Preparing Activity: NAVFAC

Superseding
UFGS-11 74 00 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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USACE / NAVFAC / AFCEC / NASA **UFGS-11 74 00 (May 2020)**

Preparing Activity: NAVFAC **Superseding**
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UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
****

SECTION 11 74 00

DENTAL EQUIPMENT
05/20

****
NOTE: This guide specification covers the requirements for dental equipment including dental operating lights and similar related dental equipment.

This Section refers to Section 11 70 00 GENERAL REQUIREMENTS FOR MEDICAL AND DENTAL EQUIPMENT for general requirements; always include Section 11 70 00 when this Section is used.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

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NOTE: To download UFGS Forms, Graphics, and Tables, go to: http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables
****

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

The requirements of Section 11 70 00 GENERAL REQUIREMENTS FOR MEDICAL AND DENTAL EQUIPMENT apply to this Section.

1.2 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

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

ASTM INTERNATIONAL (ASTM)

ASTM A568/A568M	(2019a) Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for
ASTM B221	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B221M	(2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)

1.3 SUBMITTALS

****

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

[Item D0750, Tank Assembly, Boilout; G[, [_____]]

][Item D0753, Tank Assembly, Curing; G[, [_____]]

][Item D0755, Assembly, Boilout/Curing, Double; G[, [_____]]

][Item D0760, Guard, Casting Machine; G[, [_____]]

][Item D0880, Blast Gate, Vacuum System; G[, [_____]]

][Item D0900 , Workstation, Dental Lab, Receiving; G[, [_____]]

][Item D0904, Workstation, Tech, Dental, Lab, Single Station; G[, [_____]]

][Item D0905, Workstation, Dental Lab, Four Station; G[, [_____]]

][Item D0910, Workstation, Dental Lab, Metal Grinding; G[, [_____]]

][Item D0915, Workstation, Dental Lab, Ceramic, Modular; G[, [_____]]

][Item D0920, Workstation, Dental Lab, Floor Standing; G[, [_____]]

][Item D0925, Hood, Fume, Dental Acrylic, Floor Standing; G[, [_____]]

][Item D0930, Workstation, Dental Lab, Casting; G[, [_____]]

][Item D0935, Workstation, Dental Lab, Investment; G[, [_____]]

][Item D0940, Workstation, Dental Lab, Equipment Bench; G[, [_____]]

][Item D0942, Workstation, Dental Lab, Microblasting; G[, [_____]]

][Item D0945, Workstation, Dental Lab, Surveying / Milling; G[, [_____]]

][Item D0950, Workstation, Dental Lab, Acrylic Processing; G[, [_____]]

][Item D0960, Workstation, Dental Lab, Plaster; G[, [_____]]

][Item D0970, Workstation, Dental Lab, Polishing, 2 Station; G[, [_____]]

][Item D0975, Workstation, Dental Lab, Die Trimming; G[, [_____]]

][Item D6155, Light, Dental, Operating, Ceiling, Column; G[, [_____]]

][Item D7090, Utility Center, Dental, Floor Mounted; G[, [_____]]

][Item D8650, Chute, Waste, Plaster, Counter Mounted ; G[, [_____]]

] Submit detail drawings listed above for each item of equipment that interfaces with other items of equipment or construction.

SD-03 Product Data

[Item D0750, Tank Assembly, Boilout; G[, [_____]]

][Item D0753, Tank Assembly, Curing; G[, [_____]]

][Item D0755, Assembly, Boilout/Curing, Double; G[, [_____]]

][Item D0760, Guard, Casting Machine; G[, [_____]]

][Item D0880, Blast Gate, Vacuum System; G[, [_____]]

][Item D0900, Workstation, Dental Lab, Receiving; G[, [_____]]

][Item D0904, Workstation, Tech, Dental, Lab, Single Station; G[, [_____]]

][Item D0905, Workstation, Dental Lab, Four Station; G[, [_____]]

][Item D0910, Workstation, Dental Lab, Metal Grinding; G[, [_____]]

][Item D0915, Workstation, Dental Lab, Ceramic, Modular; G[, [_____]]

][Item D0920, Workstation, Dental Lab, Floor Standing; G[, [_____]]

][Item D0925, Hood, Fume, Dental Acrylic, Floor Standing; G[, [_____]]

][Item D0930, Workstation, Dental Lab, Casting; G[, [_____]]

