

PREFABRICATED MODULAR STRUCTURES PERFORMANCE SPECIFICATION SCOPE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions apply to work of this section.

1.2 SUMMARY

- A. This section describes custom prefabricated, clear span, modular structures. The prefabricated modular **two-story classroom and science lab building** to be erected at the **Tokay High School, California**; complete and ready for use. All costs for transportation and installation of the site are to be included in the Bid price.
- B. Extent of Prefabricated Modular Structure is as shown on drawings and specified herein.
- C. Work included as part of Modular Contractor's work includes all work described within this section and **per Responsibility Matrix (Exhibit A) all scope identified under the Modular Contractor column shall be covered by modular contractor.**
- D. Preliminary building Analysis: Construction Type V-B, fully sprinklered, E Occupancy (mixed with science lab).

1.3 SUBMITTALS

- A. Provide complete submittal to DSA for plan review and approval process as well as the following:
 - 1. From NTP date provide within two weeks the final floor plan CAD file.
 - 2. 50% Design Development phase submittal to the District for general intent review.
 - 3. 50% Construction Documents phase submittal to the District for general intent review.
 - 4. DSA submittal set for their initial review to be no later than August 26, 2019.

1.4 QUALITY ASSURANCE

- A. Applicable Documents:
 - 1. The following documents form a part of this specification to the extent they are applicable.
 - 2. California Code of Regulations (C.C.R.).
 - a. Title 5 Education Code
 - b. Title 19 Public Safety
 - c. Title 20 Public Utilities
 - d. Title 21 Public Works
 - e. Title 24 Building Code
 - 3. National Fire Protection Association NFPA 90A
 - 4. National Warm Air Heating and Air Conditioning Association

1.5 BUILDING DESIGN REQUIREMENTS:

- A. Building Type:
 - 1. Modular building shall consist of portions of new prefabricated modules or panels, including roof, walls, windows, electrical, plumbing, and mechanical services. Each module or panel system shall be mounted on a reinforced foundation system to be engineered by the Contractor.

- a. Dimensions as shown on plans may deviate slightly (upon Owner's approval) to accommodate fabrication / transportation and obtain a DSA approved modular system.
 2. Components of the "Hybrid or Modular" layout must conform to architectural design appearance shown and requirements specified hereinafter.
 3. The building contractor shall provide drawings and calculations acceptable to the Owner, meeting the provisions of the California Code of Regulations. Building Contractor shall bear all costs for production of drawings and all associated architectural (complying with DSA 1-MR form), engineering design / calculations. Building Contractor shall make all revisions and corrections to those documents required by the Division of the State Architect, County Health Department and shall resubmit as required to obtain approvals. Owner's Architect will provide the following design services on the building and will be DSA's architect of record:
 - a. Technology Low Voltage: Clocks, Audio Visual, speakers, intercom, voice, data, cable, cameras, security, IDF.
 - b. Fire Alarm Low Voltage
 - c. HVAC Low Voltage controllers for EMS
 - d. Electrical (From site to building main panel on electrical room)
 4. Owner will pay applicable processing fees to the Department of General Services, Division of the State Architect (DSA), State of California and local County Health Department (where concessions room are part of the building). Contractor shall make all changes or corrections required by DSA, County Health Department and will deliver to Owner's Architect all original reproducible full-size drawings as required for the approved drawings and calculations. Original drawings cited here shall be the original drawings on bond paper, bearing the original DSA stamp of identification and County Health Department (where concessions room are part of the building). All modular drawings and specifications shall be signed by Contractor's California Licensed Architect / Engineer as required by the DSA and County Health Department.
 5. The Owner's Architect decision about the product aesthetics shall be binding on the Contractor. Basic design loads, as well as auxiliary and collateral loads, are as follows:
 - a. Exterior walls shall be designed to withstand wind loads perpendicular to wall plane wind speed to meet code requirements. This requirement applies to all exterior walls of building section even though present configuration of building may be such that some of these walls are not exposed to wind. All buildings are required to meet all current requirements of Title 24, Parts 1 & 2 and DSA Interpretations of Regulations.
 - b. Roofs: Design shall include live load of 20 psf minimum, incorporate all Calgreen provisions. All roofs shall be designed as diaphragms as required for resisting applied horizontal loads. Roof shall be sloped to drain with pitches as needed to provide positive drainage.
 - c. Design each member to withstand stresses resulting from combinations of loads that produce maximum percentage of actual to allowable stress in that member.
 - d. It is important that the new modular building exterior design and aesthetics be the same as the elevations provided reflecting the ideas of the new classroom building.
 - e. The successful winning modular building Manufacturer shall work with the Owner's Architect to refine design and materials to meet the needs of the Owner. Modular manufacturer shall attend user group meetings as needed to finalize design.
- B. Fabrication Criteria:
1. Provide modular or panelized building systems as produced by a Contractor who is regularly engaged in fabrication and erection of modular structures of type and quality indicated.

