

March 13, 2023

SCO ID# 21-23168-01A

**MODULAR BUILDING REPLACEMENT for
TRAFFIC SIGNALS OFFICE
NCDOT Highway Division 3, Jacksonville, North Carolina**

ADDENDUM No. 2

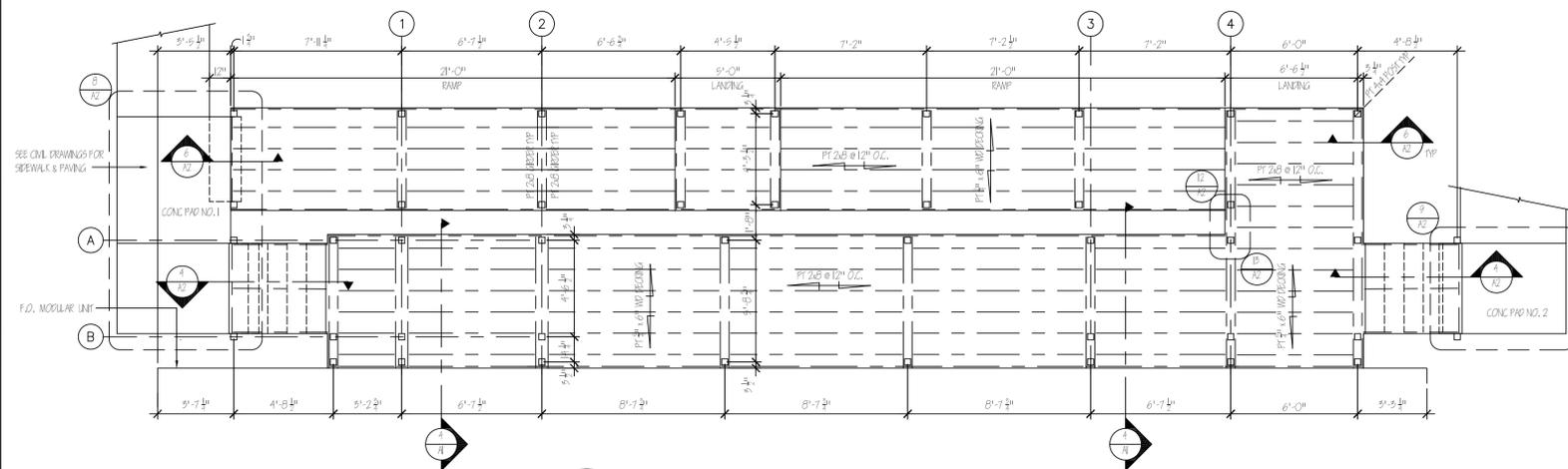
Item No. Reference Description

GENERAL:

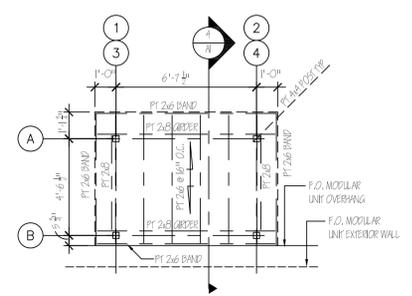
Item No. 1 The Bid Date is hereby rescheduled for **March 23, 2023**, at **2:00 PM** in the NCDOT Highway Division 3 Resident Engineer's Conference Room at 295-A Wilmington Highway, Jacksonville, NC 28540.

DRAWINGS:

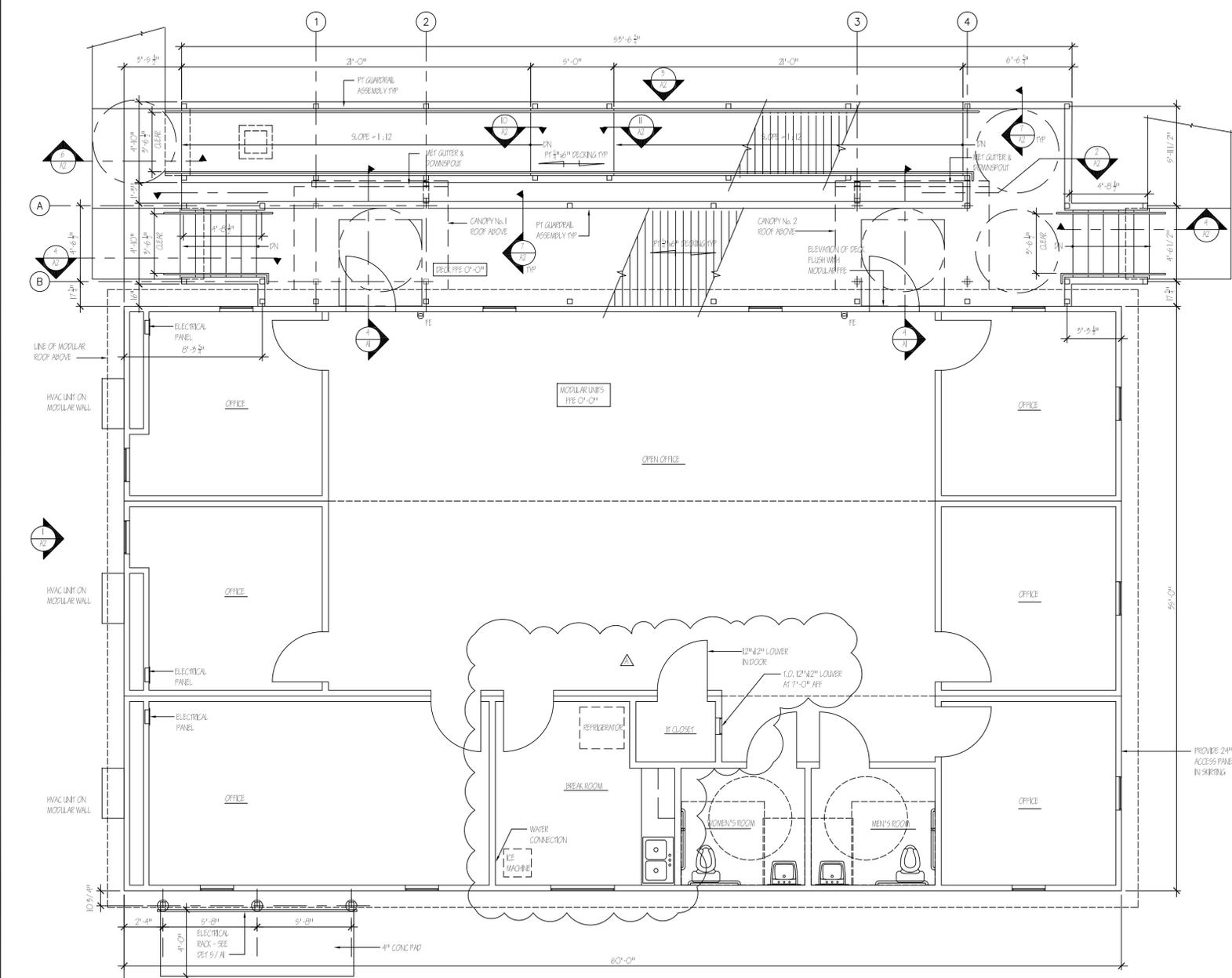
Item No. 1	C-002	Refer to Drawing C-002 Site Plan. The edge of the existing asphalt paving shall be saw-cut for a straight edge. The Contract does not include replacement or resurfacing of paving. Striping, symbols, signage, and wheel stops are included in the Contract.
Item No. 2	C-005	Refer to Drawing C-005, Sanitary and Water Services. The Contractor shall be responsible for bringing all utilities, including electrical power, to the modular building and for making final connections to the building for a fully operational facility.
Item No. 3	S-1	Refer to Drawing S-1, Structural Notes, II. Concrete, Note 6. The Owner will engage a third-party geotechnical engineer to test soil compaction for minimum soil bearing capacity as indicated in Appendix B on Drawing G-1. The third-party geotechnical engineer will also test concrete used in the project for compliance with project requirements.
Item No. 4	A-1	Refer to Drawing A-1. Provide nominal 4'-9" x 3'-7" IT Closet. Provide a 12" x 12" metal louver with the top at 7'-0" above finish floor. Provide a 12" x 12" metal louver in the IT Closet door at 12" above finish floor. See Attachment 'A'.
Item No. 5	A-1	Refer to Break Room. Provide new arrangement for casework. See Attachment 'A'.
Item No. 6	E-1	Refer to Drawing E-1, General Electrical Note No. 3. <ul style="list-style-type: none">• EMT conduit shall be used in concealed spaces above grade.• Rigid galvanized conduit shall be used for exterior conduit above grade.• Schedule 40 PVC conduit shall be used for direct burial conduit below grade.



