

# DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC	OFFICE USE ONLY					
CERTIFICATION PREAPPROVAL (OSP)	APPLICATION #: OSP-0788					
HCAI Special Seismic Certification Preapproval (OSP)	ICAI Special Seismic Certification Preapproval (OSP)					
Type: X New Renewal						
Manufacturer Information						
Manufacturer: Lochinvar, LLC						
Manufacturer's Technical Representative: Cindy Maxwell						
Mailing Address: 300 Maddox Simpson Parkway, Lebanon, TN 37090						
Telephone: (615) 889-8901 Email: cmaxwell@lochi	invar.com					
FORCODECO						
Product Information	Mp,					
Product Name: Other	Ý					
Product Type: Heat Pump Water Heater	3					
Product Model Number: Veritus Air Source Heat Pump Water Heater						
General Description: Heat Pump Water Heaters Mohammad Karir	m O					
Mounting Description: Rigid, Floor Mounted						
Tested Seismic Enhancements: Seismic enhancements made to the test anomalies during the tests shall be inco	st units and/or modifications required to address proprated into the production units.					
Applicant Information	K.					
Applicant Company Name: Pre Compliance						
Contact Person: Katie Braman						
Mailing Address: 36 SW Wall St, Bend, OR 97702						
Telephone: (541) 241-2310	om					
Title: Principal and Program Manager						



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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY



# DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

California Licensed Structural Engineer Resp	ponsible for the Engineering and Test Report(s)
Company Name: PRE COMPLIANCE	
Name: Andrew Coughlin	California License Number: S6082
Mailing Address: 36 SW Wall Street, Bend, OR 9770	02
Telephone: (415) 635-8461	Email: Andy@go-pre.com
Certification Method	
GR-63-Core X ICC-ES AC156	☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3
Other (Please Specify):	
	OR CODE CO
Testing Laboratory	Mp.
Company Name: CLARK TESTING LABORATORY,	, INC.
Contact Person: Suzanne Mazon	<u> </u>
Mailing Address: 1801 Route 51, Jefferson Hills PA	15025
Telephone: (412) 387-1001	mail: smazon@clarktesting.com
DA <sup>-</sup>	TE: 11/09/2023
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STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY



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Seismic Parameters	
Design Basis of Equipment or Components	$(F_p/W_p) = 0.9 \text{ at } z/h=0, 1.44 \text{ at } z/h=1$
Sps (Design spectral response accele	eration at short period, g) = 2.0
ap (Amplification factor) =	1.0
Rp (Response modification factor) =	2.5
$\Omega_0$ (System overstrength factor) =	2.0
Ip (Importance factor) =	1.5
z/h (Height ratio factor) =	1 and 0
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 11/09/2029					
Date:	11/9/2023 OSP-0788	12			
Name:	Mohammad Karim	Title:	Supervisor, Health Facilities		
Special	Seismic Certification Valid Up to: Sps (g) = 2.00	z/h =	See Above		
Conditio	n of Approval (if applicable): DATE: 11/09/2023				







### SPECIAL SEISMIC CERTIFICATION **CERTIFIED COMPONENTS**

Pre No. CC231320-01-R0

Manufacturer: Lochinvar, LLC

**Heat Pump Water Heaters** 

Veritus™ Air Source Heat Pump Water

Heater

**Seismic Parameters** 

 $S_{DS} = 2.0g \text{ for z/h=1}$  $I_{p} = 1.5$ 

 $S_{DS} = 2.0g$  for z/h=0

**Building Codes** 

**CBC 2022** 

**Product Type:** 

**Model Line:** 

**Mounting Configuration: Base Mounted - Rigid** 

#### **Construction Summary**

#### **Options Summary**

Carbon steel enclosure

APH060 & APH140 can be installed in series to achieve greater capacity (APH200, APH280, & APH350).

