

## LOW PROFILE HOODED ROOF VENTILATORS



**MODELS:** BSHD / BSHB



## Overview

**BSHD** | **BSHB**



BSHB with Standard Bird Screen



## Energy Regulations

Aerovent supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply Aerovent products to their specific applications to meet applicable DOE and state regulatory requirements. Aerovent has made significant investments in product testing and development to provide efficient products. Developments in Aerovent's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

Aerovent Low Profile Hooded Roof Ventilators provide cost effective, general purpose ventilation solutions for commercial and light industrial applications. The aesthetically pleasing modular hood design minimizes extension above the roof line. Both direct and belt driven models are available in exhaust and supply configurations. A wide array of adjustable pitch, cast aluminum impellers are available to meet specific performances and application requirements. Aerovent also offers a complete line of options and accessories such as roof curbs, backdraft dampers, disconnect switches and special coatings to maintain single source responsibility.

### Typical Industries Include

Warehouse Ventilation, Office Ventilation, General HVAC, Gymnasium Ventilation, Factory Ventilation, Greenhouse Ventilation, Attic Exhaust, Hospital Exhaust, Agriculture, Manufacturing Exhaust, Paper Mills, Foundry, Textile, Commercial Plan and Spec, Office Ventilation

### Configurations

Hooded Supply or Exhaust

### Impeller Types

"B" Die Cast Aluminum Impellers

### Standard Construction

Heavy-Gauge Galvanized Steel

### Optional Construction

Special Coatings, Aluminum Construction, UL 705

### Certifications

UL 705 Listed for Electrical



All models are UL/cUL 705 listed, for electrical, File No. E158680.



For complete product performance, drawings and available accessories, download our Fan Selector software at [aerovent.com](http://aerovent.com).

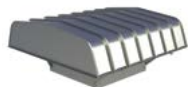
## Overview

**BSHD** | **BSHB**

Hooded non-filtered BSHD (direct drive) and BSHB (belt driven) models are available for exhaust or supply service and feature a removable galvanized steel hood for cleaning and servicing the fan as well as a galvanized steel bird screen.

### **BSHD (Direct Drive)**

14" to 48" impeller diameters  
Airflow to 33,500 CFM  
Static pressure to 1" w.g.



### **BSHB (Belt Driven)**

21" to 54" impeller diameters  
Airflow to 53,000 CFM  
Static pressure to 1" w.g.



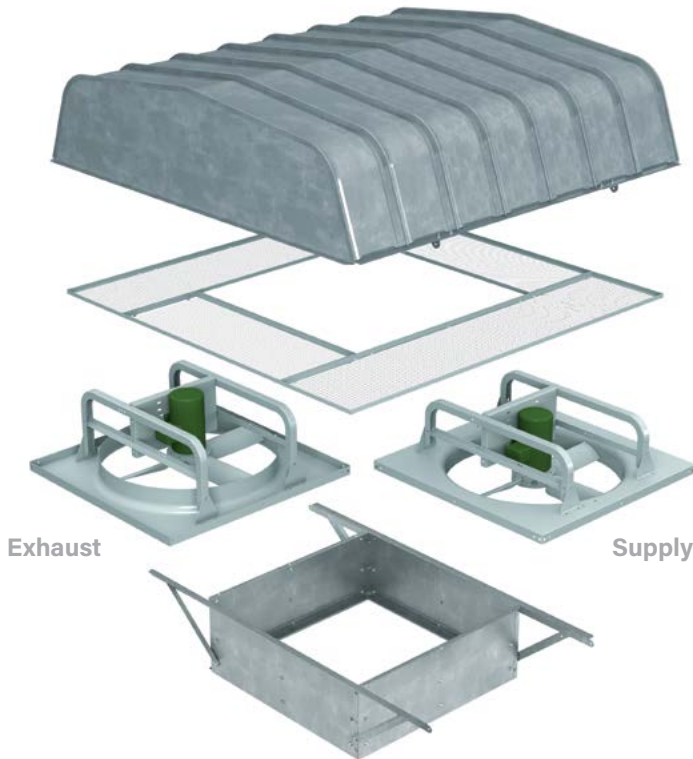
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Retail and Grocery Store  
Supply and Exhaust

## Exploded View

**BSHD | BSHB**



### Mechanical Run Test & Final Vibration Check

All fans are assembled for a mechanical run test and final balance prior to shipment. Vibration readings are taken in the axial, horizontal and vertical directions at the specified speed. Fans are balanced to 0.15 in./sec. peak or less.

