



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
CAPACITY DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP - 0308

OSHPD Special Seismic Certification Preapproval (OSP)

Type:  New  Renewal

Manufacturer Information

Manufacturer: Z Power & Distribution

Manufacturer's Technical Representative: Raul Paez

Mailing Address: 16450 Phoebe Ave, La Mirada, CA 90638

Telephone: (714) 269-0180

Email: raulpaez@zpoweranddistribution.com

Product Information

Product Name: Distribution, Service, and Pull Sections

Product Type: Low Voltage Switchboards

OSP-0308

Product Model Number: See Attached.

(List all unique product identification numbers and/or part numbers)

General Description: 400A to 6000A Distribution, Service, and Pull Sections

Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid base mounted

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John P. Giuliano, PE

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780

Email: john.giuliano@thvmcgroup.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: 8/30/19

Title: President

Company Name: The VMC Group





DEPARTMENT OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
ACTIVITIES DEVELOPMENT DIVISION

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

Company Name: The VMC Group

Name: Kenneth Tarlow California License Number: S-2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: Ken.tarlow@thvmcgroup.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 1

Company Name: Southwest Research Institute

Contact Name: Mark Orłowski

Mailing Address: 6220 Culebra Road, San Antonio, TX 78238

Telephone: (210) 684-5111 Email: Mark.orłowski@swri.org

Testing Laboratory 2

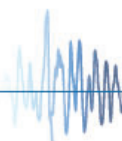
Company Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**Seismic Parameters**

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.88

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.50

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

$R_p$  (Equipment or component response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (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) = \_\_\_\_\_

$\Omega_0$  (System overstrength factor) = BY: Mohammad Aliaari

$C_d$  (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): Attachments

**OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025**

Signature: M. Aliaari Date: November 13, 2020

Print Name: Mohammad Aliaari Title: Senior Structural Engineer

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = 2.50  $z/h$  = 1

Condition of Approval (if applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Z Power & Distribution - Low Voltage Switchboard Certified Components - Table 1



**Test Levels:** SDS=2.5g, z/h=1.0

**Mounting Configuration:** Rigid Floor Mounted

**Material:** 12 gage cold formed carbon steel enclosure and 10 gage galvanized carbon steel for the base

**NEMA Rating:** All enclosures are NEMA 1 or NEMA 3R

### Distribution, Service, and Pull Sections, Ganged Unit

Unit	Depth (in)	Width (in)	Height (in)	Weight (lb)	Material of Construction	Unit
400 A	20	92	90	1412	12 gage CFS enclosure and 10 gage galvanized carbon steel for the base	UUT 135

**Note:**

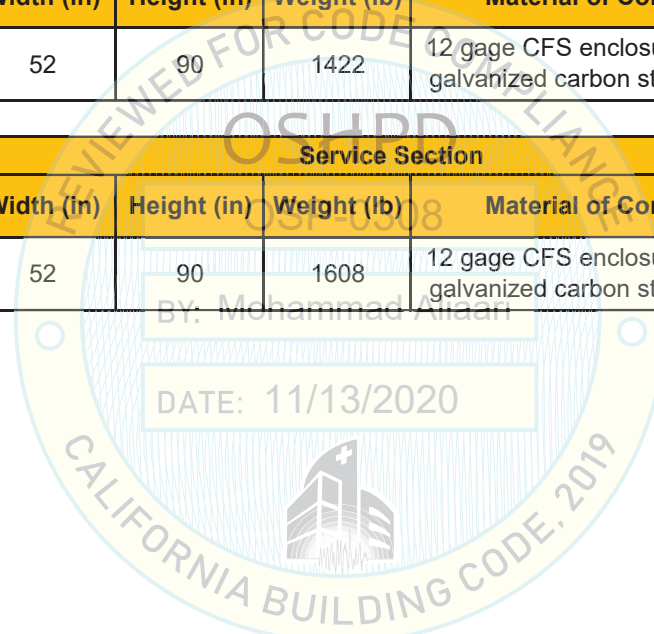
1. UUT 135 was tested in a ganged configuration weight shown is for full UUT.

