APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP-0318-10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Powersmiths International Corp

Manufacturer's Technical Representative: Des Faria

Mailing Address: 10 Devon Road, Brampton, ON LT6 5B5

Telephone: 905.791.1493 x224 Email: des@powersmiths.com

Product Information

Product Name: Transformer Product Family

Product Type: Dry-Type Transformer

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

General Description: Dry-Type transformer family with copper windings and no internal bracing. Including a range of KVA ratings and enclosure types (see attachment for further details.)

Mounting Description: Rigid floor mounted

Applicant Information

Applicant Company Name: Tobolski Watkins Engineering, Inc.

Contact Person: Derrick A. Watkins, S.E.

Mailing Address: 9246 Lightwave Avenue, Suite 140, Sand Diego, CA 92123

Telephone: 858.381.5843 Email: dwatkins@tobolskiwatkins.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: Derrick Watkins Date: 9/24/2013

Title: Executive Vice President Company Name: Tobolski Watkins Engineering, Inc.

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

Company Name: Tobolski Watkins Engineering, Inc.

Name: Nicholas J. Oberts, PE California License Number: C 63271

Mailing Address: 9246 Lightwave Avenue, Suite 140, Sand Diego, CA 92123

Telephone: 858.381.5843 Email: noberts@tobolskiwatkins.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: Clark Dynamic Test Laboratory, Inc.

Contact Name: J.R. Antenucci

Mailing Address: 1801 Route 51 South, Building 8, Jefferson Hills, PA 15025

Telephone: 412.387.1001 Email: jrantenucci@clarkdynamic.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.1

S_{DS} (Design spectral response acceleration at short period, g) = 1.5g

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) = 2.5

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, 2010: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☒ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Attachment

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

Signature: _____ Date: November 15, 2013

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 1.5 z/h = 1.0

Condition of Approval (if applicable): _____

UUT – 1

UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2012-0063-CO-001,rev.0

Manufacturer: **Powersmiths International Corporation**

Model Line: **E-Saver C3H (750kVA)**

Model Number:

Product Construction Summary:
NEMA N3R Enclosure and copper windings, no internal bracing.

Options/Subcomponent Summary:

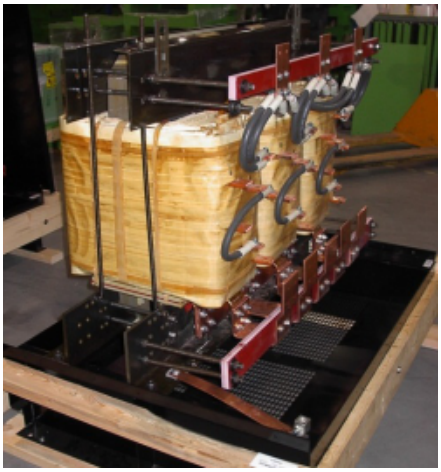
UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
4,900	44.0	64.0	67.0	4.9	7.2	19.9

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	1.5g	1.0	1.5	2.4g	1.8g	1.0g	0.4g

Test Mounting Details:



The transformer is mounted to the seismic test table using (8) ½" – 13 Grade 5 hex bolts with flat washers and lock washers. Unit maintained structural integrity and remained functional per manufacturer requirement.

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Form: 2010-QAP-EF-004, revision 1

UUT – 2

UNIT UNDER TEST (UUT)
Summary Sheet

TWEI Project No.: 2012-0063-CO-001,rev.0

Manufacturer: **Powersmiths International Corporation**

Model Line: **E-Saver C3H (15kVA)**

Model Number:

Product Construction Summary:
NEMA 1 Enclosure and copper windings, no internal bracing.