Model Line	Model	Max. I	Dimensic	ns (in)	Wtz	Notes	UUT
Model Lille	Model	D	W	He	(lb)	Notes	
	APH060	34	30	72	722	7	1
APH	APH140	34	41	72	924	12	2
	APH200 <sup>1</sup>	34	PS77-(	7728	1646	APH060+APH140	Extrap.
	APH280 <sup>1</sup>	34	82	72	1848	APH140+APH140	Extrap.
	APH <mark>350<sup>1</sup></mark>	34/	oh 112 m	naď4Ka	2570	APH140+APH140+APH060	Extrap.
	APHA <mark>060<sup>2</sup></mark>	34	30	72	722		Extrap.
Maritus Haat Duran	APHA140 <sup>2</sup>	34	41,/	72	924		Extrap.
Veritus Heat Pump Water Heater	APHA200 <sup>1,2</sup>	34	71	7202	1646	APHA060+APHA140	Extrap.
water neater	APHA280 <sup>1,2</sup>	34	82	72	1848	APHA140+APHA140	Extrap.
	APHA350 <sup>1,2</sup>	34	112	72	2570	APHA140+APHA140+APHA060	Extrap.
	SPHA060 <sup>3</sup>	34	30	72	722	<b>Y</b>	Extrap.
	SPHA140 <sup>3</sup>	34	41	72	924		Extrap.
	SPHA200 <sup>1,3</sup>	34	U71 [	72	1646	SPHA060+SPHA140	Extrap.
	SPHA280 <sup>1,3</sup>	34	82	72	1848	SPHA140+SPHA140	Extrap.
	SPHA350 <sup>1,3</sup>	34	112	72	2570	SPHA140+SPHA140+SPHA060	Extrap.

#### Note:

<sup>&</sup>lt;sup>1</sup> Capacity based on a combination of tested units used in series. Units are not ganged (bolted together) but connected in series by piping/wiring.

<sup>&</sup>lt;sup>2</sup>Alternate branding, models identitical to tested units. Locinvar APH### is identical to AO Smith APHA###.

<sup>&</sup>lt;sup>3</sup>Alternate branding, models identitical to tested units. Locinvar APH### is identical to State Industries SPHA###.



# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

Manufacturer: Lochinvar, LLC

**Heat Pump Water Heaters** 

 $S_{DS} = 2.0g \text{ for z/h=1}$ 

**Building Codes** 

Veritus™ Air Source Heat Pump Water

 $S_{DS} = 2.0g$  for z/h=0

**Seismic Parameters** 

 $I_p = 1.5$  CBC 2022

Model Line:

**Product Type:** 

Heater

#### TABLE 2

### Compressor & Pump

Component (Manufacturer)	Model	Description	Notes	UUT
Scroll Compressor	ZB45KCE-TFD-250	Cabon steel, 87 lbs.		1
(Copeland)	ZB95K5E-TFD-260	Carbon steel, 146 lbs.		2
Pump (Grundfos)	UPMXL 25-125 180 SS	6.7 lbs		1,2
	18 AMARIA	OSP-0788		
		Y: Mohammad Karim		
		OATE: 11/09/2023		
	P	VA BUILDING COV		
		BUILDING		

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## SPECIAL SEISMIC CERTIFICATION **CERTIFIED SUBCOMPONENTS**

 $I_p = 1.5$ 

Manufacturer: Lochinvar, LLC

**Heat Pump Water Heaters** 

 $S_{DS} = 2.0g \text{ for z/h=1}$ 

**Seismic Parameters** 

**Building Codes** 

**Product Type:** Veritus™ Air Source Heat Pump Water

 $S_{DS} = 2.0g$  for z/h=0

**CBC 2022** 

**Model Line:** 

Heater

### Evaporator

Component (Manufacturer)	Model	Description	Notes	UUT
Evaporator Fan (Multi Wing)	C0710-001-COM-10-V2	COD 56 lbs.		1,2
Evaporator Fan Motor (Regal)	E56Y42TRA2210	23.8 lbs		1,2
Evaporator Coil (Changfa)	100360811 100346636 100360815 100360816	Copper Tubbing, Aluminum Fins, 37.7 lbs. Copper Tubbing, Aluminum Fins, 42.7 lbs. Copper Tubbing, Aluminum Fins, 49.4 lbs. Copper Tubbing, Aluminum Fins, 66.4 lbs.  Mohammad Karim		1 1 2 2
	P. C.	DATE: 11/09/2023		
		BOILDING		

