APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0092

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: **OTIS ELEVATOR COMPANY**

Manufacturer's Technical Representative: John Klein

Mailing Address: 1500 Otis Way, Florence, SC

Telephone: On File Email: On File

Product Information

Product Name: **SEE ATTACHMENT 1**

Product Type: Elevator Equipment

Product Model Number: See Attachment 1
(List all unique product identification numbers and/or part numbers)

General Description: Provides the operational control, motion control and motor drive to control the operation of a traction elevator within a building.

Mounting Description: Rigid Base Mounted

Applicant Information

Applicant Company Name: **EASE Co.**

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: 6/05/2019

Title: Principal Structural Engineer Company Name: **EASE Co.**

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

Company Name: **EASE Co.**

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

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = **See Attachment 1**

S_{DS} (Design spectral response acceleration at short period, g) = **See Attachment 1**

a_p (In-structure equipment or component amplification factor) = **1.0 (Transformer) / 2.5 (Drive & Controller)**

R_p (Equipment or component response modification factor) = **2.5 (Transformer) / 6.0 (Drive & Controller)**

Ω_0 (System overstrength factor) = **See Attachment 1**

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = **1.0**

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

Overall dimensions and weight (or range thereof) = **See Attachment 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: August 18, 2020

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = See Above z/h = 1

Condition of Approval (if applicable):

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

TABLE 1:

Manufacturer	**Otis Elevator Company**
Product Type	**Elevator Components**

COMPONENT	MODEL NUMBER	APPROX. DIMENSIONS (IN.) W	D	H	MAX. WT. (LB.)	MOUNT	BASIS [1]	F_P/W_P	S_{DS}	z/h	a_P	R_P	Ω_0
GLOBAL CONTROL SYSTEM (GCS) [5]													
Global Control System (GCS) w/ Elevator Controller, Brake, 60A Drive & Transformer Box	Axx21310AD [4] Axx21310AF [6]	45.6	13.6	69.6	685	Rigid Base	UUT-A1	1.50 1.07	2.00 2.40	1 0	2.5	6.0	2.0
Global Control System (GCS) w/ Elevator Controller, Brake & Transformer Box [2]	Axx21310AD [4] Axx21310AF [6]	45.6	13.6	69.6	586	Rigid Base	INT	1.16	1.54	1	2.5	6.0	2.0
Global Control System (GCS) w/ Elevator Controller & Brake [2]	Axx21310AD [4] Axx21310AF [6]	41	12	52	276	Rigid Base	INT	1.16	1.54	1	2.5	6.0	2.0
Global Control System (GCS) w/ Elevator Controller, Brake & 60A Drive	Axx21310AD [4] Axx21310AF [6]	41	12	52	375	Rigid Base	UUT-1	1.16	1.54	1	2.5	6.0	2.0
Global Control System (GCS) Drive Cabinet – 120A Drive w/ Stand	Axx21305DD Gxx21310EC + Axx471LJ	21.1	9.4	53.6	254	Rigid Base	UUT-A2	1.61 1.07	2.15 2.38	1 0	2.5	6.0	2.0
TRACTION ELEVATOR CONTROLLERS													
Elevonic R-Series Controller Assembly	Axx21305CA	27.5	16.5	71.25	381	Rigid Base	UUT-A7	1.50	2.00	1	2.5	6.0	2.0
Elevonic R-Series DSD-412 Drive: 300Amp	Axx21305CG	31.25	16.8	52	258	Rigid Base	UUT-A3	1.61 1.07	2.15 2.38	1 0	2.5	6.0	2.0
POWER DISTRIBUTION [3]													
3-Phase Autotransformer: 66.5kVA	Axx21799L	26.9	22.4	40	470	Rigid Base	UUT-A4	1.51 1.08	2.09 2.39	1 0	1.0	2.5	2.0
Isolation Transformer: 80kVA	Axx21799B	36	30.3	43.2	701	Rigid Base	UUT-A6	1.50 1.07	2.08 2.38	1 0	1.0	2.5	2.0
Ripple Filter: 190A	Axx21799E	36.12	24.31	34	570	Rigid Base	UUT-A5	1.51 1.08	2.09 2.39	1 0	1.0	2.5	2.0

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. Countertop Anchored: unit is anchored to a counter, desk, or other piece of fixed furniture.

