



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0356

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Greenheck Fan Corporation

Manufacturer's Technical Representative: Brandon Schreiner

Mailing Address: 1100 Greenheck Dr., Schofield, WI 54476

Telephone: (715) 297-7430

Email: Brandon.Schreiner@greenheck.com

Product Information

Product Name: Sidewall Propeller Fans

Product Model Number(s): Varies (See Attachment)

Product Category: Air Handling Units

Product Sub-Category: Fans

General Description: Sidewall propeller fans with internal and external components as shown in the attachment. UUT12 through 16 and related interpolated or extrapolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.

Mounting Description: Wall Mounted Rigid -

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates

Contact Person: Daniel Zentner

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

Telephone: (541) 292-5839

Email: dzentner@structint.com

Title: Program Manager



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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.

Name: LACHEZAR HANDZHIYSKI California License Number: S6515

Mailing Address: 5215 Hellyer Avenue, Suite 210, San Jose, CA 95138

Telephone: (669) 437-0200 Email: Lhandzhiyski@StructInt.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3
☐ Other (Please Specify): _____

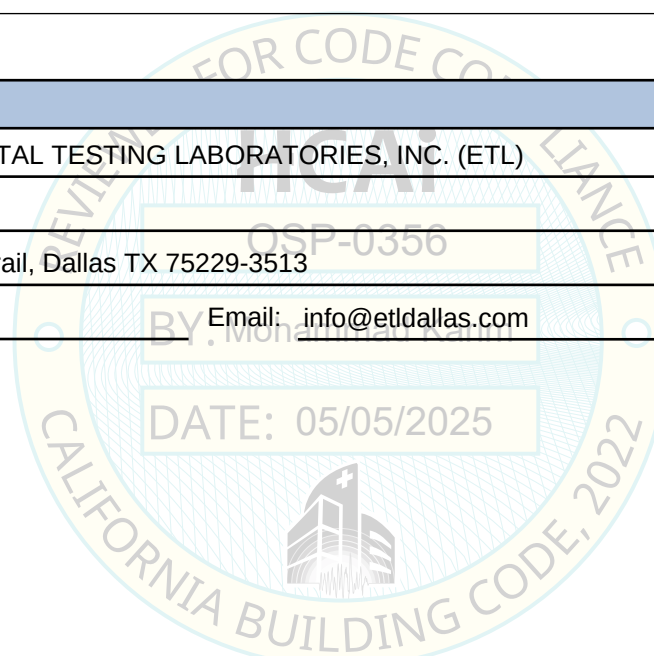
Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

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

Telephone: (972) 247-9657 Email: info@etldallas.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.88

SDS (Design spectral response acceleration at short period, g) = 2.5

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 05/05/2031

Date: 5/5/2025

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.5

z/h = 1

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation							TABLE 1	
Model Line: Sidewall Propeller Fans								
Certified Product Construction Summary: 12ga - 18ga Carbon Steel Panel/Drive Frame.								
Certified Options Summary: N/A								
Mounting Configuration: Wall mounted - rigid Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.								
Building Code: CBC 2022			Seismic Certification Limits:			$S_{DS}= 2.5\text{ g}$ $z/h=1.0$ $S_{DS}= 2.5\text{ g}$ $z/h=0.0$		$I_p= 1.5$
Model Line	Model	Dimensions (in)			Fan Wt. (lbs.)	Max Wt. (lbs.)	Notes	UUT
		Depth	Width	Height				
Direct Drive Level 1 SE: Exhaust SS: Supply	8	8.0	13.0	13.0	15	70	Stamped Aluminum Blades with Carbon Steel Hub.	Extrap.
	10	8.0	15.0	15.0	16	84		Extrap.
	12	13.1	18.0	18.0	20	104		Extrap.
	14	14.3	20.0	20.0	27	127		Extrap.
	16	14.0	22.0	22.0	30	144		Extrap.
	18	14.3	24.0	24.0	35	150		Extrap.
	20	18.0	26.0	26.0	39	156		Extrap.
	24	21.0	32.0	32.0	45	166		2
Direct Drive Level 2 SE: Exhaust SS: Supply	16	14.0	22.0	22.0	78	78	Carbon Steel Blades and Hub - Welded	3
	18	14.3	24.0	24.0	80	176		Interp.
	20	18.0	26.0	26.0	82	224		Interp.
	24	21.0	32.0	32.0	85	373		Interp.
	30	21.8	28.0	28.0	130	483		Interp.
	36	28.0	44.0	44.0	230	656		Interp.
	42	28.0	50.0	50.0	290	822		Interp.
	48	28.5	56.0	56.0	375	1,007		Interp.
	54	30.1	62.0	62.0	561	1,018		1
Direct Drive Level 3 SCE: Exhaust SCS: Supply SCR: Reversible	20	18.0	26.0	26.0	55	219	Cast Aluminum Blades and Hub.	Interp.
	24	20.5	32.0	32.0	80	368		Interp.
	30	20.0	38.0	38.0	125	478		Interp.
	36	27.0	44.0	44.0	220	646		Interp.
	42	29.2	50.0	50.0	290	822		Interp.
	48	30.5	56.0	56.0	386	1,007		Interp.
	54	142.3	68.4	68.4	561	1,018		4

