



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

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

OFFICE USE ONLY

APPLICATION #: OSP-0644

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Bender Incorporated

Manufacturer's Technical Representative: Wayland Washington

Mailing Address: 420 Eagleview Blvd., Exton, PA 193411116

Telephone: (484) 288-7452

Email: wayland.washington@bender-us.com

Product Information

Product Name: Power Isolation and Correction Systems

Product Model Number(s): Various (See attachment)

Product Category: Power Isolation and Correction Systems

Product Sub-Category: Power Isolation and Correction Systems

General Description: Panels provide isolated power to electrical systems in critical care areas.

Mounting Description: Wall Mounted Rigid -

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Parkway #109, Sparks, NV 89431

Telephone: (775) 358-5085

Email: kelly.laplace@thevmcgroup.com

Title: Vice President of Sales: Test and Measurement Division





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

Company Name: THE VMC GROUP
Name: Kenneth Tarlow California License Number: S2851
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

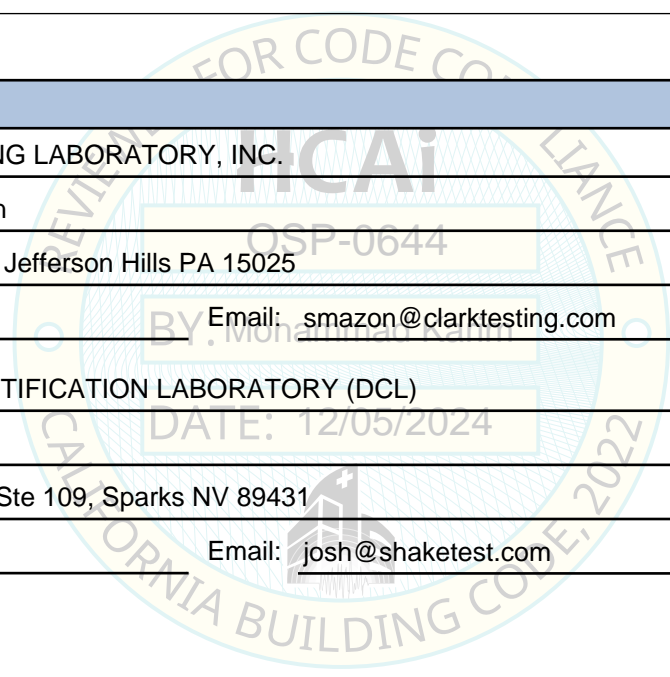
Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.
Contact Person: Suzanne Mazon
Mailing Address: 1801 Route 51, Jefferson Hills PA 15025
Telephone: (412) 387-1001 Email: smazon@clarktesting.com

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)
Contact Person: Josh Sailer
Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431
Telephone: (775) 358-5085 Email: josh@shaketest.com





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Seismic Parameters

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

SDS (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

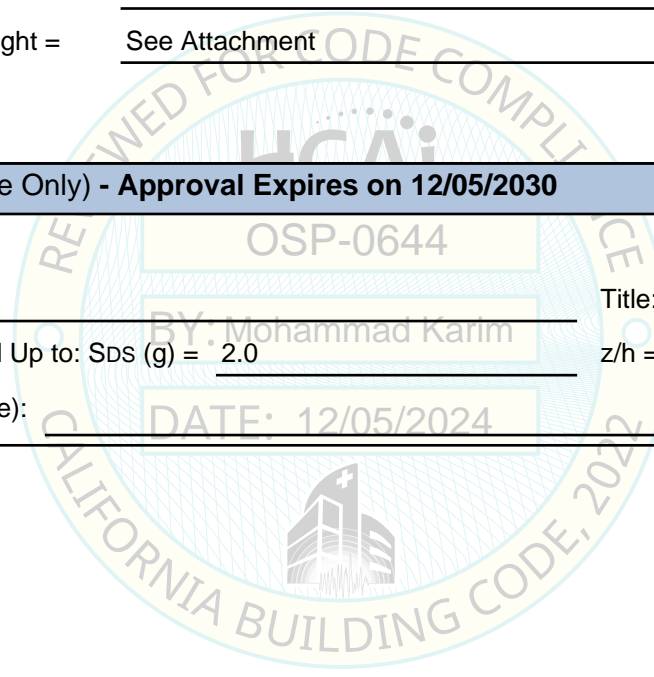
HCAI Approval (For Office Use Only) - Approval Expires on 12/05/2030

