



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY
APPLICATION #: OSP - 0068 - 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: [] New [X] Renewal

Manufacturer Information

Manufacturer: Systecon

Manufacturer's Technical Representative: Stu Barrick

Mailing Address: 6121 Schumacher Park Drive, West Chester, Ohio 45069

Telephone: (513) 777-7722 Email: Stu.barrick@systecon.com

Product Information

Product Name: HVAC Control Panels

Product Type: HVAC Control Panels

Product Model Number: See tables for components included
(List all unique product identification numbers and/or part numbers)

General Description: Configurable control panels for HVAC applications. Seismic enhancement made to the test
units to address anomalies observed during testing shall be incorporated into production units.

Mounting Description: Wall mounted rigid or spring isolated.

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Contact Person: Galen Reid

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

Telephone: 844-878-0200 Email: greid@structint.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: [Handwritten Signature] Date: 9/27/2018

Title: Senior Engineer Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

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





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

Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Name: Andrew M. Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

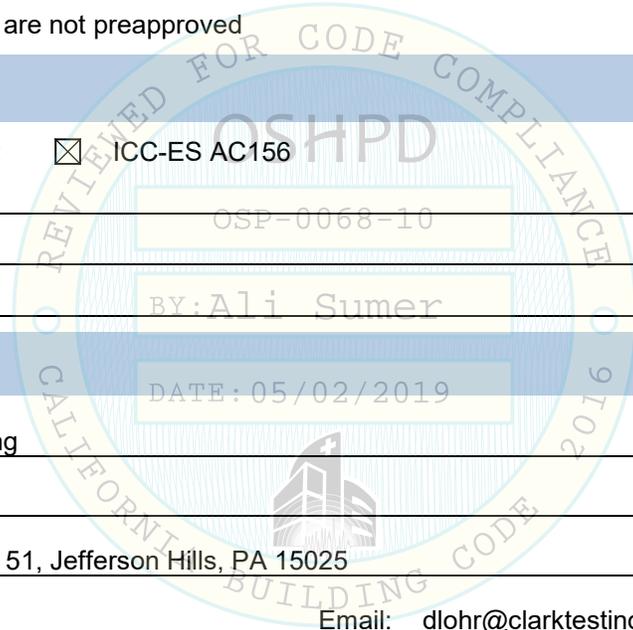
Telephone: 844-878-0200 Email: acoughlin@structint.com

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): _____



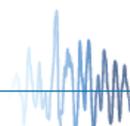
Testing Laboratory

Company Name: Clark Testing

Contact Name: Devon Lohr

Mailing Address: 1801 Route 51, Jefferson Hills, PA 15025

Telephone: 412-387-1001 Email: dlohr@clarktesting.com





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Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.35 (rigid) or 4.23 (isolated)

S_{DS} (Design spectral response acceleration at short period, g) = 1.88 (z/h = 1.0); 2.00 (z/h = 0.0)

a_p (In-structure equipment or component amplification factor) = 1.0 (rigid) or 2.5 (isolated)

R_p (Equipment or component response modification factor) = 2.5 (rigid) or 2.0 (isolated)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0, 0.0

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

Overall dimensions and weight (or range thereof) = See product matrices

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) = OSP-0068-10

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = BY: Ali Sumer

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = DATE: 05/02/2019

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: May 2, 2019

Print Name: Ali Sumer Title: DSE

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

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800843



Manufacturer: Syscon		Table Description: I/O Devices			TABLE 2
Model Line: HVAC Control Panels					
Building Code: CBC 2016		Seismic Certification Limits:		$S_{DS} = 1.88 g$ $z/h=1.0$	$I_p = 1.5$
				$S_{DS} = 2.00 g$ $z/h=0.0$	
Component Type	Manufacturer	Model	Description	Notes	UUT
Ethernet Adapter	Allen Bradley	1734-AENT	24V DC Ethernet/IP Adapter		1
Input Modules	Allen Bradley	1734-IB2	24V DC 2 Point Digital Input Module		Extrap.
		1734-IB4	24V DC 4 Point Digital Input Module		Extrap.
		1734-IB8	24V DC 8 Point Digital Input Module		1
		1734-IE8C	24V DC 8 Point Analog Current Input Module		1
		1769-IQ16	24V DC 16 Point Digital Input Module		3
		1769-IF16C	24V DC 16 Point Analog Current Input Module		3
		Output Modules	Allen Bradley	1734-OB2	24V DC 2 Point Digital Output Module
1734-OE4C	24V DC 4 Point Analog Current Output Module				1
1734-OB4	24V DC 4 Point Digital Output Module				Interp.
1734-OB8	24V DC 8 Point Digital Output Module				1
1769-OB16	24V DC 16 Point Digital Output Module				3
1769-OF4CI	24V DC 4 Point Isolated Analog Output Module				3
CompactLogix Controller	Allen Bradley	1769-L32E	Ethernet Processor, 750 Kbyte Memory		3
		1769-L30ER	Ethernet Processor, 1 Mbyte Memory	Identical to 1769-L32E/L35E (firmware & memory)	Interp.
		1769-L35E	Ethernet Processor, 1.5 Mbyte Memory		3
		1769-L33ER	Ethernet Processor, 2 Mbyte Memory	Identical to 1769-L32E/L35E (firmware & memory)	Interp.
Expansion Pwr Supply	Allen Bradley	1734-EP24DC	Point I/O 24V DC Expansion Power Supply		1
Communication Mod	Allen Bradley	MVI69-MCM	Modbus Master/Slave Network Interface Mod		3