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## SPECIAL SEISMIC CERTIFICATION **CERTIFIED SUBCOMPONENTS**

 $I_p = 1.5$ 

Manufacturer: Lochinvar, LLC

**Product Type: Heat Pump Water Heaters** 

Veritus™ Air Source Heat Pump Water Model Line:

Heater

**Seismic Parameters** 

 $S_{DS} = 2.0g$  for z/h=1

 $S_{DS} = 2.0g$  for z/h=0

**Building Codes** 

**CBC 2022** 

### Condenser

Component (Manufacturer)	Model	Description	Notes	UUT
Condenser	BPDW 415-34	49.4 lbs.		1
(Xylem)	BPDW 415-64	OR CO 72.5 lbs.		2
	(4)			
		THE CALL		
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		BY: Mohammad Karim		
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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

 $I_p = 1.5$ 

Manufacturer: Lochinvar, LLC

Heat Dones Water Heaten

**Heat Pump Water Heaters** 

Model Line: Veritus™ Air Source Heat Pump Water

Heater

**Seismic Parameters** 

 $S_{DS} = 2.0g \text{ for z/h=1}$ 

 $S_{DS} = 2.0g$  for z/h=0

**Building Codes** 

**CBC 2022** 

#### TABLE 5

**Product Type:** 

#### Valves

Component (Manufacturer)	Model	Description	Notes	UUT
Reversing Valve	STF-07U12G	2.85 lbs.		1
(Saginomiya)	STF-20U11G	3.30 lbs.		2
		140		
	2			
	64/	OSP-0788		
		XV XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
		BY: Mohammad Karim		
		DATE: 11/09/2023		
		ARITIDING		
		SOILDING		

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# SPECIAL SEISMIC CERTIFICATION TESTING SUMMARY

UUT	Model	Test Report	Test Laboratory	S <sub>DS</sub>	z/h	I <sub>p</sub>
1	APH060	JID 23-00579-R1	Clark Testing	2.0	1.0 0.0	1.5
2	APH140	JID 23-00579-R1	Clark Testing	2.0	1.0 0.0	1.5
		OR CODE				
		THE PORT OF THE PROPERTY OF TH	MA			
	/_		ON <sub>D</sub>			
	la de la companya de	OSP-0788	A			
	0	BY: Mohammad Ka	rim O			
		DATE: 11/09/202	23			
			5			
		PNIA BUILDING	CODY,			
		BUILDING				
Notes:						

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### SPECIAL SEISMIC CERTIFICATION **UUT SUMMARY**

**UUT** 

Test Report# JID 23-00579-R1

Manufacturer: Lochinvar, LLC

Veritus™ Air Source Heat Pump Water **Model Line:** 

Heater

**Model Number:** APH060

**Serial Number:** TX000002165

High	est Pa	assed 1	Γest Lo	evel
		_	_	

SDS z/h  $A_{riq-v}$  $A_{flx-h}$  $A_{riq-h}$  $A_{flx-v}$ 1 2.4 1.33 0.53

2.0 1.5 3.2 0

Dimensions/Weights **Lowest Natural Frequency (Hz)** 

Depth (in) Width (in) Height (in) Weight (lbs.) Front-Back Side-Side Vertical 16.6 34 30 72 722 4.5 21.5

**Building Codes** 

**Test Criteria** 

**Construction/Option Summary** 

ICC-ES AC156 **CBC 2022** 

Carbon steel



UUT 1 was mounted to seismic table using a total of four (4) 3/8"-16 SAE grade 5 hex bolts with washers and lock washers and torqued to 25ft-lb. One bolts was used per each angle brackets. Bracket details on next page.

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.