Date: 12/5/2024

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.0 z/h = 1

Condition of Approval (if applicable): DATE: 12/05/2024



Special Seismic Certification
Table 1 - Certified Components



DCL Project Number: 21762-2401

Manufacturer: Bender Incorporated

Product: Modular Isolation Power Panels

Product Lines: MIP, MIX, MIE, MIC, MID

Mounting: Rigid Surface and Flush Wall Mounted

Certified Seismic Level: Sds = 2.0g; z/h=1.0

Model Line	kVA	Back Box Dimensions (inches)			Max Weight (lb.)	Description	Mounting	Unit
		Height	Width	Depth				
MIP	3	66	24	6	264	Modular Isolation Power Panels	Rigid Surface and Flush Wall Mounted ¹	UUT1B, 3, 5, 6
	5	66	24	6	305			Interpolated
	7.5	66	24	8	345			Interpolated
	10	66	24	8	370			Interpolated
	10	66	24	8	391			Modular Isolation Power Panels
MIX	3	80	36	8	542	Modular Dual System Isolation Power Panels	Rigid Surface and Flush Wall Mounted ¹	Interpolated
	5	80	36	8	582			Interpolated
	7.5	80	36	8	654			Interpolated
	10	80	36	8	654			Interpolated
	10	80	36	8	767			Modular Dual System Isolation Power Panels
MIE	15	72	30	12	543	Modular Isolation Power Panels	Rigid Surface and Flush Wall Mounted ¹	Interpolated
	25	72	30	14	648			Interpolated
MIC	15	72	30	12	538	Modular Portable X-Ray/Laser Control Isolation Power Panels	Rigid Surface and Flush Wall Mounted ¹	Interpolated
	25	72	30	14	643			Interpolated
MID	15	72	30	12	545	Modular Dual Voltage Isolation Power Panels	Rigid Surface and Flush Wall Mounted ¹	Interpolated
	25	72	30	14	654			UUT2, 2B, 4, 7, 8

Note:

1. Based on previous testing, the rigid and flush wall mounted configurations indicated similar responses.

Special Seismic Certification
Table 2 - Certified Subcomponents



DCL Project Number: 21762-2401

Mounting: Rigid Surface and Flush Wall Mounted

Certified Seismic Level: Sds = 2.0g; z/h=1.0

Isolation Transformers					
Manufacturer	Model	Voltage Tested ¹	Description	Max Weight (lb.)	Unit
Control Magnetics	3kVA Hospital Isolation Transformer (480V-120V)	120V	Open Copper Coil	80	UUT3
	5kVA Hospital Isolation Transformer (480V-120V)	120V - 480V		80 - 190	Interpolated
	7.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	10kVA Hospital Isolation Transformer (480V-120V)	480V		190	UUT-09, UUT-10
	15kVA Hospital Isolation Transformer (480V-120V)	120V - 480V		190 - 370	Interpolated
	20kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	22.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	25kVA Hospital Isolation Transformer (480V-120V)				370
V&F	3kVA Hospital Isolation Transformer (480V-120V)	480V	Open Copper Coil	80	UUT1B
	5kVA Hospital Isolation Transformer (480V-120V)	480V		80 - 370	Interpolated
	7.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	10kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	15kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	20kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	22.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	25kVA Hospital Isolation Transformer (480V-120V)	480V		370	UUT2B
SNC	3kVA Hospital Isolation Transformer (208V-120V)	208V	Open Copper Coil	105	UUT5
	5kVA Hospital Isolation Transformer (480V-120V)	480V		105 - 353	Interpolated
	7.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	10kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	15kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	20kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	22.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	25kVA Hospital Isolation Transformer (480V-120V)	480V		353	UUT7
Norlake	3kVA Hospital Isolation Transformer (208V-120V)	208V	Open Copper Coil	106	UUT6
	5kVA Hospital Isolation Transformer (480V-120V)	480V		106 - 278	Interpolated
	7.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	10kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	15kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	20kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	22.5kVA Hospital Isolation Transformer (480V-120V)				Interpolated
	25kVA Hospital Isolation Transformer (480V-120V)	480V		278	UUT8

Note:
 1. 480V and 120V options for each transformer model are identical in weight and dimensions.

