BID ADDENDUM NO. 4

OWNER: PORT CHESTER – RYE UNION FREE SCHOOL DISTRICT
113 BOWMAN AVE.
RYE BROOK, NY 10573

PROJECT NAME: PORT CHESTER HIGH SCHOOL ADDITIONS, ALTERATIONS AND ATHLETIC FIELD

F&D PROJECT #: PCHS # 17295.03

The items set forth herein, whether of omission, addition, substitution or clarification are to be included in and form a part of the proposal submitted. This Addendum is hereby included in and made a part of the Contract Documents, dated 1/21/19 whether or not attached thereto. All requirements of the original project specifications and drawings shall remain in force except as amended by this addendum.

DATE: February 26, 2019

This addendum consists of one (1) page and specification section 12 3553.

THE FOLLOWING ARE MODIFICATIONS, CLARIFICATIONS, DELETIONS OR ADDITIONS TO THE SPECIFICATIONS:

SECTION 00 2113 BIDDING REQUIREMENTS
Paragraph 1.4 BID SUBMISSION. Revise Bid date from "6TH day of March 2019" to "*7th day of March, 2019*".

SECTION 01 1010 MILESTONE SCHEDULE
Paragraph 3.1.B Revise the following:
Sub-Par 3. Contractor's RFIs Due Date from "February 28, 2019" to "*March 1, 2019*".

SECTION 01 2300 ALTERNATES
Paragraph 1.5 E. Clarification: New windows "W6" shall be part of Alternate GC-5. See Drawing A-300."

SECTION 12 3553 WOOD LABORATORY CASEWORK
Delete section 12 3553 in its entirety and replace with revised Section 12 3553 attached.

SECTION 32 1216 ASPHALT PAVING
Paragraph 3.9 Add: "E. Provide asphalt based pavement sealer. Mechanically applied at a rate of 1/gal per 100 sq. ft. Meet ASTM D8099/D8099 M.17"
Prepare surface as per manufactures recommendations.
Location: All existing asphalt paving which remains after construction is completed including existing building entrance roadway and turnaround areas. (Areas within the property lines).

SECTION 32 9220 RESTORATION OF TURF AREAS
Paragraph 1.2 Add: "B. Areas of turf restoration shall include all areas disturbed by the new construction within the perimeter construction fencing. The existing football field shall not be restored. Stone/gravel overlay which is installed over the football field shall remain in place. At the completion of the project GC shall re-grade the overlay to a uniform and level surface."

THE FOLLOWING ARE MODIFICATIONS, CLARIFICATIONS, DELETIONS OR ADDITIONS TO THE DRAWINGS:

DRAWING C – 2 SITE PLAN
Note that an existing sprinkler system serves all of the existing athletic fields.
Add note: "Abandon in place the sprinkler zones serving the existing football field. Cap piping as required so as not to affect the proper functioning of the remaining sprinkler system. Remove as required that portion of the abandoned sprinkler system located within the new drainage system work area."

DRAWING H – 205
Delete reference to HWS/R piping.
Clarification: Unit Heater UH-A shall be an electric resistance heater per Schedule on H-301.

DRAWING E – 8
Delete words "Alternate 8"
Clock system shall be included in the base bid.

END OF BID ADDENDUM NO. 4

WOOD LABORATORY CASEWORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Wood laboratory casework.

B. Laboratory casework system that includes support and utility-space framing and filler and closure panels.

C. Tables.

D. Wall cabinets.

E. Base cabinets.

F. Tall cabinets.

G. Teacher's wardrobe cabinet.

H. File cabinets.

I. Teacher's demonstration table.

J. Eye Wash.

K. Countertops.

L. Laboratory sinks drain outlets, including traps.

M. Pegboards.

N. Service Fittings and Outlets: Water.

O. Grills.

P. Base Grill Units.

Q. Heat Resistant Board behind base cabinets

R. Installation of all items specified herein, including sinks.

1. Service fittings, water shall be installed by the casework contractor.
2. Final connections shall be made by the respective ***mechanical, plumbing and electrical contractor***.

1.3 RELATED REQUIREMENTS

A. Section 01 6000 - Product Requirements: Requirements for sustainably harvested wood.

B. Section 06 1000 - Rough Carpentry: Blocking and nailers for anchoring casework.

C. Section 07 9200 - Joint Sealants: Sealing joints between casework and countertops and adjacent walls, floors, and ceilings.

D. Section 09 2116 - Gypsum Board Assemblies: Reinforcements in metal-framed partitions for anchoring casework.

E. Section 09 6500 - Resilient Flooring: Resilient wall base.

F. Section 11450 Residential Equipment for appliances installed within laboratory casework

G. Section 12 3600 - Solid Surfacing Window Sills and Countertops: Additional requirements for countertops.

H. Divisions ***22 and 26*** for installing service fittings or connecting service fittings.

1.4 DEFINITIONS

A. MDF: Medium-density fiberboard.

B. Exposed: Portions of casework visible when drawers and cabinet doors are closed:
   1. End panels, bottoms of cases more than 42 inches (1.066 m) above finished floor, tops of cases less than 72 inches (1.82 m) above finished floor and all members visible in open cases or behind glass doors.
   2. Surfaces visible when drawers and solid doors are closed.
   3. Surfaces visible behind clear glass doors.
   4. Interior surfaces of open units.
   5. Bottoms of cabinets 42” or more above finished floor.
   6. Tops of cabinets less than 78” above finished floor, or are visible from an upper floor or staircase after installation.
   7. Front edges of cabinet body members visible though a gap greater than 1/8" with doors and
      a. drawers closed.
   8. Surfaces visible when fixed appliances are installed.

