



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0788

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☒ 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@lochinvar.com

Product Information

Product Name: Other

Product Type: Heat Pump Water Heater

Product Model Number: Veritus Air Source Heat Pump Water Heater

General Description: Heat Pump Water Heaters

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Pre Compliance

Contact Person: Katie Braman

Mailing Address: 36 SW Wall St, Bend, OR 97702

Telephone: (541) 241-2310

Email: katie@go-pre.com

Title: Principal and Program Manager



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
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California Licensed Structural Engineer Responsible 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 97702

Telephone: (415) 635-8461

Email: Andy@go-pre.com

Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify): _____

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.

Contact Person: Suzanne Mazon

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001

Email: smazon@clarktesting.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 0.9 at $z/h=0$, 1.44 at $z/h=1$

SDS (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = 1.0

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (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

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.00

z/h = See Above

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENTS

Manufacturer: Lochinvar, LLC
Product Type: Heat Pump Water Heaters
Model Line: Veritus™ Air Source Heat Pump Water Heater

Seismic Parameters
 $S_{DS} = 2.0g$ for $z/h=1$
 $S_{DS} = 2.0g$ for $z/h=0$
 $I_p = 1.5$

Building Codes
CBC 2022

TABLE 1

Mounting Configuration: Base Mounted - Rigid

Construction Summary

Carbon steel enclosure

Options Summary

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

| Model Line | Model | Max. Dimensions (in) | | | Wt. (lb) | Notes | UUT |
|--------------------------------|------------------------|----------------------|-----|----|----------|-------------------------|---------|
| | | D | W | H | | | |
| Veritus Heat Pump Water Heater | APH060 | 34 | 30 | 72 | 722 | | 1 |
| | APH140 | 34 | 41 | 72 | 924 | | 2 |
| | APH200 ¹ | 34 | 71 | 72 | 1646 | APH060+APH140 | Extrap. |
| | APH280 ¹ | 34 | 82 | 72 | 1848 | APH140+APH140 | Extrap. |
| | APH350 ¹ | 34 | 112 | 72 | 2570 | APH140+APH140+APH060 | Extrap. |
| | APHA060 ² | 34 | 30 | 72 | 722 | | Extrap. |
| | APHA140 ² | 34 | 41 | 72 | 924 | | Extrap. |
| | APHA200 ^{1,2} | 34 | 71 | 72 | 1646 | APHA060+APHA140 | Extrap. |
| | APHA280 ^{1,2} | 34 | 82 | 72 | 1848 | APHA140+APHA140 | Extrap. |
| | APHA350 ^{1,2} | 34 | 112 | 72 | 2570 | APHA140+APHA140+APHA060 | Extrap. |
| | SPHA060 ³ | 34 | 30 | 72 | 722 | | Extrap. |
| | SPHA140 ³ | 34 | 41 | 72 | 924 | | Extrap. |
| | SPHA200 ^{1,3} | 34 | 71 | 72 | 1646 | SPHA060+SPHA140 | Extrap. |
| | SPHA280 ^{1,3} | 34 | 82 | 72 | 1848 | SPHA140+SPHA140 | Extrap. |
| | SPHA350 ^{1,3} | 34 | 112 | 72 | 2570 | SPHA140+SPHA140+SPHA060 | Extrap. |

Note:

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

² Alternate branding, models identical to tested units. Lochinvar APH### is identical to AO Smith APHA###.

³ Alternate branding, models identical to tested units. Lochinvar APH### is identical to State Industries SPHA###.



Pre No. CC231320-01-R0

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

Manufacturer: Lochinvar, LLC
Product Type: Heat Pump Water Heaters
Model Line: Veritus™ Air Source Heat Pump Water Heater

Seismic Parameters

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

$I_p = 1.5$

Building Codes

CBC 2022

TABLE 2

Compressor & Pump

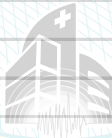
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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

CBC 2022

Evaporator

| | |
|---|--|
| -COM-10-V2 | 56 lbs. |
| 2TRA2210 | 23.8 lbs |
| 360811 | Copper Tubbing, Aluminum Fins, 37.7 lb |
| 346636 | Copper Tubbing, Aluminum Fins, 42.7 lb |
| 360815 | Copper Tubbing, Aluminum Fins, 49.4 lb |
| 360816 | Copper Tubbing, Aluminum Fins, 66.4 lb |
| BY: Mohammad Karim | |
| DATE: 11/09/2023 | |
|  | |



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

CBC 2022

Condenser



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

CBC 2022

Valves



SPECIAL SEISMIC CERTIFICATION TESTING SUMMARY

SPECIAL SEISMIC CERTIFICATION UUT SUMMARY

UUT 1

Test Report# JID 23-00579-R1

Manufacturer: Lochinvar, LLC
Model Line: Veritus™ Air Source Heat Pump Water Heater
Model Number: APH060
Serial Number: TX000002165

Highest Passed Test Level

| S _{DS} | z/h | I _p | A _{flx-h} | A _{rig-h} | A _{flx-v} | A _{rig-v} |
|-----------------|--------|----------------|--------------------|--------------------|--------------------|--------------------|
| 2.0 | 1 0 | 1.5 | 3.2 | 2.4 | 1.33 | 0.53 |

Dimensions/Weights

| Depth (in) | Width (in) | Height (in) | Weight (lbs.) |
|------------|------------|-------------|---------------|
| 34 | 30 | 72 | 722 |

Lowest Natural Frequency (Hz)

| Front-Back | Side-Side | Vertical |
|------------|-----------|----------|
| 16.6 | 4.5 | 21.5 |

