APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0127 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: L&H Airco

Manufacturer's Technical Representative: Kevin Castle

Mailing Address: 5466 E. Lamona Suite 102, Fresno, CA 93727

Telephone: 559-253-9660 Email: KevinC@LHAirco.com

Product Information

Product Name: Temperature Control Panels

Product Type: Energy Management System

Product Model Number: See Certified Product Table attached
(List all unique product identification numbers and/or part numbers)

General Description: Wall-mounted control panels in light-gauge metal enclosures for buildings (global controllers) and mechanical equipment

Mounting Description: Rigid wall mounted

Applicant Information

Applicant Company Name: L&H Airco

Contact Person: Kevin Castle

Mailing Address: 5466 E. Lamona Suite 102, Fresno, CA 93727

Telephone: 559-253-9660 Email: KevinC@LHAirco.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: Kevin Castle Date: May 11, 2016

Title: Executive Project Manager Company Name: L&H Airco

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

Company Name: Forell/Elsesser Engineers, Inc.

Name: Marco Scanu, SE California License Number: S4454

Mailing Address: 160 Pine St., 6th Flr., San Francisco, CA 94111

Telephone: (415) 837-0700 Email: m.scanu@forell.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: Stork Garwood Laboratories

Contact Name: Jerry Cederstrom

Mailing Address: 7829 Industry Avenue, Pico Rivera, CA 90660

Telephone: 562-679-4159 Email: Jerry.Cederstrom@us.stork.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.52 g

S_{DS} (Design spectral response acceleration at short period, g) = 2.03 g

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

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See attachment, UUT Summary Sheets

Overall dimensions and weight (or range thereof) = See attachment, Certified Products Table

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) = 1.0

Ω_0 (System overstrength factor) = 1.0

C_d (Deflection amplification factor) = 1.0

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): Certified Products Table, Certified Subcomponents Table, UUT Summary Sheets

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

Signature: _____ Date: August 6, 2016

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.03 z/h = 1

Condition of Approval (if applicable): _____

L&H Airco - Temperature Control Panels
I. Certified Product Table

Height	Width	Depth	Max. Service Weight	Notes	Test Status
24"	20"	6.6"	45 lbs	1,2,3	TCP-1
24"	20"	10"	84 lbs	1,2,4	TCP-4
36"	24"	6.6"	96 lbs	1,2,3	TCP-2
16"-60"	12"-36"	6"-16"	250 lbs	1,2,5	Interpolated
60"	36"	12"	248 lbs	1,2,4	TCP-3

Notes:

1. L&H Airco Temperature Control Panels are customizable control panels comprised of the Certified Subcomponent Table (see next page) contained in Pentair (formerly Hoffman) enclosures constructed out of 14 ga cold-formed carbon steel.
2. Units are rigidly wall mounted.
3. NEMA 1 rated
4. NEMA 3R rated
5. NEMA 1, NEMA 3R, or NEMA 4 enclosure

