



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0015 – 10**

**OSHPD Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Eaton

Manufacturer's Technical Representative: Eddie Wilkie

Mailing Address: 175 Vista Blvd, Arden, NC 28704

Telephone: 828-651-0707 Email: eddiwilkie@eaton.com

**Product Information**

Product Name: Enclosed Control

Product Type: Enclosed Motor Control

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

General Description: Low Voltage, unit mounted enclosed control assemblies for controlling or operating lighting, machinery, industrial processes and commercial building systems per UL 508. Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid Wall Mounted

**Applicant Information**

Applicant Company Name: Eaton

Contact Person: Eddie Wilkie

Mailing Address: 175 Vista Blvd, Arden, NC 28704

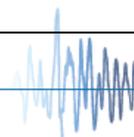
Telephone: 828-651-0707 Email: eddiwilkie@eaton.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: *Eddie Wilkie* Date: 2/19/13

Title: Director of Engineering Company Name: Eaton

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dvnamic Needs"





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

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

Company Name: ISAT

Name: William V. Joerger California License Number: SE 4545

Mailing Address: 1020 Crews Road, Quite Q, Matthews, NC 28105

Telephone: 510-714-0216 Email: wvjoerger@isatsb.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): \_\_\_\_\_

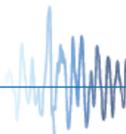
**Testing Laboratory**

Company Name: Wyle Laboratories

Contact Name: Phil McNaught

Mailing Address: P.O. Box 77777, Huntsville, AL 35807

Telephone: 256-716-4130 Email: Phil.mcnaught@wyle.com





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

**Seismic Parameters**

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 2.24

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.98

$a_p$  (In-structure equipment or component amplification factor) = 2.5

$R_p$  (Equipment or component response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.5

$I_p$  (Importance factor) = 1.5

$z/h$  (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See Resonance Summary

Overall dimensions and weight (or range thereof) = See Product Range Summary

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) = \_\_\_\_\_

$\Omega_0$  (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, 2010:  Yes  No

**List of Attachments Supporting Special Seismic Certification**

Test Report(s)  Drawings  Calculations  Manufacturer's Catalog

Other(s) (Please Specify): Product Range Summary

**OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019**

Signature:  Date: April 16, 2013

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = 2.98  $z/h$  = 1.0

Condition of Approval (if applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Enclosed Control  
Certified Product Range Summary  
(Manufactured by Eaton)**