C. Ends of cabinets, including those installed directly against walls or other cabinets, are defined as "exposed."

D. Ends of cabinets indicated to be installed directly against and completely concealed by walls or other cabinets are defined as "concealed."

E. Surfaces of Casework: Surfaces behind opaque doors, such as cabinet interiors, shelves, and dividers; interiors and sides of drawers; and interior faces of doors. Tops of cabinets 78 inches (1980 mm) or more above floor are defined as "semi exposed."

F. Concealed Surfaces of Casework: Include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.

G. Hardwood Plywood: A panel product composed of layers or plies of veneer, or of veneers in combination with lumber core, hardboard core, MDF core, or particleboard core, joined with adhesive and faced both front and back with hardwood veneers.

H. Semi-Exposed: Portions of casework and surfaces behind solid doors, tops of cases more than 72 inches (1.828 m) above finished floor and bottoms of cabinets more than 30 inches (0.762 m) but less than 42 inches (1.066 m) above finished floor.
   1. All front edges of shelving behind doors.

I. Concealed: Cabinets less than 30 inches (762 mm) above finished floor.
   1. Tops of cabinets over 78" above finished floor which are not visible from an upper level.
   2. Sleepers, web frames, dust panels and other surfaces not generally visible after installation and

1.5 PERFORMANCE REQUIREMENTS

A. System Structural Performance: Laboratory casework and support framing system shall withstand the effects of the following gravity loads and stresses without permanent deformation, excessive deflection, or binding of drawers and doors:
   1. Work Surfaces (Including Tops of Suspended Base Cabinets): 160 lb/ft
   2. Wall Cabinets (Upper Cabinets): 160 lb/ft.
   3. Shelves: 40 lb/ft.
   4. Delegated Design: Design laboratory casework, including comprehensive engineering analysis by a qualified professional engineer, using seismic performance requirements and design criteria indicated.
   5. Seismic Performance: Laboratory casework and support framing system or including attachments to other work and shall withstand the effects of earthquake motions determined according to New
      a. York State Building Code.

1.6 REFERENCE STANDARDS

A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.

B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018.

E. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2016a.

F. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2016).

G. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2016, with Errata (2017).

H. ICC (IFC) - International Fire Code; 2018.

I. NFPA 1 - Fire Code; 2018.

J. NFPA 30 - Flammable and Combustible Liquids Code; 2018.

K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. SEFA 3 - Laboratory Work Surfaces; 2010.

M. SEFA 7 - Laboratory Fixtures; 2010.

N. SEFA 8W - Laboratory Grade Wood Casework; 2016.

1.7 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate installation of casework with related items.
   1. Service Fixtures: Coordinate location and characteristics of service connections.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

C. Keying Conference: Conduct conference prior to ordering keys. Incorporate conference decisions into keying submittal.

1.8 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Component dimensions, configurations, construction details, joint details, attachments; manufacturer's catalog literature on hardware, accessories, and service fittings, if any.

C. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors and reinforcements placement dimensions and tolerances, clearances required, and utility locations, if any. Include coordinated information for laboratory equipment specified in another section and/or furnished by Owner.
   1. Indicate relationship of units to windows, doors, surrounding walls and other building components and attachments to other work.
   2. Submit CAD production shop drawings prepared by manufacturer for wood laboratory casework and countertops showing layout, elevations, ends, cross-sections, service run spaces, and location of services.
   3. Indicate locations of hardware and keying of locks, if any.
   4. Indicate locations and types of service fittings.
   5. Indicate locations of blocking and reinforcements required for installing laboratory casework.
   6. Include details of support framing system.
      a. Include coordinated dimensions for laboratory equipment specified in other Sections.

D. Minimum Sample Size: 2 inches by 3 inches (51 mm by 75 mm).
   1. Provide one full size sample of finished base cabinet indicating corner, door and drawer details and construction, hardware and finish.

2. Unless otherwise directed, approved full-size Samples may become part of the completed Work, if in an undisturbed condition at time of Substantial Completion.
   a. Notify Architect of their exact locations. If not incorporated into the Work, retain acceptable full-size Samples at Project site and remove when directed by Architect.
3. Delegated-Design Submittal: For laboratory casework indicated to comply with seismic performance requirements, including analysis data signed and sealed by the qualified professional
   a. engineer responsible for their preparation.

E. Qualification Data: For qualified manufacturer.

F. Product Test Reports for Casework: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory casework with requirements of specified product standard

G. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

H. Test Reports: From independent laboratory indicating compliance with referenced chemical-resistance standards for cabinet finish and liner materials.

