



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.
OSP – 0121-10

Check whether application is: NEW RENEWAL

1.0 **COOPER POWER SYSTEMS** Michael Loomans

Manufacturer *Manufacturer's Technical Representative*

2300 Badger Drive, Waukesha, WI 53188

Mailing Address

(262) 547-3265 Michael.Loomans@CooperIndustries.com

Telephone *E-mail Address*

2.0 **Commercial & Industrial Transformers** **Pad-mounted & Substation Liquid Filled Transformers**

Product Name *Product Type*

Cooper Power Systems transformers are custom-built, with a serial number series of CPYY##XXXXXX
(See Attachment # 1, Table # 1)

Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Rigid floor mounted Cooper Power Systems Pad-Mounted and Substation liquid filled transformers ranging from 45 kVA to 10,000 kVA, designed for indoor or outdoor applications.

3.0 **EQUIPMENTANCHORAGE.COM** JONATHAN ROBERSON, S.E.

Applicant Company Name *Contact Person*

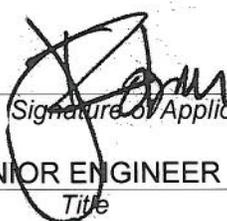
5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Mailing Address

(406) 541-EASE (3273) jon@easeco.com

Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

 <i>Signature of Applicant</i> SENIOR ENGINEER <i>Title</i>	June 18, 2010 <i>Date</i> EQUIPMENTANCHORAGE.COM <i>Company Name</i>
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Registered Design Professional Preparing the Report

4.0 EQUIPMENTANCHORAGE.COM

Jonathan Roberson, S.E. S4197
Contact Name California License Number
5877 Pine Ave, Suite 210, Chino Hills, CA. 91709
Mailing Address
909-606-7622 jon@easeco.com
Telephone E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0 EQUIPMENTANCHORAGE.COM

Jonathan Roberson, S.E. S4197
Contact Name California License Number
5877 Pine Ave, Suite 210, Chino Hills, CA. 91709
Mailing Address
909-606-7622 jon@easeco.com
Telephone E-mail Address

Anchorage Pre-Approval

- 6.0 [] Anchorage is pre-approved (PENDING)
(Separate application for anchorage pre-approval is required)
[X] Anchorage is not Pre-approved: Anchorage Pre-approval is PENDING for OPA- 2557-10, OPA-2558-10, OPA-2559-10, OPA-2560-10, OPA-2561-10, and OPA-2562-10

Certification Method

- 7.0 [X] Testing in accordance with: [X] ICC-ES AC-156 [] Other (Please Specify):
[] Analysis
[] Experience data
[] Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0 Wyle Laboratories. Don Smith
Company Name Contact Name
7800 Highway 20 West, Huntsville AL 35806
Mailing Address
(256) 837-4411 don.smith@wyle.com
Telephone E-mail:

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Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 0.46g Typical (UNO) & 1.39g for 45 kVA Transformer only

S_{DS} (Spectral response acceleration at short period) = 1.93g

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

R_p (Equipment or component response modification factor) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0.0 Typical (UNO) & 1.0 for 45 kVA Transformer only

Equipment or Component fundamental frequency(s) = See Attachments

Building period limits (if any) = None

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

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient) = 1.0

Ω_0 (System overstrength factor) = 1.0

C_d (Deflection amplification factor) = 1.0

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

10.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report
- Drawings
- Manufacturer's Catalog
- Calculations
- Others (Please Specify): ATTACHMENT 1

11.0 OSHPD Approval (For Office Use Only)

Chris Tokas

Signature & Date
Chris Tokas, SHFR

Name & Title

2/22/2011

December 31, 2016

Approval Expiration Date

S_{DS} (g) = 1.93 z/h = See Section 9.0

Special Seismic Certification Valid Up to

Condition of Approval (if any):

