APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0453 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Syserco, Inc

Manufacturer's Technical Representative: Wayne Chang

Mailing Address: 215 Fourier Ave, Fremont, CA 94539

Telephone: 510-598-8745 Email: w.chang@syserco.com

Product Information

Product Name: BMS Control Panel

Product Type: Control Panel

Product Model Number: Custom BMS Control Panel
(List all unique product identification numbers and/or part numbers)

General Description: Rigid and isolated carbon steel control panels with various internal subcomponents. Seismic enhancements made to the test units required to address the anomalies observed during testing shall be incorporated into the production units.

Mounting Description: Wall mounted with wall base both rigid & isolated.
Units may be Surface Mounted on a Wall or Equipment.

Applicant Information

Applicant Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

Contact Person: Derek J. Manwill, S.E.

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844-878-0200 Email: dmanwill@trucompliance.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: 6/17/2016

Title: Vice President Company Name: TRU Compliance, LLC

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

Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

Name: Derek J. Manwill, S.E. California License Number: S6266

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844-878-0200 Email: dmanwill@trucompliance.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

Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas, TX 75229-3513

Telephone: 972-247-9657 Email: jeremy@etldallas.com

Company Name: NTS – Silicon Valley

Contact Name: Morrison Blackwell-White

Mailing Address: 38995 Cherry Street, Newark, CA 94560

Telephone: 877.245.7800 Email: morrison.blackwell-white@nts.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = Rig.: 1.5 (S_{DS}=2.0g); 1.44 (S_{DS}=3.2g), Iso.: 4.5 (S_{DS}=2.0g); 2.4 (S_{DS}=3.2g)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0g (z/h = 1.0); 3.2g (z/h = 0.0)

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

R_p (Equipment or component response modification factor) = 6.0 (rigid); 2.0 (isolated)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 (S_{DS} = 2.0g); 0.0 (S_{DS} = 3.2g)

Equipment or Component Natural Frequencies (Hz) = N/A (wall mounted)

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) = _____

Ω_0 (System overstrength factor) = _____

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): Attachment

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: _____ Date: July 7, 2016

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable): _____

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels

TABLE 1

Certified Product Construction Summary:
Carbon steel NEMA 1,3R,4 & 12 enclosures.

Certified Options Summary:
Surface mounted

Mounting Configuration:
Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* S_{DS} = 2.0 g z/h=1.0; S_{DS} = 3.2 g z/h=0.0 I_P = 1.5

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	6.0	12.0	12.0	22.5		Extrap.
		6.0	12.0	16.0	30.0		Extrap.
		6.0	16.0	16.0	33.8		Interp.
		6.0	16.0	20.0	42.2		Interp.
		6.0	16.0	24.0	50.7		Interp.
		6.0	18.0	18.0	42.8		Interp.
		6.0	20.0	16.0	42.2		Interp.
		6.0	20.0	20.0	52.8		Interp.
		6.0	20.0	24.0	63.3		Interp.
		6.0	24.0	24.0	76.0		Interp.
		6.6	12.0	16.0	30.0		5
		6.6	16.0	16.0	33.8		Interp.
		6.6	16.0	20.0	42.2		Interp.
		6.6	16.0	24.0	50.7		Interp.
		6.6	20.0	16.0	42.2		Interp.
		6.6	20.0	20.0	52.8		Interp.
		6.6	20.0	24.0	63.3		Interp.
		6.6	24.0	24.0	76.0		Interp.
		6.6	24.0	30.0	95.0		Interp.
		6.6	24.0	36.0	114.0		Interp.
		6.6	30.0	36.0	142.5		Interp.
		8.0	12.0	16.0	25.3		Interp.
		8.0	16.0	16.0	33.8		Interp.
		8.0	16.0	20.0	42.2		Interp.

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Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	8.0	16.0	24.0	50.7		Interp.
		8.0	20.0	16.0	42.2		Interp.
		8.0	20.0	20.0	52.8		Interp.
		8.0	20.0	24.0	63.3		Interp.
		8.0	20.0	30.0	79.2		Interp.
		8.0	24.0	20.0	63.3		Interp.
		8.0	24.0	24.0	76.0		Interp.
		8.0	24.0	30.0	95.0		Interp.
		8.0	24.0	36.0	114.0		Interp.
		8.0	30.0	24.0	95.0		Interp.
		8.0	30.0	30.0	118.8		Interp.
		8.0	30.0	36.0	142.5		Interp.
		8.0	36.0	36.0	171.0		Interp.
		8.6	12.0	16.0	25.3		Interp.
		8.6	12.0	20.0	31.7		Interp.
		8.6	16.0	20.0	42.2		Interp.
		8.6	20.0	20.0	52.8		Interp.
		8.6	20.0	24.0	63.3		Interp.
		8.6	20.0	30.0	79.2		Interp.
		8.6	24.0	24.0	76.0		Interp.
		8.6	24.0	30.0	95.0		Interp.
		8.6	24.0	36.0	114.0		Interp.
		8.6	30.0	30.0	118.8		Interp.
		8.6	30.0	36.0	142.5		Interp.