### Bearings (BSHB only)

Cast iron pillow block bearings selected for L50 average life of 200,000 hours at maximum cataloged operating speeds.

### Shaft (BSHB only)

Shaft diameters are sized to have a first critical speed of at least 125% of the fan's maximum operating speed.

### Motors

ODP, TEFC and Explosion proof, single and three phase motors are carefully matched to the fan load.

### Drives (BSHB only)

Motor sheaves shall be of cast iron and supplied as variable pitch standard. Drives and belts shall be rated for 150% of the required motor HP.

### Motor and Drive Frame

Support assemblies are constructed of heavy-gauge galvanized or finish painted steel.

### Motor Access

Fans designed for exhaust, supply and filtered supply allow for service and are provided with convenient access to the motor from the roof.

### Modular Hood Design

The stackable hood panels allow for easy field assembly when necessary. The snap together rib design provides added strength and rigidity. Hoods are constructed of galvanized steel as standard.

### Impellers

Cast aluminum blades and hubs. Impellers on belt driven units shall be welded to the fan shaft or secured to the fan shaft with a taper lock bushing. Impellers on direct drive units shall be mounted directly on the motor shaft with a taper lock bushing.

## Model Nomenclature

**BSHD - 24 - B - 1 - 05 - 25**

- Model** \_\_\_\_\_
- BSHD = Low Profile Hooded Roof Ventilator, Direct Drive
- BSHB = Low Profile Hooded Roof Ventilator, Belt Driven
- Fan Size** \_\_\_\_\_
- Impeller Type** \_\_\_\_\_
- B = Backswept
- Hub Designation** \_\_\_\_\_
- Blade Count** \_\_\_\_\_
- Blade Angle** \_\_\_\_\_

The Aerovent modular hood provides numerous benefits over conventional sheet metal hood designs.



**BSHB, Belt Driven**  
(Showing how hood panels stack together)



**Inter-locking Panels**  
of Modular Hood

## Hood Construction

- The Aerovent modular hood design features ribbed panels, which provide added strength and rigidity. This is particularly important in climates where snow loads are a consideration.
- Hood profile allows rain and snow to run off.
- Hoods are galvanized steel as standard, but can also be constructed of aluminum or painted steel to accommodate specific application requirements.

## Easy Access

- Fan sizes 14 to 36 incorporate a pivoted hood design. By removing two fasteners, the hood can be opened up for convenient cleaning and service.
- Fan sizes 42 to 54 allow for the entire hood to be taken off by removing four fasteners.
- Exhaust and supply fans are constructed with motor and drive components easily accessible from the roof. There is no need to try and access components below the roof line or through an access door.
- Removable bird screens can be removed with the hood still in place to allow for quick and easy inspection of the fan components without taking off the hood.

