



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0495

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Ametek Powervar

Manufacturer's Technical Representative: Peter Huss

Mailing Address: 1450 Lakeside Drive, Waukegan, IL 60085

Telephone: (847) 596-7040

Email: Peter.Huss@ametek.com

Product Information

Product Name: UPS and Batteries

Product Type: UPS

Product Model Number: See Attachment

General Description: Enclosures contain circuit breakers, circuit breaker accessories, transformers, receptacles and batteries.

Mounting Description: Rigid, Floor/Wall Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

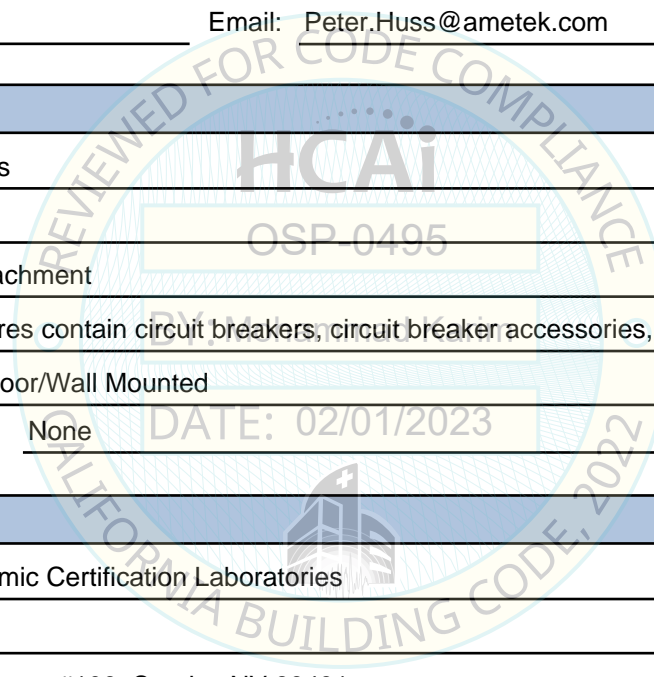
Contact Person: Kelly Laplace

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

Telephone: (775) 358-5085

Email: kelly@shaketest.com

Title: Business Manager





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

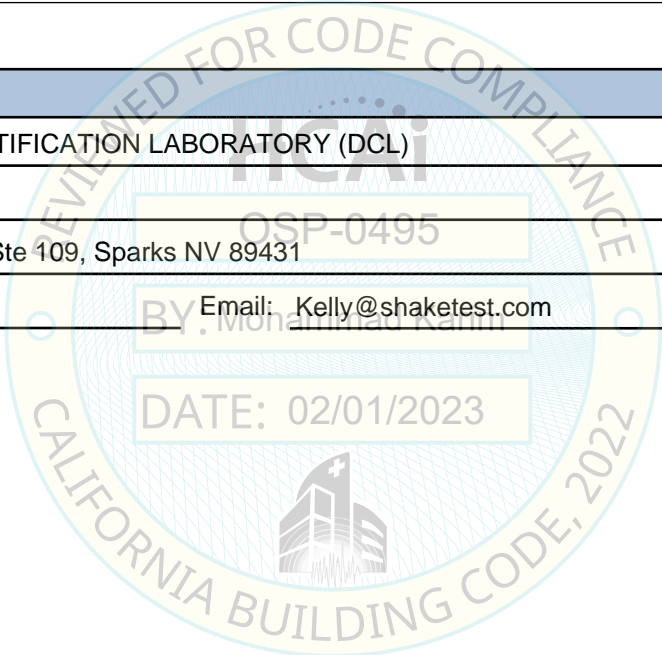
Company Name: THE VMC GROUP
Name: Kenneth Tarlow California License Number: S2851
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

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

Testing Laboratory

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





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.88 (MBS and Stepdown Transformer with MBS); 1.13 (Dual Transformer Cabinets); 0.94 (Battery Cabinets)

SDS (Design spectral response acceleration at short period, g) = 2.5 (MBS and Stepdown Transformer with MBS); 1.5 (Dual Transformer Cabinets); 1.25 (Battery Cabinets)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