2. Design prefabricated components and necessary field connections required for erection to permit easy assembly.
- C. Quality Assurance:
1. For structural steel members, comply with CBC 2016, Chapter 22, Division IX.
 2. For light gage steel members, comply with CBC 2016, Chapter 22, Division V.
- D. Governing Codes:
1. All work and materials shall comply with the rules and regulations of the Division of the State Architect, Title 24, Parts 1 & 2, and California Code of Regulations. The regulations of the State Fire Marshall, the California Building Code, the California Mechanical Code, the California Plumbing Code, the California Electrical Code, California Energy Code, California Green Building Standards Code, California Fire Code and any other applicable State Laws and regulations.
- E. Energy Requirements:
1. Manufacturer shall be responsible for providing and submitting complete energy compliance documentation and calculations as required by California State Building Code as established by the Energy Efficiency Standards for Buildings as prescribed by the California Energy Commission. Building to exceed T24 energy requirements by **25%**.
- F. Foundations, First Floor:
1. The building shall be reinforced concrete slab-on-grade or reinforced concrete stem walls foundation with a crawl space, as required at the ground level. Minimum footings as required as outlined in the District's provided Geotechnical Report. Foundations shall be designed to meet T24, Part 1, & DSA. requirements and additional loading requirements as indicated on the Geotechnical Report provided for this project.
 2. First floor (unless slab on-grade and second floor) shall be light weight concrete on metal deck to prevent impact loads and noise between floors. No plywood or wood allowed in these two areas.
 3. Off Hauling of soil related to building foundations excavation shall be performed by site contractor.
- G. Submittal:
1. Contractor's building drawings, standard details, and specifications for building assemblies manufactured hereunder shall be submitted to the District for review and his submission to governing authorities in compliance with governing codes, rules and regulations, and stamped approval obtained thereon as prescribed by Codes. Modular building must meet State of California, Department of General Services, and Division of the State Architect construction requirements.
 2. Design and structural calculations shall be prepared by a structural engineer registered by the State of California, or as otherwise required by governing State Authorities and submitted to the Architect submission to the governing authorities for approval.
 3. Additional drawings and instructions deemed necessary to carry out the work included in Contract shall be supplied to, or by, the Contractor or so prepared as to be consistent with the Contract Documents.
- H. Product Requirements: **All products listed on this specification that don't reference a manufacturer / model should be provided per District's Design standards, District's Hardware standards and District's Telecommunications standards.**
1. Steel: (Structural Shapes) ASTM A36
 2. Sheet Steel: ASTM A570 (Grade 33 or 40) See Plans. Tubes: ASTM A500 (Grade B)
 3. Concrete Walls: ASI 301