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Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	9.3	30.0	42.0	166.3		Interp.
		9.3	36.0	42.0	199.5		Interp.
		9.3	36.0	48.0	224.0		Interp.
		10.0	12.0	16.0	25.3		Interp.
		10.0	16.0	16.0	33.8		Interp.
		10.0	16.0	20.0	42.2		Interp.
		10.0	16.0	24.0	50.7		Interp.
		10.0	18.0	18.0	42.8		Interp.
		10.0	20.0	16.0	42.2		Interp.
		10.0	20.0	20.0	52.8		Interp.
		10.0	20.0	24.0	63.3		Interp.
		10.0	20.0	30.0	79.2		Interp.
		10.0	24.0	20.0	63.3		Interp.
		10.0	24.0	24.0	76.0		Interp.
		10.0	24.0	30.0	95.0		Interp.
		10.0	24.0	36.0	114.0		Interp.
		10.0	24.0	48.0	152.0		Interp.
		10.0	30.0	24.0	95.0		Interp.
		10.0	30.0	30.0	118.8		Interp.
		10.0	30.0	36.0	142.5		Interp.
		10.0	36.0	36.0	171.0		Interp.
		10.0	36.0	42.0	199.5		Interp.
		10.0	36.0	48.0	224.0		Interp.
		10.6	18.0	18.0	42.8		Interp.

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Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	10.6	20.0	24.0	63.3		Interp.
		10.6	24.0	30.0	95.0		Interp.
		11.3	36.0	48.0	224.0		Interp.
		12.0	20.0	20.0	52.8		Interp.
		12.0	20.0	24.0	63.3		Interp.
		12.0	24.0	24.0	76.0		Interp.
		12.0	24.0	30.0	95.0		Interp.
		12.0	24.0	36.0	114.0		Interp.
		12.0	24.0	48.0	152.0		Interp.
		12.0	30.0	30.0	118.8		Interp.
		12.0	30.0	36.0	142.5		Interp.
		12.0	30.0	42.0	166.3		Interp.
		12.0	36.0	36.0	171.0		Interp.
		12.0	36.0	42.0	199.5		Interp.
		12.0	36.0	48.0	224.0		3,4
		12.6	24.0	24.0	76.0		Interp.
		12.6	24.0	30.0	95.0		Interp.
		12.6	30.0	30.0	118.8		Interp.

SPECIAL SEISMIC CERTIFICATION
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TRU PROJECT NO. 16020

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Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* $S_{DS} = 2.0g$ $z/h=1.0$ $S_{DS} = 3.2g$ $z/h=0.0$ $I_P = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	6.0	12.0	12.0	22.5		2
		6.0	12.0	16.0	30.0		Interp.
		6.0	12.0	18.0	28.5		Interp.
		6.0	18.0	18.0	42.8		Interp.
		6.0	18.0	24.0	57.0		Interp.
		6.0	24.0	24.0	76.0		Interp.
		6.0	24.0	30.0	95.0		1

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels

TABLE #2

Certified Product Construction Summary:
Carbon steel NEMA 1,3R,4 & 12 enclosures.

Certified Options Summary:
Surface mounted

Mounting Configuration:
Wall Mounted - Isolated
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* $S_{DS} = 2.0g$ $z/h=1.0$ $S_{DS} = 3.2g$ $z/h=0.0$ $I_P = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	6.0	12.0	12.0	22.5		Extrap.
		6.0	12.0	16.0	30.0		Extrap.
		6.0	16.0	16.0	33.8		Interp.
		6.0	16.0	20.0	42.2		Interp.
		6.0	16.0	24.0	50.7		Interp.
		6.0	18.0	18.0	42.8		Interp.
		6.0	20.0	16.0	42.2		Interp.
		6.0	20.0	20.0	52.8		Interp.
		6.0	20.0	24.0	63.3		Interp.
		6.0	24.0	24.0	76.0		Interp.
		6.6	12.0	16.0	30.0		5
		6.6	16.0	16.0	33.8		Interp.
		6.6	16.0	20.0	42.2		Interp.
		6.6	16.0	24.0	50.7		Interp.
		6.6	20.0	16.0	42.2		Interp.
		6.6	20.0	20.0	52.8		Interp.
		6.6	20.0	24.0	63.3		Interp.
		6.6	24.0	24.0	76.0		Interp.
		6.6	24.0	30.0	95.0		Interp.
		6.6	24.0	36.0	114.0		Interp.
		6.6	30.0	36.0	142.5		Interp.
		8.0	12.0	16.0	25.3		Interp.
		8.0	16.0	16.0	33.8		Interp.
		8.0	16.0	20.0	42.2		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16020

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Certified Product Construction Summary:
Carbon steel NEMA 1,3R,4 & 12 enclosures.

