

SECTION 12 21 13

HORIZONTAL LOUVER BLINDS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide and install materials, and all related accessories required for complete mini-blind installation on all windows indicated on drawings to receive blinds.

1.02 WORK SPECIFIED IN OTHER SECTIONS

- A. Wood Blocking: Section 06 10 00

1.03 SUBMITTALS

- A. Submit manufacturer's product data and full range of color samples.

PART 2 PRODUCTS

2.01 MINI BLINDS

- A. Materials
 1. Aluminum 1" wide painted finish slats with plastic type coating.
 2. Provide braided cord for pull cord and support ladders.
 3. Cord lock to set slats at selected heights.
 4. Clear wand to adjust slat angles.
- B. Manufacturers.: Products manufactured by SPRINGS WINDOW FASHIONS, KIRSCH or HUNTER DOUGLAS, INC.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Field measure each window for correct dimensions.
- B. Replace any bent or damaged slats or other defective items prior to installation.
- C. Install level and of proper length and width to fit all windows designated to be treated.
- D. Adjust for smooth operation.

*Reynoldsburg City School District
High School Renovation*

*12 21 13 - 1
HORIZONTAL WINDOW BLINDS*

END OF SECTION

SECTION 12 35 50.13

EDUCATIONAL AND MUSIC CASEWORK

PART 1 GENERAL

1.01 SUMMARY

- A. Provide labor, materials, and equipment necessary for the complete installation of educational and music casework as indicated. Refer to equipment plans and casework elevations. Items include:
1. Base cabinets
 2. Wall cabinets
 3. Tall cabinets
 4. Countertops
 5. Fixed and adjustable shelving
 6. Fillers
 7. Panels
 8. Mail boxes/cubicles
 9. Mobile casework (units on casters)
- B. This Work includes special and modified design preassembled units for installation as movable, fixed, or built-in, as indicated.
- C. Any catalog numbers of the manufacturer listed on the Casework Elevations are intended to include a complete and total item, as the catalog number is specified in the manufacturer's current catalog. Although the description in the schedule is brief, the item shall be provided complete with hardware, accessories, features, and components.
- D. The use of dimensions and specific requirements set forth in Drawings and Specifications are not intended to preclude the use of other acceptable manufacturer's product or procedures which may be equivalent, but are given for purpose of establishing design requirements.
- E. Cabinets indicated to receive sinks shall be constructed to allow for installation of sinks for sizes indicated. Coordinate with Division 23 for sink sizes.

1.02 RELATED SECTIONS

- A. Section 06 20 00 - Finish Carpentry and Millwork: For general millwork, wood trim and custom casework in Reception/Secretarial area and Media Room Circulation desk.
- B. Section 09 21 16 - Gypsum Board: For blocking, framing, and reinforcement in walls, ceilings, and floors for anchoring of cabinets and trim.

- C. Section 09 65 00 - Resilient Flooring: For rubber base.
- D. Division 22 - Plumbing: For stainless steel sinks and fittings, couplings and connectors, piping, traps, supplies, shutoffs, plumbing fixtures and connections required for a complete project.
- E. Division 26 - Electrical: For electrical outlets and connections required for a complete project.

1.03 DEFINITIONS

- A. Exposed Portions of Casework: Include surfaces visible when doors and drawers are closed. Bottoms of casework more than 4 feet above floor and tops less than 6 feet 6 inches above floor shall be considered as exposed. Visible members in open cases or behind glass doors also shall be considered as exposed portions.
- B. Semi-Exposed Portions of Casework: Includes those members behind opaque doors, such as shelves, divisions, interior faces of ends, case back, drawer sides, backs and bottoms, and back face of doors. Tops of casework 6 feet 6 inches or more above floor shall be considered semi-exposed.
- C. Concealed Portions of Casework: Include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.

1.04 SYSTEM DESCRIPTION

- A. Accessibility Requirements: Casework shall be provided to conform with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and State and Local Regulations. These requirements supersede Technical Specifications in this Section.

1.05 SUBMITTALS

- A. The casework manufacturer shall furnish shop drawings giving complete details and sizes, including methods of attachment and anything pertinent to the installation work, no later than 12 weeks, after the award of the Contract. He shall include hardware product data sheets indicating compliance with Specification requirements; include 3 color samples of specified finishes for compliance verification. Show locations for support in metal stud walls.
 - 1. Shop drawings shall be coordinated with Educational and Music Casework Elevations listing casework and equipment elevation in numerical order with room numbers.
 - 2. Submit 1 actual sample of the following hardware for approval.
 - a. Hinge
 - b. Pull
 - c. Music shelf
 - d. Label holder
 - e. Lock
 - f. Shelf pin

B. Contractor shall submit to the Architect, within 5 days after award of Contract, a sample base cabinet and countertop constructed in accordance with these Specifications.

1. The casework manufacturer and supplier shall be aware of the progress of the Project and shall make sure that shop drawings are furnished in adequate time so that the casework covered thereby can be fabricated and delivered in accordance with the scheduled completion.

C. Special Environmental Requirements

1. Submit product data documentation indicating urea formaldehyde free content for each composite wood product/system.
2. Submit product documentation for Sealant and Adhesives, documentation indicating VOC Content
3. Submit chain-of-custody certificates certifying that wood products specified to be made from certified wood comply with forest certification requirements. Include evidence that door manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating costs for each certified wood product.

