OFFICE USE ONLY APPLICATION FOR OSHPD SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP)** OSP - 0460-10 **APPLICATION #: OSHPD Special Seismic Certification Preapproval (OSP)** New □ Renewal **Manufacturer Information** Manufacturer: Halton Company Manufacturer's Technical Representative: Greg Lyons Mailing Address: 26241 W. Leslie Drive, Channahon, IL 60410 Telephone: 815.467.8033 Email: rschmidt@haltoncompany.com **Product Information** Product Name: EcoloAir **Custom Air Conditioning Units** Product Type: Product Model Number: See Attached (List all unique product identification numbers and/or part numbers) Unit consists of three modules including a filter module, odor control module and a fan module. All modules are constructed of 16-gauge painted carbon steel. Externally mounted stainless steel control panels. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units. Mounting Description: Units are rigid and isolated base mounted. **Applicant Information** Applicant Company Name: TRU Compliance, LLC - A Tobolski Watkins Affiliate Contact Person: Derek J. Manwill, S.E. Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702 Email: dmanwill@trucompliance.com Telephone: 844.878.0200 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: 03/10/2016 Company Name: TRU Compliance, LLC Title: Vice President

"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, LLC
Name: Derek J. Manwill, S.E. California License Number: S6266
Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702
Telephone: 844.878.0200 Email: dmanwill@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: Russell Matich
Mailing Address: 1801 Route 51 South, Jefferson Hills, PA 15025
Telephone: 412.387.1001 Email: rmatich@clarktesting.com



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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 $(F_p/W_p) = Rigid: 1.5(S_{DS} = 2.0g), 1.44(S_{DS} = 3.2g);$ Isolated: 4.5(S _{DS} = 2.0g), 2.4(S _{DS} = 3.2g)
S _{DS} (Design spectral response acceleration at short period, g) = 2.0g (z/h = 1.0); 3.2g (z/h = 0.0)
a _p (In-structure equipment or component amplification factor) = Rigid: 2.5; Isolated: 2.5
R _p (Equipment or component response modification factor) = Rigid: 6.0; Isolated: 2.0
$Ω_0$ (System overstrength factor) = 2.0
I _p (Importance factor) = 1.5
z/h (Height factor ratio) = $1.0 (S_{DS} = 2.0g)$; $0.0 (S_{DS} = 3.2g)$
Equipment or Component Natural Frequencies (Hz) = See attached
Overall dimensions and weight (or range thereof) = See attached
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): Attachment A
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022
Signature: Date: 3/18/16
Print Name: M. R. Karim Special Seismic Certification Valid Up to: S _{DS} (g) = See Above Z/h = See Above
Condition of Approval (if applicable):

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Manufacturer: Halton Company

Model Line: EcoloAir

TABLE 1

Certified Product Construction Summary:

Filter module: Double wall construction reinforced and braced, 16GA. carbon steel inner walls liquid tight welded, 20GA. carbon steel outer walls. **Odor control module:** 16GA. carbon steel. **Fan module:** 16GA. carbon steel. Internally isolated fan.

Certified Options Summary:

Weather proof insulation, fire suppression system, VFD.

Mounting Configuration:

Rigid and isolated base mounted.

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

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

 $S_{DS} = 3.2 \quad z/h = 0.0$

 $I_P = 1.5$

Model Line	Model	Di	imension (in)	Weight	Notes	UUT
Model Line	Model	Depth	Width	Height	(lb)	Notes	001
	3000 CFM	46.4	113	33	1,348		1
	4000 CFM	58.4	113	33	1,935		
	5000 CFM	70.4	113	33	2,163		
EcoloAir	6000 CFM	58.4	118	42	2,385		
	8000 CFM	58.4	123	54	2,720		
	10000 CFM	70.4	128	54	3,260		
	12000 CFM	82.4	128	56	3,480		2





Manufacturer:	Halton Company							TABLE 2	
Model Line:	EcoloAir						IAL)LL Z	
Certified Product Const									
16 GA. stainless steel er	nclosure.								
Certified Options Sumn									
No cetified options or a	ccessories.								
Mounting Configuratio	n:								
Wall mounted - rigid.									
Note: Installed mounting con	figuration must be of similar o	configuration a	ınd equivalen	t strength an	d stiffness to t	hose tested.			
Building Code: CBC 202	16	Spismic	Certificati	on Limits:	S _{DS} =	2.0 z/h	= 1.0	I _P = 1.5	
bunding code. CBC 201		Seismic Certification Limits: $S_{DS} = 2.0 z/$				3.2 z/h	= 0.0		
Model Line	Model		mension (Weight		Notes	UUT	
		Depth	Width	Height	(lb)				
EcoloAir	Control Panel	7	15	24	25			3	
		7	22	24	46			4	

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Manufacturer: Halton Company Table Description: Motors, Compressors & Fans

Model Line: EcoloAir

TABLE 3

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

Component Type	Manufacturer	Model	Description	Notes	UUT
		00736ET3E213T-W22	7.5 HP, 208/460V, 3600 RPM		1
N.4 - t	W/	01036ET3E215T-W22	10 HP, 208/460V, 3600 RPM		
Motor	Weg	01518ET3E254T-W22	15 HP 208/460V, 1800 RPM		
		02018ET3E256T-W22	20 HP, 208/460V, 1800 RPM		2
		W213T	Double adjust slide base for 213T motor		1
Motor Doso	NA7l -l NA75 -l -	W215T	Double adjust slide base for 215T motor		
Motor Base	World Wide	W254T	Double adjust slide base for 254T motor		
		W256T	Double adjust slide base for 256T motor		2
Compressor	Gast	DOA-P701-AA	1/8 HP, 115V, 4.2A		1,2
		ATZAF 12-12 T2	Carbon steel, 4350 RPM max, 12.7" diam.		1
		ATZAF 15-15 T2	Carbon steel, 3500 RPM max, 16.1" diam.		
Fan	Comefri	ATZAF 18-18 T2	Carbon steel, 3100 RPM max, 18.1" diam.		
Fall		ATZAF 20-20 T2	Carbon steel, 2750 RPM max, 20.1" diam.		
		ATZAF 22-22 T2	Carbon steel, 2500 RPM max, 22.6" diam.		2
	Orion	OA938AP-11-1WB	115VAC, aluminum, 3100RPM, 9W		1,2
Fan Shroud	Hoffman	T4S3R	16GA. carbon steel, NEMA 3R, 4"		1,2

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Manufacturer: Halton Company Table Description: Filters & Dampers

Model Line: EcoloAir

TABLE 4

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

ilding Code: CBC 2016		Seismic	Certificati	on Limits:	S _{DS} =	1.5			
Model Line	Model	Dimension (in)			Weight	Material	Notes	UUT	
(Manufacturer)	Woder	Depth	Width	Height	(lb)	iviateriai	Notes		
Aero Pleat III	116300-005	2	12	24		Beverage board frame, MERV 8		1	
(Camfil)	116300-006	2	24	24		Beverage board frame, MERV 8		1,2	
Hi-Flow 95	HF95/24/12/15/6	15	12	24		Carbon steel box channel, MERV 14		1	
(Camfil)	HF95/24/24/15/12	15	24	24		Carbon steel box channel, MERV 14		1,2	
Durafil ES	DU4V-ES-1224-MV16	12	24	12		Plastic frame, MERV 16		1	
(Camfil)	DU4V-ES-2424-MV16	12	24	24		Plastic frame, MERV 16		1,2	
		4	36	24		Carbon steel frame, stainless springs		1	
Fire Damper FD-VA		4	48	24		Carbon steel frame, stainless springs			
	FD-VA	4	48	36		Carbon steel frame, stainless springs			
		4	48	48		Carbon steel frame, stainless springs			
		4	60	48		Carbon steel frame, stainless springs			
		4	72	48		Carbon steel frame, stainless springs		2	

