



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0493

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Siemens Healthcare GmbH

Manufacturer's Technical Representative: Damian Kopyto

Mailing Address: Siemensstr. 3, D-91301 Forchheim, Germany

Telephone: +49 9191 18 8778

Email: damian.kopyto@siemens-healthineers.com

Product Information

Product Name: Fluoroscopy and Radiography Systems

Product Type: NA

Product Model Number: Multitom Rax System

General Description: Multiple component system for producing X-Ray medical images for a wide variety of medical diagnostic results.

Mounting Description: Multiple – Mix of rigid floor mounting, combined rigid floor / wall mounting, and ceiling mounted, See Certified Product Tables

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: W.E. Gundy & Associates, Inc.

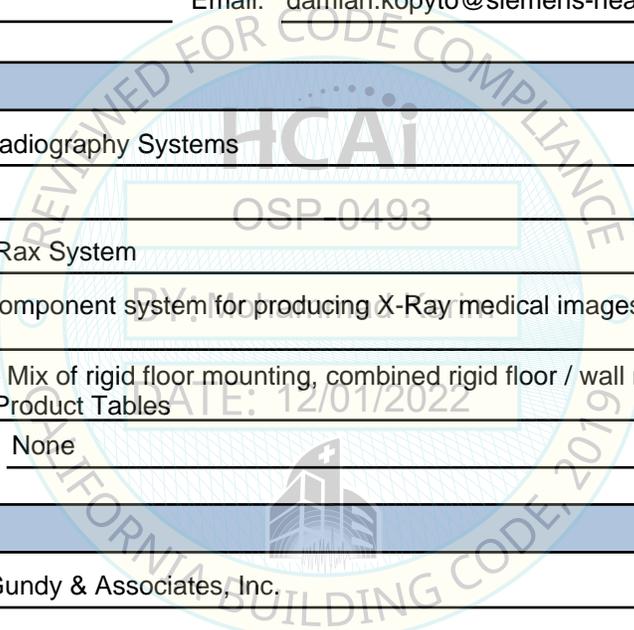
Contact Person: Travis Soppe

Mailing Address: 1199 Shoreline Drive Suite 310, Boise, ID 83702

Telephone: (208) 342-5989

Email: tsoppe@wegai.com

Title: President





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

Company Name: W.E. GUNDY & ASSOCIATES 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

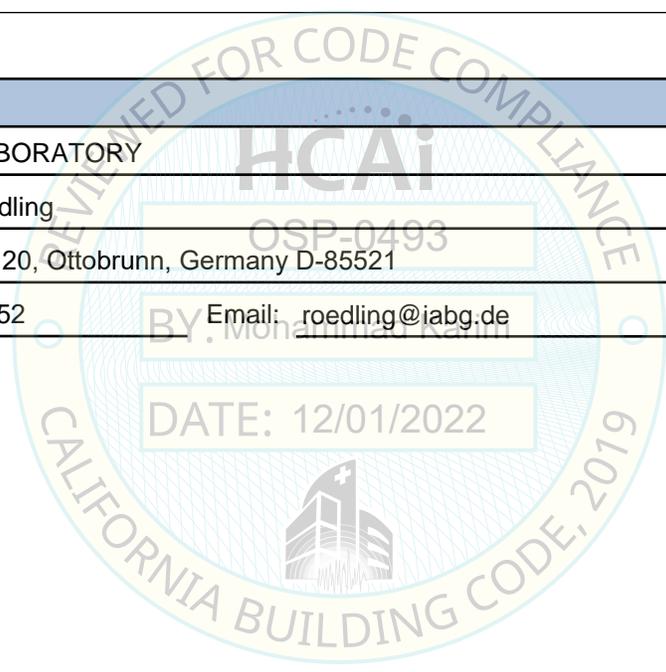
Company Name: IABG TEST LABORATORY

Contact Person: Dr. Steffen Roedling

Mailing Address: Einsteinstrasse 20, Ottobrunn, Germany D-85521

Telephone: +49 (0) 89 / 6088-2052

Email: roedling@iabg.de





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) =	See Attachments
SDS (Design spectral response acceleration at short period, g) =	2.2 at z/h = 1 and 2.5 at z/h = 0
a_p (Amplification factor) =	See attachments
R_p (Response modification factor) =	See attachments
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

HCAI Approval (For Office Use Only) - Approval Expires on 12/01/2028

Date:	12/1/2022	OSP-0493	
Name:	Mohammad Karim	BY: Mohammad Karim	Title: Supervisor, Health Facilities
Special Seismic Certification Valid Up to: SDS (g) =	See Above	z/h =	See Above
Condition of Approval (if applicable):	DATE: 12/01/2022		