1.06 QUALITY ASSURANCE

A. Casework Grade: Manufactured casework systems must conform to design, quality of materials, workmanship and function as indicated in these drawings and specifications. Minimum quality standards shall be custom grade in accordance with AWI Section 1600 with additional requirements herein.

B. Fabricator qualifications: A firm specializing in the fabrication of millwork with a satisfactory record of performance on projects of comparable size and quality. Certification from AWI and ANSI.

1. Minimum 7 years experience in the manufacture/fabrication of the type of cabinets specified.

C. Installation: Performed only by experienced skilled finish carpenters.

D. Catalog Standards

1. Manufacturer's catalog numbers, where shown, are for convenience in identifying cabinet work.
2. Use of a specific manufacturer's catalog numbers is not to preclude the use of any other acceptable manufacturer's product or procedures that may be equivalent.

1.07 PROJECT CONDITIONS

A. Protect casework during delivery, storage and handling to prevent damage, soiling and deterioration.

1. Thoroughly dry, outside door openings are permanently watertight, exterior windows are glazed and, in case of temperature dropping below 60 degrees F., until temporary heating and ventilating systems are in operation.
 2. Store casework in dry, well-ventilated spaces with constant minimum temperature of 60 degrees F., and maximum relative humidity of 55%.
 3. Provide and maintain a constant temperature and humidity before, during and after installation as required to maintain optimum moisture content of installed materials.
- B. Obtain measurements and verify dimensions and details before proceeding with finish carpentry.
- C. Contractor shall be responsible for quantities as shown on casework layouts on Drawings.

1.08 GUARANTEE

- A. The entire installation shall be guaranteed for a period of 5 years from the date of Substantial Completion against defects in material and workmanship in accordance with the terms of the Contract. The guarantee shall cover repair or replacement, without cost to the Owner, of items which become defective within the 5 year period. Damage to the equipment caused by improper operation or misuse is not covered by this guarantee.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers – Standard Casework: Subject to compliance with requirements, provide products by one of the following:
1. LSI CORPORATION.
 2. STEVENS INDUSTRIES, INC.
 3. TMI SYSTEMS DESIGN CORPORATION.
 4. UNIVERSAL CUSTOM MILLWORK, INC.
 5. WENGER.
 6. VAUGHN INTERIOR CONCEPTS
 7. SOUTHERN CABINETRY
 8. CASE SYSTEMS INC.
 9. PRECISION MILLWORK
 10. COMMERCIAL CASEWORKS OF OHIO
 11. LF SYSTEMS
 12. DIVERSIFIED WOOD CRAFTS
- B. Manufacturers – Mobile Casework: Subject to compliance with requirements, provide products by one of the following:
1. VS
 2. SHUTTLE SYSTEM
 3. MEDIA TECHNOLOGIES

4. STEVENS INDUSTRIES, INC.

2.02 MATERIALS

- A. Wood Materials - General: Provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":
- B. Plastic laminates complying with NEMA LD3, Grades GP-28, CL-20 and BK-20.

Colors to be selected and included in CD submittal.

1. Manufacturers and Colors
 - a. PL-1
 - 1) NEVAMAR, Solare Piazza Textured, PZ4001T
 - 2) PIONITE
 - 3) ABET-LAMINATI
 - b. PL-2
 - 1) NEVAMAR, Royal Allusion ALV004T
 - 2) PIONITE
 - 3) ABET-LAMINATI
 - c. PL-3
 - 1) FORMICA, 1998-MC Oxygen
 - 2) PIONITE
 - 3) ABET-LAMINATI
 - d. PL-4
 - 1) NEVAMAR Silver Alu Metal, MXT003T
 - 2) FORMICA
 - 3) PIONITE
 - e. PL-5
 - 1) NEVAMAR, Santa rosa Plum, WZ2001T
 - 2) WILSONART
 - 3) FORMICA
 - f. PL-6
 - 1) FORMICA, Grasshopper, 3234-58
 - 2) LIRI AMERICA
 - 3) LAMIN-ART, Juniper Green, 2419-T

C. Edge Banding for Plastic Laminate: Rigid PVC extrusions, through color with satin finish, 3mm thick at doors and drawer fronts, 1mm thick elsewhere.

D. Melamine Faced Particleboard: Medium density particleboard complying with ANSI A208.1, Grade M-2, with decorative surface of thermally fused, melamine impregnated web complying with ALA 1992. Formaldehyde free.

E. Particleboard: ANSI A208.1, Grade M-2.

 1. High density industrial grade with a minimum density of 45 pounds per cubic foot and a moisture content between 9% maximum and 6% minimum, meeting or exceeding ANSI A208.1 or ASTM D1037. Formaldehyde free.

- E. Hardboard: AHA A135.4, Class 1 tempered. Formaldehyde free.
 - 1. Tempered, smooth both sides, meeting or exceeding CS-251 and FS LLL-B-00810.
- F. Wood: Red oak, free of defects, selected for compatible grain and color and kiln dried to 7 percent moisture content.
- G. Flexible rail behind overhead cabinets.
- H. Plywood: Hardwood plywood of any species similar in color and grain to exposed wood. HPVA HP-1, Grade C faces and Grade J crossbands. Semi-exposed backs of plywood with exposed faces shall be the same species as faces. Formaldehyde free.
- I. Fiberboard: Thickness as specified unless otherwise indicated on Drawings. Maximum moisture content of 8%. Meet the following minimum standards: Formaldehyde free.
 - 1. Internal Bond: 90 psi.
 - 2. Modulus of Rupture: 3,000 psi.
 - 3. Modulus of Elasticity: 300,000 psi.
 - 4. Screw Holding Power: 325 pounds.
 - 5. Density: Minimum 50 pounds per cubic foot.
- J. Adhesive: Low-VOC, FS MMM-A-125C, Type II, water- and mold-resistant.

