



**HIPP
DESIGN +
CONSULTING**

SHOP DRAWING / SUBMITTAL ACTION TICKET

CLIENT NAME Eli Lilly
 CONSTRUCTION MANAGER BE&K
 PROJECT NAME Project Concord DAP
 PROJECT NUMBER G22131

SUBMITTAL NUMBER: #151 (#233416-60)		SUBMITTAL TITLE: Bulletin 5 Fans	
CONTRACTOR / VENDOR: Kirlin-Way Mechanical		DATE RECEIVED: 05OCT2023	
RECEIVED BY: NR		DATE DUE: 12OCT2023	
DISPOSITION: <input checked="" type="checkbox"/> NO EXCEPTION TAKEN <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> REVISE AND RESUBMIT <input type="checkbox"/> REJECTED, RESUBMIT <input type="checkbox"/> NOT REVIEWED		DISTRIBUTION: <input type="checkbox"/> CIVIL _____ <input type="checkbox"/> ARCHITECTURAL _____ <input type="checkbox"/> STRUCTURAL _____ <input checked="" type="checkbox"/> MECHANICAL <u>AJA</u> <input type="checkbox"/> PROCESS _____ <input checked="" type="checkbox"/> ELECTRICAL <u>JWM</u> <input checked="" type="checkbox"/> INST & CONT. <u>JAC</u> <input type="checkbox"/> PROJ. LEADER _____ <input type="checkbox"/> OTHER _____	

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction, coordination of his work with that of all other trades, and the satisfactory performance of his work.

REMARKS:

HVAC: No exception taken
 I&C: No Exception taken.
 Electrical: No exceptions taken.

FAN-4922AEX PAGE 5
FAN-4920AEX PAGE 8

Adam Anderson PE

 PRIMARY DISCIPLINE LEAD

Mechanical

 DISCIPLINE

10/11/2023

 DATE



BE&K Building Group
 710 Slater Rd, Suite 400
 Morrisville, North Carolina 27560
 P: (919) 781-0054

**Project: 306232 Lilly — DAP, Warehouse Interface, + Central
 Corridor Fit Out**
 1420 Concord Parkway South
 Concord, North Carolina 28027

Submittal #233416-60.0 - Bulletin 5 Fans - CUBE-099-4/G-097-VG and Damper BD-100 233416 - Centrifugal HVAC Fans

Revision	0	Submittal Manager	Laura Bates (BE&K Building Group - Raleigh)
Status	Submitted	Date Created	Oct 5, 2023
Issue Date	Oct 5, 2023	Spec Section	233416 - Centrifugal HVAC Fans
Responsible Contractor	Kirlin-Way Mechanical, LLC	Received From	Jarred Goldsmith (Kirlin-Way Mechanical, LLC)
Received Date		Submit By	
Final Due Date	Oct 13, 2023	Lead Time	
		Cost Code	
Location		Type	
Approvers	Laura Bates (BE&K Building Group - Raleigh), Matt Schiebel (BE&K Building Group - Raleigh), Natasha R (Hipp Engineering & Consulting Inc), Alex Stone (Hipp Engineering & Consulting Inc), Laura Bates (BE&K Building Group - Raleigh)		
Ball in Court	Natasha R (Hipp Engineering & Consulting Inc), Alex Stone (Hipp Engineering & Consulting Inc)		
Distribution			
Description			

Submittal Workflow

Name	Sent Date	Due Date	Returned Date	Response	Attachments
General Information Attachments					
Jarred Goldsmith	Oct 4, 2023	Oct 9, 2023	Oct 5, 2023	Submitted	Submittal #061 - Bulletin 05 Fans .pdf
Jonathon Ross		Oct 9, 2023		Pending	
Laura Bates	Oct 5, 2023	Oct 12, 2023	Oct 5, 2023	Reviewed	
Matt Schiebel	Oct 5, 2023	Oct 12, 2023		Pending	
Natasha R	Oct 5, 2023	Oct 12, 2023		Pending	
Alex Stone	Oct 5, 2023	Oct 12, 2023		Pending	
Laura Bates		Oct 13, 2023		Pending	



