### OFFICE USE ONLY APPLICATION FOR OSHPD SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP) APPLICATION #:** OSP - 0195 - 10 **OSHPD Special Seismic Certification Preapproval (OSP) Manufacturer Information** Twin City Fan Companies, Ltd. Manufacturer: Manufacturer's Technical Representative: Jaime Yeh Mailing Address: 5959 Trenton Lane North, Minneapolis, MN 55442-3237 Telephone: 763.551.7600 Email: jyeh@tcf.com **Product Information** Product Name: BCV/BCVR/BCVSH (and Aerovent BIUB/BIUBR/BIUBSH) Product Type: Centrifugal fans Product Model Number: See attachment (List all unique product identification numbers and/or part numbers) General Description: Utility centrifugal ventilating fans Mounting Description: Base mounted - rigid or isolated **Applicant Information** Applicant Company Name: TRU Compliance by Structural Integrity Associates, Inc. Contact Person: Matt Tobolski, PhD, SE Mailing Address: 5215 Hellyer Ave, Suite 210, San Jose, CA 95138 Telephone: 844.TRU.0200 Email: mtobolski@structint.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: 12/18/2017 Executive Advisor Company Name: Structural Integrity Associates, Inc.

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





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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
Company Name: _TRU Compliance by Structural Integrity Associates, Inc.
Name: Matt Tobolski, PhD, SE California License Number: S5648
Mailing Address: 5215 Hellyer Ave, Suite 210, San Jose, CA 95138
Telephone: 844.TRU.0200 Email: <a href="mailto:mtobolski@structint.com">mtobolski@structint.com</a>
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
<ul> <li>☐ Testing in accordance with:</li> <li>☐ Other (Please Specify):</li> </ul>
Testing Laboratory
Company Name: _ Twin City Fan Companies, Ltd.
Contact Name:Jaime Yeh
Mailing Address: 5959 Trenton Lane North, Minneapolis, MN 55442-3237
Telephone: _763.551.7600



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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: $\boxtimes$ Yes $\square$ No [( $z/h = 1$ ); 1.50 rigid; 4.50 spring isolated]; Design Basis of Equipment or Components ( $F_p/W_p$ ) = [( $z/h = 0$ ); 1.13 rigid; 1.88 spring isolated]
S <sub>DS</sub> (Design spectral response acceleration at short period, g) = $2.00 (z/h = 1)$ ; $2.50 (z/h = 0)$ ;
$a_p$ (In-structure equipment or component amplification factor) = 2.5
$R_p$ (Equipment or component response modification factor) = $\frac{2.5}{6.0}$ (rigid); 2.0 (spring isolated)
$\Omega_0$ (System overstrength factor) = 2.0
I <sub>p</sub> (Importance factor) = 1.5
z/h (Height factor ratio) = $1 (S_{DS} = 2.00)$ ; $0 (S_{DS} = 2.50)$
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 <sub>DS</sub> (Design spectral response acceleration at short period, g) =
S <sub>D1</sub> (Design spectral response acceleration at 1 second period, g) =
R (Response modification coefficient ) =
$\Omega_0$ (System overstrength factor) =
C <sub>d</sub> (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
□ Test Report(s) □ Drawings □ Calculations □ Manufacturer's Catalog
Other(s) (Please Specify):
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022
1/1/0
Signature: Date: January 23, 2018
Print Name: Timothy J. Piland Title: SSE  Special Spigmic Cortification Valid Line to : See (a) = See Above 7/h = See Above
Special Seismic Certification Valid Up to : $S_{DS}(g) = \underline{See\ Above}$ $z/h = \underline{See\ Above}$ Condition of Approval (if applicable):
Condition of Approval (if applicable):

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### TRU PROJECT NO. 16005



Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH

TABLE 1

Certified Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined riveted aluminum wheel.

BCVR is BCV with: weather cover, bolted access door, drain connection and backplate fins.

Certified Options Summary:

See Tables 4 to 7 for active and non-active options.

100% wheel width. 100% wheel diameter.