2.03 **HARDWARE AND MISCELLANEOUS**

- A. Hinges: Institutional 5 knuckle with interlaying leaves capable of 270 degree swing. They shall be of nominal .090 inch minimum thickness steel and shall be hospital tipped with non-removable pins fastened with 4 screws each leaf into faces. No edge fastening allowed. Doors 48 inches and over in height shall have 3 hinges per door.
- B. Pulls: Provide accurately positioned on drawer and door fronts and positively through fastened with machine screws.
 - 1. Pulls shall be ADA acceptable semi recessed injection molded ABS similar to TMI's D1.
- C. Drawer Slides
 - 1. Provide manufacturer's standard, epoxy coated metal, nylon rollers, 100 pounds dynamic loading, and with positive in-stop and out-stop.
 - 2. Provide outstop and outkeeper to maintain drawer in 80 percent open position.
 - 3. File drawers and paper storage drawers: Same as above, except full extension 150 pounds on flat file paper storage drawers and dynamic load rating to be no less than 100 pounds, BLUM No. BS 430E, K & V #8400, or ACCURIDE 7434.

- D. Adjustable Shelf Supports: Molded polycarbonate friction fit or nickel, 2 pin, anti-lift, minimum 300 pound capacity support clip.
1. Provide 2% attic stock of shelf supports to Owner in labeled plastic containers.
- E. Catches: All doors shall have either roller type or magnetic type.
1. Manufacturer's magnetic type, meeting handicap requirements for pounds of pull required to open doors. Two required for doors over 48 inches in height, positioned at top and bottom. Maximum of 5 pounds pull required.
 2. Tall wardrobe units and cabinets shall have chain catch installed on operable doors. Length of chain shall allow doors to open 90 degrees minimum.
- F. Plastic tote tray dividers shall be prefinished 1/4 inch thick tempered hardboard unless noted otherwise on drawings.
- G. Grommets: High impact ABS cable hole cover, 2 and 3 inch inside diameter, with spring closure in top. Color as selected by Architect. Refer to Drawings for locations. Manufactured by DOUG MOCKETT, BAINBRIDGE MANUFACTURING or US FUTABA.
- H. Brushed chrome 2 x 3 card/label holders.
- I. Nameplates (Music Storage): Provide engraved plastic instrument nameplates on shelf front edges of all musical instrument storage cabinets. Coordinate instrument names with Owner. Securely fasten nameplates to shelves.
- J. Musical Instrument Storage Shelf System: High-impact, ABS blow molded system with continuous ventilation grooves, or textured high density polyethylene 0.09 inch thick laminated 10-3/4 inch industrial grade 47 pound density particle board with integral or mechanically fastened eased edge or radiused front urethane or rubber nosing. Any screws in edge shall be covered with tamper proof caps. Shelf to be 1-1/4 inch total thickness, fixed with concealed fasteners, and manufacturers standard color cabinet body interior color.
1. Provide for all musical instrument storage cabinets.
- K. Leveling glides threaded glide with silicone partly on all tables and loose cabinets.
- L. Wire Management Trough
1. ABS or 16 gauge steel J shape trough
 2. Refer to drawing for details and sizes.
- M. Music Casework Doors

1. Grille Doors: Welded steel construction with powder coated finish to be selected by Architect. Provide number plates on doors as selected by Architect.

N. Locks

1. Locks shall be cylinder type, cast with 5 disc tumbler mechanism, provided with 2 milled brass keys. Provide master key(s) for each room. Locks shall be provided as shown on equipment drawings or described in cabinet description.
2. Each area or room shall be keyed alike unless individual student and staff keying is required.
3. Locks shall be master keyed using the casework manufacturer's keying system, is independent of the building master keying system.
4. All cabinets shall lock unless otherwise noted.

O. Locking (Music Casework)

1. Provide manufacturers standard locking system designed for padlocks, with strike plate; 14 gauge steel; provide clear plastic label holder for identification card insert.

- P. Casters: Plastic twin wheel type. Nominal 2" diameter; swivel pin type. Provide two casters per unit with brakes. 75 lb. capacity each.

2.04 CASEWORK CONSTRUCTION

- A. The following dimensions are minimums. Actual design and size of components, for rigidity and durability, to be the responsibility of the manufacturer/fabricator.

	CORE	SURFACE	EDGE	CONSTRUCTION/ JOINERY	HARDWARE
Cabinet Boxes Base and Wall					
Exposed vertical surfaces	All front and Sides: 3/4" Particleboard Base bottom: 3/4" plywood Wall top and Bottom: 1" Particleboard Back: entrapped 3/8" particleboard or 1/4" tempered Hardboard	GP28	Finish all exposed edges (including wall cabinet top and bottom with 1mm (PVC)).	Doweled, glued under pressure	
Semi-exposed parts (interior of open cabinets, not including drawer bodies)		CL20 or melamine			
Concealed surfaces		CL20 or melamine			
Panel ends		GP28			

