

Board of County Commissioners • Escambia County, Florida

Paul R. Nobles/Purchasing Manager
Office of Purchasing

October 20, 2017

To: All Known Prospective Bidders

ADDENDUM NUMBER 1:

Re: PD 16-17.097 Re-Bid Alger-Sullivan SHIP Replacement Housing

All:

We recently sent you a Request for Proposals on the above-mentioned specification.

This Addendum Number 1 provides for the updates which follow on the next page. Additionally, questions transcribed from the pre-solicitation conference have been answered and included below, as well as a revised outline of specifications, and three (3) new drawing sheets for 416 Front Street (pages A1, A2, and A6).

This Addendum Number 1 is furnished to all known prospective bidders. Please sign and return one copy of this Addendum, with original signature, with your bid as an acknowledgement of your having received same. You may photo copy this form for your records.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeffrey Lovingood", is written over a horizontal line.

Jeffrey Lovingood
Purchasing Specialist

Acknowledgement of Receipt of Addendum:

SIGNED: _____

COMPANY: _____

JDL

Enc.

I. General:

1. Site visits to verify the existing condition are encouraged.
2. The County understands the poor soil conditions for this project and enlisted geotechnical and structural engineers to design and engineer two foundation systems that respond to the poor soil conditions. The Architect and the Structural engineer will sign and seal drawings for permitting.

II. Clarifications:

1. **Project Manual:** See attached revised project manual dated October 20, 2017 that corrects all discrepancies between plans and specifications.

2. Drawings:

- a. Refer to sheet A3 Cross Section and sheet A4 Wall Sections.
 1. Insulation over exterior soffit is not required. Insulation of gable end walls above the ceiling is not required. All insulation will be batt type, except that attic insulation may be blown.
 2. Center floor beam to be built of (3) 2 x 12s with ½" galvanized thru bolts at 12" o.c., staggered top to bottom.
 3. Floor decking to be ¾" tongue and groove plywood, nailed with 8d nails at 12" o.c.
 4. Roof sheathing may be either plywood or OSB and should be installed with H clips at seams per code. Roof sheathing at porches to be ¾ plywood.
 5. All walls studs are to be 2x4 in lieu of 2x6 where shown.
 6. Roofing felts may be two layers of 15# felts or one layer of 30# felt.
 7. Liquid applied water proofing is not required on stem wall foundation detail.
 8. All reference to interior trim to be wood, either 1x4 or Contractor's standard casing trim.
- b. Refer to sheet A2, Unit 416 only.
 1. See revised Back and Side Elevations showing ramp.
- c. Refer to sheet A5 Window and Door Schedule.
 1. Window A height to be standard window dimension, at least 5'-2", to comply with emergency egress requirements.
 2. Exterior trim to be fiber cement. Interior trim to be wood, either 1x4 or Contractor's standard casing trim.

d. Refer to sheet A6 Ramp

1. See attached revised plan and section details. Only unit at 416 Front Street is to have the ramp constructed.

e. Refer to sheet A7.

1. Transfer grilles in ceiling are required over bedroom doors and are not intended for the non-insulated, vented attic space.
2. Floor drain in the mechanical closet may be eliminated in not required by Code.



MEMORANDUM

Date: October 17, 2017
Project: Alger-Sullivan SHIP Housing
Prepared by: Rubí Carrero
Purpose: To list architectural questions presented during the Pre-Bid Meeting on Oct. 17.

1. Will the floor insulation be foam or batt insulation? **It was agreed at the meeting that it will be batt insulation.**
2. Will the floor material be luxury vinyl plank or vinyl sheet? **It was agreed at the meeting that the flooring will be the 12' roll of Armstrong Stratamax Flooring.**
3. Will part 6 of Division 10 of the Specs, which asks to provide 1" blinds on all windows, be deleted since it is an alternate? **It was agreed at the meeting that it will be deleted.**
4. Does the design of the footings offset the need for demucking and dewatering or do these have to be factored into the price? **Yes, the water table should be low enough and the foundation is designed for the poor soil condition.**
5. Will the ductwork be galvanized steel according to the Ductwork Specs or Ductboard according to the drawings? **Ductboard.**
6. The Specs under part 4 of Control Operations require that all units be tested for (2) 8-hour days under the supervision of manufacturer's representative. Is this required even though it is not a requirement by the County? **No.**
7. The Specs under part 1 of Testing require that copies of all test reports be filed in duplicates to the physical plant. Is this required? **No.**
8. Are the insulation at the overhangs and the front and back wall of the attic and the ½" plywood gussets required even though the attic is vented? Will a ridge vent be added? Are the gas chases necessary or can they vent through the roof? Are vented sleeves needed? Are gable braces needed? (All questions relate to the change from a non-vented to a vented attic.) **All modifications required to develop a functional vented attic will be done. No insulation in the soffits. No insulation in the gable ends above the attic floor. Nor ridge vents. Perforated vinyl soffits will be used. Gas venting will be allowed if Code compliant for residential installation.**
9. The windows and doors at the bedrooms do not meet egress requirements, will this be modified? **Yes. Height increased to Code compliance.**
10. Can the plywood be replaced with OSB? **It is acceptable to replace the plywood on the roof with OSB and keep the plywood on the porch roofs.**
11. The galvanized metal will have penetrations due to the fasteners will that be a problem? Do the fasteners have to be painted? **Penetration of fasteners per Code and paint.**
12. Is the liquid waterproofing on the CMUs of the off-grade foundations required? **No.**
13. R13 insulation is the new code requirement. Will R13 insulation be used instead of R11 in the walls? **Yes.**
14. Will the 12x12 transfer grilles be replaced by transfer grilles at each bedroom? **Yes, transfer grilles should be in bedrooms.**

15. Will the back porch have guard rails? Only at 416 Front Street where the ramp is not optional. Where the ramp is optional, the guard rails are not needed but hand rails on each side of the steps are Code requirement and should be installed.
16. Is the ramp hand rail wood or metal? The handrails will be painted aluminum. Will the ramp include a toe kick and a mid-rail? Yes.
17. Will the utility box drain to the clean out to grade? Yes.
18. Will the roof have two layers of 15# felt? It was mentioned at the meeting that a 30# felt would suffice. Either option will be acceptable.
19. Will the kitchen cabinets be 40" tall or a standard 30"? Cabinet's size will remain 40".
20. Will the countertops have a wood edge trim on the perimeter as indicated on the Cabinet specs or will they be entirely plastic laminate? It was agreed on the meeting that it will all be plastic laminate.
21. Will the instantaneous water heater thermostat need a control? It was mentioned at the meeting that some of them already include a control. It should be provided as needed.
22. Do the flexible ducts need to be 8' long? No, they can be sized as required.

Outline Specifications

Project: **Alger-Sullivan SHIP Housing**
Century, Florida

Date: August 24, 2017

Bid Date: See Purchasing Documents

Architect: Quina Grundhoefer Architects, P.A.
400 West Romana Street
Pensacola, Florida 32502
850-433-5575
cquina@qgarchitects.com

I. CONTRACTUAL CONDITIONS

The following contractual conditions will be included in the scope of the work:

- A. General Conditions of the Contract for Construction
AIA Document A201
- B. Form of Owner-Contractor Agreement for Construction - AIA B101
- C. Certificate of Substantial Completion - AIA G702

II. TECHNICAL SPECIFICATIONS

Division 1 - General Requirements

01010 Summary of Work

1. The project consists of several single story residential structures on single family residential building lots located on Front Street in Century. This is a State of Florida funded program to replace the historic homes that were damaged beyond repair by a tornado in 2016. The homes will be constructed on property owned by each qualified participant and a three way contract between Contractor, Owner, and Escambia County will be executed. There are two bedroom and three bedroom units to be constructed. Program of spaces include a living space, kitchen, pantry, laundry and closets.
2.