][Item D0935, Workstation, Dental Lab, Investment; G[, [_____]]

][Item D0940, Workstation, Dental Lab, Equipment Bench; G[, [_____]]

][Item D0942, Workstation, Dental Lab, Microblasting; G[, [_____]]

][Item D0945, Workstation, Dental Lab, Surveying / Milling; G[, [_____]]

][Item D0950, Workstation, Dental Lab, Acrylic Processing; G[, [_____]]

][Item D0960, Workstation, Dental Lab, Plaster; G[, [_____]]

][Item D0970, Workstation, Dental Lab, Polishing, 2 Station; G[, [_____]]

][Item D0975, Workstation, Dental Lab, Die Trimming; G[, [_____]]

][Item D6155, Light, Dental, Operating, Ceiling, Column; G[, [_____]]

][Item D7090, Utility Center, Dental, Floor Mounted; G[, [_____]]

][Item D8650, Chute, Waste, Plaster, Counter Mounted; G[, [_____]]

Submit catalog numbers, trade names, literature, data sheets, diagrams and other pertinent data for each item of equipment listed above to evaluate performance, function, materials, dimensions and appearance.

****
NOTE: Add "SD-04 Samples" only when color selections or color verifications are required for project-specific equipment items.
****

[SD-04 Samples

[_____];G[, [_____]]

Submit manufacturer's [standard color charts for color selection] [color samples for color verification] for each item of equipment listed above.

] SD-06 Test Reports

[Item D0750, Tank Assembly, Boilout

][Item D0753, Tank Assembly, Curing

][Item D0755, Assembly, Boilout/Curing, Double

][Item D0760, Guard, Casting Machine

][Item D0880, Blast Gate, Vacuum System

][Item D0900, Workstation, Dental Lab, Receiving

][Item D0904, Workstation, Tech, Dental, Lab, Single Station

][Item D0905, Workstation, Dental Lab, Four Station

][Item D0910, Workstation, Dental Lab, Metal Grinding

][Item D0915, Workstation, Dental Lab, Ceramic, Modular

][Item D0920, Workstation, Dental Lab, Floor Standing

][Item D0925, Hood, Fume, Dental Acrylic, Floor Standing

][Item D0930, Workstation, Dental Lab, Casting

][Item D0935, Workstation, Dental Lab, Investment

][Item D0940, Workstation, Dental Lab, Equipment Bench

][Item D0942, Workstation, Dental Lab, Microblasting

][Item D0945, Workstation, Dental Lab, Surveying / Milling

][Item D0950, Workstation, Dental Lab, Acrylic Processing

][Item D0960, Workstation, Dental Lab, Plaster

][Item D0970, Workstation, Dental Lab, Polishing, 2 Station

][Item D0975, Workstation, Dental Lab, Die Trimming

][Item D6155, Light, Dental, Operating, Ceiling, Column

][Item D7090, Utility Center, Dental, Floor Mounted

][Item D8650, Chute, Waste, Plaster, Counter Mounted

] Submit field tests and inspections reports for each item of equipment listed above signed by authorized official responsible for field tests and inspections.

SD-10 Operation and Maintenance Data

[Item D0750, Tank Assembly, Boilout; G[, [_____]]

][Item D0753, Tank Assembly, Curing; G[, [_____]]

][Item D0755, Assembly, Boilout/Curing, Double; G[, [_____]]

][Item D0760, Guard, Casting Machine; G[, [_____]]

][Item D0880, Blast Gate, Vacuum System; G[, [_____]]

][Item D0900, Workstation, Dental Lab, Receiving; G[, [_____]]

][Item D0904, Workstation, Tech, Dental, Lab, Single Station; G[, [_____]]

][Item D0905, Workstation, Dental Lab, Four Station; G[, [_____]]

][Item D0910, Workstation, Dental Lab, Metal Grinding; G[, [_____]]

][Item D0915, Workstation, Dental Lab, Ceramic, Modular; G[, [_____]]

][Item D0920, Workstation, Dental Lab, Floor Standing; G[, [_____]]

][Item D0925, Hood, Fume, Dental Acrylic, Floor Standing; G[, [_____]]]

][Item D0930, Workstation, Dental Lab, Casting; G[, [_____]]

][Item D0935, Workstation, Dental Lab, Investment; G[, [_____]]

][Item D0940, Workstation, Dental Lab, Equipment Bench; G[, [_____]]

