



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-0596

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Lennox Industries Inc.

Manufacturer's Technical Representative: Mike Garst

Mailing Address: 1600 Metrocrest Drive, Carrollton, TX 75006

Telephone: (972) 728-7386 Email: mike.garst@lennoxind.com

Product Information

Product Name: Energence, Model L Ultra, Enlight, & Xion Rooftop Units

Product Model Number(s): See Attachment

Product Category: Air Conditioning Units

Product Sub-Category: Air Conditioning Units - Packaged

General Description: Carbon steel packaged rooftop air conditioning units.

Mounting Description: Base Mounted Curb Non-Isolated -

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: Manwill Engineering LLC

Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102 Email: derek@manwillSE.com

Title: President



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

Company Name: MANWILL ENGINEERING LLC

Name: Derek Manwill

California License Number: S6266

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102

Email: derek@manwillse.com

Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

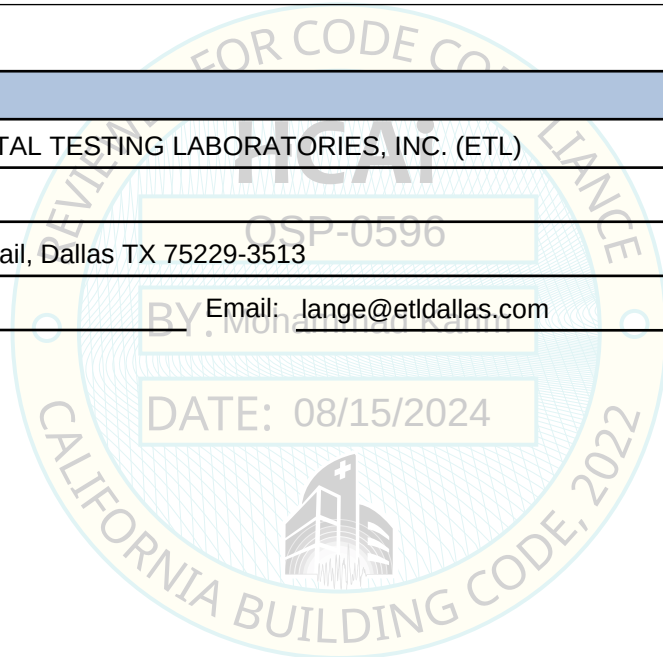
Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

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

Telephone: (972) 247-9657

Email: lange@etldallas.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 (SDS=2.00, $z/h=1$); 1.13 (SDS=2.50, $z/h=0$)

SDs (Design spectral response acceleration at short period, g) = 2.00 ($z/h=1$); 2.50 ($z/h=0$)

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 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 08/15/2030

Date: 8/15/2024

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.0

z/h = 1

Condition of Approval (if applicable):

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 1

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Energence, Model L Ultra, Enlight & Xion Rooftop Units - A Box						
LCX024S5****	85.3	47.0	38.9	606		EXTRAP
LGX024S5****	85.3	47.0	38.9	631		EXTRAP
LH*024*****	85.3	47.0	38.9/46.9	765		EXTRAP
LDT024H*E***	85.3	47.0	46.9	813		EXTRAP
LCH036H4EE3P	85.3	47.0	38.9	537	UUT: 208/230V, 8in curb	UUT 1
LCM036U4EN1Y	85.3	47.0	46.9	684	UUT: 208/230V, 14in curb	UUT 14
LC*036*****	85.3	47.0	46.9	742		INTERP
LHT036H*E***	85.3	47.0	46.9	764		INTERP
LG*036*****	85.3	47.0	46.9	759		INTERP
LDT036H*E***	85.3	47.0	46.9	812		INTERP
LC*048*****	85.3	47.0	46.9	759		INTERP
LHT048H*E***	85.3	47.0	46.9	760		INTERP
LG*048*****	85.3	47.0	46.9	759		INTERP
LGH048H4EM4G	85.3	47.0	38.9	651	UUT: 460V, 8in curb	UUT 2
LDT048H*E***	85.3	47.0	46.9	808		INTERP
LC*060*****	85.3	47.0	46.9	759		INTERP
LHT060H*E***	85.3	47.0	46.9	792		INTERP
LG*060*****	85.3	47.0	46.9	759		INTERP
LDT060H*E***	85.3	47.0	46.9	840		INTERP
LC*072*****	85.3	47.0	46.9	759		INTERP
LG*072*****	85.3	47.0	46.9	759		INTERP
LC*074*****	85.3	47.0	46.9	759		INTERP
LG*074*****	85.3	47.0	46.9	759		INTERP
LCH074H4TJ1G	85.3	47.0	46.9	759	UUT: 460V, 24in curb	UUT 3
LGH074H4TT1Y	85.3	47.0	46.9	749	UUT: 208/230V, 24in curb	UUT 4
Energence, Model L Ultra, Enlight & Xion Rooftop Units - B Box						
LHT078H*****	101.3	60.1	46.9	1,253		INTERP
LDT078H*****	101.3	60.1	46.9	1,264		INTERP
LC*092*****	101.3	60.1	46.9	1,277		INTERP
LH*092*****	101.3	60.1	46.9	1,253		INTERP
LG*092*****	101.3	60.1	46.9	1,319		INTERP
LDT092H*****	101.3	60.1	46.9	1,264		INTERP
LCH102H4MN3Y	101.3	60.1	46.9	1,026	UUT: 208/230V, 8in curb	UUT 5
LC*102*****	101.3	60.1	46.9	1,284		INTERP
LH*102*****	101.3	60.1	46.9	1,255		INTERP
LGM102U4EM1G	101.3	60.1	46.9	1,300	UUT: 460V, 14in curb	UUT 15
LG*102*****	101.3	60.1	46.9	1,326		INTERP
LDT102H*****	101.3	60.1	46.9	1,266		INTERP
LGH120H4MH3G	101.3	60.1	46.9	1,330	UUT: 460V, 8in curb	UUT 6
LC*120*****	101.3	60.1	46.9	1,326		INTERP
LH*120*****	101.3	60.1	46.9	1,314		INTERP
LG*120*****	101.3	60.1	46.9	1,330		INTERP