L&H Airco - Temperature Control Panels
II. Certified Subcomponents Table

Enclosures

Height	Width	Depth	Manufacturer	NEMA Rating	Part Number	Tested
12.0 in	12.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD12126	Extrapolated
16.0 in	12.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 3R	A16R126HCR	Extrapolated
16.0 in	12.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16126	Extrapolated
16.0 in	12.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A16N12ALP	Extrapolated
16.0 in	12.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16128	Extrapolated
16.0 in	12.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A16N12BLP	Extrapolated
16.0 in	12.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD161210	Extrapolated
16.0 in	16.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 3R	A16R166HCR	Extrapolated
16.0 in	16.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16166	Extrapolated
16.0 in	16.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A16N16ALP	Extrapolated
16.0 in	16.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16168	Extrapolated
16.0 in	16.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD161610	Extrapolated
16.0 in	20.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16206	Extrapolated
16.0 in	20.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A16N20ALP	Extrapolated
16.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD16208	Extrapolated
16.0 in	20.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD162010	Extrapolated
18.0 in	18.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 3R	A18R186HCR	Extrapolated
18.0 in	18.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 3R	A18R1810HCR	Extrapolated
18.0 in	18.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A18N18CLP	Extrapolated
18.0 in	18.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A18N18CLP	Extrapolated
20.0 in	12.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A20N12BLP	Extrapolated
20.0 in	16.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 3R	A20R166HCR	Extrapolated
20.0 in	16.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD20166	Extrapolated
20.0 in	16.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A20N16ALP	Extrapolated
20.0 in	16.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD20168	Extrapolated
20.0 in	16.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A20N16BLP	Extrapolated
20.0 in	16.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD201610	Extrapolated
20.0 in	20.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD20206	Extrapolated
20.0 in	20.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A20N20ALP	Extrapolated
20.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 3R	A20R208HCR	Extrapolated
20.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD20208	Extrapolated
20.0 in	20.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A20N20BLP	Extrapolated
20.0 in	20.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD202010	Extrapolated
20.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD20248	Extrapolated
20.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD202410	Extrapolated
24.0 in	16.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24166	Extrapolated
24.0 in	16.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N16ALP	Extrapolated
24.0 in	16.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24168	Extrapolated
24.0 in	16.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD241610	Extrapolated
24.0 in	20.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24206	Extrapolated
24.0 in	20.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N20ALP	TCP-1
24.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 3R	A24R208HCR	Interpolated
24.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24208	Interpolated
24.0 in	20.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N20BLP	Interpolated
24.0 in	20.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD242010	Interpolated
24.0 in	20.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N20CLP	Interpolated
24.0 in	20.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N20CLP	Interpolated
24.0 in	24.0 in	6.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24246	Interpolated
24.0 in	24.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N24ALP	Interpolated
24.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 3R	A24R248HCR	Interpolated
24.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24248	Interpolated
24.0 in	24.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N24BLP	Interpolated
24.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 3R	A24R2410HCR	TCP-4
24.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD242410	Interpolated
24.0 in	24.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N24DLP	Interpolated

L&H Airco - Temperature Control Panels
II. Certified Subcomponents Table

Enclosures

Height	Width	Depth	Manufacturer	NEMA Rating	Part Number	Tested
24.0 in	24.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A24N24DLP	Interpolated
24.0 in	30.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD24308	Interpolated
24.0 in	30.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD243010	Interpolated
30.0 in	20.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD30208	Interpolated
30.0 in	20.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N20BLP	Interpolated
30.0 in	20.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD302010	Interpolated
30.0 in	24.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24ALP	Interpolated
30.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 3R	A30R248HCR	Interpolated
30.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD30248	Interpolated
30.0 in	24.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24BLP	Interpolated
30.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 3R	A30R2410HCR	Interpolated
30.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD302410	Interpolated
30.0 in	24.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24CLP	Interpolated
30.0 in	24.0 in	10.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24CLP	Interpolated
30.0 in	24.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24DLP	Interpolated
30.0 in	24.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N24DLP	Interpolated
30.0 in	30.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 3R	A30R308HCR	Interpolated
30.0 in	30.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD30308	Interpolated
30.0 in	30.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A30N30BLP	Interpolated
30.0 in	30.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD303010	Interpolated
30.0 in	30.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A30R3012HCR	Interpolated
30.0 in	30.0 in	16.00 in	Pentair (formerly Hoffman)	NEMA 3R	A30R3016HCR	Interpolated
36.0 in	24.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N24ALP	TCP-2
36.0 in	24.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD36248	Interpolated
36.0 in	24.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N24BLP	Interpolated
36.0 in	24.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD362410	Interpolated
36.0 in	24.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A36R2412HCR	Interpolated
36.0 in	30.0 in	6.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N30ALP	Interpolated
36.0 in	30.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD36308	Interpolated
36.0 in	30.0 in	8.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N30BLP	Interpolated
36.0 in	30.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A36R3012HCR	Interpolated
36.0 in	30.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N30DLP	Interpolated
36.0 in	30.0 in	12.62 in	Pentair (formerly Hoffman)	NEMA 1	A36N30DLP	Interpolated
36.0 in	36.0 in	8.00 in	Pentair (formerly Hoffman)	NEMA 4	CSD36368	Interpolated
36.0 in	36.0 in	10.00 in	Pentair (formerly Hoffman)	NEMA 3R	A36R3610HCR	Interpolated
36.0 in	36.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A36R3612HCR	Interpolated
42.0 in	30.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A42R3012HCR	Interpolated
42.0 in	36.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A42R3612HCR	Interpolated
48.0 in	36.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A48R3612HCR	Interpolated
48.0 in	36.0 in	16.00 in	Pentair (formerly Hoffman)	NEMA 3R	A48R3616HCR	Interpolated
60.0 in	36.0 in	12.00 in	Pentair (formerly Hoffman)	NEMA 3R	A60R3612HCR	TCP-3

