

**SECTION 12 56 70.11
SUSPENDED TABLE**

SPEC WRITER NOTES:

1. Delete text between // // not applicable to project. Edit remaining text to suit project.
2. Show information and details of tables on drawings. Electrical operation is preferred as two persons are required for manual operation.
3. Coordinate electrical light requirements for room with requirements for table with integral light fixture and conduit and wiring services required under Division 26 for electrically operated tables.
4. Provide steel on structure for attachment of mounting frame; coordinate with Section 05 50 00, METAL FABRICATIONS.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Ceiling-mounted, retractable suspended table system, // electrically // manually // operated.

1.2 RELATED WORK

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

- A. Section 05 50 00, METAL FABRICATIONS: Structural Provisions for Anchorage.
- B. Section 09 06 00, SCHEDULE FOR FINISHES: Color and Pattern of Table Top.
- C. Division 26, ELECTRICAL: Electric Connections and Components.

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. American National Standards Institute (ANSI):
A208.1-09.....Particleboard, Mat-Formed Wood.
- C. ASTM International (ASTM):
A36/A36M-19.....Carbon Structural Steel.
A240/A240M-20.....Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

- A283/A283M-18.....Low and Intermediate Tensile Strength Carbon Steel Plates.
- A1008/A1008M-18.....Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate.
- B221-14.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

D. American Welding Society (AWS):

- D1.1/D1.1M-20.....Structural Welding Code-Steel.
- D1.2/D1.2M-14 (errata 2020) Structural Welding Code-Aluminum.

E. Federal Specifications (Fed. Spec.):

- A-A-1936A-06.....Adhesive, Contact, Neoprene Rubber.

F. National Architectural Metal Manufacturers (NAAMM):

- AMP 500-06.....Metal Finishes Manual.

G. National Fire Protection Association (NFPA):

- 70-20.....National Electrical Code.

H. National Electrical Manufacturers Association (NEMA):

- LD-3-05.....High-Pressure Decorative Laminates.

I. UL LLC (UL):

- Listed.....Online Certifications Directory.

1.4 PREINSTALLATION MEETINGS

- A. Conduct preinstallation meeting minimum 30 days before beginning Work of this section.

SPEC WRITER NOTE: Edit participant list to ensure entities influencing outcome attend.

1. Required Participants:

- a. Contracting Officer's Representative.
- b. //Architect/Engineer. //
- c. //Inspection and Testing Agency. //
- d. Contractor.
- e. Installer.
- f. //Manufacturer's field representative. //

- g. Other installers responsible for adjacent and intersecting work, including <installer> and <installer>.

SPEC WRITER NOTE: Edit meeting agenda to incorporate project specific topics.

- 2. Meeting Agenda: Distribute agenda to participants minimum 3 days before meeting.
 - a. Installation schedule.
 - b. Installation sequence.
 - c. Preparatory work.
 - d. Protection before, during, and after installation.
 - e. Installation.
 - f. Power locations and characteristics.
 - g. Control locations.
 - h. Other items affecting successful completion.
- 3. Document and distribute meeting minutes to participants to record decisions affecting installation.

1.5 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submittal Drawings:
 - 1. Show size, configuration, and fabrication and installation details.
 - 2. Show suspension details and attachment to building structure.
 - 3. Show table locations at fully lowered and fully raised positions.
- C. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - 2. Installation instructions.
 - 3. Warranty.
- D. Samples:
 - 1. Tabletops: 300 mm (12 inches) square, each type, finish, and color.
 - a. Submit quantity required to show full color range.
 - 2. Approved samples may be incorporated into work.
- E. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

- 1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.
- 2. Low Pollutant-Emitting Materials:
 - a. Show volatile organic compound types and quantities.

