oshpd
State of California – Health and Human Services Agency
Office of Statewide Health Planning and Development
Facilities Development Division www.oshpd.ca.gov/fdd
400 R Street. Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0141-10

Check whether application is: NEW [X] RENEWAL [ ]

1.0

Siemens Energy, Inc. — *Manufacturer*

Jarvis Simmons — *Manufacturer's Technical Representative*

7000 Siemens Road, Wendell, NC 27591 — *Mailing Address*

(919) 365-2559 — *Telephone*

jarvis.simmons@siemens.com — *E-mail Address*

2.0

GM-SG Medium Voltage Switchgear — *Product Name*

Medium Voltage Switchgear — *Product Type*

GM-SG — *Product model No (List all unique product identification numbers and/or serial numbers)*

General Description: Medium Voltage Metal-Clad Switchgear. Maximum rating of circuit breakers shall not exceed 3000A.

3.0

Siemens Energy, Inc. — *Applicant Company Name*

Jarvis Simmons — *Contact Person*

7000 Siemens Road, Wendell, NC 27591 — *Mailing Address*

(919)365-2559 — *Telephone*

jarvis.simmons@siemens.com — *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.

Signature of Applicant

September 8, 2010 — *Date*

MV PLM/Product Marketing Manager — *Title*

Siemens Energy, Inc. — *Company Name*

Registered Design Professional Preparing the Report

4.0

BHB Consulting Engineers, P.C.
Company Name

Greg McCombs	S 4329
Contact Name	*California License Number*

2766 S Main Street, Salt Lake City, UT 84115
Mailing Address

(801) 355-5656	greg.mccombs@bhbengineers.com
Telephone	*E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

BHB Consulting Engineers, P.C.
Company Name

Greg McCombs	S 4329
Contact Name	*California License Number*

2766 S Main Street, Salt Lake City, UT 84115
Mailing Address

(801)355-5656	greg.mccombs@bhbengineers.com
Telephone	*E-mail Address*

Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

70. ☒ *Testing in accordance with:* ☒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, A: 35806
Mailing Address

(256) 716-4221	don.smith@wyle.com
Telephone	E-mail:

Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐

Design Basis of Equipment or Components (F_p/W_p) = 1.5g

S_{DS} (Spectral response acceleration at short period) = 2.0g

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

R_p (Equipment or component response modification factor) =6.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio)=1

Equipment or Component fundamental period(s) = See Attachment # 1

Building period limits (if any) = None

Overall dimensions and weight (or range thereof) = See Attachment # 1

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):*		

11.0 *OSHPD Approval* (For Office Use Only)

5/23/2011	**December 31, 2016**
Signature & Date	*Approval Expiration Date*
M. R. Karim, SHFR	S_{DS} (g) = **2.0** z/h = **1.0**
Name & Title	*Special Seismic Certification Valid Up to*

Condition of Approval (if any):

Attachment #1

Siemens Certified Product Summary

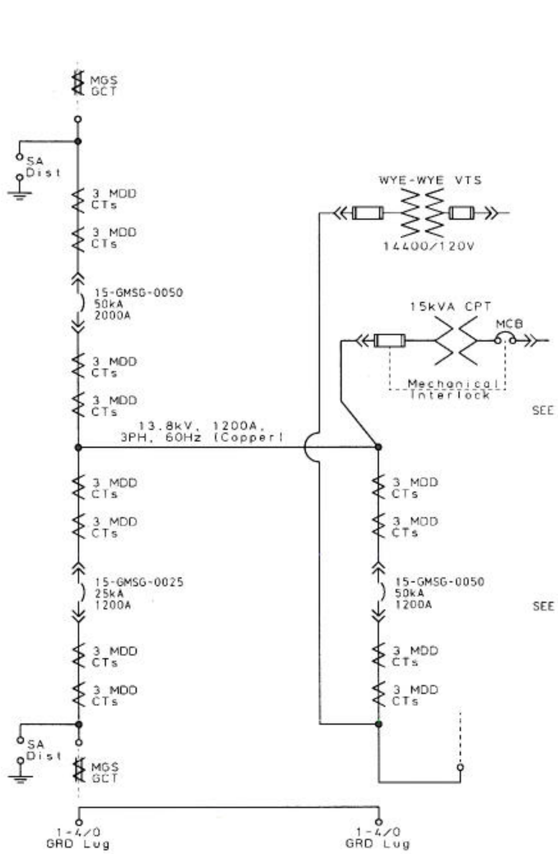
Unit	Height	Width	Depth	Max. Weight	Max. C.G. Height	Electrical Ratings
GM-SG	95"	36"	99"	3300 lbs	48"	5kV, 7.5kV, and 15kV

Note: Dimensions are rounded to the nearest inch. The GM-SG is a NEMA-1 indoor only enclosure constructed of 11 gauge hot rolled carbon steel. The GM-SG is rigidly mounted to the floor. Maximum rating of circuit breakers shall not exceed 3,000A.

