APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0139

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: H.R. Kirkland Co., Inc.

Manufacturer's Technical Representative: Hillary Lemacks

Mailing Address: 4935 Allison Street #13, Arvada, CO 80002

Telephone: (303) 422-6670 Email: hlemacks@hrkirkland.com

Product Information

Product Name: Electrical Control Panels on Life Safety/Critical Branch

Product Type: Fire Protection & Security Panels

Product Model Number: See Attachment A

General Description: Fire alarm annunciator panels with graphic display, switches, and LEDs.

Mounting Description: Rigidly mounted to wall

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Structural Integrity Associates Inc.

Contact Person: Katie Braman

Mailing Address: 5215 Hellyer Ave, San Jose, CA 95138

Telephone: (541) 526-1947 Email: kbraman@structint.com

Title: Program Manager

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

Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.

Name: Andrew Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave, Suite 101, San Jose, CA 95138-1025

Telephone: (415) 635-8461 Email: acoughlin@structint.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: ANCO ENGINEERS, INC.

Contact Person: Paul Ibanez

Mailing Address: 1965-A 33rd Street, Suite A, Boulder CO 80301

Telephone: (303) 443-7580 Email: paul@ancoengineers.com

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.31

S_{DS} (Design spectral response acceleration at short period, g) = 1.75

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 09/13/2028

Date: 9/13/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 1.75 z/h = 1

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 2200674

TRU COMPLIANCE

Manufacturer:	H.R. Kirkland Company, Inc.
Model Line:	Graphic Annunciator Panels

TABLE 1

Certified Product Construction Summary:

Carbon steel "Backbox" enclosure and door frame; NVGR Extrusion door mounting bracket. The addition of "-L" to the model number indicates a unit which has the door hinged on the long side of the panel as opposed to the short side.

Certified Options Summary:

Surface or semi-flush wall mounted; Backplane mounting panel on standoffs in Backbox for mounting drivers; G10 fiberglass electrical insulation on door panel. See Table 2 for a listing of all other certified subcomponents and options.

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 2022 ***Seismic Certification Limits:*** S_{DS}= ***1.75 g*** ***z/h=1.0*** I_P= ***1.5***

Model Line	Model	Dimensions (in)			Weight (lb.)	Notes	UUT
		Depth	Width	Height			
Graphic Annunciator Panels	RSE-L-GR-GP4	5.0	24.3	29.8	53.0		Interp.
	RSE-GR-GP4	5.0	30.0	24.0	53.0		2
	RSF-L-GR-GP4	5.0	30.0	41.6	94.5		Interp.
	RSF-GR-GP4	5.0	29.8	41.8	94.5		1
	RSG-L-GR-GP4	5.0	41.0	52.8	165.5		Interp.
	RSG-GR-GP4	5.0	53.0	41.0	165.5		3

[1]Units tested on single access table in longitudinal, transverse, and vertical direction only. HCAI requires an 45° shake for single access seismic testing. Since a 45° shake was not part of testing, a derating is applied. The S_{DS} level is reduced by a factor of 1.3. Derated S_{DS} = 1.75g at z/h = 1

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 2200674

TRU COMPLIANCE

Manufacturer: H.R. Kirkland Company, Inc. ***Table Description:*** Electrical Components **TABLE 2**

Model Line: Graphic Annunciator Panels

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS} = *1.75 g* *z/h = 1.0* I_P = *1.5*

Component Type	Manufacturer	Model	Description	Notes	UUT
Switches	C&K Rotary	ES1054		UUT1: qty (3); UUT2: qty (2); UUT: qty (3)	1,2,3
	Chicago Lock	ES1004			1,2,3
	SQ	ES4001			1,2,3
		ES4000		UUT1: qty (3); UUT2: qty (2); UUT: qty (3)	1,2,3
		ES3003			1,2,3
	Toggles	ES2001		UUT1: qty (4); UUT2: qty (4); UUT: qty (4)	1,2,3
	C&K Key	ES1061			1,2,3
LEDs	King Bright	5mm Super Bright	Standard LED Red/Green/Yellow/White	UUT1: qty (34); UUT2: qty (26); UUT: qty (34)	1,2,3
Relays	Panasonic	ER1007			1,2,3
		ER1012			1,2,3
Drivers	EST	3-ANNCPU			1,2,3
		3-EVPWRA			1,2,3
		3-EVDVRA			1,2,3
	Simplex Grinnell	4100-7401			1,2,3
		4100-7402			1,2,3
		4100-7403			1,2,3
	Notifier	LDM-32			1,2,3
		LDM-E32			1,2,3
		SCS-8L			1,2,3
		SCE-8L			1,2,3
	Siemens	XLS-OCM-16			1,2,3
		XLS-SIM-16			1,2,3
	Hardwired	EP-1012-8			1,2,3

