APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0778

HCAI Special Seismic Certification Preapproval (OSP)

Type: [X] New [ ] Renewal

Manufacturer Information

Manufacturer: ABB

Manufacturer's Technical Representative: Dhirendra Tiwari

Mailing Address: 41 Woodford Ave, Plainvillle, CT 06062

Telephone: (860) 747-7935 Email: dhirendra.tiwari@us.abb.com

Product Information

Product Name: Emergency and Standby Power Systems

Product Type: Automatic Transfer Switches

Product Model Number: Service Entrance ATS

General Description: Transfer switches that provide manual / automatic power switching from a primary source to a backup power source.

Mounting Description: Rigid, Floor/Wall Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: WE Gundy & Associates, Inc

Contact Person: Travis Soppe

Mailing Address: PO Box 9121, Boise, ID 83707

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Title: President

REVIEWED FOR CODE COMPLIANCE HCAi OSP-0778 BY: Mohammad Kaim DATE: 10/16/2023 CALIFORNIA BUILDING CODE, 2022

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

Company Name: W.E. GUNDY & ASOCIATES INC.

Name: Travis Soppe California License Number: S6115

Mailing Address: P.O. Box 9121, Boise, ID 83707

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Certification Method

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

☐ Other (Please Specify):

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.

Contact Person: Suzanne Mazon

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001 Email: smazon@clarktesting.com

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

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

Telephone: (972) 247-9657 Email: Jeremy@etldallas.com

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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.5 (SDS =2.0g, z/h=1); 1.13 (SDS=2.50g, z/h=0)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00 (z/h = 1.0) and 2.50 (z/h = 0.0)

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 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

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HCAI Approval (For Office Use Only) - Approval Expires on 10/16/2029

Date: 10/16/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

Condition of Approval (if applicable):

Table 1	ABB, INC. SERVICE ENTRANCE ATS CERTIFIED PRODUCT LINE MATRICES						
ID/Catalog Number	Ampere rating	NEMA Rating[2]	Equipment Dimensions (in)			Weight (lbs)	Representative UUT[3]
			Width	Depth	Height		
Service Entrance ATS Product Line - Floor Mounted **Seismic Certification Limits: S_{DS} = 2.0 at $^{z}/_{h}$ = 1.0 : F_p = 1.50g and S_{DS} = 2.5 at $^{z}/_{h}$ = 0 : F_p = 1.13g**							
Z3SSO0403M12Bxxxxxxx	**260 - 400**	**1**	**28**	**20**	**58**	**291**	**UUT_y-6**
ZTX, ZTG(D)(C), ZTS(D)(C) Series	30 - 200	3R/4/12	28	20	58	394 - 403	extrapolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	260 - 400	1	28	20	58	287 - 296	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	260 - 400	3R/4/12	28	20	58	399 - 407	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	600	1	40	20	74	463 - 479	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	600	3R/4/12	40	20	74	585 - 621	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	800 - 1200	1	36	37	92	1112 - 1142	interpolated
Z4SGO1204M45Bxxxxxxx	**800 - 1200**	**3R/4/12**	**40**	**41**	**94**	**1262**	**UUT_y-7**
ZTX, ZTG(D)(C), ZTS(D)(C) Series	800 - 1200	3R/4/12	40	43	94	1232 - 1262	interpolated
Z5SGO1603M16Bxxxxxxx	**1600 - 2000**	**1**	**36**	**48**	**90**	**1650**	**UUT_y-8**
ZTX, ZTG(D)(C), ZTS(D)(C) Series	1600 - 2000	1	36	48	90	1650 - 1755	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	1600 - 2000	3R/4/12	36	48	90	1770 - 1875	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	2500 - 3000	1	36	48	90	1842 - 1947	interpolated
ZTX, ZTG(D)(C), ZTS(D)(C) Series	2500 - 3000	3R/4/12	36	48	90	1928 - 2033	interpolated
Z5SGO2504M36Bxxxxxxx	**2500 - 3000**	**3R/4/12**	**36**	**48**	**90**	**2033**	**UUT_y-9**

Notes:

[1] All components are manufactured by ABB. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units.