## Shipping Advantage

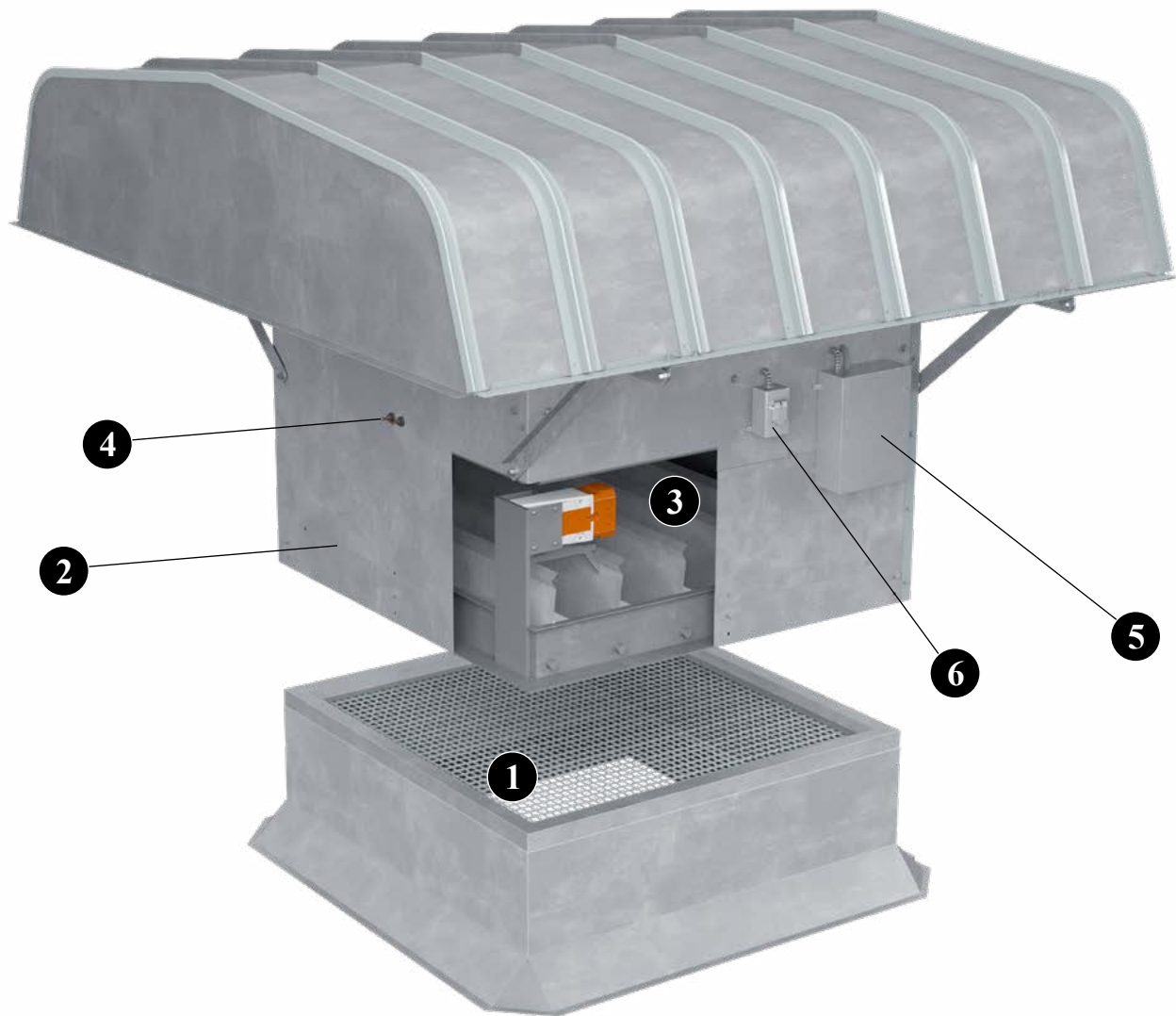
Most units ship fully assembled as standard (see chart below for specific models and sizes) to allow for fast and easy installation at the job site. Larger units ship knocked down to the job site as standard and can be easily assembled with standard tools. Aerovent does offer the option to ship larger units fully assembled to the job site (standard freight rates do not apply). Contact your local sales representative for more information.

MODEL	FAN SIZE									
	14	16	18	21	24	30	36	42	48	54
<b>BSHD</b>	F	F	F	F	F	F	F	F	K	---
<b>BSHB</b>	---	---	---	F	F	F	F	F	K	K

F = Ships Fully Assembled

K = Ships Knocked Down, Field Assembly Required

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**1 Curb Side Guard** Mounted to the curb side of the fan to allow for protection of personnel below fan in non-ducted installations. Aerovent recommends the use of a curb side guard on all non-ducted installations.

