



Project: Palisades Episcopal School

Date: October 18, 2023

Allied #: 22319

Reviewed by: Scott Howard

Stamp:

Allied Consulting Engineers, PLLC
SHOP DRAWING REVIEW
 Review is for general compliance with the intent of the Contract documents. Contractor shall assume responsibility for correctness, dimensions, details and quantities. Any changes due to substitution of equipment shall be at the expense of the Mechanical Contractor. Approval of shop drawings does not relieve the contractor from compliance with drawings, design intent, specs or code requirements. Shop drawings are reviewed for performance any deviations shall be approved by the/architect/owner for aesthetics.

Reviewed Item	No Exceptions Noted	Approve as Noted	Revise and Resubmit	Rejected	Remarks
Air Distribution		X			1
Bi-Polar Ionization	X				
Electric Wall Heater	X				
Exhaust Fans & Hoods		X			1
Insulation		X			1
HVAC Split Systems		X			1

Notes:

1. See comments on red each sheet



SUBMITTAL

PROJECT: NEW EDUCATION BUILDING – PALISADES
EPISCOPAL SCHOOL
CHARLOTTE, NC

ENGINEER: ALLIED CONSULTING ENGINEERS
BELLMONT, NC

CONTRACTOR: ACTION MECHANICAL CONTRACTORS
CHARLOTTE, NC

EQUIPMENT: EXHAUST FANS & HOODS BY LOREN COOK

SUPPLIER: HAHN-MASON AIR SYSTEMS, INC.
4901 DWIGHT EVANS ROAD, STE. 120
CHARLOTTE, NORTH CAROLINA 28217

SUBMITTED BY:

David Petrovski

SHOP DRAWING & SUBMITTAL REVIEW	
<input checked="" type="checkbox"/> REVIEWED	<input type="checkbox"/> REVISE AND RESUBMIT
<input type="checkbox"/> REJECTED	<input type="checkbox"/> REVISE AS NOTED
REVIEW DOES NOT RELIEVE SUBCONTRACTOR/SUPPLIER OF RESPONSIBILITY FOR DIMENSIONS, QUANTITIES, QUALITY ASSURANCE OR COMPLIANCE WITH SPECIFICATIONS	
M Scott	10.11.2023
REVIEWED BY	DATE

HAHN-MASON AIR SYSTEMS, INC.
P.O. BOX 31248
CHARLOTTE, NC 28231-1248

Telephone: 704-523-5000
Fax: 704-523-5171
10/09/2023 4:24 PM



COOK



MARK: EF-1 THRU EF-3

PROJECT: PALISADES EPISCOPAL SCHOOL

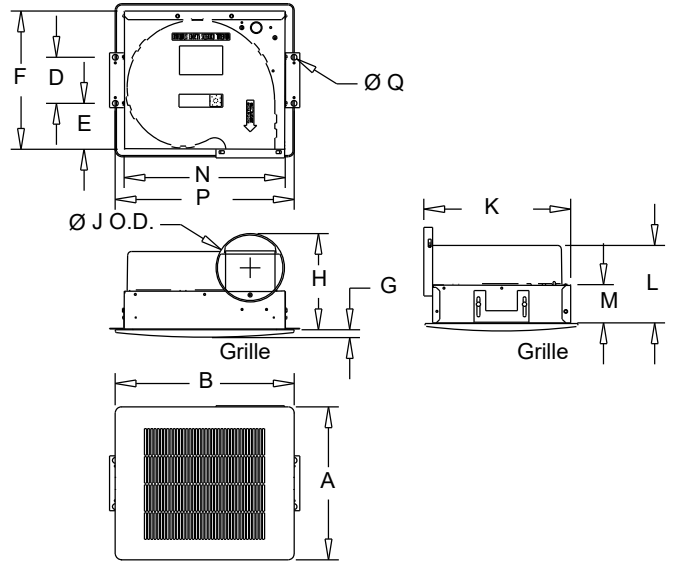
DATE: 10/9/2023

GEMINI

Ceiling Fans 100 Series

STANDARD CONSTRUCTION FEATURES:

Forward curved injection molded polypropylene fan wheel - Injection molded flame resistant fan housing with round outlet duct - 22 ga. galvanized steel inlet box - Isolation mounted motor, mounted to one piece galvanized stamped steel integral motor mount/inlet - Permanently lubricated 2-speed motor with built-in thermal overload protection and disconnect plug - Field wiring compartment with receptacle - Adjustable prepunched mounting bracket - White, high impact styrene injection molded grille - Shipped in ISTA certified transit tested packaging.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Nominal RPM	Input Watts	Speed Control
3	GC-146	100	.140	894	35	FSC

Altitude (ft): 768 Temperature (F): 70

Motor Information

Volts/Ph/Hz	Nameplate Amps
115/1/60	.313

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
45	49	50	48	42	35	30	20	48	37	1.2

- Distance from Sound source 5 ft

Accessories:

- WHITE PLASTIC GRILLE
- TIME DELAY SWITCH
- FAN SPEED CONTROLLER 5 AMP 120 VOLT
- INTEGRAL BD DAMPER
- GEMINI ISOLATOR KIT - ISOLATORS

