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NAVFAC **IGS-11400 (JUNE 2002)**

Preparing Activity: LANTNAVFACENGCOM **Based on UFGS-11400N**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

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SECTION 11400

FOOD SERVICE EQUIPMENT
06/02

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

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NOTE: This guide specification covers the items of commercial food service equipment used for Italian land-based naval facilities.

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.

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NOTE: Details of particular equipment and installations are provided on Naval Food Service Division drawings. These NAVFSD drawings should be used as a basis for the project details. Contact NAVFSD at commercial telephone (717) 790-7580 or DSN 430-7580.

Equipment Item	**NAVFSSO Dwg. File**
1. Soiled Dishtable Assembly	**541**
2. Soiled Gear Scrapping Assembly	**541**
3. Utensil Wash Table	**553**
4. Counter Front With Tray Slide	**857**
5. Steam Kettles and Water Metering	**983**

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NOTE: On the drawings, show:

1. A 1:50 scale floor plan with layout of all food service equipment and Naval Equipment Symbols.

2. Food Service Equipment Schedule laid out in accord with NAVFSSO requirements.

3. Floor, wall, and ceiling penetrations. Include mounting height and size of pass through window at soiled dish counter.

4. Raised bases, retainer curbs, or depressions.

5. Recessed, grated floor drains required for equipment.

6. Exhaust fan curbs, supply fan curbs, exhaust duct, supply duct, and ductwork material.

7. Fire system CO2 tanks,actuating stations.

8. Hoods, plumbing enclosure housing and control panel of automatic washdown system.

9. Insulated floors, including under-floor perforated drains and vent pipes, where required.

10. Disposer control centers.

11. Disconnect switches.

12. Electrical chases and raceways and plumbing chases.

13. Remote compressors and refrigeration systems.

14. Utility connections to building water, sanitary, gas, electrical, sprinkler, fire alarm, oil, compressed air, steam, and other utility systems. Convenience outlets at point of use for plug-in equipment.

15. Remote syrup containers and associated supply lines to drink dispenser(s).

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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.

ITALIAN LAWS AND NORMS

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NOTE: Italian laws and normatives are the legislative regulations and decrees issued by the Italian government in the form of laws, norms, decrees, circulars, and letters. These Laws and Decrees concur together with Norms and Standards in forming the governing directives for construction.

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D.M. 12 April 1996	Technical Regulation for Fire Protection for the Design, Construction and Use of Gas Supplied Thermal Plants.
D.P.R. 661	(15 November 1996) Implementation of the Regulation of 90/396/CEE Directives Related Gas Equipment.
C.M. 68	(25 November 1969) Installation Instructions for Gas Supplied Thermal Plants and Systems.
DLgs 626	(19 September 1994) Realization of CEE Requirements for Improving Safety and Health of Workers on Work Site.

ITALIAN NATIONAL ASSOCIATION FOR UNIFICATION OF STANDARDS (UNI)

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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.

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UNI 1284	(1971) Piping - Pressure-temperature ratings for iron and steel pipes
UNI 5462	(1964) Weldless steel pipes - Pipes for boilers and for high-temperature, high-pressure heating systems - Requirements and tests
UNI 7065	(1972) Cold rolled flat finished unalloyed steel products - Strips with carbon content between 0.10 and 0.60%

UNI 7129	(2001) Gas plants for domestic use fed by network distribution - Design, installation and maintenance
UNI 8723/FA-207	(1986/87) Gas plants for professional and groups cooking appliances - Safety requirements
UNI 10233-6	(1993) Steel products drawn, peeled rolled and ground bars - Quality requirements for stainless steel
UNI 10381-1	(1996) Air conditioning plants - Ducts - Classification, design, dimensioning and installation.
UNI 10381-2	(1996) Air conditioning plants - Duct components - Classification, dimensions and constructive characteristics

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

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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.

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UNI EN ISO 1461	(1999) Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods
UNI ISO 2037	(1992) Stainless steel tubes for the food industry
UNI EN ISO 3677	(1996) Filler metal for soft soldering, brazing and braze welding - Designation
UNI EN 10142	(2000) Continuously hot-dip zinc coated low carbon steels strip and sheet for cold forming - Technical delivery conditions
UNI EN 12540	(2000) Corrosion protection of metals - electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and copper plus nickel plus chromium
UNI EN 28187/A1	(1993/00) Household refrigerating appliances - Refrigerator-freezers -

	Characteristics and test methods
UNI EN 29453	(1996) Soft solder alloys - Chemical compositions and forms
CEI EN 60034-1	(1996) Rotating electrical machines - Part 1: Rating and performance
CEI EN 60081	(2001) Double-capped fluorescent lamps - Performance specifications
CEI EN 60335-2-5	(1996) Safety of household and similar electrical appliances - Part 2: Particular requirements for dishwashers
CEI EN 60335-2-24	(2000) Safety of household and similar electrical appliances - Part 2: Particular requirements for refrigerating appliances and ice-makers
CEI EN 60335-2-31	(1998) Safety of household and similar electrical appliances - Part 2: Particular requirements for range hoods
CEI EN 60598-1	(1998) Luminaires - Part 1: General requirements and tests
CEI EN 61770	(2000) Electric appliances connected to the water mains - Avoidance of backsiphonage and failure of hose-sets

1.2 GENERAL REQUIREMENTS

1.2.1 Mechanical General Requirements

Section 15050, "Basic Mechanical Materials and Methods," applies to this section.

1.2.2 Electrical General Requirements

Section 16050, "Basic Electrical Materials and Methods," applies to this section.

[1.2.3 Electromagnetic Interference Suppression

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NOTE: Electromagnetic interference suppression should be required only when there is a probability of radio frequency interference with the using activities radio communications systems.
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Provide in accordance with Section 01575, "Temporary Environmental Controls."

]1.3 DESCRIPTION OF WORK

The work includes [furnishing and] [installing] [and modifying existing] food service equipment and related work. Provide rough-in and make utility connections to equipment in accordance with requirements specified in other sections of this specification and in accordance with the physical dimensions, capacities and other requirements of the equipment furnished.

1.4 SUBMITTALS

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NOTE: Where a "G" in submittal tags follows a submittal item, it indicates Government approval for that item. Add "G" in submittal tags following any added or existing submittal items deemed sufficiently critical, complex, or aesthetically significant to merit approval by the Government. Submittal items not designated with a "G" will be approved by the QC organization.

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

SD-02 Shop Drawings

Food service equipment layout; G

Food Service Equipment Schedule; G

Submit in the same format as the equipment schedule on the drawings.

Food service equipment utilities; G

Custom fabricated equipment; G

SD-03 Product Data

Equipment and fixtures; G

Hoods; G

Walk-in refrigerators; G

Walk-in freezers; G

SD-06 Test Reports

Food service equipment tests; G

Submit certified copies of test reports for equipment and material.

SD-10 Operation and Maintenance Data

Food service equipment and fixtures, Data Package 2; G

Submit operation and maintenance data in accordance with Section 01781, "Operation and Maintenance Data." Submit for each piece of equipment furnished by the Contractor.

