

OFFICE USE ONLY APPLICATION FOR OSHPD SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP) APPLICATION #:** OSP - 0219 - 10 **OSHPD Special Seismic Certification Preapproval (OSP) Manufacturer Information** Manufacturer: Loren Cook Company Manufacturer's Technical Representative: Bradley F. Skidmore, P.E. Mailing Address: 2015 East Dale St., Springfield, MO 65808 Telephone: 417.869.6474 Email: bskidmore@lorencook.com **Product Information** Product Name: QMX and SQN Fans Product Type: Inline Fans Product Model Number: See Attachment for a complete listing of models included in this application. (List all unique product identification numbers and/or part numbers) General Description: Square or Circular, Floor or Ceiling mounted inline fans. Seismic enhancements made to the test units required to address the anomalies observed during the tests shall be incorporated into the production units. Mounting Description: Base mounted on spring isolators or Ceiling suspended on spring isolators **Applicant Information** Applicant Company Name: TRU Compliance, LLC Contact Person: Matthew J. Tobolski, S.E. Mailing Address: 960 SW Disk Dr., Suite 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, 2016. Signature of Applicant: Date: 2/7/2016 President & CEO Company Name: TRU Compliance, LLC

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



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OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Camornia Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
Company Name: TRU Compliance, LLC
Name: Matthew J. Tobolski, S.E. California License Number: S5648
Mailing Address: 960 SW Disk Dr., Suite 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: ☐ Other (Please Specify):
Testing Laboratory
Company Name: Clark Testing
Contact Name: Robert Francis
Mailing Address: 1801 Route 51, Jefferson Hills, PA 15025
Telephone: 412.387.1001 Email: rfrancis@clarktesting.com
Company Name: Environmental Testing Laboratory (ETL)
Contact Name: Paul E. Little
Mailing Address: 11034 Indian Trail, Dallas, TX 75229
Telephone: 972.247.9657 Email: paul@etldallas.com

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

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OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Seismic Parameters
Design in accordance with ASCE 7-10 Chapter 13: ☐ Yes ☐ No
Design Basis of Equipment or Components (F _p /W _p) = See Attachment.
S _{DS} (Design spectral response acceleration at short period, g) = See Attachment
a _p (In-structure equipment or component amplification factor) = 2.5
R _p (Equipment or component response modification factor) = Base isolated = 2.0; Ceiling isolated = 2.5
Ω_0 (System overstrength factor) = 2.0
I _p (Importance factor) = 1.5
z/h (Height factor ratio) = 1.0 and 0.0
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 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, 2015: ☐ Yes ☒ No
List of Attachments Supporting Special Seismic Certification
Other(s) (Please Specify): See Attachment
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022
1// 1 // Detail August 2 2047
Signature: Date: August 3, 2017
Print Name:Timothy J. Piland Title: Title: See Above 7/b 7/b 7/b 7/b
Special Seismic Certification Valid Up to : Sps (g) = See Above z/h = See Above
Condition of Approval (if applicable):

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





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TRU PROJECT NO. 16037



Manufacturer: **Loren Cook Company TABLE 1.1** Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High Pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Horizontal fan position; Top and side motor positions.

Mounting Configuration:

Base mounted - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

ilding Code: CBC 2016		^ertificatio	nn I imits:	$S_{DS} =$	2.0 g z/l	1=1.0	1.	I _P = 1.5	
	Jeisiiie (.cr cmcacre	m Emmes.	S _{DS} =	2.5 g z/l	1=0.0			
Model	Dir	nensions ((in)	Weight	F_{P}/W_{P}	$\mathbf{F}_{\mathbf{P}/}\mathbf{W}_{\mathbf{P}}$	Notes	UUT	
Model	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	Notes	001	
60	22.0	14.0	26.5	100	4.5	1.88		Interp.	
70	22.0	14.0	26.5	100	4.5	1.88		Interp.	
80	22.0	14.0	26.5	100	4.5	1.88		Interp.	
100	22.0	14.0	26.5	100	4.5	1.88		Interp.	
120	22.0	18.4	30.9	110	4.5	1.88		Interp.	
135	22.3	20.8	33.3	125	4.5	1.88		Interp.	
150	23.9	23.0	35.8	150	4.5	1.88		Interp.	
165	27.0	25.3	40.1	175	4.5	1.88		Interp.	
180	30.0	27.6	42.4	200	4.5	1.88		Interp.	
195	32.3	29.9	44.9	225	4.5	1.88		Interp.	
210	35.0	31.3	46.3	250	4.5	1.88		Interp.	
225	37.3	33.5	48.8	300	4.5	1.88		Interp.	
245	38.0	36.0	53.3	350	4.5	1.88		Interp.	
270	41.5	39.7	56.9	400	4.5	1.88		Interp.	
300	42.0	44.0	61.3	450	4.5	1.88		Interp.	
330	45.8	48.4	65.7	500	4.5	1.88		Interp.	
365	46.0	50.0	67.3	550	4.5	1.88		Interp.	
402	50.3	55.1	72.4	805	4.5	1.88		5, 16	
90	19.9	15.9	30	240	4.5	1.88		10	
120	24	20.1	36.5	309	4.5	1.88		Interp.	
135	27.0	22.3	39.4	418	4.5	1.88		Interp.	
150	30.0	24.4	42.1	485	4.5	1.88		Interp.	
	Model 60 70 80 100 120 135 150 165 180 195 210 225 245 270 300 330 365 402 90 120 135	Model Dir Depth 60 22.0 70 22.0 80 22.0 100 22.0 120 22.0 135 22.3 150 23.9 165 27.0 180 30.0 195 32.3 210 35.0 225 37.3 245 38.0 270 41.5 300 42.0 330 45.8 365 46.0 402 50.3 90 19.9 120 24 135 27.0	Model Dimensions Depth Width 60 22.0 14.0 70 22.0 14.0 80 22.0 14.0 100 22.0 14.0 120 22.0 18.4 135 22.3 20.8 150 23.9 23.0 165 27.0 25.3 180 30.0 27.6 195 32.3 29.9 210 35.0 31.3 225 37.3 33.5 245 38.0 36.0 270 41.5 39.7 300 42.0 44.0 330 45.8 48.4 365 46.0 50.0 402 50.3 55.1 90 19.9 15.9 120 24 20.1 135 27.0 22.3	Dimensions (in) Depth Width Height 60 22.0 14.0 26.5 70 22.0 14.0 26.5 80 22.0 14.0 26.5 100 22.0 18.4 30.9 135 22.3 20.8 33.3 150 23.9 23.0 35.8 165 27.0 25.3 40.1 180 30.0 27.6 42.4 195 32.3 29.9 44.9 210 35.0 31.3 46.3 225 37.3 33.5 48.8 245 38.0 36.0 53.3 270 41.5 39.7 56.9 300 42.0 44.0 61.3 330 45.8 48.4 65.7 365 46.0 50.0 67.3 402 50.3 55.1 72.4 90 19.9 15.9 30	Seismic Certification Limits: S_{DS} = Model Dimensions (in) Weight (lb.) 60 22.0 14.0 26.5 100 70 22.0 14.0 26.5 100 80 22.0 14.0 26.5 100 100 22.0 14.0 26.5 100 120 22.0 18.4 30.9 110 135 22.3 20.8 33.3 125 150 23.9 23.0 35.8 150 165 27.0 25.3 40.1 175 180 30.0 27.6 42.4 200 195 32.3 29.9 44.9 225 210 35.0 31.3 46.3 250 225 37.3 33.5 48.8 300 245 38.0 36.0 53.3 350 270 41.5 39.7 56.9 400 300 42.	Node Dimensions (in) Weight Solution Power Power	S $_{DS}$ = 2.5 g z/h=0.0 Model Dimensions (in) Weight (lb.) F_{P/W_P} $S_{DS}=2.0$ F_{P/W_P} $S_{DS}=2.5$ 60 22.0 14.0 26.5 100 4.5 1.88 70 22.0 14.0 26.5 100 4.5 1.88 80 22.0 14.0 26.5 100 4.5 1.88 100 22.0 14.0 26.5 100 4.5 1.88 120 22.0 18.4 30.9 110 4.5 1.88 135 22.3 20.8 33.3 125 4.5 1.88 150 23.9 23.0 35.8 150 4.5 1.88 165 27.0 25.3 40.1 175 4.5 1.88 180 30.0 27.6 42.4 200 4.5 1.88 195 32.3 29.9 44.9 225 4.5 1.88 210 35.0 31.3 <	Notes Seismic Certification Limits: S S S S Z J D S D S D S S S S S	

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 1.1

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High Pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Horizontal fan position; Top and side motor positions.

