

# CROSS COUNTY SUPERINTENDENT RESIDENCE

CHERRY VALLEY, ARKANSAS

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### CERTIFICATION STATEMENT:

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION, I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS ARE AS REQUIRED BY LAW AND IN COMPLIANCE WITH THE "ARKANSAS FIRE PREVENTION CODE" FOR THE STATE OF ARKANSAS.

LEWIS, ELLIOTT, MCMORRAN, VADEN, RAGSDALE & WOODWARD, INCORPORATED

*Chert Vaden 8/30/24*

## PROJECT INFORMATION

DRAWINGS AND PROJECT MANUAL APPROVED AND IDENTIFIED AS PARTS OF THE OFFICIAL CONTRACT DOCUMENT

OWNER: \_\_\_\_\_  
 FACILITY: CROSS COUNTY SUPERINTENDENT RESIDENCE  
 LOCATION: CHERRY VALLEY, ARKANSAS  
 BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

ARCHITECT: LEWIS, ELLIOTT, MCMORRAN, VADEN,  
 RAGSDALE & WOODWARD INCORPORATED  
 ADDRESS: 11225 HURON LANE, SUITE 104  
 LITTLE ROCK, ARKANSAS 72211  
 BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

PROJECT NUMBER: 24041  
 DRAWINGS AND PROJECT MANUAL DATED: 2024 08-30

## MATERIAL LEGEND

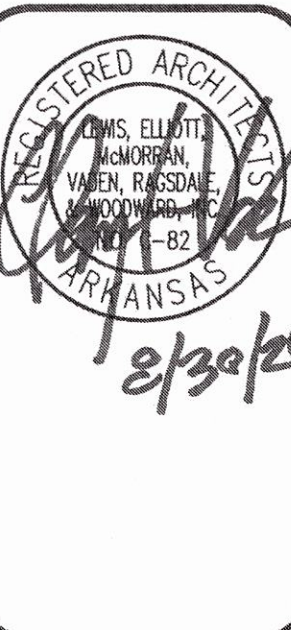
	MASONRY (PLAN)
	METAL STUD FRAMING (PLAN)
	GYPSUM PANELS
	WOOD BLOCKING CONTINUOUS (SECTION)
	WOOD BLOCKING AS NEEDED (SECTION)
	WOOD FINISHED FACE OR SOLID WOOD
	WOOD PLYWOOD (SECTION)
	CONCRETE (SECTION)
	RIGID INSULATION (SECTION)
	BATT INSULATION (SECTION)
	FILL MATERIAL (SECTION)
	REPLACED SOIL (SECTION)

## SYMBOL LEGEND

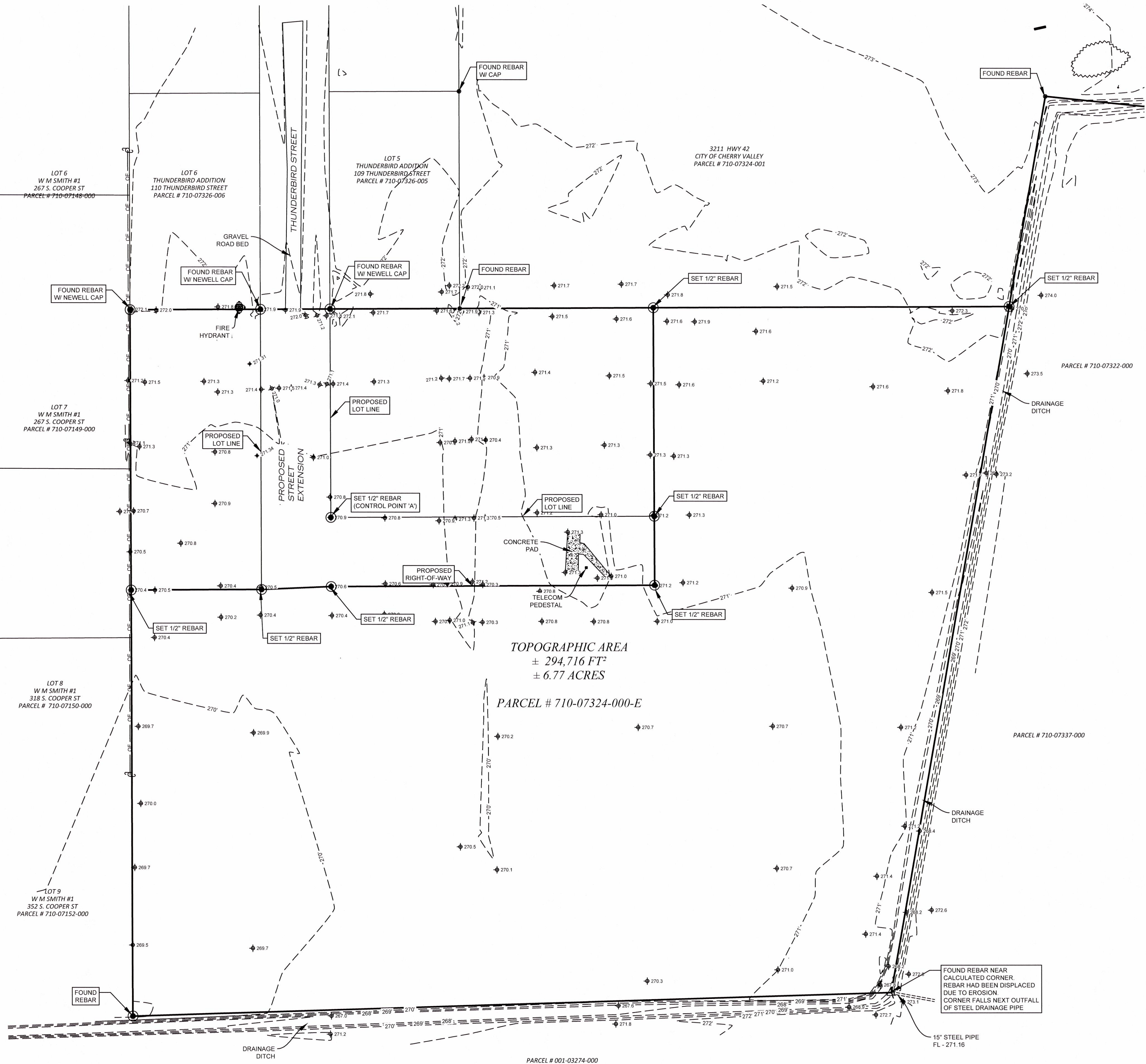
	DOOR MARK, SEE DOOR SCHEDULE
	CASEWORK ELEVATION MARK
	WINDOW / STOREFRONT FRAME MARK
	CLASSROOM ← ROOM NAME
	101 ← ROOM NUMBER
	LAY-1 9'-4" ← ROOM CEILING HEIGHT
	← CEILING FINISH
	3 ← DETAIL / SECTION NUMBER
	A4.4 ← SHEET NUMBER

## ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
AT	ALUMINUM THRESHOLD
CEJC	CEILING EXPANSION JOINT COVER
CJ	CONTROL JOINT
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DTL	DETAIL
FD	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
FEJ	FLOOR EXPANSION JOINT
FLR	FLOOR
GB	GRAB BAR
MECH	MECHANICAL
NHO	NORMALLY HELD OPEN
NTS	NOT TO SCALE
OPG	OPENING
REQ	REQUIRED
SHT	SHEET
SIM	SIMILAR
STO	STORAGE
TYP	TYPICAL
WEJC	WALL EXPANSION JOINT COVER

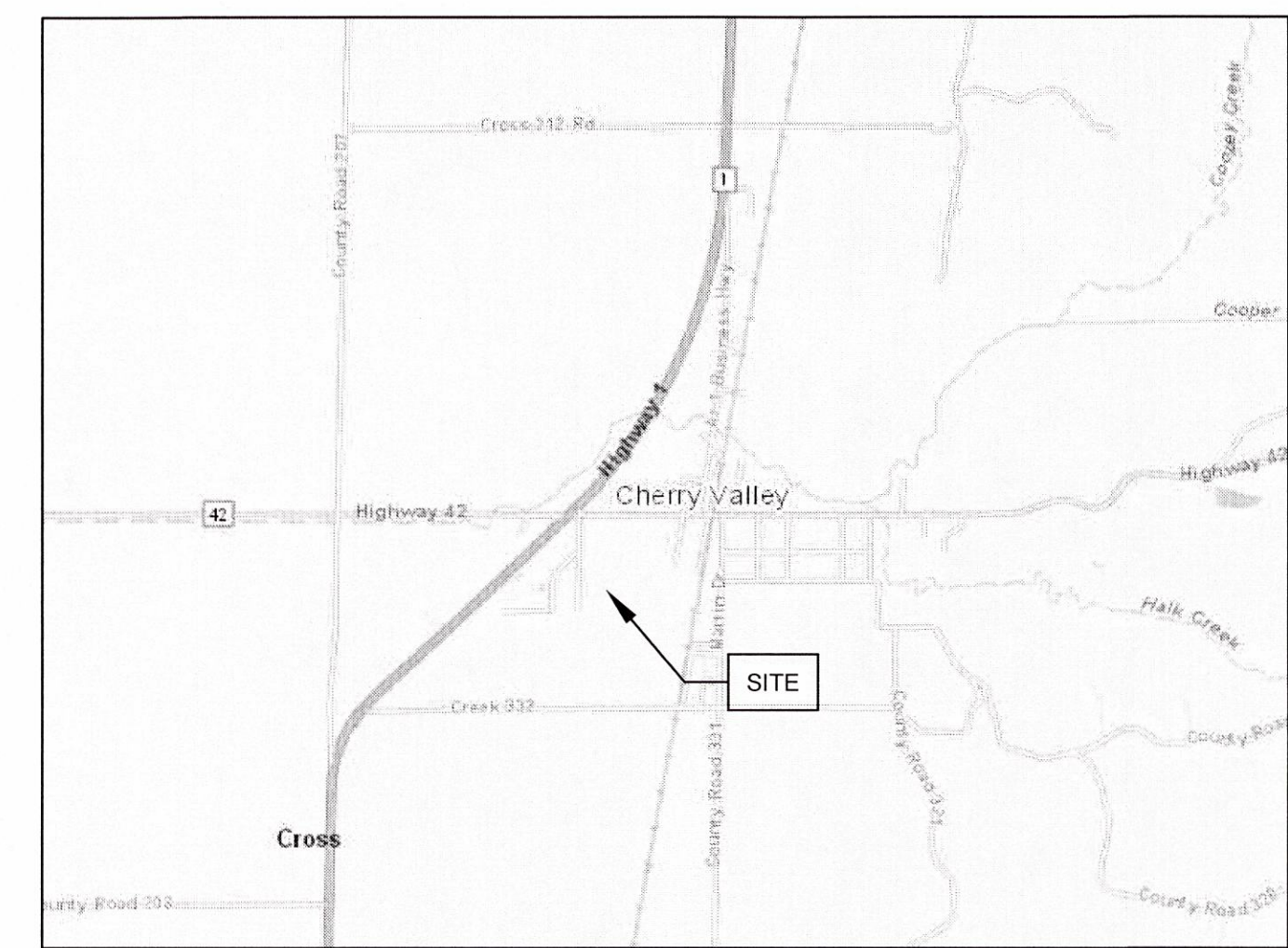


DATE: 2024 08-30  
 PROJECT NO: 24041  
 DRAWN BY: AP  
 REVISION:

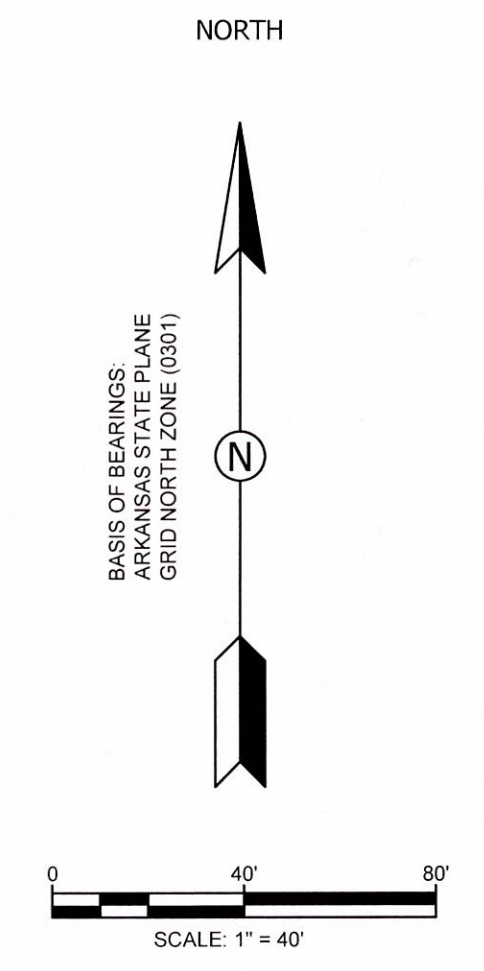


TOPOGRAPHIC AREA  
± 294,716 FT<sup>2</sup>  
± 6.77 ACRES

PARCEL # 710-07324-000-E



VICINITY MAP  
(NOT TO SCALE)



LEGEND	
	FOUND IRON PIPE (AS NOTED)
	FOUND REBAR (AS NOTED)
	CALCULATED CORNER
	BOUNDARY LINE
	ROAD CENTERLINE
	EXISTING CONTOUR
	EXISTING SPOT ELEVATION
	OVERHEAD ELECTRIC
	POWER POLE
	SANITARY SEWER MANHOLE
	STORM DRAIN PIPE
	WATER METER
	FIRE HYDRANT

**SURVEYOR'S NOTES:**

- THIS IS A TOPOGRAPHIC SURVEY ONLY AND SHOULD NOT BE INTERPRETED AS A PROPERTY BOUNDARY SURVEY. ANY PROPERTY LINES AND/OR MONUMENTS ARE SHOWN FOR REFERENCE ONLY.
- SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD OR ANY OTHER FACTS THAT AN ACCURATE TITLE SEARCH MAY DISCLOSE.
- ANY UTILITIES SHOWN ARE FROM FIELD OBSERVANCE OF APPURTENANCES AND/OR MARKINGS. THIS SURVEY MAKES NO WARRANTY TO THE EXACT LOCATION OF THE UTILITIES SHOWN OR NOT SHOWN ON THIS PLAT. IT SHALL BE CLIENT / CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH UTILITY COMPANIES TO VERIFY ANY AND ALL UTILITY LOCATIONS AND/OR DEPTHS BEFORE EXCAVATION.
- THE PROPERTY DOES NOT LIE IN THE 100-YEAR SPECIAL FLOOD HAZARD AREA AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP (FIRM): PANEL NO. 050057 0001 B, EFFECTIVE DATE MAY 4, 1988.
- HORIZONTAL DATUM : ARKANSAS STATE PLANE GRID NORTH ZONE (0301) NAD1983, BASED UPON ARDOT'S GPS NETWORK.
- VERTICAL DATUM: NAVD1988 (GEOID12B) BASED UPON ARDOT'S GPS NETWORK.
- CONTOUR INTERVAL = 1 FOOT.
- CONTROL POINT: A. NORTHING: 390,483.76 ; EASTING: 1,682,480.55 ; ELEVATION: 270.89
- THE FOLLOWING DOCUMENTS WERE USED AS REFERENCES:
  - THUNDERBIRD ADDITION PRELIMINARY PLAT, BY MILLER NEWELL ENGINEERS - PROVIDED BY CLIENT.
  - WARRANTY DEED & SURVEY: DOCUMENT # LR-2019-0464, CROSS COUNTY CLERK'S OFFICE

