



SUBMITTAL FORM

SECTION I (to be completed by contractor)

To: William Greenleaf, Project Director J.C. Chang & Assoc., Inc.	Check One: Approval Request <input checked="" type="checkbox"/> Information Only <input type="checkbox"/>	Submittal Section #: 23 34 00
From: B&M Builders	Project: Ishi Conservation Camp Project No.: 0000000004673	Check One: <input checked="" type="checkbox"/> This is a new submittal <input type="checkbox"/> This is a re-submittal of:

Specification Title: HVAC Fans	Submittal Category: Product Data
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Description of Work Covered & Contractor Remarks:
***See "Specification Section 23 34 00 – HVAC Fans - Submittal" to review specification documents.**
***Review & return cover page with your disposition indicated.**

The Contractor represents that this submittal is in conformance with contract requirements.

Contractor	Name: Bryan Ginno	Signature: 	Submittal Date: 7/29/22	Title: Project Manager
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SECTION II (To be completed by Owner or Architect)

Name:	Signature:	Date:	Disposition Code:
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Disposition Codes for "Approval Request"		Disposition Codes for "Information Only"	
A- Approved	C- Approved with comments, resubmission required	R- Receipt Acknowledged	RX- Receipt Acknowledged, does not comply with contract requirements, resubmission required
B- Approved with comments, resubmission not required	D- Disapproved, resubmission required		

Action taken herein does not relieve the Contractor of his responsibility to meet all Contract Requirements; nor does it authorize increase in the contract price or delay in delivery.

External Comments:

If the Contractor considers that any comments made above and or Ginno Construction, Inc.'s disposition will resulting a contract price increase or delay in delivery, no action should be taken in complying with this document and the Contractor's proposal for accomplishing the work should be submitted to the Contract Administrator as soon as possible.

SECTION III (to be completed by Contractor)

Note: Contractor is required to return a copy of this submittal form to Owner/Architect confirming receipt of all documents listed	Documents Received by:	Date:
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FAN SUBMITTAL

Date: July 1, 2022

PROJECT: Ishi Conservation Camp Replace Kitchen

LOCATION: Paynes Creek

MECHANICAL ENGINEER: JCC & Associates Inc

MECHANICAL CONTRACTOR: B&M Builders

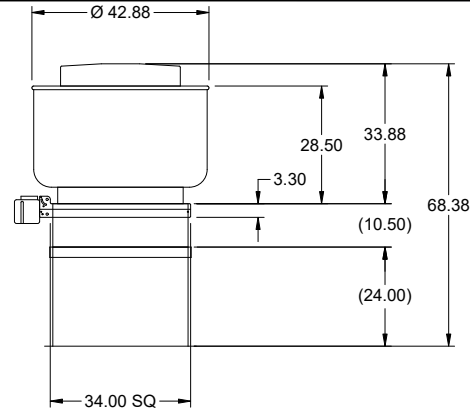
DOCUMENT DATE: Plans dtd: 1.8.21 and Specs dtd: 8.2021 Addenda 1&2

PREPARED BY: Ken Nelson for Tyler Countryman

GREENHECK FANS

Tag	Model	Inclusions
EF-1	CUBE-240HP-50	<ul style="list-style-type: none">• Grease Trap• Heat Baffle• UL/cUL 762 Listed• NEMA 3 Toggle switch (shipped loose)• Roof Curb (shipped loose)• Vented curb extension (shipped loose)• Hinged curb cap kit (shipped loose)
EF-2	CUBE-220HP-30	<ul style="list-style-type: none">• Grease Trap• Heat Baffle• UL/cUL 762 Listed• NEMA 3 Toggle switch (shipped loose)• Roof Curb (shipped loose)• Vented curb extension (shipped loose)• Hinged curb cap kit (shipped loose)
EF-3	CUE-100HP-VG	<ul style="list-style-type: none">• Birdscreen• Hing, factory installed• Roof Curb (shipped loose)• NEMA-3R Toggle switch (shipped loose)• Gravity operated damper (shipped loose)
EF-4 & EF-5	CSP-A510	<ul style="list-style-type: none">• Solid state Speed Control (shipped loose)• Integral backdraft damper
EF-6	CSP-A410	<ul style="list-style-type: none">• Solid state Speed Control (shipped loose)• Integral backdraft damper

Model: CUBE-240HP-50
Belt Drive Upblast Centrifugal Roof Exhaust Fan



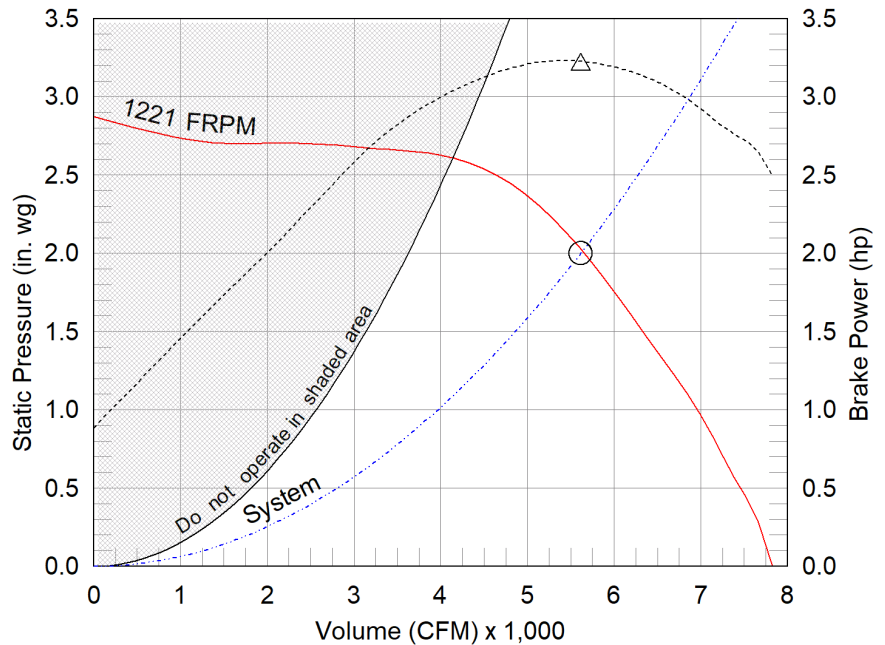
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	216
Weight w/ Acc's (lb)	264
Weight w/ Acc's and Curb (lb)	343
Max T Motor Frame Size	184
Standard Curb Cap Size (in.)	34 x 34
Roof Opening (in.)	26.5 x 26.5

Performance	
Requested Volume (CFM)	5,612
Actual Volume (CFM)	5,612
Total External SP (in. wg)	2
Fan RPM	1221
Operating Power (hp)	3.2
Elevation (ft)	95
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Drive Loss (%)	4.3
Tip Speed (ft/min)	7,832
Static Eff. (%)	58

Misc Fan Data	
Fan Eff. Index (FEI)	1.21
Outlet Velocity (ft/min)	1,493
FEI based on default motor calculation showing lowest efficiency option, for motor specific calculations please contact factory.	

Motor	
Motor Mounted	Yes
Size (hp)	5
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Efficiency Rating	NEMA Premium
Windings	1
NEC FLA* (Amps)	16.7
Min. Circuit Ampacity (MCA)	20.88
Max. Overcurrent Protection (MOP)	35
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
The motor provided on this fan is inverter ready and meets NEMA MG1 Part 31.4.4.2

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	80	81	91	82	76	75	69	68	85	74	23



Model: CUBE-240HP-50

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

Selected Options & Accessories:

NEMA Premium Efficient Motor - meets NEMA Table 12-12
Motor VFD Rated with Shaft Grounding Protection
Motor with Shaft Grounding
Standard Curb Cap Size - 34 Square
UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
Switch, NEMA-3R, Toggle, Shipped with Unit
Junction Box Mounted & Wired
Curb Extension-Galv., VCE-34-G10.5
Hinged Curb Cap Kit w/Cables (PN 917046) & Support Bracket (Shipped Loose)
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Grease Trap (PN 475538)
Heat Baffle (Attached)
Bearings with Grease Fittings, L10 life of 100,000 hrs (L50 avg. life 500,000 hrs)
Unit Warranty: 1 Yr (Standard)

Selected Sub Marks

See individual submittals for full details
GPF-34-G24

Disconnect Switch

Enclosure Rating: NEMA-3R

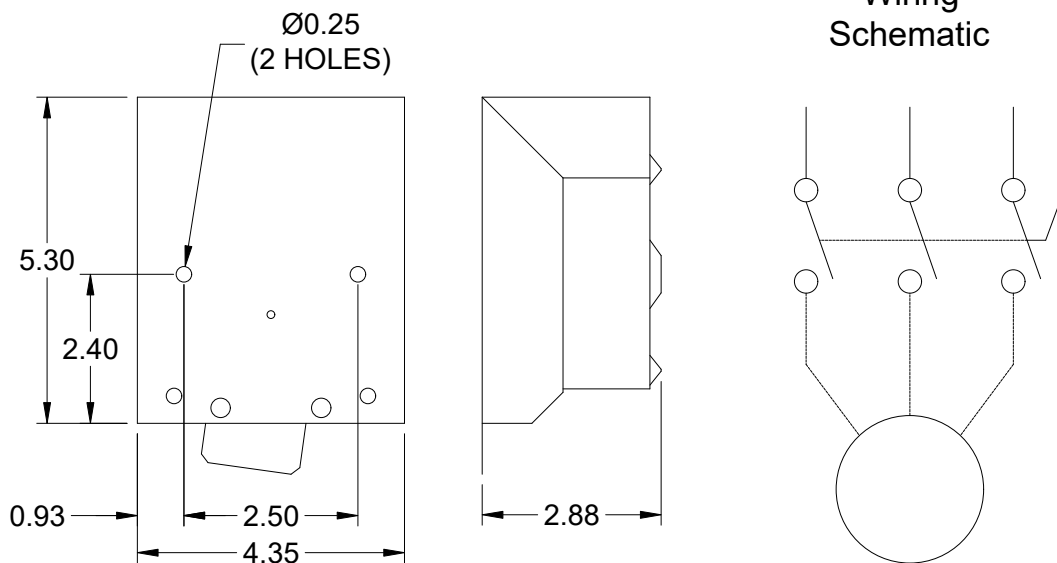
Standard Construction Features:

Enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment: to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust. The enclosed equipment will be undamaged by the external formation of ice on the enclosure. This enclosure meets the rod entry, rain, external icing, outdoor corrosion protection and gasket design tests. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

Disconnect Switch Configuration

Type:	Toggle	Motor Size:	5 hp	Voltage:	208	UL Listed:	Yes
Manufacturer:	Square D	Cycle:	60	Amperage:	30	CSA Approved:	Yes
Overload Protection:	None	Phase:	3	Switch Pole(s):	3	Rating:	10 hp
Junction Box Mtg.:	Mounted and Wired	RPM:	1725	Exp. Resist. Wiring:	None		
Switch Mounting:	Shipped With Unit						

Electrical Drawing Details



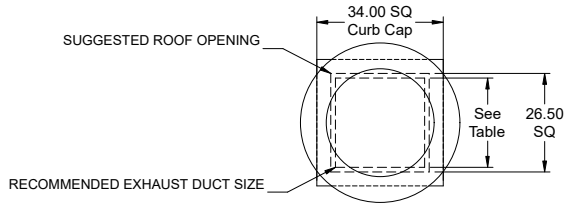
Notes: All dimensions shown are in units of in.

N:\GREENHECK\Jobs 4.29\Ishi Conservation Camp Replace Kitchen.gfcj

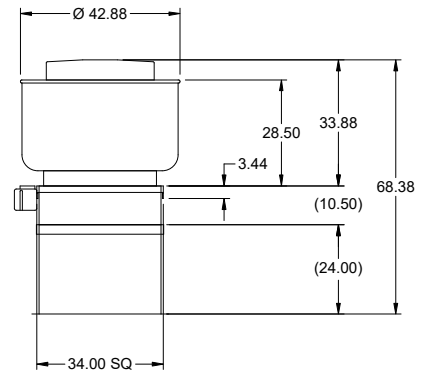
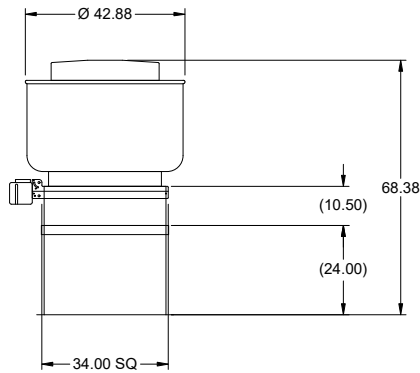
Generated by: knelson@norman-wright.com

Assembly Drawing

Type: Belt Drive Upblast Centrifugal Roof Exhaust Fan



DUCT TYPE	SIZE
STANDARD	24 SQ
FIRE-WRAPPED	16 SQ



DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB.
CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

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

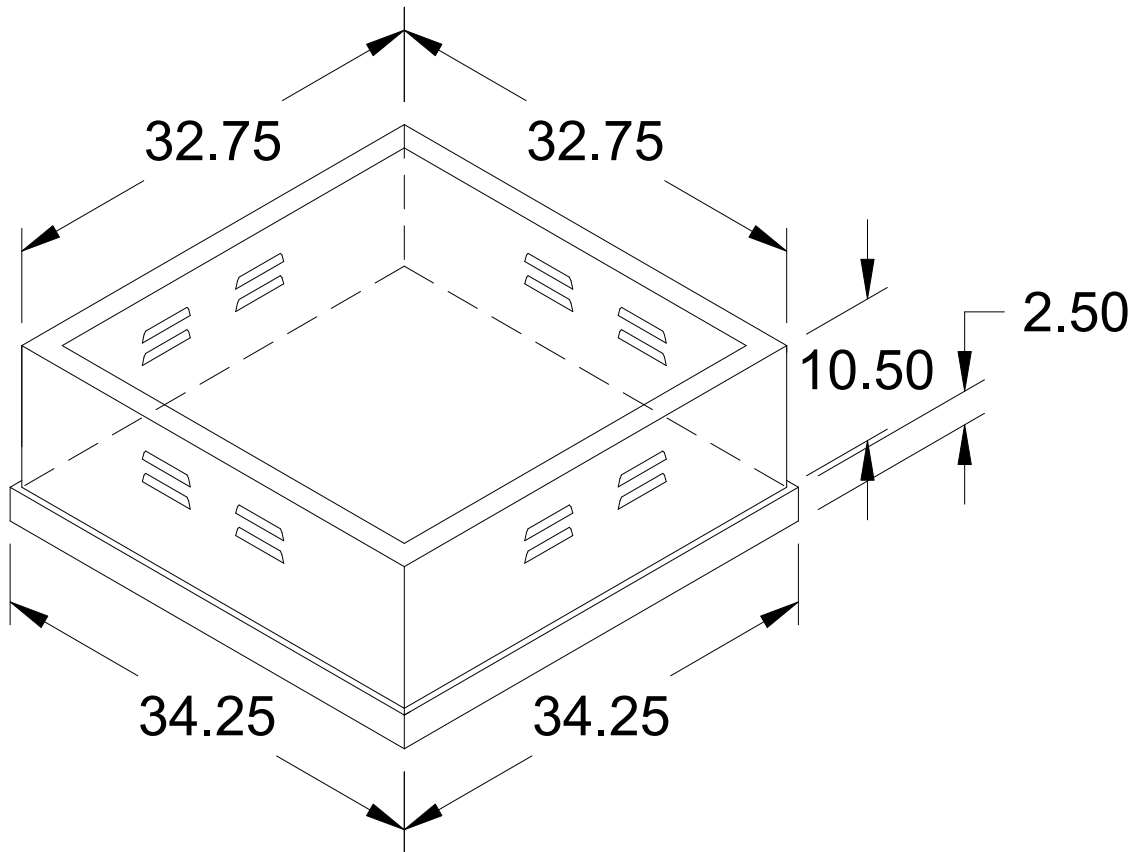
Notes: All dimensions shown are in units of in..

Vented Curb Extension

Model: VCE

Standard Construction Features:

- Curb Extension mounts between the fan and the roof curb - Constructed of either 18 ga galvanized or optional 0.064 in. aluminum - Louvered vents are designed to vent heat in restaurant exhaust applications - Designed to provide required 18 in. minimum discharge height above roof line when used with an 8 in. high roof curb and Greenheck model spun aluminum upblast exhaust fan per NFPA 96. NOTE: Damper Trays are not available.



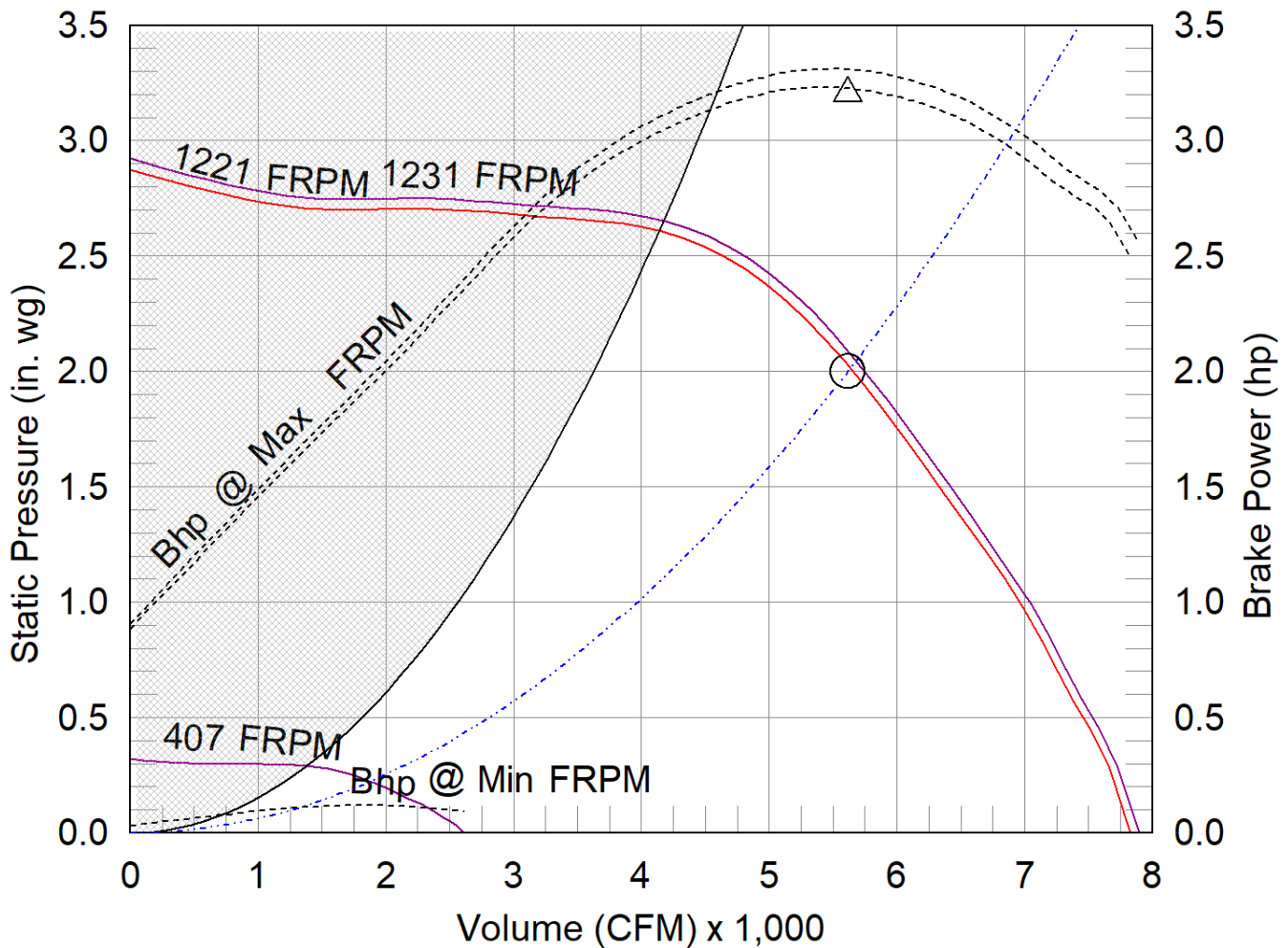
ISOMETRIC VIEW

Notes: All dimensions shown are in units of in.