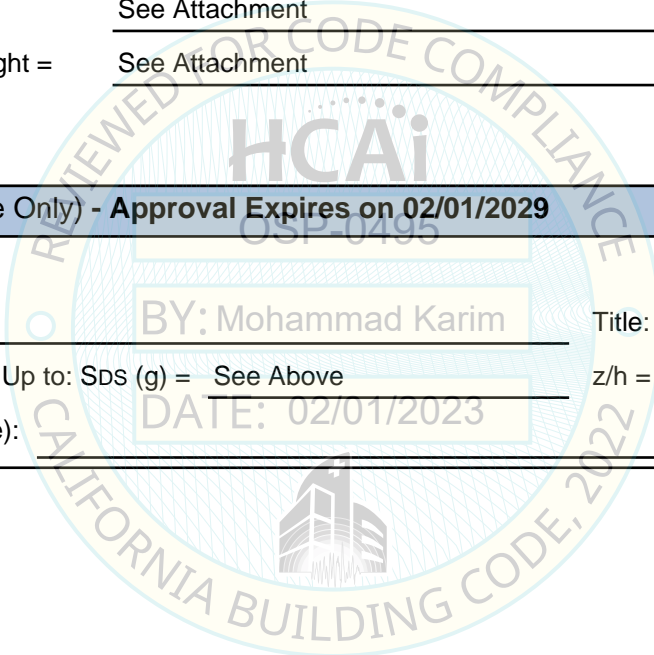
Ω_0 (System overstrength factor) = 2.0

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 02/01/2029

Date: 02/01/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

Condition of Approval (if applicable):



**Table 1 - Special Seismic Certification
Certified Components - Maintenance Bypass Systems (MBS)
and Stepdown Transformers**



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Wall Mounted Maintenance Bypass Systems (30/40 kVA), Stepdown Transformer with Maintenance Bypass System

Certified Product Construction: Powder-coated galvanized carbon steel enclosures

Mounting Description: Rigid wall mount or rigid base mount, as indicated

Certified Seismic Levels: $S_{D5}=2.50g$, $z/h=1.0$

Model Number	Type	Manufacturer	Dimensions (in)			Weight (lb)	Mounting	Unit
			Depth	Width	Height			
32010-MB3WM18	Wall Mounted MBS (30/40 kVA)	C&C Power	10	30	36	120	Rigid wall mount	Extrapolated ¹
32020-MB3WM18			10	30	36	120	Rigid wall mount	Extrapolated ¹
32030-MB3WM22			10	30	36	120	Rigid wall mount	Extrapolated ¹
32040-MB3WM22			10	30	36	120	Rigid wall mount	UUT1
32010-2FX2MB3	Stepdown Transformer with MBS	C&C Power	33	30	48	660	Rigid base mount	Extrapolated ²
32020-2FX2MB3			33	30	48	660	Rigid base mount	Extrapolated ²
32030-2FX2MB3			33	30	60	810	Rigid base mount	Extrapolated ²
32040-2FX2MB3			33	30	60	810	Rigid base mount	Extrapolated ²
32010-4FX2MB3			33	30	48	660	Rigid base mount	Extrapolated ²
32020-4FX2MB3			33	30	48	660	Rigid base mount	UUT3
32030-4FX2MB3			33	30	60	810	Rigid base mount	Interpolated
32040-4FX2MB3			33	30	60	810	Rigid base mount	UUT5
32010-6FX2MB3			33	30	48	660	Rigid base mount	Extrapolated ²
32020-6FX2MB3			33	30	48	660	Rigid base mount	Extrapolated ²
32030-6FX2MB3			33	30	60	810	Rigid base mount	Extrapolated ²
32040-6FX2MB3			33	30	60	810	Rigid base mount	Extrapolated ²

Notes:

1. Extrapolated Wall Mounted MBS are identical to tested unit; only the internal ampacity of the circuit breaker changes. All physical aspects are the same. Manufacturing process is ISO 9001 certified.
2. Extrapolated Stepdown Transformer Units are bookended by tested units; only breaker amperage changes.