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation							TABLE 2	
Model Line: Sidewall Propeller Fans								
Certified Product Construction Summary: 12ga - 18ga Carbon Steel Panel/Drive Frame.								
Certified Options Summary: N/A								
Mounting Configuration: Wall mounted - rigid Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.								
Building Code: CBC 2022			Seismic Certification Limits:			$S_{DS}= 2.5\text{ g}$ $z/h=1.0$ $S_{DS}= 2.5\text{ g}$ $z/h=0.0$ $I_P= 1.5$		
Model Line	Model	Dimensions (in)			Fan Wt. (lbs.)	Max Wt. (lbs.)	Notes	UUT
		Depth	Width	Height				
Belt Drive Level 1 SBE: Exhaust SBS: Supply	20	42.9	32.3	32.3	60	158	Carbon Steel Blades and Hub - Riveted	8
Belt Drive Level 2 SBE: Exhaust SBS: Supply	20	19.5	26.0	26.0	65	229	Dual Thickness Carbon Steel Blades and Hub - Riveted	Extrap.
	24	99.8	38.3	38.3	75	329		5
	30	21.5	38.0	38.0	100	453		Interp.
	36	25.0	50.0	50.0	160	586		Interp.
	42	25.0	50.0	50.0	160	692		Interp.
	48	25.0	56.0	56.0	260	740		Interp.
	54	26.0	62.0	62.0	315	789		Interp.
	60	105.3	74.4	74.4	370	805		6
Belt Drive Level 3 SBE: Exhaust SBS: Supply	24	19.0	32.0	32.0	90	378	Cold Rolled Carbon Steel Blades and Hub - Welded	Extrap.
	30	21.5	38.0	38.0	140	493		Extrap.
	36	28.0	44.0	44.0	260	686		Extrap.
	42	31.5	56.0	56.0	420	952		Extrap.
	48	31.5	56.0	56.0	420	1,052		Extrap.
	54	35.8	62.0	62.0	590	1,520		Extrap.
	60	35.0	68.0	68.0	755	1,673		Extrap.
	72	73.0	91.1	91.1	1,050	1,942		7

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation							TABLE 2	
Model Line: Sidewall Propeller Fans								
Certified Product Construction Summary:								
12ga - 18ga Carbon Steel Panel/Drive Frame.								
Certified Options Summary:								
N/A								
Mounting Configuration:								
Wall mounted - rigid								
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.								
Building Code: CBC 2022			Seismic Certification Limits:			S _{DS} = 2.5 g z/h=1.0		I _P = 1.5
						S _{DS} = 2.5 g z/h=0.0		
Model Line	Model	Dimensions (in)			Fan Wt. (lbs.)	Max Wt. (lbs.)	Notes	UUT
		Depth	Width	Height				
Belt Drive Level 3 SBCE: Exhaust SBCS: Supply SBCR: Reversible	24	19.0	32.0	32.0	90	378	Cast Aluminum Blades and Hub	Extrap.
	30	21.5	38.0	38.0	140	493		Extrap.
	36	28.0	44.0	44.0	260	686		Extrap.
	42	28.0	50.0	50.0	320	852		Extrap.
	48	31.5	56.0	56.0	420	1,052		Extrap.
	54	35.8	62.0	62.0	590	1,520		Extrap.
	60	35.0	68.0	68.0	755	1,643		Extrap.
	72	35.0	82.0	82.0	860	1,942		9
AER Exhaust/Supply (Direct Drive)	20	20.0	26.0	26.0	82	334	Cast Aluminum Blades and Hub	10
	24	20.8	32.0	32.0	284	572		Interp.
	30	21.6	38.0	38.0	307	660		Interp.
	36	25.8	44.0	44.0	426	852		Interp.
	42	27.5	50.0	50.0	615	1,147		Interp.
	48	28.5	56.0	56.0	626	1,258		Interp.
	54	33.8	62.0	62.0	815	1,781		Interp.
	60	35.0	68.0	68.0	838	1,726		11

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Fan Motors			TABLE 3
Model Line: Sidewall Propeller Fans					
Building Code: CBC 2022		Seismic Certification Limits:		$S_{DS} = 2.5\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Fan Motors	WEG	1/100 HP	3 lbs.		Extrap.
		...	...		Extrap.
		1/2 HP	15 lbs.	UUT8: 115V - 1 Phase	8
		...	...		Interp.
		7.5 HP	200 lbs.	UUT1: 230V - 3 Phase	1
	Vari-Green	1/100 HP	3 lbs.		Extrap.
		...	...		Extrap.
		1/4 HP	10 lbs.	UUT3: 115V - 1 Phase	3
		...	...		Interp.
		2.0 HP	40 lbs.	UUT4: 230V - 1 Phase	4
	Marathon	1/100 HP	3 lbs.		Extrap.
		...	...		Extrap.
		3/4 HP	15 lbs.	UUT2: 115V - 1 Phase	2
		5 HP	120 lbs.	UUT6: 460V - 3 Phase	6
		...	...		Interp.
		20 HP	283 lbs.	UUT9: 460V - 3 Phase	9
	Baldor	1/100 HP	3 lbs.		Extrap.
		...	...		Extrap.
		1 HP	38 lbs.	UUT5: 115V - 1 Phase	5
		...	...		Interp.
		2 HP	45 lbs.	UUT10: 230/460V - 3 Phase	10
		...	...		Interp.
		20 HP	534 lbs.	UUT7 & UUT11: 460V - 3 Phase	7, 11

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Dampers					TABLE 4	
Model Line: Sidewall Propeller Fans								
Building Code: CBC 2022		Seismic Certification Limits:		$S_{DS} = 2.5\text{ g} \quad z/h = 1.0$ $S_{DS} = 2.5\text{ g} \quad z/h = 0.0$		$I_P = 1.5$		
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT
		Depth	Width	Height				
Backdraft Dampers (Greenheck)	VCD-20	5.13	6.0	6.0	10	Carbon Steel Frame and Blades		Extrap.
		...	...	...	...			Extrap.
		5.25	26.0	26.0	25			2
		...	...	...	...			Interp.
		5.25	74.0	74.0	120			7
	VCD-23	5.13	6.0	6.0	10	Carbon Steel Frame and Blades		Extrap.
		...	...	...	...			Extrap.
		5.25	62.0	62.0	95			6
		...	...	...	...			Extrap.
		5.25	74.0	74.0	165			Extrap.
	VCD-34 (Motorized)	5.13	10.0	6.0	15	Carbon Steel Frame and Blades		Extrap.
		...	...	...	...			Extrap.
		5.25	74.0	74.0	165			9
	VCD-42 (Motorized) ¹	5.13	6.0	6.0	10	Carbon Steel Frame and Aluminum Blades		Extrap.
		...	...	...	...			Extrap.
		5.25	22.0	22.0	24			8
		5.25	56.0	56.0	75			4
		...	...	...	...			Interp.
		5.25	74.0	74.0	164			12

Notes:
1. Dampers interpolated by UUT12, UUT13, or UUT14 shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.

