



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP – 0442 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Loren Cook Company

Manufacturer's Technical Representative: Bradley F. Skidmore, P.E.

Mailing Address: 2015 E Dale St., Springfield, MO 65803

Telephone: 417-869-6474

Email: bskidmore@lorencook.com

Product Information

Product Name: QMX-VP/QMXHP-VP

Product Type: Belt Drive Laboratory Exhaust Fans

Product Model Number: See Attachment

(List all unique product identification numbers and/or part numbers)

General Description: Belt drive laboratory exhaust fans with mixing box and fiberglass discharge nozzle.

Mounting Description: Rigid base mounted on 18" high curb, maximum.

Applicant Information

Applicant Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

Contact Person: Matthew J. Tobolski, Ph.D., S.E.

Mailing Address: 960 SW Disk Dr., Ste. 104, Bend, OR 97702

Telephone: 844-878-0200

Email: mtobolski@trucompliance.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: 08/05/2015

Title: President & CEO

Company Name: TRU Compliance, LLC

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 10/21/14)



OSHPD

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**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

Name: Matthew J. Tobolski, Ph.D., S.E. California License Number: S5648

Mailing Address: 960 SW Disk Dr., Ste. 104, Bend, OR 97702

Telephone: 844-878-0200 Email: mtobolski@trucompliance.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 Laboratory, Inc

Contact Name: Paul E. Little

Mailing Address: 11034 Indian Trail, Dallas, TX 75229-3513

Telephone: 972-247-9657 Email: paul@etldallas.com

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 10/21/14)



OSHPD

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OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: [X] Yes [] No
Design Basis of Equipment or Components (Fp/Wp) = 1.50 for SDS = 2.0 @ z/h = 1.0; 1.44 for SDS = 3.2 @ z/h = 0.0
SDS (Design spectral response acceleration at short period, g) = 2.0 for z/h = 1.0; 3.2 for z/h = 0.0
ap (In-structure equipment or component amplification factor) = 2.5
Rp (Equipment or component response modification factor) = 6
Omega_0 (System overstrength factor) = 2.5
Ip (Importance factor) = 1.5
z/h (Height factor ratio) = 1.0 for SDS = 2.0g, 0.0 for SDS = 3.2g
Equipment or Component Natural Frequencies (Hz) = See Attachment
Overall dimensions and weight (or range thereof) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: [] Yes [X] No
Design Basis of Equipment or Components (V/W) =
SDS (Design spectral response acceleration at short period, g) =
SD1 (Design spectral response acceleration at 1 second period, g) =
R (Response modification coefficient) =
Omega_0 (System overstrength factor) =
Cd (Deflection amplification factor) =
Ip (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 [X] No

List of Attachments Supporting Special Seismic Certification

- [X] Test Report(s) [] Drawings [] Calculations [X] Manufacturer's Catalog
[X] Other(s) (Please Specify): Attachment A

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

Signature: [Handwritten Signature] Date: September 29, 2015
Print Name: Timothy J. Piland Title: SSE
Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above
Condition of Approval (if applicable):



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



TRU PROJECT NO. 15019

Manufacturer: Loren Cook Company						TABLE 1	
Model Line: QMX-VP/QMXHP-VP							
Certified Product Construction Summary: Painted carbon steel welded housing. Carbon steel welded wheel. Stainless steel shaft. Stainless steel hardware. NEMA 3R disconnect.							
Certified Options Summary: Belt drive. With or without fiberglass reinforced plastic induction nozzle. With or without mixing box. <i>*Dimensions shown are with nozzle and mixing box.</i>							
Mounting Configuration: Rigid base mounted on 18" high curb, maximum. Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
Building Code: CBC 2013			Seismic Certification Limits:		$S_{DS} = 2.0$ $z/h = 1.0$	$I_p = 1.5$	
					$S_{DS} = 3.2$ $z/h = 0.0$		
Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
QMX-VP	90QMXVP09H	28.0	38.0	92.0	1,023		1
	90QMXVP09L	28.0	38.0	92.0	1,023		
	120QMXVP09H	28.0	40.4	100.0	1,277		
	120QMXVP09L	28.0	40.4	100.0	1,277		
	120QMXVP12H	28.0	40.4	100.0	1,277		
	120QMXVP12L	28.0	40.4	100.0	1,277		
	135QMXVP09H	28.0	41.6	108.0	1,403		
	135QMXVP09L	28.0	41.6	108.0	1,403		
	135QMXVP12H	28.0	41.6	108.0	1,403		
	135QMXVP12L	28.0	41.6	108.0	1,403		
	150QMXVP09H	30.0	44.1	120.0	1,542		
	150QMXVP09L	30.0	44.1	120.0	1,542		
	150QMXVP12H	30.0	44.1	120.0	1,542		
	150QMXVP12L	30.0	44.1	120.0	1,542		
	150QMXVP15H	30.0	44.1	120.0	1,542		
	150QMXVP15L	30.0	44.1	120.0	1,542		
	165QMXVP09H	32.0	45.5	125.0	1,750		
	165QMXVP09L	32.0	45.5	125.0	1,750		
	165QMXVP12H	32.0	45.5	125.0	1,750		
	165QMXVP12L	32.0	45.5	125.0	1,750		
165QMXVP15H	32.0	45.5	125.0	1,750			
165QMXVP15L	32.0	45.5	125.0	1,750			
180QMXVP12L	34.0	48.0	133.0	2,120			

