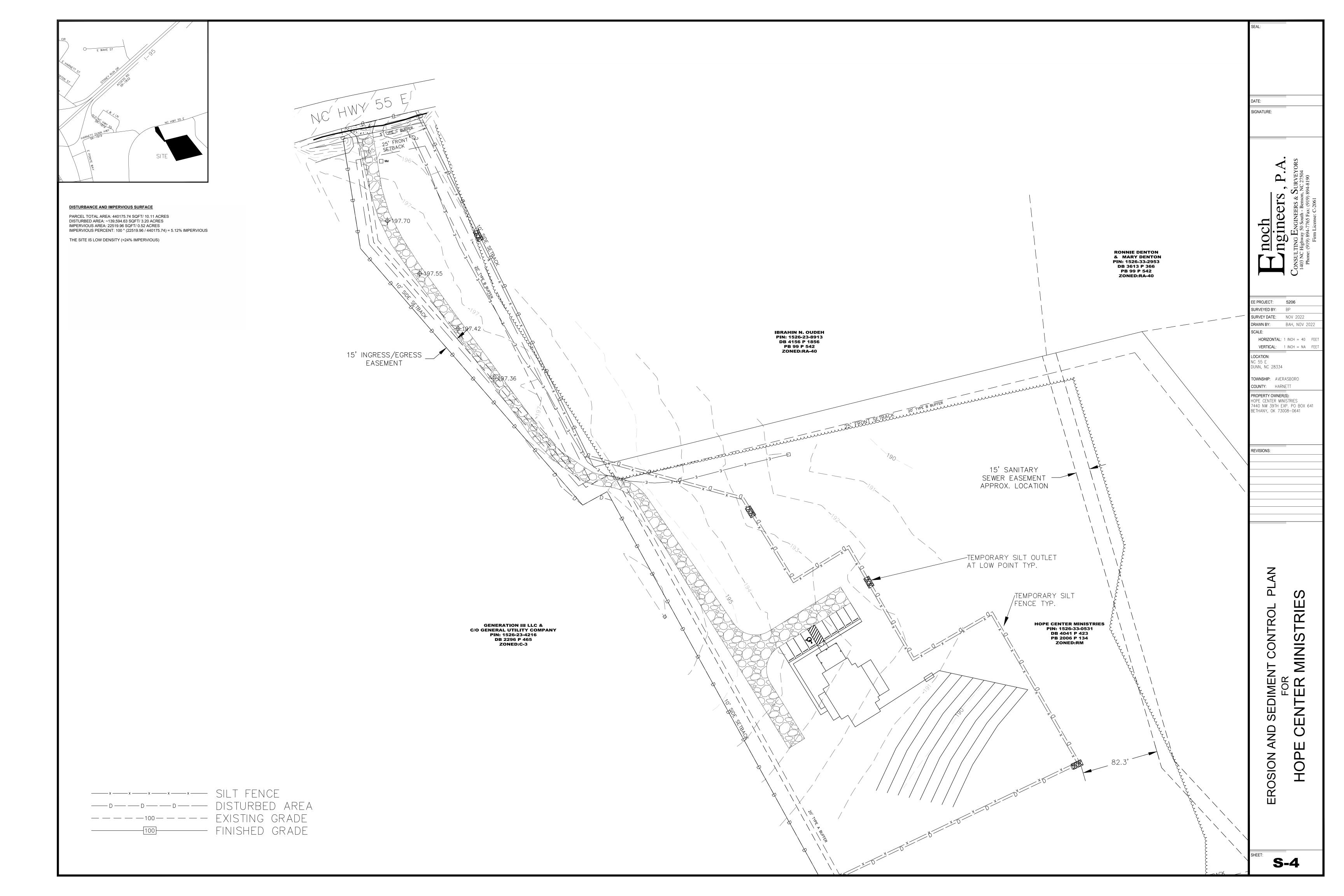
PROJECT NO.: 5206
REVISED: N/A

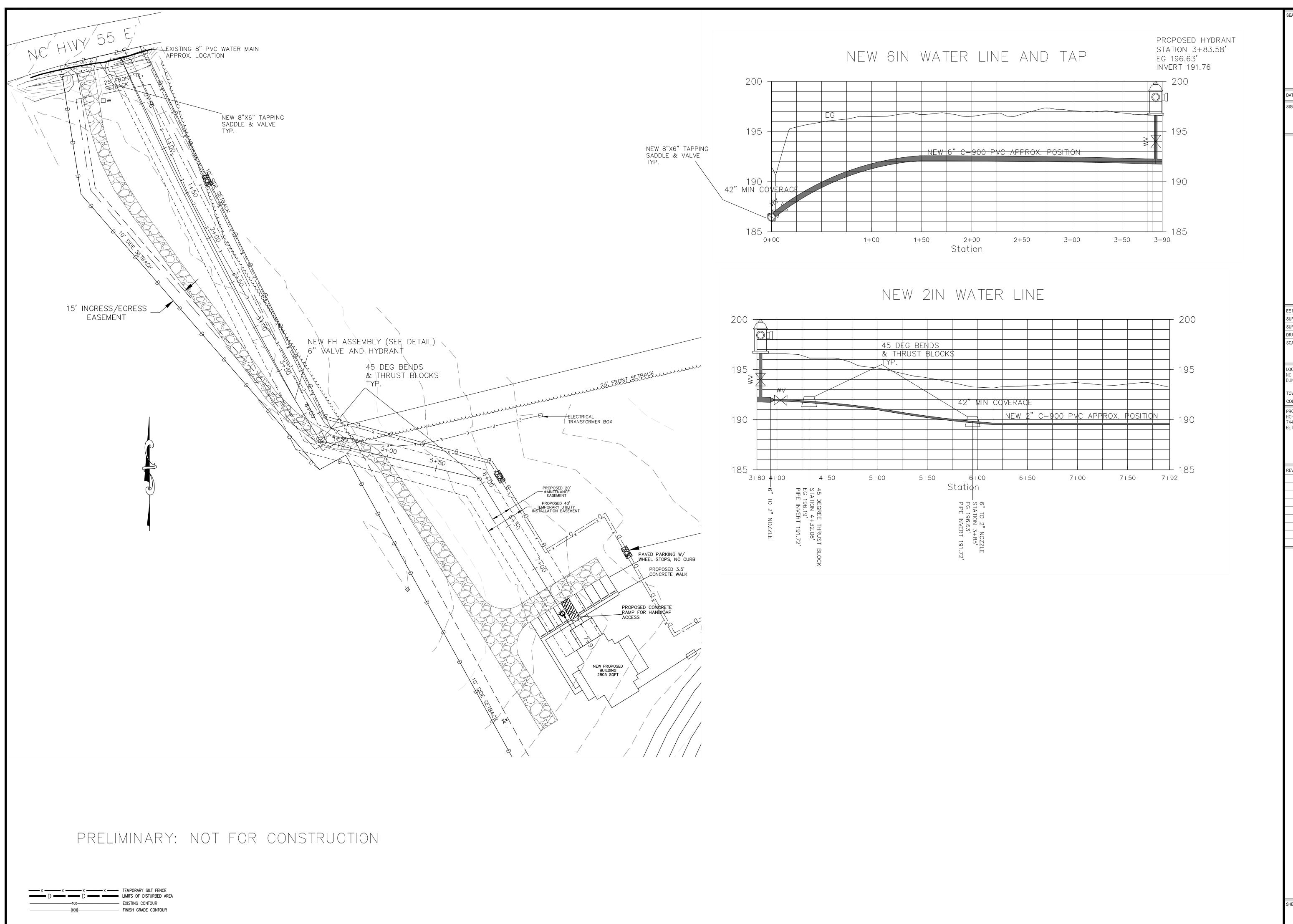


Signature Date









DATE:
SIGNATURE:

Ingineers, P.A.
Ingineers, P.A.
ULTING Engineers & Surveyors
NC Highway 50 South - Benson, NC 27504
one: (919) 894-7765 Fax: (919) 894-8190
Firm License: C-2061

EE PROJECT: 5206

SURVEYED BY: BP

SURVEY DATE: NOV 2022

DRAWN BY: BAH, NOV 2022

SCALE:

HORIZONTAL: 1 INCH = 40 FEE

HORIZONTAL: 1 INCH = 40 FEET

VERTICAL: 1 INCH = 4 FEET

LOCATION:

NC 55 E

DUNN, NC 28334

TOWNSHIP: AVERASBORO

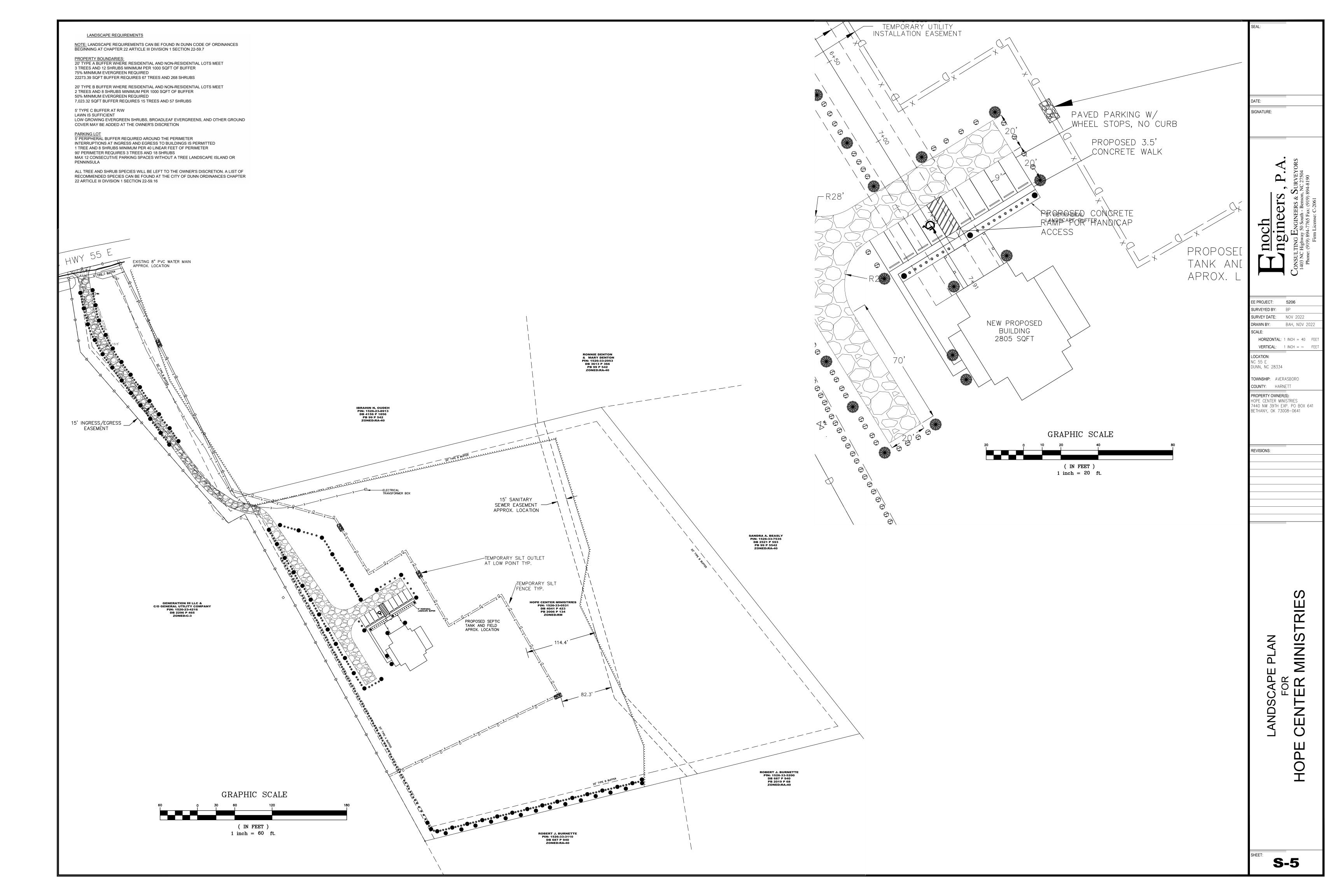
TOWNSHIP: AVERASBORO
COUNTY: HARNETT

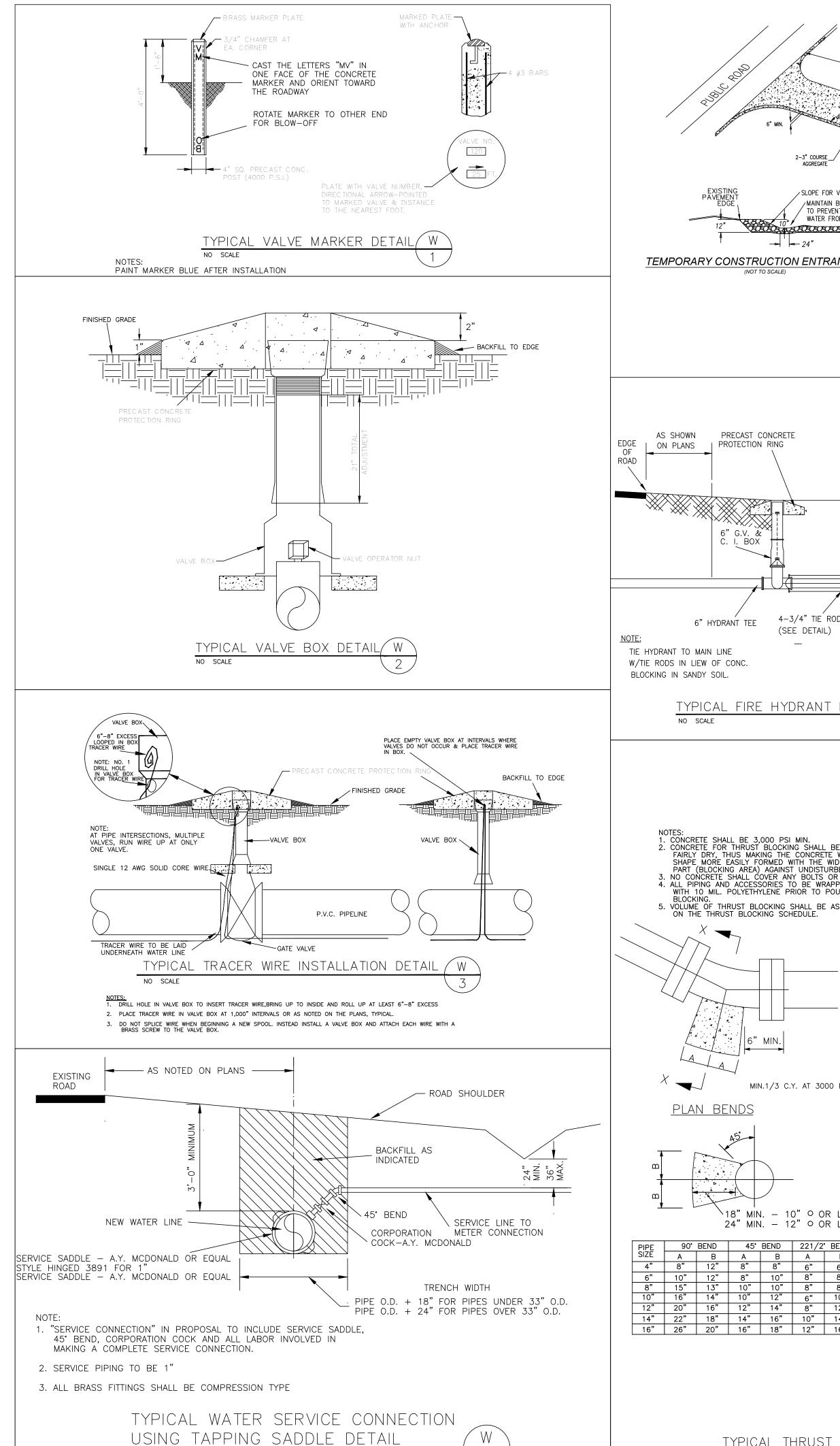
PROPERTY OWNER(S):
HOPE CENTER MINISTRIES
7440 NW 39TH EXP. PO BOX 641
BETHANY, OK 73008-0641

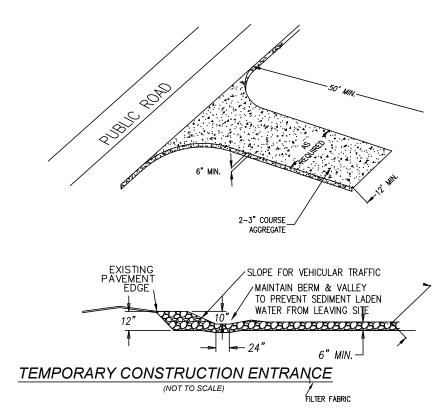
REVISIONS:

WATER LINE TAP & PROFILE FOR OPE CENTER MINISTRIES

**S-4** 







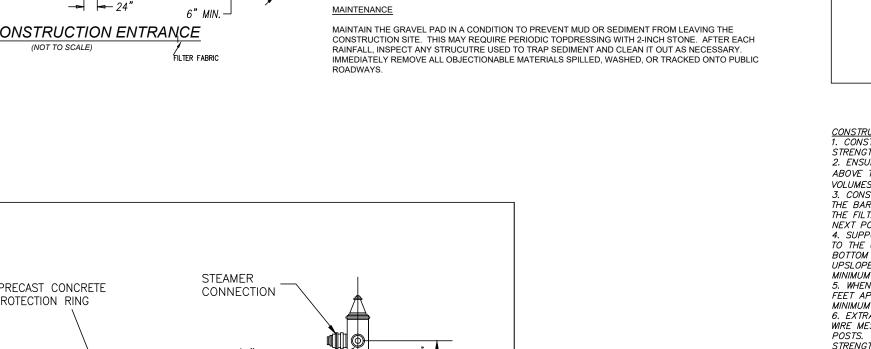
THICKNESS: 6 INCHES MINIMUM
WIDTH: 12-FEET MINIMUM OR FULL WIDTH AT ALL POINTS OF THE VEHICULAR ENTRANCE AND EXIT AREA, WHICHEVER IF 50-FEET MINIMUM LOCATION - LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT FROM LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID STEEP GRADES, AND ENTRANCES AT CURVES IN PUBLIC ROADS. WASHING - IF CONDITIONS AT THE SITE ARE SUCH THAT MOST OF THE MUD AND SEDIMENT ARE NOT REMOVED BY VEHICLES TRAVELING OVER THE GRAVEL, THE TIRES SHOULD BE WASHED. WASHING SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO A SEDIMENT TRAP OR OTHER SUITABLE DISPOSAL AREA. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE. CONSTRUCTION SPECIFICATIONS 1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND PROVIDE DRAINAGE TO CARRY WATER TO SEDIMENT TRAP OR OTHER SUITABLE OUTLET.

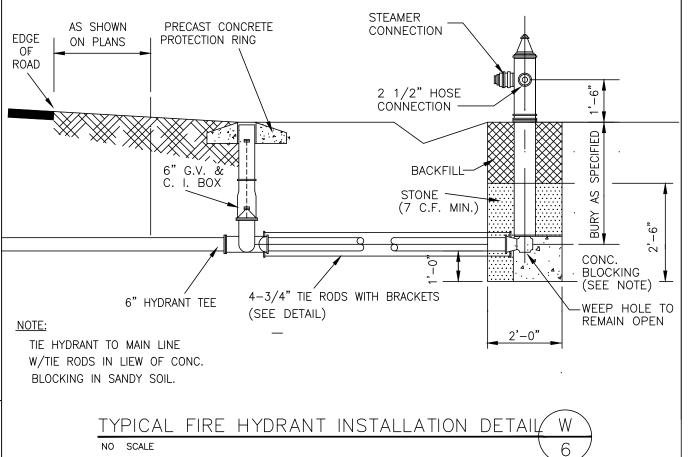
USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE. MAINTENANCE

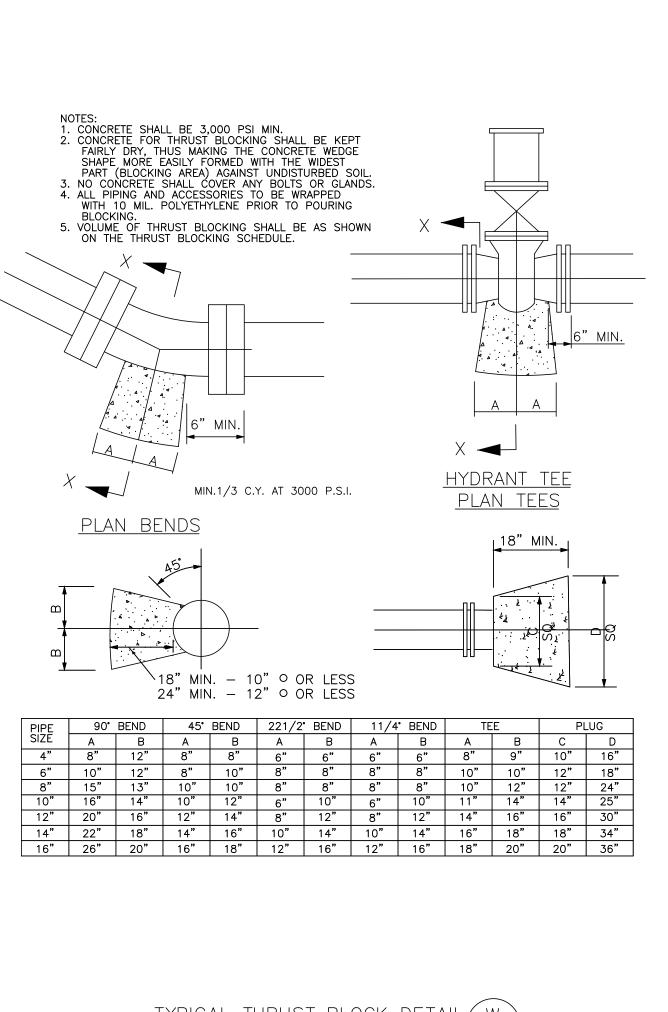
DESIGN CRITERIA

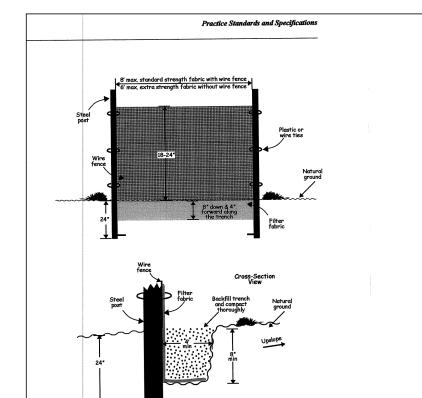
DIMENSIONS OF GRAVEL PAD:

AGGREGATE SIZE - USE 2-3 INCH WASHED STONE.









WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE . EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER (FIGURE 6.62a). 8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES

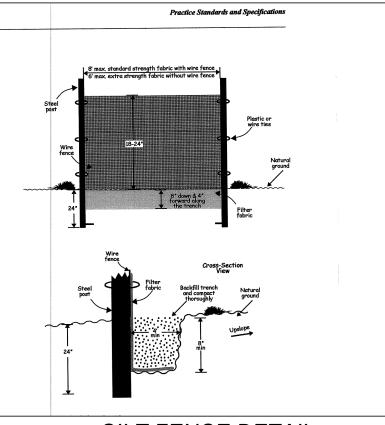
11. NO MEASURES ARE TO BE REMOVED UNTIL DENR APPROVAL.

<u>INSTALLATION SPECIFICATIONS</u>

1. THE BASE OF BOTH END POSTS SHOULD BE AT LEAST ONE FOOT HIGHER THAN THE MIDDLE OF THE FENCE. CHECK WITH A LEVEL IF NECESSARY. P. INSTALL POSTS 4 FEET APART IN CRITICAL AREAS AND 6 FEET APART ON 3. INSTALL POSTS 2 FEET DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC, ENABLING POSTS TO SUPPORT THE FABRIC FROM UPSTREAM WATER PRESSURE.
4. INSTALL POSTS WITH THE NIPPLES FACING AWAY FROM THE SILT FABRIC. 5. ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITHIN THE TOP 8 INCHES OF FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1 INCH VERTICALLY APART. ALSO, EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT 6. WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE . NO MORE THAN 24 INCHES OF A 36 INCH FABRIC IS ALLOWED ABOVE GROUND 8. THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATIONS 9. COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEASY 60 POUNDS PER SQUARE INCH.
COMPACT THE UPSTREAM SIDE FIRST, AND THEN EACH SIDE TWICE FOR A TOTAL OF 4

<u>MAINTENANCE</u> INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



(NOT TO SCALE) <u>CONSTRUCTION</u>
1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FARRICS.

2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)

3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN
THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST. 4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH. 5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.

6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOE NOT REQUIRE

GENERALLY. A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

RESEEDING--IF A STAND HAS INADEQUATE COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

NOTE: Pursuant to G.S. 113A-57(2), the angle for graded slopes and fills shall be no greater than the angle that can be retained by vegetative cover or other adequate erosion-control devices or structures. In any event, slopes left exposed will, within 14 calendar days of completion of any phase of grading be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion. Pursuant to G.S. 113A-57(3), provisions for permanent ground cover sufficient to restrain erosion must be accomplished for all disturbed areas within 14 working days or 90 calendar days (whichever is shorter) following completion of construction or

IF A STAND HAS INADEQUATE COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF THE YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

CONSTRUCTION SEQUENCE

NOTE: A PRE-CONSTRUCTION MEETING WITH JOHNSTON COUNTY PUBLIC UTILITIES MUST BE SCHEDULED PRIOR TO LAND DISTURBANCE. (919-209-8333)

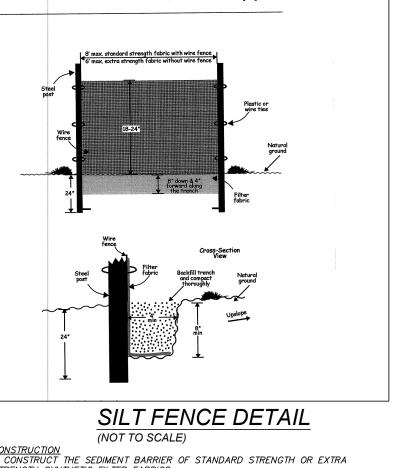
1) INSTALL THE TEMPORARY CONSTRUCTION ENTRANCE 2) INSTALL EROSION CONTROL MEASURES AS SHOWN ON PLANS COMPLETE INSTALLATION OF SITE DRAINAGE NETWORKS AND SITE SWALES WITH ASSOCIATED EROSION CONTROL PROTECTION BEFORE BEGINNING SITE GRADING.

5) GRADE SITE. 6) GRASS AREAS THAT WILL NOT BE DISTURBED. 7) INSTALL UTILITIES.

7) PLACE BASE-COURSE

8) SEED AND MULCH ALL AREAS TO PROVIDE PERMANENT GROUNDCOVER WITHIN 14 WORKING DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING, AND WITHIN 14 COMPLETION OF CONSTRUCTION OR DEVELOPMENT. 9) MAINTAIN ALL TEMPORARY MEASURES UNTIL PERMANENT GROUND COVER IS

APPROVAL OF A JCPU INSPECTOR.