Mounting Configuration:

Base mounted - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

ilding Code: CBC 2016		Seismic (Certificatio	on Limits:	$S_{DS} =$	2.5 $g = z/l$	h=0.0		I _P = 1.5	
Model Line	Model		mensions		Weight	F _{P/} W _P	F _{P/} W _P	Notes	UUT	
	ouet	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5			
	165	33.0	26.5	43.8	557	4.5	1.88		Interp.	
	180	35.0	28.6	46.3	618	4.5	1.88		Interp.	
	202	37.5	31.8	49.9	803	4.5	1.88		Interp.	
	225	41.0	34.9	55.9	937	4.5	1.88		Interp.	
	245	44.5	37.8	59.0	1089	4.5	1.88		Interp.	
	270	47.0	41.3	62.9	1230	4.5	1.88		Interp.	
OMY	300	54.0	45.5	68.1	1455	4.5	1.88		Interp.	
QMX	330	58.5	49.8	74.8	1750	4.5	1.88		Interp.	
	365	64.0	54.8	80.3	2260	4.5	1.88		Interp.	
	402	68.5	59.9	88.3	2785	4.5	1.88		Interp.	
	445	74.0	66.1	94.9	3465	4.5	1.88		Interp.	
	490	80.5	72.4	103.3	4180	4.5	1.88		Interp.	
	540	87.0	79.4	110.9	4950	4.5	1.88		Interp.	
	600	95.5	87.9	122.1	6070	4.5	1.88		Interp.	
	90	19.9	15.9	30	180	4.5	1.88		Interp.	
	120	24	20.1	36.5	352	4.5	1.88		Interp.	
	135	27	22.3	39.4	431	4.5	1.88		Interp.	
OMY LID	150	30	24.4	42.1	511	4.5	1.88		Interp.	
QMX-HP	165	33	26.5	43.8	667	4.5	1.88		Interp.	
	180	35	28.6	46.3	723	4.5	1.88		Interp.	
	202	37.5	31.8	49.9	860	4.5	1.88		Interp.	
	225	41	64.9	55.9	1023	4.5	1.88		Interp.	

TRU PROJECT NO. 16037



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SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High Pressure, perfect speed controller

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QMX: Belt Drive; Horizontal fan position; Top and side motor positions.

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16	Seismic	Certificati	on I imits:	$S_{DS} =$	2.0 g z/l	h=1.0	1.	I _P = 1.5	
		<u>.er arreado</u>		S _{DS} =	2.5 g z/l	h=0.0		. 1.3	
Model	Dir	mensions /	(in)	Weight	$\mathbf{F}_{\mathbf{P}}\mathbf{W}_{\mathbf{P}}$	F_{P}/W_{P}	Notes	UUT	
Model	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	Motes	001	
245	44.5	37.8	59	1050	4.5	1.88		Interp.	
270	47	41.3	62.9	1085	4.5	1.88		11	
300	54	45.5	68.1	1610	4.5	1.88		Interp.	
330	58.5	49.8	74.8	1885	4.5	1.88		Interp.	
365	64	54.8	80.3	2500	4.5	1.88		Interp.	
402	68.5	59.9	88.3	3045	4.5	1.88		Interp.	
445	74	66.1	94.9	3605	4.5	1.88		Interp.	
490	80.5	72.4	103.3	4490	4.5	1.88		Interp.	
540	87	79.4	110.9	5090	4.5	1.88		Interp.	
600	95.5	87.9	122.1	7385	4.5	1.88		13	
90	19.9	15.9	30	271	4.5	1.88		Interp.	
120	24	20.1	36.5	385	4.5	1.88		Interp.	
135	27	22.3	39.4	453	4.5	1.88		Interp.	
150	30	24.4	42.1	526	4.5	1.88		Interp.	
165	33	26.5	43.8	687	4.5	1.88		Interp.	
180	35	28.6	46.3	791	4.5	1.88		Interp.	
202	37.5	31.8	49.9	911	4.5	1.88		Interp.	
225	41	64.9	55.9	1133	4.5	1.88		Interp.	
245	44.5	37.8	59	1210	4.5	1.88		Interp.	
270	47	41.3	62.9	1370	4.5	1.88		Interp.	
300	54	45.5	68.1	2280	4.5	1.88		Interp.	
330	58.5	49.8	74.8	2795	4.5	1.88		Interp.	
	270 300 330 365 402 445 490 540 600 90 120 135 150 165 180 202 225 245 270 300	Model Dir 245 44.5 270 47 300 54 330 58.5 365 64 402 68.5 445 74 490 80.5 540 87 600 95.5 90 19.9 120 24 135 27 150 30 165 33 180 35 202 37.5 225 41 245 44.5 270 47 300 54	Model Dimensions (Modth) 245 44.5 37.8 270 47 41.3 300 54 45.5 330 58.5 49.8 365 64 54.8 402 68.5 59.9 445 74 66.1 490 80.5 72.4 540 87 79.4 600 95.5 87.9 90 19.9 15.9 120 24 20.1 135 27 22.3 150 30 24.4 165 33 26.5 180 35 28.6 202 37.5 31.8 225 41 64.9 245 44.5 37.8 270 47 41.3 300 54 45.5	Dimensions (in) Depth Width Height 245 44.5 37.8 59 270 47 41.3 62.9 300 54 45.5 68.1 330 58.5 49.8 74.8 365 64 54.8 80.3 402 68.5 59.9 88.3 445 74 66.1 94.9 490 80.5 72.4 103.3 540 87 79.4 110.9 600 95.5 87.9 122.1 90 19.9 15.9 30 120 24 20.1 36.5 135 27 22.3 39.4 150 30 24.4 42.1 165 33 26.5 43.8 180 35 28.6 46.3 202 37.5 31.8 49.9 225 41 64.9 55.9 <tr< td=""><td>Model Dimensions (in) Weight (lb.) 245 44.5 37.8 59 1050 270 47 41.3 62.9 1085 300 54 45.5 68.1 1610 330 58.5 49.8 74.8 1885 365 64 54.8 80.3 2500 402 68.5 59.9 88.3 3045 445 74 66.1 94.9 3605 490 80.5 72.4 103.3 4490 540 87 79.4 110.9 5090 600 95.5 87.9 122.1 7385 90 19.9 15.9 30 271 120 24 20.1 36.5 385 135 27 22.3 39.4 453 150 30 24.4 42.1 526 165 33 26.5 43.8 687 <tr< td=""><td>Seismic Certification Limits: $S_{DS} = 2.5 g$ z/l Model Dimensions (in) Weight (lb.) $F_{P_l}W_P$ 245 44.5 37.8 59 1050 4.5 300 54 45.5 68.1 1610 4.5 330 58.5 49.8 74.8 1885 4.5 365 64 54.8 80.3 2500 4.5 402 68.5 59.9 88.3 3045 4.5 445 74 66.1 94.9 3605 4.5 490 80.5 72.4 103.3 4490 4.5 540 87 79.4 110.9 5090 4.5 600 95.5 87.9 122.1 7385 4.5 90 19.9 15.9 30 271 4.5 120 24 20.1 36.5 385 4.5 150 30 24.4 42.1 526 <</td><td>Seismic Certification Limits: $S_{DS} = 2.5 g$ $z/h=0.0$ Model Dimensions (in) Weight (lb.) $F_{P_1}W_P$ $F_{P_2}W_P$ $F_{P_2}W_P$ $F_{DS}=2.5$ 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 600 95.5 87.9 122.1 7385 4.5</td><td>S $_{DS}$ = 2.5 g $_{Z}$/h=0.0 Model Dimensions (in) Weight (lb.) F $_{P}$/W $_{DS}$ S $_{DS}$=2.0 Notes 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 90 19.9 15.9 30 271 4.5 1.88 120 24 20.1 36.5<!--</td--></td></tr<></td></tr<>	Model Dimensions (in) Weight (lb.) 245 44.5 37.8 59 1050 270 47 41.3 62.9 1085 300 54 45.5 68.1 1610 330 58.5 49.8 74.8 1885 365 64 54.8 80.3 2500 402 68.5 59.9 88.3 3045 445 74 66.1 94.9 3605 490 80.5 72.4 103.3 4490 540 87 79.4 110.9 5090 600 95.5 87.9 122.1 7385 90 19.9 15.9 30 271 120 24 20.1 36.5 385 135 27 22.3 39.4 453 150 30 24.4 42.1 526 165 33 26.5 43.8 687 <tr< td=""><td>Seismic Certification Limits: $S_{DS} = 2.5 g$ z/l Model Dimensions (in) Weight (lb.) $F_{P_l}W_P$ 245 44.5 37.8 59 1050 4.5 300 54 45.5 68.1 1610 4.5 330 58.5 49.8 74.8 1885 4.5 365 64 54.8 80.3 2500 4.5 402 68.5 59.9 88.3 3045 4.5 445 74 66.1 94.9 3605 4.5 490 80.5 72.4 103.3 4490 4.5 540 87 79.4 110.9 5090 4.5 600 95.5 87.9 122.1 7385 4.5 90 19.9 15.9 30 271 4.5 120 24 20.1 36.5 385 4.5 150 30 24.4 42.1 526 <</td><td>Seismic Certification Limits: $S_{DS} = 2.5 g$ $z/h=0.0$ Model Dimensions (in) Weight (lb.) $F_{P_1}W_P$ $F_{P_2}W_P$ $F_{P_2}W_P$ $F_{DS}=2.5$ 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 600 95.5 87.9 122.1 7385 4.5</td><td>S $_{DS}$ = 2.5 g $_{Z}$/h=0.0 Model Dimensions (in) Weight (lb.) F $_{P}$/W $_{DS}$ S $_{DS}$=2.0 Notes 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 90 19.9 15.9 30 271 4.5 1.88 120 24 20.1 36.5<!--</td--></td></tr<>	Seismic Certification Limits: $S_{DS} = 2.5 g$ z/l Model Dimensions (in) Weight (lb.) $F_{P_l}W_P$ 245 44.5 37.8 59 1050 4.5 300 54 45.5 68.1 1610 4.5 330 58.5 49.8 74.8 1885 4.5 365 64 54.8 80.3 2500 4.5 402 68.5 59.9 88.3 3045 4.5 445 74 66.1 94.9 3605 4.5 490 80.5 72.4 103.3 4490 4.5 540 87 79.4 110.9 5090 4.5 600 95.5 87.9 122.1 7385 4.5 90 19.9 15.9 30 271 4.5 120 24 20.1 36.5 385 4.5 150 30 24.4 42.1 526 <	Seismic Certification Limits: $S_{DS} = 2.5 g$ $z/h=0.0$ Model Dimensions (in) Weight (lb.) $F_{P_1}W_P$ $F_{P_2}W_P$ $F_{P_2}W_P$ $F_{DS}=2.5$ 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 600 95.5 87.9 122.1 7385 4.5	S $_{DS}$ = 2.5 g $_{Z}$ /h=0.0 Model Dimensions (in) Weight (lb.) F $_{P}$ /W $_{DS}$ S $_{DS}$ =2.0 Notes 245 44.5 37.8 59 1050 4.5 1.88 270 47 41.3 62.9 1085 4.5 1.88 300 54 45.5 68.1 1610 4.5 1.88 330 58.5 49.8 74.8 1885 4.5 1.88 365 64 54.8 80.3 2500 4.5 1.88 402 68.5 59.9 88.3 3045 4.5 1.88 445 74 66.1 94.9 3605 4.5 1.88 490 80.5 72.4 103.3 4490 4.5 1.88 540 87 79.4 110.9 5090 4.5 1.88 90 19.9 15.9 30 271 4.5 1.88 120 24 20.1 36.5 </td	