Enclosures Galvanized steel complying with CSA B44.1/ASME A17.5

Notes

1. BASIS:
   - UUT#: Indicates that a unit matching these characteristics was tested.
   - INT (Interpolate/Extrapolate): indicates a model not specifically tested, by which seismic certification is established through evaluation of testing of other, similar models in the product line
2. Controller w/o integral drive. This model intended for use with 120A drive located in a standalone, structurally separate cabinet.
3. Transformers include copper windings and open core coil.
4. "…AD" indicates equipment for use in a new construction project. "…AF" indicates equipment for use in a modernization project. Equipment is identical except for designated use.
5. Special Seismic Certification is limited to subcomponents listed in Table 2 and those meeting exceptions of CBC §1705A.13.3.1.
6. Configurations determined by subcomponents listed in Table 2.

TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS

SUBCOMPONENT	MANUFACTURER	PART No.	DESCRIPTION	BASIS
TRANSFORMER BOX ASSEMBLY Up-Stand Box (Axx21305BR)	**OTIS**	**A__21310AD**	**GCS Controller**	
Transformer				
Building Power Transformer	Grand Transformer Inc.	Otis PN: ABA225LY3	Transformer: Primary 208-240VAC, Secondary 480VAC, Power:26.2kVA transformer	UUT-A1
Fuse Holder & Fuses				
Fuse	Mersin	Otis PN: AAA375BZ68	70 Amp; 600V; Time Delay Fuse	UUT-A1
DRIVE Assembly				
60 Amp Drive	Otis	Otis PN: GEA21310A2	Volt: 480Vac; Output Current: 32 A rms	UUT-1 & A1
60A R3 REGEN DRIVE	Otis	Otis PN: KBA21310ABR5	Volt: 480Vac; Output Current: 32 Arms	INT
60A R3 REGEN DRIVE	Otis	Otis PN: KBA21310ABR6	Volt: 208Vac; Output Current: 32 Arms	INT
AAA21305DD				
120 Amp Drive	Otis	Otis PN: GCA21310EC2	Volt: 480Vac; Output Current: 60 A rms	UUT-A2
BRAKE BOX ASSEMBLY		**Axx21305BL**		
Transformers				
Power Distribution Transformer	Grand Transformer	Otis PN: AAA225MV5	Primary: 440-480VAC; 50/60Hz; 3Ø; Rating: 1.65kVA; Control system power	UUT -1
Power Distribution Transformer	Grand Transformer	Otis PN: AAA225MV1	Primary: 440-480VAC; 50/60Hz; 3Ø; Rating: 1.0kVA; Control system power	INT
Power Distribution Transformer	Grand Transformer	Otis PN: AAA225MV2	Primary: 208-240VAC; 50/60Hz; 3Ø; Rating: 1.0kVA; Control system power	INT
Power Distribution Transformer	Grand Transformer	Otis PN: AAA225MV6	Primary: 208-240VAC; 50/60Hz; 3Ø; Rating: 1.65kVA; Control system power	UUT-A1
FMV filter				
FMV	Otis	Otis PN: AAA21305BM1	Motor Filter Protection Assembly	UUT-1 & A1
Fuse				
Fuse	Little Fuse/Bussmann	Otis PN: AAA375BK43	Class CC; 600V; 20A; Time Delay Fuse	UUT-1 & A1

