APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0100-10

Check whether application is: NEW [ ] RENEWAL [X]

1.0

SIEMENS MEDICAL SOLUTIONS USA, INC.	Steven B. Wagman
Manufacturer	*Manufacturer's Technical Representative*

51 Valley Stream Parkway, Malvern, PA. 19355
Mailing Address

(610) 219-2137	Steven.wagman@siemens.com
Telephone	*E-mail Address*

2.0

SEE ATTACHMENT 1	Computed Tomography (CT) Systems
Product Name	*Product Type*

SEE ATTACHMENT 1
Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Multi-component CT systems used for medical imaging.

3.0

EQUIPMENTANCHORAGE.COM	JONATHAN ROBERSON, S.E.
Applicant Company Name	*Contact Person*

5877 Pine Ave, Suite 210, Chino Hills, CA. 91709
Mailing Address

(406) 541-EASE (3273)	*jon@easeco.com*
Telephone	*E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant	June 18, 2010
	Date
SENIOR ENGINEER	***EQUIPMENTANCHORAGE.COM***
Title	*Company Name*

Registered Design Professional Preparing the Report

4.0 ***EQUIPMENTANCHORAGE.COM***
Company Name

Jonathan Roberson, S.E. | S4197
Contact Name | *California License Number*

5877 Pine Ave, Suite 210, Chino Hills, CA. 91709
Mailing Address

909-606-7622 | jon@easeco.com
Telephone | *E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0 ***EQUIPMENTANCHORAGE.COM***
Company Name

Jonathan Roberson, S.E. | S4197
Contact Name | *California License Number*

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Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

70. ☒ *Testing in accordance with:* ☒ *ICC-ES AC-156* ☐ *Other (Please Specify):*

☐ *Analysis*

☐ *Experience data*

☐ *Combination of Testing, Analysis, and/or Experience Data (Please Specify):*

Testing Laboratory (if applicable)

8.0 Environmental Testing Laboratory, Inc. | Brady Richard
Company Name | *Contact Name*

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

972-247-9657 | brady@etldallas.com
Telephone | E-mail:

Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = ***2.4g Typical(UNO) & 2.29 for Flow Heaters***

S_{DS} (Spectral response acceleration at short period) = ***2.00g Typical(UNO) & 1.91 for Flow Heaters***

a_p (In-structure equipment or component amplification factor) = ***1.0***

R_p (Equipment or component response modification factor) = ***1.5***

I_p (Importance factor) = ***1.5***

z/h (Height factor ratio)= ***1.0***

Equipment or Component fundamental frequency(s) = ***SEE ATTACHMENT 1***

Building period limits (if any) = ***NO LIMIT***

Overall dimensions and weight (or range thereof) = ***SEE ATTACHMENT 1***

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

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 fundamental period(s) = *Sec*

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 ***List of attachments supporting the special seismic certification of equipment or components:***

☒ *Test Report* ☐ *Drawings* ☐ *Manufacturer's Catalog*

☐ *Calculations* ☒ *Others (Please Specify)*: SE Acceptance Letter; Attachment 1; Attachment 2

11.0 ***OSHPD Approval*** *(For Office Use Only)*

Signature & Date 1/19/11	**December 31, 2016** *Approval Expiration Date*
Chris Tokas, SHFR *Name & Title*	S_{DS} (g) = **See Section 9.0** z/h = **1.0** *Special Seismic Certification Valid Up to*

Condition of Approval (if any):