Certified Options Summary:
Surface mounted

Mounting Configuration:
Wall Mounted - Isolated
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* $S_{DS} = 2.0g$ $z/h=1.0$ $S_{DS} = 3.2g$ $z/h=0.0$ $I_P = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	8.0	16.0	24.0	50.7		Interp.
		8.0	20.0	16.0	42.2		Interp.
		8.0	20.0	20.0	52.8		Interp.
		8.0	20.0	24.0	63.3		Interp.
		8.0	20.0	30.0	79.2		Interp.
		8.0	24.0	20.0	63.3		Interp.
		8.0	24.0	24.0	76.0		Interp.
		8.0	24.0	30.0	95.0		Interp.
		8.0	24.0	36.0	114.0		Interp.
		8.0	30.0	24.0	95.0		Interp.
		8.0	30.0	30.0	118.8		Interp.
		8.0	30.0	36.0	142.5		Interp.
		8.0	36.0	36.0	171.0		Interp.
		8.6	12.0	16.0	25.3		Interp.
		8.6	12.0	20.0	31.7		Interp.
		8.6	16.0	20.0	42.2		Interp.
		8.6	20.0	20.0	52.8		Interp.
		8.6	20.0	24.0	63.3		Interp.
		8.6	20.0	30.0	79.2		Interp.
		8.6	24.0	24.0	76.0		Interp.
		8.6	24.0	30.0	95.0		Interp.
		8.6	24.0	36.0	114.0		Interp.
		8.6	30.0	30.0	118.8		Interp.
		8.6	30.0	36.0	142.5		Interp.

SPECIAL SEISMIC CERTIFICATION
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Building Code: CBC 2016 *Seismic Certification Limits:* $S_{DS} = 2.0g$ $z/h=1.0$ $S_{DS} = 3.2g$ $z/h=0.0$ $I_P = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	9.3	30.0	42.0	166.3		Interp.
		9.3	36.0	42.0	199.5		Interp.
		9.3	36.0	48.0	224.0		Interp.
		10.0	12.0	16.0	25.3		Interp.
		10.0	16.0	16.0	33.8		Interp.
		10.0	16.0	20.0	42.2		Interp.
		10.0	16.0	24.0	50.7		Interp.
		10.0	18.0	18.0	42.8		Interp.
		10.0	20.0	16.0	42.2		Interp.
		10.0	20.0	20.0	52.8		Interp.
		10.0	20.0	24.0	63.3		Interp.
		10.0	20.0	30.0	79.2		Interp.
		10.0	24.0	20.0	63.3		Interp.
		10.0	24.0	24.0	76.0		Interp.
		10.0	24.0	30.0	95.0		Interp.
		10.0	24.0	36.0	114.0		Interp.
		10.0	24.0	48.0	152.0		Interp.
		10.0	30.0	24.0	95.0		Interp.
		10.0	30.0	30.0	118.8		Interp.
		10.0	30.0	36.0	142.5		Interp.
		10.0	36.0	36.0	171.0		Interp.
		10.0	36.0	42.0	199.5		Interp.
		10.0	36.0	48.0	224.0		Interp.
		10.6	18.0	18.0	42.8		Interp.

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Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	10.6	20.0	24.0	63.3		Interp.
		10.6	24.0	30.0	95.0		Interp.
		11.3	36.0	48.0	224.0		Interp.
		12.0	20.0	20.0	52.8		Interp.
		12.0	20.0	24.0	63.3		Interp.
		12.0	24.0	24.0	76.0		Interp.
		12.0	24.0	30.0	95.0		Interp.
		12.0	24.0	36.0	114.0		Interp.
		12.0	24.0	48.0	152.0		Interp.
		12.0	30.0	30.0	118.8		Interp.
		12.0	30.0	36.0	142.5		Interp.
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		12.0	36.0	36.0	171.0		Interp.
		12.0	36.0	42.0	199.5		Interp.
		12.0	36.0	48.0	224.0		3,4
		12.6	24.0	24.0	76.0		Interp.
		12.6	24.0	30.0	95.0		Interp.
		12.6	30.0	30.0	118.8		Interp.

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Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* $S_{DS} = 2.0g$ $z/h=1.0$ $S_{DS} = 3.2g$ $z/h=0.0$ $I_P = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
BMS Control Panel	Custom BMS Control Panel	6.0	12.0	12.0	22.5		2
		6.0	12.0	16.0	30.0		Interp.
		6.0	12.0	18.0	28.5		Interp.
		6.0	18.0	18.0	42.8		Interp.
		6.0	18.0	24.0	57.0		Interp.
		6.0	24.0	24.0	76.0		Interp.
		6.0	24.0	30.0	95.0		1

