



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

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

OFFICE USE ONLY	
APPLICATION #:	OSP – 0064

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Square D by Schneider Electric

Manufacturer's Technical Representative: Scott Littler, Principal Technical Expert

Mailing Address: 330 Weakley Lane, Smyrna, TN 37167

Telephone: 615-267-9407 Email: scott.littler@se.com

Product Information

Product Name: Enclosed Circuit Breakers – Low Voltage (600V and below)

Product Type: Enclosed Circuit Breaker Units from 15A to 1200A ampacity ratings

Product Model Number: Varies (see attachment)
(List all unique product identification numbers and/or part numbers)

General Description: Enclosed Circuit Breaker Units from 15A to 1200A ratings consisting of molded case circuit breakers packaged in carbon or stainless-steel sheet metal framed enclosures (NEMA Type 1, 3, 3R, 4, 4X, 5, and 12)

Mounting Description: Wall mounted - Rigid

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc

Contact Person: Galen Reid

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

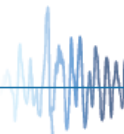
Telephone: 844-TRU-0200 Email: greid@structint.com

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: 12/30/2019

Title: Program Manager Company Name: TRU Compliance, by Structural Integrity Associates, Inc

Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic 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: TRU Compliance, by Structural Integrity Associates, Inc

Name: Andy Coughlin, SE California License Number: S6082

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

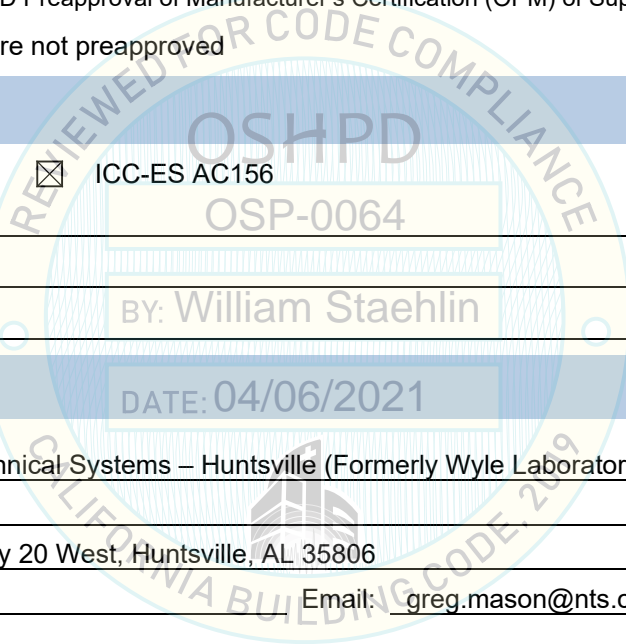
Telephone: 844-TRU-0200 Email: acoughlin@structint.com

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): _____



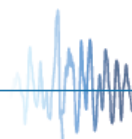
Testing Laboratory

Company Name: National Technical Systems – Huntsville (Formerly Wyle Laboratories)

Contact Name: Greg Mason

Mailing Address: 7800 Highway 20 West, Huntsville, AL 35806

Telephone: (256) 837-4411 Email: greg.mason@nts.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) = 1.79 (z/h=1.0), 1.38 (z/h=0.0)

S_{DS} (Design spectral response acceleration at short period, g) = 2.38 (z/h=1.0), 3.06 (z/h=0.0)

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

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1 and 0

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

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

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) = by William Staehlin

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): Product Matrices

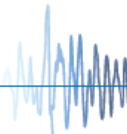
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: William Staehlin Date: April 6, 2021

Print Name: William Staehlin Title: Senior Structural Engineer

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

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1801118-CR-001 R0



Manufacturer: Schneider Electric	TABLE 1
Model Line: 15 - 1200A Enclosed Circuit Breakers	

Certified Product Construction Summary:
Enclosures constructed of carbon steel (CS) or stainless steel (SS) as noted in table below.