1.5 DRAWINGS

1.5.1 Food Service Equipment Layout

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NOTE: Since the layout drawings must be approved prior to other submittals, the date set for their submission should precede the due date set for other submittals, by 30 days if possible.

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Submit, within [60] [_____] days of award of contract, minimum 1:50 scale layout drawings of the rooms or spaces containing food service equipment. Indicate detailed arrangement of space and food service equipment, in exact locations. Include elevations to establish that equipment will fit allotted spaces with clearance for installation, operation, and maintenance.

1.5.2 Utilities

Submit after approval of the food service equipment layout drawings. Draw at a minimum 1:50 scale. Show the exact locations of refrigerant, syrup, plumbing, gas, steam, and electric utilities necessary to connect and operate each piece of equipment in accordance with the requirements listed in paragraph entitled "List of Equipment and Fixtures," except as otherwise required by the equipment manufacturer's penetrations of concrete floor and concrete and masonry walls. Indicate dimensions and details of masonry and concrete bases and floor depressions.

1.5.3 Custom Fabricated Equipment

Submit after approval of food service equipment layout drawings. Submit for food service equipment not manufactured as standard production and catalog items by manufacturers of commercial food service equipment, referenced as "custom fabricated equipment" in this specification. Draw custom fabricated equipment at a minimum 1:20 scale and include a plan view and front, rear, and side elevations. Fully dimension drawings and label all parts as to materials and methods of construction.

1.6 DELIVERY, STORAGE, AND HANDLING

Inspect each piece of equipment upon delivery. Conform to Section 15050, "Basic Mechanical Materials and Methods." Follow equipment manufacturer's recommendations to protect materials and equipment and prevent damage.

PART 2 PRODUCTS

2.1 SOURCE MANUFACTURERS

2.1.1 Manufactured Food Service Equipment

The following manufacturers provide food service equipment and products that generally comply with these specifications:

ANGELO PO S.p.A.
S/S Romana Sud, 90/F
41012 Carpi (MO)
Tel. 059/639411
Fax 059/642499
http://www.angelopo.it

MARENO S.p.A.
Via Conti Agosti, 23
31010 Mareno di Piave (TV)
Tel. 0438/498111
Fax 0438/30621
http://www.mareno.com

ZANUSSI
Via Cesare Battisti, 12
Conegliano Veneto (TV)
Tel. 0438/3621
Fax 0438/450242
http://www.zanussiprofessional.com

2.2 MATERIALS

Provide material listed below.

2.2.1 Stainless Steel

2.2.1.1 Sheets

UNI EN 12540 with a fine brushed finish on the exposed face.

2.2.1.2 Tubing

UNI ISO 2037.

2.2.1.3 Bars

UNI 10233-6.

2.2.2 Zinc-Coated Steel

2.2.2.1 Sheets

UNI EN 10142.

2.2.2.2 Shapes

UNI 7065, zinc-coated in accordance with UNI EN ISO 1461.

2.2.3 Lead-Free Solder

UNI EN 29453, Alloy No. 18, tin-antimony solder or other "lead-free" solder. Use for all potable water copper tubing and fitting connections, and for solder joints in contact with food.

2.2.4 Tin-Lead Solder

UNI EN 29453, Alloy No. 3, 50-50 tin-lead solder.

2.2.5 Silver Solder

UNI EN ISO 3677, 15 percent silver base brazing alloy, melting point not less than 540 degrees C.

2.2.6 Laminated Plastic

Laminated plastic shall be in accordance with minimum hygiene food service surfacing requirements included in DLgs 626.

2.3 FABRICATION

Fabricate Custom fabricated and commercial equipment.

2.3.1 Welding

Provide at sink inserts, where sheet size necessitates a joint, and at joints of hoods. Make welds watertight.

2.3.1.1 Welds

Use tungsten inert gas process. Use filler metal compatible with the material being welded. Do not use carbon arc welding on tops of counters, tables, drainboards, exposed shelving, or sinks. Make welds ductile and of same color as adjoining surfaces.

2.3.1.2 Joints

Penetrate entire thickness for the entire length of the joint; make joints flat, continuous and homogeneous with the sheet metal without reliance on straps under seams, filling in with solder, or spot welding. When stainless steel is joined to dissimilar metals, use stainless steel for fastening devices and welding material.

2.3.1.3 Hidden Surface Welds

Wherever welds occur on surfaces not finished by grinding or polishing, coat such welds and the accompanying discoloration in the factory with a metallic-based paint in such a manner as to prevent the possibility of progressive corrosion of such joints.

2.3.1.4 Grinding, Polishing, and Finishing

Grind exposed welded joints flush with the adjoining material and finish and polish to match the adjoining surface. In grinding avoid excessive heating of the metal and metal discoloration. Abrasives, wheels, and belts used in grinding shall be iron-free and shall not have been used on carbon steel. Grind off excess metal and smooth to a fine brushed finish. Remove imperfections such as pits, runs, sputter, cracks, low spots, voids and buckles. Remove the grain of rough grinding by several successively finer polishing operations until specified finish is attained.

2.3.1.5 Protection Against Corrosion

Wherever a welding operation occurs on stainless steel, the possibility of corrosion shall be entirely eliminated. Bolts and screws may be welded by any accepted process that will minimize the possibility of carbide precipitation. Welds in galvanized steel made after galvanizing, and the adjacent areas where galvanizing is damaged shall be thoroughly cleaned and coated with a polyurethane coating.

2.3.2 Soldering

Use tin-lead soft solder with 50 percent tin, except that solder which will be in contact with potable water, ice, or food products shall be lead-free.

2.3.2.1 Soldering Stainless Steel

Clean stainless steel of discoloration and then apply a suitable soldering flux. After soldering has been completed, wash away excess and remaining flux and clean the soldered joint and adjacent metallic surfaces with a liquid alkaline or neutralizing reagent, to prevent any attack on the surrounding metallic surfaces by the soldering flux.

2.3.2.2 Soldered Joints

Use only as filler to prevent leakage and for no other purpose.

2.3.3 Brazing

Use only to join copper tubing to brass and bronze connection fittings. Accomplish with silver solder. Do not use in lieu of a welding operation.

2.3.4 Chromium Plating

Apply chromium plating over nickel plating.

2.3.5 Butt and Contact Joints, Bends, and Edges

Butt joints and contact joints shall be close fitting. Brake bends shall be free of open-texture or orange peel appearance. Sheared edges shall be free of burrs, projections, and fins. Miters or bullnosed corners shall be neatly finished, with the under edge of the material ground to a uniform condition, and without overlapping material and cracks.

2.3.6 Bolts, Screws, and Rivets

Wherever possible, exposed surfaces shall be free of bolts, screws, and rivet heads. Wherever bolts or screws are used, use stainless steel concealed type. On exposed, exterior surfaces, use stainless steel rivet heads where conditions do not permit the use of concealed fasteners. Where threads of bolts and screws occur on the inside of fixtures, either visible or exposed, cap with lock washer and chromium-plated brass or bronze acorn nut. Where bolts or screws are welded to underside of trim or tops, reverse side of weld shall be finished and undepressed.