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Medium Type 1 (Hoffman)	A16N12ALP	6.6	12.0	16.0		Carbon steel, NEMA 1		5
	A16N16ALP	6.6	16.0	16.0		Carbon steel, NEMA 1		Interp.
	A16N20ALP	6.6	20.0	16.0		Carbon steel, NEMA 1		Interp.
	A20N16ALP	6.6	16.0	20.0		Carbon steel, NEMA 1		Interp.
	A20N20ALP	6.6	20.0	20.0		Carbon steel, NEMA 1		Interp.
	A24N16ALP	6.6	16.0	24.0		Carbon steel, NEMA 1		Interp.
	A24N20ALP	6.6	20.0	24.0		Carbon steel, NEMA 1		Interp.
	A24N24ALP	6.6	24.0	24.0		Carbon steel, NEMA 1		Interp.
	A30N24ALP	6.6	24.0	30.0		Carbon steel, NEMA 1		Interp.
	A36N24ALP	6.6	24.0	36.0		Carbon steel, NEMA 1		Interp.
	A36N30ALP	6.6	30.0	36.0		Carbon steel, NEMA 1		Interp.
	A16N12BLP	8.6	12.0	16.0		Carbon steel, NEMA 1		Interp.
	A20N12BLP	8.6	12.0	20.0		Carbon steel, NEMA 1		Interp.
	A20N16BLP	8.6	16.0	20.0		Carbon steel, NEMA 1		Interp.
	A20N20BLP	8.6	20.0	20.0		Carbon steel, NEMA 1		Interp.
	A24N20BLP	8.6	20.0	24.0		Carbon steel, NEMA 1		Interp.
	A24N24BLP	8.6	24.0	24.0		Carbon steel, NEMA 1		Interp.
	A30N20BLP	8.6	20.0	30.0		Carbon steel, NEMA 1		Interp.
	A30N24BLP	8.6	24.0	30.0		Carbon steel, NEMA 1		Interp.
	A30N30BLP	8.6	30.0	30.0		Carbon steel, NEMA 1		Interp.
	A36N24BLP	8.6	24.0	36.0		Carbon steel, NEMA 1		Interp.
	A36N30BLP	8.6	30.0	36.0		Carbon steel, NEMA 1		Interp.
	A18N18CLP	10.6	18.0	18.0		Carbon steel, NEMA 1		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Medium Type 1 (Hoffman)	A24N20CLP	10.6	20.0	24.0		Carbon steel, NEMA 1		Interp.
	A30N24CLP	10.6	24.0	30.0		Carbon steel, NEMA 1		Interp.
	A24N24DLP	12.6	24.0	24.0		Carbon steel, NEMA 1		Interp.
	A30N24DLP	12.6	24.0	30.0		Carbon steel, NEMA 1		Interp.
	A30N30DLP	12.6	30.0	30.0		Carbon steel, NEMA 1		Interp.
Large Type 1 (Hoffman)	A42N3009	9.3	30.0	42.0		Carbon steel, NEMA 1		Interp.
	A42N3609	9.3	36.0	42.0		Carbon steel, NEMA 1		Interp.
	A48N3609	9.3	36.0	48.0		Carbon steel, NEMA 1		Interp.
	A48N3611	11.3	36.0	48.0		Carbon steel, NEMA 1		Interp.
Hinged-Cover Type 3R (Hoffman)	A16R126HCR	6.0	12.0	16.0		Carbon steel, NEMA 3R		Extrap.
	A16R166HCR	6.0	16.0	16.0		Carbon steel, NEMA 3R		Extrap.
	A18R186HCR	6.0	18.0	18.0		Carbon steel, NEMA 3R		Interp.
	A20R166HCR	6.0	16.0	20.0		Carbon steel, NEMA 3R		Interp.
	A20R208HCR	8.0	20.0	20.0		Carbon steel, NEMA 3R		Interp.
	A24R208HCR	8.0	20.0	24.0		Carbon steel, NEMA 3R		Interp.
	A24R248HCR	8.0	24.0	24.0		Carbon steel, NEMA 3R		Interp.
	A30R248HCR	8.0	24.0	30.0		Carbon steel, NEMA 3R		Interp.
	A30R308HCR	8.0	30.0	30.0		Carbon steel, NEMA 3R		Interp.
	A18R1810HCR	10.0	18.0	18.0		Carbon steel, NEMA 3R		Interp.
	A24R2410HCR	10.0	24.0	24.0		Carbon steel, NEMA 3R		Interp.
	A30R2410HCR	10.0	24.0	30.0		Carbon steel, NEMA 3R		Interp.
	A36R3610HCR	10.0	36.0	36.0		Carbon steel, NEMA 3R		Interp.
	A30R3012HCR	12.0	30.0	30.0		Carbon steel, NEMA 3R		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
Hinged-Cover Type 3R (Hoffman)	A36R2412HCR	12.0	24.0	36.0		Carbon steel, NEMA 3R		Interp.
	A36R3012HCR	12.0	30.0	36.0		Carbon steel, NEMA 3R		Interp.
	A42R3012HCR	12.0	30.0	42.0		Carbon steel, NEMA 3R		Interp.
	A36R3612HCR	12.0	36.0	36.0		Carbon steel, NEMA 3R		Interp.
	A42R3612HCR	12.0	36.0	42.0		Carbon steel, NEMA 3R		Interp.
	A48R3612HCR	12.0	36.0	48.0		Carbon steel, NEMA 3R		4
CONCEPT™ Type 4 & 12 (Hoffman)	CSD12126	6.0	12.0	12.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD12126LG	6.0	12.0	12.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD16126	6.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD16126LG	6.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD16166	6.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD16166LG	6.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Extrap.
	CSD16206	6.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16206LG	6.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20166	6.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20166LG	6.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20206	6.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20206LG	6.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24166	6.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24166LG	6.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24206	6.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24206LG	6.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24246	6.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
CONCEPT™ Type 4 & 12 (Hoffman)	CSD24246LG	6.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16128	8.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16128LG	8.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16168	8.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16168LG	8.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16208	8.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD16208LG	8.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20168	8.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20168LG	8.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20208	8.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20208LG	8.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20248	8.0	24.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD20248LG	8.0	24.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24168	8.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24168LG	8.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24208	8.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24208LG	8.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24248	8.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24248LG	8.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24308	8.0	30.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD24308LG	8.0	30.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD30208	8.0	20.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD30208LG	8.0	20.0	30.0		Carbon steel, NEMA 4 & 12		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
CONCEPT™ Type 4 & 12 (Hoffman)	CSD30248	8.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD30248LG	8.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD30308	8.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD30308LG	8.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36248	8.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36248LG	8.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36308	8.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36308LG	8.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36368	8.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD36368LG	8.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD161210	10.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD161210LG	10.0	12.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD161610	10.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD161610LG	10.0	16.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD162010	10.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD162010LG	10.0	20.0	16.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD201610	10.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD201610LG	10.0	16.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202010	10.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202010LG	10.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202410	10.0	24.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202410LG	10.0	24.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD241610	10.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
CONCEPT™ Type 4 & 12 (Hoffman)	CSD241610LG	10.0	16.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242010	10.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242010LG	10.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242410	10.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242410LG	10.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD243010	10.0	30.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD243010LG	10.0	30.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302010	10.0	20.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302010LG	10.0	20.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302410	10.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302410LG	10.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD303010	10.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD303010LG	10.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD362410	10.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD362410LG	10.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363010	10.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363010LG	10.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363610	10.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363610LG	10.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD423610	10.0	36.0	42.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD423610LG	10.0	36.0	42.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD482410	10.0	24.0	48.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD482410LG	10.0	24.0	48.0		Carbon steel, NEMA 4 & 12		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
CONCEPT™ Type 4 & 12 (Hoffman)	CSD483610	10.0	36.0	48.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD483610LG	10.0	36.0	48.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202012	12.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD202012LG	12.0	20.0	20.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242012	12.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242012LG	12.0	20.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242412	12.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD242412LG	12.0	24.0	24.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302412	12.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD302412LG	12.0	24.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD303012	12.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD303012LG	12.0	30.0	30.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD362412	12.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD362412LG	12.0	24.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363012	12.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363012LG	12.0	30.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363612	12.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD363612LG	12.0	36.0	36.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD423612	12.0	36.0	42.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD423612LG	12.0	36.0	42.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD482412	12.0	24.0	48.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD482412LG	12.0	24.0	48.0		Carbon steel, NEMA 4 & 12		Interp.
	CSD483612	12.0	36.0	48.0		Carbon steel, NEMA 4 & 12		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Enclosures

