

SUBMITTAL COVER SHEET

PROJECT: CEAS VP NL Metal Additive Printing Lab- Reno 21042B

ARCHITECT: BHDP Architecture

SPEC. NUMBER AND TITLE: Section 230000 HVAC-Fan

SUBMITTAL ITEM: 21042B- 07R

SUBMITTAL TYPE(S) [Standard Submittals]:

- | | |
|--|---|
| <input checked="" type="checkbox"/> PRODUCT DATA | <input type="checkbox"/> SAMPLES: _____ |
| <input type="checkbox"/> SHOP DRAWINGS | <input type="checkbox"/> FINISH CHART |
| <input type="checkbox"/> CERTIFICATIONS | <input type="checkbox"/> OTHER: _____ |

NOTES, COMMENTS, OR CLARIFICATIONS FROM CONTRACTOR:

This review does not relieve the subcontractor of the responsibility for making the material or labor to the requirements of the contract. The subcontractor is responsible for all dimensions, correct fabrications and accurate fit with work of other trades. This review is for general acceptance only and subject to owner or owner’s agent approval.

SUBMITTAL REVIEW CERTIFICATION

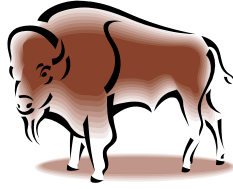
We (the Contractor) hereby certify that we have reviewed this submittal, verified the products required, coordinated and verified the field dimensions (where possible), adjacent construction work and required clearances, and determined that the work and materials described by this submittal are in accordance with the requirements of the Work and the Contract Documents, except to the extent explicitly identified and clouded on the Submittal.

- Reviewed and Approved without Comments
- Reviewed and Approved with Comments
- See Comments Above
- See Comments on Submittal Pages

Signed: Jerrett Brielmaier
Name

Date: 03/11/2022

Bison Services LLC



7152 N. AA Hwy
Foster, KY 41043
Phone 606-747-0322 / Fax 606-747-0324

March 9, 2022

Project: UC VCP North Lab

Contractor: Leo J. Brielmaier

Architect: BHDP Architecture

ReSubmittals: Fans

Spec Section: M801

Currant Lead Time 7 to 8

weeks

Respectfully Submitted

Jason Meloche

Bison Services, LLC

Ph# 606-747-0322

Fax# 606-747-0324

- APPROVED
- FURNISH AS CORRECTED
- REJECTED
- REVISE AND RESUBMIT
- SUBMIT SPECIFIED ITEM

This review was performed only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Modifications or comments made on the shop drawings during this review do not relieve contractor from compliance with the requirements of the plans and specifications. Approval of a specific item does not include approval of the assembly of which the item is a component. Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences, and procedures of construction; coordination of the work of all trades; and for performing all work in a safe and satisfactory manner.

HAWA INCORPORATED
CONSULTING ENGINEERS

3/15/22 JJP
Date _____ By _____



Pro Fit HVAC, LLC

P.O. Box 443
 15713 St. Rt. 116
 St. Marys, OH 45885

Todd Klosterman
 Cell: 419-305-7629
 todd@proairsales.com

Emily Klosterman
 Cell: 419-733-4733
 emily@proairsales.com

SUBMITTAL TRANSMITTAL

Project No.: 2021 - 05078

NOTE:

Building B

Project Description: *(Project Title, Facility Name and Address)*

Delaware County Byxbe Campus
 DACC Redevelopment
 1610 St. Rt. 521 (Kilbourne Rd)
 Delaware, OH 43015

Date: ~~02/19/2022~~ 3/10/22

TO:

Bison Services

7152 KY-9

Foster, KY 41043

FROM:

PRO FIT HVAC, LLC

PO BOX 443

ST. MARYS, OH 45885

SUBMITTAL TYPE:

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> For Approval | <input checked="" type="checkbox"/> Re-Submittal #1 | <input type="checkbox"/> Information |
| <input type="checkbox"/> Product Data | <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Quality Control/Assurance |
| <input type="checkbox"/> Test Reports | <input type="checkbox"/> Certificate | <input type="checkbox"/> Contract Closeout |
| <input type="checkbox"/> Design Data | <input type="checkbox"/> Samples | <input type="checkbox"/> Other |

Specification Number and Title: _____

Part	Type	Description
Fans	Twin City Fan Co.	

