

OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

APPI ICATION F	OR OSHPD SPECIAL SEISMIC	OFFICE USE ONLY
-	PREAPPROVAL (OSP)	APPLICATION #: OSP-0033
OSHPD Special Seis	mic Certification Preapproval (OSP)	
Type: New X	Renewal	
Manufacturer Inform	ation	
Manufacturer: Loren	Cook Company	
Manufacturer's Technica	al Representative: Bradley Skidmore	
Mailing Address: 2015 E	E Dale St., Springfield, MO 65803	
Telephone: (417) 869-6	Email: bskidmore@lorence	pok.com
	DEORCODECON	
Product Information	L'NE OCLIDD	</td
Product Name: Exhaust	/Smoke Control Fans	YZ.
Product Type: NA	QSP-0033	- The second sec
Product Model Number:	ACRU, VCR <mark>, AC</mark> SC	
General Description:	Centrifugal Exhaust Fans for roof mount up to and inc Ventilation (ACRU), kitchen ventilation (VCR) and sm enhancements made to the test units and modification the tests shall be incorporated into the production uni	oke control systems (ACSC). Seismic ns required to address anomalies observed during
Mounting Description:	Rigid, Floor Mounted	310
		Ser. V
Applicant Informatio	n RNIA DUMA CO	
Applicant Company Nam	ne: Structural Integrity Associates, Inc. dba TRU Comp	bliance
Contact Person: Galen	Reid	
Mailing Address: 5215 H	Hellyer Ave. Suite 210, San Jose, CA 95138	
Telephone: (541) 604-7	225 Email: greid@structint.cor	n
Title:		

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY

OSHPD



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

California Licensed Structural Engineer	Responsible for the Engineering and Test Report(s)
Company Name: STRUCTURAL INTEGRITY	ASSOCIATES, INC.
Name: Andrew Coughlin	California License Number: S6082
Mailing Address: 5215 Hellyer Ave, Suite 101,	San Jose, CA 95138-1025
Telephone: (844) 878-0200	Email: acoughlin@structint.com
Certification Method	
GR-63-Core X ICC-ES AC1	56 IEEE 344 IEEE 693 NEBS 3
Other (Please Specify):	
	FORCODECO
Testing Laboratory	EDFORMAN
Company Name: CLARK TESTING LABORAT	ORY, INC. SHOD
Contact Person: Zach Fischer	
Mailing Address: 1801 Route 51, Jefferson Hil	Is PA 15025
Telephone: (412) 387-1676	Email:
Company Name: ENVIRONMENTAL TESTING	G LABORATORIES, INC. (ETL)
Contact Person: Jeremy Lange	DATE: 09/03/2020
Mailing Address: 11034 Indian Trail, Dallas TX	(75229-3513
Telephone: (972) 247-9657	Email: starley@etIdallas.com
	TVIA BUILDING COT

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Seismic Parameters	
Design Basis of Equipment or Components	$s (F_p/W_p) = 1.45$
SDS (Design spectral response accel	eration at short period, g) = _1.93
ap (Amplification factor) =	2.5
R _p (Response modification factor) =	6.0
Ω0 (System overstrength factor) =	2.0
Ip (Importance factor) =	1.5
z/h (Height ratio factor) =	1
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment CODE
	BY: Mohammad Aliaari DATE: 09/03/2020

OSHPD	OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025										
Date:	9/3/2020										
Name:	Mohammad Aliaari		Title:	Senior Structural Engineer							
Special	Seismic Certification Valid Up to: SDS (g) =	1.93	z/h =	1							
Conditio	n of Approval (if applicable):										

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STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