TABLE #3

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
CONCEPT™ Type 4 & 12 (Hoffman)	CSD483612LG	12.0	36.0	48.0		Carbon steel, NEMA 4 & 12		3
	CFM12126	6.0	12.0	12.0		Carbon steel, NEMA 4 & 12		2
	CFM12126LG	6.0	12.0	12.0		Carbon steel, NEMA 4 & 12		Interp.
Screw-Cover Type 1 (Hoffman)	ASE12X12X6	6.0	12.0	12.0		Carbon steel, NEMA 1		Interp.
	ASE16X12X6	6.0	12.0	16.0		Carbon steel, NEMA 1		Interp.
	ASE18X12X6	6.0	12.0	18.0		Carbon steel, NEMA 1		Interp.
	ASE18X18X6	6.0	18.0	18.0		Carbon steel, NEMA 1		Interp.
	ASE24X18X6	6.0	18.0	24.0		Carbon steel, NEMA 1		Interp.
	ASE24X24X6	6.0	24.0	24.0		Carbon steel, NEMA 1		Interp.
	ASE30X24X6	6.0	24.0	30.0		Carbon steel, NEMA 1		1
Flush-Mount Door Frames Type 1 (Hoffman)	AFDF0606P		8.0	8.0		Carbon steel, NEMA 1	For use with ASE12X12X6	Interp.
	AFDF1212P		14.0	14.0		Carbon steel, NEMA 1	For use with ASE16X12X6	Interp.
	AFDF1812P		20.0	14.0		Carbon steel, NEMA 1	For use with ASE18X12X6	Interp.
	AFDF1818P		20.0	20.0		Carbon steel, NEMA 1	For use with ASE18X18X6	Interp.
	AFDF2418P		26.0	20.0		Carbon steel, NEMA 1	For use with ASE24X18X6	Interp.
	AFDF2424P		26.0	26.0		Carbon steel, NEMA 1	For use with ASE24X24X6	Interp.
	AFDF3024P		32.0	26.0		Carbon steel, NEMA 1	For use with ASE30X24X6	1

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Power Supplies

TABLE #4

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Power Supply	IDEC	PS5R-SC24	30W, 24VDC		3
		PS5R-SD24	60W, 24VDC		Interp.
		PS5R-SE24	90W, 24VDC		Interp.
		PS5R-SF24	120W, 24VDC		Interp.
		PS5R-SG24	240W, 24VDC		3
	Functional Devices	PSH100A	Single, External terminal strip		1
		PSH100AW	Single, Internal wires		Interp.
		PSH100AB10	Single, 10A switch/breaker		Interp.
		PSH100ANWB10	Single, 10A switch/breaker, internal wires		Interp.
		PSH100A100A	Dual, External terminal strip		Interp.
		PSH100A100AW	Dual, Internal wires		Interp.
		PSH100A100AB10	Dual, 10A switch/breaker		Interp.
		PSH100A100AWB10	Dual, 10A switch/breaker, internal wires		3
	Bapi	BA/VC350-ADJ-TRK	In: 18-30VAC/24VDC, Out: 5-26VDC		2
		BA/VC350-EZ-ADJ	In: 24-28VAC/31-35VDC, Out: 5-24VDC		2
	ACI	LPR	In: 28VAC/35VDC, Out: 1.2-27VDC		2
		A/PS1.5	In: 28VAC/35VDC, Regulated Out: 1.2-27VDC		2