Notes: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 1 (CONTINUED)

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Energence, Model L Ultra, Enlight & Xion Rooftop Units - B Box (continued)						
LHT122H****	124.4	60.1	46.9	1,405	UUT: 208/230V, 14in curb	INTERP
LDT122H****	124.4	60.1	46.9	1,407		INTERP
LC*150*****	101.3	60.1	46.9	1,315		INTERP
LHT150H****	124.4	60.1	46.9	1,405		INTERP
LHT150H4EL1Y	124.4	60.1	46.9	1,415		UUT 17
LG*150*****	101.3	60.1	46.9	1,330		INTERP
LGH150H4MH1Y	101.3	60.1	46.9	1,245	UUT: 208/230V, 24in curb	UUT 7
LGH150H4MH1Y	101.3	60.1	46.9	1,299	UUT: 208/230V, 24in curb	UUT 8
LDT150H****	124.4	60.1	46.9	1,407		INTERP
LHT152H5E***	129.0	60.3	46.9	1,365		INTERP
LDT152H5E***	129.0	60.3	46.9	1,367		INTERP
Energence, Model L Ultra, Enlight & Xion Rooftop Units - C Box						
LCH156H4MK4G	107.8	91.1	54.3	1,955	UUT: 460V, 8in curb	UUT 9
LGH156H4MM4Y	107.8	91.1	54.3	2,198	UUT: 208/230V, 26in horiz. curb	UUT 10
LC*156*****	107.8	91.1	54.3	2,130		INTERP
LG*156*****	107.8	91.1	54.3	2,270		INTERP
LC*180*****	133.1	91.1	54.3	2,350		INTERP
LH*180*****	133.1	91.1	54.3	2,516		INTERP
LG*180*****	133.1	91.1	54.3	2,505		INTERP
LDT180H****	133.1	91.1	54.3	2,668		INTERP
LC*210*****	133.1	91.1	54.3	2,470		INTERP
LG*210*****	133.1	91.1	54.3	2,615		INTERP
LCH240H4MP3Y	133.1	91.1	54.3	2,516	UUT: 208/230V, 24in curb	UUT 11
LC*240*****	133.1	91.1	54.3	2,570		INTERP
LH*240*****	133.1	91.1	54.3	2,558		INTERP
LG*240*****	133.1	91.1	54.3	2,628		INTERP
LDT240H4MH1Y	133.1	91.1	54.3	2,360	UUT: 208/230V, 14in curb	UUT 18
LDT240H****	133.1	91.1	54.3	2,668		INTERP
LGM300U4MS1G	133.1	91.1	54.3	2,548	UUT: 460V, 14in curb	UUT 16
LC*300*****	133.1	91.1	54.3	2,628		INTERP
LG*300*****	133.1	91.1	54.3	2,628		INTERP
LGH300S4MH4G	133.1	91.1	54.3	2,628	UUT: 460V, 41in horizontal curb	UUT 12
LGH300S4MH4G	133.1	91.1	54.3	2,668	UUT: 460V, 26in horizontal curb	UUT 13

Mounting: Rigid floor mounted on curb.	Seismic Levels:	$S_{DS} = 2.00g$ for $z/h = 1$	$I_p = 1.5$
		$S_{DS} = 2.50g$ for $z/h = 0$	

Product Construction: Carbon steel construction.

Options/Subcomponents: 8in - 24in downflow carbon steel curb; C box also available with 26in - 41in horizontal carbon steel curb; available subcomponents are listed in Table 2 (exempt subcomponents per CBC 1705A.13.3.1 are not listed in the Certified Subcomponent Tables, but the tested subcomponents are shown in the UUT Summary Sheets). R-410a or R-454b refrigerant.

Nomenclature: See Attachment 3 for product nomenclature and available model numbers.