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 2200674

Manufacturer: H.R. Kirkland Company, Inc.
Model Line: Graphic Annunciator Panels

UUT	Unit Description	Report Number	Testing Lab	Year Tested	S_{DS} [1]	z/h	I_P
1	RSF-GR-GP4	ANCO#3307.01	Anco Engineers, Inc.	2010	2.28	1.0	1.5
2	RSE-GR-GP4	ANCO#3307.01	Anco Engineers, Inc.	2010	2.28	1.0	1.5
3	RSG-GR-GP4	ANCO#3307.01	Anco Engineers, Inc.	2010	2.28	1.0	1.5

Notes:

[1] Units tested on single access table in longitudinal, transverse, and vertical direction only. HCAI requires an 45 ° shake for single access seismic testing. Since a 45° shake was not part of testing, a derating is applied. The S_{DS} level is reduced by a factor of 1.3. Derated S_{DS} = 1.75g at z/h = 1

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 2200674

UUT 1

Manufacturer: H.R. Kirkland Company, Inc.
Model Line: Graphic Annunciator Panels
Model Number: RSF-GR-GP4 ***Serial Number:*** N/A

Product Construction Summary:
Annuciator Backbox with frame door (hinged on short side) and GP-4 graphic annunciator panel installed in door frame.

Options/Subcomponent Summary:
Switched: C&K Rotary (ES1054), Chicago Lock (ES1004), SQ (ES4001, ES4000, ES3003), Toggles (ES2001), C&K Key (ES1061);
LEDs: King Bright (5mm Super Bright); **Relays:** Panasonic (ER1007, ER1012);
Drivers: EST (3-ANNCPU, 3-EVPWRA, 3-EVDVRA), Simplex Grinnel (4100-7401, 4100-7402, 4100-7403), Hardwired (EP-1012-8), Notifier (LDM-32, LDM-E32, SCS-8L, SCE-8L), Siemens (XLS-OCM-16, XLS-SIM-16)

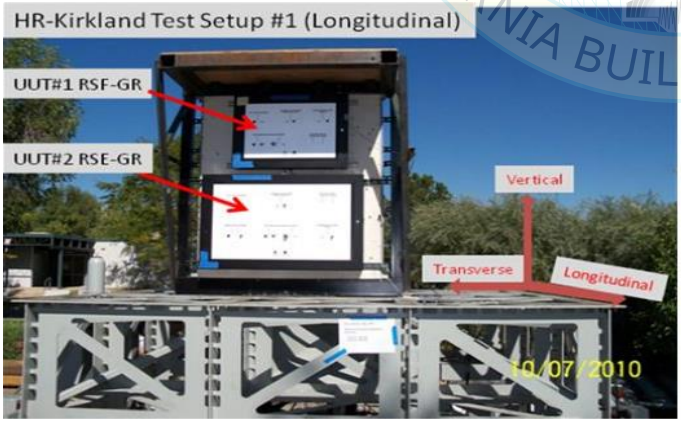
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
94.5	5.0	29.8	41.8	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 2022	ICC-ES AC156	1.75	1.0	1.5	2.80	2.10	1.17	0.47

Test Mounting Details:



UUT1 was wall mounted - rigid using four (4) 1/4"-20 bolts into spring nuts in surface mounted strut channel.
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. 2200674

UUT 2

Manufacturer: H.R. Kirkland Company, Inc.
Model Line: Graphic Annunciator Panels
Model Number: RSE-GR-GP4 ***Serial Number:*** N/A

Product Construction Summary:
Annuciator Backbox with frame door (hinged on short side) and GP-4 graphic annunciator panel installed in door frame.

Options/Subcomponent Summary:
Switched: C&K Rotary (ES1054), Chicago Lock (ES1004), SQ (ES4001, ES4000, ES3003), Toggles (ES2001), C&K Key (ES1061);
LEDs: King Bright (5mm Super Bright); **Relays:** Panasonic (ER1007, ER1012);
Drivers: EST (3-ANNCPU, 3-EVPWRA, 3-EVDVRA), Simplex Grinnel (4100-7401, 4100-7402, 4100-7403), Hardwired (EP-1012-8), Notifier (LDM-32, LDM-E32, SCS-8L, SCE-8L), Siemens (XLS-OCM-16, XLS-SIM-16)