Notes:

1. Dampers interpolated by UUT12, UUT13, or UUT14 shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Dampers					TABLE 4	
Model Line: Sidewall Propeller Fans								
Building Code: CBC 2022		Seismic Certification Limits:		$S_{DS} = 2.5 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$		$I_p = 1.5$		
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT
		Depth	Width	Height				
Backdraft Dampers (Greenheck)	VCD-43 (Motorized) ¹	5.00	8.0	5.0	10	Aluminum Frame and Blades		Extrap.
		...	...	...	...			Extrap.
		5.00	26.0	26.0	25			5
		...	...	...	...			Interp.
		5.00	74.0	74.0	150			13
	WD-300/400 (Gravity) ¹	3.50	6.0	6.0	10	Carbon Steel Frame and Aluminum Blades		Extrap.
		...	...	...	...			Extrap.
		3.50	18.0	18.0	20			Extrap.
		3.50	56.0	56.0	70			1
		...	...	...	...			Interp.
		3.50	74.0	74.0	61			14
Notes:								
1. Dampers interpolated by UUT12, UUT13, or UUT14 shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.								

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Housing Options					TABLE 5			
Model Line: Sidewall Propeller Fans										
Building Code: CBC 2022		Seismic Certification Limits:					$S_{DS} = 2.5\text{ g} \quad z/h = 1.0$ $S_{DS} = 2.5\text{ g} \quad z/h = 0.0$		$I_P = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT		
		Depth	Width	Height						
Wall Collar (Greenheck)	8	16.0	16.0	16.0	18	20g Carbon Steel		Extrap.		
	10	16.0	18.0	18.0	20			Extrap.		
	12	16.0	21.0	21.0	24			Extrap.		
	14	18.0	23.0	23.0	27			Extrap.		
	16	18.0	25.0	25.0	38			Extrap.		
	18	18.0	27.0	27.0	41			Extrap.		
	20	18.0	29.0	29.0	47	18-12ga Carbon Steel	UUT8: 18ga Carbon Steel	8		
	24	18.0	38.0	38.0	60		UUT2: 18ga Carbon Steel	2		
	30	18.0	44.0	44.0	71			Interp.		
	36	19.0	50.0	50.0	83			Interp.		
	42	19.0	56.0	56.0	94			Interp.		
	48	19.0	62.0	62.0	105			Interp.		
	54	20.0	68.0	68.0	141			Interp.		
	60	21.0	74.0	74.0	160		UUT6: 16ga Carbon Steel	6		
	72	22.0	89.0	89.0	320		14-12ga Carbon Steel		Extrap.	
Short Wall Housing (Greenheck)	8	19.0	16.0	16.0	26	20-12ga Carbon Steel		Interp.		
	10	19.0	18.0	18.0	32			Interp.		
	12	24.0	21.0	21.0	41			Interp.		
	14	26.0	23.0	23.0	50			Interp.		
	16	27.0	25.0	25.0	56	18-12ga Carbon Steel	UUT3: 20ga Carbon Steel	3		
	18	28.0	27.0	27.0	64			Interp.		
	20	32.0	29.0	29.0	85			Interp.		
	24	37.0	38.0	38.0	125			Interp.		

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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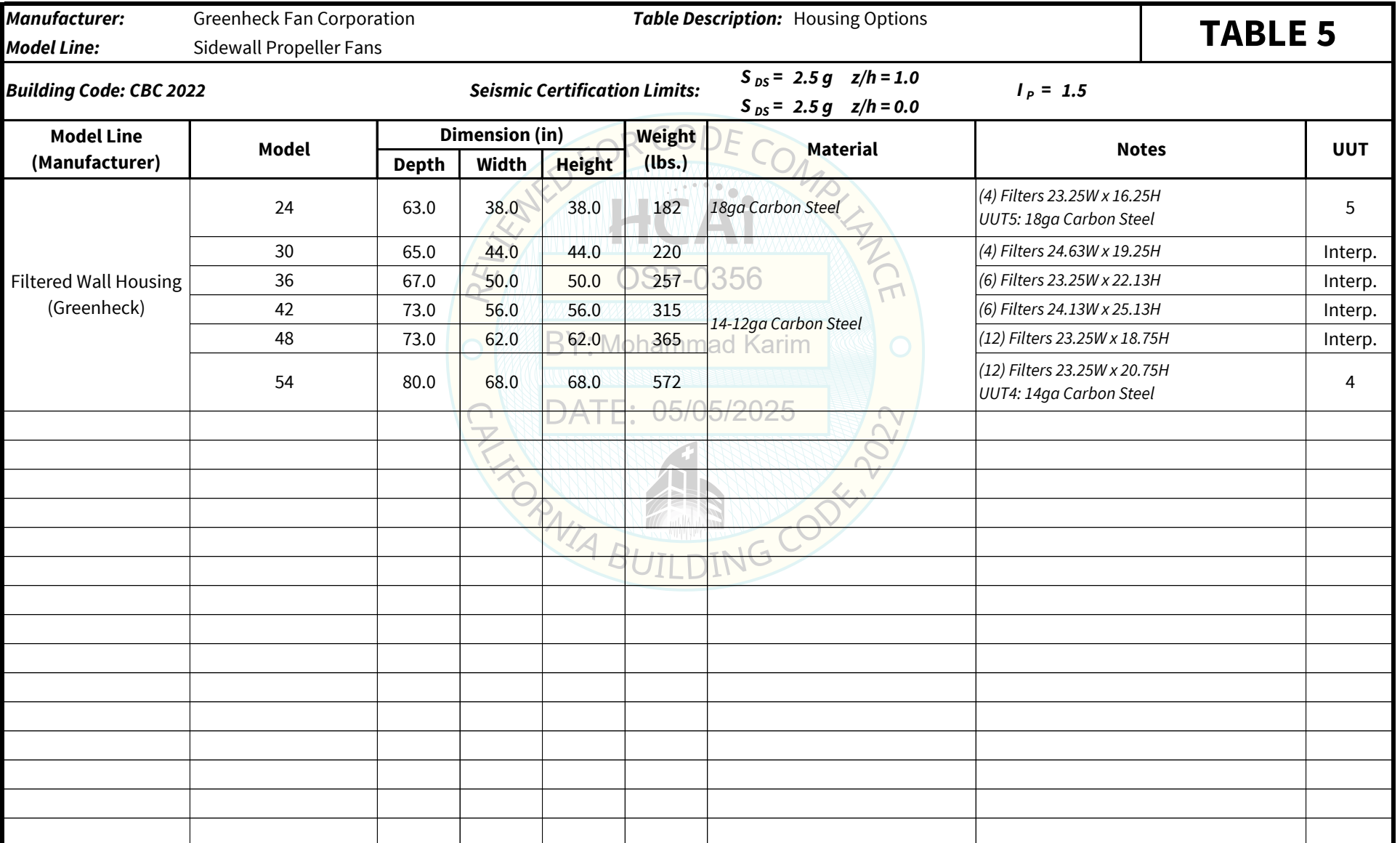