KIRLIN-WAY MECH PROJECT NAME:

KIRLIN WAY MECH
SUBMITTAL NO:

SUBMITTAL DATA

ARCHITECT:

Submittal Date:

ENGINEER:

GENERAL CONTRACTOR:

SUBCONTRACTOR:

Specification Section:

Description:

Vendor / Supplier:

Manufacturer:

Clarifications:

Deviations:

Substitutions:

Submittal Prepared By:

Phone:

Email:

LOCATION: Raleigh, NC

DATE: 09/06/23

SALESMAN: Bennett Funderburk

ORDER # 620.621.10315

PROJECT: *ELI LILLY Project Concord*

ENGINEER: *HIPP*

CONTRACTOR: *Kirlin Way Mechanical*

PRODUCT(S): *Exhaust Fans - Bulletin 5*

MANUFACTURER(S): *Greenheck*



SUBMITTAL DATA

APPROVAL REQUIRED

HOFFMAN • HOFFMAN, INC.

HVAC Manufacturers Representative

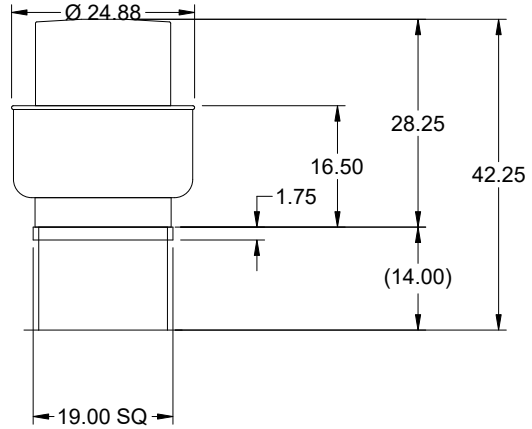
Website: www.hoffman-hoffman.com

Asheville, NC	(828) 296-0111	Charleston, SC	(843) 884-3201
Charlotte, NC	(704) 364-4700	Columbia, SC	(803) 765-9360
Raleigh, NC	(919) 781-8011	Greenville, SC	(864) 676-1888
Wilmington, NC	(910) 791-4775	Chesapeake, VA	(757) 548-1700
Chattanooga, TN	(423) 693-2890	Richmond, VA	(804) 272-1500
Knoxville, TN	(865) 540-9770	Roanoke, VA	(540) 725-8701

Corporate: Greensboro, NC (336) 292-8777

We have exercised care in the preparation of this submittal. We believe it satisfies our interpretation of the designer's intent and scope. It contains the list of materials, quantities, sizes, style and the finish as we propose to furnish for this job. Please examine and check carefully that all items are exactly as required and that our interpretation of the applicable plans and/or specifications are consistent with the design. Approval by the engineer and purchaser will be required before release of this equipment for production. If any discrepancies are discovered, please notify us as soon as possible.