BRANDON G. WOOD  
ARKANSAS SURVEYOR  
# 1817

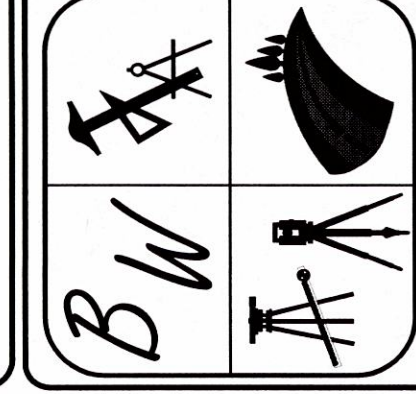


**TOPOGRAPHIC SURVEY**  
**THUNDERBIRD ADDITION PHASE II & FUTURE AREA**  
 CHERRY VALLEY, CROSS COUNTY, ARKANSAS  
 CLIENT: CROSS COUNTY SCHOOL DISTRICT - CHERRY VALLEY

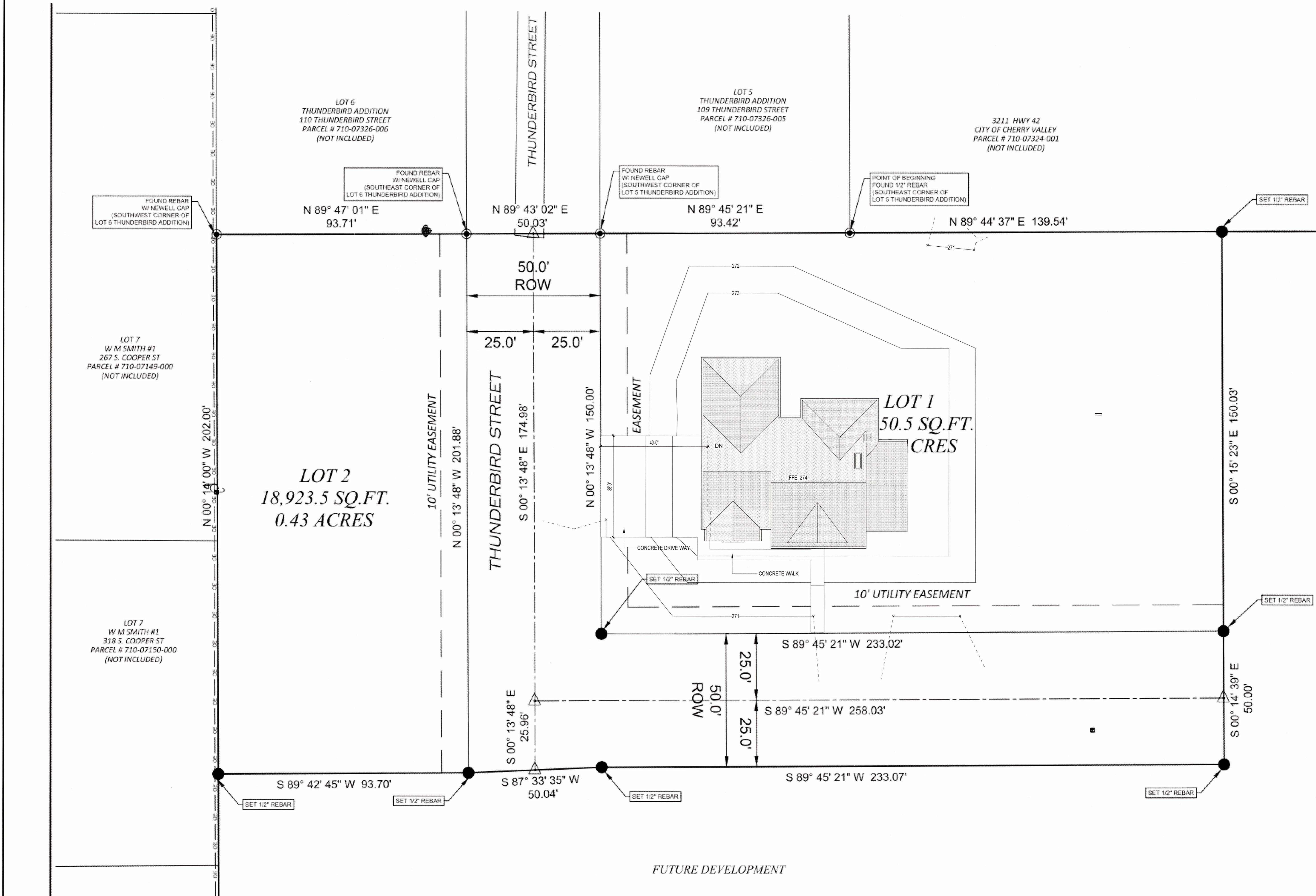
DATE: 06/13/2024  
REV:

DRAWN BY: BGW

BRANDON WOOD, P.E., P.S.  
ENGINEERING & SURVEYING  
 112 CR 7625  
 BROOKLAND, AR 72417  
 PH: (870) 830-7504  
 FAX: (870) 972-0027  
 BWOOD@WOODENGR.COM  
 WWW.BWOODENGINEERING.COM

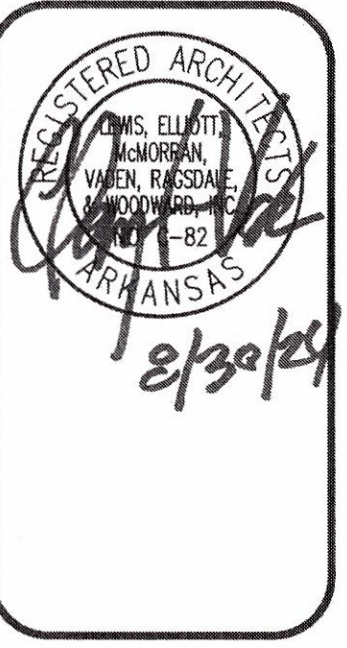


STATE CODE: 500-09N-03E-0-22-100-19-1817



**NORTH**  
**SITE PLAN**  
1  
A1.1  
1/16" = 1'-0"

CROSS COUNTY SUPERINTENDENT RESIDENCE  
CHERRY VALLEY, ARKANSAS



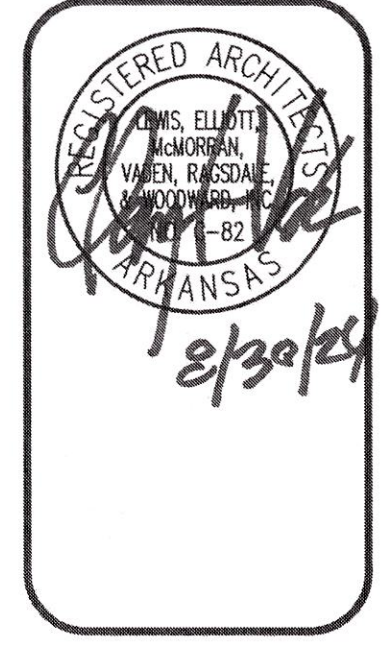
DATE: 2024 08-30  
PROJECT NO: 24041  
DRAWN BY: AP  
REVISION:

**A1.1**  
1 OF 7

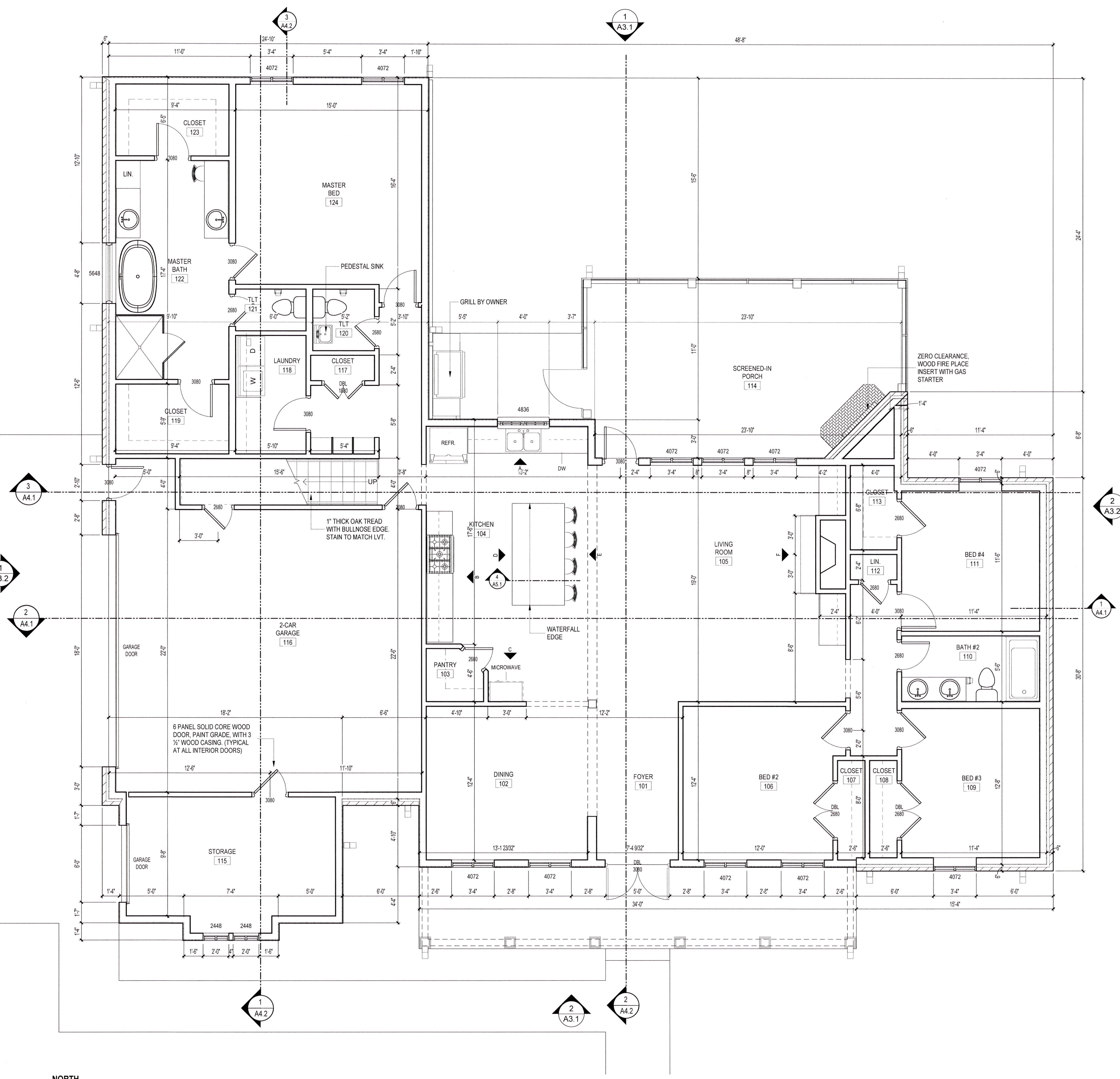
LEWIS ARCHITECTS ENGINEERS  
ELLIOTT • MCMORRAN • VADEN  
RAGSDALE • WOODWARD • INCORPORATED  
501 223 9302 • WWW.LEWVIRW.COM

### GENERAL NOTES

- LOCATIONS, SPECS, AND SIZE OF FLUES / VENTS TO BE DETERMINED BY BUILDER PRIOR TO CONSTRUCTION OR ON-SITE AS NEEDED.
- ALL DIMENSION, NOTES AND DETAILS ARE TO BE VERIFIED BY THE BUILDER AND/OR PRIOR TO CONSTRUCTION. LEWIS ARCHITECTS ENGINEERS CLAIMS NO RESPONSIBILITY FOR COMPLICATIONS IN CONSTRUCTION DUE TO DIMENSION INACCURACIES, ON-SITE CHANGES, GRADE VARIANCE AT SITE, AND/OR THE AVAILABILITY OF MATERIALS, FIXTURES, APPLIANCES, AND SECTION DETAILS ARE GIVEN AS STANDARD EXAMPLES AND MAY NOT REFLECT ACTUAL CONSTRUCTION. CONSULT BUILDER AND/OR SUPPLIER FOR EXACT DIMENSIONS AND SPECIFICATIONS PRIOR TO CONSTRUCTION.