OSHPD

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX





1900240-CR-001 R0

lanufacturer:	Loren Cook Company					TABLI	F 1
Model Line:	ACRU, VCR, ACSC						
	nstruction Summary:						
	luminum construction	and alumin	um wheel				
Direct Drive Motor							
Certified Options Sur	mm 2/1//						
=	lass insulation; Birdscre	en					
Mounting Configurat	ion:						
Rigid base mounted or	n up to 24" carbon steel	l curb	RCO	DECO			
lote: Installed mounting co	onfiguration must be of simila	r configuratio	n and equiva	alent strength	and stiffnes	s to those tested.	
Building Code:	CBC 2019	Seismic (Certificati	on Limits:	S _{DS} =	1.93 g z/h=1.0 Ip	= <i>1.5</i>
	A A	Di	mensions	7in83	Weight		
Model Line	Model	Depth	Width	Height	(lb)	Notes	UUT
	70	B ^{17.1} /10	ha n m	ad 40.4aa	ri 59	UUT: ACRUD tested - 24" curb	6
	90 🔾	21.1	21.1	40.4	67	0	Interp
	100	21.1	21,1	40.4 ¹	70 ²	UUT: ACRUD tested - 8" curb	4
	101	25.3	25.3	46.4	71		Interp
ACRUD	120	30.2	30.2	50.2	110		Interp
ACRUD-HP	135	30.2	30.2	50.6	116		Interp
ACRUD-XP	150	34.7	34.7	54.3	132	UUT: ACRUD tested - 24" curb	8
VCRD	165	34.7	34.7	54.3	136		Interp
VCRD-HP	180	39.5	39.5-	56.9	150		Interp
VCRD-XP	195	39.5	39.5	57.5	129	UUT 3: VCRD-HP tested - 24" curb	3,7
	195	59.5	59.5	51.5	174.5	UUT 7: VCRD-XP tested - 24" curb	5,1
(Direct Drive)	210	45.3	45.3	59.4	262		Interp
	225	45.3	45.3	59.1	286		Interp
	245	49.3	49.3	62.1	310		Interp
	270	49.3	49.3	62.1	333		Interp
	300	54.3	54.3	65.4	383	UUT: ACRUD-XP tested - 24" curb	9
isted boight is with 2	4" curb. Height of teste	d UUT with	8" curh is	24 4"			

Page 4 of 17

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX





1900240-CR-001 R0

Manufacturer:	Loren Cook Company					TADIC	·
Model Line:	ACRU, VCR, ACSC					TABLE	. 2
Certified Product Co	onstruction Summary:						
ASCS: Carbon steel ba	ase with aluminum const	truction, ca	rbon steel	wheels.			
	Im base with aluminum	constructic	on and alur	minum wh	eel.		
Belt Drive							
Certified Options Su	mmary:						
With or without fiberg	glass insulation; Birdscre	en					
Mounting Configura							
-	on up to 24" carbon steel onfiguration must be of simila			DE CO		ss to those tested.	
Building Code:	CBC 2019		NCH	on Limits:	1		1.5
Model Line	R	Di	mensions	(in)33	Weight	Notes	υυτ
Model Line	Model	Depth	Width	Height	(lb)	Notes	
	100	B ^{25.3} √	oh 25.3m	ad 42.2aa	ari 76		Extrap.
	120	30.2	30.2	50.3	114	0	Extrap.
	13 <mark>5</mark>	30.2	30.2	50.6	121		Extrap.
	150	34.7	34.7	52.3	143		Extrap.
ACSC	165	34.7	34.7	52.8	156		Extrap.
ACSC-HP	180	39.4	39.4	56.9	189		Extrap.
ACSC-XP	195	39.4	39.4	57.4	206		Extrap.
<i>/_</i>	210	45.3	45.3	59.4	334		Extrap.
(Belt Drive)	225	45.3	45.3	59.1	367		Extrap.
	245	49.3	49.3	65.1	430	UUT: ACSC tested - 24" curb	1
	270	49.3	49.3	65.1	458		Interp.
	300	54.3	54.3	70.9	466		Interp.
	330	54.3	54.3	74.4	479	UUT: ACSC tested - 24" curb	5
	100	25.3	25.3	42.2	70		Interp.
	120	30.2	30.2	50.3	106		Interp.
ACRUB	135	30.2	30.2	50.6	112		Interp.
ACRUB-HP	150	34.7	34.7	52.3	132		Interp.
ACRUB-XP	165	34.7	34.7	52.8	143		Interp.
VCR	180	39.4	39.4	56.9	175		Interp.
VCR-HP	195	39.4	39.4	57.4	192		Interp.
VCR-XP	210	45.3	45.3	59.4	315		Interp.
(Belt Drive)	225	45.3	45.3	59.1	342		Interp.
	245	49.3	49.3	62.1	390		Interp.
	270	49.3	49.3	62.1	418		Interp.