	CORE	SURFACE	EDGE	CONSTRUCTION/ JOINERY	HARDWARE
Countertops (wet areas)	1" exterior grade veneer core plywood or phenolic resin particleboard	GP50 balanced with backing sheet	3mm PVC	Apply silicone sealant to joint between HPL top and backsplash. Field joints >48" apart and >48" from end of top.	
Countertops	1" particleboard	GP50 balanced with backing sheet	GP50	Apply silicone sealant to joint between HPL top and backsplash. Field joints >48" apart and >48" from end of top.	
Cabinet Doors	3/4" particleboard	GP28 with CL20 liner on back.	3mm PVC		
Drawer Fronts	3/4" particleboard	GP28 with CL20 liner on back.	3mm PVC	Doweled, glued under pressure.	Wire design pulls.
Drawer Sides and Backs	1/2" particleboard or 5/8" medium density fiberboard	Melamine on all visible surfaces with drawer in normal open position.			Combination epoxy coated steel and nylon roller bearing drawer slides. Self-closing. Full extension for file drawer
Drawer Bottoms	Fully captured Construction - Minimum thickness: 1/4". Platform construction - minimum thickness: 1/2".	Melamine panel product or particle- board.			Platform construction; must use wrap around drawer slide.
Shelves	1" particleboard	GP28	1mm PVC on front and back edges.	Multiple holes (minimum 5mm diameter at 1-1/4" O.C.).	

2.05

FABRICATION

- A. General: Except as specified hereinafter, fabricate all work in accordance with AWI quality standards as specified. Work not specified with a level of quality shall be not less than "Custom" quality per AWI.
1. Provide complete factory-fabricated and finished components which, when assembled on site, will provide an integral system of storage and work surfaces.
 2. Provide locks where indicated.
 3. Make cut-outs and other provisions for the work of other trades and as indicated or required for installation.
 4. Assemble cabinets with accurate router grooves 1/8" deep with glue and nails and screws.
 5. Apply plastic laminate to exposed ends after assembly to conceal screws in end cabinet.
 6. All particle board panels to be balanced construction.
- B. Subbases: Provide continuous plywood closed bases capable of being leveled to meet site conditions; subbase to be unfinished to receive resilient base. See Section 09 65 00.
- C. Base Cabinets
1. Sides and Bottoms: Construct of 3/4" thick particle board with interior of cabinet finished with cabinet liner or polyester laminate. Provide balanced constructed panels with neutral colored backer sheet at concealed conditions and finish laminate at exposed conditions.
 2. Backs: Standard 1/4" prefinished hardboard. Install in housed joints in surrounding panels. All backs exposed to view to be neutral colored except where indicated to match vertical color surfaces. Rear, unexposed side of backs to receive continuous hot melt glue at joint between back and sides/top/bottom for sealing against moisture and vermin, and to further contribute to cabinet stability.
 3. Frame: Provide frame construction of 3/4" thick particle board or lumber dadoed into sides at the following:
 - a. As sub-top.
 - b. At all locked drawers and doors.
 4. Runners: Provide runners or frame construction between all drawers.
 5. Shelves: Provide fixed and adjustable shelves with particle board core where indicated on drawings. Provide shelves adjustable on 1/2" centers. Except for exposed shelving conditions, finish shelves with neutral colored polyester laminate or liner grade laminate. Finish front and rear edges with PVC "T" edge.
 - a. Shelves under 36" wide: 3/4" thick, except all open shelves to be 1" thick.
 - b. Shelves 36" to 42" wide: 1" thick.

- c. Shelves over 42" wide: Construct in accordance with AWI Section 400 to support minimum 30 lbs./running foot of shelf with deflection limited to 1/4" or provide intermediate supports to limit the span to ranges specified above.

6. Finish

- a. Casework Edges: Except where cabinet design requires matching laminate edges and/or "T" edge, finish front edges of sides, frames, and bottom with PVC sheet, black, gray or neutral colored as approved by Architect.
- b. Exposed Exterior of Casework: Finish exposed portion of cabinet with vertical grade plastic laminate in solid color finish as selected by Architect.
- c. Interior of Casework
 - 1) Semi-Concealed (behind doors): Neutral colored polyester or cabinet liner laminate.
 - 2) Exposed: Vertical grade laminate to match exposed casework.
- d. Shelves: Same as specified for interior of casework. "T" edge typical except where cabinet design requires matching laminate self edge.

D. Drawers

- 1. Body: Construct of fiberboard with polyester laminate finish on faces and PVC on exposed top edges. Subfronts, sides and back fabricated with shouldered lock joint or dado construction and routed to receive bottom.
 - a. Sides and Back: 1/2" thick.
 - b. Subfront: 5/8" thick.
- 2. Bottom: 1/4" thick prefinished hardboard, housed and glued, into front, sides and back. Underside of drawer to receive continuous hot melt glue at joint between bottom and back/sides/front for sealing and rigidity. Reinforce drawer bottoms as required with intermediate spreaders.
- 3. Front: 3/4" thick particle board front finished with vertical grade plastic laminate on exposed face and cabinet liner laminate on interior side; total thickness 13/16" thick. Except where cabinet design requires self edge matching laminate edges (see cabinet design), edges to be finished with PVC "T" edging, black, gray or neutral color as selected by Architect; corners rounded.
 - a. Where adjacent door sizes require core thickness in excess of 3/4", provide drawer fronts to match door thickness. Verify conditions with Architect.
- 4. Install on proper sized slides specified herein.

E. Doors: Construct and finish same as drawer fronts except core construction to vary as follows:

- 1. Doors over 30" x 48": Construct from 1" to 1-1/4" thick particle board core.
- 2. Doors over 36" x 60": Construct as 1-3/8" thick hollow core units in accordance with AWI Section 1300.