2.3.7 Legs

Install counter-supported food service equipment on 100 mm high stainless steel legs of round stock, able to support the equipment when filled.

2.4 UTILITY REQUIREMENTS

2.4.1 Electrical Requirements

Provide electrical components, such as motors, motor starters, pushbutton control stations, float and pressure switches, solenoid valves, electrical disconnecting means, and other devices functioning to control the associated equipment, as a part of the equipment. Motors shall conform to CEI EN 60034-1. Motors rated at 360 volts shall be provided with pushbutton controls and fused motor control circuit transformers, with secondary rated at 220 volts. Motors shall be continuous duty, splashproof construction, squirrel cage induction types or silicon control rectifier controlled direct current motors with ball bearings. Wire motors, heating elements, controls or other electrical devices located on the equipment in the factory, with wiring extended to a single electrical connection point. Electrical components and wiring shall be in accordance with CEI EN 61770, CEI EN 60335-2-5, CEI EN 60335-2-24 CEI EN 60335-2-31, and Section 16402, "Interior Distribution System."

2.4.2 Plumbing Requirements

Furnish and install plumbing, piping and fixtures necessary for proper functioning of the equipment, such as faucets, control valves, sink strainers, valve-type waste outlets, vacuum breakers, pressure reducing valves, pressure and temperature relief valves, and steam traps, in accordance with the requirements of CEI EN 61770 and Section 15400, "Plumbing Systems." Steam pressure shall be [_____ kilopascals] and water pressure shall be [_____ kilopascals] [as indicated]. Provide pressure reducing valve for equipment requiring reduced pressure. Protect water supplies to fixtures and equipment against back siphonage in accordance with Section 15400, "Plumbing Systems." Provide hub drains or floor sinks under equipment requiring indirect drains in accordance with Section 15400, "Plumbing Systems." Extend drain lines from equipment to hub drains or floor sinks. Exposed piping or tubing shall be chrome plated or copper. Concealed piping shall be copper tubing.

2.5 CUSTOM-FABRICATED COUNTERS, DISHWASHER COUNTERS, AND SINKS

2.5.1 Counter Tops

Fabricate of 1.8 mm stainless steel, with all shop seams and corners welded, ground smooth, and polished.

2.5.2 Counter Edges

Miter and weld corners, grind smooth, and polish.

2.5.2.1 Work, Landing, and Dump Tables

Roll down counter edges on work, landing, and dump tables 45 mm at 3.14 rad, with corners rounded and bullnosed.

2.5.2.2 Cafeteria; Buffet; Hot and Cold Counters

Turn down counter edges on cafeteria, buffet, hot, and cold counters 2 inches at 1.57 rad on a 6 mm radius.

2.5.2.3 Side and Back Splashes

Turn up counter edges to form side or backsplashes at 1.57 rad on a 15 mm radius with top edge turned back 50 mm at 1.57 rad with ends closed. Turn up 150 mm unless 250 mm is called for.

2.5.2.4 Dish Tables, Vegetable, and Pot Sinks

Turn up counter edges on dishtables and vegetable and pot sinks 75 mm at 1.57 rad on a 15 mm radius with top edge rolled 45 mm at 3.14 rad to form a rolled rim. Turn up back edge 250 mm at 1.57 rad on a 15 mm radius with top edge turned back 55 mm at 0.785 rad with ends closed.

2.5.3 Counter Top Support

Provide supports under all edges of counter tops and tables, and at cross members. Stud-weld counter top to supports. Provide either of following types.

2.5.3.1 Channels

25 by 25 mm, 2.5 mm thick galvanized steel channel. Space cross members 600 mm on-center.

2.5.3.2 Angles

38 by 38 by 3 mm galvanized steel angles. Space cross members at 600 mm on-center.

2.5.4 Counter Bases

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NOTE: Indicate the type desired for the individual pieces of equipment or specify which is to be used. Alternatively, both types may be specified as a Contractor's option.

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2.5.4.1 Closed Counter Bases

Fabricate with 38 by 38 by 3 mm galvanized steel angles with all corners mitered, welded and ground smooth. Provide horizontal and vertical angles at 600 mm on-center. Fabricate closure panels of 1.2 mm thick stainless steel or 1.2 m thick galvanized steel with laminated plastic material shall be in accordance with minimum hygiene food service surfacing requirements included in DLgs 626. Fabricate joint trim of 50 mm wide, 1.8 mm thick stainless steel; attach with concealed bolts or screws. Enclosed bases shall be double-wall at ends and partitions. Weld support legs to body support angles. [Use closed-type bases on _____.]

2.5.4.2 Open Counter Bases

Fabricate and crossbrace with 40 mm outside diameter, 1.5 mm thick stainless steel tubing. Weld crossbraces to legs to reinforce each leg. Weld legs to gussets. Make gussets of stainless steel, fully enclosed, a minimum of 75 mm in diameter at top, reinforced with bushing, and continuously welded to support channels located under the counter top. [Use open-type bases on _____.]

2.5.5 Legs

Fabricate of 1.5 mm thick, 40 mm outside diameter stainless steel tubing. Continuously weld to angles on closed bases and gussets on open bases. Finish bottom of legs smoothly. Overlap stem of feet to provide a sanitary fitting.

2.5.6 Pedestal Bases

Fabricate of 2.5 mm thick stainless steel for serving line counters. Make pedestal 200 mm high, 250 mm wide, and 600 mm long with top and bottom edges flanged 38 mm to the inside at 1.57 rad. Provide holes in both flanges for 13 mm lag screws. Locate utility stub-ups inside pedestal and run to designated equipment.

2.5.7 Feet

Die-stamped stainless steel, bullet shaped, fully enclosed, with slightly rounded bottom. Fit top of feet with male threaded stem to mate with end of legs and provide for a 25 mm adjustment without threads being exposed.

2.5.8 Casters

Provide heavy-duty, ball bearing, disc wheel, with replaceable grease-proof rubber or neoprene tires and brakes. Tires shall be minimum 125 mm diameter and minimum 25 mm width of tread 90 kilograms capacity per caster. Provide pressure-type grease fittings, threaded guards, and plated finish.

2.5.9 Open Base Shelves

Fabricate of 1.5 mm thick stainless steel with all edges turned down 50 mm

at 1.57 rad on a 6 mm radius with bottom edges turned back 13 mm at 0.785 rad. Notch corners 1.57 rad, and intersections 3.14 rad. Weld to legs at corners and intersections. Locate legs maximum 1200 mm apart. Shelving to be removable without use of tools.

2.5.10 Closed Base Interior Shelves

Fabricate of 1.5 mm thick stainless steel. Turn back and side edges up 50 mm at 1.57 rad on a 6 mm radius. Turn front edge down 50 mm at 1.57 rad on a 6 mm radius and back 6 mm at 0.785 rad. Reinforce shelves longer than 750 mm with 38 by 38 by 3 mm galvanized steel angles under front edge and horizontal center of the shelf. Shelving to be removable without use of tools.