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: SEISMICALLY CERTIFIED SYSTEMS & COMPONENTS

Table 1: CT Systems and Primary Components

Siemens Medical Solutions SYSTEM NAME	Component Designation	Mount [B]	W (in)	L (in) (Min/ Max)	H (in) (Min/ Max)	Max. WT. (lbs.)	Lowest Resonant Freqency. (Hz.) [A]		
							F/B	S/S	Vert.
GANTRIES									
SOMATOM Definition AS	Definition AS Gantry	Floor	36.7	93.7	78	4851	7.1	9.3	22.1
SOMATOM Definition Flash	Definition Flash Gantry	Floor	47.4	91.1	78	5689			
SOMATOM Definition	Definition Gantry	Floor	47.4	91.1	78	5579			
SOMATOM Sensation Open	Sensation Open Gantry	Floor	37	89.8	78.1	4410			
SOMATOM Sensation 64	Sensation 64 Gantry	Floor	37	89.8	78.1	4410			
SOMATOM Sensation 40	Sensation 40 Gantry	Floor	37	89.8	78.1	4410			
SOMATOM Sensation 16	Sensation 40 Gantry	Floor	37	89.8	78.1	4410			
SOMATOM Spirit	Spirit Gantry	Floor	26.9	90.6	71.5	2644			
SOMATOM Emotion 16	Emotion 16 Gantry	Floor	26.9	90.6	71.5	2615			
SOMATOM Emotion 6	Emotion 6 Gantry	Floor	26.9	90.6	71.5	2615	10.7	6.4	15.8
PATIENT TABLES									
SOMATOM Definition AS	PHS	Floor	29.5	97.6	33.5	1103	>50	2.7	5.3
SOMATOM Definition Flash	PHS	Floor	28	95.7/ 190.2	33.5	1103			
SOMATOM Definition	PHS	Floor	29.5	95.7	33.5	1103			
SOMATOM Sensation Open	PHS	Floor	26.5	95.8/ 160.4	20.9/ 40.2	1103			
SOMATOM Sensation 64	PHS	Floor	26.5	95.8/ 160.4	20.9/ 40.2	1103			
SOMATOM Sensation 40	PHS	Floor	26.5	95.8/ 160.4	20.9/ 40.2	1103			
SOMATOM Sensation 16	PHS	Floor	26.5	95.8/ 160.4	20.9/ 40.2	1103			
SOMATOM Spirit	PHS P15	Floor	26.7	87.8/ 150.9	19.7/ 35.1	<950			
SOMATOM Emotion 16	PHS P15	Floor	26.7	87.8/ 150.9	19.7/ 35.1	<950			
SOMATOM Emotion 6	PHS P15	Floor	26.7	87.8/ 150.9	19.7/ 35.1	<950	6.5	10	19.7
POWER DISTRIBUTION									
SOMATOM Definition AS	PDC	Floor	35	37.5	77	1294	4.9	3.3	15.8
SOMATOM Definition Flash	PDC-A or PDC-B	Floor	27.2	35.4	76.8	1213			
SOMATOM Definition	PDC-A or PDC-B	Floor	27.6	35.4	76.8	1213			
SOMATOM Sensation Open	PDC	Floor	35.4	29.5	70.9	1213			
SOMATOM Sensation 64	PDC	Floor	35.4	29.5	70.9	1213			
SOMATOM Sensation 40	PDC	Floor	35.4	29.5	70.9	1213			

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SOMATOM Sensation 16	PDC	Floor	35.4	29.5	70.9	1213			
SOMATOM Spirit	LCB (Line Control Box)	Floor	11.8	29.5	32.1	227			
SOMATOM Emotion 16	LCB (Line Control Box)	Floor	11.8	29.5	32.1	227			
SOMATOM Emotion 6	LCB (Line Control Box)	Floor	13.5	29.5	32.1	227	12	22.7	43
Image Control System (ICS)									
SOMATOM Definition AS	ICS Tower PC	Floor	8	20.5	17.5	49	10.4	37	25.8
SOMATOM Definition Flash	ICS Tower PC	Floor	9.8	29.5	18.5	66			
SOMATOM Definition	ICS Tower PC	Floor	9.8	29.5	18.5	66			
SOMATOM Sensation Open	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Sensation 64	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Sensation 40	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Sensation 16	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Spirit	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Emotion 16	ICS Tower PC	Floor	8	22.5	17.3	68			
SOMATOM Emotion 6	ICS Tower PC	Floor	8	22.5	17.3	68	25.9	19.5	42.9
Image Reconstruction System (IRS)									
SOMATOM Definition AS	IRSmx2 Cabinet	Floor	12.5	27.75	20.9	100	12.2	21.1	41.9
SOMATOM Definition Flash	IRSmx2d Tower	Floor	12.6	29.9	20.9	128			
SOMATOM Definition	IRSmx2a Tower	Floor	12.6	29.9	20.9	128			
SOMATOM Sensation Open	IRSmx2s Tower	Floor	12.6	29.9	20.9	126			
SOMATOM Sensation 64	IRSmx2s Tower	Floor	12.6	29.9	20.9	126			
SOMATOM Sensation 40	IRSmx2s Tower	Floor	12.6	29.9	20.9	126			
SOMATOM Sensation 16	IRSmx2s Tower	Floor	12.6	29.9	20.9	126			
SOMATOM Spirit	IRS Tower	Floor	8	22.3	17.3	66			
SOMATOM Emotion 16	IRS Tower	Floor	8	22.3	17.3	66			
SOMATOM Emotion 6	IRS Tower	Floor	8	22.3	17.3	66	25.9	19.5	42.9
UPS (Uninterruptable Power Supply for IMS (ICS, IRS & Monitor Display)									
SOMATOM Emotion 16	Powerware 9125 UPS (1500 VA)	Floor	3.5	19.3	17	61			
SOMATOM Emotion 6	Powerware 9125 UPS (1500 VA)	Floor	3.5	19.3	17	61	25.6	19.5	42.9