Table continues next page

TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS

SUBCOMPONENT	MANUFACTURER	PART No.	DESCRIPTION	BASIS
CONTROLLER ASSEMBLY		**AEA21305BN**		
Power Supplies				
Power Supply	Siemens	Otis PN: AAA621AT14	Adjustable 24VDC Switching Power Supply; 240W; 85V to 264V Input; Enclosed Frame; Rail Mount	UUT-1 & A1
Power Supply	Cosel	Otis PN: AAA621AN22	12VDC Switching Power Supply; 15.6W; 85V to 264V Input; Enclosed Frame	UUT-1 & A1
Battery	Enersys	Otis PN: AAA718E14	12V; 7AH; Sealed Lead Acid Battery	UUT-1 & A1
Battery	Enersys	Otis PN: AAA718E3	12V; 4AH; Sealed Lead Acid Battery	UUT-1 & A1
Fuses				
Fuse	Little Fuse/Bussmann	Otis PN: AAA375CJ5	15A; 250V; Ceramic; Time Delay Fuse	UUT-1 & A1

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 devices identified when installed as part of a complete assembly of the GCS defined in Table 1.

UUT-1 GCS Elevator Controller

MANUFACTURER:	OTIS ELEVATOR COMPANY
IDENTIFICATION:	Axx21310AD (Model No. for New Construction) Axx21310AF (Model No. for Modernization)
DESCRIPTION:	GCS (Global Control System) including: AEA21305BN Controller Assembly, GEA21310A2 60A Drive Assembly, Axx21305BL Brake control section. For additional information, see Attachment 1, Table 2.
MOUNTING:	Rigid Base (Floor) mounted using (3) – Axx316HJR3 brackets (1/4" thick steel), Two brackets w/ (2) – 3/8" dia. ASTM A574 Socket Head Cap Screws w/ washers to aluminum plate One bracket w/ (1) – 3/8" dia. ASTM A574 Socket Head Cap Screws w/ washers to aluminum plate

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
41	12	52	375	14.57	10.05	>50

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
1.54	1	1.5	2.46	1.85	1.03	0.42

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A1 GCS Elevator Controller w/ Transformer Box (Upstand Box)

MANUFACTURER:	OTIS ELEVATOR COMPANY
IDENTIFICATION:	Axx21310AD (Model No. for New Construction) Axx21310AF (Model No. for Modernization)
DESCRIPTION:	GCS (Global Control System) including: AEA21305BN Controller Assembly, GEA21310A2 60A Drive Assembly, Axx21305BL Brake control section, & Axx21305BR Transformer Box w/ 26.2kVA transformer Transformer is a dry type transformer manufactured by Grand Transformer Inc. Copper windings. Open core coil. Primary 208-240VAC, Secondary 480VAC For additional information, see Attachment 1, Table 2.
MOUNTING:	Rigid Base (Floor) mounted using (2) – Axx316HJR3 brackets (1/4" thick steel), each w/ (2) – 3/8" dia. ASTM A574 Socket Head Cap Screws w/ washers to aluminum plate.

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
45.6	13.6	69.6	685	15.0	10.4	30.1

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.00 2.40	1 0	1.5	3.2	2.4	1.61	0.65

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A2 GCS 120A Drive Assembly with Stand

MANUFACTURER:	OTIS ELEVATOR COMPANY
IDENTIFICATION:	Axx21305DD
DESCRIPTION:	Component of the Global Control System Otis Axx21305DD drive assembly including: • Gxx21310EC Gearless 120A CR drive manufactured by Otis (Germany) • ABA471LJ drive stand with integral mounting flanges, manufactured by Otis (North America) For additional information, see Attachment 1, Table 2.
MOUNTING:	Rigid Base (Floor) mounted using using (4) – ½" dia. ASTM A574 Socket Head Cap Screws w/ washers to aluminum plate.

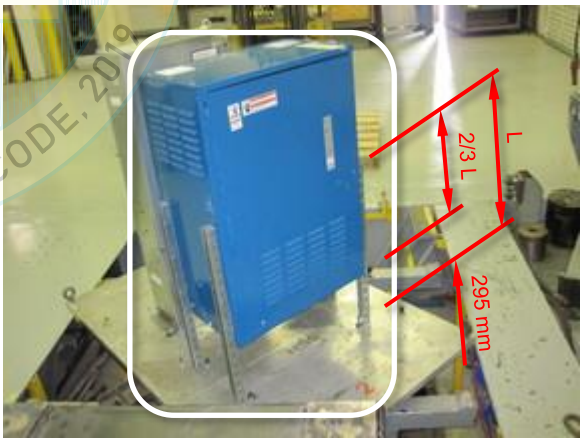
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
21.1	9.4	53.6	254	8.3	25.2	>50