NOTE: Fans also sold under Aerovent brand name. BCV = BIUB; BCVR = BIUBR

Mounting Configuration:

Base mounted - rigid or 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:	$S_{DS} = 2.0g$	z/h=1.0	1 <sub>P</sub> = 1.5
Dunaing Code. CDC 2010	Seisiffic del tiffcation Elimits.	$S_{RG} = 2.5 a$	z/h=0.0	τρ- τ.5

Model Line	Model	Dimensions (in)		Weight Notes		UUT	
Woder Line	Model	Depth	Width	Height	(lb)	Notes	001
	90	18.6	26.4	26.6	113		Extrap.
	105	18.6	26.4	26.6	134	UUT: BCV C1, rigid	1
	122	20.3	27.2	28.4	335		Interp.
	135	22.4	28.3	31.0	395		Interp.
BCV/BCVR	150	24.8	32.2	34.6	429		Interp.
Class 1	165	27.3	33.4	37.4	476		Interp.
	182	30.2	38.8	41.6	599		Interp.
	200	33.1	40.2	45.1	690		Interp.
	222	36.8	40.1	50.3	733		Interp.
	245	40.5	42.3	55.1	855		Interp.
	270	44.6	45.9	60.6	1056	UUT: BCV C1, isolated	2
	*	•	•	•	•		•

### TRU PROJECT NO. 16005



Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH

TABLE 2

Certified Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined welded aluminum wheel.

BCVR is BCV with: weather cover, bolted access door, drain connection and backplate fins.

Certified Options Summary:

See Tables 4 to 7 for active and non-active options.

100%-105% wheel width. 100%-105% wheel diameter.

NOTE: Fans also sold under Aerovent brand name. BCV = BIUB; BCVR = BIUBR

Mounting Configuration:

Base mounted - rigid or 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:	$S_{DS} = 2.0g$	z/h=1.0	1 <sub>P</sub> = 1.5
Danaing Code. CDC 2010	Seisiffic Cei tiffcation Liffits.	$S_{DS} = 2.5 q$	z/h=0.0	1 p = 1.5

Model Line	Model	Dimensions (in)			Weight Notes		UUT
Woder Line	Model	Depth	Width	Height	(lb)	NOTES	001
	122	20.3	27.2	28.4	335		Extrap.
	135	22.4	28.3	31.0	395		Extrap.
	150	24.8	32.2	34.6	429		Extrap.
DCV/DCV/D	165	27.3	33.4	37.4	476		Extrap.
BCV/BCVR Class 2	182	30.2	38.8	41.6	599		Extrap.
Class 2	200	33.1	40.2	45.1	690		Extrap.
	222	36.8	40.1	50.3	733		Extrap.
	245	40.5	42.3	55.1	855		Extrap.
	270	44.6	45.9	60.6	1056		Extrap.
DCV/DCV/D	300	49.6	55.9	60.8	1260		Extrap.
BCV/BCVR Class 1 or 2	330	54.6	59.1	66.6	1588		Extrap.
Class I UI 2	365	60.5	68.6	73.6	1834	UUT: BCVR C2, isolated	3
	•	•	•	•	•	•	•

### TRU PROJECT NO. 16005



Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH

TABLE 3

Certified Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined welded steel wheel.

BCVR is BCV with: weather cover, bolted access door, drain connection and backplate fins.

BCVSH is BCV with: weather cover, backplate fins, high temperature package.

Certified Options Summary:

See Tables 4 to 7 for active and non-active options.

100%-105% wheel width. 100%-105% wheel diameter.

NOTE: Fans also sold under Aerovent brand name. BCV = BIUB; BCVR = BIUBR; BCVSH = BIUBSH

Mounting Configuration:

Base mounted - rigid or 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:	$S_{DS} = 2.0g$	z/h=1.0	1 <sub>P</sub> = 1.5
Building Code. CBC 2010	Seisiffic Certification Limits.	$S_{DS} = 2.5g$	z/h=0.0	1 p = 1.5