F. Wall Cabinets: Construct and finish same as base cabinets except provide suitable hang rail of 3/4" plywood secured to cabinet frame.

1. Where wall cabinets close to soffit or ceiling, provide fascia scribed to conditions and leveled on bottom to permit level installation of cabinets. Finish of fascia to match cabinet.

G. Provide mobile units where indicated with casters. Construction to be similar to fixed units.

2.06 PLASTIC LAMINATE COUNTERTOPS

A. Countertop and worksurfaces front edges shall be edged with a nominal 3mm thick high impact PVC extrusion, with satin finish. Edges shall be machine applied with waterproof hot melt adhesive. Barbed T -edging will not be acceptable.

B. Provide balancing sheet on opposite face.

C. Provide countertops for all base cabinets and counter sections unless noted otherwise.

1. Provide worksurfaces where shown on plans.

D. Laminate tops shall be continuous in practical lengths. When requiring splice joints, use a combination of splines or dowels for alignment and tite-joint fasteners as required to make a uniform and gap less joint.

1. Provide continuous top for counter type cabinets fixed in a line.

2. Miter seams at corners.

3. All seams must be shown and identified on shop drawings. Seams are subject to Architect's approval.

E. Provide 4 inch high scribable, square set, color matching, mechanically attached backsplash with endsplashes.

1. Only where indicated on drawing.

2. Edges of back and endsplashes shall be of square edge configuration.

F. Sealants: Fully bed and seal splashes to tops and to other splashes with Dow Corning 786 Mildew Resistant Silicone Sealant, clear.

G. All outside edges are to have a radius of 1 inch minimum unless noted otherwise on drawings.

H. Countertops are to overhang base cabinets 1 inch unless noted otherwise.

1. Tall cabinet or wardrobe unit door front in line with base cabinets and countertop shall be flush with countertop edge.

- I. Worksurfaces should be flush with door and drawer fronts of any cabinets or drawer pedestals underneath worksurface. Do not overhang worksurface unless otherwise noted.

2.07 FILLERS

- A. All fillers shall be constructed of 3/4 inch particle board surfaced with high pressure grade laminate in color to match casework with balance construction.
- B. Only use fillers where called for by Architect.
- C. Where exposed finished sides of cabinets are deeper than actual cabinet box, extended cabinet sides scribed to wall should be used. Separate fillers are not acceptable.

2.08 WORKMANSHIP - GENERAL

- A. Machine parts for accurate fit and assemble with appropriate fastenings and adhesives to result in true, square, level, and plumb units.
- B. Verify dimensions of other trades to be built into casework. Coordinate with Divisions 22, 23 and 26.
- C. Provide removable or false backs for access or concealment of heating or plumbing items.
- D. Scribe tops and fillers to walls and other adjoining vertical surfaces.
- E. There shall be a 1-1/2 inch maximum scribe with cabinets at end walls unless shown otherwise.

PART 3 EXECUTION

3.01 CASEWORK INSTALLATION

- A. Install plumb, level, and true; shim as required, using concealed shims. Where institutional casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- B. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plan. Fasten cabinets to partition framing, wood blocking, or reinforcements in partitions with fasteners spaced 24 inches o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16 inch.
 1. Where base cabinets are not installed adjacent to walls, fasten to floor at toe space with fasteners spaced 24 inches o.c. Secure sides of cabinets to floor, where they do not adjoin other cabinets, with not less than 2 fasteners.

- C. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Align similar adjoining doors to a tolerance of 1/16 inch.
- D. Install hardware uniformly and precisely. Set hinges snug and flat in mortises, unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- E. Adjust cabinets running along curved walls for continuous curved appearance. All work surfaces and countertops to be scribed to curve.
- F. Adjust casework and hardware as recommended by manufacturer.

3.02 ADJUSTMENT

- A. Adjust door catches, drawer slides, and other moving parts after installation to provide proper operation.
- B. End cabinets placed against corners where they tee into other cabinets or obstacles shall be provided with chain or bracket stops on the inside of the doors to prevent the door or door handles from hitting the obstruction.

3.03 INSTALLATION OF ACCESSORIES

- A. Install accessories according to final shop drawings and manufacturer's written instructions.