MMEDIATELY AFTER SEED AREA SOWN, MULCH THE ENTIRE AREA EVENLY WITH A LAYER OF WHEAT STRAW TO PROTECT AREA FROM EROSION. MULCH TO BE APPLIED AT A RATE OF 75-100 LBS. PER 1000 SQUARE FEET.

SEEDING SPECIFICATIONS

OR FILL SLOPES, PROCEED AS FOLLOWS:

PERMANENT SEEDING

120 LBS. PER ACRE.

SEASON VARIETY RATE(
AUG 15 - NOV 1ST KOREAN LESPEDEZA

NOV 15 - MARCH 1ST TALL FESCUE

MARCH 1 - APRIL 15 TALL FESCUE

JUNE 30 - AUG 15 TALL FESCUE

OF 40 LBS. PER ACRE.

OR KOBE LESPEDEZA

AND ABRUZZI RYE

APRIL 15 - JUNE 30 HULLED COMMON BERMUDA 12

AND BROWNTOP MILLET

AND TALL FESCUE

AUG. 15TH-MAR. 1ST SOW RYE GRAIN AT THE RATE OF

MAR. 1ST-AUG. 15TH SOW GRAIN MILLET AT THE RATE

SECURING MULCH: THE MULCH SHALL BE HELD IN PLACE BY EMULSIFIED ASPHALT BINDER ON SLOPES 2 TO 1 OR STEEPER, OR AS REQUIRED. APPLY ASPHALT AT 0.10 GALLON PER SQUARE YARD. IN HEAVY TRAFFIC AREAS, USE TYPE "RS" OR "CRS" TO MINIMIZE REMOVAL OF TACK COAT. SYNTHETIC BINDERS MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR THE MULCH.

PER ACRE AND 1,000 LBS. OF 10-10-10 OR EQUIVALENT FERTILIZER PER ACRE.

WHERE TEMPORARY SEEDING IS REQUIRED PRIOR TO SEEDING OF PERMANENT LAWNS

RATE(LBS/ACRE)

120

TEMPORARY CHANNEL LININGS IF REQUIRED SHALL BE INSTALLED IN AREAS AS SHOWN ON PLANS, OR AS REQUIRED TO PREVENT EROSION. LININGS AREA TO BE LEFT IN PLACE THROUGHOUT PERMANENT SEEDING PROCEDURE.

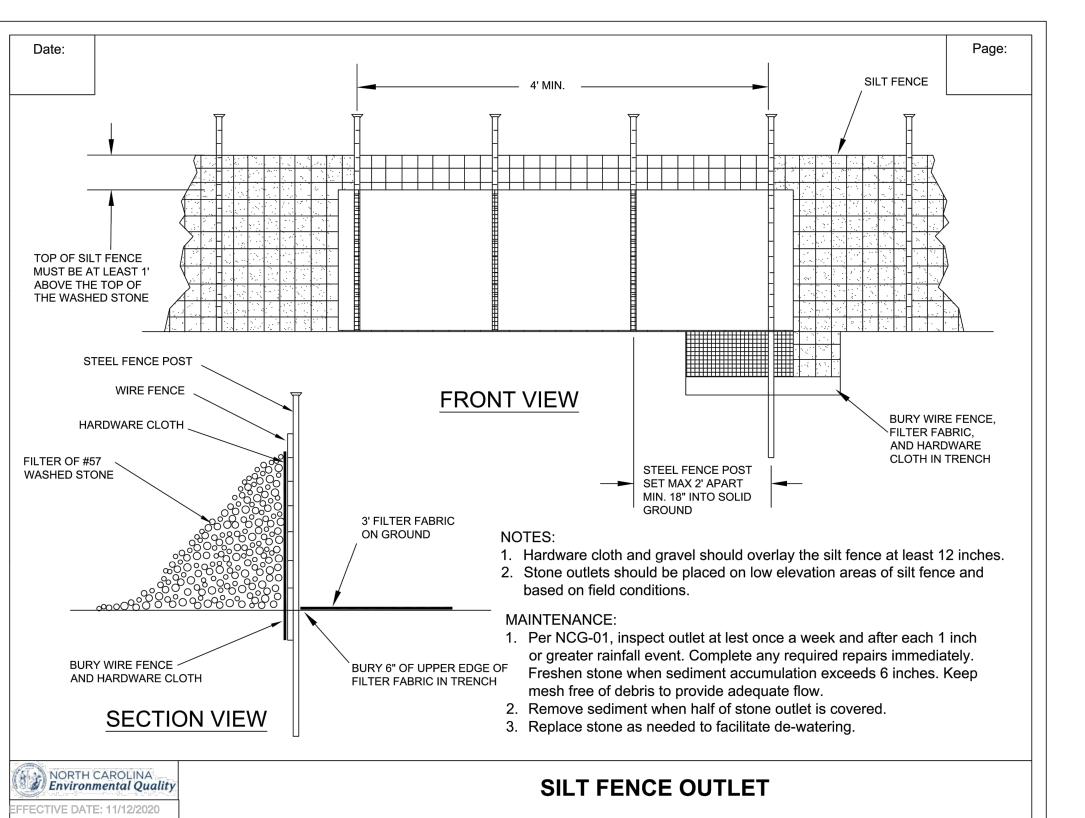
TEMPORARY SEEDING:

RESEED AND MULCH AREAS WHERE SEEDLING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

II. PERMANENT SEEDING: ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR ONE FULL YEAR FROM PLANTING. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS

WORKING DAYS OR 90 CALENDAR DAYS, WHICHEVER PERIOD IS SHORTER, FOLLOWING

10) NO SEDIMENT OR EROSION CONTROL MEASURES ARE TO BE REMOVED WITHOUT THE



THOROUGHLY CULTIVATE LAWN AREAS BY DISCING TO A DEPTH OF 6" AND RAKING THE SURFACE SMOOTH TO REQUIRED GRADES. APPLY 4,000 LBS. OF AGRICULTURAL LIME

SIGNATURE:

EE PROJECT: 5206 URVEYED BY: BP URVEY DATE: NOV 2022 DRAWN BY: BAH, NOV 2022

HORIZONTAL: 1 INCH = 50 F

VERTICAL: 1 INCH = NA FEE

TOWNSHIP: AVERASBORO COUNTY: HARNETT PROPERTY OWNER(S): HOPE CENTER MINISTRIES 7440 NW 39TH EXP. PO BOX 641 BETHANY, OK 73008-0641

REVISIONS:

OCATION:

DUNN, NC 28334

**S-6** 

#### GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

nplementing the details and specifications on this plan sheet will result in the constructior activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

	Required Ground Stabilization Timeframes							
Si	te Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations					
(a)	Perimeter dikes, swales, ditches, and perimeter slopes	7	None					
(b) High Quality Water (HQW) Zones		7	None					
(c)	Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed					
(d)	Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed					
(e)	Areas with slopes flatter than 4:1	14	<ul> <li>-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zone</li> <li>-10 days for Falls Lake Watershed unless there is zero slope</li> </ul>					

ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

#### GROUND STABILIZATION SPECIFICATION Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the

techniques in the table	ا ڊ	be	el	ΟV	v:		
	_					_	

- Temporary grass seed covered with straw or | Permanent grass seed covered with straw or other mulches and tackifiers
- Rolled erosion control products with or without temporary grass seed
- Appropriately applied straw or other mulch
   Shrubs or other permanent plantings covered Plastic sheeting

- Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding
  - Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

other mulches and tackifiers

### POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures. Apply flocculants at the concentrations specified in the NC DWR List of Approved *PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging Store flocculants in leak-proof containers that are kept under storm-resistant cover

or surrounded by secondary containment structures.

- **EQUIPMENT AND VEHICLE MAINTENANCE** Maintain vehicles and equipment to prevent discharge of fluids.
  - Provide drip pans under any stored equipment. Identify leaks and repair as soon as feasible, or remove leaking equipment from the

  - Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
  - Remove leaking vehicles and construction equipment from service until the problem
  - Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products

### LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

Never bury or burn waste. Place litter and debris in approved waste containers. Provide a sufficient number and size of waste containers (e.g dumpster, trash

to a recycling or disposal center that handles these materials.

- receptacle) on site to contain construction and domestic wastes. Locate waste containers at least 50 feet away from storm drain inlets and surface
- waters unless no other alternatives are reasonably available Locate waste containers on areas that do not receive substantial amounts of runoff
- from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.

9. On business days, clean up and dispose of waste in designated waste containers.

Dispose waste off-site at an approved disposal facility.

### PAINT AND OTHER LIQUID WASTE

- Do not dump paint and other liquid waste into storm drains, streams or wetlands. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- 3. Contain liquid wastes in a controlled area. 4. Containment must be labeled, sized and placed appropriately for the needs of site.

Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot

5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from

- offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags. Provide staking or anchoring of portable toilets during periods of high winds or in high
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace

### EARTHEN STOCKPILE MANAGEMENT

with properly operating unit.

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile
- Provide stable stone access point when feasible
- Stabilize stockpile within the timeframes provided on this sheet and in accordance
- with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

## CONCRETE NOTING DEVICE (18"X24" MIN.) 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY. 3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE. 3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE. ABOVE GRADE WASHOUT STRUCTURE NOT TO SCALE BELOW GRADE WASHOUT STRUCTURE NOT TO SCALE

#### **CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.

Install temporary concrete washouts per local requirements, where applicable. If an

- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must
- be pumped out and removed from project. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum,
- install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow. Locate washouts in an easily accessible area, on level ground and install a stone
- approving authority. Install at least one sign directing concrete trucks to the washout within the project

entrance pad in front of the washout. Additional controls may be required by the

- limits. Post signage on the washout itself to identify this location. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance

### HERBICIDES, PESTICIDES AND RODENTICIDES

- 1. Store and apply herbicides, pesticides and rodenticides in accordance with label
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately. Do not stockpile these materials onsite.

#### HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.

- Place hazardous waste containers under cover or in secondary containment. 3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

## NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

### **SECTION A: SELF-INSPECTION**

(during normal

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspection records must include:

•	business hours)	
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts.  If no daily rain gauge observations are made during weekend holiday periods, and no individual-day rainfall information available, record the cumulative rain measurement for those u attended days (and this will determine if a site inspection needed). Days on which no rainfall occurred shall be recorded "zero." The permittee may use another rain-monitoring devi
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	approved by the Division.  1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	I. Identification of the discharge outfalls inspected,     Date and time of the inspection,     Name of the person performing the inspection,     Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration,     Indication of visible sediment leaving the site,     Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made:  1. Actions taken to clean up or stabilize the sediment that has le the site limits,  2. Description, evidence, and date of corrective actions taken, a  3. An explanation as to the actions taken to control future releases.
5) Streams or wetlands onsite or offsite where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made:  1. Description, evidence and date of corrective actions taken, an 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permi
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover).  2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

## SECTION B: RECORDKEEPING

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

### **Documentation Requirements** (a) Each E&SC measure has been installed Initial and date each E&SC measure on a copy

locations, dimensions and relative elevations shown on the approved E&SC plan.	and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection

and does not significantly deviate from the of the approved E&SC plan or complete, date

report to indicate compliance with approved ground cover specifications. (d) The maintenance and repair Complete, date and sign an inspection report. requirements for all E&SC measures have been performed. (e) Corrective actions have been taken Initial and date a copy of the approved E&SC to E&SC measures. plan or complete, date and sign an inspection report to indicate the completion of the

#### 2. Additional Documentation to be Kept on Site In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

#### 3. Documentation to be Retained for Three Years All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

#### PART II, SECTION G, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather) Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit, (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include

(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems, (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,

(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

#### SECTION C: REPORTING 1. Occurrences that Must be Reported

- Permittees shall report the following occurrences:
- (a) Visible sediment deposition in a stream or wetland.
- (b) Oil spills if:

Occurrence

health or the

environment[40

CFR 122.41(I)(7)

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or • They are within 100 feet of surface waters (regardless of volume).
- c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

## (d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the

## 2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800)

Reporting Timeframes (After Discovery) and Other Requirements

#### deposition in a • Within 7 calendar days, a report that contains a description of the stream or wetland sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sedimentrelated causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions. (b) Oil spills and Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and release of hazardous location of the spill or release. substances per Item 1(b)-(c) above

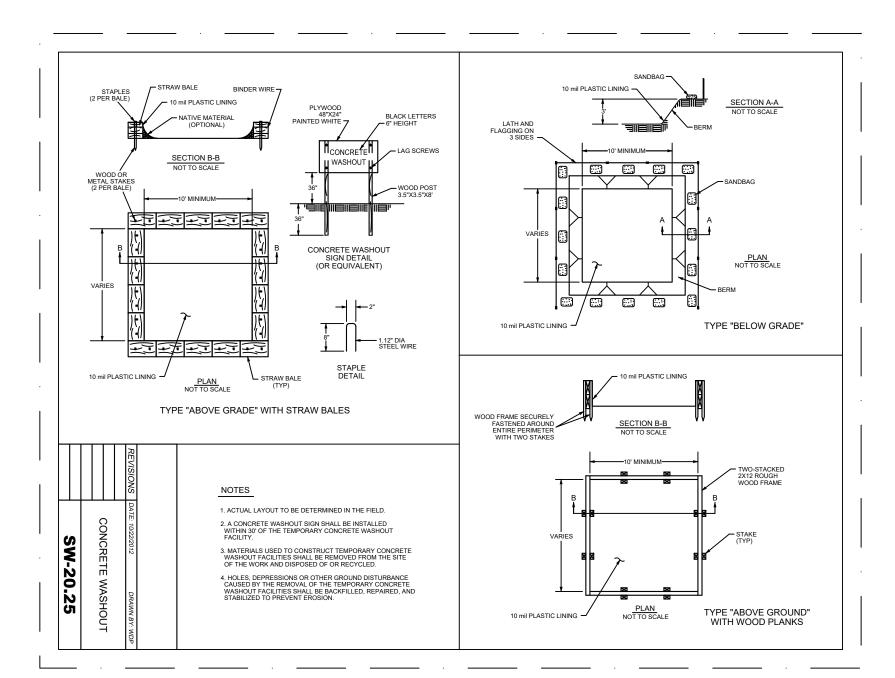
(a) Visible sediment • Within 24 hours, an oral or electronic notification.

#### A report at least ten days before the date of the bypass, if possible. bypasses [40 CFR The report shall include an evaluation of the anticipated quality and

122.41(m)(3)]		effect of the bypass.
(d) Unanticipated	•	Within 24 hours, an oral or electronic notification.
bypasses [40 CFR	•	Within 7 calendar days, a report that includes an evaluation of th
122.41(m)(3)]		quality and effect of the bypass.
(e) Noncompliance	•	Within 24 hours, an oral or electronic notification.
with the conditions	•	Within 7 calendar days, a report that contains a description of th
of this permit that		noncompliance, and its causes; the period of noncompliance,
may endanger		including exact dates and times, and if the noncompliance has no

including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(I)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

| EFFECTIVE: 04/01/19



EE PROJECT: 5206 URVEYED BY: BP URVEY DATE: NOV 2022 DRAWN BY: BAH, NOV 2022 HORIZONTAL: 1 INCH = 50 FE VERTICAL: 1 INCH = NA FE DUNN, NC 28334

TOWNSHIP: AVERASBORO

COUNTY: HARNETT

PROPERTY OWNER(S):

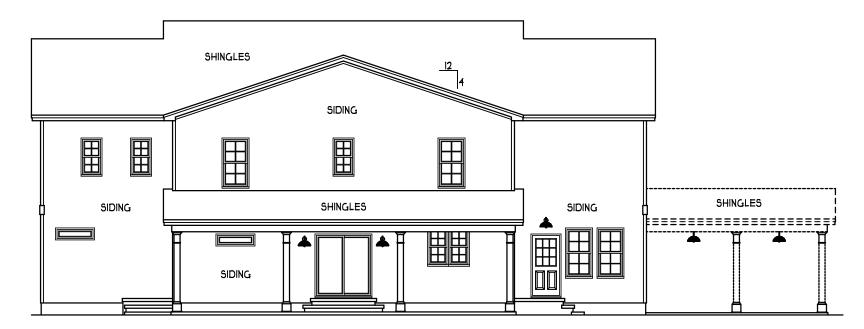
HOPE CENTER MINISTRIES 7440 NW 39TH EXP. PO BOX 641 BETHANY, OK 73008-0641

REVISIONS:

**S-6** 



FRONT ELEVATION SCALE 3/16" = 1'-0"



REAR ELEVATION SCALE 3/32" = 1'-0"

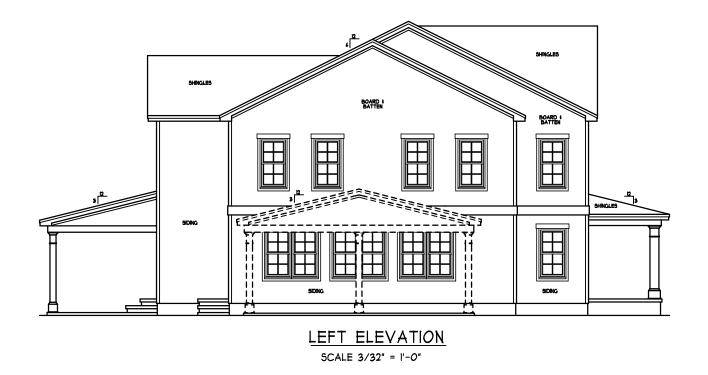
### ATTIC VENTILATION:

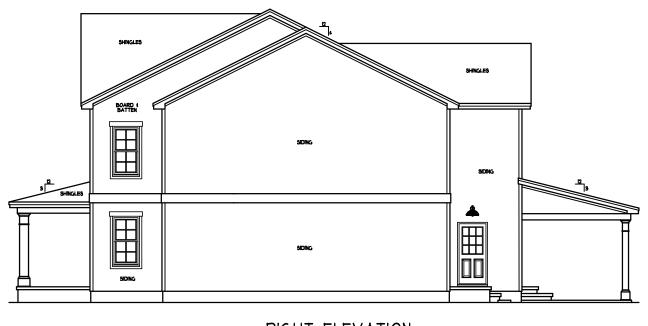
THE NET FREE VENTILATING AREA SHALL BE NOT LESS THAN I TO 150 OF THE AREA OF THE SPACE VENTILATED EXCEPT THAT THE AREA MAY BE I TO 300, PROVIDED AT LEAST 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3 FEET ABOVE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION TO BE PROVIDED BY EAVE OR CORNICE VENTS.

GROSS ATTIC AREA TO BE VENTILATED 3913 SQ.FT. 3973/150 = 26.48 SQ.FT. NET FREE AREA (INC. CARPORT ROOF)

#### ENERGY COMPLIANCE

ZONE 3 = MAX. GLAZING U-FACTOR .35 R-VALUE = CEILING R38, WALLS RIS, FLOORS RI9 FOR JOHNSTON, SAMPSON COUNTY ZONE 4 = MAX. GLAZING U-FACTOR .35 R-VALUE = CEILING R38, WALLS RI5, FLOORS RI9 FOR WAKE, DURHAM, ORANGE, HARNETT COUNTY





RIGHT ELEVATION SCALE 3/32" = 1'-0"

GODWIN HOPE HWY"THE BUCK 42 0 4

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248 456 ST FLOOR SOND FLOOR FRONT PORCH COV'D PATIO

HEATHER or JOHNATHAN FI65 HEATHERSTONE CIBENSON NC 27504 (919) 207-1403

H SQUARED HOME DESIGN, INC.



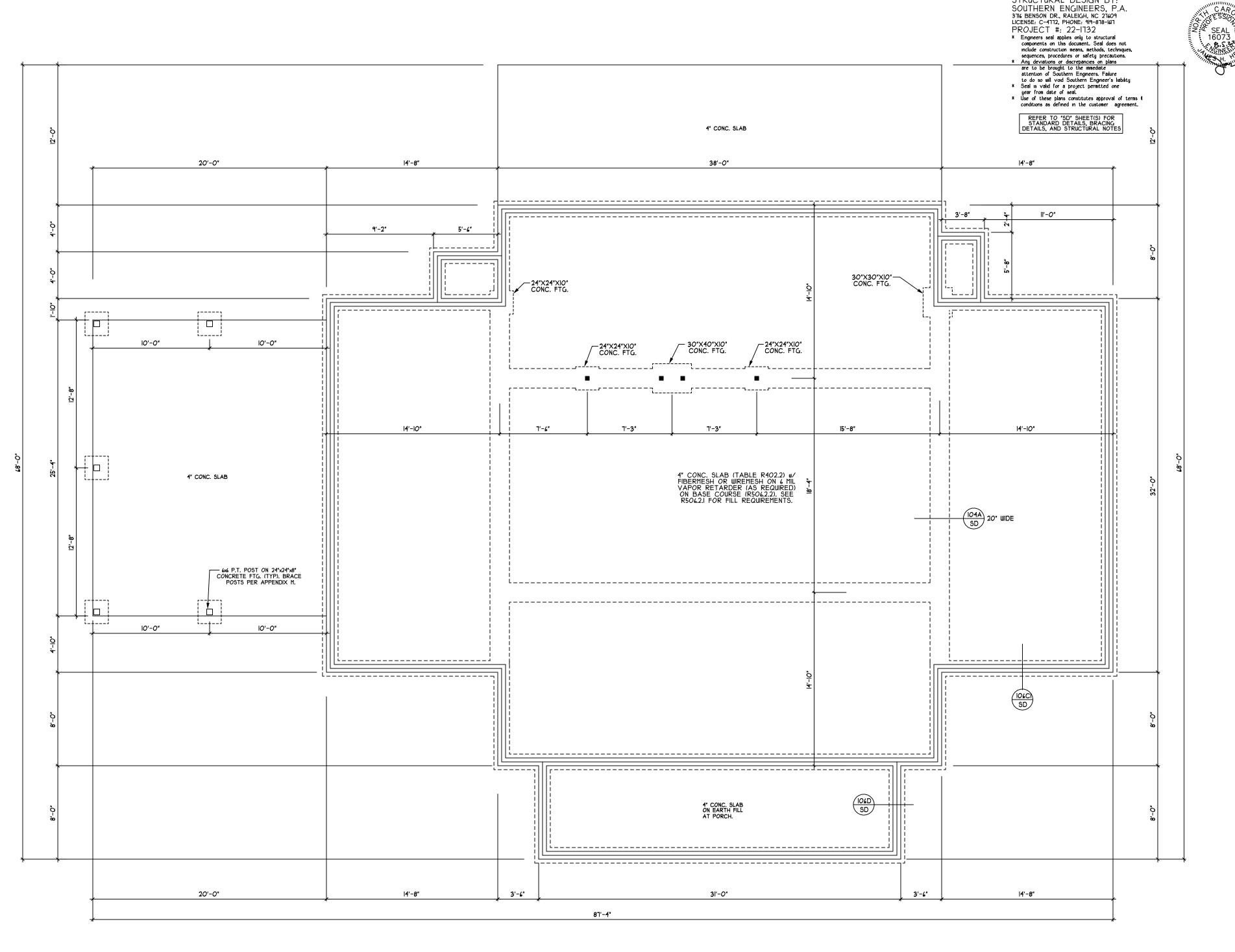
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DATE:

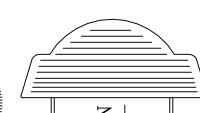
07/05/22 2 STORY



ANCHOR BOLTS ANCHOR BOLTS TO BE PLACED WITHIN 12" OF EVERY CORNER AND FROM EVERY SPLICE AND AT 6'-O" O.C. WITH 7" MIN. IN CONC.

DAMP PROOFING FOR DRAINAGE, DAMP PROOFING \$ WATER PROOFING REFER TO SECTION 405 \$ 406 IN 2018 EDITION NC RES. CODES

FOUNDATION PLAN SCALE 3/16" = 1'-0"



STRUCTURAL DESIGN BY:

	SQUARE FOOTAGE:		HEATED FOOTAGE:	
- IAH NAHTANHOL YOR	FIRST FLOOR	= 2763		THE HOPE CENTER
HEATHERSTONE CT	SECOND FLOOR	= 2647	# 7 17	1142 NC HWY 55 E, DUNN
NSON NC 27504	FRONT PORCH	= 248	# 24IO	
(919) 207-1403		1 1 E		BIICK CODWIN CONSTB

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DUNN CONSTR. CENTER" त्रं 55 GODWIN HOPE HWY"THE BUCK 1142 5410 # = 2763 = 2647 = 248 = 456 H SQUARED HOME DESIGN, INC.

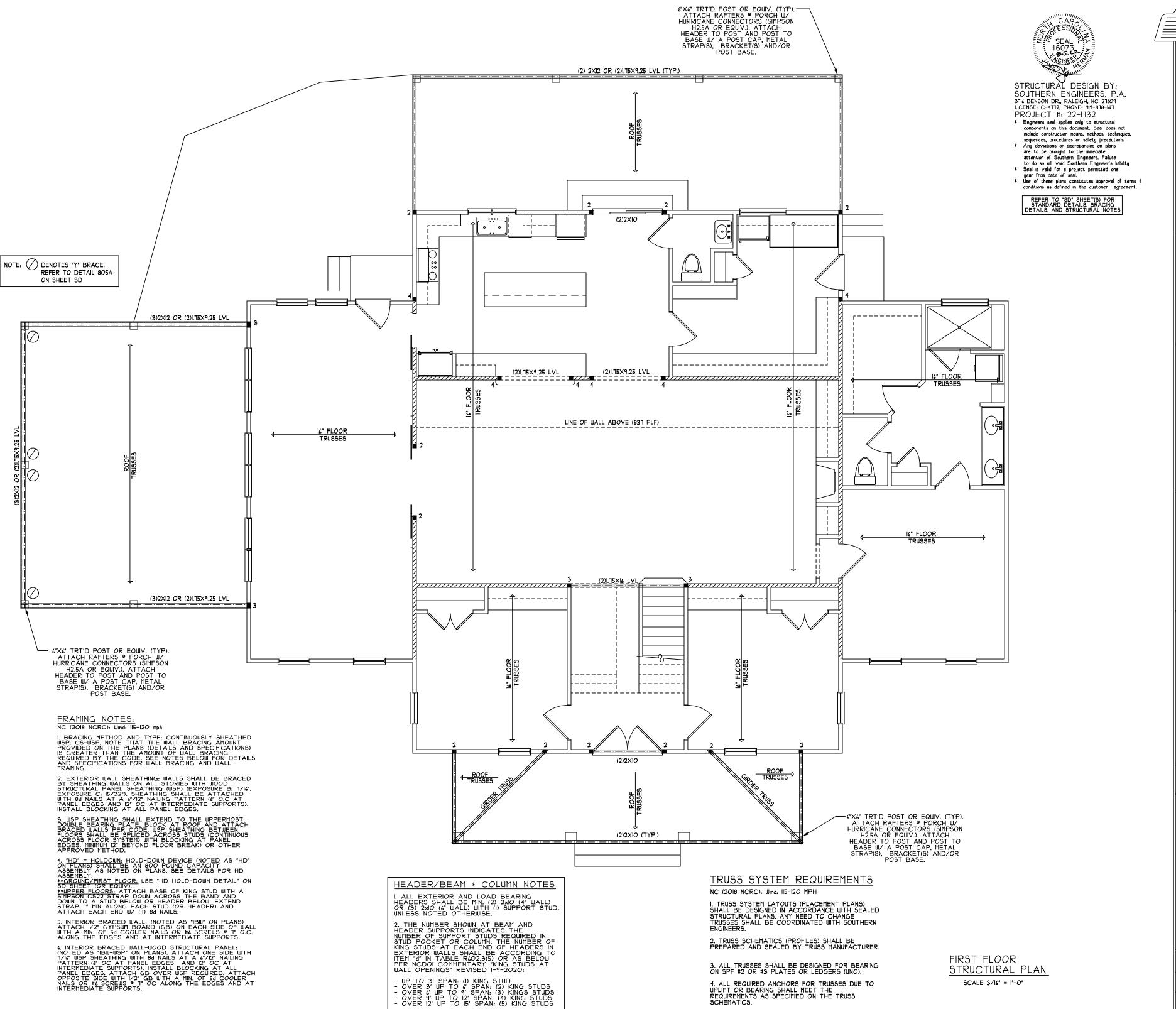
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07/05/22 2 STORY



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248 456 11 11 T FLOOR OND FLOOR FRONT PORCH COV'D PATIO

HEATHER or JOHNATHAN HALL 165 HEATHERSTONE CT BENSON NC 27504 (919) 207-1403

H SQUARED HOME DESIGN, INC.