I. Manufacturer's installation instructions.

J. Manufacturer's Qualification Statement.

K. Installer's Qualification Statement.

L. Maintenance Data: Manufacturer's recommendations for care and cleaning.

M. Finish touch-up kit for each type and color of materials provided.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten (10) years of documented experience and has been tested for compliance with SEFA 8 .

1. Minimum of ten (10) years' experience in the manufacture of wood laboratory casework and equipment.
2. Minimum of twenty (20) completed installation of equal size and requirements, which can be inspected prior to award of contract.
3. Financial and technical resources of sufficient scope to insure prompt and satisfactory performance in the production and delivery of all equipment specified.
4. Financial and technical resources of sufficient scope to insure prompt and satisfactory installation and/or connection of the equipment and casework that is part of this specification.

B. Installer Qualifications: A single installer shall perform the work of this section, and shall be a firm with not less than 5 continuous years of successful experience in the installation of this work, similar to what required for this project.

1. The installer shall provide a list of five (5) projects of comparable size and similar in design within a fifty mile radius of this project, which may be observed by the representative of the Architect and/or Owner.
2. Provide casework and countertops furnished and installed by the same supplier for single responsibility and integration with other building trades.

C. Quality Certification:
1. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
2. Provide designated labels on shop drawings as required by certification program.
3. Provide designated labels on installed products as required by certification program.

4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
5. Product Designations: Drawings indicate sizes and configurations of laboratory casework or by referencing designated manufacturer's catalog numbers.
   a. Other manufacturers' laboratory casework of similar sizes and similar door and drawer configurations and complying with the Specifications may be considered. Refer to Section 01 2500 Substitution Procedures.

D. Casework must conform to design quality of materials, workmanship and function of casework specified and shown on drawings.

E. ADA, American with Disabilities Act Requirements: The special requirements specified herein shall be met and shall be in compliance with Federal Register Volume 45, No. 144, Rules and Regulations.

F. Source Limitations: Obtain laboratory casework, including countertops, sinks, service fittings, and accessories, through one source from a single manufacturer.

G. Product Designations: Drawings indicate sizes and configurations of laboratory casework by referencing designated manufacturer's catalog numbers. Other manufacturer's laboratory casework of similar sizes and similar door and drawer configurations and complying with the Specifications may be considered. Refer to Division 01, Section "Product Requirements".

1.10 ADA AMERICANS WITH DISABILITIES ACT REQUIREMENTS:

A. The following special requirements shall be met, where specifically indicated on architectural plans as
   1. "ADA" or "Handicapped".:
   2. Countertop height: with or without cabinet below not to exceed a height of 34 inches Above Finished Floor A.F.F., at a surface depth of 24 inches.
   3. Knee space clearance: to be a minimum 27 inches A.F.F., and 30 inches clear span width.
   4. 12 inch deep shelving, adjustable or fixed: not to exceed a range from 9 inches A.F.F. to 54 inches
      a. A.F.F.
   5. Wardrobe cabinets: to be furnished with rod/shelf adjustable to 48 inches A.F.F., and a maximum
      a. 21 inch shelf depth.
   6. Sink cabinet clearances: in addition to above, upper knee space frontal depth to be no less than 8 inches, and lower toe frontal depth to be no less than 11 inches, at a point 9 inches A.F.F. and as
      a. further described in Volume 56, Section 4.19.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Protect items provided by this section, including finished surfaces and hardware items during handling and installation. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.

B. Acceptance at Site:
   1. Do not deliver or install casework until the conditions specified under Part 3, Examination Article of this section have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be accepted if warping or damage due to unsatisfactory conditions occurs.

C. Storage:
   1. Store casework in the area of installation. If necessary, prior to installation, temporarily store in another area, meeting the environmental requirements specified under Part 3, "Site Verification of Conditions" paragraph of this section.

1.12 MOCK-UP

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Locate where directed.

C. Mock-up may remain as part of the work.

1.13 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install laboratory casework until building is enclosed, utility roughing-in and wet work are complete and dry, and temporary HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Do not deliver or install wood product until the following conditions are met:

1. Ceiling, overhead ductwork and lighting are installed.
2. All painting is completed and floor tile is installed.
3. Interior building temperature to be between 65o F and 80o F, and ambient relative humidity maintained between 25% and 55% prior to delivery, and during and after installation. Frequent and/or excessive changes in temperature and/or humidity levels during casework installation, or once casework is installed, must be avoided to prevent damage to materials.

1.14 COORDINATION

A. Coordinate layout and installation of framing and reinforcements for support of wood laboratory casework, and equipment furnished by others and installed in laboratory casework..

B. Coordinate installation of wood laboratory casework with installation of fume hoods and appliances and other laboratory equipment.

C. Coordinate installation of roughing with other prime contractors

D. Coordinate layout and installation of framing and reinforcements for support of laboratory casework.

E. Coordinate installation of laboratory casework with installation of other laboratory equipment. and laboratory accessories

1.15 EXTRA MATERIALS

A. Furnish complete touch-up kit for each type and color of wood laboratory casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged laboratory casework finish.