Certified Options Summary:
Models with suffix "A", "AWK", "DS", or "SS" provide a mechanism to operate the enclosed circuit breaker. These are NEMA type 12, 4, 4X, or 5. Models without suffix "A", "AWK", "DS", or "SS" provide no operating mechanism. These are NEMA types 1 or 3R.

Mounting Configuration:
Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.38 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 3.06 g$ $z/h = 0.0$

Model Line	Model	Max Ampacity	Dimensions (in)			Weight (lb)	Material	NEMA Type	UUT
			Depth	Width	Height				
With Operating Mechanism	FA100A	100	4.88	9.13	19.5	13	CS	12	22
	F*100***		4.88	9.13	19.5	13	CS	12	Interp.
	H*100*		4.88	9.13	19.5	16	SS	4, 4X, 5	Interp.
			4.75	7.90	17.0	16	CS	1	Interp.
	B125***	125	4.88	9.13	19.5	16	CS	1, 3R	Interp.
	H150*	150	6.28	15.4	32.26	24	CS	1, 3R	Interp.
	J250AWK	250	7.94	9.72	32.26	24	CS	12	25
	J250***		7.94	9.72	32.26	24	CS	12	Interp.
	J250DS		7.94	9.72	32.26	28	SS	4, 4X, 5	3
	J250***		7.94	9.72	32.26	28	SS	4, 4X, 5	Interp.
	LA400AWK	400	7.25	13.75	42.25	52	CS	12	27
	L*400***		7.25	13.75	42.25	52	CS	12	Interp.
	L*600***	600	8.2	20.42	59.63	110	CS	12	Interp.
	M800***	800	9.5	20.75	40.88	86	CS	12	Interp.
L1200*	1200	7.75	20.25	51.88	107	CS	1	Interp.	
P1200***		9.5	20.75	53	104.7	CS	12	Interp.	
Without Operating Mechanism	F*100** H*100*	100	4.75	7.9	17	11	CS	1	Interp.
			4.88	8.88	18	16	CS	3R	Interp.
			4.13	8.63	18.13	14	CS	1	Interp.
			4.13	9.88	19.5	14	CS	1	Interp.
	B125***	125	4.88	9.13	19.5	16	CS	1, 3R	Interp.
	H150*	150	6.28	15.4	32.26	24	CS	1, 3R	Interp.
	Q**200***	200	4.25	7.63	23.13	11.84	CS	1	Interp.
			4.75	7.63	23.13	15.28	CS	3R	Interp.

TRU Compliance, by Structural Integrity Associates, Inc.

844-TRU-0200 | info@trucompliance.com

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1801118-CR-001 R0



Manufacturer: Schneider Electric	TABLE 1
Model Line: 15 - 1200A Enclosed Circuit Breakers	

Certified Product Construction Summary:
Enclosures constructed of carbon steel (CS) or stainless steel (SS) as noted in table below.

Certified Options Summary:
Models with suffix "A", "AWK", "DS", or "SS" provide a mechanism to operate the enclosed circuit breaker. These are NEMA type 12, 4, 4X, or 5. Models without suffix "A", "AWK", "DS", or "SS" provide no operating mechanism. These are NEMA types 1 or 3R.

Mounting Configuration:
Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: **CBC 2019** **Seismic Certification Limits:** $S_{DS} = 2.38 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 3.06 g$ $z/h = 0.0$