3. Bolts: ASTM A307 or A325
 - a. For structural steel members, comply with CBC, Chapter 22, and Division IX.
 - b. For light gauge steel members, comply with CBC, Chapter 22, and Division VI.
 - c. Steel frame building shall meet with the design requirements of the Invitation for Bid and stud spacing, etc.
4. Roof:
 - a. Plywood Sheathing:
 - i. 1/2" minimum APA rated OSB sheathing.
5. Wall Framing:
 - a. Studs: Light gauge galvanized steel or sawn lumber.
 - b. Concrete Wall:
 - c. Blocking: Light gauge galvanized steel or sawn lumber.
 - d. Fire Blocking: Fire blocking shall be provided per California Building Code. Provide blocking at ceiling as necessary.
 - e. Structural Members: All structural members can be light gauge galvanized steel or sawn lumber.
6. Wall Sheathing:
 - a. All Plywood backing shall be 1/2" minimum APA or comparable rated exterior type. Each panel shall be identified with the grade mark of the grading association and shall meet the requirements of Product Standards PS183.
7. Exterior Finishes
 - a. Wall Metal Siding: Corrugated panel, 7/8" deep, Galvalume type paint prefinished, 20-gauge min., manufactured by Morin, model Integrity X-16; AEP or equivalent.
 - b. Wall Fiber Cement Lap Siding/Trim: Rustic Series, Select Cedarmill (wood textured), concealed fastener, 8-1/4" wide, manufactured by Woodtone. Provide antigraffiti coating.
 - c. Wall / Soffit Fiber Cement Panels: Smooth, 4' by 8' panels, 5/16" thick, exposed fastener, manufactured by James Hardie.
 - d. Perforated Panel: Carbon Steel, 1/2" round hole size / staggered, 1/4" gauge, 48% approx. open area, Manufactured by McNichols.
 - e. All exterior walls must be waterproof.
8. Roofing:
 - a. Single Ply:
 - i. The roofing shall be equivalent to a Class A roofing system.
 - ii. Roof material to be TPO single ply in flat areas (2% or less slope), 60 mils thick minimum, with 1/4" thick Densdeck board. Provide a 20-year minimum warranty (2 years for labor), manufactured by GAF or equivalent.
 - iii. Mechanical wells where indicated shall include parapet walls tall enough to hide mechanical units as shown.
 - iv. Design and installation of the deck and/or roof substrate shall result in the roof draining freely and shall have a pitch for positive drainage. Areas where water ponds for more than 24 hours are unacceptable and shall be corrected by the manufacturer.
 - v. Provide a 36'x42" roof hatch and extension ladder post. Manufactured by Bilco or equivalent.
 - vi. Provide roof service walk mats from roof hatch to all mechanical / plumbing areas to be serviced / maintained.
9. Roof Overhang:
 - a. All overhangs shall present a pleasing and finished appearance.

- b. Exposed CDX sheathing will not be acceptable.
 - c. Soffit to be vented.
 - d. Soffit shall be neatly and closely fitted with 1/8" maximum spacing at any edge.
10. Insulation:
- a. Wall insulation shall have a rating of R19 minimum. Roof insulation shall have a rating of R30 minimum. Minimum flame spread classification of 25 or less and a smoke developed rating of 50 or less. Provide more insulation where required by Contractor's energy modeling and calculations.
11. Sheet Metal Accessories:
- a. General: Unless otherwise indicated, provide 24-gauge galvanized RediCote or approved equivalent. No aluminum will be allowed.
 - b. Downspouts: Shall be 6" minimum galvanized pipe typical with cleanouts at the base of each rain water leader. At interior conditions, downspouts shall not be placed within the cavity of wall framing, they must be in vertical chases. At exterior visually exposed conditions, paint typical.
12. Windows:
- a. Provide aluminum thermally broken window: Provide Kawneer; Oldcastle Vistawall or equivalent. All exterior windows shall be dual glazed 1"-thick minimum insulated units. Provide standard screens at all operable windows. Glass manufactured by PPG Solarban 70XL or equivalent.
 - b. Window opening shall be cased.
 - i. Exterior light – 1/4" minimum, laminated up to 7' high.
 - ii. Interior light – 1/4" minimum, tempered as required.
 - c. Sealer: Butyl primary seal and polysulfide of silicone secondary seal.
 - d. Certification: All glazing to be certified in accordance with ASTM E773 and E774.
 - e. All operable sash shall have aluminum screens.
 - f. All windows shall meet the AAMA GS10188 Voluntary Spec. for aluminum prime windows and sliding glass (ANSI), commercial grade, medium exposure.
 - g. Window shades to be double roll (fabric in one roll to be blackout and fabric on the other roll to have a 5% perforation), manual, manufactured by Lutron or equivalent.
13. Doors and Frames:
- a. Exterior Classroom and Laboratory entries: Provide aluminum thermally broken storefront system, Trifab 451 manufactured by Kawneer; Oldcastle Vistawall or equivalent. All exterior sidelites and transoms shall be dual glazed 1"-thick minimum insulated units. Glass manufactured by PPG Solarban 70XL or equivalent.
 - i. Exterior light – 1/4" minimum, safety laminated up to 7' high and tempered above as required.
 - ii. Interior light – 1/4" minimum, tempered as required.
 - b. Sealer: Butyl primary seal and polysulfide of silicone secondary seal.
 - c. Certification: All glazing to be certified in accordance with ASTM E773 and E774.
 - d. Header height shall be as shown on drawings. All operable sash shall have aluminum screens.
 - e. All windows shall meet the AAMA GS10188 Voluntary Spec. for aluminum prime windows and sliding glass (ANSI), commercial grade, medium exposure.
 - f. Window shades to be double roll (fabric in one roll to be blackout and fabric on the other roll to have a 5% perforation), manual, manufactured by Lutron.
 - g. Metal Doors: Exterior doors shall be constructed per ANSI/SDI100, Grade II, as minimum requirement. Manufactured by Ceco Doors or equivalent.
 - h. Flush doors, 1-3/4" thick, with 16-gauge steel face sheets and sound deadening material on interior to effectively reduce metallic ring or staved core wood. Factory prepared and reinforced for indicated finish hardware, including reinforcement on