**FANS TO BE
INTERLOCKED WITH
ROOM LIGHTS**

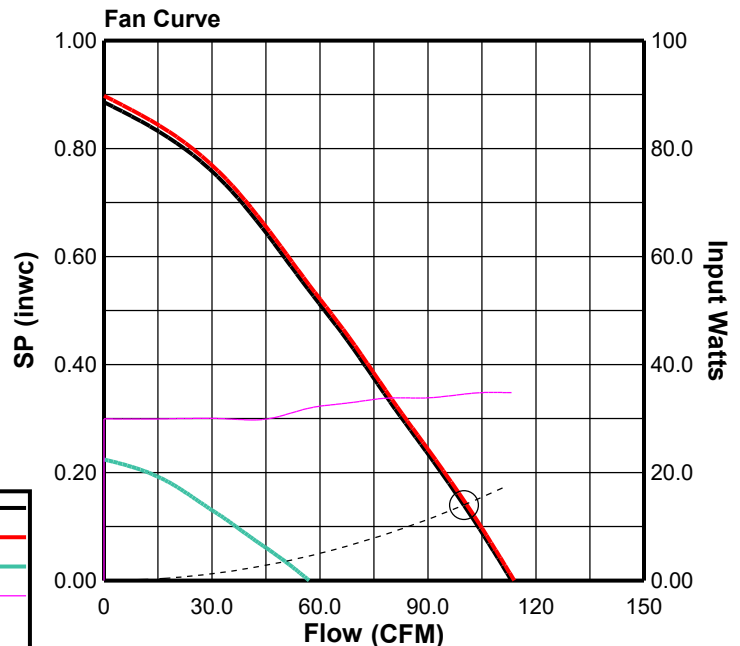
Dimensions (inches)

A Plastic	13-1/4	M	3-1/4
B Plastic	15-1/2	N	14
D	4	P	15-1/2
E	4	Q	1/2
F	12		
G	5/8		
H	8-3/8		
J O.D.	5-15/16		
K	12-3/4		
L	6-11/16		

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	19	Unit	16

***Includes fan, motor & accessories.





COOK



MARK: EF-4

PROJECT: PALISADES EPISCOPAL SCHOOL

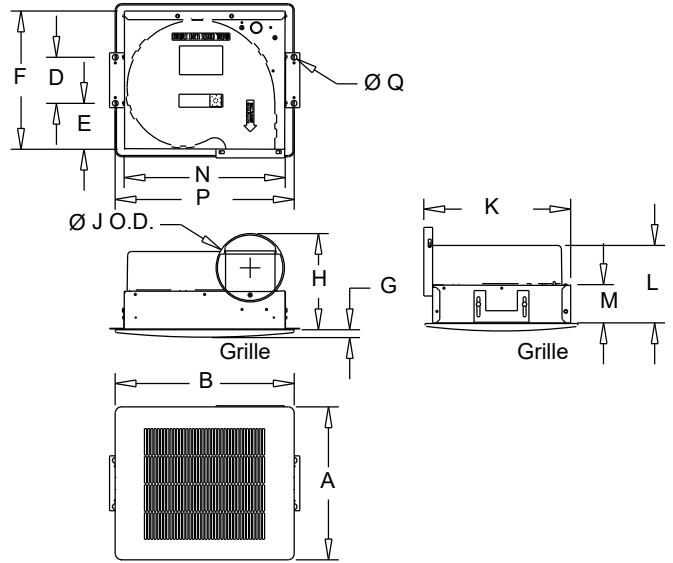
DATE: 10/9/2023

GEMINI

Ceiling Fans 100 Series

STANDARD CONSTRUCTION FEATURES:

Forward curved injection molded polypropylene fan wheel - Injection molded flame resistant fan housing with round outlet duct - 22 ga. galvanized steel inlet box - Isolation mounted motor, mounted to one piece galvanized stamped steel integral motor mount/inlet - Permanently lubricated 2-speed motor with built-in thermal overload protection and disconnect plug - Field wiring compartment with receptacle - Adjustable prepunched mounting bracket - White, high impact styrene injection molded grille - Shipped in ISTA certified transit tested packaging.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Nominal RPM	Input Watts	Speed Control
1	GC-146	100	.140	894	35	FSC

Altitude (ft): 768 Temperature (F): 70

Motor Information

Volts/Ph/Hz	Nameplate Amps
115/1/60	.313

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
45	49	50	48	42	35	30	20	48	37	1.2

- Distance from Sound source 5 ft

Accessories:

- WHITE PLASTIC GRILLE
- FAN SPEED CONTROLLER 5 AMP 120 VOLT
- INTEGRAL BD DAMPER
- GEMINI ISOLATOR KIT - ISOLATORS

**FAN TO BE CONTROLLED
BY THERMOSTAT**

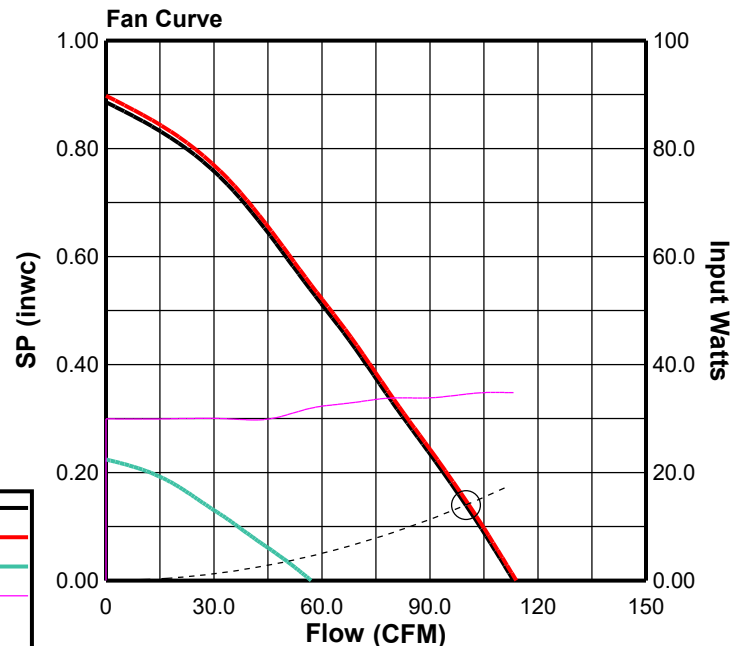
Dimensions (inches)