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COOPER Power Systems

SPECIAL SEISMIC CERTIFICATION OF LIQUID FILLED TRANSFORMERS

Attachment 1: SCOPE OF SPECIAL SEISMIC CERTIFICATION

Table 1: SEISMIC CERTIFIED LIQUID FILLED 3 PHASE TRANSFORMERS

TRANSFORMER KVA RATING	DIMENSIONS			MAX. WT. (LBS)	COOLING STYLE	TANK WALL		NOTES
	WIDTH RANGE (IN)	DEPTH RANGE (IN)	HEIGHT RANGE (IN)			THICK- NESS	STIFFENER	
45	50 - 72	50 - 84	37 - 59	2600	Corrugate	7 gage	1/4" x 3 1/2" Steel Bar at 20" max. o.c.	See Figures 1 & 3
75	50 - 72	50 - 84	37 - 59	2800				
112.5	50 - 72	50 - 84	37 - 59	2900				
150	50 - 72	50 - 84	37 - 59	3350				
225	50 - 72	50 - 84	37 - 59	3800				
300	50 - 72	50 - 84	37 - 59	4450				
500	50 - 72	50 - 84	37 - 59	5700				
750	64 - 89	56 - 101	50 - 99	8200				
1000	64 - 89	56 - 101	50 - 99	10100				
1500	64 - 89	56 - 101	55 - 99	13800				
2000	64 - 94	62 - 101	55 - 99	15000	Radiator	1/4 in.	4" x 6" x 7ga channels @ 25" max. o.c. 4" x 8" x 7 ga channel s @ 25" max. o.c.	See Figures 2 & 4
2500	64 - 94	62 - 101	55 - 99	18850				
3000	64 - 94	62 - 101	55 - 99	19000				
3750	84 - 108	72 - 140	92 - 122	19500				
5000	84 - 108	72 - 140	92 - 144	29400				
7500	84 - 108	72 - 140	92 - 148	38000				
10000	84 - 108	72 - 140	92 - 152	38000				

APPROVED FEATURES AND OPTIONS:

- IDENTIFICATION:** Cooper Power Systems' transformers may be labeled with the following nameplates:
Cooper Power Systems, Eaton, Schneider Electric, or Siemens.

The identifier of a Cooper Power Systems manufactured transformer is the Serial Number, which is formatted on every nameplate as:

CPYY##XXXXXX

where:

- CP = Cooper Power System manufactured unit.
 - YY= Two digit code identifying the year manufactured
 - ## = Two digit code identifying the manufacturing plant
 - XXXXXX = Six digit unit number identification
- MOUNTING:** Seismic certification is limited to a free-standing, rigidly anchored, floor-mounted condition.
 - COILS:** Rectangular coil with windings using either aluminum or copper.
 - COOLING:** Radiator style or Corrugate style. Both styles may be augmented with optional fans.
 - FLUID:** Environment FR3 Fluid, or mineral oil
 - TANK & ENCLOSURE:** Painted carbon steel. Enclosures are unrated. Enclosures are secured to the tanks with 2" x 3" x 1/4" steel cleats bolted to the tank wall, clamped to a flanges located inside the enclosure. Three equally spaced cleats are provided on the top edge and each side. (See Figures 5 & 6)
 - FUSING:** Bayonet & current limiting fuse.
 - OTHERS:**
 - Load break Switch
 - Over-Current Protection
 - Over-Voltage Protection
 - Visible Load Break Device
 - Tap Changer
 - Dual Voltage Switch