**Table 2 - Special Seismic Certification
Certified Components - Dual Transformer Cabinets**



DCL Project Number: 32193-2201

Manufacturers: C&C Power for Ametek Powervar

Product Line: Dual Transformer Cabinets

Certified Product Construction: Powder-coated galvanized carbon steel enclosures

Mounting Description: Rigid base mount

Certified Seismic Levels: $S_{Ds}=1.50g$, $z/h=1.0$

Model Number	Type	Manufacturer	Dimensions (in)			Weight (lb)	Mounting	Unit
			Depth	Width	Height			
32800-04	Dual Transformer Cabinet	C&C Power	33	30	60	1120	Rigid base mount	UUT4
32800-07			33	30	60	1120	Rigid base mount	Extrapolated ¹
32800-10			33	30	60	1120	Rigid base mount	Extrapolated ¹
32800-12			33	30	60	1120	Rigid base mount	Extrapolated ¹

Note:

1. Extrapolated Dual Transformer Cabinets are identical to the tested 32800-04, except configured with different primary taps. Manufacturing process is ISO 9001 certified.

**Table 3 - Special Seismic Certification
Certified Components - Battery Cabinets**



DCL Project Number: 32193-2201
Manufacturers: C&C Power for Ametek Powervar
Product Line: Battery Cabinets
Certified Product Construction: Powder-coated galvanized carbon steel enclosures
Mounting Description: Rigid base mount
Certified Seismic Levels: $S_{DS}=1.25g$, $z/h=1.0$

Model Number	Type	Category	Manufacturer	Dimensions (in)			Weight (lb)	Unit
				Depth	Width	Height		
32020-BC57	Battery Cabinets	32010-32020	C&C Power	32	29	48	1,870	UUT7
32030-BC13				32	29	60	875	Extrapolated
32030-BC15				32	29	60	1,091	Extrapolated
32040-BC11		32030-32040	C&C Power	32	29	60	1,180	UUT10
32030-BC25				32	29	60	1,559	Interpolated
32040-BC18				32	29	60	1,559	Interpolated
32040-32				32	29	60	1,883	Interpolated
32030-BC45				32	29	60	1,883	Interpolated
32030-BC65				32	29	60	2,495	Interpolated
32040-BC44				32	29	60	2,570	UUT11

**Table 4 - Special Seismic Certification
Product Nomenclature Guide**



Manufacturer: C&C Power for Ametek Powervar

Product Line: Wall Mounted MBS and Stepdown Transformer with MBS

Wall Mounted Maintenance Bypass Systems (MBS)

A-B-C

Variable	Definition	Allowable Value	Allowable Value Description	Unit
A	Bypass rating	32010	10kVA	Extrapolated ¹
		32020	20kVA	Extrapolated ¹
		32030	30kVA	Extrapolated ¹
		32040	40kVA	UUT1
B	Unit type	MB3WM	3 breaker Maintenance Bypass / Wall mount	UUT1
C	Breaker rating	18	18kAIC breaker rating	Extrapolated ¹
		22	22kAIC breaker rating	UUT1

1. Option physically identical to that tested in UUT1, but with a different breaker trip rating.

Stepdown Transformer with Maintenance Bypass System

A-B-C

Variable	Definition	Allowable Value	Allowable Value Description	Unit
A	Matching battery cabinet for 20 and 40kVA UPS	32010	10kVA	Extrapolated ¹
		32020	20kVA	UUT3
		32030	30kVA	Interpolated ²
		32040	40kVA	UUT5
B	Transformer	2FX2	208/208	Extrapolated ³
		4FX2	480/208	UUT3, UUT5
		6FX2	600/208	Extrapolated ³
C	Unit type	MB3	3 Breaker Maintenance Bypass	UUT3, UUT5

1. Extrapolated cabinet is identical to that tested in UUT3 - marketing change only.

2. Interpolated cabinet is identical to that tested in UUT5 - marketing change only.

3. Extrapolated transformer option is the same as tested in UUT3 and UUT5, but without bypass breakers.

**Table 4 - Special Seismic Certification
Product Nomenclature Guide (Continued)**



Manufacturer: C&C Power for Ametek Powervar

Product Line: Dual Transformer Cabinets and Battery Cabinets

Dual Transformer Cabinets

A-B

Variable	Definition	Allowable Value	Allowable Value Description	Unit
A	Unit Type	32800	Dual transformer cabinet	UUT4
B	Custom configuration	04	480/208 and 208/480	UUT4
		07	400/208 and 208/400	Extrapolated ¹
		10	480/208 and 208/400	Extrapolated ¹
		12	600/208 and 208/600	Extrapolated ¹