2.5.11 Shelf Pan Slides

1.8 mm thick stainless steel, 38 by 38 by 3 mm angles, with front and back corners rounded and finished smooth. Set angles at 50 mm on-center for 450 by 660 mm bun pans and 300 by 500 mm serving pans.

2.5.12 Drawers

Die-stamped 1.2 mm thick stainless steel, 500 by 500 by 125 mm deep. Drawer body shall be easily removed for cleaning with top edges flanged out 13 mm. Round interior horizontal corners on a 25 mm radius and interior vertical corners on a 50 mm radius. Fabricate supporting frame of 1.8 mm thick stainless steel channel. Weld drawer face to frame. Die-stamp drawer face with raised border for rigidity. Die-form an integral open sanitary handle into face. Mount drawer slides with ball bearing nylon or stainless steel rollers on channel frame. Slides and frame shall allow for full opening of drawer, and be reinforced to support a weight of 22.5 kilograms when fully extended. Provide stops for each drawer at fully open position. Enclose drawers on open-base tables in 1.2 mm thick stainless steel housing.

2.5.13 Doors

Stainless steel double-cased. 1.2 mm thick outer pan with corners welded, ground smooth and polished. 0.9 mm thick inner pan fitted tightly into outer pan with core of sound deadening material. Tack-weld outer and inner pans together with solder-filled seam. Provide doors approximately 20 mm thick and fitted with flush-recessed, stainless steel door pulls. Mount doors on stainless steel piano or concealed hinges.

2.5.14 Tray Slide

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NOTE: Tray slides for Enlisted General Messes shall be installed as an integral fabrication of serving line counterfront; NAVFSSO drawing 11103-857 and as specified in the applicable Standard for other equipment.

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[Solid] [Tube] type, 300 mm wide; mounted 865 mm above floor. Extend to full length of supporting counter.

2.5.14.1 Solid Type

1.8 mm thick stainless steel with front and back edges rolled 45 mm at 3.14 rad. Top edge of roll shall be 10 mm above flat surface of slide. Provide three inverted "V" forms, approximately 10 mm high, in flat surface of slide as running surface for trays. Close ends of slide.

2.5.14.2 Tube Type

Provide four 25 mm diameter 1.5 mm thick stainless steel tubes with supporting hardware. Close both ends of each tube.

2.5.14.3 Brackets

Stainless steel or chromium plated. Secure to counter with stainless steel bolts. Space 1200 mm on-center. Provide [stationary] [fold-down] type extending under full width of tray slide.

2.5.15 Protector Shelf

Fabricate top of 1.8 mm thick stainless steel with all edges rolled down 3.14 rad for 38 mm with bullnosed corners. Shelf to be minimum 250 mm wide.

2.5.15.1 Shelf Frame

Provide 25 by 25 mm, 1.5 mm thick stainless steel square tubing under all edges of shelf and at 750 mm on center across the length of the shelf.

2.5.15.2 Shelf Frame Support

Form front uprights of 30 by 30 mm, 1.5 mm thick stainless steel tubing. Form back uprights of 25 by 25 mm, 1.5 mm thick stainless steel square tubing. Provide a horizontal brace, 25 mm above bottom of front uprights. Space front uprights 750 mm apart or less, fit with die-formed flanges to be attached to counter top from underside with bolts, and slope 10 degrees to rear.

2.5.15.3 Protector Glass

6 mm thick, tempered plate glass. Frame edges of glass with 13 mm, 0.09 mm thick stainless steel channel. Glass to be easily replaced in the event of breakage. Provide glass end panels.

2.5.16 Drip Gutter

Provide as integral part of counter tops, where indicated. Provide a 25 mm brass drain tube centered in bottom of gutter with bottom pitched to drain. Drip gutter to be 100 mm wide, 25 mm deep 4 inches wide, one inch deep, and length indicated. Provide removable, stainless steel, die-stamped, anti-splash strainer with finger hole.

[2.5.17 Sound-Deadening of Counters and Sinks

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NOTE: Include sound deadening only when dining area is exposed to food service equipment.
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Sound-deaden all counter tops and sinks with minimum of 3 mm thick, hard-drying, sound-deadening mastic material. Spray mastic onto surface after reinforcing members have been applied. Dry smoothly without leaving crevices.

]2.5.18 Dishwasher Counters

Rolled front rim, 250 mm high backsplash, support channels and undershelves where indicated.

2.5.18.1 Drain Troughs

Provide across each end of counters that attach to dishwasher.

2.5.18.2 Scrap Sink

Provide 1.8 mm thick stainless steel sink, 500 by 500 by 250 mm deep, integral with soiled dish counter top. Provide two removable stainless steel scrap baskets, 500 by 250 by 125 mm high, with 25 mm diameter stainless steel tubing handles. Provide disposer attachment ring in bottom of sink. Provide a pre-rinse hose complete with spray head and mixing valve directly above sink and attached to dish counter.

2.5.18.3 Disposer Cone

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NOTE: Provide in counter top of pot and pan sink and soiled dish counter, if desired.
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Provide in counter top, 450 mm in diameter, complete with pre-rinse spray hose.

2.5.18.4 Scrap Trough

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NOTE: Provide in counter top of soiled dish counter, if desired.
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Provide integrally with counter, 225 mm wide, 150 mm deep, and sloped toward discharge end. Provide disposer attachment ring in discharge end of trough and a fixed-direction water inlet at top of trough for positive flushing action.

2.5.18.5 Sloped Cup/Glass Racking Shelf

Fabricate with 1.5 mm thick stainless steel bottom and 38 by 38 by 3 mm angle framing supports. Construct with 0.44 rad slope down toward operator, with bottom edge 450 mm above soiled dish table top, and to accommodate 500 by 500 mm dishwashing racks. Provide a 38 mm retainer edge, turned up. Fit inside corner with drain plumbed to discharge into [sink] [floor drain].

2.5.18.6 Undershelves

Provide stainless steel solid type.

2.6 PASS-THROUGH WINDOWS

Except for sill of soiled dish counter, fabricate a mitered window frame of 1.8 mm thick stainless steel channel forming a 85 mm casing on each side of wall. Return flange 13 mm, to wall. Weld joints; join only at corners of opening. Seal in accordance with Section 07920, "Joint Sealants."

2.6.1 Windows for Endless Belt Conveyors

Locate and size opening to allow 13 mm clearance at each side and below conveyor and 300 mm space above conveyor.

2.6.2 Windows for Soiled Dish Counter

Fabricate sill as integral extension of counter. At face of wall opposite counter, turn sill 13 mm up, then down to form 100 mm wide mitered casing.

2.7 SINKS

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NOTE: Handwashing sinks must be provided behind each serving line and in each food preparation area. Each handwashing sink must be provided with soap dispensers and either towel dispensers or electric hand dryers specified in Section 10800, " Toilet and Bath Accessories."

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Provide sizes and mountings as indicated.