L&H Airco - Temperature Control Panels
II. Certified Subcomponents Table

Control Transformers	Manufacturer	Model	Test Status
RIB Transformer, 120-24 VAC, 40 VA	Functional Devices	RIB TR40VA001	TCP-1
RIB Transformer, 120-24 VAC, 100 VA	Functional Devices	RIB TR100VA001	TCP-2
Power Supply	**Manufacturer**	**Model**	**Test Status**
40 VA, 120-24 VAC w/ outlets	Functional Devices	PSH40AB10	TCP-2
2x100 VA, 120-24 VAC w/ outlets	Functional Devices	PSH100A100AB10	Interpolated
24 VAC to 1.5-28 VCD	Functional Devices	PSM24A24DAS	Interpolated
2x100 VA, 120-24 VAC w/ outlets	Functional Devices	PSH100A100AW	TCP-4
Battery Backup w/ Surge Protection	**Manufacturer**	**Model**	**Test Status**
600 VA w/ LCD	Cyber Power	CP600LCD	TCP-1, 2, 4
Ethernet Port & Switch	**Manufacturer**	**Model**	**Test Status**
Elinx 7 Port 10/100 Ethernet w/ 1 Port Single Mode Fiber Switch	B&B Electronics	EIR208-ST	TCP-2
Control Modules	**Manufacturer**	**Model**	**Test Status**
Field Controller	Alerton BACtalk	VAV-DD7	Interpolated
Field Controller	Alerton BACtalk	VAV-SD2A	Interpolated
Field Controller	Alerton BACtalk	VAV-SD-A	Interpolated
Field Controller	Alerton BACtalk	VAViH-SD	Interpolated
Field Controller	Alerton BACtalk	VLD-362	Interpolated
Field Controller	Alerton BACtalk	VLC-444	Interpolated
Field Controller	Alerton BACtalk	VLC-550	Interpolated
Field Controller	Alerton BACtalk	VLC-651R	Interpolated
Field Controller	Alerton BACtalk	VLC-660R	Interpolated
Field Controller	Alerton BACtalk	VLC-853	TCP-1
Field Controller	Alerton BACtalk	VLC-1188	Interpolated
Field Controller	Alerton BACtalk	VLCA-1688	Interpolated
Field Controller	Alerton BACtalk	VLC-1600	Interpolated
Field Controller	Alerton BACtalk	VLC-16160	Interpolated
Field Controller	Alerton BACtalk	MSTP-REP	Interpolated
Field Controller	Alerton BACtalk	FLG-MODBUS	Interpolated
Field Controller	Alerton BACtalk	VLX	TCP-3
Field Controller	Alerton BACtalk	VLX Platinum	Interpolated

L&H Airco - Temperature Control Panels
II. Certified Subcomponents Table

Control Modules	Manufacturer	Model	Test Status
Field Controller	Alerton BACtalk	EXP-1048	TCP-3
Field Controller	Alerton BACtalk	EXP-10120	Interpolated
Field Controller	Alerton BACtalk	EXP-2200	TCP-3
Control Module Power Supply	Alerton BACtalk	BCM-PWS 715000000	TCP-2
Control Module Ethernet Module	Alerton BACtalk	BCM-ETH 715000100	TCP-2
Control Module Modem	Alerton BACtalk	BCM-MDM 715000200	TCP-2
Control Module w/ Modbus Gateway	Alerton BACtalk	BCM-MDBS 715000900	Interpolated
Control Module w/ IBEX TUX Trunk	Alerton BACtalk	BCM-TUX 715000400	Interpolated
Control Module w/ 1 MS/TP Segment	Alerton BACtalk	BCM-MS/TP 715000300	TCP-2
Transducers	**Manufacturer**	**Model**	**Test Status**
Universal Differential Pressure Transducer	Veris	PXULX055 w/ LCD	TCP-1, TCP-3
Relays	**Manufacturer**	**Model**	**Test Status**
SPDT Relay, Indicator Light, 24 VAC Coil	Idec	RH1B-UL AC24V	TCP-1
SPDT Relay Base	Idec	SH1B-05	TCP-1
DPDT Relay, Indicator Light, 24 VAC Coil	Idec	RH2B-UL AC24V	TCP-1, TCP-3
DPDT Relay Base	Idec	SH2B-05	TCP-1, TCP-3