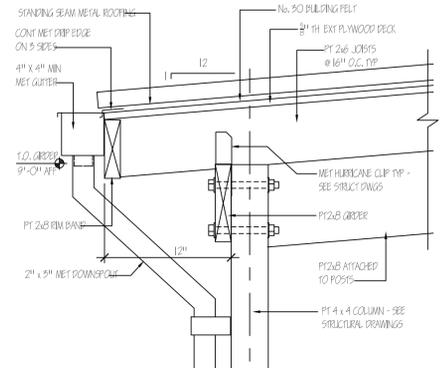
2 DECK / RAMP FRAMING PLAN
SCALE: 1/4" = 1'-0"



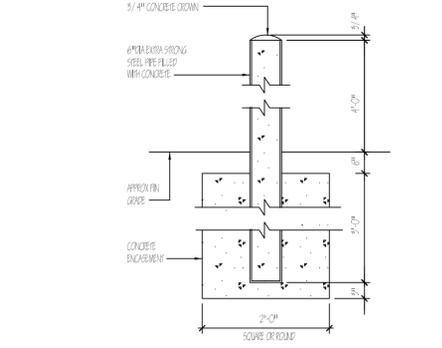
3 CANOPY FRAMING PLAN
SCALE: 1/4" = 1'-0"



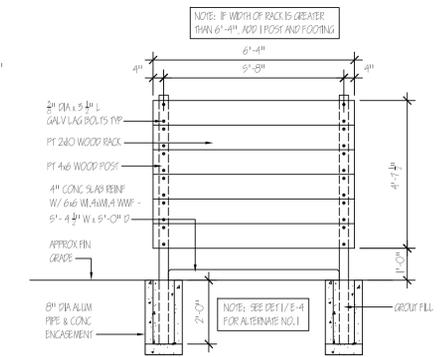
1 MODULAR OFFICE FLOOR PLAN
SCALE: 1/4" = 1'-0"



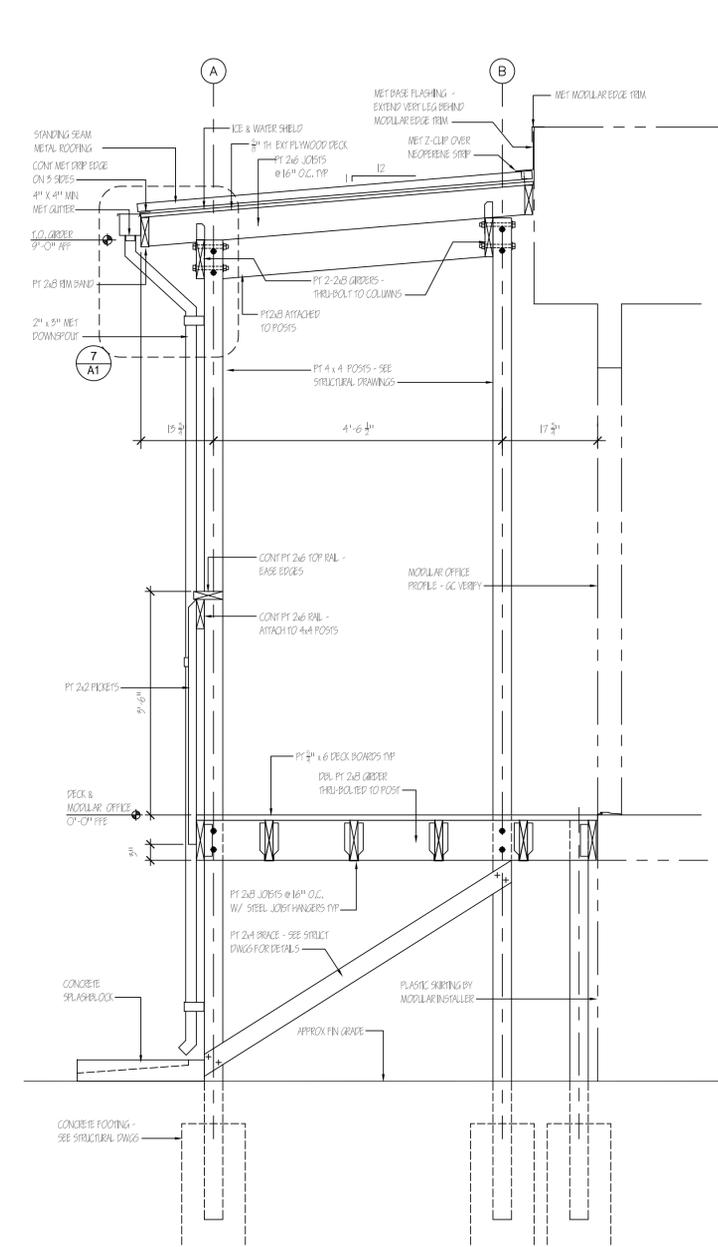
7 CANOPY DETAIL
SCALE: 1/2" = 1'-0"