Model Line	Model	Dimensions (in)			Weight Notes		UUT
Model Line	Model	Depth	Width	Height	(lb)	NOTES	001
BCV/BCVR	90	18.6	26.4	26.6	113		Extrap.
Class 1	105	18.6	26.4	26.6	134		Extrap.
	122	20.3	27.2	28.4	335		Extrap.
	135	22.4	28.3	31.0	395		Extrap.
	150	24.8	32.2	34.6	429		Extrap.
	165	27.3	33.4	37.4	476		Extrap.
	182	30.2	38.8	41.6	599		Extrap.
BCV/BCVR/BCVSH	200	33.1	40.2	45.1	690		Extrap.
Class 1 or 2	222	36.8	40.1	50.3	733		Extrap.
	245	40.5	42.3	55.1	855		Extrap.
	270	44.6	45.9	60.6	1056		Extrap.
	300	49.6	55.9	60.8	1260		Extrap.
	330	54.6	59.1	66.6	1588		Extrap.
	365	60.5	68.6	73.6	1834	UUT: BCVSH, C2, isolated	4
_							



Manufacturer: Model Line:	Twin City Fan Companie BCV, BCVR, BCVSH	s, Ltd.	Table Description: Motors			LE 4
Building Code: CBC 2	2016	Seismic Certific	cation Limits: $S_{DS} = 2.0g  z/h = 1.0$ $S_{DS} = 2.5g  z/h = 0.0$	1 <sub>P</sub> = 1.5		
Component Type	Manufacturer	Frame Size	Description	No	tes	UUT
		143T	1-1.5 HP, 208-575 V, 1800-3600 RPM			Extrap.
		145T	1-2 HP, 208-575 V, 1200-3600 RPM	UUT: 2HP w/ shaft g	rounding	1
		182T	1-3 HP, 208-575 V, 900-3600 RPM			Interp.
		184T	1.5-5 HP, 208-575 V, 900-3600 RPM			Interp.
		185T	1.5 HP, 208-575 V, 1200 RPM			Interp.
		213T	2-7.5 HP, 208-575 V, 900-3600 RPM			Interp.
Motor	Teco	215T	3-10 HP, 208-575 V, 900-3600 RPM			Interp.
		254T	5-15 HP, 208-575 V, 900-3600 RPM			Interp.
		256T	7.5-20 HP, 208-575 V, 900-3600 RPM			Interp.
		284T	10-25 HP, 208-575 V, 900-1800 RPM			Interp.
		286T	15-30 HP, 208-575 V, 900-1800 RPM			Interp.
		324T	20-40 HP, 208-575 V, 900-1800 RPM			Interp.
		326T	25-50 HP, 208-575 V, 900-1800 RPM	UUT: 50HP w/ shaft	grounding	3



Manufacturer: Model Line:	Twin City Fan Companie BCV, BCVR, BCVSH	s, Ltd.	Table Description: Motors		TABL	E 4
Building Code: CBC 2	2016	Seismic Certific	cation Limits: $S_{DS} = 2.0g  z/h = 1.0$ $S_{DS} = 2.5g  z/h = 0.0$	1 <sub>P</sub> = 1.5		
Component Type	Manufacturer	Frame Size	Description	No	tes	UUT
		56	1 HP, 208-575 V, 3600 RPM			Extrap.
		143T	1-1.5 HP, 208-575 V, 1800-3600 RPM			Extrap.
		145T	1-3 HP, 208-575 V, 1200-3600 RPM			Extrap.
		182T	1-3 HP, 208-575 V, 900-1800 RPM			Extrap.
		184T	1.5-5 HP, 208-575 V, 900-3600 RPM			Extrap.
		213T	2-7.5 HP, 208-575 V, 900-3600 RPM			Extrap.
Motor	Baldor	215T	3-10 HP, 208-575 V, 900-3600 RPM	UUT: 10HP w/ shaft	grounding	2
		254T	5-15 HP, 208-575 V, 900-3600 RPM			Interp.
		256T	7.5-20 HP, 208-575 V, 900-3600 RPM			Interp.
		284T	10-25 HP, 208-575 V, 900-1800 RPM			Interp.
		286T	15-30 HP, 208-575 V, 900-1800 RPM			Interp.
		324T	25-40 HP, 208-575 V, 1200-1800 RPM			Interp.
		326T	30-50 HP, 208-575 V, 1200-1800 RPM	UUT: 50 HP w/ shaft	grounding	4