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Electrical Components

TABLE #5

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Controllers	Alerton	ACM	24VAC @ 40VA, 47-63Hz		3
		ACM-BATT	w/ 12VDC NiMH batery		3
		ACM EIA-485	ACM Option card for EIA-485		3
		ACM LON	ACM Option card for FFT-10 Lonworks		3
		VLC-444	4 UI, 4 BO, 4 AO		3
		VLC-550	5 UI, 5 BO, 0 AO		Interp.
		VLC-651R	6 UI, 5 BO, 0 AO		Interp.
		VLC-660R	6 UI, 6 BO, 0 AO		Interp.
		VLC-853	8 UI, 5 BO, 3 AO		Interp.
		VLC-1188	11 UI, 8 BO, 8 AO		Interp.
		VLC-1188-S	11 UI, 8 BO, 8 AO, smoke rated		3
		VLC-1600	16 UI, 0 BO, 0 AO		Interp.
		VLC-16160	16 UI, 16 BO, 0 AO		Interp.
		VLC-16160-S	16 UI, 16 BO, 0 AO, smoke rated		Interp.
		VLCA-1688	16 UI, 8 BO, 8 AO, advanced controller		3
		MSTP-REP	Master-Slave/Token-Passing repeater		3
		BCM-FPCS	For Connection to Siemens P1 network		Interp.
		BTI-S	Bactalk integrator, smoke control		1
		ESD-100	Ethernet data line protector		1
		BTI-BAT-12V	Battery provided with BTI-S		1
		VLX-PLATINUM	76 MB memory, supports BACnet objects		4
		EXP-10120	10 Inputs, 12 BO		4
		EXP-1048	10 Inputs, 4 BO, 8 AO		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Electrical Components

TABLE #5

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Controllers	Alerton	EXP-2200	22 Inputs		4
Relays	Veris	VMD1B-F24V	Single pole, 24V		4
		VMD1B-F120V	Single pole, 120V		Interp.
		VMD2B-F24V	Double pole, 24V		Interp.
		VMD2B-F120V	Double pole, 120V		Interp.
		VMD3B-F24V	3 pole, 24V		Interp.
		VMD3B-F120V	3 pole, 120V		Interp.
		VMD4B-F24V	4 pole, 24V		4
		VMD4B-F120V	4 pole, 120V		Extrap.
	IDEC	RH1B-UL	SPDT, w/ indicator light		4
		RH2B-UL	DPDT, w/ indicator light		Interp.
		RH3B-UL	3PDT, w/ indicator light		Interp.
		RH4B-UL	4PDT, w/ indicator light		Interp.
		RH1B-ULC	SPDT, w/ indicator light & check button		Interp.
		RH2B-ULC	DPDT, w/ indicator light & check button		Interp.
		RH3B-ULC	3PDT, w/ indicator light & check button		Interp.
		RH4B-ULC	4PDT, w/ indicator light & check button		4
		RJ1S-CL-A24	SPDT		4
		RJ2S-CL-A24	DPDT		4
Network	BB Electronics	MESR901	1 Ethernet port, 1 Serial port		3
	S4 Group	OPC-N2 ROUTER-XXX	XXX denotes software changes only		4
	Field Server	FS-QS-1010	(2) RS-485, (1) Ethernet		4
		FS-QS-1210	(2) RS-485, (1) Ethernet	Same as FS-QS-1010	Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Electrical Components

TABLE #5

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Network	Field Server	FS-QS-1220	(1) RS-232, (1) RS-485, (1) Ethernet	Same as FS-QS-1010	Interp.
		FS-B3510-05	Multiport Gateway		4
		FS-B3514-05	ControlNet Slave Gateway	Same as FS-B3510-05	Interp.
		FS-B3515-05	DeviceNet Slave Gateway	Same as FS-B3510-05	Interp.
		FS-B3520-05	PROFIBUS DP Master Gateway	Same as FS-B3510-05	Interp.
		FS-B3521-05	DeviceNet Maser Gateway	Same as FS-B3510-05	Interp.
	Contemporary Controls	BASRT-B	BACnet multi-network router, DIN-rail mount		3
		EIBA5-100T	5-Port, panel mount		3
		EISK5-100T	5-Port		Interp.
		EISK8-100T	8-Port		Interp.
		EISK16-100T	16-Port		4
Transformers	Veris	X050CAA	50VA, In: 120VAC, Out: 24VAC		2
		X050CBA	50VA, In: 120/240/277/480VAC, Out: 24 VAC		Interp.
		X100CAA	100VA, In: 120VAC, Out: 24VAC		Interp.
		X100CAB	100VA, In: 120VAC, Out: 24VAC, 2 HUB+FT		Interp.
		X100CBA	100VA, In: 120/240/277/480VAC, Out: 24 VAC		4,5
Breakers	IDEC	NC1V-1100-0.1AA	Rated current: 0.1A		3
		NC1V-1100-0.5AA	Rated current: 0.5A		Interp.
		NC1V-1100-1AA	Rated current: 1A		Interp.
		NC1V-1100-3AA	Rated current: 3A		Interp.
		NC1V-1100-5AA	Rated current: 5A		3