6 BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



5 ELECTRICAL DEVICE RACK
SCALE: 1/2" = 1'-0"



4 ENTRANCE CANOPY SECTION
SCALE: 1/2" = 1'-0"

ATTACHMENT 'A'

GENERAL NOTES:

1. THIS MODULAR OFFICE IS NEW AND WILL HAVE AN ICCBI CERTIFICATION. SEE DRAWING G.I. NO INTERIOR CHANGES WILL BE MADE UNDER THIS CONTRACT.
2. EXCEPT FOR THE MODULAR UNITS, ALL WOOD COMPONENTS SHALL BE PRESERVATIVE TREATED. SEE STRUCTURAL DRAWINGS FOR LUMBER SIZES, SPECIES, BRACING, ATTACHMENTS, ETC.
3. GC SHALL PROVIDE THE COMPLETE MODULAR OFFICE UNIT ASSEMBLY, TRANSPORT TO AND SET-UP OF MODULAR OFFICE UNITS ON THE NC DOT JACKSONVILLE MAINTENANCE YARD WILL BE PERFORMED AS WORK OF THIS CONTRACT AND WILL INCLUDE ANCHORAGE.
4. CONNECTION OF ALL UTILITIES TO MODULAR OFFICE SHALL BE PERFORMED UNDER THIS CONTRACT. SEE CIVIL, PLUMBING, AND ELECTRICAL DRAWINGS.
5. PROVIDE SKIRTING TO MATCH MATERIAL AND FINISH OF THE EXTERIOR WALLS OF THE MODULAR UNITS.
6. METAL ROOFING MATERIALS SHALL MATCH MODULAR OFFICE METAL WALL PANELS FOR MATERIAL, GAUGE, AND COLOR.
7. AS AN ALTERNATIVE DECK AND RAMP CONSTRUCTION, CONTRACTOR MAY USE PT 2x8 JOBS @ 16" O.C. AND PT 1x6 DECKING.
8. PROVIDE VENTILATION AND INSULATION THROUGH SUPPORTS OVER STAIR DECK SPACE.
9. ALL DOORS SHALL BE 3'-0" WIDE x 7'-0" HIGH UNDERCUT INTERIOR DOORS 1"



NC DOT FACILITIES DESIGN UNIT
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**MODULAR OFFICE FLOOR PLAN,
RAMP FRAMING PLAN, & DETAILS**

**Modular Building Replacement
for the Traffic Signals Office**
NC DOT HIGHWAY DIVISION 3
299 WILMINGTON HIGHWAY
JACKSONVILLE, NORTH CAROLINA 28540

STATE CONSTRUCTION
ID.# 21-23168-01A

ASSET NUMBER:
CO.# SITE# BLDG.#
XX.XX.XX

REVISIONS	NO.	DATE
Δ	1	5/1/2025

DATE ISSUED: 4/8/2022
DRAWN BY:
CHECKED BY:

SHEET NO.

