**GUIDE SPECIFICATION**

*Specifier Notes: This guide specification is written in Construction Specifications Institute (CSI) 3-Part Format in accordance with The CSI Construction Specifications Practice Guide, MasterFormat, SectionFormat, and PageFormat.*

*Specifier Notes: This Section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the Project and local building code. Coordinate this Section with Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this Section. Section numbers and titles are based on MasterFormat 2020 Update.*

**SECTION 23 34 16  
  
CENTRIFUGAL HVAC FANS**

*Specifier Notes: This Section covers the Fantech FG Series of circular inline duct fans with alternating current (AC) motors. Consult Fantech for assistance in editing this Section as required for the Project.*

**PART 1. GENERAL**

* 1. **SECTION INCLUDES**

1. Circular inline duct fans with alternating current (AC) motors

**1.2 RELATED REQUIREMENTS***Specifier Notes: Edit the following list of related sections as required for the Project. Limit the list to sections with specific information that the reader might expect to find in this Section but is specified elsewhere.*

1. Section 23 31 00 – HVAC Ducts and Casings
2. Section 26 05 00 – Common Work Results for Electrical

**1.3 REFERENCE STANDARDS***Specifier Notes: List reference standards used elsewhere in this Section, complete with designations and titles. Delete reference standards from the following list not used in the edited Section.*

1. AMCA 210 – Laboratory Methods of Testing Fans for Certified Aerodynamic Performance

Rating

1. AMCA 211 – Certified Ratings Program – Product Rating Manual for Fan Air

Performance

1. HVI 916 – Airflow Test Procedure
2. CSA 22.2 No 113 – Fans and Ventilators
3. UL 507 – Electric Fans
4. ENERGY STAR® – Residential Ventilating Fans

**1.4 PREINSTALLATION MEETINGS**

*Specifier Notes: Edit the Preinstallation Meetings article as required for the Project. Delete article if not required.*

1. Convene preinstallation meeting [1 week] [2 weeks] before start of Work of this Section.
2. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, installer, and manufacturer’s representative.
3. Review the Following:
   1. Materials
   2. Installation
   3. Adjusting
   4. Protection
   5. Coordination with other Work

**1.5 SUBMITTALS**

*Specifier Notes: Edit the Submittals article as required for the Project. Delete submittals not required.*

1. Comply with Division 01.
2. Product Data: Submit manufacturer’s product data, including installation instructions.
3. Shop Drawings: Submit manufacturer’s shop drawings, including plans, elevations, sections, and details.
   1. Wiring Diagrams: Indicate wiring for each item of equipment and interconnections between items of equipment.
   2. Include manufacturer’s names, model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
4. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.
5. Operation and Maintenance Data:
   1. Submit manufacturer’s operation and maintenance manual; including the following:
      1. Operation, maintenance, adjustment, and cleaning instructions,
      2. Troubleshooting guide,
      3. Parts list, and
      4. Electrical wiring diagrams if required.
   2. Provide detailed information required for Owner to properly operate and maintain equipment.
6. Warranty Documentation: Submit manufacturer’s standard warranty.  
   1. **QUALITY ASSURANCE**
7. Manufacturer’s Qualifications: Manufacturer regularly engaged in the manufacturing of circular inline duct fans to that specified for a minimum of 10 years.
8. Installer's Qualifications:
   1. Requires qualified, competent installers specializing in performing work from this section with documented experience of similar scope and complexity.

**1.7 DELIVERY, STORAGE, AND HANDLING**

1. Delivery Requirements: Deliver materials to site in manufacturer’s original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
2. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer’s instructions,
   2. Keep materials in manufacturer’s original, unopened containers and packaging until installation,
   3. Store materials in clean, dry area indoors,
   4. Keep materials from freezing, and
   5. Protect materials during storage, handling, and installation to prevent damage.

**1.8 LIMITED FACTORY WARRANTY**Warranty Period: 5 years

**PART 2. PRODUCTS**

**2.1 MANUFACTURERS**

1. Manufacturer: Systemair MFG Inc., 10048 Industrial Blvd., Lenexa, Kansas 66215. Phone 800-747-6217. www.fantech.net. USsupport@fantech.net.

*Specifier Notes: Specify if substitutions will be permitted.*

1. Substitutions: [Not permitted] [Comply with Division 01].
2. Single Source: Provide materials from single manufacturer.

**2.2 CENTRIFUGAL HVAC FANS***Specifier Notes: Specify required model. Consult Fantech for assistance in determining the inline fan model for the specific application. Brackets denote options.*

1. [Centrifugal Inline Fan: FG/K 4]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
      6. ENERGY STAR Certified
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 4-inch
   4. Electrical
      1. Supplied with externally mounted, electrical terminal box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
2. [Centrifugal Inline Fan: FG/K 4XL]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 4-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
3. [Centrifugal Inline Fan: FG/K 5]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
      6. ENERGY STAR Certified
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 5-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
4. [Centrifugal Inline Fan: FG/K 5XL]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 5-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
5. [Centrifugal Inline Fan: FG/K 6]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
      6. ENERGY STAR Certified
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 6-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
6. [Centrifugal Inline Fan: FG/K 6M]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 6-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
7. [Centrifugal Inline Fan: FG/K 6XL]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 6-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
8. [Centrifugal Inline Fan: FG/K 8]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 8-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
9. [Centrifugal Inline Fan: FG/K 8XL]   
   1. Supply, exhaust, or return air inline fan
   2. General
      1. Tested to AMCA Standard 210
         1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
      2. HVI 916 certified
      3. cULus Listed
      4. Conforms to UL Standard 507
      5. Conforms to CSA 22.2 No 113
   3. Casing
      1. Construction
         1. Heavy gauge, galvanized sheet metal
      2. Inlet/Outlet:
         1. 8-inch
   4. Electrical
      1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
   5. Motor
      1. Alternating Current (AC), external-rotor motor
      2. Single-phase motors
         1. 120V, permanent, split-capacitor type
      3. Permanently sealed, self-lubricating, ball-bearing type
      4. Equipped with automatic reset thermal overload protection
      5. Acceptable for continuous duty
   6. Wheel
      1. Constructed of composite material
      2. Backwards curved, centrifugal type
      3. Motorized impeller
         1. Statically and dynamically balanced as one integral unit
10. [Centrifugal Inline Fan: FG/K 10]   
    1. Supply, exhaust, or return air inline fan
    2. General
       1. Tested to AMCA Standard 210
          1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
       2. HVI 916 certified
       3. cULus Listed
       4. Conforms to UL Standard 507
       5. Conforms to CSA 22.2 No 113
    3. Casing
       1. Construction
          1. Heavy gauge, galvanized sheet metal
       2. Inlet/Outlet:
          1. 10-inch
    4. Electrical
       1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
    5. Motor
       1. Alternating Current (AC), external-rotor motor
       2. Single-phase motors
          1. 120V, permanent, split-capacitor type
       3. Permanently sealed, self-lubricating, ball-bearing type
       4. Equipped with automatic reset thermal overload protection
       5. Acceptable for continuous duty
    6. Wheel
       1. Constructed of composite material
       2. Backwards curved, centrifugal type
       3. Motorized impeller
          1. Statically and dynamically balanced as one integral unit
11. [Centrifugal Inline Fan: FG/K 10XL]   
    1. Supply, exhaust, or return air inline fan
    2. General
       1. Tested to AMCA Standard 210
          1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
       2. HVI 916 certified
       3. cULus Listed
       4. Conforms to UL Standard 507
       5. Conforms to CSA 22.2 No 113
    3. Casing
       1. Construction
          1. Heavy gauge, galvanized sheet metal
       2. Inlet/Outlet:
          1. 10-inch
    4. Electrical
       1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
    5. Motor
       1. Alternating Current (AC), external-rotor motor
       2. Single-phase motors
          1. 120V, permanent, split-capacitor type
       3. Permanently sealed, self-lubricating, ball-bearing type
       4. Equipped with automatic reset thermal overload protection
       5. Acceptable for continuous duty
    6. Wheel
       1. Constructed of composite material
       2. Backwards curved, centrifugal type
       3. Motorized impeller
          1. Statically and dynamically balanced as one integral unit
12. [Centrifugal Inline Fan: FG/K 12XL]   
    1. Supply, exhaust, or return air inline fan
    2. General
       1. Tested to AMCA Standard 210
          1. Licensed to bear the AMCA Certified Ratings Label for Air Performance
       2. HVI 916 certified
       3. cULus Listed
       4. Conforms to UL Standard 507
       5. Conforms to CSA 22.2 No 113
    3. Casing
       1. Construction
          1. Heavy gauge, galvanized sheet metal
       2. Inlet/Outlet:
          1. 12-inch
    4. Electrical
       1. Completely enclosed electrical wiring box with pre-wired terminal strip connections
    5. Motor
       1. Alternating Current (AC), external-rotor motor
       2. Single-phase motors
          1. 120V, permanent, split-capacitor type
       3. Permanently sealed, self-lubricating, ball-bearing type
       4. Equipped with automatic reset thermal overload protection
       5. Acceptable for continuous duty
    6. Wheel
       1. Constructed of composite material
       2. Backwards curved, centrifugal type
       3. Motorized impeller
          1. Statically and dynamically balanced as one integral unit

**2.3 ACCESSORIES***Specifier Notes: Delete accessories not required. Brackets denote options.*

1. [Silencer]
   1. Model: [LD 4] [LD 5] [LD 6] [LD 8] [LD 10] [LD 12]
   2. Construction:
      1. Galvanized Steel
   3. Insulation Thickness:
      1. 2 inches
2. [Speed Control]
   1. Model: WC 15
   2. Brushed aluminum switch plate
   3. Dial control
   4. Fits single gang electrical box
   5. Voltage:
      1. 115V
   6. Input current:
      1. 5 A
   7. Weight:
      1. 0.31 lbs
3. [Push Button Timer]
   1. Model: FD60EM
   2. Wall-mounted
   3. Fits standard size gang box
   4. Single pole
   5. Green LED locator lights
   6. Nominal Voltage:
      1. 115V
   7. Input current:
      1. 20 A
   8. Weight:
      1. 1 lb
   9. Color:
      1. [White] [light almond] [ivory]
4. [Slide Bar Speed Control]
   1. Model: IPF05
   2. Wall-mounted
   3. Operated by a slide bar or an on/off preset switch
   4. Single pole or 3-way applications
   5. Green LED locator light
   6. Nominal Voltage:
      1. 115V
   7. Input current:
      1. 5 A
   8. Weight:
      1. 1 lb
   9. Color:
      1. [Ivory] [light almond]
5. [Push Button Timer]
   1. Model: VT20M
   2. Wall-mounted
   3. Speed control:
      1. 0–100%
   4. Programmable:
      1. 0–60 minutes
   5. Voltage:
      1. 115V
   6. Input current:
      1. 2.5 A
6. [Humidity/Fan Control]
   1. Model: DHS 05
   2. Temperature range:
      1. 32°–104° F
   3. Wall-mounted
      1. Requires decor wall plate
   4. Fits single gang electrical box
   5. Single pole
   6. LED
   7. Color:
      1. White
   8. Maximum current:
      1. 5 A
7. [Attic Thermostat]
   1. Model: PT6
   2. Temperature range:
      1. 60°–120° F
   3. Galvanized steel casing
   4. Phases:
      1. 1~
   5. Input current:
      1. 15 A
8. [Inlet Safety Guard]
   1. Model: [IG 4] [IG 5] [IG 6] [IG 8] [IG 10] [IG 12]
   2. Construction:
      1. Galvanized Steel
   3. Wire ring inlet guard prevents foreign objects from entering inline duct fan Zinc chromate plated steel
9. [Insulated Flex Duct]
   1. Model: [FIDT 4] [FIDT 5] [FIDT 6] [FIDT 8] [FIDT 10]
   2. R4.2 fiberglass insulation
   3. Air-tight inner core
10. [Motorized Shut-off Damper]
    1. Model: [ADC 4] [ADC 6] [ADC 8] [ADC 10] [ADC 12]
    2. 24V AC motor
    3. 2 position end switch
    4. Galvanized steel casing
11. [Mounting Clamps]
    1. Model: [FC 4] [FC 5] [FC 6] [FC 8] [FC 10] [FC 12]
    2. Galvanized metal construction
12. [Iris Damper]
    1. Model: [IR 4] [IR 5] [IR 6] [IR 8] [IR 10] [IR 12]
    2. Galvanized steel casing
    3. Used to optimize airflow in the ductwork
13. [Kitchen Hood Liner]
    1. Model: [HL 30] [HL 36] [HL 42] [HL 48]
    2. Stainless-steel fascia
    3. Galvanized steel casing
    4. Dimmable light switch
    5. Equipped with AC speed controller
       1. Can be converted to control EC fans with the EC-10VHL
14. [Backdraft Damper]
    1. Model: [RSK 4] [RSK 5] [RSK 6] [RSK 8] [RSK 10] [RSK 12]
    2. 24 GA, G90 galvanized steel casing
15. [Metal Hood Supply Air]
    1. Model: [FML 8] [FML 10] [FML 12]
    2. Pre-painted aluminum hood with a white powder-coat finish
16. [Filter Cassette]
    1. Model: [FGR 8] [FGR 10] [FGR 12] [FGR 12HV]
    2. Galvanized steel casing
    3. [MERV5] [MERV10] supply air filter
    4. Rubber-sealed circular connections
17. [Metal Exhaust Grille]
    1. Model: [MGE 4] [MGE 5] [MGE 6] [MGE 8] [MGE 10]
    2. Sleek ceiling installation
    3. Used to make quick airflow adjustments
    4. Color:
       1. White
18. [Metal Supply Grille]
    1. Model: [MGS 4] [MGS 5] [MGS 6] [MGS 8] [MGS 10]
    2. Sleek ceiling installation
    3. Used to make quick airflow adjustments
    4. Color:
       1. White
19. [Bath Fan Grill with LED Light]
    1. Model: [PBL74] [PBL10-4]
    2. For 2x6 construction
    3. Construction:
       1. Stainless steel casing
       2. 4-inch round inlet
    4. White, plastic grille
    5. Dimmable LED light
       1. [6W] [9.5W]
20. [Bath Fan Grill with Halogen Light]
    1. Model: PBH4
    2. For 2x6 construction
    3. Construction:
       1. Stainless steel casing
       2. 4-inch round inlet
    4. White, plastic grille
    5. Dimmable halogen light
       1. 50W
21. [Bath Fan Grill]
    1. Model: [PBV4] [PBV6]
    2. For [2x6] [2x8] construction
    3. Construction:
       1. Stainless steel casing
       2. [4-inch] [6-inch] round inlet
       3. White, plastic grille

**PART 3. EXECUTION**

**3.1 EXAMINATION**

1. Examine areas to receive circular inline duct fans.
2. Notify Architect of conditions that would adversely affect installation or subsequent use.
3. Do not begin installation until unacceptable conditions are corrected.

**3.2 INSTALLATION**

1. Install circular inline duct fans in accordance with manufacturer’s instructions at locations indicated on the Drawings.
2. Attach duct work to inlet and outlet connection collars of circular inline duct fans in accordance with manufacturer’s instructions.
3. Electrical: Install electrical power to circular inline duct fans as specified in Section 26 05 00.

**3.3 ADJUSTING**

1. Adjust circular inline duct fans for proper operation in accordance with manufacturer’s instructions.

**3.4 PROTECTION**

1. Protect installed circular inline duct fans from damage during construction.

**END OF SECTION**