Two Bedroom unit:	1,040 sf
Covered porches:	Varies but approx. 200 sf
Three Bedroom unit:	1,261 sf
Covered Porches:	Varies but approx. 200 sf

3. The residence is to be primarily wood framed. Walls to be 2x6 wood studs with batt insulation, plywood sheathing, building wrap, fiber cement siding and brick piers on front porch. Some walls will receive brick veneer. The roof system is to be asphalt shingles on felts on plywood decking on pre-engineered roof trusses. The foundation will be steel reinforced, cast in place concrete spread footings with concrete masonry perimeter stem wall. Floor framing to be wood floor joists with insulation and vapor barrier. The interior partitions are standard wood studs with gypsum wallboard, painted. The floor finishes will be luxury vinyl plank. Ceilings to be painted gypsum board, orange peel finish. Interior millwork will be painted on paint grade fir or pine and various hardwoods, unless otherwise noted. A residential grade heat and air conditioning system will be installed. Gas and/or electrical appliances will be provided. All utilities shall be provided with overhead service entry at house. Utilities are provided on the site and coordination for connections should be made with the various providers (telephone, cable, and electrical services). Water, sewer and gas is provided on the site and all tap fees have been pre-paid as these were previously occupied lots.
4. The building is classified as Single Family Residential according to the 2014 Florida Residential Building Code. It is the responsibility of each Contractor to assure that all parties responsible to him follow and respect this rules and regulations.
5. Provide all required building permits and insurance as required by contract. Verify all existing utility taps and contact vendors before excavation. Insure complete adherence with all approved permits from such agencies as the local building department and comply with all Federal, State, County and Local building codes.
6. Temporary utilities, including water and power shall be provided by the Contractor. Portable toilets shall be provided by the Contractor.
7. Project meetings will be held on a regular basis and may be called as needed for special purposes. The Architect is located in Pensacola, Florida, but will be available for phone conference, faxed information, emailed information and regular site inspections.
8. Submittals shall be made to the Architect in triplicate for approval prior to the purchase of all major items of construction. In all cases where possible, a sample of the item to be purchased shall be included in the submittals.
9. Contractor to notify the Architect in writing of any errors, discrepancies or omissions in the Contract Documents. Contractor will be responsible for the results of any errors, discrepancies or omissions which the Contractor failed to notify the Architect of before construction and/or fabrication of the work.
10. BID Format: Refer to Escambia County Purchasing Department documentation.
11. Contractor will furnish the homeowner, c/o Escambia County, all manufacturers' and suppliers' written guarantee/warranty documents covering materials and equipment

provided through this contract. Contractor will furnish a one year limited labor and material warranty to cover defects in materials and workmanship occurring from normal use.

<u>01027 Application for Payment</u>	Administrative procedures for payment.
<u>01040 Project Coordination</u>	Administrative requirements for coordination.
<u>01090 Definitions and Standards</u>	Terminology, trade names, codes and abbreviations.
<u>01300 Submittal</u>	Procedure for submittal.
<u>01400 Quality Control Services</u>	Quality Control, testing and inspections.
<u>01500 Temporary Facilities</u>	Services, facilities and support security.
<u>01631 Product Substitutions</u>	Procedure for handling substitutions.
<u>01700 Project Closeout</u>	End of Project Procedures.
<u>01740 Warranties and Bonds</u>	Special product warranties.
<u>01030 – ALTERNATES</u>	

SUMMARY The alternate listed below is to include all costs associated with the work as described including general condition and administrative costs and contractors' overhead and profit.

1. **Definition:** An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
2. **Coordination:** Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.
3. **Notification:** Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
4. **Completeness:** The contractor is to include as part of each Alternate, all miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation, whether or not shown as part of the Alternate.
5. **SCHEDULE OF ALTERNATES:**

Alternate #1: The construction of a gravel parking pad and drive as shown on site plan.

Alternate #2: The construction of a concrete parking pad and drive as shown on site plan.

Alternate #3: A deductive price for the demolition of the existing homes shown on site plans for units at 300,407 and 416 Front Street.

Alternate #4: The installation of 1" vinyl blinds (white) on all windows.

Each alternate must be individually broken down by address number.

Division 2 - Site Work

02100 Demolition

1. Contractor to remove the existing single story wood frame residence if not already removed by other County Contractor. Remove all concrete slabs and foundations. Remove utility connections to a point of re-connection to the new residence. All debris is to be removed from the site and properly disposed of according to local regulations.
2. Contractor to compact remaining soil to form the base for the new residence. Site to be prepared to receive new foundation and concrete slab as shown on drawings.

02200 Earthwork

1. Excavate for foundation as required. Where possible use clean excavated material for compacted fill in other areas of the work. Maintain side cuts to provide a safe work environment.
2. Prepare for slabs on grade, sidewalks, drives and pavement. Compact subgrade to 95% standard Proctor. Compact under new sidewalks to 95% standard Proctor. Prepare soils to receive landscaping and add top soil for planted areas. Refer to attached Soil Report prepared by Larry Jacob.
3. The Contractor shall provide all earthwork necessary to perform the work of the project including dewatering, excavating, shoring, filling, backfilling, compacting and grading as shown on drawings.
4. Soil testing prior to construction and during preparation of the soil shall be the responsibility of the Contractor.

02282 Termite Control

1. Engage a professional pest control operator and provide soil treatment for termite control.

Division 3 - Concrete

03300 Concrete Work

1. Poured in place walls, footings, slabs on grade, stairs and sidewalks: 3000 p.s.i. at 28 days, minimum thickness 3 ½". See drawings for size.
2. Reinforcement bars: per ASTM A615, grade 60.
3. Welded wire fabric: W1.4 x W 1.4 at 6" centers both ways or approved fibercrete.
4. Vapor barrier: 10 mill poly.
5. Provide all slabs for the placement of equipment.

Division 4 - Concrete Masonry Units

04200 Concrete masonry units and Face Brick

1. Standard concrete masonry units
2. Mortar: Type S or N per ASTM C270, color to be selected by Owner.
3. Reinforcement: Block ties at 16" on center vertically and 24" on center horizontally.
4. Lay block true, plumb and level per requirements of the Brick Institute of America (BIA).
5. Face brick to be Robinson Old Georgetown.

Division 5 - Metals

05500 Metal Fabrications (Where applicable.)

1. Steel units, shop fabricated miscellaneous metal.
2. Comply with American Institute of Steel Construction (AISC)
3. Materials: Structural steel shapes - per ASTM A36.
Hot or rolled carbon steel sheets per ASTM A568 or A366.
Flitch plate: 3/8" thick steel with pre-drilled holes for thru- bolts.

Division 6 - Wood and Plastics

06100 Rough Carpentry

1. For all rough wood framing, provide lumber meeting the requirements of WCLIB or WWPA:
 - a. Lumber: Southern Yellow Pine No. 2 or better, or Douglas Fir with no more than 15% moisture content. Pressure treated where in contact with concrete.
 - b. Plywood. APA performance rated panels, Product Standard PS-1.
Sloped decks: 5/8" plywood
Flat decks: 3/4" plywood
Sheathing: 1/2" plywood (8d nails at 6" perimeter and 12" field)
 - c. For structural lumber to be exposed use no. 2 pine.
2. Provide all miscellaneous hardware, including fasteners for installation of rough carpentry.

06192 Prefabricated Wood Trusses

1. Comply with NFPA national Design Specifications and TPI Standards
2. Lumber: Provide lumber S4S, S-dry complying with PS20.
 - a. Species: any softwood graded under NWPA, WCLB, SPIB or NLGA rules.
 - b. Stress Rating: Fb - 1850 psi, E= 1,800,000 psi
3. Metal connector plates: Hot dip galvanized sheet steel, ASTM A446 Grade A
4. Trusses to be certified by an engineer.

06200 Exterior Finish Carpentry

1. Finish carpentry to include the installation of running trim for window and door casings, moldings, fascia board, wood brackets, columns and other miscellaneous details.
2. Materials: per AWI "Quality Standards"
Wood species for exposed, unpainted surfaces: No. 2 pine or approved wood.
Wood species for painted, protected surfaces: KDAT pine or fir, finger jointed paint grade. KDAT wood columns to be used for porches.
Soffits: Fiber Cement-board soffit system with PVC "H" clips @ seams.
Porch ceilings: Painted plywood and exposed wood framing.
Siding: Siding to be "Hardi-board" Select Cedarmill or approved equal. Exposure to be 6 1/4". Verify siding choice with drawings.

06402 Interior Woodwork

1. Interior Woodwork to include casework, wood paneling, railing and decorative running trim.
2. Materials: per AWI "Quality Standards."
 - a. Surfaces of stained exposed wood to be as noted on the drawings.
 - b. Wood trim to be painted to be fir or pine, paint grade, finger jointed.
 - c. Particle board: ANSI A208.1
 - d. Plywood: PS1, APA performance rated.