A Plastic	13-1/4	M	3-1/4
B Plastic	15-1/2	N	14
D	4	P	15-1/2
E	4	Q	1/2
F	12		
G	5/8		
H	8-3/8		
J O.D.	5-15/16		
K	12-3/4		
L	6-11/16		

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	18	Unit	15
----------------	----------	----	------	----

***Includes fan, motor & accessories.





COOK



MARK: EF-5 & 6

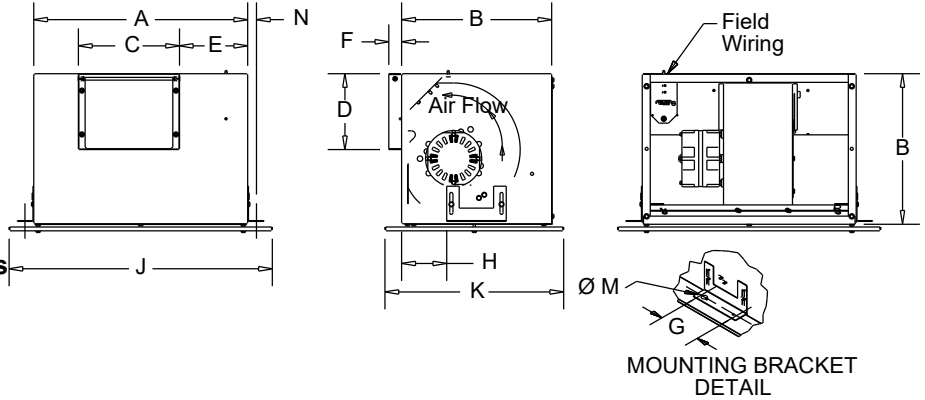
PROJECT: PALISADES EPISCOPAL SCHOOL

DATE: 10/9/2023

GEMINI

Ceiling and Wall Blowers 200-700 Series

STANDARD CONSTRUCTION FEATURES:
 Forward curved galvanized steel fan wheel -
 Corrosion resistant galvanized steel fan housing -
 Acoustically insulated housing - Aluminum
 backdraft damper with solid aluminum hinge rod
 mounted in nylon bushings - Permanently
 lubricated motor with built-in thermal overload
 protection and disconnect plug -
 Interchangeable panels with removable fasteners
 allows the discharge to be easily changed -
 Internal wiring box with disconnect receptacle -
 Powder-painted white steel grille - Plastic grille
 standard on sizes 222, 242, 322, and 342.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Nominal RPM	Input Watts	Speed Control
2	GC-542	300	.150	1318	102	FSC

Altitude (ft): 768 Temperature (F): 70

Motor Information

Volts/Ph/Hz	Nameplate Amps
115/1/60	1.2

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
58	65	64	53	46	43	41	38	58	46	3.5

- Distance from Sound source 5 ft

Accessories:

- FAN SPEED CONTROLLER 5 AMP 120 VOLT
- TIME DELAY SWITCH
- GEMINI ISOLATOR KIT - ISOLATORS

Dimensions (inches)

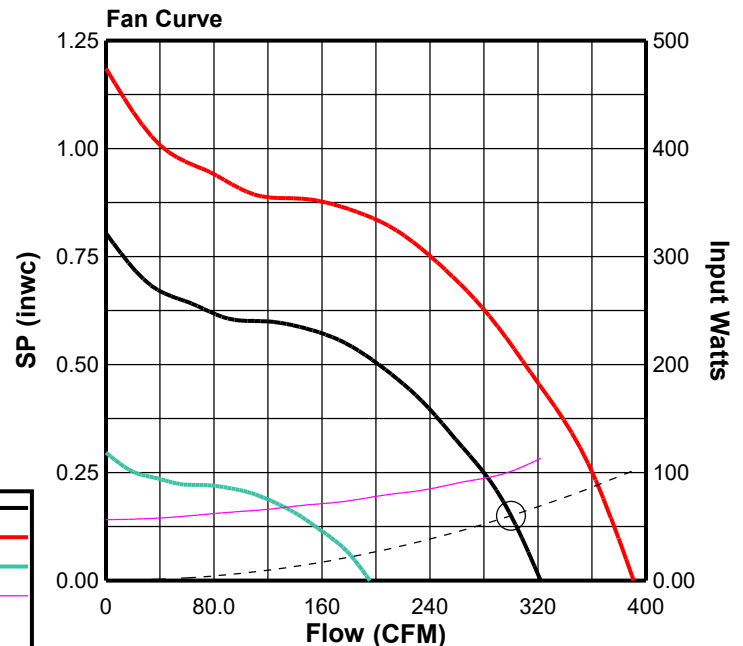
A	17
B	11-7/8
C	8
D	6
E	5-7/16
F	1
G	4
H	3-9/16
Steel Grille J	21
Steel Grille K	14-1/4

M	1/2
N	13/16

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	33	Unit	29
----------------	----------	----	------	----