][Item D0942, Workstation, Dental Lab, Microblasting; G[, [_____]]

][Item D0945, Workstation, Dental Lab, Surveying / Milling; G[, [_____]]

][Item D0950, Workstation, Dental Lab, Acrylic Processing; G[, [_____]]

][Item D0960, Workstation, Dental Lab, Plaster; G[, [_____]]

][Item D0970, Workstation, Dental Lab, Polishing, 2 Station; G[, [_____]]

][Item D0975, Workstation, Dental Lab, Die Trimming; G[, [_____]]

][Item D6155, Light, Dental, Operating, Ceiling, Column; G[, [_____]]

][Item D7090, Utility Center, Dental, Floor Mounted; G[, [_____]]

][Item D8650, Chute, Waste, Plaster, Counter Mounted; G[, [_____]]

] Submit Data Package 3, including training requirements, for each item of equipment listed above in accordance with requirements of Section 01 78 23 OPERATION AND MAINTENANCE DATA.[In addition, provide hard copies consisting of two Operator's Manuals and two Service Manuals.]

1.4 WARRANTY

[Provide warranties as specified in this Section.]Refer to Article WARRANTY in Section 11 70 00 GENERAL REQUIREMENTS FOR MEDICAL AND DENTAL EQUIPMENT for [additional] requirements

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Stainless Steel

Class 301, 302, or 304. Provide exposed surfaces with a No. 4 finish.

2.1.2 Aluminum Alloy

ASTM B221M ASTM B221; provide alloy equivalent in ultimate tensile, yield, and shear strengths to Alloy 6063-T5 or 6063-T6, as applicable.

2.1.3 Carbon Steel

ASTM A568/A568M; cold-rolled, stretcher level sheets 1.5 mm thick 16 gage and lighter with a commercial bright finish.

****
NOTE: Select project-specific equipment items from the list below and delete equipment items not used. Additional equipment items may be added as required to suit project-specific conditions.
****

2.2 EQUIPMENT

[2.2.1 Item D0750, Tank Assembly, Boilout

Cabinet mounted, drop-in boilout tank assembly. Single Stainless steel tank. Approximate size: 254 mm 10 inches wide by 356 mm 14 inches deep by 305 mm 12 inches high. Installed in steel cabinet. Includes cover, gas burner, rectifier, and adjustable thermostat. Electrical requirements: [110 volts 50/60 Hz].

][2.2.2 Item D0753, Tank Assembly, Curing

Cabinet mounted, drop-in curing tank. Single Stainless steel tank. Approximate size: 254 mm 10 inches wide by 356 mm 14 inches deep by 305 mm 12 inches high. Installed in steel cabinet. Includes cover, gas burner, rectifier, and adjustable thermostat. Electrical requirements: [110 volts 50/60 Hz].

][2.2.3 Item D0755, Assembly, Boilout/Curing, Double

Double tank boilout/curing unit. Two 18 gauge stainless steel tanks: 254 mm 10 inches by 356 mm 14 inches by 305 mm 12 inches deep and 254 mm 10 inches by 356 mm 14 inches by 254 mm 10 inches deep with inside handles. Electrical requirements: 208 volts 50/60 Hz. Steel cabinet and stainless steel countertop included. Includes a backshelf and fifth spout. This should be provided together as one product. Cabinet must not be constructed separately by millwork manufacturer. Approximate Cabinet size 914 mm 36 inches wide by 787 mm 31 inches deep 940 mm 37 inches high.

][2.2.4 Item D0760, Guard, Casting Machine

Casting machine guard and rim. Provide the well of the guard minimum 330 mm 13 inches deep and 483 mm 19 inches in diameter. Construct the well of heavy duty rust resistant steel with a rim to align the guard to the casting cabinet working surface. Construct base of steel and fiberboard for attachment to workbench.

][2.2.5 Item D0880, Blast Gate, Vacuum System

Vacuum Blast gate. Compatible with bench or central vacuum system. Includes sliding open-close panel in a frame. Mount the gate in the vertical face of a laboratory bench service ledge. Includes front and back flanges adaptable to 76 mm 3 inch hoses in the vacuum system. Provide baked enamel finish.