 $I_{\rm p} = 1.5$

Manufacturer: Loren Cook Company
Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 1.1

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High Pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Horizontal fan position; Top and side motor positions.

Mounting Configuration:

Base mounted - isolated

Building Code: CBC 2016

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Seismic Certification Limits:

laing Code: CBC 2	016	Seismic	certification	on Limits:	S _{DS} =	2.5 g z/l	n=0.0	1 P	1 _P - 1.5	
Model Line	Model	Diı	nensions	(in)	Weight	F _{P/} W _P	F _{P/} W _P	Notes	шт	
Model Line	Model	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	Notes	UUT	
	365	64	54.8	80.3	3288	4.5	1.88		Interp.	
	402	68.5	59.9	88.3	4042	4.5	1.88		Interp.	
QMX-XP	445	74	66.1	94.9	4780	4.5	1.88		Interp.	
QWA-AF	490	80.5	72.4	103.3	5530	4.5	1.88		Interp.	
	540	87	79.4	110.9	6090	4.5	1.88		Interp.	
	600	95.5	87.9	122.1	7385	4.5	1.88		Interp.	
					1					

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 1.2

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High Pressure, perfect speed controller

 $S_{DS} = 1.95 g z/h=1.0$

QMX: Belt Drive; Horizontal fan position; Top and side motor positions.

Mounting Configuration:

Base mounted - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

ilding Code: CBC 2016		Seismic (Certificatio	nn I imits•	$S_{DS} =$	1.95 $g z/l$	h=1.0	1	I _P = 1.5	
namy couc. cbc 20		Jeisiiie (cremedere	, Lilling.	S _{DS} =	2.5 g z/h	1=0.0		p 1.5	
Model Line	Model	Dir	mensions ((in)	Weight	$F_{P}W_{P}$	$\mathbf{F}_{\mathbf{P}/}\mathbf{W}_{\mathbf{P}}$	Notes	UUT	
Model Lille	Model	Depth	Width	Height	(lb.)	S _{DS} =1.95	S _{DS} =2.5	Notes	001	
	70	14.0	12.0	25.6	86	4.39	1.88		15	
	90	17.0	14.0	29.6	90	4.39	1.88		Interp.	
COND	100	22.0	14.0	29.6	100	4.39	1.88		Interp.	
SQN-D	120	22.0	18.4	29.6	105	4.39	1.88		Interp.	
(Direct Drive)	135	22.3	20.8	38.4	135	4.39	1.88		Interp.	
	150	23.9	23.0	43.1	160	4.39	1.88		Interp.	
	165	27.0	25.4	52.7	200	4.39	1.88		6	
	135	22.3	20.8	33.3	135	4.39	1.88		4	
	150	23.9	23	35.8	150	4.39	1.88		Interp	
	165	27.0	25.3	40.1	175	4.39	1.88		Interp	
	180	30.0	27.6	42.4	200	4.39	1.88		Interp	
	195	32.3	29.9	44.9	225	4.39	1.88		Interp	
SQN-HP	210	35.0	31.3	46.3	250	4.39	1.88		Interp	
(Belt Drive)	225	37.3	33.5	48.8	300	4.39	1.88		Interp	
(Bett Brive)	245	38.0	36.0	53.3	350	4.39	1.88		Interp	
	270	41.5	39.7	56.9	400	4.39	1.88		Interp	
	300	42.0	44.0	61.3	450	4.39	1.88		Interp	
	330	45.8	48.4	65.7	500	4.39	1.88		Interp	
	365	46.0	50.0	67.3	550	4.39	1.88		Interp	
	402	50.3	55.1	72.4	800	4.39	1.88		Interp	

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company
Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 2.1

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Bottom and side motor positions; Fan arrangement 9 only.

Mounting Configuration:

Ceiling suspended - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 Seismic Certification Limits		on Limits:	$S_{DS} =$	2.5 g z/l	h=0.0		$I_P = 1.5$		
Model Line	Model	Dir	nensions	(in)	Weight	F _{P/} W _P	F _{P/} W _P	Notes	UUT
Model Line	Modet	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	Notes	001
	70	14.0	12.0	25.6	86	3.6	1.5	UUT: 50 lbs.	14
	90	17.0	14.0	29.6	90	3.6	1.5		Interp.
COND	100	22.0	14.0	29.6	100	3.6	1.5		Interp.
SQN-D (Direct Drive)	120	22.0	18.4	29.6	105	3.6	1.5		Interp.
(Direct Drive)	135	22.3	20.8	38.4	110	3.6	1.5		Interp.
	150	23.9	23.0	43.1	120	3.6	1.5		Interp.
	165	27.0	25.4	52.7	130	3.6	1.5		3
	90	19.9	15.9	30.0	180	3.6	1.5		7
	120	24.0	20.1	36.5	352	3.6	1.5		Interp.
	135	27.0	22.3	39.4	431	3.6	1.5		Interp.
	150	30.0	24.4	42.1	511	3.6	1.5		Interp.
	165	33.0	26.5	43.8	667	3.6	1.5		Interp.
	180	35.0	28.6	46.3	723	3.6	1.5		Interp.
	202	37.5	31.8	49.9	860	3.6	1.5		Interp.
QMX-HP	225	41.0	64.9	55.9	1023	3.6	1.5		Interp.
	245	44.5	37.8	59.0	1050	3.6	1.5		Interp.
	270	47.0	41.3	62.9	1085	3.6	1.5		Interp.
	300	54.0	45.5	68.1	1610	3.6	1.5		Interp.
	330	58.5	49.8	74.8	1885	3.6	1.5		Interp.
	365	64	54.8	80.3	2500	3.6	1.5		Interp.
	402	68.5	59.9	88.3	3045	3.6	1.5		Interp.
	445	74	66.1	94.9	3605	3.6	1.5		Interp.

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 2.1

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Bottom and side motor positions; Fan arrangement 9 only.