***Includes fan, motor & accessories.



Fan Curve Legend

CFM vs SP (1318)	—
100% FSC (1600)	—
Min FSC (800)	—
CFM vs Watts	—
Point of Operation	○
System Curve	---



COOK

MARK: KEYNOTE - 6 & 7

PROJECT: PALISADES EPISCOPAL SCHOOL

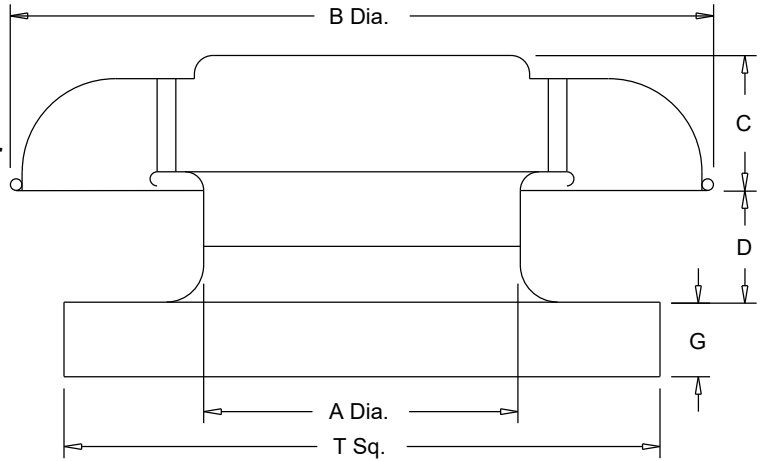
DATE: 10/9/2023

PR

Spun Aluminum Intake/Relief Ventilator

STANDARD CONSTRUCTION FEATURES:

All aluminum construction - Anti-backdraft flange - Five year warranty.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)
6	8 PR	249	.050

Altitude (ft): 768 Temperature (F): 70

Accessories:

ROOF CURB RCG 16 13.5H -C-T+N
ALUM INSECT SCREEN

Dimensions (inches)

A Dia.	8-5/8
B Dia.	18-3/4
C	4-5/8
D	3-1/2
G	2
T Sq.	18
Roof Open.	13-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	36	Unit	32
----------------	----------	----	------	----

***Includes accessories.



COOK

MARK: KEYNOTE - 1

PROJECT: PALISADES EPISCOPAL SCHOOL

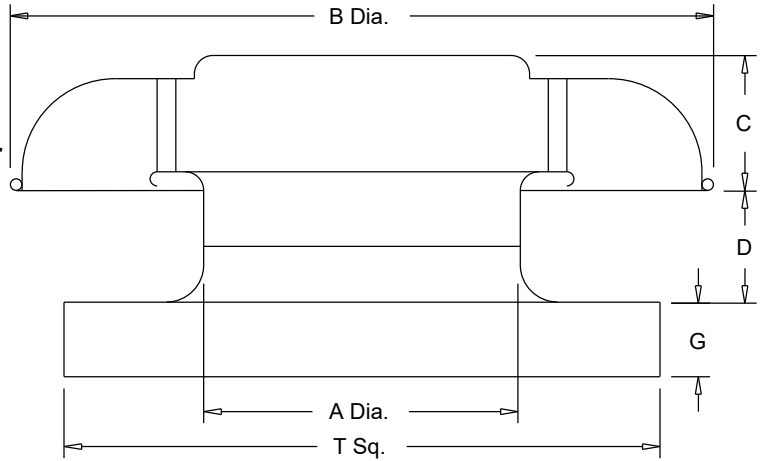
DATE: 10/9/2023

PR

Spun Aluminum Intake/Relief Ventilator

STANDARD CONSTRUCTION FEATURES:

All aluminum construction - Anti-backdraft flange - Five year warranty.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)
1	8 PR	209	.050

Altitude (ft): 768 Temperature (F): 70

Accessories:

ROOF CURB RCG 16 13.5H -C-T+N
ALUM INSECT SCREEN

Dimensions (inches)

A Dia.	8-5/8
B Dia.	18-3/4
C	4-5/8
D	3-1/2
G	2
T Sq.	18
Roof Open.	13-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	36	Unit	32
----------------	----------	----	------	----

***Includes accessories.



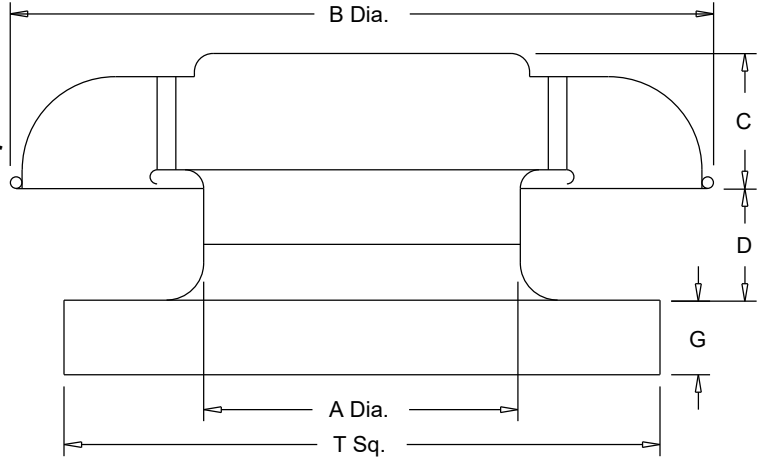
COOK

MARK: KEYNOTE - 2 & 3
PROJECT: PALISADES EPISCOPAL SCHOOL
DATE: 10/9/2023

PR

Spun Aluminum Intake/Relief Ventilator

STANDARD CONSTRUCTION FEATURES:
 All aluminum construction - Anti-backdraft flange - Five year warranty.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)
2	12 PR	440	.050