Manufacturer: Greenheck Fan Corporation		Table Description: Housing Options					TABLE 5	
Model Line: Sidewall Propeller Fans								
Building Code: CBC 2022		Seismic Certification Limits:		$S_{DS} = 2.5\text{ g} \quad z/h = 1.0$ $S_{DS} = 2.5\text{ g} \quad z/h = 0.0$		$I_P = 1.5$		
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT
		Depth	Width	Height				
Short Wall Housing (Greenheck)	30	38.0	44.0	44.0	148	18-12ga Carbon Steel		Interp.
	36	39.0	50.0	50.0	177			Interp.
	42	44.0	56.0	56.0	207			Interp.
	48	44.0	62.0	62.0	250	14-12ga Carbon Steel		Interp.
	54	51.0	68.0	68.0	365			Interp.
	60	54.0	74.0	74.0	450		Interp.	
	72	54.0	89.0	89.0	1,100	12ga Carbon Steel		Interp.
Long Wall Housing (Greenheck)	8	25.0	16.0	16.0	26	20ga Carbon Steel		Interp.
	10	25.0	18.0	18.0	32			Interp.
	12	29.0	21.0	21.0	41			Interp.
	14	32.0	23.0	23.0	50			Interp.
	16	33.0	25.0	25.0	56			Interp.
	18	34.0	27.0	27.0	64			Interp.
	20	38.0	29.0	29.0	85			Interp.
	24	43.0	38.0	38.0	125		18-12ga Carbon Steel	
	30	44.0	44.0	44.0	148			Interp.
	36	45.0	50.0	50.0	177			Interp.
	42	48.0	56.0	56.0	207	20-14ga Carbon Steel		Interp.
	48	50.0	62.0	62.0	250			Interp.
	54	56.0	68.0	68.0	365			Interp.
	60	60.0	74.0	74.0	450			Interp.
	72	60.0	89.0	89.0	1,100	12ga Carbon Steel	UUT7: 12ga Carbon Steel	7

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Options and Accessories					TABLE 6	
Model Line: Sidewall Propeller Fans								
Building Code: CBC 2022		Seismic Certification Limits:			$S_{DS} = 2.5\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$		$I_P = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT
		Depth	Width	Height				
Motor Side Guard ¹ (Greenheck)	20	17.0	28.0	28.0	15	18ga Welded Carbon Steel Wire	UUT8: 18ga Carbon Steel	8
	24	20.0	34.0	34.0	20		UUT2: 18ga Carbon Steel	2
	30	23.0	40.0	40.0	26			Interp.
	36	24.0	46.0	46.0	30			Interp.
	42	26.0	53.0	53.0	37			Interp.
	48	29.0	59.0	59.0	42			Interp.
Damper Guard ¹ (Greenheck)	8	6.0	10.0	10.0	6	18ga Carbon Steel Frame with Expanded Steel Screen		Interp.
	10	7.0	12.0	12.0	8			Interp.
	12	5.0	14.0	14.0	9			Interp.
	14	6.0	16.0	16.0	11			Interp.
	16	7.0	18.0	18.0	13			Interp.
	18	6.0	20.0	20.0	14			Interp.
	20	7.0	22.0	22.0	17		UUT8: 18ga Carbon Steel	8
	24	6.0	26.0	26.0	21			Interp.
	30	7.0	32.0	32.0	22			Interp.
	36	4.0	38.0	38.0	24			Interp.
	42	10.0	44.0	44.0	38			Interp.
	48	9.0	50.0	50.0	39			Interp.
	54	8.0	56.0	56.0	44			Interp.
	60	7.0	62.0	62.0	48			Interp.
	72	8.0	74.0	74.0	58			Interp.
Notes:								
1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.								