Options/Subcomponent Summary:

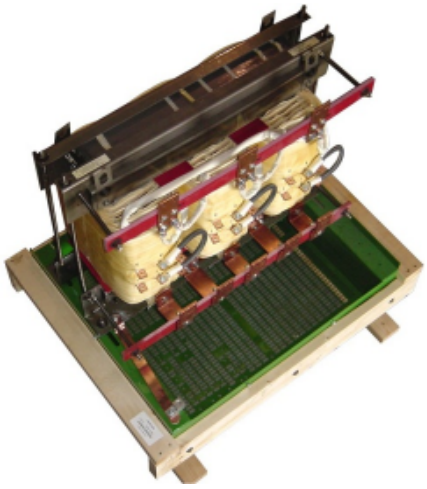
UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
190	17.0	17.0	27.0	14.4	10.0	21.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC 156	1.5g	1.0	1.5	2.4g	1.8g	1.00g	0.4g

Test Mounting Details:



The transformer is mounted to the seismic test table using (4) ½" – 13 Grade 5 hex bolts with flat washers and lock washers.
Unit maintained structural integrity and remained functional per manufacturer requirement.

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Form: 2010-QAP-EF-004, revision 1

Table 1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2012-0063-CO-001, rev. 0

Manufacturer: **Powersmiths International Corporation**

Model Line: **Transformers Product Family**

Certified Product Construction Summary:
Dry-Type transformers, no internal bracing, NEMA 1, 2 and N3R enclosures. Copper winding.

Certified Options Summary:
Product lines E-Saver, T-1000, TP-NL, K-Star, and K-StarD.

Certified Mounting Summary:
Base mounted rigid using manufacturer's specified mounting locations. SEOR is responsible for anchorage design.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 1.50g | z/h = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Weight (lbs)	Case Type	Notes	UUT
		Depth	Width	Height				
E-Saver-**L	15 kVA	17	17	27	300	A		INTERPOLATED
	30 kVA	18	26	30	500	B		
	45 kVA	18	26	30	600	B		
	75 kVA	22	32	40	760	C		
	112.5 kVA	22	32	40	1100	C		
	150 kVA	27	38	48	1500	D		
	225 kVA	32	38	52	1950	D+		
	300 kVA	32	38	52	2250	D+		
	400 kVA	32	52	61	2550	E		
	500 kVA	38	52	61	3125	E+		
	625 kVA	38	52	61	4100	E+		
	750 kVA	47	64	67	4525	F		
E-Saver-**H	15 kVA	17	17	27	310	A		2
	30 kVA	18	26	30	530	B		INTERPOLATED
	45 kVA	18	26	30	620	B		
	75 kVA	22	32	40	800	C		
	112.5 kVA	22	32	40	1150	C		
	150 kVA	27	38	48	1575	D		
	225 kVA	32	38	52	2125	D+		
	300 kVA	32	38	52	2375	D+		
	400 kVA	32	52	61	2880	E		
	500 kVA	38	52	61	3400	E+		
	625 kVA	38	52	61	4250	E+		
	750 kVA	47	64	67	4800	F		1

*** Efficiency classification – See model number nomenclature.*

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Form: 2010-QP-EF-005, revision 0

Table 1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2012-0063-CO-001, rev. 0

Manufacturer: **Powersmiths International Corporation**

Model Line: **Transformers Product Family**

Certified Product Construction Summary:
Dry-Type transformers, no internal bracing, NEMA 1, 2 and N3R enclosures. Copper winding.

Certified Options Summary:
Product lines E-Saver, T-1000, TP-NL, K-Star, and K-StarD.

Certified Mounting Summary:
Base mounted rigid using manufacturer's specified mounting locations. SEOR is responsible for anchorage design.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 1.50g | z/h = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Weight (lbs)	Case Type	Notes	UUT
		Depth	Width	Height				
T1000-**	15 kVA	17	17	27	310	A		INTERPOLATED
	30 kVA	18	26	30	520	B		
	45 kVA	18	26	30	675	B		
	75 kVA	22	32	40	780	C		
	112.5 kVA	22	32	40	1175	C		
	150 kVA	27	38	48	1525	D		
	225 kVA	32	38	52	2075	D+		
	300 kVA	32	38	52	2225	D+		
	400 kVA	32	52	61	2675	E		
	500 kVA	38	52	61	3400	E+		
	625 kVA	38	52	61	4175	E+		
	750 kVA	47	64	67	4550	F		
TPNL-**	15 kVA	17	17	27	310	A		
	30 kVA	18	26	30	520	B		
	45 kVA	18	26	30	610	B		
	75 kVA	22	32	40	760	C		
	112.5 kVA	22	32	40	1075	C		
	150 kVA	27	38	48	1450	D		
	225 kVA	32	38	52	1900	D+		
	300 kVA	32	38	52	2175	D+		
	400 kVA	32	52	61	2450	E		
	500 kVA	38	52	61	2975	E+		
	625 kVA	38	52	61	3925	E+		
	750 kVA	47	64	67	4325	F		