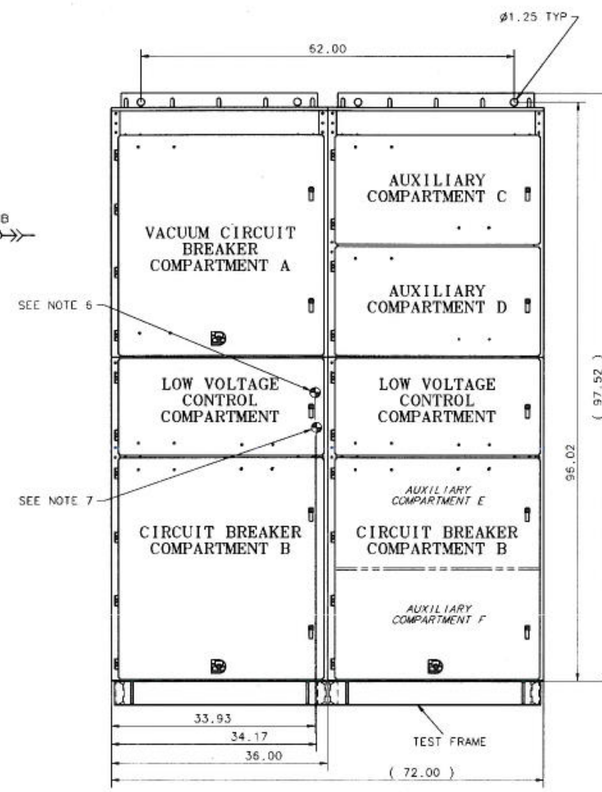
Resonant Frequency Summary

Test Report Number	Unit	Height	Width	Depth	Frequency (Hz)		
					Front-Back	Side-Side	Vertical
T54620-1	GM-SG	95"	36"	99"	9.5	5.9	> 33

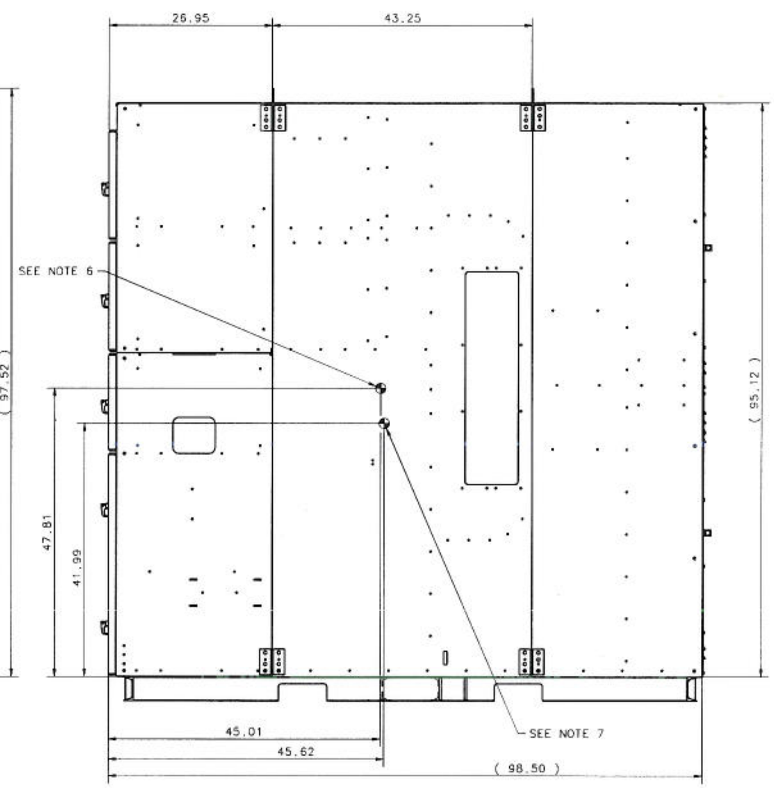
UUT



SINGLE LINE DIAGRAM



FRONT VIEW



RIGHT SIDE VIEW

NOTES:

1. TESTS CONDUCTED PER IEEE 693-2005, IBC-2006 AND ANSI/IEEE C37.81-1989 SHALL DEMONSTRATE THE FOLLWING SEISMIC CAPABILTIES FOR COMPONENT GROUP 1, 5% DAMPING:

   STANDARD DESIGN

   1997 UBC/1998 CBC Zone 4 HORIZONTAL 0.66g zpa, WITH NO LOSS OF FUNCTION

   OPTIONAL DESIGN

   2006 IBC/ASCE 7-05 300% g HORIZONTAL 1.50g zpa, WITH NO LOSS OF FUNCTION

2. TESTS CONDUCTED USING TYPE 15-GMSG-0050 AND TYPE 15-GMSG-0025 VACUUM CIRCUIT BREAKERS WITH VS15052 OR VS17006 VACUUM BOTTLES WILL COVER THE FOLLOWING BREAKER AND OEM CELL RATINGS:

   - VOLTAGE CLASSES: 4.76kV, 8.25kV AND 15.0kV
   - CONTINUOUS CURRENT: 1200A, 2000A, 3000A AND 4000A
   - RATED SHORT CIRCUIT CURRENT: 25kA, 40kA AND 50kA
   - NOMINAL MVA CLASS: 500, 750 OR 1000 AT 15kV, 500 AT 8.25kV AND 250 OR 350 AT 4.76kV

3. TESTS CONDUCTED USING THE 15kVA CONTROL POWER TRANSFORMER TRAY IN COMPARTMENT "D" AND THE 15kV WYE-WYE VOLTAGE TRANSFORMER (3-VT) TRAY IN COMPARTMENT "C" WILL COVER ALL AUXILIARY TRAY AND OEM CUBICLE/COMPARTMENT RATINGS AND ARE APPLICABLE TO THE REMAINING COMPARTMENTS ("E" AND "F").

4. VACUUM CIRCUIT BREAKER STACKING ARRANGEMENTS:

   - 1200A VCB COMPARTEMENT "A" AND 1200A VCB COMPARTEMENT "B"
   - 2000A VCB COMPARTEMENT "A" AND 2000A VCB COMPARTEMENT "B"
   - 1200A VCB COMPARTEMENT "A" AND 2000A VCB COMPARTEMENT "B"
   - 2000A VCB COMPARTEMENT "A" AND 1200A VCB COMPARTEMENT "B"
   - 1200A VCB COMPARTEMENT "A" AND AUXILIARY TRAYS COMPARTMENTS ("E" AND/OR "F")
   - 2000A VCB COMPARTEMENT "A" AND AUXILIARY TRAYS COMPARTMENTS ("E" AND/OR "F")
   - 3000A VCB COMPARTEMENT "A" AND AUXILIARY TRAYS COMPARTMENTS "F"
   - AUXILIARY TRAYS COMPARTMENTS ("C" AND/OR "D") AND 1200A VCB COMPARTEMENT "B"
   - AUXILIARY TRAYS COMPARTMENTS ("C" AND/OR "D") AND 2000A VCB COMPARTEMENT "B"
   - COMPARTMENTS "C" AND "D" EMPTY AND 3000A VCB COMPARTEMENT "B"

5. AUXILIARY TRAY STACKING ARRANGEMENTS:

   COMPARTMENT C: VOLTAGE TRANSFORMER TRAYS
   COMPARTMENT D: VOLTAGE OR CONTROL POWER TRANSFORMER TRAYS OR FUSE TRAYS
   COMPARTMENT E: VOLTAGE TRANSFORMER TRAYS
   COMPARTMENT F: VOLTAGE OR CONTROL POWER TRANSFORMER TRAYS OR FUSE TRAYS

6. CALCULATED WEIGHT OF TEST UNIT IS 8302 lbs (3766 kg) WITH CENTER OF GRAVITY CALCULATED AS SHOWN.

7. CALCULATED WEIGHT OF SPECIMEN (INCLUDING TEST FRAME) IS 9402 lbs (4265 kg) WITH CENTER OF GRAVITY CALCULATED AS SHOWN.