[2] Enclosures are constrcuted of welded carbon steel. The enclosure design is identical for the 3R, 4, and 12 designs therefore the rating is listed as 3R/4/12.

[3] Subscript indicates the test report in which the units were qualified: y - 16827, z - 19-00274

[4] The ZTX/ZTG/ZTS(D) service entrance series products are represented with the following ID numbers:
ZTX - ZxSXxxxxxxxxxxxxxx
ZTG(D)(C) - ZxSGxxxxxxxxxxxxx
ZTS(D)(C) - ZxSSxxxxxxxxxxxxx

[5] The ZTX/ZTG(D)/ZTS(D) service entrance automatic transfer switches (ATS) are of nearly identical construction with minor differences listed below:
ZxSXO(D)(C) - ZTX open, delayed, or closed transition with L2 / L3 / L4 controller
ZxSGO(D)(C) - ZTG open, delayed, or closed transition with L2 / L3 / L4 controller
ZxSSO(D)(C) - ZTS open, delayed, or closed transition with L2 / L3 / L4 controller

REVIEWED FOR CODE COMPLIANCE CALIFORNIA BUILDING CODE 2022 HCAi OSP-0778 BY: Mohammad Karim DATE: 10/16/2023

Table 1	ABB, INC. SERVICE ENTRANCE ATS CERTIFIED PRODUCT LINE MATRICES						
ID/Catalog Number	Ampere rating	NEMA Rating[2]	Equipment Dimensions (in)			Weight (lbs)	Representative UUT[3]
			Width	Depth	Height		
Service Entrance ATS Product Line - Wall Mounted **Seismic Certification Limits: S_{DS} = 2.0 at $^{z}/_{h}$ = 1.0 : F_p = 1.50g and S_{DS} = 2.5 at $^{z}/_{h}$ = 0 : F_p = 1.13g**							
ZGOK3SX12	**400**	**1**	**24**	**12**	**46**	**142**	**UUT_z-2**
ZTX, ZTG(D)(C), ZTS(D)(C) Series	30 - 200	1	24	12 - 14	46	142 - 156	interpolated
Z2SSO0203M11Bxxxxxxx	**200**	**1**	**24**	**14**	**46**	**151**	**UUT_y-5**

Notes:

[1] All components are manufactured by ABB. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units.

[2] Enclosures are constrcuted of welded carbon steel. The enclosure design is identical for the 3R, 4, and 12 designs therefore the rating is listed as 3R/4/12

[3] Subscript indicates the test report in which the units were qualified: y - 16827, z - 19-00274

[4] The ZTX/ZTG/ZTS(D) service entrance series products are represented with the following ID numbers:

ZTX - ZxSXxxxxxxxxxxxxxx

ZTG(D)(C) - ZxSGxxxxxxxxxxxxx

ZTS(D)(C) - ZxSSxxxxxxxxxxxxx

[5] The ZTX/ZTG(D)/ZTS(D) service entrance automatic transfer switches (ATS) are of nearly identical construction with minor differences listed below:

ZxSXO(D)(C) - ZTX open, delayed, or closed transition with L2 / L3 / L4 controller

ZxSGO(D)(C) - ZTG open, delayed, or closed transition with L2 / L3 / L4 controller

ZxSSO(D)(C) - ZTS open, delayed, or closed transition with L2 / L3 / L4 controller