Mounting Configuration:

Ceiling suspended - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

ding Code: CBC 2	016	Seismic (Certificatio	on Limits:	S _{DS} =	2.5 g z/l		1 _P =	= 1.5
Model Line	Model	Dir	mensions		Weight	F _{P/} W _P	F _{P/} W _P	Notes	UUT
Model Eme	Model	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	itotes	00.
	490	80.5	72.4	103.3	4490	3.6	1.5		Interp.
QMX-HP	540	87	79.4	110.9	5090	3.6	1.5		Interp.
	600	95.5	87.9	122.1	6070	3.6	1.5		Interp.
	90	19.9	15.9	30	271	3.6	1.5		Interp.
	120	24	20.1	36.5	385	3.6	1.5		Interp.
	135	27	22.3	39.4	453	3.6	1.5		Interp.
	150	30	24.4	42.1	526	3.6	1.5		Interp.
	165	33	26.5	43.8	687	3.6	1.5		Interp.
	180	35	28.6	46.3	791	3.6	1.5		Interp.
	202	37.5	31.8	49.9	911	3.6	1.5		Interp.
	225	41	64.9	55.9	1133	3.6	1.5		Interp.
OMV VD	245	44.5	37.8	59	1210	3.6	1.5		Interp.
QMX-XP	270	47	41.3	62.9	1370	3.6	1.5		8
	300	54	45.5	68.1	2280	3.6	1.5		Interp.
	330	58.5	49.8	74.8	2795	3.6	1.5		Interp.
	365	64	54.8	80.3	3288	3.6	1.5		Interp.
	402	68.5	59.9	88.3	4042	3.6	1.5		Interp.
	445	74	66.1	94.9	4780	3.6	1.5		Interp.
	490	80.5	72.4	103.3	5530	3.6	1.5		Interp.
	540	87	79.4	110.9	5890	3.6	1.5		Interp.
	600	95.5	87.9	122.1	6070	3.6	1.5		Interp.
QMX	90	19.9	15.9	30	240	3.6	1.5		Interp.

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company
Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 2.1

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High pressure, perfect speed controller

 $S_{DS} = 2.0 g z/h=1.0$

QMX: Belt Drive; Bottom and side motor positions; Fan arrangement 9 only.

Mounting Configuration:

Ceiling suspended - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

lding Code: CBC 2	016	Seismic (Certificatio	on Limits:	S _{DS} =	2.5 g z/l			$I_P = 1.5$
Model Line	Model	Dir	nensions	(in)	Weight	F _{P/} W _P	$F_{P}W_{P}$	Notes	υυ
Model Eme	Model	Depth	Width	Height	(lb.)	S _{DS} =2.0	S _{DS} =2.5	Notes	
	90	19.9	15.9	30	240	3.6	1.5		Inte
	120	24	20.1	36.5	309	3.6	1.5		Inte
	135	27	22.3	39.4	418	3.6	1.5		Inte
	150	30	24.4	42.1	485	3.6	1.5		Inte
	165	33	26.5	43.8	557	3.6	1.5		Inte
	180	35	28.6	46.3	618	3.6	1.5		Inte
	202	37.5	31.8	49.9	803	3.6	1.5		Inte
	225	41	34.9	55.9	937	3.6	1.5		Inte
OMY	245	44.5	37.8	59	1089	3.6	1.5		Inte
QMX	270	47	41.3	62.9	1230	3.6	1.5		Inte
	300	54	45.5	68.1	1455	3.6	1.5		Inte
	330	58.5	49.8	74.8	1750	3.6	1.5		Inte
	365	64	54.8	80.3	2260	3.6	1.5		Inte
	402	68.5	59.9	88.3	2785	3.6	1.5		Inte
	445	74	66.1	94.9	3465	3.6	1.5		Inte
	490	80.5	72.4	103.3	4180	3.6	1.5		Inte
	540	87	79.4	110.9	4950	3.6	1.5		Inte
	600	95.5	87.9	122.1	6070	3.6	1.5		g

TRU PROJECT NO. 16037



Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 2.2

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High pressure, perfect speed controller

 $S_{DS} = 1.85 g z/h=1.0$

QMX: Belt Drive; Bottom and side motor positions; Fan arrangement 9 only.

Mounting Configuration:

Ceiling suspended - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

ilding Code: CBC 2	016	Seismic (Certificatio	on Limits:	S _{DS} =	2.5 g z/l			I _P = 1.5	
Model Line	Model	Dir	nensions	(in)	Weight	F _{P/} W _P	F_{P}/W_{P}	Notes	UUT	
Model Ellie	Model	Depth	Width	Height	(lb.)	S _{DS} =1.85	S _{DS} =2.5	Notes	33.	
	60	22.0	14.0	26.5	100	3.33	1.5		1	
	70	22.0	14.0	26.5	100	3.33	1.5		Interp.	
	80	22.0	14.0	26.5	100	3.33	1.5		Interp.	
	100	22.0	14.0	26.5	100	3.33	1.5		Interp.	
	120	22.0	18.4	30.9	110	3.33	1.5		Interp.	
	135	22.3	20.8	33.3	125	3.33	1.5		Interp.	
	150	23.9	23.0	35.8	150	3.33	1.5		Interp.	
	165	27.0	25.3	40.1	175	3.33	1.5		Interp.	
SQN-B	180	30.0	27.6	42.4	200	3.33	1.5		Interp.	
(Belt Drive)	195	32.3	29.9	44.9	225	3.33	1.5		Interp.	
	210	35.0	31.3	46.3	250	3.33	1.5		Interp.	
	225	37.3	33.5	48.8	300	3.33	1.5		Interp.	
	245	38.0	36.0	53.3	350	3.33	1.5		Interp.	
	270	41.5	39.7	56.9	400	3.33	1.5		Interp.	
	300	42.0	44.0	61.3	450	3.33	1.5		Interp.	
	330	45.8	48.4	65.7	500	3.33	1.5		Interp.	
	365	46.0	50.0	67.3	550	3.33	1.5		Interp.	
	402	50.3	55.1	72.4	805	3.33	1.5		Interp.	
	135	22.3	20.8	33.3	135	3.33	1.5		Interp.	
SQN-HP	150	23.9	23	35.8	150	3.33	1.5		Interp.	
(Belt Drive)	165	27	25.3	40.1	175	3.33	1.5		Interp.	
	180	30	27.6	42.4	200	3.33	1.5		Interp.	





Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 2.2

Certified Product Construction Summary:

SQN: 18 ga. Galvanized carbon steel housing. Aluminum Fan wheels.

QMX: Heavy gauge carbon steel housing and fan wheel.

Note: HP and XP models use a different wheel to create higher pressure.

Certified Options Summary:

SQN: Belt tensioner, Belt Guard, Motor cover, Flex duct connector, flanged inlet/outlet, Belt or direct drive; HP = High pressure, perfect speed controller

 $S_{DS} = 1.85 g z/h=1.0$

QMX: Belt Drive; Bottom and side motor positions; Fan arrangement 9 only.

Mounting Configuration:

Ceiling suspended - isolated

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Ruilding Code: CRC 2	Building Code: CBC 2016		Certificatio	nn I imits:	$S_{DS} =$	1.85 $g z/l$	h=1.0	1.	I _P = 1.5	
banamy coue. cbc 2	010	Scisiiic	cremean	JII EIIIIICS.	S _{DS} =	2.5 g z/ł	1=0.0	. ,	1.0	
Model Line	Model	Dir	mensions	(in)	Weight	F_{P}/W_{P}	$\mathbf{F}_{\mathbf{P}}\mathbf{W}_{\mathbf{P}}$	Notes	UUT	
Model Line	Model	Depth	Width	Height	(lb.)	S _{DS} =1.85	S _{DS} =2.5	Notes	001	
	195	32.3	29.9	44.9	225	3.33	1.5		Interp.	
	210	35	31.3	46.3	250	3.33	1.5		Interp.	
	225	37.3	33.5	48.8	300	3.33	1.5		Interp.	
CONTID	245	38	36	53.3	350	3.33	1.5		Interp.	
SQN-HP (Belt Drive)	270	41.5	39.7	56.9	400	3.33	1.5		Interp.	
(Dett Drive)	300	42	44	61.3	450	3.33	1.5		Interp.	
	330	45.8	48.4	65.7	500	3.33	1.5		Interp.	
	365	46	50	67.3	550	3.33	1.5		Interp.	
	402	50.3	55.1	72.4	800	3.33	1.5		2	
		•	•	•					-	

TRU PROJECT NO. 16037



Interp.

Manufacturer:Loren Cook CompanyTable Description:Fan MotorsModel Line:SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP FansTABLE 3

Building Code: CBC 2016 Seismic Certification Limits: $S_{DS} = 2.0 g \quad z/h = 1.0$ $I_P = 1.5$ $S_{DS} = 2.5 g \quad z/h = 0.0$

Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT
		56	0.75 HP, 208-230/460V	4.5	1.88		Interp.
		143T	1 HP, 208-230/460V	4.5	1.88		Interp.
		145T	1.5 HP, 208-230/460V	4.5	1.88		Interp.
		145T	2 HP, 208-230/460V	4.5	1.88		Interp.
		182T	3 HP, 208-230/460V	4.5	1.88		10
		184T	5 HP, 208-230/460V	4.5	1.88		Interp.
		213T	7.5 HP, 208-230/460V	4.5	1.88		Interp.
Fan Mataus		215T	10 HP, 230/460V	4.5	1.88		16
Fan Motors (Base mt. models)	Baldor	254T	15 HP, 230/460V	4.5	1.88		Interp.
(base iiit. iiiodeis)		256T	20 HP, 230/460V	4.5	1.88		Interp.
		284T	25 HP, 230/460V	4.5	1.88		11
		286T	30 HP, 230/460V	4.5	1.88		Interp.
		324T	40 HP, 230/460V	4.5	1.88		Interp.
		326T	50 HP, 230/460V	4.5	1.88		Interp.
		364T	60 HP, 230/460V	4.5	1.88		Interp.
		365T	75 HP, 230/460V	4.5	1.88		Interp.
		404T	100 HP, 230/460V	4.5	1.88		13
		56	0.75 HP, 208-230/460V	3.6	1.5		1
Fan Motors	Daldar	143T	1 HP, 208-230/460V	3.6	1.5		Interp.
(Ceiling mt. models)	Baldor	145T	1.5 HP, 208-230/460V	3.6	1.5		Interp.