8. SEE MVS07-110220-100EB01A FOR ELECRITCAL BILL OF MATERIAL.

9. SEE 18-740-927-460 FOR PANEL ARRANGEMENT.

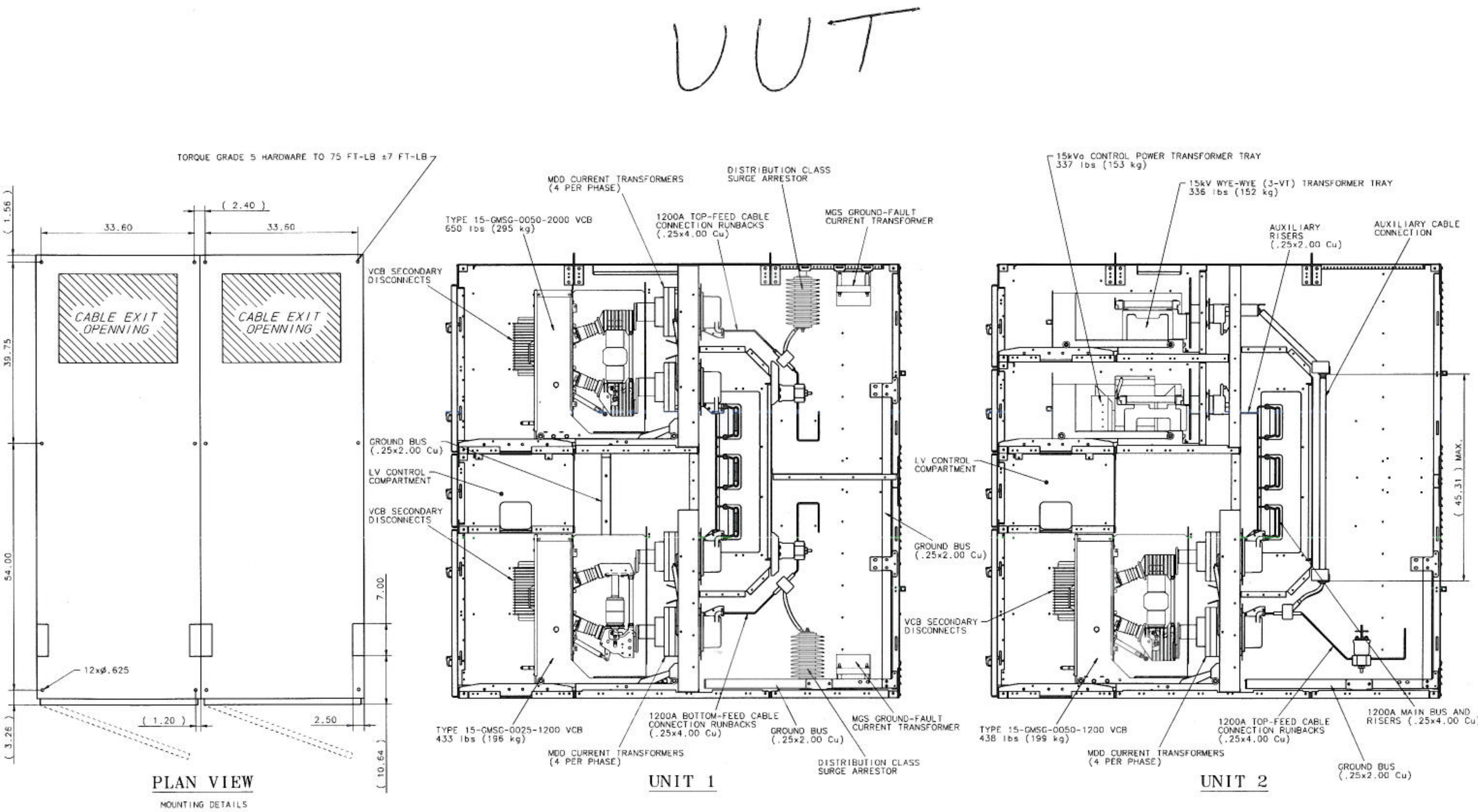
10. SEE MVS07-110220-100TXXXX SERIES FOR THRE-LINE AND WIRING DIAGRAMS AND SCHEMATICS.

11. TEST LAB TO PROVIDE 125 VDC FOR CONTROLS AND A MINIMUM OF 20 CHANNELS FOR MONITORING CONTACT STATUS.

12. ACCELEROMETER LOCATIONS TO BE APPROVED BY SIEMENS.

09-05-2007 WOODY	09-04-2007 WOODYARD	Seismic Test Unit
1:10	PTD-M1-R-D RALEIGH	SIEMENS
inch	03	GX-900-001-907

5/7



1-Place decimal±0,06
2-Place decimal±0,03
3-Place decimal±0,01
Angular±1°

SMF:(-

D

09-05-2007 WOODY

inch 1:10

xx/xxxx 03

09-04-2007
WOODYARD
PTD-MI-R-D
RALEIGH

SIEMENS

Seismic Test Unit

GX-900-001-907

2-

6/7

15 KV Medium Voltage Switchgear

UUT