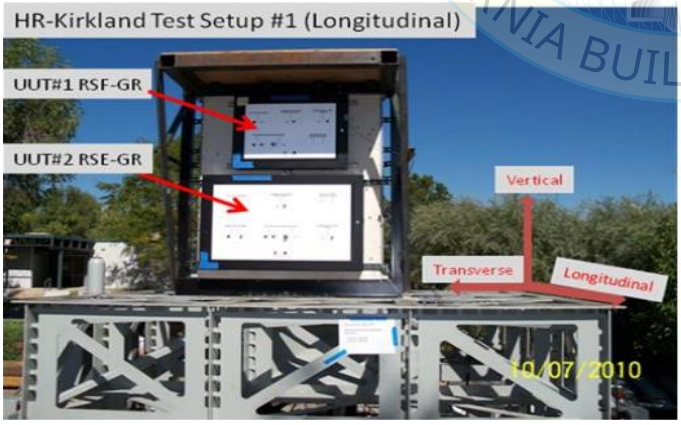
UUT Properties

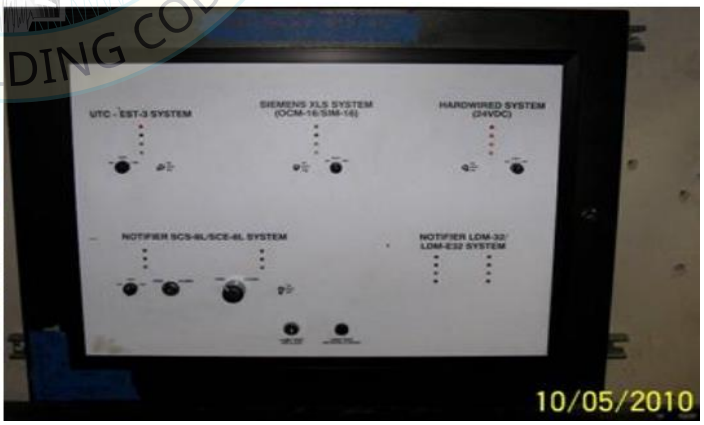
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
53.0	5.0	30.0	24.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	1.75	1.0	1.5	2.80	2.10	1.17	0.47

Test Mounting Details:





UUT2 was wall mounted - rigid using four (4) 1/4"-20 bolts into spring nuts in surface mounted strut channel.
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. 2200674

UUT 3

Manufacturer: H.R. Kirkland Company, Inc.
Model Line: Graphic Annunciator Panels
Model Number: RSG-GR-GP4 ***Serial Number:*** N/A

Product Construction Summary:
Annuciator Backbox with frame door (hinged on short side) and GP-4 graphic annunciator panel installed in door frame.

Options/Subcomponent Summary:
Switched: C&K Rotary (ES1054), Chicago Lock (ES1004), SQ (ES4001, ES4000, ES3003), Toggles (ES2001), C&K Key (ES1061);
LEDs: King Bright (5mm Super Bright); **Relays:** Panasonic (ER1007, ER1012);
Drivers: EST (3-ANNCPU, 3-EVPWRA, 3-EVDVRA), Simplex Grinnel (4100-7401, 4100-7402, 4100-7403), Hardwired (EP-1012-8), Notifier (LDM-32, LDM-E32, SCS-8L, SCE-8L), Siemens (XLS-OCM-16, XLS-SIM-16)

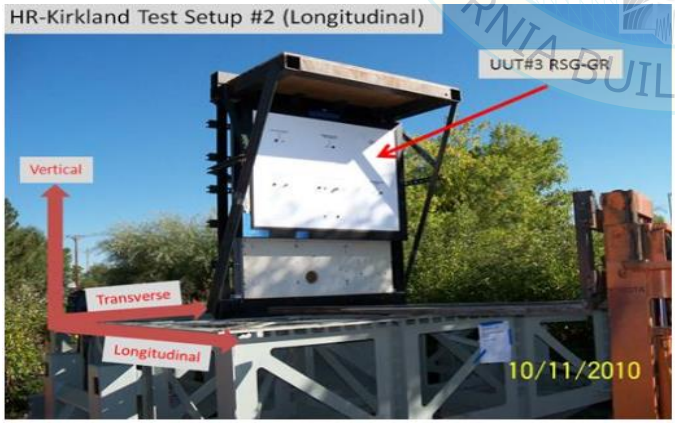
UUT Properties

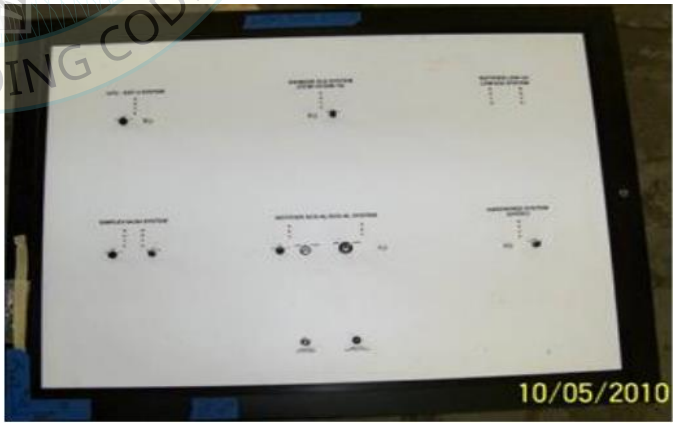
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
165.5	5.0	53.0	41.0	N/A	N/A	N/A

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 2022	ICC-ES AC156	1.75	1.0	1.5	2.80	2.10	1.17	0.47

Test Mounting Details:





UUT3 was wall mounted - rigid using four (4) 1/4"-20 bolts into spring nuts in surface mounted strut channel.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.