APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0360 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: ACME Engineering and Manufacturing Corp.

Manufacturer's Technical Representative: John Cermak, Ph.D., P.Eng.

Mailing Address: 1820 N York St, Muskogee, OK 74403

Telephone: 918.684.0592 Email: john.cermak@acmefan.com

Product Information

Product Name: PDU Direct Drive & PNU Belt Drive Centrifugal Exhausters

Product Type: Centrifugal Exhauster

Product Model Number: Varies – See attached tables
(List all unique product identification numbers and/or part numbers)

General Description: Upblast centrifugal exhausters

Mounting Description: Rigid base mount or rigid wall mount

Applicant Information

Applicant Company Name: Tobolski Watkins Engineering, Inc.

Contact Person: Matthew Tobolski, PhD, SE

Mailing Address: 9246 Lightwave Ave, Suite 140, San Diego, CA 92123

Telephone: 858.381.5843 Email: mtobolski@tobolskiwatkins.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: Date: 8/14/2013

Title: President & CEO Company Name: Tobolski Watkins Engineering, Inc.

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: Tobolski Watkins Engineering, Inc.

Name: Matthew Tobolski, PhD, SE California License Number: S5648

Mailing Address: 9246 Lightwave Ave, Suite 140, San Diego, CA 92123

Telephone: 858.381.5843 Email: mtobolski@tobolskiwatkins.com

Supports and Attachments Preapproval

☐ Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)

☒ Supports and attachments are not preapproved

Certification Method

☒ Testing in accordance with: ☒ ICC-ES AC156

☐ Other (Please Specify): _____

Testing Laboratory

Company Name: Environmental Testing Lab (ETL)

Contact Name: Paul E. Little

Mailing Address: 11034 Indian Trail, Dallas, TX 75229

Telephone: 972.245.9657 Email: paul@etldallas.com

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.875

S_{DS} (Design spectral response acceleration at short period, g) = 2.5g

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6

Ω_0 (System overstrength factor) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = Varies (see attached tables)

Overall dimensions and weight (or range thereof) = Varies (see attached tables)

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2010: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☐ Calculations ☐ Manufacturer's Catalog

☒ Other(s) (Please Specify): Product Matrices, UUT Summaries

OSHPD Approval (For Office Use Only) – **Approval Expires on December 31, 2019**

Signature: _____ Date: October 23, 2014

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.5 z/h = 1

Condition of Approval (if applicable): _____

Table #1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PDU – Direct Drive Centrifugal Roof/Wall Exhauster

Certified Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Certified Options Summary:
See Table #3 for motor manufacturers and Table #4 for product options.

Certified Mounting Summary:
Rigid base mount (on roof) or wall mount. Base mount units may be installed on ACME curb w/ height varying from 8”-24”. Heights listed include 24” curb. Models with “W” designation are wall mounted with ACME wall mount bracket.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Notes	UUT
		Depth	Width	Height			
PDU - RF, RFH (Standard) PDU - RG, RGH (Restaurant)	080	20.6	20.6	35.1	44		
	100	20.6	20.6	38.1	57		
	110	20.6	20.6	38.4	63		
	120	26.4	26.4	41.5	85	UUT 5: PDU 120 RFH	5
	135	26.4	26.4	42.9	80		
	150	30.2	30.2	43.9	90		
	165	30.2	30.2	45.9	101		
	185	34.7	34.7	47.8	115		
	200	34.7	34.7	47.8	153	UUT 2: PDU 200 RG	2
PDU - RFW (Standard) PDU - RGW (Restaurant)	080	20.6	20.6	13.1	44		
	100	20.6	20.6	16.1	57		
	110	20.6	20.6	16.4	63		
	120	26.4	26.4	19.5	70	UUT 10: PDU 120 RFW	10
	135	26.4	26.4	20.9	80		
	150	30.2	30.2	21.9	90		
	165	30.2	30.2	23.9	101		
	185	34.7	34.7	25.8	115		
	200	34.7	34.7	25.8	126	UUT 7: PDU 200 RFW	7

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Table #2

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Certified Product Construction Summary:
Rolled aluminum housing, aluminum or steel wheel (see table).

Certified Options Summary:
See Table #3 for motor manufacturers and Table #4 for product options.