1. Extrapolated configurations are identical to the tested one, except different voltage taps are utilized.

Battery Cabinets

A-B-C

Variable	Definition	Allowable Value	Allowable Value Description	Unit
A	Matching battery cabinet for 20 and 40kVA UPS	32020	Battery cabinet 20	UUT7
		32030	Battery cabinet 27	Interpolated ¹
		32040	Battery cabinet 27	UUT10, UUT11
B	Unit Type	BC	Battery Cabinet	UUT7, UUT10, UUT11
C	Custom configuration	15	HX-100 batteries	Extrapolated ²
		11	HX-100 batteries	UUT10
		18	HX-150 batteries	Interpolated
		25	HX-150 batteries	Interpolated
		32	HX 205 batteries	Interpolated
		45	HX 205 batteries	Interpolated
		57	HX 205 batteries	UUT7
		65	HX 300 batteries	Interpolated
		44	HX 300 batteries	UUT11

1. Interpolated cabinet option is identical to that tested in UUT11 (marketing change only).

2. Same as tested in UUT10, but with fewer batteries.

Table 5 - Special Seismic Certification
Certified Subcomponents - Wall Mounted Maintenance Bypass Systems



DCL Project Number: 32193-2201

Product Line: Wall Mounted Maintenance Bypass Systems

Certified Subcomponents: Enclosures and circuit breakers

Certified Seismic Levels: $S_{DS}=2.50g$, $z/h=1.0$

Enclosures									
Model Number	Manufacturer	Description	Dimensions (in.)			Max Loaded Weight (lb.)	NEMA Rating	Material	Unit
			Width	Height	Depth				
90880	C&C Power, Inc.	90880 Type Enclosure	30	36	10	120	1	Powder-coated galvanized carbon steel	UUT1
Circuit Breakers									
Model Number	Manufacturer	Amperage (A)	Poles	Dimensions (in.)			Weight (lb.)	Material	Unit
				Width	Height	Depth			
C-F Frame	Eaton / Cutler Hammer	40 - 150	3	4	6	3	5	Plastic Body/Case	UUT1

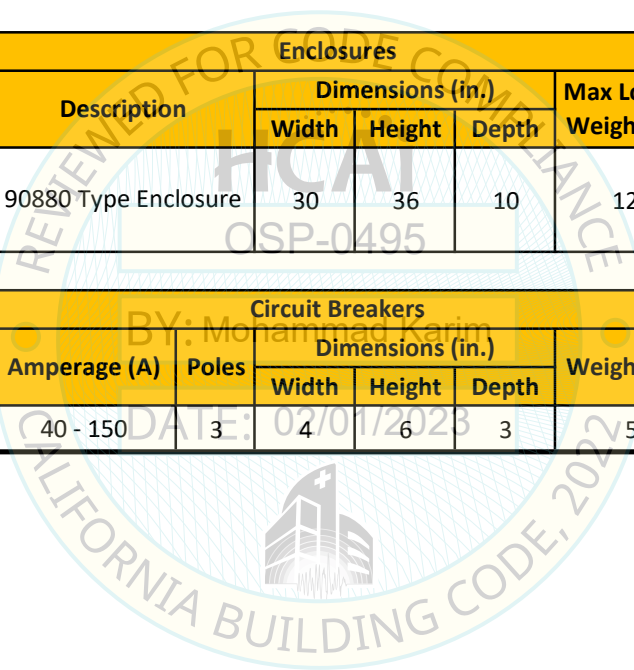


Table 6 - Special Seismic Certification
Certified Subcomponents - Stepdown Transformers with Maintenance Bypass System