Contractor's Certification:

We have verified that all material or equipment contained in this submittal meets all the requirements specified or shown **(no exceptions)**.

 Contractor/Contractor's Representative (Print Name)

 Signature



Customer: Bison Services
Job ID: VPCNorthLab
Date: March 10, 2022

Submitted By:

Emily Klosterman

Pro Fit HVAC, LLC

P.O. Box 443

St. Marys, OH 45885

Email: emily@proairsales.com

Phone: 419-733-4733

Fax:

FAN SCHEDULE



Job Name: VPC North Lab

Customer: Bison Services
Job ID: VPCNorthLab
Date: March 10, 2022

Tag	Qty	Model	Size	Width	CL	Arr	CFM	SP (in WC)	Density (lb/ft3)	RPM	BHP	Motor					Encl	OV (FPM)	Wgt (lb.)	MFG
												HP	RPM	Ph	Freq	Voltage				
EF-N3	1	BCRU	160B	N/A	N/A	N/A	2,000	1.000	0.075	1252	0.75	1	1750	3	60 Hz	460	ODP	746	170	TCF

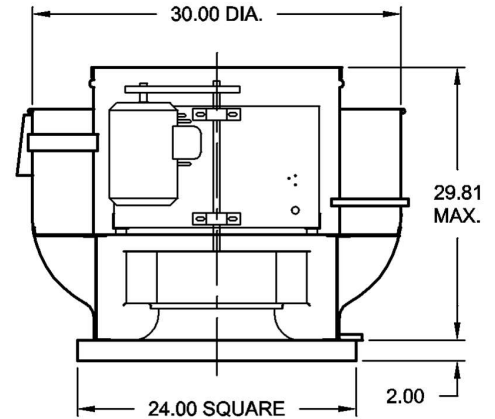


Tag: EF-N3
Customer: Bison Services
Job ID: VPCNorthLab
Date: March 10, 2022

BCRU - Centrifugal Roof Exhauster, Upblast, Belt Driven

Construction Features

- Spun aluminum construction
- Backwardly curved, non-overloading wheel.
- Wheel, motor, and drive assembly are isolated from the fan supports by rubber isolators.
- Top cap provides quick access to the wheel, motor, and drive assembly.
- Re-greaseable pillow block ball bearings provide an average life of 500,000 hours.
- Curb cap/venturi assembly.
- Entire fan assembly is balanced and tested.
- Zinc plated steel birdscreen.
- Disconnect switch.



ROOF OPENING	18.50 X 18.50
DAMPER SIZE	18.00 X 18.00

D4401HBCRU 160I

Description	Qty	Model	Size	Width	Wt (lb.)
	1	BCRU	160B	N/A	170

Approximate weight each, includes fan, motor and accessories.

Configuration	Class	Rotation	Arr	Disch	M. Pos	Disch Dir
	N/A	N/A	N/A	UBD	--	Vertical

Performance	CFM	SP (in WC)	RPM	Oper. BHP
	2,000	1.000	1,252	0.75

Temperature: 70 °F Altitude: 0 ft

Department of Energy	FEI	FEP (KW)	System FEI	System FEP (KW)
	1.07	0.72	N/A	N/A

Note that the Fan Energy Index (FEI) is an overall efficiency (wire-to-air) metric which includes not only the impact of the fan efficiency, but also each of the drive components used to operate the fan. The Fan Electrical Input Power (FEP) is the amount of power of a given fan at an operating point characterized by a value of flow and pressure.

Motor Data	HP	RPM	Volt/Ph/Hz	Enclosure
	1	1,750	460V/3/60	ODP

Efficiency: Premium

Sound Data	Octave Bands	1	2	3	4	5	6	7	8	LwA	dBA	Sones
	Level at Inlet	80	80	83	79	72	66	62	57			
		80	80	83	79	72	66	62	57	80	65	16.0

LwA: The overall (single value) fan sound power level in dB re. 10⁻¹² Watts, 'A' weighted.

dBA: Estimated sound pressure level (re:0.0002 microbar) based on a single ducted installation at 5 ft., using a directivity factor of 1.

