



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0348

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Reliable Sprinkler

Manufacturer's Technical Representative: Juan Jimenez

Mailing Address: 1470 Smith Grove Road, Liberty, SC 29657

Telephone: (864) 843-5247 Email: jjimenez@reliablesprinkler.com

Product Information

Product Name: See attached

Product Model Number(s): See attached

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

Product Sub-Category: Fire Protection & Security Panels

General Description: The units are enclosures with the following subcomponents: compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

Mounting Description: All units are rigid base mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Rachel Wolfe

Mailing Address: 1315 Greg Street, Sparks, NV 89431

Telephone: (775) 358-5085 Email: rachel.wolfe@shaketest.com

Title: Seismic Test Engineer



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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: Josh Sailer

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085 Email: josh@shaketest.com

BY: Timothy J. Piland

DATE: 08/28/2025



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Seismic Parameters

Certified Response Spectral Acceleration Factors: (F_p/W_p)

Horizontal (A Flx-H), $g =$ 4 (A Rig-H), $g =$ 3

Vertical (A Flx-V), $g =$ 1.67 (A Rig-V), $g =$ 0.67

SDS (Design spectral response acceleration at short period, g) = 2.5

H_f (Force amplification height factor) = 3.5 at $z/h=1.0$; 1.0 at $z/h=0.0$

R_u (Structure ductility reduction factor) = 1.3 at $z/h=1.0$; 1.0 at $z/h=0.0$

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 0 and 1

HCAI Approval (For Office Use Only) - Approval Expires on 08/28/2031

Date: 8/28/2025

Name: Timothy Piland

Title: Senior Structural Engineer

Condition of Approval (if applicable): _____

OSP-0348

BY: Timothy J. Piland

DATE: 08/28/2025

Special Seismic Certification

Table 1 - Certified Components



DCL Project Number: 61998-2501

Manufacturer: Reliable Sprinkler

Product Line: Reliable Sprinkler Integrated Fire Protection System Control Panels

Mounting: Rigid Base Mounted

Certified Seismic Levels: Sds= 2.5 g at z/h= 1.0 and z/h= 0

Model Number	Valve Type	Dimensions [in.]			Max Weight [lb.]	Unit
		Depth	Width	Height		
DDX DryPaK 2"	Deluge	27	25	70	565	Extrapolated
DDX DryPaK 2.5"	Deluge	27	25	70		Extrapolated
DDX DryPaK 3"	Deluge	27	25	70		Extrapolated
DDX PrePaK 2" with Type D Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX PrePaK 2.5" with Type D Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Type D Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Electric Actuation	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Electric Actuation Pilot	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Electric Actuation Pilot	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Extrapolated
DDX 2" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Extrapolated
DDX 2.5" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Extrapolated
DDX 3" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Extrapolated
DDX 4" DryPaK	Deluge	27	25	70	670	Extrapolated
DDX 4" PrePaK with Type D Double Interlock Preaction	Deluge	27	25	70		Extrapolated
DDX 4" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		UUT ¹
DDX 4" PrePaK with Wet Pilot	Deluge	27	25	70		Interpolated
DDX 4" PrePaK with Dry Pilot	Deluge	27	25	70		Interpolated
DDX 4" PrePaK with Electric Actuation Pilot	Deluge	27	25	70		Interpolated
DDX 4" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Interpolated
DDX 4" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Interpolated
DDX 4" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Interpolated

Table continued on next page

Note:

1. Type F Double Interlock Preaction is the most complex configuration, other configurations are depopulated.

Special Seismic Certification

Table 1 - Certified Components (continued)



DCL Project Number: 61998-2501

Manufacturer: Reliable Sprinkler

Product Line: Reliable Sprinkler Integrated Fire Protection System Control Panels

