oshpd
State of California – Health and Human Services Agency
Office of Statewide Health Planning and Development

Facilities Development Division www.oshpd.ca.gov/fdd
400 R Street, Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0102-10

Check whether application is: NEW [X] RENEWAL [ ]

1.0

Loren Cook Company — *Manufacturer*

Brad Skidmore — *Manufacturer's Technical Representative*

2015 B Dale Street, Springfield, MO 65803 — *Mailing Address*

(417) 869-6474 — *Telephone*

bskidmore@lorencook.com — *E-mail Address*

2.0

Centrifugal Vent Set Blower Product Line — *Product Name*

Centrifugal Blower — *Product Type*

Please see attachment for specific models tested.
Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Fans tested represent the qualification of multiple product lines described in the attachment. Tested units cover variations in materials, wheel type, arrangement, orientations, size range and weight.

3.0

Tobolski|Watkins Engineering, Inc. — *Applicant Company Name*

Matthew J. Tobolski, Ph.D., P.E. — *Contact Person*

3710 Ruffin Road, San Diego, CA 92123 USA — *Mailing Address*

(858) 381-5843 — *Telephone*

mtobolski@tobolskiwatkins.com — *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

July 26, 2010 — *Date*

President and CEO — *Title*

Tobolski|Watkins Engineering, Inc. — *Company Name*

4.0 ***Registered Design Professional Preparing the Report***

Tobolski|Watkins Engineering, Inc.
Company Name

Matthew J. Tobolski, Ph.D., P.E. — *Contact Name*
C 72806 — *California License Number*

3710 Ruffin Road, San Diego, CA 92123
Mailing Address

(858) 381-5843 — *Telephone*
mtobolski@tobolskiwatkins.com — *E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

Tobolski|Watkins Engineering, Inc.
Company Name

Derrick A. Watkins, S.E. — *Contact Name*
S 5257 — *California License Number*

3710 Ruffin Road, San Diego, CA 92123
Mailing Address

(858) 381-5843 — *Telephone*
dwatkins@tobolskiwatkins.com — *E-mail Address*

Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

7.0 ☒ *Testing in accordance with:* ☒ *ICC-ES AC-156* ☐ *Other (Please Specify):*

☐ *Analysis*
☐ *Experience data*
☐ *Combination of Testing, Analysis, and/or Experience Data (Please Specify):*

Testing Laboratory (if applicable)

8.0

Clark Dynamic Test Laboratory — *Company Name*
J.R. Antenucci, Test Manager — *Contact Name*

1801 Route 51 South, Jefferson Hills, PA 15025
Mailing Address

(412) 382-5500 — *Telephone*
jrantenucci@clarkdynamic.com — *E-mail Address*

9.0 *Approval Parameters*

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 5.13g

S_{DS} (Spectral response acceleration at short period) = 2.28g

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

R_p (Equipment or component response modification factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio)= 1.0

Equipment or Component fundamental period(s) = See Attachment A, Table 2

Building period limits (if any) = None

Overall dimensions and weight (or range) = See Attachment A, Table 2

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

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

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient)=1.0

Ω_0 (System overstrength factor) =1.0

C_d (Deflection amplification factor) =1.0

I_p (Importance factor) =1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 *List of attachments supporting the special seismic certification of equipment or components:*

☒ *Test Report* ☐ *Drawings* ☒ *Manufacturer's Catalog*

☐ *Calculations* ☒ *Others (Please Specify:): Product Matrix*

11.0 *OSHPD Approval* *(For Office Use Only)*

Signature & Date

Chris Tokas, SHFR

Name & Title

December 31, 2016

Approval Expiration Date

S_{DS} (g) = **2.28** z/h = **1.0**

Special Seismic Certification Valid Up to

Condition of Approval (if any): **Approved for installation with isolators/snubbers only**

ATTACHMENT A - OSP Submittal: Loren Cook Centifugal Fans

TABLE 1 - UUT Summary

UUT	Description	Weight* (lb)	Natural Frequencies (Hz)		
			F-B	S-S	V
UUT 1	CPV 60	250	4.3	3.9	9.2
UUT 2	CF SWSI 120	272	3.9	5.7	9.1
UUT 3	CPS 490	3,225	2.7	3.4	7.1
UUT 4	CA SWSI 540	4,500	2.5	3.0	5.7

**** Weights shown reflect the weight of the unit, motor, isolation frames and isolators***

TABLE 2 - Seismically Qualified Components
Loren Cook Centrifugal Fans (Arrangement 9 & 10 Only)