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800843



Manufacturer: Syscon Model Line: HVAC Control Panels		Table Description: Circuit Protection			TABLE 3	
Building Code: CBC 2016		Seismic Certification Limits:			$S_{DS} = 1.88 g \quad z/h=1.0$ $S_{DS} = 2.00 g \quad z/h=0.0$	
					$I_p = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT	
Circuit Breakers	Eaton	WMZT1CX0	0.5A Circuit Breaker		Extrap.	
		WMZT1C01	1A Circuit Breaker		3	
		WMZT1CX1	1.5A Circuit Breaker		Interp.	
		WMZT1C02	2A Circuit Breaker		Interp.	
		WMZT1C03	3A Circuit Breaker		Interp.	
		WMZT1C04	4A Circuit Breaker		Interp.	
		WMZT1C05	5A Circuit Breaker		Interp.	
		WMZT1C06	6A Circuit Breaker		Interp.	
		WMZT1C07	7A Circuit Breaker		Interp.	
		WMZT1C08	8A Circuit Breaker		Interp.	
		WMZT1C10	10A Circuit Breaker		Interp.	
		WMZT1C13	13A Circuit Breaker		Interp.	
		WMZT1C15	15A Circuit Breaker		3	
	Phoenix Contact	712123	0.25A Circuit Breaker		1	
		712152	0.5A Circuit Breaker		1	
712194		1A Circuit Breaker		Interp.		
712217		2A Circuit Breaker		Interp.		
712233		3A Circuit Breaker		1		
Fuses	Bussman	FNQ-R-8	8A Fuse		2	
		LPJ-100SP	100A Fuse		4	
		OPM-1038RSW	30A Fuse Disconnect	Installed with cable tie to DIN rail	1-4	
		J60100-3CR	100A 3 Pole Fuse Block		2,4	
Power Dist. Block	Gould Shawmut	66573	Distribution Block		2,4	

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 1800843



Manufacturer: Syscon Model Line: HVAC Control Panels		Table Description: Transformers & Power Supply			TABLE 4	
Building Code: CBC 2016		Seismic Certification Limits:			$S_{DS} = 1.88 g \quad z/h=1.0$ $S_{DS} = 2.00 g \quad z/h=0.0$	
					$I_p = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT	
Transformers Open Core and Coil Copper	GE	9T58K2873	120/240v,12/24v,0.05kVA		3	
		PT58K3164	240/480v,12/24v,0.05kVA		Interp.	
		9T51B0002	240/480v,120/240v,0.05kVA		Interp.	
		9T58K2874	120/240v,12/24v,0.075kVA		Interp.	
		9T51B0003	240/480v,120/240v,0.075kVA		Interp.	
		9T58K2875	120/240v,12/24v,0.1kVA		Interp.	
		9T58K2907	120/240v,120/240v,0.1kVA		Interp.	
		PT58K4132	240/480v,12/24v,0.1kVA		Interp.	
		9T51B0004	240/480v,120/240v,0.1kVA		Interp.	
		9T58K2876	120/240v,12/24v,0.15kVA		Interp.	
		PT58K4133	240/480v,12/24v,0.15kVA		Interp.	
		9T51B0005	240/480v,120/240v,0.15kVA		Interp.	
		9T58K2878	120/240v,12/24v,0.25kVA		Interp.	
		PT58K3024	240/480v,12/24v,0.25kVA		Interp.	
		9T51B0007	240/480v,120/240v,0.25kVA		Interp.	
		PT58K2913	120/240v,120/240v,0.5kVA		Interp.	
		9T51B0008	240/480v,120/240v,0.5kVA		Interp.	
PT58K2914	120/240v,120/240v,0.75kVA		Interp.			
9T51B0009	240/480v,120/240v,0.75kVA		Interp.			
PT58K2915	120/240v,120/240v,1kVA		Interp.			
9T51B0010	240/480v,120/240v,1kVA		Interp.			
9T51B0011	240/480v,120/240v,1.5kVA		2,4			
Power Supply	IDEC	PS5R-SF24	Slimline Power Supply		1,3	

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800843



Manufacturer: Systecon	UUT 1
Model Line: HVAC Control Panels	
Model Number: N/A	

Serial Number: N/A

Product Construction Summary:
NEMA 1/12 Sheet Metal Carbon Steel Cabinet
Units tested mounted to steel frame and skid. Units tested on rigidly mounted skid (Run #1) and seismically restrained vibration isolated skid (Run #2)

