SECTION 233713.23 - REGISTERS AND GRILLES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      1. SUMMARY
         1. Section Includes:

Adjustable blade face [**registers**] [**and**] [**grilles**].

Fixed face [**registers**] [**and**] [**grilles**].

Linear bar grilles.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 233300 "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to registers and grilles.

Section 233713.13 "Air Diffusers" for various types of air diffusers.

Section 233713.43 "Security Registers and Grilles" for security registers and security grilles.

Section 233716 "Fabric Air-Diffusion Devices" for continuous tubular diffusers.

* + - 1. SUBMITTALS
         1. Submittals for this section are subject to the er-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of product.

Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.

Register and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color and texture specified. Smallest size register and grille indicated.
        2. Samples for Initial Selection: For registers and grilles with factory-applied color finishes. Smallest size register and grille indicated.
        3. Samples for Verification: For registers and grilles, in manufacturer's standard sizes to verify color selected. Smallest size register and grille indicated.

Retain "Coordination Drawings" paragraph below for situations where limited space necessitates maximum utilization for efficient installation of different components or if coordination is required for installation of products and materials by separate installers. Coordinate paragraph with other Sections specifying products listed below. Preparation of coordination drawings requires the participation of each trade involved in installations within the limited space.

* + - * 1. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

Ceiling suspension assembly members.

Method of attaching hangers to building structure.

Size and location of initial access modules for acoustical tile.

Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

Duct access panels.

* + - * 1. Source quality-control reports.
      1. MAINTENANCE
         1. Special Tools:

One bar deflection key for every five supply grilles and/or every five return grilles.

One operator key for every five supply registers and/or every 5 return or exhaust registers.

Two keys or socket wrenches for each type of damper adjustment screw or device on manual damper regulators.

USE SUBPARAGRAPH BELOW WITH PROJECTS REQUIRING SECURE PATIENT OR INMATE AREAS.

One tool for each type and size Torx center pin fastener.

1. PRODUCTS

Manufacturers and products listed in SpecAgent and Masterworks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications. For definitions of terms and requirements for Contractor's product selection, see Section 016000 "Product Requirements."

Descriptions of registers and grilles include required attributes that define air outlets and inlets. Each description must be edited to include a drawing designation. If there is more than one type of air outlet or inlet for a particular description, copy the paragraph for each type required and edit each copy to define each required type. Assign each type a different drawing designation.

As stated in the Evaluations, MasterSpec defines a register as a combination grille and damper assembly. Some manufacturers listed in SpecAgent and Masterworks Paragraph Builder do not make this distinction. Often, they simply supply grilles with and without dampers.

* + - 1. REGISTERS

Copy first paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Adjustable Blade Face Register <**Insert drawing designation**>:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12394) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029410).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029418).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029419).

Approved equivalent.

Material: [**Steel**] [**Aluminum**] [**Stainless steel**].

Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Face Blade Arrangement: [**Horizontal**] [**Vertical**] spaced [**3 inches**] [**1-1/2 inches**] [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Core Construction: [**Integral**] [**Removable**].

Retain first subparagraph below if rear blades are required.

Rear-Blade Arrangement: [**Horizontal**] [**Vertical**] spaced [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Frame: [**1-1/4 inches**] [**1 inch**] <**Insert dimension**> wide.

Retain first subparagraph below if mounting frame is required.

Mounting Frame: [**Filter**] <**Insert frame size and style**>.

Mounting: [**Countersunk screw**] [**Concealed**] [**Lay in**].

Damper Type: [**Multishutter**] [**Adjustable opposed blade**] [**NRTL listed, opposed blade, spring closing, and with fusible link for 160 deg F**].

Accessories:

[**Front**] [**Rear**]-blade gang operator.

Filter.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Fixed Face Register <**Insert drawing designation**>:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12395) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029422).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029429).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029431).

Approved equivalent.

Material: [**Steel**] [**Aluminum**].

Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Retain "Face Blade Arrangement" or "Face Arrangement" Subparagraph below.

Face Blade Arrangement: [**Horizontal**] [**Vertical**] spaced [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Face Arrangement: Perforated core.

Core Construction: [**Integral**] [**Removable**].

Frame: [**1-1/4 inches**] [**1 inch**] <**Insert dimension**> wide.

Retain first subparagraph below if mounting frame is required.

Mounting Frame: [**Filter**] <**Insert frame size and style**>.

Mounting: [**Countersunk screw**] [**Concealed**] [**Lay in**].

Damper Type: [**Multishutter**] [**Adjustable opposed blade**] [**NRTL listed, opposed blade, spring closing, and with fusible link for 160 deg F**].

Accessory: Filter.

* + - 1. GRILLES

Copy first paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Adjustable Blade Face Grille <**Insert drawing designation**>:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12396) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029434).

[Nailor Industries Inc](http://www.specagent.com/Lookup?uid=123457029441).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029442).

Approved equivalent.

Material: [**Steel**] [**Aluminum**] [**Stainless steel**].

Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Face Blade Arrangement: [**Horizontal**] [**Vertical**] spaced [**3 inches**] [**1-1/2 inches**] [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Core Construction: [**Integral**] [**Removable**].

Retain first subparagraph below if rear blades are required.

Rear-Blade Arrangement: [**Horizontal**] [**Vertical**] spaced [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Frame: [**1-1/4 inches**] [**1 inch**] <**Insert dimension**> wide.

Retain first subparagraph below if mounting frame is required.

Mounting Frame: [**Filter**] <**Insert frame size and style**>.

Mounting: [**Countersunk screw**] [**Concealed**] [**Lay in**].

Accessories:

[**Front**] [**Rear**]-blade gang operator.

Filter.

Copy first paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Fixed Face Grille <**Insert drawing designation**>:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12397) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029448).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029455).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029457).

Approved equivalent.

Material: [**Steel**] [**Aluminum**].

Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Retain "Face Blade Arrangement" or "Face Arrangement" Subparagraph below.

Face Blade Arrangement: [**Horizontal**] [**Vertical**]; spaced [**3/4 inch**] [**1/2 inch**] <**Insert dimension**> apart.

Face Arrangement: Perforated core.

Core Construction: [**Integral**] [**Removable**].

Frame: [**1-1/4 inches**] [**1 inch**] <**Insert dimension**> wide.

Retain first subparagraph below if mounting frame is required.

Mounting Frame: [**Filter**] <**Insert frame size and style**>.

Mounting: [**Countersunk screw**] [**Concealed**] [**Lay in**].

Accessory: Filter.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Linear Bar Grilles <**Insert drawing designation**>

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12398) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029460).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029467).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029469).

Approved equivalent.

Material: [**Steel**] [**Aluminum**].

Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Retain "Face Blade Arrangement" or "Face Arrangement" Subparagraph below.

Face Blade Arrangement: [**Horizontal**] [**Vertical**]; spaced [**1/2 inch**] <**Insert dimension**> apart.

Face Arrangement: Perforated core.

Core Construction: [**Integral**] [**Removable**].

Distribution plenum.

Internal insulation.

Inlet damper.

Frame: [**1-1/4 inches**] [**1 inch**] <**Insert dimension**> wide.

Retain first subparagraph below if mounting frame is required.

Mounting Frame: [**Filter**] <**Insert frame size and style**>.

Mounting: [**Countersunk screw**] [**Concealed**] [**Lay in**].

Damper Type: [**Adjustable opposed blade**] [**NRTL listed, opposed blade, spring closing, and with fusible link for 160 deg F**].

* + - 1. SOURCE QUALITY CONTROL
         1. Verification of Performance: Rate registers and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine areas where registers and grilles are installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION
          1. Install registers and grilles level and plumb.
          2. Outlets and Inlets Locations: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
          3. Install registers and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.
       3. ADJUSTING
          1. After installation, adjust registers and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713.23