CUBE-240HP-50 Min/Max Fan Curve

Performance

Requested Volume (CFM)	Actual Volume (CFM)	Total External SP (in. wg)	Fan RPM	Operating Power (hp)
5,612	5,612	2	1221	3.2



- △ Operating Bhp point
- Operating point at Total External SP
- Construction/System Limit
- Fan curve
- VFD 20 HZ Limit
- System curve
- - - - Brake horsepower curve

Warranty

1 Yr (Standard)

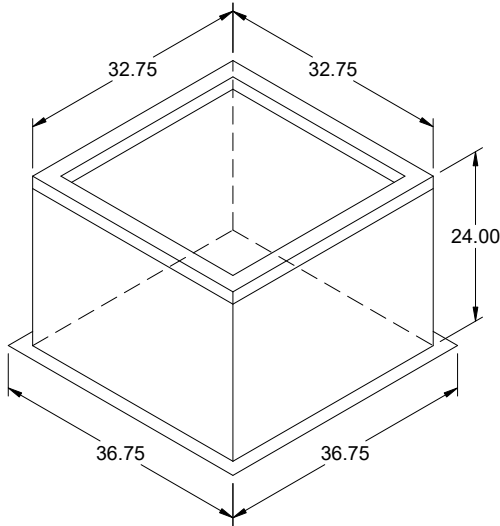
WARRANTY AND LIABILITY: SELLER warrants to Buyer that products manufactured are free from defects in material and workmanship for a period of 1 Yr (Standard) from the date of shipment. SELLER's obligations and liabilities under this warranty are limited to furnishing FOB factory or warehouse at SELLER's designated shipping point, freight allowed to Buyer's city, (or point of export for shipments outside the conterminous United States) replacement equipment (or at the option of SELLER parts therefore) for all Seller's products not conforming to this warranty and which have been returned to the manufacturer. No liability whatever shall attach to SELLER until said products have been paid for and such liability shall be strictly limited to the purchase price of the equipment shown to be defective. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by SELLER prove defective during this period, they should be returned to the nearest authorized motor service station. SELLER will not be responsible for any removal or installation costs. Electrical components, excluding motors, are warranted only to the extent warranted by the original manufacturer. To the extent that SELLER is entitled to pass through a warranty of the original equipment manufacturer of the electrical goods sold, SELLER will pass through such warranties to Buyer. The legal remedies described in this Warranty are the sole exclusive remedy of Buyer. SELLER MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This warranty is extended solely to the Buyer. It is nontransferable and non-assignable, and the Buyer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Buyer. ANY MISUSE, NEGLIGENCE, FAILURE TO FOLLOW INSTRUCTIONS OR MANUALS OF INSTALLATION OF MAINTENANCE REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS. THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. SELLER PROVIDES NO INDEPENDENT WARRANTY FOR THIRD PARTY PRODUCTS OR COMPONENTS SOLD TOGETHER OR INCORPORATED WITH SELLER'S PRODUCT(S). THE SELLER HAS THE RIGHT TO SETTLE ANY AND ALL DISPUTES REGARDING THE WARRANTY.

AMCA



AMCA Licensed for Sound and Air Performance and FEI ratings. Power rating (BHP/kW) includes transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA certified ratings seal applies to sound and air performance and FEI ratings only. FEI calculation is based on default motor calculation in accordance with ANSI/AMCA Standard 208. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) includes transmission losses. Performance ratings include the effects of birdscreen. The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per ANSI/AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.



Model: GPF

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. or 5 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 8 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.

***This curb can be mounted on the roof or wall (with a sidewall mounted CUE or CUBE fan).

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPF-34	Nominal	1.25	79	Yes	No Preference

Dimensions

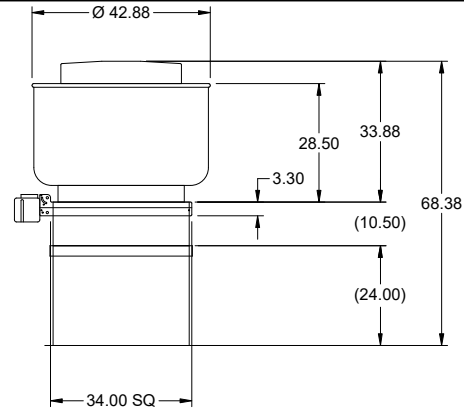
Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Flange Width (in.)	Flange Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
24	34	34	32.75	32.75	29.25	29.25	36.75	36.75	33	33

*May not be applicable

Accessories

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

Model: CUBE-220HP-30
 Belt Drive Upblast Centrifugal Roof Exhaust Fan

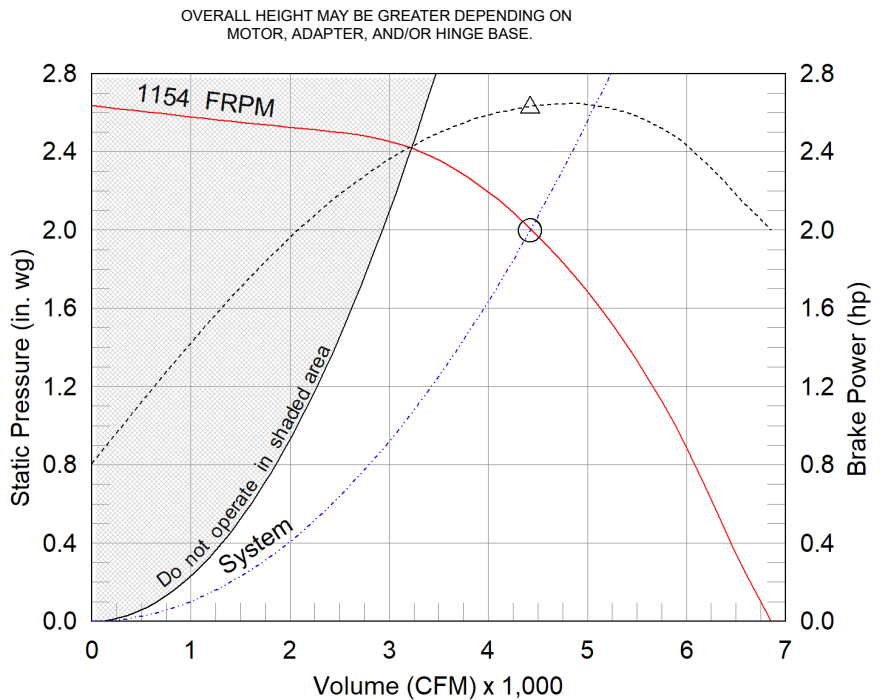


Dimensional	
Quantity	1
Weight w/o Acc's (lb)	200
Weight w/ Acc's (lb)	248
Weight w/ Acc's and Curb (lb)	327
Max T Motor Frame Size	184
Standard Curb Cap Size (in.)	34 x 34
Roof Opening (in.)	26.5 x 26.5

Performance	
Requested Volume (CFM)	4,423
Actual Volume (CFM)	4,423
Total External SP (in. wg)	2
Fan RPM	1154
Operating Power (hp)	2.63
Elevation (ft)	95
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Drive Loss (%)	4.5
Tip Speed (ft/min)	7,405
Static Eff. (%)	55

Misc Fan Data	
Fan Eff. Index (FEI)	1.18
Outlet Velocity (ft/min)	1,176
FEI based on default motor calculation showing lowest efficiency option, for motor specific calculations please contact factory.	