Altitude (ft): 768 Temperature (F): 70

Accessories:

ROOF CURB RCG 18 13.5H -C-T+N
 ALUM INSECT SCREEN

Dimensions (inches)

A Dia.	12-1/2
B Dia.	27-3/4
C	5-1/16
D	3-1/2
G	2
T Sq.	20
Roof Open.	15-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	49	Unit	43
-----------------------	-----------------	----	-------------	----

***Includes accessories.



COOK

MARK: KEYNOTE - 9 & 12

PROJECT: PALISADES EPISCOPAL SCHOOL

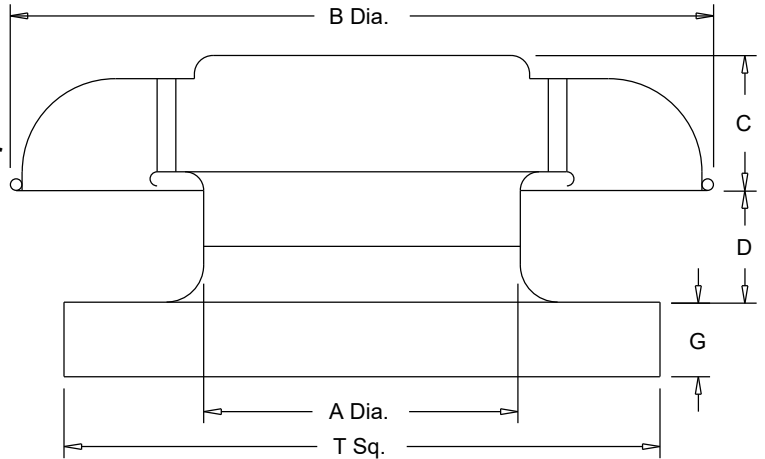
DATE: 10/9/2023

PR

Spun Aluminum Intake/Relief Ventilator

STANDARD CONSTRUCTION FEATURES:

All aluminum construction - Anti-backdraft flange - Five year warranty.



Performance

Qty	Catalog Number	Flow (CFM)	SP (inwc)
3	30 PR	3214	.050

Altitude (ft): 768 Temperature (F): 70

Accessories:

BDMI-36 MTR DPR 115V
ROOF CURB RCG 40 13.5H -C+T+N
BIRDSCREEN

Dimensions (inches)

A Dia.	30-3/4
B Dia.	52-5/8
C	17-1/4
D	6-1/4
G	3
T Sq.	42
Roof Open.	37-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	277	Unit	124
----------------	----------	-----	------	-----

***Includes accessories.

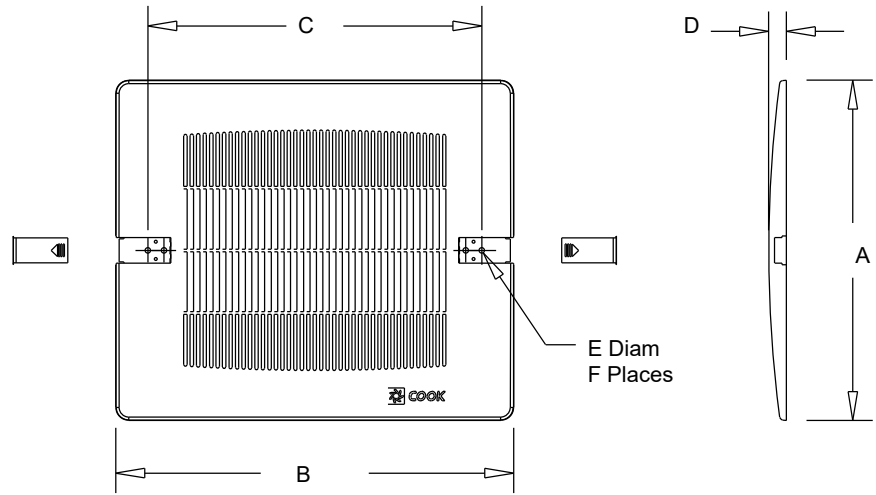


COOK

PROJECT: PALISADES EPISCOPAL SCHOOL

DATE: 10/9/2023

GEMINI PLASTIC GRILLE



Dimensions (inches)

Mark	Qty	Description	A	B	C	D	E Diam	F Places
EF-1 THRU EF-3	3	WHITE PLASTIC GRILLE	13-1/4	15-1/2	13	1/4	1/4	4
EF-4	1	WHITE PLASTIC GRILLE	13-1/4	15-1/2	13	1/4	1/4	4



Time Delay Switch

STANDARD CONSTRUCTION FEATURES:

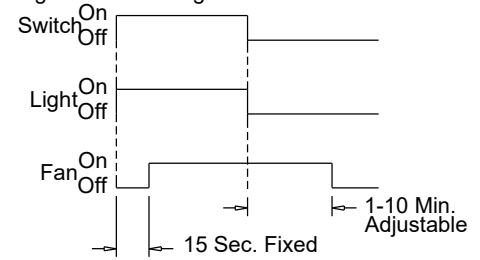
Operating Logic - Moving the switch to the "on" position turns the light on immediately and the exhaust fan on 15 seconds later - Both light and fan stay on until the switch is moved to the "off" position which turns the light off immediately and the exhaust fan off after a 1 to 10 minute adjustable delay.