Mounting: Rigid Base Mounted

Certified Seismic Levels: Sds= 2.5 g at z/h= 1.0 and z/h= 0

Model Number	Valve Type	Dimensions [in.]			Max Weight [lb.]	Unit
		Depth	Width	Height		
DDX 2" DryPaK with N2-Blast	Deluge	32	30	74	890	Interpolated
DDX 2.5" DryPaK with N2-Blast	Deluge	32	30	74		Interpolated
DDX 3" DryPaK with N2-Blast	Deluge	32	30	74		Interpolated
DDX 4" DryPaK with N2-Blast	Deluge	32	30	74		Interpolated
DDX 2" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 2.5" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 3" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 4" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 2" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 2.5" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 3" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Interpolated
DDX 4" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		UUT 2 ¹
DDX 6" DryPaK	Deluge	32	30	74	1100	Interpolated
DDX 8" DryPaK	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Type D Double Interlock Preaction	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Type D Double Interlock Preaction	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Type F Double Interlock Preaction	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Wet Pilot	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Wet Pilot	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Dry Pilot	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Dry Pilot	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Electric Actuation Pilot	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Electric Actuation Pilot	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Single Interlock Wet Pilot	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Single Interlock Wet Pilot	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Single Interlock Dry Pilot	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Single Interlock Dry Pilot	Deluge	32	30	74		Interpolated
DDX 6" PrePaK with Double Interlock Type PL	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Double Interlock Type PL	Deluge	32	30	74		Interpolated
DDX 8" PrePaK with Type F Double Interlock Preaction	Deluge	32	30	74		UUT 3 ¹

Note:

1. Type F Double Interlock Preaction is the most complex configuration, other configurations are depopulated.

Special Seismic Certification

Table 2 - Certified Subcomponents



DCL Project Number: 61998-2501

Product Line: Reliable Sprinkler Integrated Fire Protection System Control Panels

Certified Seismic Levels: Sds= 2.5 g at z/h= 1.0 and z/h= 0

Subcomponent Type	Model Number	Manufacturer	Description	Material	Weight [lb.]	Unit
Enclosures	9802012B	Reliable Sprinkler	25W x 27D x 70H	Carbon Steel	556	UUT 1
	9802014A		30W x 31D x 74H		757	UUT 3
	98030014		30W x 31D x 74H		757	UUT 2
Compressors	6702001013	General Air	1/2HP 115VAC	Carbon Steel, Aluminum, Nylon	45	UUT 1
	6702001014		1/2HP 220VAC		45	Interpolated
	6702001015		1HP 115VAC		60	Interpolated
	6702001016		1HP 220VAC		60	Interpolated
	6702001018		1-1/2HP 220VAC		110	Interpolated
	6702001017		1-1/2HP 115VAC		110	UUT 2
Solenoid Valve	6871020030	Skinner	175 psi	Brass	2	UUT 1,2,3
Switches	6990019313	Porter	System Pressure Switch	Die Cast, Nylon	1	UUT 1,2,3
	6990006382		Alarm Pressure Switch			UUT 1,2,3
System Side Control Valve	6501200021	Reliable Sprinkler	2" System Side Control Valve	Ductile Iron	20	Extrapolated
	6501200023		2.5" System Side Control Valve		20	Extrapolated
	6501200025		3" System Side Control Valve		22	Extrapolated
	6501200026		4" System Side Control Valve		28	UUT 1,2
	6501200027		6" System Side Control Valve		47	Interpolated
	6501200028		8" System Side Control Valve		70	UUT 3
Pneumatic Devices	6704030024	Reliable Sprinkler	NS-ASAM (Nitrogen Supply with Auto Switchover and Monitoring)	Galvanized Carbon Steel, Brass	15	UUT 3
	6304030200		Nitrogen Supply	Galvanized Carbon Steel, Brass	7	UUT 1
	501200003		Desiccant Dryer	Carbon Steel	7	UUT 1
Control Panel	6611772015	Porter	Kit, Control Panel, PFC-4410-RC	Carbon Steel	30	UUT 1,2,3
	6501200040		Kit, No Control Panel	Carbon Steel	4	Extrapolated ¹
Miscellaneous	78653000	Reliable Sprinkler	Manual Solenoid Release	Carbon Steel	2	UUT 1,2,3
	98840237		Water Control Valve	Brass	2	UUT 1,2
	98840109		Alarm Line Valve	Brass	2	UUT 1,2
	6304001110		Pressure Maintenance Device w/ Rapid Fill	Galvanized Carbon Steel, Brass	4	UUT 1,2
	6516000006		B1 Accelerator Kit	Galvanized Carbon Steel, Brass	10	UUT 1,2,3