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



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Building Code: CBC 2013		Seismic Certification Limits:			$S_{DS} = 2.0$	$z/h = 1.0$	$I_p = 1.5$
					$S_{DS} = 3.2$	$z/h = 0.0$	
Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
QMX-VP	180QMXVP15H	34.0	48.0	133.0	2,120		
	180QMXVP15L	34.0	48.0	133.0	2,120		
	180QMXVP18H	34.0	48.0	133.0	2,120		
	180QMXVP18L	34.0	48.0	133.0	2,120		
	202QMXVP12H	38.0	51.9	143.0	2,405		
	202QMXVP12L	38.0	51.9	143.0	2,405		
	202QMXVP15H	38.0	51.9	143.0	2,405		
	202QMXVP15L	38.0	51.9	143.0	2,405		
	202QMXVP18H	38.0	51.9	143.0	2,405		
	202QMXVP18L	38.0	51.9	143.0	2,405		
	202QMXVP21H	38.0	51.9	143.0	2,405		
	202QMXVP21L	38.0	51.9	143.0	2,405		
	225QMXVP12H	42.0	58.0	154.0	2,765		
	225QMXVP15H	42.0	58.0	154.0	2,765		
	225QMXVP15L	42.0	58.0	154.0	2,765		
	225QMXVP18H	42.0	58.0	154.0	2,765		
	225QMXVP18L	42.0	58.0	154.0	2,765		
	225QMXVP21H	42.0	58.0	154.0	2,765		
	225QMXVP21L	42.0	58.0	154.0	2,765		
	245QMXVP15H	44.0	60.6	165.0	3,019		
245QMXVP15L	44.0	60.6	165.0	3,109			
245QMXVP18H	44.0	60.6	165.0	3,109			
245QMXVP18L	44.0	60.6	165.0	3,109			

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



TRU PROJECT NO. 15019

Manufacturer: Loren Cook Company						TABLE 1	
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Mounting Configuration: Rigid base mounted on 18" high curb, maximum. Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
Building Code: CBC 2013			Seismic Certification Limits:		$S_{DS} = 2.0$	$z/h = 1.0$	
					$S_{DS} = 3.2$	$z/h = 0.0$	
Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
QMX-VP	245QMXVP21H	44.0	60.6	165.0	3,109		
	245QMXVP21L	44.0	60.6	165.0	3,109		
	245QMXVP24H	44.0	60.6	165.0	3,109		
	245QMXVP24L	44.0	60.6	165.0	3,109		
	270QMXVP15L	48.0	64.6	175.0	3,335		
	270QMXVP18H	48.0	64.6	175.0	3,335		
	270QMXVP18L	48.0	64.6	175.0	3,335		
QMXHP-VP	90QMXHPVP09H	28.0	38.0	92.0	1,020		
	90QMXHPVP09L	28.0	38.0	92.0	1,020		
	120QMXHPVP09H	28.0	40.4	100.0	1,277		
	120QMXHPVP09L	28.0	40.4	100.0	1,277		
	120QMXHPVP12H	28.0	40.4	100.0	1,277		
	120QMXHPVP12L	28.0	40.4	100.0	1,277		
	135QMXHPVP09H	28.0	41.6	108.0	1,402		
	135QMXHPVP09L	28.0	41.6	108.0	1,402		
	135QMXHPVP12H	28.0	41.6	108.0	1,402		
	135QMXHPVP12L	28.0	41.6	108.0	1,402		
	150QMXHPVP09H	30.0	44.1	120.0	1,543		
	150QMXHPVP09L	30.0	44.1	120.0	1,543		
	150QMXHPVP12H	30.0	44.1	120.0	1,543		
	150QMXHPVP12L	30.0	44.1	120.0	1,543		
	150QMXHPVP15H	30.0	44.1	120.0	1,543		
150QMXHPVP15L	30.0	44.1	120.0	1,543			

**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

TRU PROJECT NO. 15019



Manufacturer: Loren Cook Company	Table Description: Motors	TABLE 2
Model Line: QMX-VP/QMXHP-VP		