Note: Certification level is limited to the lower rating of either the Certified Subcomponent Matrix, as listed here, or the components as listed on the Certified Component Matrices.

2 HP, 208-230/460V

1.5

3.6

TRU PROJECT NO. 16037



Manufacturer: **Loren Cook Company Table Description:** Fan Motors **TABLE 3** Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

 $S_{DS} = 2.0 g z/h = 1.0$ Building Code: CBC 2016 $I_P = 1.5$ Seismic Certification Limits:

 $S_{ac} = 2.5 a \cdot \frac{\pi}{h} = 0.0$

$S_{DS} = 2.5 g z/h = 0.0$										
Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT				
	182T	3 HP, 208-230/460V	3.6	1.5		7				
	184T	5 HP, 208-230/460V	3.6	1.5		Interp				
	213T	7.5 HP, 208-230/460V	3.6	1.5		Interp				
	215T	10 HP, 230/460V	3.6	1.5		Interp				
	254T	15 HP, 230/460V	3.6	1.5		Interp				
	256T	20 HP, 230/460V	3.6	1.5		Interp				
Baldor	284T	25 HP, 230/460V	3.6	1.5		8				
	286T	30 HP, 230/460V	3.6	1.5		Interp				
	324T	40 HP, 230/460V	3.6	1.5		Interp				
	326T	50 HP, 230/460V	3.6	1.5		Interp				
	364T	60 HP, 230/460V	3.6	1.5		Interp				
	365T	75 HP, 230/460V	3.6	1.5		Interp				
	404T	100 HP, 230/460V	3.6	1.5		9				
		182T 184T 213T 215T 254T 256T Baldor 284T 286T 324T 326T 364T 365T	Manufacturer Model Description 182T 3 HP, 208-230/460V 184T 5 HP, 208-230/460V 213T 7.5 HP, 208-230/460V 215T 10 HP, 230/460V 254T 15 HP, 230/460V 256T 20 HP, 230/460V 284T 25 HP, 230/460V 324T 40 HP, 230/460V 326T 50 HP, 230/460V 364T 60 HP, 230/460V 365T 75 HP, 230/460V	Manufacturer Model Description F _{Pl} W _P S _{DS} =2.0 182T 3 HP, 208-230/460V 3.6 184T 5 HP, 208-230/460V 3.6 213T 7.5 HP, 208-230/460V 3.6 215T 10 HP, 230/460V 3.6 254T 15 HP, 230/460V 3.6 256T 20 HP, 230/460V 3.6 284T 25 HP, 230/460V 3.6 324T 40 HP, 230/460V 3.6 324T 40 HP, 230/460V 3.6 326T 50 HP, 230/460V 3.6 364T 60 HP, 230/460V 3.6 365T 75 HP, 230/460V 3.6	Manufacturer Model Description F _{P/WP} S _{DS} =2.0 F _{P/WP} S _{DS} =2.5 182T 3 HP, 208-230/460V 3.6 1.5 184T 5 HP, 208-230/460V 3.6 1.5 213T 7.5 HP, 208-230/460V 3.6 1.5 215T 10 HP, 230/460V 3.6 1.5 254T 15 HP, 230/460V 3.6 1.5 256T 20 HP, 230/460V 3.6 1.5 284T 25 HP, 230/460V 3.6 1.5 324T 40 HP, 230/460V 3.6 1.5 324T 40 HP, 230/460V 3.6 1.5 326T 50 HP, 230/460V 3.6 1.5 364T 60 HP, 230/460V 3.6 1.5 365T 75 HP, 230/460V 3.6 1.5	Manufacturer Model Description F _{P/WP} S _{DS} =2.0 F _{P/WP} S _{DS} =2.5 Notes 182T 3 HP, 208-230/460V 3.6 1.5 184T 5 HP, 208-230/460V 3.6 1.5 213T 7.5 HP, 208-230/460V 3.6 1.5 215T 10 HP, 230/460V 3.6 1.5 254T 15 HP, 230/460V 3.6 1.5 256T 20 HP, 230/460V 3.6 1.5 286T 30 HP, 230/460V 3.6 1.5 324T 40 HP, 230/460V 3.6 1.5 326T 50 HP, 230/460V 3.6 1.5 364T 60 HP, 230/460V 3.6 1.5 365T 75 HP, 230/460V 3.6 1.5				

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Building Code: CBC 2016



Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For base mounted models **TABLE 4.1** Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Seismic Certification Limits:

 $S_{DS} = 2.0 g z/h = 1.0$

 $I_{P} = 1.5$ $S_{ac} = 2.5 a \cdot \frac{\pi}{h} = 0.0$

		$S_{DS} = 2.5 g z/h = 0.0$						
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT	
		10	10" Al backward inclined wheel	4.5	1.88		15	
		12	12" Al backward inclined wheel	4.5	1.88		Interp.	
		13.5	13.5" Al backward inclined wheel	4.5	1.88		Interp.	
		15	15" Al backward inclined wheel	4.5	1.88		Interp.	
		16.5	16.5" Al backward inclined wheel	4.5	1.88		Interp.	
		18	18" Al backward inclined wheel	4.5	1.88		Interp.	
Centrifugal Aluminum		19.5	19.5" Al backward inclined wheel	4.5	1.88		Interp.	
(BI)	Loren Cook	21	21" Al backward inclined wheel	4.5	1.88		Interp.	
		22.5	22.5" Al backward inclined wheel	4.5	1.88		Interp.	
		24.5	24.5" Al backward inclined wheel	4.5	1.88		Interp.	
		27	27" Al backward inclined wheel	4.5	1.88		Interp.	
		30	30" Al backward inclined wheel	4.5	1.88		Interp.	
		33	33" Al backward inclined wheel	4.5	1.88		Interp.	
		36.5	36.5" Al backward inclined wheel	4.5	1.88		Interp.	
		40.25	40.25" Al backward inclined wheel	4.5	1.88		16	
		9	9" Carbon steel single thickness blade	4.5	1.88		10	
		12	12" Carbon steel single thickness blade	4.5	1.88		Interp.	
Carbon steel single thickness blade	Loren Cook	13.5	13.5" Carbon steel single thickness blade	4.5	1.88		Interp.	
(QMX)	LOIGII COOK	15	15" Carbon steel single thickness blade	4.5	1.88		Interp.	
(QIVIA)		16.5	16" Carbon steel single thickness blade	4.5	1.88		Interp.	
		18	18" Carbon steel single thickness blade	4.5	1.88		Interp.	

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Building Code: CBC 2016



Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For base mounted models **TABLE 4.1** Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Seismic Certification Limits:

 $S_{DS} = 2.0 g z/h = 1.0$

 $I_P = 1.5$

•		$S_{DS} = 2.5 g z/h = 0.0$								
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT			
		20.2	20.25" Carbon steel single thickness blade	4.5	1.88		Interp.			
		22.5	22.5" Carbon steel single thickness blade	4.5	1.88		Interp.			
		24.5	24.5" Carbon steel single thickness blade	4.5	1.88		Interp.			
		27	27" Carbon steel single thickness blade	4.5	1.88		Interp.			
		30	30" Carbon steel single thickness blade	4.5	1.88		Interp.			
Carbon steel single thickness blade	Loren Cook	33	33" Carbon steel single thickness blade	4.5	1.88		Interp.			
	Loren Cook	36.5	36.5" Carbon steel single thickness blade	4.5	1.88		Interp.			
(QMX)		40.2	40.25" Carbon steel single thickness blade	4.5	1.88		Interp.			
		44.5	44.5" Carbon steel single thickness blade	4.5	1.88		Interp.			
		49	49" Carbon steel single thickness blade	4.5	1.88		Interp.			
		54	54" Carbon steel single thickness blade	4.5	1.88		Interp.			
		60	60" Carbon steel single thickness blade	4.5	1.88		Interp.			
		9	9" Carbon steel airfoil blade	4.5	1.88		Interp.			
		12	12" Carbon steel airfoil blade	4.5	1.88		Interp.			
		13.5	13.5" Carbon steel airfoil blade	4.5	1.88		Interp.			
Carbon steel airfoil		15	15" Carbon steel airfoil blade	4.5	1.88		Interp.			
blade	Loren Cook	16.5	16.5" Carbon steel airfoil blade	4.5	1.88		Interp.			
(QMX-HP/XP)		18	18" Carbon steel airfoil blade	4.5	1.88		Interp.			
		20.2	20.25" Carbon steel airfoil blade	4.5	1.88		Interp.			
		22.5	22.5" Carbon steel airfoil blade	4.5	1.88		Interp.			
		24.5	24.5" Carbon steel airfoil blade	4.5	1.88		Interp.			