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TENSIONS DESIGN, homeol block e built by the d in this title multiple builds. AN, DIM HOME

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DATE: 07/05/22

2 STORY

FILE: 11 21 21

BDRM #2

13'-4"

9'-0"

2'8"¥5'2"

2'8"×5'2"

3'-10"

۵′-8"

14'-8"

2'8"×5'2"

4'-2"

BDRM #6

13'-4"

9'-0"

2'8"¥5'2"

2'8"×5'2"

3'-10"

2'8"×5'2"

4'-8"

14'-8"

DOWN 16 RISERS

10'-0"

10'-0"

2'8"×5'2" TWIN

38'-0"

10'-0"



CONSTR.

GENTER" 55 E, DUNN GODWIN HOPE HWY "THE t2 NC BUCK 1142 #5410 = 2763 = 2647 = 248 = 456 H SQUARED HOME DESIGN, INC.

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DATE: 07/05/22 2 STORY

11 21 21

4'-2"



STRUCTURAL DESIGN BY:
SOUTHERN ENGINEERS, P.A.
3716 BENSON DR., RALEIGH, NC 21609
LICENSE: C-4172, PHONE: 919-878-1617
PROJECT #: 22-1732

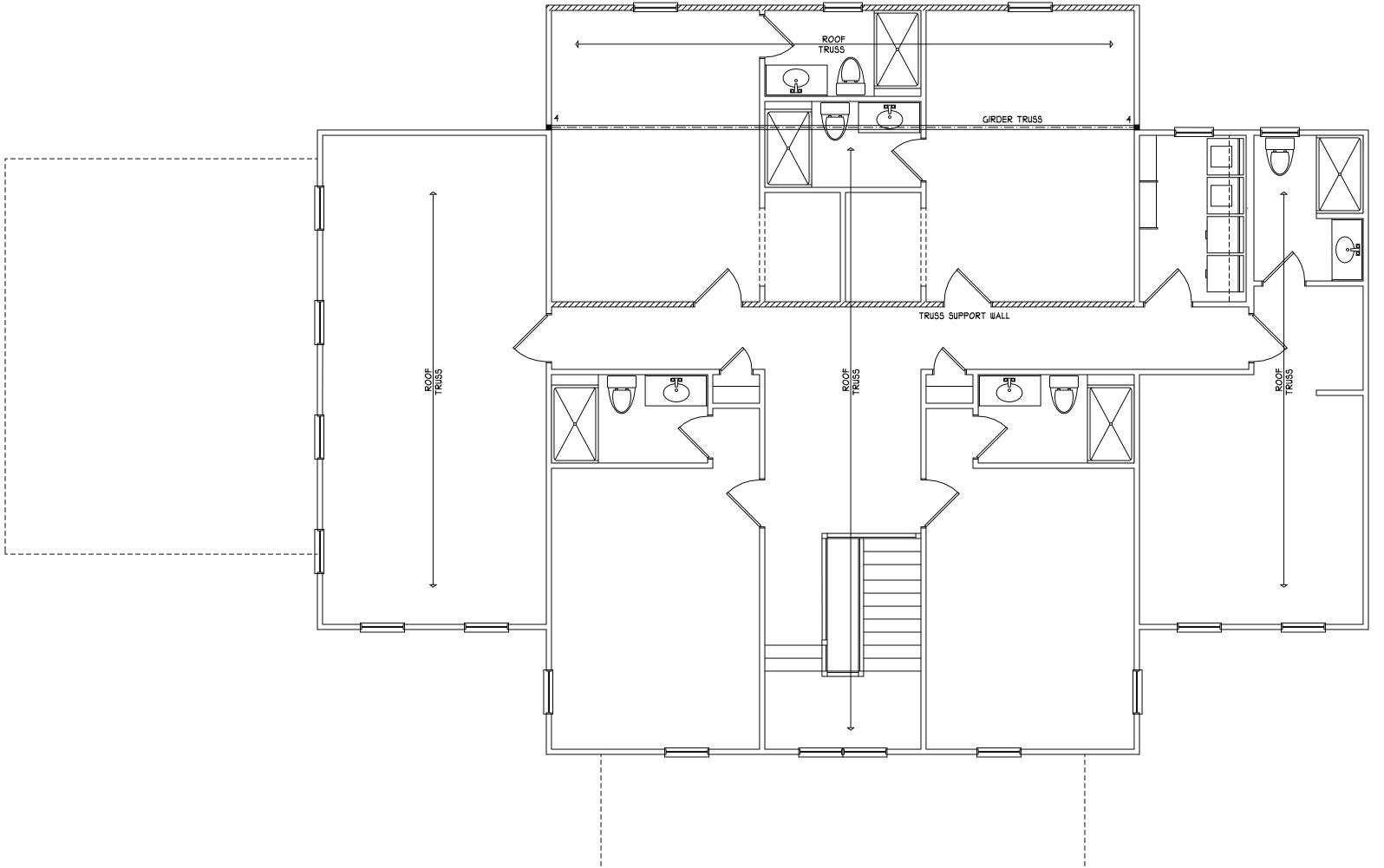
\* Engmeers seal applies only to structural components on this document. Seal does not include construction means, methods, techniques, sequences, procedures or safety precautions.

\* Any deviations or discrepancies on plans are to be brought to the immediate attention of Southern Engineers. Failure to do so will void Southern Engineer's liability

\* Seal is valid for a project permitted one year from date of seal.

\* Use of these plans constitutes approval of terms & conditions as defined in the customer agreement.

REFER TO "SD" SHEET(S) FOR STANDARD DETAILS, BRACING DETAILS, AND STRUCTURAL NOTES



5 # 2763 2647 248 456 11 11 FIRST FLOOR SECOND FLOOR FRONT PORCH COV'D PATIO

CENTER" 55 E, DUNN

HOPE HWY

"THE 12 NC

42

410

CONSTR.

GODWIN

BUCK

HEATHER or JOHNATHAN HALL 165 HEATHERSTONE CT BENSON NC 27504 (919) 207-1403

H SQUARED HOME DESIGN, INC.



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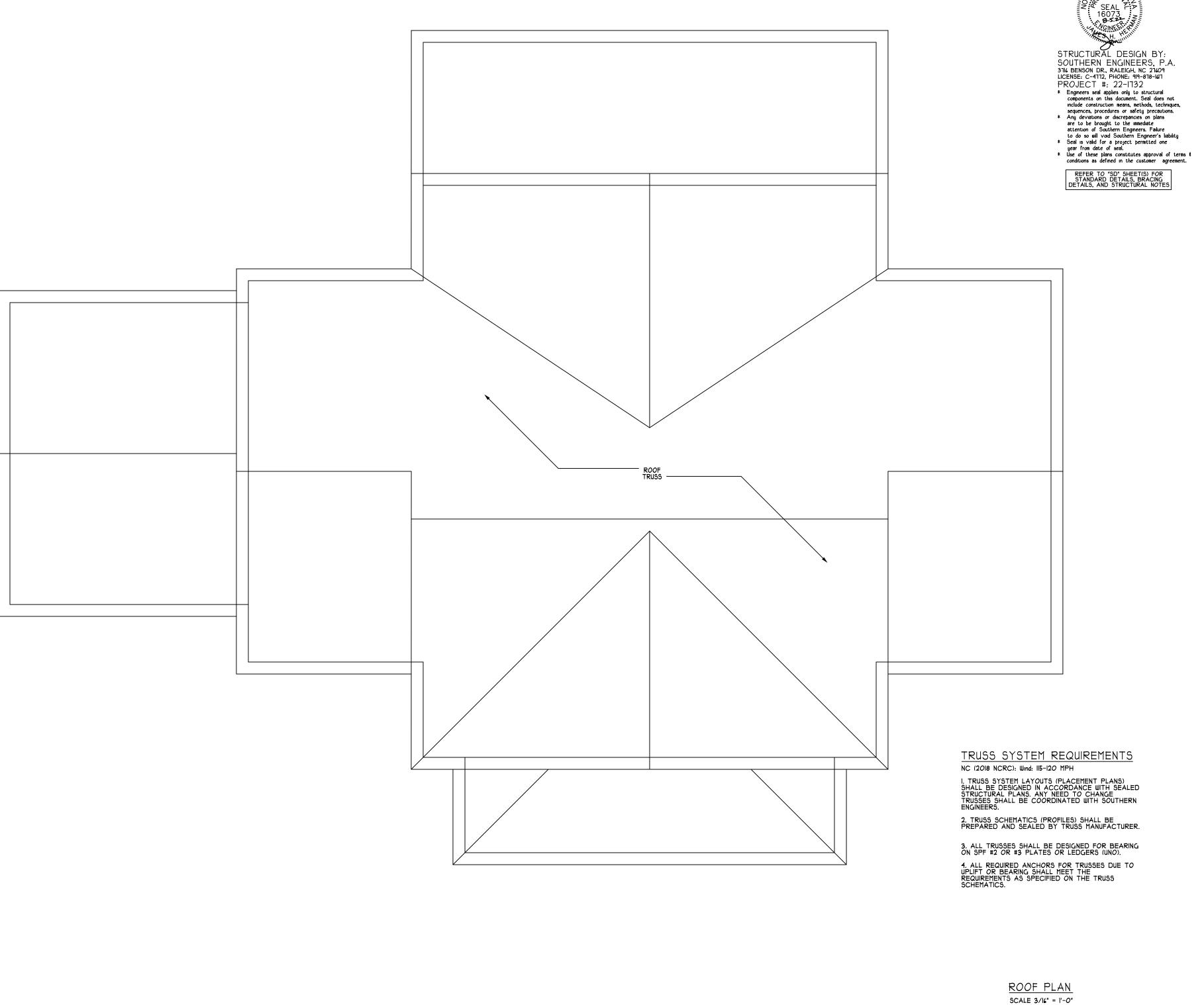
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11 21 21

2 STORY

SECOND FLOOR STRUCTURAL PLAN SCALE 3/16" = 1'-0"



CENTER" 55 E, DUNN

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HOPE HWY

"THE 12 NC

1142

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= 2763 = 2647 = 248 = 456 FRONT PORCH COVD PATIO

HEATHER or JOHNATHAN HALL 165 HEATHERSTONE CT BENSON NC 27504 (919) 207-1403

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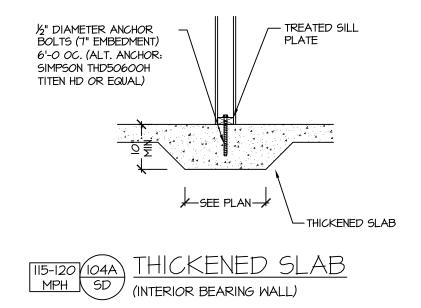
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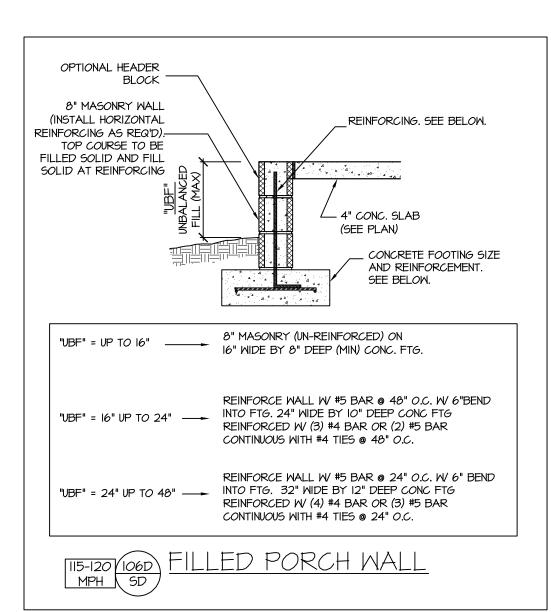
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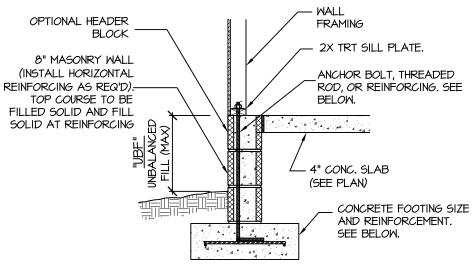
#### STRUCTURAL NOTES

#### NC (2018 NCRC): Wind: 115-120 mph

- I. ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS INCLUDING ROOF RAFTERS, HIPS, VALLEYS, RIDGES, FLOORS, WALLS, BEAMS AND HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING WALLS, PIER & GIRDER SYSTEM, FOOTING, AND PILING SYSTEM. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF SYSTEM. ALL REQUIREMENTS FOR PROFESSIONAL CERTIFICATION SHALL BE PROVIDED BY THE APPROPRIATE PROFESSIONAL. SOUTHERN ENGINEERS, P.A. CERTIFIES ONLY THE STRUCTURAL COMPONENTS AS SPECIFICALLY STATED.
- 2. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE 2018 NC RESIDENTIAL CODE, PLUS ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK, NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. "CONSTRUCTION REVIEW" SERVICES ARE NOT PART OF OUR CONTRACT. ALL MEMBERS SHALL BE FRAMED ANCHORED, TIED AND BRACED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND THE BUILDING CODE.
- 3. DESIGN LOADS (LISTED AS: LIVE LOAD, DEAD LOAD, DEFLECTION)
- ROOMS OTHER THAN SLEEPING ROOMS: (40 PSF, IO PSF, L/360)
- SLEEPING ROOMS: (30 PSF, 10 PSF, L/360)
- ATTIC WITH PERMANENT STAIR: (40 PSF, IO PSF, L/360)
- ATTIC WITHOUT PERMANENT STAIR: (20 PSF, IO PSF, L/360)
- ATTIC MITHOUT FERMALINI STAIR: (20 PSF, 10 PSF
   ATTIC MITHOUT STORAGE: (10 PSF, 10 PSF, L/240)
- STAIRS: (40 PSF, IO PSF, L/360)
- EXTERIOR BALCONIES: (60 PSF, IO PSF, L/360)
- DECKS: (40 PSF, 10 PSF, L/360)
   GUARDRAILS AND HANDRAILS (200
- GUARDRAILS AND HANDRAILS: (200 LBS)
- PASSSENGER VEHICLE GARAGES: (50 PSF, IO PSF, L/360)
- FIRE ESCAPES: (40 PSF, IO PSF, L/360)
- SNOW: (20 PSF)
- 4. WALLS SHALL BE BRACED BY SHEATHING WALLS ON ALL STORIES WITH WOOD STRUCTURAL PANELS. SEE FRAMING NOTES FOR THICKNESS AND NAILING REQUIREMENTS.
- 5. SEE APPENDIX M (DCA6) FOR EXTERIOR DECK REQUIREMENTS INCLUDING ATTACHMENTS FOR LATERAL LOADS.
- 6. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3000 PSI AND A MAXIMUM SLUMP OF 5 INCHES UNLESS NOTED OTHERWISE (UNO). AIR ENTRAINED PER TABLE 402.2. ALL CONCRETE SHALL BE PROPORTIONED, MIXED, HANDLED, SAMPLED, TESTED, AND PLACED IN ACCORDANCE WITH ACI STANDARDS. ALL SAMPLES FOR PUMPING SHALL BE TAKEN FROM THE EXIT END OF THE PUMP. CONTROL JOINTS IN SLABS SHALL BE SPACED ON A GRID OF +-30 TIMES THE DEPTH (D). CONTROL JOINTS SHALL BE SAWCUT TO A DEPTH OF I/D. (I.E. 4" CONCRETE SLABS SHALL HAVE ¼" DEEP CONTROL JOINTS SAWCUT IN SLAB ON A +-10'-0" x +-10'-0" GRID).
- 7. ALLOWABLE SOIL BEARING PRESSURE ASSUMED TO BE 2000 PSF. THE CONTRACTOR MUST CONTACT A GEOTECHNICAL ENGINEER AND THE STRUCTURAL ENGINEER IF UNSATISFACTORY SUBSURFACE CONDITIONS ARE ENCOUNTERED. THE SURFACE AREA ADJACENT TO THE FOUNDATION WALL SHALL BE PROVIDED WITH ADEQUATE DRAINAGE, AND SHALL BE GRADED SO AS TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS.
- 8. ALL FRAMING LUMBER SHALL BE SPF #2 (Fb = 875 PSI) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE SYP # 2. PLATE MATERIAL MAY BE SPF # 3 OR SYP #3 (Fc(perp) = 425 PSI MIN)
- 9. L.V.L. SHALL BE LAMINATED VENEER LUMBER: Fb=2600 PSI, Fv=265 PSI, E=1.9xI0 PSI.
  9.1. P.S.L. SHALL BE PARALLEL STRAND LUMBER: Fb=2900 PSI, Fv=290 PSI, E=2.0xI0 PSI.
  9.2. L.S.L. SHALL BE LAMINATED STRAND LUMBER: Fb=2250 PSI, Fv=400 PSI, E=1.55xI0 PSI.
  INSTALL ALL CONNECTIONS PER MANUFACTURERS INSTRUCTIONS.
- IO. ALL ROOF TRUSS AND I-JOIST LAYOUTS SHALL BE PREPARED IN ACCORDANCE WITH THE SEALED STRUCTURAL DRAWINGS. TRUSSES AND I-JOISTS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURE'S SPECIFICATIONS. ANY CHANGE IN TRUSS OR I-JOIST LAYOUT SHALL BE COORDINATED WITH SOUTHERN ENGINEERS.
- II. ALL STRUCTURAL STEEL SHALL BE ASTM A-36. STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2" INCHES AND FULL FLANGE WIDTH. PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG SCREWS (1/2" DIAMETER x 4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDING THE JOIST ARE TOE NAILED TO THE SOLE PLATE, AND SOLE PLATE IS NAILED OR BOLTED TO THE BEAM FLANGE @ 48" O.C. ALL STEEL TUBING SHALL BE ASTM A500.
- 12. REBAR SHALL BE DEFORMED STEEL, ASTM615, GRADE 60. LAP ALL REBAR SPLICES 30 BAR DIAMETERS.
- I3. FLITCH BEAMS SHALL BE BOLTED TOGETHER USING (2) ROWS OF I/2" DIAMETER BOLTS (ASTM A325) WITH WASHERS PLACED UNDER THE THREADED END OF BOLT. BOLTS SHALL BE SPACED AT 24" O.C. (MAX), AND STAGGERED AT THE TOP AND BOTTOM OF BEAM (2" EDGE DISTANCE), WITH 2 BOLTS LOCATED AT 6" FROM EACH END.
- 14. BRICK LINTELS (WHEN REQUIRED) SHALL BE 3 I/2"x3 I/2"x1/4" STEEL ANGLE FOR UP TO 6'-O" SPAN AND 6"x4"x5/16" STEEL ANGLE WITH 6" LEG VERTICAL FOR SPANS UP TO 9'-O". SEE PLANS FOR SPANS OVER 9'-O". SEE ALSO SECTION R703.8.3 LINTELS.



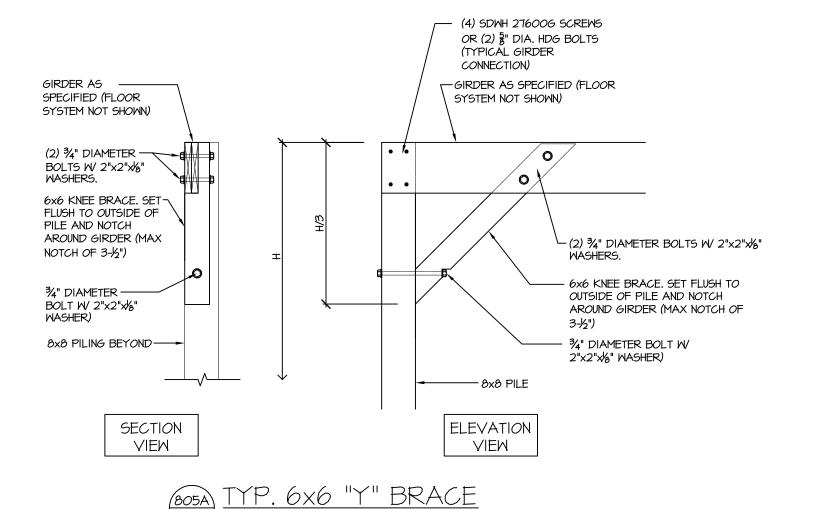




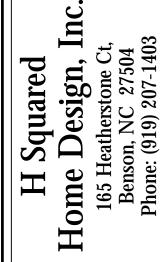


1" DIAM ANCHOR BOLT (EMBED 7") @ 6'-0" O.C. "UBF" = UP TO 16" 16" WIDE BY 8" DEEP (MIN) CONC. FTG. 1 DIAM ANCHOR BOLT (EMBED 7") @ 6'-0" O.C. REINFORCE WALL W/ #5 BAR @ 48" O.C. W/ 7.5" LEG INTO FTG. OR INSTALL & THREADED ROD W/ 7.5" LEG "UBF" = 16" UP TO 24" ---@ 48" O.C. WITH WASHERS 24" WIDE BY IO" DEEP CONC FTG REINFORCED W (3) #4 BAR OR (2) #5 BAR CONTINUOUS WITH #4 TIES @ 48" O.C. ½" DIAM ANCHOR BOLT (EMBED 7") @ 6'-0" O.C. REINFORCE WALL W/ #5 BAR @ 24" O.C. W/ 7.5" LEG "UBF" = 24" UP TO 48" ---INTO FTG. 32" WIDE BY I2" DEEP CONC FTG REINFORCED W (4) #4 BAR OR (3) #5 BAR CONTINUOUS WITH #4 TIES @ 24" O.C.





(APPROVED ALTERNATE METHODS ACCEPTABLE)



PROJECT #

22-1732

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methods, techniq

P.A. 27609

Engineers

Southern 3716 Benson D

Benson Drive, R. Phone: (919)

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date of seal. & conditions

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THE HOPE CENTER 1142 HWY 55 E, DUNN BUCK GODWIN CONSTR.

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			PLUMBING FIXTURE SCHEDULE			ĺ
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1	TWO PIECE TANK TYPE WATER CLOSET	TOTO CST744EL OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREDUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112.19.2 COMPLIANCE.	-	1/2"	3"
P2	WALL MOUNT LAVATORY	TOTO LT307. 4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	AMERICAN STANDARD OR INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR KOHLER SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0800 (WALL SUPPORT PLATE). USE MOEN 8430 FAUCET.		1/2"	2*
P3	COUNTER MOUNT LAVATORY	TOTO LT511. 4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREDUS CHINA SELF-RIMMING LAVATORY COMPLYING WITH ASME 112. 19. 2. MOUNT SO RIM IS 34 INCHES AFF AND 2 INCHES FROM FRONT EDGE FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS SUPPLY AND DRAIN LINES. USE MOEN 8430 FAUCET.	1/2 <b>"</b>	1/2*	2*
P4	SHOWER/BATHTUB	N/A	SELECTED BY OWNER	1/2"	1/2*	2'
P5	FLOOR DRAIN	WATTS FD-200-A OR EQUAL BY ZURN OR JR SMITH	ON GRADE EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, AND NO HUB DUTLET. PROVIDE TRAP PRIMER CONNECTION OPTION IF NOTED.	-	-	4"
P6	FREEZEPROOF HOSE BIBB	WOODFORD MODEL 68 OR EQUAL BY ZURN OR MIFAB	THE MODEL 68 IS A ASSE 1053 LISTED HYDRANT, WITH A ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER, COMES WITH A CHROME PLATED BRASS HEAD WITH STAINLESS STEEL COVER, IT DRAINS AUTOMATICALLY EVEN WITH A ATTACHED HOSE, HAS A DNE PIECE PLUNGER WHICH CONTROLS DRAIN AND FLOW FUNCTION, WORKS WITH PRESSURES UP TO 125 PSI, AND A MAX TEMPERATURE OF 120 DEGREES, TEE KEY FOR HYDRANT DOOR AND LOCK, EASIER TO INSTALL THAN STANDARD RECESSED BOX HYDRANT, WALL CLAMP IS INCLUDED, HEAD COVER FLIPS DOWN AND OUT OF THE WAY FOR UNOBSTRUCTED HYDRANT USE	-	3/4"	-
P7	1 1/2"RPZ BACKFLOW PREVENTER	WATTS LF909M1 QT DR EQUAL BY CONBRACO OR WILKINS	RPZ ASSEMBLY CONSISTING OF A PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED IN A ZONE BETWEEN TWO POSITIVE SEATING CHECK VALVES. THE ASSEMBLY SHALL INCLUDE TWO TIGHTLY CLOSING SHUTDFF VALVES BEFORE AND AFTER THE ASSEMBLY, TEST COCKS AND A PROTECTIVE STRAINER UPSTREAM OF THE FIRST SHUTDFF VALVE. THE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1013 AND AWWA C511	-	1 1/2"	-
P8	SINK DOUBLE BOWL	ELKAY LRADQ3319 DR EQUAL BY FRANKE DR MDEN	TOP MOUNTED 18 GA STAINLESS STEEL. MAX BOWL DEPTH 6 INCHES FOR WHEEL CHAIR ACCESSIBLITY-USE DELTA FAUCET SET 140-DST (PC TO VERIFY WITH OWNER IF SPRAYER OPTION IS NEEDED) OR EQUAL BY MOEN OR KOHLER.	1/2"	1/2"	2.
P9	REFRIGERATOR VALVE BOX	DATEY OR APPROVED EQUAL	HIGH IMPACT POLYSTYRENE BOX WITH 1/4 TURN BRASS BALL VALVE. COMPLIANT WITH NSF 61, SECTION 9.	-	1/2"	-
P10	THERMOSTATIC MIXING VALVE	WATTS LFN170-M3 DR EQUAL BY LAWLER DR LEDNARD VALVE	ASSE STANDARD 1016,1069, OR 1070 APPROVED WITH 1 INCH FEMALE NPT INLET AND OUTLET CONNECTIONS, BRASS BODY, AND INTEGRAL MOUNTING HOLES. TAMPER RESISTANT THERMOPLASTIC ENCLOSURE. SINGLE REPLACEABLE CARTRIDGE DESIGN.	1'	1'	-
P11	WASHING MACHINE SHUTOFF BOX	WATTS SERIES 2M2 DWB DR APPROVED EQUAL	SINGLE-HANDLE WASH MACHINE SHUTDFF VALVE. THE BALL-TYPE VALVE SHALL SIMULTANEOUSLY CONTROL THE FLOW OF BOTH HOT AND COLD WATER TO THE APPLIANCE AND BE FITTED IN A DECORATIVE RECESSED WALL BOX. THE DECORATIVE WALL BOX SHALL HAVE A PROVISION FOR 1-1/2 INCH AND 2 INCH DRAIN PIPING AND A DECORATIVE COVER. RATED FOR 150 PSI AND 180°F MAXIMUM.	1/2*	1/2"	-
P12	HOT WATER RE-CIRCULATION PUMP	TACO COMFORT SOLUTIONS MODEL 006-IQBC7-IFC	9 GPM AT 8.5 FT. HEAD WITH LINE CORD, TIMER AND AQUASTAT AND CHECK VALVE. 3/4" SWEAT CONNECTION, BRONZE CASING.	3/4"	3/4"	-
P13	EXPANSION TANK	AMTROL ST-5 OR EQUAL BY WATTS OR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
FCD	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPDXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	4"
AAV	AIR ADMITTANCE VALVE	STUDOR REDIVENT OR APPROVED EQUAL	ANSI/ASSE 1051 LISTED. NSF STANDARD 14. PROVIDE PVC OR ABS CONNECTOR AS NECESSARY. CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM. PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.	-	-	2*

	VALVE		APPROVED EQU	JAL								GHT POSITION A ILING OR OTHER	
	•											_	
				GAS WATER HEATER	SCHEDULE (P	PROVIDE 3)							
MARK	MFG	MODEL	INPUT	RECOVERY	SET POINT	EFFICIENCY	POW	ER	CONNEC	CTIONS	OPTIONS		
MHKK	MFU	MUNEL	MBH	GPM @ 90°F ∆T	<b>°</b> F	%	VOLTAGE	PHASE	COLD	HDT	TLIITIN?		
WH1&2	RINNAI	CU199eN	199. 0	4. 2	140	95	120	1	3/4	3/4	1-6		

- SEALED COMBUSTION
- UL LISTED PROVIDE CONCENTRIC VENT KIT FOR ROOF OR SIDEWALL WAS REQUIRED

6. OR EQUAL BY A.O. SMITH, BRADFORD WHITE, OR STATE

PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE MEET OR MINIMUM EFFICIENCY AND STANDBY LOSS REQUIREMENTS OF ASHRAE 90.1-2007

FIXTURE TYPE	DCCUPANCY	QTY	DRAINAGE FIX	XTURE UNITS		WATER	SUPPLY FIXTU	RE UNITS	
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOT
WATER CLOSET (FLUSH TANK)	PUBLIC	7	4. 00	28. 00	5, 00	0, 00	5. 00	0. 00	35.
SHOWER	PUBLIC	6	2. 00	12. 00	3. 00	3. 00	4. 00	18. 00	24.
LAVATORY	PUBLIC	9	1. 00	9. 00	1. 50	1. 50	2. 00	13. 50	18.
EMERGENCY FLOOR DRAIN	PUBLIC	1	0. 00	0. 00	0. 00	0. 00	0. 00	0. 00	0.
EMERGENCY FLOOR DRAIN  DEMAND FIXTURE	PUBLIC	1 QTY	0. 00	0. 00	0. 00	0. 00	TOTAL DFU		ı
			1	0.00	0. 00	0.00			. 0
DEMAND FIXTURE	GPM	QTY	TOTAL GPM	0.00	0. 00	0.00	TOTAL DFU	49.	. 0
DEMAND FIXTURE	GPM	QTY	TOTAL GPM	0.00	0. 00		TOTAL DFU	49. 31. 5 23. 30	77.