List of Included Subcomponents				
Description	Model Number	Wt. (lbs.)		
Scroll Compressor	ZB45KCE-TFD-250	87		
Evaporator Fan	C0710-001-COM-10-V2	56		
Evaporator Fan Motor	E56Y42TRA2210	23.8		
Evaporator Coil	100360811	42.7		
Evaporator Coil	100346636	37.7		
Condenser	BPDW 415-34	49.4		
Pump	UPMXL 25-125 180 SS	6.7		
Reversing Valve	STF-07U12G	2.9		



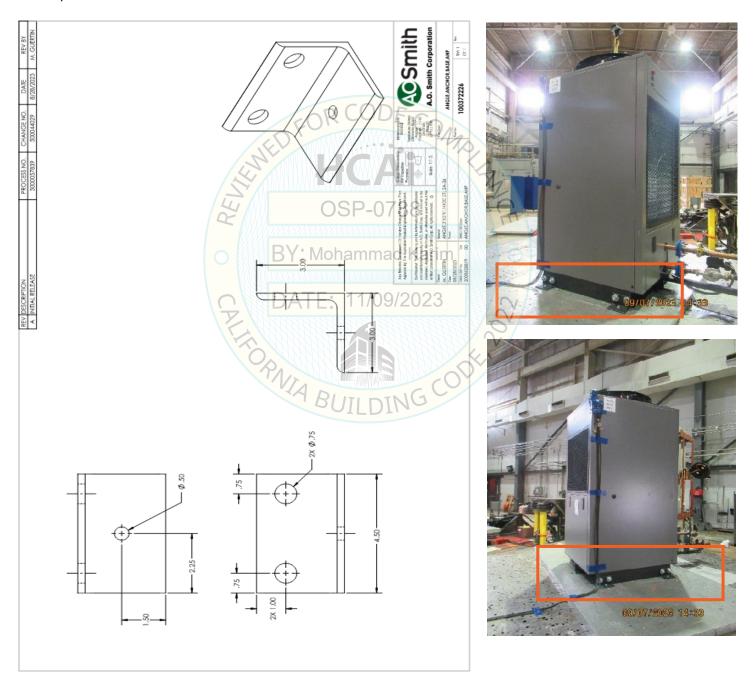
# SPECIAL SEISMIC CERTIFICATION UUT SUMMARY

UUT 1

Test Report# JID 23-00579-R1

#### **Mounting Bracket Details**

Four (4) brackets used and attached to the unit with two (2) 5/8-11 SAE grade 5 bolts with washers and lock washers. Each bolt torqued to 120ft-lbs.



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### SPECIAL SEISMIC CERTIFICATION **UUT SUMMARY**

UUT 2

Test Report# JID 23-00579-R1

Manufacturer: Lochinvar, LLC

Veritus™ Air Source Heat Pump Water **Model Line:** 

Heater

Model Number: APH140

**Serial Number:** TX000002172

41

	est Pa	ssed Te	est Leve	el
z/h	l <sub>n</sub>	$A_{flv-h}$	$A_{rig-h}$	A.

SDS  $A_{riq-v}$ flx-v 1

3.2

2.0 0 1.5

2.4

0.53

1.33

Dimensions/Weights

Height (in) Weight (lbs.) 72 924

**Lowest Natural Frequency (Hz)** Front-Back Side-Side

17.4

8.2

Vertical >33.3

**Building Codes** 

Depth (in) Width (in)

34

**Test Criteria** 

**Construction/Option Summary** 

ICC-ES AC156 **CBC 2022** 

Carbon steel

#### **UUT Mounting Details:**



UUT 2 was mounted to seismic table using a total of four (4) 3/8"-16 SAE grade 5 hex bolts with washers and lock washers and torqued to 25ft-lb. One bolts was used per each angle.

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.

List of Included Subcomponents				
Description	Model Number	Wt. (lbs.)		
Scroll Compressor	ZB95KCE-TFD-25=60	143		
Evaporator Fan	C0710-001-COM-10-V2	56		
Evaporator Fan Motor	E56Y42TRA2210	23.8		
Evaporator Coil	100360815	66.4		
Evaporator Coil	100360816	49.4		
Condenser	BPDW 415-64	72.5		
Pump	UPMXL 25-125 180 SS	6.7		
Reversing Valve	STF-2OU11G	3.3		
Control Panel	100370141	18		



# SPECIAL SEISMIC CERTIFICATION UUT SUMMARY

UUT 2

Test Report# JID 23-00579-R1

#### **Mounting Bracket Details**

Four (4) brackets used and attached to the unit with two (2) 5/8-11 SAE grade 5 bolts with washers and lock washers. Each bolt torqued to 120ft-lbs.