Test Report R002900 Rev A – TCP-1
TCP-1 Component Panel for FC-1
24”H x 20”W x 6.6”D NEMA 1, 45 lbs
Bottom component shown in picture

Wall mounted (4) -1/4” bolts

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-H} (g)
CBC 2016	ICC-ES AC 156	2.29	1	3.66	2.75	1.53	0.61

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Controls Enclosure	Hoffman	A24N20ALP
Field Controller	Alerton BACtalk	VLC-853
Univ. Diff. Pressure Transducer w/ LCD	Veris	PXUL055
RIB Transformer, 40VA	Functional Devices	RIB TR40VA001
Battery Backup w/ Surge Protection, 600VA	Cyber Power	CP600LCD
SPDT Relay, Indicator Light, 24VAC Coil	Idec	RH1B-UL AC24V
SPDT Relay Base	Idec	SH1B-05
DPDT Relay, Indicator Light, 24VAC Coil	Idec	RH2B-UL AC24V
DPDT Relay Base	Idec	SH2B-05

Test Report R002900 Rev A – TCP-2
TCP-2 Component Panel Global
36”H x 24”W x 6.6”D NEMA 1, 96 lbs
Top component shown in picture

Wall mounted (4) – 3/8” bolts

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-H} (g)
CBC 2016	ICC-ES AC 156	2.29	1	3.66	2.75	1.53	0.61

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Controls Enclosure	Hoffman	A36N24ALP
Control Module Power Supply	Alerton BACtalk	BCM-PWS 715000000
Control Module Ethernet w/ MS/TP	Alerton BACtalk	BCM-ETH 715000100
Control Module Modem	Alerton BACtalk	BCM-MDM 715000200
Control Module w/ MS/TP	Alerton BACtalk	BCM-MS/TP 715000300
Elinx 7 Port 10/100 Ethernet, 1 Port Single Mode Switch	B&B Electronics	EIR208-ST
40VA Power Supply 120-24VAC	Functional Devices	PSH40AB10
Battery Backup w/ Surge Protection, 600VA	Cyber Power	CP600LCD
RIB Transformer, 100VA	Functional Devices	RIB TR100VA001

Test Report R002900 Rev A – TCP-3
TCP-3 Component Panel for AH-1
60”H x 36”W x 12”D NEMA 3R, 248 lbs

Wall mounted (4) – 3/8” bolts

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-H} (g)
CBC 2016	ICC-ES AC 156	2.03	1	3.24	2.43	1.36	0.54

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Controls Enclosure	Hoffman	A60R3612HCR
Building Controller	Alerton BACtalk	VLX
Building Controller – Expansion	Alerton BACtalk	EXP-1048
Building Controller – Expansions	Alerton BACtalk	EXP-2200
Univ. Diff. Pressure Transducer w/LCD	Veris	PXUL055
DPDT Relay, Indicator Light, 24VAC Coil	Idec	RH2B-UL AC24V
DPDT Relay Base	Idec	SH2B-05

Test Report R002900 Rev A – TCP-4
TCP-4 Power Panel for AH-1 Power
24”H x 20”W x 10”D NEMA 3R, 84 lbs

Wall mounted (4) – 1/4” bolts

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-H} (g)
CBC 2016	ICC-ES AC 156	2.03	1	3.24	2.43	1.36	0.54

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Controls Enclosure	Hoffman	A24R2010HCR
Battery Backup w/ Surge Protection, 600VA	Cyber Power	CP600LCD
2x100VA Power S. 120-24VAC	Functional Devices	PSH100A100AW