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Miscellaneous

TABLE #6

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Alarm	Kele	868STR-X-AQ	Outdoor surface-mount, 24VAC/VDC	X identifies color only	4
		869STR-X-AQ	Indoor flush-mount, 24VAC/VDC	X identifies color only	Interp.
		868STR-X-N5	Outdoor surface-mount, 120VAC	X identifies color only	Interp.
		869STR-X-N5	Indoor flush-mount, 120VAC	X identifies color only	4
Emergency Shutoff	Kele	ST120-FN1-BP-2-XX	NEMA 1, flush-mount, maintained	XX identifies label	4
		ST120-FN4-BP-2-XX	NEMA 4 & 12, flush-mount, maintained	XX identifies label	Interp.
		ST120-FN1-XX	NEMA 1, flush-mount, release button	XX identifies label	Interp.
		ST120-FN4-XX	NEMA 4 & 12, flush-mount, release button	XX identifies label	Interp.
		ST120-SN4-BP2-XX	NEMA 4 & 12, surface-mount, maintained	XX identifies label	Interp.
		ST120-SN4-XX	NEMA 4 & 12, surface-mount, release button	XX identifies label	4
		PILNCCB	N.C. stackable contact block		4
		PILNOCB	N.O. stackable contact block		4
Pilot Light	IDEC	APW199-X-24	Incandescent, round flush	X identifies color only	4
		APW199D-X-24	LED, round flush	X identifies color only	Interp.
		APW299-X-24	Incandescent, dome	X identifies color only	Interp.
		APW299D-X-24	LED, dome	X identifies color only	4
Switches	IDEC	ASW210	1 N.O.		4
		ASW2K10	1 N.O. w/ key		Interp.
		ASW320	2 N.O.		Interp.
		ASW3K20	2 N.O. w/ key		Interp.
		ASW201-116	1 N.C.		Interp.
		ASW321-255	2 N.O. - 1 N.C.		Interp.
		ASW211	1 N.O. - 1 N.C.		Interp.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16020

TRU COMPLIANCE

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Table Description: Miscellaneous

TABLE #6

Building Code: CBC 2016
Seismic Certification Limits: $S_{DS} = 2.0g$ $z/h = 1.0$; $S_{DS} = 3.2g$ $z/h = 0.0$; $I_P = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Switches	IDEC	ASW2K11	1 N.O. - 1 N.C. w/ key		Interp.
		ASW322	2 N.O. - 2 N.C.		Interp.
		ASW3K22	2 N.O. - 2 N.C. w/ key		4
		HW4B-M1-FX-Y	Momentary		4
		HW4B-A1-FX-Y	Maintained		4
UPS	Sola-HD	SDU850	850 VA, 510W, Din rail mount		1
Horn	Kele	SC628A	24VAC/VDC, 6-23 mA		4

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16020

UUT #1

Manufacturer: Syserco, Inc
Model Line: BMS Control Panels
Model Number: Custom BMS Control Panel *Serial Number:* N/A

Product Construction Summary:
Painted carbon steel NEMA 1 enclosure.

Options/Subcomponent Summary:
Enlcosure: Hoffman - ASE30X24X6, AFDF3024P; Power Supply: Functional Devices - PSH100A; Controllers: Allerton - BTI-S, ESD-100, BTI-BAT-12V; UPS: Sola-HD - SDU850.

UUT Properties

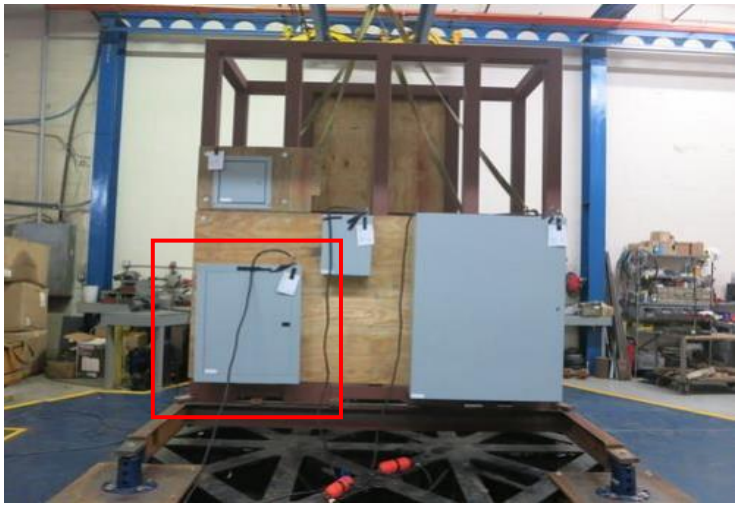
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
67	6	24	30	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:

Wall mounted - rigid



Wall mounted - isolated

Rigid wall mounted to 2x6 wood planks with (4) 3/8" lag bolts. Tested with fixture rigid & isolated mounted to table.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16020

Manufacturer:	Syserco, Inc		UUT #2
Model Line:	BMS Control Panels		
Model Number:	Custom BMS Control Panel	*Serial Number:*	N/A

Product Construction Summary:

Painted carbon steel NEMA 4 enclosure.

