



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP – 0437 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: KONE

Manufacturer's Technical Representative: Jorge Torres

Mailing Address: 450 Century Parkway, Allen, Texas 75013

Telephone: ON FILE

Email: ON FILE

Product Information

Product Name: LCE Traction Elevator Logic and Drive Controller w/ KDM 150 Drive

Product Type: Elevator Controls

Product Model Number: See Attachment 1

(List all unique product identification numbers and/or part numbers)

General Description: Electronic motion control system for the operation of people-moving elevators. 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: Rigid Base mount.

Applicant Information

Applicant Company Name: EASE LLC

Contact Person: Jonathan Roberson, S.E.

Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Telephone: (909) 606-7622

Email: j.roberson@easeco.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: 

Date: 5/29/2019

Title: Principal Structural Engineer

Company Name: EASE LLC



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

Company Name: EASE LLC

Name: Jonathan Roberson, S.E. California License Number: S4197

Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Telephone: (909) 606-7622 Email: j.roberson@easeco.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): _____
- _____
- _____

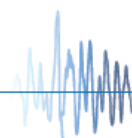
Testing Laboratory

Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Brady Richard

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

Telephone: (972) 247-9657 Email: brady@etldallas.com





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Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.44

S_{DS} (Design spectral response acceleration at short period, g) = 2.00

a_p (In-structure equipment or component amplification factor) = 1

R_p (Equipment or component response modification factor) = 2½

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See Attachment 2

Overall dimensions and weight (or range thereof) = See Attachment 1, Table 1

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): Attachments 1 & 2

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: _____

Date: February 21, 2020

Print Name: Timothy J. Piland

Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00

z/h = 1

Condition of Approval (if applicable): _____

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

ATTACHMENT PAGE | 1 OF 2

TABLE 1: SEISMIC CERTIFIED COMPONENTS

Manufacturer	KONE								
Product Line	LCE Traction Elevator Logic and Drive Controller w/ KDM 150 Drive								
COMPONENT	MANUF.	MODEL NO.	DIMENSIONS (IN.)			APPROX. WT. (LB.)	MOUNT	BASIS	
			W	D	H				
LCE2 LOGIC & DRIVE CONTROLLERS									
ReSolve 400 – LCE2 Traction Elevator Logic Controller	KONE	51086260D20	20.2	14.1	84.5	256	Floor	UUT1	
KDM 150 Drive Machine Controller Assembly ^[2]	KONE	50077900C01	20.5	20.8	73.0	600			
KCM 831 - LCE2 Traction Elevator Logic Controller	KONE	51086260D20	20.2	14.1	84.5	256	Floor	UUT2	
KDM 150 Drive Machine Controller Assembly ^[2]	KONE	50077900C01	20.5	20.8	73.0	600			
EXTERNAL MAIN LINE TRANSFORMERS ^[3]									
110 KVA Transformer 208V-240V	Nova Magnetics	KM785076G09	25.0	14.0	34.0	558	Floor	UUT3	
110 KVA Transformer 440V-500V	Nova Magnetics	KM785077G09	18.0	16.5	27.5	230	Floor	INT	
110 KVA Transformer 575V-600V	Nova Magnetics	KM785078G09	21.0	18.0	31.0	370	Floor	INT	
90 KVA Transformer 208V-240V	Nova Magnetics	KM785076G08	25.0	14.0	34.0	360	Floor	INT	
90 KVA Transformer 440V-500V	Nova Magnetics	KM785077G08	18.0	16.5	27.5	205	Floor	INT	
90 KVA Transformer 575V-600V	Nova Magnetics	KM785078G08	21.0	18.0	31.0	325	Floor	INT	
70 KVA Transformer 208V-240V	Nova Magnetics	KM785076G07	21.0	18.0	31.0	320	Floor	INT	
70 KVA Transformer 440V-500V	Nova Magnetics	KM785077G07	18.0	16.5	27.5	180	Floor	INT	
70 KVA Transformer 575V-600V	Nova Magnetics	KM785078G07	18.0	16.5	27.5	265	Floor	INT	
55 KVA Transformer 200V - 240V	Nova Magnetics	KM785076G05	17.3	16.0	27.4	281	Floor	UUT5	
55 KVA Transformer 440V - 500V	Nova Magnetics	KM785077G05	18.0	16.5	27.5	175	Floor	INT	
55 KVA Transformer 575V - 600V	Nova Magnetics	KM785078G05	18.0	16.5	27.5	230	Floor	INT	
10 KVA Transformer 200V - 240V	Nova Magnetics	KM785076G06	13.5	13.5	18.0	95	Floor	INT	
10 KVA Transformer 440V - 500V	Nova Magnetics	KM785077G06	12.8	13.0	18.0	66	Floor	UUT6	
10 KVA Transformer 575V - 600V	Nova Magnetics	KM785078G06	13.5	13.5	18.0	71	Floor	INT	
Mount	Floor (Rigid Base) Mount: free-standing, base-mounted tower configuration with the component rigidly attached to a supporting structure and no lateral support above the base.								
Notes	1. BASIS: - UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. - INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line 2. Test specimen included enhancements not found on then-standard production units. These enhancements are a necessary and essential condition for Seismic Qualification. 3. Dry type main line transformers with copper windings.								

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

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TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS

SUBCOMPONENT DESCRIPTION		MANUFACTURER	PART NO.	MATERIAL	BASIS
RESOLVE 400 & KCM 831 LOGIC CONTROLLERS		KONE INDUSTRIAL	51086260D20		UUT1 UUT2
TRANSFORMER, CONTROL, POS. 245, 208 - 240VAC, 1350VA		GRAND TRANSFORMERS INC	KM977496G02	Laminated Steel / Copper windings / Varnished / Open Core	UUT1
TRANSFORMER, CONTROL, POS. 245, 420 - 480 VAC, 1350VA		GRAND TRANSFORMERS INC	KM977496G01	Laminated Steel / Copper windings / Varnished / Open Core	UUT2
KONE KDM 150 Drive Controller		KONE INDUSTRIAL	50077900C01		UUT1 UUT2
CABINET MECHANICS		PREMEC OY	KM50057160G02	Galvanized CRS / Painted CRS	UUT1 UUT2
AC DRIVE, VACON KR8 150A		VACON OYJ	KM50077901G01	Aluminum / Galvanized CRS / FR4 PCB / Plastic / Copper	UUT1 UUT2
Notes	1. BASIS: • UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. • INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line. 2. Certification in this table is limited subcomponents identified when installed as part of a complete assembly of the equipment defined in Table 1. 3. CRS = Cold-Rolled Sheet-Steel. 4. FR4 PCB = Copper-clad, epoxy-fiberglass substrate, printed circuit board (PCB) material.				

ATTACHMENT 2: TEST SPECIMEN SUMMARY

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UUT- 1		ReSolve 400 LCE Logic Drive Controller Assembly w/ KDM 150 Drive						
MANUFACTURER:		KONE Inc.						
IDENTIFICATION:		ReSolve 400	KDM 150					
		51086260D20	50077900C01					
DESCRIPTION:		ReSolve 400 - LCE2 Traction Elevator Logic Controller: for Induction Motor Applications Input: 208 - 600 Vac, 6A maximum, 1ph, 50/60 Hz; Outputs: brake/door circuit 230 Vac, 1ph, 50/60 Hz, 6 A; safety circuit 120/230Vac, 1ph, 50/60 Hz, 1A; logic circuits 24 Vdc, 3 A per circuit. KDM150 Traction Elevator Drive Machine Controller: Input: 400 Vac, 3-ph, 50/60 Hz, 125 A; Outputs: motor circuit 0 - 400 Vac, 3-ph, 0-250 Hz, 140 A maximum nominal, 69 kW/93hp at 400V; brake circuits (2) 200 Vdc, 8 A pick, 4 A hold, Enclosure Type 1. Cabinets are connected at common side: • Top of KDM 150 Drive cabinet with (3) – M8-8.8 hex head bolts with hex nuts. • Lower edge with (2) – M8-8.8 hex head bolts with hex nuts See subcomponent listing in Table 2 for additional information						
MOUNTING:		Floor mounted using: ReSolve 400: (5) – 3/8" diameter Grade 8 and KDM 150: (5) – 5/8" diameter Grade 8 bolts.						
								
PROPERTIES:								
By: Timothy J Piland								
DIMENSIONS (in.)			LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height	Weight (lb.)	Front-Axis	Side-Axis	Vertical-Axis		
20.22	14.1	84.51	256	6.2	6.5	43.2		
20.43	20.75	73.03	595	6.3	8.5	27.8		
SHAKE TABLE TEST PARAMETERS								
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	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								

ATTACHMENT 2: TEST SPECIMEN SUMMARY

ATTACHMENT PAGE | 2 OF 4

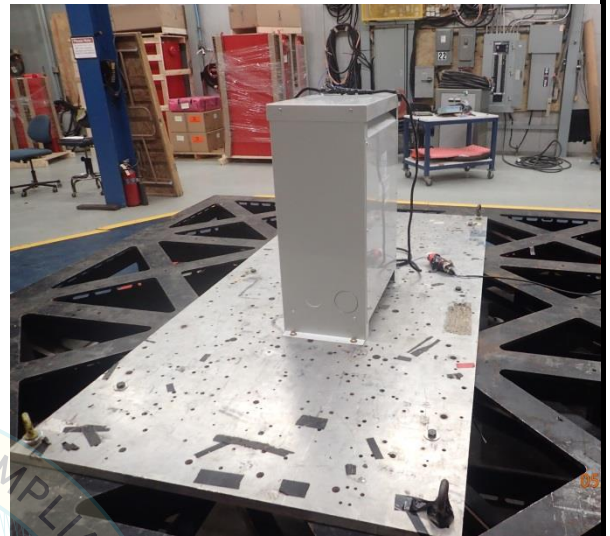
UUT- 2		KCM 831 LCE Logic Drive Controller Assembly w/ KDM 150 Drive						
MANUFACTURER:	KONE Inc.							
IDENTIFICATION:	KCM 831	KDM 150						
	51086260D20	50077900C01						
DESCRIPTION:	KCM831 - LCE2 Traction Elevator Logic Controller: for MX32 Permanent Magnet Motor Applications Input: 208 - 600 Vac, 6A maximum, 1ph, 50/60 Hz; Outputs: brake/door circuit 230 Vac, 1ph, 50/60 Hz, 6 A; safety circuit 120/230Vac, 1ph, 50/60 Hz, 1A; logic circuits 24 Vdc, 3 A per circuit. KDM150 Traction Elevator Drive Machine Controller: Input: 400 Vac, 3-ph, 50/60 Hz, 125 A; Outputs: motor circuit 0 - 400 Vac, 3-ph, 0-250 Hz, 140 A maximum nominal, 69 kW/93hp at 400V; brake circuits (2) 200 Vdc, 8 A pick, 4 A hold, Enclosure Type 1. Cabinets are connected at common side: • Top of KDM 150 Drive cabinet with (3) – M8-8.8 hex head bolts with hex nuts. • Lower edge with (2) – M8-8.8 hex head bolts with hex nuts See subcomponent listing in Table 2 for additional information							
MOUNTING:	Floor mounted using: KCM 831: (5) – 3/8" diameter Grade 8 and KDM 150: (5) – 5/8" diameter Grade 8 bolts.							
								
PROPERTIES:								
By: Timothy J Piland								
DIMENSIONS (in.)			Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Front-Axis	Side-Axis	Vertical-Axis		
20.22	14.1	84.51	250	5.6	8.1	>50		
20.43	20.75	73.03	600	5.6	8.1	>50		
SHAKE TABLE TEST PARAMETERS								
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	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								

ATTACHMENT 2: TEST SPECIMEN SUMMARY

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UUT- 3 110 KVA Transformer 200V-240V

MANUFACTURER:	Nova Magnetics
IDENTIFICATION:	KM785078G09
DESCRIPTION:	Component of the LCE Elevator Control System 110 KVA Transformer 200V-240V dry type transformer, open core & coil with copper windings.
MOUNTING:	Floor mounted using (4) – 1/2" diameter Grade 8 hex head bolts to test fixture.

**PROPERTIES:**

DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height	Side -Axis		Front-Axis	Vertical-Axis		
25.0	14.0	340	558	15.5	43.0	31.0		
SHAKE TABLE TEST PARAMETERS								
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	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								

ATTACHMENT 2: TEST SPECIMEN SUMMARY

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UUT- 5 55kVa Transformer								
MANUFACTURER:	Nova Magnetics							
IDENTIFICATION:	Model No.: KM785076G05							
DESCRIPTION:	Component of the LCE Elevator Control System Dry type transformer, open core & coil with copper windings.							
MOUNTING:	Floor mounted using (4) – 1/2" diameter Grade 8 hex head bolts to test fixture.							
								
PROPERTIES:								
DIMENSIONS (in.)			Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Front-Axis	Side-Axis	Vertical-Axis		
17.25	16	27.375		12.2	17.6	46.9		
SHAKE TABLE TEST PARAMETERS								
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	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								

UUT- 6 10kVa autotransformer								
MANUFACTURER:	Nova Magnetics							
IDENTIFICATION:	Model No.: KM785077G06							
DESCRIPTION:	Component of the LCE Elevator Control System Dry type transformer, open core & coil with copper windings.							
MOUNTING:	Floor mounted using (4) – 1/2" diameter Grade 8 hex head bolts to test fixture.							
								
PROPERTIES:								
DIMENSIONS (in.)			Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Side -Axis	Front-Axis	Vertical-Axis		
12.75	13	18		26.6	19.3	38.8		
SHAKE TABLE TEST PARAMETERS								
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	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test								