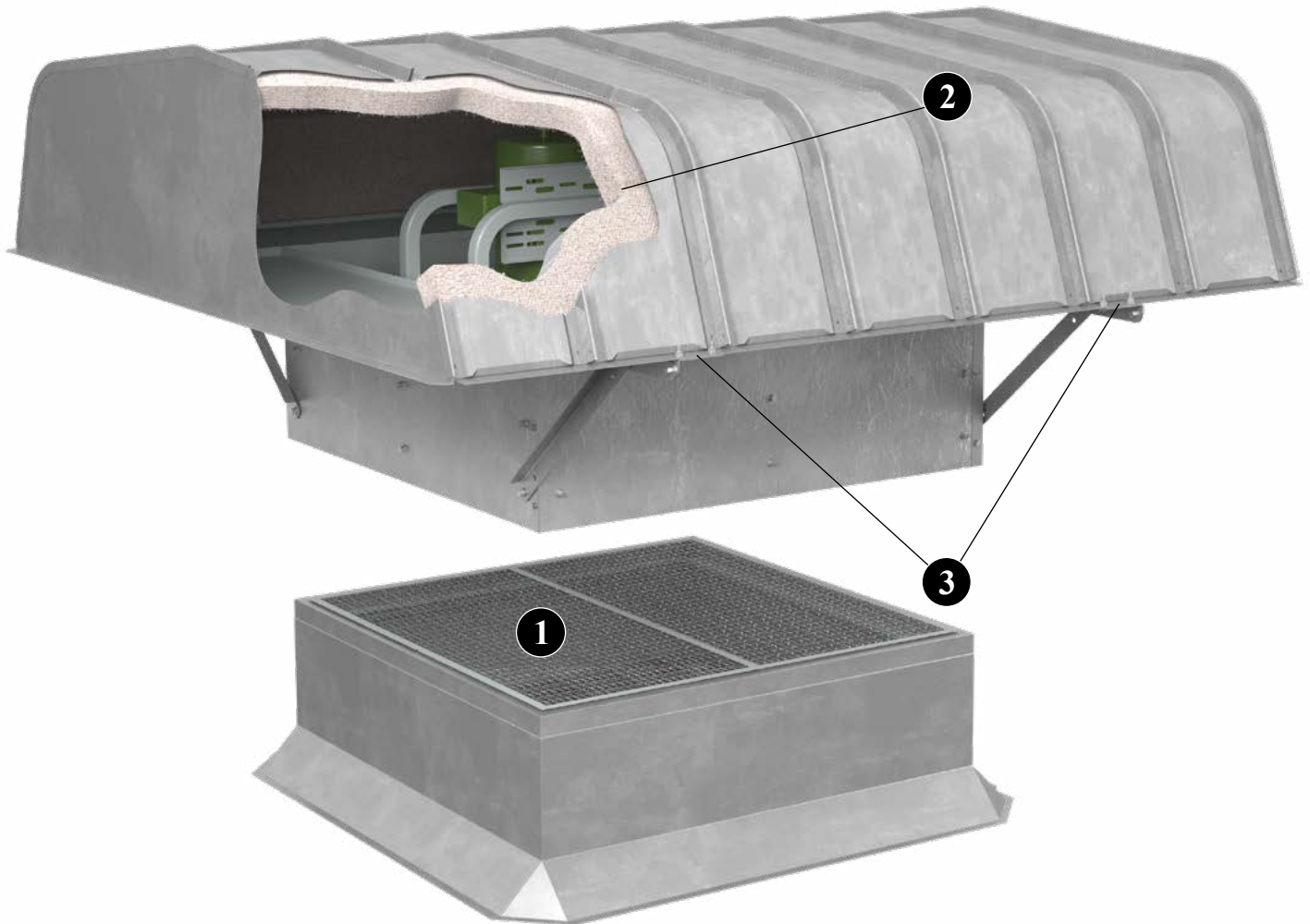
**2 Curb Cap (Tall)** Extended base section with access door and damper tray allows for easy access of motorized and non-motorized backdraft dampers for maintenance and cleaning. This option is advantageous over the standard fan with roof curb extension because the base ships as one piece.

**3 Motorized Damper** Used to keep unwanted air out of the building when the fan is not in use, dampers are available as either gravity operated or motorized.

**4 Extended Lube Lines** (on panel) Allow for easy lubrication of bearings on belt driven units without disassembly by extending polyethylene lines from fan bearings to exterior of base.

**5 Single Point Wiring** Junction box on exterior of base houses disconnect switch and motorized damper wire connections. Available with tall base, motorized damper and wired disconnect switch only.