	DO NO	ot tap wate	R
	LINE A	AHEAD OF RI	PZ.
,			
	ABBRE\	VIATIONS AND DEFINITIONS	
	ABBREVIATION	DEFINITION	
	CM2	COLD WATER SUPPLY	
	HWS	HOT WATER SUPPLY	
	SAN	SANITARY SEWER	

VTR

aff

GCD

VENT TO ROOF

PLUMBING CONTRACTOR

ABOVE FINISHED FLOOR

WATER HEATER

VENT STACK (SANITARY)

GROUND CLEAN OUT

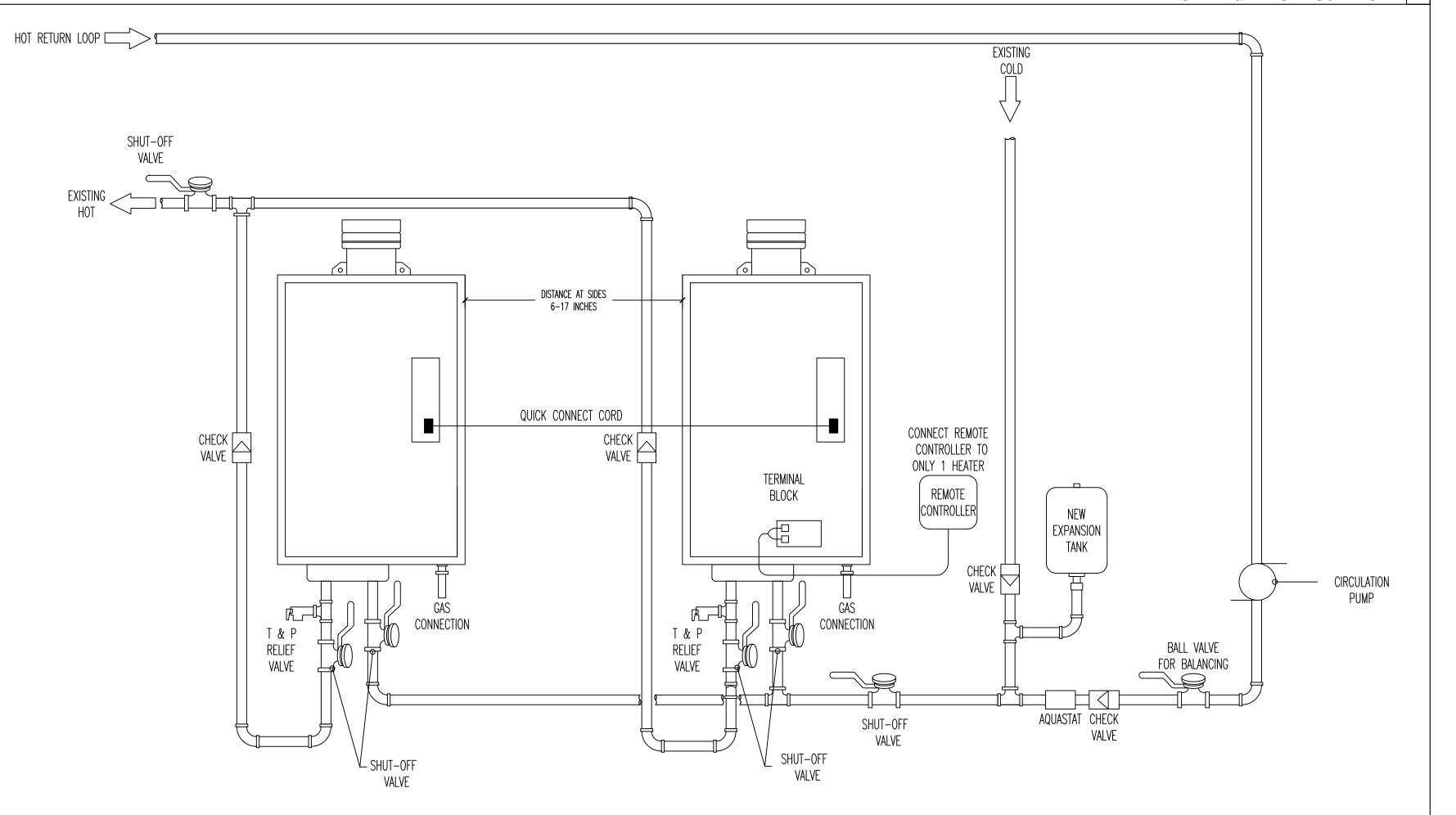
MINIMUM BUILDING DRAIN SIZE 4"

MINIMUM WATER LINE SIZE

COLD WATER SUPPLY	
HOT WATER SUPPLY	· · ·
SANITARY SEWER LINE	
VENT LINE	

LINETYPE LEGEND

## PLUMBING FIXTURE SCHEDULE | 1



#### **GENERAL PLUMBING NOTES:**

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR.

AND THE GENERAL CONTRACTOR.

- FASC FIRE ALARM SYSTEM CONTRACTOR. 2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS
- THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS. 4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL
- MATERIALS AND EQUIPMENT FROM BREAKAGE. THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- 5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN. IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY
- THE ENGINEER WILL BE ACCEPTED. 6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA PLUMBING CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS
- CONFLICTS WITH THE ABOVE REQUIREMENTS. 7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER
- THIS CONTRACT. 8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- 9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL
- UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING. 10. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
- 11. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
- 12. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS
- 312.2, 312.3, AND 312.5. 13. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S
- SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS. 14. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS,
- AND EQUIPMENT UNDER THIS CONTRACT. 15. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

- 1. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. \*\*\* PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. \*\*\* CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LOCATED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED AS CONFORMING TO NSF 14. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF .25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS.
- BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.

3. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK

FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER.

ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS

- SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS: CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
- 4. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- 5. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE
- 6. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE NC PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS

of the fixture fitting.

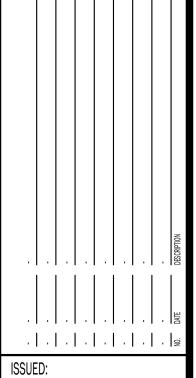
- OF THE APPROVED MANUFACTURER. 7. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2 INCH SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
- 8. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE
- FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE. 9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE NC PLUMBING CODE. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
- 10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.
- 1. EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE
- PROTECTED UNTIL FINAL CONNECTIONS ARE MADE. 2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT, ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
- 3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
- 4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK

- WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED
- IN AN APPROVED MANNER. 5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR
- UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177. 6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED
- THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3. 7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE
- HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL. 8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED
- BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022. 9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE
- 10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED. 11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES
- WITHOUT SPLASHING, NOISE, OR OVERFLOW. 12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR
- DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION. 13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
- 14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PFR FOOT MINIMUM.
- 15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
- 16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
- 17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
- 18. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
- 19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG. 20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE NC
- PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051. 21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A
- MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE 22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING
- UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS. 23. THE PC SHALL ACCURATELY ROUGH—IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
- 24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM
- ALL OUTSIDE AIR INTAKES. 25. INSTALL FULL OPEN VALVES PER NC PLUMBING CODE 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL CUT OFF VALVES PER NC PC 606.2.

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Ϋ́ CABOX.



NR PERMITTING & CONSTRUCTION				RMITTING & CONSTRUCTION
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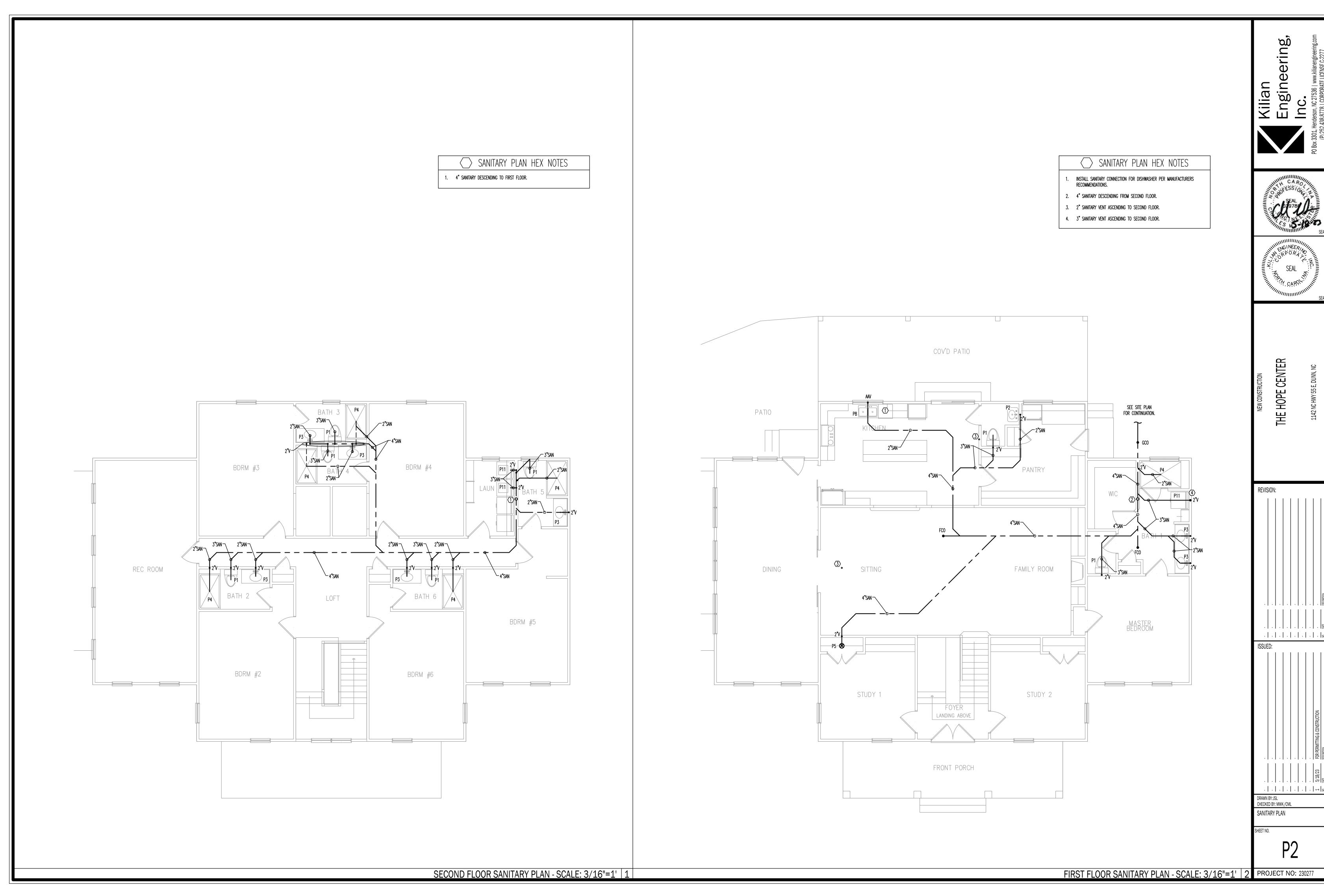
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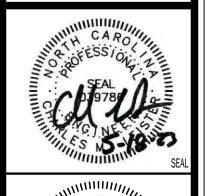
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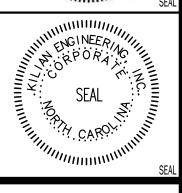
PLUMBING SCHEDULE & NOTES

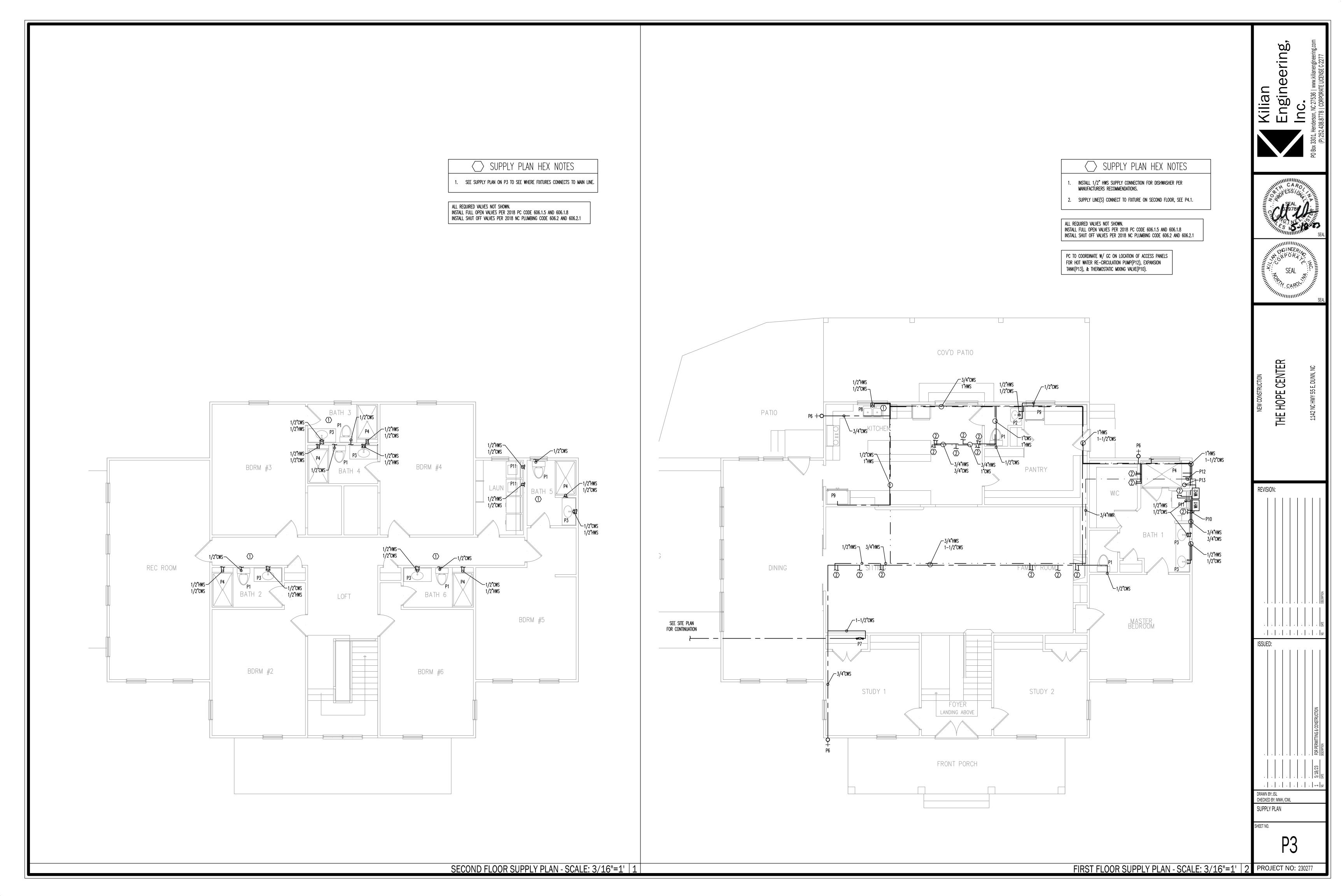
PLUMBING NOTES | 3 | PROJECT NO: 230277

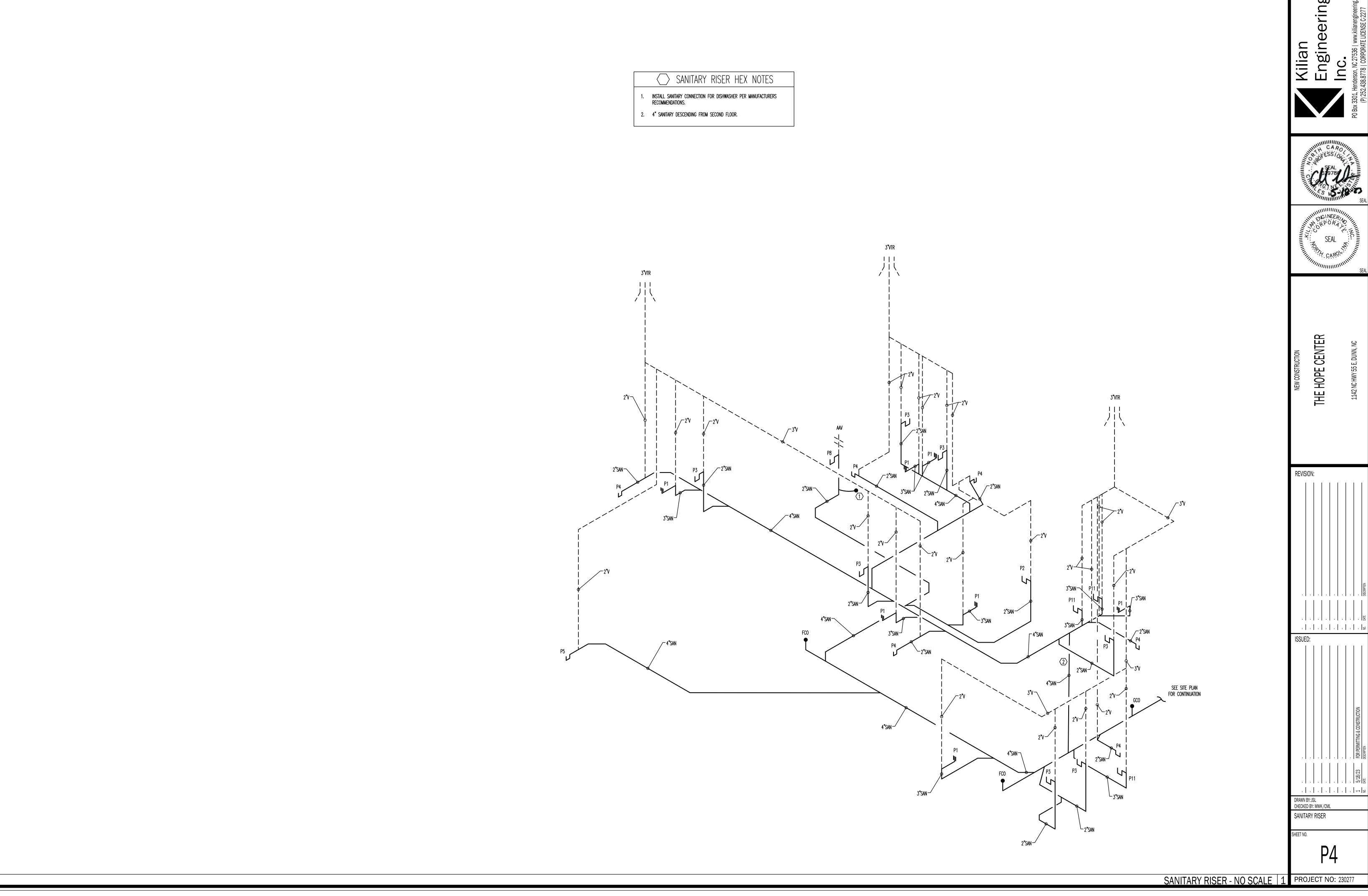
2 TANKLESS WATER HEATER DETAIL W/ RETURN LOOP - NO SCALE 2











Kilian Engineering, Inc.

THE HOPE CENTER ISSUED: DRAWN BY: JSL CHECKED BY: MWK/CML SUPPLY RISER **P5** 



### GENERAL GAS LINE PIPING NOTES

- THE GAS PIPING CONTRACTOR (GPC) SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
- 2. THE GPC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA FUEL GAS CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE
- ABOVE REQUIREMENTS.

  3. THE GPC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- 4. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- 5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS.
- 6. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
  7. THE CONTRACTOR SHALL INSTALL HIGH PRESSURE REGULATORS AT
- EACH PIECE OF EQUIPMENT AS NECESSARY.

  8. INSTALL A DRIP LEG IN GAS LINE AT EACH POINT WHERE
- CONDENSATE COULD COLLECT. ALL DRIP LEGS SHALL BE READILY ACCESSIBLE FOR CLEANING OR EMPTYING.
- PIPING SHALL BE SCHEDULE 40 STEEL OR WROUGHT IRON AND COMPLY WITH ANSI/ASME B36.10, ASTM A 53, OR ASTM A 106.
   ALL PIPES AND FITTINGS SHALL BE NEW, FREE OF DEFECTS, AND
- RATED FOR THE APPLICATION.

  11. ALL PIPING SHALL BE INSTALLED SO AS NOT TO BE SUBJECT TO PHYSICAL DAMAGE
- PHYSICAL DAMAGE.

  12. PVC VENT PIPING SHALL NOT BE INSTALLED INDOORS.

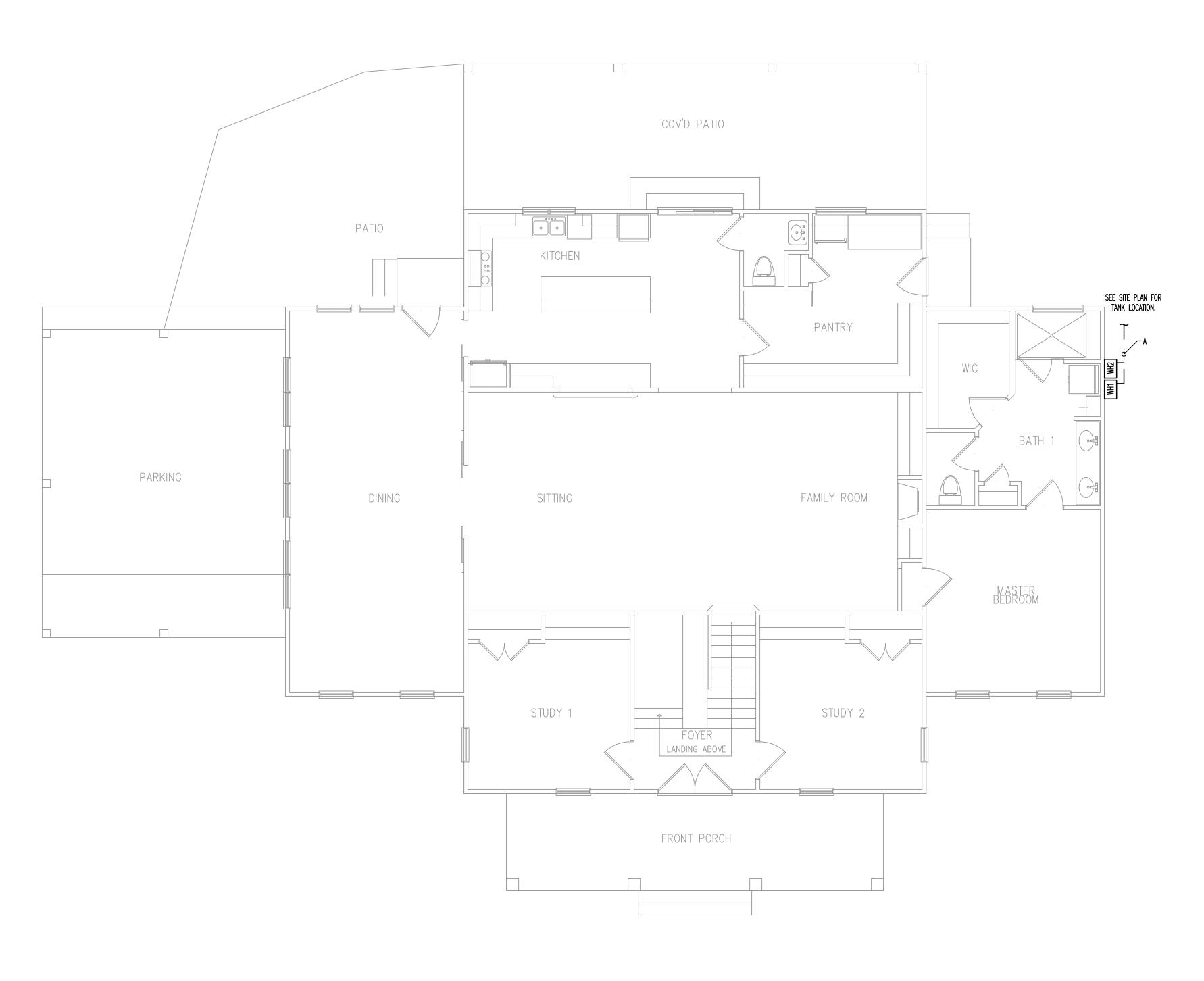
  13. THE TYPE OF RIPING POINT HEED SHALL BE SHEADER FOR THE
- THE TYPE OF PIPING JOINT USED SHALL BE SUITABLE FOR THE PRESSURE—TEMPERATURE CONDITIONS AND SHALL BE SELECTED CONSIDERING JOINT TIGHTNESS AND MECHANICAL STRENGTH UNDER THE SERVICE CONDITIONS.
   PIPE JOINTS SHALL BE THREADED, FLANGED, BRAZED, OR WELDED.
   FIETURE TYPE TO SHALL BE PROVIDED BY THE LICE OF BEING LOODS.
- 14. PIPE JUINIS SHALL BE THREADED, FLANGED, BRAZED, OR WELDED.