][2.2.6 Item D0900, Workstation, Dental Lab, Receiving

Modular lab receiving workstation. Floor mounted stand consists of a 610 mm 24 inch wide base cabinet unit with four equal drawers, a 610 mm 24 inch wide single or double door base cabinet unit with an adjustable shelf and a 1880 mm 74 inch wide laminate counter supported by the two base cabinets. Provide an under counter 610 mm 24 inch wide single drawer unit between the two cabinets. Provide countertop 610 mm 24 inches deep, high pressure laminate.

][2.2.7 Item D0904, Workstation, Tech, Dental, Lab, Single Station

Single, self-contained, modular technician workstation with utility connections for air, gas, and electric. Approximate size: 1219 mm 48 inches wide by 610 mm 24 inches deep by 864 mm 34 inches high without light structure.

a. Load bearing steel frame on adjustable legs with end panels and supports.

b. Overhead color corrected task lighting.

c. Bunsen Burner, Bunsen Burner Tube, air gun, and bench mounted work tray holder. Remote control gas valve.

d. Dust extraction unit with support frame for waste drawer, filter drawer with Motor, Suction Hood.

e. Bench top includes one storage cabinet with four drawers and instrument inserts, one stainless steel debris drawer and a cast cement / fiberglass countertop; case pan shelf system with shelf and supports.

f. Gas pipeline connection with stop valves; compressed air connection with stop valves; and pressure reducing valve.

g. Electrical requirements: [110 volts 50/60 Hz].

][2.2.8 Item D0905, Workstation, Dental Lab, Four Station

Four station, self-contained, modular technician workstation with utility connections for air, gas, and electric. Approximate size of each station: 1219 mm 48 inches wide by 610 mm 24 inches deep by 864 mm 34 inches high without light structure. Overall approximate size: 2438 mm 96 inches wide by 1219 mm 48 inches deep by 864 mm 34 inches highwithout light structure. Each station should include:

a. Load bearing steel frame on adjustable legs with end panels and supports.

b. Overhead color corrected task lighting.

c. Bunsen Burner, Bunsen Burner Tube, air gun, and bench mounted work tray holder. Remote control gas valve.

d. Dust extraction unit with support frame for waste drawer, filter drawer with Motor, Suction Hood.

e. Bench top includes one storage cabinet with four drawers and

instrument inserts, one stainless steel debris drawer and a cast cement / fiberglass countertop; case pan shelf system with shelf and supports.

f. Gas pipeline connection with stop valves; compressed air connection with stop valves; and pressure reducing valve.

g. Electrical requirements: [110 volts 50/60 Hz].

][2.2.9 Item D0910, Workstation, Dental Lab, Metal Grinding

Modular metal grinding dental lab workstation. Includes a full-length load-bearing steel frame, adjustable legs, end panels and supports, a 3-drawer storage cabinet, a 4-drawer storage cabinet with instrument inserts, a cast cement/fiberglass countertop, overhead task lighting (3000 Lux, natural daylight), and an air gun and a dust extraction unit. Approximate dimensions: 1219 mm 48 inches wide by 610 mm 24 inches deep by 813 mm 32 inches high. Electrical requirements: [110 volts 50/60 Hz].

][2.2.10 Item D0915, Workstation, Dental Lab, Ceramic, Modular

Modular ceramic dental lab workstation. Includes a full-length load-bearing steel frame, adjustable legs, end panels and supports, a 610 mm 24 inch wide extension table, a 4-drawer storage cabinet with instrument inserts, a 4-drawer storage cabinet with inserts, a cast cement/fiberglass countertop, overhead task lighting (3000 Lux, natural daylight), an air gun and a micro-filter (ceramic) extraction unit debris drawer. Approximate overall dimensions: 2134 mm 84 inches wide by 610 mm 24 inches deep by 813 mm 32 inches high. Electrical requirements: [110 volts 50/60 Hz].

][2.2.11 Item D0920, Workstation, Dental Lab, Floor Standing

Floor standing ceramic workstation. Includes two floor standing cabinets with adjustable shelves, a floor standing cabinet with four equal drawers and inserts, and a stainless steel sink with faucet and a 610 mm 24 inch deep stainless steel or plastic laminate counter top. Approximate sink size: 406 mm 16 inches long by 406 mm 16 inches wide by 406 mm 16 inches deep. Approximate dimensions: 1067 mm 42 inches wide by 762 mm 30 inches deep by 813 mm 32 inches high.