Table 1	SIEMENS HEALTHCARE GmbH SPECIAL SEISMIC CERTIFICATION CERTIFIED SYSTEM AND COMPONENTS	 WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING
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Manufacturer: Siemens Healthcare GmbH

System: Multitom Rax Robotic X-Ray System

System Component ¹	Siemens Part Number	Dimensions (in)			Weight (lb)	Mounting	UUT ²
		Width	Depth	Height			
Tube and Detector Ceiling Stands							
Tube Ceiling Stand 3D V	07042075	44.8	34.3	33.5-118.6	585	ceiling	UUT _x -1
Detector Ceiling Stand 3D V	07042026	32.4	72.6	41.3-124.2	546	ceiling	UUT _x -2
Patient Table							
RF Table / Tabletop	10092902 10882788	29.5	125.5	19.7-37.6	669 ³	floor	UUT _x -3a
RF Table / Tabletop	10092902 10882788	29.5	125.5	19.7-37.6	669 ⁴	floor	UUT _x -3b
Generator							
Generator Polvdoros F80-2	10096925	31.5	17.1	86.7	862	floor/wall	UUT _x -4
PC / User Interface							
PC (W550)	11105103	13.4	27.4	22.8	90	floor	UUT _y -6
FLC PC (W550 RAD)	11105102	13.4	27.4	22.8	87	floor	UUT _y -7

General Notes:

¹ All components are manufactured by Siemens Healthcare GmbH unless noted. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units.

² The units were tested at different times and the subscripts on the UUT reference the following seismic test reports:
x = TAF4-PB-16-258-V1 y = TAF4-PB-17-033-V1

³ Weight listed does not include 308lbs simulated patient weight included when testing in the normal operation position with an extension of 29.5in. does not include simulated patient weight.

⁴ Weight listed does not include 529lbs simulated patient weight included when testing in the normal operation position for bariatric patients with an extension of 20.5in.

SEISMIC CERTIFICATION LIMITS

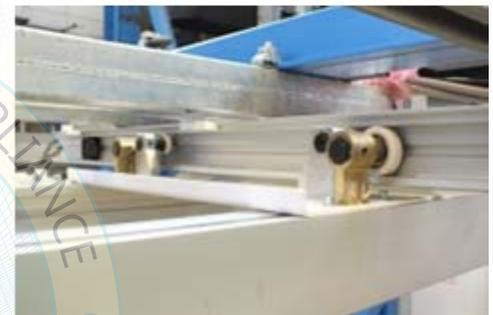
System Component	Code	S _{DS} (g)	z / h	I _p	a _p	R _p	Ω ₀	F _p / W _p
Ceiling Stands	CBC 2022	2.2	1	1.50	2.5	2.5	2.0	3.96
		2.5	0					1.50
Patient Table	CBC 2022	2.2	1	1.50	1.0	1.5	2.0	2.64
		2.5	0					1.13
Generator	CBC 2022	2.2	1	1.50	2.5	6.0	2.0	1.65
		2.5	0					1.13
PC / User Interface	CBC 2022	2.2	1	1.50	1.0	2.5	2.0	1.58
		2.5	0					1.13

UUT_{x-1}

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rails of UUT bolt to Unistrut grid with 2 – M10 bolts at each intersecting location.



Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: Tube Ceiling Stand 3D V	Test Date: June 2016
Model Number: 07042075	Report Number: TAF4-PB-16-258-V2
UUT Function: Digital system used for making X-ray exposures of the body	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
585	44.8	34.3	90.5	NA	NA	NA

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	2.20	1.0	1.5	3.52	2.64	--	--
	2.50	0.0	1.5	--	--	1.67	0.67

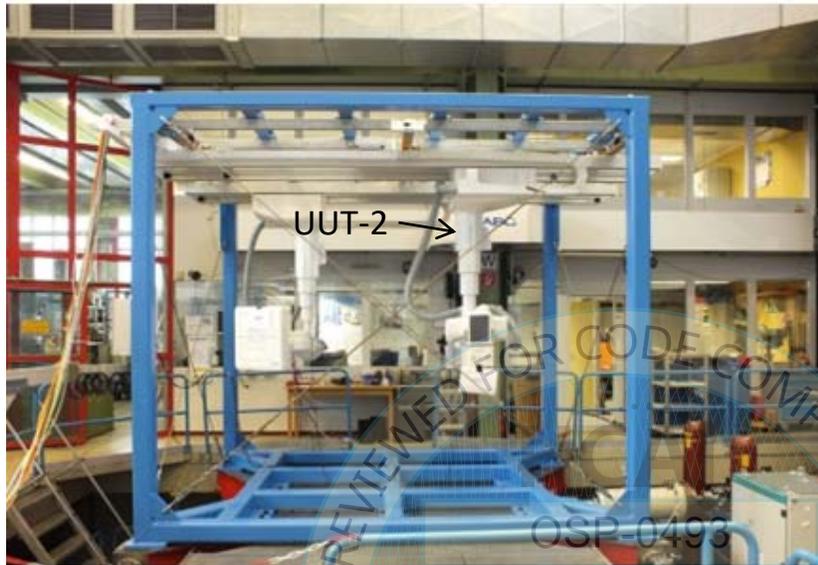
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_{x-2}

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rails of UUT bolt to Unistrut grid with 2 – M10 bolts at each intersecting location.