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Table 2	ABB, INC. SERVICE ENTRANCE ATS CERTIFIED SUBCOMPONENT MATRICES			WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering
Identification Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Service Entrance ATS Product Line - Wall Mounted Subcomponents				
Switch / Power Panels				
OXA200U3X3QB-ZE	ABB	200A 3P TruONE	32	UUT_y-5
OXx260Uxxxxx-ZE		260A 2/3/4P TruONE	31 - 40	interpolated
OXA400U3X3QB-ZE		400A 3P TruONE	43	interpolated
OXA400U3S3QB-ZE		400A 4P TruONE	45	UUT_z-2
Circuit Breaker				
1SDA074764R1	ABB	XT2	2	UUT_y-5
Controller				
OXCO1[1]	ABB	Controller	2	UUT_z-2
Service Entrance ATS Product Line - Floor Mounted Subcomponents				
Switch / Power Panels				
OXA200U3X3QB-ZE	ABB	200A 3P TruONE	32	extrapolated
OXx260Uxxxxx-ZE		260A 2/3/4P TruONE	31 - 40	extrapolated
OXA400U3X3QB-ZE		400A 3P TruONE	43	UUT_y-6
OXA400U3S3QB-ZE		400A 4P TruONE	45	interpolated
OXx600Uxxxxx-ZE		600A 2/3/4P TruONE	38 - 48	interpolated
OXx800-1200Uxxxxx-ZE		800A - 1200A 2/3/4P TruONE	96 - 125	interpolated
OXA1200U3S3QB-ZE		1200A 4P TruONE	125	UUT_y-7
70010426990A		1600A - 3000A R5 3P	189	UUT_y-8
70010426262A		1600A - 3000A R5 4P	223	UUT_y-9
Circuit Breaker				
1SDA074764R1	ABB	XT2	2	extrapolated
1SDA075200R1		XT4	4	extrapolated
1SDA102487R1		XT5	5	UUT_y-6
1SDA102947R1		XT7	28	UUT_y-7
1SDA077263R1		Emax 2.2	115	UUT_y-8
1SDA077913R1		Emax 4.2	123	UUT_y-9

Notes:

[1] OXCO1 is the primary controller identification number representatve of the OXAMI1-L2, OXBMI1-L2, OXAMI1-L3, OXBMI1-L3, OXAMI1-L4, OXBMI1-L4 controller configuations with varied software.

[2] Subscript indicates the test report in which the units were qualified: y - 16827, z - 19-00274

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Table 2	ABB, INC. SERVICE ENTRANCE ATS CERTIFIED SUBCOMPONENT MATRICES			WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering
Identification Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Service Entrance ATS Product Line - Floor Mounted Subcomponents				
Bus Structure				
59P-2062	ABB	800 - 1200A, 3 Pole	127	extrapolated
59P-2063		800 - 1200A, 4 Pole	147	UUT_y-7
59P-2064		1600 - 2000A, 3 Pole	422	UUT_y-8
59P-2065		1600 - 2000A, 4 Pole	467	interpolated
59P-2066		2500A, 3 Pole	459	interpolated
59P-2067		2500A, 4 Pole	507	UUT_y-9
Controller				
OXCO1[1]	ABB	Controller	2	UUT_y-8 / UUT_y-9

Notes:

[1] OXCO1 is the primary controller identification number representatve of the OXAMI1-L2, OXBMI1-L2, OXAMI1-L3, OXBMI1-L3, OXAMI1-L4, OXBMI1-L4 controller configuations with varied software.

[2] Subscript indicates the test report in which the units were qualified: y - 16827, z - 19-00274

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UUT_y-6	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor mounted with (4) 1/2" Grade 5 bolts





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Manufacturer: ABB, Inc.	**Test Location:** ETL (Dallas, TX)
Component: Service Entrance ATS	**Test Date:** December 2022
Model Number: Z3SSO0403M12Bxxxxxxx	**Report Number:** 16827
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 1 carbon steel enclosure with OXA400U3X3QB-ZE 400A TruONE switch / power panel and 1SDA102487R1 XT5 circuit breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
291	28	20	58	25.4	12.9	32.4

SEISMIC TEST PARAMETERS

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	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_y-7	**UNIT UNDER TEST (UUT) SUMMARY SHEET**	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor mounted with (4) 1/2" Grade 5 bolts



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DATE: 10/16/2023

Manufacturer: ABB, Inc.	**Test Location:** ETL (Dallas, TX)
Component: Service Entrance ATS	**Test Date:** December 2022
Model Number: Z4SGO1204M45Bxxxxxxx	**Report Number:** 16827
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 3R carbon steel enclosure with 59P-2063 1200A bus, OXA1200U3S3QB -ZE 1200A TruONE switch / power panel and 1SDA102947R1 XT7 circuit breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,262	40	41	94	27.8	7.9	32.6

SEISMIC TEST PARAMETERS

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	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_y-8	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid floor mounted with (4) 1/2" Grade 5 bolts