**6 NEMA 3R Disconnect Switch** NEMA 3R, rain proof, disconnects are available shipped loose for field mounting and wiring or factory mounted and wired.



- 1 Insect Screen** An aluminum insect screen, placed between the fan base and the roof curb, prevents insects from entering the building.
- 2 Insulated Hood** Inside of hood is lined with insulation to reduce sound and condensation from the hood.
- 3 Tie Downs** A quantity of four tie-down brackets are included to help secure the unit to the roof in areas with strong winds. Cables used for tie down are supplied by others.

## Other Accessories Include:

- Aluminum Construction
- Special Coatings

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## Canted Roof Curbs

- Constructed of 18-gauge galvanized steel with continuously-welded seams
- Large 3" built-in 45° cant to accommodate roofing material to top of curb. Cant is beveled at corners for better support of roofing material
- Wood nailer (1½") secured to top ledge
- Lined with 1½" fiberglass fire-resistant, sound-absorbing insulation
- Damper shelf standard
- Options: Aluminum (16-gauge) construction, burglar security bars, metal liner (galvanized or aluminum), special heights up to 24", single or double pitched curbs for sloping roofs



## Self-Flashing & Straight-Sided Roof Curbs

- Constructed of 18-gauge galvanized steel with continuously-welded seams
- Wide base plate (flashing) to ensure watertight seal to roof
- Top ledge covered with 3/16" polystyrene gasket (self-flashing) for weather seal and to reduce metal-to-metal conducted noise
- Wood nailer secured to top ledge (straight-sided)
- Lined with 1½" fiberglass fire-resistant, sound-absorbing insulation
- Damper shelf standard
- Straight-sided roof curbs are constructed with the same features as the self-flashing curbs, but are one dimensional to allow for field supplied cants and roofing material to be brought up to the top of the curb
- Options: Aluminum (16-gauge) construction, burglar security bars, metal liner (galvanized or aluminum), special heights up to 24", single or double pitched curbs for sloping roofs



## Curb Adapters

- Constructed of heavy-gauge galvanized steel with continuously-welded seams
- Top ledge covered with 3/16" polystyrene gasket to reduce metal-to-metal conducted noise and act as a weather seal
- Available in enlarger or reducer (shown) models



Disconnect switches provide positive electrical shutoff during fan cleaning or maintenance.

### NEMA 3R Disconnect Switch

A NEMA 3R, rain proof, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.

### NEMA 4 Disconnect Switch

A NEMA 4, water and dust tight, disconnect is available shipped loose for field mounting and wiring or factory mounted and wired externally.

### NEMA 7/9 Disconnect Switch

A NEMA 7/9 disconnect switch is recommended on fans with explosion proof motors. The NEMA 7/9 switch is designed for use with fans operating in hazardous environments. Available shipped loose for field mounting and wiring. (Not shown.)



NEMA 3R  
Disconnect Switch



NEMA 4  
Disconnect Switch

## Engineering Data

### Material Specifications

FAN SIZE	GAUGE OF MATERIAL										SHAFT SIZE (IN.)
	FAN HOUSING		HOOD		FAN PANEL		DRIVE FRAME		IMPELLERS		
	BSHD	BSHB	BSHD	BSHB	BSHD	BSHB	BSHD	BSHB	BSHD	BSHB	
14	18	—	22	—	16	—	14	—	DIE CAST ALUM.	—	—
16	18	—	22	—	16	—	14	—		—	—
18	18	—	22	—	16	—	14	—		—	—
21	18	18	22	22	16	16	14	14		DIE CAST ALUM.	1
24	18	18	22	22	14	14	12	14	1		
30	18	18	22	22	14	14	12	12	1		
36	18	18	22	22	14	14	12	12	1		
42	16	16	22	22	12	12	10	12	13/16		
48	16	16	22	22	12	12	10	12	17/16		
54	—	16	—	22	—	12	—	10	—	17/16	

\* All gauges are minimums.