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.15 2.38	1 0	1.5	3.44	2.58	1.59	0.64

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A3 Elevonic R-Series DSD-412 Drive

MANUFACTURER:	OTIS ELEVATOR COMPANY
IDENTIFICATION:	Axx21305CG
DESCRIPTION:	Elevonic R-Series DSD-412 300A Drive w/ (4) – AAA347BLG27 legs (295 mm clear below cabinet) Each leg secured to cabinet frame with (3) – M12x25 Hex head screws with hex head nuts.
MOUNTING:	Rigid Base (Floor) mounted using (4) – AAA316GUR5 brackets, each w/ (1) – M12-Class8 bolt & hex nut to leg (1) – 3/8" dia. ASTM A574 Socket Head Cap Screws to aluminum plate.



DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
31.25	16.8	52	258	9.8	5.2	48

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.15 2.38	1 0	1.5	3.44	2.58	1.59	0.64

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A4 3-Phase Auto Transformer, 66.5 kVA

MANUFACTURER:	Warner Power
IDENTIFICATION:	Axx21799L7
DESCRIPTION:	66.5 kVA 3-Phase Auto Transformer, The Auto-transformer complies with CSA C22.2 No. 66 and clause 32 overload test of UL Standard 506 and meets the requirements of CSA B44.1/ASME A17.5 for elevator electrical equipment.
MOUNTING:	Rigid Base (Floor) mounted using (4) – ½" dia. ASTM A574 Socket Head Cap Screws to aluminum plate.

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
26.9	22.4	40	470	10.0	32.9	13.0

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.09 2.39	1 0	1.5	3.34	2.51	1.60	0.65

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A5 Ripple Filter

MANUFACTURER:	Warner Power
IDENTIFICATION:	Axx21799E222122
DESCRIPTION:	190 Amp Ripple Filter The ripple filter complies with CSA C22.2 No. 66 and clause 32 overload test of UL Standard 506 and meets the requirements of CSA B44.1/ASME A17.5 for elevator electrical equipment.
MOUNTING:	Rigid Base (Floor) mounted using (4) – ½" dia. ASTM A574 Socket Head Cap Screws to aluminum plate.

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
36.12	24.31	34	570	10.8	8.9	>50

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.09 2.39	1 0	1.5	3.34	2.51	1.60	0.65

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A6 Isolation Transformer (DC Drives)

MANUFACTURER:	Warner Power
IDENTIFICATION:	Axx21799B10233
DESCRIPTION:	80kVA Isolation Transformer for use with DC Drives. 108.8A 480V dry type transformer. Copper winding. Open core coil. The isolation transformer complies with CSA C22.2 No. 66 and clause 32 overload test of UL Standard 506 and meets the requirements of CSA B44.1/ASME A17.5 for elevator electrical equipment.
MOUNTING:	Rigid Base (Floor) mounted using (4) – ½" dia. ASTM A574 Socket Head Cap Screws to aluminum plate.

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
36	30.3	43.2	701	9.5	45.9	>50

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.08 2.38	1 0	1.5	3.60	2.70	1.59	0.64

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT-A7 Elevonic R-Series Controller

MANUFACTURER:	OTIS ELEVATOR COMPANY
IDENTIFICATION:	Axx21305CA
DESCRIPTION:	Controller Assembly complies with CSA B44.1/ASME A17.5 requirements. The assembly includes primary controller, brake controller, and transformer box/up stand. Assembly includes integral lifting hooks
MOUNTING:	Rigid Base (Floor) mounted using (2) – Otis AAA272CJF brackets (1/4" thick steel), each with (2) – ½" dia. ASTM A574 Socket Head Cap Screws to aluminum plate. Installed per Otis AAA27076FF1 Kit.

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
27.5	16.5	71.25	381	13	13	27.6

ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2016 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.0	1	1.5	3.2	2.4	1.34	0.54

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.