Product	Disconnect Means	Model	Nema Size	Continuous Current Rating (Amperes - Max)	Disconnect Rating (Fuse Clips / Breaker Amps)	Primary Voltage AC (Max)	Motor Voltage AC (Max)	Motor Horsepower (Max)	Maximum Dimensions			Maximum Weight (lbs.)	Notes	Comments	S <sub>DS</sub> (g)	UUT #
									Width (in.)	Depth (in.)	Height (in.)					
Enclosed Control	Fusible / Non-Fusible Disconnect	ECN1801CAC	0	18	30	600	575	5	10.75	10.5	27.25	35	Nema 1 Enclosure, 6	Covers Families: ECN01, ECN02, ECN05, ECN06, ECN07, ECN08, ECN16, ECN17, ECN54, ECL03, ECL12. Subset Components of this design.	2.98	24
		ECN1801CAC-R63/B	0	18	30	600	575	5	10.75	10.5	27.25	35	Nema 1 Enclosure, 6		2.98	25
		ECN0101A3A	0	18	N/A	600	575	5	5.75	5	10.25	4.3	Nema 1 Enclosure, 6		2.98	38
		ECN180XXXX	0	18	30	600	575	5	29.5	15.25	62	224	1, 5, 6, 7		Interpolated	
		ECN181XXXX	1	27	30	600	575	10					1, 5, 6, 7		Interpolated	
		ECN182XXXX	2	45	60	600	575	25					1, 5, 6, 7		Interpolated	
		ECN183XXXX	3	90	100	600	575	50					1, 5, 6, 7		Interpolated	
		ECN184XXXX	4	135	200	600	575	100					1, 5, 6, 7		Interpolated	
		ECN1841CAJ-R63/F	4	135	200	600	575	100					29.5		12.25	35
		ECN185XXXX	5	270	400	600	575	200	28	15.25	62	224	1, 5, 6, 7		Interpolated	
	ECN1851CAL	5	270	400	600	575	200	28	15.25	62	224	Nema 1 Enclosure, 6	2.98	26		
	Circuit Breaker / Motor Circuit Protector	ECN2401CAC	0	18	7	600	575	5	10.75	10.5	27.25	34	Nema 1 Enclosure, 6	Covers Families: ECN22, ECN23, ECN55, ECH22, ECH24, ECL14. Subset Components of this design.	2.98	22
		ECN2401CAC-R63/B	0	18	7	600	575	5	10.75	10.5	27.25	34	Nema 1 Enclosure, 6		2.98	23
		ECN2401CAC-B10	0	18	7	600	575	5	10.75	10.5	27.25	35	Nema 1 Enclosure, 6		2.98	37
		ECN240XXXX	0	18	15	600	575	5	29.5	15.25	62	208	1, 4, 5, 6, 7		Interpolated	
		ECN241XXXX	1	27	30	600	575	10					1, 4, 5, 6, 7		Interpolated	
		ECN242XXXX	2	45	50	600	575	25					1, 4, 5, 6, 7		Interpolated	
		ECN243XXXX	3	90	100	600	575	50					1, 4, 5, 6, 7		Interpolated	
		ECN2431CAG	3	90	100	600	575	50	20.5	12	30.25	83	Nema 1 Enclosure, 6		2.98	36
		ECN244XXXX	4	135	150	600	575	100	29.5	15.25	62	208	1, 5, 6, 7		Interpolated	
ECN2441CAH-R63/F		4	135	150	600	575	100	20.5	12	31	100	Nema 1 Enclosure, 6	2.98		29	
ECN245XXXX	5	270	400	600	575	200	29.5	15.25	62	208	1, 5, 6, 7	Interpolated				
ECN2451CAJ	5	270	250	600	575	200	28	14.25	62	208	Nema 1 Enclosure, 6	2.98	28			
Enclosed Lighting Contactors	Combination (Circuit Breaker) and Non-Combination (No Disconnect)	ECC03C1A3A	N/A	30	N/A	600	N/A	N/A	7.75	6	13.25	10	Nema 1 Enclosure	ECC03XC and ECC04XC non-combination enclosed lighting contactor	2.98	30
		ECCXXCXXXX	N/A	30	N/A	600	N/A	N/A	28	14.25	62	182	2, 5, 6, 7		Interpolated	
		ECL15C1C3E-C1	N/A	30	30	600	N/A	N/A	10.75	10.5	27.25	37	Nema 1 Enclosure, 6		2.98	31
		ECL15CXXXX	N/A	30	30	600	N/A	N/A	28	14.25	62	182	2, 5, 6, 7		Interpolated	
		ECL15DXXXX	N/A	60	60	600	N/A	N/A					2, 5, 6, 7		Interpolated	
		ECL15EXXXX	N/A	100	100	600	N/A	N/A					2, 5, 6, 7		Interpolated	
		ECL15FXXXX	N/A	200	200	600	N/A	N/A					2, 5, 6, 7		Interpolated	
ECL15F1C3H-C1	N/A	250	250	600	N/A	N/A	28	14.25	62	182	Nema 1 Enclosure, 6	2.98	32			
Enclosed Control SSRV	Combination (Circuit Breaker) and Non-Combination (No Disconnect)	ECS95Q1CAF-C34C46/J3	N/A	37	50	600	575	30	15.5	12	23.25	61	Nema 1 Enclosure, 6	Covers Families: ECS93, ECS92, ECS90. Subset components of this design.	2.98	33
		ECS95QXXXX	N/A	37	50	600	575	30	28	14.25	62	294	3, 5, 6, 7		Interpolated	
		ECS95SXXXX	N/A	66	100	600	575	50					3, 5, 6, 7		Interpolated	
		ECS95VXXXX	N/A	105	150	600	575	75					3, 5, 6, 7		Interpolated	
		ECS95WXXXX	N/A	135	150	600	575	100					3, 5, 6, 7		Interpolated	
		ECS95YXXXX	N/A	180	250	600	575	150					3, 5, 6, 7		Interpolated	
		ECS95Y1CAJ-C34C46/J3	N/A	180	250	600	575	150					28		14.25	62
		ECS95ZXXXX	N/A	240	250	600	575	200	28	14.25	62	294	3, 5, 6, 7		Interpolated	
		ECS951XXXX	N/A	304	400	600	575	250					3, 5, 6, 7		Interpolated	
		ECS952XXXX	N/A	360	400	600	575	300					3, 5, 6, 7		Interpolated	
		ECS9521CAK-C34	N/A	360	400	600	575	300					28		14.25	62