BY: Mohammad Karim

Manufacturer: Siemens Healthcare GmbH **Test Location:** IABG

Component: Detector Ceiling Stand 3D V **Test Date:** June 2016

Model Number: 07042026 **Report Number:** TAF4-PB-16-258-V2

UUT Function: Digital system used for making X-ray exposures of the body

UUT Description: Component of the Multitom Rax System

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
546	32.4	72.6	90.5	NA	NA	NA

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	2.20	1.0	1.5	3.52	2.64	--	--
	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_x-3a

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounted with 6 - M12 bolts.



Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: RF Table / Tabletop	Test Date: June 2016
Model Number: 10092902 / 10882788	Report Number: TAF4-PB-16-258-V2
UUT Function: Motorized table intended to hold a patient	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb) with Patient	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
977	125.5	29.5	29.5	24.0	4.0	12.4

The patient table moves vertically to accommodate different patients and procedures. The system was tested in the normal vertical operating position (vertical extension of 29.5in) with total simulated patient weight of 308lbs.

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	2.20	1.0	1.5	3.52	2.64	--	--
	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_x-3b

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounted with 6 - M12 bolts.



Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: RF Table / Tabletop	Test Date: June 2016
Model Number: 10092902 / 10882788	Report Number: TAF4-PB-16-258-V2
UUT Function: Motorized table intended to hold a patient	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb) with Patient	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,197	125.5	29.5	20.5	18.7	4.0	18.4

The patient table moves vertically to accommodate different patients and procedures. The system was tested in the normal vertical operating position for bariatric patients (vertical extension of 20.5in) with total simulated patient weight of 529lbs.

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	2.20	1.0	1.5	3.52	2.64	--	--
	2.50	0.0	1.5	--	--	1.67	0.67

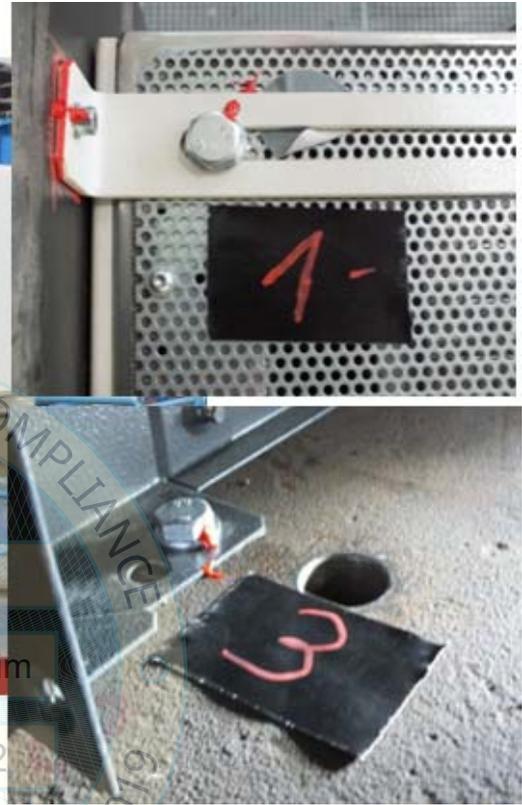
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_x-4

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Combined rigid wall / floor mounted with (2) M6 bolts to the wall fixture and (4) M12 bolts to the floor.



REVIEWED FOR CODE COMPLIANCE
OSP-0493
BY: Mohammad Karim
DATE: 12/01/2022

Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: Generator Polvdoros F80-2	Test Date: June 2016
Model Number: 10096925	Report Number: TAF4-PB-16-258-V2
UUT Function: Power distribution to Multitom Rax	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
862	31.5	17.1	86.7	NA	NA	NA

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _p	A _{FLEX-H} (g)	A _{RIG-H} (g)	A _{FLEX-V} (g)	A _{RIG-V} (g)
CBC 2022 / ICC-ES AC156	2.20	1.0	1.5	3.52	2.64	--	--
	2.50	0.0	1.5	--	--	1.67	0.67