TRU Compliance, by Structural Integrity Associates, Inc.

844-TRU-0200 | info@trucompliance.com

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX





1900240-CR-001 R0

Manufacturer:	Loren Cook Company							2
Model Line:	ACRU, VCR, ACSC							
	estruction Summary: we with aluminum const n base with aluminum c				eel.			
<i>Certified Options Sun</i> With or without fibergla	nmary: ass insulation; Birdscre	en						
-	on: up to 24" carbon steel nfiguration must be of similar			DE CO lent strength		s to those	tested.	
Building Code:	CBC 2019	Seismic (Certificati	on Limits:	S _{DS} =	1.93 g	<i>z/h=1.0 I</i> _P =	1.5
Model Line	Model	Die Depth	mensions Width	(in)33 Height	Weight (lb)	m	Notes	υυτ
ACRUB	300	54.3	h 54.3m	ad 70.9	476			Interp.
ACRUB-HP	330	54.3	54.3	71.4	542	0		Interp.
ACRUB-XP	365	64.3	64.3	73.4	592			Interp.
VCR	402	64.3	64.3	2020- 75.7	612			Interp.
VCR-HP	445	76.3	76.3	78.2	624	\sim		Interp.
VCR-XP (Belt Drive)	490	76.3	76.3	82.1	637	UUT: A	CRUB tested - 24" curb	10
(Delt Dilve)								
		TVIA		ING C	0V			
		- A	BUILI	DING				

SPECIAL SEISMIC CERTIFICATION **CERTIFIED SUBCOMPONENT MATRIX**





1900240-CR-001 R0

<i>Manufacturer: Model Line:</i>	Loren Cook Company ACRU, VCR, ACSC		TABLE 3		
Building Code:	CBC 2019	Seismic Certifica	<i>tion Limits:</i> S _{DS} = 1.93 g z/h=1.0	<i>I_P</i> = 1.5	
Component Type	Manufacturer	Model	OR CODE Description	Note	s UUT
		1/3 HP	Weight: 29 lbs.		Extrap.
			OSHPD Y		Extrap.
	Baldor/Reliance	3/4 HP	Weight: 32 lbs.	UUT: 230V - 1 phase	3
		Q.	OSP-0033		Interp.
		2 HP	Weight: 48 lbs.	UUT: 460V - 3 phase	1
		1/6 HP _{BV} .	Weight: 23 lbs. Aliaari		Extrap.
		O.			Extrap.
	WEG	5 HP	Weight: 62 lbs.	UUT: 460V - 3 phase	5
Motor		VM DAT	E. 09/03/2020		Interp.
		7.5 HP	Weight: 77 lbs.	UUT: 460V - 3 phase	10
	Quaece	1/4 HP	Weight: 22 lbs.	UUT: 115V - 1 phase	4
		1/6 HP	Weight: 9 lbs.	UUT: 120V - 1 phase	6
	McMillan		i COV		Interp.
		1/4 HP	Weight: 12 lbs.	UUT: 120V - 1 phase	7
		1 HP	Weight: 18 lbs.	UUT: 460V - 3 phase	8
	Marathon				Interp.
		5 HP	Weight: 108 lbs.	UUT: 460V - 3 phase	9
		CIMR-VU4A0001A	Weight: 2.6 lbs.	Motor Speed Controlle	er Extrap.
		CIMR-VU4A0002A	Weight: 3.1 lbs.	Motor Speed Controlle	
		CIMR-VU4A0004A	Weight: 3.5 lbs.	Motor Speed Controlle	er Interp.
Motor Drives	Yaskawa –	CIMR-VU4A0005A	Weight: 4.2 lbs.	Motor Speed Controlle	· · ·
		CIMR-VU4A0007A	Weight: 4.2 lbs.	Motor Speed Controlle	
		 CIMR-VU4A0009A	Weight: 4.2 lbs.	Motor Speed Controlle	