2.7.1 Sink Body

Provide in accordance with UNI 1284 and UNI 5462. Fabricate of 1.8 mm thick stainless steel. Round vertical and horizontal corners with a radius of not less than 19 mm. Provide double walls at partitions. Pitch sink bottom to drain into stainless steel drain outlet with cup strainer and adjustable P-trap. Material for traps, valves, and plugs shall be chrome-plated copper alloy or stainless steel. Overflow piping and fittings to have a minimum diameter of 38 mm and a minimum thickness of 1.15 mm, with connection tubes not less than 0.9 mm thick, complete with removable perforated metal strainer plate.

2.7.2 Mounting

2.7.2.1 Leg Mounting

Sink legs shall be as specified for counters, except weld closed gussets to support channels.

2.7.2.2 Wall Mounting

Provide brackets.

2.7.2.3 Counter Mounting

Provide sink body [set in counter] [integral with counter].

2.7.3 Sink Drain Valves

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NOTE: Provide quick-opening drain valves in pot and pan sinks and in other sinks as desired.
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Provide quick-opening valve with jam-nut and washer. Drain shall have a bar strainer and quick-opening gate valve with non-rising stem, fully enclosed mechanism, and extension-lever handle for operation from in front of sink.

2.7.4 Drains

Provide cleanout.

2.7.5 Faucets

Provide [splashback] [counter top] [and] [ledge] mounted [as indicated] [as scheduled]. Faucets shall have two valves and spout. Provide faucet for each sink compartment [unless otherwise indicated]. Spout outlet of faucets shall be located 65 mm above rim of sink. Provide combination-fitting faucet with concealed value bodies and swinging elevated spout. Use chrome-plated copper alloy or stainless steel for faucets, spouts, handles, locknuts, and washers. Use, for each valve, replaceable seats accessible from front or top, and inlets with union-couplings with 13 mm internal pipe threads. Spouts shall have close-fitting sleeve bearing at least 25 mm in diameter and 20 mm long and swivel-joint with adjustable packing.

Nozzle of spout shall have an anti-splash device without hose thread. Inside diameter of spout shall be 13 mm, minimum. Faucets shall have marked lever handles, with or without hood.

2.7.6 Hand Sink

Provide goose-neck faucet spout and aerator.

2.7.7 Pot-Washing Sink

Fabricate in accordance with paragraph "CUSTOM-FABRICATED COUNTERS, DISHWASHER COUNTERS, AND SINKS." Construct of 1.8 mm thick stainless steel with three integral compartments. Provide front rolled rim and 250 mm high backsplash. Third compartment will be final rinse compartment. Equip third compartment with removable, stainless steel filter screens.

2.7.7.1 Third Compartment Water Booster Heater

****
NOTE: Plumb heater sump drain to discharge into floor drain or floor sink.
****

Provide, under rinse sink, heater to boost and maintain rinse water at minimum temperature of 82 degrees C. Include automatic low water safety shut-off, control thermostat, reservoir drain, and light to indicate when rinse water has reached 82 degrees C.

2.7.8 Vegetable Preparation Sink

Provide 2-compartment sink.

2.8 HOODS

****
NOTE: Seismic restraints for kitchen hoods shall conform to Guidelines for Seismic Restraints of Kitchen Equipment (SMACNA Los Angeles Chapter). See Appendix 1 of SMACNA Fabrication Guidelines. Include requirement in seismic zones 3 and 4.
****

Conform to D.M. 12 April 1996, UNI 7129, UNI 8723/FA-207, and CEI EN 60335-2-31. Conform to UNI 10381-1, UNI 10381-2. [Provide seismic restraints in accordance with D.P.R. 661 and C.M. 68.] The hood shall not vary from design listing of air requirements or static pressure by more than five percent. Fabricate from 1.2 mm thick stainless steel. Run electrical wiring in conduit or raceways. When total hood length is more than 3600 mm long, provide hoods individually complete in all respects, of approximately equal length less than 3600 mm long, and mounted end to end.

2.8.1 Centrifugal Grease-Extracting Hoods

Fabricate in factory. Provide high-velocity type with average throat inlet air velocity of [5] [_____] mps and duct velocity of [9] [_____] mps. Provide air inlet above and parallel to equipment for full length of hood. Provide hood which will remove 95 percent of extraneous matter in air with non-removable grease-extracting baffles located in plenum chamber. The use of filters, cartridges, rotating parts, removable parts, or constantly running water is not acceptable.

2.8.1.1 Types

****

NOTE: Delete types not indicated for the project. If a type is not used, state "not used" at the subparagraph, to avoid renumbering.

****

Provide the following hood types as indicated:

a. Serve-Over Shelf; Type l: Provide over [charbroilers,] [fryers,] [_____,] [and] [griddles] on serving lines. Mount hood 1370 to 1450 mm above finished floor.

b. Island; Type 2: Provide over [steam-jacketed kettles,] [fry pans,] [ovens,] [broilers,] [ranges] [_____,] [and] [steamers] located remote from walls. Mount at height indicated.

c. Wall-Mounted, Free-Standing; Type 3: Provide over [ranges,] [_____,] [steamers,] [fry pans,] [broilers,] [doughnut fryers,] [griddles,] [ovens,] [steam-jacketed kettles,] [and] [fryers] located along wall. Mount at height indicated.

d. Low Ceiling; Type 4: Provide over [_____] [and] [_____] where low ceiling restricts installation of Type 1, 2, or 3.

2.8.1.2 Features

Provide the following:

a. Automatic washdown system.

b. Fan control.

****

NOTE: Delete references to fire dampers in air inlet if fire dampers are included in exhaust ductwork connecting to hood.

****

c. Damper controls.

d. Fan control station and plumbing enclosure.

e. Fire protection system, for hoods over [tilting frying pans,] [charbroilers,] [griddles,] [ranges,] [_____,] [deep-fat fryers,] [and] [broilers].

f. Vapor-proof lights.

2.8.1.3 Automatic Washdown System

Provide system that automatically washes internal portions of hood for an adjustable period of between 0 and 15 minutes. Provide for activation by time clock or upon operation of fire damper.

a. Features of Operation:

(1) Shut off supply and exhaust fans, if running, at beginning of cleaning cycle.

(2) Subject accumulated contaminates on internal surfaces with water at [60] [82] degrees C and a water pressure of 0.275 MPa. Provide pressure reducing valve.

(3) [Pump] [Inject] detergent into hot water supply line to create wash-water.

(4) Provide scrubbing action by directing wash-water through manifolds and then through spray nozzles placed so that all internal surfaces are reached with streams of wash-water.

(5) Collect wash-water and grease within hood and pipe to outside of hood to point indicated for indirect connection to building plumbing system.

(6) End wash cycle by timer.

b. Plumbing Components: Provide brass or stainless steel spray heads or nozzles and stainless steel distribution manifold in each hood. Provide the following in fan control station and plumbing enclosure:

(1) Water solenoid valve

(2) Shut-off valve

(3) Shock absorber

(4) Pressure gage

(5) Temperature gage

(6) Line strainer

(7) Vacuum breaker

(8) Detergent reservoir, one gallon minimum

(9) Detergent [pump] [injector]

(10) Check valve

(11) Timer

(12) Pressure reducing valve

2.8.1.4 Fan Control

Locate in fan control station and plumbing enclosure. Provide delay-time starter on starter leg of exhaust fan so supply fan will start first and

run 5 seconds before exhaust fan starts, to insure the required balance in exhausted and make-up air flow. Provide the following operations:

a. Interconnection with washdown system to effect shutoff.