Building Codes

CBC 2022

Test Criteria

ICC-ES AC156

Construction/Option Summary

Carbon steel

UUT Mounting Details:



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

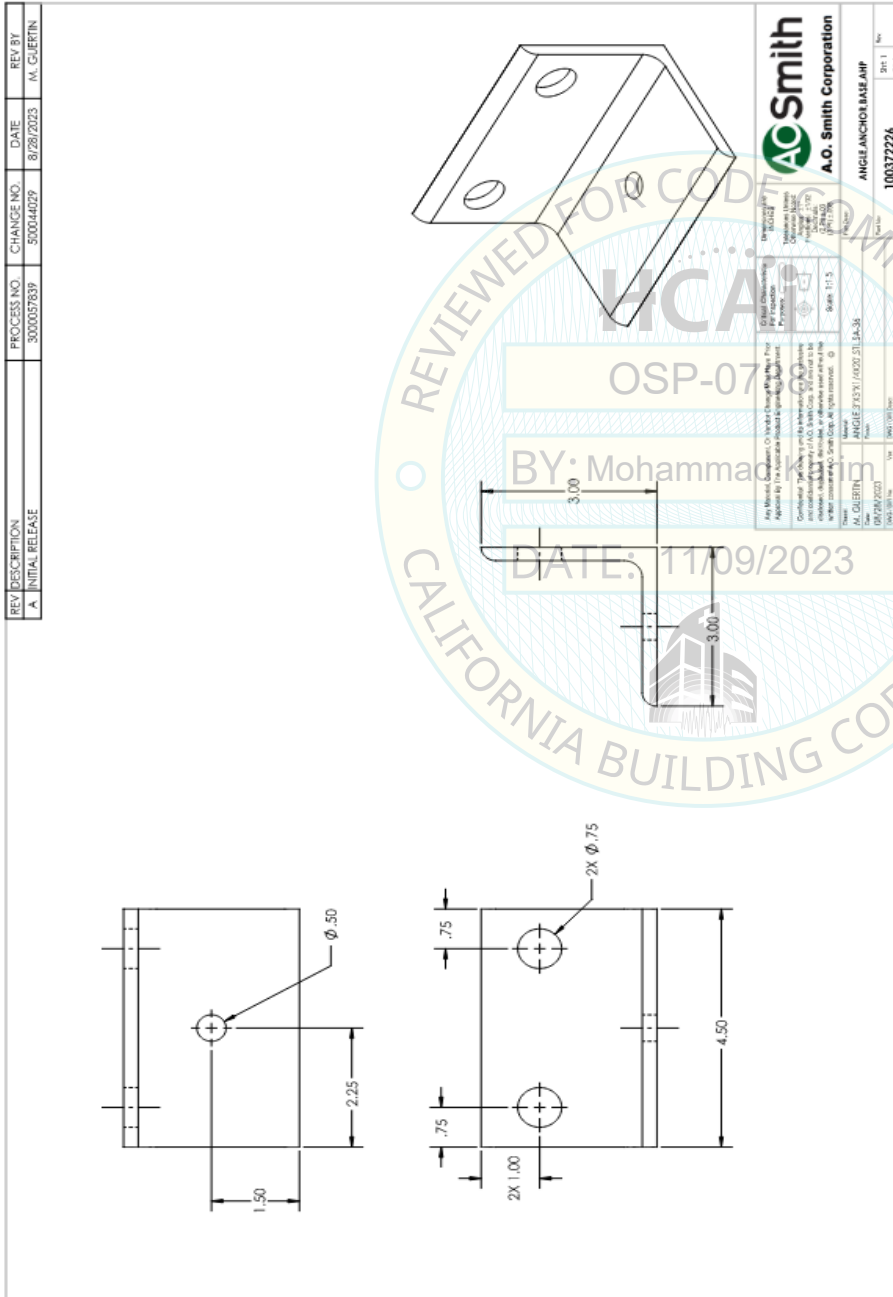
| Description | Model Number | Wt. (lbs.) |
|----------------------|---------------------|------------|
| Scroll Compressor | ZB45KCE-TFD-250 | 87 |
| Evaporator Fan | C0710-001-COM-10-V2 | 56 |
| Evaporator Fan Motor | E56Y42TRA2210 | 23.8 |
| Evaporator Coil | 100360811 | 42.7 |
| Evaporator Coil |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

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.



SPECIAL SEISMIC CERTIFICATION UUT SUMMARY

UUT 2

Test Report# JID 23-00579-R1

Manufacturer: Lochinvar, LLC
Model Line: Veritus™ Air Source Heat Pump Water Heater
Model Number: APH140
Serial Number: TX000002172

Highest Passed Test Level

| S _{DS} | z/h | I _p | A _{flx-h} | A _{rig-h} | A _{flx-v} | A _{rig-v} |
|-----------------|--------|----------------|--------------------|--------------------|--------------------|--------------------|
| 2.0 | 1 0 | 1.5 | 3.2 | 2.4 | 1.33 | 0.53 |

Dimensions/Weights

| Depth (in) | Width (in) | Height (in) | Weight (lbs.) |
|------------|------------|-------------|---------------|
| 34 | 41 | 72 | 924 |

Lowest Natural Frequency (Hz)

| Front-Back | Side-Side | Vertical |
|------------|-----------|----------|
| 17.4 | 8.2 | >33.3 |

Building Codes

CBC 2022

Test Criteria

ICC-ES AC156

Construction/Option Summary

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-20U11G | 3.3 |
| Control Panel | 100370141 | 18 |

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.