Accessories Included

- Birdscreen (Zinc Plated Steel)
- Motorized Damper 24V
- Spark Resistant Construction - Type B
- Performance Baffle with 4.02in diameter
- Curb Cap / Curb Base - Special
 - Coordinate curb adapter with contractor.
- Variable Speed V-Belt Drive, 1.5 SF
- Disc Switch - Unfused (NEMA 1), Mtd & Wired



FAN DETAILS

Job Name: VPC North Lab



Tag: EF-N3
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Job ID: VPCNorthLab
Date: March 10, 2022

Description		Performance		Air/Gas Properties	
Quantity	1	Volumetric Flow CFM	2,000	Altitude above sea level (ft)	0
Model	BCRU	Operating SP (in WC)	1.000	Inlet Pressure (in WC)	0.00
Size	160B	Standard SP (in WC)	1.000	Inlet Temperature(°F)	70
Width	N/A	RPM	1252	Design Temperature (°F)	70
Arrangement	N/A	Tip Speed (FPM)	5500	Gas Type	Standard
Class	N/A	Oper. Power BHP	0.75	Estimated Density (lb/ft³)	0.075
Rotation	N/A	Standard Power BHP	0.75	Motor Data	
Discharge	UBD	Outlet Area (sq.ft)	2.68		
Wheel Diameter (in)	16.8	Outlet Velocity (FPM)	746	Enclosure	ODP
Drive method	Belt	Max RPM for Class	1380	Speed (RPM)	1800
Percentage width	100%	Static Efficiency	42.18%	Voltage	460V
Percentage diameter	100%	Total Efficiency	43.64%	Phase	3
Motor position	--	FEI	1.07	Frequency	60Hz
		FEP (KW)	0.72	Frame Size	Unknown
		System FEI	N/A		
		System FEP (KW)	N/A		

Sound

Octave Bands	1	2	3	4	5	6	7	8	LwA
Level at Inlet	80	80	83	79	72	66	62	57	80

Distance in ft	1	3	5
dBA at inlet	80	70	66

Sound Power Levels in dB re.10⁻¹² Watts:

Estimated sound pressure level in dBA (re: 0.0002 microbar) based on a single * ducted installation:

*To estimate dBA level for ducted inlet and ducted outlet (into and out of the room) type installation, deduct 20 from the LwA value shown. Using a directivity factor of 1. Estimated Sound Pressure based on free field, spherical (Q = 1) radiation at stated distance.

Definitions:

- LwA** The overall (single value) fan sound power level, 'A' weighted.
- dBA** The environment for each fan installation influences its measured sound value, therefore dBA levels cannot be guaranteed. Consult AMCA Publication 303 for further details. A fan's dBA is influenced by nearby reflective surfaces.