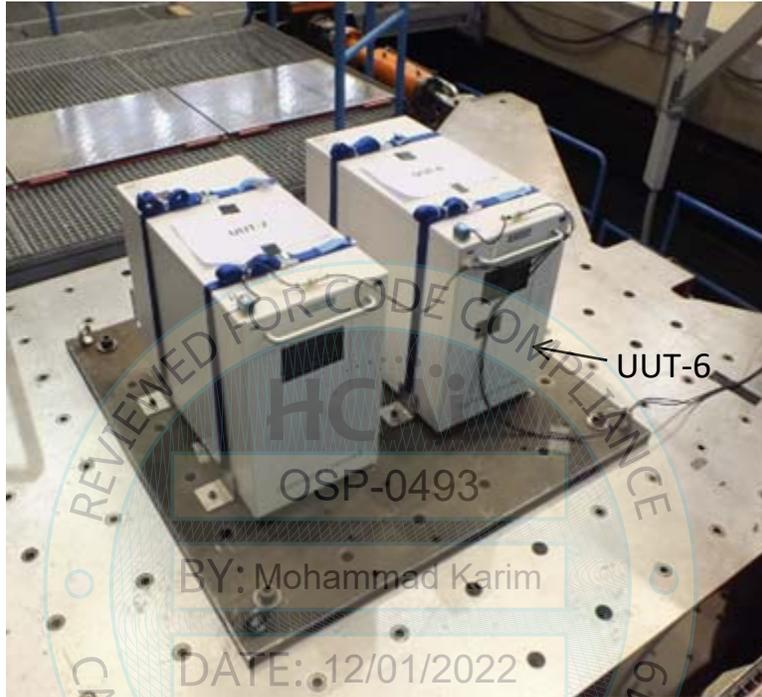
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_y-6

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit SN:10432402. Seismic restraint kit includes two 1" wide hand tightened cam buckle straps (830lb WLL) looped thru angle brackets positioned on each side of the unit. The four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: PC (W550)	Test Date: January 2017
Model Number: 11105103	Report Number: TAF4-PB-17-033-V1
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
90	13.4	27.4	22.8	24	18.6	> 33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _p	A _{AFLX-H} (g)	A _{ARIG-H} (g)	A _{AFLX-V} (g)	A _{ARIG-V} (g)
CBC 2022 / ICC-ES AC156	2.20	1.0	1.5	3.52	2.64	--	--
	2.50	0.0	1.5	--	--	1.67	0.67

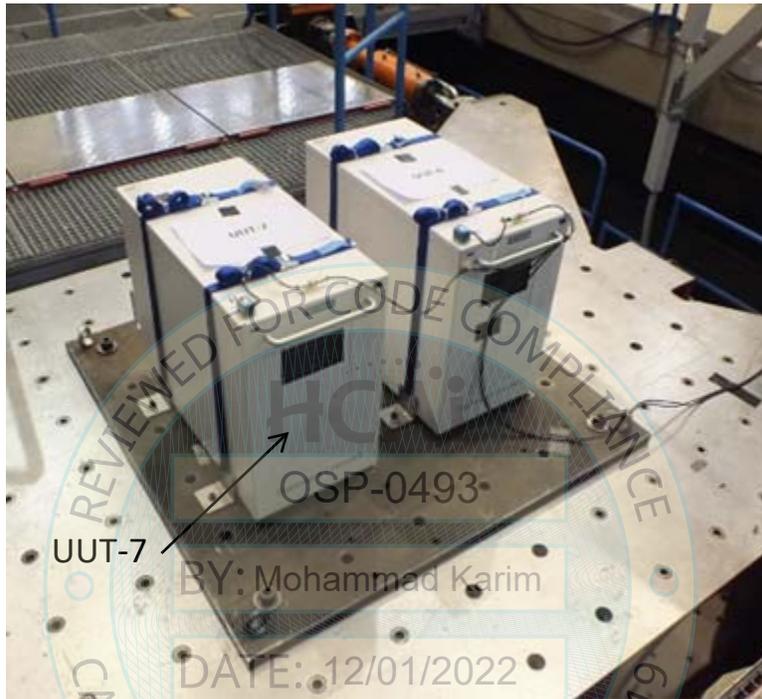
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_y-7

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit SN:10432402. Seismic restraint kit includes two 1" wide hand tightened cam buckle straps (830lb WLL) looped thru angle brackets positioned on each side of the unit. The four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH	Test Location: IABG
Component: FLC PC (W550 RAD)	Test Date: January 2017
Model Number: 11105102	Report Number: TAF4-PB-17-033-V1
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of the Multitom Rax System	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
87	13.4	27.4	22.8	27.1	18.1	> 33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{Ds} (g)	z / h	I _p	A _{FLEX-H} (g)	A _{RIG-H} (g)	A _{FLEX-V} (g)	A _{RIG-V} (g)
CBC 2022 / ICC-ES AC156	2.20	1.0	1.5	3.52	2.64	--	--
	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.