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1900240-CR-001 R0

UUT	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	۱ _Р
1	245 ACSC (Belt Drive)	Test Report EL8964	Clark Dynamic Test Laboratory	2.28 2.28	1.0 0.0	1.5
3	195 VCRD-HP (Direct Drive)	12695 Rev. 1	Environment Testing Laboratory (ETL)	1.93 1.93	1.0 0.0	1.5
4	100 ACRUD (Direct Drive)	12695 Rev. 1	Environment Testing Laboratory (ETL)	2.50 2.50	1.0 0.0	1.5
5	330 ACSC (Belt Drive)	12695 Rev. 1 DE C	Environment Testing Laboratory (ETL)	2.50 2.50	1.0 0.0	1.
6	70 ACRUD (Direct Drive)	15331 Rev. 2	Environment Testing Laboratory (ETL)	1.93 1.93	1.0 0.0	1.
7	195 VCRD-XP (Direct Drive)	15331 Rev. 2 0033	Environment Testing Laboratory (ETL)	1.93 1.93	1.0 0.0	1.
8	150 ACRUD (Direct Drive)	15331 Rev. 2 By: Mohammad Al	Environment Testing agriLaboratory (ETL)	1.93 1.93	1.0 0.0	1.
9	300 ACRUD-XP (Direct Drive)	15331 Rev. 2	Environment Testing Laboratory (ETL)	1.93 1.93	1.0 0.0	1.
10	490 ACRUB (Belt Drive)	DATE: 09/03/2020 1900240-TR-001	Environment Testing Laboratory (ETL)	2.0	1.0	1.
			DE.V			
		ORNIA BUILDING	COL			
otes:			1			

1900240-CR-001 R0





Manufacturer:	Loren Coc	k Company								•
Model Line:	ACRU, VCI	R, ACSC						Ľ	JUT	L
Model Number:	245 ACSC	(Belt Drive)			Serial Ni	umber:	N/A			
Product Constru	ction Summary	•								
Belt drive upblast	spun aluminum	ventilator. Carbon s	steel base a	ind carbon	steel wh	eel. Fibe	rglass insi	ulation pa	ad laying	on top
of the support ba	se.									
Certification exclu	ides dampers ar	nd controllers - not te	ested							
	-	se; carbon steel roof	Curb with a OR CO	DEC	24" Mp					
Weight (lb)	Denth	Dimension (in)	V D I				t Natural	-	cy (Hz) Vertical	
430	Depth	Width	Hei	gnt .0033	Front			-Side		
	49.3	49.3 les weight and height of		.0000	6.	3	1.	.0	1:	5.6
Note: Onit weight		UUT Highest		icmic Bun	Inform	tion				
Buildin	a Codo	Test Crite	viononni		z/h		A (a)	A (g)	A (g)	A (a)
Bulluin	5 COUE	Test Citte	110	S_{DS} (g) 2.28	1.0	I _P	MFLX-H (B)	A _{RIG-H} (g)	MFLX-V (B)	MRIG-V (8)
CBC	2019	ICC-ES AC156	(2015))/()	2.28	0.0	1.5	3.65	2.74	1.52	0.61
Test Mounting D				2.20	0.0					