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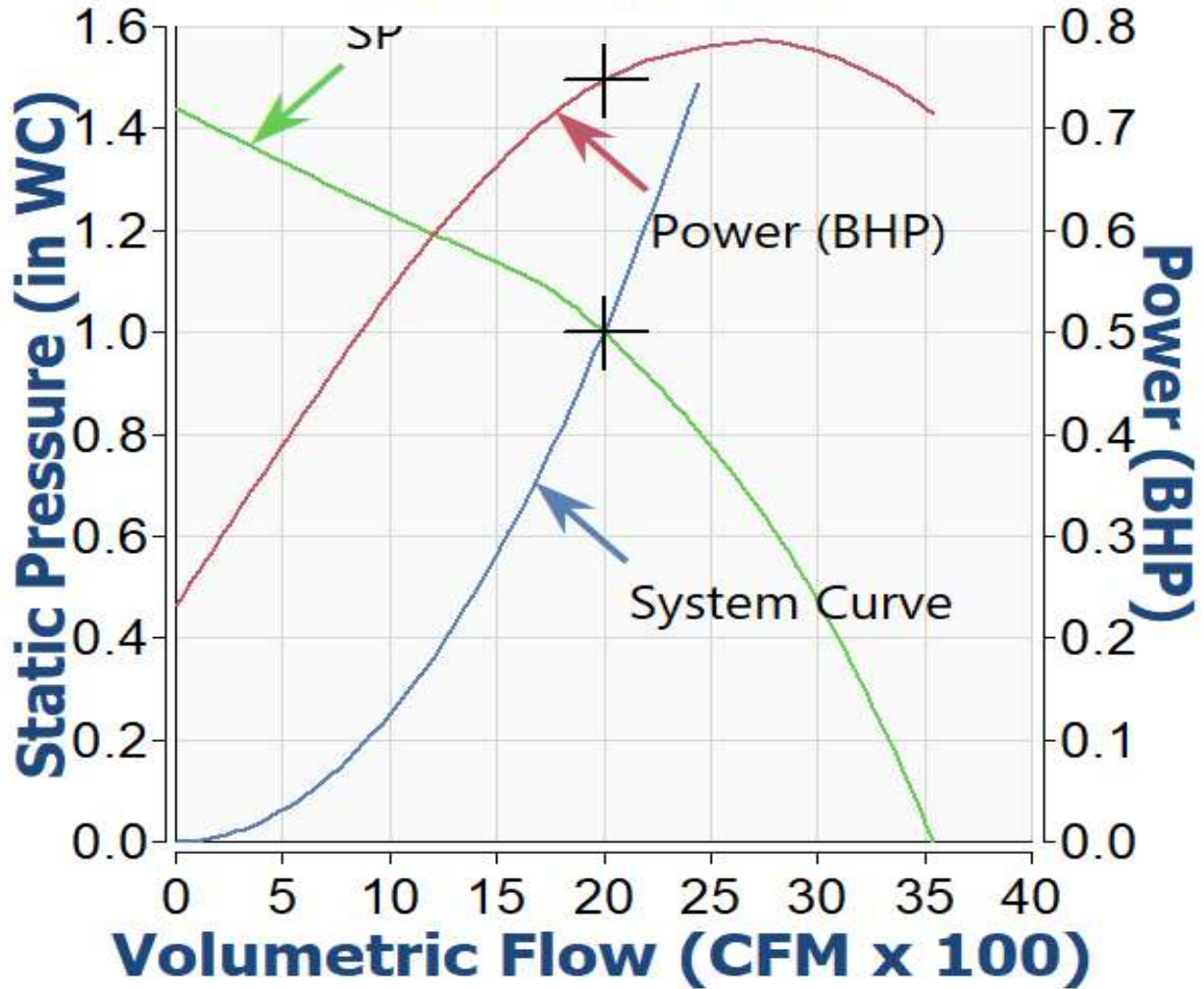
Pricing Detail

BCRU 160B Bare fan	Included
Birdscreen (Zinc Plated Steel)	Included
Motorized Damper 24V	Included
Spark Resistant Construction - Type B	Included
Performance Baffle with 4.02in diameter	Included
Curb Cap / Curb Base - Special	Included
Coordinate curb adapter with contractor.	
Motor 1 HP 1750 RPM 460V 3Ph 60Hz	Included
Variable Speed V-Belt Drive, 1.5 SF	Included
Disc Switch - Unfused (NEMA 1) Mtd	Included