A1

**SECTION 13 4213
PREFABRICATED MODULAR OFFICE UNITS**

PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Prefabricated modular office units provided as self-contained and finished units.
- B. Delivery and final positioning of modular office units on project.
- C. Connection of modular office units to site utilities.

1.02 RELATED REQUIREMENTS

- A. Section 01 4000 – Quality Requirements.
- B. Section 01 6000 – Product Requirements.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) – Steel Construction Manual; American Institute of Steel Construction, 15th Edition.
- B. APA - The Engineered Wood Association, 7011 South 19th Street, Tacoma, Washington 98411
- C. ASTM A36/A36M-08 – Standard Specification for Carbon Structural Steel; 2008.
- D. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.
- E. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2021.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2022.
- G. AWPA M4-02, Standard For The Care Of Preservative-Treated Wood Products, 2002.
- H. AWS D1.1/D1.1M – Structural Welding Code – Steel; American Welding Society; 2020.
- I. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- J. ITS (DIR) - Directory of Listed Products Current Edition.
- K. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth 2019.
- L. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. North Carolina Building Code – 2018.
- N. North Carolina Building Code Volume VIII, Modular Construction Regulations – 1994.
- O. NSF 61 - Drinking Water System Components - Health Effects 2021.
- P. PS1-09, Construction and Industrial Plywood (With Typical APA Trademarks), 2009 Edition.
- Q. PS 2 – Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2010.
- R. PS-20-20 – American Softwood Lumber Standard; National Institute of Standards and Technology, U.S. Department of Commerce; Revision 1, 2021.
- S. SPIB (GR) – Grading Rules; Southern Pine Inspection Bureau, Inc.; latest version.
- T. UL (DIR) - Online Certifications Directory Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct preinstallation meeting one week prior to delivery of modular office units; require attendance by Owner's representative, Architect, Contractor, and modular unit manufacturer's representative.

1. Conduct meeting to verify modular office requirements, site conditions, utility connections, and manufacturer's installation instructions.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit product data sheets, including material descriptions, dimensions and profiles of hardware, fixtures, and finishes, with preparation instructions and recommendations.
- C. Shop Drawings: Submit plans, elevations, sections, construction details, and utility connections as necessary for this work for Architect's approval and submittal to North Carolina State Construction Office.
 1. Include design engineer's stamp or seal on each sheet of shop drawings.
 2. Include method of installation and assembly, any necessary supplementary support bracing, controls, and locations for service rough-in.
- D. Certificate: Certify that materials meet or exceed specified performance criteria, characteristics, and physical requirements.
- E. Test Reports: Submit report of systems testing prior to leaving factory.
- F. Factory-Manufactured Building Approval Report: Provide necessary third-party design approval and inspection report in cooperation with the North Carolina Department of Insurance as authority having jurisdiction (AHJ).
 1. Acceptable third-party inspection agencies: <https://www.ncosfm.gov/media/2408/open>.
- G. Manufacturer's qualification statement.
- H. Installer's qualification statement.
- I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Modular Unit Designer: Engineer registered in the State of North Carolina.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
 1. Provide transportation and moving equipment required for safe delivery to project site and proper installation on foundation.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with minimum three years of documented experience.
- D. Factory Testing: Factory test major components, including plumbing lines, mechanical system, exhaust fans, and electrical wiring prior to shipping.
- E. Inspection Certificate: Manufacturer shall produce modular units using methods and materials confirmed by a state-recognized third-party inspection agency. Each module shall conform to requirements set by North Carolina Department of Insurance for modular construction and shall display a NCDOT certificate label on the electrical panel.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store finished modular units with weatherproof wrapping in secure location until time for delivery to project site.
- B. Coordinate shipment schedule of modular units for arrival and then immediate placement onto foundation in accordance with project requirements.