- b. Certify each composite wood product contain no added urea formaldehyde.
- F. Qualifications: Substantiate qualifications comply with specifications.
 - 1. Manufacturer // with project experience list //.
 - 2. Installer // with project experience list //.
- G. Operation and Maintenance Data:
 - 1. Care instructions for each exposed finish product.
 - 2. Start-up, maintenance, troubleshooting, emergency, and shut-down instructions for each operational product.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Regularly manufactures specified products.
 - 2. Manufactured specified products with satisfactory service on five similar installations for minimum five years.
 - a. // Project Experience List: Provide contact names and addresses for completed projects. //
- B. Installer Qualifications:
 - 1. Regularly installs specified products.
 - 2. Installed specified products with satisfactory service on five similar installations for minimum five years.
 - a. // Project Experience List: Provide contact names and addresses for completed projects. //
- C. Welders and Welding Procedures Qualifications: AWS D1.1/D1.1M and AWS D1.2/D1.2M.

1.7 DELIVERY

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, // color, // production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

1.8 STORAGE AND HANDLING

- A. Store products indoors in dry, weathertight // conditioned // facility.
- B. Protect products from damage during handling and construction operations.

1.9 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

- B. Manufacturer's Warranty: Warrant <specified item> against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products.

- 1. Warranty Period: 2 years.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Wood Particleboard: ANSI A208.1, Grade 2-M-2.
- B. Plastic Laminate:
 - 1. NEMA LD-3, decorative type PF42, minimum 1 mm (0.04) inch thick.
- C. Contract Adhesive: Fed. Spec. A-A-1936.
- D. Steel:
 - 1. Structural framing shapes: ASTM A36/A36M.
 - 2. Cabinet enclosures: ASTM A1008/A1008M.
 - 3. Miscellaneous: ASTM A283/A283M.
 - 4. Stainless: ASTM A240/A240M, Type 304.
- E. Aluminum:
 - 1. Alloys suitable for intended use.
 - 2. Extrusions: ASTM B221/B221M.
 - 3. Sheets and Plates: ASTM B209/B209.
- F. Hardware:
 - 1. Manufactures standard stainless steel hinges.
 - 2. Fasteners:
 - a. Stainless steel for exposed items and aluminum.
 - b. Steel for concealed items.

2.2 PRODUCTS - GENERAL

- A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Provide suspended tables from one manufacturer // and from one production run //.
 - 1. Provide each product exposed to view from one production run.
- C. Electrical Components: UL Listed to suit application.
- D. Sustainable Construction Requirements:

SPEC WRITER NOTE:

1. Specify products containing greatest recycled content practicable to maximize material recovery. See EPA Comprehensive Procurement Guidelines (CPG) for guidance about individual products and available recycled content. Section 01 81 13 sets overall project recycled content requirements.
2. Steel recycled content depends upon furnace type. AISC reports industry wide 32 percent for basic oxygen furnace and 93 percent for electric arc furnace.

1. Steel Recycled Content: 30 percent total recycled content, minimum.

SPEC WRITER NOTE: Specialty Steel Industry of North America (SSINA) reports average 75 - 85 percent recycled content for stainless steel.

2. Stainless Steel Recycled Content: 70 percent total recycled content, minimum.

SPEC WRITER NOTE: Aluminum Association (AA) reports 2008 industry average 85 percent recycled content for aluminum in building construction industry.

3. Aluminum Recycled Content: 80 percent total recycled content, minimum.
4. Low Pollutant-Emitting Materials: Materials: Comply with VOC limits specified in Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS for the following products:
 - a. Non-flooring adhesives.

2.3 SUSPENDED TABLES

- A. Live Load: 225 kg (500 pounds).

SPEC WRITER NOTE: Use of round tables preferred. Round tables most economical and efficient. Consult with manufacturer for variations if required.

- B. Tables:

1. Diameter: 1500 mm (60 inches).
2. Core: 19 mm (3/4 inch) thick particleboard.
3. Top and Bottom Surface: Plastic laminate bonded to core with contact adhesive.

