



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

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

OFFICE USE ONLY

APPLICATION #: OSP-0318

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Powersmiths International Corp

Manufacturer's Technical Representative: Des Faria

Mailing Address: 8989 Airport Road, Brampton, ON L6T5T2

Telephone: (905) 791-1493

Email: dfaria@powersmiths.com

Product Information

Product Name: Transformers

Product Type: Transformers – Dry Type

Product Model Number: See Attachment

General Description: Dry-Type transformer family with copper windings and no internal bracing. Including a range of materials and enclosure types. See attachment.

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: None

Applicant Information

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

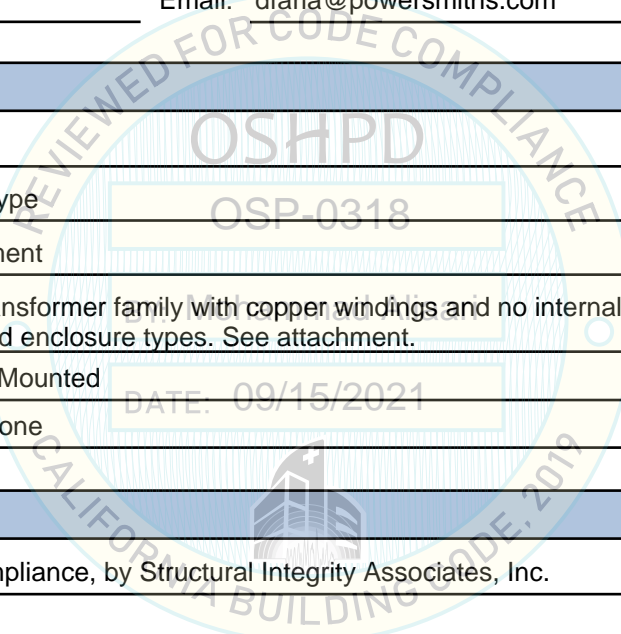
Contact Person: Galen Reid

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

Telephone: (541) 604-7225

Email: greid@structint.com

Title: Manager, TRU Compliance





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

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

Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.

Name: Andrew Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave, Suite 101, San Jose, CA 95138-1025

Telephone: (415) 635-8461 Email: acoughlin@structint.com

Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3

Other (Please Specify): _____

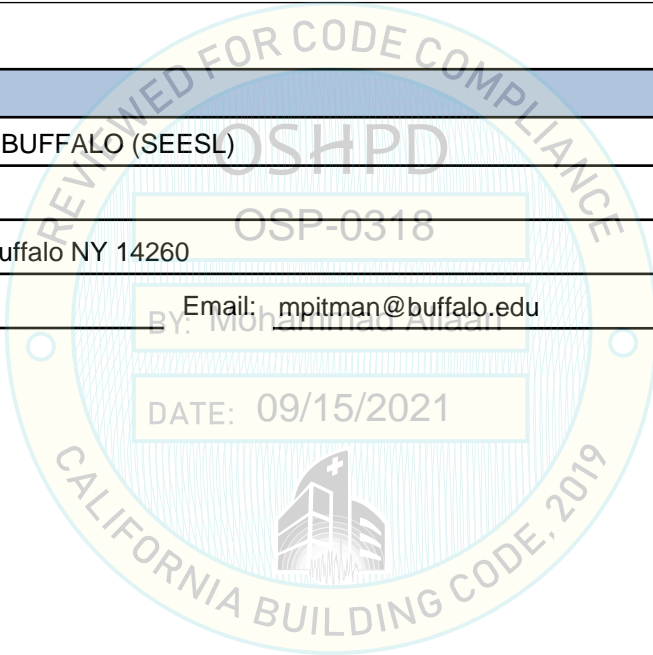
Testing Laboratory

Company Name: UNIVERSITY OF BUFFALO (SEESL)

Contact Person: Mark C. Pitman

Mailing Address: 212 Ketter Hall, Buffalo NY 14260

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





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.30 (z/h = 1); 0.81 (z/h = 0)