Special Seismic Certification
Table 3 - Certified Subcomponents (Continued)



DCL Project Number: 21762-2401

Mounting: Rigid Surface and Flush Wall Mounted

Certified Seismic Level: Sds = 2.0g; z/h=1.0

Line Isolation Monitor				
Manufacturer	Model	Description	Weight (lb.)	Unit
Bender	LIM2010	100-240V / 1-Phase	< 1	UUT1B, 2B, 3, 4, 5, 6, 7, 8
Molded Case Circuit Breakers				
GE	THQB (10A-125A), Bolt-On, 100A Frame	10A, 125A Tested	< 1	UUT3
	THQP (10A-125A), Plug-On, 100A Frame	10A, 125A Tested	< 1	UUT3
	TEY (10A-150A), Bolt-On, 125A Frame	10A, 150A Tested	< 1	UUT3
	F-Frame TEY (10A-150A), Bolt-On, 250A Frame	10A, 150A Tested	1	UUT3
Eaton	BAB (10A-125A), Bolt-On, 125A Frame	10A, 125A Tested	< 1	UUT4
	CH (10A-125A), Plug-On, 125A Frame	10A, 125A Tested	< 1	UUT1B
	GHC (10A-125A), Bolt-On, 125A Frame	10A, 125A Tested	< 1	UUT1B
SQD	FD (10A-150A), Bolt-On, 250A Frame	10A, 150A Tested	1	UUT4
	QOB (10A-125A), Bolt-On, 125A Frame	10A, 20A, 125A Tested	< 1	UUT2, 2B, 5, 6, 7, 8, 9, 10
	QO (10A-125A), Plug-On, 125A Frame	10A, 125A Tested	< 1	UUT2, UUT2B
	QOU (10A-125A), Bolt-On, 250A Frame	20A, 100A Tested	< 1	UUT5, 6, 7, 8
	HDL (10A-150A), Bolt-On, 250A Frame	10A, 70A, 80A, 150A Tested	1	UUT2, 2B, 7, 8, 9, 10
Current Transformers				
Bender	STW3	100A CT	< 1	UUT2,2B, 6, 7, 9, 10
	STW4	200A CT	< 1	UUT4, 8
	CTAC-10	8-channel CT Strip	< 1	UUT4, 6, 8
	CTAC-99	8-channel CT Strip	< 1	UUT1B
Hospital Grade Receptacles				
Hubbel	NEMA 5-20R	20A	< 1	UUT2, 7, 8, 9, 10
	IN16494	60A	< 1	UUT2, 7
	NEMA 6-15R	15A	< 1	UUT2, 7
	NEMA 6-20R	20A	< 1	UUT2, 7, 8
	NEMA 6-30R	30A	< 1	UUT2, 7
	NEMA 6-50R	50A	< 1	UUT4, 8
	NEMA L6-15R	15A	< 1	UUT2, 7
	NEMA L6-20R	20A	< 1	UUT2, 8
	NEMA L6-30R	30A	< 1	UUT4, 8
	CS8269	50A	< 1	UUT4, 8
23000HG	20A	< 1	UUT2, 7, 8	
Twist Lock Ground Jack				
Bender	HGJ-1R	30A	< 1	UUT3, 5, 9, 10
Definite Purpose Contactor				
SQD	8910DPA32v02, 30A-60A	30A, 60A Tested	< 1	UUT2, 7
Eaton	C25DND230A, 30A-60A	30A, 60A Tested	< 1	UUT2B
Programmable Logic Controller				
Mitsubishi	FX3S-30MR	N/A	< 1	UUT2, 7
	FX3S-30ES	N/A	< 1	UUT2B
Communication Module				
Bender	COM460	N/A	< 1	UUT4
	COM465	N/A	< 1	UUT4, 8, 9, 10
12 Channel Fault Location Evaluator				
Bender	EDS441-I-4	N/A	< 1	UUT4, 6, 8, 9, 10
	EDS461-D-1	N/A	< 1	UUT1B
12 Channel Load Monitoring Evaluator				
Bender	CMS460-D-A-1	N/A	< 1	UUT4, 8, 9, 10