Model: CUBE-099-4
Belt Drive Upblast Centrifugal Roof Exhaust Fan



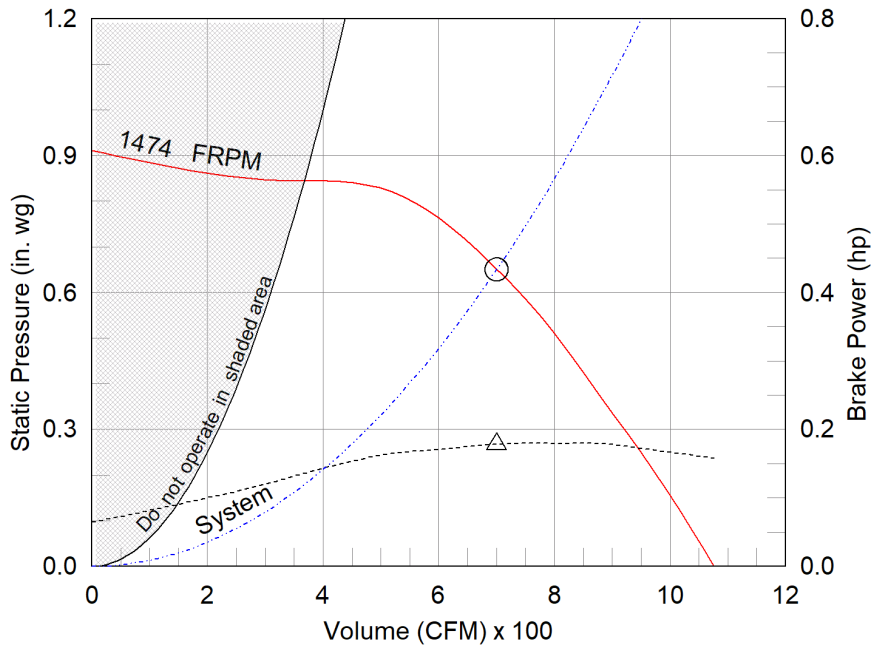
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	66
Weight w/ Acc's (lb)	74
Weight w/ Acc's and Curb (lb)	95
Max T Motor Frame Size	56
Standard Curb Cap Size (in.)	19 x 19
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	700
Actual Volume (CFM)	700
Total External SP (in. wg)	0.65
Fan RPM	1474
Operating Power (hp)	0.18
Elevation (ft)	705
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Drive Loss (%)	15.4
Tip Speed (ft/min)	4,316
Static Eff. (%)	47

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	547

Motor	
Motor Included	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	EXP
Motor RPM	1725
Efficiency Rating	Standard
Windings	1
NEC FLA* (Amps)	5.8
Min. Circuit Ampacity (MCA)	7.25
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- System curve
- Brake horsepower curve

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.
MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using ANSI/AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	72	71	70	65	61	60	56	47	68	57	8.3



Model: CUBE-099-4

Belt Drive Upblast Centrifugal Roof Exhaust Fan

Standard Construction Features:

- Aluminum housing - Backward inclined aluminum wheel - Curb cap with prepunched mounting holes - Motor and drives isolated on shock mounts - Drain trough - Ball bearing motors - Adjustable motor pulley - Adjustable motor plate - Fan shaft mounted in ball bearing pillow blocks - Bearings meet or exceed temperature rating of fan - Static resistant belts - Corrosion resistant fasteners - Internal lifting lugs

Spark B construction was selected.

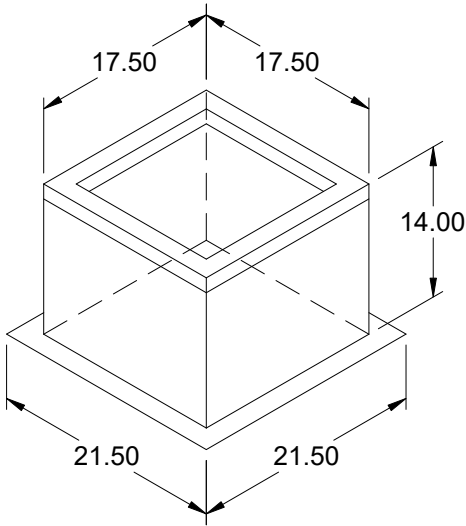
Greenheck has included options and accessories for this product that meet the intent of AMCA 99 - spark resistant construction guidelines. Greenheck recommends, but does not require, an EXP motor for this product line. If an EXP motor is not selected, the engineer of record must determine if this is acceptable for the application. The resulting fan construction in no way implies a guarantee of safety for any level of spark resistance. Spark resistant construction does not prevent ignition of explosive gasses or vapors due to catastrophic failure or from any airstream material that may exist within in a system.