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Manufacturer: ABB, Inc.	**Test Location:** ETL (Dallas, TX)
Component: Service Entrance ATS	**Test Date:** December 2022
Model Number: Z5SGO1603M16Bxxxxxxx	**Report Number:** 16827
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 1 carbon steel enclosure with 59P-2064 2000A bus, 70010426990A 1600A-3000A R5 3P switch / power panel and 1SDA077913R1 Emax 2.2 circuit breaker, and OXCO1 controller.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,650	36	48	90	12.7	5.9	13.5

SEISMIC TEST PARAMETERS

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	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_y-9	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor mounted with (4) 1/2" Grade 5 bolts





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Manufacturer: ABB, Inc.	**Test Location:** ETL (Dallas, TX)
Component: Service Entrance ATS	**Test Date:** December 2022
Model Number: Z5SGO2504M36Bxxxxxxx	**Report Number:** 16827
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 3R carbon steel enclosure with 59P-2067 2500A bus, 70010426262A 1600A-3000A R5 4P switch / power panel and 1SDA077913R1 Emax 4.2 circuit breaker, and OXCO1 controller.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,033	36	48	90	8.3	5.3	10.8

SEISMIC TEST PARAMETERS

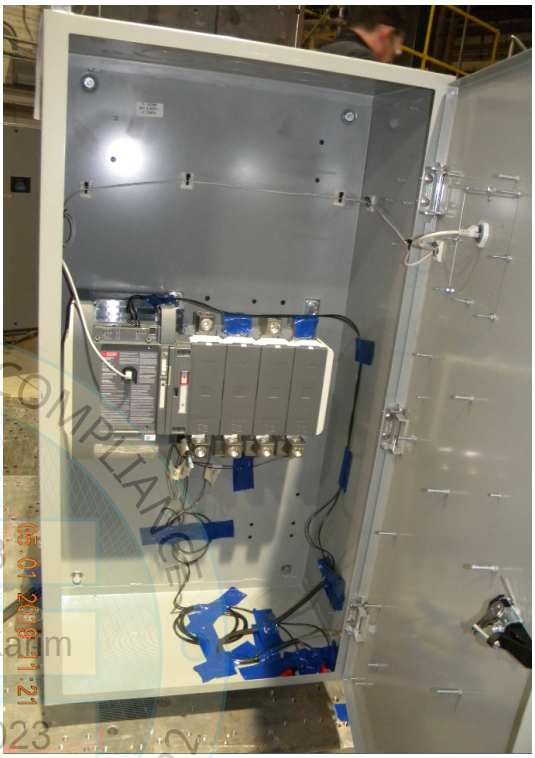
Building Code / Test Criteria	S_{DS} (g)	z / h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_z-2	**UNIT UNDER TEST (UUT) SUMMARY SHEET**	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid wall mounted with (4) 1/2" Grade 5 bolts





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Manufacturer: ABB, Inc.	**Test Location:** Clark Testing (Pittsburgh, PA)
Component: Automatic Transfer Switch	**Test Date:** May 2019
Model Number: ZGOK3SX12	**Report Number:** 19-00274 Rev 0
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 1 carbon steel enclosure with OXA400U3S3QB-ZE TruONE switch / power panel and OXCO1 controller.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
142	24	12	46	n/a	n/a	n/a

SEISMIC TEST PARAMETERS

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	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test. The lab report identified the system using the internal component number, OXA400U3S3QB-ZE, not the complete system component identification number, ZGOK3SX12.

UUT_y-5	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid wall mounted with (4) 3/8" Grade 5 bolts



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Manufacturer: ABB, Inc.	**Test Location:** ETL (Dallas, TX)
Component: Service Entrance ATS	**Test Date:** December 2022
Model Number: Z2SSO0203M11Bxxxxxxx	**Report Number:** 16827
UUT Function: Automatic Transfer Switch and Main Disconnect	
UUT Description: NEMA 1 carbon steel enclosure with OXA200U3X3QB-ZE 200A TruONE switch / power panel and 1SDA074764R1 XT2 circuit breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
151	24	14	46	n/a	n/a	n/a

SEISMIC TEST PARAMETERS

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	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.