Manufacturer: Model Line:	Twin City Fan Companie BCV, BCVR, BCVSH	s, Ltd.	Table Description: Shutters and Actuator	S	TABLE	5
Building Code: CBC 2	2016	Seismic Certific	cation Limits: $S_{DS} = 2.0g$ $z/h = 1.0$ $S_{DS} = 2.5g$ $z/h = 0.0$	1 <sub>P</sub> = 1.5		
Component Type	Manufacturer	Part Number	Description	No	tes	UUT
		GDSH105	Gravity, AL			1
		GDSH122	Gravity, AL			Interp.
		GDSH135	Gravity, AL			Interp.
		GDSH150	Gravity, AL			Interp.
		GDSH165	Gravity, AL			Interp.
		GDSH182	Gravity, AL			Interp.
Shutters	Ruskin	GDSH200	Gravity, AL			Interp.
		GDSH222	Gravity, AL			Interp.
		GDSH245	Gravity, AL			Interp.
		GDSH270	Gravity, AL			Interp.
		GDSH300	Gravity, AL			Interp.
		GDSH330	Gravity, AL			Interp.
		GDSH365	Gravity, AL			3, 4



Manufacturer: Model Line:	Twin City Fan Companies, Ltd. <i>Table Description:</i> Disconnect Switches BCV, BCVR, BCVSH				TABLE	6
Building Code: CBC 2	2016	Seismic Certifica	tion Limits: $S_{DS} = 2.0g$ $z/h = 1.0$ $S_{DS} = 2.5g$ $z/h = 0.0$	1 <sub>P</sub> = 1.5		
Component Type	Manufacturer	Part Number	Description	No	tes	UUT
	Colon	H226-41300-700N4	<b>1</b> ф <b>&amp; 3</b> ф; 25А; 120-600V, NEMA 3R			1
	Salzer	H233-41300-710N4	1ф & 3ф; 25A; 120-600V, NEMA 3R			4
	Square D	HU361RB	3ф; 30A; 200/208-600V, NEMA 3R			2
	Sprecher & Schuh	LA7-100-1753-SR	3ф; 100A; 200/208-600V, NEMA 4X			3
		THN3361R	3ф; 30A; 200/208-600V, NEMA 3R			3
Disconnect Switch		THN3361SS	1ф & 3ф; 30A; 200/208-600V, NEMA 4X			Interp.
DISCONNECT SWITCH		THN3362R	3ф; 60A; 200/208-600V, NEMA 3R			Interp.
	G.E.	THN3362SS	1ф & 3ф; 60A; 200/208-600V, NEMA 4X			Interp.
	G.E.	THN3363SS	1ф & 3ф; 100A; 200/208-600V, NEMA 4X			Interp.
		THN3363R	3ф; 100A; 240-600V, NEMA 3R			Interp.
		THN3364R	3ф; 200А; 240-600V, NEMA 3R			Interp.
		THN3364SS	1ф & 3ф; 200A; 200/208-600V, NEMA 4X			4
<del></del>						