### Enclosed Control Certified Major Components Summary

Component	Description (Rating)	Manufacturer	Model	Weight (lbs)	UUT #	
<b>Molded Case Circuit Breakers (MCCB) and Circuit Protectors (MCP)</b>	Series G, MCP, EG Frame (7A)	Eaton	HMCPE007C0C	2.2	22, 23	
	Series G, MCP, EG Frame (15A)	Eaton	HMCPE015E0C	2.2	Interpolated	
	Series G, MCP, EG Frame (30A)	Eaton	HMCPE030H1C	2.2	Interpolated	
	Series G, MCP, EG Frame (50A)	Eaton	HMCPE050K2C	2.2	Interpolated	
	Series G, MCP, EG Frame (70A)	Eaton	HMCPE070M2C	2.2	Interpolated	
	Series G, MCP, EG Frame (100A)	Eaton	HMCPE100R3C	2.2	36	
	Series G, MCP, EG Frame (100A)	Eaton	HMCPE100T3C	2.2	36	
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (7A)	Eaton	HMCPE007C0C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (7A)	Eaton	HMCPE007C0C	6	37
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (15A)	Eaton	HMCPE015E0C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (30A)	Eaton	HMCPE030H1C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (50A)	Eaton	HMCPE050K2C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (70A)	Eaton	HMCPE070M2C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (100A)	Eaton	HMCPE100R3C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (150A)	Eaton	HMCPE150T4C	6	Interpolated
	Series C, MCP, X = blank (standard), X = S (SSOL Version)	Series C, MCP, F Frame (150A)	Eaton	HMCPE150U4C	6	Interpolated
	Series C, J FRAME MCP, X = Overload Adjustment Range (A-W) Y = blank (standard), Y = S (SSOL Version)	Series C, MCP, J Frame (250A)	Eaton	HMCPE250Y5C	12	Interpolated
	Series C, F FRAME MCCB, XXX = Amperage Rating (030 - 225)	Series C, MCCB, F Frame	Eaton	HFD3030	6	31
	Series C, J FRAME MCCB, XXX = Amperage Rating (070 - 250)	Series C, MCCB, F Frame (30 - 225A)	Eaton	HFD3XXX	6	Interpolated
	Series C, K FRAME MCP, X = Overload Adjustment Range (A-N) Y = blank (standard), Y = S (SSOL Version)	Series C, MCCB, J Frame	Eaton	HJD3250F	12	Interpolated
		Series C, MCCB, J Frame (70 - 250A)	Eaton	HJD3XXX	12	32
		Series C, MCP, K Frame (400A)	Eaton	HMCPE400Y5C	13	Interpolated
	Series C, MCP, K Frame	Eaton	HMCPE250W5C	13	28	
<b>Fusible Disconnect Switches</b>	30A, 600V (Max) Fusible Disconnect Switch	Eaton	96-3692-15	3.55	24, 25	
	60A, 600V (Max) Fusible Disconnect Switch	Eaton	96-3692-43	3.55	Interpolated	
	100A, 600V (Max) Fusible Disconnect Switch	Eaton	96-3693-15	3.96	Interpolated	
	200A, 600V (Max) Fusible Disconnect Switch	Eaton	96-3694-17	15.8	Interpolated	
	400A, 600V (Max) Fusible Disconnect Switch	Eaton	96-3695-16	26.75	26	
	* Note: Non-Fusible Disconnect Switch is Subset of Fusible Switch Design	30A, 600V (Max) Non-Fusible Disconnect Switch	Eaton	96-3692-57	2.3	* Note, 24,25