Notes:

1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Options and Accessories					TABLE 6			
Model Line: Sidewall Propeller Fans										
Building Code: CBC 2022		Seismic Certification Limits:					$S_{DS} = 2.5\text{ g} \quad z/h = 1.0$ $S_{DS} = 2.5\text{ g} \quad z/h = 0.0$		$I_P = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT		
		Depth	Width	Height						
OSHA Side Guard ¹ (Greenheck)	8	10.0	13.0	13.0	8	20ga Carbon Steel Frame with Steel Screen		Interp.		
	10	10.0	15.0	15.0	12			Interp.		
	12	12.0	18.0	18.0	17			Interp.		
	14	12.0	20.0	20.0	19			Interp.		
	16	12.0	22.0	22.0	21		UUT3: 20ga Carbon Steel	3		
	18	12.0	24.0	24.0	24	18-12ga Carbon Steel Frame with Steel Screen		Interp.		
	20	18.0	26.0	26.0	26			Interp.		
	24	20.0	32.0	32.0	27		UUT5: 18ga Carbon Steel	5		
	30	22.0	38.0	38.0	36			Interp.		
	36	24.0	44.0	44.0	63			Interp.		
	42	29.0	50.0	50.0	67	16-12ga Carbon Steel Frame with Steel Screen		Interp.		
	48	28.0	56.0	56.0	72			Interp.		
	54	34.0	62.0	62.0	98		UUT4: 16ga Carbon Steel	4		
	60	34.0	68.0	68.0	105		UUT6: 16ga Carbon Steel	6		
	72	34.0	82.0	82.0	132		UUT7: 12ga Carbon Steel	7		
	Steel Weatherhood 45° Turn Down (Greenheck) ²	8	13.0	11.0	12.0	9	18-16ga Carbon Steel		Extrap.	
10		15.0	13.0	14.0	12			Extrap.		
12		46.0	15.0	17.0	15			Extrap.		
14		18.0	17.0	19.0	18			Extrap.		
16		19.0	19.0	21.0	21			Extrap.		
18		22.0	21.0	23.0	26			Extrap.		
Notes:										
1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.										
2. UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.										

- Notes:**
- Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.
 - UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Options and Accessories					TABLE 6			
Model Line: Sidewall Propeller Fans										
Building Code: CBC 2022		Seismic Certification Limits:					$S_{DS} = 2.5\text{ g} \quad z/h = 1.0$ $S_{DS} = 2.5\text{ g} \quad z/h = 0.0$		$I_P = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT		
		Depth	Width	Height						
Steel Weatherhood 45° Turn Down (Greenheck) ²	20	25.0	23.0	25.0	31	18-16ga Carbon Steel		Extrap.		
	24	27.0	29.0	22.0	43			Extrap.		
	30	29.0	35.0	38.0	53			Extrap.		
	36	33.0	41.0	44.0	68	16ga Carbon Steel		Extrap.		
	42	36.0	47.0	50.0	81			Extrap.		
	48	40.0	53.0	56.0	105			Extrap.		
	54	45.0	60.0	62.0	150		UUT1: 16ga Carbon Steel w/ Bird Screen	1		
	60	48.0	66.0	68.0	184			Interp.		
	72	53.0	78.0	81.0	214		UUT15: 16ga Carbon Steel w/ Bird Screen	15		
Steel Weatherhood 90° Turn Down (Greenheck)	8	16.0	11.0	13.0	12	18-16ga Carbon Steel		Interp.		
	10	19.0	13.0	15.0	16			Interp.		
	12	20.0	15.0	18.0	20			Interp.		
	14	23.0	17.0	20.0	24			Interp.		
	16	25.0	19.0	22.0	29			Interp.		
	18	28.0	21.0	24.0	35			Interp.		
	20	30.0	23.0	26.0	42			Interp.		
	24	36.0	29.0	33.0	61		UUT5: 18ga Carbon Steel w/ Bird Screen	5		
	30	40.0	35.0	39.0	79	16-12ga Carbon Steel		Interp.		
	36	46.0	41.0	45.0	104			Interp.		
	42	49.0	47.0	51.0	127			Interp.		
	48	56.0	53.0	57.0	163			Interp.		
Notes:										
1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.										
2. UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.										

Notes:

- Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.
- UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Options and Accessories					TABLE 6			
Model Line: Sidewall Propeller Fans										
Building Code: CBC 2022		Seismic Certification Limits:					$S_{DS} = 2.5 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$		$I_P = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT		
		Depth	Width	Height						
Aluminum Weatherhood 45° Turn Down (Greenheck)	8	13.0	11.0	12.0	5	0.063 Aluminum		Extrap.		
	10	15.0	13.0	14.0	7			Extrap.		
	12	46.0	15.0	17.0	8			Extrap.		
	14	18.0	17.0	19.0	10			Extrap.		
	16	19.0	19.0	21.0	12			Extrap.		
	18	22.0	21.0	23.0	14			Extrap.		
	20	25.0	23.0	25.0	17			Extrap.		
	24	27.0	29.0	22.0	24			Extrap.		
	30	29.0	35.0	38.0	29			Extrap.		
	36	33.0	41.0	44.0	37			Extrap.		
	42	36.0	47.0	50.0	44			Extrap.		
	48	40.0	53.0	56.0	56			Extrap.		
	54	45.0	60.0	62.0	71			Extrap.		
	60	48.0	66.0	68.0	90		UUT6: 16ga Aluminum w/ Bird Screen	6		
	72	53.0	78.0	81.0	116			Interp.		
Aluminum Weatherhood 90° Turn Down (Greenheck) ²	8	16.0	11.0	13.0	7	0.063 Aluminum		Interp.		
	10	19.0	13.0	15.0	8			Interp.		
	12	20.0	15.0	18.0	11			Interp.		
	14	23.0	17.0	20.0	13			Interp.		
	16	25.0	19.0	22.0	16			Interp.		
Notes:										
1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.										
2. UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.										