][2.2.12 Item D0925, Hood, Fume, Dental Acrylic, Floor Standing

Floor-standing dental acrylic fume hood. Construct of PVC plastic/fiberglass liner. Includes built-in lighting, an extraction fan with blower vented to atmosphere, water channel, polypropylene 76 mm 3 inch by 152 mm 6 inch cup sink, 110 electrical duplex receptacle and counter-balanced tempered glass vertically sliding front protective window. Fume hood approximate dimensions: 1194 mm 47 inches wide by 635 mm 25 inches deep by 1346 mm 53 inches high. Include cabinet base with work surface. Base cabinet approximate dimensions: 1219 mm 48 inches wide by 610 mm 24 inches deep by 914 mm 36 inches high (or 787 mm 31 inches for ADA). Cabinet supports up to 363 lbs 800 pounds. Construct of epoxy coated steel. Includes two manual closing doors and filler panel to increase cabinet depth to 762 mm 30 inches. Provide work surface with plumbing access openings.

][2.2.13 Item D0930, Workstation, Dental Lab, Casting

Floor standing casting dental lab workstation. Approximate dimensions: 1854 mm 73 inches wide by 660 mm 26 inches deep by 864 mm 34 inches high. Includes:

a. Full Length load bearing steel support frame on adjustable legs with end panels and supports.

b. Stainless steel wall shelf with brackets. 1219 mm 48 inches wide by 406 mm 16 inches deep.

c. Built in soldering unit.

d. Gas pipeline connection.

e. Compressed air connection.

f. Pull out casting ring cooling drawer with steel grid.

g. Soap Stone counter top.

h. Exhaust to atmosphere extraction Hood. 1829 mm 72 inches wide by 610 mm 24 inches deep. Provide stainless steel hood. Includes start delay and timer.

][2.2.14 Item D0935, Workstation, Dental Lab, Investment

Floor standing Investment dental lab workstation. Includes storage cabinet with door, sink base cabinet with door, storage cabinet with three drawers. Drawers: one 51 mm 2 inches and two equal sized. Waste disposal cabinet, with knife scrapper. Stainless steel counter top, 610 mm 24 inches deep. Stainless steel sink, 406 mm 16 inch wide by 406 mm 16 inch long by 191 mm 7-1/2 inch deep with plaster trap. Front panel with air nozzle. Approximate dimensions: 2464 mm 97 inches wide by 610 mm 24 inches deep.

][2.2.15 Item D0940, Workstation, Dental Lab, Equipment Bench

Modular investment equipment workstation. Includes two floor-mounted single or one double door storage cabinet with two adjustable shelves and a cast cement/fiberglass counter top. Approximate dimensions: 1219 mm 48 inches wide by 610 mm 24 inches deep by 914 mm 36 inches high (787 mm34 inches high for ADA).

][2.2.16 Item D0942, Workstation, Dental Lab, Microblasting

Microblasting Dental Lab Workstation with dust collector. Includes:

a. Load bearing steel support frame with end panels and supports.

b. Interior space: 0.062 cubic meter 2.2 cubic feet, 610 mm 24 inches wide by 254 mm 10 inches high by 356 mm 14 inches deep.

c. Window: tempered glass opening (hinged) 584 mm 23 inches by 279 mm 11 inches.

d. Lighting: 40 watt cool white fluorescent lamp.

e. Approximate dimensions: 762 mm 30 inches wide by 864 mm 34 inches deep by 1168 mm 46 inches high.

][2.2.17 Item D0945, Workstation, Dental Lab, Surveying / Milling

Floor standing surveying and milling dental laboratory workstation. Includes three 610 mm 24 inch wide single floor cabinets with one adjustable shelf each, a 610 mm 24 inch wide floor cabinet with four equal drawers, two 610 mm 24 inch wide undercounter single drawer units, end panels and a 610 mm 24 inch deep plastic laminate countertop.

Approximate dimensions: 3658 mm 144 inches long by 610 mm 24 inches deep by 864 mm 34 inches high.

][2.2.18 Item D0950, Workstation, Dental Lab, Acrylic Processing

Modular acrylic processing dental lab workstation. Includes one 610 mm 24 inch wide double door base cabinet with one adjustable shelf, one 610 mm 24 inch wide base cabinet with five drawers, one 610 mm 24 inch wide base cabinet with three equal drawers and a 610 mm 24 inch deep plastic laminate countertop.

Approximate dimensions: 2438 mm 96 inches long by 610 mm 24 inches deep by 864 mm 34 inches high.