## TRU PROJECT NO. 16005



Manufacturer:	Twin City Fan Companies	TABLE 7			
Model Line:	BCV, BCVR, BCVSH			17,000	
Building Code: CBC.	2016	Seismic Certific	1 <sub>P</sub> = 1.5		
Component Type	Manufacturer	Material	Description	Not	res UU <sup>-</sup>
Weather Cover	Twin City Fan	Carbon Steel		2,3,	
Bolted Access Door	Twin City Fan	Carbon Steel	Bolted panel		1,3
Hinged Access Door	Twin City Fan	Carbon Steel	Hinged panel with quick access		2
Drain Connection	Twin City Fan	Carbon Steel	Threaded connection to drain water		2,3,
Drain with Plug	Twin City Fan	Carbon Steel	Plug for drain connection		2,4
Backplate	Twin City Fon	Carbon Steel	Fins on backplate		4
Fins	Twin City Fan	Aluminum	Fins on backplate		3
Inlet Flange	Twin City Fan	Carbon Steel	Flange connection on inlet		2
Outlet Flange	Twin City Fan	Carbon Steel	Flange connection on outlet		3,4
Inlet Screen	Twin City Fan	Carbon Steel	Safety screen at inlet		1
Belt Guard	Twin City Fan	Carbon Steel	Belt drive cover		1
Extended Lube Lines	Twin City Fan	Nylon	For greasing bearings		1
Spark	Twin City Fon	N/A	Type B: AL wheel, AL rub plate	(configuration of opt	ions) 1
Resistance	Twin City Fan	N/A	Type C: AL wheel or funnel. AL rub plate	(configuration of opt	ions) 2,3
UL 705 Rating	Twin City Fan	N/A	Config. w/ weather cover	(configuration of opt	ions) 2
High Temp Package	Twin City Fan	N/A	Config. w/ CS wheel, insul. stand, shaft seal, high temp grease, shaft cooler	(configuration of opt	ions) 4
		Carbon Steel	THD: top horizontal discharge		4
Dischargo Oriontation	Twin City Fon	Carbon Steel	BHD: bottom horizontal discharge		1
Discharge Orientation	n Twin City Fan —	Carbon Steel	UBD: upblast discharge	3	
		Carbon Steel	DBD: downblast discharge		2

TRU Compliance, LLC - A Tobolski Watkins Affiliate 844.TRU.0200 | info@trucompliance.com

### TRU PROJECT NO. 16005



UUT 1

Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH

Model Number: BCV 105 Serial Number: 17-21274-1-1

Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined riveted aluminum wheel. 100% wheel width. 100% wheel diameter.

Options/Subcomponent Summary:

Active Options: Teco 145T motor (2HP, 575V); Shaft Grounding Ring; Ruskin GDS105 Shutter; Salzer H226-41300-700N4

Disconnect Switch.

Non-Active Options: Bolted Access Door; Inlet Screen; Type B Spark Resistance; Belt Guard; Extended Lube Lines; BHD

discharge.

UUT Properties											
Weight	Dimension (in)					Lowest Natural Frequency (Hz)					
(lb)	Depth	Width	Height		Front-Back		Side-Side		Vertical		
130	25.4	24.9	2.9	>33.0		0 24.2		>33.0			
	UUT Highest Passed Seismic Run Information										
Build	ing Code	Test Criteria		S <sub>DS</sub> (g)	z/h	Ι <sub>Ρ</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016		ICC-ES AC156		2.0 g	1.0	1.5	3.2	2.4	1.68	0.68	
				2.5 g	0.0	1.0					

#### Test Mounting Details:



Rigidly Mounted to table. Fan bolted to table with (6) 3/8" dia. A307 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement.

### TRU PROJECT NO. 16005



UUT 2

Manufacturer: Twin City Fan Companies, Ltd.

*Model Line:* BCV, BCVR, BCVSH

Model Number: BCV 270 Serial Number: 17-21274-2-1

Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined riveted aluminum wheel. 100% wheel width. 100% wheel diameter.

#### Options/Subcomponent Summary:

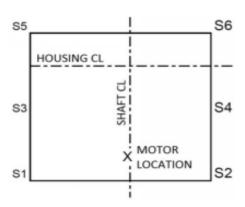
Active Options: Baldor 215T motor (10 HP, 230/460V); Shaft grounding ring; Square D HU361RB Disconnect Switch.

Non-Active Options: Weather cover; Hinged access door; Drain connection with plug; Inlet flange; Type C spark resistance; UL 705 rating; DBD discharge.

			UUT Pro	operties							
Weight	Dimension (in)					Lowest Natural Frequency (Hz)					
(lb)	Depth	Width	Height		Front-Back		Side-Side		Vertical		
732	52.0	54.1	54	4.2 3.9		.9	9 3.6		8.7		
	UUT Highest Passed Seismic Run Information										
Build	Building Code		Test Criteria		z/h	Ι <sub>Ρ</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016		ICC-ES AC156		2.0 g	1.0	1 5	3.2	2.4	1.68	0.68	
				2.5 g	0.0	1.5					

#### Test Mounting Details:





Fan mounted to (6) VMC isolators using standard isolator mounting hardware. S1, S2, S3, S4: VMC MSS-1C-250; S5, S6 VMC MSS-1C-100. Isolators mounted to table with (4) 3/8" dia. A307 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement.