Model Line	Model	Max Ampacity	Dimensions (in)			Weight (lb)	Material	NEMA Type	UUT	
			Depth	Width	Height					
Without Operating Mechanism	Q**225***	225	4.75	9.88	26.25	18	CS	1	Interp.	
	Q23225NRB		5.5	9.88	26.25	23	CS	3R	23	
	Q**225***	225	5.5	9.88	26.25	23	CS	3R	Interp.	
	J250**		5.5	8.9	26.4	17.37	CS	1	Interp.	
	J*250**	250	5.63	19	20	19	CS	1	Interp.	
	J250R		7.12	19	20.25	27	CS	3R	Interp.	
	J250**		6.28	14.47	31.05	34	CS	3R	24	
	J*250**		6.28	14.47	31.05	34	CS	3R	Interp.	
	J*250**		6	14.36	31.36	33	CS	1	Interp.	
	J*250**		6	15.4	32.4	33	CS	1	Interp.	
	L*400***	400	6.63	15.4	27.4	36	CS	1	Interp.	
	L*400***		7.88	15.38	44	60	CS	3R	Interp.	
	L*400***		6.5	15.38	44.5	46	CS	1	Interp.	
	L*400***		6.5	16.5	45.63	46	CS	1	Interp.	
	M800*	800	9.75	21	40.38	98	CS	1, 3R	Interp.	
	M*1200**	1200	7.75	20.25	51.8	107	CS	1	Interp.	
	P1200*		1200	9.75	21	52.13	160	CS	3R	4
	L1200*			9.75	21	52.13	160	CS	1, 3R	Interp.
	P1200R									
	M*1200**									
P1200*										

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING

1801118-CR-001 R0



Manufacturer: Schneider Electric				TABLE 1.1	
Model Line: 15 - 1200A Enclosed Circuit Breakers					
Circuit Breaker Enclosures					
Circuit Breaker			Enclosure		
Catalog No. Prefix	Rating	Poles	NEMA 1 Flush	NEMA 1 Surface	NEMA 3R
FAL, FHL, FCL	15-100A	1, 2, 3	FA100F	FA100S	FA100RB
BDL, BGL, BJL	15-125 A	2, 3	B125F	B125S	B125RB
BKL	15-30 A	2			
HDL	15-100 A	3	-	HD100S	-
HDL, JDL	125-250 A	3	-	JD250S	-
HDL, HGL	15-150 A	2	H150F	H150S	H150R
HJL, HLL	15-100 A	2	J250F	J250S	H150R
HDL, HGL, HJL, HLL	15-150 A	3			
JDL, JGL, JJL, JLL	150-250 A	2, 3	-	Q22200NS	Q22200NRB
QBL, QDL, QGL, QJL	70-225 A	2	-	Q23225NS	Q23225NRB
QBL, QDL, QGL, QJL	70-225 A	2, 3	Q23225NF	Q23225NS	Q23225NRB
LAL, LHL, Q4L	125-400 A	2, 3	LA400F	LA400S	LA400R
LAL	125-400 A	3	-	LA400LS	-
MGL, MJL, PGL, PJL, PKL, PLL	300-800 A	2, 3	-	M800S	M800R
PGL, PJL, PKL, PLL	250-1200 A	2, 3	-	P1200S	M1200R
Circuit Breaker			NEMA 4, 4X, 5 304 Stainless Steel	NEMA 12 W/Knockouts	NEMA 12 W/out Knockouts
FAL, FHL, FCL	15-100A	1, 2, 3	FA100DS	FA100A	FA100AWK
BDL, BGL, BJL	15-100 A	2, 3	B125S	B125A	B125AWK
BDL, BGL, BJL	110-125 A	2, 3			
BKL	15-30 A	2	-	-	-
Circuit Breaker			NEMA 4, 4X, 5 304 Stainless Steel	NEMA 4, 4X, 5 316 Stainless Steel	NEMA 12/3R W/out Knockouts
FAL, FHL, FCL	15-100 A	1, 2, 3	FA100DS	-	FA100AWK
HDL, HGL, HJL, HLL	15-150A	2, 3	J250DS	J250SS	J250AWK
JDL, JGL, JJL, JLL	150-250 A	2, 3			
LAL, LHL, Q4L	125-400 A	2, 3	LA400DS	-	LA400AWK
LDL, LGL, LJL, LLL, LRL	250-600A	3	-	-	L600AWK
LGL, LLL, LRL	250-600A	3	-	-	L600AWKMC
MGL, MJL, PGL, PJL, PKL, PLL	300-800 A	2, 3	M800DS	M800SS	M800AWK
PGL, PJL, PKL, PLL	250-1200 A	2, 3	-	-	P1200AWK
DC Circuit Breaker Enclosures for LG and LL DC-Rated Circuit Breakers					
Circuit Breaker			NEMA 1 Surface		
LGL, LLL	300-600 A	3	L1200S		
LGL, LLL	700-1200 A	4			