Certified Mounting Summary:
Rigid base mount (on roof) or wall mount. Base mount units may be installed on ACME curb w/ height varying from 8”-24”. Heights listed include 24” curb. Models with “W” designation are wall mounted with ACME wall mount bracket.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Notes	UUT
		Depth	Width	Height			
PNU – RF, FH (Standard) PNU – RG, RGH (Restaurant) PNU – SE, SEH (Smoke, Steel Wheel)	080	33.7	33.7	48.4	159		
	100	33.7	33.7	48.4	161		
	120	33.7	33.7	49.4	165		
	135	33.7	33.7	49.4	194	UUT 3: PNU 135 RGH UUT 12: PNU 135 SE	3,12
	150	38.0	38.0	47.9	224		
	155	38.0	38.0	47.6	247		
	160	38.0	38.0	47.6	249		
	165	38.0	38.0	47.9	255		
	185	39.8	39.8	53.6	297		
	200	39.8	39.8	53.6	331		
	235	44.8	44.8	57.0	422		
	240	44.8	44.8	57.0	425		
	245	44.8	44.8	60.8	435		
	290	55.4	55.4	62.4	556		
	295	55.4	55.4	62.4	559		
	300	55.4	55.4	64.5	573		
	355	66.0	66.0	66.1	725		
	360	66.0	66.0	66.1	729		
	365	66.0	66.0	68.0	748		
	425	79.8	79.8	75.5	919		
	490	79.8	79.8	80.0	1115	UUT 1: PNU 490 SE UUT 11: PNU 490 RG	1,11

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Table #2

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Certified Product Construction Summary:
Rolled aluminum housing, aluminum or steel wheel (see table).

Certified Options Summary:
See Table #3 for motor manufacturers and Table #4 for product options.

Certified Mounting Summary:
Rigid base mount (on roof) or wall mount. Base mount units may be installed on ACME curb w/ height varying from 8”-24”. Heights listed include 24” curb. Models with “W” designation are wall mounted with ACME wall mount bracket.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Notes	UUT
		Depth	Width	Height			
PNU – RFW (Standard) PNU – RGW (Restaurant)	080	33.7	33.7	48.4	94		
	100	33.7	33.7	48.4	96		
	120	33.7	33.7	49.4	100		
	135	33.7	33.7	49.4	110	UUT: PNU 135 RFW	14
	150	38.0	38.0	47.9	140		
	155	38.0	38.0	47.6	163		
	160	38.0	38.0	47.6	165		
	165	38.0	38.0	47.9	171		
	185	39.8	39.8	53.6	213		
	200	39.8	39.8	53.6	247		
	235	44.8	44.8	57.0	238		
	240	44.8	44.8	57.0	241		
	245	44.8	44.8	60.8	251		
	290	55.4	55.4	62.4	340		
	295	55.4	55.4	62.4	343		
	300	55.4	55.4	64.5	357	UUT: PNU 300 RGW	13

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Table #3

Special Seismic Certification
Certified Subcomponent Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU/PDU – Centrifugal Roof/Wall Exhauster – **Motors**

Certified Product Construction Summary:
Steel / cast aluminum housing.

Certified Options Summary:
1 Phase, 3 Phase; 115, 115 EC, 115/200-230, 200-230/460.

Certified Mounting Summary:
Mounted in equipment.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Notes	UUT
		Depth	Width	Height			
McMillan Direct Drive (Vertical or Horizontal)	0.10HP				8		
	…				…		
	0.25HP				8	UUT 5: 1 phase, 115V; vert. UUT 10: 1 phase, 115V; horiz.	5,10
	…				…		
	1.0HP				20	UUT 2: 115V EC; vert. UUT 7: 115V EC; horiz.	2,7
Regal Belt Drive (Vertical or Horizontal)	0.25HP				13		
	…				…		
	0.75HP				27	UUT 3: 1 P, 115/200-230V; vert. UUT 12: 1 P, 115/200-230V; vert. UUT 14: 3 P, 200-230/460V; horiz.	3,12, 14
	…				…		
	5.0HP				89	UUT 13: 3 P, 200-230/460V; horiz.	13
	…				…		
	10.0HP				220	UUT 1: 3 P, 200-230/460V; vert. UUT 11: 3 P, 200-230/460V; vert.	1,11

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Table #4

Special Seismic Certification
Certified Subcomponent Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU/PDU –Centrifugal Roof/Wall Exhauster – **Options and Accessories**

Certified Product Construction Summary:
Component construction specific to vendor and model line identified below.

Certified Options Summary:

Certified Mounting Summary:
Mounted in equipment.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Material	UUT
		Depth	Width	Height			
Square D Disconnect Switch	2510 – NEMA 1					Steel	2,14
Hubbell Disconnect Switch	13R92D – NEMA 3R					Aluminum/steel	3,12, 13
ACME Back Draft Dampers	AR (Gravity)					Aluminum	5
	AR-ML (Manual					Aluminum	3,12
	AR (Motorized)					Aluminum	1,4, 11
Multi Products Actuator	TB2000					Aluminum/steel/copper	1,4
ACME Performance Baffle	PB					Aluminum	7
Honeywell Firestats	L4029E					Steel	3,7, 12
KB Electronics Speed Control	KBWC-16LK					Steel	5,10, 12
ACME Inlet Guard	IG					Aluminum/steel	3,12
ACME Roof Curb	C					Steel	1,2, 3,5, 11, 12
ACME Curb Hinge	Curb Hinge					Steel	5
DDI Inc. Belt Tensioner	FS0434					Aluminum/steel	3,12, 14

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Table #4

Special Seismic Certification
Certified Subcomponent Matrix

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU/PDU –Centrifugal Roof/Wall Exhauster – **Options and Accessories**

Certified Product Construction Summary:
Component construction specific to vendor and model line identified below.