SDS (Design spectral response acceleration at short period, g) = 1.8

a_p (Amplification factor) = 1

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

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

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

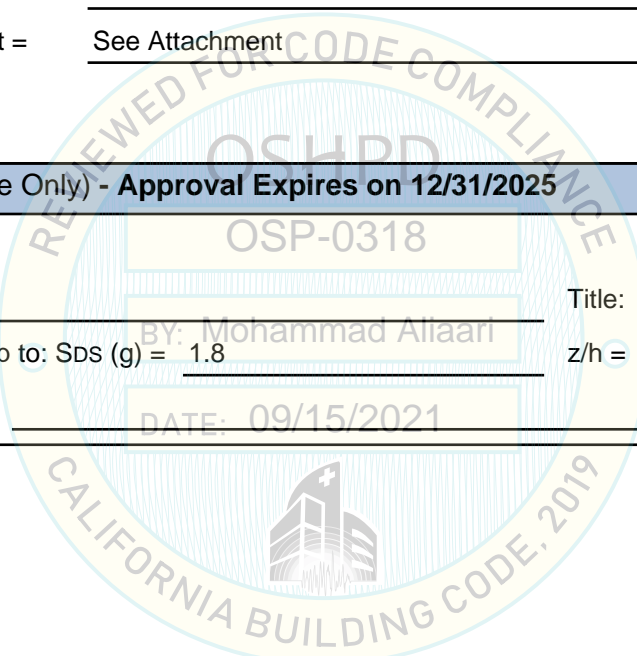
OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date: 9/15/2021

Name: Mohammad Aliaari Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = 1.8 z/h = See Above

Condition of Approval (if applicable): DATE: 09/15/2021



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



2000448-CR-001-R0

Manufacturer: Powersmiths International Corp.	TABLE 1
Model Line: Dry-Type Transformer	

Certified Product Construction Summary:
Dry-Type transformers, without internal seismic bracing, NEMA 1, 2 and 3R enclosures.

Certified Options Summary:
Copper and Aluminum Windings.

** Efficiency Classification - See model number nomenclature in Table 1.1

Mounting Configuration:
Base 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:** $S_{DS} = 1.8g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 1.8g$ $z/h = 0.0$

Model Line ¹	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
OPAL Series E-Saver-80R E-Saver-81R E-Saver-10L E-Saver-33L E-Saver-10M E-Saver-20M E-Saver-10H E-Saver-20H E-Saver-25H E-Saver-35H E-Saver-50H E-Saver-25S E-Saver-35S E-Saver-25V T1000-30H HC-AUTO	15 kVA	17	18	27.5	308	E-Saver-25H	4
	20 kVA	18	26	30	380		Interp.
	25 kVA	18	26	30	420		Interp.
	30 kVA	18	26	30	470		Interp.
	45 kVA	18	26	30	590		Interp.
	50 kVA	22	32	40	600		Interp.
	63 kVA	22	32	40	720		Interp.
	75 kVA	22	32	40	800		Interp.
	100 kVA	22	32	40	975		Interp.
	112.5 kVA	22	32	40	1100		Interp.
	125 kVA	27	38	48	1250		Interp.
	150 kVA	27	38	48	1400		Interp.
	175 kVA	27	38	48	1500		Interp.
	200 kVA	27	38	48	1600		Interp.
	225 kVA	32	38	52	1750		Interp.
	250 kVA	32	38	52	1850		Interp.
	300 kVA	32	38	52	2150		Interp.
	400 kVA	38	52	61	2650		Interp.
	450 kVA	38	52	61	2900		Interp.
	500 kVA	38	52	61	3030	E-Saver-25H	5