Special Seismic Certification
Table 4 - Tested Units



DCL Project Number: 21762-2401

Manufacturer: Bender Incorporated

Product: Modular Isolation Power Panels

Product Lines: MIP, MIX, MIE, MIC, MID

Mounting: Rigid Surface and Flush Wall Mounted

Certified Seismic Level: Sds = 2.0g; z/h=1.0

Model Line	kVA	Back Box Dimensions (inches)			Weight (lb.)	Voltage Tested	Mounting ¹	Test Report Number [Lab]	Unit
		Height	Width	Depth					
MIP	3	66	24	6	236	480	Rigid Flush Wall Mount	19-01468 [Clark]	UUT1B
		66	24	6	236	120	Rigid Surface Wall Mount	18-00310 [Clark]	UUT3
		66	24	6	263	208	Rigid Surface Wall Mount	05585-2301 [DCL]	UUT5
		66	24	6	264	208	Rigid Surface Wall Mount	05585-2301 [DCL]	UUT6
	10	66	24	8	391	480	Rigid Surface Wall Mount	21762-2401 [DCL]	UUT-09
MID	25	72	30	14	560	480	Rigid Surface Wall Mount	05585-2301 [DCL]	UUT8
		72	30	14	598	480	Rigid Flush Wall Mount	19-01468 [Clark]	UUT2B
		72	30	14	632	480	Rigid Surface Wall Mount	05585-2301 [DCL]	UUT7
		72	30	14	654	480	Rigid Flush Wall Mount	18-00310 [Clark]	UUT2
		72	30	14	654	480	Rigid Surface Wall Mount	18-00310 [Clark]	UUT4
MIX	10	80	36	8	767	480	Rigid Surface Wall Mount	21762-2401 [DCL]	UUT-10

Note:

1. Based on previous testing, the rigid and flush wall mounted configurations indicated similar responses.

UNIT UNDER TEST (UUT) Summary Sheet



UUT1B - Clark Test Report 19-01468

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MIP

Model Line: 3kVA MIP

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: V&F 3kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, Eaton 10A & 125A CH & GHC Molded Case Circuit Breakers, Bender CTAC-99 Current Transformers, Bender EDS461-D-1 12 Channel Fault Location Evaluator.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
236	UUT1B	6.0	24.0	66.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid flush mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, washers, and lock washers.



UUT1B Front View



UUT1B Side View

UNIT UNDER TEST (UUT) Summary Sheet



UUT3 - Clark Test Report 18-00310

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MIP

Model Number: 3kVA MIP

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Control Magnetics 3kVA Hospital Isolation Transformer (120V), Bender LIM2010 Line Isolation Monitor, GE 10A & 125A/150A THQB & THQP & TEY & F Frame TEY Molded Case Circuit Breakers.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
236	UUT3	6.0	24.0	66.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, washers, and lock washers.

BY: Mohammad Karim



UUT3 Front View



UUT3 Side View

UNIT UNDER TEST (UUT) Summary Sheet



UUT5 - DCL Test Report 05585-2301

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MIP

Model Line: 3kVA MIP

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: SNC 3kVA Hospital Isolation Transformer (208V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A QOB & QOU Molded Case Circuit Breakers, Bender HGJ-1R Twist Lock Ground Jack.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)			
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
263	UUT5	6.0	24.0	66.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT5 Front View



UUT5 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT6 - DCL Test Report 05585-2301

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MIP

Model Line: 3kVA MIP

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Norlake 3kVA Hospital Isolation Transformer (208V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A QOB & QOU Molded Case Circuit Breakers, Bender STW3 Current Transformer, Bender CTAC-10 Current Transformers, Bender EDS441-I-4 12 Channel Fault Location Evaluator.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
264	UUT6	6.0	24.0	66.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT6 Front View



UUT6 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT-09 - DCL Test Report 21762-2401

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Line: 10kVA MIP

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: SNC 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A (QOB, QOU, HDL) Molded Case Circuit Breakers, Bender STW3 Current Transformer, Hubbell NEMA 5-20R & IN16494 & NEMA 6-15R to 30R & NEMA L6-15R & 23000HG Receptacles, SQD 8910DPA32v02 30A-60A Definite Purpose Contactor, Mitsubishi FX3S-30MR Programmable Logic Controller.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
391	UUT-09	8.0	24.0	66.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT-09 Front view



UUT-09 Interior view

UNIT UNDER TEST (UUT) Summary Sheet



UUT8 - DCL Test Report 05585-2301

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Line: 25kVA MID

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Norlake 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A (QOB, QOU, HDL) Molded Case Circuit Breakers, Bender STW4 & CTAC-10 Current Transformers, Hubbell NEMA 6-20R & 6-50R & NEMA L6-20R to 30R & CS8269 & 23000HG Receptacles, Bender COM465 Communication Modules, Bender EDS441-I-4 12 Channel Fault Location Evaluator, Bender CMS460-D-A-1 12 Channel Load Monitoring Evaluator.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
560	UUT8	14.0	30.0	72.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT8 Front View