Selected Options & Accessories:

Spare Belt(s) - 1 Set (Attached)
Standard Curb Cap Size - 19 Square
Spark B Construction
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-7 and 9, Toggle, Shipped Separate,
Foam Curb Seal (Factory Applied)
Birdscreen: Stainless Steel, nom. 86% Free Area
Aluminum Rub Ring
Conduit Chase Qty 1
Unit Warranty: 1 Yr (Standard)

Selected Sub Marks

See *individual submittals* for full details
GPI-19-G14



Model: GPI

Roof Curb

Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel. Gridwork is welded to the frame and the frame is welded to the curb.

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-19	Nominal	1.5	21	Yes	No Preference

Dimensions

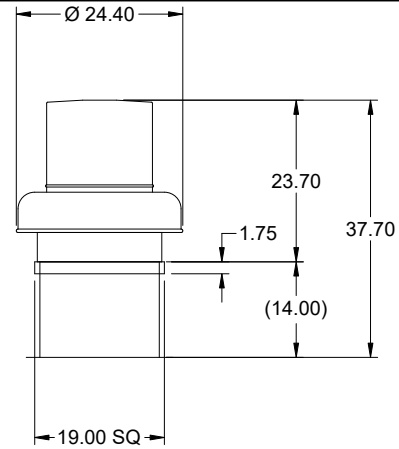
Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
14	19	19	17.5	17.5	14	14	18	18

*May not be applicable

Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

Model: G-097-VG
Direct Drive Centrifugal Roof Exhaust Fan



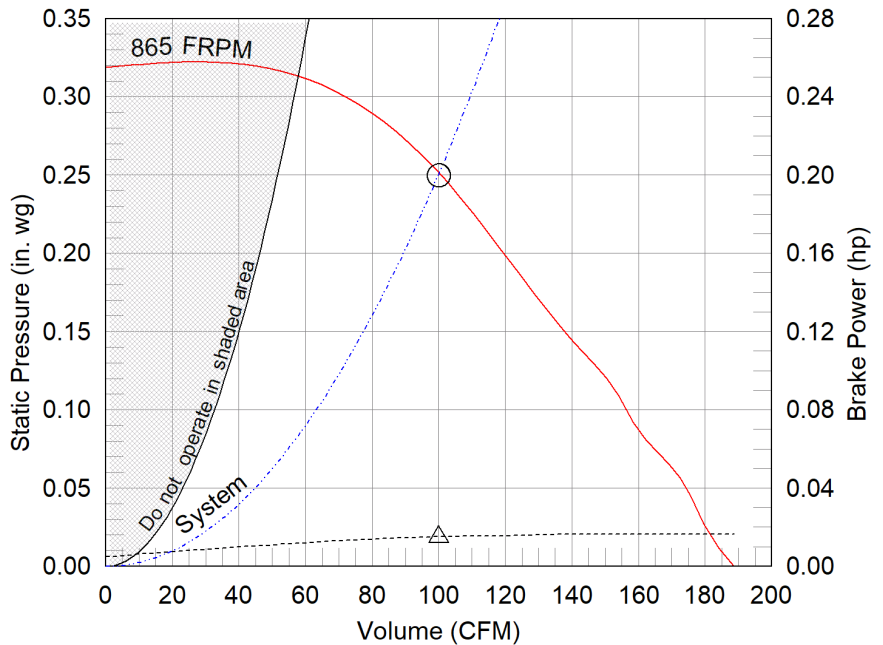
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Weight w/ Acc's and Curb (lb)	64
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	100
Actual Volume (CFM)	100
Total External SP (in. wg)	0.25
Fan RPM	865
Operating Power (hp)	0.02
Elevation (ft)	705
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Tip Speed (ft/min)	2,534
Static Eff. (%)	26

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	104

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.
MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using ANSI/AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	61	57	57	49	45	37	32	29	52	41	2.7



Model: G-097-VG

Direct Drive Centrifugal Roof Exhaust Fan

Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor
Control - 0-10VDC Input, (no control provided, signal supplied by others)
Control - Dial for balancing
Standard Curb Cap Size - 19 Square
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-1, Toggle,
Junction Box Mounted & Wired
Foam Curb Seal (Factory Applied)
Birdscreen: Stainless, nom. 82% Free Area Steel (Attached)
Conduit Chase Qty 1
Unit Warranty: 1 Yr (Standard)
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

Selected Sub Marks

See individual submittals for full details
GPI-19-G14

The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V. If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.