- both faces for closers. Metal doors shall be provided at all exterior (non-classroom and laboratories entries) and interior conditions.
- i. Door Treatment: Chemically treat doors for paint adhesion and apply one complete shop coat of metal primer followed by finished paint color.
 - j. Pressed Metal Frames: Welded at exterior, welded or punch down at interior per ANSI/SDI100 as minimum requirement; manufacturer's standard 16-gauge steel, depth to suit wall thickness. Provide 3 anchors, minimum per jamb and adjustable floor anchor at bottom of each jamb. Prepare and reinforce for required hardware, including reinforcement for closers on all frames. Sound deaden concealed faces with 1/8" thick undercoating. Chemically treat frames for paint adhesion and apply one complete shop coat of metal primer.
 - k. Weather stripping: All exterior doors shall be weather stripped at door jambs and head.
 - l. Door Reinforcement: Exterior doors shall be equipped with a steel plate 12-gauge x 2-1/2" x 4", with exposed corners rounded, welded to door face and ground smooth, installed at all strikes to prevent picking of lock by inserting a tool between door and frame.
 - m. Door Hardware: Refer to "Hardware".
- I. Flooring:
- 1. Classrooms to have carpet tile with 6" rubber base. Carpet manufactured by Tandus Centiva; Patcraft or equivalent.
 - 2. Laboratories to have Epoxy based seamless flooring system, non-gloss, slip resistant coefficient of friction of 0.6 minimum.
 - 2. Auxiliary spaces and exterior open corridor to have sealed concrete.
 - 3. Restrooms: Refer to "Restrooms".
 - 4. All exterior floor surfaces, interior wet areas, restrooms at second floor shall have a waterproof membrane under the floor finish system.
- J. Painting: Manufactured by Dulux or Sherwin Williams.
- Paint and stains:
- Exterior stucco:
- 1. Primer: 3210-1200 Ultra-hide aquacrylic gripper primer-sealer or approved equivalent.
 - 2. Finish: 2200-xx Dulux professional ext 100% acrylic flat or approved equivalent.
- Exterior frames:
- 1. Primer: Zinsser cover stain or approved equivalent
 - 2. Finish: 2406-xx Dulux professional ext 100% acrylic semi-gloss or approved equivalent
- Exterior doors:
- 1. Primer: Zinsser cover stain or approved equivalent
 - 2. Finish: 2402-xx Dulux professional ext 100% acrylic satin or approved equivalent
 - 3. Finish: 2406-xx Dulux professional ext 100% acrylic semi-gloss or approved equivalent
- Exterior soffit:
- 1. Primer: 3210-1200 Ultra-hide aquacrylic gripper primer-sealer or approved equivalent
 - 2. Finish: 2200-xx Dulux professional ext 100% acrylic flat or approved equivalent
- Interior trim:
- 1. Primer: Zinsser cover stain or approved equivalent
 - 2. Finish: 1406-xx Dulux professional acrylic semi-gloss or approved equivalent
- Interior doors:
- 1. Primer: High solids sanding sealer or approved equivalent
 - 2. Finish: High solids rubbed effect 25-degree sheen or approved equivalent or high solids semi-gloss 55 degree sheen or approved equivalent