][2.2.19 Item D0960, Workstation, Dental Lab, Plaster

Dental lab plaster workstation, 3658 mm 144 incheswide by 610 mm 24 inches deep by 940 mm 37 inches high. Includes:

a. Stainless steel counter top.

b. Stainless steel sink.

c. Counter mounted plaster waste disposal with knife scraper.

d. Trimmer console for rinser bath.

e. Two mixing faucets for cold and warm water.

f. Two plaster traps, one at each sink; plaster trap is 483 mm 19 inches in diameter by 521 mm 20-1/2 inches tall.

g. Panel with air gun module.

h. Pressure reducing valve.

i. Connection kits for sink and rinsing bath.

j. Two 457 mm 18 inches wide floor mounted base cabinets with four drawers.

k. One 1219 mm 48 inch wide floor mounted sink base cabinet, half of cabinet has one single 610 mm 24 inch wide door and the other half has two 610 mm 24 inch wide stacked drawers for housing the rinsing bath.

l. One 610 mm 24 inch wide floor mounted sink base cabinet with door, for housing the sink.

m. Two 457 mm 18 inch single doors base cabinet with one adjustable shelf each.

n. One floor mounted waste disposal base cabinet with waste container.

o. Four ground fault receptacles, 15 amp.

p. Upright water valve.

q. Electrical requirements: [110 Volts 50/60 Hz].

][2.2.20 Item D0970, Workstation, Dental Lab, Polishing, 2 Station

Modular two station polishing workstation. Includes:

a. Suction Motor: 3/4 HP, 115 Volts/60 Hz.

b. Two polishing hoods with Polishing Motor: No 26 Red wing, two speed lathe.

c. Suction Capacity: 170 cubic meter/min 600 CFM.

d. Filter Area: 5.8 square meters 62 Square feet, 24 shakable cloth filter bags.

e. Cleaning: External foot shaker, internal cabinet dust tray, self contained dust collector with lathe.

f. Approximate unit dimensions: 1422 mm 56 inches high by 813 mm 32 inches to 1219 mm 48 inches wide by 457 mm 18 inches to 610 mm 24 inches deep. Stainless steel work surface with rolled edges approximately 1016 mm 40 inches to table top, adjustable table frame.

g. Over top lighting.

h. Finish: baked coating.

i. Electrical requirements: [110 Volts 50/60 Hz].

][2.2.21 Item D0975, Workstation, Dental Lab, Die Trimming

Modular die trimming dental lab workstation. Includes full-length load bearing steel frame, adjustable legs with end panels and supports, overhead task lighting (3000 Lux, natural daylight), two storage cabinets with four drawers and inserts, an adjustable air pressure and air gun, a dust extraction unit with particle filter, a collection hood and stainless steel debris drawer and a cast cement/fiberglass countertop. Approximate dimensions: 1067 mm 42 inches wide by 762 mm 30 inches deep by 813 mm 32 inches high. Electrical requirements:[110 volts 50/60 Hz].

][2.2.22 Item D6155, Light, Dental, Operating, Ceiling, Column

Ceiling mounted LED dental operating light used to illuminate the field of work for the dentist.

Provide 76 mm 3 inch by 152 mm 6 inch light pattern with uniform intensity. Long depth of field generated within 457 mm 18 inch to 914 mm 36 inchrange. Vibration and shock resistant. Third axis rotation. Provide flex arm capable of movement travel up to 40 degrees above and

below horizontal and up to 27 degrees vertically. 5000 degree and 4200 degree Kelvin selections with high/medium/low intensity settings. Electrical requirements: [110 Volts 50/60 Hz].

][2.2.23 Item D7090, Utility Center, Dental, Floor Mounted

Surface mounted dental utility center floor box by the same manufacturer as the Government provided dental chair that it interfaces with. Coordinate with the Government prior to purchasing. Contractor required to coordinate all final connections to dental operating system. Provide air shut off valve, electrical receptacle box, oral evacuation and stub ups for communication cables. Refer to plumbing, electrical, and communication drawings for location and specific connections.

Provide cover box approximately 432 mm 17 inches long by 356 mm 14 inches wide by 127 mm 5 inches high. Unit includes a contoured floor box frame and a contoured floor box cover.