****
NOTE: Delete references to fire dampers in air inlet if fire dampers are included in exhaust ductwork connecting to hood.
****

b. Interconnection with fire dampers to effect shutoff of fans.

c. Operation by time clock.

d. Operation by manual push buttons labeled "start" and "stop".

2.8.1.5 Fire Damper

****
NOTE: Delete references to damper if fire dampers are included in exhaust ductwork connecting to hood.
****

Provide mechanically driven damper and damper control. Activate by heat-sensing thermostat set to react to temperature of 176 degrees C in exhaust duct at hood. Activation of damper shall cause the following additional actions:

a. Shut off exhaust and supply fans of hood.

b. Shut off fuel source and electric power to equipment under hood.

c. Initiate automatic washdown system.

2.8.1.6 Fan Control Station and Plumbing Enclosure

****
NOTE: Do not locate control cabinet for hoods on serving line tray slide support walls or on drop wall above serving line tray slide.
****

Provide flush-mounted enclosure. Wire and plumb in factory. Include the following:

a. Plumbing components of washdown system.

b. Components required for fan control, including manual push buttons and interlocks with other systems.

c. Components required to operate fire protection system.

d. Time clock capable of being programmed by the week to operate fan

system and automatic washdown system and of maintaining time cycle after being overridden by manual push buttons.

e. Labelled light indicating when exhaust fan and supply fan are operating.

f. Labelled light indicating when automatic washdown system is operating.

2.8.1.7 Fire Protection Systems

****

NOTE: Select fire protection system based on cost and local regulations. If kitchen can not tolerate time lost for clean-up in event of dry chemical release, or if kitchen return air is tied into building system return air, do not use that system. Ensure that actuating systems are indicated on drawings.

****

Provide a pre-engineered [[dry] [wet] chemical system in accordance with Section 13971, "Wet Chemical Fire Extinguishing for Kitchen Cabinet"] [[liquid foam system] [water spray system] in accordance with D.M. 12 April 1996]. [Include water spray in plenum of hood.] Include micro-switch for electric power and fuel shut off to equipment under hood and a fuel shut-off and reset button. Exposed piping under hood and surface nozzles to be stainless steel or chrome plated. Paint exposed piping running to hood with rust-inhibiting aluminum paint. Provide electrical wiring, contactors, shunt breakers, electrical control for gas valves, and other electrical components required to install fire systems in accordance with Section 16402, "Interior Distribution System."

a. Actuating Stations. Provide manual actuating station and remote manual actuating station as indicated. Clearly label actuating station as "Hood Fire Protection" and specific device protected.

****

NOTE: If water spray system is specified, make sure it is compatible with building sprinkler system.

****

b. Water Spray Fire System In Grease-Extracting Type Hood: Include wall-mounted control panel with pilot lights for indicating when system is operational, not operational, and on fire alert. Provide audible fire alarm, unions, hand valve, valve switch, and pressure switch. Include duct nozzles and plenum nozzles. Provide water pipe to control panel and from control panel to hood. Provide connections as part of building sprinkler system, Section 13930, "Wet-Pipe Fire Suppression Sprinklers."

****

NOTE: If exhaust hood fire system is to be connected to building alarm system, the work must be

included in other sections and coordinated.
****

c. Alarm Connection: Provide capability to signal operational readiness and to generate electronic signal when hood fire system is activated. Provide connection point for building alarm system. Provide system to connection point and connect in accordance with Section 13852, "Interior Fire Detection and Alarm System."

2.8.1.8 Vapor proof Lights

Provide, at Type 2 and Type 3 hoods, incandescent or fluorescent lights in accordance with CEI EN 60081 or CEI EN 60598-1. Locate switches for operating hood lights on face of hood in lower [right] [_____] corner.

2.8.2 Condensate Hoods and Exhausts

****
NOTE: Size exhaust and supply fans and exhaust and supply ducts in accord with hood manufacturer's recommendations, to ensure proper balancing for a satisfactory exhaust system. Each hood should have a separate and self-supporting system. Air changes in the utensil washroom should be 5 changes per hour for general room exhaust and 30 changes per hour when all systems are operating.
****

****
NOTE: Delete types not used in project.
****

[2.8.2.1 Hood Over Utensil-Washing Sink, Type 5

Provide a 1980 by 1065 by 450 mm high hood. Provide condensate collecting gutter and drain to sink drainboard or floor drain. Slope top of hood 150 mm down toward front of hood starting 300 mm in from back edge. Mount to wall with anchors provided by manufacturer and hang from ceiling with 16 mm stainless steel rods. Provide an opening in top of hood for exhaust duct. Center opening in top of hood from left to right and front to back. Provide a 50 mm high stainless steel duct collar, welded to hood top. Mount at height indicated. Provide controls for fans.

][2.8.2.2 Hood Over Utensil-Washing Machine, Type 6

****
NOTE: If Type 5 hood is not used, insert salient requirements regarding shape, mounting, and duct connection.
****

Provide hood of same length and width as utensil washing machine. Provide condensate collecting gutter and drain to [floor drain] [_____]. Slope top, mount, and provide duct opening and collar as specified for Type 5

hoods. Mount at height which avoids interference with machine operation. Provide controls for fans.

][2.8.2.3 Exhaust Over Dishwashing Machines, Type 7

Provide two rectangular duct chambers, with connections at each end of dishwashing machine, not less than 150 mm deep and extending width of dishwashing machine unless otherwise recommended by dishwashing machine manufacturer. Chambers shall converge over dishwashing machine at a 0.785 rad angle to form a single outlet to exhaust duct. Provide controls for fans.

]2.8.3 Gutter and Drain

Provide inside bottom perimeter with a 75 mm face with a 25 mm high flange turned up at a 0.785 rad angle, to form gutter. Provide a 25 mm stainless steel drain in back corner, extending to specified discharge.

2.8.4 Fan Controls

Provide, for each condensate hood, controls for operating fans. Include manual push buttons labelled "start" and "stop" and labelled light indicating when fans are operating.

2.8.4.1 Hood Exhaust and Supply Fans

****

NOTE: Exhaust fans for kitchen equipment should be centrifugal type with top discharge, adjustable pulleys, and disconnect switches. Protect motor against vapor-laden air stream.

****

Provide in accordance with Section 15720, "Air Handling Units."

2.8.4.2 Hood Exhaust and Supply Duct

****

NOTE: Duct work to kitchen hoods and for dishwashing machines should be carefully incorporated into Section 15810, "Ductwork and Ductwork Accessories" and onto the drawings to assure coordination with kitchen equipment design. The following are necessary:

1. Curbs must conform to NFPA 96.

2. Hood exhaust and supply duct: Minimum 1.2 mm thick stainless steel, welded water tight. (Unexposed duct can be galvanized steel). Conform to SMACNA DCS standards.

****

Provide in accordance with Section 15810, "Ductwork and Ductwork

Accessories."

