
NAVFAC IGS-12351 (MAY 2002)

Preparing Activity: LANTNAVFACENGCOM Based on UFGS-12351N

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

SECTION 12351

MEDICAL AND DENTAL CASEWORK

05/02

NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.

NOTE: This guide specification covers finish coated carbon steel or corrosion resisting steel and wood core laminated plastic surfaced casework for medical and dental applications. Cabinets, singularly or in assemblies, treatment room units wardrobes, deck units, reagent racks, countertops and sink, all components, hardware and service fixture trim are included as a part of the "casework."

Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

NOTE: On the drawings, show:

1. Sizes and spacing of casework units, plumbing fixtures and utility outlets.
2. Schedule of casework including all component

parts and accessories.

3. Details of connections and anchorage where special conditions exist. Size and spacing of anchors.

4. Italian standards are limited. Show additional details as required to define quality of casework required.

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 920 (1998) Elastomeric Joint Sealants

ITALIAN NATIONAL ASSOCIATION FOR UNIFICATION OF STANDARDS (UNI)

NOTE: A UNI Norm is a technical normative recognized as Italian Law, submitted by a private organization "Ente Nazionale Italiano di Unificazione" for Italy and is available only in the Italian language. It is the National Standard.

UNI 3253 Wood tests - Conditioning

UNI 3517 Names, dimensions of wood varieties of national production

UNI 9030/FA 1 (1987) Sawing timber - Drying quality

ITALIAN/EUROPEAN HARMONIZATION STANDARDS (UNI EN)(UNI ENV)(CEI EN)
(UNI EN ISO)(UNI ISO)(EN)(PREN)

NOTE: A UNI EN, UNI ENV, CEI EN, UNI EN ISO or UNI ISO is a European Standard with a coincident Italian National Standard or International Standard. The two standards are identical, with most (but not all) EN's available in the English language and the UNI available only in the Italian language.

CEN PREN 12369 (2000) Wood-Based Panels - Characteristic

Values for Established Products

- EN 635-2 (1995) Plywood Classification by Surface Appearance Part 2. Hardwood
- EN 635-3 (1995) Plywood Classification by Surface Appearance Part 3. Softwood
- EN 12871 (2001) Wood-Based Panels Performance Specifications and Requirements for Load Bearing Boards for Use in Floors, Walls and Roofs
- UNI EN 309 (1992) Wood particleboards - Definition and classification
- UNI EN 438-1 (1991) Decorative high-pressure laminates (HPL) - Sheets based on thermosetting resins - Part 1: Specifications
- UNI EN 1727 (1998) Domestic furniture - Storage furniture - Safety requirements and test methods
- UNI ISO 3131 Volumic Mass Test

MILITARY STANDARDS (MIL-STD)

- MIL-STD-1691 (Rev. F) Construction and Material Schedule for Military Medical and Dental Facilities

1.2 SUBMITTALS

NOTE:

Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Recommended codes for Army projects are "RE" for

Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

NOTE: Consult user activity to determine preferences for metal or wood casework. Delete types not used.

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Countertops

Plumbing fixtures

Sinks

[Metal casework]

[Wood casework]

SD-03 Product Data

Casework hardware

[Metal casework]

[Wood casework]

SD-04 Samples

Plastic laminate; G

Baked enamel finish; G

Each item of casework hardware

Each item of plumbing fixtures trim

Countertops

1.3 QUALITY ASSURANCE

NOTE: Italian standards are limited. Provide additional requirements throughout this specification to completely describe quality characteristics required for casework.

1.3.1 Shop Drawing Requirements

Submit drawings showing layout of casework at 1:20 scale. Indicate details of construction and rough-in requirements. Indicate whether cabinets are metal or wood, whether countertop is corrosion-resisting steel or plastic laminate, and sink material. Verify job condition affecting the work and obtain accurate field measurements for incorporation into drawings. Locate structural members, required utilities and services provided by other sections of this specification. Submit details and information necessary for fabrication and installation.