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1801118-CR-001 R0



Manufacturer: Schneider Electric	Table Description: Molded Case Circuit Breakers	TABLE 2
Model Line: 15 - 1200A Enclosed Circuit Breakers		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.38 g$ $z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 3.06 g$ $z/h = 0.0$	

Breaker Frame Type	Manufacturer	Model	Description	Notes	UUT
Molded Case Circuit Breakers (2, 3, and 4 Pole)	Square D	F*	15-100A, 208-600V, 6 lbs.		Extrap.
		FAL34100	100A, 480V, 6 lbs.		22
		B*	15-125A, 208-600V, 4 lbs.		Interp.
		H*	15-250A, 208-600V, 5 lbs.		Interp.
		Q*	70-250A, 208-600V, 5 lbs.		Interp.
		QJL32250	250A, 600V, 5 lbs.		23
		J*	150-250A, 208-600V, 5 lbs.		Interp.
		JGL36250	250A, 600V, 5 lbs.		24
		K*	110-250A, 208-600V, 10 lbs.		Interp.
		L*	250-600A, 208-600V, 14 lbs.		Interp.
		LAL36400	400A, 600V, 14.lbs.		27
		M*	300-800A, 208-600V, 24lbs.		Interp.
		L*	250-1200A, 208-600V, 24 lbs.		Interp.
		P*	600-1200A, 208-600V, 36 lbs.		Interp.
		PLL34000S12	1200A, 600V. 36 lbs.		4

* The sub-components listed here include part numbers which provided identify configuration, manufacturer, and materials. Tested sub-components and interpolated/extrapolated items have the same manufacturer and materials and have similar configuration and construction as the tested units.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 3
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: J250DS Serial Number: N/A	

Product Construction Summary:
Stainless steel enclosure

Options/Subcomponent Summary:
JDL36250 250A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
28	7.94	9.72	32.26	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.38	1.0	1.5	3.81	2.86	2.05	0.83
		3.06	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (3) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 4
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: P1200R Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
PLL34000S12 1200A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
160	9.75	21	52.125	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.38	1.0	1.5	3.81	2.86	2.05	0.83
		3.06	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (4) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 22
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: FA100A Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
FAL34100 100A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
13	4.88	9.13	19.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.70	1.0	1.5	4.32	3.24	2.12	0.85
		3.16	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (3) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 23
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: Q23225NRB Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
QBL32225 225A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
23	5.5	9.88	26.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.46	1.0	1.5	3.94	2.95	2.08	0.84
		3.10	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (3) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 24
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: J250R Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
JGL36250 250A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
34	6.28	14.47	31.05	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.70	1.0	1.5	4.32	3.24	2.12	0.85
		3.16	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (4) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 25
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: J250AWK Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
JGL36250 250A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
24	7.94	9.72	32.26	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.51	1.0	1.5	4.01	3.01	2.07	0.84
		3.10	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (3) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1801118-CR-001 R0



Manufacturer: Schneider Electric	UUT 27
Model Line: 15 - 1200A Enclosed Circuit Breakers	
Model Number: LA400AWK Serial Number: N/A	

Product Construction Summary:
Carbon steel enclosure

Options/Subcomponent Summary:
LAL36400 400A Molded Case Circuit Breaker

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
52	7.25	13.75	42.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building 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 2019	ICC-ES AC156 (2004)	2.50	1.0	1.5	4.00	3.00	2.12	0.86
		3.17	0.0					

Test Mounting Details:



UUT was rigid wall mounted using (3) 1/4" grade 5 bolts and flat washers torqued to 7 ft-lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.