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**Twin City Fan & Blower Guide Specification
HVAC Gravity Ventilators: Model MGR**

**Twin City Fan & Blower Model MGR Series, Hooded Modular Gravity Ventilators,** provide natural ventilation of commercial and industrial buildings in roof mounted installations. The interlocking hood panel design of the MGR (Relief) results in a unit which is both structurally robust and aesthetically pleasing. All this combined with the size flexibility and the jobsite assembly benefits make the MGR one of the most complete gravity ventilator product lines in the industry.

**Application**

Model MGR is designed for commercial applications that require high volume, low pressure relief of clean air.

Throat Opening (Square or Rectangular): 8 x 8 inches to 72 x 180 inches (198 x 198 mm to 1,829 x 4,572 mm)

Airflow: Up to 109,000 CFM (185,191 m3/hr)

Static Pressure: Up to 0.4 inches wg. (99 Pa)

Twin City Fan & Blower (TCF) is an industry leading designer and manufacturer of high quality commercial and industrial fans and is a division of Twin City Fan Companies, Ltd. Our extensive product line includes centrifugal fans and blowers, axial fans, and power roof ventilators. For the commercial market, TCF supplies ventilation fans for retail and office buildings, restaurants, schools, hospitals, and government buildings. TCF’s industrial fans are used in a wide variety of process applications for numerous industries including Petrochemical, Nuclear, Cement, Steel, and Air Pollution Control. Special materials, construction, coatings, and accessories are available to fit any application requirements.

TCF has completed thousands of successful installations across the globe and has a proven track record for tackling the most technically complex applications within the fan industry. TCF is also known for its technical design capabilities, comprehensive testing services, and responsive sales team. Due to the company’s extensive expertise and long-standing reputation for proven quality, TCF products continue to be specified around the globe.

TCF occupies over 1,000,000 sq. ft. of manufacturing space across ten facilities in the U.S, with expanded manufacturing and service operations located in South America, Europe, India, China, and Singapore. Headquarters are located in Minneapolis, Minnesota, which houses the management, sales and marketing, accounting, human resources, material management, engineering personnel, as well as a state-of-the-art AMCA accredited testing lab.

We recommend you consult with your Twin City Fan & Blower Sales Representative, who can be contacted through: Twin City Fan & Blower, Minneapolis MN; (763) 551-7600; email: tcf\_sales@tcf.com; [www.tcf.com](http://www.tcf.com).

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SECTION 23 37 23 – HVAC GRAVITY VENTILATORS

1. GENERAL
	* + 1. SUMMARY
				1. Section includes gravity type relief roof ventilators.
			2. ACTION SUBMITTALS
				1. Product Data: Include the following:

Rated capacities and operating characteristics.

Performance Data: Performance curves with flow, and static pressure.

Furnished specialty components.

Specified accessories.

Dimensioned standard drawings indicating dimensions, weights, and attachments to other work.

* + - 1. INFORMATIONAL SUBMITTALS
				1. Source quality-control reports.
				2. Field quality-control reports.
				3. ISO-9001 certificate.
			2. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: Include routine maintenance, adjustment requirements, safety information, and troubleshooting guide.
			3. QUALITY ASSURANCE
				1. Manufacturer Qualifications: Approved ISO 9001-compliant manufacturer listed in this Section with minimum 10 years' experience in manufacture of similar products in successful use in similar applications, and with an ASME NQA-1 compliant Program.

Specifier: Retain paragraph below if Owner allows substitutions but requires strict control over qualifying of substitutions.

Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

Product data, including certified independent test data indicating compliance with requirements.

Project references: Minimum of 5 installations not less than 5 years old, with Owner contact information.

Sample warranty.

Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.

Approved manufacturers must meet separate requirements of Submittals Article.

* + - 1. COORDINATION
				1. Coordinate sizes and locations of supports required for ventilator units.
				2. Coordinate sizes and locations of equipment supports, roof curbs, and roof penetrations.
			2. FIELD CONDITIONS
				1. Handling and Storage: Handle and store gravity ventilators in accordance with manufacturer's published instructions. Examine units upon delivery for damage. Store units protected from weather.
			3. WARRANTY
				1. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to furnish replacement components for ventilator units that demonstrate defects in workmanship or materials under normal use within warranty period specified.

Warranty Period: 12 months from startup or 18 months from shipment by manufacturer, whichever first occurs.

1. PRODUCTS
	* + 1. MANUFACTURER
				1. Basis-of-Design Manufacturer: Provide gravity ventilators manufactured by Twin City Fan & Blower, Minneapolis MN; (763) 551-7600; email: tcf\_sales@tcf.com; website: [www.tcf.com](http://www.tcf.com).
				2. Source Limitations: Obtain roof ventilators from a single manufacturer.
			2. PERFORMANCE REQUIREMENTS
				1. Performance Ratings: [Project site elevation-based] [Sea level elevation-based].
				2. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70.
			3. HOODED GRAVITY VENTILATORS
				1. Ventilators: Hooded, heavy duty ventilators for general-purpose gravity relief ventilation.