DCL Project Number: 32193-2201

Product Line: Stepdown Transformer with Maintenance Bypass System

Certified Subcomponents: Enclosures, circuit breakers, and transformers

Certified Seismic Levels: $S_{DS}=2.50g$, $z/h=1.0$

Enclosures									
Model Number	Manufacturer	Description	Dimensions (in.)			Max Loaded Weight (lb.)	NEMA Rating	Material	Unit
			Width	Height	Depth				
99726	C&C Power, Inc.	90855 Type Enclosure	30	36	10	120	1	Powder-coated galvanized carbon steel	UUT3, UUT5
Circuit Breakers									
Model Number	Manufacturer	Amperage (A)	Poles	Dimensions (in.)			Weight (lb.)	Material	Unit
				Width	Height	Depth			
C-F Frame	Eaton / Cutler Hammer	30 - 175	3	4	6	3	5	Plastic Body/Case	UUT3, UUT5
Transformers									
Model Number	Manufacturer	Description				Weight (lb.)	Material	Unit	
051-00048	C&C Power, Inc.	22KVA 480D-208Y/120V				480	Copper core	UUT3	
051-00047		22KVA 208D-208Y/120V				480		Interpolated	
051-00049		22KVA 600D-208Y/120V				480		Interpolated	
051-00091		22KVA 208D-208Y/120V				480		Interpolated	
051-00092		22KVA 480D-208Y/120V				480		Interpolated	
051-00093		22KVA 600D-208Y/120V				480		Interpolated	
051-00053		44KVA 208D-208Y/120V				590		Interpolated	
051-00055		44KVA 600D-208Y/120V				590		Interpolated	
051-00086		44KVA 480D-208Y/120V				590		Interpolated	
051-00094		44KVA 208D-208Y/120V				590		Interpolated	
051-00095		44KVA 600D-208Y/120V				590		Interpolated	
051-00054		44KVA 480D-208Y/120V				590		UUT5	

Table 7 - Special Seismic Certification
Certified Subcomponents - Dual Transformer Cabinets



DCL Project Number: 32193-2201

Product Line: Dual Transformer Cabinets

Certified Subcomponents: Enclosures, circuit breakers, and transformers

Certified Seismic Levels: $S_{DS}=1.50g$, $z/h=1.0$

Enclosures									
Model Number	Manufacturer	Description	Dimensions (in.)			Max Loaded Weight (lb.)	NEMA Rating	Material	Unit
			Width	Height	Depth				
99726	C&C Power, Inc.	90856 Type Enclosure	30	60	33	1,120	1	Powder-coated galvanized carbon steel	UUT4
Circuit Breakers									
Model Number	Manufacturer	Amperage (A)	Poles	Dimensions (in.)			Weight (lb.)	Material	Unit
				Width	Height	Depth			
C-F Frame	Eaton / Cutler Hammer	40	3	4	6	3	5	Plastic Body/Case	Extrapolated
		60							Extrapolated
		70							UUT4
		80							Interpolated
		150							UUT4
Transformers									
Model Number	Manufacturer	Description				Weight (lb.)	Material	Unit	
051-00101	C&C Power, Inc.	40kVA 208DD-480/277Y				571	Copper core	UUT4	
051-0095		44kVA 208D-600Y/345V				590		Interpolated	
051-00054		44kVA 480D-208/120Y				590		UUT4	
051-0055		44kVA 600D-208Y/120V				590		Extrapolated	

**Table 8 - Special Seismic Certification
Certified Subcomponents - Battery Cabinets**



DCL Project Number: 32193-2201

Product Line: Battery Cabinets

Certified Subcomponents: Enclosures, batteries, circuit breakers, and circuit breaker accessories