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



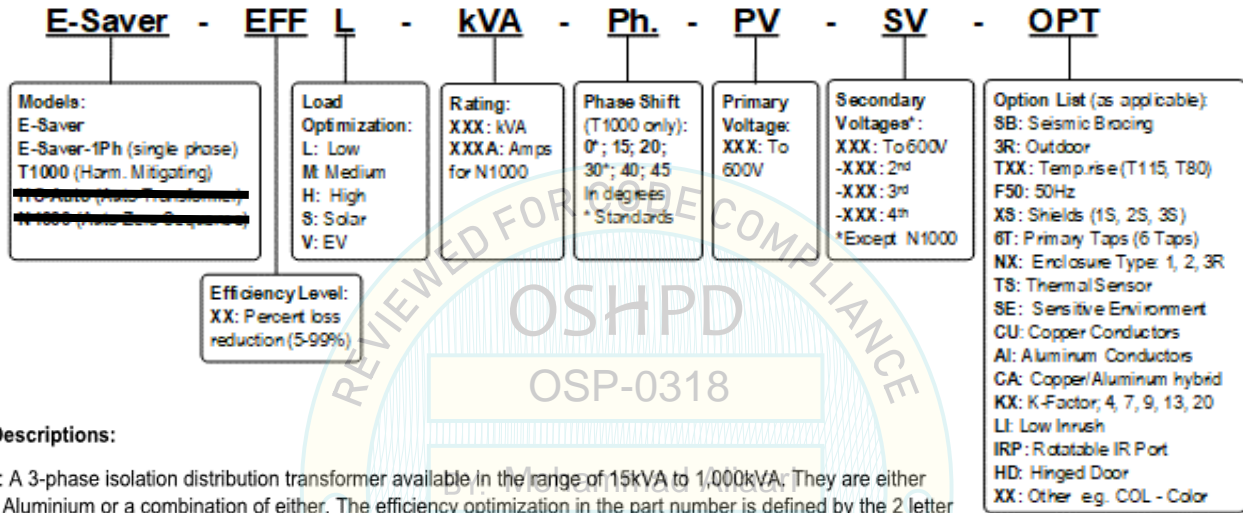
2000448-CR-001-R0

Manufacturer: Powersmiths International Corp.
Model Line: Dry-Type Transformer

TABLE 1.1

For Reference Only

OPAL Transformer Nomenclature:



Model Descriptions:

E-Saver: A 3-phase isolation distribution transformer available in the range of 15kVA to 1,000kVA. They are either Copper, Aluminum or a combination of either. The efficiency optimization in the part number is defined by the 2 letter numeric numbers followed by an alpha character following the model name. E-Saver-1PH is a single-phase version. The T1000 is a harmonic mitigating transformer with a model name that has been maintained due to existing branding for harmonic applications. The HC-AUTO is a auto transformer where the secondary is electrically connected to the primary for voltage ratio applications.

Model numbers are described following:

E-Saver-80R-kVA-PV-SV	Aluminum wound, efficiency optimized for lower loading applications
E-Saver-81R-kVA-PV-SV	Copper wound, efficiency optimized for lower loading applications
E-Saver-10L-kVA-PV-SV	Aluminum wound, efficiency optimized for low loading applications
E-Saver-33L-kVA-PV-SV	Copper wound, efficiency optimized for low loading applications
E-Saver-10M-kVA-PV-SV	Aluminum wound, efficiency optimized for average loading applications
E-Saver-20M-kVA-PV-SV	Copper wound, efficiency optimized for average loading applications
E-Saver-10H-kVA-PV-SV	Aluminum wound, efficiency optimized for high loading applications
E-Saver-20H-kVA-PV-SV	Aluminum wound, efficiency optimized for high loading applications
E-Saver-25H-kVA-PV-SV	Copper/Aluminum wound, efficiency optimized for high loading applications
E-Saver-35H-kVA-PV-SV	Copper/Aluminum wound, efficiency optimized for higher loading applications
E-Saver-50H-kVA-PV-SV	Copper/Aluminum wound, efficiency optimized for very high loading applications
E-Saver-25S-kVA-PV-SV	Aluminum wound, efficiency optimized for solar applications
E-Saver-35S-kVA-PV-SV	Copper wound, highly efficiency optimized for solar applications
E-Saver-25V-kVA-PV-SV	Copper/Aluminum wound, efficiency optimized for EV Charging applications
T1000-30H-kVA-PV-SV	Copper wound, efficiency optimized for Harmonic Mitigation applications
HC-AUTO-kVA-PV-SV	Copper or Aluminum wound voltage ratio transformer