Motor	
Motor Mounted	Yes
Size (hp)	3
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Efficiency Rating	NEMA Premium
Windings	1
NEC FLA* (Amps)	10.6
Min. Circuit Ampacity (MCA)	13.25
Max. Overcurrent Protection (MOP)	20
Short Circuit Current Rtg (SCCR)	5 kA



- △ 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
 The motor provided on this fan is inverter ready and meets NEMA MG1 Part 31.4.4.2

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	80	81	89	80	74	73	69	68	84	72	21



Model: CUBE-220HP-30

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

Selected Options & Accessories:

NEMA Premium Efficient Motor - meets NEMA Table 12-12
Motor VFD Rated with Shaft Grounding Protection
Motor with Shaft Grounding
Standard Curb Cap Size - 34 Square
UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
Switch, NEMA-3R, Toggle, Shipped with Unit
Junction Box Mounted & Wired
Curb Extension-Galv., VCE-34-G10.5
Hinged Curb Cap Kit w/Cables (PN 917046) & Support Bracket (Shipped Loose)
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Grease Trap (PN 475538)
Heat Baffle (Attached)
Bearings with Grease Fittings, L10 life of 100,000 hrs (L50 avg. life 500,000 hrs)
Unit Warranty: 1 Yr (Standard)

Selected Sub Marks

See individual submittals for full details
GPF-34-G24

Disconnect Switch

Enclosure Rating: NEMA-3R

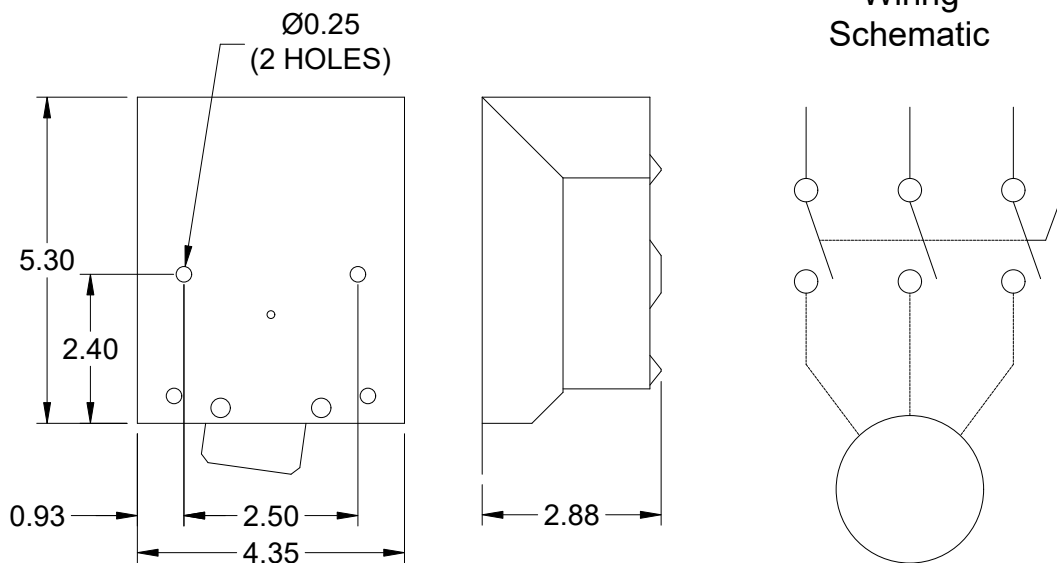
Standard Construction Features:

Enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment: to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust. The enclosed equipment will be undamaged by the external formation of ice on the enclosure. This enclosure meets the rod entry, rain, external icing, outdoor corrosion protection and gasket design tests. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

Disconnect Switch Configuration

Type:	Toggle	Motor Size:	3 hp	Voltage:	208	UL Listed:	Yes
Manufacturer:	Square D	Cycle:	60	Amperage:	30	CSA Approved:	Yes
Overload Protection:	None	Phase:	3	Switch Pole(s):	3	Rating:	10 hp
Junction Box Mtg.:	Mounted and Wired	RPM:	1725	Exp. Resist. Wiring:	None		
Switch Mounting:	Shipped With Unit						

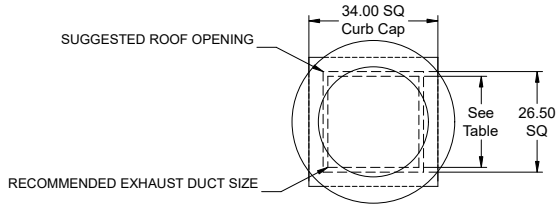
Electrical Drawing Details



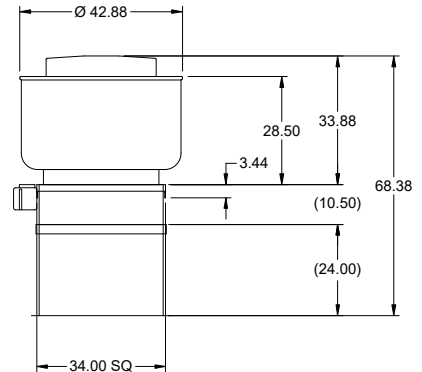
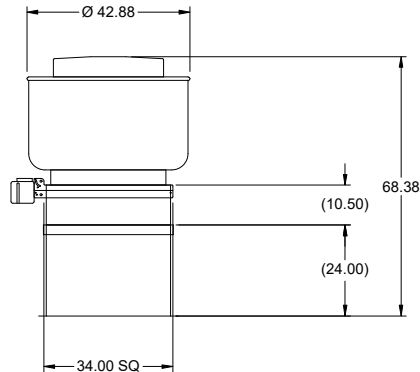
Notes: All dimensions shown are in units of in.

Assembly Drawing

Type: Belt Drive Upblast Centrifugal Roof Exhaust Fan



DUCT TYPE	SIZE
STANDARD	24 SQ
FIRE-WRAPPED	16 SQ



DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB.
CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

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

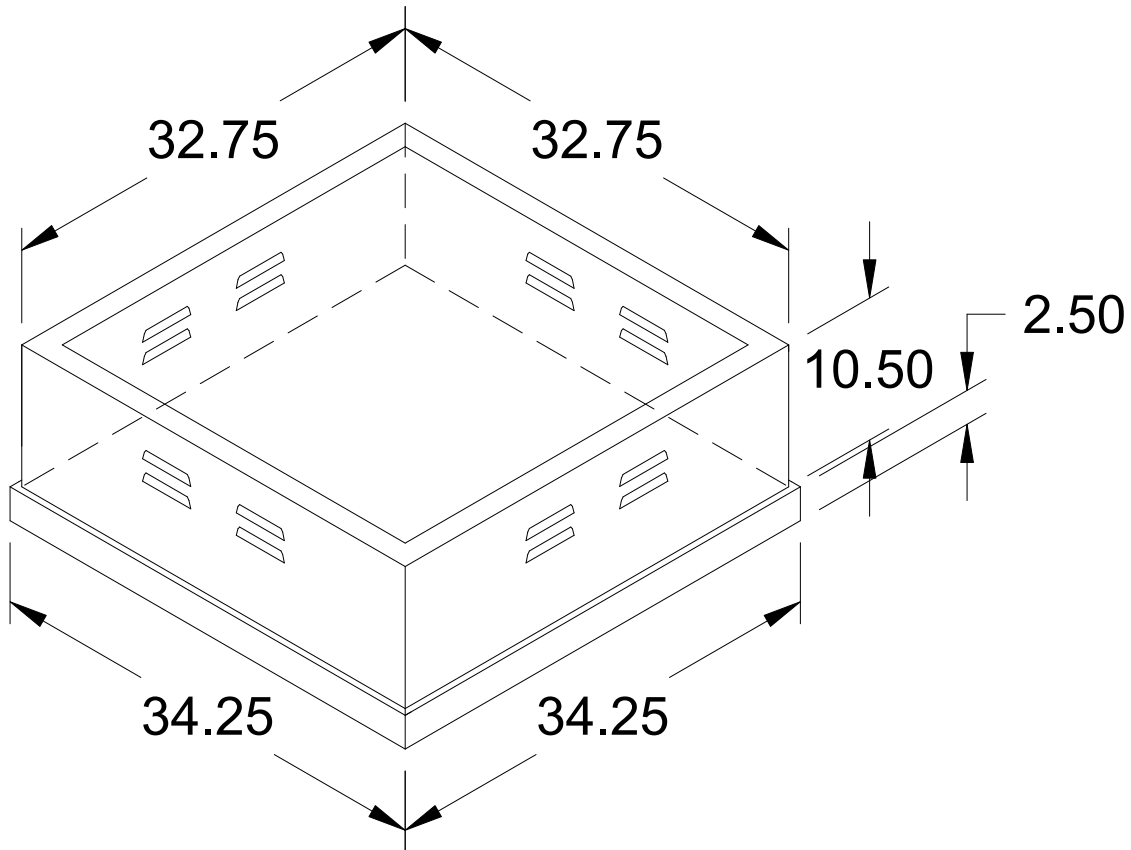
Notes: All dimensions shown are in units of in..

Vented Curb Extension

Model: VCE

Standard Construction Features:

- Curb Extension mounts between the fan and the roof curb - Constructed of either 18 ga galvanized or optional 0.064 in. aluminum - Louvered vents are designed to vent heat in restaurant exhaust applications - Designed to provide required 18 in. minimum discharge height above roof line when used with an 8 in. high roof curb and Greenheck model spun aluminum upblast exhaust fan per NFPA 96. NOTE: Damper Trays are not available.