UUT was mounted directly to the seismic table using (24) 3/8"-16 socket cap bolts with flat washers and lock washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

1900240-CR-001 R0





Manufacturer:	Loren Coo	ok Company								2
Model Line:	ACRU, VCI	R, ACSC						ļ	JUT	3
Model Number:	195 VCRD	- HP (Direct Drive)			Serial Ni	umber:	N/A			
Product Constru	ction Summary	/:								
		um ventilator. Alumini	um base a	and alumin	um whee	el. Fiberg	lass insula	ation pad	laying on	top of
the support base.										
	-	nd controllers - not tes	sted							
Options/Subcom										
3/4HP WEG moto	r 230V single pha	ase; carbon steel roof	curb with	n a height o	f 24"					
		E	ORC	ODE_{C}						
		EDI		1	Mp,	<u> </u>				
Weight		Dimension (in)	UUT Pro	operties ¹		1.0000	+ Notural	Fraguas	ov (H=)	
Weight (lb)	Depth	Width		ight	Eront	Lowest Natural Front-Back Side				tical
175	39.5	39.5	000	7.5033		13	Side-Side 6.67		Vertical 6.70	
-		des weight and height of					0.	01	0.	10
		UUT Highest I		eismic Run	Informa	ntion				
Buildin	g Code	Test Criter		S _{DS} (g)	z/h	I _P O	А _{гі х-н} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
	2019		20100/0	1,93	1.0	1.5	3.09		1.29	
CBC	2019	ICC-ES AC156	20139/0	1.93	0.0	1.5	3.09	2.32	1.29	0.51
Test Mounting D	etails:	S		+		2				-
		DECT IN COMMENT			-					
	Sec.				OF					
	0		A DI	LIG	CO-	distant				
			BUI	LDING		x-1-2	1			
	1	Constant of Street, or other	J Caller			-				
	- and	a state	1	TH_	-					
	1	THE R	1							
	1	No. of the second	1	of the local			- U	UT - 3		
		A DATE OF THE SE	-	(and the last			4			
	No. March	THE LOO			,Z		1			
		and the second second	1	1	-	-	1000			

UUT was mounted directly to the seismic table using (24) 3/8"-16 Grade 8 socket cap bolts with flat washers and lock washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.





1900240-CR-001 R0

Manufacturer:	Loren Coo	ok Company								л	
Model Line:	ACRU, VCI	R, ACSC							JUT	4	
Model Number:	100 ACRU	D (Direct Drive)			Serial Nı	ımber:	N/A				
Product Constru	iction Summary	/:									
•	•	um ventilator. Alumin		and alumin	um whee	l.					
Certification excl	udes dampers ai	nd controllers - not te	sted								
Options/Subcon	-	•									
1/4HP Quaece mo	otor 115V single	phase; carbon steel ro	oof curb w	ith a heigh	t of 8"						
		E	ORCO	DDEC							
		EDP		MWWIIII	Mo						
			UUT Pro	perties ¹					()		
Weight		Dimension (in)	JJI					Natural Frequency (Hz)			
(lb)	Depth	Width	000	ight	Front-Back		Side-Side		Vertical		
42	21.2	21.2		4.4033	16.	32	15	.76	22	.55	
Note: Unit weigh	t and height inclue	de weight and height of									
		UUT Highest									
Buildir	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	
CBC	2019	ICC-ES AC156 (2015)9/0	3/ 20 20 2.5	1.0	1.5	4	3	1.67	0.67	
				2.5	0.0	$\sqrt{\alpha}$					
Test Mounting D	etails:	T				5					
					- 4		6				
	-			INAR	00	-					
	R. C.		4 BLUH	DING	EP	-	1				
			ALC: N			1 2 1	d				
			「見たい」	42.							
	TRAC										
		COLUMN TO DE LA	A REAL PROPERTY.	Status and							

Contents were included in testing per operating conditions. TRU Compliance, by Structural Integrity Associates, Inc.

