2. Furnish, install, and prepare equipment and materials necessary for the completion of the work as specified in Division 12 and those required to be furnished for the work according to the project drawings, specifications, and this Contract. Contractor shall be responsible for the removal of debris caused by his work.

3. Furnish labor, material, and equipment necessary for the construction and completion of the work as herein specified in Division 23, and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

4. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

5. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

6. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

7. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

8. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.

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35. Furnish labor, materials, and equipment necessary for the completion of the work as herein specified in Division 23 and in accordance with the project drawings and specifications. Contractor shall be responsible for the removal of debris caused by his work.
SECTION 230711 - DUCT INSULATION

PART 2 - GENERAL

1. Scope

This Section provides design, installation, and testing requirements for approved duct insulation systems.

2. Materials

The duct insulation is to be installed in accordance with the manufacturer’s instructions and recommendations.

3. Installation

3.1 Duct Insulation Systems

Duct insulation systems shall be installed in accordance with the manufacturer’s instructions and recommendations.

3.2 Installation of Duct Insulation

Duct insulation shall be installed in accordance with the manufacturer’s instructions and recommendations.

4. Tests and Inspections

4.1 Visual Inspection

Visual inspection shall be performed to ensure that the duct insulation is installed in accordance with the manufacturer’s instructions and recommendations.

4.2 Quality Assurance

Quality assurance shall be performed in accordance with the manufacturer’s instructions and recommendations.

5. Maintenance

Maintenance shall be performed in accordance with the manufacturer’s instructions and recommendations.

SECTION 230711 - DUCT METALS

PART 1 - GENERAL

1. Scope

This Section provides design, installation, and testing requirements for metal duct systems.

2. Materials

2.1 Metal Ducts

Metal ducts shall be installed in accordance with the manufacturer’s instructions and recommendations.

3. Installation

3.1 Metal Ducts

Metal ducts shall be installed in accordance with the manufacturer’s instructions and recommendations.

4. Tests and Inspections

4.1 Visual Inspection

Visual inspection shall be performed to ensure that the metal ducts are installed in accordance with the manufacturer’s instructions and recommendations.

4.2 Quality Assurance

Quality assurance shall be performed in accordance with the manufacturer’s instructions and recommendations.

5. Maintenance

Maintenance shall be performed in accordance with the manufacturer’s instructions and recommendations.

SECTION 230730 - DUCT ACCESSORIES

1. RELATED DOCUMENTS

1.1 Reference Documents

Reference documents for this section include relevant codes, standards, and guidelines.

PART 2 - GENERAL

1. Scope

This Section provides design, installation, and testing requirements for duct accessories.

2. Materials

2.1 Duct Accessories

Duct accessories shall be installed in accordance with the manufacturer’s instructions and recommendations.

3. Installation

3.1 Duct Accessories

Duct accessories shall be installed in accordance with the manufacturer’s instructions and recommendations.

4. Tests and Inspections

4.1 Visual Inspection

Visual inspection shall be performed to ensure that the duct accessories are installed in accordance with the manufacturer’s instructions and recommendations.

4.2 Quality Assurance

Quality assurance shall be performed in accordance with the manufacturer’s instructions and recommendations.

5. Maintenance

Maintenance shall be performed in accordance with the manufacturer’s instructions and recommendations.
1. Action Submittals
   a. Product Data: For each type of product indicated, include the following:
      i. Data Sheet: Indicates materials of construction, finish, and mounting details, and performance data including throw and drop, static-pressure drop, and noise ratings.
      ii. Commissioning Data: Includes designation, room location, quantity, model number, size, and accessories furnished.
   b. METALAIR, Inc.
   c. Price Industries.
   d. Thru.
   e. 2. Subject to normal distance for offshore sites.
   f. Material: Steel.
   g. Grills per unit: 3.
   h. Finishes: White baked acrylic.
   i. Barrier: 1-1/2-inch width decorative screw holes.
   k. 3. Return air damper leaf and lever.
   l. 4. Furnace and panel.
   m. Sheet Metal.

2. High-Capacity Diffusers
   a. Modular Core Supply Grilles
   b. Bank of Design-Product: Subject to compliance with requirements, provide product indicated on One-line or comparable product by one of the following:
   c. METALAIR, Inc.
   d. Price Industries.
   e. Thru.
   f. 2. Subject to normal distance for offshore sites.
   g. Material: Steel.
   h. Grilles per unit: 3.
   i. 5. Finish: White baked acrylic.
   j. Barrier: 1-1/2-inch width decorative screw holes.
   k. Blanks: Affixed individually horizontally.
   3. Return air damper leaf and lever.

3. Registers and Grilles
   a. Fixed-Flow Register
   b. Modular Core Supply Grilles
   c. Bank of Design-Product: Subject to compliance with requirements, provide product indicated on One-line or comparable product by one of the following:
   d. METALAIR, Inc.
   e. Price Industries.
   f. Thru.
   g. 2. Subject to normal distance for offshore sites.
   h. Material: Steel.
   i. Grilles per unit: 3.
   j. 5. Finish: White baked acrylic.
   k. Barrier: 1-1/2-inch width decorative screw holes.
   l. Blanks: Affixed individually horizontally.

4. High-Capacity Diffusers
   a. Modular Core Supply Grilles
   b. Bank of Design-Product: Subject to compliance with requirements, provide product indicated on One-line or comparable product by one of the following:
   c. METALAIR, Inc.
   d. Price Industries.
   e. Thru.
   f. 2. Subject to normal distance for offshore sites.
   g. Material: Steel.
   h. Grilles per unit: 3.
   i. 5. Finish: White baked acrylic.
   j. Barrier: 1-1/2-inch width decorative screw holes.
   k. Blanks: Affixed individually horizontally.
   l. 4. Furnace and panel.

5. Installation
   a. 1. Submittal of drawings, and grille dry-laminating patterns.
   b. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. All outlet and inlet locations have been indicated to achieve design requirements for air volumes, noise control, airflow patterns, and pressure relationships. All outlet and inlet locations have been indicated as much as practical. For units installed in locations that are not accessible, one or more items intended for maintenance or repair and located in areas which are inaccessible to the maintenance personnel, shall be fabricated with the maintenance feature, such as intumescent material, where necessary, to provide access to the maintenance person.
   c. Use of intumescent material shall extend from the top of the furnace to the base of the frame or support structure, whichever is less.
   d. Furnace and panel.
   e. 2. 1-1/4 inches wide.
   g. 3. 1-1/4 inches wide.
   h. Frame: 1-1/4 inches wide.

6. Adjusting Equipment
   a. Furnace and panel.
   b. 1. 1-1/4 inches wide.
   d. 2. 1-1/4 inches wide.
   e. Frame: 1-1/4 inches wide.

7. Maintenance
   b. After installation, adjust diffusers, registers, and grilles to air pattern indicated, or as directed by owner prior to air balancing.
   c. Furnace and panel.

8. Dampers
   a. 1. Dampers.
   b. 2. 1-1/4 inches wide.
   c. 3. 1-1/4 inches wide.
   d. 4. 1-1/4 inches wide.

9. General
   a. 1. 1-1/4 inches wide.
   b. 2. 1-1/4 inches wide.
   c. 3. 1-1/4 inches wide.
   d. 4. 1-1/4 inches wide.

10. Erection
    a. Furnace and panel.
    b. 1. 1-1/4 inches wide.
    c. 2. 1-1/4 inches wide.
    d. 3. 1-1/4 inches wide.
    e. 4. 1-1/4 inches wide.