1.16 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion, at no additional cost to Port Chester-Rye UFSD. Defects include, but are not limited to:

1. Ruptured, cracked, or stained finish coating.
2. Discoloration, or lack of finish integrity.
3. Cracking or peeling of finish.
4. Failure of hardware.

PART 2 PRODUCTS

2.1 WOOD LABORATORY CASEWORK

A. General:

1. Certified Wood Materials: Provide cabinets with all wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
2. Adhesives: Do not use adhesives that contain urea formaldehyde.
3. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.

4. Hardwood Plywood: HPVA HP-1, veneer core unless otherwise indicated made without urea formaldehyde.
5. Exposed Materials:
   a. General: Provide materials that are selected and arranged for compatible grain and color.
6. Do not use materials adjacent to one another that are noticeably dissimilar in color, grain, figure, or natural character markings

B. Wood Laboratory Casework: Solid wood and wood panel construction; each unit self-contained and not dependent on adjacent units or building structure for rigidity; in sizes necessary to avoid field cutting except for scribes and filler panels. Include adjustable levelers for base cabinets.
1. Style: Lipped overlay with radiused edges doors and drawer fronts slightly at edges. Provide 1/8-inch reveals between doors and drawers that are adjacent.
2. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with following front-to-back dimensions:
   a. Base Cabinets: 22 inches (559 mm).
   b. Tall Cabinets: 22 inches (559 mm).
   c. Upper Cabinets: 16 inches (406 mm).
3. Construction: Joints doweled, glued and screwed, except drawers may be lock-shoulder jointed; with interior of units smooth and flush; cabinet bottom flush with top of face frame; without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.
4. Plywood: Hardwood plywood with face veneer of species indicated, selected for compatible color and grain. Grade A exposed faces at least 1/50 inch thick, and Grade J crossbands. Provide backs of same species as faces.
   a. Core:
      a) 7-ply (3/4" thick) and 9-ply (1" thick) veneer core plywood with cross and face plies bonded with Type II water-resistant glue; drawers are nine-ply, 1/2" thick.
   b. Face veneer:
      a) Wood Species: Plain-sliced, Red oak grade A, selected for golden wheat color and narrow hearts.
      b) Face Veneer Cut: Rotary cut
5. Semi Exposed Solid Wood: Clear hardwood lumber of species indicated and selected for grain and color compatible with exposed hardwood plywood .
   a. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects, of any species similar in color and grain to exposed solid wood.
   b. Plywood: Hardwood plywood of any species similar in color and grain to exposed plywood. Grade B faces and Grade J crossbands. Provide backs of same species as faces.
      a) Provide solid wood or hardwood plywood for semi exposed surfaces unless otherwise indicated.
6. Concealed Materials:
   a. Plywood: Hardwood plywood. Provide backs of same species as faces.

2.2 STRUCTURAL PERFORMANCE:

A. Structural Performance: In addition to the requirements of SEFA 3, SEFA 7, and SEFA 8W, components safely support the following minimum loads:
1. Base Units: 500 pounds per linear foot (744 kgs/linear m) across the cabinet ends.
2. Suspended Units: 300 pounds (136 kg) static load.
3. Tables: 300 pounds (136 kg), minimum, on four legs.
4. Drawers: 125 pounds (57 kg), minimum.
5. Hanging Wall Cases: 300 pounds (135 kg).
6. Shelves: 100 pounds (45 kg), minimum.

7. Seismic Performance: Casework, including attachments to other work, able to withstand the effects of earthquake motions determined according to ASCE/SEI 7.
   a. Component Importance Factor: 1.0.

2.3 WOOD CABINETS

A. Basis-of-Design Product: Subject to compliance with requirements, "Vanguard" as manufactured by Leonard Peterson & Co., Inc., Auburn, Alabama.
   1. Leonard Peterson & Co., Inc., Auburn, Alabama or comparable product by one of the following:
   2. See Section 01 2500 Substitution Procedures.

B. Grain Direction:
   1. Vertical on doors, horizontal on drawer fronts.
      a. Lengthwise on face frame members.
      b. Vertical on end panels.
      c. Horizontal on aprons and table frames.
   2. Provide veneers for each cabinet from a single flitch, book or slip and running matched a. Provide continuous matching of adjacent drawer fronts within each cabinet.
   3. Provide veneers for each elevation from a single flitch, book or slip and running matched .
      a. Provide continuous matching of adjacent drawer fronts within each cabinet and end matching between drawer fronts of adjacent cabinets.