][2.2.24 Item D8650, Chute, Waste, Plaster, Counter Mounted

Counter mounted plaster waste chute. Construct of stainless steel and shaped round or square. Includes a scraper bar. Approximate size: 152 mm 6 inch diameter by 102 mm 4 inches deep.

]PART 3 EXECUTION

3.1 EXAMINATION

After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Contracting Officer of any discrepancy before performing the work.

3.2 INSTALLATION

Install equipment at locations indicated in accordance with manufacturer's printed installation instructions, Section 11 70 00 GENERAL REQUIREMENTS FOR MEDICAL AND DENTAL EQUIPMENT, and approved detail drawings. Submit detail drawings specifically prepared to illustrate required work for each item of equipment that interfaces with other items of equipment or construction, including, but not limited to, installation layout, coordination of equipment services, [drain piping connections,] [complete electrical wiring and control diagrams,] and details of construction and rough-in requirements. Furnish and install necessary items such as framing, mounting hardware and trim as required for the type of equipment furnished.

3.3 ADJUSTING

Following installation, adjust flows, timers, levelers, and similar components and operation devices as appropriate. After testing, and before acceptance, examine equipment to ensure that adjustments are correct and that any additional adjustments deemed necessary during product testing have been incorporated.

3.4 UTILITIES

3.4.1 Service Runs

Connect service runs from equipment to building services as indicated.

3.4.2 Dissimilar Metal Connectors

Provide connections between ferrous and nonferrous metallic pipe with dielectric waterways and flanges. Provide dielectric waterways with temperature and pressure rating equal to or greater than that specified for the connecting piping. Provide waterways with metal connections on both ends suited to match connecting piping. Internally line dielectric waterways with an insulator specifically designed to prevent current flow between dissimilar metals. Dielectric flanges must meet the performance requirements described herein for dielectric waterways.

3.5 MANUFACTURER'S FIELD SERVICES

Provide the services of a manufacturer's representative [, in conjunction with] [,in addition to][the Contractor's Equipment Planner,] [and] [the Contractor's Biomedical Equipment Technician,] [the Government's Biomedical Equipment Technician,]who is experienced in the installation, adjustment, and operation of the equipment specified, and responsible for supervising the installation, adjustment, and testing of the equipment.

3.6 FIELD TESTS AND INSPECTIONS

3.6.1 Before Testing

Clean pipes, equipment and components of grease, dirt, stains, and other foreign materials.

3.6.2 Testing

Perform testing in accordance with manufacturer's written instructions. Unless otherwise approved by the Contracting Officer, test all items of equipment to ensure that they are operational and installation conforms to specification requirements. Hydrostatically test piping system at pressure of 1.5 times system operating pressure with water at temperature not exceeding 38 degrees C 100 degrees F. Before test, remove or isolate gage traps and apparatus that may be damaged by that pressure. Install calibrated test gage in system to observe any loss of pressure. Close off system and maintain test pressure for not less than one hour. Inspect joints and equipment connections for leaks. Retest and make repair until no further leaks are observed. Each test report must indicate compliance with the specified performance criteria and the final position of controls.

3.6.3 Inspection

Examine each item for visual defects and conformance to specifications.

3.7 CLEANING

3.7.1 For Final Acceptance

Remove labels, fingerprints, and clean all surfaces both inside and out. Tightly cover and protect fixtures and equipment against rust, dirt, water, and chemical or mechanical injury.

3.7.2 Marred Surfaces Exposed-to-View

Refinish marred exposed surfaces that affect appearance, such as interior and exterior cabinet finishes, to match the adjacent finishes, like new;

replace components that cannot be refinished in this manner.

3.7.3 Concealed Marred Surfaces

Refinish marred surfaces exposed to atmosphere, where such surfaces do not affect product's appearance but do affect resistance to elements, such as galvanized pipes and insulation, to equal resistance performance as the unmarred surfaces.

3.8 TRAINING

3.8.1 Training Course

Conduct training course for operation staff as designated by the Contracting Officer. Start the training period, for a total of [_____] hours of normal working time, after systems are functionally complete but prior to final acceptance. The field instructions must include all of the items contained in the approved operations and maintenance data, as well as demonstrations of routine maintenance operations. Notify Contracting Officer at least 14 days prior to date of the training course.

[3.8.1.1 Government's Biomedical Equipment Technician Training

Include operator's training for one Biomedical Equipment Technician (BMET) for each procured equipment item.

] -- End of Section --