06405 Cabinets

1. Cabinets to be builder grade, natural wood finish paneled cabinet door and frame with builder grade hardware with satin nickel finish 2 1/2" wire pulls.
Counter top and backsplash to be plastic laminate, wood edge trim on counter perimeter.
2. Set cabinets, shelves and countertops true level and plumb and secure to blocking in partitions.
3. Plastic laminate countertops and backsplash to be Wilsonart Standard Laminate.
Color to be selected by Owner from the following:
 - a. Kitchen
 - i. Option 1: White Tigris 4783-60
 - ii. Option 2: Desert Zephyr 4841-60
 - iii. Option 3: Twilight Zephyr 4845-60
 - b. Restroom
 - i. Option 1: White Tigris 4783-60
 - ii. Option 2: Natural Cotton 4946-38

Division 7 - Thermal and Moisture Protection

07200 Insulation

1. Fire rated insulation products, tested per ASTM E84 for burn and smoke

characteristics. Batt type insulation: kraft faced, fiber glass units, Flame spread 25 or less, smoke developed 75 or less. 3 ½" R11 for exterior walls; 10" R30 nom. for ceiling/roofs.. 6 ¼" R19 for floor installation. Mfr: Certaineed, Manville or Owens-Corning or approved equal.

07600 Flashing and Sheet Metal

1. Flashing and Sheet Metal to include Metal Flashing and Counter flashing, Sheet Metal at concealed and exposed joints. (.32 white finished aluminum and 22 gauge galvanized as indicated on plans.)

07311 – Asphalt Shingles

1. 3-Dimensional Laminated Strip Shingle, UL Class "A": Mineral- surfaced, self-sealing, laminated multi-ply overlay construction fiberglass based strip shingle complying with ASTM D 3018, Type 1, and with ASTM D 3462. Provide shingles bearing UL Class "A" external fire exposure label and UL "Wind Resistant" label. Color as selected by Architect. **Timberline HD (25-year) by GAF Corp.**, or approved equal by one of the following:
Manville Building Materials Corp.
Tamko Corp.
2. Asphalt-Saturated Roofing Felt: No. 15, unperforated organic felt, complying with ASTM D 226 Type I, 36" wide, approximate weight 18 lbs./square.
3. Asphalt Plastic Cement: Fibrated asphalt cement complying with ASTM D 2822, designed for trowel application.
4. Nails: Aluminum or hot-dip galvanized 11 or 12-gage, sharp- pointed, conventional roofing nails with barbed shanks, minimum 3/8" diameter head, and of sufficient length to penetrate 3/4" into solid decking or to penetrate through plywood sheathing.
5. Metal Drip Edge: Minimum .032" white finish aluminum sheet, brake-formed to provide 3" roof deck flange, and fascia flange as shown on drawings. Furnish in 8' or 10' lengths.

07312 – Metal Porch Roofs

1. Metal roof panels to be 26 gauge, galvanized, corrugated panel, 24" coverage installed with exposed fasteners as recommended by manufacturer. #12, 3/4" Kwik Seal, hot dip galvanized screws with rubber washers at 12" o.c. up the slope and 6" o.c. cross the slope.
2. Underlayment to be Grace Ice and Water Shield, or approved equal, installed per manufacturers recommendation.

07900 Joint Sealers

1. Provide joint fillers for interior and exterior applications.
 - a. Exterior joints: Multi-part non-sag urethane, Type M, grade NS.
Mfr. Peora Dynatrol II, Tremco Dymeric, Sonneborne NP2 or approved equal.
 - b. Horizontal surfaces: Multi-part urethane:
Mfr: Pecora Urexpan NR-200, Tremco THC-900.
 - c. Interior exposed surfaces: Latex-Acrylic emulsion sealant per ASTM C834.
Mfr: Pecora AC 20, Premco Acrylic-Latex 834.
 - d. Mildew Resistant sealant: one-part silicone for around plumbing fixtures.

Mfr: Pecora 863, Dow 786.

Division 8 - Doors and Windows

08212 Five Panel Hollow Masonite Doors

1. Provide Masonite hollow core five panel doors to comply with AWI Architectural Woodwork Quality Standards, of special design and construction.

08610 Doors and Windows

1. Provide vinyl windows as manufactured by Jeldwen or approved equal.
2. Exterior doors to be fiberglass as manufactured by Neuma, Jeldwen or approved equal. Door hardware to be provided by manufacturer.
3. Glass to be double insulated, impact resistant, as provided by manufacturer. Simulated divided lites as shown on drawings
4. Color to be white, unless otherwise noted.
5. All hardware, including latches, locks, screens and handles are to be included.

08710 Finish Hardware

1. Provide standard factory units, standard duty, residential grade hardware comply with the ANSI/BHMA standards.
2. Materials include locksets, butts, closers and door stops.
3. Finish: Satin Nickel
Mfr: As provided by Exterior Door Manufacturer.
All other hardware to be standard, Kwikset Tylo with privacy locks.

08800 Glass and Glazing

1. Provide flat and insulated, impact units, clear glass per FGMA requirements. Windows to be factory pre-glazed. Fixed frames to receive ½" or 5/8" insulated, impact glazed units - clear glass.

Division 9 - Finishes

09950 Vinyl Sheet Flooring

1. Vinyl Sheet: **Roll width 6'** as manufactured by Armstrong Flooring, StrataMax Best vinyl sheet installed per manufacturer's instructions. Pattern and color to be Distressed Hickory Sadle X3541.

09900 Painting

1. Painting includes exterior and interior applications. Three coat application per manufacturer's recommendations including one prime coat and 2 finish coats. Paint to be alkyd, Latex systems as recommended by Glidden, Sherwin Williams, Benjamin Moore or equal.

Division 10 - Specialties

1. Kitchen appliances are listed on the drawings. The appliances will be provided by the County through a partnership agreement. Contractor to provide installation cost only in base bid.
2. Bathroom accessories are to include chrome shower bar, chrome toilet paper holder, 24"x30" mirror, and one 24" long chrome towel bar.
3. Provide house number of the size and placement to comply with US Postal Service standards. Install on wall above or next to front door.
4. Provide post mounted mailbox of the size and placement to comply with US Postal Service standards. Install along street for mail truck accessibility.
5. Provide builder standard coated wire shelving and install as shown on drawings.
6. Provide builder standard white 1" mini blinds to be installed on interior side of all windows.

Division 15 – Heating, Ventilation and Air Conditioning

PART 1 - GENERAL

DRAWINGS

1. The drawings for the Heating, Ventilating and Air Conditioning for this job are diagrammatic. The Contractor shall make his own measurements at the site and in the buildings during construction and install the systems as the work progresses in such a manner that the equipment, piping, conduit, panels, and ductwork will fit into the finished space provided maintaining headroom; and be neatly installed. All equipment and its interconnecting piping, ductwork, conduit, etc., shall be provided.
2. Due to differences between various manufacturers, it is not practicable to show exact dimensions of units, nor to show or specify all minor details of equipment. Contractor shall provide all valves, fittings and accessories as necessary for a complete installation, whether or not specifically mentioned or shown.
3. Equipment shall not be acceptable if operated in excess of the recommended and published ratings of the manufacturer.

TESTS AND GUARANTEES

1. After completion of his work, and when the building is ready for occupancy, this Contractor shall operate the air conditioning or heating system for a period of two days. During the tests, the Contractor shall adjust controls, outlets, etc.

HEAT PUMP OUTDOOR SECTION

1. Units shall be completely factory assembled, wired, and statically tested. Units shall be ARI certified and rated in accordance with ARI 240-77, Heat Pump Units.
2. Condenser coil shall be copper tube type with aluminum fins mechanically bonded to the tubes with a minimum tube size of 1/2" o.d. If all aluminum coils are provided, manufacturer shall provide five-year warranty for the coil.
3. Condenser fan shall be propeller type, vertical discharge with vinyl coated fan guard. Fan shall be electronically balanced to eliminate vibration and noise. Fan motor shall be direct drive, inherently protected with sealed ball bearings.