Note: The Aluminum or Copper/Aluminum wound transformers are available as all copper versions with CU added in the options section of the nomenclature

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



2000448-CR-001-R0

Manufacturer: Powersmiths International Corp.
Model Line: Dry-Type Transformer

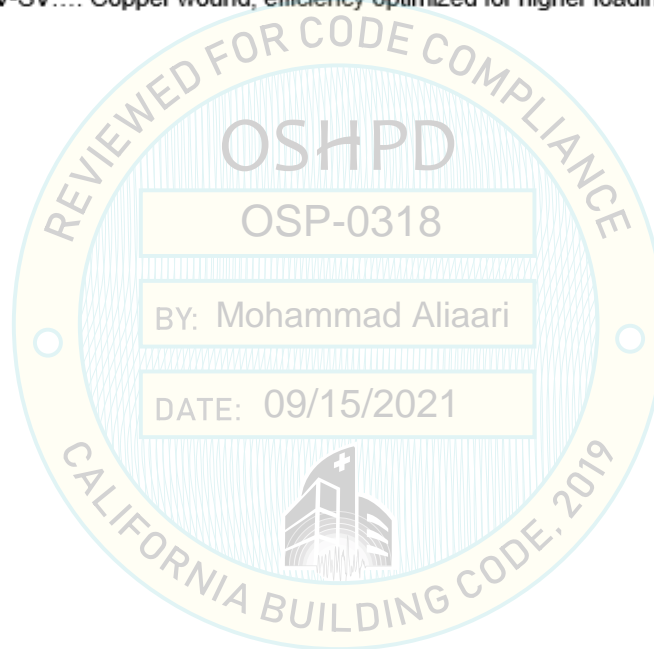
TABLE 1.1

For Reference Only

E-Saver-1Ph is the single-phase model

T1000: A 3-phase copper wound isolation transformer available from 15 to 1,000kVA optimized for harmonic mitigation applications. Typical model numbers include as follows but not limited to:

- E-Saver-35H-kVA-PV-SV...: Copper wound, efficiency optimized for higher loading harmonic mitigation applications



UNIT UNDER TEST (UUT) SUMMARY SHEET



2000448-CR-001-R0

Manufacturer: Powersmiths International Corp.	UUT 4
Model Line: Dry-Type Transformer	
Model Number: E-Saver-25H-15-480-208 (15kVA) Serial Number: 60608	

Product Construction Summary:
NEMA 3R Enclosure, without internal seismic bracing

Options/Subcomponent Summary:
Aluminum and Copper Windings

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
308	17	18	27.5	9.2	19.8	15.1

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	1.8	1.0 0.0	1.5	2.88	2.16	1.20	0.48

Test Mounting Details:



Base Mounted-Rigid: Four (4) 1/2"-13 Grade 5 bolts with flat washers and lock 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



2000448-CR-001-R0

Manufacturer: Powersmiths International Corp.	UUT 5
Model Line: Dry-Type Transformer	
Model Number: E-Saver-25H-500-480-208 (500kVA) Serial Number: N/A	

Product Construction Summary:
NEMA 3R Enclosure, without internal seismic bracing

Options/Subcomponent Summary:
Aluminum and Copper Windings

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
3,030	38	52	61	11.5	16.4	20.4

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	1.8	1.0 0.0	1.5	2.88	2.16	1.20	0.48

Test Mounting Details:



Base Mounted-Rigid: Eight (8) 1/2"-13 Grade 5 bolts with flat washers and lock washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.