3.04 INSTALLATION OF SERVICE FIXTURES

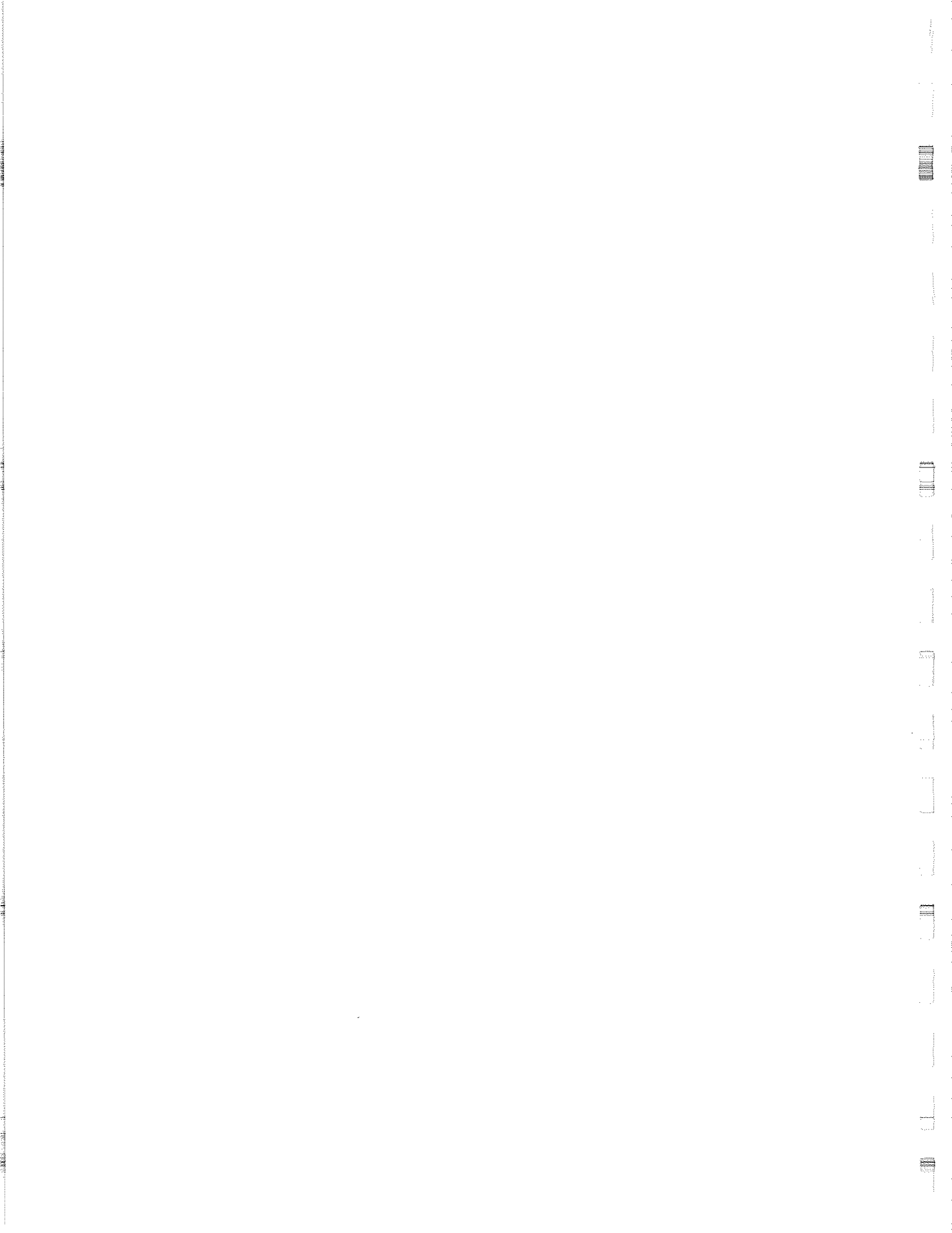
- A. Comply with requirements of Division 22, 23 and 26 Sections for installing plumbing/electrical service fixtures, piping, and wiring.
- B. Install fixtures according to final shop drawings and manufacturer's written instructions. Bed bases and flanges of sink and countertop mounted fixtures in sealant recommended by manufacturer of sink or countertop material. Securely anchor fixtures, piping, and conduit to casework, unless otherwise indicated.

3.05 CLEANING AND PROTECTING

- A. Repair or remove and replace defective work as directed on completion of installation.
- B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- C. Protection: Provide 6 mil plastic or other suitable water resistant covering over plastic laminate countertop surfaces. Tape to underside of countertop at minimum of 48 inches o.c.

- D. Supplier of this equipment shall be responsible for the immediate removal and disposal of trash, crating, and construction debris.

END OF SECTION



SECTION 12 35 53.19

PLASTIC LAMINATE LABORATORY CASEWORK AND FUME HOOD

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Extent of laboratory casework is indicated on drawings.
- B. Work includes fabrication and installation of standard base and wall cabinet components, shelving, fillers, panels and other units as indicated.
- C. Tops and accessories common to casework are included as work of this section.
- D. Section includes fume hood.

1.02 RELATED SECTIONS

- A. Wood Blocking: Section 06 10 00.
- B. Finish Carpentry: Section 06 20 00.
- C. Vinyl Base: Section 09 65 00.
- D. Plumbing: Division 26.

1.03 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide casework with countertop manufactured or furnished by same manufacturer.
- B. Manufacturer's Representative: A competent and experienced manufacturer's representative shall check the installation.
- C. Catalog Standards
 - 1. Manufacturer's catalog numbers, where shown, are for convenience in identifying cabinet work.
 - 2. Use of a specific manufacturer's catalog numbers is not to preclude the use of any other acceptable manufacturer's product or procedures which may be equivalent.
- D. Construction shall equal or exceed that of "Educational Casework".
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's data and installation instructions for each type of casework unit.
- B. Samples: Submit samples of specified finishes, including top materials.
- C. Shop Drawings
 - 1. Submit shop drawings for casework showing plans, elevations, ends and cross sections.
 - 2. Show details and location of anchorages and fitting to floors, walls and base.
 - 3. Include layout of units with relation to surrounding walls, doors, windows and other building components.