  15. FLEXIBILITY SHALL BE PROVIDED BY THE USE OF BENDS, LOOPS, OFFSETS, OR COUPLINGS OF THE SLIP TYPE. PROVISIONS SHALL BE MADE TO ABSORB THERMAL CHANGES BY THE USE OF EXPANSION JOINTS OF THE BELLOWS TYPE OR BY THE USE OF 'BALL' OR 'SWIVEL' JOINTS. DO NOT USE EXPANSION JOINTS OF THE SLIP TYPE INSIDE THE BUILDING. PIPE ALIGNMENT GUIDES SHALL BE USED WITH EXPANSION JOINTS PER THE MFG.
- 16. ALL GAS PIPING SHALL BE LABELED TO INDICATE THE PRESSURE.

  17. PIPE HANGERS AND SUPPORTS SHALL CONFORM TO ANSI/MSS
- 18. BENDS SHALL BE MADE ONLY WITH BENDING TOOLS AND PROCEDURES INTENDED FOR THAT PURPOSE. DO NOT BEND PIPE THROUGH AN ARC OF MORE THAN 90°. ALL BENDS SHALL BE SMOOTH AND FREE OF CRACKS, BUCKLING, OR OTHER EVIDENCE OF
- INSTALL GAS SHUTOFF VALVES UPSTREAM OF EACH GAS REGULATOR.
   VALVES SHALL BE READILY ACCESSIBLE AND NOT SUBJECT TO
   PHYSICAL DAMAGE.
- 20. WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS PART OF THE APPLIANCE, A SEDIMENT TRAP SHALL BE INSTALLED DOWNSTREAM OF THE APPLIANCE SHUTOFF VALVE AS CLOSE TO THE INLET OF THE APPLIANCE AS PRACTICAL.
- 21. PRIOR TO ACCEPTANCE BY THE OWNER, ALL GAS PIPING INSTALLATIONS SHALL BE INSPECTED AND PRESSURE TESTED IN ACCORDANCE WITH SECTION 406 OF THE NC FUEL GAS CODE.

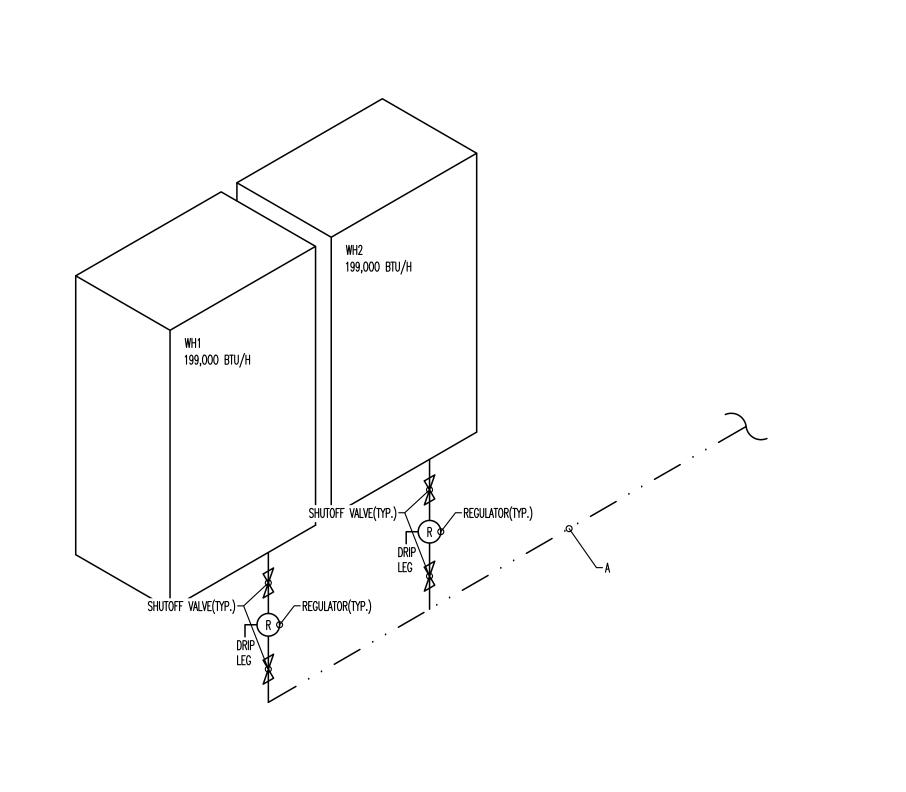
	GAS LINE SIZING VERIFICATION TABLE										
PER 2018 NORTH CAROLINA FUEL GAS CODE TABLE 402, 4(27)											
CECTION	GAS LOAD	LINE SIZE	CAPACITY	PRESSUR							
2ECLITIN	SECTION MBTU/H INCHES										
Α	A 398 3/4 1,820 2 PSI										

NOMINAL LENGTH - 80'





GAS PIPING RISER - NO SCALE 3

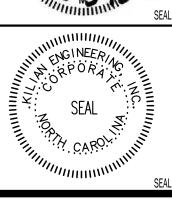


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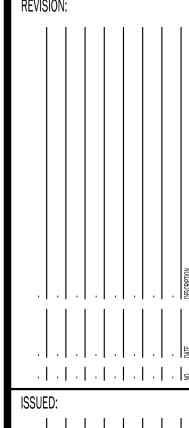
Engineering,
Inc.

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THE HOPE CENTER



SINED:

CHECKED BAX-NAMK-KMP TORPERMITTING

NO. DMFE DESCRIPTION

CHECKED BY: MWK/CML

GAS PIPING PLAN

SHEET NO.

P6

GAS PIPING PLAN - SCALE: 3/16"=1' | 3 | PROJECT NO: 230277

		,	Ventilation Calculatio	n (For Unit H	IP-1/AHU-	·1)				
Room N	lame(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)	Required Exhaust (cfm)
		N/A		0	0	0	0.00	0.8		0
STUI	DY 1	Office Space	160	5	0.06	5	0.80	0.8	75	0
STUI	DY 2	Office Space	160	5	0.06	5	0.80	0.8	75	0
FOYER/SITTING,	/FAMILY ROOM	Bedroom/Living Room	782	5	0.06	10	7.82	0.8	375	0
DINN	IING	Dining Room	450	7.5	0.18	70	31.50	0.8	215	0
KITC	HEN	Kitchen	320	0	0	0	0.00	0.8	160	224
PAN	TRY	Storage	175	0	0.12	0	0.00	0.8	85	0
MASTER B	EDROOM	Bedroom/Living Room	445	5	0.06	10	4.45	0.8	215	0
			Maximum Zp:	1.475581						
K-12 School?	Yes		Ev:	0.3						
			Actual System Population:	7						
<b>Uncorrected Intake</b>	242	cfm								
Outdoor Air Intake	242	cfm								
Percent of Unit Air	20%									

			Ventilation Calculatio	n (For Unit I	HP-2/AHU	-2)				
Room N	lame(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)	Required Exhaust (cfm)
LO	FT	Corridors	280	0	0.06	0	0.00	0.8	160	0
REC R	ROOM	Bedroom/Living Room	450	5	0.06	10	4.50	0.8	340	0
BED RO	OOM 2	Bedroom/Living Room	240	5	0.06	10	2.40	0.8	210	0
BED RO	OOM 3	Bedroom/Living Room	252	5	0.06	10	2.52	0.8	210	0
BED RO	OOM 4	Bedroom/Living Room	252	5	0.06	10	2.52	0.8	210	0
BED RO	OOM 5	Bedroom/Living Room	275	5	0.06	10	2.75	0.8	210	0
BED R	ROM 6	Bedroom/Living Room	240	5	0.06	10	2.40	0.8	210	0
LAUN	IDRY	Storage	73	0	0.12	0	0.00	0.8	50	0
			Maximum Zp:	0.1752						
K-12 School?	Yes		Ev:	0.9						
			Actual System Population:	7						
Uncorrected Intake	163	cfm								
Outdoor Air Intake	163	cfm								
Percent of Unit Air	10%									

	SPLIT SYSTEM HEAT PUMP SCHEDULE										
		NDMINAL	NDMINAL EFFICIENCIES ELECTRICAL					   WEIGHT			
MARK	MFG / MODEL #	CAPACITY	SEER\ EER	CDP @	HSPF	V/PH	MCA	MOCP	WEIGHT	REMARKS	
			SEEK! EEK	17*	ПОСТ	¥/F∏	MCA	MUCF	LBS		
HP-1	TRANE/4TWR4036N1	3	14. 3/11. 7	2, 6	7. 5	240/1	18	30	199	1, 9-11	
HP-2	TRANE/4TWR4048N1	4	14. 6/12	2. 8	7. 8	240/1	26	40	250	1, 9-11	

	SPLIT SYSTEM AIR HANDLER SCHEDULE															
		NOMINAL AIR FLOW		FLOW	FAN Motors	HEATING CAPACITY		CITY	COOLING CAPACITY			ELECTRICAL			WEIGHT	
MARK	MFG / MODEL #	CAPACITY	NDMINAL SUPPLY	MIN. DA	ESP	DUTPUT	AUX EL	EC HEAT	EAT WB/DB	TOTAL	SENSIBLE	V/PH	MCA	MOCP	WEIGHI	REMARKS
		TONS	CFM	CFM	in wg	МВН	kW	STAGES	<b>•</b> F	MBH	MBH				LBS	
AHU-1	TRANE/TEM6A0C36H31	3	1200	SEE TABLE	. 25	21. 2	7. 68	1	67/80	34. 8	28. 3	240/1	32	45	133	2-5, 7-9
AHU-2	TRANE/TEM6A0C48H41	4	1600	SEE TABLE	. 25	29. 2	7. 68	1	67/80	48. 8	37. 2	240/1	49	50	159	2-9

- PROVIDE CONCRETE PAD FOR UNIT TO SIT ON PROVIDE HEAT STRIP DUTDOOR TEMPERATURE LOCKDUT TO PREVENT SUPPLEMENTAL HEAT OPERATION IN RESPONSE TO THE THERMOSTAT BEING CHANGED TO A WARMER SETTING. SET NO LOWER THAN 35°F AND NO HIGHER THAN 40°F
- REPLACE ALL FILTERS AT PROJECT'S COMPLETION
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SET BACK CONSULT MANUFACTURER ON LINE SET LENGTHS EXCEEDING 60FT
- PROVIDE HARD START KIT

RECTANGULAR/SQUARE TO ROUND DUCT

EQUIVALENT

ROUND DUCT

24**"** ø

20**"** ø

20**"** ø

18**"** ø

16**"** ø

14**"** ø

16**"** ø

16**"**ø

14**"**ø

AVV AUDIO VISUAL ANNUNCIATOR WITH RESET FOR DUCT DETECTOR, WALL MOUNT.

RECTANGULAR DUCT

20**"** X26**"** 

18**"** X18**"** 

18**"** X20"

20**"** X16"

16**"** X16**"** 

10**"** X16"

10**"** X20**"** 

16" X14"

16**"** X12**"** 

THERMOSTAT LOCATION MOUNT AT 48" A.F.F.

(CO<sub>2</sub>) CO<sub>2</sub> SENSOR LOCATION. INSTALL NEXT TO THERMOSTAT

S−−− DUCT DETECTOR

- OR EQUAL BY CARRIER, LENNOX, OR YORK ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER ARI)
- 9. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES

	LOUVER SCHEDULE										
MARK	MFG / MODEL #	TYPE	PD (in WG)	CFM	FREE AREA FT <sup>2</sup>	VELOCITY (FT/MIN)	AIR DENSITY LBS/FT³				
L1	GREENHECK/SED-501-12X12	INTAKE	0. 2	242	0, 3	752	0. 075				
L2	GREENHECK/SED-501-12X12	INTAKE	0. 1	163	0, 2	808	0. 075				
 1. PR□V	IDE W/ BUG SCREEN & BACK D	RAFT DAMPER.									

	•							
1.	PROVIDE	W/	BUG	SCREEN	&	BACK	DRAFT	Damper.

	EXHAUST FAN SCHEDULE										
MARK	MFG / MDDEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES			
EF-1,2	ENERGY STAR RVL50	CEILING	-	50	120/1	-	0. 5	1-3			
EF-3	GREENHECK SP-B110	CEILING	0. 40	50	120/1	1. 14	2. 0	1-3			
EF-4-8	ENERGY STAR RVL110	CEILING	-	100	120/1	_	1. 3	1-3			

- PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HODDED WALL WITH
- BACKDRAFT DAMPER CAP AS APPLICABLE. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
- 3. OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY

			RE	GISTER & GR	ILLE SCHEDULE	
MARK	MEG	MUDEL #	\$17F	MULINTING		ח

			RE	GISTER & GR	REGISTER & GRILLE SCHEDULE											
MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES										
A	HART & COOLEY	682	12X8	CEILING	REGISTER W/ MS DAMPER	1										
В	HART & COOLEY	682	10X6	CEILING	REGISTER W/ MS DAMPER	1										
R1	HART & COOLEY	RH45	12X6	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1										
R2	HART & COOLEY	RH45	14X8	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1										
R3	HART & COOLEY	RH45	24X12	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1										

1. OR EQUAL BY PRICE, METAL-AIRE, CARNES, TITUS OR NAILOR.

	TOTAL BOILER OUTPUT CHILLER TOTAL CHILLER CAPACITY	N/A N/A N/A
	EQUIPMENT EFFICIENCIES:	SEE
	EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):	SEE
ITES 1	<u>DESIGNER STATEMENT:</u>	

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

PRESCRIPTIVE

Zone 4a

23. 1°F

75. 6° F

46,668 BTU/H

47,398 BTU/H

15,701 BTU/H

AIR COOLED DX

E SCHEDULES

E SCHEDULES

3-TON SPLIT SYSTEM

4-TON SPLIT SYSTEM

N/A

METHOD OF COMPLIANCE

EXTERIOR DESIGN CONDITIONS

INTERIOR DESIGN CONDITIONS

HEATING DESIGN DRY BULB

COOLING DESIGN DRY BULB

COOLING DESIGN WET BULB

HEATING DESIGN DRY BULB

COOLING DESIGN DRY BULB

COOLING RELATIVE HUMIDITY

MECHANICAL SPACING CONDITIONING SYSTEM:

DESCRIPTION OF UNIT(S)

THERMAL ZONE

<u>HEATING LOAD:</u>

<u>SENSIBLE COOLING LOAD:</u>

<u>LATENT COOLING LOAD:</u>

UNITARY

**GENERAL MECHANICAL NOTES:** 

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR. MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR, FASC - FIRE ALARM SYSTEM CONTRACTOR, AHJ - AUTHORITY HAVING
- JURISDICTION. 2. "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR
- NECESSARY FOR A COMPLETE INSTALLATION. 3. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS
- DESCRIBED BY THESE PLANS AND SPECIFICATIONS. 4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE
- 5. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE
- 6. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR
- 8. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- 9. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
- 10. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO
- 11. THE MC SHALL VERIFY THE FUNCTIONALITY AND OPERATION OF ALL EXISTING MECHANICAL EQUIPMENT IN THE AREA OF WORK. REPLACE FILTERS, LEAK TEST AND RECHARGE REFRIGERANT LINES, REPLACE OR LUBRICATE BEARINGS, CHECK LINKAGES AND ACTUATORS, AND PERFORM OTHER MAINTENANCE SERVICE AS
- NECESSARY TO GET THE EQUIPMENT IN PROPER ORDER. 12. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE
- RESPONSIBLE FOR ALL CONTROL WIRING. 13. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND
- MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
- 15. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
- 16. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
- 17. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
- 18. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN. 19. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY. USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
- 20. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS. 21. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION

PHASE OF THE PROJECT.

- 1. THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED SPLIT SYSTEM HEAT PUMPS AND AIR-CONDITIONERS SHALL BE BY TRANE, CARRIER, OR YORK. AIR-COOLED ROOFTOP PACKAGE HEAT PUMPS, GAS-ELECTRIC UNITS, AND AIR-CONDITIONERS SHALL BE BY TRANE. CARRIER. OR YORK. GAS FURNACES SHALL BE BY TRANE. CARRIER, OR YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND
- OPERATIONAL HVAC SYSTEM. 2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE
- FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P. 4. EXTERNAL DUCT INSULATION AND FACTORY—INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED
- SHALL BE DETERMINED AS FOLLOWS: 4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION

ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED

THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE

INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES

- THICKNESS SHALL BE USED. 4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
- 4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO. 5. DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER
- INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071, AND ASTM G 21. EXTERIOR DUCT R-VALUE SHALL BE R-8 AND INTERIOR R-VALUE SHALL BE R-6 IN ACCORDANCE WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMAGE DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA DCS REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS

- OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN, WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.
- ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-95 OR UL 181B-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
- 8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
- FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96. 10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED
- 11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL
- BE BY HART & COOLEY, PRICE, METAL—AIRE, NAILOR, OR CARNES, 12. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE 2018 NC MECHANICAL CODE.
- 13. THE MC SHALL PROVIDE ALL REFRIGERATION PIPING. ALL PIPE AND FITTINGS SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY. WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS. WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 12 GAUGE GALVANIZED STEEL SHIELDS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIR TIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVACUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE SET PENETRATIONS OF ANY RATED ASSEMBLIES IN ACCORDANCE WITH A SYSTEM LISTED IN THE UL DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.
- INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS. PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF
- INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE
- WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE; SEAL TO LOUVER FRAME AND DUCT.
- 4. DUCTS CONNECTING TO A FURNACE SHALL HAVE A CLEARANCE TO COMBUSTIBLES IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR STRUCTURES IN FLOOD HAZARD AREAS, DUCTS SHALL BE LOCATED ABOVE
- THE DESIGN FLOOD ELEVATION. DUCT SHALL NOT BE INSTALLED IN OR WITHIN 4 INCHES OF THE EARTH. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND
- AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2
- TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45
- DEGREES CONVERGENCE DOWNSTREAM. 9. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT
- 10. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS,

OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL

- GIRDERS, OR BEAMS. 11. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER
- CONTRACTOR IF APPLICABLE. 12. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT

- TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY, ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE
- 13. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE
- BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES. 14. MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 606.4.1 OF THE 2018 NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
- 15. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C403.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
- 16. FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND
- ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS. 17. UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS.
- 18. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN. 19. P-TRAPS MUST BE INSTALLED ON ALL UNITS, MC SHALL INSTALL AUXILIARY DRAIN
- PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER. CONDENSATE SHALL BE ROUTED TO DAYLIGHT OR STORM DRAIN.
- 20. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.5

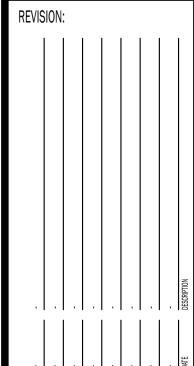


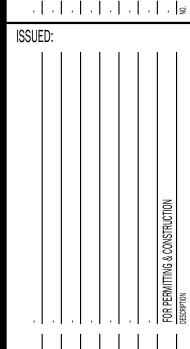
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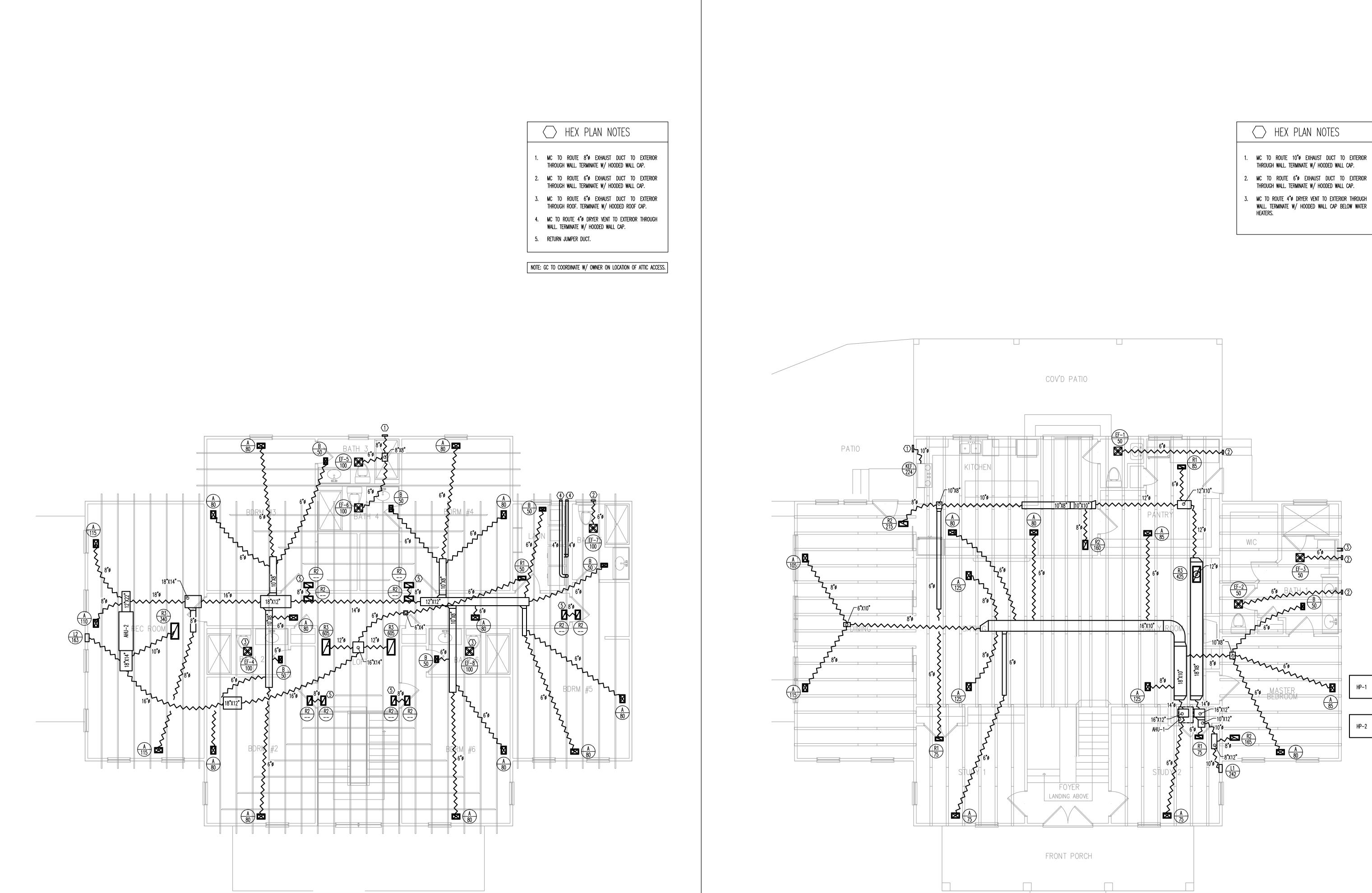


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TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING

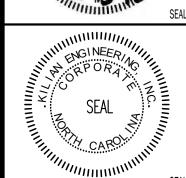
COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH

CAROLINA STATE BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION



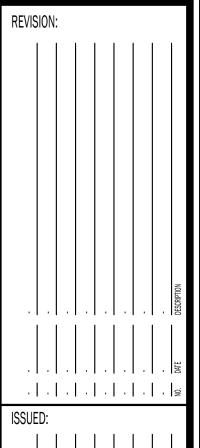


- 2. MC TO ROUTE 6"0 EXHAUST DUCT TO EXTERIOR
- 3. MC TO ROUTE 4"Ø DRYER VENT TO EXTERIOR THROUGH



Kilian Engineering,

THE HOPE CENTER



DRAWN BY: JSL CHECKED BY: MWK/CML MECHANICAL PLAN

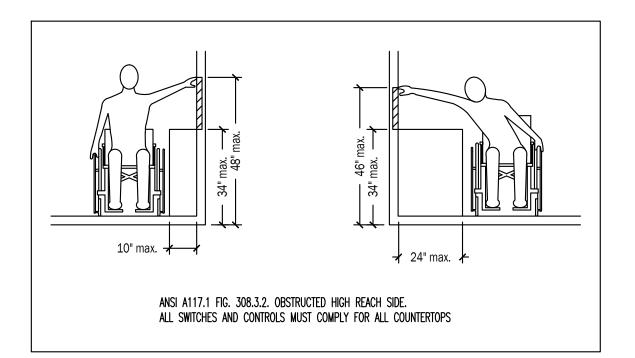
HP-2

	LIGHT FIXTURE SCHEDULE										
MARK	DESCRIPTION	LOUVER/LENS		LAMPS		VOLTAGE	INPUT	MOUNTING	REMARKS	MFG	MODEL
MAKK	DESCRIPTION	LUUVER/ LEINS	TYPE	WATTAGE	CCT	VULTAUE	WATTAGE	MITHORN	KEMAKKS	Mru	MUDEL
A	6'RECESSED	-	LED	12	3000K	120	12	RECESSED	2	LITHONIA	65BEMW LED 30K 90CRIM6
В	24" VANITY	ACRYLIC	LED	18	3000K	120	18	SURFACE	2	LITHONIA	FMVCCLS 24IN MVDLT 30K 90CRI
C1	EXHAUST FAN W/ LIGHT	-	LED	14	2700K	120	14	SURFACE	2	ENERGY STAR	RVL110
C5	EXHAUST FAN W/ LIGHT	-	LED	13	2700K	120	13	SURFACE	2	ENERGY STAR	RVL50
D	EXTERIOR CANOPY LIGHT	-	LED	35	4000K	120	35	SURFACE	2	LITHONIA	CNY LED P1 40K MVDLT DDB M4
E	EXTERIOR WALL SCONCE	-	INCANDESCENT	8	1800K/3200K	120	8	SURFACE	2, 3	LNC	VAFNYAHD13356V6
OE	EXTERIOR OVAL LED EMERGENCY LIGHT	POLYCARBONATE	LED	9	N/A	120	9	SURFACE	1,2	EELP	DEM-LED-BR-ACEM
EXH	LED EXIT/EMERGENCY COMBO	ACRYLIC	LED	10	N/A	120	5	SURFACE	1,2	EELP	XC-LED-2-R-W-SD
EM	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	10	N/A	120	2	SURFACE	1,2	LITHONIA	ELM2L-SDRT

- 1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
- OR EQUAL BY COOPER, MOBERN, OR CURRENT BY GE LIGHTING OR HUBBLE LIGHTING
- 3. EC TO USE LAMP TCP-10254 OR EQUAL.

	LIGHTING DEVICE LEGEND									
SYMBOL	DESCRIPTION	REMARKS								
\$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-896.								
\$ <sub>D</sub>	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W								
$\bowtie$	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.								

	POWER DEVICE LEGEND								
SYMBOL	SYMBOL DESCRIPTION REMARKS								
$\Box$	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596.							
	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.							
L	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.							
<u> </u>	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314. 40 DF THE NEC.							



ELECTRICAL DESIGNER'S STATEMENT									
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE PRESCRIPTIVE _X_ PERFORMANCE ENERGY COST BUDGET									
LIGHTING SCHEDULE:									
LAMP TYPE REQUIRE	D IN FIXTURE:		SEE LIGHTING LEGEND						
NUMBER OF LAMPS P	ER FIXTURE:		SEE LIGHTING LEGEND						
BALLAST TYPE USED	IN FIXTURE:		SEE LIGHTING LEGEND						
NUMBER OF BALLAST	S IN FIXTURE:	SEE LIGHTING LEGEND							
TOTAL WATTAGE PER	FIXTURE:	SEE LIGHTING LEGE							
TOTAL INTERIOR WA	TTAGE SPECIFIED VS	WATTS SPECIFIED	WATTS ALLOWED						
ALLOWED:		2144. 0 3484. 98							
DCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED						
DDRMITDRY 6114 0, 57 3484, 98									

DCCUPANCY AREA (sf) ALLOWANCE (W/sf) WATTAGE ALLO
DDRMITDRY 6114 0.57 3484.98

TOTAL 6114 3484.98

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)

MOTOR HORSEPOWER: N/A
NUMBER OF PHASES: N/A
MINIMUM EFFICIENCY: N/A
MOTOR TYPE: N/A
NUMBER OF POLES: N/A

DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

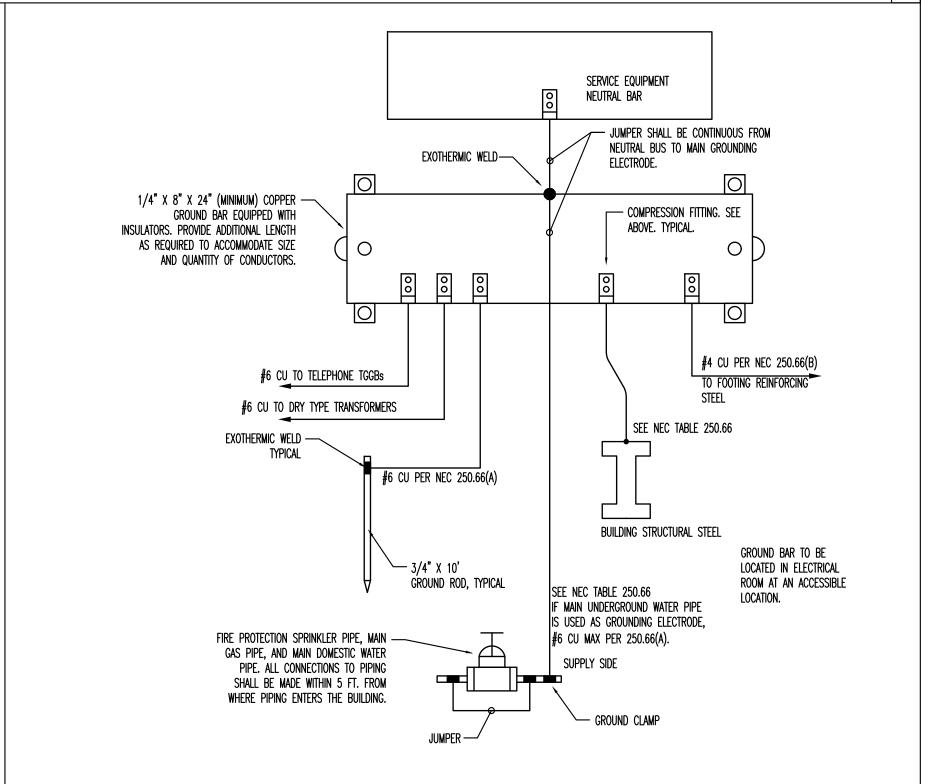
FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 — REDUCED LIGHTING POWER DENSITY.

2144 W SPECIFIED <= 3137 W (3485 W ALLOWED X 90%)

## NOTES FOR EMERGENCY FIXTURES

- FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
- FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS OR AS SHOWN ON PLANS AHEAD OF ALL CONTACTORS, PHOTOCELLS, ETC.
- 3. IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER EMERGENCY ILLUMINATION FOR 90 MINUTES MINIMUM.

## ELECTRICAL SCHEDULES | 1



### GENERAL ELECTRICAL NOTES:

- ADMINISTRATIVE:

  1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
  PC PLUMBING CONTRACTOR, EC ELECTRICAL CONTRACTOR,
  MC MECHANICAL CONTRACTOR, GC GENERAL CONTRACTOR,
  FASC FIRE ALARM SYSTEM CONTRACTOR ALL ALITHORITY HAVING
- FASC FIRE ALARM SYSTEM CONTRACTOR, AHJ AUTHORITY HAVING JURISDICTION.
  "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS
- AND THE GENERAL CONTRACTOR AS REQUIRED.

  3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD
- PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."

  5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- 6. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK LINDER THIS CONTRACT.
- UNDER THIS CONTRACT.
  7. DO NOT SCALE THESE DRAWINGS—REFER TO ARCHITECTURAL SHEETS FOR
- DIMENSIONS.

  8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF
- EQUIPMENT.

  9. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF
- CONSTRUCTION.

  10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250–122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING FLECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
- GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.

  11. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.
- 12. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
- 13. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
- 4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND
- REQUIREMENTS CONCERNING HAZARDOUS WASTE.

  15. ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE, 2018
  STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.
- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY
  DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE
  ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND
  CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS
  NOTED OTHERWISE BY OTHER DISCIPLINES.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D. CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN
- SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
  ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN,
- LITTELFUSE, OR MERSEN.

  OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
- SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.

  CIRCUIT BREAKERS SHALL BE MOLDED—CASE, THERMAL MAGNETIC TYPE
  WITH QUICK—MAKE, QUICK—BREAK MECHANISM, COMMON TRIP ON
  MULTI—POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALLMINUM
  CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH
  THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED
  WITH THE BREAKER FEEDING THE BANKI FROM THE FACTORY.
- WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.

  ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY
  THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL,
  LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE
  CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS
  ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED
  PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS
  SPECIFICALLY NOTED OTHERWISE.

- 7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
- 8. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING
- TYPE INSULATED BUSHING SHALL BE PROVIDED.

  ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE FFFICIENCY REQUIREMENTS.
- 10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT
- 11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE—AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI—AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI—AMERICAN NATIONAL STANDARD FOR
- 12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID—TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI—FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.

## 1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED

IN THE CONTRACT.

- 2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
- 3. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK AND RED FOR PHASES A AND B RESPECTIVELY ON 120/240 VOLT SINGLE-PHASE SYSTEMS AND WHITE FOR THE NEUTRAL. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN DIENING.
- 4. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
- 5. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404 8/B)
- 6. ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE—STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE—RESISTANCE RATING. SEAL PENETRATIONS USING A ULLISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE ULLISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR ULRATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
- 7. ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND
- COMPLY WITH NEMA WD 6 AND WD 1.

  8. LOCATIONS AND HEIGHTS OF ALL WALL—MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
- 9. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. \*\*\* TYPE NM CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUITS IN NORMALLY DRY LOCATIONS SUBJECT TO THE RESTRICTIONS OF NEC 334.10 AND 334.12. TYPE NM CABLE CONDUCTORS SHALL BE DERATED PER NEC 334.80. \*\*\* FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY—IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE

- FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE. UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS. GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.50(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
- 10. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL—CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN
- METAL-CORRUGATED, SHEET DECKING-TYPE ROOF, SEE NEC 300.4(E) 11. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED
- 4X4 OCTAGONAL OR SQUARE BOXES.

  12. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 IN EMT CONDUIT MAXIMUM AND 4 IN JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
- BUILDING CODE.

  13. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH

  NEC 310.4
- NEC 310.4.

  14. ALL RECEPTACLES LOCATED WITHIN DWELLING UNITS SHALL HAVE AFCI PROTECTION IN ACCORDANCE WITH SECTION 210.12 OF THE NEC. RECEPTACLES IN DWELLING UNITS SHALL BE LISTED TAMPER—RESISTANT PER NEC 406.12.
- 15. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.

16. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD

- WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

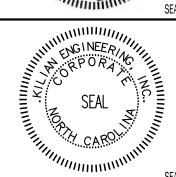
  17. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH—INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL
- BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS
  AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE
  CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS
  STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL
  OUTLET BOXES.

  18. ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT
  OF ALL HARDWIRED FOUIPMENT AND APPLIANCES OR PROVIDE BREAKERS
- 18. ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
- ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
- 20. ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH
- PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.

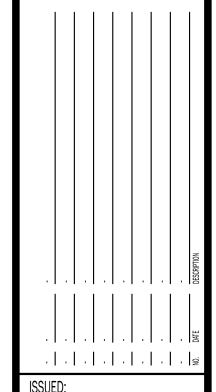
  21. IN ACCORDANCE WITH SECTION F510 OF THE NC FIRE PREVENTION CODE, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

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**REVISION:** 

| Since | Sinc

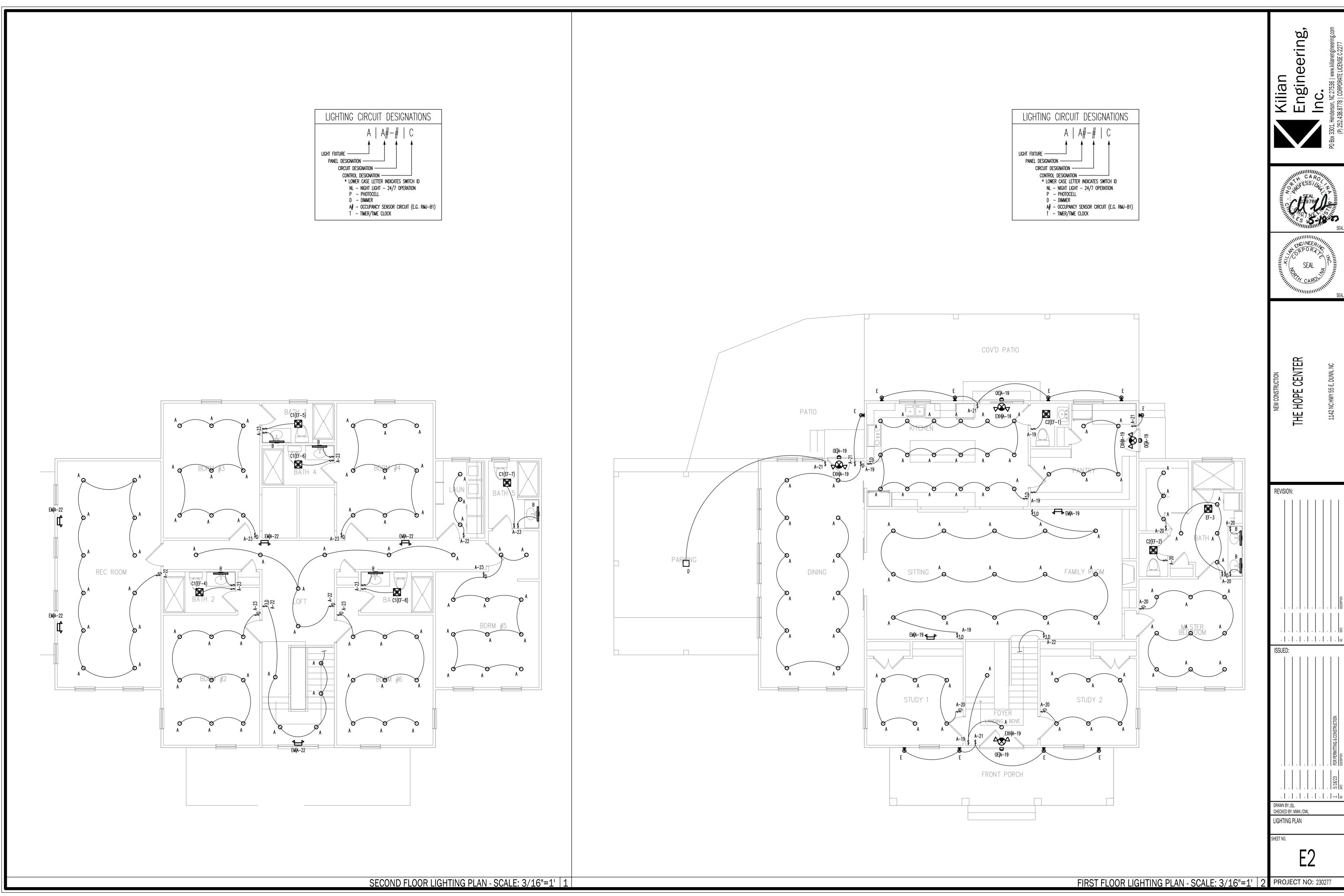
SHEET NO.

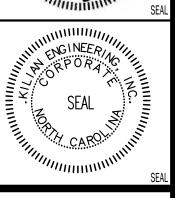
**ELECTRICAL SCHEDULE & NOTES** 

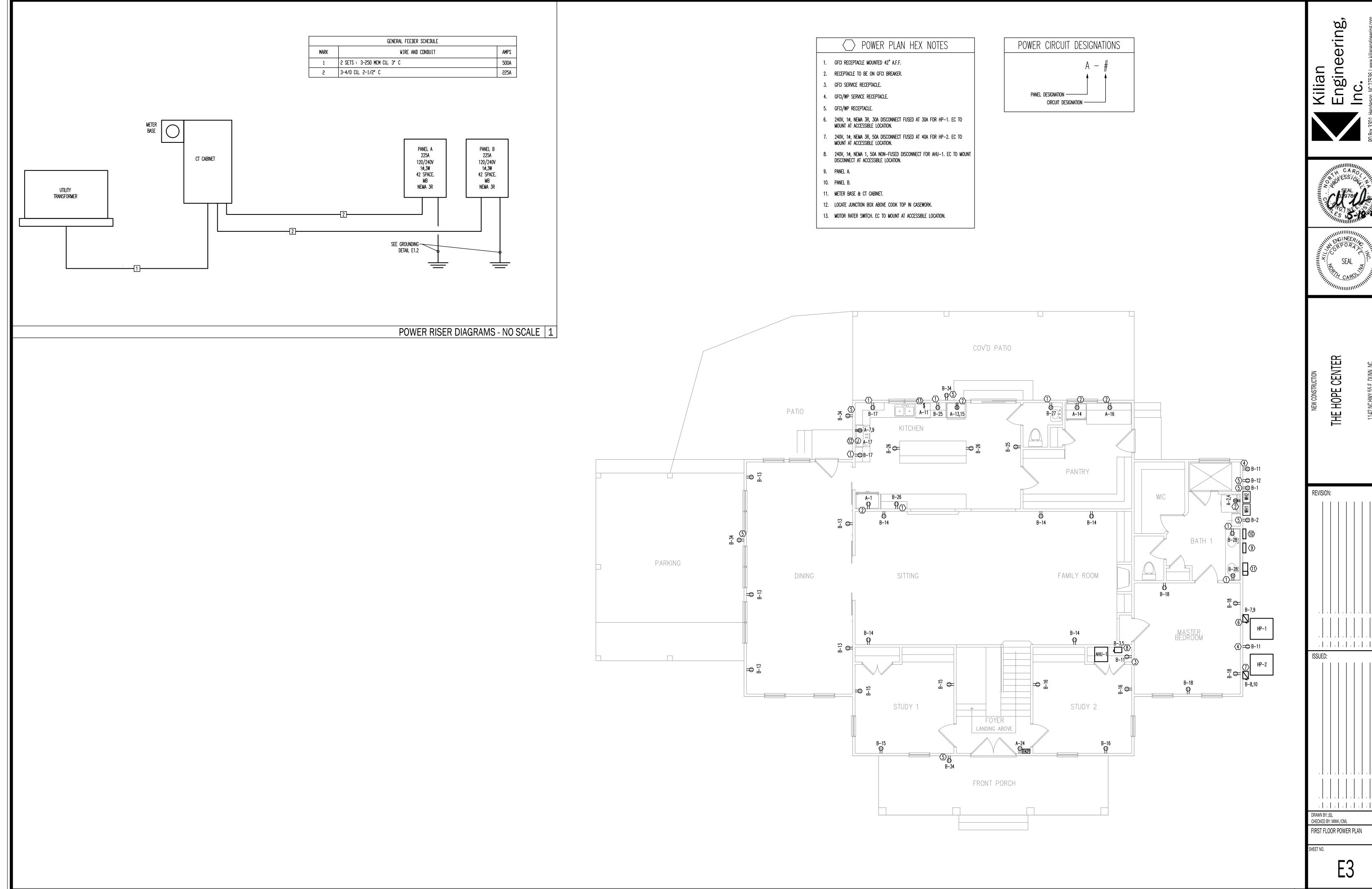
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GROUNDING DETAIL-NO SCALE 2

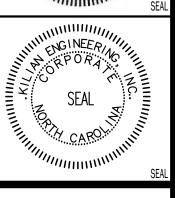
ELECTRICAL NOTES | 3 | PROJECT NO: 230277

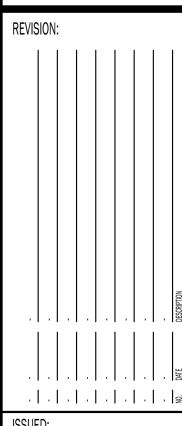












				PANEL A							
		1	LOAD	THINCL P							
CKT	LDAD	BKR	kVA	PH	kVA	BKR	LOAD	CKT			
1	REFRIGERATOR #1	20/1	1. 20	Α	3, 60	40.70	10T FLOOD MACHED ADVED	2			
③ ⑤	2ND FLOOR WASHER #1	20/1	1. 20	В	3, 60	40/2	1ST FLOOR WASHER/DRYER	4			
(5)	2ND FLOOR WASHER #2	20/1	1. 20	Α	2. 88	30/2	2ND FLOOR DRYER #1	6			
7	COOK TOP	50/2	3, 95	В	2. 88	30/2	באש דנשטא שאזנא #1	(a) (b) (c) (d)			
9	CUUK TUP	30/2	3, 95	Α	2. 88	20./2	2ND FLOOR DRYER #2	100			
(1)	DISHWASHER	20/1	1. 80	В	2. 88	30/2	באש דבשטא שאזבא #כ	9			
(1) (3) (5)	WALL OVEN	30/2	2, 40	Α	1. 20	20/1	REFRIGERATOR #2	(14)			
(15)	WALL DVEN	30/2	2, 40	В	1. 20	20/1	FREEZER	(16)			
17	RANGE HOOD	20/1	0. 17	Α	0. 18	20/1	RE-HEAT PUMP	18			
19	DINNING/FAMILY/KITCHEN LTS	20/1	0. 78	В	0. 44	20/1	STUDY 1&2/MASTER BEDROOM LTS	20			
21	EXTERIOR LIGHTS	20/1	0. 14	Α	0. 41	20/1	LOFT/REC/LAUN LTS	22			
23	2ND FLOOR BED&BATH LTS	20/1	0. 91	В	1. 00	20/1	FACP	24			
25	SPARE	20/1	0, 00	Α	1. 20	20/1	SIGN	26			
27	SPARE	20/1	0, 00	В	0. 00	20/1	SPARE	28			
29	SPACE		0, 00	Α	0. 00		SPACE	30			
31	SPACE		0, 00	В	0. 00		SPACE	32			
33	SPACE		0, 00	Α	0. 00		SPACE	34			
35	SPACE		0, 00	В	0.00		SPACE	36			
37	SPACE		0, 00	A	0, 00		SPACE	38			
39	SPACE		0, 00	В	0. 00		SPACE	40			
41	SPACE		0, 00	Α	0. 00		SPACE	42			
			kVA	PH	AMPS						
			21. 4	Α	178						
			23. 0	В	192						
			•		•						
VOLTAGE/PHASE					120/24	0, 1P, 3W					
		BUS	RATING		225A						
	MAIN CIRCUIT	BREAKER	RATING		225A						

AIC RATING

ENCLOSURE

MOUNTING

NEMA 3R SURFACE

SERVICE ENTRANCE RATED

GFCI BREAKER

BREAKER TO BE MARKED RED AND BE CAPABLE OF BEING LOCKED

	DANEL D										
		I		PANEL E				1			
CKT	LOAD	BKR	LOAD	PH	LOAD	BKR	LOAD	CKT			
1	WATER HEATER #1	20/1	60 kVA	A	0, 60	20/1	Water Heater #2	2			
3	MAILY URAILY #1	20/1	3. 84	В В	5. 88	20/1	WHIEN DEHIEN #C	4			
5	AHU-1	45/2	3. 84	<u>В</u>	5. 88	50/2	AHU-2	6			
7			2. 16	В	3. 12			8			
9	HP-1	30/2	2. 16	A	3. 12	40/2	HP-2	10			
11	SERVICE RECEPTS	20/1	0. 72	В	0. 18	20/1	RE-HEAT PUMP	12			
13	DINING RECEPTS	20/1	0. 90	A	0. 90	20/1	SITTING/FAMILY RECEPTS	14			
15	STUDY #1 RECEPTS	20/1	0. 54	В	0, 54	20/1	STUDY #2 RECEPTS	16			
17	KITCHEN RECEPTS	20/1	0, 36	A	0. 72	20/1	MASTER BEDROOM RECEPTS	18			
19	REC ROM RECEPTS	20/1	1, 08	В	0, 72	20/1	BED ROOM #2 RECEPTS	20			
21	BED ROOM #3 RECEPTS	20/1	0, 72	A	0, 72	20/1	BED ROOM #4 RECEPTS	22			
23	BED ROOM #5 RECEPTS	20/1	0, 72	В	0, 72	20/1	BED ROOM #6 RECEPTS	24			
25	KITCHEN RECEPTS	20/1	0. 36	A	0. 54	20/1	KITCHEN RECEPTS	26			
27	KITCHEN BATHROOM RECEPT	20/1	0. 18	В	0. 36	20/1	MASTER BATHROOM RECEPTS	28			
29	BATH #2 RECEPT	20/1	0. 18	Α	0. 18	20/1	BATH #3 RECEPT	30			
31	BATH #4 RECEPT	20/1	0. 18	В	0. 18	20/1	BATH #5 RECEPT	32			
33	BATH #6 RECEPT	20/1	0. 18	A	0, 00	20/1	GENERAL EXTERIOR RECEPTS	34			
35	SPARE	20/1	0. 00	В	0. 72	20/1	SPARE	36			
37	SPACE		0, 00	Α	0, 00		SPACE	38			
39	SPACE		0, 00	В	0, 00		SPACE	40			
41	SPACE		0, 00	Α	0, 00		SPACE	42			
		-	kVA	PH	AMPS						
			22. 0	A	183						
			21. 8	В	182						
					•						
		VOLTAGI	E/PHASE		120/24	D, 1P, 3W					
		BUS	RATING		225A						
	MAIN CIRCUIT	BREAKER	RATING		225A						
			RATING		22K						
	SERVICE	ENTRANCI	RATED		YES						
		ENG	CLOSURE		NEMA 3R						
		MI	JUNTING		SURFACI	E					

NEC ELECTRIC DEMAND SUMMARY 120/240V, 1P, 3W										
EQUIPMENT	DEMAND	k	VA	LOAD kVA	NEC	NOTES/CALCULATIONS				
EQUIFMENT	FACTOR	A	В	LUMU KVM	REFERENCE	NUTES/ CALCULATIONS				
LIGHTING	100%	4. 59	4. 59	9. 18	220. 12	6114 SF X 1.5 VA/SF				
RECEPTACLES < 10 kVA	100%	5. 00	5. 00	10. 00	220. 44					
RECEPTACLES > 10 kVA	50%	0, 56	0. 56	1. 12	220. 44					
HVAC	100%	15, 00	15, 00	30, 00		BASED ON MCA				
WATER HEATER	125%	1. 20	0. 00	1. 20	422. 13	STORAGE TANK <120 GAL @ 125%				
SIGN	100%	1. 20	0, 00	1. 20	220. 14(F)					
KITCHEN EQUIPMENT	SEE CODE	8, 55	9, 35	17. 90	220, 56					
DEMAND kVA	PER PHASE	36, 10	34. 50							
DEMAND AMPS	PER PHASE	301	287							

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

POWER PLAN HEX NOTES

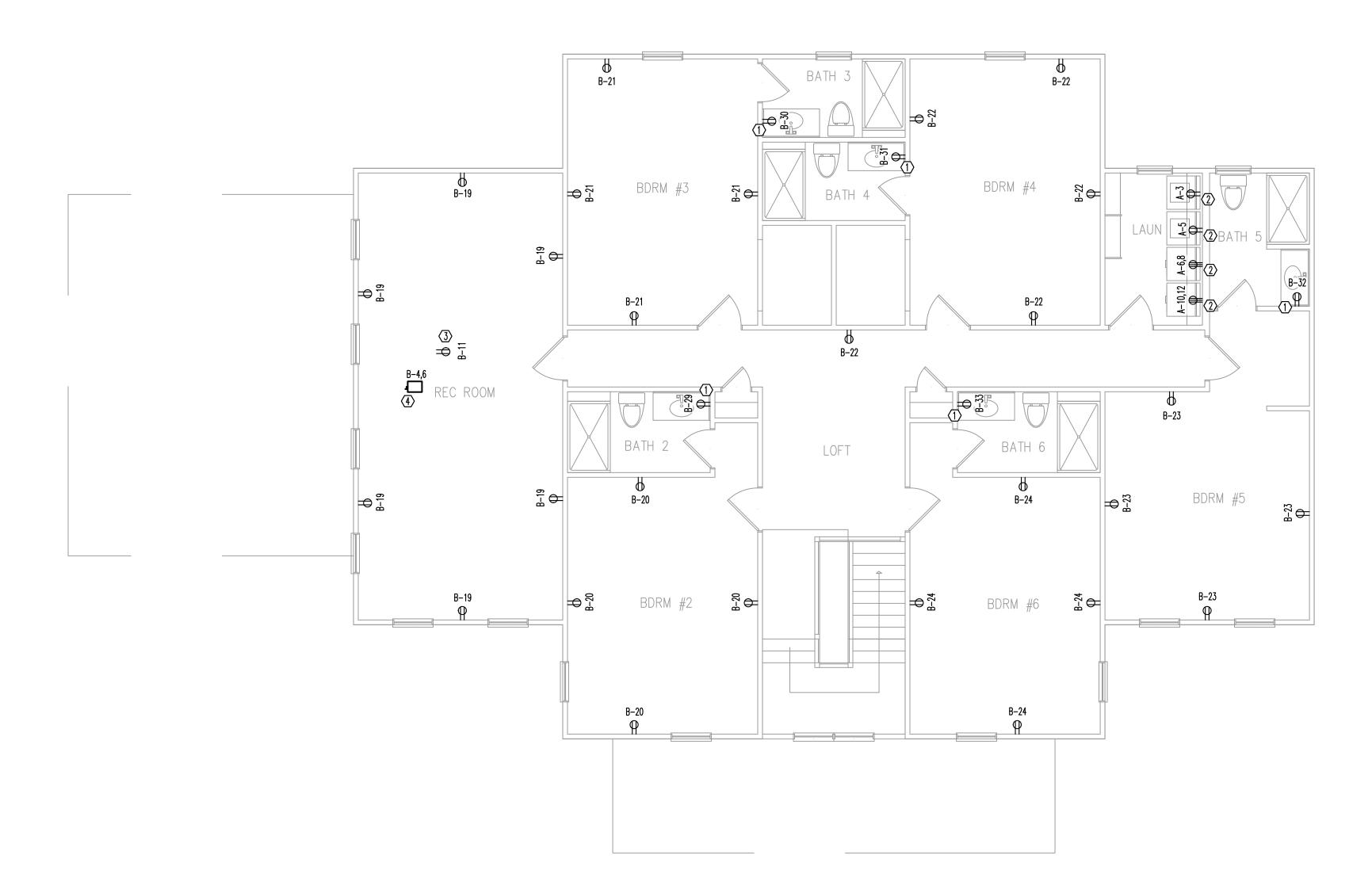
1. GFCI RECEPTACLE MOUNTED 42" A.F.F.