1.3.2 Product Data Requirements

Submit for each type of casework specified and indicated. Submit data complete with descriptions of materials, finishes, fastening and anchoring devices, and appurtenances. Product data shall include description of chemical and physical resistance properties of materials.

1.3.3 Sample Requirements

Submit plastic samples of each color, pattern, and finish [to the Contracting Officer]. Submit for each finish color of coated carbon steel.

Submit 150 by 200 mm sample section of countertop including splashback, in each material and type.

1.3.4 Chemical and Physical Resistance Finish

Provide casework with finish system capable of withstanding application of not less than 5 drops (0.25 mL) of the following reagents applied to finish surface; covered with a watch glass for 60 minutes, rinsed, and dried; with no permanent change in gloss, color, film hardness, adhesion, or film protection.

- a. Acetic acid (98 percent).
- b. Hydrochloric acid (37 percent).
- c. Nitric acid (25 percent).
- d. Phosphoric acid (75 percent).
- e. Sulfuric acid (85 percent).
- f. Acetone.
- g. Benzene.

- h. Carbon tetrachloride.
- i. Ethyl acetate.
- j. Ethyl alcohol.
- k. Ethyl ether.
- l. Formaldehyde (37 percent).
- m. Furfural.
- n. Methyl ethyl ketone.
- o. Phenol (85 percent).
- p. Toluene.
- q. Xylene.
- r. Ammonium hydroxide (28 percent).
- s. Potassium hydroxide (40 percent).
- t. Sodium carbonate (saturated).
- u. Sodium chloride (saturated).
- v. Sodium hydroxide (25 percent)
- w. Sodium sulfide (saturated).
- x. Zinc chloride (saturated).

1.3.5 Moisture Resistance

Casework surfaces shall show no visible effect when exposed to the following:

- a. Hot water at a temperature of 88 to 96 deg C, trickled down the surface at a 0.785 rad. angle for 5 minutes.
- b. Constant moisture using a 51 by 76 by 25 mm cellulose sponge, soaked with water, in contact with surface for 100 hours.

1.3.6 Cold Crack

No effect when subjected to 10 cycles of temperature change from minus 7 deg C for 60 minutes to 52 deg C for 60 minutes.

1.3.7 Adhesion and Flexibility of Metal Surfaces

No peeling or cracking or exposure of metal when metal is bent 3.141 rad. angle over a 13 mm diameter mandrel.

1.3.8 Design

Dimensions other than limiting dimensions are approximate and may vary plus or minus 25 mm in height, width, and depth. Unless otherwise specified, dimensions under 25 mm may vary plus or minus 2 mm. Minor deviations shall not be considered cause for rejection provided the item is suitable for the purpose intended and is the manufacturer's cataloged stock product substantially equivalent to the item scheduled. Casework shall be the product of a recognized manufacturer in the casework industry who shall assume responsibility for integrating the various associated work required to produce an assembly of casework of high quality. Obtain laboratory casework, including tops, sinks, and cabinets through one source from a single manufacturer. The manufacturer shall have no design prerogatives or deviations differing from the requirements and options specified hereinafter, unless such deviations are numbered, annotated, described, and approved in the shop drawings.

1.3.9 Material

Materials used shall be free from defects which would adversely affect the performance or maintainability of individual casework components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in casework are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use; do not use rebuilt products or used materials and components.

1.4 DEFINITIONS

**NOTE: The following definitions were derived from
AWI Standards nomenclature. Revise and add
additional definitions to adequately describe
quality characteristics of casework.**

1.4.1 Exposed Parts

Surfaces visible when:

- a. Drawer fronts and doors are closed;
- b. Cabinets and shelving are open-type or behind clear glass doors;
- c. Bottoms of cabinets are seen 1067 mm or more above finished floor;
- d. Tops of cabinets are seen below 1981 mm above finish floor, or are visible from an upper floor or staircase after installation;
- e. Portions of cabinets are visible after fixed appliances are installed; or

- f. Front edges of cabinet body members are visible or seen through a gap of greater than 3 mm with doors and drawers closed.