4. Compressors shall be designed for split system direct expansion use.
5. Compressors shall be sealed hermetic type with external vibration isolating mounts. Compressors shall have crankcase heaters to prevent oil dilution. Compressor section to contain filter drier and accumulator. Compressors shall have factory-mounted suction and discharge line service valves. Manufacturer shall provide five-year warranty on compressors and file warranty with Architect.
6. Controls shall be factory mounted and wired in an accessible enclosure within the compressor compartment. System controls shall have a fully automatic defrost cycle for heating operation. Safety controls shall consist of high-low pressure cut-out and compressor overload protection. Cabinet shall be set standard of quality in appearance and construction. Cabinet shall be of zinc coated sheet steel and finished with epoxy paint. Compressor section shall have a large access panel for ease of service.
7. Unit shall have capacities as per schedule on drawings and shall be Trane, Carrier, Lennox, or equal. SEER and HSPF shall meet minimum requirements of heat pump unit schedule on the drawings.

2.02 AIR HANDLING UNIT (INDOOR SECTION)

1. Unit shall be completely factory assembled with direct expansion coil(s), insulated drain pan, fan and filter section complete with disposable 1" thick filters. Units shall be designed for horizontal mounting as shown on the plans.
2. Evaporator coil for air handling units shall be direct expansion. Refrigerant type shall be refrigerant 410A. Coil shall consist of copper tube with aluminum fins mechanically bonded. Thermal expansion valves shall have bypass line and check valve installed for heat pump use. Minimum tube size shall be 1/2" o.d.
3. Evaporator fan shall be forward curved double inlet mounted on a common shaft with permanently lubricated ball bearings. Fan shall be statically and dynamically balanced for smooth operation. Evaporator fans shall have V-belt drives with adjustable pitch pulley or direct driven fans with multiple speed taps for adjustment.
4. Cabinet shall be constructed of hot dip galvanized sheet steel a minimum thickness of 18-gauge. Interior panels and top shall be covered with insulation to prevent heat gain and noise transmission. Drain pan shall be coated to prevent condensation and corrosion.
5. Filter shall be of standard size throwaway and not less than 1" thick. Filter section shall be accessible from side of unit. Provide proper clearances for filter removal as recommended by the manufacturer.
6. Units shall have capacity as per schedule on drawings and shall be Trane, Carrier, Lennox or equal.
7. Electric heaters shall be UL listed and factory installed as an integral part of the AHU (with timed defrost control).

2.04 CONTROL OPERATIONS

1. General space temperature shall be controlled by wall mounted thermostat located within the spaces as indicated on drawings. Thermostat subbase shall include a system selector switch (OFF-HEAT-AUTO-COOL) and fan switch (AUTO-ON) and be provided by the air conditioning equipment manufacturer.
2. Wiring: All control wiring external to the air conditioning equipment shall be installed by the control sub-contractor under the direct supervision of the HVAC subcontractor.
3. Note: All wiring required for equipment operations shall be by the electrical contractor. This Contractor shall also provide all conduits as required for control wiring.
4. Test all units for two (2) 8-hour days under the supervision of manufacturer's representative, who shall make all necessary adjustments and instruct designated operating personnel in operation and maintenance of equipment and controls.

2.05 DUCTWORK

1. The sizes, runs, and connections of ducts shall be as indicated. Adhere to drawings as closely as possible. The right is reserved, however, if required to meet structural or other interferences, to vary run and shape of ducts and offsets during progress of work, at no extra cost to the Owner. Ductwork specified herein shall have rectangular cross section, unless otherwise indicated.
2. Materials - Methods of Construction: Details of construction and materials not specified herein shall be in accordance with SMACNA Low Velocity and ASHRAE "Guide" recommendations. Fabricate ductwork in workmanlike manner with airtight joints presenting smooth surface on inside, neatly finished on outside. Seal all duct joints airtight with approved tape or mastic before insulation is applied. Construct ductwork air extractors, spin-in taps with air scoops, turning vanes, splitter dampers, etc., to ease air flow and balancing of air. The joint between the trunk duct and any air extractor or spin-in tap shall be sealed with approved tape or mastic. Unless otherwise indicated, where square elbows have to be used, provide fixed deflectors. Construct, brace and support ducts in manner that they will not sag or vibrate to any perceptible extent when fans are operating at maximum speed and capacity. Ductwork shall be galvanized sheet steel unless otherwise specified. Distance between joints of any size duct shall not exceed 8'.
3. Flexible ductwork shall not exceed 8' in length. Flexible ductwork shall be equal to Thermaflex Type M-KB with 1"-1 lb. density insulation (minimum "R" value = 6) with metalized film vapor barrier, and conform to UL-181 as a Class I duct.
4. Sheet metal gauges for rectangular duct construction shall be:

Steel U.S. Std. Gauge	Maximum Size Inches	Type of Transverse Joint Conn.	Bracing
26	Up to 12	S-Drive, pocket or bar clips, on 7'-10" centers with tape or mastic	None
24	13 to 24	S-Drive, pocket or bar clips,	None

		on 7'-10" centers with tape or mastic	
24	25 to 30	S-Drive, pocket or bar clips, on 7'-10" centers with tape or mastic	1x1x1/8" angle 4' from joint

5. Duct Support: Support horizontal ducts with hangers spaced not more than 8' apart, place hangers at changes in directions. Use strap hangers for ducts up to 30" wide, angle hangers for ducts over 30" wide. Make strap hangers 1" by 16-gauge minimum, extended down both sides of duct and turn under bottom 2" minimum, fasten sides and bottom with sheet metal screws.

2.06 INSULATION

1. Exterior duct insulation shall be applied outside of all heating and air conditioning ductwork in accordance with SMACNA Standards. Insulation shall be constructed of glass fiber and shall be 1.0 pound density, 2" thick and comply with NFPA Bulletins 90A and 90B (minimum R value = 6). Insulation shall be wrapped and shall be secured with duct bands. All joints in insulation shall be butted together and brushed with adhesive.

2.07 REFRIGERANT PIPING

1. Piping shall be type "K" hard drawn copper, ASTM Spec. B280, and shall be mill cleaned, dried, and capped. Fittings shall be extra heavy wrought copper in accordance with ANSI B9.1 with joints soldered using a high content silver alloy solder. Insulate refrigerant suction line with 3/4" wall foamed plastic insulation slipped over tubing and all joints thoroughly sealed. Paint insulation with two coats of acrylic protective paint where insulation is exposed to weather. Protect insulation with metal saddles and shields at all hanger points.

2.08 DAMPERS

1. Provide splitter and deflecting vanes for control of air volume and direction, and for balancing system where indicated, specified, directed or required.

2.09 GRILLES AND DIFFUSERS

1. All grilles to be standard prefinished white metal or vinyl.

PART 3 - EXECUTION

3.01 TESTING AND BALANCING

1. The heating and ventilating subcontractor shall submit to the Owner a record of the capacities of each grille, register, and equipment opening as determined by the test after final adjustments have been made with a notation for the final setting and average velocity through each outlet as determined by readings of a velometer taken at several points at the face of the register or opening. Air delivery through supply outlets shall be considered equal to that quantity as published in the manufacturer's tables. Return air through return air grilles shall be considered as equal to the product of the velometer

velocity and effective area of the register. Test and balance both HVAC systems with ductwork prior to installation of finished ceiling. Once ceilings have been installed the balancing devices and ductwork shall not be accessible for this procedure.

2. Thermostats for the air conditioning equipment shall be provided as part of that equipment, and connected up by the electrical subcontractor, and is tested by the HVAC subcontractor.

3.02 CLEANING VENTILATING SYSTEMS

1. All ducts shall be thoroughly cleaned and blown out to prevent any debris from damaging fan wheels or discharging through diffusers when systems are placed in operations. All temporary connections required for blowing out the system, cheesecloth for all duct openings, and any other equipment or labor for cleaning shall be provided by the heating and ventilating subcontractor. All filters shall be renewed after ventilating systems have been cleaned. The cost of renewal shall be borne by the General Contractor.

15400 Plumbing

According to applicable plumbing codes as shown on drawings.

All piping to be PVC or PEX.

All under slab domestic water piping to be copper, PVC or PEX approved for under slab installation.

Hot water system to be Gas on demand type, Runnai or approved equal.

1.06 PIPING

1. Provide pipe sleeves through masonry construction, and install escutcheon plates around exposed piping in all rooms. Provide vented pipe sleeves for under slab gas pipes.
2. Soil, waste, and vent lines shall be Schedule 40 PVC-DWV in accordance with Commercial Standards CS272-65 or ASTM Standards D2665-68. Soil, waste, and vent lines penetrating a fire rated wall or floor shall be service weight cast iron at the point of penetration only.
3. All plastic pipe shall bear the NSF Seal of Approval, and such other markings as required by the aforementioned standards.
4. Above slab cold water and hot water piping shall be PVC or PEX. Below slab cold water piping shall be type "K" soft copper tubing, PVC or PEX installed per manufacturers requirements.

