



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 [X] 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
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.

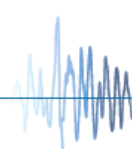
Applicant Information

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: [Signature] 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](mailto: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): \_\_\_\_\_

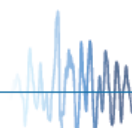
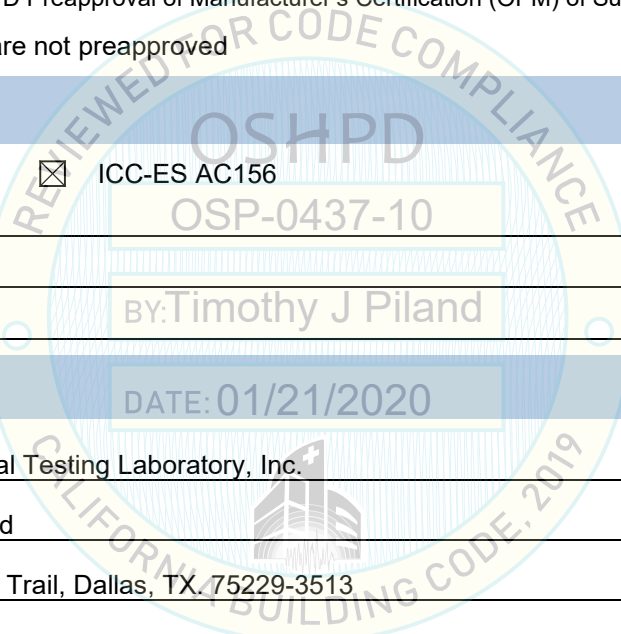
**Testing Laboratory**

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](mailto:brady@etldallas.com)





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: [X] Yes [ ] No

Design Basis of Equipment or Components (Fp/Wp) = 1.44

Sds (Design spectral response acceleration at short period, g) = 2.00

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

Rp (Equipment or component response modification factor) = 2 1/2

Omega\_0 (System overstrength factor) = 2

Ip (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 [X] No

Design Basis of Equipment or Components (V/W) =

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

Sd1 (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Omega\_0 (System overstrength factor) =

Cd (Deflection amplification factor) =

Ip (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 [X] No

List of Attachments Supporting Special Seismic Certification

[X] Test Report(s) [ ] Drawings [ ] Calculations [ ] Manufacturer's Catalog

[X] Other(s) (Please Specify): Attachments 1 & 2

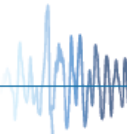
OSHPD Approval (For Office Use Only) - Approval Expires on December 31, 2025

Signature: [Signature] Date: February 21, 2020

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: Sds (g) = 2.00 z/h = 1

Condition of Approval (if applicable):



**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 1: SEISMIC CERTIFIED COMPONENTS**

Manufacturer	<b>KONE</b>								
Product Line	<b>LCE Traction Elevator Logic and Drive Controller w/ KDM 150 Drive</b>								
COMPONENT	MANUF.	MODEL NO.	DIMENSIONS (IN.)			APPROX. WT. (LB.)	MOUNT	BASIS	
			W	D	H				
<b>LCE2 LOGIC &amp; DRIVE CONTROLLERS</b>									
ReSolve 400 – LCE2 Traction Elevator Logic Controller	KONE	51086260D20	20.2	14.1	84.5	256	Floor	<b>UUT1</b>	
KDM 150 Drive Machine Controller Assembly <sup>[2]</sup>	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	<b>UUT2</b>	
KDM 150 Drive Machine Controller Assembly <sup>[2]</sup>	KONE	50077900C01	20.5	20.8	73.0	600			
<b>EXTERNAL MAIN LINE TRANSFORMERS <sup>[3]</sup></b>									
110 KVA Transformer 208V-240V	Nova Magnetics	KM785076G09	25.0	14.0	34.0	558	Floor	<b>UUT3</b>	
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	<b>UUT5</b>	
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	<b>UUT6</b>	
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	<ol style="list-style-type: none"> <li>BASIS: <ul style="list-style-type: none"> <li>UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.</li> <li>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</li> </ul> </li> <li>Test specimen included enhancements not found on then-standard production units. These enhancements are a necessary and essential condition for Seismic Qualification.</li> <li>Dry type main line transformers with copper windings.</li> </ol>								

**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**


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**TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS**


SUBCOMPONENT DESCRIPTION	MANUFACTURER	PART NO.	MATERIAL	BASIS
<b>RESOLVE 400 &amp; KCM 831 LOGIC CONTROLLERS</b>	<b>KONE INDUSTRIAL</b>	<b>51086260D20</b>		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
<b>KONE KDM 150 Drive Controller</b>	<b>KONE INDUSTRIAL</b>	<b>50077900C01</b>		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	<p>1. BASIS:</p> <ul style="list-style-type: none"> <li>• UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.</li> <li>• 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.</li> </ul> <p>2. Certification in this table is limited subcomponents identified when installed as part of a complete assembly of the equipment defined in Table 1.</p> <p>3. CRS = Cold-Rolled Sheet-Steel.</p> <p>4. FR4 PCB = Copper-clad, epoxy-fiberglass substrate, printed circuit board (PCB) material.</p>			