1.4.2 Semi-Exposed Parts

Surfaces visible when:

- a. Drawers/doors are in the open position;
- b. Bottoms of cabinets are between 762 mm and up to 1067 mm above finish floor; or
- c. All front edges of shelving behind doors.

1.4.3 Concealed Surfaces

Surfaces are concealed when:

- a. Surfaces are not visible after installation;
- b. Bottoms of cabinets are less than 762 mm above finish floor;
- c. Tops of cabinets are over 1981 mm above finish floor and are not visible from an upper level; or
- d. Stretchers, blocking and/or components are concealed by drawers.

1.5 DELIVERY, STORAGE, AND HANDLING

Each unit of casework shall be assembled in the manufacturer's plant and shall be shipped ready for installation. Deliver casework to the job site in their original individual containers, complete with necessary appurtenances including screws, keys, and instructions. Mark each container with the manufacturer's name and catalog number. Handle casework in a manner to prevent damage and store in a safe, dry and clean location.

PART 2 PRODUCTS

2.1 SOURCE MANUFACTURERS

The following manufacturers provide metal and wood casework that generally comply with these specifications:

TAVOM S.p.A.
Via Veneto, 29/31
35020 Due Carrare
Padova, Italy
Tel: 39/0495/290/222
Fax: 39/0495/290/321

DENTAL ART S.p.A.
Via Dell' Artigianato, 5
36030 Montebelluna Precalcino (VI) Italy

Tel: 39/0445/864455
Fax: 39/0445/865128

2.2 CASEWORK

NOTE: Designer shall provide detailed requirements for pre-designed, pre-fabricated casework in metal and wood. There may be conditions requiring custom-built items or a condition to cover spillage of corrosive chemicals stored in casework. In such cases, add to or modify requirements as necessary.

NOTE: Joint schedule numbers used in MIL-STD-1691 provide the Military Medical Services a uniform basis for identifying casework items in U.S. Government medical and dental facilities. Any items required which are not covered by MIL-STD-1691 should be described appropriately and identified on the drawings with a new assigned number.

NOTE: Consult user activity to determine preferences for metal or wood casework. Delete materials for types not used.

UNI EN 1727 and MIL-STD-1691. Casework items are identified on drawings with numbers preceded by the letters "C" and "D." These numbers are Joint Schedule Numbers, which are described in MIL-STD-1691. Provide manufacturer's standard integrated system that includes support-framing system, modular suspended cabinets, utility-space framing, filler and closure panels, tops, and fittings needed to assemble system.

- a. Hardware and fasteners for securing system to permanent construction are included with system.
- b. Wall panels and utility-space covers are included with system.
- [c. Under cabinet task-lighting fixtures are included with system.

]2.2.1 Medical Casework

NOTE: Enameled carbon steel casework shall be utilized to the maximum practicable extent in lieu of corrosion-resistant steel.

Metal casework of carbon steel with baked enamel finish, unless otherwise indicated or specified. Color of finish shall be [_____] [in accordance

with color schedule as indicated] [selected by the Contracting Officer from the manufacturer's standard colors].

2.2.2 Dental Casework

NOTE: When selection is to be made from manufacturer's standard samples, specify whether solids or wood grains are required.

NOTE: This paragraph covers three methods for color selection. Delete inapplicable methods.

Wood casework of plywood core [or particleboard core], at the manufacturer's option, covered with laminated plastic sheets. Pattern, color and finish of decorative laminated plastic for exteriors of casework shall be [_____] [in accordance with color schedule as indicated] [selected by the Contracting Officer from the manufacturer's standard [color] [wood grain] samples].

2.2.3 Prosthetic Dental Laboratory Casework

NOTE: This paragraph covers three methods for color selection. Delete those methods not applicable to this project.