Certified Seismic Levels: $S_{DS}=1.25g$, $z/h=1.0$

Enclosures									
Model Number	Manufacturer	Description	Dimensions (in.)			Max Loaded Weight (lb.)	NEMA Rating	Material	Unit
			Width	Height	Depth				
91420	C&C Power, Inc.	BC20 Type Enclosure	29	48	32	1,870	1	Powder-coated galvanized carbon steel	UUT7
91427		BC27 Type Enclosure	29	60	32	2,570	1		UUT10
Batteries									
Model Number	Manufacturer	Description				Weight (lb.)	Material	Unit	
12HX100	Enersys	Enersys HX Series Battery				22	Lead acid, hermetically sealed	UUT10	
12HX150		Enersys HX Series Battery				32		Interpolated	
12HX205		Enersys HX Series Battery				43		UUT7	
12HX300		Enersys HX Series Battery				60		UUT11	
Circuit Breakers									
Model Number	Manufacturer	Description				Weight (lb.)	Material	Unit	
HFDDC3070L	Eaton / Cutler Hammer	C-Frame Breaker Frame				6	Plastic body/case	UUT7	
JGEDC3250NN		G JG-Frame Circuit Breaker Frame				7		UUT10	
JT3100FA		G JG-Frame Thermal Magnetic Trip Unit 100A				1		Extrapolated	
JT3150FA		G JG-Frame Thermal Magnetic Trip Unit 150A				1		UUT10	
JGEDC3100FAG		G JG-Frame Circuit Breaker 100A				7		Extrapolated	
JGEDC3150FAG		G JG-Frame Circuit Breaker 150A				7		UUT10	
Circuit Breaker Accessories									
Model Number	Manufacturer	Description				Material	Unit		
A1X1PK	Eaton / Cutler Hammer	Series C F-Frame Auxiliary Switch 1				Plastic body/case	UUT7		
SNT1RP03K	Eaton / Cutler Hammer	Series C F-Frame Shunt Trip 12-24VAC/VDC Right				Plastic body/case	UUT7		
AUX1A1BPK	Eaton / Cutler Hammer	Series G EG, JG, & LG Frame Auxiliary Switch 1A/1B				Plastic body/case	UUT10		
SNT024CPK	Eaton / Cutler Hammer	Series G EG, JG, & LG Frame Shunt Trip 24VAC/VDC				Plastic body/case	UUT10		

**Table 9 - Special Seismic Certification
Tested Units**



DCL Project Number: 32193-2201

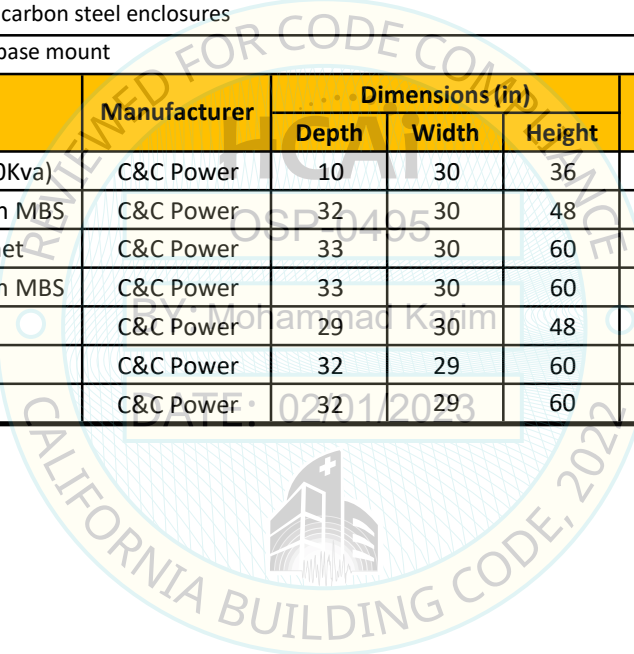
Manufacturers: C&C Power for Ametek Powervar

Product Lines: Wall Mounted Maintenance Bypass Systems (30/40 kVA), Stepdown Transformer with Maintenance Bypass System, Dual Transformer Cabinets, and Battery Cabinets