Vari-Green Motor & Control Options

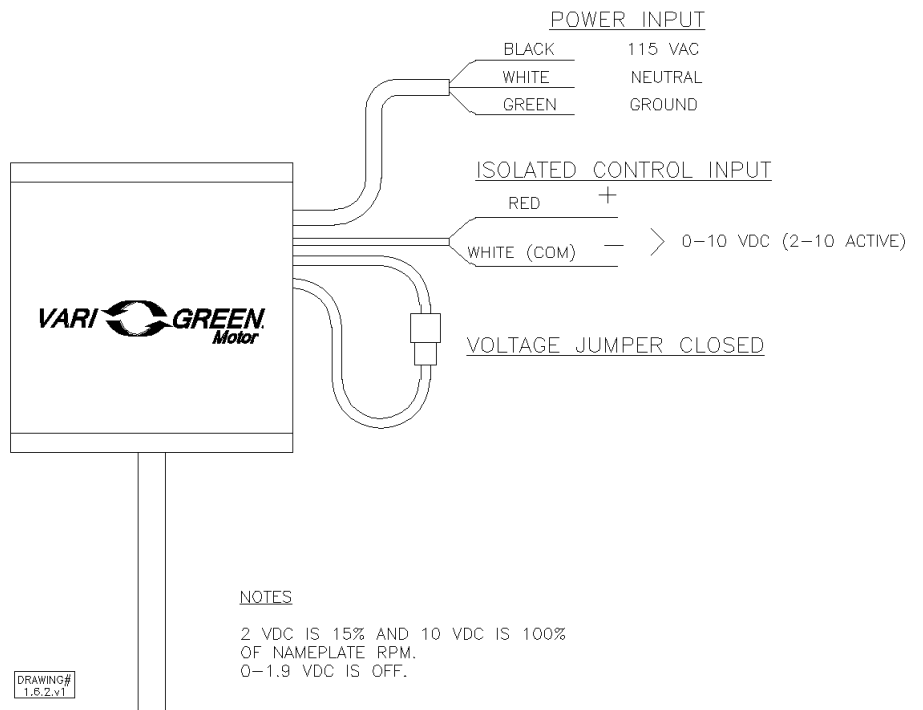
An EC motor that uses AC input power and internally converts it to DC power. Motor accepts a 0-10VDC control signal along with a 24V source to power controls in the motor. Motor is operable in the 2-10VDC range and off while in the 0-1.9VDC range. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

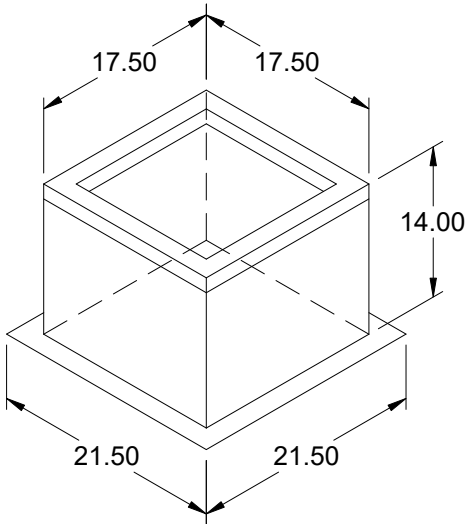
Motor Configuration

Input Voltage: 115
Speed Reference: 0-10VDC
Permanent Dial: No
Balance Dial Included: Yes

Control Configuration

Control Type: By Others
Transformer: None





Model: GPI

Roof Curb

Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel. Gridwork is welded to the frame and the frame is welded to the curb.