1.07 PIPE SUPPORT

1. Hangers: Support all suspended piping with clevis type hangers equal to Grinnell #260, 5'-0" o.c. Architect shall approve all methods of attachment of hangers to construction.
2. Vertical Support: Steel bar base clamped to pipe or grip strut channel with offset clamps. Support members to be of same material as supported material where possible.

1.08 PIPING PLACEMENT

1. Place in most direct manner permitted by construction, free of unnecessary offsets. Changes in direction by means of standard fittings.
2. Grade 2" waste lines 1/4" per foot and 3" and 4" waste lines 1/8" per foot for positive flow. Secure all piping to structure.
3. Soil Pipe: Support to firm earth below floor slabs.
 1. Changes in direction of drainage pipe shall be made by means of suitable bends and branches of Y's and long sweeps. Short radius quarter bends are prohibited.
 2. Connections to vertical soil pipe to all connections in horizontal soil pipe to be made by "Y" fittings.
 3. Do not begin work until elevation of final connection point is verified and grading of entire system can be determined (even if final connection is specified under another section).
4. Vent Pipes:
 1. Main soil pipe stacks to be extended up through the building full size with increaser through roof per code.
 2. Connect branch vents into main stacks with connections not less than 4 feet above the highest fixture.
 3. All vent stacks shall be connected at the bottom to main drainage system and all horizontal runs shall be graded so as to discharge all water or condensation.
5. Water Piping: Place supply pipes as shown or as directed in neat arrangement and parallel or at right angles to walls, joists, etc.
 1. Place air chamber extensions 12" long on top of all risers and one pipe size larger than the riser.
 2. Place shock absorbers at each fixture group as recommended by manufacturer. Shock absorbers shall be PDI certified.
 3. Place valves on all water pipe risers and branch lines at point where risers and branch lines connect to main water lines.

1.09 WATER PIPING

1. All water piping, unless otherwise shown or specified shall be PVC, Schedule 40 or PEX (Cross-linked polyethylene piping.) Install each per manufacturers instructions. It shall be clean, round, straight, and true to size, free from flaws and other defects.
2. All fittings shall be PVC. The pipe and fittings shall be thoroughly cleaned before inserting into the joint and then bonded with appropriate pipe cement.

2.02 GAS PIPING

1. All piping above grade shall be Schedule 40 black steel ASTM 120. Fittings shall be 150 pound black malleable screw pattern for all sizes 2" and smaller. Under slab piping shall be placed in vented sleeve.
2. All piping shall be installed in accordance with NFPA recommendations and the Southern Standard Gas Code complete with all necessary appurtenances.
3. Horizontal piping shall grade with a slope of 1" on 40 feet-0" to drip legs at all low points as required. Drips shall be provided at all low points and at bottom of risers. Drips shall be same size as the piping where installed and shall be a minimum of 12" long.
4. Use ground joint unions in all screw piping joints.

2.03 UNIONS

1. Unions shall be provided on inlet and outlet of all apparatus and equipment. Where valves are adjacent to equipment, unions shall be on downstream side of valves.
2. Unions in copper pipe shall be cast bronze, WOG pattern, ground joint, 150 psi type.
3. Unions in steel pipe shall be malleable iron, WOG female pattern brass seat, ground joint, 150 psi type.
4. Unions connecting dissimilar metals shall be dielectric type.

2.04 VALVES AND COCKS

1. Valves and cocks shall be installed where shown on the drawings, and/or where found to be necessary for proper operation of the system. All branches from risers, all branches from mains, and all fixtures or equipment not having stops shall be provided with valves whether shown or not.
2. Angle or straightway chromium plated stops on the supplies to all fixtures accessible from the same room in which the fixtures are located.
3. All valves shall be the product of one manufacturer as cataloged by Milwaukee, Stockham, Crane, or Nibco.
4. For water piping, valves shall be equal to 125 psi SWP/200 psi WOG Nibco as follows:

1. Gate valves 1/2" to 3" = S-111.
2. Ball valves 1/2" to 2" = S-585.
3. Check valves 1/2" to 3" = S-413W.

2.05 THERMAL INSULATION WORK

1. All insulation work shall be performed by experienced insulation application mechanics thoroughly familiar with and experienced in the application of insulation materials. All insulation materials shall be applied in accordance with manufacturer's published recommended methods. Installation and finish of insulation materials shall meet with complete data for approval of materials and application methods as proposed for use. All piping shall be pressure tested and all surfaces shall be thoroughly cleaned before covering is applied. Insulation materials, including sealer, adhesive, finished, etc., shall meet NFPA Standards with regard to flame spread and support of combustion.
2. All hot and cold water piping shall be covered with 1" thick heavy density fiberglass sectional pipe insulation equal to Owens Corning Fiberglass 25 ASJ/SSL, excluding piping below grade or chromium plated fixture connections.
3. Fittings for the above shall be insulated with premolded fitting insulation of the same material and thickness as the adjacent insulation and shall be covered with a premolded plastic (PVC) vapor barrier and sealed with vapor barrier lagging adhesive. Covering adjacent to unions and other points of termination shall be finished with the plastic material neatly beveled.
4. It shall be the responsibility of the insulation subcontractor to coordinate hanger locations and prevent crushing or breaking finishes.
5. Contractor shall insulate hot water supply assembly and P-Trap assembly with Armaflex 3/8" foam insulation kit on handicapped lavatories.

2.06 FLOOR, WALL, AND CEILING PLATES

1. Nickel plated floor, wall, and ceiling plates shall be provided on all pipes passing through floor, ceiling, or partition. Nickel or chromium plated escutcheons shall be provided on all fixture supplies.

2.07 PLUMBING FIXTURES AND EQUIPMENT

1. Provide roughing-in for and connect to supply lines, waste and vent lines, all equipment, fixtures, drains, etc., specified herein or in other sections of the specifications which require such connections.
2. Provide stops in hot and cold water connections to each fixture, equipment items, etc. Where not otherwise specified, stops shall be same as specified hereinbefore for ball valves. Provide deep escutcheon on all sinks and lavatories where waste pipe goes into wall. Anchor all supplies from wall securely within wall construction.
3. Provide stops for all fixtures. Traps for all fixtures shall be 17- gauge chromium plated brass.

4. Plumbing fixtures shall be equal to American Standard, Crane, Kohler, or Eljer, or approved equal.
5. Faucets shall be lead free, code compliant, and certified to NSF Standard 61, Section 9.
6. Plumbing fixtures shall be as shown on drawings.
7. Floor Drains (All Locations): Zurn ZN-415 Series with nickel bronze top and flashing collar. Floor drains shall be provided with trap primer tap as indicated on plans. Floor drain traps and horizontal piping above finished areas used for a/c condensate drainage shall be insulated with 1" thick blanketed insulation.

2.08 CLEANOUTS

1. Provide in cast iron sanitary piping at all changes in direction at ends of branches, at intervals not exceeding 40' on straight runs, and elsewhere as shown. Cleanouts shall be full opening type completely accessible. Size same as lines in which they occur, but not larger than 4". Tees and extensions shall be of same weight as pipe. Plugs shall be countersunk type. Catalog numbers from Josam or approved equal.
2. Outside cleanouts to grade shall be brought up flush with finished grade and installed in 12" x 12" x 6" concrete pad, cleanout plug shall be countersunk.
3. In Outside Line: 58190 cast iron head and ferrule with cadmium plug. Terminate at grade or pavement in 18" x 18" x 6" concrete pad with tooled edges.
4. In Finished Walls: 58790 cast iron cleanout tee with cadmium plug and stainless steel wall plate cover. Where distance from plug to finish wall will exceed 4", provide 58710 extend cover from sanitary tee to bring plug within 4".

2.09 TANKLESS WATER HEATERS

1. Heater shall have two heating modules. Element shall be replaceable cartridge insert. Unit shall have a replaceable filter in the inlet connector. Heater shall be fitted with 1/2" diameter compression nuts and sleeves. Maximum operating pressure shall be 150 psi. Heater shall be compatible with pre-heated water feed.
2. Water heater shall be equal to Rinnai and shall be residential gas type as indicated. Verify voltage from electrical plans.