Note:

1. Extrapolated controller is depopulated version of the tested controller.

Special Seismic Certification

Table 3 - Tested Units



DCL Project Number: 61998-2501

Manufacturer: Reliable Sprinkler

Product Line: Reliable Sprinkler Integrated Fire Protection System Control Panels

Mounting: Rigid Base Mounted

Certified Seismic Levels: Sds= 2.5 g at z/h= 1.0 and z/h= 0

Model Number	Valve Type	Dimensions [in.]			Weight [lb.]	Unit
		Length	Width	Height		
DDX 4" PrePaK with Type F Double Interlock Preaction	Deluge	27.0	25.0	70.0	670	UUT 1
DDX 4" PrePaK with N2-Blast and Type F Double Interlock Preaction	Deluge	32.0	30.0	74.0	890	UUT 2
DDX 8" PrePaK with Type F Double Interlock Preaction	Deluge	32.0	30.0	74.0	1100	UUT 3



UNIT UNDER TEST (UUT) Summary Sheet



UUT-01

DCL Repot Name: 14062-1801 Rev00 AC156 Reliable Sprinkler Test Report 190911

Manufacturer: Reliable Sprinkler

Product Line: Integrated Fire Protection Systems

Model Number: DDX 4" PrePaK with Type F Double Interlock Praction

Product Construction Summary: Cabinet is constructed of painted carbon steel.

Options / Component Summary:

The UUT is comprised of subcomponents including the following: An enclosure, compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

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 after the AC 156 test.

UUT Properties

Test Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
670	27.0	25.0	70.0	5.5	8.0	25.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _i	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.5	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
		2.5	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT 1 was rigidly base mounted to the shake table interface plate with (6) ½" diameter, grade 5 bolts and washers. In addition to the bolts and washers, (2) 24" x 6" x ¼" A36 steel plates with through holes were used to add material to the UUT mounting. The bolts were spaced at 9.5" on center lengthwise and 19" on center widthwise.



UNIT UNDER TEST (UUT) Summary Sheet



UUT-02

DCL Repot Name: 14062-1801 Rev00 AC156 Reliable Sprinkler Test Report 190911

Manufacturer: Reliable Sprinkler

Product Line: Integrated Fire Protection Systems

Model Number: DDC 4" PrePaK with N2-Blast and Type F Double Interlock Preaction

Product Construction Summary: Cabinet is constructed of painted carbon steel.

Options / Component Summary:

The UUT is comprised of components including the following: An enclosure, compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

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 after the AC 156 test.

UUT Properties

Test Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
890	32.0	30.0	74.0	8.0	14.5	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.5	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
		2.5	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT 2 was rigidly base mounted to the shake table interface plate with (6) ½" diameter, grade 5 bolts and washers. In addition to the bolts and washers, (2) 29" x 7" x ¼" A36 steel plates with through holes were used to add material to the UUT mounting. The bolts were spaced at 11" on center lengthwise and 22" on center widthwise.

BY: Timothy J. Piland



UNIT UNDER TEST (UUT) Summary Sheet



UUT-03

DCL Repot Name: 14062-1801 Rev00 AC156 Reliable Sprinkler Test Report 190911

Manufacturer: Reliable Sprinkler

Product Line: Integrated Fire Protection Systems

Model Number: DDX 8" PrePaK with Type F Double Interlock Preaction

Product Construction Summary: Cabinet is constructed of painted carbon steel.

Options / Component Summary:

The UUT is comprised of components including the following: An enclosure, compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

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 after the AC 156 test.

UUT Properties

Test Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,100	32.0	30.0	74.0	7.5	10.5	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.5	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
		2.5	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

UUT 3 was rigidly base mounted to the shake table interface plate with (6) ½" diameter, grade 5 bolts and washers. In addition to the bolts and washers, (2) 29"x7"x¼" A36 steel plates with through bolts were used to add material to the UUT mounting. The bolts were spaced 11" on center lengthwise and 22" on center widthwise.

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