### TRU PROJECT NO. 16005



UUT 3

Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH
Model Number: BCVR Class 2, 365

Serial Number: 17-21274-3-1

Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined welded aluminum wheel. 105% wheel width. 105% wheel diameter.

#### Options/Subcomponent Summary:

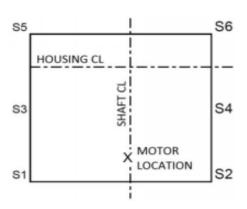
Active Options: Teco 326T motor (50 HP, 230/460V); Shaft grounding ring; Ruskin GDS365 Shutter; G.E. THN3361R Disconnect Switch; Sprecher & Schuh LA7-100-1753-SR Disconnect Switch.

Non-Active Options: Weather cover (std. on BCVR); Bolted access door (std. on BCVR); Drain connection (std. on BCVR); Backplate Fins (std. on BCVR); Outlet flange; Type C spark resistance; UBD discharge.

		-	UUT Pro	operties		•	•		•	•	
Weight	Dimension (in)					Lowest Natural Frequency (Hz)					
(lb)	Depth	Width	Height		Front-Back		Side-Side		Vertical		
1898	71.6	69.2	5.0	4.5		3.4		3.4			
	UUT Highest Passed Seismic Run Information										
Building Code		Test Criter	Test Criteria		z/h	Ι <sub>Ρ</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016		ICC-ES AC156		2.0 g	1.0	1.5	3.2	2.4	1.68	0.68	
				2.5 g	0.0	1.5				0.08	

#### Test Mounting Details:





Fan mounted to (6) VMC isolators using standard isolator mounting hardware. S1, S2: VMC MSS-1E-650; S3, S4: VMC MSS-1E-530; S5, S6: VMC MSS-1E-400. Isolators mounted to table with (4) 3/8" dia. A307 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement.

### TRU PROJECT NO. 16005



UUT 4

Manufacturer: Twin City Fan Companies, Ltd.

Model Line: BCV, BCVR, BCVSH
Model Number: BCVSH Class 2, 365

Serial Number: 17-21274-4-1

Product Construction Summary:

Carbon steel housing. Belt driven. Backward inclined welded steel wheel. 105% wheel width. 105% wheel diameter.

Options/Subcomponent Summary:

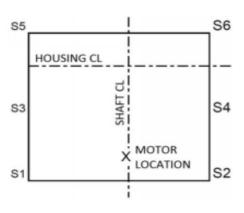
Active Options: Baldor 326T motor (50 HP, 575V); Shaft grounding ring; Ruskin GDS365 Shutter; G.E. THN3364SS Disconnect Switch; Salzer H233-41300-710N4 Disconnect Switch.

Non-Active Options: Weather cover (std. on BCVSH); Backplate fins (std. on BCVSH); High temperature package (std. on BCVSH); Outlet flange; Drain connection with plug; THD discharge.

			UUT Pro	operties							
Weight	Dimension (in)					Lowest Natural Frequency (Hz)					
(lb)	Depth	Width	Height		Front-Back		Side-Side		Vertical		
1948	70.9	68.6	78	3.0	4.9		3.5		8.5		
	UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S <sub>DS</sub> (g)	z/h	Ι <sub>Ρ</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016		ICC-ES AC156		2.0 g	1.0	1.5	3.2	2.4	1.68	0.68	
				2.5 g	0.0	1.5					

#### Test Mounting Details:





Fan mounted to (6) VMC isolators using standard isolator mounting hardware. S1, S2: VMC MSS-1E-650; S3, S4: VMC MSS-1E-530; S5, S6: VMC MSS-1E-400. Isolators mounted to table with (4) 3/8" dia. A307 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement.