APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0566 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Vertiv Corporation

Manufacturer's Technical Representative: Ron Spangler

Mailing Address: 1050 Dearborn Dr., Columbus, OH 43085

Telephone: 614-841-7993 Email: Ron.Spangler@VertivCo.com

Product Information

Product Name: Vertiv SRC

Product Type: Split Air Conditioning Units

Product Model Number: SRC18, SRC24, SRC36
(List all unique product identification numbers and/or part numbers)

General Description: Indoor and outdoor split cooling system

Mounting Description: Base Mounted – Rigid and Wall Mounted- Rigid

Applicant Information

Applicant Company Name: TRU Compliance by Structural Integrity Associates, Inc.

Contact Person: Andrew M. Coughlin, SE

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

Telephone: 844-878-0200 Email: acoughlin@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: Andrew M Coughlin Date: 3/28/2018

Title: Director, TRU Compliance Company Name: Structural Integrity Associates, Inc.

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

Company Name: TRU Compliance by Structural Integrity Associates, Inc.

Name: Andrew M. Coughlin California License Number: S6082

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

Telephone: 844-878-0200 Email: acoughlin@structint.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: ☒ ICC-ES AC156

☐ Other (Please Specify):

Testing Laboratory

Company Name: QualTech NP by Curtiss-Wright

Contact Name: Jason VonNida

Mailing Address: 4600 East Tech Drive

Telephone: 513-201-2139 Email: jvonnida@curtisswright.com

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.57 (S_{DS} = 2.09); 1.46 (S_{DS} = 3.25)

S_{DS} (Design spectral response acceleration at short period, g) = 2.09 (z/h = 1); 3.25 (z/h = 0)

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1 (S_{DS} = 2.09); 0 (S_{DS} = 3.25)

Equipment or Component Natural Frequencies (Hz) =

Overall dimensions and weight (or range thereof) =

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

☒ Test Report(s) ☐ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Product Matrices and Four Point Letter

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: Date: March 5, 2019

Print Name: Ali Sumer Title: DSE

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1701334

TRU COMPLIANCE

Manufacturer: Liebert Corporation
Model Line: Liebert SRC

TABLE 1

Certified Product Construction Summary:
Carbon steel housing

Certified Options Summary:

Mounting Configuration:
Base mounted-rigid
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}= ***2.09 g*** ***z/h=1.0*** S_{DS}= ***3.25 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Libert SRC (Outdoor Condenser) 18,200-33,000 Btu/h	SRC18HPC000	12-5/8	34-1/4	31-1/2	121		Extrap.
	SRC24HPC000	12-5/8	34-1/4	31-1/2	125		29
	SRC36HPC000	12-5/8	34-1/4	31-1/2	125		30

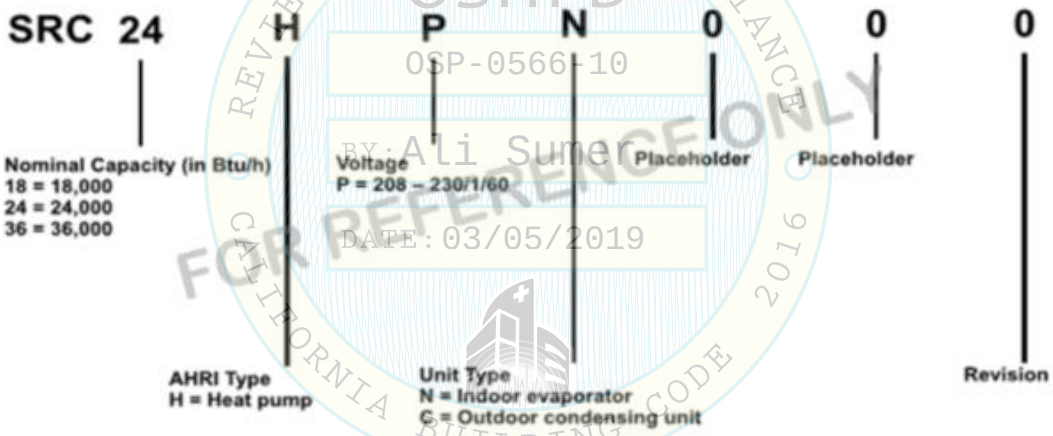
SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1701334

Manufacturer:	Liebert Corporation	**TABLE 1**
Model Line:	Liebert SRC	

Nomenclature: Libert SRC Split System

FOR REFERENCE ONLY



SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 1701334

TRU COMPLIANCE

Manufacturer: Liebert Corporation
Model Line: Liebert SRC

TABLE 2

Certified Product Construction Summary:
Carbon steel housing with plastic cover and steel mounting bracket.

Certified Options Summary:

Mounting Configuration:
Wall mounted-rigid
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}= ***2.09 g*** ***z/h=1.0*** S_{DS}= ***3.25 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Libert SRC (Indoor Evaporator) 18,200-33,000 Btu/h	SRC18HPN000	9-3/4	40-9/16	12-13/16	31		Extrap.
	SRC24HPN000	10-7/16	46-7/8	13-5/8	40		31
	SRC36HPN000	10-7/16	46-7/8	13-5/8	40		32

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1701334

Manufacturer: Liebert Corporation
Model Line: Liebert SRC

UUT	Unit Description	Report Number	Testing Laboratory	S_{DS}	z/h	I_P
29	SRC24HPC000	Q18601.0, Rev. 0	QualTech NP by Curtiss-Wright	2.09 3.25	1 0	1.5
30	SRC36HPC000	Q18601.0, Rev. 0	QualTech NP by Curtiss-Wright	2.09 3.25	1 0	1.5
31	SRC24HPN000	Q18601.0, Rev. 0	QualTech NP by Curtiss-Wright	2.09 3.25	1 0	1.5
32	SRC36HPN000	Q18601.0, Rev. 0	QualTech NP by Curtiss-Wright	2.09 3.25	1 0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1701334

UUT 29

Manufacturer: Liebert Corporation
Model Line: Liebert SRC
Model Number: SRC24HPC000 ***Serial Number:*** 710kATM0GX97

Product Construction Summary:
Carbon steel housing

Options/Subcomponent Summary:

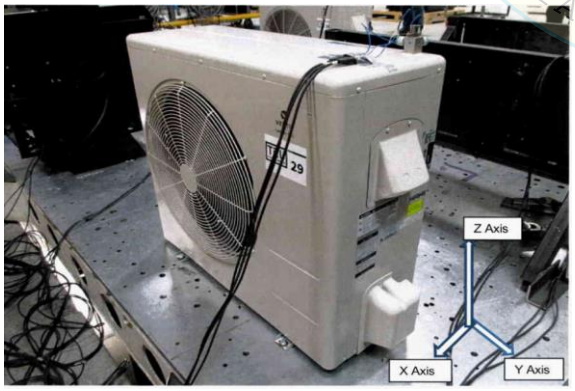
UUT Properties

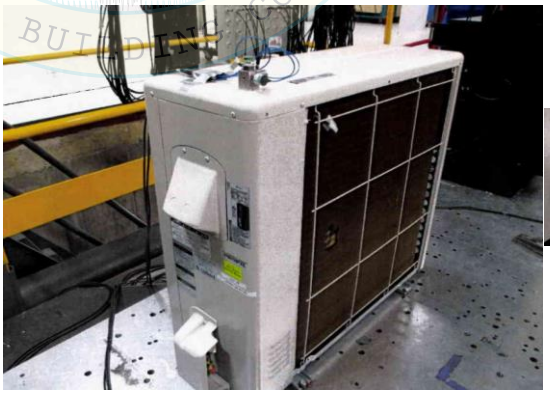
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
124	37.5	13	32	9.92	14.60	14.36

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.09	1.0	1.5	3.34	2.51	2.17	0.87
		3.25	0.0	1.5				

Test Mounting Details:





UUT mounted to shake table with four (4) 3/8"-16 Grade 5 hex bolts with 3/8" lock washer, and 3/8" flat washer.
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. 1701334

UUT 30

Manufacturer: Liebert Corporation
Model Line: Liebert SRC
Model Number: SRC36HPC000 ***Serial Number:*** 710KASL0GY66

Product Construction Summary:
Carbon steel housing

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
124	37.5	13	32	9.92	14.72	30.85

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.09	1.0	1.5	3.34	2.51	2.17	0.87
		3.25	0.0	1.5				

Test Mounting Details:

Unit mounted to the shake table with four (4) 3/8"-16 Grade 5 hex bolts with 3/8" lock washer and 3/8" flat washer.
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. 1701334

UUT 31

Manufacturer:	Liebert Corporation		
Model Line:	Liebert SRC		
Model Number:	SRC24HPN000	***Serial Number:***	710KAMZ0HH87

Product Construction Summary:

Carbon steel housing with plastic cover and steel mounting bracket.

Options/Subcomponent Summary:

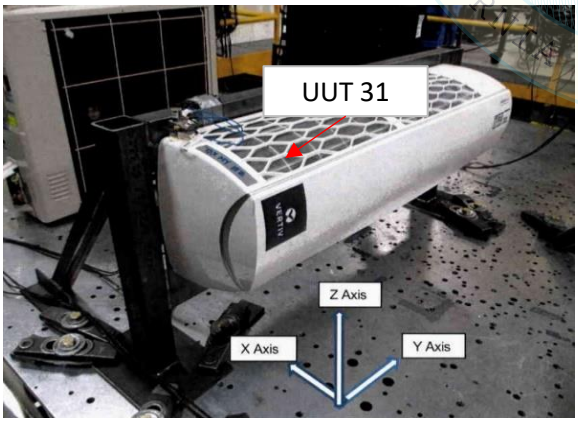
UUT Properties

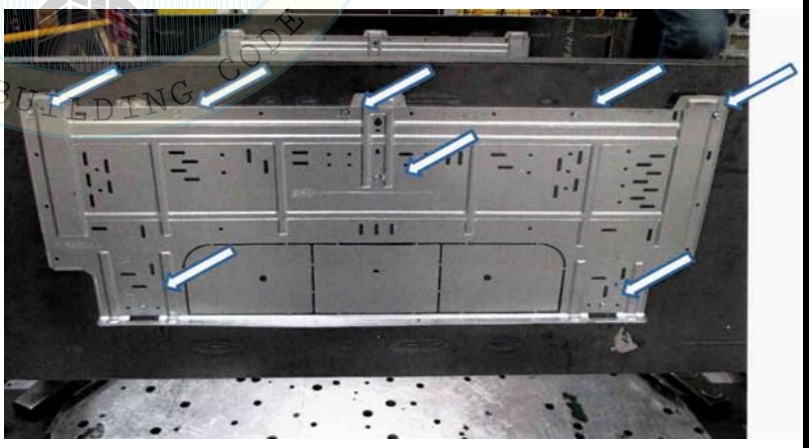
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
41	10.5	45.5	14	N/A	N/A	N/A

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 2016	ICC-ES AC156	2.09	1.0	1.5	3.34	2.51	2.17	0.87
		3.25	0.0	1.5				

Test Mounting Details:





Wall mount plate fastened to wall fixture using eight (8) #10 self-tapping screws. UUT hangs on the wall mount plate and snaps into the wall mount plate.

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. 1701334

UUT 32

Manufacturer:	Liebert Corporation		
Model Line:	Liebert SRC		
Model Number:	SRC36HPN000	***Serial Number:***	710KAXU0HB34

Product Construction Summary:

Carbon steel housing with plastic cover and steel mounting bracket.

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
41	10.5	45.5	14	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 2016	ICC-ES AC156	2.09	1.0	1.5	3.34	2.51	2.17	0.87
		3.25	0.0	1.5				

Test Mounting Details:

Wall mount plate was fastened to wall fixture using eight (8) #10 self-tapping screws. UUT hangs on the wall mount plate and snaps into the wall mount plate.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.