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Manufacturer: Model Line:	Halton Company EcoloAir					TABLE 5		
Building Code: CBC 2	2016	Seismic Certification Limits:			S _{DS} = S _{DS} =	2.0 $z/h = 1.0$ 3.2 $z/h = 0.0$		
Model Line (Manufacturer)	Model	Di Depth	mension (Width	in) Height	Weight (lb)	Material	Notes	UUT
WM Enclosure	WM161208NC	8	12	16	Carbon steel, NEMA Type 1/3R/4/12		1,2	
(Rittal)	WM242412NC	12	24	24		Carbon steel, NEMA Type 1/3R/4/12		1,2

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 Manufacturer:
 Halton Company
 Table Description:
 Electrical Components

 Model Line:
 EcoloAir

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

Building Code: CBC 2016	•	Seismic Certification Limits: $I_p = 1.5$ $S_{DS} = 3.2$ $z/h = 0.0$							
Component Type	Manufacturer	Model	Description	Notes	υυτ				
		2651-001WD	0-1"W.C.		1,2				
Pressure Transducer	Setra	2651-2R5WD	0-2.5"W.C.		1,2				
		2651-050WD	0-5"W.C.		1,2				
Dolov	Square D	RPM21B7	24V coil, 250V contact, 15A		1,2				
Relay	Square D	RPZF2	250V rating, 16A socket		1,2				
Constants	McGill	0852-0011N	120/277VAC, 1P, 15A, SPST rocker		1,2				
Switch	Ansul	423879	21A, DPDT micro switch		1,2				
The awar a stat	White Rodgers	3F01-350NO	120/240/277VAC, 350F Limit		1,2				
Thermostat	Caloritech	SS101	125V		1,2				
Transformer	SOLA	E100TE	100VA, 208/240/415, 200/230/400, 220/380VAC		1,2				
Controller	Omron	61F-GP-N8-AC120	120VAC, 8-pin		1,2				
		22B-B024N	7.5HP, 240VAC, 24A		1				
		22B-B033N	10HP, 240VAC, 33A						
VFD	Allen-Bradley	22B-D024N	15HP, 480VAC, 24A						
		22C-D030N	20HP, 480VAC, 30A						
		22C-D038N	25HP, 480VAC, 38A		2				
Fire	Durananan	JKS-40	40A, 600VAC		1,2				
Fuse	Bussmann	ABC3	3A, 250VAC, ceramic		1,2				
Fuse Holder	Square D	AB1FUSE435U6X	15A, 600V		1,2				

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Manufacturer: **Table Description:** Electrical Components **Halton Company TABLE 6** Model Line: EcoloAir $S_{DS} = 2.0$ z/h = 1.0Building Code: CBC 2016 Seismic Certification Limits: $I_P = 1.5$ $S_{DS} = 3.2$ z/h = 0.0Manufacturer Model Description UUT **Component Type** Notes Electrode Omron F03-60 SUS316 stainless steel 1,2 Electrode Holder Omron PS3S 3P, PBT resin 1,2 Caloritech SS1001125W 120V, 125W Heater 1,2 Actuator Ansul 429850 Regulated actuator assembly with enclosure 1,2

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Manufacturer:Halton CompanyTable Description:MiscellaneousModel Line:EcoloAir

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

anding code. cbc 201		Scisinic certification zini	$S_{DS} = 3.2 z/h = 0.0$	$S_{DS} = 3.2 z/h = 0.0$						
Component Type	Manufacturer	Model	Description	Notes	υυτ					
Tank	Ansul	429862	Stainless steel, holds agent		1,2					
Latch	Sierra Pacific Eng.	173	Die cast zinc, compression over-center lever		1,2					
Air Cylinder	SMC	AF20-N02C-C7	Body size 20, NPT threads, 1/4" port		1,2					
Hinge	Sierra Pacific Eng.	FH200BKP	Plastic friction hinge, large		1,2					
Sheave & Bushings	Browning	2B5V60	Cast iron, 6.28" diameter		1,2					
Dol+	Catas	BX55	Cogged V-belt, 58"		1					
Belt	Gates	BX90	Cogged V-belt, 93"		2					

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Manufacturer: Halton Company Table Description: Electrical Components for External Panel