2. RECEPTACLE TO BE ON GFCI BREAKER.

3. GFCI SERVICE RECEPTACLE LOCATED ABOVE CEILING.

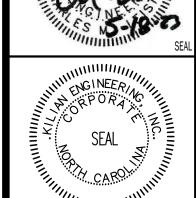
4. 240V, 10, NEMA 1, 50A NON-FUSED DISCONNECT FOR AHU-2. EC TO MOUNT AT ACCESSIBLE LOCATION.

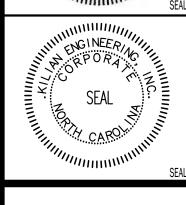
POWER CIRCUIT DESIGNATIONS PANEL DESIGNATION ————— CIRCUIT DESIGNATION ———



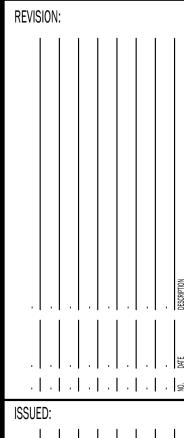
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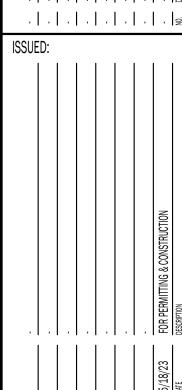




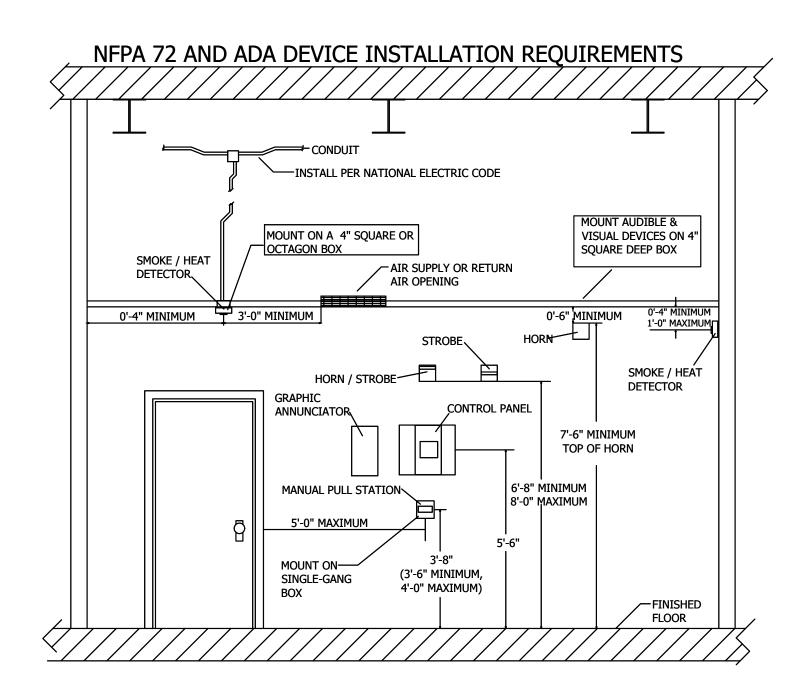


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DRAWN BY: JSL CHECKED BY: MWK/CML SECOND FLOOR POWER PLAN



## WIRE REQUIREMENTS

NAC CIRCUITS - 16/2, SOLID, FPLP WIRE DATA CIRCUITS - 18/2, SOLID, FPLP WIRE

	NFPA 170 SYMBOL GUIDE					
SYMBOL	DESCRIPTION					
FACP	FIRE ALARM CONTROL PANEL					
FAA	FIRE ALARM ANNUNCIATOR					
WF	WATER FLOW SWITCH					
VS	VALVE SUPERVISORY SWITCH (TAMPER SWITCH)					
<b>(</b>	HEAT DETECTOR/SENSOR (RATE OF RISE)					
F	PULL STATION / FIRE ALARM					
(5)	SMOKE DETECTOR/SENSOR (DEFAULT PHOTOELECTRIC TYPE)					
⟨SS⟩	SMDKE ALARM (SINGLE STATION)(RESIDENCE)					
(S)	DUCT SMOKE DETECTOR (NFPA 72, SECTION 17.7.5.5)					
	AUDIBLE ONLY APPLIANCE (WALL MOUNTED)(BEL LOUTSIDE SPRINK RM.)					
⊠CD	VISUAL DNLY APPLIANCE (WALL MOUNTED)					
⊠⊲co	AUDIBLE/VISUAL APPLIANCE (WALL MOUNTED)					
⊗cı	VISUAL DNLY APPLIANCE (CEILING MOUNTED)					
$\bowtie$	AUDIBLE ONLY APPLIANCE (CEILING MOUNTED)					
	AUDIBLE/VISUAL APPLIANCE (CEILING MOUNTED)					
-^^-	END OF LINE RESISTOR					
⟨SB⟩	DETECTOR WITH SOUNDER BASE					

FIRE ALARM SCHEDULES | 2

#### FIRE ALARM GENERAL NOTES

- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC - PLUMBING CONTRACTOR, EC - ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR,
- FASC FIRE ALARM SYSTEM CONTRACTOR.

  2. "PROVIDE" MEANS TO FURNISH AND INSTALL.

  3. THE FIRE ALARM SYSTEM CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, ETC, AS NECESSARY FOR A COMPLETE AND
- OPERATIONAL FIRE ALARM SYSTEM.

  4. THESE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL MINOR DETAILS AND EXACT LOCATIONS. THE FASC SHALL ALLOW FOR ADJUSTMENTS TO ACCOMMODATE INTERFERENCES BOTH PLANNED AND ENCOUNTERED AND SHALL INCLUDE SUCH CONTINGENCIES IN THEIR
- 5. THE SUCCESSFUL FIRE ALARM BIDDER SHALL PROVIDE CONSTRUCTION DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION FOR APPROVAL INCLUDING ALARM CONTROLS AND TROUBLE SIGNALING EQUIPMENT, ANNUNCIATION, POWER CONNECTIONS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, CONDUCTOR TYPES AND SIZES, LOCATIONS OF INITIATING AND NOTIFICATION APPLIANCES, AND MANUFACTURERS, MODEL NUMBERS, AND LISTING INFORMATION FOR ALL EQUIPMENT, DEVICES AND MATERIALS.
- ALL WORK SHALL BE IN ACCORDANCE WITH NFPA 72 AND APPLICABLE SECTIONS OF NFPA 70 AND 13.
   CONDUIT, CONDUCTORS, BOXES, AND HANGERS SHALL BE THE SAME AS THOSE SPECIFIED IN THE ELECTRICAL SYSTEM.
- 8. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR UL LABEL OR EQUIVALENT WHERE APPLICABLE. 9. THE FIRE ALARM SYSTEM SHALL BE OF THE ADDRESSABLE TYPE WITH EACH INITIATING DEVICE REPORTING INDIVIDUALLY TO THE FIRE ALARM CONTROL PANEL. ONLY THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR WHO STOCKS SPARE COMPONENTS FOR THE ENTIRE SYSTEM SHALL CONNECT, PROGRAM, OR TEST THE ADDRESSABLE FIRE ALARM SYSTEM. ALL TECHNICIANS PERFORMING SUCH WORK SHALL BE TRAINED AND INDIVIDUALLY CERTIFIED BY THE MANUFACTURER FOR THE MODEL OF SYSTEM BEING INSTALLED. COPIES OF THEIR CERTIFICATION SHALL BE AVAILABLE UPON REQUEST. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL STORE THE COMPLETE PROGRAMMING FOR THE ADDRESSABLE SYSTEM ON A COMPUTER DISK OR DISKETTE OR OTHER MEDIA AND ARCHIVE APPROPRIATELY. A COPY OF THE PROGRAM SHALL BE MADE AVAILABLE TO THE OWNER WHEN THE SYSTEM IS COMMISSIONED. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL MAINTAIN SOFTWARE VERSION RECORDS ON THE SYSTEM INSTALLED AND PROVIDE FREE UPGRADES IF THE MANUFACTURER RELEASES A NEW VERSION OF THE SOFTWARE DURING THE WARRANTY PERIOD. PROVIDE
- PANEL RESPONSE FOR EACH INITIATING DEVICE.

  10. THE SYSTEM SHALL BE NOMINAL 24VDC, NON-CODED, AND SUPERVISED (INCLUDING CONTROL CIRCUITS). ALL EQUIPMENT SUPPLIED MUST BE LISTED FOR ITS PARTICULAR USE AND INSTALLED

A SYSTEM FUNCTION MATRIX THAT GIVES THE FIRE ALARM CONTROL

- IN ACCORDANCE WITH ANY INSTRUCTIONS APPLICABLE TO ITS LISTING.

  11. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED FOR OPEN OR GROUND FAULT CONDITIONS IN DETECTION, ALARM, AND CONTROL CIRCUITS. THE REMOVAL OF ANY DETECTION DEVICE, ALARM APPLIANCE, PLUG—IN RELAY, SYSTEM MODULE, OR STANDBY BATTERY CONNECTION SHALL ALSO ACTIVATE A TROUBLE SIGNAL. THE FIRE ALARM SIGNAL SHALL OVERRIDE TROUBLE SIGNALS, BUT THE PRE—ALARM TROUBLE SIGNAL SHALL REAPPEAR WHEN THE PANEL IS DESETT.
- PROVIDE EACH SIGNALING LINE CIRCUIT WITH A MINIMUM OF 20 PERCENT SPARE ADDRESSES FOR FUTURE USE.
   THE CONNECTIONS BETWEEN INDIVIDUAL ADDRESSABLE MODULES AND
- THEIR CONTACT TYPE INITIATING DEVICES MUST BE SUPERVISED.

  14. THE FIRE ALARM CONTROL PANEL (FACP) POWER SUPPLY MUST

HAVE A CONTINUOUS RATING ADEQUATE TO POWER ALL DEVICES AND FUNCTIONS IN FULL ALARM CONTINUOUSLY. BATTERIES MUST MEET THE APPROPRIATE NFPA CAPACITY REQUIREMENTS. THE FACP SHALL INCLUDE AN ALARM SILENCE SWITCH AND SHALL BE EQUIPPED WITH THE SUBSEQUENT ALARM RESOUND FEATURE. THE ALARM SILENCING AND RESET FEATURE SHALL NOT REVERSE AIR HANDLING UNITS SHUTDOWN. A SUPERVISED "HVAC SYSTEM SHUTDOWN" SWITCH MUST

- SHUTDOWN. A SUPERVISED "HVAC SYSTEM SHUTDOWN" SWITCH MUST BE PROVIDED IN THE FACP WITH ITS "NORMAL" POSITION INDICATED.

  15. ALL CONNECTIONS MADE AT THE FACP MUST BE BY THE MANUFACTURER'S AUTHORIZED FACTORY TRAINED PERSONNEL (NOT THE ELECTRICAL CONTRACTOR).
- 16. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AND TERMINATIONS FOR EACH CIRCUIT. ALL FIRE ALARM JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM." TERMINAL BLOCKS SHALL BE PROVIDED IN ALL JUNCTION BOXES WHERE CONNECTIONS ARE MADE. IDENTIFICATION AT SPLICES SHALL INDICATE WHICH CONDUCTOR LEADS TO THE FACP.
- THE FOLLOWING COLOR SCHEME SHALL BE USED FOR SYSTEM CONDUCTORS:
- 17.1. INITIATING CIRCUITS (OTHER THAN SMOKE)
  17.2. INITIATING CIRCUITS (SMOKE DETECTION)
  17.3. NOTIFICATION APPLIANCE CIRCUITS
  17.4. BLUE & BLACK
- 17.3. NOTIFICATION APPLIANCE CIRCUITS

  17.4. AIR HANDLING SHUT DOWN CIRCUITS

  17.5. DOOR CONTROL CIRCUITS

  17.6. ELEVATOR CIRCUITS

  BROWN
- 18. LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN ANY RACEWAY CONTAINING POWER OR LINE VOLTAGE CONTROL WIRING. WITHIN THE FACP, ANY AC CONTROL WIRING SHALL BE PROPERLY SEPARATED FROM OTHER CIRCUITS AND THE ENCLOSURE SHALL BE LABELED TO ALERT SERVICE PERSONNEL TO THE HAZARD.
- 19. DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS AND AS DETAILED. WHENEVER POSSIBLE, DEVICES SHOULD BE CENTERED ON SPACES OR LOCATED ABOVE OTHER OUTLETS. SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF AN HVAC SUPPLY OR RETURN. INSTALL WALL MOUNTED SMOKE DETECTORS A MAXIMUM OF TWELVE (12) INCHES FROM CEILING.
- 20. PROVIDE A PERMANENT MARKER ON EACH DEVICE INSTALLED INDICATING THE DEVICE NUMBER AND ADDRESSABLE LOOP NUMBER. PROVIDE THE SAME INFORMATION INSIDE THE BOX FOR EACH DEVICE.

  21. ALL HVAC EQUIPMENT SHALL SHUTDOWN UPON ACTIVATION OF ANY
- FIRE ALARM DEVICE.

  22. WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, AND PRESSURE SWITCHES SHALL BE PROVIDED AND INSTALLED BY THE SPRINKLER CONTRACTOR, CONNECTED BY THE ELECTRICAL CONTRACTOR, AND
- SUPERVISED BY THE FACP.

  23. TESTING SHALL INCLUDE ALL TESTS REQUIRED FOR THE ELECTRICAL SYSTEMS IN ADDITION TO TESTING AND CERTIFICATION BY THE FIRE ALARM SYSTEM SUPPLIER. PROVIDE INSTRUCTION MANUALS TO OWNER PERSONNEL.
- 24. FASC SHALL VERIFY THAT ALL VISIBLE NOTIFICATION DEVICES ARE SYNCHRONIZED PER NFPA 72.
- 25. VERIFY DECIBEL LEVELS ARE MINIMUM 60 DBA AND MAXIMUM 120
  DBA THROUGHOUT THE ZONE; ADJUST DEVICES AS NECESSARY.
- MAINTAIN MINIMUM 100 DBA IN EQUIPMENT AND MECHANICAL ROOMS.

  26. DEVICES MUST MEET SURVIVABILITY REQUIREMENTS OF THE NFPA AS APPLICABLE.

  27. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (dBA) ABOVE THE

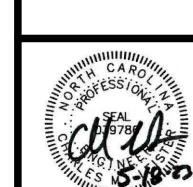
AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM

SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS,

WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.

28. IN ACCORDANCE WITH SECTION F510 OF THE NC FIRE PREVENTION

CODE, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.

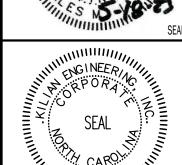


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FIRE ALARM NOTES

FIRE ALARM SYSTEM **SYSTEM OUTPUTS INPUT/OUTPUT MATRIX** SYSTEM INPUTS FIRE ALARM SYSTEM AC POWER FAILURE NOTIFICATION APPLIANCE CIRCUIT SHORT BUILDING MANUAL PULL STATIONS CORRIDOR SMOKE DETECTORS AREA SMOKE DETECTORS HVAC AIR DUCT SMOKE DETECTORS AREA HEAT DETECTORS HOOD OR ROOM FIRE SUPPRESSION SY SPRINKLER TAMPER SWITCH SPRINKLER WATER FLOW IN BUILDING SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAF EV LOBBY SMOKE DETECTOR - RECALL FLOOR ELEV CONTROLLER POWER SHUNT TRIP STATUS FIRE PUMP SYSTEM NOT IN AUTOMATION LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEI LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC A B C D E F G H I J K L M N O P Q R S T U V W X Y

SSUED:

FA1

FIRE ALARM MATRIX 5 PROJECT NO: 230277

NAC CIRCUIT WITH NOTIFICATION DEVICES,
SEE PLAN FOR TYPES AND COUNT

SLC CIRCUIT WITH DETECTION DEVICES,
SEE PLAN FOR TYPES AND COUNT

FACP

FAA

120V INPUT

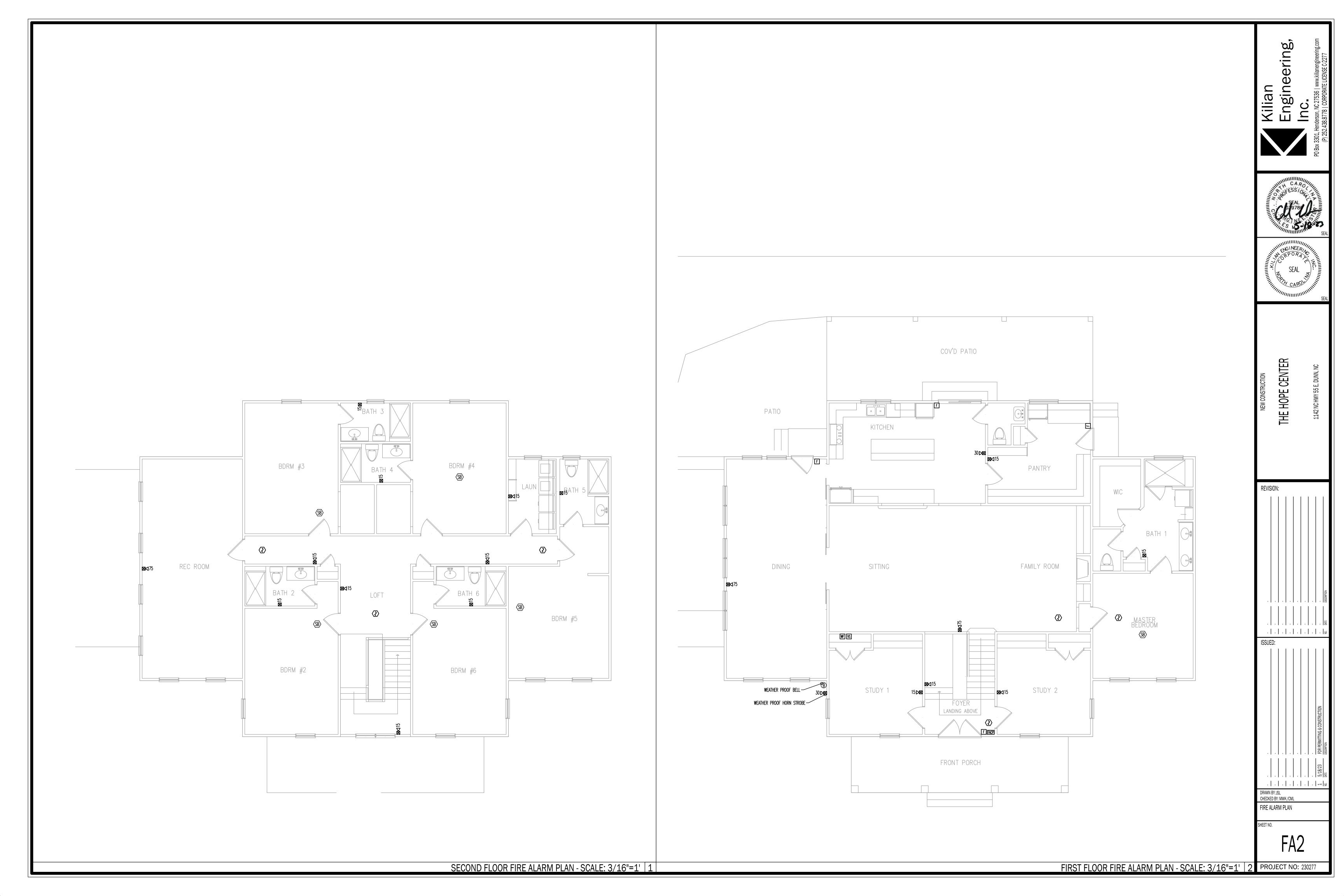
COMMUNICATIONS LINES PER NFPA 72
WITH CELLULAR COMMUNICATOR

NOTE: GENERIC RISER SHOWN. SEE PLAN FOR DEVICE

FIRE ALARM DETAILS - NOT TO SCALE | 1

NOTE: GENERIC RISER SHOWN. SEE PLAN FOR DEVICE COUNTS AND LOCATIONS. ACTUAL DEVICE CIRCUITING AND BATTERY CALCULATIONS TO BE COMPLETED BY FA CONTRACTOR.

FIRE ALARM RISER - NOT TO SCALE | 4



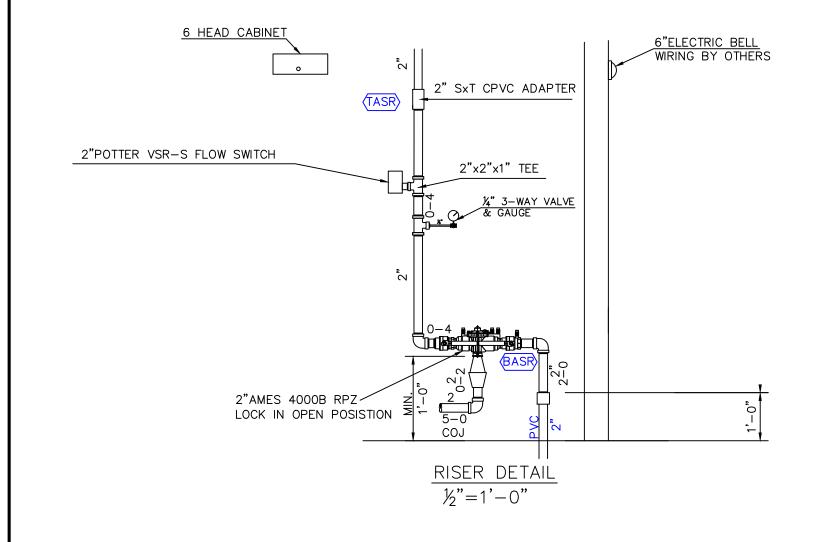
Sprinkler Design Data								
Project Name: THE HOPE CENTER System: NEW								
Project Street Address: 11142 NC HWY 55 EAST								
Floor#: 1	Ceiling Height: varies							
Phone: 910-892-1700	Total Bldg. Hgt.: VARIES							
Occupancy: RESIDENTIAL Hazard: RESIDENTIAL								
	55 EAST  Floor#: 1  Phone: 910-892-1700							

Design Summary

		0	•			
	2nd Floor loft	2nd floor dorm 6	Back Porch	1st Family rm	Front Porch	1st Dining
Design Method	Hydraulic Calculated					
Design Area #	1	2	3	4	5	6
Location	2nd floor loft	2nd floor dorm 6	Back Porch	1st Floor Family Rm	Front Porch	1st Floor Dining
Type of System	WET	WET	WET	WET	WET	WET
Hazard Class	RESIDENTIAL	RESIDENTIAL	RESIDENTIAL	RESIDENTIAL	RESIDENTIAL	RESIDENTIAL
Criteria From	NFPA 13R					
Design Area	4 HEADS	2 HEADS	Entire area	4 HEADS	Entire area	2 HEADS
Sprinkler Spacing	16'x16'	16'L X 18'W	140' sq.ft.	16'X16'	140'sq.ft.	18'X18'
Density	15 GPM @ 11.6 PSI	19 GPM @ 18.7 PSI	.10	13 GPM @ 7 PSI	.10	17 GPM @ 12 PSI
K-factor	4.4	4.4	5.6	4.9	5.6	4.9
Hose Allowance	_	_	100 gpm	_	100 gpm	_
# Design Sprinklers	4	2	4	4	4	2
Special Application Spk.	n/a	n/a	n/a	n/a	n/a	n/a
Requirement @	TEST	TEST	TEST	TEST	TEST	TEST
G.P.M. Req'd	62.491	37.837	166.687	53.816	167.526	34.394
P.S.I. Req'd	56.747	52.298	56.826	43.564	53.829	42.298
Safety Factor @	Test= 11.17 psi	Test= 15.669 psi	Test=10.663 psi	Test=24.373 psi	Test=13.656 psi	Test=25.675 psi

Water Supply Information

lested by	Dunn Emegency	Date/Time	3/15/23	Pressure Hydrant	_				
Hydrant Elevation	_	Flow Hydrant # 1	_	Flow Hydrant #2	_				
Static (PSI)	68	Residiual (PSI)	44	Flow (gpm)	1336				
Copy of Water Test Data Included with Calculation is required									



IMPORTANT

In locations that are subject to freezing conditions, it is the owner's responsibility to provide heat throughout areas protected by wet pipe

sprinkler systems and in enclosures for dry pipe, deluge or other

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part thereof shall be made without written consent of CFP,Inc.

types of valves controlling water supplies to sprinkler systems.