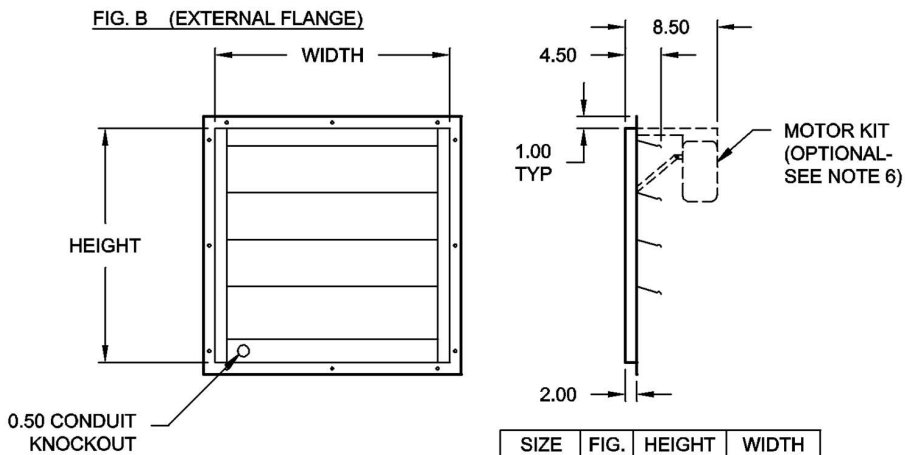
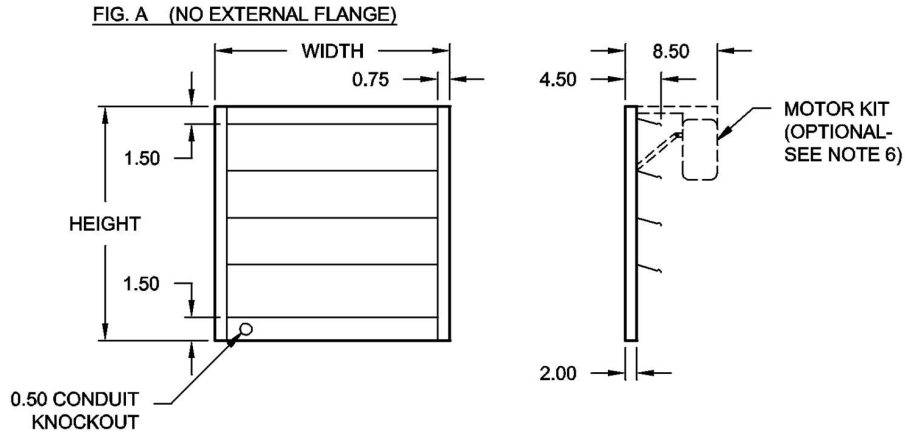
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Standard Plot





Tag: EF-N3
Customer: Bison Services
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Date: March 10, 2022



NOTES:

1. FRAME: 19 GA. GALVANIZED STEEL.
2. BLADES: 26 GA. MILL FINISH ALUM.
3. FELT SEAL ON LEADING EDGE OF BLADES.
4. TIE ROD ATTACHED TO ALL BLADES.
5. DAMPERS INDIVIDUALLY PACKAGED.
6. FOR MOTORIZED APPLICATIONS (OPT.) MOTOR KITS ARE RATED AT 115/230V, 460V OR 24V. FOR 575V APPLICATIONS, A TRANSFORMER IS REQUIRED WITH A 115V MOTOR PACK.

SIZE	FIG.	HEIGHT	WIDTH
110	A	18.00	18.00
120	A	18.00	18.00
140	A	18.00	18.00
160	A	18.00	18.00
180	A	24.00	24.00
210	A	28.00	28.00
240	A	28.00	28.00
300	A	34.00	34.00
360	A	40.00	40.00
420	A	46.00	46.00
480	B	50.00	50.00

DMP-G000 BCRU 008-4101

FAN DETAILS

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AMCA Statements

Tag: EF-N3

1. Twin City Fan certifies that the model BCRU 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.
2. Performance certified is for Installation Type A: Free inlet, Free outlet.
3. Power rating (BHP) does not include transmission losses.
4. Performance ratings do not include the effects of appurtenances (accessories).
5. The sound ratings shown are loudness values in fan sones at 5 ft. (1.5m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation Type A: Free inlet hemispherical sone levels.
6. The AMCA Certified Ratings Seal applies to sone ratings only.
7. dBA levels are not licensed by AMCA International.



DOE Statements

Note that the Fan Energy Index (FEI) is an overall efficiency (wire-to-air) metric which includes not only the impact of the fan efficiency, but also each of the drive components used to operate the fan.

The Fan Electrical Input Power (FEP) is the amount of power of a given fan at an operating point characterized by a value of flow and pressure.