Specifications - Fan On Delay: Factory preset @ 15 seconds + or - 5 sec. Fan Off Delay Adjustable: 1 minute to 10 minutes.

Input - Operating Volts: 120 VAC + or - 10%, 50/60 Hz. Power Consumption: 3.5 watts maximum (No loads connected).

Output - Light: 3 amp. resistive @ 120 VAC 500 watt maximum incandescent load. Fan: 10 amp. resistive, 1/3 hp @ 120 VAC.

Logic Function Diagram



Dimensions (inches)

Mark	Qty	Description
EF-1 THRU EF-3	3	TIME DELAY SWITCH
EF-5 & 6	2	TIME DELAY SWITCH



FSC

Fan Speed Controls

STANDARD CONSTRUCTION FEATURES:

PRODUCT DESCRIPTION - Through the "Quadrac" integrated semi-conductor device it is now possible to offer this system with many advantages. Fewer semi-conductor parts mean greater reliability and the passivation process used in the manufacture of the semi-conductor insures long life.

Printed circuit construction eliminates wiring difficulties and guarantees workmanship.

All of these factors serve to offer the most important of all features - quality.

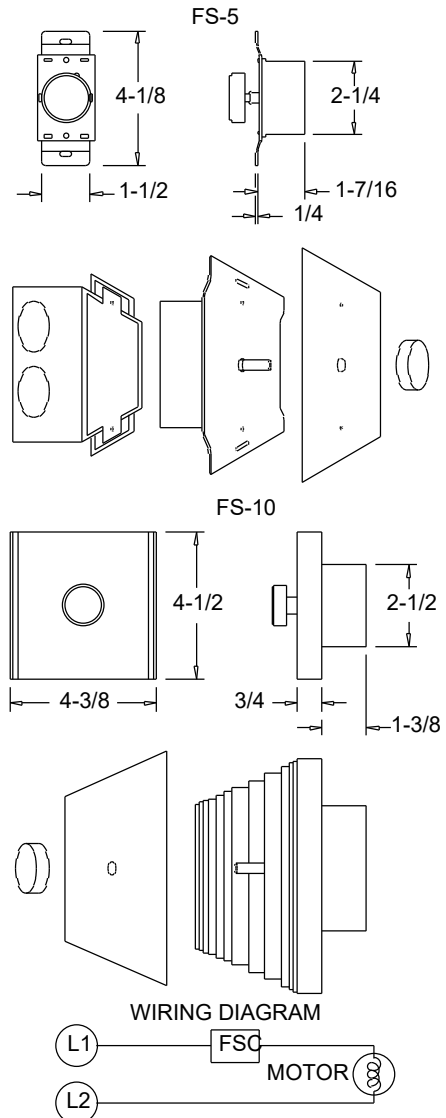
SPEED CONTROL - Positive Off/On action in the control dial. Speed range set to the customer's requirements. **CONTROL RATING** - 120 volts, 60 cycles, 1 phase. Maximum ambient temperature - 120 degree F (5 AMP, 10 AMP, 15 AMP). 220/240 volt, 50/60 cycles, 1 phase. Maximum ambient temperature - 120 degree F (5 AMP, 10 AMP). 220/240 volt model not UL listed. Fan cannot have UL listing if furnished with prewired 220/240 volt FSC. 277 volt, 60 cycles, 1 phase.

Maximum ambient temperature - 120 degree F (5 AMP). **WARNING** - Power must be turned off before installing this unit. **STANDARD INSTALLATION** - Fits any standard single gang box.

Turn off power and connect the two wires on the control to the two switch wires in the usual manner. The connection box is not supplied. **SPECIAL FEATURES** - Complete range control, solid state "Quadrac" integrated circuitry, solid state construction for long reliable operating life, saves on electric bills.

Dimensions (inches)

Mark	Qty	Description
EF-1 THRU EF-3	3	FSC 5 AMP 120 VOLT
EF-4	1	FSC 5 AMP 120 VOLT
EF-5 & 6	2	FSC 5 AMP 120 VOLT





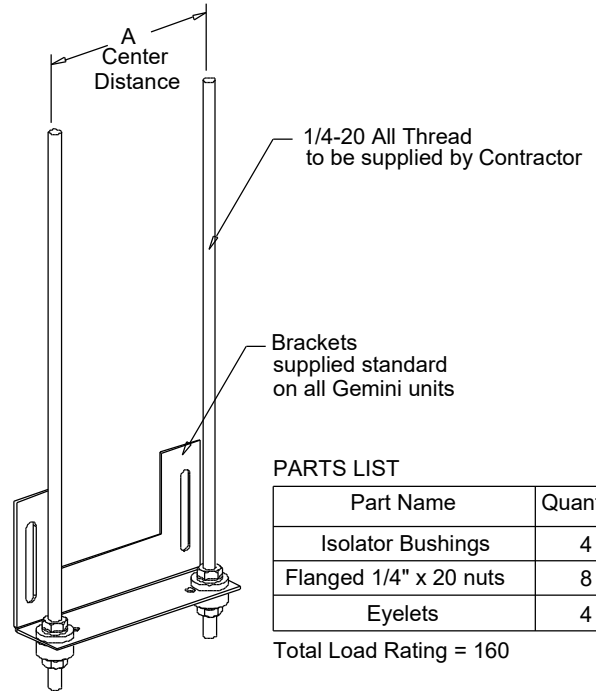
COOK

GEMINI

Gemini Isolator Kit
GIK
Rubber In Shear

PROJECT: PALISADES EPISCOPAL SCHOOL

DATE: 10/9/2023



Dimensions (inches)