C. Provide wood-faced laboratory casework of the following minimum construction:
   1. Bottoms of Base Cabinets and Tall Cabinets: 3/4-inch- thick hardwood plywood.
   2. Tops and Bottoms of Wall Cabinets and Tops of Tall Cabinets: 1-inch- thick veneer-core hardwood plywood.
      a. Ends of Cabinets: 3/4-inch- thick hardwood plywood.
         a) Shelves: 1-inch- thick veneer-core hardwood plywood.
   3. Base Cabinet Top Frames: 1-by-3-inch solid wood with mortise and tenon or doweled connections, glued and pinned or screwed.
   4. Base Cabinet Stretchers: 3/4-by-3-3/4 -inch panel product strips or solid wood boards at front
      a. and back of cabinet, glued and pinned or screwed.
   5. Base Cabinet Sub tops: 3/4-inch- thick panel product glued and pinned or screwed.
   6. Backs of Cabinets: 3/4-inch- thick, 1/2-inch- thick, hardwood plywood dadoed into sides, bottoms, and tops where not exposed.
   7. Drawer Fronts: 3/4-inch- thick, hardwood plywood or solid hardwood.
   8. Drawer Sides and Backs: 1/2-inch- (12.7-mm-) thick, hardwood plywood or solid hardwood dowel joints.
   9. Drawer Bottoms: 1/4-inch- thick, veneer-core hardwood plywood glued and dadoed into front, back, and sides of drawers. Use 1/2-inch- (12.7-mm-) thick material for drawers more than 24 inches wide.
   10. Drawer Bodies: Steel drawer pans formed from 0.036-inch- thick metal, metallic phosphate treated, and finished with manufacturer's standard 2-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat with a minimum dry film thickness of 1 mil for topcoat and 2 mils for system.
   11. Doors 48 Inches High or Less 3/4 inch thick, with particleboard or MDF cores, solid hardwood stiles and rails, and hardwood face veneers and crossbands.
   12. Doors More Than 48 Inches High: 1-1/16 inches thick, with honeycomb cores, solid hardwood
      a. stiles and rails, and hardwood face veneers and crossbands.
   13. Doors More Than 48 Inches High: 1-1/8 inches thick, with particleboard cores and hardwood face veneers and crossbands.

14. Stiles and Rails of Glazed Doors 48 Inches High or Less: 3/4-inch- thick particleboard with
    a. hardwood face veneers and crossbands.
15. Stiles and Rails of Glazed Doors More Than 48 Inches High: 1-1/16-inch- thick, solid wood with hardwood face veneers.

2.4 ADDITION REQUIREMENTS.

A. Glazing: Type and thickness standard with manufacturer

B. Framed Doors: Tempered glass, with gaskets and removable stops; minimize rattling and vibration.

C. Fittings and Fixture Locations: Cut and drill counter tops, backs, and other components for service outlets and fixtures.

D. Access Panels: Where indicated, for maintenance of utility service and mechanical and electrical components.

E. Removable back panels on base cabinets. Provide partial height back panels at sink cabinets.

F. Fixed panels at backs of open spaces between base cabinets and at ends of utility spaces not otherwise enclosed.
   1. Cutouts for power receptacles where indicated on drawings.

G. Scribes and Fillers: Panels of matching construction and finish, for locations where cabinets do not fit tight to adjacent construction.

H. Sloped Tops for Upper and Floor Cabinets: With closed ends, of matching construction and finish. Concealed anchorages for attachment to cabinet(s) below.

I. Factory-finish all exposed and semi-exposed surfaces with the same finish.

J. Finish Performance: Provide finish on all surfaces having chemical resistance of Level 0 (no change) or Level 1 (slight change of gloss or slight discoloration) according to SEFA 8W and no visible effect when surface is exposed to:
   1. Hot water at temperature between 190 degrees F (88 degrees C) and 205 degrees F (96 degrees C) trickled down the test surface at 45 degree angle for 5 minutes.
   2. Constant moisture in the form of 2 by 3 by 1 inch (51 by 76 by 25 mm) thick cellulose sponge kept continually saturated with water and in contact with test surface for 100 hours.
   3. Preparation: Wood sanded smooth, free from dust and mill marks.
   4. Coating: Clear, superior-quality, chemical-resistant acyclic urethane; applied in accordance with manufacturer instructions, force-dried, sanded and wiped clean.
   5. Coats: Multiple coats as required to achieve minimum 1.5 mil (0.038 mm) dry film thickness.
      a. Appearance: Clear satin gloss; not cloudy or muddy.

K. Tables: With standard aprons manufactured of not less than 3/4 by 3 1/2 inch (19 by 89 mm) solid lumber, machined to receive corner blocks, and bolted to 2 1/8 by 2 1/8 inch (54 by 54 mm) solid hardwood legs. 3/8 inch (10 mm) leveling devices, and slip-on type black PVC shoes.
   1. Provide ADA compliant handicapped accessible utility tables, quantity and locations as indicated on drawings and as follows:
      a. Movable.
      b. Epoxy resin top.

L. Mobile Teacher's Demonstration Table
   1. Size: As indicated on drawings.
   2. Material: Match casework.
   3. Base Cabinet: Two door unit and 5-drawer unit all provided with locks, and 24” knee space.
   4. Hot and cold gooseneck mixing faucet.
   5. Epoxy resin sink, 18” x 14” x 10-1/2” deep. Mount as indicated on drawings.
   6. 1” epoxy resin counter top.

7. Three way gas cock.
8. Double AC receptacles.
9. Support rod receptacle, barrette rod, tapered adapter with upright rods and crossbar.