2.9 GAS BURNERS

Equip burners and pilots located in enclosed compartments with automatic shut off of gas supply, if burners fail to ignite, or pilot is extinguished.

2.10 WATER FILTERS

****
NOTE: Delete if adequate water softening is provided for the entire facility.
****

Provide factory installed water filters on equipment connected to building plumbing system and processing water to dispense as food service product.

2.11 PREFABRICATED WALK-IN REFRIGERATORS AND FREEZERS

****
NOTE: Walk-ins shall be floorless, installed over insulated floors, unless otherwise directed. Provide insulated floors under each walk-in refrigerator and freezer as if each unit were a freezer. Material for floors and surrounding areas should be quarry tile or other suitable material.
****

Provide walk-in units manufactured for food service use conforming to UNI EN 28187/A1 and CEI EN 60335-2-24. Floorless, with insulated floor screeds.

2.11.1 Panel Construction

Interchangeable, 1200 mm maximum width, 100 mm thick, filled with insulation. Provide preformed corner panels extending not less than 300 mm in each direction. Panels to have tongue and groove edges or flush joints with double seal serrated neoprene rubber gaskets to assure air and vapor tight joints. [Provide panels for separating sections.]

a. Insulation: 100 mm minimum foamed-in-place polyurethane with manufacturer's rated "K" factor of not more than 0.15, free rise density of not less than 27 kg per cu meter, or in-place density of not less than 32 kg per cu meter. Provide floor screeds with minimum of 63 mm of foamed insulation.

b. Closures: The exposed exterior of the walk-in unit shall be closed to adjacent walls and ceiling with panels of same material as used for exterior of walk-in unit panels.

c. Finish:

(1) Exterior: [Stainless steel on all exposed surfaces and doors, aluminum on unexposed surfaces.] [Aluminum with two coats of white, baked-on enamel paint.]

(2) Interior: [Stainless steel] [Aluminum with two coats of white, baked-on enamel paint]. [Glass reinforced fiber panel.]

2.11.2 Doors

Provide [one] [two] per [unit] [section], with 100 mm thickness, filled with insulation. Provide vinyl hanging strips, able to be replaced individually and anchored at head. Each door panel shall have an outside pilot light, a light switch and a remote bulb sensor with exterior flush-mounted, waterproof thermometer for registering box inside temperature. Provide anticondensing strip heaters around perimeter of door panel jambs. Top and each side of door shall have a resilient, non-magnetic or thermoplastic with magnetic steel core gasket installed. On bottom edge of door, provide a replaceable, adjustable rubber or vinyl wiper gasket.

a. Hardware: Provide two self-closing, spring-loaded hinges for each door. Include plated steel pin and cam-lift type bearing. Provide door latch with cylinder lock and with provisions for padlock. Include safety-release handle to permit opening from inside when locked.

2.11.3 Lights

Provide two-tube fluorescent lamps in vapor-proof fixtures with safety shields. Provide diffuser and ballast capable of operating in minus 23 degrees C temperature. Lights shall run full length of walk-in unit starting 600 mm from front panel and extending within 600 mm of back panel. Run [between shelf rows] [as indicated].

2.11.4 Pressure Relief Port

Provide pressure relief port [in each section], heated electrically and insulated.

2.11.5 Refrigeration

****

NOTE: Refrigeration units may be located inside or outside, but if units are to be located outside in a cold climate they should have winter controls, heaters, and enclosed compressor housings.

****

Provide pre-assembled remote condensing unit assembly with all necessary components factory-installed and wired including electrical box, time clock, drier, sight glass, [winter control and crankcase heater] [enclosed compressor housing,] and compressor rack. [Set meat chiller to operate at minus one degree C and other refrigerators to operate at one degree C; set freezers to operate at minus 18 degrees C.]

2.11.6 Monitoring System

Provide an electronic monitoring and alarm system for [each section of] each unit. Alarm shall warn of abnormally low and high temperatures.

a. System components: Detecting thermostat, master control panel, interconnecting wiring, [remote, labeled, and audible alarm,] and defrost compensator. Provide dials showing temperatures and pilot lights, warning lights, switches, transformer, and buzzer, all as a part of the master control panel. Locate master control panel [and remote audible alarm] as indicated. Provide power fuse to protect system components.

b. System operation: Set alarms at 5 degrees C above and below specified operating temperatures.

2.11.7 Personnel Alarm

For each unit, provide separate audible alarm system operable from inside unit, for use of personnel unable to exit unit. Locate remote audible alarm where indicated.

2.12 LIST OF EQUIPMENT AND FIXTURES

****

NOTE: Compile a list of equipment to be utilized in the project. Identify characteristics of each item to the extent required to assure high quality equipment will be provided. The information contained herein shall be listed on the Equipment List on the Contract Drawings. The Equipment List shall include the following information, when applicable:

a. Equipment Item Number, keyed to plan location.
b. Logistical Classification.
c. Generic description of equipment.
d. Referenced applicable document or statement that equipment is Custom Fabricated or of Commercial design.
e. Description for Custom Fabricated and Commercial design, and required features or accessories.
f. Dimension: Listed in order of length, width and height.
g. Utility Requirements: Electrical (volts, hertz, phase); gas; plumbing (water, drain); steam, listed in order.

****

****

NOTE: Dimensions used on Drawing Schedule shall be in millimeters, unless otherwise noted. Dimensions are listed in order of length, width, and height, unless otherwise noted. Terms are defined as follows:

a. Length: Distance across front of equipment.
b. Width: Distance from front edge to back edge.
c. Height: Distance from bottom edge to top of equipment.
d. Depth: Distance from rim to bottom at drain, as in a sink.

****

NOTE: Indicate logistical classification on Drawing Schedule. The Logistical Classifications listed in the schedule assume Class A (funded with building project funds and provided by the Contractor) for all building equipment and Class C (funded with other than building project funds and provided by the Government) for all collateral equipment. (The latter are listed because they are connected to building services or otherwise need the Contractor's attention). If equipment is to be procured with any other funding or procurement method, revise the "Log Class" symbol as appropriate. Government-furnished equipment must also be addressed in Section 01110, "Summary of Work."

Method of Procurement classes listed in the Drawing Schedule are defined as follows:

a. Class A: Contractor-furnished and Contractor-installed.
b. Class B: Government-furnished and Contractor-installed.
c. Class C: Government-furnished and Government-installed.
[d. Class D: Government-furnished as leased equipment and Government-installed.]

Equipment designated Logistical Class "C" and "D" will be Government-provided. Equipment which is Government-provided will be furnished and installed by the Government in space made available by the Contractor and with rough-in made by the Contractor in accord with the information made available or referenced herein or indicated.