### Distribution Section

Unit	Depth (in)	Width (in)	Height (in)	Weight (lb)	Material of Construction	Unit
6000 A	60	52	90	1422	12 gage CFS enclosure and 10 gage galvanized carbon steel for the base	UUT 2

### Service Section

Unit	Depth (in)	Width (in)	Height (in)	Weight (lb)	Material of Construction	Unit
6000 A	60	52	90	1608	12 gage CFS enclosure and 10 gage galvanized carbon steel for the base	UUT 4



**Z Power & Distribution - Low Voltage Switchboard  
Certified Subcomponents - Table 2**



Internal Subcomponents	Manufacturer	Part #	Material of Construction	Unit
<b>Bus</b>				
Aluminum Bus	SAPA Extrusions	6101-T61	Aluminum	UUT 135, UUT 2, UUT 4
Copper Bus	Revere Copper Products	C11000 / ASTM B-187	Copper	UUT 135, UUT 2, UUT 4
<b>Circuit Breaker</b>				
30A-150A Circuit Breaker	GE	SE	Copper wire / Carbon Steel / Composite Resins	UUT 135
150A-250A Circuit Breaker	GE	SF	Copper wire / Carbon Steel / Composite Resins	Interpolated
250A-600A Circuit Breaker	GE	SG	Copper wire / Carbon Steel / Composite Resins	Interpolated
600A-1200A Circuit Breaker	GE	SK	Copper wire / Carbon Steel / Composite Resins	UUT 135
800A-2000A Circuit Breaker	GE	PB II	Copper wire / Carbon Steel / Composite Resins	UUT 2
<b>Transformer</b>				
Control Power Transformer (CPT)	GE	9T58	Copper wire / Aluminium wire / Carbon Steel	UUT 2
Current Transformer (CT)	GE	PLCT	Copper wire / Carbon Steel / Composite Resins	UUT 2
Potential Transformer (PT)	GE	PLPT	Copper wire / Carbon Steel / Composite Resins	UUT 2
Current Transformer (CT)	Flex-Core	Series 110	Copper wire / Carbon Steel / Composite Resins	UUT 2
<b>Relays</b>				
10A-100A Relay	GE	CR306	Copper wire / Carbon Steel / Composite Resins	UUT 135, UUT 2
<b>Fuse Switch</b>				
400A - 600A Fuse Switch	Boltswitch	Type J	Carbon Steel / Copper Bars / Composite Resins	UUT 135
800A - 4000A Fuse Switch	Boltswitch	Type L	Carbon Steel / Copper Bars / Composite Resins	UUT 4
30-400A Fuse Switch	GE	ADS	Carbon Steel / Copper Bars / Composite Resins	UUT 135
<b>Meters</b>				
Meter Socket	Marwell	54HK	Carbon Steel / Copper Bars / Composite Resins	UUT 135, UUT 4
Multifunction Meter	Electro Industries	SHARK 100 & 200	Electronic Parts / Composite Resins / Plastic	UUT 2

## Z Power & Distribution - Low Voltage Switchboard Tested Units Summary - Table 3

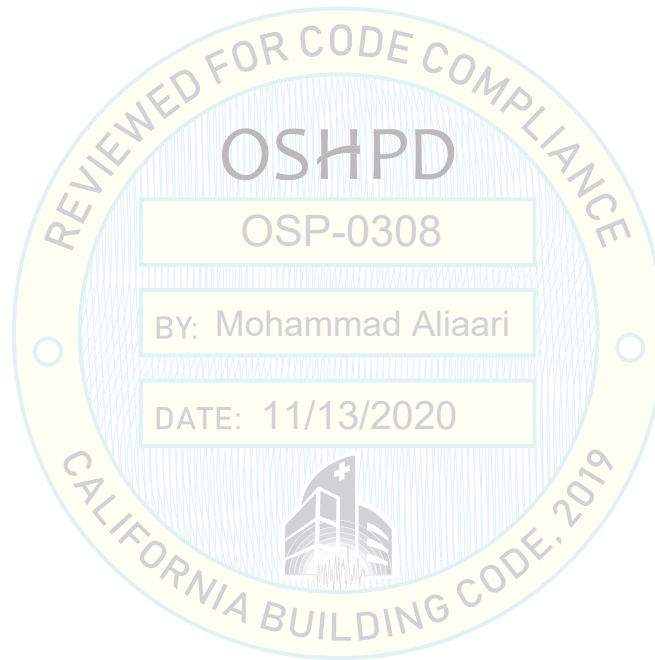


Test Levels: SDS=2.5g, z/h=1.0

Model Number	Manufacturer	Dimensions (in)			Weight (lb)	Mounting	Unit
		Depth	Width	Height			
400A Distribution, Service, and Pull Section	Z Power & Distribution	20	92	90	1412	Rigid Base	UUT 135
6000A Distribution Unit	Z Power & Distribution	60	52	90	1422	Rigid Base	UUT 2
6000A Service Section	Z Power & Distribution	60	52	90	1608	Rigid Base	UUT 4