**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

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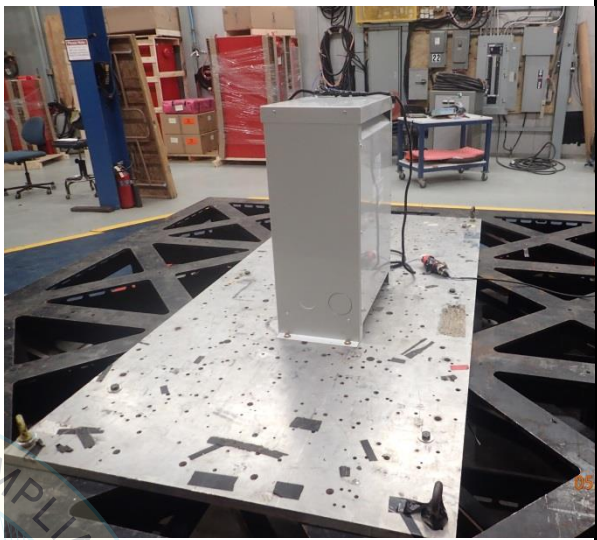
UUT- 1 ReSolve 400 LCE Logic Drive Controller Assembly w/ KDM 150 Drive									
MANUFACTURER:		KONE Inc.							
IDENTIFICATION:		ReSolve 400		KDM 150					
		51086260D20		50077900C01					
DESCRIPTION:		<p><b>ReSolve 400 - LCE2 Traction Elevator Logic Controller:</b> for Induction Motor Applications Input: 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.</p> <p><b>KDM150 Traction Elevator Drive Machine Controller:</b> 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.</p> <p>Cabinets are connected at common side:</p> <ul style="list-style-type: none"> <li>• Top of KDM 150 Drive cabinet with (3) – M8-8.8 hex head bolts with hex nuts.</li> <li>• Lower edge with (2) – M8-8.8 hex head bolts with hex nuts</li> </ul> <p>See subcomponent listing in Table 2 for additional information</p>							
MOUNTING:		<p>Floor mounted using: ReSolve 400: (5) – 3/8" diameter Grade 8 and KDM 150: (5) – 5/8" diameter Grade 8 bolts.</p>							
									
PROPERTIES:									
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 <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (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**

UUT- 2 KCM 831 LCE Logic Drive Controller Assembly w/ KDM 150 Drive									
MANUFACTURER:		KONE Inc.							
IDENTIFICATION:		KCM 831		KDM 150					
		51086260D20		50077900C01					
DESCRIPTION:		<p><b>KCM831 - LCE2 Traction Elevator Logic Controller:</b> 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.</p> <p><b>KDM150 Traction Elevator Drive Machine Controller:</b> 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.</p> <p>Cabinets are connected at common side:</p> <ul style="list-style-type: none"> <li>• Top of KDM 150 Drive cabinet with (3) – M8-8.8 hex head bolts with hex nuts.</li> <li>• Lower edge with (2) – M8-8.8 hex head bolts with hex nuts</li> </ul> <p>See subcomponent listing in Table 2 for additional information</p>							
MOUNTING:		<p>Floor mounted using:</p> <p>KCM 831: (5) – 3/8" diameter Grade 8 and</p> <p>KDM 150: (5) – 5/8" diameter Grade 8 bolts.</p>							
									
PROPERTIES:									
DIMENSIONS (in.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		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 <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (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**

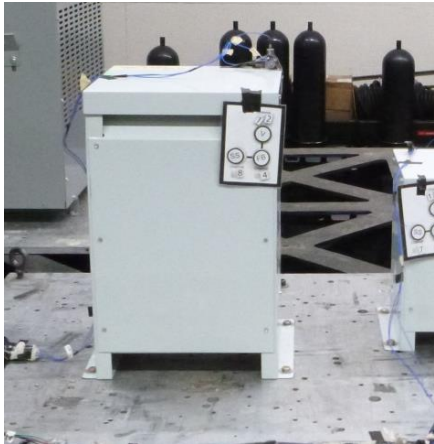
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<b>UUT- 3      110 KVA Transformer 200V-240V</b>									
<b>MANUFACTURER:</b>		Nova Magnetics							
<b>IDENTIFICATION:</b>		KM785078G09							
<b>DESCRIPTION:</b>		Component of the LCE Elevator Control System 110 KVA Transformer 200V-240V dry type transformer, open core & coil with copper windings.							
<b>MOUNTING:</b>		Floor mounted using (4) – 1/2" diameter Grade 8 hex head bolts to test fixture.							
									
<b>PROPERTIES:</b>									
DIMENSIONS (in.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		Side -Axis	Front-Axis	Vertical-Axis		
25.0	14.0	340	558		15.5	43.0	31.0		
<b>SHAKE TABLE TEST PARAMETERS</b>									
CODE	TEST CRITERIA	S <sub>Ds</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (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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<b>UUT- 5      55kVa Transformer</b>									
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.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		Front-Axis	Side-Axis	Vertical-Axis		
17.25	16	27.375	281		12.2	17.6	46.9		
SHAKE TABLE TEST PARAMETERS									
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (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									

<b>UUT- 6      10kVa autotransformer</b>									
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.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		Side -Axis	Front-Axis	Vertical-Axis		
12.75	13	18	66		26.6	19.3	38.8		
SHAKE TABLE TEST PARAMETERS									
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (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									