Model Line: EcoloAir

TABLE 8

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

		$S_{DS} = 3.2 z/h = 0.0$							
Component Type	Manufacturer	Model	Description	Notes					
Relay	Schneider Electric	781XAXM4L-24A	24VAC, 20A, 180Ω coil resistance		3,4				
Switch	Schurter	MSM 22-ST	24V, 0.8A		3,4				
Transformer	HPS	PH100PG	100VA, 120/240VAC in, 12x24VAC out, 8.33/4.17A		3,4				
Controller	Halton	MC8 Rev 3	24V, 4A	UUT 4 (2) installed	3,4				
	Duranana	ABC-3	3A, 250VAC, ceramic		3,4				
Fuse	Bussmann	ABC-1/4	0.25A, 250VAC, ceramic		3,4				
	Ferraz Shawmut	ATM5	5A, 600VAC/VDC		3,4				
Free Helden	Ferraz Shawmut	USM1	30A, 600VAC, 1P		3,4				
Fuse Holder	Square D	AB1FUSE435U6X	15A, 600V		3,4				
НМІ	Weintek	MT8070iE	24VDC, 7" color touch panel		3,4				
Power Supply	TDK-LAMBDA	DSP60-24	120VAC input, 24VDC output, 60W, 2.5A		3,4				
Terminal Block	C3 Controls	WTB2-W2/4G	20A maximum, DIN rail mounted		3,4				

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UUT 1

Manufacturer: Halton Company

Model Line: EcoloAir

Model Number: 3000CFM Serial Number: N/A

Product Construction Summary:

Filter module: double wall construction reinforced and braced, 16GA. carbon steel inner walls liquid tight welded, 20GA. carbon steel outer walls. **Odor control module:** 16GA. carbon steel. **Fan module:** 16GA. carbon steel.

Options/Subcomponent Summary:

Options: Weather proof insulation, fire supression system, VFD.

Subcomponents: Motor - Weg/00736ET3E213T-W22 | Motor base - World Wide/W213T | Compressor - Gast/DOA-P701-AA | Fan - Comefri/ATZAF 12-12 T2, Orion/OA938AP-11-1WB | VFD - Allen-Bradley/22B-B024N | Enclosures - Rittal/WM161208NC (NEMA 1/3R/4/12), WM242412NC (NEMA 1/3R/4/12). See Tables 3-7 for complete list of installed subcomponents.

	UUT Properties											
Weight	Dimension (in)					Lowes	st Natural	Frequen	cy (Hz)			
(lb) Depth		Width Height		ight	Front	t-Back	Side-Side		Vertical			
1,348	46.4	113.0	33	3.0	11.1		11.5		20.2			
		UUT Highest Po	assed Seis	mic Run	Informat	ion						
Build	ing Code	Test Criteria	1	S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}		
CP	CBC 2016		ICC-ES AC156		1.0	1.5	3.20	2.40	1.33	0.53		
CD												

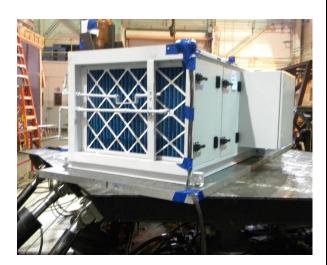
3.2

0.0

1.5

Test Mounting Details:





3.20

1.28

2.13

0.85

Rigid base mounted with (8) 1/2" grade 5 cap screws.

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.

TRU PROJECT NO. 15038



UUT 2

Manufacturer: Halton Company

Model Line: EcoloAir

Model Number: 12000CFM **Serial Number:** N/A

Product Construction Summary:

Filter module: double wall construction reinforced and braced, 16GA. carbon steel inner walls liquid tight welded, 20GA. carbon steel outer walls. **Odor control module:** 16GA. carbon steel. **Fan module:** 16GA. carbon steel.

Options/Subcomponent Summary:

Options: Weather proof insulation, fire supression system, VFD.