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-19	Nominal	1.5	21	Yes	No Preference

Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
14	19	19	17.5	17.5	14	14	18	18

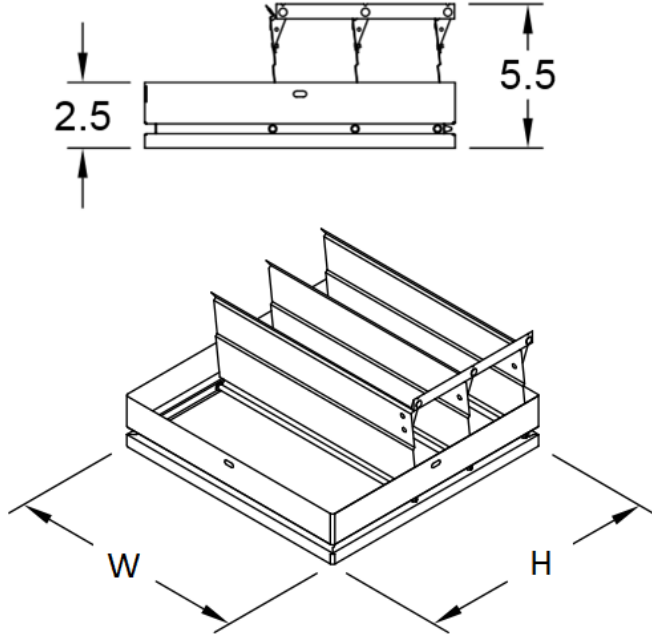
*May not be applicable

Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

Horizontal Mount Exhaust Damper

Model: BD-100



Standard Construction Features:

- Model BD-100 is a horizontal mount exhaust damper (air flow up) and is constructed of 24 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.016 in. roll formed aluminum with vinyl seals on the closing edge, and spring assisted for ease of opening - Axle/bearing is constructed of fiberglass reinforced nylon



Greenheck Fan Corporation certifies that the models BD-100 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance Ratings.

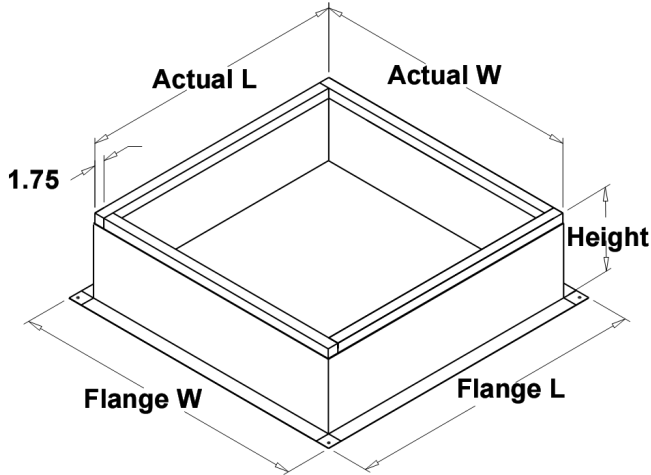
Damper Configuration:

ID #:	Tag:	Quantity:	W (in.):	H (in.):	Act Qty:	Actuator Model:
24	FAN-4920AEX	1	12	12	0	

Notes: All dimensions shown are in units of in.
Width And height furnished approximately 0.25 in. undersize

Roof Curb
Model: GPI

Standard Construction Features:



- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments.

Notes:

- The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in..
- The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size.
- The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension.
- Damper Tray is optional and must be specified. Tray size is same as damper size.
- Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel. Gridwork is welded to the frame and the frame is welded to the curb.

Roof Curb Configuration:

ID #:	Tag:	Qty:	Curb Cap W x L:	Actual W x L:	Flange W:	Flange L:	Height:	Step Hgt:	Damper Tray W x L:
30	EF-4940BEX	1	19 x 19	17.5 x 17.5	21.5	21.5	14	N/A	x
24	FAN-4920AEX	1	19 x 19	17.5 x 17.5	21.5	21.5	14	N/A	x

Notes: All dimensions shown are in units of in.