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Building Code: CBC 2016



Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For base mounted models **TABLE 4.1**

Seismic Certification Limits:

SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans Model Line:

 $S_{DS} = 2.0 g z/h = 1.0$

 $I_P = 1.5$

	- -	00.00	$S_{DS} = 2.5 g z/h = 0.0$							
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT			
		27	27" Carbon steel airfoil blade	4.5	1.88		11			
		30	30" Carbon steel airfoil blade	4.5	1.88		Interp.			
		33	33" Carbon steel airfoil blade	4.5	1.88		Interp			
Carbon steel airfoil		36.5	36.5" Carbon steel airfoil blade	4.5	1.88		Interp			
blade	Loren Cook	40.2	40.25" Carbon steel airfoil blade	4.5	1.88		Interp			
(QMX-HP/XP)		44.5	44.5" Carbon steel airfoil blade	4.5	1.88		Interp			
		49	49" Carbon steel airfoil blade	4.5	1.88		Interp			
		54	54" Carbon steel airfoil blade	4.5	1.88		Interp			
		60	60" Carbon steel airfoil blade	4.5	1.88		13			
Nata Cautification In	and the literature of the table of the		tified Cubes were a went Matrix, as listed howers			+1 C+:6: - 1 C				

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Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For base mounted models **TABLE 4.2** Model Line:

SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

 $S_{DS} = 1.95 g z/h=1.0$

Building Code: CBC 2016 $I_P = 1.5$ **Seismic Certification Limits:**

$S_{DS} = 2.5 g z/h = 0.0$									
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =1.95	F _{P/} W _P S _{DS} =2.5	Notes	UUT		
			13.5" Al backward inclined HP wheel	4.39	1.88		4		
			15" Al backward inclined HP wheel	4.39	1.88		Interp.		
		16.5-HP	16.5" Al backward inclined HP wheel	4.39	1.88		Interp.		
		18-HP	18" Al backward inclined HP wheel	4.39	1.88		Interp.		
		19.5-HP	19.5" Al backward inclined HP wheel	4.39	1.88		Interp.		
Centrifugal Aluminum -		21-HP	21" Al backward inclined HP wheel	4.39	1.88		Interp.		
HP (BI)	Loren Cook	22.5-HP	22.5" Al backward inclined HP wheel	4.39	1.88		Interp.		
		24.5-HP	24.5" Al backward inclined HP wheel	4.39	1.88		Interp.		
		27-HP	27" Al backward inclined HP wheel	4.39	1.88		Interp.		
		30-HP	30" Al backward inclined HP wheel	4.39	1.88		Interp.		
		33-HP	33" Al backward inclined HP wheel	4.39	1.88		Interp.		
		36.5-HP	36.5" Al backward inclined HP wheel	4.39	1.88		Interp.		
		40.25-HP	40.25" Al backward inclined HP wheel	4.39	1.88		Interp.		

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Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For ceiling mounted models **TABLE 4.3** Model Line:

SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

 $S_{-1} = 2.0 a \cdot \frac{\pi}{h} = 1.0$

Building Code: CBC 20	16	Seismic Certification	Limits:	2/11 - 1.0	I _P =	1.5
J : 2 J :	-		$S_{DS} = 2.5 g$	z/h = 0.0	r	

Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT
		10	10" Al backward inclined wheel	3.6	1.5		1, 14
Centrifugal Aluminum		12	12" Al backward inclined wheel	3.6	1.5		Interp.
(BI)	Loren Cook	13.5	13.5" Al backward inclined wheel	3.6	1.5		Interp.
		15	15" Al backward inclined wheel	3.6	1.5		Interp.
		16.5	16.5" Al backward inclined wheel	3.6	1.5		3
		9	9" Carbon steel airfoil blade	3.6	1.5		7
		12	12" Carbon steel airfoil blade	3.6	1.5		Interp.
		13.5	13.5" Carbon steel airfoil blade	3.6	1.5		Interp.
		15	15" Carbon steel airfoil blade	3.6	1.5		Interp.
		16.5	16.5" Carbon steel airfoil blade	3.6	1.5		Interp.
		18	18" Carbon steel airfoil blade	3.6	1.5		Interp.
		20.2	20.25" Carbon steel airfoil blade	3.6	1.5		Interp.
Carbon steel airfoil blade	Loren Cook	22.5	22.5" Carbon steel airfoil blade	3.6	1.5		Interp.
(QMX-HP/XP)	Loren Cook	24.5	24.5" Carbon steel airfoil blade	3.6	1.5		Interp.
(QIMX-III /XII)		27	27" Carbon steel airfoil blade	3.6	1.5		8
		30	30" Carbon steel airfoil blade	3.6	1.5		Interp.
		33	33" Carbon steel airfoil blade	3.6	1.5		Interp.
		36.5	36.5" Carbon steel airfoil blade	3.6	1.5		Interp.
		40.2	40.25" Carbon steel airfoil blade	3.6	1.5		Interp.
		44.5	44.5" Carbon steel airfoil blade	3.6	1.5		Interp.
		49	49" Carbon steel airfoil blade	3.6	1.5		Interp.

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Building Code: CBC 2016



Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For ceiling mounted models **TABLE 4.3** Model Line:

Seismic Certification Limits:

SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

 $S_{DS} = 2.0 g z/h = 1.0$ $I_{P} = 1.5$

buntamy coue. cbc 201		$S_{DS} = 2.5 g z/h = 0.0$							
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =2.0	F _{P/} W _P S _{DS} =2.5	Notes	UUT		
Carbon steel airfoil		54	54" Carbon steel airfoil blade	3.6	1.5		Interp.		
blade (QMX-HP/XP)	Loren Cook	60	60" Carbon steel airfoil blade	3.6	1.5		Interp.		
		9	9" Carbon steel single thickness blade	3.6	1.5		Interp.		
		12	12" Carbon steel single thickness blade	3.6	1.5		Interp.		
		13.5	13.5" Carbon steel single thickness blade	3.6	1.5		Interp.		
		15	15" Carbon steel single thickness blade	3.6	1.5		Interp.		
		16.5	16" Carbon steel single thickness blade	3.6	1.5		Interp.		
		18	18" Carbon steel single thickness blade	3.6	1.5		Interp.		
		20.2	20.25" Carbon steel single thickness blade	3.6	1.5		Interp.		
Carbanataslainala		22.5	22.5" Carbon steel single thickness blade	3.6	1.5		Interp.		
Carbon steel single thickness blade	Loren Cook	24.5	24.5" Carbon steel single thickness blade	3.6	1.5		Interp.		
(QMX)	Loren Cook	27	27" Carbon steel single thickness blade	3.6	1.5		Interp.		
(QIIIA)		30	30" Carbon steel single thickness blade	3.6	1.5		Interp.		
		33	33" Carbon steel single thickness blade	3.6	1.5		Interp.		
		36.5	36.5" Carbon steel single thickness blade	3.6	1.5		Interp.		
		40.2	40.25" Carbon steel single thickness blade	3.6	1.5		Interp.		
		44.5	44.5" Carbon steel single thickness blade	3.6	1.5		Interp.		
		49	49" Carbon steel single thickness blade	3.6	1.5		Interp.		
		54	54" Carbon steel single thickness blade	3.6	1.5		Interp.		
		60	60" Carbon steel single thickness blade	3.6	1.5		9		

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Manufacturer: **Loren Cook Company Table Description:** Fan Wheels - For ceiling mounted models **TABLE 4.4** Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

 $S_{DS} = 1.85 g z/h=1.0$ $I_{P} = 1.5$ Building Code: CBC 2016 **Seismic Certification Limits:** $S_{pq} = 2.5 a$ z/b = 0.0