		60A, 600V (Max) Non-Fusible Disconnect Switch	Eaton	96-3692	2.3	Interpolated
		100A, 600V (Max) Non-Fusible Disconnect Switch	Eaton	96-3693	2.41	Interpolated
		200A, 600V (Max) Non-Fusible Disconnect Switch	Eaton	96-3694-3	11.85	Interpolated
		400A, 600V (Max) Non-Fusible Disconnect Switch	Eaton	96-3695-2	18.75	* Note, 26
<b>Motor Contactors</b>	NEMA Size 0 Contactor	Eaton	CN15BN3AB	1.8	22, 23, 24, 25, 38	
	NEMA Size 1 Contactor	Eaton	CN15DN3AB	3.1	Interpolated	
	NEMA Size 2 Contactor	Eaton	CN15GN3AB	3.1	Interpolated	
	NEMA Size 3 Contactor	Eaton	CN15KN3A	8.5	Interpolated	
	NEMA Size 4 Contactor	Eaton	CN15NN3A	20	27, 29	
	NEMA Size 5 Contactor	Eaton	CN15SN3A	23	26, 28	
<b>Lighting Contactors</b>	30A ECC Lighting Contactor (Elec / Mech Held)	Eaton	C30CNE20A0	3.5	30	
	30A ECL04, 15 Lighting Contactor	Eaton	A202K1CAM	1.5	31	
	60A ECL04, 15 Lighting Contactor	Eaton	A202K2CAM	3.5	Interpolated	
	100A ECL04, 15 Lighting Contactor	Eaton	A202K3CAM	9	Interpolated	
	200A ECL04, 15 Lighting Contactor	Eaton	A202K4CAM	20	32	
<b>Reduced Voltage Soft Starters Standard Duty</b>	S811 RVSS (37A)	Eaton	S811N37X3S	5.8	33	
	S811 RVSS (66A)	Eaton	S811N66X3S	5.8	Interpolated	
	S811 RVSS (105A)	Eaton	S811R10X3S	10.5	Interpolated	
	S811 RVSS (135A)	Eaton	S811R13X3S	10.5	Interpolated	
	S811 RVSS (180A)	Eaton	S811T18X3S	48	Interpolated	
	S811 RVSS (240A)	Eaton	S811T24X3S	48	Interpolated	
	S811 RVSS (304A)	Eaton	S811T30X3S	48	Interpolated	
	S811 RVSS (360A)	Eaton	S811V36X3S	103	35	
<b>Overload Protection Relays Bi-Metallic</b>	Bi-Metallic Overload (32A)	Eaton	C306DN3B	0.8	22, 24	
	Bi-Metallic Overload (75A)	Eaton	C306GN3B	1.4	Interpolated	
	Bi-Metallic Overload (105A)	Eaton	C306KN3	4	Interpolated	
	Bi-Metallic Overload (144A)	Eaton	C306NN3	4	26, 28	
<b>Overload Protection Relays Solid State (C440)</b>	C440 Solid State Overload (5A)	Eaton	C440A1A005SF0	0.9	23, 25	
	C440 Solid State Overload (1-5A)	Eaton	C440	0.9	Interpolated	
	C440 Solid State Overload (4-20A)	Eaton	C440A1A020SF0	0.9	Interpolated	
	C440 Solid State Overload (9-45A)	Eaton	C440A1A045SF1	0.9	Interpolated	
	C440 Solid State Overload (20-100A)	Eaton	C440B1A100SF3	0.9	Interpolated	
	C440 Solid State Overload (28-140A)	Eaton	C440C1A140SF4	4.5	Interpolated	
	C440 Solid State Overload (28-140A) Pass Through	Eaton	C440	3.85	Interpolated	
<b>Control Power Transformers</b>	C440 Solid State Overload (140A) Pass Through	Eaton	C440C1A140SPX	3.85	27, 29	
	50VA CPT	Eaton	C00502AFB	2.8	22, 23, 24, 25	
	100VA CPT	Eaton	C0100EXXFB	4.4	Interpolated	
	150VA CPT	Eaton	C0150EXXFB	6.9	Interpolated	
	200VA CPT	Eaton	C0200EXXFB	8.7	Interpolated	
	250VA CPT	Eaton	C0250EXXFB	10.2	Interpolated	
300VA CPT	Eaton	C0300E2AFB	11.5	26, 28		