Tested Product Construction: Powder-coated galvanized carbon steel enclosures

Tested Mounting Description: Rigid wall mount or rigid base mount

Model Number	Type	Manufacturer	Dimensions (in)			Weight (lb.)	Mounting	Sds (g), z/h=1	Unit
			Depth	Width	Height				
32040-MB3WM22	Wall Mounted MBS (30/40Kva)	C&C Power	10	30	36	120	Rigid wall mount	2.50	UUT1
32020-4FX2MB3	Stepdown Transformer with MBS	C&C Power	32	30	48	590	Rigid base mount	2.50	UUT3
32800-04	Dual Transformer Cabinet	C&C Power	33	30	60	1,120	Rigid base mount	1.50	UUT4
32040-4FX2MB3	Stepdown Transformer with MBS	C&C Power	33	30	60	710	Rigid base mount	2.50	UUT5
32020-BC57	Battery Cabinet	C&C Power	29	30	48	1,870	Rigid base mount	1.47	UUT7
32040-BC11	Battery Cabinet	C&C Power	32	29	60	1,180	Rigid base mount	1.75	UUT10
32040-BC44	Battery Cabinet	C&C Power	32	29	60	2,570	Rigid base mount	1.25	UUT11



UUT1

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Wall Mounted Maintenance Bypass Systems (MBS)

Model Number: 32040-MB3WM22

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Subcomponent Summary:

Eaton C-F Frame circuit breaker

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
120	UUT1	10	30	36	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	2.50	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was rigidly attached to the shake table interface wall frame using (6) 3/8-inch diameter Grade 5 bolts, washers, plate washers, and channel nuts.



UUT1 Overall View

UUT3

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Stepdown Transformer with Maintenance Bypass System

Model Number: 32020-4FX2MB3

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Eaton C-F Frame circuit breaker, C&C Power transformer

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
590	UUT3	32	30	48	9.3	7.5	13.0

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	2.50	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was rigidly attached to the shake table interface plate using (4) 1/2-inch diameter Grade 5 bolts and washers.



UUT3 Overall View

UUT4

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Dual Transformer Cabinet

Model Number: 32800-04

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Eaton C-F Frame circuit breaker, C&C Power transformers

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,120	UUT4	33	30	60	6.3	5.3	21.0

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	1.50	1.0	1.5	2.40	1.80	1.00	0.40

Unit Mounting Description:

The unit was rigidly attached to the shake table interface plate using (4) 1/2-inch diameter Grade 5 bolts and washers.



UUT4 Overall View

UUT5

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Stepdown Transformer with Maintenance Bypass System

Model Number: 32040-4FX2MB3

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Eaton C-F Frame circuit breaker, C&C Power transformer

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
710	UUT5	33	30	60	13.5	10.5	27.8

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	2.50	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was rigidly attached to the shake table interface plate using (4) 1/2-inch diameter Grade 5 bolts and washers.



UUT5 Overall View

UUT7

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Battery Cabinet

Model Number: 32020-BC57

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Energys batteries, Eaton circuit breaker and accessories

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,870	UUT7	29	30	48	8.8	13.8	22.5

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	1.47	1.0	1.5	2.35	1.76	0.98	0.39

Unit Mounting Description:

The unit was rigidly attached to the shake table interface plate using (6) 1/2-inch diameter Grade 5 bolts and washers.



UUT7 Overall View

UUT10

DCL Test Report 96377-1601

UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Battery Cabinet

Model Number: 32040-BC11

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Energys batteries, Eaton circuit breaker and accessories

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,180	UUT10	32	29	60	14.8	8.8	31.3

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	1.75	1.0	1.5	2.80	2.10	1.17	0.47

Unit Mounting Description:

UUT10 was rigidly attached to the shake table interface plate using (4) 1/2-inch diameter Grade 5 bolts and washers.



UUT10 Overall View

UUT11
DCL Test Report 96377-1601
UNIT UNDER TEST (UUT) Summary Sheet



DCL Project Number: 32193-2201

Manufacturer: C&C Power for Ametek Powervar

Product Line: Battery Cabinet

Model Number: 32040-BC44

Product Construction Summary:

Powder coated galvanized carbon steel enclosure, NEMA 1

Options / Component Summary:

Energys batteries, Eaton circuit breaker and accessories

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 (inches)				Lowest Natural Frequency (Hz)		
	UUT	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,570	UUT11	32	29	60	9.0	3.5	17.3

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	1.25	1.0	1.5	2.00	1.50	0.83	0.33

Unit Mounting Description:

The unit was rigidly attached to the shake table interface plate using (4) 1/2-inch diameter Grade 5 bolts and washers.



UUT11 Overall View