APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0637

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: EXN

Product Type: Dry-Type Transformers (15kVA to 150kVA)

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

General Description: Aluminum and Copper wound transformers from 15kVA to 150kVA

Mounting Description: Base Mounted and 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: 12/26/2019

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

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: Structural and Earthquake Engineering and Simulation Laboratory (SEESL)

Contact Name: Mark Pitman

Mailing Address: 212 Ketter Hall, North Campus, Buffalo, NY 14260

Telephone: 716-645-4377 Email: mpitman@buffalo.edu

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.01 (z/h = 1), 0.90 (z/h = 0)

S_{DS} (Design spectral response acceleration at short period, g) = 1.40 (z/h = 1), 2.00 (z/h = 0)

a_p (In-structure equipment or component amplification factor) = 1.0

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

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

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: _____ Date: July 13, 2020

Print Name: Timothy J. Piland Title: SSE

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

1900782-CR-001 R0

Manufacturer: Schneider Electric
Model Line: EXN

TABLE 1

Certified Product Construction Summary:
Carbon steel enclosures.

Certified Options Summary:
Aluminum or Copper Windings.

Mounting Configuration:
Varies
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}= ***1.4 g*** ***z/h=1.0*** S_{DS}= ***2.0 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line	Enclosure	Dimensions (in)			Weight (lb)	Power Rating (kVA)	Type	UUT
		Depth	Width	Height				
EXN 3-Phase Aluminum Wound	17M	21.0	21.5	24.0	195	15	2, 3R	Extrap.
	18M	24.6	25.5	28.3	345	30 or 15	2, 3R	Extrap.
	19M	26.0	25.5	29.3	416	45 or 30	2, 3R	Extrap.
	20M	27.4	30.0	33.5	570	75 or 45	2, 3R	Extrap.
	21M	28.4	31.3	37.5	949	112.5 or 75	2, 3R	Extrap.
	22M	32.6	33.7	40.6	1190	150 or 112.5	2, 3R	5,9
EXN 3-Phase Copper Wound	17M	21.0	21.5	24.0	237	15	2, 3R	Extrap.
	18M	24.6	25.5	28.3	407	30 or 15	2, 3R	Extrap.
	19M	26.0	25.5	29.3	475	45 or 30	2, 3R	4
	20M	27.4	30.0	33.5	690	75 or 45	2, 3R	Interp.
	21M	28.4	31.3	37.5	1146	112.5 or 75	2, 3R	Interp.
	22M	32.6	33.7	40.6	1395	150 or 112.5	2, 3R	2,8

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1900782-CR-001 R0

Manufacturer: Schneider Electric
Model Line: EXN

TABLE 2

Certified Product Construction Summary:
Carbon steel enclosures.

Certified Options Summary:
Aluminum or Copper Windings.

Mounting Configuration:
Wall mounted - rigid (using manufacturer provided wall brackets)
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}= ***1.4 g*** ***z/h=1.0*** S_{DS}= ***2.0 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line	Enclosure	Dimensions (in)			Weight (lb)	Power Rating (kVA)	Type	UUT
		Depth	Width	Height				
EXN 3-Phase Aluminum Wound	17M	21.0	21.5	24.0	195	15	2, 3R	Extrap.
	18M	24.6	25.5	28.3	345	30 or 15	2, 3R	Extrap.
	19M	26.0	25.5	29.3	416	45 or 30	2, 3R	Extrap.
	20M	27.4	30.0	33.5	570	75 or 45	2, 3R	11
EXN 3-Phase Copper Wound	17M	21.0	21.5	24.0	237	15	2, 3R	Extrap.
	18M	24.6	25.5	28.3	407	30 or 15	2, 3R	Extrap.
	19M	26.0	25.5	29.3	475	45 or 30	2, 3R	Extrap.
	20M	27.4	30.0	33.5	690	75 or 45	2, 3R	10

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900782-CR-001 R0

Manufacturer: Schneider Electric

Model Line: EXN

UUT	Unit Description	Report Number	Testing Laboratory	S_{DS}	z/h	I_P
2	150 kVA Copper 22M Enclosure	1900466-TR-001 R0	SEESL	1.4 2.0	1.0 0.0	1.5
4	45 kVA Copper 19M Enclosure	1900466-TR-001 R0	SEESL	1.65 2.5	1.0 0.0	1.5
5	150 kVA Aluminum 22M Enclosure	1900466-TR-001 R0	SEESL	1.4 2.0	1.0 0.0	1.5
8	150 kVA Copper 22M Enclosure	1900466-TR-001 R0	SEESL	1.4 2.0	1.0 0.0	1.5
9	150 kVA Aluminum 22M Enclosure	1900466-TR-001 R0	SEESL	1.4 2.0	1.0 0.0	1.5
10	75 kVA Copper 20M Enclosure	1900466-TR-001 R0	SEESL	1.65 2.5	1.0 0.0	1.5
11	75 kVA Aluminum 20M Enclosure	1900466-TR-001 R0	SEESL	1.65 2.5	1.0 0.0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900782-CR-001 R0