Mark	Qty	Description	Part #	A
EF-1 THRU EF-3	3	GEMINI ISOLATO	GIK	4
EF-4	1	GEMINI ISOLATO	GIK	4
EF-5 & 6	2	GEMINI ISOLATO	GIK	4



RCG

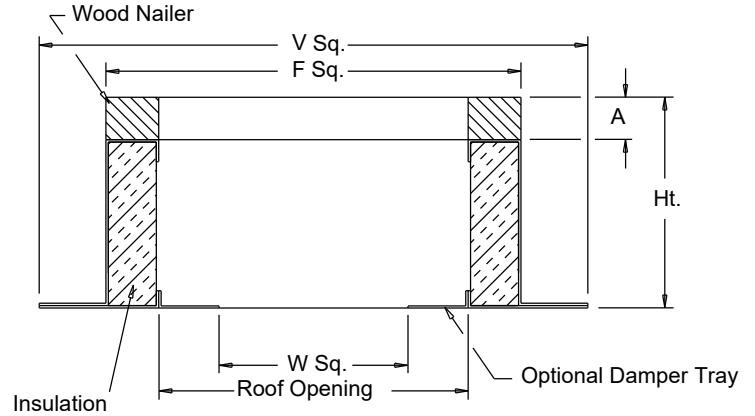
Galvanized Steel Roof Curb

STANDARD CONSTRUCTION FEATURES:

18 gauge galvanized steel - 1-1/2",
 3 lbs. density thermal and acoustical
 insulation - Continuously welded corners -
 Wood nailer.

Options:(As noted below*)

- 1) No wood nailer (deduct 1-1/2" for actual height).
- 2) Damper tray.
- 3) Liner.
- 4) Gasket on wood nailer.
- 5) Lorenized coating.
- 6) Enamel coating.
- 7) Burglar bars.



Dimensions (inches)

Mark	Qty	Description	Ht	Options*	A	F Sq.	V Sq.	W Sq.	Roof Opening
KEYNOTE - 6 & 7	6	RCG 16	13.5	-	1-1/2	16-1/2	20-1/2	9-3/4	13-1/2
KEYNOTE - 1	1	RCG 16	13.5	-	1-1/2	16-1/2	20-1/2	9-3/4	13-1/2
KEYNOTE - 2 & 3	2	RCG 18	13.5	-	1-1/2	18-1/2	22-1/2	11-3/4	15-1/2
KEYNOTE - 9 & 12	3	RCG 40	13.5	2;	1-1/2	40-1/2	44-1/2	33-3/4	37-1/2

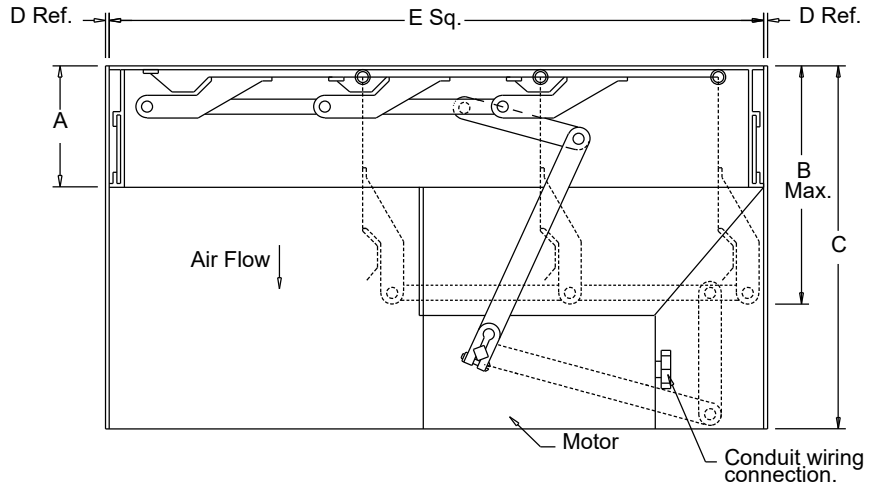


BDMI

Motorized Intake Backdraft Damper

STANDARD CONSTRUCTION FEATURES:

.020 aluminum blades - .060 aluminum frame - .080 aluminum wrapper - Aluminum hinge pins - Nylon bushings - Non-overloading motor.



Dimensions (inches)

Mark	Qty	Description	A	B Max.	C	D	E Sq.	# Motors
KEYNOTE - 9 & 12	3	BDMI-36 MTR DPR 115V	1-7/8	5-3/16	8	1/8	35-3/4	2

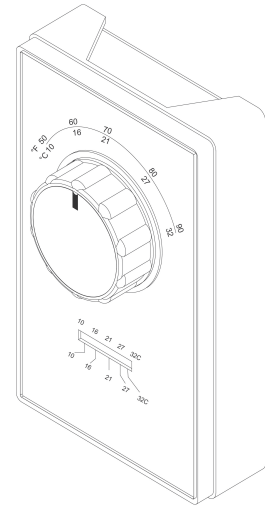
Redd-i



MADE IN
THE U.S.A.