Metal casework of carbon steel with baked enamel finish, unless otherwise indicated or specified. Color of finish shall be [_____] [in accordance with color schedule as indicated] [selected by the Contracting Officer from the manufacturer's standard colors].

2.3 MATERIALS AND FINISH

2.3.1 Metal

Commercial-quality, cold rolled, carbon steel sheet; matte finish; suitable for exposed applications; and stretcher leveled or roller leveled to stretcher leveled flatness.

2.3.2 Wood

All lumber and wood items to be furnished and installed shall conform to the UNI 3517, UNI 3253, and UNI ISO 3131, and shall conform to the type and grade described hereinafter. Wood showing signs of warp, grain deviation, shakes, cracks, mold, stain, rot, insect damage, or other injurious defects will be rejected.

- a. Solid Wood: UNI 9030/FA 1. Any hardwood or softwood species, with no defects affecting strength or utility. Hardwood and softwood

lumber kiln dried to 7 and 12 percent moisture content, respectively.

- b. Plywood: CEN PREN 12369, EN 12871. Visual appearance of EN 635-2, Class I for hardwood and EN 635-3, Class E for softwood. Concealed backs of plywood with exposed or semi-exposed faces shall be the same species as exposed faces but may use lesser appearance class.
- c. Particleboard: CEN PREN 12369, EN 12871, and UNI EN 309. Mat-formed panel material manufactured under pressure and heat from particles of wood and other lignocellulosic material in particle form with the addition of an adhesive. Particleboard shall have a minimum length and width tolerance of plus or minus 1 .6 mm, a minimum hardness of 226 kg, minimum face screw holding of 100 kg, and minimum edge screw holding of 90 kg.

2.3.3 Plastic Laminate

NOTE: Horizontal Heavy-Duty Standard (HDS) is used on counter tops and specialized flooring that requires very high resistance to surface wear. Horizontal Heavy-Duty Flame Retardant (HDF) has the same duty standards as HDS but has additional flame retardence.

UNI EN 438-1. HDS [HDF] Class, minimum 1.25 mm thickness, satin finish for countertops and exposed surfaces; VLS Class, minimum 0.5 mm thickness for backing sheet semi-concealed surfaces. [HGP Class, minimum 1.0 mm thickness for postformed surfaces.] Colors and patterns shall be [_____] [as indicated].

2.3.4 Glass

NOTE: Select one or more of the following choices for both door glazing and shelving.

[Clear tempered glass, 5.5 mm thick.] [Clear laminated safety glass, 5.5 mm thick.] Provide with ground and polished edges.

2.3.5 Modified Epoxy Material

Factory molded of modified epoxy-resin formulation, uniform mixture throughout full thickness with smooth, nonspecular finish, [black] [_____] color, with physical properties meeting the following minimum requirements:

- a. Flexural strength: 100 MPa.
- b. Compressive strength: 200 MPa.

- c. Hardness (Rockwell M): 100.
- d. Water absorption (24 hours): 0.02 percent (maximum).
- e. Heat distortion point: 177 deg C.
- f. Thermal-shock resistance: Highly resistant.

2.3.6 Baked Enamel Finish

Immediately after cleaning and pretreating, apply manufacturer's standard 2-coat, chemical-resistant, baked-enamel finish consisting of prime coat and thermosetting topcoat with a minimum dry film thickness of 0.025 mm for topcoat and 0.05 mm for system.

2.3.7 Plumbing Fixtures

Fabricate plumbing fixtures in accordance with casework manufacturer requirements. Provide faucet, trap and drain fittings, gas, air and vacuum cocks in accordance with casework manufacturer. Provide connection conforming to the requirements specified in Section 15411, "Hospital Plumbing Fixtures." Plumbing fixture's trim shall cover utility openings in walls and casework, and the finish shall match fixture[or be as indicated].

2.3.8 Electrical

Provide electrical services conforming to the requirements specified in Section 16402, "Interior Distribution System."

2.4 CASEWORK HARDWARE

Provide manufacturer's standard satin finish, commercial quality, heavy duty hardware complying with requirements indicated for each type.