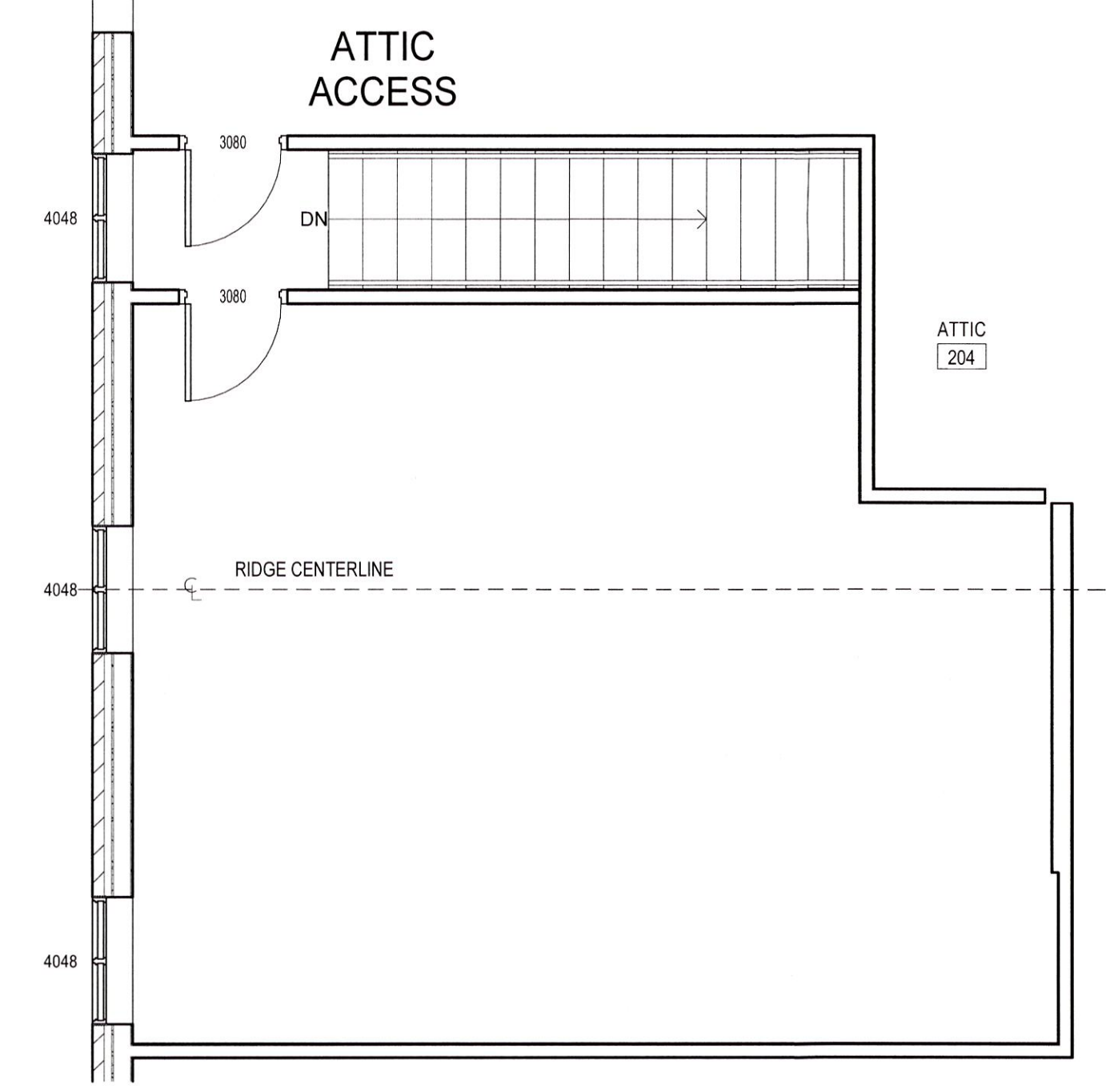


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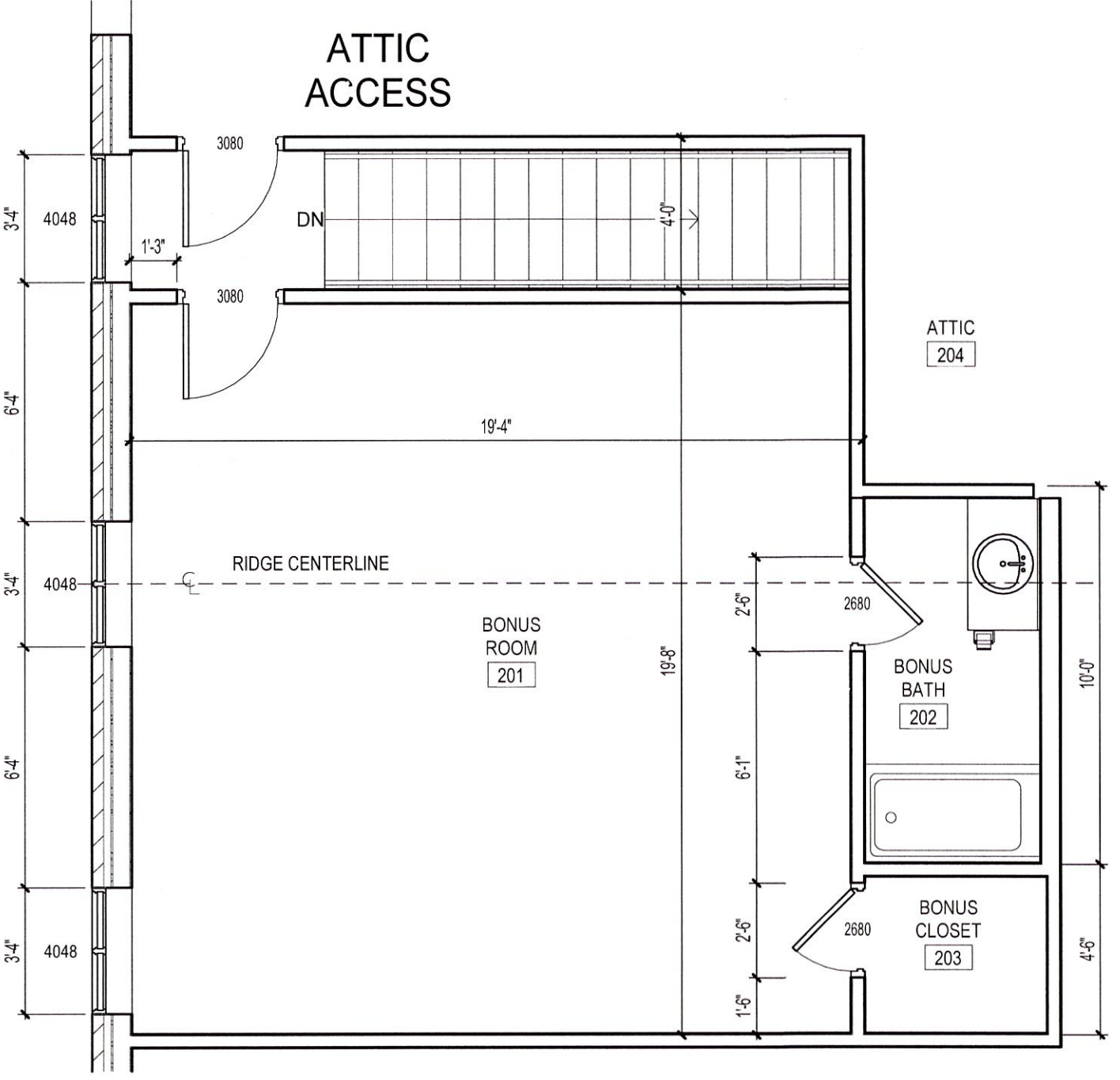


NORTH  
2  
A2.1  
1/4" = 1'-0"  
**FLOOR PLAN - GROUND LEVEL**

2,240 SF (INSIDE FACE OF STUD - HEATED / COOLED)  
GARAGE - 540 SF



3  
A2.1  
1/4" = 1'-0"  
**UPPER LEVEL - DEDUCTIVE ALTERNATE**



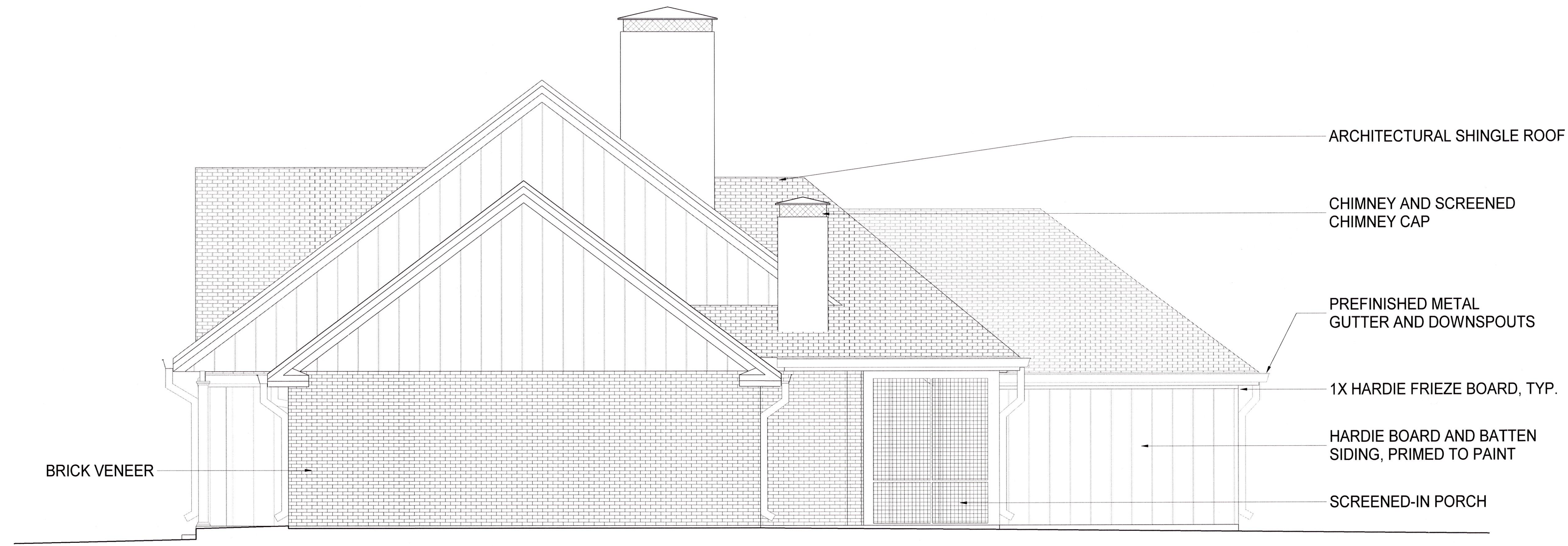
NORTH  
1  
A2.1  
1/4" = 1'-0"  
**FLOOR PLAN - UPPER LEVEL**  
506 SF (INSIDE FACE OF STUD - HEATED / COOLED)



2 SOUTH ELEVATION  
A3.1 1/4" = 1'-0"



1 NORTH ELEVATION  
A3.1 1/4" = 1'-0"

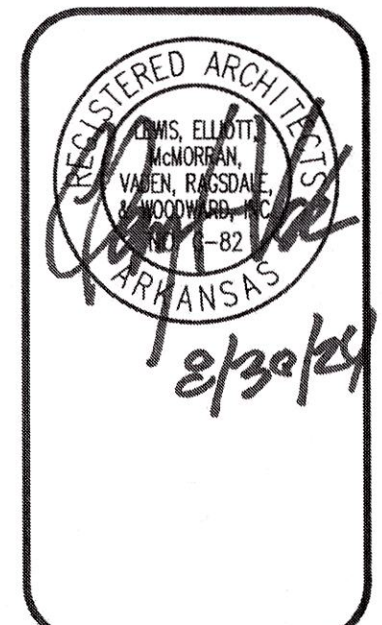


2 EAST ELEVATION  
A3.2 1/4" = 1'-0"

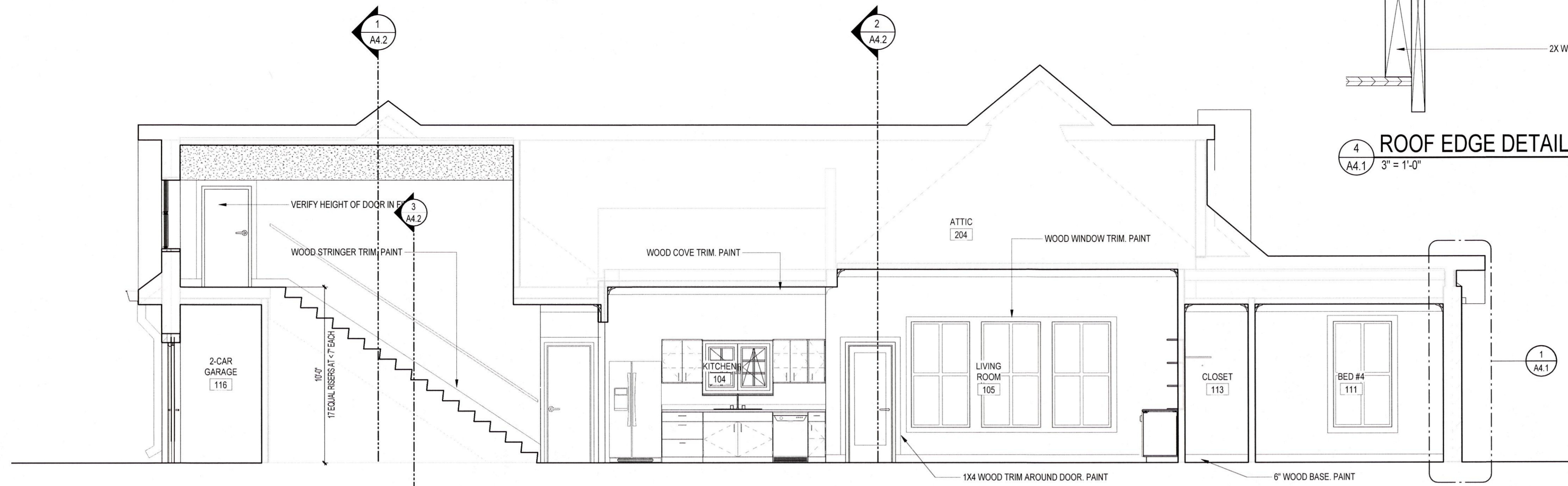


1 WEST ELEVATION  
A3.2 1/4" = 1'-0"

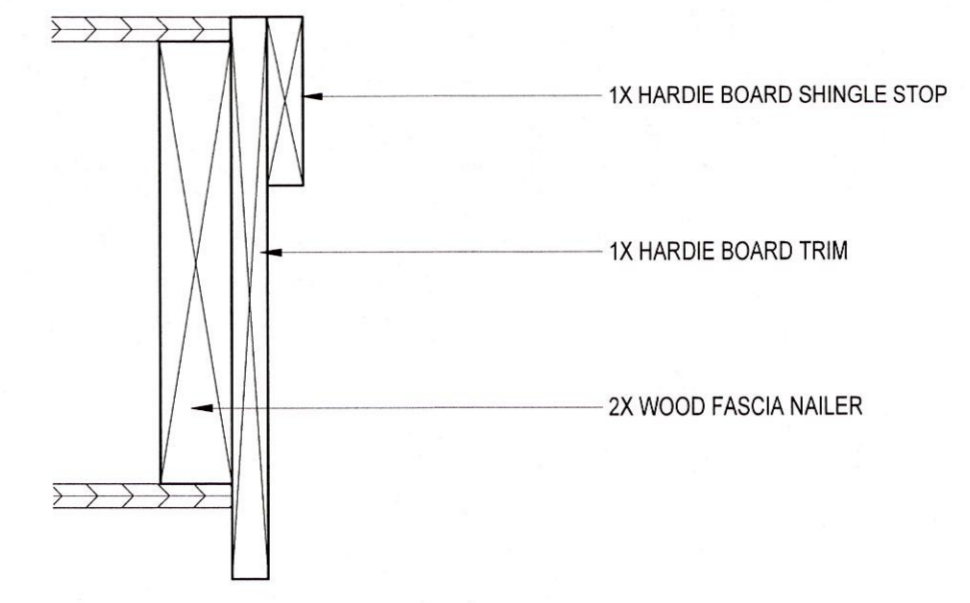
CROSS COUNTY  
SUPERINTENDENT  
RESIDENCE  
CHERRY VALLEY, ARKANSAS



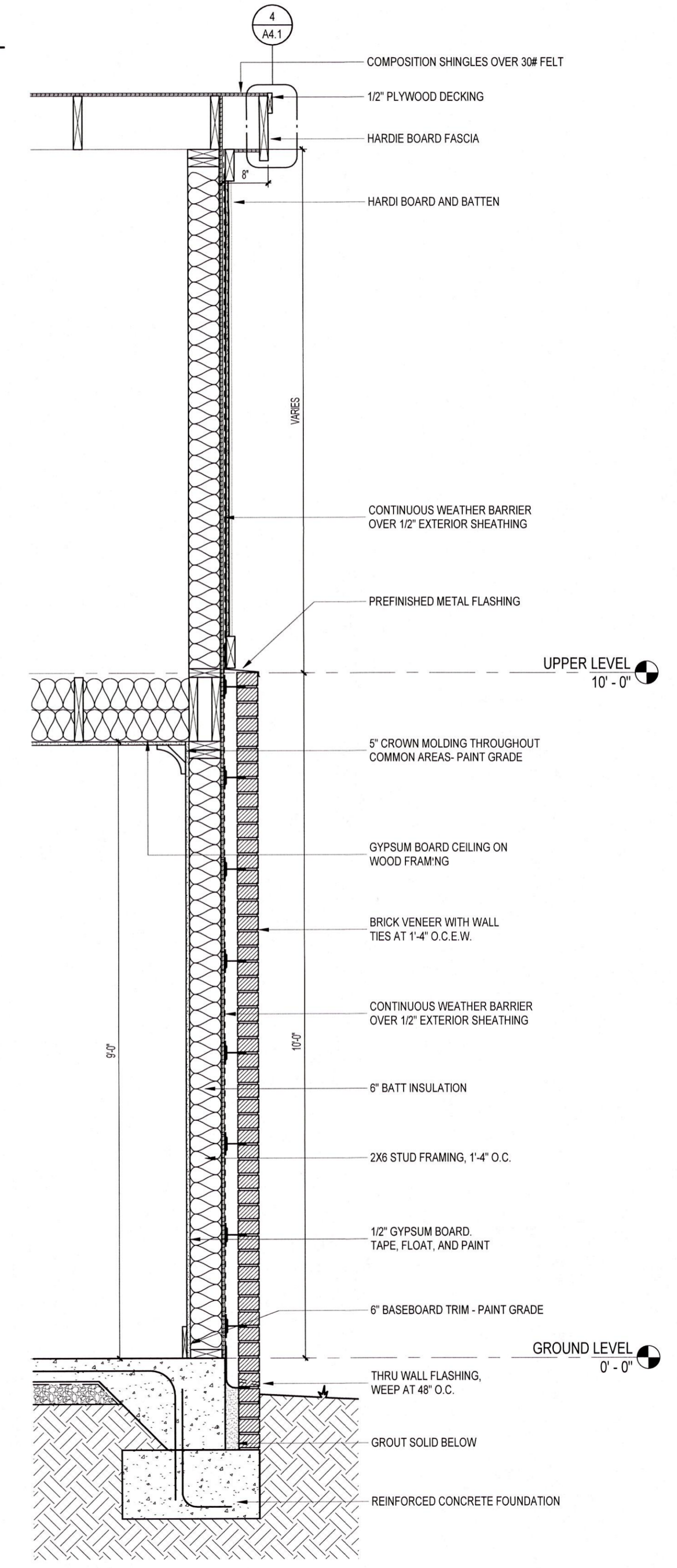
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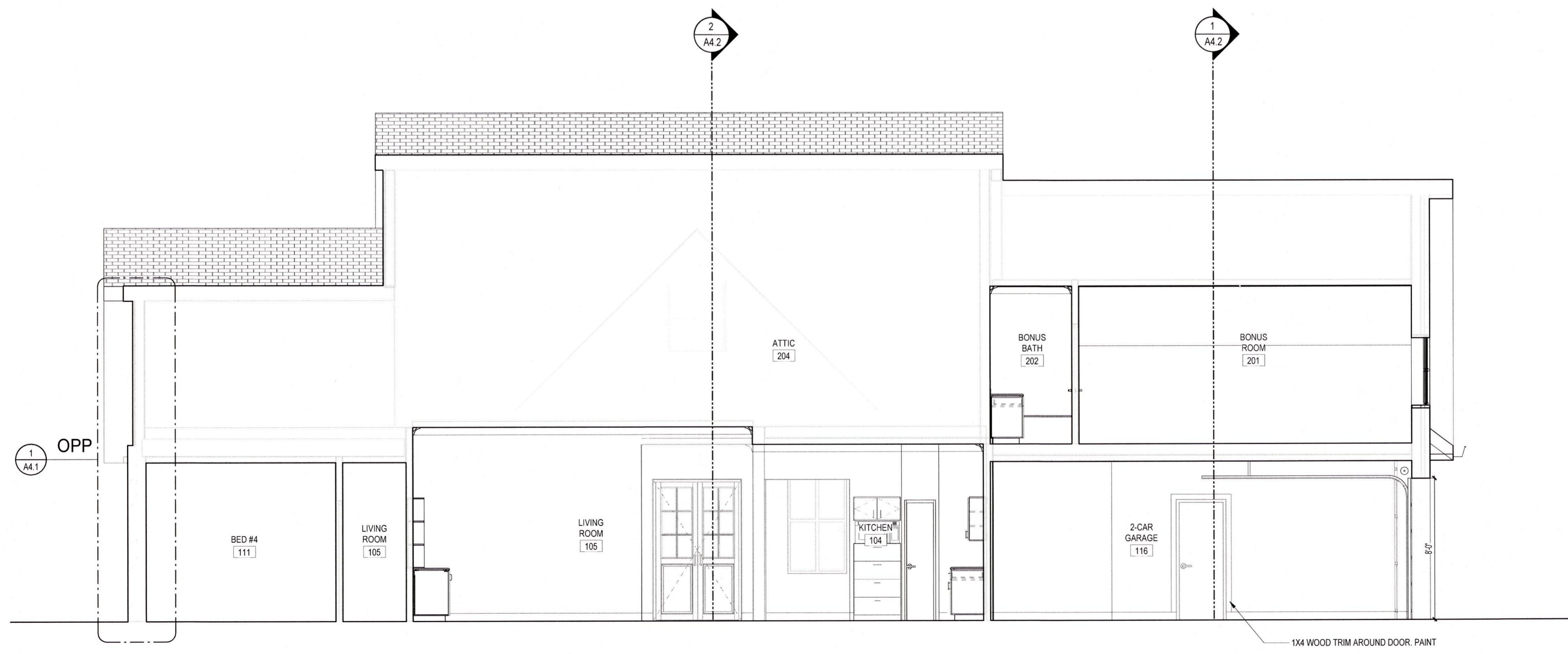
3 BUILDING SECTION  
A4.1 1/4" = 1'-0"