1.08 FIELD CONDITIONS

- A. Examine project field conditions regarding access, existing dimensions and general location of work areas, and perform work as required to deliver, install, and connect prefabricated modular units in coordination with adjacent work by other trades.

- B. Ensure final installation locations are broom swept clean without debris or piles of materials in the way that could negatively impact installer's progress.
- C. Provide final installation that is flat and level; flatness defined as not more than 1/16 inch (4.8 mm) floor variation over 10 foot (3 m) span; levelness defined as no more than 3/32 inch slope over an 8 foot (2.44 m) span.
- D. Report any non-compliant site conditions to Architect prior to commencing this work.

1.09 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Provide three-year manufacturer warranty for pre-fabricated modular units that fail in materials or workmanship within indicated warranty period.

1.10 DELEGATED DESIGN

- A. The Owner delegates the design of the modular units to the modular manufacturer to produce commercial grade prefabricated units for the specified purpose.
- B. Modular office units shall fully comply with North Carolina Building Code Volume VIII, Modular Construction Regulations – 1994 and all current North Carolina Building Codes.
- C. All requirements in this specification and indicated on the drawings are additional. In the case of conflict, building codes and the Authority Having Jurisdiction shall have precedence.
- D. The modular manufacturer shall be responsible for the final architectural design produced and sealed by a professional architect licensed in the State of North Carolina.
- E. The modular manufacturer shall be responsible for plumbing, mechanical, electrical, and structural designs produced and sealed by professional designers licensed in the State of North Carolina.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Provide prefabricated modular units with fully installed plumbing fixtures, doors, windows, countertops, interior finishes for floor, walls, and ceilings, roofing, exterior walls, mechanical units, exhaust fans, ductwork, electrical panels, wiring, lighting and emergency fixtures, trim, and all else for a complete and fully operational office facility.
 - 1. Provide building utilities with means of proper connection to site utilities.
 - 2. Provide all materials required for proper and permanent weatherproof closure of joints between modular units. Closure materials shall match adjacent materials.
- B. Provide prefabricated modular units with self-supporting structural system consisting of light wood framing for floor, walls, and ceiling/roof and structural steel undercarriage specifically designed for long-distance transportation of units to their place of installation and permanent support of modular units on their foundations.
- C. Provide prefabricated modular units with water supply and drain piping, mechanical equipment, and electrical circuits that are properly routed and coordinated for field connection with site plumbing, mechanical, and electrical systems. Plumbing, mechanical, and electrical systems shall be fully compliant with the North Carolina Building Codes.
- D. Electrical Components, Devices, and Accessories: UL (DIR) or ITS (DIR) listed and labeled in compliance with NFPA 70 by a qualified testing agency and marked for intended location and application.
- E. Fire Performance: Interior wall and ceiling finishes shall comply with ASTM E84 flame spread and smoke development index class ratings in accordance with NCBC and authorities having jurisdiction (AHJ).
- F. Accessibility Requirements: Comply with applicable provisions of ADA Standards and ICC A117.1.

2.02 MATERIALS

- A. Comply with related specification sections for materials not specified in this section, as indicated on drawings, and the following:
 - 1. Light Wood Framing:
 - a. Species: Spruce-Pine-Fir or better.
 - b. Grade: No. 1 or better; S4S.
 - c. Kiln-dried; moisture content between 10 and 16 percent.
 - 2. Gypsum Board: 1/2 inch (12.7 mm) or 5/8 inch (15.9 mm) thick, Type X, complying with ASTM C1396/C1396M; with mold and mildew resistance complying with ASTM D3273.
 - a. Gypsum board wall panels shall be fabricated with integral vinyl coverings and shall be capable of resisting humid conditions without warpage, discoloration, or delamination.
 - b. Architect shall select vinyl cover finish and color from manufacturer's full line of finishes and colors.
 - 3. Drywall Fasteners: Corrosion resistant, Type S-12 bugle head screw.
 - 4. Resilient Flooring: Provide Vinyl Composition Tile flooring throughout.
 - a. Acceptable manufacturers and products:
 - 1) Armstrong Flooring: Standard Excelon Imperial Texture;
 - 2) Tarkett, Inc.: Tarkett VCT II;
 - 3) Azrock: Standard Vinyl Composition Tile.
 - b. Dimensions: 12" x 12" x 1/8" thick.
 - 5. Resilient Base: Thermoplastic rubber; 4" high cove base profile.
 - a. Acceptable manufacturers and products:
 - 1) Johnsonite: Duracove;
 - 2) Roppe Corporation: 700 Series wall base;
 - 3) Mannington Commercial: Burkebase Type TV.
 - 6. Batt Insulation: Comply with all North Carolina building codes for insulation R-values. Provide batt insulation with FSK vapor barrier.