2.4.1 Hinges

Stainless-steel, 5-knuckle butt hinges with antifriction bearings. Provide 2 for doors less than 1200 mm high and 3 for doors more than 1200 mm high.

- a. Medical and Dental Casework Hinges: Provide with nonremovable pins and hospital tips.
- b. Drop Door Hinges: Hinges for swinging waste and towel drop doors shall be spring loaded to return to the closed position.

2.4.2 Pulls

- a. Drawers and Hinged Doors: Solid aluminum, stainless steel, or chrome plated brass, fastened from back with 2 screws, not less than 102 mm length or continuous type. Provide 2 pulls for drawers more than 600 mm wide or continuous type. Continuous pulls shall be equal in length to the width of the drawer or door face.

- b. Sliding Doors: Aluminum, stainless steel, or chrome plated brass, recessed type, not less than 70 mm by 29 mm.

2.4.3 Door Catches

Nylon roller spring catch or dual, self-aligning, permanent magnet catches or elbow catches. Provide 2 catches on doors more than 1200 mm high.

2.4.4 Drawer Guides

Metal channel, self closing drawer guides, designed to prevent rebound when drawers are closed, with nylon-tired, ball-bearing rollers,

2.4.5 Label Holders

Stainless steel or chrome plated, sized to receive standard label cards approximately 25 by 51 mm, attached with screws or rivets. Provide [on all drawers] [where indicated].

2.4.6 Drawer and Door Locks

Half-mortise or cylindrical type, 5-pin tumbler and dead bolt or cam, only cylinder exposed, brass with chrome plated finish. Provide locks [on all drawers and doors] [where indicated]. Provide minimum of 2 keys per lock and 6 master keys.

2.4.7 Sliding Door Hardware

Casework manufacturer's standard, to suit type and size of sliding door units.

2.4.8 Shelf Supports

Chrome, nickel- or zinc-plated steel, or corrosion-resisting steel adjustable shelf standards and shelf rests.

2.4.9 Fasteners

Fasteners shall be of a size, style, and finish compatible with the end use. Screws, bolts, and clips for erection and concealed assembly shall be of steel, cadmium, chrome, nickel-plated, or from corrosion-resisting steel. Screws for exposed assembly shall be the same finish as items being fastened.

2.5 CASEWORK FABRICATION

**NOTE: Consult user activity to determine preferences
for metal or wood casework. Delete types not used.**

Shelves, pivoted doors, sliding doors, drawers, tops, wall and top mounted units shall conform with safety requirements and tests indicated in UNI EN

1727. Fabricate all units with smooth surfaces in uniform planes, free of defects and imperfections.

[2.5.1 Metal Casework

Complete assembly and finish work at point of manufacture. Perform assembly on precision jigs to provide units which are square; fully reinforced with angles, gussets, and channels; and integrally framed and welded to form a dirt and vermin-retardant enclosure. Where applicable, reinforce base cabinets for sink support. Maintain uniform clearance around door and drawer fronts of 1.5 to 2.4 mm. [Fabricate units on precision dies for interchangeability of like-size drawers, doors, and similar parts.]