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 2. SUBCOMPONENTS

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Type: Microchannel Coil - Mfr: Delphi Thermal Sys - Material: Aluminum						
6.09SFx0.71	-	-	-	9	6.09SF, 0.71" dia., 1R, 10FPI	EXTRAP
7.0SFx0.71	-	-	-	12	7.0SF, 0.71" dia., 1R, 20FPI	EXTRAP
8.65SFx0.71	-	-	-	13	8.65SF, 0.71" dia., 1R, 10FPI	EXTRAP
8.65SFx0.71	-	-	-	15	8.65SF, 0.71" dia., 1R, 20FPI	EXTRAP
11.7SFx0.71	-	-	-	18	11.7SF, 0.71" dia., 1R, 20FPI	UUT 1
14.5SFx0.71	-	-	-	22	14.5SF, 0.71" dia., 1R, 20FPI	INTERP
17.8SFx0.71	-	-	-	27	17.8SF, 0.71" dia., 1R, 20FPI	UUT 3
20.9SFx0.71	-	-	-	31	20.9SF, 0.71" dia., 1R, 23FPI	INTERP
20.5SFx1.0	-	-	-	43	20.5SF, 1.0" dia., 1R, 23FPI	INTERP
28.0SFx0.71	-	-	-	43	28.0SF, 0.71" dia., 1R, 20FPI	UUT 5
27.3SFx1.0	-	-	-	58	27.3SF, 1.0" dia., 1R, 23FPI	INTERP
27.55SFx1.0	-	-	-	58	27.55SF, 1.0" dia., 1R, 20FPI	INTERP
41.4SFx0.71	-	-	-	62	41.4SF, 0.71" dia., 1R, 23FPI	UUT 9
41.4SFx1.0	-	-	-	86	41.4SF, 1.0" dia., 1R, 23FPI	INTERP
55.2SFx0.71	-	-	-	83	55.2SF, 0.71" dia., 1R, 23FPI	INTERP
55.2SFx1.0	-	-	-	138	55.2SF, 1.0" dia., 1R, 23FPI	UUT 12,13
Type: Tube and Fin Condenser Coil - Mfr: Lennox - Material: Copper Tube, Aluminum Fin						
15.6SFx1.5R	-	-	-	41	15.6SF, 1.5R, 20FPI	EXTRAP
15.6SFx2R	-	-	-	55	15.6SF, 2R, 20FPI	UUT 2
19.3SFx2R	-	-	-	68	19.3SF, 2R, 20FPI	UUT 4,14
27.58SFx2R	-	-	-	97	27.58SF, 2R, 20FPI	INTERP
19.3SFx3R	-	-	-	101	19.3SF, 3R, 20FPI	INTERP
20.5SFx3R	-	-	-	108	20.5SF, 3R, 20FPI	UUT 15
25.9SFx3R	-	-	-	136	25.9SF, 3R, 20FPI	UUT 8
28.0SFx3R	-	-	-	147	28.0SF, 3R, 20FPI	UUT 7
28.8SFx3R	-	-	-	151	28.8SF, 3R, 20FPI	INTERP
29.3SFx3R	-	-	-	154	29.3SF, 3R, 20FPI	UUT 6
29.4SFx3R	-	-	-	154	29.4SF, 3R, 20FPI	INTERP
40.4SFx3R	-	-	-	212	40.4SF, 3R, 20FPI	UUT 17
55.1SFx2R	-	-	-	192	55.1SF, 2R, 20FPI	UUT 18
41.4SFx2R	-	-	-	145	41.4SF, 2R, 20FPI	UUT 10
55.2SFx2R	-	-	-	193	55.2SF, 2R, 20FPI	UUT 11
55.2SFx3R	-	-	-	278	55.2SF, 3R, 20FPI	UUT 16
Type: Indoor Coil - Mfr: Lennox - Material: Copper Tube, Aluminum Fin						
7.78SFx3R	-	-	-	41	7.78SF, 3R, 14FPI	UUT 1
9.72SFx3R	-	-	-	51	9.72SF, 3R, 14FPI	UUT 14
7.78SFx4R	-	-	-	55	7.78SF, 4R, 14FPI	UUT 2
9.72SFx4R	-	-	-	68	9.72SF, 4R, 14FPI	UUT 3,4
13.54SFx3R	-	-	-	71	13.54SF, 3R, 14FPI	INTERP
12.8SFx4R	-	-	-	90	12.8SF, 4R, 14FPI	UUT 17
13.54SFx4R	-	-	-	95	13.5SF, 4R, 14FPI	UUT 5-8,15
21.4SFx3R	-	-	-	112	21.4SF, 3R, 14FPI	UUT 9,10
21.4SFx4R	-	-	-	150	21.4SF, 4R, 14FPI	11-13,16,18

Notes: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 2. SUBCOMPONENTS (CONTINUED)

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Type: Reheat Coil - Mfr: Lennox - Material: Copper Tube, Aluminum Fin						
3.89SF	-	-	-	7	3.89SF, 1R, 14FPI	UUT 1,2
5.11SF	-	-	-	9	5.11SF, 1R , 14FPI	UUT 5
5.42SF	-	-	-	10	5.42SF, 1R, 14FPI	UUT 6-8
5.83SF	-	-	-	10	5.83SF, 1R, 14FPI	UUT 3,4
6.78SF	-	-	-	12	6.78SF, 1R, 14FPI	INTERP
7.33SF	-	-	-	13	7.33SF, 1R, 14FPI	UUT 9-13
8.13SF	-	-	-	14	8.13SF, 1R, 14FPI	UUT 15
14.67SF	-	-	-	26	14.67SF, 1R, 14FPI	UUT 16
Type: Gas Heat - Mfr: Lennox - Material: Aluminized Steel or Stainless Steel						
HE 65K BTU	-	-	-	20	3 Tubes	EXTRAP
HE 108K BTU	-	-	-	33	5 Tubes (UUT: Aluminized)	UUT 2
HE 130K BTU	-	-	-	47	6 Tubes	INTERP
HE 150K BTU	-	-	-	46	7 Tubes (UUT: Stainless)	UUT 4
HE 180K BTU	-	-	-	71	9 Tubes	INTERP
HE 240K BTU	-	-	-	86	11 Tubes (UUT: Aluminized)	UUT 7,8
HE 240K BTU	-	-	-	86	11 Tubes (UUT: Stainless)	UUT 6
HE 169K/260K BTU	-	-	-	94	12 Tubes	INTERP
HE 360K BTU	-	-	-	141	18 Tubes (UUT: Aluminized)	UUT 10
HE 480K BTU	-	-	-	172	22 Tubes (UUT: Aluminized)	UUT 18
HE 480K BTU	-	-	-	172	22 Tubes (UUT: Stainless)	UUT 12,13
Type: Electric Heat - Mfr: Lennox						
7.5kW	3.4	13.1	-	11		EXTRAP
15kW	3.4	13.1	-	11	UUT: 230V, 1-phase	UUT 1
22.5kW	3.4	13.1	-	11		INTERP
30kW	3.4	13.1	-	11	UUT: 460V, 3-phase	UUT 3
45kW	6.8	13.1	-	13		INTERP
60kW	6.8	13.1	-	13	UUT: 230V, 3-phase	UUT 5,17
30kW (2x15kW)	3.4	13.1	QTY=2	11		INTERP
45kW (2x22.5kW)	3.4	13.1	QTY=2	11	UUT: 460V, 3-phase	UUT 9
60kW (2x30kW)	3.4	13.1	QTY=2	11		INTERP
90kW (2x45kW)	6.8	13.1	QTY=2	13	UUT: 230V, 3-phase	UUT 11
Type: Blower - Mfr: Morrison						
03-45331	10.0	10.0	10.0	-	10x10	UUT 1,2
03-55315	10.0	11.0	11.0	-	11x10	INTERP
03-74428	9.0	15.0	15.0	-	15x9	UUT 3,4
03-78805	15.0	15.0	15.0	-	15x15	5,6,12,16,18