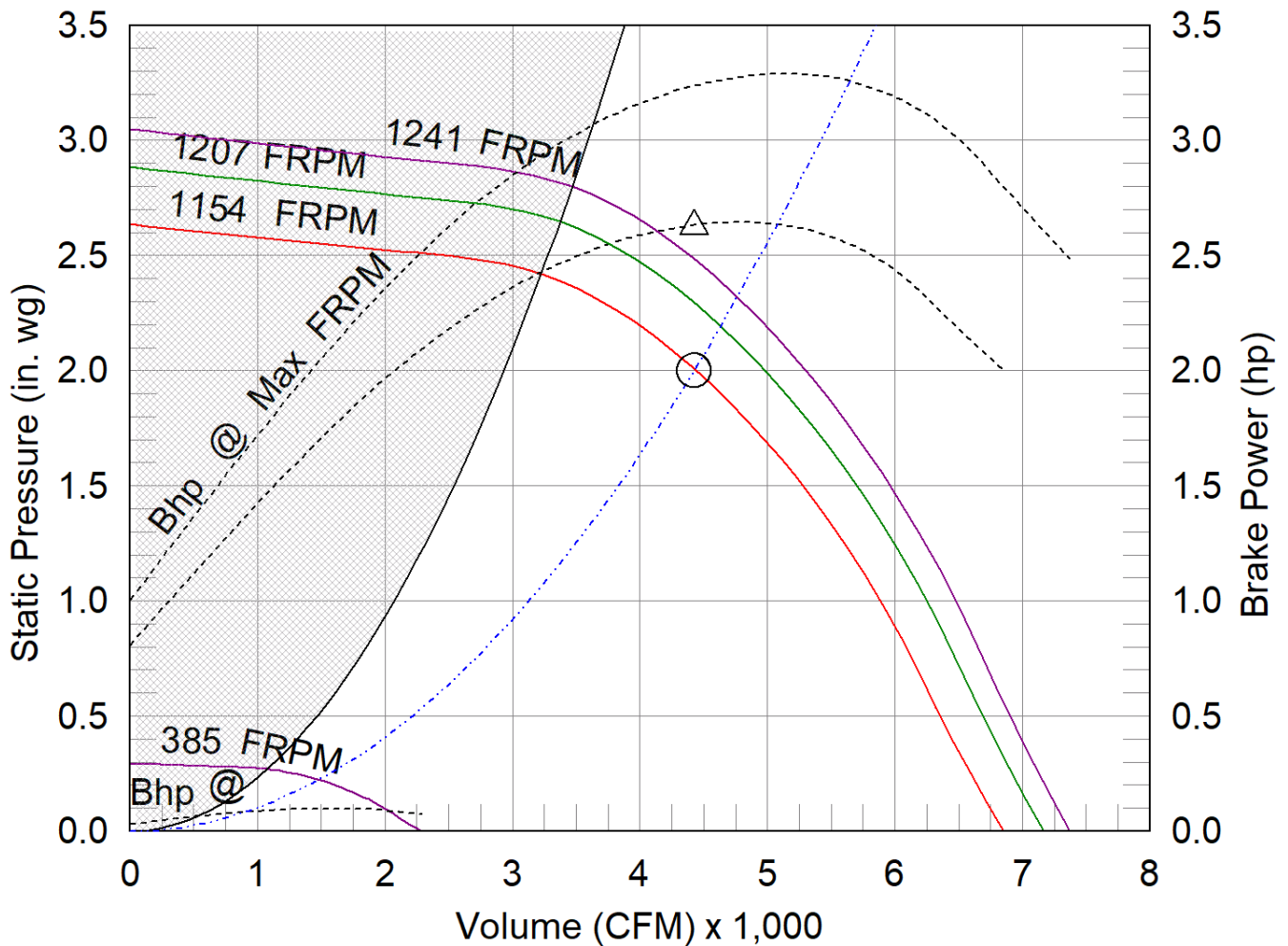
ISOMETRIC VIEW

Notes: All dimensions shown are in units of in.

CUBE-220HP-30 Min/Max Fan Curve

Performance

Requested Volume (CFM)	Actual Volume (CFM)	Total External SP (in. wg)	Fan RPM	Operating Power (hp)
4,423	4,423	2	1154	2.63



- △ Operating Bhp point
- Operating point at Total External SP
- Construction/System Limit
- Motor/System Limit
- Fan curve
- VFD 20 HZ Limit
- System curve
- Brake horsepower curve

Warranty

1 Yr (Standard)

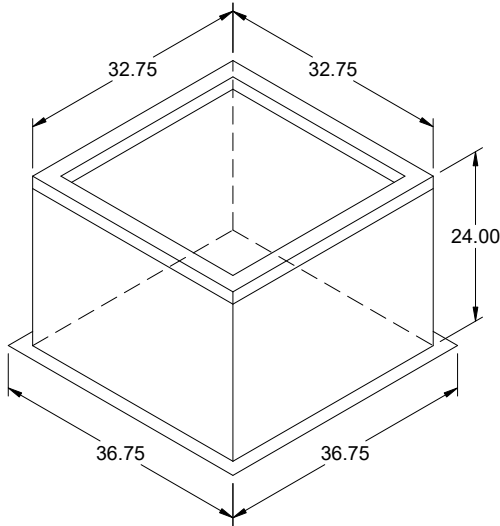
WARRANTY AND LIABILITY: SELLER warrants to Buyer that products manufactured are free from defects in material and workmanship for a period of 1 Yr (Standard) from the date of shipment. SELLER's obligations and liabilities under this warranty are limited to furnishing FOB factory or warehouse at SELLER's designated shipping point, freight allowed to Buyer's city, (or point of export for shipments outside the conterminous United States) replacement equipment (or at the option of SELLER parts therefore) for all Seller's products not conforming to this warranty and which have been returned to the manufacturer. No liability whatever shall attach to SELLER until said products have been paid for and such liability shall be strictly limited to the purchase price of the equipment shown to be defective. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by SELLER prove defective during this period, they should be returned to the nearest authorized motor service station. SELLER will not be responsible for any removal or installation costs. Electrical components, excluding motors, are warranted only to the extent warranted by the original manufacturer. To the extent that SELLER is entitled to pass through a warranty of the original equipment manufacturer of the electrical goods sold, SELLER will pass through such warranties to Buyer. The legal remedies described in this Warranty are the sole exclusive remedy of Buyer. SELLER MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This warranty is extended solely to the Buyer. It is nontransferable and non-assignable, and the Buyer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Buyer. ANY MISUSE, NEGLIGENCE, FAILURE TO FOLLOW INSTRUCTIONS OR MANUALS OF INSTALLATION OF MAINTENANCE REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS. THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. SELLER PROVIDES NO INDEPENDENT WARRANTY FOR THIRD PARTY PRODUCTS OR COMPONENTS SOLD TOGETHER OR INCORPORATED WITH SELLER'S PRODUCT(S). THE SELLER HAS THE RIGHT TO SETTLE ANY AND ALL DISPUTES REGARDING THE WARRANTY.

AMCA



AMCA Licensed for Sound and Air Performance and FEI ratings. Power rating (BHP/kW) includes transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA certified ratings seal applies to sound and air performance and FEI ratings only. FEI calculation is based on default motor calculation in accordance with ANSI/AMCA Standard 208. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) includes transmission losses. Performance ratings include the effects of birdscreen. The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per ANSI/AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.



Model: GPF

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. or 5 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 8 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.

***This curb can be mounted on the roof or wall (with a sidewall mounted CUE or CUBE fan).

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPF-34	Nominal	1.25	79	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.)	Flange Width (in.)	Flange Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
24	34	34	32.75	32.75	29.25	29.25	36.75	36.75	33	33

*May not be applicable

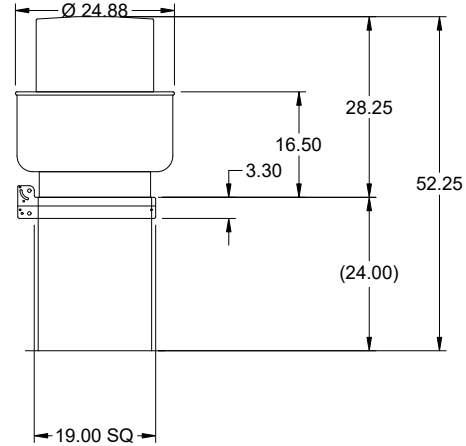
Accessories

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

Model: CUE-100HP-VG
Direct Drive Upblast Centrifugal Roof Exhaust Fan

Previously: CUE-101HP-VG

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	50
Weight w/ Acc's (lb)	62
Weight w/ Acc's and Curb (lb)	102
Standard Curb Cap Size (in.)	19 x 19
Roof Opening (in.)	14.5 x 14.5

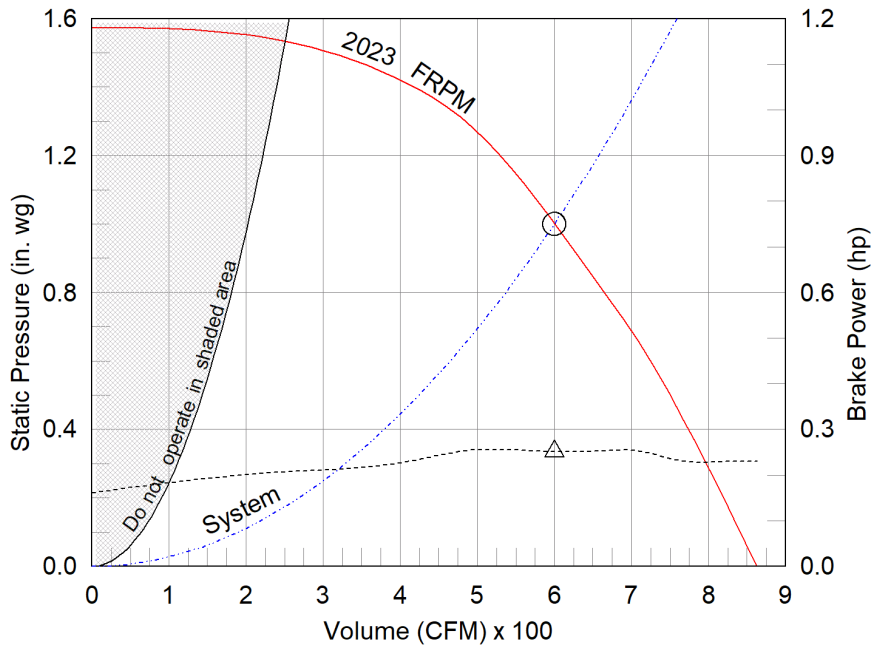


Performance	
Requested Volume (CFM)	600
Actual Volume (CFM)	600
Total External SP (in. wg)	1
Fan RPM	2023
Operating Power (hp)	0.25
Elevation (ft)	95
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Tip Speed (ft/min)	5,892
Static Eff. (%)	37

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	469

Motor	
Motor Mounted	Yes
Size (hp)	1/2
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	2500
Efficiency Rating	High
Windings	1
FLA (Amps)	6.6
Min. Circuit Ampacity (MCA)	8
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.
*Please consult factory for actual motor amp draw
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	81	81	72	73	68	62	58	55	74	63	12.1



Model: CUE-100HP-VG

Direct Drive Upblast Centrifugal Roof Exhaust Fan

Standard Construction Features:

- Aluminum housing - Backward inclined aluminum wheel - Aluminum curb cap with prepunched mounting holes - Drain trough - 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 - Dial for balancing
Standard Curb Cap Size - 19 Square
UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
Switch, NEMA-3R, Toggle, Shipped with Unit
Junction Box Mounted & Wired
Hinge, Factory Installed
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Unit Warranty: 1 Yr (Standard)

Selected Sub Marks

See individual submittals for full details
GPF-19-G24

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.

Disconnect Switch

Enclosure Rating: NEMA-3R

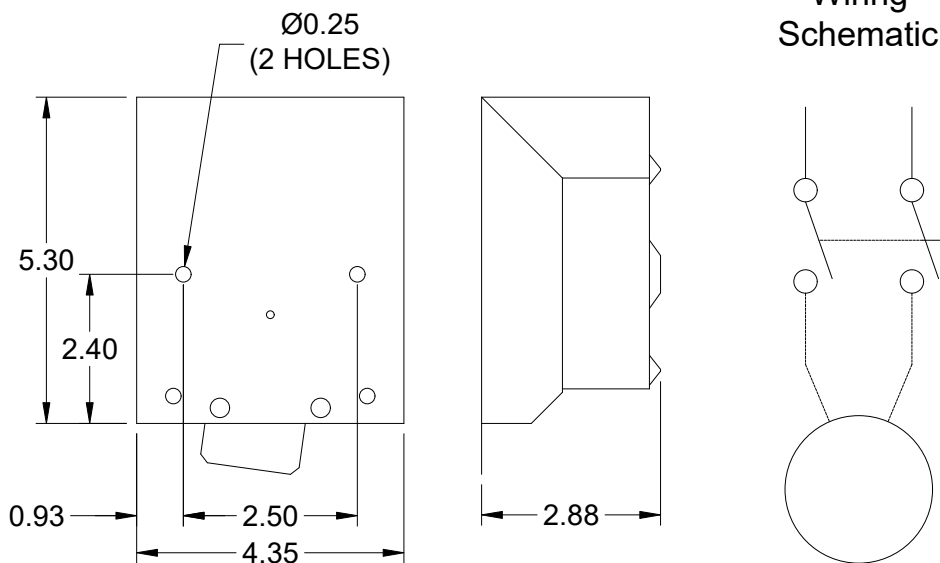
Standard Construction Features:

Enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment: to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust. The enclosed equipment will be undamaged by the external formation of ice on the enclosure. This enclosure meets the rod entry, rain, external icing, outdoor corrosion protection and gasket design tests. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

Disconnect Switch Configuration

Type:	Toggle	Motor Size:	1/2 hp	Voltage:	115	UL Listed:	Yes
Manufacturer:	Square D	Cycle:	60	Amperage:	30	CSA Approved:	Yes
Overload Protection:	None	Phase:	1	Switch Pole(s):	2	Rating:	15 hp
Junction Box Mtg.:	Mounted and Wired	RPM:	2500	Exp. Resist. Wiring:	None		
Switch Mounting:	Shipped With Unit						

Electrical Drawing Details



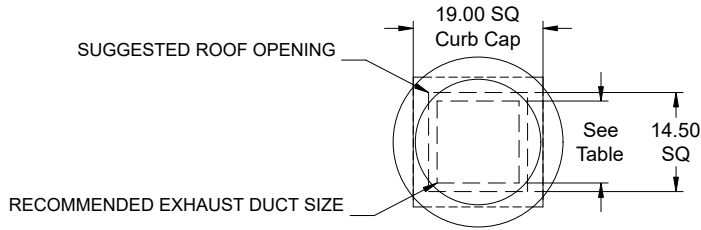
Notes: All dimensions shown are in units of in.

N:\GREENHECK\Jobs 4.29\Ishi Conservation Camp Replace Kitchen.gfcj

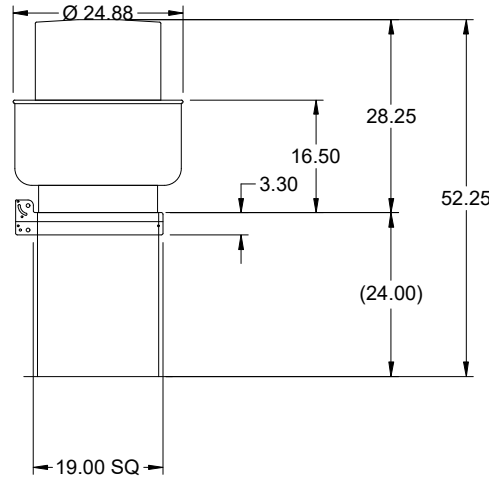
Generated by: knelson@norman-wright.com

Assembly Drawing

Type: Direct Drive Upblast Centrifugal Roof Exhaust Fan



DUCT TYPE	SIZE
STANDARD	12 SQ
FIRE-WRAPPED	4 SQ



DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB.
CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

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

Notes: All dimensions shown are in units of in..

Vari-Green Motor & Control Options

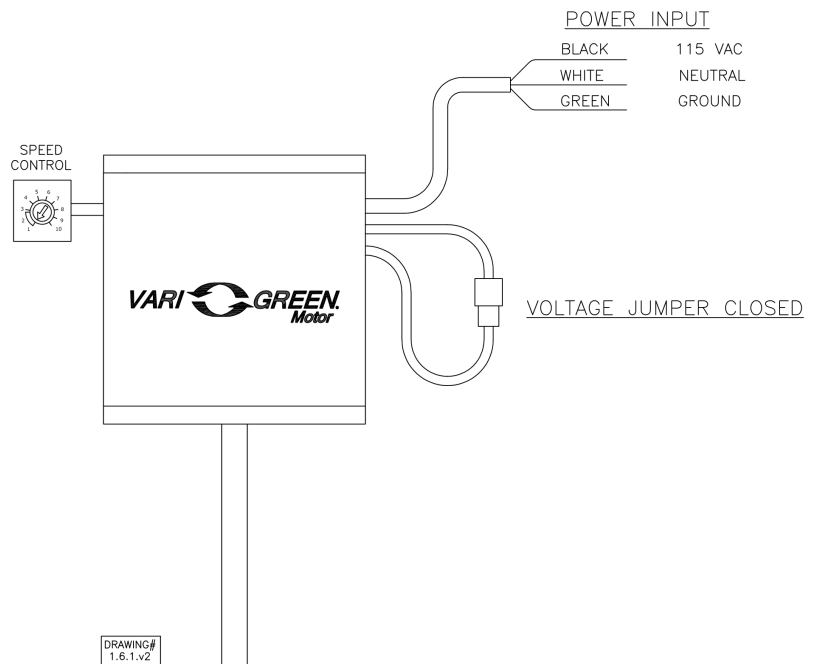
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

Motor Configuration

Input Voltage: 115
Speed Reference: Dial on Motor
Permanent Dial: Yes

Control Configuration

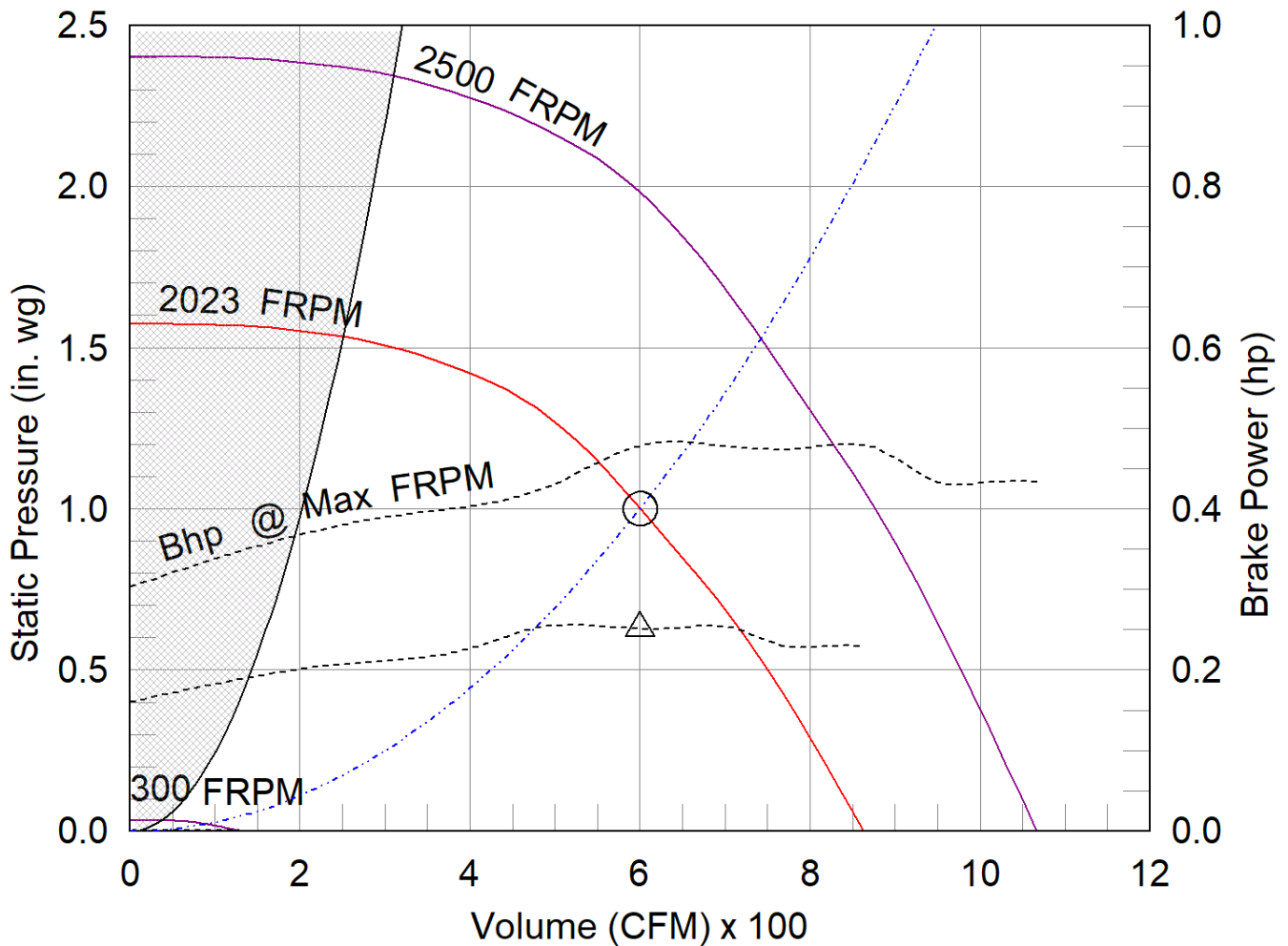
Control Type: N/A
Transformer: None



CUE-100HP-VG Min/Max Fan Curve

Performance

Requested Volume (CFM)	Actual Volume (CFM)	Total External SP (in. wg)	Fan RPM	Operating Power (hp)
600	600	1	2023	0.25



- △ Operating Bhp point
- Operating point at Total External SP
- Construction Limit
- Fan curve
- Min FRPM
- System curve
- - - - Brake horsepower curve

Warranty

1 Yr (Standard)

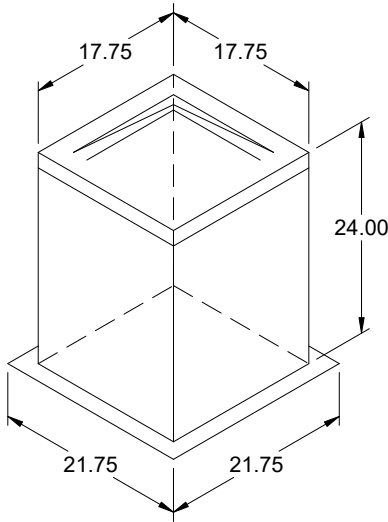
WARRANTY AND LIABILITY: SELLER warrants to Buyer that products manufactured are free from defects in material and workmanship for a period of 1 Yr (Standard) from the date of shipment. SELLER's obligations and liabilities under this warranty are limited to furnishing FOB factory or warehouse at SELLER's designated shipping point, freight allowed to Buyer's city, (or point of export for shipments outside the conterminous United States) replacement equipment (or at the option of SELLER parts therefore) for all Seller's products not conforming to this warranty and which have been returned to the manufacturer. No liability whatever shall attach to SELLER until said products have been paid for and such liability shall be strictly limited to the purchase price of the equipment shown to be defective. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by SELLER prove defective during this period, they should be returned to the nearest authorized motor service station. SELLER will not be responsible for any removal or installation costs. Electrical components, excluding motors, are warranted only to the extent warranted by the original manufacturer. To the extent that SELLER is entitled to pass through a warranty of the original equipment manufacturer of the electrical goods sold, SELLER will pass through such warranties to Buyer. The legal remedies described in this Warranty are the sole exclusive remedy of Buyer. SELLER MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This warranty is extended solely to the Buyer. It is nontransferable and non-assignable, and the Buyer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Buyer. ANY MISUSE, NEGLIGENCE, FAILURE TO FOLLOW INSTRUCTIONS OR MANUALS OF INSTALLATION OF MAINTENANCE REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS. THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. SELLER PROVIDES NO INDEPENDENT WARRANTY FOR THIRD PARTY PRODUCTS OR COMPONENTS SOLD TOGETHER OR INCORPORATED WITH SELLER'S PRODUCT(S). THE SELLER HAS THE RIGHT TO SETTLE ANY AND ALL DISPUTES REGARDING THE WARRANTY.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per ANSI/AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.



Model: GPF

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. or 5 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 8 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.

***This curb can be mounted on the roof or wall (with a sidewall mounted CUE or CUBE fan).

General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPF-19	Nominal	1.25	40	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.)	Flange Width (in.)	Flange Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
24	19	19	17.75	17.75	14.25	14.25	21.75	21.75	18	18

*May not be applicable

Accessories

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

Model: CSP-A510

Inline Cabinet Fan

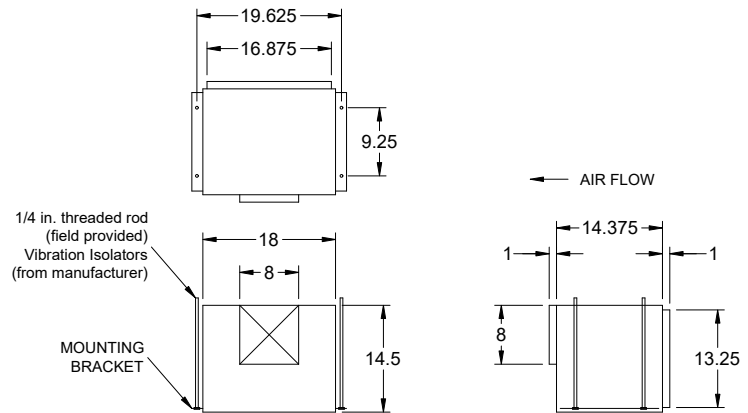
Tags: EF-4 EF-4,5

Standard Construction Features:

- Galvanized steel housing - Sound absorbing insulation - Outlet duct collar with integral back draft damper - Forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Square duct connection - Field rotatable discharge

Selected Options & Accessories:

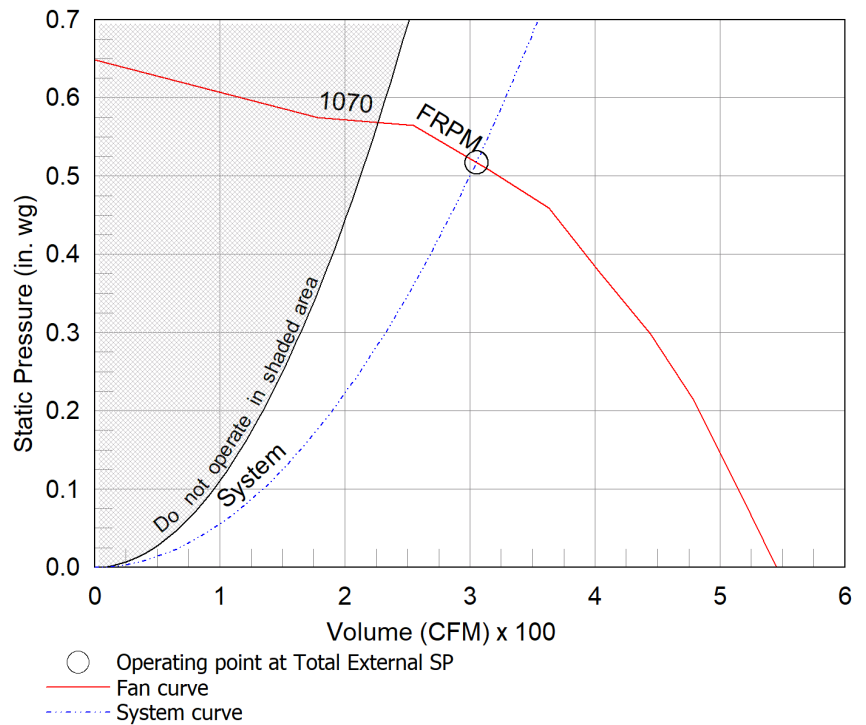
Motor rated for continuous use
Motor with Thermal Overload
Motor with CSA Approval
Motor with 40 Degree C Ambient Temperature
UL/cUL 507 Listed - Electric Fan
Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose
Adjustable easy installation mounting bracket
Polypropylene Wheel Material



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	37

Performance	
Requested Volume (CFM)	300
Actual Volume (CFM)	305
Total External SP (in. wg)	0.517
Fan RPM	1070
* FLA (A)	3.3
Elevation (ft)	95
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Sones	2.5

Motor	
Motor Mounted	Yes
** Input Watts (W)	179
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



Notes:

All dimensions shown are in units of in.
*FLA is approximate and will vary slightly with the motor.
Sones - calculated using AMCA 301 at 5 ft
** Wattage is approximate and may vary between motors.

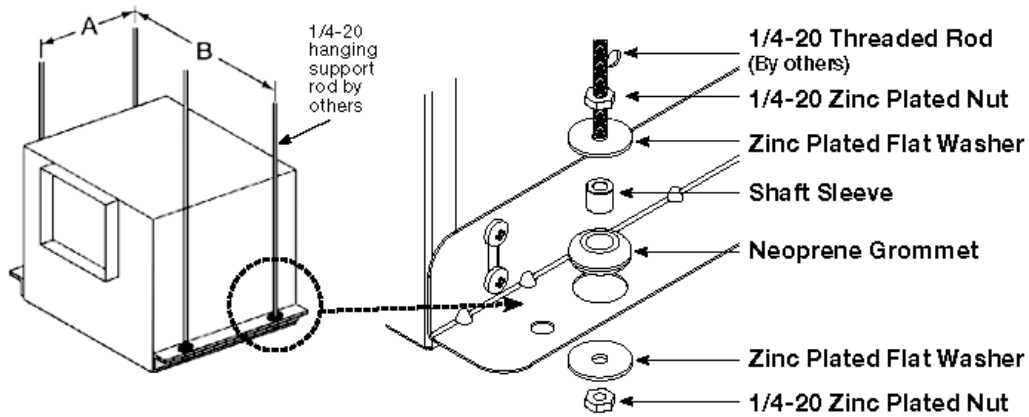


Isolation Kit

Type: Hanging

Standard Construction Features:

- Neoprene vibration isolation for hanging installation - Kit includes four isolators and all hardware necessary for mounting one unit except for the 0.25 in. x 20 in. threaded rod to be supplied by others - Fan mounting brackets include prepunched mounting holes for ease of installation



Unit Size	A	B
B50-B200	4 1/2 (114)	15 5/8 (397)
A50-A190	5 1/2 (140)	14 5/8 (371)
A200-A390	6 3/4 (171)	15 1/2 (394)
A410, A510, A710, A780	9 1/4 (235)	19 5/8 (498)
A700	5 1/2 (140)	25 1/8 (638)
A900 - A1050, A1410 - A1550	9 1/4 (235)	25 3/8 (645)
A1750, A2150	9 1/4 (235)	36 3/4 (933)
A3600	9 1/4 (235)	48 5/8 (1235)
All dimensions shown in inches (millimeters).		

Description	Qty
Neoprene Grommets	4
1 x 32 Zinc Plated Nuts	8
Zinc Plated Flat Washers	8
3/8 x 3/16 Shaft Sleeves	4

AMCA



AMCA Licensed for Air Performance. Power rating (Watts) includes transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings seal applies to air performance ratings only. Performance certified is for installation type D: Ducted inlet, Ducted outlet. Performance ratings include the effects of a backdraft damper. Speed (RPM) shown is nominal. Performance is based on actual speed of test. The sound ratings shown are for loudness values in spherical sones at 5 ft. (1.5m) in a spherical free field calculated per Annex B of AMCA 311. Values shown are for installation type D: ducted inlet spherical sone levels. Ratings do not include the effects of duct end correction. Ratings are based on 10 ft. of insulated duct.

Model: CSP-A410

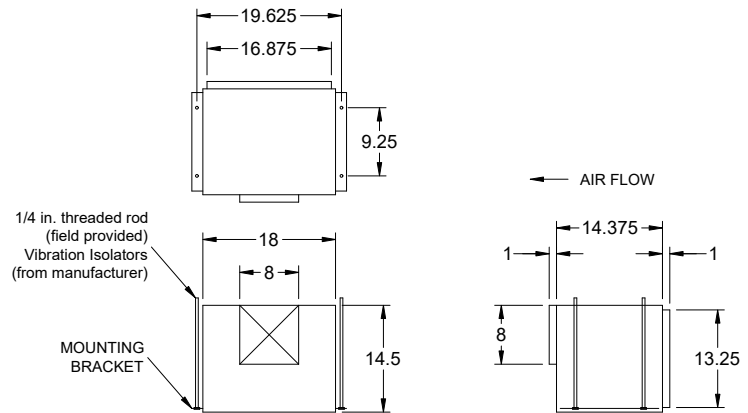
Inline Cabinet Fan

Standard Construction Features:

- Galvanized steel housing - Sound absorbing insulation - Outlet duct collar with integral back draft damper - Forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Square duct connection - Field rotatable discharge

Selected Options & Accessories:

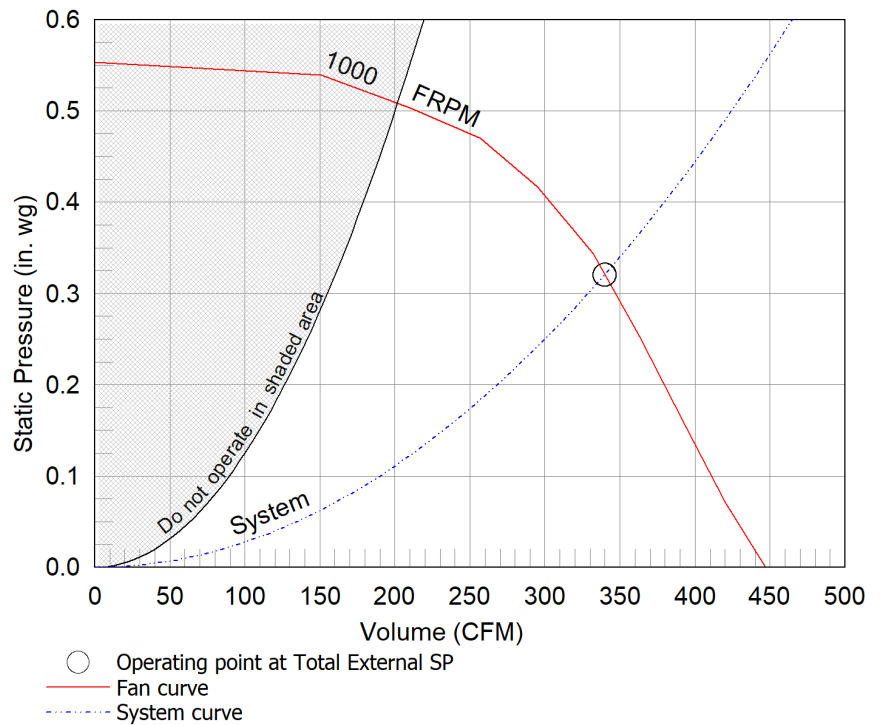
Motor rated for continuous use
Motor with Thermal Overload
Motor with CSA Approval
Motor with 40 Degree C Ambient Temperature
UL/cUL 507 Listed - Electric Fan
Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose
Adjustable easy installation mounting bracket
Galvanized Wheel Material



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	37

Performance	
Requested Volume (CFM)	300
Actual Volume (CFM)	340
Total External SP (in. wg)	0.321
Fan RPM	1000
* FLA (A)	1.7
Elevation (ft)	95
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.075
Sones	2.0

Motor	
Motor Mounted	Yes
** Input Watts (W)	122
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



Notes:

All dimensions shown are in units of in.
*FLA is approximate and will vary slightly with the motor.
Sones - calculated using AMCA 301 at 5 ft
** Wattage is approximate and may vary between motors.

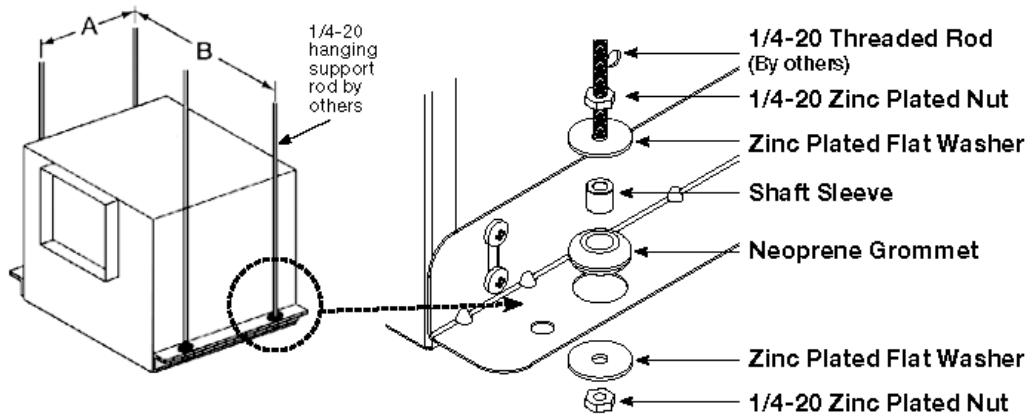


Isolation Kit

Type: Hanging

Standard Construction Features:

- Neoprene vibration isolation for hanging installation - Kit includes four isolators and all hardware necessary for mounting one unit except for the 0.25 in. x 20 in. threaded rod to be supplied by others - Fan mounting brackets include prepunched mounting holes for ease of installation



Unit Size	A	B
B50-B200	4 1/2 (114)	15 5/8 (397)
A50-A190	5 1/2 (140)	14 5/8 (371)
A200-A390	6 3/4 (171)	15 1/2 (394)
A410, A510, A710, A780	9 1/4 (235)	19 5/8 (498)
A700	5 1/2 (140)	25 1/8 (638)
A900 - A1050, A1410 - A1550	9 1/4 (235)	25 3/8 (645)
A1750, A2150	9 1/4 (235)	36 3/4 (933)
A3600	9 1/4 (235)	48 5/8 (1235)
All dimensions shown in inches (millimeters).		

Description	Qty
Neoprene Grommets	4
1 x 32 Zinc Plated Nuts	8
Zinc Plated Flat Washers	8
3/8 x 3/16 Shaft Sleeves	4

AMCA



AMCA Licensed for Air Performance. Power rating (Watts) includes transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings seal applies to air performance ratings only. Performance certified is for installation type D: Ducted inlet, Ducted outlet. Performance ratings include the effects of a backdraft damper. Speed (RPM) shown is nominal. Performance is based on actual speed of test. The sound ratings shown are for loudness values in spherical sones at 5 ft. (1.5m) in a spherical free field calculated per Annex B of AMCA 311. Values shown are for installation type D: ducted inlet spherical sone levels. Ratings do not include the effects of duct end correction. Ratings are based on 10 ft. of insulated duct.