M. Countertop And Sink
1. Epoxy: Factory-molded, modified epoxy-resin formulation with smooth, nonspecular finish.
2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following :
   a. Durcon Company (The).
3. Backsplash curb: Same material as top, 4 " up to 6" high, butt jointed and cemented to top. Provide where tops abut wall surfaces. Include end curb where top abuts end wall.
4. Epoxy Tops, Sinks,: Factory molded of modified epoxy-resin formulation, uniform mixture and color throughout full thickness with smooth, nonspecular finish to match countertops. Provide sinks as per plans. And conforming to current State of New York Uniform Fire and Building .Code.
   a. Outlets: Provide with strainers and tailpieces, NPS 1-1/2 (DN 40), unless otherwise indicated.
   b. Overflows: For each sink except cup sinks, provide overflow of standard beehive or open-top design with separate strainer. Height 2 inches (50 mm) less than sink depth. Provide in same material as strainer
5. Physical Properties:
   a. Flexural Strength: Not less than 15,000 psi .
   b. Modulus of Elasticity: Not less than 2,000,000 psi. a. Hardness : Not less than 100.
      a) Water Absorption (24 Hours): Not more than 0.02 percent. c. Heat Distortion Point: Not less than 350 deg F .
   c. Chemical Resistance: Epoxy-resin material has the following ratings when tested with indicated reagents according to NEMA LD 3, Test Procedure 3.4.5:
      a) No Effect: Acetic acid (98 percent), acetone, ammonium hydroxide (28 percent), benzene, carbon tetrachloride, dimethyl formamide, ethyl acetate, ethyl alcohol, ethyl ether, methyl alcohol, nitric acid (70 percent), phenol, sulfuric acid (60 percent), and toluene.
      b) Slight Effect: Chromic acid (60 percent) and sodium hydroxide (50 percent).
      c) Color: Black

N. HANDICAPPED ACCESSIBLE UTILITY TABLE
1. Provide A.D.A. compliant handicapped accessible utility tables, quantity and locations as indicated on the plans and as follows:
   a. Movable.
   b. Epoxy resin top.

2.5 PEGBOARDS

A. Epoxy pegboards with pre-drilled or punched holes in a staggered pattern, designed to accept removable white polypropylene pegs. With each pegboard include a stainless steel drip-trough with drain outlet and matching diameter 36 inches (914 mm) long PVC drain hose.
1. Size: As indicated on drawings.

2.6 EYE WASH

A. A. Provide a handicapped accessible safety center fitted with eye wash fountain and faucet.
1. Size: as shown on drawing.
2. Provide key operated shut off valve.
3. Provide emergency eyewash identification sign.
4. All roughing and final connections by plumbing contractor.
5. Overhead shower head to be provided by Plumbing Contractor.

6. Shower curtain tester to be provided by Plumbing Contractor.
7. Product: Eyewash Saf-T Lok as manufactured by Encon; www.enconsafety.com. Include deck mounted faucet.

2.7 WOOD FINISH (TO BE ENVIRONMENTALLY FRIENDLY, WATER BASED)

A. Preparation: Sand lumber and plywood before assembling. Sand edges of doors, drawer fronts, and molded shapes with profile-edge sander. Sand after assembling for uniform smoothness at least equivalent to that produced by 220-grit sanding and without machine marks, cross sanding, or other surface blemishes.
   1. Staining: Remove fibers and dust and apply stain to exposed and semi exposed surfaces as necessary to match approved Samples. Apply stain in a manner that will produce a consistent appearance. Apply wash-coat sealer before applying stain to closed-grain wood species.
   2. Stain Color: As selected by Architect from manufacturer's full range .

B. Chemical-Resistant Finish: Apply laboratory casework manufacturer's standard two-coat, chemical-resistant, transparent finish. Sand and wipe clean between coats. Topcoat(s) may be omitted on concealed surfaces.
   1. Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8. Acceptance level for chemical spot test shall be no more than four Level 3 conditions.

C. Chemical Resistance Test Procedure: .

D. Finished panels shall be oriented horizontally and vertically during exposure to the test chemicals.
   1. Chemical concentrations shall be adjusted by the volume method. Ambient temperature and chemical temperature shall be 68-72F. At the end of the test period, the surface shall be washed with detergent and warm water. Areas exposed to solvents shall be cleaned with a cloth dampened with the respective solvent. Prior to evaluation, 16-24 hours after the chemicals have been removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels
   2. Horizontal Test: Apply 5 drops of the acid, base or salt substance to correspondingly numbered areas of the surface to be tested. Position a 1" diameter watch glass in the liquid, convex side downward. Solvents shall be applied by saturating a 1" ball of cotton, then covering with an inverted two-ounce wide-mouth bottle. Test duration shall be one hour.
   3. Vertical Test: The test surface shall be marked to indicate divisions; 12" high, 3/4" wide, and numbered to identify the chemicals. Five drops of each substance shall be applied to its respective numbered area in a vertical track pattern to prevent crossover. Test duration shall be two hours.
   4. Ratings:
      a. Excellent - Indicates excellent to superior integrity of finish film. No effect or slight change in gloss and slight discoloration.
      b. Good - Allows change of gloss or discoloration or slight swelling while retaining integrity of finish film
      c. Poor - Obvious and significant deterioration, including blistering, pitting, cratering, erosion and/or loss of finish material.