Certified Options Summary:

Certified Mounting Summary:
Mounted in equipment.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 2.5g | ***z/h*** = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max Weight (lb)	Material	UUT
		Depth	Width	Height			
ACME Grease Trough	Grease Trough					Steel	2,11, 13
ACME Birdscreen	BS					Aluminum or steel	5,10
ACME Heat Shield	HS					Fiberglass	3,12
ACME Compartment Shield	CS					Fiberglass	5
ACME Stainless Steel Shafts	SS Shaft					Stainless Steel	3,12, 14
SKF Pillow Block Bearings	SYH					Steel/cast iron	3,12, 14

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 490 SE

Product Construction Summary:
Rolled aluminum housing, steel wheel.

Options/Subcomponent Summary:
Regal motor, 200-230/460 3 phase, smoke (steel wheel), motorized damper, 24" roof curb.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1115	79.8	79.8	80.0	6.1	6.0	7.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (52) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UUT - 2

UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PDU – Direct Drive Centrifugal Roof/Wall Exhauster

Model Number: PDU 200 RG

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
McMillian motor, 115v EC, NEMA 1 switch, 8" roof curb, grease trough.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
153	34.7	34.7	31.8	16.9	16.7	13.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (24) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 135 RGH

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
Regal motor, 115/200-230 1 phase, hurricane (reinforced housing), NEMA 3R switch, manual damper, fire stat, inlet guard, 24" roof curb, DDI belt tensioner, heat shield, SS shaft, PB bearings.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
194	33.5	33.5	49.4	10.0	10.5	7.05

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (20) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PDU – Direct Drive Centrifugal Roof/Wall Exhauster

Model Number: PDU 120 RFH

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
McMillian motor, 115 1 phase, hurricane (reinforced housing), gravity damper, motorized damper, KB SSC, 8" roof curb, curb hinge, AL birdscreen, compartment shield.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
85	26.4	26.4	25.5	26.9	26.9	27.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (16) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PDU – Direct Drive Centrifugal Roof/Wall Exhauster

Model Number: PDU 200 RFW

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
McMillian motor, 115v EC, performance baffle, firestat.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
126	34.7	34.7	25.8	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Wall mounted to test fixture with (28) 3/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PDU – Direct Drive Centrifugal Roof/Wall Exhauster

Model Number: PDU 120 RFW

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
McMillian motor, 115 1 phase, KB SSC, steel birdscreen.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
70	26.4	26.4	19.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Wall mounted to test fixture with (20) 3/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 490 RG

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
Base Mount, Regal motor, 200-230/460 3 phase, motorized damper, 24" roof curb, grease trough.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
860	79.8	79.8	80.0	6.0	5.8	13.6

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (28) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 135 SE

Product Construction Summary:
Rolled aluminum housing, steel wheel.

Options/Subcomponent Summary:
Base mount, Regal motor, 115/200-230 1 phase, smoke (steel wheel), Hubbell NEMA 3R switch, manual damper, firestat, KB SSC, inlet guard, 24" roof curb, DDI belt tensioner, heat shield, SS shaft, PB bearings.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
157.5	33.5	33.5	49.4	12.5	12.8	25.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Rigid base mounted to test fixture with (16) 3/8" Grade 5 screws.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 300 RGW

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
Wall mount, Regal motor, 200-230/460 3 phase, Hubbell NEMA 3R switch, grease trough.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
357	55.4	55.4	42.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Wall mounted to test fixture with (24) 3/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2011-0419-CO-001

Manufacturer: ACME Engineering & Manufacturing Corporation

Model Line: PNU – Belt Drive Centrifugal Roof/Wall Exhauster

Model Number: PNU 135 RFW

Product Construction Summary:
Rolled aluminum housing, aluminum wheel.

Options/Subcomponent Summary:
Wall mount, Regal motor, 200-230/460 3 phase, NEMA 1 switch, DDI belt tensioner, SS shaft, PB beaings.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
111	33.5	33.5	27.4	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	2.5g	1.0	1.5	4.00g	3.00g	1.67g	0.67g

Test Mounting Details:

Wall mounted to test fixture with (16) 3/8" Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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