UUT 2

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN150T3HBCU ***Serial Number:*** N/A

Product Construction Summary:
150 kVA, 22M, NEMA Type 2 carbon steel enclosure, copper windings

Options/Subcomponent Summary:

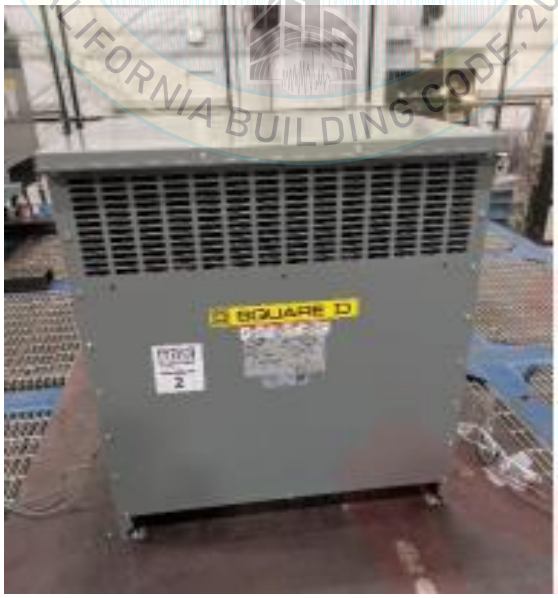
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1395	32.6	33.7	40.6	2.5	7.0	10.3

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 (2015)	1.4	1.0	1.5	2.24	1.68	1.33	0.53
		2.0	0.0					

Test Mounting Details:



UUT was rigid base mounted using (4) 7/16"-14 Grade 5 bolts and washers.
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

1900782-CR-001 R0

UUT 4

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN45T3HBCU ***Serial Number:*** N/A

Product Construction Summary:
45kVA, 19M, NEMA Type 2 carbon steel enclosure, copper windings

Options/Subcomponent Summary:

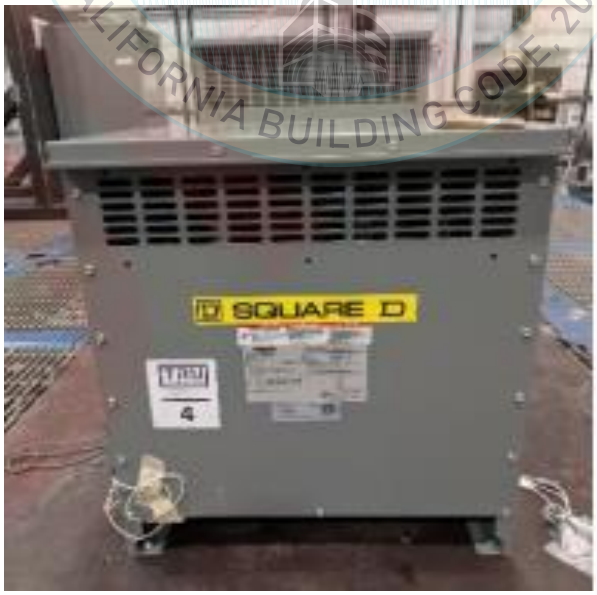
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
475	26	25.5	29.3	3.0	10.8	10.3

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 (2015)	1.65	1.0	1.5	2.64	1.98	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT was rigid base mounted using (4) 7/16"-14 Grade 5 bolts and washers.
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

1900782-CR-001 R0

UUT 5

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN150T3HB ***Serial Number:*** N/A

Product Construction Summary:
150 kVA, 22M, NEMA Type 2 carbon steel enclosure, aluminum windings

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1190	32.6	33.7	40.6	2.3	6.6	7.5

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 (2015)	1.4	1.0	1.5	2.24	1.68	1.33	0.53
		2.0	0.0					

Test Mounting Details:

UUT was rigid base mounted using (4) 7/16"-14 Grade 5 bolts and washers.
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

1900782-CR-001 R0

UUT 8

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN150T3HBCU ***Serial Number:*** N/A

Product Construction Summary:
150 kVA, 22M, NEMA Type 2 carbon steel enclosure, copper windings

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1395	32.6	33.7	40.6	2.6	9.3	11.0