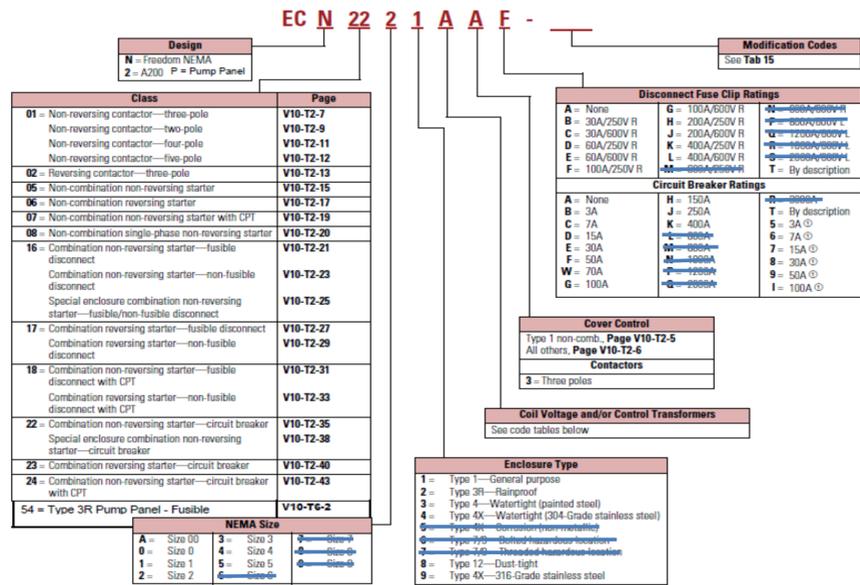
**Enclosed Control  
Certified Enclosure Range  
(Manufactured by Eaton)**

BOX	Enclosure Dimensions			NEMA Type Ratings	Test In UUT #
	WIDTH	HEIGHT	DEPTH		
1	5.75	10.25	5	1	38*
2	7.75	13.25	6	1	30*
3	12.65	13.85	6.4	1	Interpolated
4	11.66	25.99	8.03	1	Interpolated
5	9.84	11.07	6.7	1, 3R, 4, 4X, 12	Interpolated
5A	9.84	11.07	10.4	1, 3R, 4, 4X, 12	Interpolated
6	12.01	12.15	6.7	1, 3R, 4, 4X, 12	Interpolated
6A	12.01	12.15	10.4	1, 3R, 4, 4X, 12	Interpolated
7	16.26	12.15	6.7	1, 3R, 4, 4X, 12	Interpolated
7A	16.26	12.15	10.4	1, 3R, 4, 4X, 12	Interpolated
8	14.25	25.5	8.47	1, 3R, 4, 4X, 12	Interpolated
9	25.5	25.5	8.41	1, 3R, 4, 4X, 12	Interpolated
10	20	44.25	10.48	1, 3R, 4, 4X, 12	Interpolated
A	10.5	27.06	6.66	1, 3R, 4, 4X, 12	Interpolated
A	10.75	27.25	10.5	1	31*
A	10.75	27.25	10.5	1	22*, 23*, 24*, 25*, 31*, 37*
A1	10.5	27.06	6.66	1, 3R, 4, 4X, 12	Interpolated
B	15.5	23.06	6.66	1, 3R, 4, 4X, 12	Interpolated
B1	15.5	23.92	8.44	1, 3R, 4, 4X, 12	Interpolated
C	20.5	27.87	8.44	1, 3R, 4, 4X, 12	Interpolated
C	20.5	31	12	1	29*
C	20.5	30.25	12	1	36*
N/A	15.5	12	23.25	1	33*
D	29.5	35	8.75	1	Interpolated
D	29.5	35	12.25	1	27*
G	13.5	23.06	6.57	1, 3R, 4, 4X, 12	Interpolated
G1	17	42	8.75	1, 3R, 4, 4X, 12	Interpolated
H	19	25.06	6.57	1, 3R, 4, 4X, 12	Interpolated
H1	28	50	8.75	1, 3R, 4, 4X, 12	Interpolated
P1	8.5	31.93	6.66	3R	Interpolated
P3	18.5	37	8.47	3R	Interpolated
P4	19	36.15	8.05	3R	Interpolated
P5	21	46.15	8.75	3R	Interpolated
P7	28	60.58	8.75	3R	Interpolated
E	28	60	10.68	1, 3R, 4, 4X, 12	Interpolated
E	28	62	15.25	1	26*
E	28	62	14.25	1	28*, 32*, 34*
E	28	62	14.25	4X	35*