- a. Cabinet Bodies: Constructed of cold rolled sheet steel. Each cabinet shall be fabricated with completely enclosed uprights or posts running the full height of the cabinet and with horizontal and vertical members welded together to form an integral unit. Cabinets shall fit together harmoniously into an assembly of cabinets of like height and depth. Exposed or hidden rails shall be provided below drawers which occur above cupboards to provide for cupboard latch and lock.
- b. Flush Doors: Outer and inner pans formed and telescoped into box formation, with channel reinforcements full height on center of each pan. Fill doors solid with noncombustible, sound-deadening material.
- c. Glazed Doors: Hollow metal stiles and rails of similar construction as flush doors, with glass held in resilient channels or gasket material.
- d. Hinged Doors: Mortise at flanges for hinges and reinforce with angles, welded inside inner pans at hinge edge.
- e. Drawers: Assemble fronts from telescoping outer and inner pans, designed to eliminate raw edge of steel at top. Fabricate sides, back, and bottom of one piece with rolled or formed top of sides for stiffening and comfortable grasp for drawer removal. Weld drawer front to sides, back, and bottom to form a single, integral unit. Provide drawers with rubber bumpers, runners, and positive stops to prevent metal-to-metal contact or accidental removal.
- f. Adjustable Shelves: Front, back, and ends with 19 mm to 25 mm formed down with returned lip at front and back. Provide shelves of unperforated, solid metal sheet, with reinforcing for shelves over 914 mm wide or greater than 457 mm depth.
- g. Toe Space: Provide metal toe space, fully enclosed, 100 mm high by 75 mm deep, with no open gaps or pockets.
- h. Table Legs: Not less than 50 mm square, electrically welded tubing. Provide leg stretchers where necessary to comply with structural performance requirements. Weld or bolt leg stretchers

to legs and cross-stretchers. Securely bolt legs to table aprons.
Provide leveling device welded to bottom of each leg.

- i. Leg Shoes: Vinyl or rubber, black, open-bottom type.
[Satin-finished stainless steel, slip-on type.]
- j. Utilities: Provide space, cutouts, and holes for pipes, conduits, and fittings in cabinet bodies to accommodate utility services and their support-strut assemblies.
- k. Utility-Space Framing: Manufacturer's standard steel framing units consisting of 2 cold rolled C-channel uprights, not less than 41 mm square by 2.5 mm thick, connected together at the top and bottom by U-shaped brackets made from 32 by 6 mm flat bars. Framing units may be made by welding C-channel material specified for uprights into rectangular frames instead of using U-shaped brackets.
- l. Base Molding: Extruded vinyl or rubber, black, 100 mm high. Provide on fronts and exposed ends and backs of floor-mounted casework.
- m. Filler Strips: Provide as needed to close space between cabinets and walls, ceilings, and indicated equipment. Fabricate from the same material and with the same finish as cabinets. Hem exposed edges.

2.5.1.1 Minimum Metal Thickness

Provide metal laboratory furniture components of the following minimum thicknesses:

- a. Sides, ends, fixed backs, bottoms, tops, soffits, and items not otherwise indicated: 1.2 mm except for flammable liquid storage cabinets, bottoms may be 0.9 mm if reinforced.
- b. Back panels, doors, drawer fronts and bodies, and shelves: 0.9 mm. For back panels and doors for flammable storage cabinets, use 1.2 mm thick metal. For shelves more than 900 mm long, use 1.2 mm thick metal or provide suitable reinforcement.
- c. Intermediate horizontal rails, table aprons and cross rails, center posts, and top gussets: 1.5 mm.
- d. Drawer runners, sink supports, and hinge reinforcements: 1.9 mm.
- e. Leveling and corner gussets: 2.7 mm.

]]2.5.2 Wood Casework

Complete assembly and finish work at point of manufacture. Perform assembly on precision jigs to provide units which are square; manufactured using rabbeted and glued, or mortise and tenon and glued, or mechanical metal connector slip type construction, to form a complete rigid case.

Where applicable, reinforce base cabinets for sink support. All edges shall be finished with [plastic laminate] [solid hardwood strips]; tapes shall not be used to finish edges. Provide plastic laminate faced laboratory casework of the following minimum construction:

- a. Bottoms and ends of cabinets, shelves, and tops of wall cabinets and tall cabinets: 19 mm [plywood] [particleboard], plastic laminate faced on exposed surfaces, melamine faced on semi-exposed surfaces.
- b. Backs of cabinets: [13 mm plywood] [13 mm particleboard] [5 mm hardboard], plastic laminate faced on exposed surfaces, melamine faced on semi-exposed surfaces.
- c. Drawer fronts: 19 mm [particleboard] [plywood], plastic laminate faced on both sides and exposed edges.
- d. Drawer bodies: Steel pans, formed from 0.9 mm thick metal, treated with metallic phosphate process, 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 0.025 mm for topcoat and 0.05 mm for system.
- e. Solid doors: 19 mm [particleboard] [plywood] with solid wood stiles and rails, plastic laminate faced on both sides.
- f. Stiles and rails of glazed doors: 19 mm [plywood] [solid wood], plastic laminate faced on both sides.
- g. Base Cabinet Shelves: 19 mm [particleboard] [plywood], plastic laminate faced on top, bottom, and all edges.
- h. Wall-Hung Cabinet Shelves: 6 mm clear glass with all edges ground and polished. Provide with adjustable shelf standards and shelf rests.
- i. Leg Shoes: Vinyl or rubber, black, open-bottom type.
- j. Utility-Space Framing: Manufacturer's standard steel framing units consisting of 2 cold-rolled C-channel uprights, not less than 41 mm square by 2.5 mm thick, connected together at the top and bottom by U-shaped brackets made from 32 by 6 mm flat bars. Framing units may be made by welding C-channel material specified for uprights into rectangular frames instead of using U-shaped brackets.
- k. Base Molding: Extruded vinyl or rubber, black, 100 mm high. Provide on fronts and exposed sides of floor-mounted casework.
- l. Filler Strips: Provide as needed to close space between cabinets and walls, ceilings, and indicated equipment. Fabricate from the same material and with the same finish as cabinets.

2.5.2.1 Design

Provide plastic laminate clad wood casework design of [lipped overlay with radiused edges] [reveal overlay] [flush overlay] [reveal overlay with recessed finger pulls machined into the faces of doors and drawers] [lipped overlay with radiused edges and full-width, recessed metal finger pulls machined into the faces of doors and drawers] [reveal overlay with radiused edges and plastic laminate door and drawer fronts, with wood edges and finger pulls].

]2.6 COUNTERTOPS

Provide tops in [modular] lengths indicated, without seams where possible, and with smooth, clean exposed tops and edges in uniform plane free of defects. Make exposed edges and corners uniformly beveled. Provide front and end overhangs of 25 mm over base cabinets[, formed with continuous drip groove on underside 13 mm from edge].

- a. Countertops 3658 mm and less in length shall be in one piece.
- b. Countertops greater than 3658 mm in length that require field joints shall have joint locations indicated on shop drawings.

[2.6.1 Plastic Laminate Tops

Provide plastic-laminate sheet, shop bonded with fully waterproof glue to both sides of 19 mm thick subtop of [hardwood-faced plywood,] [medium-density-overlaid plywood,] [or] [phenolic-resin-bonded particleboard.] [30 mm thick subtop of phenolic-resin-bonded particleboard.] Sand surfaces to which plastic laminate is to be bonded. Provide plastic laminate edging of the same material as top on front edge of top, top edges of backsplashes and end splashes, and on ends of tops.

]2.6.2 Epoxy Tops

Factory molded of modified epoxy-resin formulation, uniform mixture throughout full thickness with smooth, nonspecular finish. Fabricate top with factory cutouts for sinks and with plain butt-type joints assembled with epoxy adhesive and prefitted, concealed metal splines.

- a. Color: [Black] [Gray] [Beige] [Provide color as selected from manufacturer's full range of colors].
- b. Top Configuration: [Square edge with drip groove and integral coved backsplash.] [Raised marine edge and integral coved backsplash.] [As indicated.]
- c. Top Thickness: 19 mm [25 mm] [32 mm].