4 ROOF EDGE DETAIL  
A4.1 3" = 1'-0"

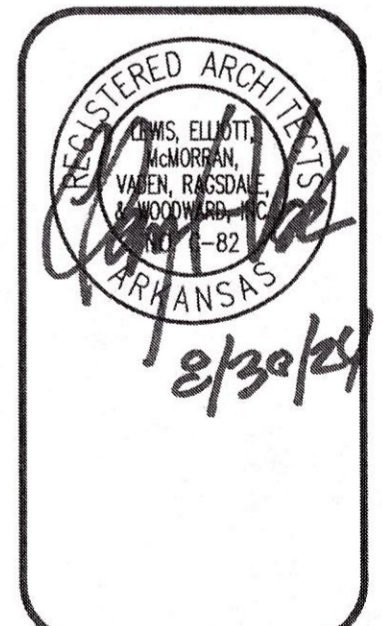


1 WALL SECTION  
A4.1 3/4" = 1'-0"

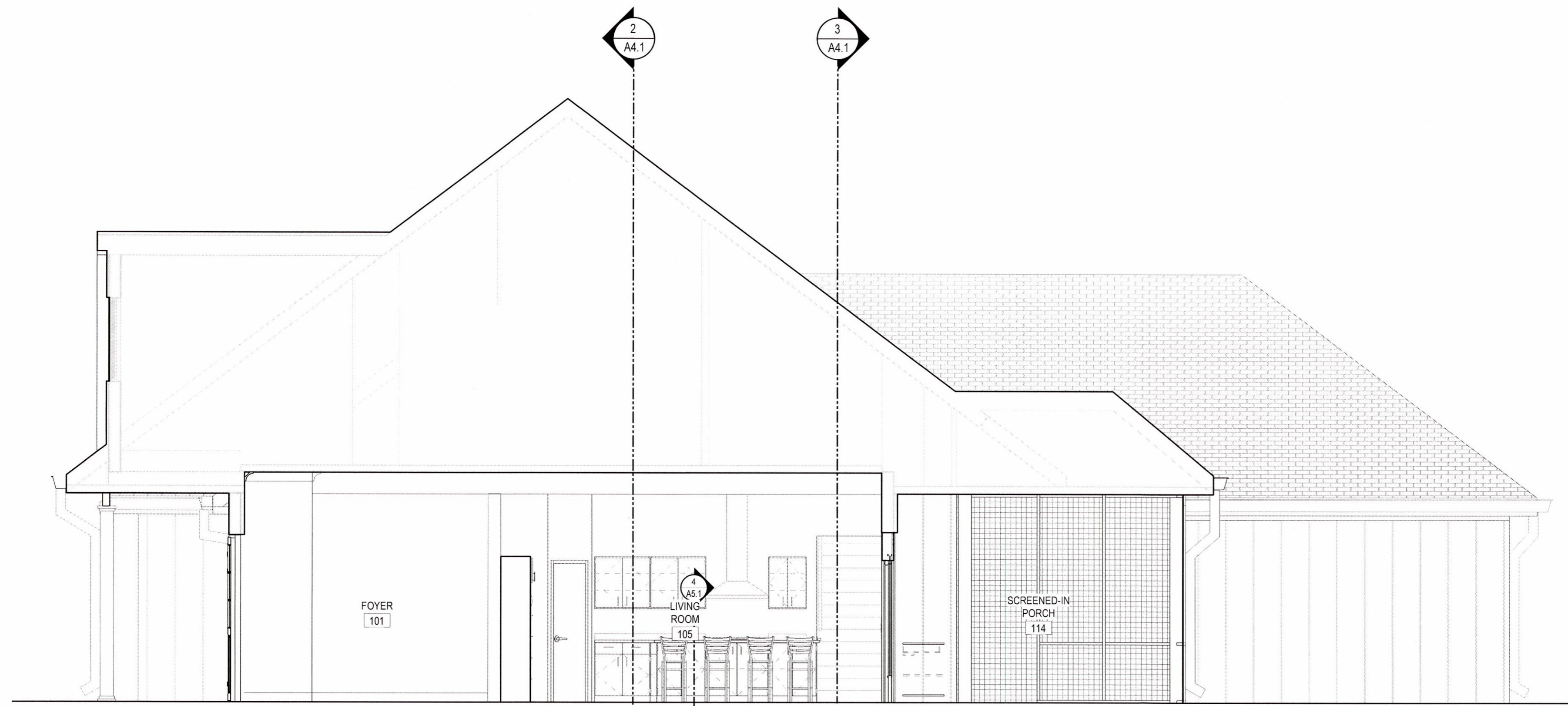


2 BUILDING SECTION  
A4.1 1/4" = 1'-0"

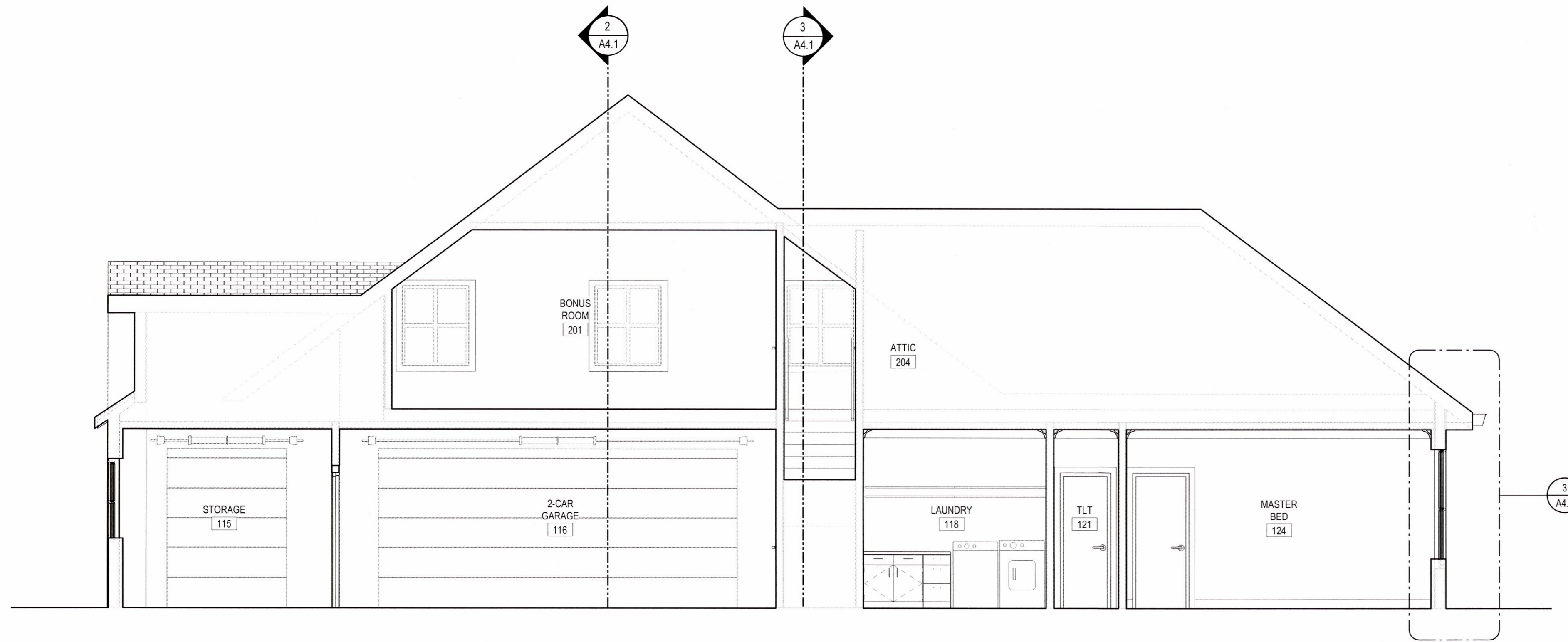
CROSS COUNTY SUPERINTENDENT RESIDENCE  
CHERRY VALLEY, ARKANSAS



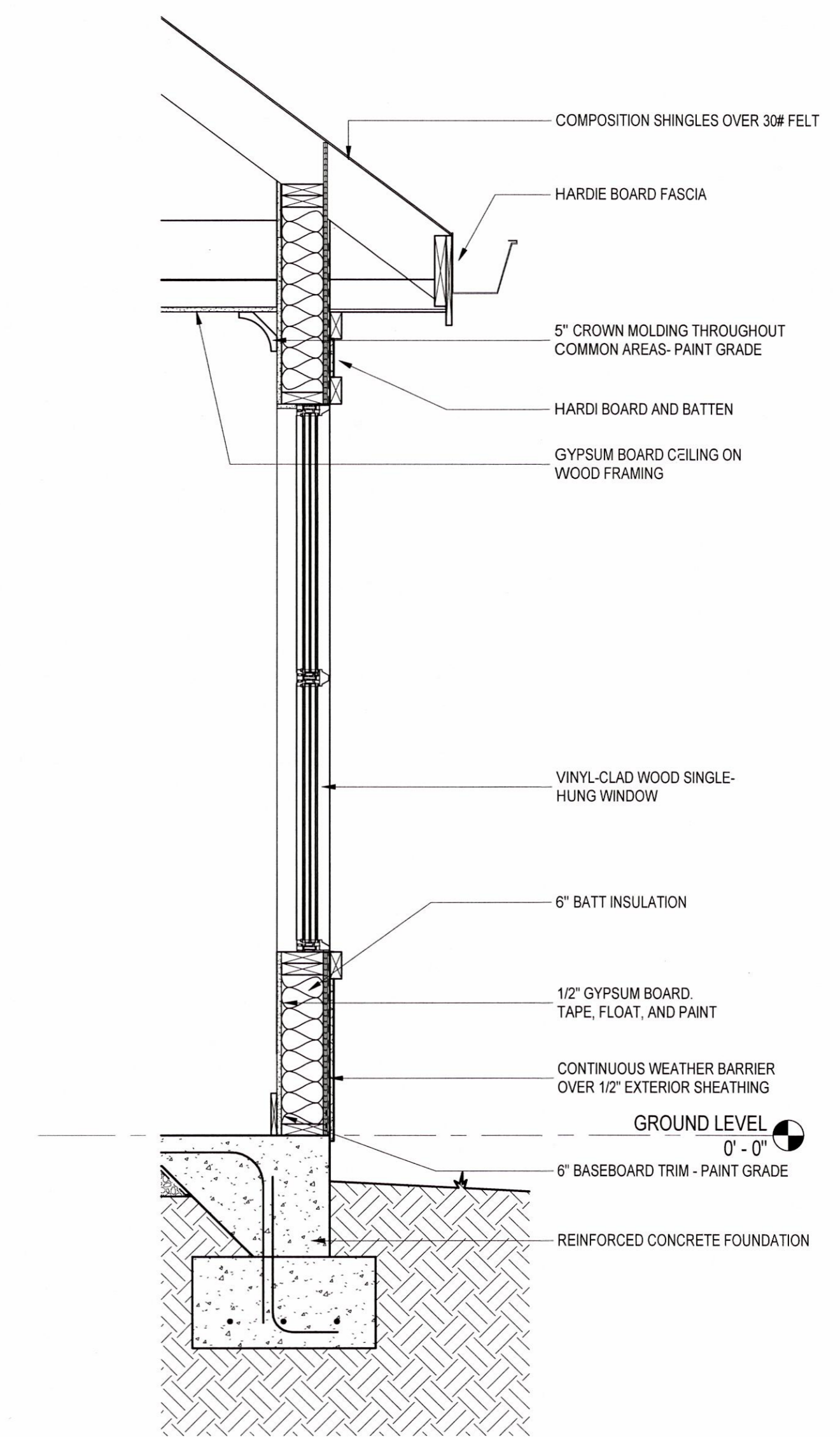
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REVISION:



2 BUILDING SECTION  
A4.2 1/4" = 1'-0"



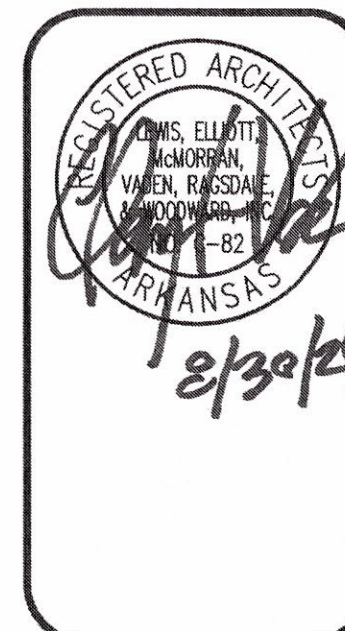
1 BUILDING SECTION  
A4.2 1/4" = 1'-0"