Options/Subcomponent Summary:

Enclosure: Hoffman - CFM12126; Power Supply: Bapi - BA/VC350-ADJ-TRK, BA/VC350-EZ-ADJ; ACI - LPR, A/PS1.5; Transformer: Veris - X050CAA.

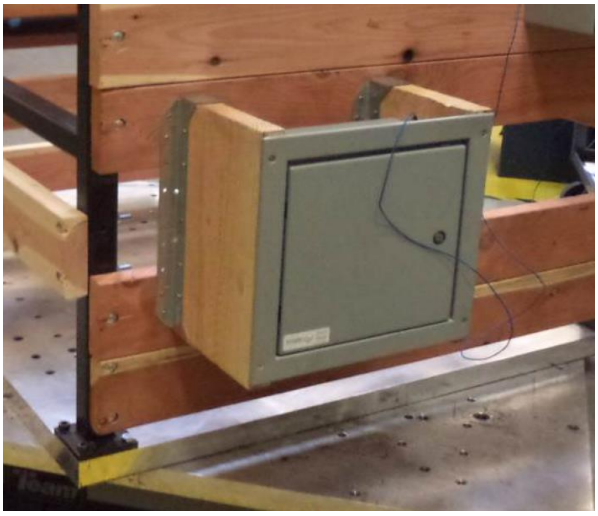
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
22	6	12	12	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:



Wall mounted - rigid

Wall mounted - isolated

Rigid wall mounted to 2x6 wood planks with (4) 3/8" lag bolts. Tested with fixture rigid & isolated mounted to table.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16020

Manufacturer:	Syserco, Inc	UUT #3
Model Line:	BMS Control Panels	
Model Number:	Custom BMS Control Panel	*Serial Number:* N/A

Product Construction Summary:

Painted carbon steel NEMA 4 enclosure.

Options/Subcomponent Summary:

Enclosure: Hoffman - CSD483612LG; Power Supply: IDEC - PS5R-SC24, PS5R-SG24; Functional Devices - PSH100A100AWB10; Controllers: Alerton - ACM, ACM-BATT, ACM EIA-485, ACM LON, VLC-444, VLC-1188-S, VLCA-1688, MSTP-REP; Network: BB Electronics - MESR901; Contemporary Controls - BASRT-B, EIBA5-100T; Breakers: IDEC - NC1V-1100-0.1AA, NC1V-1100-5AA.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
200	12	36	48	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:

Wall mounted - rigid

Wall mounted - isolated

Rigid wall mounted to 2x6 wood planks with (4) 3/8" lag bolts. Tested with fixture rigid & isolated mounted to table.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16020

Manufacturer:	Syserco, Inc		UUT #4
Model Line:	BMS Control Panels		
Model Number:	Custom BMS Control Panel	*Serial Number:*	N/A

Product Construction Summary:

Painted carbon steel NEMA 3R enclosure.

Options/Subcomponent Summary:

Enclosure: Hoffman - A48R3612HCR; Controllers: Alerton - VLX-PLATINUM, EXP-10120, EXP-2200; Relays: Veris - VMD1B-F24V, VMD4B-F24V; IDEC - RH1B-UL, RH4B-ULC, RJ1S-CL-A24, RJ2S-CL-A24; Network: S4 Group - OPC-N2 ROUTER-XXX; Field Server - FS-QS-1010, FS-B3510-05; Contemporary Controls - EISK16-100T; Transformers: Veris - X100CBA; Alarm: Kele - 868STR-X-AQ, 869STR-X-N5; Emergency Shutoff: Kele - ST120-SN4-XX, PILNCCB, PILNOCB; Pilot Light: IDEC - APW199-X-24, APW299D-X-24; Switches: IDEC - ASW210, ASW3K22, HW4B-M1-FX-Y, HW4B-A1-FX-Y; Horn: Kele - SC628A.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
224	12	36	48	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:

Wall mounted - rigid

Wall mounted - isolated

Rigid wall mounted to 2x6 wood planks with (6) 3/8" lag bolts. Tested with fixture rigid & isolated mounted to table.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16020

Manufacturer:	Syserco, Inc		UUT #5
Model Line:	BMS Control Panels		
Model Number:	Custom BMS Control Panel	*Serial Number:*	N/A

Product Construction Summary:

Painted carbon steel NEMA 1 enclosure.

Options/Subcomponent Summary:

Enclosure: Hoffman - A16N12ALP; Transformer: Veris - (3) X100CBA.

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
30	6.6	12	16	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.33	0.53
		3.2	0.0	1.5	3.20	1.28	2.13	0.85

Test Mounting Details:

Wall mounted - rigid

Wall mounted - isolated

Rigid wall mounted to 2x6 wood planks with (4) 3/8" lag bolts. Tested with fixture rigid & isolated mounted to table.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.