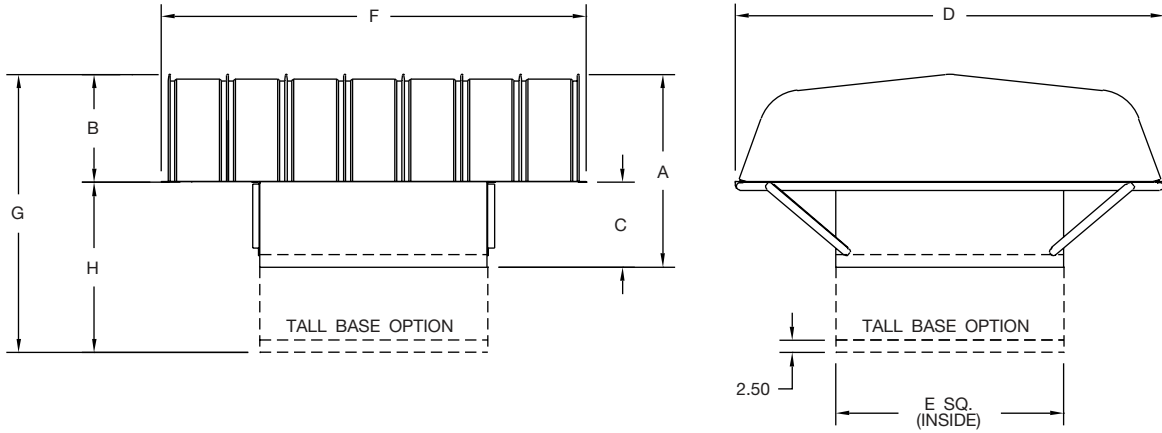
### Shipping Weights

FAN SIZE	BSHD	BSHB
14	153	—
16	163	—
18	170	—
21	205	209
24	272	273
30	379	393
36	512	516
42	645	674
48	760	796
54	---	1026

\* Weights are only approximate and do not include accessories. Consult Fan Selector Software for actual shipping weights.



## Models BSHD | BSHB



FAN SIZE	A	B	C	D	E SQ.	F	G	H
14	22.75	12.75	10.00	40.00	21.50	39.00	40.25	27.50
16	22.75	12.75	10.00	40.00	24.50	39.00	40.25	27.50
18	22.75	12.75	10.00	48.00	26.50	51.00	40.25	27.50
21	26.75	15.75	11.00	54.00	29.50	51.00	44.25	28.50
24	28.75	17.75	11.00	66.00	32.50	63.00	46.25	28.50
30	33.75	19.75	14.00	75.00	40.50	75.00	51.25	31.50
36	39.25	21.75	17.50	88.00	46.50	87.00	56.75	35.00
42	42.25	23.75	18.50	86.00	52.50	99.00	59.75	36.00
48	43.25	23.75	19.50	93.00	58.50	111.00	60.75	37.00
54	46.25	23.75	22.50	112.00	64.50	111.00	63.75	40.00

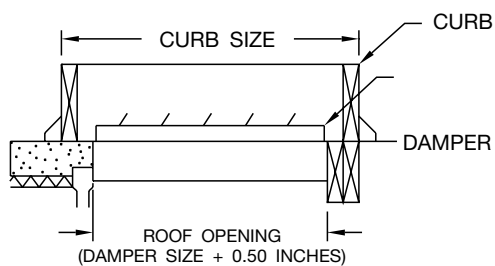
D4860-1B      D4860-3B  
 D4860-2B      D4860-4B

**NOTE:**

1. Dimensions are not to be used for construction.

## Accessories

### Roof Curb



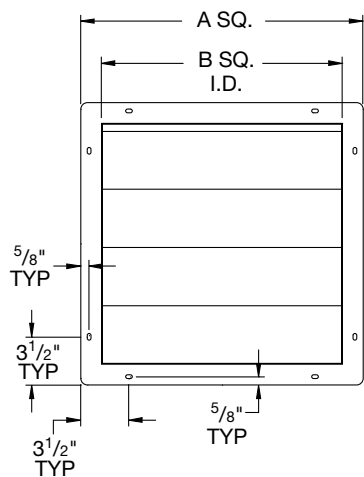
FAN SIZE	CANTED CURB SIZE	SELF-FLASHING CURB SIZE
14	20.00 x 20.00	20.50 x 20.50
16	23.00 x 23.00	23.50 x 23.50
18	25.00 x 25.00	25.50 x 25.50
21	28.00 x 28.00	28.50 x 28.50
24	31.00 x 31.00	31.50 x 31.50
30	39.00 x 39.00	39.50 x 39.50
36	45.00 x 45.00	45.50 x 45.50
42	51.00 x 51.00	51.50 x 51.50
48	57.00 x 57.00	57.50 x 57.50
54	63.00 x 63.00	63.50 x 63.50