- K. Interior Walls:
1. Walls in each classroom / science lab shall be full height (unless otherwise shown in the drawings) tackable surface (Tackboard).
 2. Tackboard: Continuous length from floor to ceiling. Backing shall be 1/2" gypsum board or 3/8" plywood minimum. The vinyl coating shall weigh a minimum of 8 oz. per square yard. The vinyl wall covering shall have a Class I flame spread rating and the fabricated panel shall have a Class II rating. The panel shall be approved for use by the Office of the California State Fire Marshall. Care shall be taken in mounting the tackboard so that the texture of all panels will have the same orientation and color match. Manufacturer: Koroseal (School collection, spellbound) or approved equivalent.
 3. Other exposed gypsum board in each classroom and auxiliary rooms to be painted.
 4. Unless specified otherwise, paint all visually exposed conduits, sheet metal accessories, mechanical units, and electrical boxes on the building.
 5. Markerboards: Manufactured by Claridge, model LCS3.
- L. Gypsum Board: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M as applicable to type of gypsum board indicated
1. 5/8" Type X moisture and mold resistant type.
 2. Finish level 4 in visually exposed areas.
- M. Fiberglass Reinforced Plastic (FRP): At custodial rooms only, provide 4'-0" panels, .090 nominal thickness.
1. Color to be selected by Architect from manufacturer's full range of colors.
 2. Manufacturer: Nudo or approved equivalent
- N. Ceiling System:
1. Grid: 1 1/2" x 1" steel suspended tee-bar grid system, heavy duty white. Manufactured by Armstrong Prelude XL or equivalent. Use Berc2 clips.
 2. Tile: 24" x 48" by Armstrong – Dune 1775HRC or approved equivalent.
 3. Class A, CAC range 33. Maximum smoke density rating of 450. NRC range .50 - .60. Light Reflectance 82% minimum.
 4. Suspended System and Grid shall be subject to DSA approval, and shall comply with applicable portions of Title 24, California Code of Regulations, and the California Building Code.
 5. Hard Ceiling: 5/8" thick gypsum board as described in "Gypsum Board", provide access panels. Gloss finish paint at restrooms.
- O. Fire Extinguishers: (Provide one at each Classroom and two at each Laboratory)
1. Manufacturer: Badger or Potter-Romer or equivalent. Size and type as required by code.
 2. Semi-recessed cabinet.
- P. Casework to be plastic laminate in the configuration shown on the interior elevations. Countertops and backsplash as indicated on drawings.
- Q. Restrooms:
1. Plumbing fixtures to be Kohler or American standard. Manual Flush valves to be Sloan or Zurn.
 - Wall mount lavatory; Kohler K-2005
 - ADA urinal, wall mount; 0.125 GPF Kohler K-4904
 - ADA water closet, wall mount; 1.28 GPF Kohler K4325
 - Water closet, wall mount; 1.28 GPF Kohler K-4325