UUT - 4

UUT was mounted directly to the seismic table using (12) 3/8"-16 Grade 8 socket cap bolts with flat washers and lock washers.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

1900240-CR-001 R0





Manufacturer:	Loren Coo	k Company						l _		
Model Line:	ACRU, VCR							ו נ	JUT	5
Model Number:	330 ACSC ((Belt Drive)			Serial N	umber:	N/A			
top of the suppor	t spun aluminum t base.	: ventilator. Galvanize d controllers - not te		se and car	bon stee	l wheel. I	Fiberglass	insulatio	n pad lay	ing on
<i>Options/Subcom</i> 5HP WEG motor 4	-	rry: ; carbon steel roof cu	or CC	neight of 2	4" 0 _{Ma}					
		NE	UUT Pro	perties ¹						
Weight		Dimension (in)	<u>U51</u>	1PL			t Natural			• •
(lb)	Depth	Width	Hei	0000	Front-Back		Side-Side		Vertical 8.78	
479 ^[1] Note: Unit weight	54.3 t and height includ	54.3 les weight and height o		4033	9.	20	9.	13	δ.	78
Note: Unit weight		UUT Highest		eismic Rut	Informa	ation				
Buildir	ng Code	Test Criter	nonann	S _{DS} (g)	z/h		A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
	2019	ICC-ES AC156 (20159/0	3/2020 2.5	1.0 0.0	1.5	4	3	1.67	0.67
Test Mounting D	UUT - 5			PING						

UUT was mounted directly to the seismic table using (40) 3/8"-16 Grade 8 socket cap bolts with flat washers and lock washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

1900240-CR-001 R0





Manufacturer: Loren Cook Company Model Line: ACRU, VCR, ACSC Model Number: T0 ACRUD (Direct Drive) Serial Number: N/A Product Construction Summary: All aluminum housing; Direct drive upblast spun aluminum; Backward inclined aluminum fan wheel; Two piece top cap with height extension Certification excludes dampers - not tested. Options/Subcomponent Summary: 1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties ¹ Weight Dimension (in) Lowest Natural Frequency (Hz) Weight Dimension (in) Lowest Natural Frequency (Hz)	ACRU, VCR, A mber: 70 ACRUD (D postruction Summary:	
Model Number: 70 ACRUD (Direct Drive) Serial Number: N/A Product Construction Summary: All aluminum housing; Direct drive upblast spun aluminum; Backward inclined aluminum fan wheel; Two piece top cap with height extension Certification excludes dampers - not tested. Options/Subcomponent Summary: 1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties ¹ Weight Dimension (in)	nber: 70 ACRUD (D	del Line:
All aluminum housing; Direct drive upblast spun aluminum; Backward inclined aluminum fan wheel; Two piece top cap with height extension Certification excludes dampers - not tested. Options/Subcomponent Summary: 1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties ¹ Weight Dimension (in) Lowest Natural Frequency (Hz)	-	del Number:
height extension Certification excludes dampers - not tested. Options/Subcomponent Summary: 1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties ¹ Weight Dimension (in) Lowest Natural Frequency (Hz)	m housing; Direct drive u	duct Constr
Certification excludes dampers - not tested.	-	Iuminum ho
Options/Subcomponent Summary: 1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties ¹ Weight Dimension (in)		-
1/6HP Mcmillan motor; galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Birdscreen UUT Properties 1 Weight Dimension (in)	n excludes dampers - not	ification exc
Electronically commutated Vari-flow motor; Birdscreen	• •	
UUT Properties 1 Weight Dimension (in) Lowest Natural Frequency (Hz)		
Weight Dimension (in) Lowest Natural Frequency (Hz)	lly commutated Vari-flow	tronically co
Weight Dimension (in) Lowest Natural Frequency (Hz)		
(lb) Depth / Width Height Front-Back Side-Side Vertica		-
59 17.1 USF40.4 U33 12.17 11.41 19.43		
^[1] Note: Unit weight and height includes weight and height of curb.	weight and height includes)te: Unit weig
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 _{RI}	uilding Code	Buildi
CBC 2019 ICC-ES AC156 (2015) / 0 2/1,93 1.0 1.5 3.09 2.32 1.29 0	CBC 2019	CBC
Test Mounting Details:		t mounting f
Fan to curb (hinged base): (15) #12 sheet metal screws (5 per side).		
Curb to table: (12) 3/8" grade 8 socket cap bolts with flat washers (3 bolts/washers per side).		
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.	le: (12) 3/8" grade 8 sock	b to table: (1

1900240-CR-001 R0





Manufacturer:	Loren Cool	k Company								_	
Model Line:	ACRU, VCR	, ACSC							JUT	(
Model Number:	195 VCRD->	XP (Direct Drive)			Serial Nu	umber:	N/A				
Product Construe	ction Summary:	·									
All aluminum hou:	sing; Direct drive	upblast spun alumir	num; Bac	kward incli	ned alum	inum fa	n wheel; T	wo piece	top cap v	vith	
stainless steel qui											
Certification exclu	des dampers - n	ot tested.									
Options/Subcom	ponent Summa	ry:									
		on steel roof curb with	h a heigh	t of 24"; far	n mounte	d speed	control; N	EMA 3 Dis	sconnect;		
Electronically com	mutated Vari-flo	ow motor; UL762									
		DF	ORC	ODE C	ON						
		NE	UUT Pro	operties ¹							
Weight		Dimension (in)	DSł	1 21)		Lowes	t Natural	Frequen	cy (Hz)		
(lb)	Depth	Width	He	ight	Front	-Back	Side-Side		Vertical		
129	39.5	(♀ 39.5 OSF57.5033 10.39 ™ 9.						9.46 9.3		38	
^[1] Note: Unit weight	and height include	e <mark>s weig</mark> ht and height of	curb.	THEORY TO CONTRACT							
		UUT Highest H	Passed S	eismic Rur	Informa	ntion		•			
Buildin	g Code	Test Criteri	ia	S _{DS} (g)	z/h	I _P O	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g	
CBC 2	2019	ICC-ES AC156 (2	20159/0	$3/\frac{1.93}{1.93}$	1.0 0.0	1.5	3.09	2.32	1.29	0.51	
Test Mounting De						20					
Curb to table: (24)	3/8" grade 8 soc	sheet metal screws (ket cap bolts with fla	at washer	s (6 bolts/v					aat		
	-	y and remained func per operating conditi		r manufact	urer requ	urement	after shal	ke table t	est.		







Manufacturer: Loren Cook Company **UUT 8** Model Line: ACRU, VCR, ACSC Model Number: 150 ACRUD (Direct Drive) Serial Number: N/A Product Construction Summary: All aluminum housing; Direct drive upblast spun aluminum; Backward inclined aluminum fan wheel; Two piece top cap with stainless steel quick release latches (sizes 120-300). Certfication excludes dampers - not tested. **Options/Subcomponent Summary:** 1HP Marathon motor with external Yaskawa V1000 drive (CIMR-VU4A0002AA); galv. carbon steel roof curb with a height of 24"; fan mounted speed control; NEMA 3 Disconnect; Electronically commutated Vari-flow motor; Plastic drain tube; Birdscreen UUT Properties Weight **Dimension** (in) Lowest Natural Frequency (Hz) (lb) Width Depth Height Front-Back Side-Side Vertical 54.30 8.25 8.02 132 34.6 34.6 16.65 ^{1]}Note: Unit weight and height includes weight and height of curb. UUT Highest Passed Seismic Run Information **Building Code Test Criteria** z/h $S_{DS}(g)$ I_P $A_{FLX-H}(g) | A_{RIG-H}(g) | A_{FLX-V}(g) | A_{RIG-V}(g)$ 1.93 1.0 3.09 CBC 2019 ICC-ES AC156 (2015) 1.5 2.32 1.29 0.51 1.93 0.0 Test Mounting Details: Fan to curb: (24) #12 sheet metal screws (6 per side). Curb to table: (20) 3/8" grade 8 socket cap bolts with flat washers (5 bolts/washers per side). Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.