**Notes:**

1. UUT 135 was tested bolted together in a ganged configuration.



# UUT 135



## UNIT UNDER TEST (UUT) Summary Sheet

<b>Manufacturer:</b>	Z Power & Distribution
<b>Product Line:</b>	Low Voltage Switchboard
<b>Model Number:</b>	400A Distribution Center, Pull Section, and Service Section

**Product Construction Summary:**

12 gage cold formed carbon steel for enclosure and 10 gage galvanized carbon steel for the base.

**Options / Component Summary:**

Internal Component	Manufacturer	Part Number
Copper Bus Bar	Revere Copper Products	C11000 / ASTM B-187
Aluminum Bus Bar	SAPA Extrusions	6101-T61
30A Circuit Breaker	GE	TYPE SE
800A Circuit Breaker	GE	SK
30A Fusible Switch	GE	TYPE SE
400A Fusible Switch	GE	TYPE ADS
100A Relay	GE	CR306
400A Fuse Switch	Bolswitch	Type 'J'
Meter Socket	Marwell	54HK
Copper Bus Bar	Revere Copper Products	C11000 / ASTM B-187

**Note:** The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

**UUT Properties**

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,412	20.0	92.0	90.0	7.0	13.6	37.1

**Seismic Test Parameters**

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

**Unit Mounting Description:**



UUT 135 was rigid base mounted with (16) 1/2" grade 5 bolts. Six (6) bolts are spaced approximately 13" lengthwise and 17.5" widthwise on center in the 400A Distribution Center Section (left section). Four (4) bolts are spaced 13" lengthwise and 11" widthwise on center in the 400A Pull Section (middle section). The bolts were spaced 13" and 12.5" widthwise on center for the 400A Service Section (right section). The bolts between each Distribution Center to Pull Section and the Pull Section to Service Section all measured 7" widthwise on center.

## UUT 2



### UNIT UNDER TEST (UUT) Summary Sheet

<b>Manufacturer:</b>	Z Power & Distribution
<b>Product Line:</b>	Low Voltage Switchboard
<b>Model Number:</b>	6000A Distribution Section

**Product Construction Summary:**

12 gage cold formed carbon steel for enclosure and 10 gage galvanized carbon steel for the base.

**Options / Component Summary:**

Internal Component	Manufacturer	Part Number
Copper Bus Bar	Revere Copper Products	C11000 / ASTM B-187
Aluminum Bus Bar	SAPA Extrusions	6101-T61
800-2000A Circuit Breaker	GE	Type PB II
Multifunction Meter	Electro Industries	Shark 200
Current Transformers	GE	Type PLTC
Control Power Transformer	GE	9T58K0042G09
Potential Transformers	GE	Type PLPT
Current Transformers	Flex-Core	Series 110
10A Relay	GE	CR306

**Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.**

**UUT Properties**

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,422	60.0	52.0	90.0	8.5	7.0	25.9

**Seismic Test Parameters**

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

**Unit Mounting Description:**



UUT 2 was rigid base mounted with (6) 1/2" grade 5 bolts. The bolts are spaced approximately 53" lengthwise and 22.5" widthwise on center.



## UUT 4



### UNIT UNDER TEST (UUT) Summary Sheet

<b>Manufacturer:</b>	Z Power & Distribution
<b>Product Line:</b>	Low Voltage Switchboard
<b>Model Number:</b>	6000A Service Section

**Product Construction Summary:**

12 gage cold formed carbon steel for enclosure and 10 gage galvanized carbon steel for the base.

**Options / Component Summary:**

Internal Component	Manufacturer	Part Number
Copper Bus Bar	Revere Copper Products	C11000 / ASTM B-187
Aluminum Bus Bar	SAPA Extrusions	6101-T61
4000A Fusible Switch	Boltswitch	SL3615
Meter Socket	Marwell	54HK

**Note:** The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

*UUT Properties*

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,608	60.0	52.0	90.0	9.1	6.6	>50

*Seismic Test Parameters*

Building Code	Test Criteria	Sds (g)	z/h	ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

**Unit Mounting Description:**



UUT 4 was rigid base mounted with (6) 1/2" grade 5 bolts. The bolts are spaced approximately 53" lengthwise and approximately 22.5" widthwise on center.