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 (2015)	1.4	1.0	1.5	2.24	1.68	1.33	0.53
		2.0	0.0					

Test Mounting Details:

UUT was rigid base mounted using (4) 1/2" Grade 5 bolts and washers in manufacturer provided external mounting brackets.
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

1900782-CR-001 R0

UUT 9

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN150T3HB ***Serial Number:*** N/A

Product Construction Summary:
150 kVA, 22M, NEMA Type 2 carbon steel enclosure, aluminum windings

Options/Subcomponent Summary:

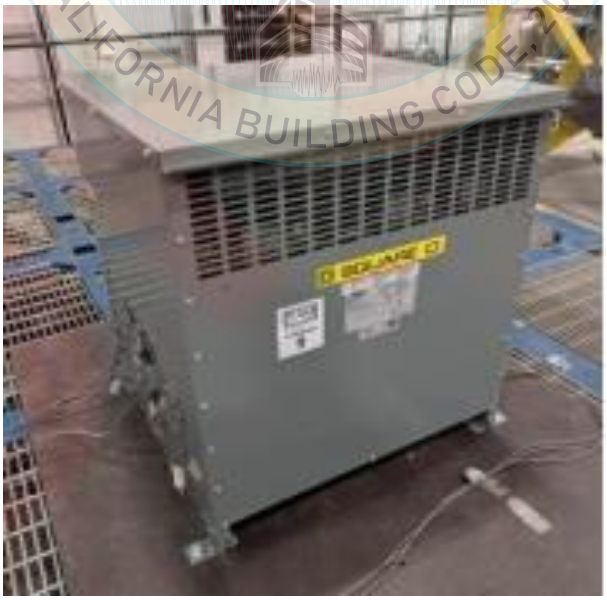
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1190	32.6	33.7	40.6	2.3	6.9	11.9

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 (2015)	1.4	1.0	1.5	2.24	1.68	1.33	0.53
		2.0	0.0					

Test Mounting Details:



UUT was rigid base mounted using (4) 1/2" Grade 5 bolts and washers in manufacturer provided external mounting brackets.
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

1900782-CR-001 R0

UUT 10

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN75T3HBCU ***Serial Number:*** N/A

Product Construction Summary:
75 kVA, 20M NEMA Type 2 carbon steel enclosure, copper windings

Options/Subcomponent Summary:

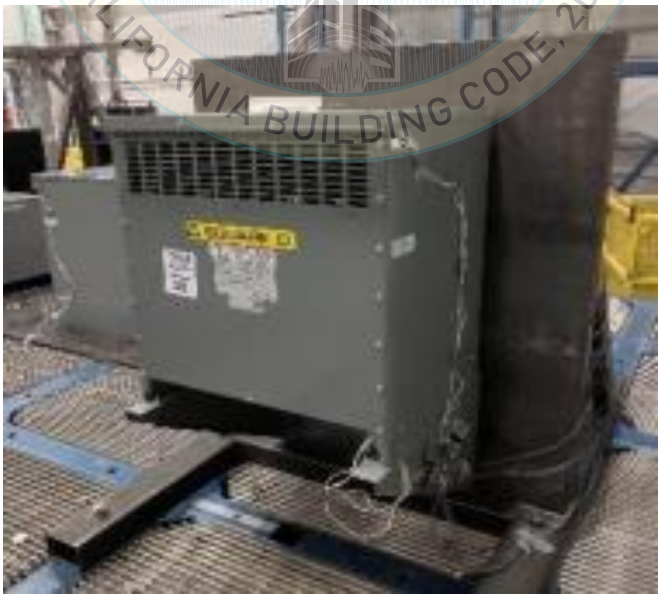
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
690	27.4	30	33.5	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 (2015)	1.65	1.0	1.5	2.64	1.98	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT was rigid wall mounted on manufacturer provided wall brackets using (4) 3/8" Grade 5 bolts and washers securing wall brackets to wall fixture and (4) 3/8" Grade 5 bolts and washers securing unit to wall brackets.
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

1900782-CR-001 R0

UUT 11

Manufacturer: Schneider Electric
Model Line: EXN
Model Number: EXN75T3HB ***Serial Number:*** N/A

Product Construction Summary:
75 kVA, 20M NEMA Type 2 carbon steel enclosure, aluminum windings

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
570	27.4	30	33.5	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 (2015)	1.65	1.0	1.5	2.64	1.98	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT was rigid wall mounted on manufacturer provided wall brackets using (4) 3/8" Grade 5 bolts and washers securing wall brackets to wall fixture and (4) 3/8" Grade 5 bolts and washers securing unit to wall brackets.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.