ET9 SERIES Line Voltage Thermostats

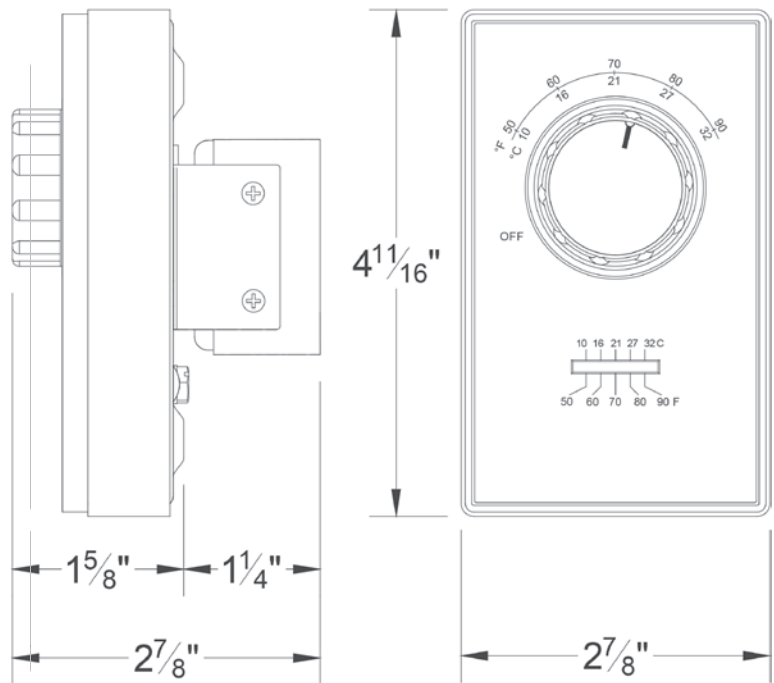
SALES ORDER NO.		QUOTE:	
CUSTOMER		DATE:	
PROJECT			
SALES REP			
ENGINEER			
CONTRACTOR			
SUBMITTED BY			
SUBMITTED BY			
APPROVED BY			
APPROVED BY			



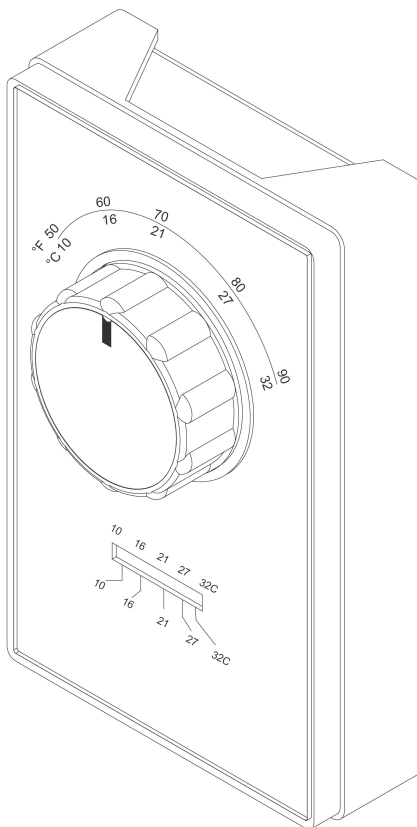
SUBMITTAL DATA SHEET

QTY	MODEL	TAG	RANGE	CONNECTIONS	POS. OFF	ANTICIPATOR
1	ETD9STS-120V	EF-4	50-90°F	TERMINALS	NO	NO

NOTES/
SPECIAL



- Single pole and double pole
- Heat only, cool only, & heat or cool
- DP models include positive off
- Celsius and Fahrenheit temperature scale
- Thermometer standard
Glass, Alcohol filled
- Heating: 22A @ 120-277VAC resistive
- Cooling: 3/4HP @ 125VAC / 1.5HP @ 250/277 VAC
- Range: 50-90°F (unless otherwise noted)
- Rough in dimensions: 4.75"H x 2.9"W x 1.5"D
Depth is from wall to top of knob.
- Imported to TPI Specifications



Product Description

The ET Series Two-Position Room Thermostat are wall mounted line voltage thermostats suitable for direct connection with any resistance heating elements and unit heaters. This thermostat has a snap action switch operated by a bimetal actuator and is available in single pole, double pole with positive off, two stage heat. Cooling only and heat or cool models. Thermometer comes as standard on all models. Standard temperature range is 50-90°F (35-75°F available on certain models).

Models

MFG MODEL NUMBER	MFG CATALOG NUMBER	DESCRIPTION	RANGE	CONNECTIONS	POS. OFF	ANTICIPATOR
AET9DWTS	05238302	DPST Heat Only	50-90°F	Wire Leads	Yes	Yes
AET9SWTS	05238402	SPST Heat Only	50-90°F	Wire Leads	No	Yes
ET9DTS	05238502	DPST Heat Only	50-90°F	Terminals	Yes	No
ET9D4TS	05238602	DPST Heat Only	35-75°F	Terminals	Yes	No
ET9DWTS	05238702	DPST Heat Only	50-90°F	Wire Leads	Yes	No
ET9MTS	05238502	2 Stage Heat Only	50-90°F	Terminals	No	No
ET9STS	05238902	SPST Heat Only	50-90°F	Terminals	No	No
ET9S4TS	05239002	SPST Heat Only	35-75°F	Terminals	No	No
ET9SRTS	05239102	SPST Cool Only	50-90°F	Terminals	No	No
ET9SWTS	05239202	SPST Heat Only	50-90°F	Wire Leads	No	No
ETD9MTS*	05239302	2 Stage Heat, 1 Stage Cool	50-90°F	Terminals	No	No
ETD9STS	05239402	SPDT Heat or Cool	50-90°F	Terminals	No	No

* The 2 stage / 1 stage cool models may also be used as 1 stage heat / 1 stage cool deadband thermostat.