Notes: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 2. SUBCOMPONENTS (CONTINUED)

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Type: EBM Blower - Mfr: EBM-Papst						
R3G310-PY18-X1	-	-	-	20	1630W, 230V	UUT 14
R3G310-PY12-V1	-	-	-	20	1630W, 460V	INTERP
R3G450-PW13-09A	-	-	-	34.6	3300W, 230V	UUT 17
R3G450-PW08-10A	-	-	-	34.6	3600W, 460V	INTERP
R3G500-AP34-18A	-	-	-	54	2880W, 230V	INTERP
R3G500-AP25-08A	-	-	-	54	2880W, 460V	UUT 15
Type: Transformer - Mfr: Square D						
I5S1F	8.3	6.6	5.1	30		UUT 16
Type: Auto Transformer - Mfr: Ningbo Zhongce E.T.						
ETE-AT2.9K-460230	5.5	6.5	4.7	22		UUT 15,16
Type: Auto Transformer - Mfr: Basler Electric						
BE33654001	5.5	6.5	4.6	22		UUT 2
Type: Powered GFI Transformer - Mfr: Jefferson Electric						
411-B003-009	10.6	5.3	6.1	39		UUT 13
Type: Economizer - Mfr: Micrometal						
EC-L104598-01	-	-	-	60	Standard	UUT 6
ECD-L103491-01	-	-	-	131	Standard w/ motor	INTERP
ECD-L103491-03	-	-	-	131	Low leakage w/ motor	UUT 3
EC-L104597-01	-	-	-	167	Standard	UUT 11
Type: Economizer - Mfr: Ruskin						
50-361-51C	-	-	-	60	Low leakage	UUT 5,15
50-361-52	-	-	-	167	Low leakage	UUT 12
Type: Economizer - Mfr: Lennox						
C1DAMP50C	-	-	-	30	Barometric relief damper	UUT 10
Type: Outside Air Damper - Mfr: Lennox						
C1DAMP20C-1	-	-	-	10	Manual w/ hood	EXTRAP
C1DAMP11A-1	-	-	-	30	Manual w/ hood	UUT 1
C1DAMP10B-2	-	-	-	39	Manual w/ hood	INTERP
C1DAMP21A-1	-	-	-	40	Automatic w/ hood	UUT 4
Type: Outside Air Damper - Mfr: Lennox						
OA-L104446-01	-	-	-	18	Automatic w/ hood	UUT 9
OA-L104446-02	-	-	-	51	Automatic w/ hood	UUT 7,8
Type: Power Exhaust - Mfr: Lennox						
K1PWRE10B	-	-	-	31	UUT: 460V	UUT 6
C1PWRE10A	-	-	-	35	UUT: 460V	UUT 3
C1PWRE11C	-	-	-	62	UUT: 208/230V	UUT 11
C1PWRE11C	-	-	-	62	UUT: 460V	UUT 12,13
Mounting: Mounted within unit.				Seismic Levels:	S _{DS} = 2.00g for z/h = 1 S _{DS} = 2.50g for z/h = 0	I _p = 1.5

Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.

LENNOX INDUSTRIES INC.
Energence, Model L Ultra, Enlight & Xion Rooftop Units

TABLE 3. CURBS

Model Number	Dimensions (in)			Max. Wt. (lb)	Description / Notes	Basis
	Depth	Width	Height			
Type: A Box Downflow Curb - Mfr: Lennox - Material: Carbon Steel						
C1CURB70A-1	79.8	41.5	8	66	0.048" thick	UUT 1,2
C1CURB71A-1	79.8	41.5	14	75	0.048" thick	UUT 14
C1CURB72A-1	79.8	41.5	18	85	0.048" thick	INTERP
C1CURB73A-1	79.8	41.5	24	95	0.048" thick	UUT 3,4
Type: B Box Downflow Curb - Mfr: Lennox - Material: Carbon Steel						
C1CURB70B-1	95.4	54.3	8	80	0.048" thick	UUT 5,6
C1CURB71B-1	95.4	54.3	14	94	0.048" thick	UUT 15,17
C1CURB72B-1	95.4	54.3	18	108	0.048" thick	INTERP
C1CURB73B-1	95.4	54.3	24	122	0.048" thick	UUT 7,8
Type: C Box Downflow Curb - Mfr: Lennox - Material: Carbon Steel						
C1CURB70C-1	102.0	86.1	8	85	0.048" thick	UUT 9
C1CURB71C-1	102.0	86.1	14	120	0.048" thick	UUT 16,18
C1CURB72C-1	102.0	86.1	18	155	0.048" thick	INTERP
C1CURB73C-1	102.0	86.1	24	190	0.048" thick	UUT 11
Type: C Box Horizontal Flow Curb - Mfr: Lennox - Material: Carbon Steel						
C1CURB14C-1	102.1	86.3	26	287	0.063" thick, 75" x 14" opening	UUT 10,13
C1CURB15C-1	102.1	86.3	30	327	0.063" thick, 75" x 18" opening	INTERP
C1CURB16C-1	102.1	86.3	37	369	0.063" thick, 75" x 14" opening	INTERP
C1CURB17C-1	102.1	86.3	41	409	0.063" thick, 75" x 18" opening	UUT 12
Mounting: Unit is rigid floor mounted on curb. Curb is rigid floor mounted.				Seismic Levels:	S _{DS} = 2.00g for z/h = 1 S _{DS} = 2.50g for z/h = 0	I _p = 1.5

Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1

Manufacturer: Lennox Industries Inc.
Model number: LCH036H4EE3P
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06573

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
85.3	47.0	38.9	537	5.4	9.8	9.1

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-6-19

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 8in curb using (4) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (11.7SFx0.71), Lennox - Indoor Coil (7.78SFx3R), Lennox - Reheat Coil (3.89SF), Lennox - Electric Heat (15kW), Morrison - Blower (03-45331), Lennox - Outside Air Damper (C1DAMP11A-1), Lennox - A Box Downflow Curb (C1CURB70A-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS30K5E-PFV-130), Regal-Beloit - Direct Drive Blower Motor (5SME39HXL3039), BOMC - Condenser Fan Motors ECM (ZWK702B002012), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (LB-110338), Noark - Circuit Breaker (MIS90T3LP), Tri-Dim - Air Filters (06016202LM4, 2481620213-LS).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 2

Manufacturer: Lennox Industries Inc.
Model number: LGH048H4EM4G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06925

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
85.3	47.0	38.9	651	6.2	9.5	9.2

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-6-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 8in curb using (4) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (15.6SFx2R), Lennox - Indoor Coil (7.78SFx4R), Lennox - Reheat Coil (3.89SF), Lennox - Gas Heat (HE 108K BTU), Morrison - Blower (03-45331), Basler Electric - Auto Transformer (BE33654001), Lennox - A Box Downflow Curb (C1CURB70A-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS40K5E-TFD-130), Regal-Beloit - Direct Drive Blower Motor (5SME39NXL3037), Basler Electric - Auto Transformer (BE33654001), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (LB-110338), Noark - Circuit Breaker (MIS15T3L).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 3

Manufacturer: Lennox Industries Inc.
Model number: LCH074H4TJ1G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06930

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
85.3	47.0	46.9	759	3.4	8.1	8.9

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-7-19

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 24in curb using (4) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (17.8SFx0.71), Lennox - Indoor Coil (9.72SFx4R), Lennox - Reheat Coil (5.83SF), Lennox - Electric Heat (30kW), Morrison - Blower (03-74428), Micrometal - Economizer (ECD-L103491-03), Lennox - Power Exhaust (C1PWRE10A), Lennox - A Box Downflow Curb (C1CURB73A-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS60K5E-TFD-130), Nidec - Belt Drive Blower Motor (P63GZEKR-5006), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (LB-110338), Socomec - Disconnect Switch (22L23508), Tri-Dim - Air Filters (06020202LM4, 2482020213-LS).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 4

Manufacturer: Lennox Industries Inc.
Model number: LGH074H4TT1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06938

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
85.3	47.0	46.9	749	4.3	9.0	9.7

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-7-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 24in curb using (4) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (19.3SFx2R), Lennox - Indoor Coil (9.72SFx4R), Lennox - Reheat Coil (5.83SF), Lennox - Gas Heat (HE 150K BTU), Morrison - Blower (03-74428), Lennox - Outside Air Damper (C1DAMP21A-1), Lennox - A Box Downflow Curb (C1CURB73A-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS60K5E-TF5-130), Nidec - Belt Drive Blower Motor (P63GZEKM-5003), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (LB-110338), Noark - Circuit Breaker (MIS45T3L).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 5

Manufacturer: Lennox Industries Inc.
Model number: LCH102H4MN3Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06273

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
101.3	60.1	46.9	1,026	4.1	7.6	10.7

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-6-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 8in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (28.0SFx0.71), Lennox - Indoor Coil (13.54SFx4R), Lennox - Reheat Coil (5.11SF), Lennox - Electric Heat (60kW), Morrison - Blower (03-78805), Ruskin - Economizer (50-361-51C), Lennox - B Box Downflow Curb (C1CURB70B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Interlink - Scroll Compressor (AQA042RAA), Mitsubishi - Blower Control (FR-D720-100-NA), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (607083-01), Noark - Circuit Breakers (MIS50T3LP).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 6

Manufacturer: Lennox Industries Inc.
Model number: LGH120H4MH3G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B06581

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
101.3	60.1	46.9	1,330	5.4	6.9	10.0

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-6-19

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 8in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (29.3SFx3R), Lennox - Indoor Coil (13.54SFx4R), Lennox - Reheat Coil (5.42SF), Lennox - Gas Heat (HE 240K BTU), Morrison - Blower (03-78805), Micrometal - Economizer (EC-L104598-01), Lennox - Power Exhaust (K1PWRE10B), Lennox - B Box Downflow Curb (C1CURB70B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Interlink - Scroll Compressor (ABA051WAA), Mitsubishi - Blower Control (FR-D740-036-NA), Welling - Belt Drive Blower Motor (YSDK1500-4C), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (606765), Noark - Circuit Breaker (MIS30T3LP), Tri-Dim - Air Filters (06020252LM4, 2482025213-LS).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 7

Manufacturer: Lennox Industries Inc.
Model number: LGH150H4MH1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07205

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
101.3	60.1	46.9	1,245	4.0	6.3	9.4

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-7-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 24in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (28.0SFx3R), Lennox - Indoor Coil (13.54SFx4R), Lennox - Reheat Coil (5.42SF), Lennox - Gas Heat (HE 240K BTU), Lennox - Outside Air Damper (OA-L104446-02), Lennox - B Box Downflow Curb (C1CURB73B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP61K5E-TF5-130), Mitsubishi - Blower Control (FR-D720-165-NA), Nidec - Belt Drive Blower Motor (DV42), Revcor (Air Drive) - Condenser Fan Blade (3P24CW26), Nidec - Condenser Fan Motors PSC (K55HXLVZ-2657), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (606765), Noark - Circuit Breakers (MIS90T3L).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 8

Manufacturer: Lennox Industries Inc.
Model number: LGH150H4MH1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07205

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
101.3	60.1	46.9	1,299	4.8	2.6	2.3

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-5-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 24in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (16) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (25.9SFx3R), Lennox - Indoor Coil (13.54SFx4R), Lennox - Reheat Coil (5.42SF), Lennox - Gas Heat (HE 240K BTU), Lennox - Outside Air Damper (OA-L104446-02), Lennox - B Box Downflow Curb (C1CURB73B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP61K5E-TF5-130), Mitsubishi - Blower Control (FR-D720-165-NA), Nidec - Belt Drive Blower Motor (DV42), Revcor (Air Drive) - Condenser Fan Blade (3P24CW26), Nidec - Condenser Fan Motors PSC (K55HXLVZ-2657), Creation Technologies - Control Box (103956-18), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (606765), Noark - Circuit Breakers (MIS90T3L).