Building Code: CBC 2013	Seismic Certification Limits:	$S_{DS} = 2.0$ $z/h = 1.0$ $S_{DS} = 3.2$ $z/h = 0.0$ $I_p = 1.5$
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Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
TEFC Type Motor (Weg)	143T				40	Cu windings, steel or cast iron case		
	143T				49	Cu windings, steel or cast iron case		
	145T				51	Cu windings, steel or cast iron case	UUT: 2HP, 3-phase 208-230/460V	1
	182T				90	Cu windings, steel or cast iron case		
	184T				95	Cu windings, steel or cast iron case		
	213T				154	Cu windings, cast ion case		
	215T				172	Cu windings, cast ion case		
	254T				251	Cu windings, cast ion case		
	256T				291	Cu windings, cast ion case		
	284T				388	Cu windings, cast ion case		
286T				437	Cu windings, cast ion case	UUT: 30HP, 3-phase 208-230/460V	2	

Notes: 1-30HP, 3-phase 208-230/460V

**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

TRU PROJECT NO. 15019



Manufacturer: Loren Cook Company	Table Description: Dampers	TABLE 4
Model Line: QMX-VP/QMXHP-VP		

Building Code: CBC 2013	Seismic Certification Limits:	$S_{DS} = 2.0$ $z/h = 1.0$ $S_{DS} = 3.2$ $z/h = 0.0$ $I_p = 1.5$
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Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Dampers (Ruskin)	CD50		8 1/4	5		Aluminum		
			13 1/4	5		Aluminum		1
			16 1/2	5		Aluminum		
			16 1/2	6 1/2		Aluminum		
			16 1/2	7 1/4		Aluminum		
			16 1/2	9 1/4		Aluminum		
			18 1/2	8		Aluminum		
			18 1/2	11		Aluminum		
			20 1/2	8 3/4		Aluminum		
			20 1/2	12 3/4		Aluminum		
			22 1/2	9 3/4		Aluminum		
			22 1/2	13 1/2		Aluminum		
			24 1/2	18		Aluminum		1
			25 1/2	11 1/2		Aluminum		
			25 1/2	16		Aluminum		
			26 1/2	20		Aluminum		
			28 1/2	13		Aluminum		
			28 1/2	18		Aluminum		
	28 1/2	22		Aluminum				
	30 1/2	14 1/2		Aluminum				
	30 1/2	20 1/4		Aluminum				
	30 1/2	24		Aluminum				

UNIT UNDER TEST (UUT) SUMMARY SHEET



TRU PROJECT NO. 15019

Manufacturer: Loren Cook Company	UUT 1
Model Line: QMX-VP/QMXHP-VP	
Model Number: 90QMXVP09H Serial Number: N/A	

Product Construction Summary:
Painted carbon steel welded housing. Carbon steel welded wheel. Stainless steel shaft. Stainless steel hardware. NEMA 3R disconnect.

Options/Subcomponent Summary:
Belt drive. With fiberglass reinforced plastic induction nozzle. With mixing box. **Motor:** Weg - 002236ET3E145T-S; **Isolation Damper:** Ruskin - CD50 (24 1/2" x 18"); **Bypass Damper:** Ruskin - CD50 (13 1/4" x 5"); **Safety Switch:** Square D - HU361RB.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,023	28.0	38.0	110.0	19.8	18.9	17.6

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 AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:



Rigid base mounted on 18" Loren Cook LECQ curb with (20) 3/8" F593 stainless bolts. Curb is welded to test fixture with 2" long welds at 6" O.C. all around.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15019



Manufacturer: Loren Cook Company	UUT 2
Model Line: QMX-VP/QMXHP-VP	
Model Number: 270QMXHPVP18L Serial Number: N/A	

Product Construction Summary:
Painted carbon steel welded housing. Carbon steel welded wheel. Stainless steel shaft. Stainless steel hardware. NEMA 3R disconnect.

Options/Subcomponent Summary:
Belt drive. With fiberglass reinforced plastic induction nozzle. With mixing box. **Motor:** Weg - 03018ET3E286T-W22; **Isolation Damper:** Ruskin - CD50 (44 1/2" x 36"); **Bypass Damper:** Ruskin - CD50 (34 1/2" x 15"); **Safety Switch:** Square D - HU362RB.

<i>UUT Properties</i>										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
3,337	48.0	64.6	193.0	6.6	5.0	6.3				
<i>UUT Highest Passed Seismic Run Information</i>										
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 AC156		2.0	1.0	1.5	3.20	2.40	1.33	0.53
				3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:



Rigid base mounted on 18" Loren Cook LECQ curb with (28) 3/8" F593 stainless bolts. Curb is welded to test fixture with 2" long welds at 6" O.C. all around.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.