*** Efficiency classification – See model number nomenclature.*

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Form: 2010-QP-EF-005, revision 0

Table 1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2012-0063-CO-001, rev. 0

Manufacturer: **Powersmiths International Corporation**

Model Line: **Transformers Product Family**

Certified Product Construction Summary:
Dry-Type transformers, no internal bracing, NEMA 1, 2 and N3R enclosures. Copper winding.

Certified Options Summary:
Product lines E-Saver, T-1000, TP-NL, K-Star, and K-StarD.

Certified Mounting Summary:
Base mounted rigid using manufacturer's specified mounting locations. SEOR is responsible for anchorage design.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 1.50g | z/h = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Weight (lbs)	Case Type	Notes	UUT
		Depth	Width	Height				
K-Star-**	15 kVA	17	17	27	300	A		INTERPOLATED
	30 kVA	18	26	30	500	B		
	45 kVA	18	26	30	600	B		
	75 kVA	22	32	40	760	C		
	112.5 kVA	22	32	40	1100	C		
	150 kVA	27	38	48	1500	D		
	225 kVA	32	38	52	1950	D+		
	300 kVA	32	38	52	2250	D+		
	400 kVA	32	52	61	2550	E		
	500 kVA	38	52	61	3125	E+		
	625 kVA	38	52	61	4100	E+		
	750 kVA	47	64	67	4525	F		
K-StarD-**	15 kVA	17	17	27	310	A		
	30 kVA	18	26	30	520	B		
	45 kVA	18	26	30	675	B		
	75 kVA	22	32	40	780	C		
	112.5 kVA	22	32	40	1175	C		
	150 kVA	27	38	48	1525	D		
	225 kVA	32	38	52	2075	D+		
	300 kVA	32	38	52	2225	D+		
	400 kVA	32	52	61	2675	E		
	500 kVA	38	52	61	3400	E+		
	625 kVA	38	52	61	4175	E+		
	750 kVA	47	64	67	4550	F		

*** Efficiency classification – See model number nomenclature.*

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Form: 2010-QP-EF-005, revision 0

Table 2

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2012-0063-CO-001, rev. 0

Manufacturer: **Powersmiths International Corporation**

Model Line: **Enclosure Types**

Certified Product Construction Summary:
Enclosure manufactured following NEMA 1, 2 and N3R standards.

Certified Options Summary:

Certified Mounting Summary:
Base mounted rigid using manufacturer's specified mounting locations. SEOR is responsible for anchorage design.

Building Code: CBC 2013 | ***Seismic Certification Limits:*** S_{DS} = 1.50g | z/h = 1.0 | I_p = 1.5

Model Line	Model	Dimension (in)			Max. Weight (lb)	Notes	UUT
		Depth	Width	Height			
NEMA 1,2	A	17	17	27	260		2
	B	18	26	30	625		INTERPOLATED
	C	22	32	40	1115		
	D	27	38	48	1500		
	D+	32	38	52	2295		
	E	32	52	61	2575		
	E+	38	52	61	3275		
	F	47	64	67	4650		
NEMA N3R	A	17	17	27	270		
	B	18	26	30	645		
	C	22	32	40	1160		
	D	27	38	48	1535		
	D+	32	38	52	2335		
	E	32	52	61	2650		
	E+	38	52	61	3350		
	F	47	64	67	4750		1

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Form: 2010-QAP-EF-005, revision 0

Model Number Nomenclature:

T1000 - C X X L - 150 - 00 - 480 - 208 - XXX

Models:
T1000
K-Star
K-StarD
E-Saver
TPNL
-1Ph: Single Phase after Model name

Efficiency Class:
C: DOE CSL
E: DOE EL
N: NEMA
P: Powersmiths
X: Other (TBD)

Efficiency Level:
X: For level (1-7)
XX: Percent loss reduction (10-99%)

Load Optimization:
L: Low
H: High
_: Blank N/A

Rating:
XXX: kVA

Phase Shift:
XX: Degrees If applicable

Primary Voltage:
XXX: Volts

Secondary Voltage:
XXX: Volts
_: Blank for N1000

Option List (as applicable):
SQH: Seismic high: S_{DS} = 2.28g
$A_{FLX\text{-}H}$ = 3.65g
TXX: Temperature rise (T115, T80)
F50: 50Hz
XS: Shields (1S, 2S, 3S)
6T: Primary Taps (6 Taps)
MX: Outputs; M2 Dual, M3 Triple
NX: Enclosure Type: 1, 2, 3R
TS: Thermal Sensor
SE: Sensitive Environment
AL: Aluminum Conductor
CA: Copper/Aluminum hybrid
KX: K-Factor; 4, 7, 9, 13, 20
PR0XXX: SPD Model
IRP: IR Inspection Port
HD: Hinged Door
SMART: Metering Port
XX: Other options e.g. COL - Color

For Reference Only

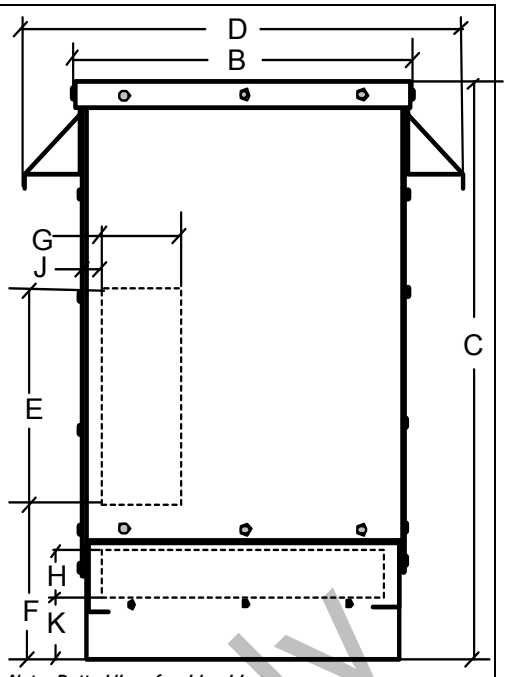
Transformer Case Outline Dimensions

	A-Case	B-Case	C-Case	C-Plus	D-Case	D-Plus	E-Case	E-Plus	F-Case	F-Plus
Typ. kVA	≤ 15	30 - 45	75 - 112.5	112.5 Dual	125 - 150	225 - 300	400	500	750	1000
A*	17.4	25.4	31.4	31.4	37.4	37.4	51.4	51.4	63.4	63.4
B	16.8	17.8	21.5	22.5	26.5	31.5	31.5	37.5	44.5	52.5
C	27.1	29.9	39.9	39.9	47.6	51.6	60.6	60.6	66.6	66.6
D	24.3	25.3	29.3	33.3	34.3	39.3	39.3	45.3	52.3	60.3
E +	9	9	16	16	21	24	28	30	36	36
F	11	11	11	11	11	13	14	14	14	14
G +	4	6	6	6	7	8	9	10	11	11
H	3	3	3	3	3	5	5	5	6	6
J **	1	1	1	1	1	1	1	1	1	1
K	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5

Notes:

- *All dimensions in inches*
- **'A' dimension is width (not illustrated)*
- ***** is Minimum & + is maximum recommended***
- *'D' dimension only with rain-shields installed*

Wiring permissible through bottom grille which is at height K-1.0 inches from footing



Note: Dotted lines for side wiring access area; Bottom wiring access permissible (not shown)

For Reference Only