2.03 FABRICATION

- A. Fabricate modular units as indicated on drawings, including but not limited to room layout, locations of sinks, countertops, plumbing fixtures, and applicable requirements of accessibility.
- B. Fabricate units with securely interlocking shear panel walls to form a fully braced box structure for each modular unit.
- C. Resilient Flooring: Fabricate factory installed floor finishes using NCDOT-approved materials and adhesives in accordance with flooring manufacturer's recommendations.
- D. Provide factory-installed doors and hardware compliant with NCBC and ICC ANSI A-117.1.
- E. Provide cover strips at wall panel joints.
- F. Wood Casework and Trim: Fabricate units with factory installed wood casework and trim where indicated on drawings. Countertops shall be plastic laminate. Interior casework finishes shall be white melamine.
 - 1. Provide casework and countertops with adequate blocking for secure mounting.
 - 2. Acceptable Plastic Laminate Manufacturers:
 - a. Formica Corporation
 - b. Wilsonart LLC
 - c. Nevamar: Panolam Industries International Inc.
- G. Use redundant fastening of gypsum board to framing by use of both construction adhesive and screws.
 - 1. Ensure that ceiling gypsum boards rest atop wall boards and are both adhered and screw fastened to ceiling framing to improve wall rigidity and fully block ceiling perimeter.

- H. Factory-apply sealants to applicable interior seams.
- I. Fabricate modular units with adequate support blocking for toilet accessories.
- J. Factory install doors as indicated on drawings:
 1. Provide flush solid-core wood doors with oak veneer at interior openings.
 2. Stain: Owner shall select wood stain color from manufacturer's full range of stain colors.
 3. Provide insulated flush metal doors at exterior door openings. Exterior doors shall have view lites with fully tempered insulating glass units.
- K. Factory install aluminum windows as indicated on drawings:
 1. Type: Double-hung.
 2. Construction: thermally broken.
 3. Glass: 1" insulating glass units
- L. Provide code-compliant factory installed plumbing components.
 1. Route restroom supply lines to two common supply hook-ups, one for hot water and another for cold water connection; each factory labeled.
- M. Provide countertops, sinks, faucets, sink drain p-traps, angle stops with trim, and other related interior trim. All plumbing shall be completed and tested before leaving the factory.
- N. Provide instantaneous water heaters at sinks.
- O. Provide water supply lines that comply with North Carolina Plumbing Code for 1/2 inch to 2 inch (12.7 mm to 51mm) copper "L" tubing with NSF 61 and IAPMO (UPC) listed crimp fittings.
 1. Support copper supply lines at least 6 feet (1.83 m) on center, complying with IAPMO (UPC).
 2. Support polyethylene type piping and applicable fittings at least 32 inch (0.813 m) on center, complying with IAPMO (UPC).
 3. Factory install foam or fiberglass pipe insulation in compliance with authorities having jurisdiction (AHJ).
 4. Provide properly installed water closets with necessary gallons per flush (GPF) capacity, and heights complying with ADA Standards as required.
 5. Ensure plumbing systems pass manufacturer's standard air test.
 - a. Factory pressure test results shall be documented and submitted to the Architect.
 - b. Standard factory pressure test is 100 psi (0.69 MPa) held for at least 20 minutes or as required for project.
- P. Factory install plumbing fixtures in accordance with plumbing fixture manufacturer's instructions.
- Q. Prefabricated modular manufacturer to provide proper and complete installation of mechanical components including mechanical units, restroom exhaust fans, supply and exhaust ductwork, and mechanical trim.
- R. Factory install light fixtures.
 1. Provide electrical trim.
 2. Provide fixture boxes, factory wired to switches.
 3. Provide properly sized electrical panels. Neatly label circuits on electrical panel box cover and at all receptacles.
 4. Provide metal clad cable or conduit as required by authorities having jurisdiction (AHJ).
- S. Provide code compliant electric circuits servicing modular units as required by authorities having jurisdiction (AHJ).
 1. Provide internal circuits consisting of ground fault circuit interrupter (GFCI) type power and lighting circuits in rest rooms, janitor closet, and kitchen.
 2. Provide code-required exit lights and exterior lights at exterior doors.
- T. Provide alarms, strobe lights, or other life safety system components within modular units.