]2.6.3 Stainless Steel Tops

Fabricate from 1.6 mm thick, stainless-steel sheet, with satin finish, and complying with the following requirements:

- a. Weld shop made joints, and grind and polish surfaces to produce

uniform, directional, textured, polished finish indicated, free of cross scratches. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

- b. Where field-made joints are required, provide hairline butt-joints, mechanically bolted through continuous channels welded to underside at edges of joined ends. Keep field jointing to a minimum. Apply reinforcing channels to underside of top where necessary to insure rigidity without deflection.
- c. Extend top down to provide a 25 mm thickness and a 13 mm return flange under frame. Sound deaden entire undersurface with heavy-build mastic coating.
- d. Form backsplash coved to and integral with top surface.
- e. Provide raised marine edge around perimeter of tops containing sinks; pitch 2 ways to sink to provide drainage without channeling or grooving.
- [f. Where stainless-steel sinks or cup sinks occur in stainless-steel tops, factory weld into one integral unit, grind welds smooth, polish, passivate, and rinse.]

]2.7 SINKS

2.7.1 Stainless Steel Sinks

Fabricate from 1.27 mm thick stainless steel sheet, sizes as indicated. Fabricate with corners rounded and coved to at least 16 mm radius. Slope sink bottoms to outlet. Provide double-wall construction for sink partitions with top edge rounded to at least 13 mm diameter. Provide continuous butt-welded joints, grind smooth, and polish surfaces to produce finish indicated, free of cross scratches. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean. Provide factory punchings for fittings. Apply approximately 3 mm thick, heat-resistant, sound-deadening coating to under sink surfaces.

[2.7.2 Epoxy Sinks

Factory molded of modified epoxy resin formulation, uniform mixture throughout full thickness with smooth, nonspecular finish, molded in one piece with surfaces smooth, corners coved and bottom sloped to outlet; 13 mm minimum thickness.

- a. Provide sinks with 6 mm thick lip around perimeter of sink for drop-in installation.
- b. Bond epoxy sinks installed in epoxy tops to tops and finish to produce an integral unit with invisible joint line.

]PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Casework

Place casework as indicated. Install items, including connections to utilities as required for proper operation. Secure casework in place in true alignment, level, and plumb, and install in a manner to prevent damage to work of other trades. Secure units to cleats anchored to building structure with toggle or expansion bolts.

3.1.2 Wall Hung Cabinets

Secure cabinets firmly and rigidly to the wall to support the weight of the cabinets plus the normally expected weight of the contents of the cabinets. Space fasteners at 300 mm on center using at least three bolts in each 900 or 1200 mm unit.

3.1.3 Floor Mounted Cabinets

Set floor-mounted metal cabinets on a common metal base or integral base, in assemblies up to 1800 mm in length in rooms having concrete or resilient flooring. Bolt cabinets to bases at cabinet corners. Face metal bases with resilient material to match wall base in space where the cabinets are located. Fasten together adjoining cabinets at top and bottom of front and back with bolts placed inconspicuously inside cabinets. In rooms having ceramic tile floors, set floor-mounted metal cabinets on concrete or masonry bases with exposed faces finished the same as other base in the room. Seal openings between cabinet and wall surfaces due to irregularity of surfaces flush with Type S or M, Grade NS, Class 12.5, use NT, conforming to ASTM C 920. Close exposed-to-view openings larger than joints in tile work with filler or scribing strip of the same material and finish as adjacent casework. Cut filler to contour of wall surface and secure to casework with concealed sheet-metal screws. Use minimum width and number of fillers consistent with need and in no case shall filler exceed 150 mm in width.

3.1.4 Countertops

Install standing height countertops so that working surface is 900 to 925 mm above finished floor. Except as otherwise indicated, desk-height countertops shall have working surface 750 mm above finished floor. Where required, provide toe space at front of cabinets by installing front face of cabinets 75 mm in front of face of base. Where toe space is not required, face of base and cabinets shall be flush. Bases shall have a uniform height of approximately 100 mm. Locate field joints only where indicated on approved shop drawings; make non-metallic joints as hairline butt joints, with no offset in elevation.

3.2 FIELD QUALITY CONTROL

Inspect placed items for proper location, fastening, connection to utilities, operation, and for damage which may have occurred during installation. Put each item into service to prove proper operation.

Correct defects disclosed during inspection.

-- End of Section --