D4860-1B  
D4860-2B

**NOTE:**

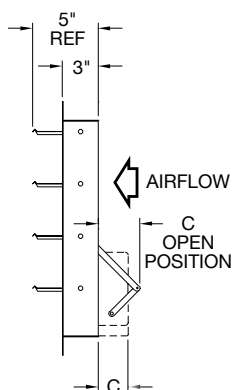
1. Curbs have 1 1/2" thick insulation, wood nailer (canted) or 3/16" polystyrene gasket (self-flashing) and damper tray as standard. A 12" high curb is required when using a motorized damper.

### Backdraft Damper



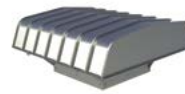
FAN SIZE	A SQ.	B SQ.	C	NO. OF PANELS
14	16.00	13.50	6.00	1
16	19.00	16.50	6.00	1
18	21.00	18.50	6.00	1
21	24.00	21.50	6.00	1
24	27.00	24.50	6.00	1
30	35.00	32.50	6.00	1
36	41.00	38.50	6.00	1
42	47.00	44.50	7.50	2
48	53.00	50.50	7.50	2
54	59.00	56.50	7.50	2

F-DMP-C



**NOTES:**

1. Exhaust damper shown (with front flange).
2. Supply damper has rear flange.



## Model BSHD

Low Profile Hooded Roof Ventilators, shall be Model BSHD direct drive as manufactured by Aerovent, Minneapolis, Minnesota.

**PERFORMANCE** — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels.

**CONSTRUCTION** — Fan curb caps shall be constructed of heavy-gauge galvanized steel or painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

**IMPELLERS** — Impellers shall be constructed of cast aluminum blades and hubs. Impellers on direct drive units shall be mounted directly on the motor shaft with a taper lock bushing.

**MOTORS** — All motors shall be single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule.

**FINISH AND COATING** — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

**ACCESSORIES** — When specified, accessories such as backdraft and motorized dampers, curb extension, roof curbs and disconnect switches shall be provided by Aerovent to maintain one source responsibility.

**FACTORY RUN TEST** — All fans prior to shipment shall be completely assembled and test run as a unit at operating speed or maximum RPM allowed for the particular construction type. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.



## Model

### BSHB



Low Profile Hooded Roof Ventilators, shall be Model BSHB belt driven as manufactured by Aerovent, Minneapolis, Minnesota.

**PERFORMANCE** — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels.

**CONSTRUCTION** — Fan curb caps shall be constructed of heavy-gauge galvanized steel or painted steel for durability and appearance. Curb caps shall have a deep formed inlet venturi for efficient airflow and pre-punched holes for easy mounting to the roof curb. Hood and hood support mechanisms shall be heavy-gauge galvanized steel. Motor mount assemblies shall be constructed of heavy-gauge galvanized or finish painted steel.

**IMPELLERS** — Impellers shall be constructed of cast aluminum blades and hubs. Impellers on belt driven units shall be secured to the fan shaft with a taper lock bushing.

**SHAFTS** — Shafts shall be AISI 1045 cold rolled steel, accurately turned, ground, polished and ring-gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

**BEARINGS** — Bearings are to be pillow block, heavy-duty, anti-friction, self-aligning, grease lubricated, ball type. Each fan's bearings are sized with a minimum average life, per AFBMA, in excess of 200,000 hours when operating at the maximum RPM of the fan size.

**DRIVES** — Motor sheaves shall be cast iron and supplied as variable pitch standard. Drives and belts shall be rated for a minimum of 150% of the required motor HP.

**MOTORS** — All motors shall be single phase or three phase induction, permanently lubricated, heavy-duty, ball bearing type, closely matched to the fan load and provided at the voltage, phase, hertz and enclosure as provided on the fan schedule.