Options/Subcomponent Summary:
See tables 2-6 for a detailed listing of components within UUT

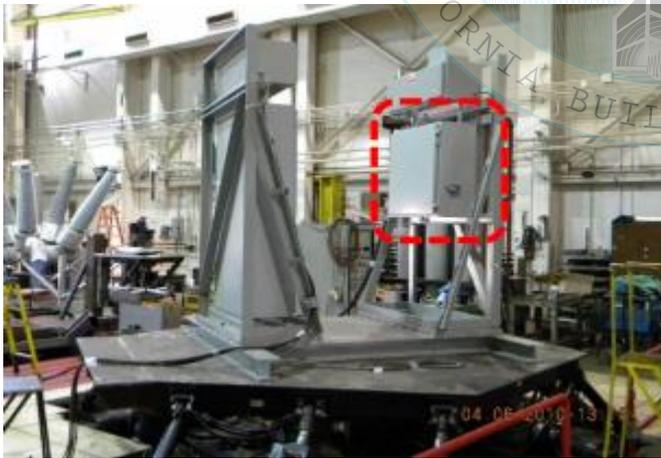
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
300	13.3	30	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 (2015)	1.88	1.0	1.5	3.01	2.26	1.33	0.53
		2.0	0.0	1.5				

Test Mounting Details:



Run #1
Rigid mounted



Run #2
Isolated skid

Unit mounted to frame/skid using (4) 7/16" A325 bolts
Direct Mount: Skid mounted to table using (8) 1/2" Grade 5 bolts
Isolation Mount: (4) Mason isolators attach to assembly using (2) 1/2" Grade 5 bolts each. Isolators welded to the table.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800843



Manufacturer: Systecon	UUT 2
Model Line: HVAC Control Panels	
Model Number: N/A	

Serial Number: N/A

Product Construction Summary:
 NEMA 1/12 Sheet Metal Carbon Steel Cabinet
 Units tested mounted to steel frame and skid. Units tested on rigidly mounted skid (Run #1) and seismically restrained vibration isolated skid (Run #2)

Options/Subcomponent Summary:
 See tables 2-6 for a detailed listing of components within UUT

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
150	13	36	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 (2015)	1.88	1.0	1.5	3.01	2.26	1.33	0.53	
		2.0	0.0	1.5					

Test Mounting Details:



Run #1
Rigid mounted



Run #2
Isolated skid

Unit mounted to frame/skid using (4) 7/16" A325 bolts
 Direct Mount: Skid mounted to table using (8) 1/2" Grade 5 bolts
 Isolation Mount: (4) Mason isolators attach to assembly using (2) 1/2" Grade 5 bolts each. Isolators welded to the table.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800843



Manufacturer: Systecon	UUT 3
Model Line: HVAC Control Panels	
Model Number: N/A	

Serial Number: N/A

Product Construction Summary:
 NEMA 1/12 Sheet Metal Carbon Steel Cabinet
 Units tested mounted to steel frame and skid. Units tested on rigidly mounted skid (Run #1) and seismically restrained vibration isolated skid (Run #2). 30A Fused disconnect secured to DIN rail using cable tie.

Options/Subcomponent Summary:
 See tables 2-6 for a detailed listing of components within UUT

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
200	13.3	36	60	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 (2015)	1.88	1.0	1.5	3.01	2.26	1.33	0.53	
		2.0	0.0	1.5					

Test Mounting Details:



Run #1
Rigid mounted



Run #2
Isolated skid

Unit mounted to frame/skid using (4) 7/16" A325 bolts
 Direct Mount: Skid mounted to table using (8) 1/2" Grade 5 bolts
 Isolation Mount: (4) Mason isolators attach to assembly using (2) 1/2" Grade 5 bolts each. Isolators welded to the table.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 1800843



Manufacturer: Systecon	UUT 4
Model Line: HVAC Control Panels	
Model Number: N/A	

Serial Number: N/A

Product Construction Summary:
 NEMA 1/12 Sheet Metal Carbon Steel Cabinet
 Units tested mounted to steel frame and skid. Units tested on rigidly mounted skid (Run #1) and seismically restrained vibration isolated skid (Run #2)

Options/Subcomponent Summary:
 See tables 2-6 for a detailed listing of components within UUT

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
150	13	36	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 (2015)	1.88	1.0	1.5	3.01	2.26	1.33	0.53
		2.0	0.0	1.5				

Test Mounting Details:



Run #1
Rigid mounted



Run #2
Isolated skid

Unit mounted to frame/skid using (4) 7/16" A325 bolts
 Direct Mount: Skid mounted to table using (8) 1/2" Grade 5 bolts
 Isolation Mount: (4) Mason isolators attach to assembly using (2) 1/2" Grade 5 bolts each. Isolators welded to the table.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.