1.05 PRODUCT HANDLING

- A. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Basis of Design: The standard of quality for plastic laminate casework is based on THERMAL FISHER SCIENTIFIC.
- B. Other Acceptable Manufacturers: Products by the following manufacturers meeting the standards specified herein and indicated on the Drawings are also acceptable:
 - 1. KEWAUNEE SCIENTIFIC EQUIPMENT CORPORATION
 - 2. ADVANCED LAB CONCEPTS, INC.
 - 3. CAMPBELL RHEA MANUFACTURING
 - 4. LSI CORPORATION

2.02 MATERIALS

- A. Plywood: All interior plywood used in cabinets, unexposed to view, shall be 7-ply, B-2, veneer core. Plywood shall be compliant with ANSI/HPVA HP-1 1994 - 3.13 ; 3.15.
- B. High pressure laminates: NEMA LD3 vertical surface grade for exposed exterior surfaces; postform grade for countertops; white cabinet liner to balance exposed exterior surfaces; white thermofused melamine for other surfaces.
- C. Particleboard: ANSI A 208.1, Grade M-2, made with binder containing no urea

formaldehyde or straw-based particleboard complying with ANSI A 208.1, Grade M2, except for density, made with binder containing no urea formaldehyde.

- D. Banding: PVC, 3mm for door and drawer faces, 1 mm for cabinet body parts.
- E. Tempered Hardboard: Tempered hardboard shall be a wood fiber/resinous combination formed with heat and pressure into sheets providing a hard, smooth surface. Untempered hardboard is not permitted.
- F. Acid Storage Lining: 1/4 inch thick polypropylene, epoxy, or phenolic composite lining material.
- G. Hardware and Trim
 - 1. Drawer and Door Pulls: Drawer and door pulls shall be wire type, satin finish chrome, 5/16" diameter, 4" centers, offering a comfortable hand grip, and be securely fastened to doors and drawers. Use of plastic pulls (molded or extruded), or a design not compatible for usage by the handicapped shall be unacceptable.
 - 2. Flush Pulls: Flush pulls for sliding doors shall be satin finish chrome, providing a recessed finger grip. Finger holes or slots machined into doors shall be unacceptable.
 - 3. Hinges: Hinges shall be the five (5) knuckle, satin finish stainless steel, institutional, offset type for all swinging doors. Hinges shall be 2-1/2" long, and secured to cabinet and doors with flathead screws, so applied to withstand a weight load of 150 lbs. minimum.
 - 4. Locks for Drawers and Hinged Doors Where indicated, provide NATIONAL LOCK, 5-disc tumbler with heavy duty interchangeable cylinder. Exposed lock noses shall be dull nickel (satin) plated and stamped with identifying numbers. Locks shall have capacity for 225 primary key changes. Master key one level with the potential of 40 different, non-interchangeable master key groups.
 - 5. Roller Catches: Roller Catches shall have a spring-loaded polyethylene roller and a steel strike plate.
 - 6. Elbow Catches: Elbow catches and strike plates shall be cast aluminum with bronze finish.
 - 7. Drawer Slides: Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Full over travel extension, ball-bearing type. Drawer slides shall be rated at 100 pounds minimum. They shall consist of two steel epoxy coated sections providing a quiet, smooth operation on nylon rollers. Case channels shall maintain alignment of drawer. Slides shall wrap under drawer sides for additional support. The drawer shall be removable without the use of tools.
 - 8. Dowels: Dowels used to join frames and panels shall be fluted hardwood not less than 3/8" In diameter.
 - 9. Shelf Support Clips: Shelf support clips shall be twin pin type for mounting on interior of cabinet end panels. Clips shall be corrosion resistant and shall retain shelves from accidental removal. Shelves shall

- be adjustable on 32mm centers. Surface mounted metal support strips and clips subject to corrosion are not acceptable.
10. Base Molding: See Section 09 65 00.
 11. Label Holders: Label holders, where shown, shall be an aluminum brad-attached type with satin finish and designed for 2-1/2" x 1-1/8" cards, unless otherwise specified.
 12. Number Plates: Number plates, where shown or called for, shall be aluminum brad-attached type with satin finish and indented black lettering.
 13. Sink Supports: Sink Supports, where required, shall be of a cradle type consisting of two 1-1/4" x 1-3/4" horizontal cleats and adjustable leveling bolts or glides. The horizontal cleats shall be supported by two 3/4" x 2-1/2" hardwood plywood cleats attached to the cabinet end panels, or by four 1/4" steel rods attached to the cabinet top frame.
 14. Support Struts: Support struts shall consist of two 16 gauge channel uprights fastened top and bottom by two adjustable "U" shaped spreaders, each 12 gauge, 1-1/2" x length required. Struts shall be furnished to support drain troughs, and to support work top at plumbing space under fume hood superstructures or other heavy loads. They shall be fabricated so as to accept industry standard, pipe and conduit hangers.

2.03 CONSTRUCTION

- A. General Requirements: The cabinet shall full overlay construction with 3/4" thick door and drawer fronts. The door and drawer fronts shall occupy a plane extending 3/4" past the plane of the front of the cabinet body. Edges of door and drawer fronts shall be square. The doors and drawer fronts shall overlay the face of the cabinet leaving minimal reveals between doors and drawers of approximately 1/8". All cabinet end panels shall be finished for the purpose of future relocation.
- B. Joinery: 32mm long, 8mm diameter fluted hardwood dowels, glued in place.
- C. Component Construction
 1. Base: Either separate, veneer core plywood, factory attached or in 8' lengths and constructed on-site.
 2. Sub-top: Full depth, 3/4" particleboard, balanced laminated surfaces, banded front edge; none on sink or fume hood models.
 3. Bottom: Full depth particleboard, balanced laminated surfaces, banded front edge, 3/4" for base cabinets, 1" for suspended.
 4. End panels: 3/4" particleboard, banded exposed edges, balanced laminated surfaces, with sufficient drilled holes for insertion of adjustable shelf clips where required.
 5. Back: 1/4" hardboard, melamine interior surface for cupboards, either open or two-piece for drawer models, halfheight with removable lower panel for sink models; 3/4" particleboard panel, doweled into ends, balanced laminated surfaces for sink models.
 6. Intermediate rails: 3/4" X 5-3/8" banded front edge, balanced surfaces;