1. Provide necessary electrical rough-in boxes, conduit, and pre-cut holes in gypsum board as required.
- U. At completion of fabrication, the units shall be inspected and approved by third-party inspector accepted by the North Carolina Department of Insurance and receive a certification number. A validating label shall be affixed to the inside of each electrical panel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, adjacent areas and conditions, with installer present, for compliance with manufacturer's requirements, including installation tolerances and other conditions effecting performance of this work.
- B. Examine connection points for plumbing and electrical services to verify actual locations of services prior to installation of modular units.
- C. Verify conditions of construction effecting this work.
- D. Verify that required inspections of site utilities have been completed prior to delivery of modular units.
- E. Examine modular unit concrete footings. Confirm that concrete has adequately cured and that footings are properly aligned with modular unit undercarriage structure.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 DELIVERY

- A. Prepare modular units for long-distance transportation. Secure all loose components. Properly and adequately wrap units to prevent moisture intrusion and exclude dust and debris.
- B. Deliver modular units to site per Contractor's instructions for time and location. Contractor shall inform the Architect of the delivery schedule.

3.03 INSTALLATION

- A. Experienced installer shall set modular units according to standard installation procedures and manufacturer's instructions and shall ensure that modular structural components are not stressed beyond their designed strength.
- B. Modular installer or Contractor shall construct masonry piers on properly cured concrete footings per structural drawings. Note that some building anchors are required to be cast into concrete footing for proper alignment with modular connection points. Contractor shall coordinate anchor locations and installation.
- C. Each unit shall be set, shimmed, and properly leveled on its foundation before the next unit is installed.
- D. After units are leveled permanently, tightly and securely attach units together along mating lines per manufacturer's instructions. Prevent misalignment vertically and horizontally of adjacent modular units.
- E. Provide permanently water-tight roofing strips compatible with roofing materials along roof mating lines and exterior wall strips which match siding to permanently and tightly seal the wall mating lines against water intrusion.
- F. Securely anchor modular units to the ground using ground anchors specifically designed for the purpose. Drive anchors into ground to depth required to adequately resist wind uplift indicated.
- G. As each unit is set, remove the steel tongue and wheels from each modular unit and turn over to Owner.
- H. After all work has been completed under the modular units, provide manufacturer's standard skirting. Skirting shall include crawlspace vents as indicated on drawings.

3.04 INTERFACE WITH OTHER WORK

- A. Contractor shall coordinate interface connections between modular unit and site utilities. Installer shall make final connections between modular plumbing and electrical systems and site utilities.
- B. All systems shall be tested and documented to be operating properly prior to notifying the Architect that the facility is ready for inspection.

3.05 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Provide testing of plumbing, mechanical, and electrical systems and components to verify proper operation by each element of this work.
- C. Repair or remove and replace defective work, finishes, and accessories as directed by Architect prior to Date of Final Acceptance.

3.06 ADJUSTING

- A. Adjust doors and hardware to operate smoothly and properly without binding, and verify that locks engage accurately and securely without forcing or binding.

3.07 CLEANING

- A. Clean exposed and semi-exposed surfaces, and touch-up finishes as required in accordance with manufacturer's written instructions.

3.08 PROTECTION

- A. Protect modular units with door locking mechanism where possible, to ensure limited access only to required trades and authorized personnel, and to preserve security and cleanliness of interior finishes until Date of Final Acceptance.

END OF SECTION