Testing notes: UUT 8 is the same physical unit as UUT 7 but with the coil changed out. Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 9

Manufacturer: Lennox Industries Inc.
Model number: LCH156H4MK4G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07458

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
107.8	91.1	54.3	1,955	5.2	6.8	10.4

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-5-19

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 8in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (20) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (41.4SFx0.71), Lennox - Indoor Coil (21.4SFx3R), Lennox - Reheat Coil (7.33SF), Lennox - Electric Heat (45kW (2x22.5kW)), Lennox - Outside Air Damper (OA-L104446-01), Lennox - C Box Downflow Curb (C1CURB70C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Interlink - Scroll Compressor (ABA044WAA), Mitsubishi - Blower Control (FR-D740-050-NA), Welling - Belt Drive Blower Motor (YSDK2200-4I-1), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-66L), Creation Technologies - Control Box (103956-18, 103892-01), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (607549-01), Socomec - Disconnect Switch (22L23508).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 10

Manufacturer: Lennox Industries Inc.
Model number: LGH156H4MM4Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07461

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
107.8	91.1	54.3	2,198	5.0	6.4	10.8

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-5-19

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 26in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (20) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (41.4SFx2R), Lennox - Indoor Coil (21.4SFx3R), Lennox - Reheat Coil (7.33SF), Lennox - Gas Heat (HE 360K BTU), Lennox - Economizer (C1DAMP50C), Lennox - C Box Horizontal Flow Curb (C1CURB14C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP44K5E-TF5), Mitsubishi - Blower Control (FR-D720-100-NA), Revcor - Condenser Fan Blade (T2403-24), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-65L), Creation Technologies - Control Box (103956-18, 103892-01), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (604539-01), Noark - Circuit Breaker (MIS70T3L).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 11

Manufacturer: Lennox Industries Inc.
Model number: LCH240H4MP3Y
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07569

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
133.1	91.1	54.3	2,516	5.3	6.0	8.7

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-4-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 24in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (20) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (55.2SFx2R), Lennox - Indoor Coil (21.4SFx4R), Lennox - Reheat Coil (7.33SF), Lennox - Electric Heat (90kW (2x45kW)), Micrometal - Economizer (EC-L104597-01), Lennox - Power Exhaust (C1PWRE11C), Lennox - C Box Downflow Curb (C1CURB73C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Interlink - Scroll Compressor (ABA051RAA), Mitsubishi - Blower Control (FR-D720-318-NA), Nidec - Belt Drive Blower Motor (DV44), Revcor - Condenser Fan Blade (T2403-18), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-65L), Creation Technologies - Control Box (103956-18, 103892-01), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (607549-01), Square D - Circuit Breaker (JDP36250), Tri-Dim - Air Filters (06024242LM4, 2482424213-LS).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 12

Manufacturer: Lennox Industries Inc.
Model number: LGH300S4MH4G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07463

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
133.1	91.1	54.3	2,628	3.8	5.8	10.1

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-4-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 41in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (20) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (55.2SFx1.0), Lennox - Indoor Coil (21.4SFx4R), Lennox - Reheat Coil (7.33SF), Lennox - Gas Heat (HE 480K BTU), Morrison - Blower (03-78805), Ruskin - Economizer (50-361-52), Lennox - Power Exhaust (C1PWRE11C), Lennox - C Box Horizontal Flow Curb (C1CURB17C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP61K5E-TFD-130), Mitsubishi - Blower Control (FR-D740-160-NA), Revcor - Condenser Fan Blade (T2403-18), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-66L), Creation Technologies - Control Box (103956-18, 103892-01), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (604539-01), Socomec - Disconnect Switch (22L23508).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 13

Manufacturer: Lennox Industries Inc.
Model number: LGH300S4MH4G
Unit function: Rooftop Air Handling Unit
Serial number: 5619B07463

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
133.1	91.1	54.3	2,668	4.6	6.4	9.5

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 18061TR1.1 (dated 4-1-19), tested on 3-27-19

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 26in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (20) 1/2in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Delphi Thermal Sys - Microchannel Coil (55.2SFx1.0), Lennox - Indoor Coil (21.4SFx4R), Lennox - Reheat Coil (7.33SF), Lennox - Gas Heat (HE 480K BTU), Jefferson Electric - Powered GFI Transformer (411-B003-009), Lennox - Power Exhaust (C1PWRE11C), Lennox - C Box Horizontal Flow Curb (C1CURB14C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP61K5E-TFD-130), Mitsubishi - Blower Control (FR-D740-160-NA), Revcor - Condenser Fan Blade (T2403-18), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-66L), Jefferson Electric - Powered GFI Transformer (411-B003-009), Creation Technologies - Control Box (103956-18, 103892-01), System Sensor - Smoke Detector (LD4SB, LD4P120BX), Lennox - Disconnect Box (604539-01), Socomec - Disconnect Switch (22L23508).

Testing notes: UUT 13 is the same physical unit as UUT 12 but with the added Powered GFI Transformer. Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 14

Manufacturer: Lennox Industries Inc.
Model number: LCM036U4EN1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5620M00511

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
85.3	47.0	46.9	684	4.1	7.7	9.0

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 20044TR1.0 (dated 3-30-21), tested on 3-4-21

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 14in curb using (4) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (8) 3/8in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (19.3SFx2R), Lennox - Indoor Coil (9.72SFx3R), EBM-Papst - EBM Blower (R3G310-PY18-X1), Lennox - A Box Downflow Curb (C1CURB71A-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: EBM-Papst - EBM Blower (R3G310-PY18-X1), Interlink - Scroll Compressors (APA026DAA), BOMC - Condenser Fan Motor ECM (ZWK702B002012), Creation Technologies - Control Board (106519-01), LG - Variable Speed Controls (PDR070R010, PDR070R030, PDR070R020, PDR070R040), Revcor (Air Drive) - Condenser Fan Blade (611067-SGL).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 15

Manufacturer: Lennox Industries Inc.
Model number: LGM102U4EM1G
Unit function: Rooftop Air Handling Unit
Serial number: 5620K04756

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
101.3	60.1	46.9	1,300	4.0	5.8	8.2

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 20044TR1.0 (dated 3-30-21), tested on 3-4-21

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 14in curb using (6) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (10) 3/8in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (20.5SFx3R), Lennox - Indoor Coil (13.54SFx4R), Lennox - Reheat Coil (8.13SF), EBM-Papst - EBM Blower (R3G500-AP25-08A), Ningbo Zhongce E.T. - Auto Transformer (ETE-AT2.9K-460230), Ruskin - Economizer (50-361-51C), Lennox - B Box Downflow Curb (C1CURB71B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZP42K6E-TFD), Interlink - Scroll Compressor (ABA042DBA), BOMC - Condenser Fan Motor ECM (ZWK702B002011), Creation Technologies - Control Board (106519-01), LG - Variable Speed Controls (PDR070S010, PDR070R030, PDR070S020, PDR070S030), Revcor (Air Drive) - Condenser Fan Blade (611067-CTN-B).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 16

Manufacturer: Lennox Industries Inc.

Model number: LGM300U4MS1G

Unit function: Rooftop Air Handling Unit

Serial number: 5620K04760

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
133.1	91.1	54.3	2,548	10.2	5.5	7.4

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 20044TR1.0 (dated 3-30-21), tested on 3-3-21

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 14in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (14) 3/8in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (55.2SFx3R), Lennox - Indoor Coil (21.4SFx4R), Lennox - Reheat Coil (14.67SF), Morrison - Blower (03-78805), Square D - Transformer (I5S1F), Ningbo Zhongce E.T. - Auto Transformer (ETE-AT2.9K-460230), Lennox - C Box Downflow Curb (C1CURB71C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressors (ZP61K5E-TFD, ZP67KCE-TFD), Interlink - Scroll Compressor (ABA051DAA), Nidec - Belt Drive Blower Motor (DV38), BOMC - Condenser Fan Motor ECM (ZWK702B002011), Socomec - Disconnect Switch (22L23508), Creation Technologies - Control Board (106523-01), LG - Variable Speed Controls (PDR070S010, PDR070R030, PDR070S020, PDR070S030), Mitsubishi - Blower Control (FR-D740-080-NA), Revcor (Air Drive) - Condenser Fan Blade (611067-SGL).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 17

Manufacturer: Lennox Industries Inc.
Model number: LHT150H4EL1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5622L02389

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
124.4	60.1	46.9	1,415	4.2	7.0	10.2

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 20044TR2.0 (dated 3-26-23), tested on 2-27-23

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is mounted to curb with (5) seismic brackets using (6) #12 screws per bracket. Seismic bracket connects to 14in curb using (4) #12 screws per bracket. Curb is rigid floor mounted to fixture using (10) 3/8-in Grade 8 bolts. Fixture is rigid

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (40.4SFx3R), Lennox - Indoor Coil (12.8SFx4R), Lennox - Electric Heat (60kW), EBM-Papst - EBM Blower (R3G450-PW13-09A), Lennox - B Box Downflow Curb (C1CURB71B-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS60K5E, ZP67KZE), BOMC - Condenser Fan Motors ECM (ZWK702B002011), Revcor (Air Drive) - Condenser Fan Blade (611170-CTN-B), Creation Technologies - Control Board (106519-01), EBM-Papst - EBM Blower (R3G450PW1309A), Square D - Circuit Breaker (JDP36225).

Testing notes: Height and weight do not include the curb.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 18

Manufacturer: Lennox Industries Inc.
Model number: LDT240H4MH1Y
Unit function: Rooftop Air Handling Unit
Serial number: 5622L02390

Dimensions (in)			Weight (lb)	Res. Freq. (Hz)		
Depth	Width	Height		F-B	S-S	V
133.1	91.1	54.3	2,360	4.9	6.4	9.5

Code & criteria: 2022 CBC, ICC-ES AC156

Test laboratory: Environmental Testing Laboratory

Report: 20044TR2.0 (dated 3-26-23), tested on 2-27-23

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.00	1.00	3.20	2.40	1.68	0.68
2.50	0.00				

Importance Factor, $I_p = 1.5$: Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Mounting: Unit is rigid floor mounted on 14in curb using (8) seismic brackets. Each bracket connects to curb with (4) #12 screws and to unit with (8) #12 screws. Curb is rigid floor mounted to fixture using (14) 3/8in Grade 8 bolts.

Construction: Carbon steel enclosure and curb.

Subcomponents: Lennox - Tube and Fin Condenser Coil (55.1SFx2R), Lennox - Indoor Coil (21.4SFx4R), Lennox - Gas Heat (HE 480K BTU), Morrison - Blower (03-78805), Lennox - C Box Downflow Curb (C1CURB71C-1).

Tested subcomponents that are exempt per CBC 1705A.13.3.1: Copeland - Scroll Compressor (ZPS104KCE, ZP104KZE), Nidec - Belt Drive Blower Motor (DV44), Mitsubishi - Blower Control (FR-D720-318-NA), Interlink-Welling - Condenser Fan Motors PSC (YKS-250-6-65L), Revcor (Air Drive) - Condenser Fan Blade (T2403-18), Creation Technologies - Control Board (106519-01), Square D - Circuit Breaker (JDP36175).

Testing notes: Height and weight do not include the curb.



SPECIAL SEISMIC CERTIFICATION

LENNOX INDUSTRIES INC.

Digit	Digit Description	Codes	Definitions
1	Brand/Family	L	Energence, Model L Ultra, Enlight, or Xion Rooftop Units
2	Unit Type	C	Packaged Electric Cooling w/ optional Electric Heat
		D	Packaged Dual-Fuel Heat Pump
		G	Packaged Gas Heat w/ Electric Cooling
		H	Packaged Heat Pump w/ optional Electric Heat
3	Major Design Sequence	H	Energence
		M	Model L Ultra
		T	Enlight
		X	Xion
4-6	Nominal Cooling Capacity - Tons	024	2 Tons
		036	3 Tons
		048	4 Tons
		060	5 Tons
		072/074	6 Tons
7	Cooling Efficiency	H	High Efficiency (Energence or Enlight)
		S	Standard Efficiency (Energence or Xion)
		U	Ultra-High Efficiency (Model L Ultra)
8	Refrigerant Type	4	R-410A
		5	R-454B
9	Blower Type	E/P/D	Direct Drive
		T	Belt Drive (2 Speed)
		B	Belt Drive (1 Speed)
10	Factory Installed Electric Heat (Type C and H units only)	N	No Heat
		Q	5 kW Electric Heat
		C	7.5 kW Electric Heat
		D	10 kW Electric Heat
		E	15 kW Electric Heat
		G	22.5 kW Electric Heat
		J	30 kW Electric Heat
10	Heating Type (Gas, type G and D units only)	S	Standard Gas Heat, 1 Stage
		M	Medium Gas Heat, 1 Stage
		U	Medium Gas Heat, 2 Stage
		T	High Gas Heat, 1 Stage
		H	High Gas Heat, 2 Stage
		W	Standard Gas Heat, 1 Stage, Low Nox
		B	Standard Gas Heat, 2 Stage, Low Nox
		Y	Medium Gas Heat, 1 Stage, Low Nox
		Q	Medium Gas Heat, 2 Stage, Low Nox
		Z	High Gas Heat, 1 Stage, Low Nox
		X	High Gas Heat, 2 Stage, Low Nox
		D	High Gas Heat, 4 Stage, Low Nox
11	Minor Design Sequence	1-3	1st - 3rd Revision
12	Voltage	P	208/230V, 1-phase, 60Hz
		Y	208/230V, 3-phase, 60Hz
		G	460V, 3-phase, 60Hz

SPECIAL SEISMIC CERTIFICATION

LENNOX INDUSTRIES INC.

Digit	Digit Description	Codes	Definitions
1	Brand/Family	L	Energence, Model L Ultra, Enlight, or Xion Rooftop Units
2	Unit Type	C	Packaged Electric Cooling w/ optional Electric Heat
		D	Packaged Dual-Fuel Heat Pump
		G	Packaged Gas Heat w/ Electric Cooling
		H	Packaged Heat Pump w/ optional Electric Heat
3	Major Design Sequence	H	Energence
		M	Model L Ultra
		T	Enlight
		X	Xion
4-6	Nominal Cooling Capacity - Tons	078	6.5 Tons
		092	7.5 Tons
		102	8.5 Tons
		120/122	10 Tons
		150/152	12.5 Tons
7	Cooling Efficiency	H	High Efficiency (Energence or Enlight)
		S	Standard Efficiency (Energence or Xion)
		U	Ultra-High Efficiency (Model L Ultra)
8	Refrigerant Type	4	R-410A
		5	R-454B
9	Blower Type	B/M	Belt Drive
		E/P	Direct Drive
10	Factory Installed Electric Heat (Type C and H units only)	N	No Heat
		C	7.5 kW Electric Heat
		E	15 kW Electric Heat
		G	22.5 kW Electric Heat
		J	30 kW Electric Heat
		K	45 kW Electric Heat
		L	60 kW Electric Heat
10	Heating Type (Gas, type G and D units only)	S	Standard Gas Heat, 2 Stage
		M	Medium Gas Heat, 2 Stage
		H	High Gas Heat, 2 Stage
11	Minor Design Sequence	1-3	1st - 3rd Revision
12	Voltage	Y	208/230V, 3-phase, 60Hz
		G	460V, 3-phase, 60Hz

SPECIAL SEISMIC CERTIFICATION

LENNOX INDUSTRIES INC.

Digit	Digit Description	Codes	Definitions
1	Brand/Family	L	Energence, Model L Ultra, Enlight, or Xion Rooftop Units
2	Unit Type	C	Packaged Electric Cooling w/ optional Electric Heat
		D	Packaged Dual-Fuel Heat Pump
		G	Packaged Gas Heat w/ Electric Cooling
		H	Packaged Heat Pump w/ optional Electric Heat
3	Major Design Sequence	H	Energence
		M	Model L Ultra
		T	Enlight
		X	Xion
4-6	Nominal Cooling Capacity - Tons	156	13 Tons
		180	15 Tons
		210	17.5 Tons
		240	20 Tons
		300	25 Tons
7	Cooling Efficiency	H	High Efficiency (Energence or Enlight)
		S	Standard Efficiency (Energence or Xion)
		U	Ultra-High Efficiency (Model L Ultra)
8	Refrigerant Type	4	R-410A
		5	R-454B
9	Blower Type	B	Belt Drive
		M	Belt Drive
		V	Belt Drive
10	Factory Installed Electric Heat (Type C and H units only)	N	No Heat
		E	15 kW Electric Heat
		J	30 kW Electric Heat
		K	45 kW Electric Heat
		L	60 kW Electric Heat
		P	90 kW Electric Heat
10	Heating Type (Gas, type G and D units only)	L	Low Gas Heat, 1 Stage
		S	Standard Gas Heat, 2 Stage
		M	Medium Gas Heat, 2 Stage
		H	High Gas Heat, 2 Stage
11	Minor Design Sequence	1-3	1st - 3rd Revision
12	Voltage	Y	208/230V, 3-phase, 60Hz
		G	460V, 3-phase, 60Hz