PART 3 - EXECUTION

3.01 COMPLETION OF WORK

1. This Contractor shall arrange for the installation of all equipment in order that it progresses along with the general construction of the building, and in no case shall hold up other phases of the work due to the fact his equipment is not properly installed.

3.02 TESTING

1. General: Perform all tests in the presence of the Architect or his representative. Test shall conform to local code requirements. File copies of all test reports in duplicate to physical plant.
2. Soil, Waste, and Vent Systems: Plug all openings, fill entire system with water to point of overflow and hold for at least one hour before inspection. System must remain full during the test without leakage. Each vertical stack with its branches may be tested separately, but any portion tested must have a 10' head. Provide test tees and plugs for all tests as required.
3. Water Supply System: Test and secure acceptance of entire system before the piping or hot water heaters are otherwise concealed. Test as follows: Disconnect and cap all outlets to plumbing fixtures and all other equipment not designed for the full test pressure. Fill the system with water; apply 150 psi hydrostatic pressure and hold until inspection is completed. All piping throughout shall be tight under test. Water piping shall remain under normal water pressure during construction where freezing conditions do not exist.

3.03 DISINFECTION

1. Disinfect all domestic water piping in accordance with local health department guideline.

Division 16 - Electrical

16011 According to applicable codes as shown on the drawings.

GROUNDING

1. Provide grounding and bonding systems in strict accordance with the latest published edition of N.E.C., except where more stringent requirements are specified herein. Inter-connection of neutral and ground is not permitted except at service entrance equipment. Install grounding conductors to permit shortest and most direct path to ground. Concealed joints shall be made by Cadweld method. Where grounding conductors are in raceway, bond conductor and raceway at both ends. Grounding and bonding fittings used shall be UL listed and be compatible with metals used in system. Sheet metal type strap are not acceptable.
2. Service entrance ground electrode system shall consist of driven electrodes, connection to water piping, and building grounding grid, as required by NEC Article 250-50. Unless otherwise shown on drawings, each driven electrode shall consist of one 3/4 inch diameter 10 ft. long copperweld steel rod. Rod made of wrought iron may be used in lieu of copperweld at option of contractor. Water pipe connection shall be made to a minimum one inch diameter metallic cold water pipe. Extend grounding conductor to main telephone equipment space. Interconnect conduits entering and leaving service entrance equipment using grounding bushing and copper.
3. The panelboards and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of NEMA and UL as follows:

- a. UL 67 -- Panelboards

- b. UL 50 -- Cabinets and boxes
 - c. NEMA PB1
 - d. Fed. Spec. W-P-115C
 - e. Circuit breaker -- Type I class I
- 4. Wiring shall be copper conductor with non-metallic sheath (NM) over multiple conductors.

WIRING DEVICES

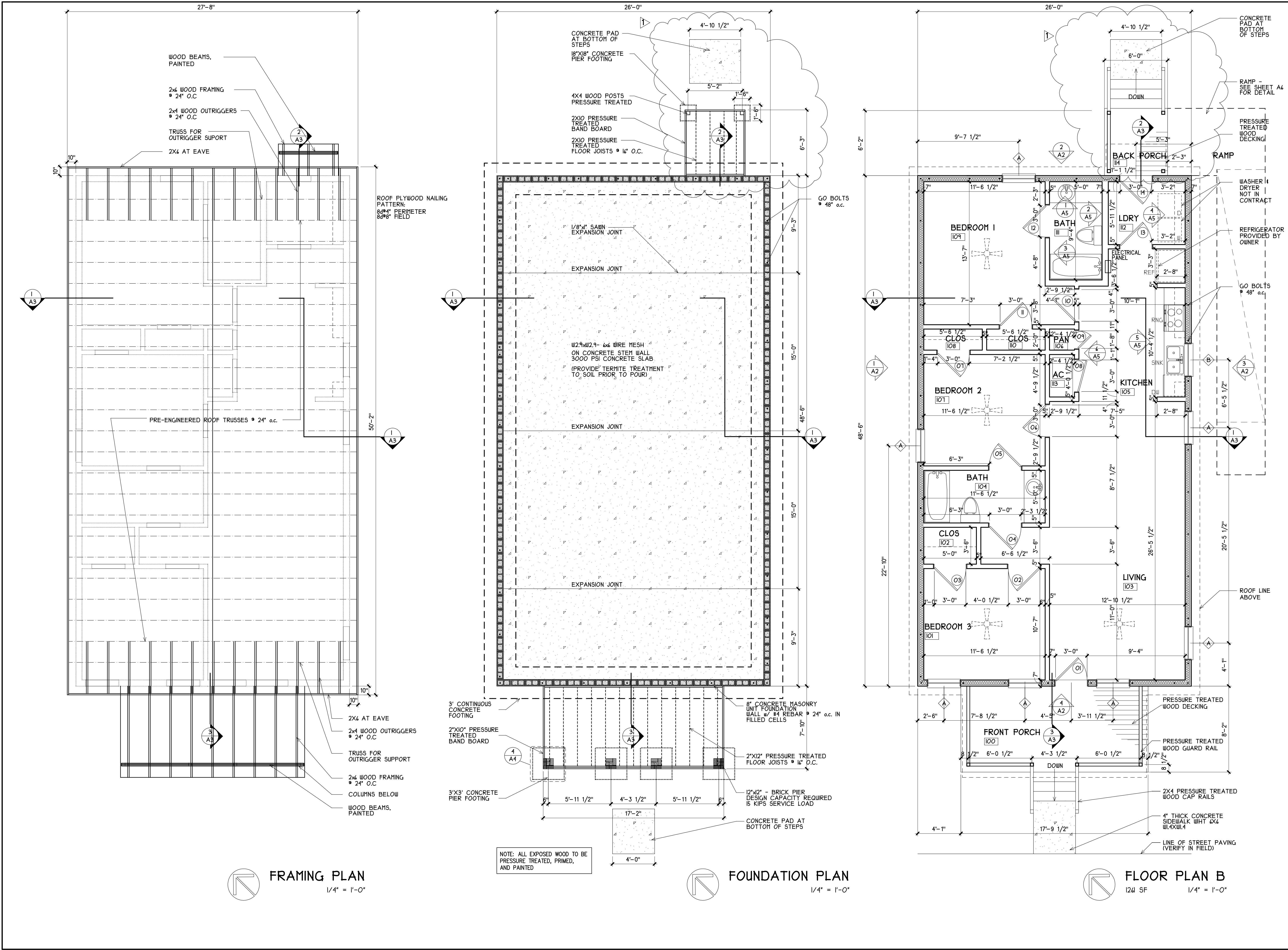
- 1. Colors: Wiring device and wall plate colors shall be white.
- 2. Receptacles: Duplex receptacles shall be specification grade, 20 amps, 125 volts with grounding terminal. Color to be selected by architect.
- 3. Switches: Switches shall be specification grade, 20 amps, 120/277 volts A-C only, single pole, three-way or four-way as shown, single throw with screw terminals arranged for side wiring.
- 4. Device Plates: Shall be of the constructed of polycarbonate.
- 5. Ground Fault Receptacles: Furnish and install receptacles with ground fault circuit interrupters as indicated on plans. Receptacles shall be NEMA 5-20R configuration with 120V ac 20 amperes circuit rating. All receptacles shall be such depth as to permit mounting in outlet boxes 1 1/2" or greater in depth without the use of spacers. Units shall have line and load terminals such that connection to load terminals will provide ground fault protection for other receptacles. All receptacles shall accept standard duplex wall plates. All receptacles shall be noise suppressed and shall be UL listed.