2. Accessories to be Bobrick stainless steel or approved equivalent.
 - Grab bars 36" and 48"; Bobrick B-5806
 - Liquid soap dispenser on each lavatory; Bobrick B-2111
 - Mirror 18"x24" on each lavatory; Bobrick B-165 1824
 - Hand dryer, Manufactured by World Dryer, model SLIMdri, electric heat, aluminum brush chrome (Two on each multiuser restroom and 1 on unisex)
 - Toilet seat cover/toilet paper dispenser; partition mount Bobrick B-347
 - Toilet seat cover/toilet paper dispenser/sanitary napkin disposal; partition mount Bobrick B-357
 - Toilet seat cover/toilet paper dispenser; wall mount Bobrick B-3474
 - Toilet seat cover/toilet paper dispenser/sanitary napkin disposal; wall mount Bobrick B-3574
 3. Flooring: Epoxy based seamless flooring system and integral cove base, non-gloss, slip resistant coefficient of friction of 0.6 minimum. Dur-A-Quartz Manufactured by Dur-A-Flex Inc. or equivalent.
 4. Walls: 6"x6" ceramic tile to 8'-0" AFF, paint finish above. Manufactured by Dal-Tile.
 5. Toilet and Urinal Partitions: ASI Global Partitions HDPE or equivalent.
 6. Plumbing Waste to be cast iron.
- R. Hardware:
1. District Standards hardware specification attached.
 2. Typical Schlage locksets, Von Duprin exit devices, Closers at classrooms and labs exterior doors to have hold open function, Zero thresholds and seals
 3. All exterior doors must have an ADA compliant threshold.
- S. Plumbing/Mechanical:
1. Air Conditioning and Heating Unit typical:
 - a. Location: Roof mounted units
 - b. Type: VRF Displacement Ventilation System (Gas units)
 - c. Manufacturer: **Lennox**
 - d. Model: As required to meet performance criteria. Supply air to be ducted through ceiling diffusers with return in the ceilings. Vertical chase to be used for all duct work.
 - e. Air Conditioning Units to provide heating and cooling to each space in accordance with the requirements of Title 24 for non-residential building and equipment design. Each bidder shall furnish complete specification details regarding manufacturer's model number, and capacity to the items, which are furnished.
 - f. Provide Programmable thermostats for heating and cooling and day and night operation. Thermostat to be compatible with mechanical unit.
 - g. Filters: Manufactured by Tridem (no substitution allowed).
 2. Packaged Terminal Heat Pump (IT and Electrical Rooms)
 - a. General: Self-contained unit. Factory assembled and tested.
 - b. Refer to Paragraph 2.1 for general requirements. Manufactured by **Lennox**.
 - c. Cabinet: 18 gage chassis and wall sleeve with corrosion resistant finish. Cabinet shall be High Impact Polystyrene. Provide polycarbonate adjustable louvers. Color shall be selected by Architect.
 - d. Refrigeration: Compressor shall be fully hermetic, rotary type, internally isolated within a steel shell and externally isolated on combination spring and rubber isolators. Tubing connections to compressor shall be looped to further isolate vibration. Expansion valve. Coils shall be seamless copper tubing mechanically expanded into aluminum plate fins. Tested at 600 psi.
 - e. Condensate Removal: During cooling operation, condensate shall be re-evaporated.

- f. Motors: Separate motors for the evaporator and condenser fans. Permanent split capacitor.
 - g. Controls: Remote wall mounted thermostat. Adjustable outside air damper.
 - h. Operational mode switch behind hinged panel to provide the following functions:
 - i. Low fan, High fan, High and Low Cool.
 3. Exhaust Fan (Custodial)
 - a. General: Provide exhaust fans and louvers at restrooms per Code requirements.
 4. Installation of HVAC Equipment:
 - a. Complete all wiring to load center.
 - b. Install units and thermostats complete with all accessories, all required exhausts and registers as per manufacturer's written instruction.
 - c. Disconnect switch shall be located within the unit. Ductwork to be Class 1 insulated duct, MHP 25 R8
 - d. Condensate line shall be tied into storm drain system as indicated on Civil Drawings.
 - e. The completed job shall be demonstrated by the Heating and Ventilating Contractor to the Owner's maintenance representative to function in accordance with the manufacturer's design, and to the complete satisfaction of the Owner.
 - f. The Contractor shall provide a test and balance report for all conditioned building areas. Adjust systems as needed to perform as designed and per code.
 - g. The Contractor shall replenish all refrigerant and oil lost for a period of one (1) year without charge to the Owner.
 5. Electric Water Heater (Custodial)
 - a. General: Provide Electrical wall-mounted water heater.
 - b. Location: Custodial room.
 - c. Manufacturer: A.O. Smith, Bradford White Corporation or approved equivalent.
 - d. Model: As required to meet performance criteria for the number of users in the building.
 - e. Mounting: As detailed by prefabricated modular structure manufacturer.
 6. Provide sinks as shown in each science lab with cold / warm water and gas unit.
- T. Electrical:
 1. Furnish and install all Electrical conduit, outlets, wire, and switches, panel board, fixtures, lamps, services and appurtenances, including wiring and Electrical connections to heating and ventilating equipment.
 2. Panel boards: Panel boards in the building shall be plug-in "NPAB" circuit breaker type flush mount with hinged door and lock, sized with circuit breakers as required by C.E.C. to serve lighting, receptacle, A/C and other load circuits and shall include automatic main circuit breaker. Panels shall be furnished complete with service extension to weatherproof pull/splice junction box where shown on plan with a 10' coiled, taped, and tagged pigtail.
 3. Conductors: Shall all be insulated copper. For #12 and #10 use solid copper. For #8 and larger, use stranded copper. All wires to be type THHN.
 4. Conduit: Shall be PVC or armored MC cable for branch circuits where permitted by code in lieu of rigid raceway.
 5. Interior Lighting: LED Fixtures. Lighting System shall be designed for 50 foot-candles maintained at desk level even with two-level switching.
 6. Outside Wall Mount Lights: **Shall match existing on campus.**
 7. The DSA and the State Fire Marshal shall approve Fire Alarm System prior to installation, modular manufacturer to anticipate in the bid proposal pathway for all fire alarm devices.
 8. Electrical Outlets: Shall be in locations indicated on drawings and as needed based on occupancy of the room.