E. Test results (minimum requirements):

REAGENT	HORIZONTAL	VERTICAL
REAGENT	TEST RATING	TEST RATING
Nitric Acid, 10%	Excellent	Excellent
Nitric Acid, 25%	Good	Good
Sulfuric Acid, 25%	Excellent	Excellent

Sulfuric Acid, 50%	Good	Excellent
Acetic Acid, 50%	Excellent	Excellent
Acetic Acid, 75%	Good	Excellent
Phosphoric Acid, 50%	Excellent	Excellent
Phosphoric Acid, 75%	Excellent	Excellent
Hydrochloric Acid, 20%	Excellent	Excellent
Hydrochloric Acid, 37%	Good	Excellent
Butyl Alcohol	Excellent	Excellent
Ethyl Alcohol	Excellent	Excellent
Methyl Alcohol	Excellent	Excellent
Ethyl Acetate	Good	Excellent
Ethyl Ether	Good	Excellent
Methyl Ethyl Ketone	Good	Excellent
Toluene	Good	Excellent
Acetone	Good	Excellent
Naphtha	Excellent	Excellent
Xylene	Good	Excellent
Kerosene	Excellent	Excellent
Sodium Hypochlorite, 5.25%	Excellent	Excellent
Sodium Hydroxide, 25%	Excellent	Excellent
Sodium Hydroxide, 35%	Excellent	Excellent
Sodium Hydroxide, 40%	Excellent	Excellent
Sodium Hydroxide, 50%	Excellent	Excellent
Potassium Hydroxide, 40%	Excellent	Good
Potassium Hydroxide, 45%	Excellent	Excellent
Zinc Chloride Saturated	Excellent	Excellent
Sodium Chloride Saturated	Excellent	Excellent
Sodium Carbonate Saturated	Excellent	Excellent
Glycerin	Excellent	Excellent
Hydrogen Peroxide, 30%	Excellent	Excellent

2.8 HARDWARE

A. General: Provide laboratory casework manufacturer's standard, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.

B. Hinges: Stainless-steel, 5-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide 2 for doors 48 inches high or less and 3 for doors more than 48 inches high.

C. Sliding Door Pulls: Stainless-steel.

1. Design and Size: Recessed flush pulls as selected from manufacturer's full range.

D. Pulls: Rectangular stainless steel fastened from back with two screws. For sliding doors, provide stainless-steel or chrome-plated recessed flush pulls. Provide 2 pulls for drawers more than 24 inches in width.

E. All pulls are mounted horizontally on drawers and vertically on doors

F. Door Catches:Nylon-roller spring: catches. Provide 2 catches on doors more than 48 inches high.

G. Drawer Slides:

1. Standard use and knee space drawers shall be Accuride 3832 series or equal with epoxy finish. Slides will have a 150 pound dimatic load rating at full extension and a built-in, positive stop both directions, with self closing feature. Slides shall have a lifetime warranty as offered by the slide manufacturer.

a. File drawer slides shall be full extension. Slides shall have a lifetime warranty as offered by the slide manufacturer.

H. Label Holders: Stainless steel, aluminum, or chrome plated; sized to receive standard label cards approximately 1 by 2 inches , attached with screws or rivets. Provide on all drawers .

I. Locks for Wood Cabinets: Cam type with 5 disc tumbler , brass with chrome-plated finish; complying with BHMA A156.11, Type E07281

1. Provide a minimum of two keys per lock and two master keys.

a. Provide on all drawers and doors.

a) Keying: Key locks within each room alike, key each room separately.

b. Master Key System: Key all locks to be operable by master key.

J. Adjustable Shelf Supports for Wood Cabinets: Double pin type, nylon with anti-tipping seismic feature. Each clip is capable of supporting 400 #.

2.9 METAL GRILLS

A. Metal Grilles: Where metal grilles are indicated for countertops and/or base cabinets to permit thermal heat flow, they shall be as follows:

1. Countertop and Similar Deck Applications: Heavy gauge extruded aluminum construction, bar type, linear design with natural anodized finish. Frame to have a 5/8" perimeter boarder and frame is to have concealed fastenings and reinforcing bands. Exposed screws in top of frame will not be accepted. Core of frame must be removable allowing for cleaning and servicing of fin tubing below and core is to be held in place by spring clips. The core consists of pencil proof design with deflecting bars 1/8" wide and placed on 1/4" centers. Sizes to be as shown on drawings.
   a. Model # AAG-100/B frame as manufactured by Advance Architectural Grills, New Hyde Park, NY; 516-488-0628 approved equal.
2. Base Grill Units: Twelve (12) gauge extruded aluminum construction, Design E, 1/4" wide openings, 1/8" satin finish aluminum, counter-sunk tamperproof screws.
   a. Manufactured by A.J. Manufacturing, Kansas City, MO, or equal.
3. Lengths shall match the length off the baseboard

2.10 REFLECTIVE INSULATION:

A. Where base cabinets are located on exterior walls and in front of fin tube radiation, provide Class A fire rating exterior wall and/or back of cabinet.