16510 Lighting

- 1. Field verify all outlet locations and switch locations. Provide telephone cabling and cable TV wiring.
Smoke detection: Provide smoke detectors per code. Provide carbon monoxide detectors per code.
 Provide wired, cleaned, and with lamps specified, all fixtures designated on drawings. Contractor shall verify the ceiling construction for correct trim and support arrangement of lighting fixtures; corrosion resistant plaster frames are required in plaster ceilings. Shop drawing submittals shall consist of properly identified copies of manufacturer's catalog pages showing all features and accessories specified.
- 2. Lighting Schedule:
Recessed LED: Commercial Electric Model # CER6730DWH40
Porch Light: Hampton Bay Model # BPP1611-BLK
Wall Sconce: Hampton Bay Model # X124501
Pendant Light: Progress Lighting Model# P5096-09
Chandelier: Commercial Electric Model # HON8913A
Exhaust Fan/Light: Nutone Model # XN50L
Ceiling Fan: Hunter Model # 59246

3. Secure mounting and support of all lighting fixtures shall be accomplished under this section of these specifications. Lighting fixtures shall be installed plumb, square, and level with the ceiling, wall, and in alignment with adjacent lighting fixtures. Mounting heights indicated shall be to the bottom of the fixture for ceiling-mounted fixtures and to center of fixture for wall-mounted fixtures.
4. Fluorescent ballasts shall be electronic type, class A noise rating, class P safety standards, high power factor greater than .98, programmed start, auto restart, 10% total harmonic distortion or less, 42 kHz – 54 kHz hertz ballast frequency, .85 or greater ballast factor, less than 1.7 lamp current crest factor, meeting the requirements of ANSI/IEE C62.41 & C82.11, FCC Part 18 (RFI & EMI), CBM, UL, Public Law No. 100-357, and NAECA. All ballasts shall include internal fusing. Ballast shall be compatible for use with energy saving lamps. For outdoor applications ballast shall be rated for zero degrees Fahrenheit starting temperature.
5. All lamps shall be the product of one manufacturer and shall be as manufactured by General Electric Osram/Sylvania, or Phillips. HPS lamps shall comply with the current published ANSI standards.

END OF OUTLINE SPECIFICATIONS



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WALL LEGEND

EXTERIOR WALL:
FIBER CEMENT BOARD
HORIZONTAL SIDING, OR FIBER
CEMENT BOARD 1 BATTEN
ON BUILDING WRAP
ON 1/2" PLYWOOD
SHEATHING ON 2x4
STUDS w/ 3 1/2" BATT
INSULATION.
(1" NOMINAL THICKNESS)

INTERIOR PARTITION: 1/2"
GYPSUM BOARD ON BOTH
SIDES 2x4 STUDS,
UNLESS OTHERWISE
NOTED.
(5" NOMINAL THICKNESS)

GENERAL NOTES

1. ALL DIMENSIONS ARE TO
FACE OF STUD OR TO
CENTER OF COLUMNS,
DOORS, OR WINDOWS.

2. HEADERS OVER EXTERIOR WALL
OPENINGS TO BE (2) 2x10's
(TYPICAL), BEAR ON DOUBLE STUDS.

3. ALL WINDOW SIZES INDICATE
ROUGH OPENING.

4. TYPICAL INTERIOR TRIM TO BE
PAINTED 1x4 BASEBOARD
1 1/4" DOOR 1 WINDOW
FACING.

5. CLOSETS TO BE INSTALLED
w/ ONE CHROME ROD 1 ONE 12"
WIRE SHELF

6. BID ALTERNATE #4:
PROVIDE 1" VINYL BLINDS (WHITE)
ON ALL WINDOWS

10-19-17

Ramp Railing

Project

Alger-Sullivan
SHIP Housing

416 Front Street
Century, Florida

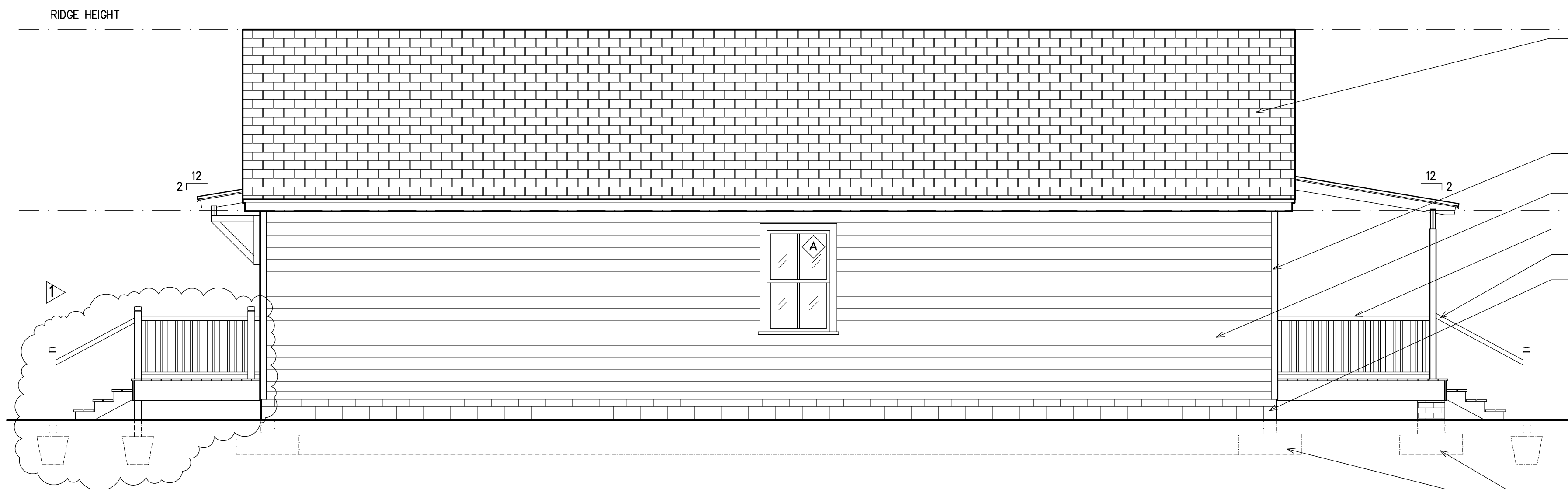
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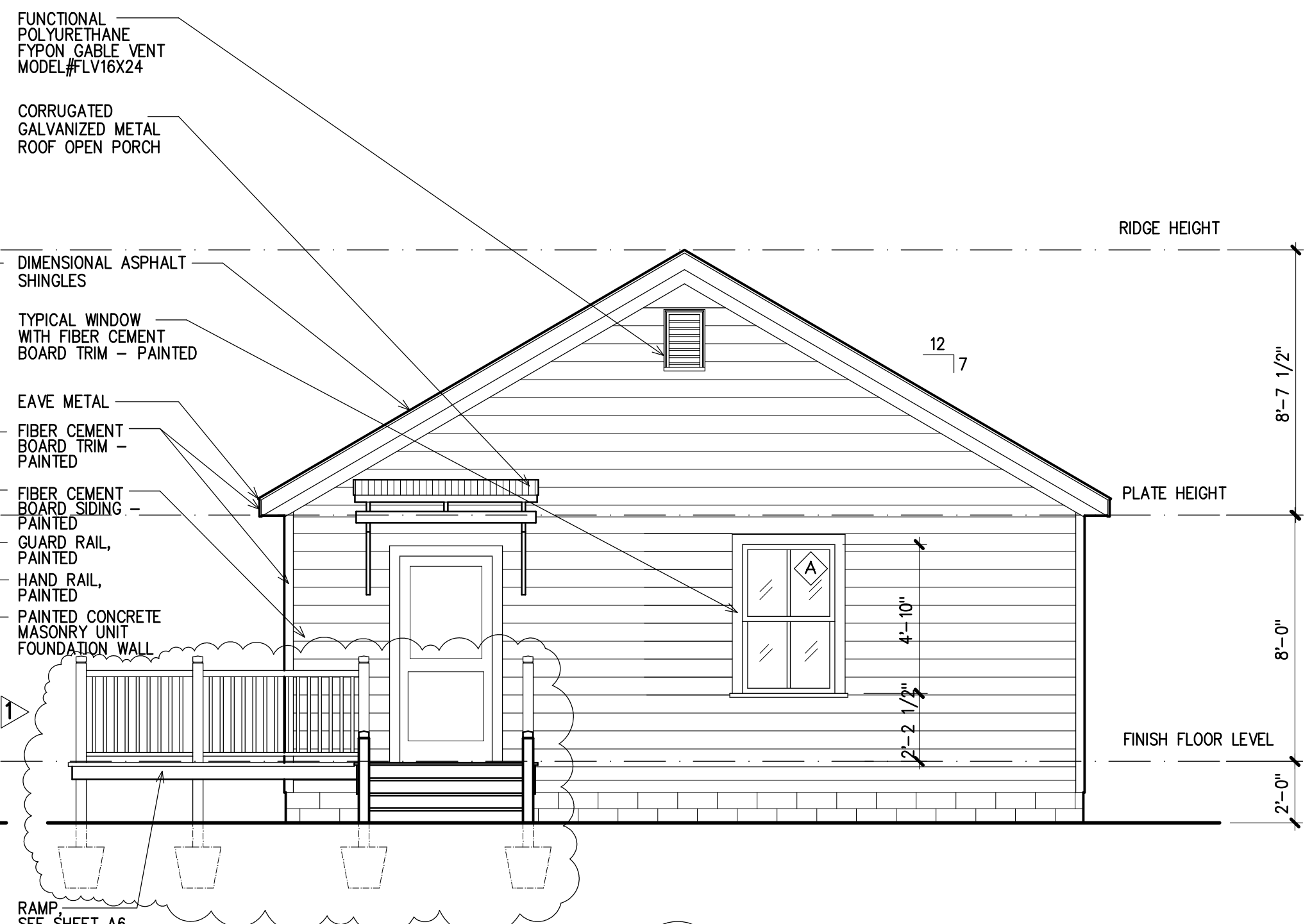
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House 416