Subcomponents: Motor - Weg/02018ET3E256T-W22 | Motor base - World Wide/W256T | Compressor - Gast/DOA-P701-AA | Fan - Comefri/ATZAF 22-22 T2, Orion/OA938AP-11-1WB | VFD - Allen-Bradley/22C-D038N | Enclosures - Rittal/WM161208NC (NEMA 1/3R/4/12), WM242412NC (NEMA 1/3R/4/12). See Tables 3-7 for complete list of installed subcomponents.

UUT Properties											
Weight		Dimension (in)	Lowest Natural Frequency (Hz)								
(lb) Depth		Width	Height		Front	t-Back	Side	-Side	Vertical		
3,480	82.4	128.0 56.0			8	8.9		12.9		13.1	
		UUT Highest Po	assed Seis	mic Run	Informat	ion					
Build	ing Code	Test Criteria)	S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}	
CD	C 2016	ICC ES AC1E	e	2.0	1.0	1.5	3.20	2.40	1.33	0.53	
CBC 2016		I ICC-ES ACIS	ICC-ES AC156								

Test Mounting Details:





1.5

3.20

1.28

2.13

0.85

0.0

Isolated base mounted on (6) Mason SLF-107 isolators & (4) Mason Z-1011-5000 snubbers. **Unit to fixture:** (8) 1/2" grade 5 cap screws. **Fixture to isolators:** (6) 1/2" cap screws. **Fixture to snubbers:** (16) 5/8" cap screws. **Snubbers to table:** (16) 5/8" cap screws. Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.

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UUT 3

Manufacturer: Halton Company

Model Line: EcoloAir

Model Number: EcoloAir Control Panel Serial Number: N/A

Product Construction Summary:

16GA. stainless steel enclosure.

Options/Subcomponent Summary:

Relay: Schneider Electric - 781XAXM4L-24A | Switch: Schurter - MSM 22-ST | Transformer: HPS - PH100PG | Controller: Halton - MC8 Rev 3 | Fuse: Bussman - ABC-3 & ABC-1/4, Ferraz Shawmut - ATM5 | HMI: Weintek - MT8070iE | Power Supply: TDK-LAMBDA - DSP60-24 | Terminal Block: C3 Controls - WTB2-W2/4G.

UUT Properties												
Weight	Dimension (in)				Lowest Natural Frequency (Hz)							
(lb)	Depth	Width	He	ight	Front-Back		Side-Side		Vertical			
25	7	15	2	<u>!</u> 4	N/A		N/A		N/A			
UUT Highest Passed Seismic Run Information												
Building Code		Test Criteria		S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}		
CBC 2016		ICC-ES AC156		2.0	1.0	1.5	3.20	2.40	1.33	0.53		
				3.2	0.0	1.5	3.20	1.28	2.13	0.85		

Test Mounting Details:





Rigid wall mounted with (4) 7/16" grade 5 cap screws.

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.

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UUT 4

Manufacturer: Halton Company

Model Line: EcoloAir

Model Number: EcoloAir Control Panel Serial Number: N/A

Product Construction Summary:

16GA. stainless steel enclosure.

Options/Subcomponent Summary:

Relay: Schneider Electric - 781XAXM4L-24A | Switch: Schurter - MSM 22-ST | Transformer: HPS - PH100PG | Controller: (2) Halton - MC8 Rev 3 | Fuse: Bussman - ABC-3 & ABC-1/4, Ferraz Shawmut - ATM5 | HMI: Weintek - MT8070iE | Power Supply: TDK-LAMBDA - DSP60-24 | Terminal Block: C3 Controls - WTB2-W2/4G. Same as UUT 3 with an extra controller and larger enclosure.

UUT Properties												
Weight	Dimension (in)				Lowest Natural Frequency (Hz)							
(lb)	Depth	Width	Height		Front-Back		Side-Side		Vertical			
46	7	22	2	24		N/A		N/A		N/A		
UUT Highest Passed Seismic Run Information												
Build	ing Code	Test Criteria		S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}		
CBC 2016		ICC-ES AC156		2.0	1.0	1.5	3.20	2.40	1.33	0.53		
				3.2	0.0	1.5	3.20	1.28	2.13	0.85		

Test Mounting Details:





Rigid wall mounted with (4) 7/16" grade 5 cap screws.

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.