5 DS 2.5 g 2/11 - 0.0				
Description	F _{P/} W _P S _{DS} =1.85	F _{P/} W _P S _{DS} =2.5	Notes	

Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =1.85	F _{P/} W _P S _{DS} =2.5	Notes	UUT
		18	18" Al backward inclined wheel	3.33	1.5		Interp.
		19.5	19.5" Al backward inclined wheel	3.33	1.5		Interp.
		21	21" Al backward inclined wheel	3.33	1.5		Interp.
Contribution of the contribution of		22.5	22.5" Al backward inclined wheel	3.33	1.5		Interp.
Centrifugal Aluminum	Loren Cook	24.5	24.5" Al backward inclined wheel	3.33	1.5		Interp.
(BI)	Loren Cook	27	27" Al backward inclined wheel	3.33	1.5		Interp.
		30	30" Al backward inclined wheel	3.33	1.5		Interp.
		33	33" Al backward inclined wheel	3.33	1.5		Interp.
		36.5	36.5" Al backward inclined wheel	3.33	1.5		Interp.
		40.2	40.25" Al backward inclined wheel	3.33	1.5		Interp.
		13.5-HP	13.5" Al backward inclined HP wheel	3.33	1.5		Interp.
		15-HP	15" Al backward inclined HP wheel	3.33	1.5		Interp.
		16.5-HP	16.5" Al backward inclined HP wheel	3.33	1.5		Interp.
		18-HP	18" Al backward inclined HP wheel	3.33	1.5		Interp.
Centrifugal Aluminum -		19.5-HP	19.5" Al backward inclined HP wheel	3.33	1.5		Interp.
HP (BI)	Loren Cook	21-HP	21" Al backward inclined HP wheel	3.33	1.5		Interp.
		22.5-HP	22.5" Al backward inclined HP wheel	3.33	1.5		Interp.
		24.5-HP	24.5" Al backward inclined HP wheel	3.33	1.5		Interp.
		27-HP	27" Al backward inclined HP wheel	3.33	1.5		Interp.
		30-HP	30" Al backward inclined HP wheel	3.33	1.5		Interp.
		33-HP	33" Al backward inclined HP wheel	3.33	1.5		Interp.

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Manufacturer: Loren Cook Company Table Description: Fan Wheels - For ceiling mounted models SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

TABLE 4.4

Building Code: CBC 2016 Seismic Certification Limits: $S_{DS} = 1.85 \text{ g} \text{ z/h=1.0}$ $S_{DS} = 2.5 \text{ g} \text{ z/h=0.0}$

	•	$S_{DS} = 2.5 g z/h = 0.0$						
Component Type	Manufacturer	Model	Description	F _{P/} W _P S _{DS} =1.85	F _{P/} W _P S _{DS} =2.5	Notes	UUT	
Centrifugal Aluminum -	Loren Cook	36.5-HP	36.5" Al backward inclined HP wheel	3.33	1.5		Interp.	
HP (BI)	LOTETI COOK	40.25-HP	40.25" Al backward inclined HP wheel	3.33	1.5		2	

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UUT 1

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 60 SQN-B Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum Fan wheel

Options/Subcomponent Summary:

Baldor 3/4 hp Belt Drive motor; Motor cover/Belt guard; Universal mounting feet; Access doors

			UUT Pro	perties						
Weight		Dimension (in)				Lowes	t Natural	Frequen	cy (Hz)	
(lb)	(lb) Depth Width Height						Side	-Side	Ver	tical
100	100 22 14 26.5						N	/A	N	/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC15	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using Caldyne HH30 ET80 isolators and 1/4" diameter carbon steel cables. 3/8" ASTM A307 Grade A steel threaded rods connected to UUT through (2) 1/4" thick angle brackets fastened using (1) 5/16" Grade 2 bolt and bolted together with (2) 3/8" Grade 5 bolts. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 2

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 402 SQN-HP Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

TECO-Westinghouse 15 hp Belt Drive motor; Motor cover/Belt guard; Universal mounting feet; Access doors

			UUT Pro	perties						
Weight				Lowes	t Natural	Frequen	cy (Hz)	·		
(lb.)	(lb.) Depth Width Height					-Back	Side	-Side	Ver	tical
800	800 50.3 55.1				N	/A	N	/A	N	/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC1	56	1.85	1.0	1.5	2.96	2.22	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using HH30 ET347 isolators and 3/8" carbon steel cables. 1/2"ASTM A307 Grade A threaded rod connected to UUT using (2) 1/4" thick angle brackets fastened using (2) 5/16" Grade 2 bolts and bolted together with (2) 3/8" Grade 5 bolts. Field installations require 2 cable restraints at each corner and a single universal mounting foot at each corner with cable attached as close to the unit as possible. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 3

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 165 SQN-D Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

A.O. Smith 2 hp Direct Drive Motor; Universal mounting feet; Access doors

			UUT Pro	perties						
Weight		Dimension (in)			Lowes	t Natural	Frequen	cy (Hz)		
(lb.)	Depth	ight	Front	-Back	Side	-Side	Vert	tical		
130	130 27 25.4 52.7				N/A N/A					/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Build	ding Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CE	3C 2016	ICC-ES AC1	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using HH30 ET80 isolators with 1/4" carbon steel cables. 3/8" ASTM A307 Grade A threaded rods connected to UUT through (1) 1/4" thick angle bracket fastened using (1) 5/16" Grade 2 bolt. Field installations require 2 cable restraints at each corner. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 4

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 135 SQN-HP Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

WEG 1.5 hp Belt Drive Motor; Motor cover/Belt guard; Universal mounting feet; Access doors

			UUT Pro	perties							
Weight		Dimension (in)		Lowest Natural Frequency (Hz)							
(lb.) Depth Width Height					Front-Back Side-Side			Ver	tical		
135	22.3 20.8 33.				2	.5	3	.1	9	.0	
		UUT Highest I	Passed Se	ismic Run	Informa	tion					
Build	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
СВ	C 2016	ICC-ES AC1	56	1.95	1.0	1.5	3.1	2.3	1.67	0.67	

Test Mounting Details:



Floor mounted - isolated using Caldyne JQAE106K isolators. Isolators mounted directly to 1/4" carbon steel angle brackets which are attached to the side of the UUT at the base using (1) 5/16" Grade 2 bolt. Each isolator was attached to the table using (2) 1/2" Grade 5 bolts. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 5

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 402 SQN-B Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

Baldor 10 hp Belt Drive motor; Motor cover/Belt guard; Universal mounting feet; Access doors

			UUT Pro	nortics						
			UUT PIC	perties						
Weight		Dimension (in)				Lowes	t Natural	Frequen	cy (Hz)	
(lb.)	Depth	ight	Front	-Back	Side	-Side	Ver	tical		
735	50.3	55.1	72	2.4	3	.2	3	.4	7	.7
		UUT Highest F	Passed Se	ismic Run	Informa	tion				
Buildi	ing Code	Test Criteri	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC15	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Floor mounted - isolated using Caldyne JQBKS-ET473 isolators. Isolators mounted directly to 1/4" carbon steel angle brackets which are attached to the side of the UUT at the base using (2) 5/16" Grade 2 bolts. Each isolator was attached to the table using (2) 1/2" Grade 5 bolts. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 6

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 165 SQN-D Serial Number: N/A

Product Construction Summary:

18 ga. Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

A.O. Smith 2 hp Direct Drive motor; Universal mounting feet; Access doors

			UUT Pro	perties							
Weight		Dimension (in)		Lowest Natural Frequency (Hz)							
(lb.) Depth Width Height					Front-Back Side-Side			Ver	tical		
130	130 27.3 25.3 52.7					.0	3	.7	7	.0	
		UUT Highest I	Passed Se	ismic Run	Informa	tion					
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
СВО	C 2016	ICC-ES AC1	56	1.95	1.0	1.5	3.1	2.3	1.67	0.67	

Test Mounting Details:





Floor mounted - isolated using Caldyne JQAE79K isolators. The isolators are mounted directly to 1/4" carbon steel angle brackets which are attached to the side of the UUT at the base using (1) 5/16" Grade 2 bolt. Each isolator was attached to the table using (2) 1/2" Grade 5 bolts. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 7

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 90 QMX-HP Serial Number: N/A

Product Construction Summary:

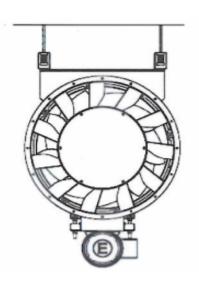
Heavy gauge carbon steel housing and fan wheel. Fan housing attached to carbon steel base frame.

Options/Subcomponent Summary:

Baldor 3 hp Belt Drive motor in position "E"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

			UUT Pro	perties						
Weight				Lowes	t Natural	Frequen	cy (Hz)	·		
(lb.)	(lb.) Depth Width Height					-Back	Side	-Side	Ver	tical
180 19.8 15.9				0.0	N	/A	N	/A	N	/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC1	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using Caldyne HH30-ET129 isolators. The UUT was attached to the isolators using 20" long 3/8" ASTM A307 Grade A threaded rod and 1/4" carbon steel cable at each corner. Field installations require 2 cable restraints at each corner and compression struts on each hanging rod. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT8

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 270 QMX-XP Serial Number: N/A

Product Construction Summary:

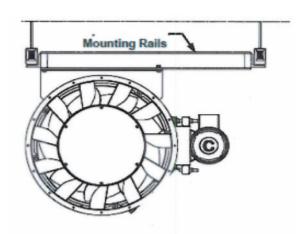
Heavy gauge carbon steel housing and fan wheel. Fan housing attached to a carbon steel base frame.