CONTRACT RESPONSIBILITIES

INDERGROUND WATER MAINS

XCAVATIONS

SYMBOLS

HYDRAULIC REF. POINT M MONITOR SWITCH

── FLANGED CONNECTION — PH ANGLE VALVE

12-4 C/L OF PIPE ABOVE REF. FLOW SWITCH (FS) FIRE DEPT.CONN.(STANDARD)

\_\_\_\_ BUTTERFLY VALVE

DRY PIPE VALVE

–δ− GLOBE VALVE

-()- GROOVED COUPLING (GC) -사 SWING CHECK VALVE 역 FIRE HYDRANT (3 WAY)

FIRE DEPT.CONN.(FLUSH)

(LOW) (HIGH) ELEVATION CHANGE IN PIPE

(NOT THROUGH FLOOR)

ALARM VALVE (ALV) POST INDICATOR VALVE (PIV

WAFER CHECK VALVE WITH ROADWAY BOX

→ INSPECTOR'S TEST → → ↓ 2&4 WAY SEISMIC BRACING

⊗ SYSTEM RISER → THRUST BLOCK

'ਠਾਂ FIRE DEPT.CONN.(SIDEWALK)

KEY GATE SECTIONAL VALVE

ITEM C.F.P. /OTHERS

8-0 CEILING HT. ABOVE REF. - GATE VALVE(SEE NOTES) - ELECTRIC BELL

\*13 C/L OF PIPE BELOW BOD FIRE HOSE ASSEMBLY - WATER MOTOR GONG (WMG)

LINE DESIGNATION

<sup>\*</sup>A1 MAIN DESIGNATION

→ HANGER

→ SCREWED PLUG

──D GROOVED CAP

**ABBREVIATIONS** 

N & C Nipple and Cap
NIC Not in Contract
NTS Not to Scale
BJ Open Bar Joist
V Pressure Red. Valve
Roof Manifold
Standpine

Standpipe
Top of Beam
Top of Pipe
Top of Steel

UNO Unlėss Noted Otherwise

BOB Bottom of Beam
BOD Bottom of Deck
BOP Bottom of Pipe
DO Ditto
HV Hose Valve

SYSTEM TYPE

DRY \_\_\_\_ PREACTION \_

APPROVALS

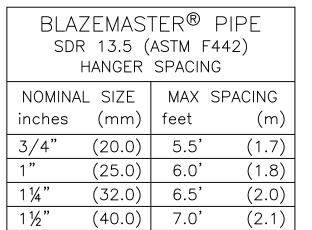
ISO OUT IN

OUT IN

↑ □ FM OUT IN

OUT IN

WET \_\_\_\_\_ X DELUGE \_\_\_\_

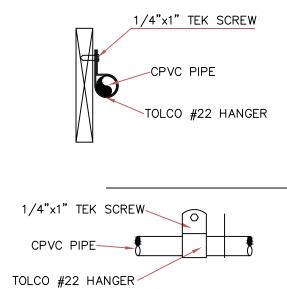


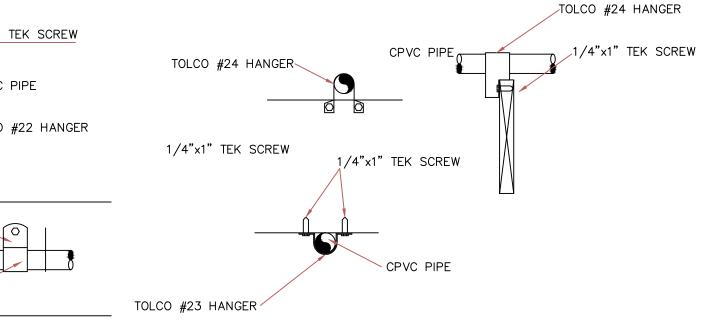
(50.0) 8.0' (2.4)

(3.0)

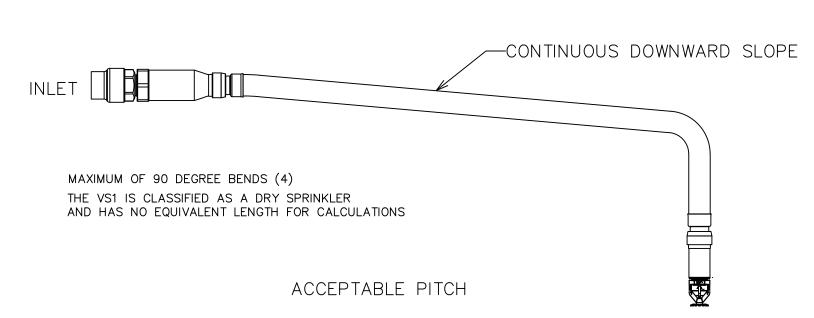
(65.0) 9.0' (2.7)

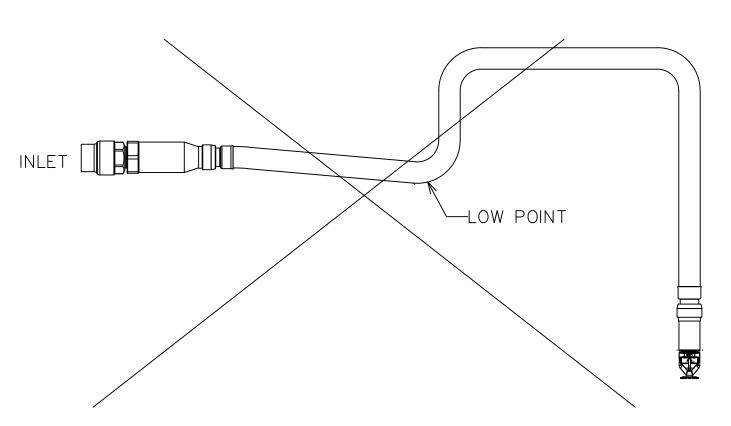
(80.0) 10.0'





HANGER DETAILS



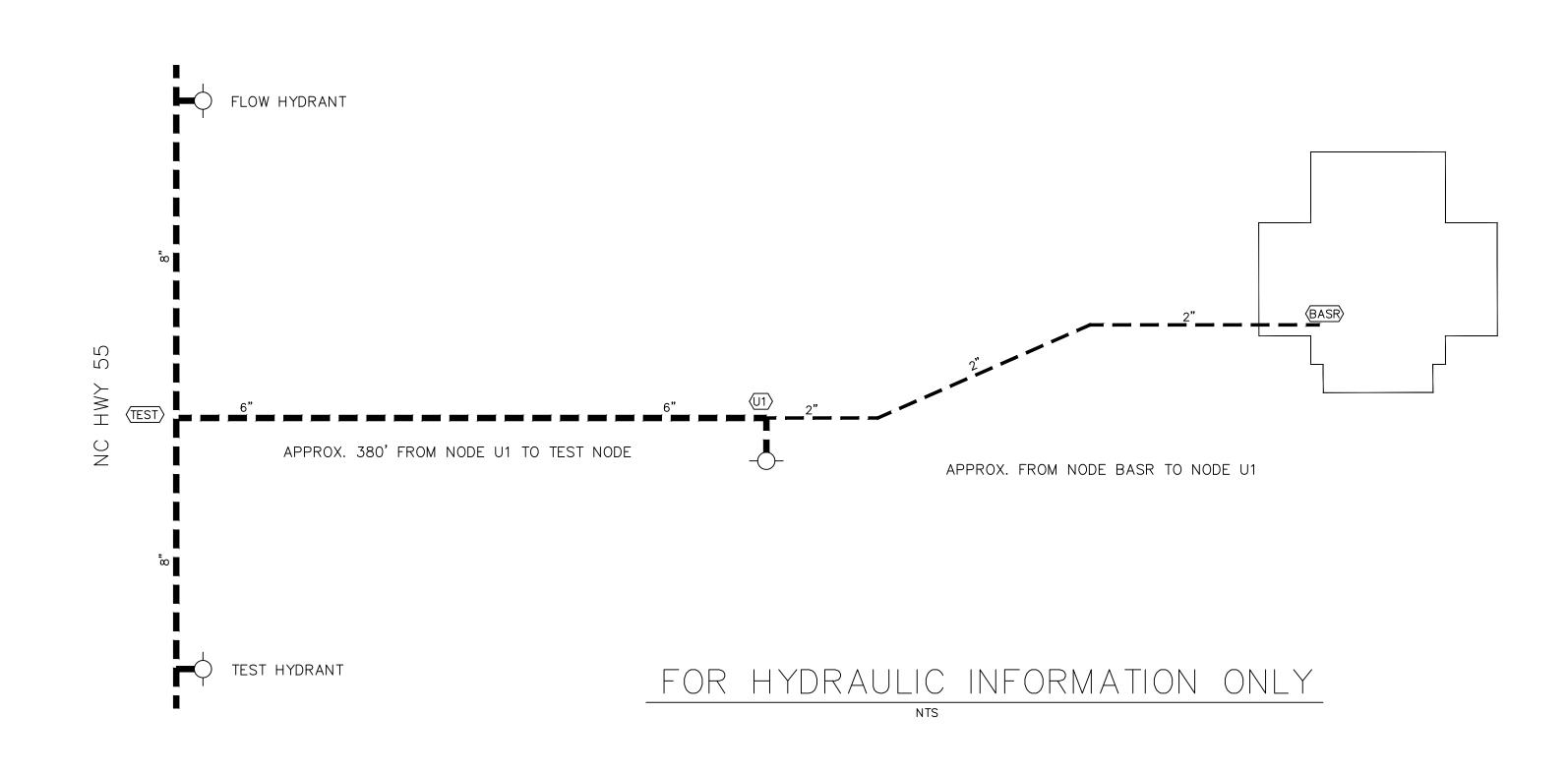


UNACCEPTABLE PITCH

## PENDENT DRY VIC VS1

## SPRINKLER NOTES

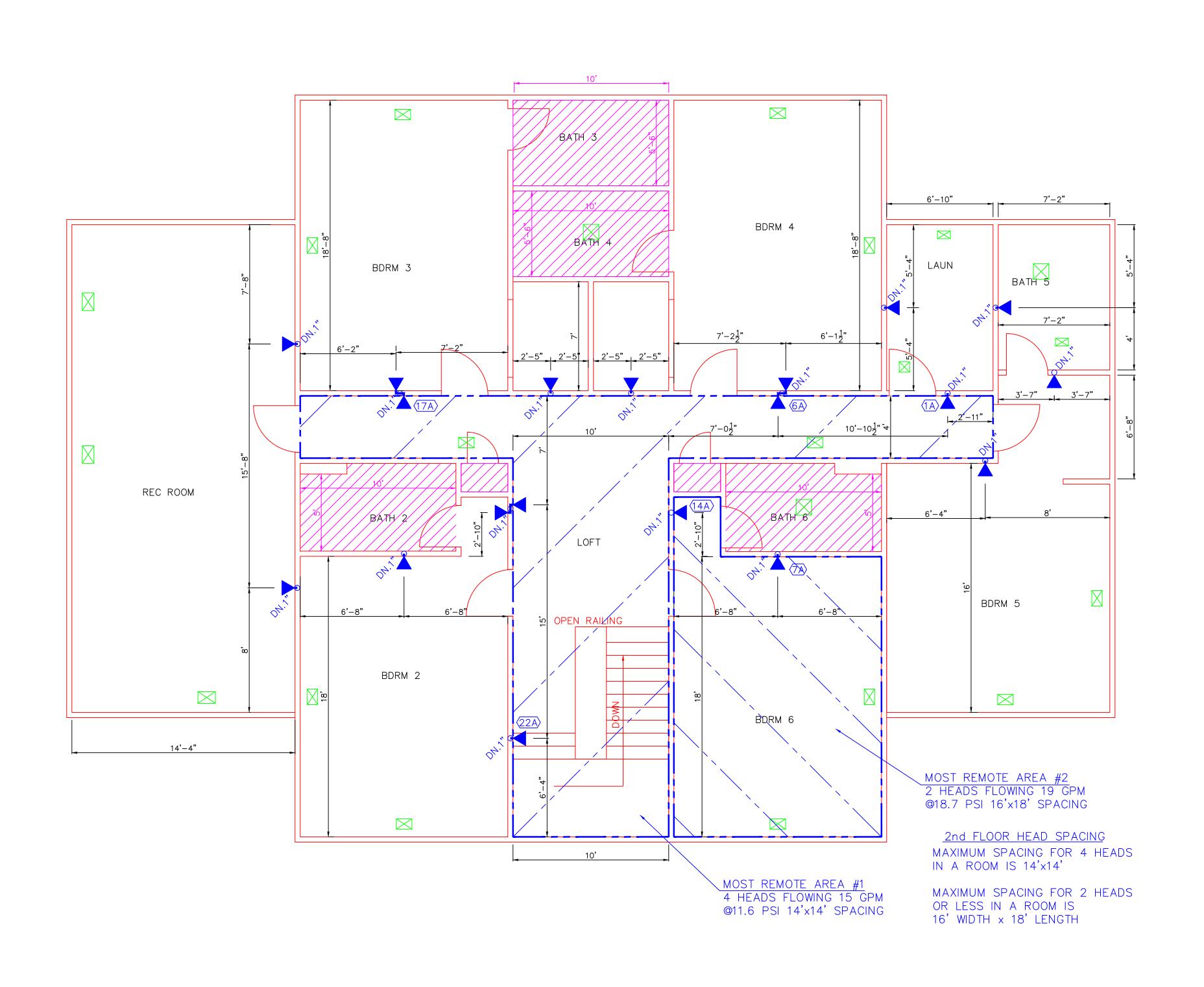
- 1. SYSTEM TO BE DESIGNED AND INSTALLED PER NFPA 13R 2013 EDITION
- FLOWING A MAXIMUM OF 4 SPRINKLER HEADS IN A COMPARTMENT. 2. FIRE SPRINKLER PIPE AND FITTINGS TO BE UL LISTED CPVC
- AND TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTION. 3. CLOSETS 24 SQ.FT. OR LESS IN AREA WITH A LEAST DIM-
- ENSION OF 3' DO NOT REQUIRE SPRINKLERS PER NFPA 13D, PARAGRAPH 8.3.3 WITH WALLS AND CEILINGS SURF-ACED WITH NON COMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIALS AS DEFINED BY NFPA 13R 2013.
- 4. SPRINKLERS ARE NOT REQUIRED IN BATHROOMS THAT DO
- NOT EXCEED 55 SQ.FT. PER NFPA 13D 2013 PARAGRAPH 8.3.2 5. UNDERGROUND PIPING BY OTHERS CAROLINA FIRE PROTECTION
- TO START 1' ABOVE FINISHED FLOOR.
- 6. HEADS TO BE LOCATED A MINIMUM OF 24" FROM THE SIDE OF CEILING OR WALL MOUNTED HOT AIR DIFFUSERS AND A MINIMUM OF 36" IN FRONT OF WALL MOUNTED HOT AIR DIFFUSERS.
- 7. ALL LIGHTS ARE OF THE RECESSED TYPE.



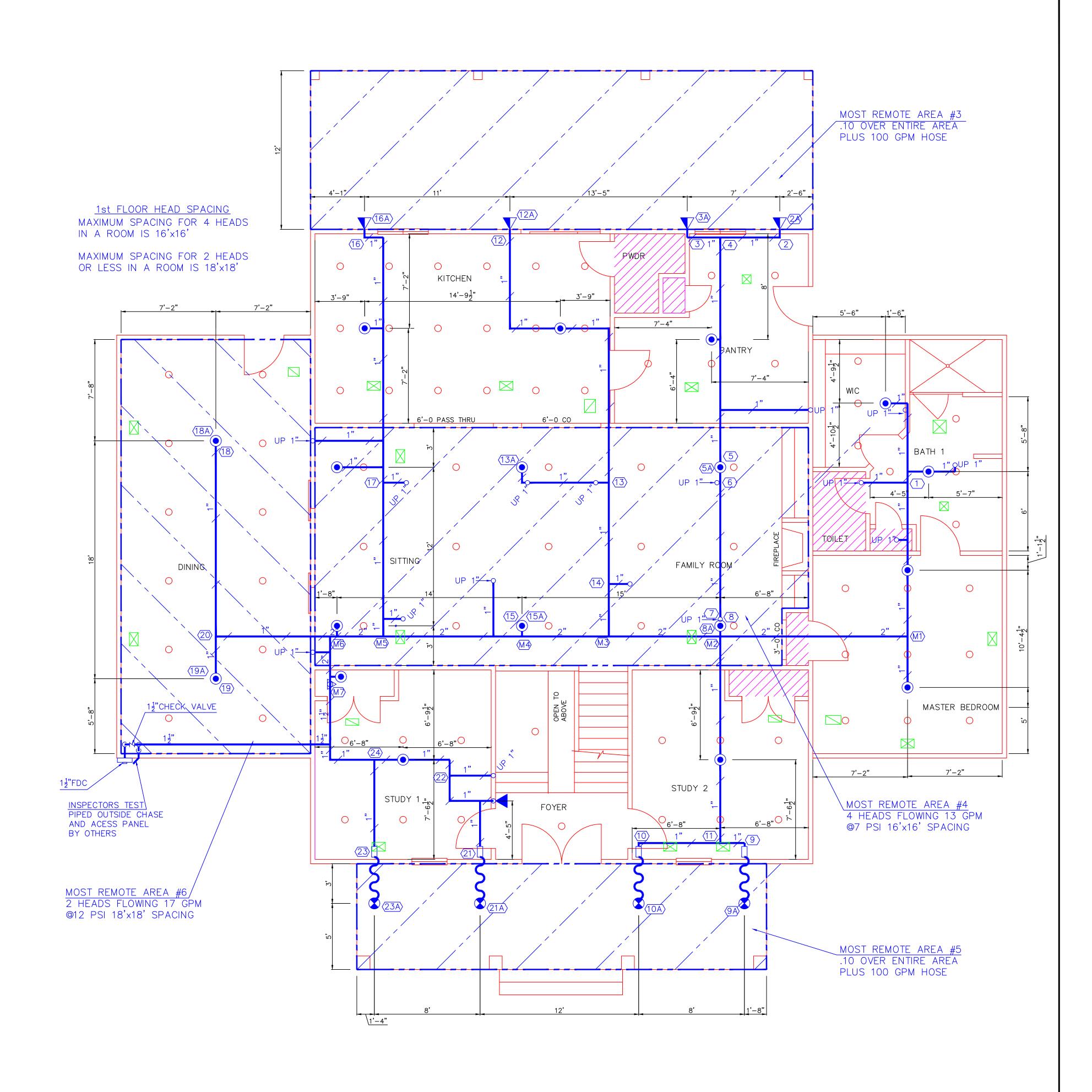
	S
44 <b>4411</b> 11111.	
H CARO	
H CARO	
NC # 23769	
NC NC	
NC # 23769 E S	
RE PROTECTION	

SYMBOL	SIZE	MODEL	MAKE	SIN	FINISH	STYLE	TEMP	K-FACTOR	TOTAL	
<b>O</b>	1/2	QR	VICTAULIC	V2740	WHITE	RESIDENTIAL PENDENT RECESSED ESCUTCHEON	155°	4.9	18	
	1/2	QR	VICTAULIC	V4431	WHITE	RESIDENTIAL RECESSED HORIZONTAL SIDEWALL	155°	4.4	20	
	1/2	QR	VICTAULIC	V3610	WHITE	DRY SIDEWALL	155°	5.6	4	CAROLINA
<b>S</b>	1/2	QR	VICTAULIC	V3506	WHITE	DRY VS1 VIXFLEX RECESSED PENDENT	155°	5.6	4	FIRE
										PROTECTION
										4055 HODGES CHAPEL ROAL
										Dunn, N.C. 28334
TOTAL SPRINKLERS SHOWN ON THIS SHEET TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT								0 46	Phone (910) 892—1700 Fax (910) 892—7322	

		NO.	DATE	BY	REVISIONS	S – SEE	FLAGGE	ED AREA ON PLAN
	CONTRACT NAME:  T  CONTRACT WITH: GODWIN		HOF  11142 NO DUNN,  TRUCTION					CHECKED BY: J.DUNN  DATE: 5/23/23
ROLINA	DESCRIPTION:		INFOF	RMATIC	N			SCALE: 1/4"=1'-0"
FIRE		SYS	TEM D	ESIG	N DATA			CONTRACT NO:
PECUION	HAZARD CLASSIFICATION:		_		SYSTEM AREA:	-	SQ. FT.	23D789
	HYDRAULIC DESIGN DATA DENSITY:	-	GPM/S	Q. FT.	COVERAGE:	<b>–</b> SQ.	FT./HEAD	
IGES CHAPEL ROAD	AREA OF APPLICATION:	-	SQ. FT	•	HOSE ALLOWANCES:	- GPM		DRAWN BY:
,N.C. 28334	TOTAL SYSTEM REQUIREMENTS:	-	GPM. A	<b>ΑΤ</b> —	PSI. AT	-		M. FORD
910) 892-1700	WATER SUPPLY STATIC PRESSURE:	-	PSI. RESIDUA	L PRESSURI	E: — PSI. w/	<del>-</del> GF	PM FLOWING	DRAWING NO.
910) 892–7322		,	SEE HYDRA	AULIC D	ATA BOX			FP 1 of 2



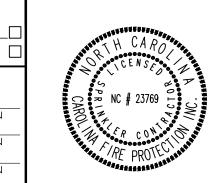




1st FLOOR PLAN

1/4"=1'

IMPORTANT	CONTRACT RESPO	NSIBILITIES	SYMBOLS	ABBREVIATIONS	SYSTEM TYF
In locations that are subject to freezing conditions, it is the owner's responsibility to provide heat throughout areas protected by wet pipe sprinkler systems and in enclosures for dry pipe, deluge or other types of valves controlling water supplies to sprinkler systems.  This drawing including all information and design concept herein contained is the property of Carolina Fire Protection Company, Inc. and is loaned upon express conditions that the same be returned to CFP,Inc. upon request: all information contained herein shall be treated as secret, and confidential: no reproduction of this drawing or any part thereof shall be made without written consent of CFP,Inc.		C.F.P. /OTHERS  N/A  N/A  N/A  N/A  N/A  N/A  N/A	8-D CEILING HT. ABOVE REF.  *13 C/L OF PIPE BELOW BOD  *12-4 C/L OF PIPE ABOVE REF.  *14 C/L OF PIPE ABOVE REF.  *15 C/L OF PIPE ABOVE REF.  *16 FLOW SWITCH (FS)  *17 FIRE DEPT.CONN.(STANDARD)  *18 PIPE DEPT.CONN.(FLUSH)  *19 POST INDICATOR VALVE (PIV)  *10 HYDRAULIC REF. POINT  *10 MONITOR SWITCH  *10 BUTTERFLY VALVE  *11 BUTTERFLY VALVE  *12 PIPE VALVE  *13 C/L OF PIPE BELOW BOD  *14 FIRE DEPT.CONN.(SIDEWALK)  *15 PIRE DEPT.CONN.(SIDEWALK)  *16 POST INDICATOR VALVE (PIV)  *17 FIRE DEPT.CONN.(SIDEWALK)  *18 POST INDICATOR VALVE (PIV)  *19 FIRE HYDRANT (3 WAY)  *10 FIRE HYDRANT (3 WAY)  *10 POST INDICATOR VALVE (PIV)  *11 FIRE DEPT.CONN.(SIDEWALK)  *12 PIPE VALVE  *13 C/L OF PIPE BELOW BOD  *14 FIRE DEPT.CONN.(SIDEWALK)  *16 PIPE DEPT.CONN.(SIDEWALK)  *17 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CONN.(SIDEWALK)  *19 POST INDICATOR VALVE (PIV)  *10 POST INDICATOR VALVE (PIV)  *10 FIRE HYDRANT (3 WAY)  *11 FIRE DEPT.CONN.(SIDEWALK)  *12 PIPE DEPT.CONN.(SIDEWALK)  *13 PIPE DEPT.CONN.(SIDEWALK)  *14 POST INDICATOR VALVE (PIV)  *15 FIRE HYDRANT (3 WAY)  *16 PIPE DEPT.CONN.(SIDEWALK)  *17 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CONN.(STANDARD)  *18 PIPE DEPT.CONN.(STANDARD)  *18 PIPE DEPT.CONN.(STANDARD)  *18 PIPE DEPT.CONN.(SIDEWALK)  *19 POST INDICATOR VALVE (PIV)  *19 FIRE HYDRANT (3 WAY)  *19 FIRE HYDRANT (3 WAY)  *10 POST INDICATOR VALVE (PIV)  *11 PIPE DEPT.CONN.(STANDARD)  *12 PIPE DEPT.CONN.(SIDEWALK)  *12 PIPE DEPT.CONN.(SIDEWALK)  *13 PIPE DEPT.CONN.(SIDEWALK)  *14 PIPE DEPT.CONN.(SIDEWALK)  *15 PIPE DEPT.CONN.(SIDEWALK)  *16 PIPE DEPT.CONN.(SIDEWALK)  *17 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CONN.(SIDEWALK)  *18 PIPE DEPT.CON	BOB Bottom of Beam BOD Bottom of Deck BOP Bottom of Pipe DO Ditto HV Hose Valve N & C Nipple and Cap NIC Not in Contract NTS Not to Scale OBJ Open Bar Joist PRV Pressure Red. Valve RM Roof Manifold SP Standpipe TOB Top of Beam TOP Top of Pipe TOS Top of Steel UNO Unless Noted Otherwise	WET \begin{align*} \text{DELUGE} \\ \text{DRY} & \text{PREACTION} \\ \text{APPROVALS} \\ \text{ISO} & \text{OUT} & \\ \text{IFM} & \text{OUT} & \\ \text{OUT} & \text{OUT} & \\ \text{OUT} & \text{OUT} & \\ \text{OUT} &



					SPR	INKLER SYMBOL DESCRIPTION				
SYMBOL	SIZE	MODEL	MAKE	SIN	FINISH	STYLE	TEMP	K-FACTOR	TOTAL	
<u></u>	1/2	QR	VICTAULIC	V2740	WHITE	RESIDENTIAL PENDENT RECESSED ESCUTCHEON	155°	4.9	18	
<b>•</b>	1/2	QR	VICTAULIC	V4431	WHITE	RESIDENTIAL RECESSED HORIZONTAL SIDEWALL	155*	4.4	20	
<b>&gt;</b>	1/2	QR	VICTAULIC	V3610	WHITE	DRY SIDEWALL	155*	5.6	4	C.
<b>S</b>	1/2	QR	VICTAULIC	V3506	WHITE	DRY VS1 VIXFLEX RECESSED PENDENT	155 <b>°</b>	5.6	4	
										PR
										4055
										Dhar
			N THIS SHEET						46	Phor Fax
TOTAL SI	PRINKLERS	REQUIRED	ON THIS CON	ITRACT					46	I ux

	CONTRACT NAME:		PE ( NC HWY 9 1, NC 283	55
	CONTRACT WITH: GODWIN	CONSTRUCTION	١	
<u> Rolina</u>	DESCRIPTION:	1st &	2nd FL	00
FIRE		SYSTEM	DESIGN	1 [
<b>TECTION</b>	HAZARD CLASSIFICATION: HYDRAULIC	-		
	DESIGN DATA DENSITY:	- GPN	1/SQ. FT.	
IODGES CHAPEL ROAD	AREA OF APPLICATION:	<b>–</b> SQ.	FT.	HO ALI
ınn,N.C. 28334	TOTAL SYSTEM REQUIREMENTS:	- GPN	и. AT <u>—</u>	
(910) 892-1700	WATER SUPPLY STATIC PRESSURE:	- PSI. RESI	DUAL PRESSURE:	_

contract name:	IE HOPE  11142 NC HWY DUNN, NC 2			CHECKED BY: J.DUNN
	DATE:			
CONTRACT WITH: GODWIN (	5/23/23			
DESCRIPTION:	SCALE: 1/4"=1'-0"			
	<u>'</u>			
HAZARD CLASSIFICATION: HYDRAULIC	-	SYSTEM AREA:	- SQ. FT.	contract no: 23D789
DESIGN DATA DENSITY:	- GPM/SQ. FT.	COVERAGE: -	SQ. FT./HEAD	
AREA OF APPLICATION:	SQ. FT.	HOSE ALLOWANCES:	GPM	DRAWN BY:
TOTAL SYSTEM REQUIREMENTS:	- GPM. AT	- PSI. AT -		M. FORD
WATER SUPPLY STATIC PRESSURE:	- PSI. RESIDUAL PRESSU	RE: — PSI. w/ —	GPM FLOWING	DRAWING NO.
	SEE HYDRAULIC	DATA BOX		FP 2 of 2

REVISIONS — SEE FLAGGED AREA ON PLAN