****

2.12.1 Abbreviations

Abbreviations used in Paragraph, "Schedule," are defined as follows:

AMPS:	Amperes
J:	Joules
CRS:	Stainless Steel
CW:	Cold water
DIA:	Diameter

DR:	Drain
G:	Gas
L:	Liters
W:	Watts
HW:	Hot water
mm:	Millimeters
KW:	Kilowatts
L:	Left
kg:	Kilograms
LOG CLASS:	Logistical Classification
MIN:	Minimum
NSF:	National Sanitation Foundation
R:	Right
STM:	Steam
x:	By, in usage describing dimensions of a rectangular solid

2.12.2 Definitions

Terms used in Paragraph, "Schedule", are defined as follows:

a. Sheet Pan: Standard 450 by 650 by 25 mm deep pan, unless otherwise noted.

b. Pan: Standard 300 by 500 by 150 mm deep pan.

c. Tray: Cafeteria tray 350 by 450 mm, unless otherwise noted.

d. 220-50-1: 220-volt, 50-hertz, 1-phase electric service and connection.

e. 380-50-1: 380-volt, 50-hertz, 1-phase electric service and connection.

f. 380-50-3: 380-volt, 50-hertz, 3-phase electric service and connection.

2.12.3 Schedule

****
NOTE: The following items are EXAMPLES ONLY!. Compile actual list of equipment items based on project requirements.
****

****
NOTE: Schedule of equipment included in this specification shall conform to designations indicated on Drawing Schedule. Include specification and references for Logistical Class "A" items only unless otherwise directed. Class "C" and "D" items are to be shown only on the drawings.
****

2.12.3.1 Item 1: Refrigerator/Freezer, Prefabricated Walk-In

Provide in accordance with:

a. Equipment schedule on drawings

b. Plan and detail drawings

c. Applicable specification requirements of paragraph "Pre-fabricated Walk-In Refrigerators and Freezers"

Known sources of supply: ZANUSSI (Italy)

Angelo PO (Italy)

2.12.3.2 Item 2: Preparation Table, W/Single Sink

Provide in accordance with:

a. Equipment schedule on drawings

b. Plan and detail drawings

c. Applicable requirements of paragraph "Custom Fabricated Counters" and paragraph "Sinks".

2.12.3.3 Item 3: Mixer, Vertical Food

Provide food mixer having the following features:

a. Floor mounted

b. 28 liter CRS mixing bowl (2 each)

c. 0.75 minimum HP motor wired for 380 volt, 3 phase at 50 Hz

d. Attachment hub

e. Bowl splash cover

f. Flat beater, wire whip and dough hook

Known sources of supply: Angelo PO (Italy)
Zanussi (Italy)

2.12.3.4 Item 4: Preparation Table w/2 Compartment Sink

Provide in accordance with:

a. Equipment schedule on drawings

b. Plan and detail drawings

c. Applicable requirements of paragraph "Custom Fabricated Counters" and paragraph "Sinks".

2.12.3.5 Item 5: Peeler, Vegetable, Electric

Provide vegetable peeler having the following features:

a. 13.6 Kg capacity

b. Floor mounted

c. Base and peel trap (without disposer)

d. Water inlet

e. 0.56 min. KW motor wired for 380 volt, 3 phase at 50 Hz

Known sources of supply: Angelo PO (Italy)
Zanussi (Italy)

2.12.3.6 Item 6: Mixer, Vertical Food

Provide food mixer having the following features:

a. Floor mounted

b. 1.45 KW motor, 380 Volt, 3 phase, 50 Hz

c. Attachment hub

d. 76 liter CRS mixing bowl (2 ea.)

e. Bowl truck

f. Extension ring for 28 liter bowl

g. Flat beater, wire whip and dough hook

Known sources of supply: Angelo PO (Italy)
Zanussi (Italy)

2.12.3.7 Item 7: Combination Steamer/Oven, Convection, Electric

Provide double stacked combi-oven having the following features:

a. Two compartment, stacked

b. Caster mounted

c. 10 GN pan capacity each compartment

d. Two speed blowers each with auxiliary fan on-off switch capable of shutting off fans during cooking cycle

e. CRS top and sides

Known sources of supply: Zanussi (Italy)
Foinox (Italy)
Rational (Germany)

2.12.3.8 Item 8: Hood, Centrifuge Grease Extracting, Exhaust

Provide in accordance with:

a. Schedule on plan drawing

b. Plan and detail drawings

c. Applicable requirements of paragraph "Hoods"

Known sources of supply: Zanussi (Italy)
Angelo Po (Italy)
Gaylord Industries, Inc. (USA)

2.12.3.9 Item 9: Dishwasher, Under Counter

Provide undercounter dishwasher having the following features:

a. CRS exterior finishes

b. Integral hot water booster heater, electric

c. End panels

d. Standard controls and accessories

e. Voltage as scheduled

Known sources of supply: Zanussi (Italy)
Angelo Po (Italy)
Commenda (Italy)

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 General

Install in accordance with the manufacturer's printed instructions.

3.1.2 Cutting and Patching of Construction

Lay out work in advance to prevent damage to building, piping, wiring, or equipment as a result of cutting for installation.

3.1.3 Setting and Connecting

Install equipment plumb and level. Except for mobile and adjustable-leg equipment, securely anchor and attach items and accessories to walls, floors, or bases with stainless steel bolts. Flash food service cabinets

located in wall openings to the walls with 0.9 mm thick stainless steel. Seal around equipment flashing and flanges, at walls, floor, and ceiling in accordance with Section 07920, "Joint Sealants." Fillers shall be continuous, without opening.

3.1.4 Welding Field Joints

Weld stainless steel by the electric fusion method. Provide where required by and in accordance with paragraph "FABRICATION."

3.1.5 Brazing

Accomplish with silver solder. Use for joining copper tubing to brass and bronze connection fitting and for no other purpose.

3.1.6 Cleaning and Adjusting

Test and adjust equipment for proper operation. Test rotating components and motors for proper rotation. Lubricate moving parts if suggested by manufacturer's literature. Prior to acceptance of project, clean and sanitize equipment both inside and outside.

3.1.7 Installation of Hoods

Install in accordance with D.M. 12 April 1996. Install hoods to remain free from vibration under all conditions of operation.

3.1.8 Floor Screeds

Anchor, install, and seal in accordance with the recommendations of the manufacturer of the walk-in unit.

3.2 FIELD INSPECTIONS AND TESTS

3.2.1 Inspections

Inspect equipment, fixtures, and material after installation for compliance with the applicable standards.

3.2.2 Tests

Upon completion of inspection perform operational tests on each piece of equipment to determine that equipment and components, including controls, safety devices, and attachments, operate as specified and are properly installed and adjusted. Test all water, drain, gas, steam, oil, refrigerant, and liquid carrying components for leaks. Notify the Contracting Officer 14 calendar days prior to testing.

3.2.2.1 Walk-In [Refrigerator] [and] [Freezer] Test[s]

****

NOTE: This is an operational test for freezer/cooler equipment only. Include only when applicable. Incorporate operational tests for any

item specified to assure proper rotation of rotating components, to preclude leakage or excessive noise or vibration of components or parts due to poor workmanship or improper design, to assure proper electrical connection of electrical components, and to assure the equipment will operate without failure through not less than two cycles of operation.

****

Perform an operational test on each unit after installation and adjustment. Operate unit long enough at the required control setting to determine that refrigeration, defrost, and control systems operate and cycle properly.

-- End of Section --