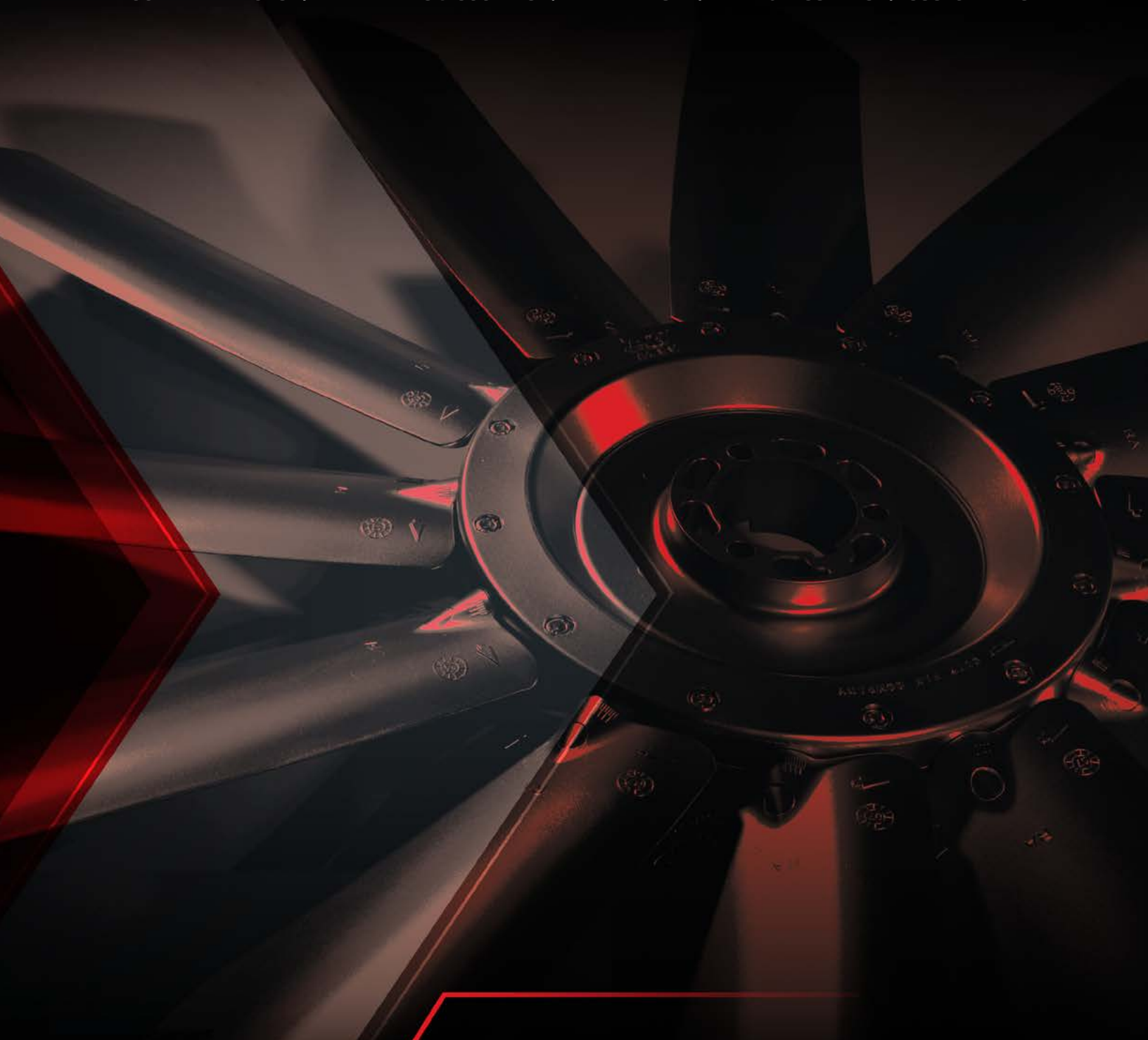
**FINISH AND COATING** — Fans shall have galvanized steel or finish painted steel curb caps, motor supports, hoods and hood supports.

**ACCESSORIES** — When specified, accessories such as backdraft and motorized dampers, curb extension, roof curbs and disconnect switches shall be provided by Aerovent to maintain one source responsibility.

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