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TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation		Table Description: Options and Accessories					TABLE 6	
Model Line: Sidewall Propeller Fans								
Building Code: CBC 2022		Seismic Certification Limits:			$S_{DS} = 2.5\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$		$I_p = 1.5$	
Model Line (Manufacturer)	Model	Dimension (in)			Weight (lbs.)	Material	Notes	UUT
		Depth	Width	Height				
Aluminum Weatherhood 90° Turn Down (Greenheck) ²	18	28.0	21.0	24.0	19	0.063 Aluminum		Interp.
	20	30.0	23.0	26.0	22			Interp.
	24	36.0	29.0	33.0	32			Interp.
	30	40.0	35.0	39.0	42			Interp.
	36	46.0	41.0	45.0	54			Interp.
	42	49.0	47.0	51.0	67			Interp.
	48	56.0	53.0	57.0	83			Interp.
	54	61.0	60.0	64.0	102		UUT4: 16ga Aluminum w/ Bird Screen	4
	60	67.0	66.0	70.0	133			Interp.
	72	72.0	78.0	82.0	148		UUT16: 16ga Aluminum w/ Bird Screen and Rain Guard	16
Notes:								
1. Motor Side Guard, Damper Guard and OSHA Side Guard are structurally the same.								
2. UUT12 thru UUT16 and related interpolated units shall be attached directly to wall/structure through unit housing, and shall not be attached to any other component.								

TRU PROJECT NO. 1800859, Rev. 1

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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation

Model Line: Sidewall Propeller Fans

UUT	Unit Description (mounting)	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	I _p
1	SE2-54-416-C75 Direct Drive (wall mounted - rigid)	12774, Rev. 3 (UUT1)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
2	SE1-24-432-B7 Direct Drive (wall mounted - rigid)	12774, Rev. 3 (UUT2)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
3	SE2-16-423-A3 Direct Drive (wall mounted - rigid)	12774, Rev. 3 (UUT3)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
4	SCS3-54-315-C75 Direct Drive (wall mounted - rigid)	12774, Rev. 3 (UUT4)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
5	SBS-2H24-10 Belt Drive (wall mounted - rigid)	12774, Rev. 3 (UUT5)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
6	SBE-2H60-50 Belt Drive (wall mounted - rigid)	12774, Rev. 3 (UUT6)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
7	SBS-3L72-200 Belt Drive (wall mounted - rigid)	12774, Rev. 3 (UUT7)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
8	SBE-1L20-5 Belt Drive (wall mounted - rigid)	12774, Rev. 3 (UUT8)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
9	SBCR-72-200 Belt Drive (wall mounted - rigid)	12774, Rev. 3 (UUT9)	Environmental Testing Lab (ETL)	2013	Yes	2.5 2.5	1.0 0.0	1.5
10	AER - 20 (wall mounted - rigid)	15133, Rev. 1 (UUT10)	Environmental Testing Lab (ETL)	2019	Yes	2.5 2.5	1.0 0.0	1.5
11	AER - 60 (wall mounted - rigid)	15133, Rev. 1 (UUT11)	Environmental Testing Lab (ETL)	2019	Yes	2.5 2.5	1.0 0.0	1.5

Notes:

TRU PROJECT NO. 1800859, Rev. 1



* UUT12 thru UUT16 are only dampers attached directly to wall/structure through unit housing.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 1
Model Line:	Sidewall Propeller Fans	
Model Number:	SE2-54-416-C75 Direct Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT1)

UUT Properties						
Weight (lbs.) ¹	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
561	30.1	62.0	62.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
14ga Carbon Steel Fan Panel. Propeller made of Steel Blades and Hub - Welded.	

Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Backdraft Damper (Gravity, 56Wx56H)	Greenheck	WD-300	
Disconnect (Toggle - 30A)	Square-D	NEMA 1	
Fan Motors (230V - 3 Phase)	WEG	7.5 HP	
Steel weatherhead 45° Turn Down (16ga carbon steel w/ bird screen)	Greenheck	54	

Test Mounting Details:
¹ Weight is of fan only  UUT1: Weatherhead  Greenheck Damper WD300 56Wx56H UUT1 was wall mounted - rigid to the test fixture using sixteen (16) 3/8" x 3" lag screws. Greenheck damper and weatherhead attached using eighteen (18) and twenty (20) 3/8" x 3" lag screws. 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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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 2
Model Line:	Sidewall Propeller Fans	
Model Number:	SE1-24-432-B7 Direct Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT2)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
166	21.0	32.0	32.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
18ga Carbon Steel Fan Panel. Propeller made of Stamped Aluminum Blades with Carbon Steel Hub.	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Backdraft Damper (26Wx26H)	Greenheck	VCD-20
Damper Actuator (20in-lbs)	Honeywell	ML4202F1000
Disconnect (Toggle - 30A)	Square-D	NEMA 3R
Fan Motor (115V - 1 phase)	Marathon	3/4 HP
Motorized Side Guard (18ga carbon steel)	Greenheck	24
Wall Collar (18ga carbon steel)	Greenheck	24



UUT2

UUT2 was wall mounted - rigid to the test fixture using twelve (12) 3/8" x 3" lag screws.

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

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 3
Model Line:	Sidewall Propeller Fans	
Model Number:	SE2-16-423-A3 Direct Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT3)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
78	14.0	22.0	22.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
18ga Carbon Steel Fan Panel. Propeller made of Steel Blades and Hub - Welded.	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Disconnect (30A)	Square-D	NEMA 4
Fan Motor (115V - 1 phase)	Vari-Green	1/4 HP
OSHA Side Guard (20ga carbon steel)	Greenheck	16
Short Wall Housing (20ga carbon steel)	Greenheck	16



UUT3 was wall mounted - rigid to the test fixture using twelve (12) 3/8" x 3" lag screws.

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

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 4
Model Line:	Sidewall Propeller Fans	
Model Number:	SCS3-54-315-C75 Direct Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT4)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,018	142.3	68.4	68.4	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
14ga Carbon Steel Fan Panel. Propeller made of Cast Aluminum Blades and Hub.	

Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Aluminum Weatherhead 90° Turn Down (16ga aluminum w/ bird screen)	Greenheck	54	
Backdraft Damper (Motorized, 56Wx56H)	Greenheck	VCD-42	
Damper Actuator (175 in-lbs)	Honeywell	MS4120F1006	
Disconnects (30A)	Square-D	NEMA 3R Heavy Duty	
Fan Motor (230V - 1 phase)	Vari-Green	2.0 HP	
Filtered Wall Housing (12 filters 23.25Wx20.75H) (14ga carbon steel)	Greenheck	54	
OSHA Side Guard (16ga carbon steel)	Greenheck	54	
			UUT4 was wall mounted - rigid to the test fixture using sixteen (16) 3/8" x 3" lag screws, two (2) 1/2" all threaded rods and twenty 1/4" tek screws (weatherhood). 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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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 5
Model Line:	Sidewall Propeller Fans	
Model Number:	SBS-2H24-10 Belt Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT5)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
329	99.8	38.3	38.3	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
18ga Carbon Steel Fan Panel. H Type Propeller made of Dual Thickness Carbon Steel Blades and Hub – Riveted.	

Options/Subcomponent Summary:			 UUT5 was wall mounted - rigid to the test fixture using twelve (12) 3/8" x 3" lag screws. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.
Description	Mfr.	Part Number	
Backdraft Damper (Motorized, 26Wx26H)	Greenheck	VCD-43	
Damper Actuator (175in-lbs)	Honeywell	ML8202F1006	
Disconnects (30A)	Square-D	NEMA 4 Heavy Duty	
Fan Motor (115V - 1 phase)	Baldor	1 HP	
Filtered Wall Housing (4 filters 23.25Wx16.25H) (18ga carbon steel)	Greenheck	24	
OSHA Side Guard (18ga carbon steel)	Greenheck	24	
Steel weatherhead 90° Turn Down (18ga carbon steel w/ bird screen)	Greenheck	24	

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 6
Model Line:	Sidewall Propeller Fans	
Model Number:	SBE-2H60-50 Belt Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT6)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
805	105.3	74.4	74.4	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
14ga Carbon Steel Fan Panel. H Type Propeller made of Dual Thickness Carbon Steel Blades and Hub – Riveted.	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Aluminum Weatherhead 45° Turn Down (16ga aluminum w/ bird screen)	Greenheck	60
Backdraft Damper (Motorized, 62Wx62H)	Greenheck	VCD-23
Damper Actuator (175 in-lbs)	Honeywell	MS4120F1006
Disconnect (Toggle - 30A)	Square-D	NEMA 3R
Fan Motor (460V - 3 phase)	Marathon	5 HP
OSHA Side Guard (16ga carbon steel)	Greenheck	60
Wall Collar (16ga carbon steel)	Greenheck	60



UUT6



UUT6 was wall mounted - rigid to the test fixture using sixteen (16) 3/8" x 3" lag screws.

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

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 7
Model Line:	Sidewall Propeller Fans	
Model Number:	SBS-3L 72-200 Belt Drive	
Serial Number:	N/A	
		Test Report: 12774, Rev. 3 (UUT7)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,942	73.0	91.1	91.1	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
12ga Carbon Steel Fan Panel. L Type Propeller made of Steel Blades and Hub - Welded.	

Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Backdraft Damper (Motorized, 74Wx74H)	Greenheck	VCD-20	
Damper Actuator (175 in-lbs)	Honeywell	MS8120F1002	
Disconnects (Toggle - 40A)	ABB	NEMA 4X	
Fan Motor (460V - 3 phase)	Baldor	20 HP	
Long Wall Housing (12ga carbon steel)	Greenheck	72	
OSHA Side Guard (12ga carbon steel)	Greenheck	72	
			UUT7 was wall mounted - rigid to the test fixture using twenty (20) 3/8" x 3" lag screws. 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. 1800859, Rev. 1



UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation
Model Line: Sidewall Propeller Fans
Model Number: SBCR-72-200 Belt Drive
Serial Number: N/A

UUT 9

Test Report: 12774, Rev. 3 (UUT9)

UUT Properties

Weight (lbs.) ¹	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
860	35.0	82.0	82.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67
		2.5	0.0					

Product Construction Summary:

12ga Galvanized Steel Fan Panel.
Cast Aluminum Blades and Hub.

Test Mounting Details:



Options/Subcomponent Summary:

Description	Mfr.	Part Number
Backdraft Damper (Motorized, 74Wx74H)	Greenheck	VCD-34
Damper Actuator (180in-lbs)	Belimo	AFBUP-S
Disconnects (Toggle - 40A)	ABB	NEMA 4
Fan Motor (460V - 3 phase)	Marathon	20 HP

Test Mounting Details:

¹ Weight is of fan only

UUT9 was wall mounted - rigid to the test fixture using forty (40) 3/8" x 3" lag screws. Greenheck damper attached using twenty-two (22) 3/8" x 3" lag screws.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation
Model Line: Sidewall Propeller Fans
Model Number: AER - 20
Serial Number: 15743375

UUT 10

Test Report: 15133, Rev. 1 (UUT10)

UUT Properties

Weight (lbs.) ¹	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
82	20.0	26.0	26.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67
		2.5	0.0					

Product Construction Summary:

16ga Carbon Steel Fan Panel.
 Cast Aluminum Blades and Hub.