3 WALL SECTION  
A4.2 3/4" = 1'-0"



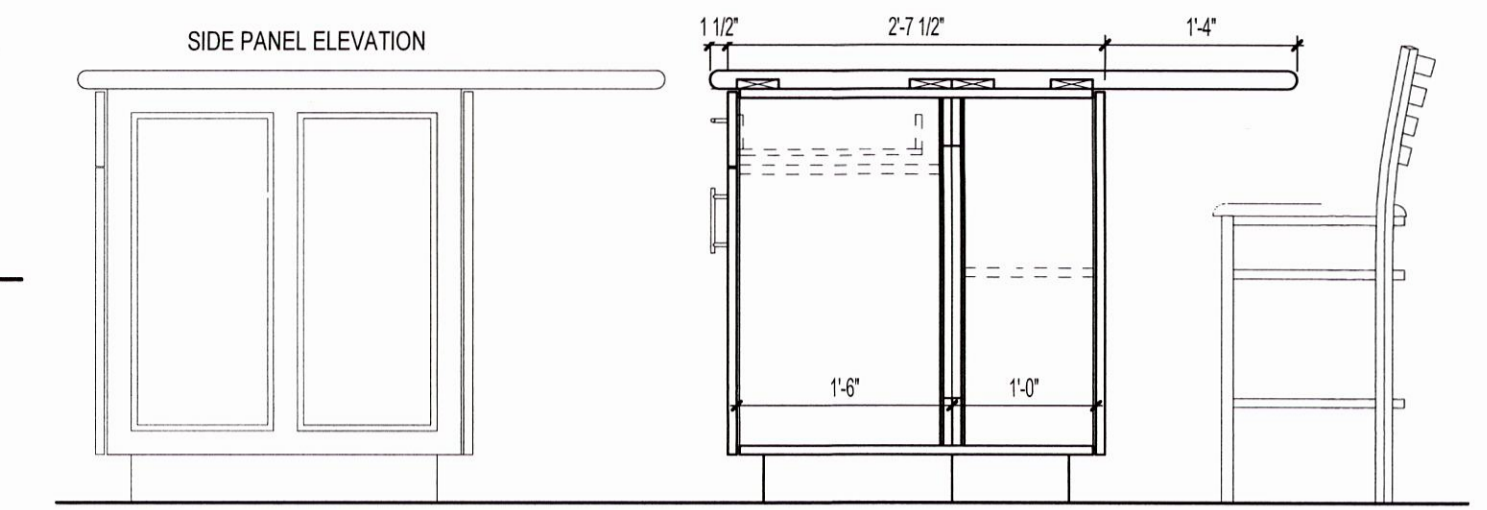
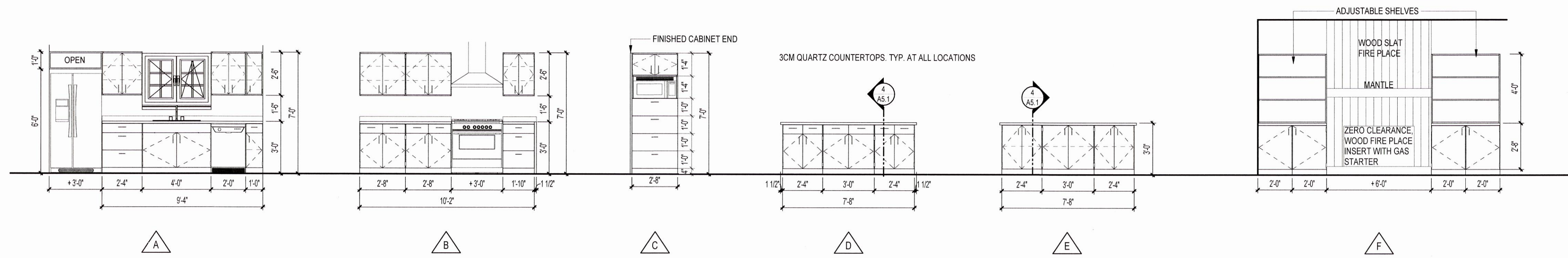
CROSS COUNTY  
SUPERINTENDENT  
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A4.2  
6 OF 7



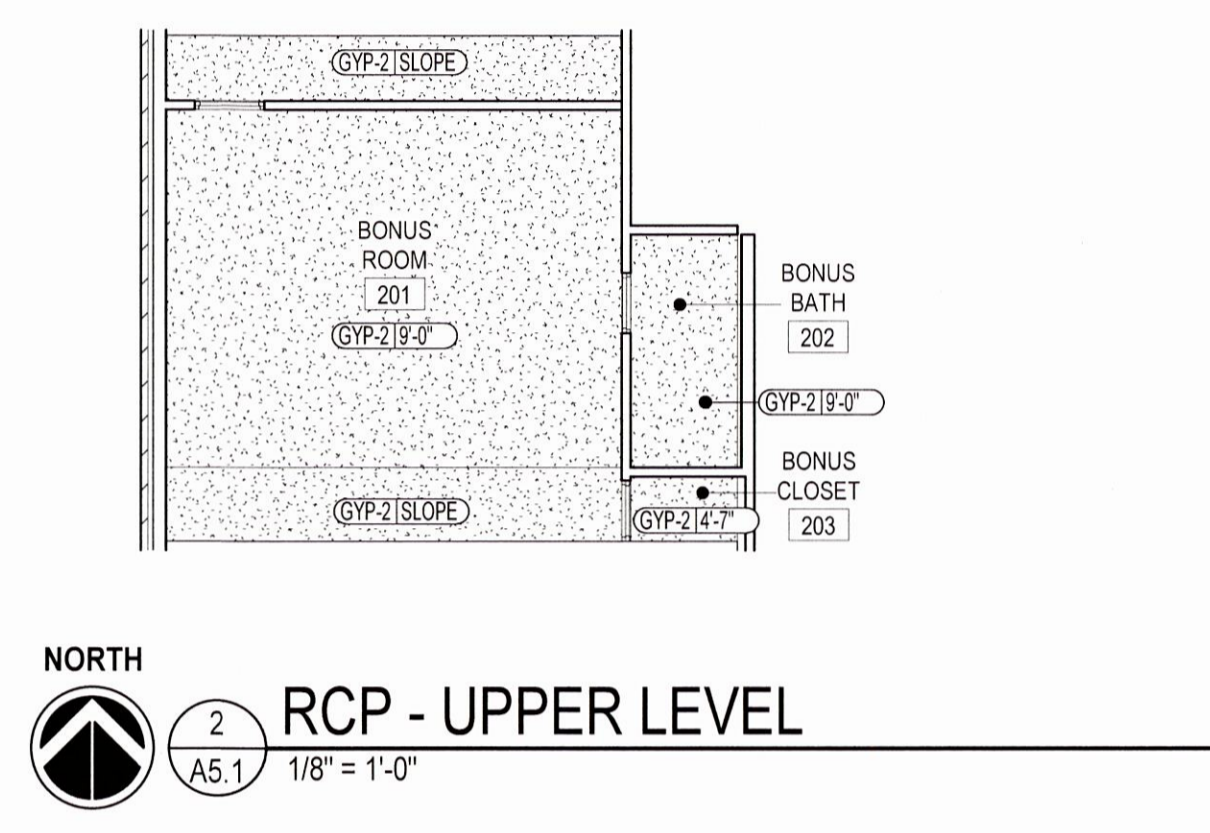


4 MILLWORK ELEVATIONS  
A4.1 1/4" = 1'-0"

4 SECTION THROUGH ISLAND  
A5.1 3/4" = 1'-0"

- ### GENERAL ROOF NOTES
- DRAWING ARE TO SHOW PROJECT INTENT ONLY, FIELD VERIFY ALL EXISTING CONDITIONS TO DETERMINE THE EXACT NUMBER OF ROOF PENETRATIONS ETC. DIMENSIONS SHOWN ARE APPROXIMATE AND MUST BE FIELD VERIFIED. NOTIFY ARCHITECT OF ANY ISSUES OR DISCREPANCIES PRIOR TO BIDDING PROJECT.
  - THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL (ACCORDING TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS) OF ITEMS SHOWN TO BE REMOVED.
  - ALL ROOFING DETAILS (FLASHING, EDGE METAL, PENETRATIONS, CURBS, ETC.) SHALL BE APPROVED BY THE MANUFACTURER AND INCLUDED IN SYSTEM WARRANTY. PROVIDE ALL MATERIALS AND WORK REQUIRED, SHOWN OR NOT, FOR WARRANTIED INSTALLATION.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE BUILDING AND ITS CONTENTS FROM THE ELEMENTS DURING CONSTRUCTION. DEMOLITION SHALL BE PHASED SUCH THAT THE AMOUNT OF EXISTING ROOFING REMOVED IS NOT MORE THAN THE AMOUNT OF NEW ROOF THAT CAN BE INSTALLED BEFORE THE NEXT RAIN EVENT. TARPS, TEMPORARY FLASHING, ETC. SHALL BE UTILIZED TO PROTECT THE BUILDING AS REQUIRED

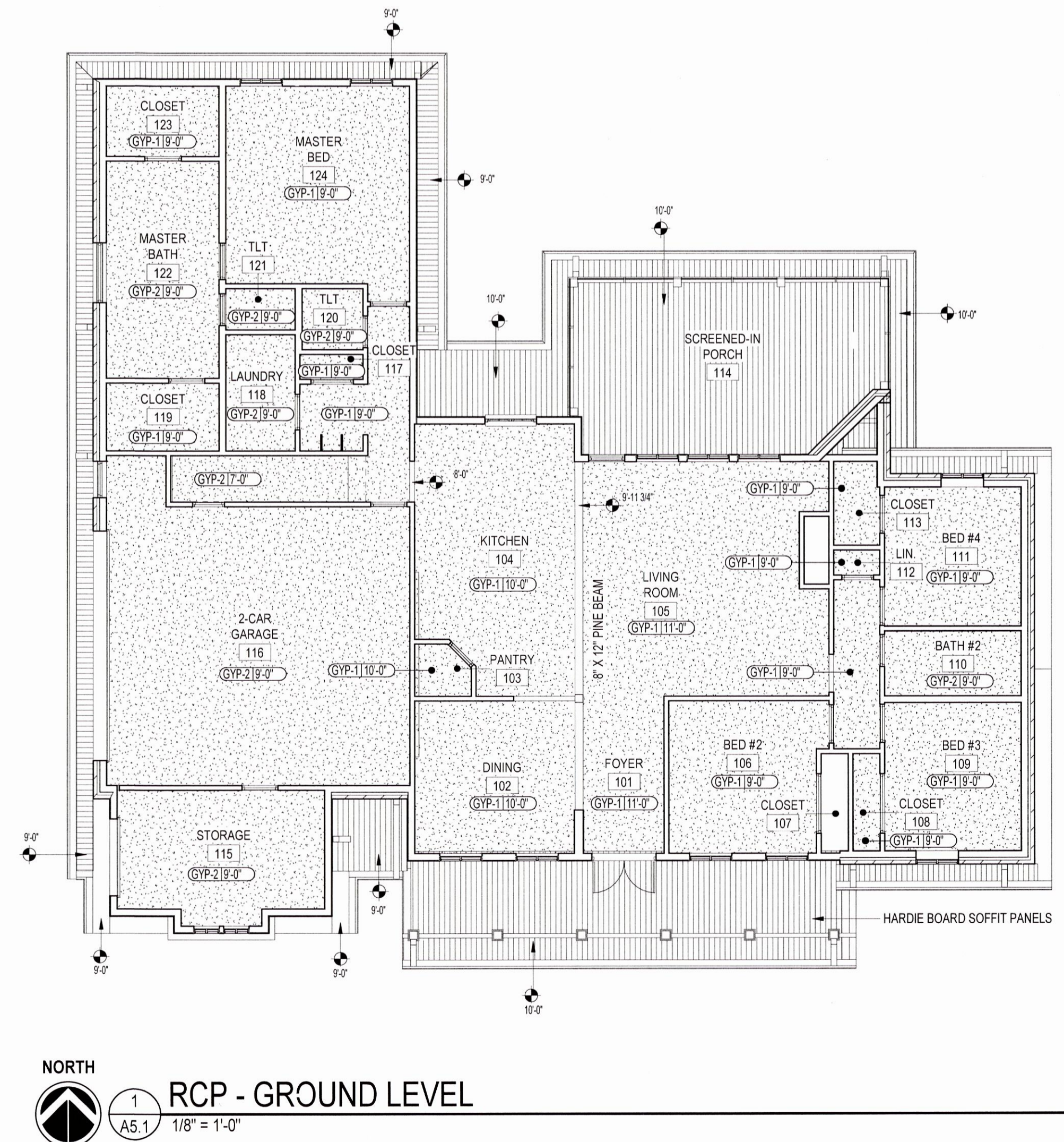
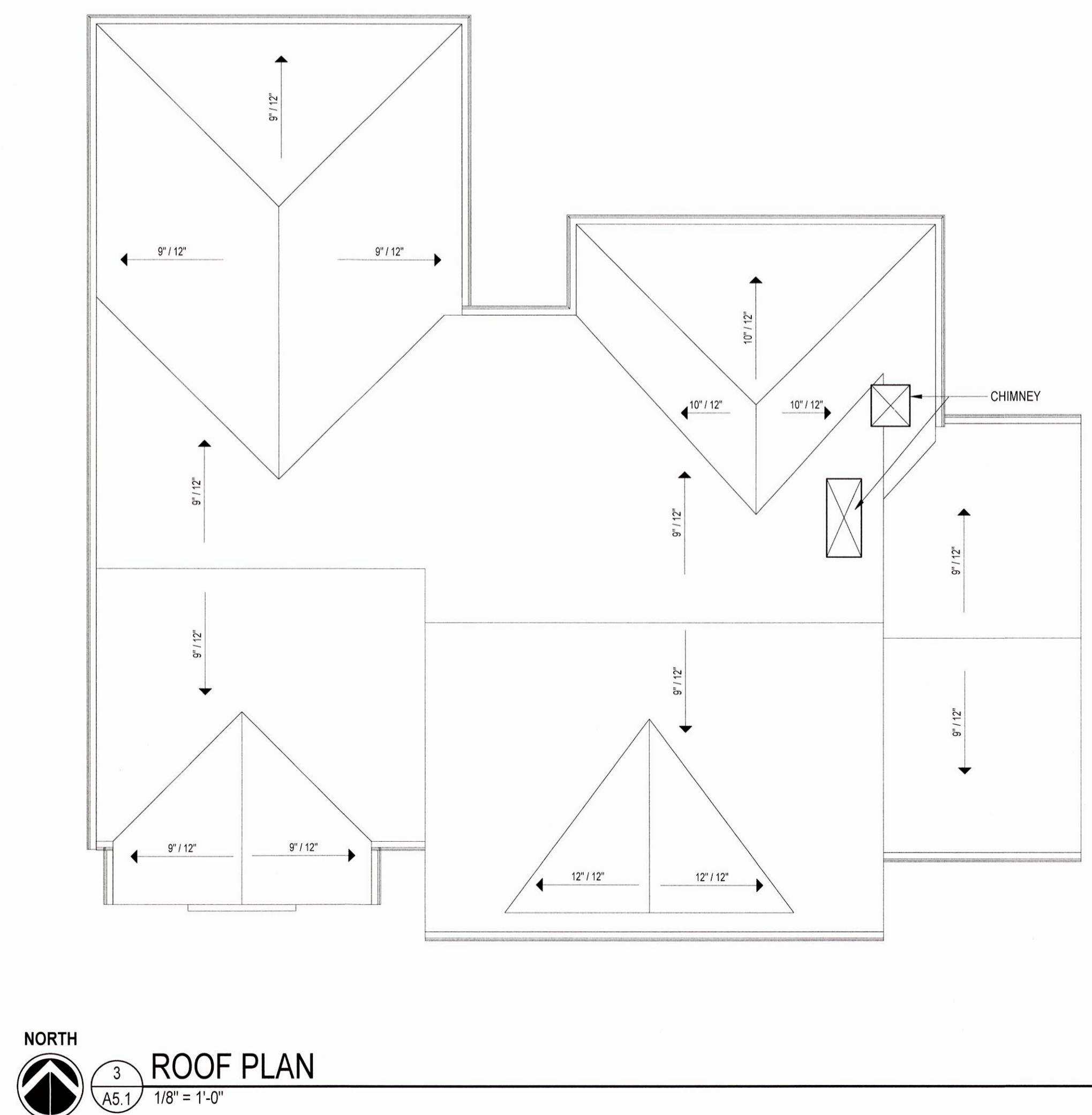
- ### GENERAL CEILING NOTES
- ALL PLUMBING PIPING, ELECTRICAL CONDUITS, MECHANICAL DUCTWORK, ETC. SHALL BE CONCEALED ABOVE CEILINGS, BELOW SLAB, OR WITHIN WALLS AND FURRING WHEREVER POSSIBLE (UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE). ALL PIPING, CONDUITS, DUCTWORK, ETC. EXPOSED SHALL BE INSTALLED IN A WORKMAN LIKE MANNER (LEVEL, PLUMB, SQUARE AND PROPERLY SUPPORTED). COORDINATE ALL TRADES TO AVOID CONFLICTS.
  - ALL EXPOSED STRUCTURE, PIPING, CONDUITS, DUCTWORK, ETC. THAT IS NOT PREFINISHED SHALL BE PAINTED (UNLESS NOTED OTHERWISE), COLORS TO BE SELECTED BY THE ARCHITECT.
  - ALL PIPING, CONDUIT, DUCTWORK, CEILINGS, ETC. SHALL BE PROPERLY SUPPORTED AND BRACED TO MEET APPLICABLE SEISMIC ZONE REQUIREMENTS.

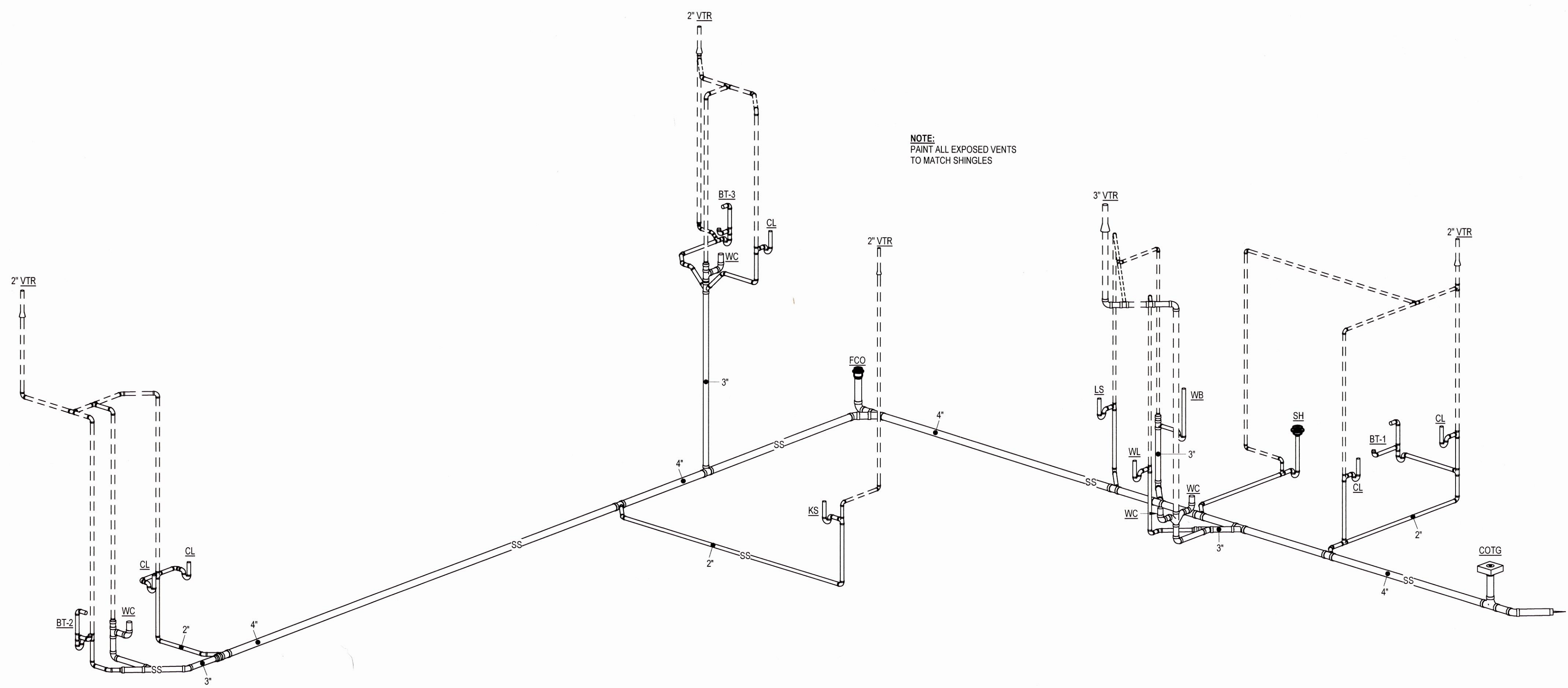


### INTERIOR FINISH SCHEDULE

ROOM IDENTIFICATION			
ROOM NAME	ROOM NUMBER	FLOOR	REMARKS
FOYER	101	LVT	
DINING	102	LVT	
PANTRY	103	LVT	
KITCHEN	104	LVT	
LIVING ROOM	105	LVT	
BED #2	106	CARPET	
CLOSET	107	CARPET	
BED #3	109	CARPET	
BATH #2	110	TILE	
BED #4	111	CARPET	
LIN.	112	LVT	
CLOSET	113	CARPET	
SCREENED-IN PORCH	114	SEALED CONC.	
STORAGE	115	SEALED CONC.	
2-CAR GARAGE	116	SEALED CONC.	
CLOSET	117	LVT	
LAUNDRY	118	TILE	
CLOSET	119	CARPET	
TLT	120	TILE	
TLT	121	TILE	
MASTER BATH	122	TILE	
CLOSET	123	CARPET	
MASTER BED	124	LVT	
BONUS ROOM	201	CARPET	1
BONUS BATH	202	TILE	1
BONUS CLOSET	203	CARPET	1
ATTIC	204		

1. IF DEDUCTIVE ALTERNATE IS TAKEN FLOOR SHALL BE WOOD DECKING

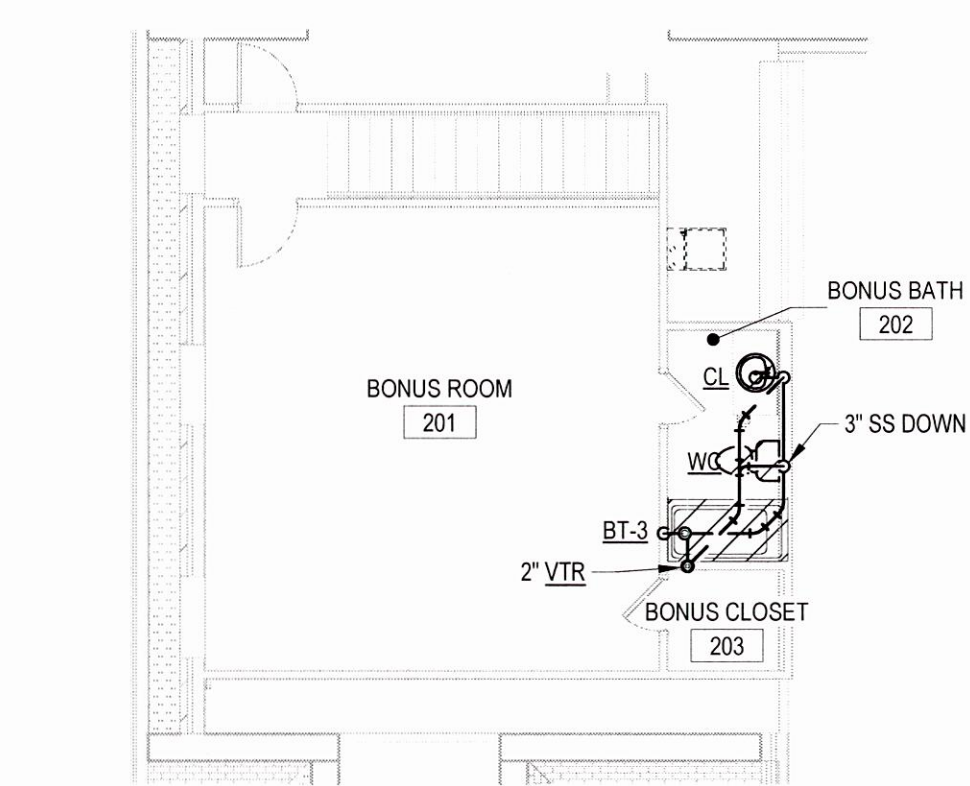




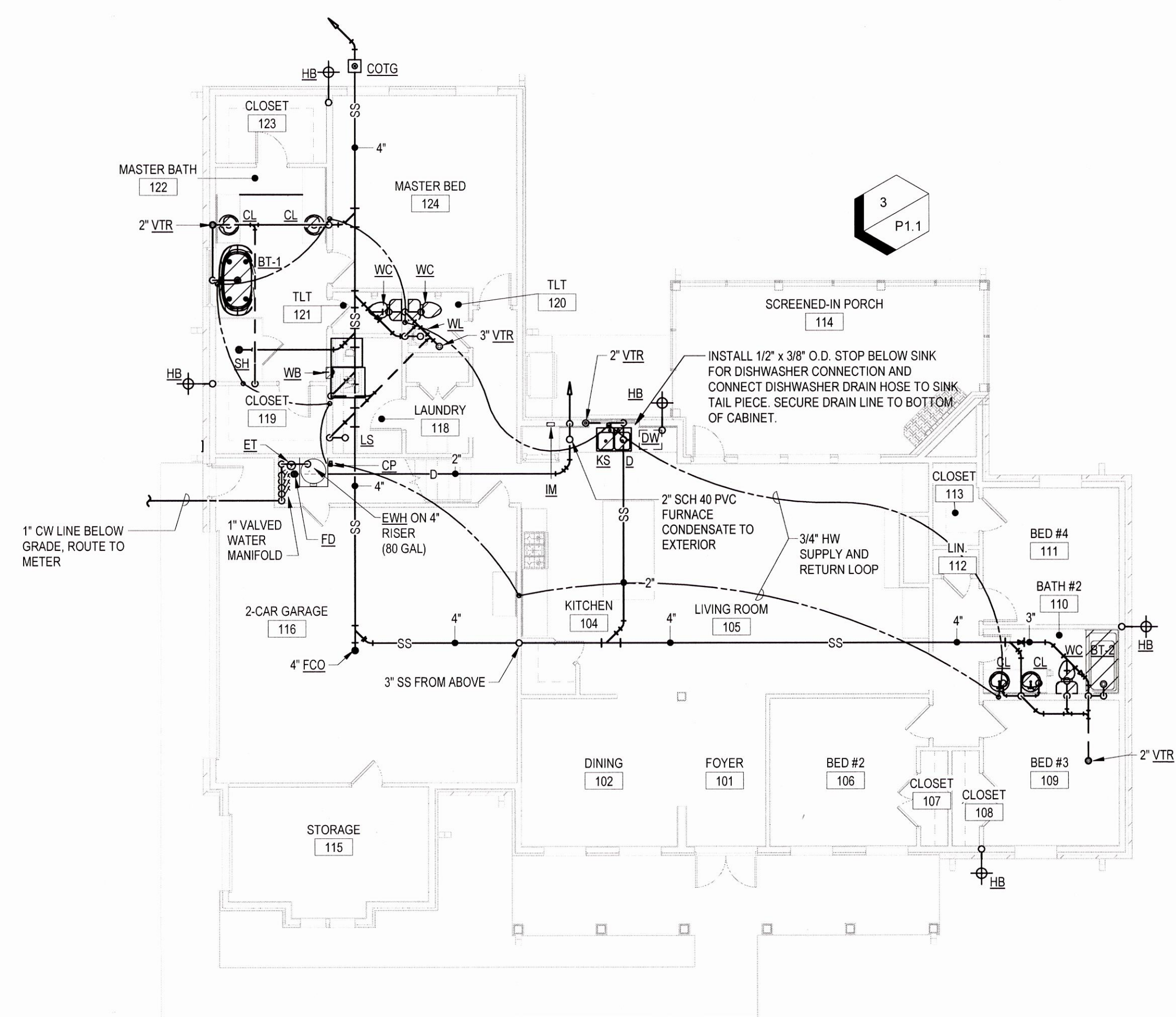
NOTE:  
PAINT ALL EXPOSED VENTS  
TO MATCH SHINGLES

PLUMBING FIXTURES	
WC	PRESSURE ASSISTED TANK WATER CLOSET
CL	COUNTER MTD. LAVATORY
WL	WALL MTD. LAVATORY
KS	KITCHEN SINK
LS	LAUNDRY SINK
SH	SHOWER
BT-1	MASTER BATHTUB
BT-2	BATH 2 BATHTUB
BT-3	BONUS BATHTUB
DW	DISHWASHER
D	DISPOSER
IM	ICE MAKER BOX
HB	FREEZEPROOF HOSE BIBB, 10" LENGTH, INSULATE BETWEEN PIPE AND EXTERIOR SHEATHING
WB	WASHER BOX
EWH	ELECTRIC TANK WATER HEATER (80 GAL / 2) 4500W NON SIMULTANEOUS WITH EXPANSION TANK, CIRCULATOR PUMP / TIMER AND DRAIN PAN.
ET	EXPANSION TANK
COTG	CLEANOUT TO GRADE
FCO	FLOOR CLEANOUT
CP	CIRCULATOR PUMP

3  
P1.1  
DWV RISER



NORTH  
2  
P1.1  
1/8" = 1'-0"  
0 4 8 16  
UPPER LEVEL - PLUMBING



NORTH  
1  
P1.1  
1/8" = 1'-0"  
0 4 8 16  
LOWER LEVEL - PLUMBING

# PLUMBING SPECIFICATIONS

1.1 PIPE

1.1.1 Soil, waste and vents, interior:

1.1.1.1 Underground and above ground soil, waste and vent pipe, inside building and extending 5'-0" outside shall be schedule 40 PVC complying with ASTM D2665 as manufactured by Eslon Thermoplastics or equal. PVC cellular core (foam core) pipe and fittings are not acceptable.

1.1.1.2 Fittings shall be solvent welded DWV-PVC, complying with ASTM D2665 Standard, and listed by NSF as manufactured by Lasco Fluid Distribution Products.

1.1.1.3 The bedding and cover material for PVC piping shall be crushed stone (see 3.11.2).

1.1.1.4 PVC closet flanges shall have pre-drilled holes in lieu of adjustable slots.

1.1.2 Domestic water piping, interior:

1.1.2.1 Interior piping shall be ViegaPEX High-Density Cross-linked polyethylene tubing shall be manufactured to the requirements of ASTM F876 and meet the standard grade hydrostatic pressure ratings from Plastic Pipe Institute in accordance with TR-4/03.

1.1.2.2 Manifold: Provide copper manifold with 3/4" lead-free bronze ball valves.

1.1.2.3 Fittings: PEX press fittings shall be manufactured from UNS C83600, C87700 or C87710 bronze and meet the requirements of ASTM F877 tested as a system with ViegaPEX tubing. The PEX Press sleeve shall be manufactured out of a 304 grade or better stainless steel and have one to three view holes incorporated in it to ensure proper PEX tubing insertion.

1.1.2.4 Insulation: Above slab hot water PEX piping shall be insulated with 3/4" closed cell pipe insulation. Seal all joints and seams with manufacturer approved adhesive.

1.1.2.5 Provide Red for Hot and Hot Water Return and Blue for Cold Water. Install straight section pipe only.

1.1.2.6 PEX tubing shall be supported with manufacture approved suspension clips or plastic insulators. Horizontal tubing shall be supported every 32" and vertically must be supported at each floor penetration and at each offset.

1.1.3 Soil, waste and vents – exterior:

1.1.3.1 Lines beyond 5'0" from building line shall be SDR-26 heavy wall PVC gasketed sewer pipe. Piping shall be as manufactured by Charlotte Pipe or approved equal.

1.1.3.2 PVC pipe for sanitary sewers shall conform to the latest revision of ASTM Designation D3034 (Type PSM) and shall have a minimum Standard Dimension Ratio (SDR) of 26. The pipe shall have a minimum pipe stiffness (F/dY) of 115 psi at 5% deflection as defined in ASTM D2412.

1.1.3.3 The pipe shall be made of a plastic having a cell classification of 12454-B as defined in ASTM D1784. All pipe and fittings shall be tested in accordance with ASTM Designations D2412, D2152, and D2444.

1.1.3.4 All pipe sections shall be straight and true in alignment and shall be furnished in (13) feet lengths. Provision shall be made for expansion and contraction at each joint by use of a gasket type joint and integral bell.

1.1.3.5 Bedding and backfilling requirements for PVC gravity sewer pipe listed in paragraph 3.12.3 and the testing requirements listed in Section 3.6.

1.1.3.6 All bends, tees, plugs, adaptors, wyes, or other fittings shall meet with the requirements of the type of pipe used and all joints shall meet with the requirements for the joints listed in Part Three. PVC sewer wyes, tee-wyes, bends or other fittings shall be one piece molded construction with elastomeric gaskets conforming to ASTM 3212 and ASTM F-477, self-cleansing sanitary flow and design meeting ASTM 3034 standards.

1.1.4 HVAC Condensate Drain Piping – Interior and Exterior:

1.1.4.1 Underground and under slab condensate drain pipe, inside building and outside shall be schedule 40 PVC complying with ASTM D2665 as manufactured by Eslon Thermoplastics or equal. PVC cellular core (foam core) pipe and fittings are not acceptable. Piping above grade on exterior shall be schedule 80 PVC. Condensate piping above slab shall be Type L copper except piping in wall or chase may be schedule 40 PVC. Copper pipe and fittings shall be as specified in Division 23 – HVAC.

1.1.4.2 Fittings shall be solvent welded DWV-PVC, complying with ASTM D2665 Standard, and listed by NSF as manufactured by Lasco Fluid Distribution Products.

1.1.4.3 The bedding and cover material for PVC condensate piping shall be free of any solid material.

1.1.4.4 Piping located in a return air plenum shall be cast iron or enclosed with non-combustible material.

1.1.4.5 Insulate all above slab condensate piping with 1/2" closed cell pipe insulation equal to AP Armaflex. Seal all joints and seams with Armaflex adhesive.

1.1.5 Exterior water service piping:

1.1.5.1 Exterior water piping shall be HDPE SDR 9 in 40 ft. coils for 1-1/2" and smaller. Minimum depth to be 24".

1.1.5.2 Contractor shall verify water service arrangements and pay all charges required by local water utility. Meter type shall be as required by local utility and shall be sized to water service.

1.1.6 Gas Piping:

1.1.6.1 Above grade:

1.1.6.1.1 All pipe shall be schedule 40 black steel assembled with 150 pound black malleable iron fittings. Piping exterior of building shall be painted with a rust-retardant, light grey enamel paint.

1.1.6.2 Below grade:

1.1.6.2.1 All gas pipe below grade, and exterior of building, shall be approved plastic pipe unless otherwise indicated on plans or directed by local gas company. Plastic pipe shall conform to ASTM-D2513 and shall be installed per Arkansas Gas Code. An approved transition riser shall be used when connecting between plastic and steel. Provide tracer wire along entire length of all plastic below grade. Tracer wire shall not come in contact with the plastic pipeline. Tracer wire shall be 12 GAUGE, THHN copper.

1.2 VALVES

1.2.1 Domestic water valves shall be ball valves as recommended by PEX tubing manufacturer.

1.3 TRAPS AND DRAINS

1.3.1 P-traps shall be placed under all floor drains, and all plumbing fixtures without integral traps. All traps installed below grade shall be Schedule 40 PVC-DWV with deep seal.

1.3.2 P-traps shall be pvc

2.1 PIPING INSTALLATION

2.1.1 Pipe assembly, domestic water:

2.1.1.1 PEX Press Connections: Bronze PEX Press fittings shall be made in accordance with the manufacturer's installation instructions. The Stainless press sleeve shall be placed over the end of the squared off PEX tubing while fully inserting the fitting barb into the tubing. Full tubing insertion shall be verified by a visual confirmation of PEX being present through the view holes before engaging a press connection. The PEX press connection shall be made with a Viega supplied ratcheting PEX Press hand tool or PEX Press power tool.

2.1.2 Pipe assembly, sanitary waste and vent:

2.1.2.1 Glued Polyvinyl Chloride (PVC): Schedule 40 PVC fittings shall be solvent welded with schedule 40 PVC cement for 2" diameter or less and schedule 80 PVC cement for piping larger than 2". Surfaces shall be primed with tetrahydrofuran (THF). Primer shall leave purple residue to indicate the joints were primed. Never use a "dauber" type applicator for piping larger than 2", only natural bristle brush or roller shall be used (2" to 3" width). Use miterbox saw for cutting pipe square and de-bur end before inserting into fitting.

2.2 TESTING

2.2.1 General: All piping and other mechanical systems provided under this contract shall be tested by the contractor and approved by the Architect before acceptance. All piping located underground shall be tested by the contractor and observed by the Architect and local utility representative before backfilling. All equipment, fuel, water, electricity and personnel required for tests shall be furnished by the contractor without additional cost to the Owner. Testing equipment shall be required for the particular test and all equipment and gauges shall be accurate and in good working order. All equipment subject to damage if given test pressures shall be removed from line before pressure is applied. When tests have been completed, before pipe is covered contractor shall notify Architect for his observation.

2.2.2 Drainage system: The drainage systems shall have all necessary openings plugged to permit the entire system to be filled with water to the level of the highest stack above the roof (10 ft. minimum). The system shall hold this water for a minimum of 15 minutes before inspection of joints. All leaks shall be repaired and the system retested and proved tight before any fixtures are connected. The Contractor shall make any other tests which may be required under the local codes. System may be sectionalized with Architects approval if necessary to construction schedule. Pressure testing is permitted when using cast iron piping only.

2.2.3 Building sewer: The sewer from the building to a manhole or main shall be plugged at the point of connection to manhole or public sewer, filled with water and observed for leakage. The system shall be tight at all points.

2.2.4 Building domestic water system:

2.2.4.1 Water Testing: The PEX tubing system shall be pressure tested in accordance with local code after installation or to at least minimum system working pressure, no less than 40 psi, and for a period of no less than 15 minutes. Water used for this testing shall come from a potable water source. Test should not exceed pressure rating of PEX tubing and shall have no leaks.

2.2.4.2 Air Testing: In lieu of a water test, the PEX tubing system shall be air tested in accordance with local code after installation, or at least system working pressure, no less than 40 psi and no greater than 100 psi. The test shall be conducted for a period of no less than 15 minutes and shall have no leaks.

2.2.5 Natural gas system:

2.2.5.1 Each segment of piping intended to be operated at pressure of less than 1 psig shall be given a leak test at a pressure of 25 psig for a period of 15 minutes without any drop in pressure. Use 3 inch gauge with 100 psig maximum scale.

2.2.5.2 Each segment of piping intended to be operated at a pressure of 1 psig or above shall be given a leak test at a pressure of 90 psig for a period of 15 minutes without any drop in pressure. Use 3 inch gauge with 150 psig maximum scale.

2.3 STERILIZATION

2.3.1 Domestic water piping systems:

2.3.1.1 The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet.

2.3.1.2 The entire domestic hot and cold water piping systems shall be thoroughly sterilized with a water/chlorine solution containing at least 50 parts per million (50 mg/L) of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing at least 200 parts per million (200 mg/L) of chlorine and allowed to stand for 3 hours. After sterilization, the solution shall be flushed from the system with clean water until the residual chlorine content is not greater than 0.2 part per million, unless otherwise directed, to satisfy all requirements of the Arkansas State Plumbing Code, Section 610. Contractor shall furnish a letter of compliance to the Architect.

2.4 CERTIFICATE OF INSPECTION

2.4.1 This contractor shall furnish to the Architect in duplicate a certificate of inspection issued by the plumbing division of the Arkansas State Health Department and shall also bear the expense for all inspection fees, etc.

2.5 EXCAVATING AND TRENCHING FOR PIPING

2.5.1 Excavate to the depths indicated on the Drawings or as otherwise specified. Excavated materials not required or suitable for backfill or fill shall be removed from the site. Do such grading as is necessary to prevent surface water from flowing into trenches or other excavations. Water accumulating therein shall be removed by pumping or by other approved method. Do sheeting and shoring as may be necessary for protection of the work and for safety of personnel. Excavation shall be by open cut except that short sections of a trench may be tunneled if the pipe can be safely and properly installed and backfill can be properly tamped in such tunnel sections.

2.5.2 Trench excavation: Bottom of trench for sewer and water pipe shall be rounded so that at least the bottom quadrant of the pipe rests firmly on undisturbed soil for as nearly the full length of the barrel as proper jointing operations will permit. Grade bottom of trenches to provide uniform bearing and support for each section of pipe on undisturbed soil. Where rock is encountered, excavate to a minimum overdepth of 4" below trench depths indicated on the drawings or specified. Overdepths in rock excavation and unauthorized overdepths shall be backfilled. Whenever wet or otherwise unstable soil incapable of properly supporting the pipe is encountered, such soil shall be removed and the trench backfilled to proper grade as hereinafter specified.

2.6 BACKFILLING OF TRENCHES

2.6.1 Trenches shall not be backfilled until required pressure and other tests have been performed, inspection by utility and Code officials have been accomplished, and until the utilities systems as installed conform to requirements of Drawings and Specifications.


2.6.2 Backfill trenches with excavated materials consisting of earth, sandy clay, clayey sand, or other approved impervious materials, free from clods of earth or stones over 2-1/2" maximum dimension, deposited in 6" layers and compacted in accordance with the compaction procedures outlined in Section 31 22 00 –Grading. Tests for maximum density will be made with expense borne by Contractor. If fills fail to meet the specified densities, the Contractor shall remove and recompact the fill until specified densities are achieved.

2.6.3 The embedment for schedule 40 PVC sanitary sewer below slab and PVC domestic water on exterior shall consist of crushed stone or rock (3/4" maximum) Class 1 material which is 6" below and above the pipe. Embedment for PVC sanitary and storm sewer piping exterior of building shall be manufactured angular, granular material, 1/4 to 1-1/4 inches in size (no fines), 6" below and above the pipe. The remaining backfill shall be compacted as outlined in Section 31 22 00 – Site Grading. The maximum bury of PVC pipe shall be sixteen (16) feet.

2.6.4 Backfill for trenches not below building, paving, sidewalks, etc., may be compacted to 90% Standard Proctor in accordance with ASTM D698. Backfill may be SB-2 below paving or asphalt and select native fill below topsoil. Select fill material used for pressure PVC pipe bedding must meet AWWA-C605 Standards (3/4" maximum for angular rock and 1 1/2" maximum for rounded rock).

2.6.5 Tests for displacement of sewers: After the trench has been backfilled to 2 feet or more above the pipe, if the pipe shows poor alignment, displaced pipe, or any other defects, such defects shall be remedied by the Contractor at his expense.

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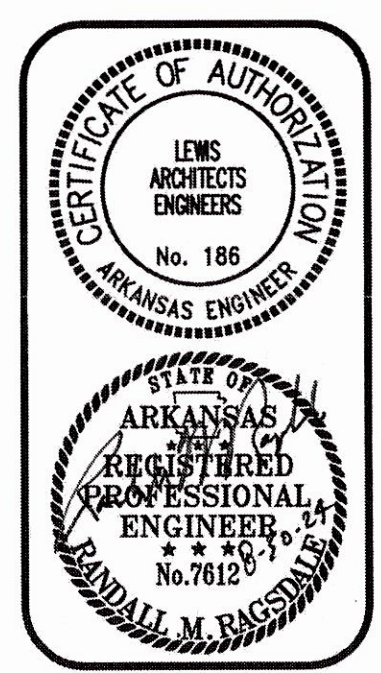


DATE: 2024 08-30  
PROJECT NO: 24041  
DRAWN BY: RAB  
REVISION:

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2 OF 2

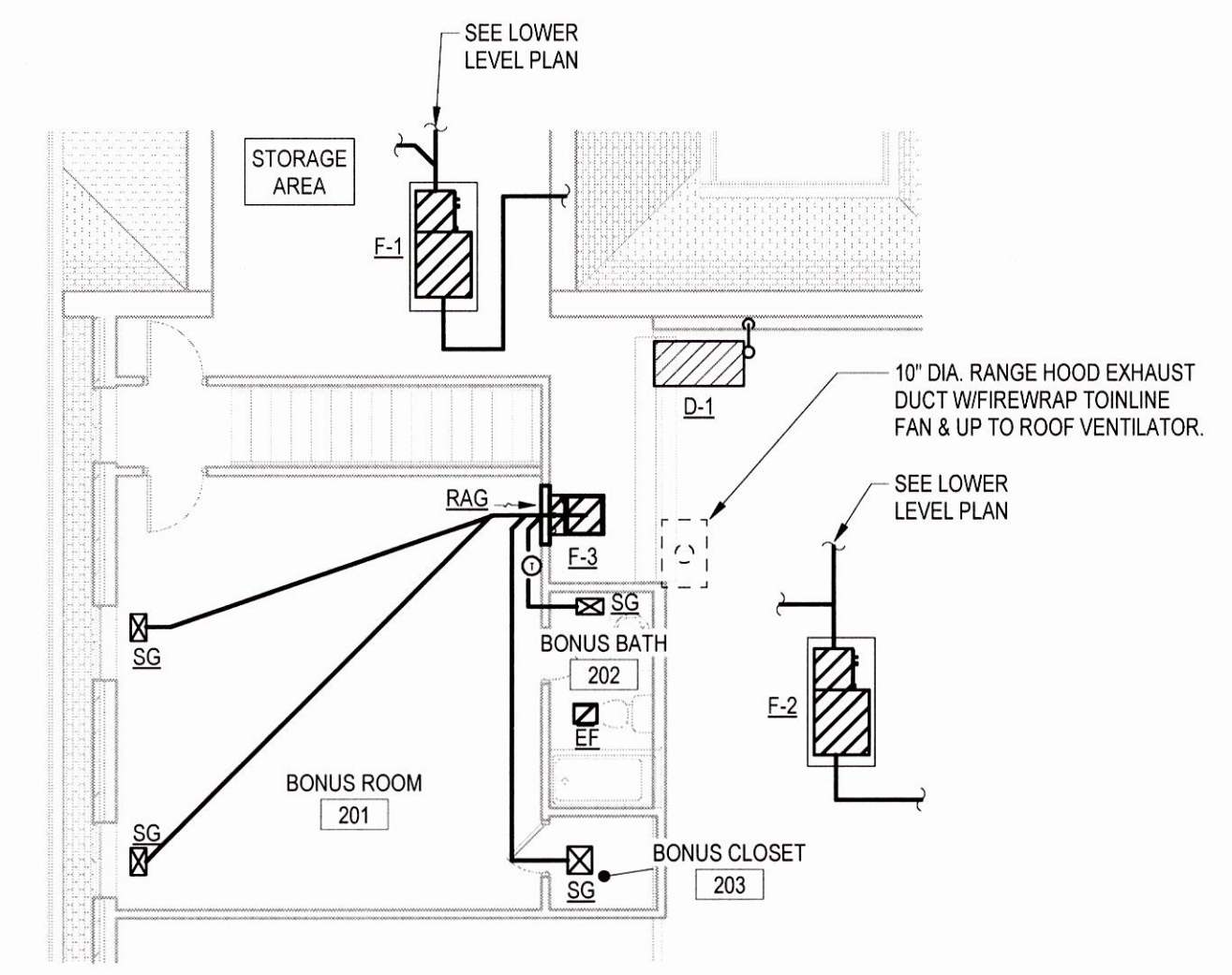


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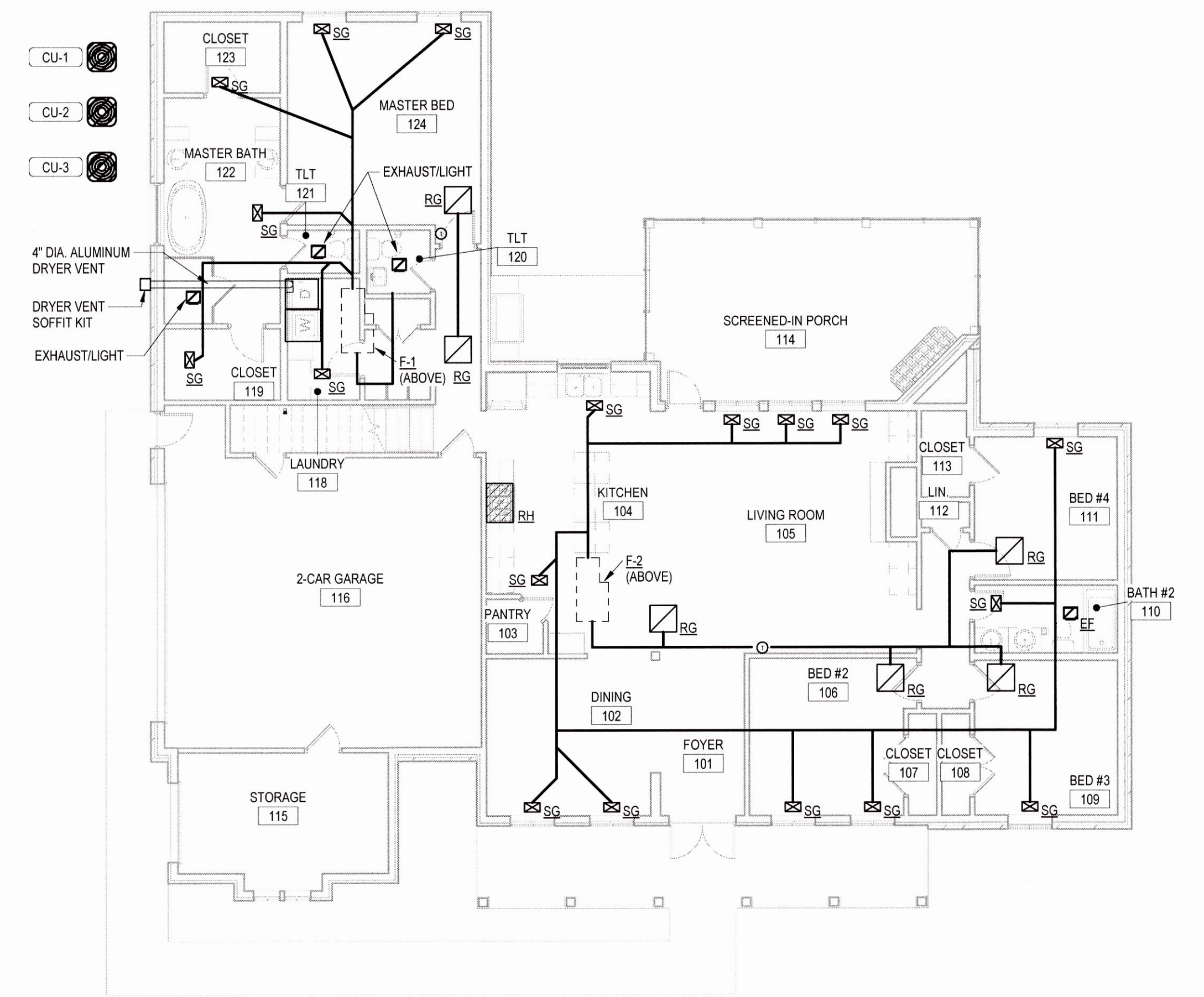
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 1 OF 2



MECHANICAL EQUIPMENT	
F-1 / CU-1	1-1/2 TON HEAT PUMP SYSTEM WITH HORIZONTAL VARIABLE SPEED FAN COIL AND INVERTOR COMPRESSOR
F-2 / CU-2	5 TON SYSTEM HEAT PUMP WITH HORIZONTAL VARIABLE SPEED FAN COIL AND INVERTOR COMPRESSOR
F-3 / CU-3	1-1/2 TON HEAT PUMP SYSTEM WITH UPFLOW VARIABLE SPEED FAN COIL AND INVERTOR COMPRESSOR
D-1	DEHUMIDIFIER WITH 6" DIA. FRESH AIR DUCT (CONNECT TO SYSTEM F-2)
EF	CEILING MOUNTED EXHAUST FAN
RH	RANGE HOOD
SG	CEILING SUPPLY GRILLE
RG	CEILING RETURN GRILLE
RAG	SIDEWALL RETURN AIR GRILLE
T	THERMOSTAT

NORTH  
 2  
 M1.1  
 1/8" = 1'-0"  
 0 4' 8' 16'



NORTH  
 1  
 M1.1  
 1/8" = 1'-0"  
 0 4' 8' 16'

# HVAC SPECIFICATIONS

## 1.1 METAL DUCTWORK

1.1.1 Furnish and install all supply, return, outside air, exhaust and other ductwork shown, together with splitters, deflectors, dampers, etc. All work shall comply with all requirements of NFPA #90-A. All ductwork, supports, bracing, etc., shall be galvanized.

1.1.2 All galvanized ductwork shall be fabricated by using ASTM A90, A568, A653, and A924 commercial grade lock forming G-90/G-60 materials.

1.1.3 All material and gauges can be fabricated per SMACNA's construction standards based on system operating pressure.

1.1.5 Refer to paragraph 3.1 – Air Distribution.

### 1.1.6 Air Devices:

1.1.6.1 Diffusers, Registers and Grilles: All diffusers, registers and grilles shall fit tightly against the mounting surfaces and shall be equipped with felt or rubber gaskets and shall have frames to match the mounting surfaces. All registers, diffusers and exhaust registers shall have opposed blade dampers unless otherwise noted. All supply diffusers shall be insulated on back or top with a minimum of 1/2" thick fiberglass duct wrap.

1.1.6.2 Vanes: Furnish and install, at any change of direction, elbows with single thickness vanes. This applies to supply as well as return ducts. Radius elbows may be used in lieu of turning vanes for ducts less than 36" in width. Where sharp throat elbows are constructed a single turning vane shall be installed adjacent to the throat.

## 1.2 DUCT SUPPORTS

1.2.1 All materials shall be galvanized. Hangers shall be steel straps or rods and trapeze hangers, when concealed, on rods and trapeze hangers when exposed. Straps shall be connected to the duct with 2 sheet metal screws on side and one on the bottom. Spacing of hangers shall be 6' on center, or closer when necessary.

1.2.3 Strap hangers used on externally insulated ductwork shall be installed loose around duct with 6" wide sheet metal saddle. Strap may be installed prior to insulation; however, strap penetration shall be sealed to maintain vapor barrier.

## 1.3 DUCT INSULATION

1.3.1 Furnish and install on all square and rectangular supply, and return air ducts, internally (unless otherwise noted), 1" thick, Owens/Corning type 150 duct liner. Exterior ducts internally lined shall be with 1 1/2" thick type 200 duct liner.

1.3.2 Round duct work shall be insulated externally with 2", 3/4 lb. fiberglass stapled 4" o.c. and seal seams and joints with 4" wide aluminum tape. Insulation for outside air ductwork may be 1-1/2" thick.

## 1.4 CONDENSING FURNACE EXHAUST, CONDENSATE AND INTAKE PIPING AND FITTINGS

1.4.1 Piping and fittings shall be schedule 40 PVC conforming to ASTM D1785, D2466 and D2665. PVC primer and cement shall be per ASTM D2564.

1.4.2 Piping and fittings, including intake and exhaust piping terminations, shall be sized and installed in strict accordance with manufacturer's recommendation.

1.4.3 Exhaust piping shall be sloped back to furnace with a sufficient amount of hangers in order to prevent sagging and collecting of condensation. (Minimum 5 feet spacing).

1.4.4 When using a Wall Mounted Termination Kit, insert a No. 2 or 3 mesh painted galvanized hardware cloth bird screen inside exhaust opening of exterior or factory furnished screen.

1.4.5 Pipe hangers shall be carbon steel adjustable Clevis type, Grinnell Fig. 260 with all-thread rod to structure.

## 1.5 CONDENSATE LINES

1.5.1 Condensate lines shall be Schedule 40 PVC. Lines shall be vented, graded and securely anchored. Interior condensate drains shall be insulated with Armaflex.

## 1.6 REFRIGERANT PIPING AND FITTINGS

1.6.1 Furnish and install piping, provide refrigerant and test the piping. Refrigerant piping, including liquid and hot gas lines, shall be hard drawn copper, Type "L" pipe (degreased). Soft copper will be permitted when sleeving below grade or installing in wall to eliminate fittings. Soft copper may also be installed on units less than 1 1/2 tons.

1.6.2 Joints shall be made with wrought copper fittings and silfos.

1.6.3 All suction lines to be insulated with 3/4" Armaflex II pipe insulation. (Suction and liquid lines shall be insulated on ductless split systems.) Tubular insulation shall be slipped on to piping and sealed with Armstrong 520 adhesive. Insulate all valves, tees and other fittings with AP Armaflex insulation tape and secure in place with black plastic cable ties. If it is necessary to slit the tubular insulation because of specific construction requirements, insulation shall be sealed along entire length with Armstrong 520 adhesive and secured with plastic ties 12" o.c. All exterior insulation shall be thoroughly coated with weather resistant protective finish as manufactured by Armstrong. Finish is a water base latex enamel coating for use over all forms of Armaflex. Install finish prior to installation of insulation and touch up damaged areas after installation is complete. Secure control wiring, not in conduit, to suction line with plastic ties at 12" o.c.

1.6.4 Moisture-Liquid Indicators: Forged brass, single port, removable cap, polished optical glass, solder connections, UL-listed, 200 degrees F (93 degrees C) temperature rating, 500 psi working pressure as manufactured by Sporlan Valve Company or Parker-Hannifin Corp.

1.6.5 Filter Driers: Sporlan HPC-100 Series Catch-All Liquid Line Dryer. Size per manufacturer's recommendation. Provide reversible type for heat pump applications.

## 1.7 MANUAL DAMPERS

1.7.1 Round dampers, unless integral to duct takeoff, shall be equal to Ruskin MDRS25, 20 ga. galvanized steel, 3/8" square axle shaft and molded synthetic bearings.

1.7.2 Rectangular dampers shall be equal to Ruskin MD25, 22 ga. galvanized steel 3/8" square axle shaft and molded synthetic bearings.

1.7.3 Provide lever handle operator with locking nut and mounting plate shown "OPEN" and "CLOSED" positions. Lever handle shall indicate damper position between open and closed. Lever handle shall be provided with a stand-off bracket to extend lever above external insulation where applicable. Shop fabricated dampers are not acceptable.

## 1.8 TAKE-OFF FITTINGS

1.8.1 Round supply take-off fittings shall be 45o transi fitting equal to Flexmaster Model STD with 1" wide mounting flange and adhesive coated gasket, damper, 3/8" square axle shaft, nylon bearings, quadrant indicator and 2" standoff bracket. Return and exhaust fittings shall be air-track gasketed type. All flanged/adhesive fittings shall be attached with sheet metal screws at 4" spacing around circumference of flange.

## 2.1 AIR DISTRIBUTION

### 2.1.1 Metal Ductwork:

1. Ducts shall be installed with special care and shall present a neat appearance. Plenum chambers shall be 22 gauge, reinforced with structural angles. Exterior ductwork and all exposed, rectangular interior ductwork shall have all joints made watertight equal to Ductmate 25/35/45 connection system with roll-formed flanges, corner pieces, gasket and cleat.

2. All ducts with one side over 24 inches shall be cross broken for rigidity.

3. All duct dimensions are outside dimensions.

4. Flash and counter-flash all piping, ductwork, etc., penetrating walls and roof, using minimum 20 gauge galvanized steel, unless shown otherwise.

5. Plastic duct tape shall not be used to hold joints together. Seal all joints in sheet metal supply, return and exhaust ductwork with "Hardcast" type DT sealing tape and type FTA adhesive, installed in strict accordance with manufacturer's instruction. Clean all dirt, oil, moisture, etc., before applying adhesive. At contractor's option, Hardcast Iron Grip IG-601, Foil Grip 1402 or Alumina Grip AFT-701 may be used on joints. However, if these products are substituted for DT mesh and adhesive, it is critical that the area of application is clean from dirt, oil, grease and moisture. Failure to do so will require reapplication of sealant. All joints on round duct to be screwed prior to sealant application. Seal all joints around equipment which permit leakage of conditioned air with Hardcast Foil Grip 1402.

6. Flexible duct connections: On duct connections of air moving equipment greater than 2000 CFM or as required for equipment installation, provide 30 ounce woven glass fabric, double coated with neoprene "Ventglas", or equal, canvas connections to give no less than 3" clear break between metals jointed. Insulate with 1" minimum fiberglass duct wrap with a vapor barrier facing of foil reinforced kraft. Seal with reinforced aluminum tape. Flexible connections on exterior shall be protected from weather with sheetmetal cover which shall be coated for protection same as ductwork.

7. Flexible duct runouts: Permitted only to provide final ceiling grille placement with length not to exceed 3'0". Flexible duct shall not be used to replace elbow at ceiling grille. Flexible ductwork shall have a trilaminate of aluminum foil, fiberglass and aluminized polyester inner liner which is mechanically locked without adhesives, a thick insulation blanket and a fire retardant reinforced aluminum outer jacket, as manufactured by Flexmaster Type 5M.

8. Metal ductwork shall not be installed until building roof is in place and interior is in the dry. Failure to comply will result in replacement of ductwork at no additional cost to Owner.

9. Ductwork for kitchen hood shall be double-wall insulated grease duct model 3G, as manufactured by Metal-Fab, Inc. or approved equal.

### 2.1.2 Balancing and adjusting:

2.1.2.1 All systems shall be balanced and adjusted to the satisfaction of the Owner and the Engineer including the following items:

1. Adjust all fan belts to the proper tension.

2. Check all motor amperages and set speeds to avoid overloading.

3. This contractor shall have all air systems, including exhaust systems, balanced to provide performance specified. Complete air balance forms shall be delivered to the design engineer for approval. Amount of fresh air shall be noted.

4. Check all systems for noise and vibration which may be objectionable.

5. When Contractor is satisfied that all systems may be acceptable to the design engineer, the Contractor shall call for an inspection.

6. Systems shall not be accepted until properly balanced.

7. Air balance of each system shall be performed with air device dampers in full open position. Air adjustment shall be made at manual damper on runout duct.

## 2.2 REFRIGERANT PIPING TESTING

2.2.1 Testing shall be done during progress of work or at completion to insure tight seams. Soap Test R-22 hot gas at 235 psi and liquid and suction lines at 300 PSIG; R-500 liquid and suction lines at 245 PSI. Allow system to stand for 24 hours under pressure and, if no change in pressure, system may be considered tight.

2.2.2 Testing shall be done during progress of work or at completion to insure tight seams. Soap Test R-410A Suction and Liquid lines at 535 PSIG; R-407C Suction and Liquid lines at 380 PSIG. Allow system to stand for 24 hours under pressure and, if no change in pressure, system may be considered tight.

2.2.3 Before charging, evacuate the system to 0.15 inches of mercury absolute pressure. All pumps to operate at least four (4) hours at this reading.