4. Edge Molding: Vinyl "T" molding, installed flush with plastic laminate surface.
 5. Cross Brace: Welded aluminum attached to bottom of table, designed to provide support against table top deflection.
- C. Suspension System:
1. One inch square stainless steel tube suspension arms welded into rigid assembly.
 2. Hinges: Stainless steel, welded to suspension arms.
 3. Stainless steel welds brushed to match adjacent finishes.
 4. Suspension system designed to fold at midpoint, and pivot at top and table mounting.
 5. Design table mounting device to transfer loads from pivots to table to cross brace and maintain rigid level table top.
 6. Table Mounting Device Housing: Stainless steel designed to prevent fingers being inserted and entry of food particles.
- D. Ceiling Assembly Unit: Surface mounted, consisting of counter balanced system, pivots for suspension arms // motor-driven geared operating mechanism, // and component supports encased in painted sheet steel housing.
1. Design assembly for bolting to ceiling mounting system.
 2. Provide trim for joint with finish ceiling material.
- E. Ceiling Mounting System:
1. Structural Steel Support System: Welded structural steel angles and channels. designed to:
 - a. Attach to building structural system above.
 - b. Receive and level ceiling assembly unit bolts.
 - c. Prevent sway or movement of table when in stationary lowered position, and during raising and lowering operation.
 2. Length: As required to extend from finish ceiling to supporting structure above.
- F. Motors and Controls:
1. Motor Power: 5 Ampere, 120 Volt, AC, single phase, 60 Hz.
 2. Control Power: 12 Volt DC. Provide one 24 Volt transformer for each group of eight tables, maximum.
 - a. Transformer Switches: Keyed type, one switch for each transformer, keyed alike.
 - b. Keys: Provide 10 keys, keyed alike and labeled "Table Switches" or tagged with identification tags.

3. Table Switches: Continuous contact switches, one switch for each table, to raise and lower tables.
4. Switch Cover Plates: Provide cover plate for switches.
 - a. Table Switches: Identify controlled table.
5. Limit Switches: Stop motors at maximum raised or lowered table position.

2.4 FINISHES

- A. Steel Paint Finish:
 1. Powder-Coat Finish: Manufacturer's standard two-coat finish system consisting of the following:
 - a. One coat primer.
 - b. One coat thermosetting topcoat.
 - c. Dry-film Thickness: 0.05 mm (2 mils) minimum.
 - d. Color: Refer to Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Stainless Steel: NAAMM AMP 500; No. 4 polished finish.
- C. Aluminum Anodized Finish: NAAMM AMP 500.
 1. Clear Anodized Finish: AA-C22A41; Class I Architectural, 0.018 mm (0.7 mil) thick.
 2. Color Anodized Finish: AA-C22A42 or AA-C22A44; Class I Architectural, 0.018 mm (0.7 mil) thick.
 3. Clear Anodized Finish: AA-C22A31; Class II Architectural, 0.01 mm (0.4 mil) thick.
 4. Color Anodized Finish: AA-C22A32 or AA-C22A34; Class II Architectural, 0.01 mm (0.4 mil) thick.

2.5 ACCESSORIES

- A. Welding Materials: AWS D1.1/D1.1M, type to suit application.
- B. Fasteners: Type and size recommended by manufacture to suit application.
- C. Touch-Up Paint: Match shop finish.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine and verify substrate suitability for product installation.
 1. Verify supporting structure is installed, and correctly sized and located.
 2. Verify ceiling is correct height above finished floor.
- B. Protect existing construction and completed work from damage.

3.2 INSTALLATION

- A. Install suspended tables according to manufacturer's instructions // and approved submittal drawings //.
 - 1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.
- B. Securely fasten suspended tables to structural support system after ceiling is installed.

SPEC WRITER NOTE: Coordinate with electrical for location of conduit. Locate junction box for wall mounted switches within view of tables operated by switches.

- C. Cover finished ceiling material with ceiling flange.
- D. Install electrical switches and controls.
 - 1. Install transformer switches to activate table switches.
 - 2. Install table switches, one for each table, within view of table.
- E. After installation, test and adjust table for proper operation without binding or deformation of table or suspension system.
 - 1. Adjust installation so table is level at fully lowered and fully raised positions.

3.3 CLEANING

- A. Clean table and components and leave in fully raised position.

3.4 DEMONSTRATION AND TRAINING

- A. Instruct VA personnel in proper suspended table operation and maintenance.
 - 1. Trainer: Manufacturer approved instructor.
 - 2. Training Time: 2 hours minimum.
- B. Deliver transformer switch keys to Contracting Officer's Representative after demonstrating table operation.

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