- required for locked cabinets; not used when security panels are specified.
7. Security panels: Full-depth 3/4" particleboard, banded front edge, balanced surfaces; used when locks are specified.
 8. Shelves: 1" thermofused melamine clad, particleboard core, PVC front edge banding.
 9. Doors: 3/4" particleboard, balanced surfaces of veneers or laminates, edgebanding all edges.
 10. Drawers: Four-sided drawer box with PVC or thermofused melamine wrap, 1/2" 9-ply birch; lock shoulder joinery; melamine-clad welded fiberboard bottom with glue around entire drawer bottom perimeter; modular front of 3/4" particleboard, balanced surfaces of veneers or laminates, edgebanding all edges.

2.04 COUNTER TOPS

A. Chemical Resistant

1. Composition: Epoxy resin, acid resistant type. Similar to KEWAUNEE or equal.
2. Joints: Cement sections with epoxy cement.
 - a. No joints permitted in top areas above knee spaces (writing areas).
3. Thickness: 1" with tolerance not exceeding plus or minus 1/32". Provide 1" over base cabinets, formed with continuous drip groove on under surface.
4. Sinks: Cast epoxy resin

2.05 FIXTURES

- A. Material and Finish: Fabricate service fixtures from cast or forged red brass containing a minimum of 85% copper. Exposed surfaces, including fittings and escutcheons, polished chrome plated finish.
- B. Service Fixtures: Provide hot and cold water, deionized water, vacuum, gas, steam, air and electrical as indicated.
- C. Styles are indicated on drawings indicated by manufacturer's catalog number.
- D. Service Fixtures
 1. Piped Service: Air, gas, vacuum, steam, hot water, cold water, and distilled water.
 - a. Comply with SEFA 7, "Laboratory and Hospital Fixtures – Recommended Practices." Comply with "Vandal-Resistant Faucets and Fixtures" recommendations in SEFA 7.
 2. Power Receptacles: Comply with NEMA WD 1, NEMA WD6, and UL498. Duplex type, configuration 5 20R.
 - a. Receptacle Grade: Hospital.

2.06 FUME HOODS

- A. Type: Single compartment fume hood with double wall construction to conceal

service fixture piping, providing flush, unobstructed interiors.

- B. Manufacturer: Provide by same manufacturer as laboratory casework.
- C. Size: As indicated on the drawings.
- D. Hood Interior - Work Top and Liner: 16 gage Type 304 stainless steel with No. 4 finish. Provide with integral covered sides and back. No seams permitted. Provide stainless steel cup sink integral with work top.
- E. Accessories: As indicated on the drawings for the various models. Provide exterior valve handles and interior service fittings with color coded chemical resistant plastic finish.
 - 1. Electric Outlets: 120 v.
 - 2. Nitrous oxide.
 - 3. Cold Water: Panel mounted remote control assembly with swing type gooseneck fixture.
 - 4. CO₂.
 - 5. Light: Fluorescent fixtures and switch.
 - 6. Drain: Cup sink, stainless steel type, 3" x 9".
 - 7. Fan switch: Remote located. Provided by others under a future contract.
 - 8. Access panels as required.
 - 9. Face Velocity Airflow Alarm: Consists of a hood mounted control monitor and a thermistor sensor mounted through the hood end wall. 9V DC battery operated and 120V AC operated; provide with required AC adapter. Model similar to KEWAUNEE Air Alert 300.
- F. Performance Requirements: Design hood for 70% make-up air (hood connection) and 30% auxiliary (room) air.
 - 1. Hood manufacturer to furnish data the Architect in the following areas:
 - a. CFM requirements at full open sash to maintain 100 fpm face velocity.
 - b. Pressure loss through the hood on the exhaust side.
 - c. Pressure loss through the hood for make-up air.
 - d. Make-up air volume required for full open sash.
- G. Blowers, Ductwork and Switch: Provided and installed by Building HVAC Contractor. See Division 23.

PART 3 EXECUTION

3.01 CASEWORK INSTALLATION

- A. General
 - 1. Install plumb, level, true and straight with no distortions.
 - 2. Shim as required using concealed shims.

3. Where casework abuts other finished work, scribe and apply filler strips for accurate fit with concealed fasteners.
4. Where possible, assemble units into one integral unit with joints flush, tight and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16".
5. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
6. As recommended by manufacturer.

B. Base Cabinets

1. Fasten each individual cabinet to floor at toe space, with fasteners spaced 24" on center.
2. Bolt continuous cabinets together.
3. Secure individual cabinets with not less than two fasteners into floor, where they do not adjoin other cabinets.

- C. Wall Cabinets: Provide four fasteners per cabinet. Locate shims and blocking as required at fasteners.

3.02 CLEANING AND PROTECTION

- A. Repair or remove and replace defective work as directed upon completion of installation.
- B. Clean shop-finished surfaces, touch-up as required, and remove or refinish damaged or soiled areas, as acceptable to Architect.
- C. Provide protection of materials and installed casework from damage by work of other trades.

END OF SECTION