9. Grounding and testing / reports of all building components shall be done by modular manufacturer.
 10. Modular manufacturer will install all power conduit and wiring to the electrical outlets in all rooms and to the outside GFI boxes. Also, will include pathways, raceways, boxes and conduits for all the low voltage scope including the fire alarm, clocks, AV, speakers, intercom, voice, data, cable, cameras, security, IDF and pull strings in all locations. The low voltage **wiring** for fire alarm, clocks, AV, speakers, intercom, voice, data, cable, cameras, security, IDF will be installed by the Site Contractor under separate contract with District.
 11. Technology design requirements per attached District specification standard.
 12. Clock: Manufactured by American Time model E56BAQD304BF-J18. Battery operated.
- U. Stairs:
1. Custom designed stairs and railings shall be all galvanized steel construction with light weight cast-in-place concrete over treads and landings.
- V. Lab Prep Room:
1. Fume hood (ADA compliant) with cart/casters.
 2. Airflow 200 cfm minimum and face velocity 100 fpm minimum
 3. Centrifugal fan, ISO 9001 certified, OSHA certified.
 4. Manufactured by Air Science USA, series EDU.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Manufacturers/Products/Substitutions: The manufacturers and products listed are intended to establish a level of quality, size, material type and finish based on District's standards. Substitutions will be considered only in strict conformance with procedures and provisions of the General Requirements of these specifications.
- B. Single Product Responsibility: Provide products of the same manufacturer for each type of product incorporated into the work.

PART 3 – EXECUTION

3.1 INSTALLATION AT SITE

- A. Site Construction: Once delivery of modules or panels on site is made, erection shall commence immediately and be pursued in a timely manner until complete. All modules or panels called for at that site shall be scheduled for delivery and erection in one continuous time frame,
- B. Construction Progress: The Contractor shall furnish materials, articles and equipment in ample quantities and at such times as to assure uninterrupted progress of the work. Failure to provide adequate working force, or material of proper quality, or failure in any other respect to execute the work with diligence and force specified herein are grounds for declaring a default on the contract.
- C. Site Security: Security of the buildings and related staging areas against vandalism is the sole responsibility of the contractor working at the site with the anticipated work being performed at the time vandalism occurs.
- D. Coordination: Modular building Contractor shall coordinate with all site construction activities with site Contractor (s) under separate contract with District.

3.2 CLEAN UP

- A. The site adjacent to the building and any structures shall be clean and ready for occupancy prior to acceptance by the Owner.

3.3 UTILITY HOOK-UP

- A. Utility Connections: All utility connections shall be provided within 5' of building perimeter (except for the fire water line and electrical to main panel) to accommodate hook-up at the site. Utilities connections will be done by the Site Work Contractor.
- B. Guarantee: Contractor hereby unconditionally guarantees that work will be done in accordance with requirements of contract, and further guarantees the work of the contract to be and remain free of defects in workmanship and materials for a period of one year from date of acceptance by the District, unless a longer guarantee period is specifically called for. Contractor hereby agrees to repair or replace any and all work, together with any other adjacent work which may have been damaged or displaced in so doing, that may prove to be not in accordance with requirements or contract or that may be defective in its workmanship or material within guarantee period specified, without any expense whatsoever to the District, ordinary wear and tear and unusual abuse or neglect expected. Contract bonds are in full force and effect during guarantee period.

3.4 TEMPORARY FACILITIES

- A. Contractor shall make arrangements for corporation yard, parking and toilet facilities (not less than two units) as may be required for each of the sites. Compliance with such requirements and restrictions for their use may be prescribed by authorities having jurisdiction.
- B. Field office facilities are required.
- C. Temporary fencing around building scope of work and staging areas shall be provided during all the construction process duration.

END OF SECTION