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LCD Monitor Display w/ Desktop Display Stand									
SOMATOM Definition AS SOMATOM Definition Flash SOMATOM Definition	Monitor Display	Counter-top	8.3	16.5	16.1	20	C	C	C
SOMATOM Sensation Open SOMATOM Sensation 64 SOMATOM Sensation 40 SOMATOM Sensation 16	Monitor Display	Counter-top	8.3	16.5	16.1	20			
SOMATOM Emotion 6 SOMATOM Emotion 16 SOMATOM Spirit	Monitor Display	Counter-top	16.5	8	17.5	32	C	C	C
Control Panel (Control Box)									
SOMATOM Definition AS SOMATOM Definition Flash SOMATOM Definition	Control Box	Counter-top	9.5	7.3	2.5	1	C	C	C
SOMATOM Sensation Open SOMATOM Sensation 64 SOMATOM Sensation 40 SOMATOM Sensation 16	Control Box	Counter-top	9 (diam)	---	2	1			
SOMATOM Emotion 6 SOMATOM Emotion 16 SOMATOM Spirit	Control Box	Counter-top	9.5	7.3	2.5	1	C	C	C
Ethernet Switch									
SOMATOM Definition AS SOMATOM Definition Flash SOMATOM Definition	Ethernet Switch	Floor or Counter-top Anchored	9.5	7.3	1	1			
SOMATOM Sensation Open SOMATOM Sensation 64 SOMATOM Sensation 40 SOMATOM Sensation 16	Ethernet Switch	Floor or Counter-top Anchored	9.5	7.3	1	1			
SOMATOM Emotion 6 SOMATOM Emotion 16 SOMATOM Spirit	Ethernet Switch	Floor or Counter-top Anchored	9.5	7.3	1	1	C	C	C

Notes:

A) F/B = Front-to-Back Axis; S/S = Side-to-Side Axis; Vert. = Vertical Axis

B) Wall/Floor" indicates a condition where the unit bears on, and is anchored directly to the supporting floor. In addition, lateral restraint anchoring the unit to an adjacent wall or other supporting structure is provided at the top of the equipment.
"Countertop" refers to a condition where the unit sits atop but is not otherwise anchored to a counter, desk, or other piece of fixed furniture (unless otherwise noted).

C) Not monitored

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SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: SEISMICALLY CERTIFIED SYSTEMS & COMPONENTS

Table 2: Optional Water Cooling System Components

PRODUCT LINE	COMPONENT	IDENTIFICATION	W (IN)	D (IN)	H (IN)	MAX. DRY WT.(LBS)	MOUNT
SOMATOM Sensation Open/64 CT System Cooling System Water/Air Split	P30 Cabinet (Indoor Unit)	Manufacturer: Riedel Model No. 08905338 Ident No. 2NK6 725 1W	35.25	34.25	71	688	Floor
	P30 Condenser (Outdoor Unit)	Manufacturer: Riedel Model No. 8905346 Ident No. 2NK6 725 1A	69.25	45	29.5	312	Floor
	Flow Heater	Manufacturer: Riedel Model No. 10161829 Ident No. 2NK6748	33.25	20.5	39.5	288	Floor
SOMATOM Definition CT System Cooling System Water/Air Split	P45 Cabinet (Indoor Unit)	Manufacturer: Riedel Model No.07741551 Ident No. 2NK6 745-W	35.5	26	76.5	950	Wall/Floor
	P45 Condenser (Outdoor Unit)	Manufacturer: Riedel Model No. 07741569 Ident No. 2NK6 745 A	43	95	36.5	385	Floor
	Flow Heater	Manufacturer: Riedel Model No. 10161829 Ident No. 2NK6748	33.25	20.5	39.5	288	Floor

Notes:

Ŧ Seismic qualification of the P45 Condenser is limited to units possessing the structural enhancements included on the test specimen which are not found on the standard P45 condenser unit. These include:

- Cold formed steel C-studs extending from grade to the top of the unit at each leg. These steel C-stud sections are bolted to the exterior face of the cabinet and each leg, and serve to enhance the moment resisting capacity of the connection between leg and the main body of the enclosure. (See photo in Attachment 2.)
- Additional 14 ga. plate washers were screwed into place at the base connection of each leg to enhance the flexural and punch-through resistance of the base plates at each leg that transfer load to the bolts anchoring the unit to the supporting structure. (See photo in Attachment 2.)

Table 3: Lowest Resonant Frequencies (Hz.) of Water Cooling System Components

UUT	FRONT-TO-BACK AXIS	SIDE-TO-SIDE AXIS	TOP-TO-BOTTOM AXIS
P30 Cabinet	5.0	8.1	15.2
P30 Condenser	10.6	6.2	27.6
P45 Cabinet	17.8	25.3	20.1
P45 Condenser	12.6	8.1	21.7
Flow Heater	8.2	18.6	39.5

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ATTACHMENT 2: SEISMIC KIT ENHANCEMENTS TO STANDARD P45 CONDENSER

Photo 1: Leg Strengthening

Photo 2: Leg Strengthening

Photo 3: Anchor Point Reinforcing