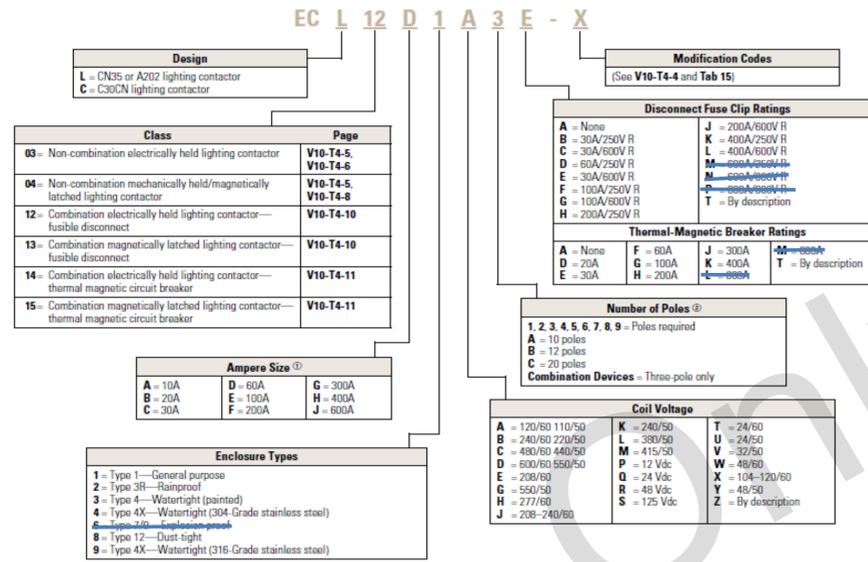
\* - Includes extraneous hardware and operator throw projection

Notes

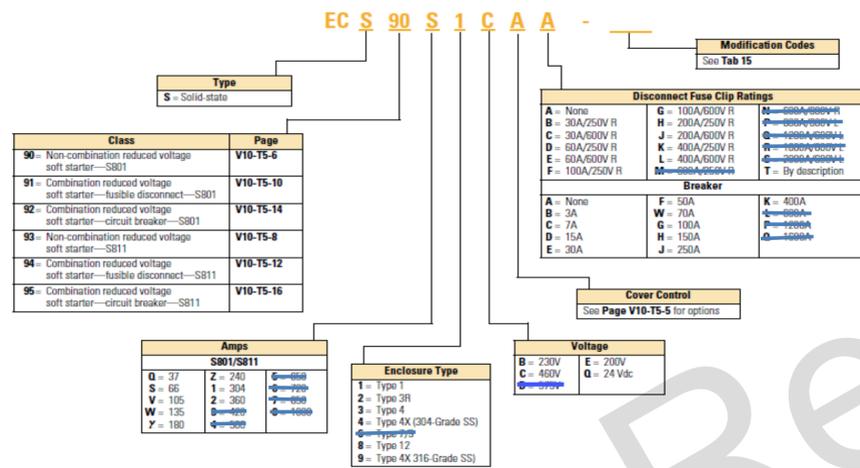
1 Product Numbering System - Enclosed Control (ECN, ECP)