A1

EXTERIOR COLOR PALETTE:
SIDING- LANGUID BLUE SW 6226
TRIM- CLASSIC LIGHT BUFF SW 0050
CMU STEM WALL- NEEDLEPOINT NAVY SW 0032
ASPHALT SHINGLE- SLATE GREY
WINDOW SASH- WHITE
RAILINGS- WHITE
FRONT DOOR- NEEDLEPOINT NAVY SW 0032

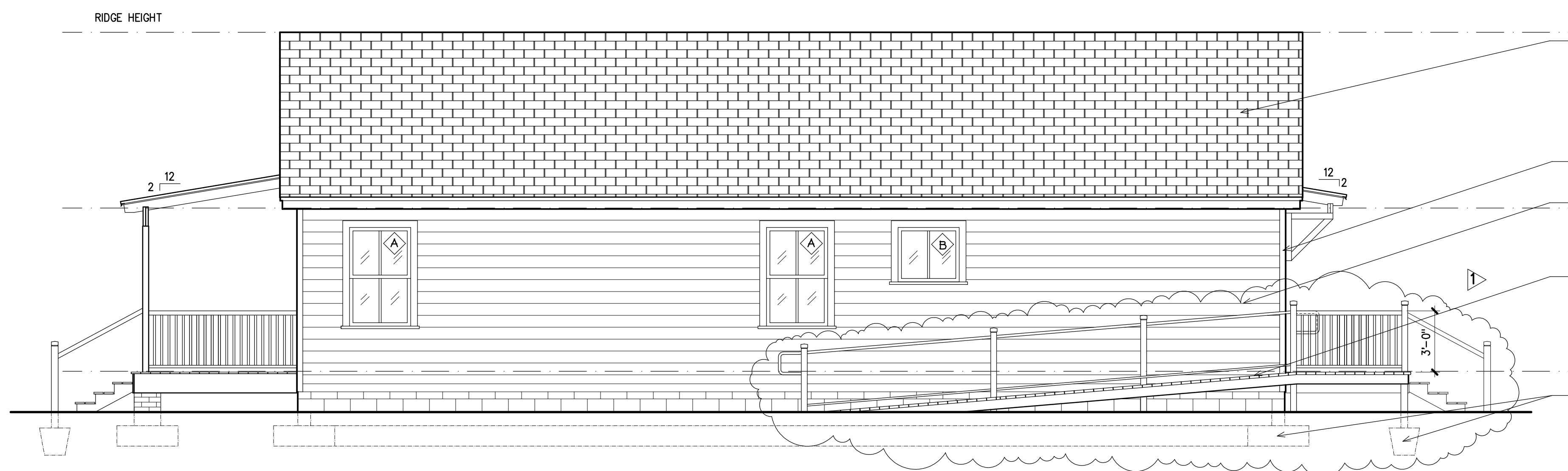


1 SIDE ELEVATION
A2
1/4"=1'-0"

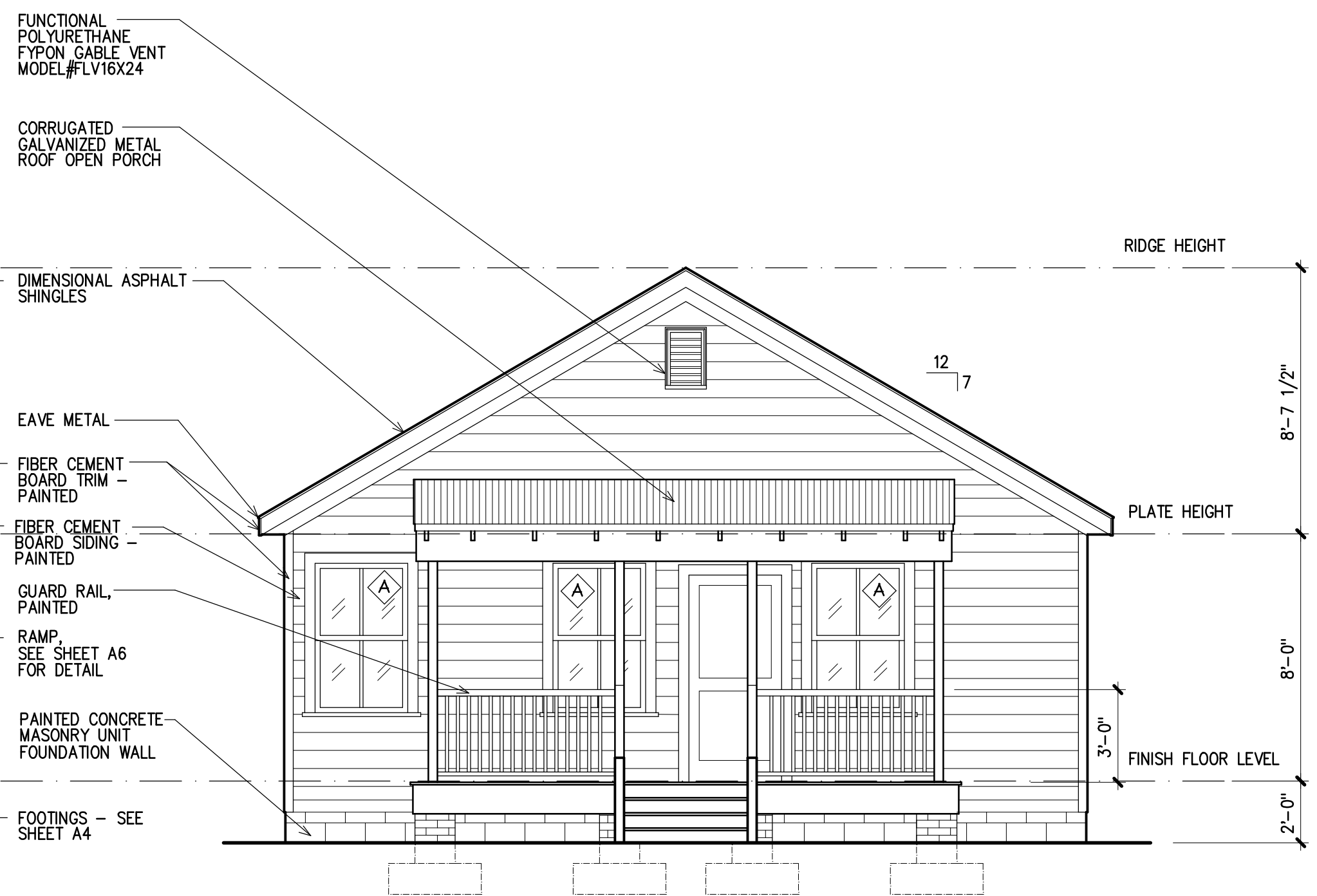


2 BACK ELEVATION
A2
1/4"=1'-0"

NOTE: ALL EXPOSED WOOD TO BE
PRESSURE TREATED, PRIMED,
AND PAINTED



3 SIDE ELEVATION
A2
1/4"=1'-0"



4 FRONT ELEVATION
A2
1/4" = 1'-0"

10-19-17 Ramp Railing

Project
Alger-Sullivan
SHIP Housing
416 Front Street
Century, Florida

Date:
09-01-17
Project No.
1816
Sheet No.
House 416
A2