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COOPER Power Systems

SPECIAL SEISMIC CERTIFICATION OF LIQUID FILLED TRANSFORMERS

Attachment 1: SCOPE OF SPECIAL SEISMIC CERTIFICATION

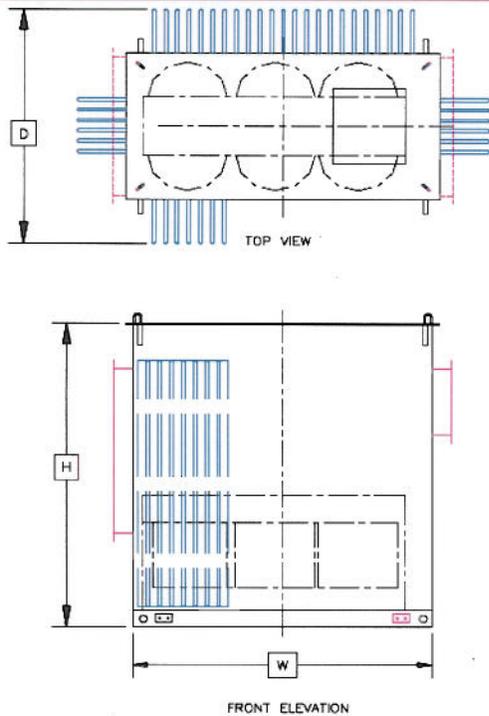


Figure 1: Transformer With Corrugate Type Cooling

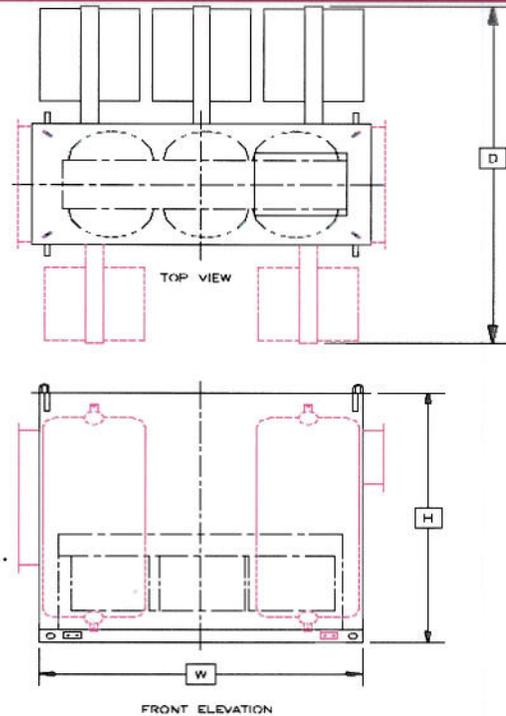


Figure 2: Transformer With Radiator Type Cooling



Figure 3: 45kVA Test Specimen

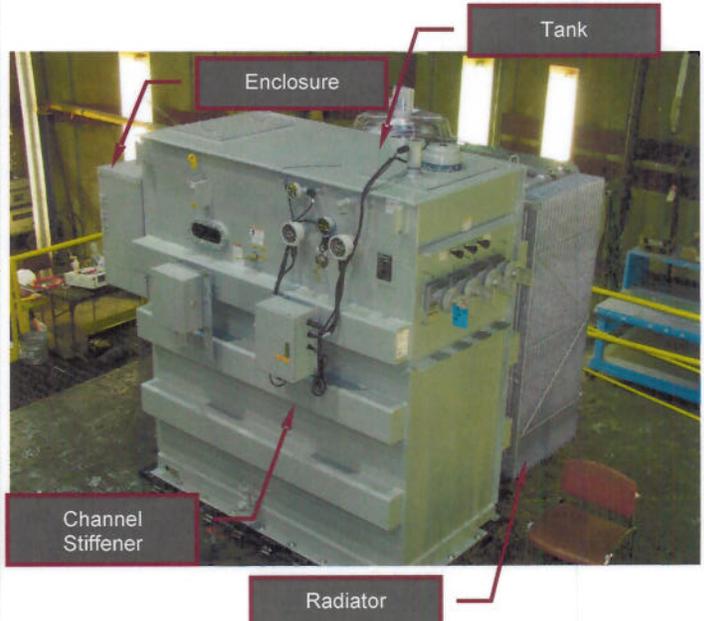


Figure 4: 10,000 kVA Test Specimen

COOPER Power Systems

SPECIAL SEISMIC CERTIFICATION OF LIQUID FILLED TRANSFORMERS

Attachment 1: SCOPE OF SPECIAL SEISMIC CERTIFICATION



Figure 5: 45kVA Enclosure Interior



Figure 6: 10,000kVA Enclosure Interior

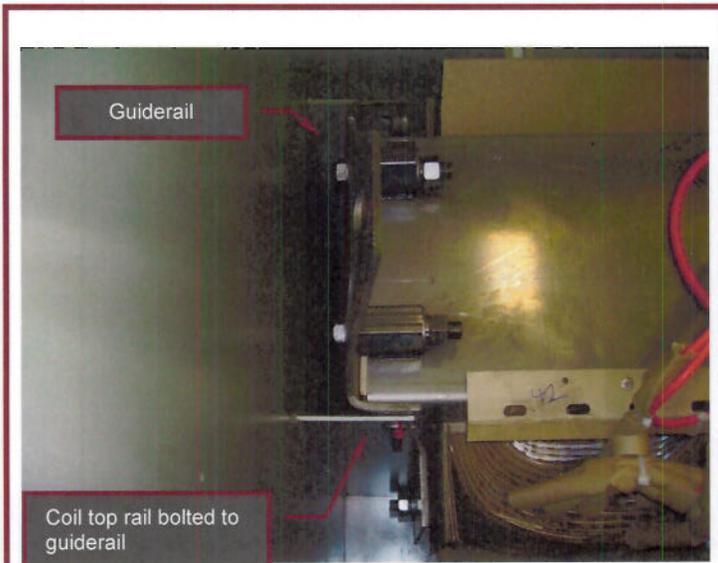


Figure 7: Upper Coil Support

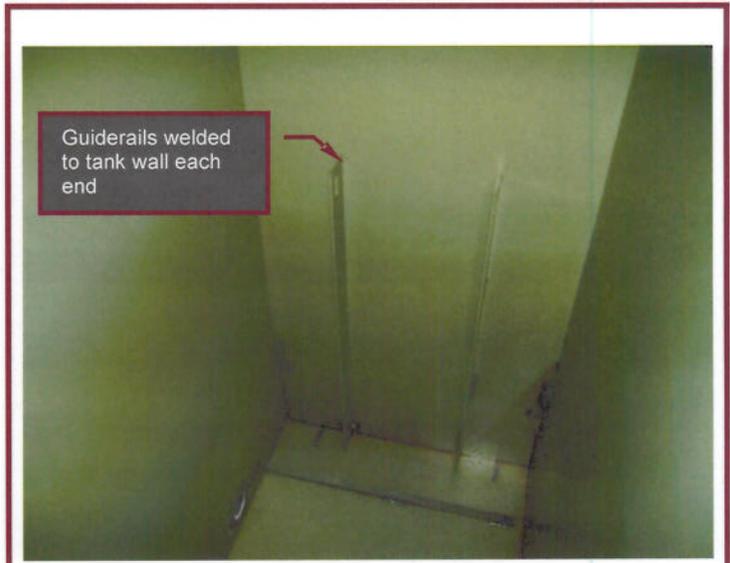


Figure 8: Coil Support Guiderail

Table 2: Physical Properties of Test Specimens

TRANSFORMER KVA RATING	DIMENSIONS			WT. (LBS)	LOWEST RESONANT FREQUENCIES (HZ)			NOTES
	WIDTH (IN)	DEPTH (IN)	HEIGHT (IN)		FRONT-TO- BACK AXIS	SIDE-TO-SIDE AXIS	VERT AXIS	
45	56	49	67	2,667	13	18	31	UUT1
10,000	121	94	107	37,277	27	10.5	18	UUT2

COOPER Power Systems

SPECIAL SEISMIC CERTIFICATION OF LIQUID FILLED TRANSFORMERS

Attachment 1: SCOPE OF SPECIAL SEISMIC CERTIFICATION

Test Specimen Description for UUT1

Name: 45 KVA Three-Phase Transformer

UUT Designation: 0000MP05KNXA

UUT Function: Transforms a voltage from one level to another

Description: Liquid filled transformer for indoor/outdoor operation with the following options:

Aluminum Coil Windings

Mineral Oil Fluid

Over-Current Protection

Over-Voltage Protection

Corrugated Style Cooling

Load-Break Device

Tap Changer

Dual Voltage Switch

Identification No.: CP1050009934

Test Specimen Description for UUT2

Name: 10,000 KVA wet type variable tap concrete pad mount Transformer

UUT Designation: 00003A71F0BS

UUT Function: Transforms a voltage from level to another

Description: Liquid filled transformer for indoor/outdoor operation with the following options:

Copper Coil windings

Envirotemp FR3 Fluid

Over-Current Protection

Over-Voltage Protection

Radiator Style Cooling

Monitoring Devices

Visual Load-Break Device

Fan Assisted Cooling

Tap Changer

Identification No.: CP1059001575