1. Thermo-ply composed of high-quality, long fibered specially treated water- and weather-resistant plies. Plies are pressure laminated.
2. Structural Grade: Red
3. Fire Rated : 1 hour in accordance with ASTM E-19
4. Perm Rating: 0.53- 0.63.
5. Thickness: 0.113
6. R value: 4.2
7. Manufacturer: Ludlow Coated Products. www.ludlowcp.com Product: Structural Grade Red.

2.11 WATER SERVICE FITTINGS

A. General: Comply with requirements of SEFA 7.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following :

1. WaterSaver Faucet Co.

C. Service Fittings: Provide units that comply with SEFA 7, "Laboratory and Hospital Fixtures - Recommended Practices." Provide fittings complete with washers, locknuts, nipples, and other installation accessories. Include wall and deck flanges, escutcheons, handle extension rods, and similar items.
   1. Provide units that comply with "Vandal-Resistant Faucets and Fixtures" recommendations in SEFA 7

D. Materials: Fabricated from cast or forged red brass unless otherwise indicated.
   1. Finish: Chromium plated unless otherwise indicated.

E. Water Valves and Faucets: Provide units complying with ASME A112.18.1, with renewable seats, designed for working pressure up to 80 psig .
   1. Vacuum Breakers: Provide ASSE 1035 vacuum breakers on water fittings with serrated outlets.
   2. Provide aerators on water fittings that do not have serrated outlets.

F. Ball Valves: Chrome-plated ball and PTFE seals. Handle requires no more than 5 lbf (22 N) to operate.
   1. Provide units designed for working pressure up to 75 psig (520 kPa), with serrated outlets.
   2. Where ball valves are indicated for fuel-gas use, provide locking safety handles that must be pushed in or pulled up] unless otherwise indicated].

G. Hand of Fittings: Furnish right-hand fittings unless fitting designation is followed by "L."

H. Service-Outlet Identification: Provide color-coded plastic discs with embossed identification, secured to each service-fitting handle to be tamper resistant. Comply with SEFA 7 for colors and embossed identification.

2.12 ACCESSORIES

A. Label Holders: Manufacturer's standard size and mounting, chrome-plated steel, for drawer fronts and cabinet doors indicated.

B. Toe space Grilles: Manufacturer's standard grille.

C. Teacher's desk signage: Contractor shall provide durable plastic sign mounted to side of cabinet in contrasting color incorporating the wording "No acid or base in sinks".

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Verification of Environmental Conditions:
   1. Do not deliver casework until the following conditions have been met:
      a. Building has been enclosed (windows and doors sealed and weather-tight).
      b. An operational HVAC system or temporary heat that maintains temperature and humidity at occupancy levels has been put in place.
      c. Ceiling, overhead ductwork, piping, and lighting have been installed.
      d. Installation areas do not require further “wet work” construction.

B. Verify adequacy of support framing and anchors.

C. Verify that service connections are correctly located and of proper characteristics.

3.2 INSTALLATION

A. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.

B. Set casework items plumb and square, securely anchored to building structure.

C. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close all gaps.

D. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch (1.6 mm). In addition, do not exceed the following tolerances:
   1. Variation of Tops of Base Cabinets from Level: 1/16 inch (1.6 mm) in 10 feet (3 m).
   2. Variation of Faces of Cabinets from a True Plane: 1/8 inch (3 mm) in 10 feet (3 m).
   3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch (0.8 mm).
   4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch (1.6 mm).

E. Base Cabinets: Fasten cabinets to service space framing and/or wall substrates, with fasteners spaced not more than 16 inches (407 mm) on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.

F. Install hardware uniformly and precisely. Set hinges snug and flat in mortises.

G. Countertops: Install countertops in one true plane, with ends abutting at hairline joints, and no raised edges.

H. Coordinate with mechanical and electrical outlets with casework and other prime contractors.

I. Replace units that are damaged, including those that have damaged finishes.

3.3 ADJUSTING

A. Adjust operating parts, including doors, drawers, hardware, and fixtures to function smoothly, and close properly flush.

3.4 CLEANING

A. Clean casework and other installed surfaces thoroughly.

3.5 PROTECTION

A. Do not permit finished casework to be exposed to continued construction activity.

B. Protect casework and countertops from ongoing construction activities. Prevent installers from standing on or storing tools and materials on casework or countertops.

C. Repair damage that occurs prior to Date of Substantial Completion, including finishes, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

3.6 SERVICE-FITTING SCHEDULE

A. All service fittings to be Vandal proof.

B. Water Service Fitting, Type VR411VB-BH:
   1. Type of Fitting: 6" Rigid, gooseneck mixing faucet
   2. Outlet: Atmospheric Vacuum breaker Full flow nozzle.
   3. 4" Vandal Proof Wristblade Handle.
   4. Ceramic 1/4 Turn Operating Cartridge.
   5. 1/2" NPSM Supply Inlets and Coupling Nut for 3/8" or 1/2" Flexible Riser.
   6. Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications.
   7. All Threaded Connections Factory Assembled.
   8. Anti-Rotational Body Deck Pin to Prevent Turning.
   9. Mounting: Deck mounted.
   10. Location: All student work ***counters and utility sinks.***

C. See plumbing specifications for additional fixtures and information.

END OF SECTION