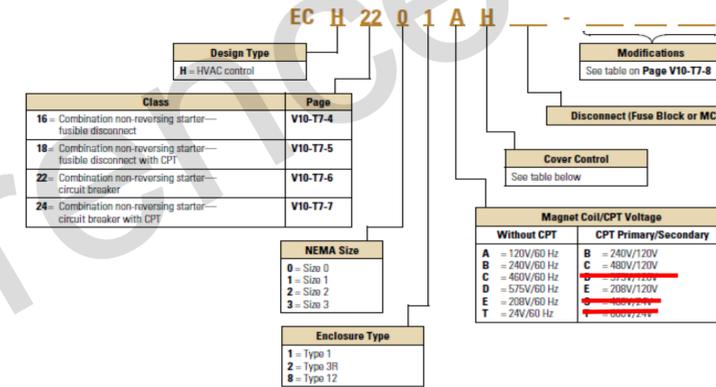
2 Product Numbering System - Enclosed Lighting Contactors



3 Product Numbering System - Enclosed Control SSRV



4 Product Numbering System - Enclosed Control HVAC Market (ECH)



- 5 NEMA Type 1, 3R, 12, 4 enclosures (mild carbon steel)
- 6 Carbon steel sheet metal construction
- 7 NEMA 4X enclosure (304 stainless steel)



Enclosed Control  
Resonant Frequency Summary

Report	UUT	Front to Back (Hz)	Side to Side (Hz)	Vertical (Hz)
70282R12	22	N/A*	N/A*	N/A*
70282R12	23	N/A*	N/A*	N/A*
70282R12	24	N/A*	N/A*	N/A*
70282R12	25	N/A*	N/A*	N/A*
70282R12	26	N/A*	N/A*	N/A*
70282R12	27	N/A*	N/A*	N/A*
70282R12	28	N/A*	N/A*	N/A*
70282R12	29	N/A*	N/A*	N/A*
70282R12	30	N/A*	N/A*	N/A*
70282R12	31	N/A*	N/A*	N/A*
70282R12	32	N/A*	N/A*	N/A*
70282R12	33	N/A*	N/A*	N/A*
70282R12	34	12	14	43
70282R12	35	12	14	47
70282R12	36	N/A*	N/A*	N/A*
70282R12	37	N/A*	N/A*	N/A*
70282R12	38	N/A*	N/A*	N/A*

\* - UUT rigidly mounted to wall fixture.

## UUT 22 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2401CAC

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), HMCPE007C0C (7A Breaker), C0050E2AFB (50VA CPT)  
CN15BN3AB (Size 0 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
34	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 22 was mounted to a rigid wall frame using (3) 1/4-20 bolts. The steel frame was welded to the shake table.

## UUT 23 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2401CAC-R63/B

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), HMCPE007C0C (7A Breaker), C0050E2AFB (50VA CPT)  
CN15BN3AB (Size 0 Contactor), C440A1A005SF0 (1-5A SSOL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
34	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 23 was mounted to a rigid frame using (3) 1/4-20 bolts. The steel frame was welded to the shake table.

## UUT 24 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN1801CAC

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), 96-3692-15 (30A 600V Fusible DS)  
C0050E2AFB (50VA CPT), CN15BN3AB (Size 0 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
35	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 24 was mounted to a rigid frame using (3) 1/4-20 bolts. The steel frame was welded to the shake table.

## UUT 25 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN1801CAC-R63/B

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), 96-3692-15 (30A 600V Fusible DS)

C0050E2AFB (50VA CPT), CN15BN3AB (Size 0 Contactor), C440A1A005SF0 (1-5A SSOL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
35	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 25 was mounted to a rigid frame using (3) 1/4-20 bolts. The steel frame was welded to the shake table.

## UUT 26 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN1851CAL

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box E (Enclosure), 96-3695-16 (400A 600V Fusible DS)  
C0300E2AFB (300VA CPT), CN15SN3A (Size 5 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
224	15.25	28	62	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 26 was mounted to a rigid frame using (4) 3/8-16 bolts. The steel frame was welded to the shake table.

## UUT 27 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN1841CAJ-R63/F

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box D (Enclosure), 96-3694-17 (200A 600V Fusible DS)

C0200E2AFB (200VA CPT), CN15NN3A (Size 4 Contactor), C440C1A140SPX (28-140A SSOL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
145	12.25	29.5	35	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 27 was mounted to a rigid frame using (3) 1/4" bolts. The steel frame was welded to the shake table.