Group	Model	Size	Drive	Maximum Dimensions		Max Weight* (lb)	Testing Scope
				Length (in)	Height (in)		
1	CPV	60	Belt	25.56	36.75	226	Tested
		70		25.56	36.75	226	Interpolated
		80		25.56	36.75	226	
		100		25.56	36.75	226	
		120		29.56	36.81	265	
		135		31.69	37.75	297	
		150		35.69	41.44	344	
		165		38.88	44.69	379	
		180		42.19	48.38	441	
		195		44.38	50.81	579	
		210		48.81	55.69	620	
		225		51.75	58.88	665	
		245		55.81	63.81	747	
		270		61.19	69.69	833	
		300		68.88	78.00	1,042	
		330		74.63	84.38	1,169	
		365		82.63	93.06	1,371	
		402		91.00	102.25	1,570	
		445		100.63	112.75	1,946	
		490		110.75	123.69	2,264	
2A	CPS	60	Belt	25.56	36.75	235	Interpolated
		70		25.56	36.75	235	
		80		25.56	36.75	235	
		100		25.56	36.75	235	
		120		29.56	36.81	297	
		135		31.69	37.75	356	
		150		35.69	41.44	491	
		165		38.88	44.69	534	
		180		42.19	48.38	616	
		195		44.38	50.81	660	
		210		48.81	55.69	710	
		225		51.75	58.88	757	
		245		55.81	63.81	923	
		270		61.19	69.69	1,072	
		300		68.88	78.00	1,229	
		330		74.63	84.38	1,495	
		365		82.63	93.06	1,740	
		402		91.00	102.25	2,208	
		445		100.63	112.75	2,678	
		490		110.75	123.69	3,059	Tested

* Maximum weight includes fan and motor

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TABLE 2 - Seismically Qualified Components
Loren Cook Centrifugal Fans (Arrangement 9 & 10 Only)

Group	Model	Size	Drive	Maximum Dimensions		Max Weight* (lb)	Testing Scope
				Length (in)	Height (in)		
2B	CPA	60	Belt	25.56	36.75	180	Interpolated
		70		25.56	36.75	180	
		80		25.56	36.75	180	
		100		25.56	36.75	180	
		120		29.56	36.81	229	
		135		31.69	37.75	281	
		150		35.69	41.44	408	
		165		38.88	44.69	437	
		180		42.19	48.38	486	
		195		44.38	50.81	517	
		210		48.81	55.69	549	
		225		51.75	58.88	581	
		245		55.81	63.81	721	
		270		61.19	69.69	813	
		300		68.88	78.00	885	
		330		74.63	84.38	1,064	
		365		82.63	93.06	1,209	
		402		91.00	102.25	1,486	
		445		100.63	112.75	1,655	
		490		110.75	123.69	1,784	
4	CF SWSI	120	Belt	33.38	30.75	287	Tested
		135		36.31	33.19	367	Interpolated
		150		39.88	36.88	426	
		165		43.50	40.94	587	
		180		46.44	44.00	673	
		195		51.50	48.06	743	
		210		54.75	51.19	949	
		225		58.38	55.19	1,027	
		245		63.19	59.94	1,296	
		270		68.13	65.44	1,441	
		300		74.69	72.56	1,858	
		330		82.25	80.00	2,410	
		365		89.63	87.88	2,665	
		402		99.56	97.00	2,948	
		445		108.25	106.81	3,703	
		490		118.69	117.00	4,116	
		540		131.50	128.94	4,670	

* Maximum weight includes fan and motor

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TABLE 2 - Seismically Qualified Components
Loren Cook Centrifugal Fans (Arrangement 9 & 10 Only)

Group	Model	Size	Drive	Maximum Dimensions		Max Weight* (lb)	Testing Scope
				Length (in)	Height (in)		
5	CA SWSI	120	Belt	33.38	30.75	291	Interpolated
		135		36.31	33.19	372	
		150		39.88	36.88	432	
		165		43.50	40.94	595	
		180		46.44	44.00	682	
		195		51.50	48.06	753	
		210		54.75	51.19	958	
		225		58.38	55.19	1,037	
		245		63.19	59.94	1,307	
		270		68.13	65.44	1,455	
		300		74.69	72.56	1,875	
		330		82.25	80.00	2,431	
		365		89.63	87.88	2,690	
		402		99.56	97.00	2,985	
		445		108.25	106.81	3,748	
		490		118.69	117.00	4,170	
		540		131.50	128.94	4,679	Tested

* Maximum weight includes fan and motor

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