UUT8 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT2B - Clark Test Report 19-01468

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Number: 25kVA MID

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: V&F 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A & 125A, 150A QOB & QO & HDL Molded Case Circuit Breakers, Bender STW3 Current Transformer, Eaton C25DND230A 30A & 60A Definite Purpose Contactor, Mitsubishi FX3S-30MR Programmable Logic Controller.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
598	UUT2B	14.0	30.0	72.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid flush mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, washers, and lock washers.

DATE: 12/05/2024



UUT2B Front View



UUT2B Side View

UNIT UNDER TEST (UUT) Summary Sheet



UUT7 - DCL Test Report 05585-2301

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Line: 25kVA MID

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: SNC 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A (QOB, QOU, HDL) Molded Case Circuit Breakers, Bender STW3 Current Transformer, Hubbell NEMA 5-20R & IN16494 & NEMA 6-15R to 30R & NEMA L6-15R & 23000HG Receptacles, SQD 8910DPA32v02 30A-60A Definite Purpose Contactor, Mitsubishi FX3S-30MR Programmable Logic Controller.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
632	UUT7	14.0	30.0	72.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface wall mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT7 Front View



UUT7 Interior View

UNIT UNDER TEST (UUT) Summary Sheet



UUT2 - Clark Test Report 18-00310

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Number: 25kVA MID

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Control Magnetics 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A & 125A, 150A QOB & QO & HDL Molded Case Circuit Breakers, Bender STW3 Current Transformer, Hubbell NEMA 5-20R & IN16494 & NEMA 6-15R to 30R & NEMA L6-15R to 20R & 23000HG Receptacles, SQD 8910DPA32v02 30A & 60A Definite Purpose Contactor, Mitsubishi FX3S-30MR Programmable Logic Controller.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
654	UUT2	14.0	30.0	72.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid flush mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, washers, and lock washers.



UUT2 Front View



UUT2 Side View

UNIT UNDER TEST (UUT) Summary Sheet



UUT4 - Clark Test Report 18-00310

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Number: 25kVA MID

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Control Magnetics 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, Eaton 10A & 125A/150A BAB & FD Molded Case Circuit Breakers, Bender STW4 & CTAC-10 Current Transformer, Hubbell NEMA 6-50R & NEMA L6-30R & CS8269 Receptacles, Bender HGJ-1R Twist Lock Ground Jack, Bender COM460 & COM465 Communication Modules, Bender EDS441-I-4 12 Channel Fault Location Evaluator, Bender CMS460-D-A-1 12 Channel Load Monitoring Evaluator.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
654	UUT4	14.0	30.0	72.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, washers, and lock washers.



UUT4 Front View



UUT4 Side View

UNIT UNDER TEST (UUT) Summary Sheet



UUT-10 - DCL Test Report 21762-2401

Manufacturer: Bender Incorporated

Product Line: Modular Isolation Power Panels, MID

Model Line: 10kVA MIX

Product Construction Summary: 14ga A653 galvanized steel back box, 14ga 304 stainless steel trim.

Options / Component Summary: Norlake 25kVA Hospital Isolation Transformer (480V), Bender LIM2010 Line Isolation Monitor, SQD 10A-125A (QOB, QOU, HDL) Molded Case Circuit Breakers, Bender STW4 & CTAC-10 Current Transformers, Hubbell NEMA 6-20R & 6-50R & NEMA L6-20R to 30R & CS8269 & 23000HG Receptacles, Bender COM465 Communication Modules, Bender EDS441-I-4 12 Channel Fault Location Evaluator, Bender CMS460-D-A-1 12 Channel Load Monitoring Evaluator.

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

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Tested Unit	Depth	Width	Height	Front-Back	Side-Side	Vertical
767	UUT-10	8.0	36.0	80.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53

Unit Mounting Description:

The unit was rigid surface mounted to the fixture using (8) 5/16"-18 grade 5 hex head bolts, flat washers, 1.5"x1.5"x1/4" plate washers, and channel nuts.

Seismic Enhancement: Each mounting hole that secures the door to the enclosure had a Seismic U-Type Retaining Nut installed over the mounting hole.



UUT-10 Front View



UUT-10 Interior View