## UUT 28 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2451CAJ

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box E (Enclosure), HMCP250W5C (250A Breaker)

C0300E2AFB (300VA CPT), CN15SN3A95 (Size 5 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties ( As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
208	14.25	28	62	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 28 was mounted to a rigid frame using (4) 3/8-16 bolts. The steel frame was welded to the shake table.

## UUT 29 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2441CAH-R63/F

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box C (Enclosure), HMCP150U4C (150A Breaker), C0200E2AFB (200VA CPT), CN15NN3A (Size 4 Contactor), C440C1A140SPX (28-140A SSOL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
100	12	20.5	31	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 29 was mounted to a rigid frame using (3) 1/4-20 bolts. The steel frame was welded to the shake table.

## UUT 30 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECC03C1A3A

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box 2 (Enclosure), C30CNE20A0 (30A Lighting Contactor)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
10	6	7.75	13.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 30 was mounted to a rigid frame using (3) #10 bolts. The steel frame was welded to the shake table.

## UUT 31 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECL15C1C3E-C1

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), HFD3030 (30A Breaker), C0100E2AFB (100VA CPT), A202K1CAM (30A Lighting Contactor)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
37	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 31 was mounted to a rigid frame using (3) 1/4" bolts. The steel frame was welded to the shake table.

## UUT 32 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECL15F1C3H-C1

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box E (Enclosure), HJD3250F (250A Breaker), C0200E2AFB (200VA CPT), A202K4CAM (400A Lighting Contactor)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
182	14.25	28	62	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 32 was mounted to a rigid frame using (4) 3/8" bolts. The steel frame was welded to the shake table.

## UUT 33 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECS95Q1CAF-C34C46/J3

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: S811N37N3B (37A, RVSS), HMCPE050K2C (50A Breaker), C0250E2AFB (250VA CPT), CN15GN3AB (Size 2 Contactor), C306GN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
61	12	15.5	23.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 33 was mounted to a rigid frame using (3) 1/4" bolts. The steel frame was welded to the shake table.

## UUT 34 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECS95Y1CAJ-C34C46/J3

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box E (Enclosure), S811T18N3B (180A, RVSS), HMCP250W5C (250A Breaker), C0250E2AFB (250VA CPT), CN15SN3A (Size 5 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
266	14.25	28	62	12	14	43

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 34 was mounted to a rigid frame using (4) 3/8" bolts. The steel frame was welded to the shake table.

## UUT 35 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Catalog/Model Number: ECS9521CAK-C34

Product Construction Summary:

Cabinet is constructed of 316 grade stainless steel, NEMA 4X rating.

Options/Component Summary: Box E (Enclosure), S811V36N3B (360A, RVSS), HMCP400X5W (400A Breaker), C0250E2AFB (250VA CPT)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
294	14.25	28	62	12	14	47

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 35 was mounted to a rigid frame using (4) 3/8" bolts. The steel frame was welded to the shake table.

## UUT 36 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2431CAG

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box C (Enclosure), HMCPE100R3C (100A Breaker), C0150E2AFB (150VA CPT), CN15KN3A (Size 3 Contactor), C306KN3 (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
83	12	20.5	30.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 36 was mounted to a rigid frame using (3) 1/4" bolts. The steel frame was welded to the shake table.

## UUT 37 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN2401CAC-B10

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box A (Enclosure), HMCP007C0C (7A Breaker), C0050E2AFB (50VA CPT)  
CN15BN3AB (Size 0 Contactor), C306DN3B (Bi-metallic OL)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
35	10.5	10.75	27.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 37 was mounted to a rigid frame using (3) 1/4" bolts. The steel frame was welded to the shake table.

## UUT 38 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Enclosed Control

Model Number: ECN0101A3A

Product Construction Summary:

Cabinet is constructed of powder-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Box 1 (Enclosure), CN15BN3AB (Size 0 contactor)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
4.3	5	5.75	10.25	N/A	N/A	N/A

### Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.98	1	1.5	4.77	3.58	2.00	0.80

UUT maintained structural integrity and functionality as observed in post test inspection and operation checks.



UUT 38 was mounted to a rigid frame using (3) #10 bolts. The steel frame was welded to the shake table.