1900240-CR-001 R0

Manufacturer:	Loren Cool	Company								
Model Line:	ACRU, VCR	, ACSC					ו	JUT	9	
Model Number:	300 ACRUD	-XP (Direct Drive)		Serial Nu	umber:	N/A				
Product Construc All aluminum hous stainless steel quic Certification excluc	ing; Direct drive k release latche	upblast spun alumir s (sizes 120-300).	num; Backward incli	ined alum	ninum far	n wheel; T	wo piece	top cap v	vith	
Options/Subcomp	•									
5HP Marathon mot	or with external	Yaskawa V1000 driv 3 Disconnect; Plastic		-	carbon s	teel roof o	curb with	a height	of 24";	
		EDF	OKCODEC	ON						
		NE	UUT Properties ¹							
Weight		Dimension (in)	JSAPL		1	t Natural				
(lb)	Depth	Width	Height	Front		Side-Side		Vertical		
383	54.3	54.3	OSF65.4033	9.0	00	10	.05	16	.45	
Note: Unit weight a	and height include	es weight and height of								
			Passed Seismic Rui							
Building		Test Criter	1 93	z/h	I _P		A _{RIG-H} (g)			
CBC 2	019	ICC-ES AC156 (2015))/() //20/2(1.93	0.0	1.5	3.09	2.32	1.29	0.51	
Test Mounting De	tans:	P-IRORNIA			201					
Fan to curb: (36) #1 Curb to table: (32) 3		crews (9 per side). ket cap bolts with fla	at washers (8 bolts/v	washers p	er side).					
		y and remained func		•		after shak	ke table te	est.		

Contents were included in testing per operating conditions.





1900240-CR-001 R0

Manufacturer:	Loren Coc	ok Company									
Model Line:	ACRU, VCI	R, ACSC							UT 1	LU	
Model Number:	490 ACRU	B (Belt Drive)			Serial N	umber:	N/A				
Product Constru	iction Summary	/:									
•	•	n ventilator. Aluminun		d aluminur	n wheel.						
Certification excl	udes dampers ar	nd controllers - not te	ested								
Options/Subcon	nponent Summa	ary:									
7.5HP WEG moto	r 460V three pha	se; carbon steel roof	curb with	a height of	24"						
		EDF	ORCO	DDE C	OM						
		NE	UUT Pro	perties ¹							
Weight		Dimension (in) Lowest Natural Frequency (Hz)									
(lb)	Depth						Front-Back Side		Ver	rtical	
637	76.3	76.3		20033	4	.4	4	.4	3	.0	
^[1] Note: Unit weigh	t and height inclue	des weight and height of									
		UUT Highest					1	I	I		
Building 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	
CBC	ICC-ES AC156 (2015)2/()	3/2020	1.0	1.5	3.2	2.4	1.33	0.53		
Test Mounting D	etails:	121		ł		12					
	-	and the second second				~~/					
T		-Op			FO	1			T	16	
	Le L	The This	4 BUII	and the second	Co.	12.2					
		1	BUI			123				Ð	
						1.					
		• <u> </u>							* *	-	
	-										

09/03/2020

added to each brace bolt at outside of housing.

Contents were included in testing per operating conditions.

OSP-0033

UUT was mounted directly to the seismic table using (28) 3/8"Grade 5 bolts with flat washers and lock washers. Fan was

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

mounted to curb using (52) 3/8" Grade 5 bolts. An additional 1.75" OD aluminum fender washer with galvanized SAE washer was