Options/Subcomponent Summary:

Baldor 25 hp Belt Drive motor in position "C"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

			UUT Pro	perties						
Weight				Lowes	t Natural	Frequen	cy (Hz)			
(lb.)	(lb.) Depth Width Height						Side	-Side	Vert	tical
1,370	1,370 47 41.3 62.9				N	/A	N	/A	N,	/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Build	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВ	C 2016	ICC-ES AC15	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using Caldyne HH30-ET940 isolators. The UUT was connected to the isolators using 24" long 3/4" ASTM A307 Grade A threaded rod and 3/8" carbon steel cable at each corner. Field installations require 2 cable restraints at each corner and compression struts on each hanging rod. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT9

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 600 QMX Serial Number: N/A

Product Construction Summary:

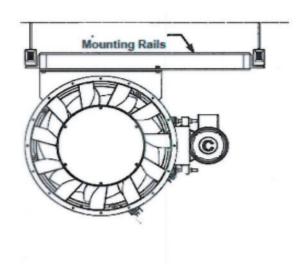
Heavy gauge carbon steel housing and fan wheel. Fan housing attached to a carbon steel base frame.

Options/Subcomponent Summary:

Baldor 100 hp Belt Drive motor in position "C"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

			UUT Pro	perties						
Weight		Dimension (in)			Lowes	t Natural	Frequen	cy (Hz)		
(lb.)	ight	Front-Back Side-Side			Vertical					
6,070	95.5 87.9 122.1				N	/A	N	/A	N	/A
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC1	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Ceiling mounted - isolated using Caldyne HH30-ET2060 isolators. The UUT was connected to the isolators using 24" long 1" ASTM A307 Grade A threaded rod with 3/8" carbon steel cable at each corner. Field installations require 2 cable restraints at each corner. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

TRU PROJECT NO. 16037



UUT 10

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 90 QMX **Serial Number:** N/A

Product Construction Summary:

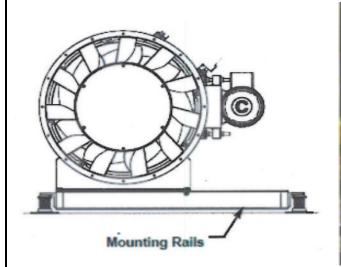
Heavy gauge carbon steel housing and fan wheel. Fan housing attached to a carbon steel base frame.

Options/Subcomponent Summary:

Baldor 3 hp Belt Drive motor in position "C"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

		-	UUT Pro	perties			•			•
Weight				Lowes	t Natural	Frequen	cy (Hz)			
(lb.)	(lb.) Depth Width Height						Side	-Side	Ver	tical
240	19.9	15.9	3:	1.3	4	.9	7	.7	11	L.4
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Build	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВ	C 2016	ICC-ES AC15	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Floor mounted - isolated using JQAE106K isolators at each corner. Each isolator was attached to the table using (2) 1/2" Grade 5 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

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TRU PROJECT NO. 16037



UUT 11

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

270 QMX-HP **Serial Number:** N/A

Product Construction Summary:

Model Number:

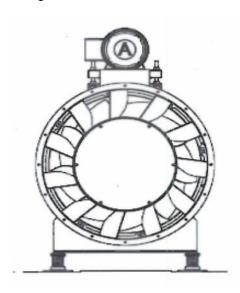
Heavy gauge carbon steel housing and fan wheel. Fan housing attached to a carbon steel base frame.

Options/Subcomponent Summary:

Baldor 25 hp Belt Drive motor in position "A"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

			UUT Pro	perties						
Weight				Lowes	t Natural	Frequen	cy (Hz)			
(lb.)	(lb.) Depth Width Height						Side	-Side	Vert	tical
1,085	1,085 47 41.3 62.9				4	.9	7	.7	5.	.4
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Build	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВ	C 2016	ICC-ES AC15	56	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Floor mounted - isolated using a Caldyne JQBET473K isolator at each corner. Each isolator was attached to the table using (2) 1/2" Grade 5 bolts.

TRU PROJECT NO. 16037



UUT 13

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 600 QMX-HP Serial Number: N/A

Product Construction Summary:

Heavy gauge carbon steel housing and fan wheel. Fan housing attached to a carbon steel base frame.

Options/Subcomponent Summary:

Baldor 100 hp Belt Drive motor in position "A"; Motor cover/Belt guard; Adjustable motor base; Inlet/outlet collars; Extended lube lines

			UUT Pro	perties						
Weight		Dimension (in)				Lowes	t Natural	Frequen	cy (Hz)	
(lb.)	(lb.) Depth Width I					-Back	Side	-Side	Vertical	
7,385	95.5	87.9	12	2.1	2	.6	2	.1	5	.1
		UUT Highest I	Passed Se	ismic Run	Informa	tion				
Buildi	ng Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CDC	CBC 2016 ICC-ES		= C	2.0	1.0	1.5	3.2	2.4	2.13	0.85
CBC	, 2010	ICC-ES AC		3.2	0.0	1.5	3.2	2.4	2.13	0.85

Test Mounting Details:



Floor mounted - isolated using (4) Mason SSLFH-C-1750 isolators w/ (1) 1/2" Grade 8 bolt attaching Isolator to unit & (4) 5/8" Grade 8 bolts attaching each isolator to the table.

TRU PROJECT NO. 16037



UUT 14

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 70 SQN-D Serial Number: N/A

Product Construction Summary:

Galvanized carbon steel housing

Options/Subcomponent Summary:

10" Al backward inclined wheel - Carbon steel housing - Removable access doors - Inlet and discharge duct collars - Universal mounting feet - 1/2 HP, 120/208-240VAC EC Motor

			UUT Pro	operties								
Weight Dimension (in)					Lowest Natural Frequency (Hz)							
(lb.)	Depth	Width	Height		Front	-Back	Side-Side		Vertical			
50	14	12 25.		5.6	N/A		N/A		N/A			
	UUT Highest Passed Seismic Run Information											
Build	ling Code	Test Criter	Test Criteria		z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)		
CBC 2016		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	2.13	0.85		
				3.2	0.0							

Test Mounting Details:



Ceiling suspended - isolated using Kinetics SH-1-70 spring isolators with (4) 18" long by 3/8" ASTM A307 Grade A threaded drop rods and (8) KSWC-2 cable braces.

TRU PROJECT NO. 16037



UUT 15

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 70 SQN-D Serial Number: N/A

Product Construction Summary:

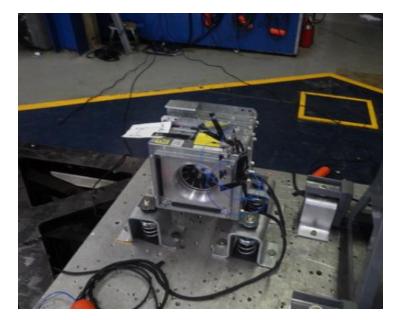
Galvanized carbon steel housing

Options/Subcomponent Summary:

10" Al backward inclined wheel - Carbon steel housing - Removable access doors - Inlet and discharge duct collars - Universal mounting feet - 1/6 HP, 120/208-240VAC EC Motor

UUT Properties												
Weight Dimension (in)					Lowest Natural Frequency (Hz)							
(lb.) Depth		Width	Height		Front-Back		Side-Side		Vertical			
86	14	12 2		5.6	12.9		12.5		> 33.3			
	UUT Highest Passed Seismic Run Information											
Build	Building Code		Test Criteria		z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)		
CBC 2016		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	2.13	0.85		
				3.2	0.0							

Test Mounting Details:



Floor mounted - isolated using (4) SRS-100 isolators w/ (1) 5/8" Grade 8 bolt attaching Isolator to unit & (2) 5/8" Grade 8 bolts attaching each isolator to the table.

TRU PROJECT NO. 16037



UUT 16

Manufacturer: Loren Cook Company

Model Line: SQN-B, SQN-HP, SQN-D, QMX, QMX-HP, QMX-XP Fans

Model Number: 402 SQN-B Serial Number: N/A

Product Construction Summary:

Galvanized carbon steel housing; Aluminum fan wheel

Options/Subcomponent Summary:

10 hp Teco motor; 40.25" Al backward inclined wheel; removable access doors; Universal mounting feet; Motor cover/Belt guard.

			UUT Pro	operties							
Weight		Dimension (in)			Lowest Natural Frequency (Hz)						
(lb.)	Depth	Width	Height		Front	-Back	Side-Side		Vertical		
805	50.3	72.4 72		2.4	2.4		3.4		9.8		
UUT Highest Passed Seismic Run Information											
Building Code		Test Criteria		S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2016		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	2.13	0.85	
				3.2	0.0						

Test Mounting Details:



Floor mounted - isolated using (4) SRS-450 isolators w/ (1) 5/8" Grade 8 bolt attaching Isolator to unit & (2) 5/8" Grade 8 bolts attaching each isolator to the table.