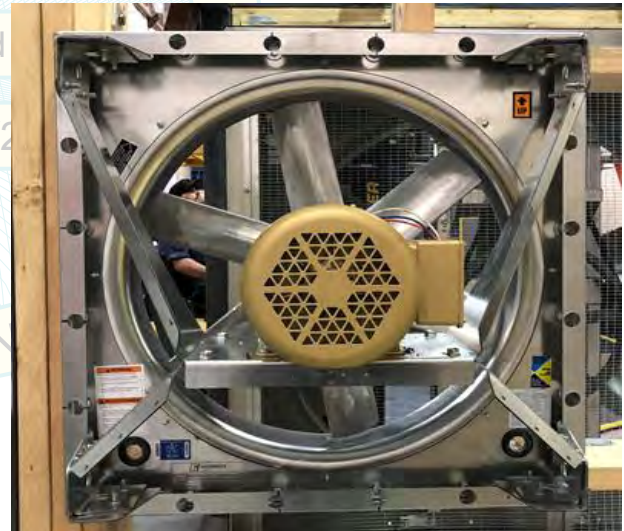
Test Mounting Details:

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Fan Motor (230/460V - 3 phase)	Baldor	2 HP

Test Mounting Details:

¹ Weight is of fan only



UUT10 was wall mounted - rigid to the test fixture using eight (8) 3/8" x 2" lag bolts with washers.
 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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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer: Greenheck Fan Corporation
Model Line: Sidewall Propeller Fans
Model Number: AER - 60
Serial Number: 15698227

UUT 11

Test Report: 15133, Rev. 1 (UUT11)

UUT Properties

Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
838	35.0	68.0	68.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67
		2.5	0.0					

Product Construction Summary:

14ga Carbon Steel Fan Panel.
 Cast Aluminum Blades and Hub.

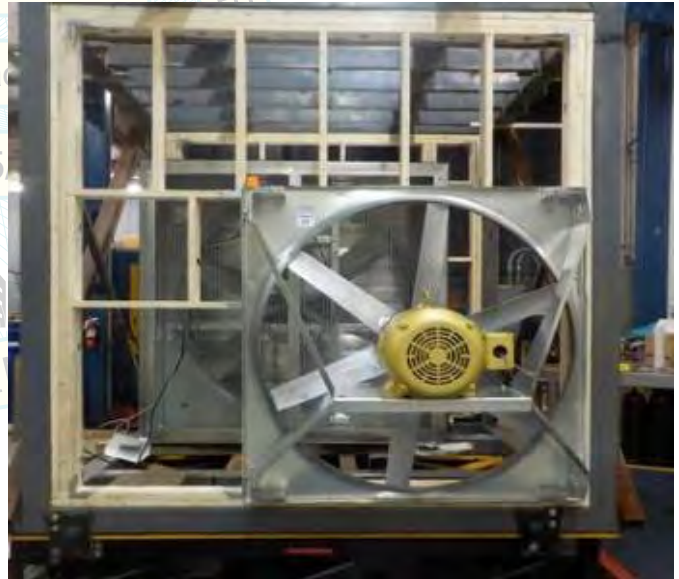
Test Mounting Details:

Options/Subcomponent Summary:

Description	Mfr.	Part Number
Fan Motor (460V - 3 phase)	Baldor	20 HP

Test Mounting Details:

¹ Weight is of fan only



UUT11 was wall mounted - rigid to the test fixture using twenty (20) 3/8" x 2" lag bolts with washers.
 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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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 12
Model Line:	Sidewall Propeller Fans	
Model Number:	VCD-42 Damper (On Fan)	
Serial Number:	N/A	
		Test Report: 15133, Rev. 1 (UUT12)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
164	5.3	74.0	74.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
16ga Carbon Steel Frame. 0.063" Aluminum Blades.	

Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Backdraft Damper (Motorized, 74Wx74H)	Greenheck	VCD-42	
Damper Actuator (175in-lbs)	Honeywell	MS4120F1006	
			UUT12 was mounted to the unit housing using twenty two (22) #12 x 5/8" self tapping screws and rubber washers. The unit was wall mounted - rigid to the test fixture using nineteen (19) 3/8" x 2" lag bolts with washers. 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. 1800859, Rev. 1



TRU PROJECT NO. 1800859, Rev. 1



UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1



Manufacturer:	Greenheck Fan Corporation	UUT 15
Model Line:	Sidewall Propeller Fans	
Model Number:	45° Turndown Weatherhood (On Fan)	
Serial Number:	N/A	
Test Report: 15133, Rev. 1 (UUT15)		

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
116	53.0	78.0	81.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
16ga Carbon Steel	

Options/Subcomponent Summary:		
Description	Mfr.	Part Number
Steel weatherhead 45° Turn Down (16ga carbon steel w/ bird screen)	Greenheck	72

Test Mounting Details:
 UUT15 was mounted to the unit housing using eighteen (18) #12 x 5/8" self tapping screws and rubber washers. The unit was wall mounted - rigid to the test fixture using twenty (20) 3/8" x 3" lag bolts with washers. 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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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800859, Rev. 1

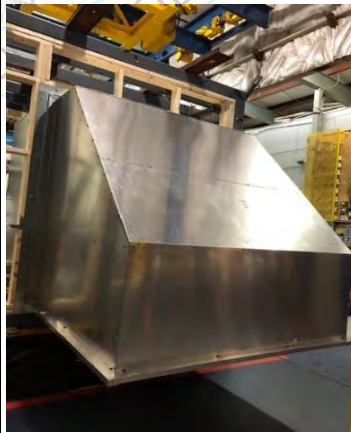


Manufacturer:	Greenheck Fan Corporation	UUT 16
Model Line:	Sidewall Propeller Fans	
Model Number:	90° Turndown Weatherhood (On Fan)	
Serial Number:	N/A	
		Test Report: 15133, Rev. 1 (UUT16)

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
214	72.0	78.0	82.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67	
		2.5	0.0						

Product Construction Summary:	Test Mounting Details:
16ga Aluminum	

Options/Subcomponent Summary:			
Description	Mfr.	Part Number	
Aluminum Weatherhead 90° Turn Down (16ga aluminum w/ bird screen and rain guard)	Greenheck	72	
			
			UUT16 was mounted to the unit housing using twenty-one (21) #12 x 5/8" self tapping screws and rubber washers. The unit was wall mounted - rigid to the test fixture using nineteen (19) 3/8" x 2" lag bolts with washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.