Basis of Design Product: **Twin City Fan & Blower, Model MGR**.

Permanently attach nameplate displaying serial number and unit information.

Specifier: Select hood material option in the following paragraph. Galvanized steel is standard. Aluminum is optional.

* + - * 1. Hood: Modular [galvanized steel] [aluminum] with interlocking panels to provide protection from the elements.

Provide galvanized wire bird screen.

* + - * 1. Curb Cap: [galvanized steel] [aluminum] with pre-punched mounting holes for correct attachment to roof curb. Standard with 5 inch (127 mm) throat height.
				2. Finish: Galvanized mill finish internal parts, and uncoated external [aluminum] and [galvanized steel] parts exposed to weather.

Specifier: The first paragraph below is manufacturer's standard finish. Those that follow are optional finishes. Select finish that is required.

If fans specified for the project have different finishes, include the finish for each fan on the Drawings and delete here.

[None]

[Enamel, Gray]

[Enamel, Color Matched]

[Epoxy, Black]

[Phenolic Heresite, Gray]

[Carbocoat 30, Black]

[Transcoat 161, Black].

* + - * 1. Accessories:

Specifier: Accessories listed in subparagraphs below are optional TCF features for this unit. Consult TCF representative for recommended options based upon Project requirements.

Specifier: Retain appropriate options in the following paragraph for curb type. For fan specified with a backdraft damper, select minimum 12 inch roof curb height.

Roof Curb: [Canted] [Self-flashing] [\_\_\_\_\_], [8 inches (203 mm.)] [12 inches (305 mm)] [18 inches (457 mm)] [\_\_\_\_\_] high, unvented [, with 1-1/2 inch (38 mm) thick insulation].

Specifier: Retain options in the following paragraph for fans that have backdraft dampers.

Backdraft Damper, [Automatic] [Motorized], parallel-blade type. Adjust backdraft damper to close when fan is not running.

Fabricate frame from galvanized steel.

Fabricate blades from aluminum, mill finish, with vinyl edge seals.

Specifier: Retain the following paragraph for motorized backdraft dampers, and select required voltage for actuator power.

Backdraft damper actuator suitable for [24] [115] [208] [230] [460] [575] VAC, single phase. [Provide transformer for [575] V actuator.]

Insect screen.

Aluminum bird screen.

Tie down brackets.

12 inch (305 mm) extended base height.

Hood insulation.

* + - * 1. Gravity Ventilator Capacities and Characteristics: Refer to Drawing schedule.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine areas to receive gravity ventilators. Notify Engineer regarding conditions that may adversely affect installation, operation, or maintenance of gravity ventilators. Proceed with installation once conditions are in accordance with manufacturer's published instructions.
			2. PROTECTION
				1. Protect adjacent construction and finished surfaces during installation and testing.
			3. INSTALLATION
				1. Install gravity ventilators in accordance with Contract documents and manufacturer's published instructions.

Specifier: Insert applicable installation requirements for vibration, seismic, and high wind design if applicable to installation.

* + - * 1. Install gravity ventilators with adequate clearances for service and maintenance.

Specifier: Coordinate duct installation and specialty arrangements with schematics on Drawings and with requirements specified in duct systems. If Drawings are explicit enough, these requirements may be reduced or omitted.

* + - * 1. Duct Connections: Drawings indicate general arrangement of ducts and duct accessories. Where indicated on Drawings, [install factory-furnished companion flanges and] make final duct connections with flexible connectors. Flexible connectors are specified in Division 23 section "Air Duct Accessories."
				2. Electrical Connections: Connect wiring in accordance with NFPA 70 and Division 26 section "Low-Voltage Electrical Power Conductors and Cables."

Ground and bond equipment according to Division 26 section "Grounding and Bonding for Electrical Systems."

Where required, ground and bond metal parts to lightning protection system provided as work of Division 26.

* + - * 1. Equipment Identification: Label units according to Division 23 section "Identification for HVAC Piping and Equipment."
			1. FIELD QUALITY CONTROL

Specifier: Select one option in following paragraph to determine need for outside testing agency. If Contractor will perform testing, delete paragraph.

* + - * 1. [Owner will retain] [Contractor shall retain] qualified testing agency to perform field tests and inspections.

Verify that unit is secured to supports, and that duct and electrical connections are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.

Verify that cleaning and adjusting are complete.

Specifier: Retain option in following paragraph for belt driven units. Otherwise, delete option.

Verify that manual and automatic volume control, and fire and smoke dampers in connected ductwork systems are in fully open position.

Remove and replace malfunctioning units and retest as specified above.

* + - * 1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
				2. Submit test and inspection reports.
			1. ADJUSTING AND CLEANING
				1. Adjust, clean, and maintain installed gravity ventilators in accordance with manufacturer's published instructions.

END OF SECTION