



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: OSP – 0317 – 10

**OSHPD Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Johnson Controls

Manufacturer's Technical Representative: Stephen Zardus

Mailing Address: 616 Renaissance Dr., New Freedom, PA 17349

Telephone: 717.771.7305 Email: [Stephen.M.Zardus@jci.com](mailto:Stephen.M.Zardus@jci.com)

**Product Information**

Product Name: YVAA/QTC4 Air-Cooled Screw Liquid Chillers

Product Type: Chiller

Product Model Number: Various. See Attachment

(List all unique product identification numbers and/or part numbers)

General Description: Air-Cooled Variable-Speed Screw Chiller

Mounting Description: Base mounted on captive mount neoprene isolators.

**Applicant Information**

Applicant Company Name: Structural Integrity Associates, Inc.

Contact Person: Matthew J. Tobolski, PhD, SE

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

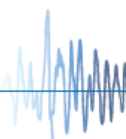
Telephone: 541.205.4064 Email: [mtobolski@structint.com](mailto:mtobolski@structint.com)

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 8/8/2017

Title: Executive Advisor Company Name: Structural Integrity Associates, Inc.

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
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**California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)**

Company Name: Structural Integrity Associates, Inc.

Name: Matthew J. Tobolski, PhD, SE California License Number: S5648

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

Telephone: 541.205.4064 Email: [mtobolski@structint.com](mailto:mtobolski@structint.com)

**Supports and Attachments Preapproval**

- Supports and attachments are preapproved under OPM- \_\_\_\_\_  
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

**Certification Method**

- Testing in accordance with:  ICC-ES AC156
- Other (Please Specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

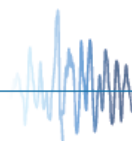
**Testing Laboratory**

Company Name: U.S. Army Engineer Research & Development Center

Contact Name: Jim Wilcoski

Mailing Address: 2902 Newmark Drive, Champaign, IL 61826

Telephone: 217.373.6763 Email: [James.Wilcoski@usace.army.mil](mailto:James.Wilcoski@usace.army.mil)





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: [X] Yes [ ] No

Design Basis of Equipment or Components (Fp/Wp) = 3.51

Sds (Design spectral response acceleration at short period, g) = 1.95

ap (In-structure equipment or component amplification factor) = 2.5

Rp (Equipment or component response modification factor) = 2.5

Omega\_0 (System overstrength factor) = 2.0

Ip (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See Attachment

Overall dimensions and weight (or range thereof) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: [ ] Yes [X] No

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

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

Sd1 (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Omega\_0 (System overstrength factor) =

Cd (Deflection amplification factor) =

Ip (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component Natural Frequencies (Hz) =

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2015: [ ] Yes [X] No

List of Attachments Supporting Special Seismic Certification

[X] Test Report(s) [ ] Drawings [ ] Calculations [ ] Manufacturer's Catalog

[X] Other(s) (Please Specify): Attachment

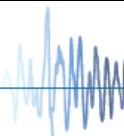
OSHPD Approval (For Office Use Only) - Approval Expires on December 31, 2022

Signature: [Signature] Date: September 7, 2017

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : Sds (g) = 1.95 z/h = 1

Condition of Approval (if applicable):



# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1700965-CR-001, REV. 0



<b>Manufacturer:</b> Johnson Controls, Inc.	<b>TABLE 1</b>
<b>Model Line:</b> YVAA/QTC4	

**Certified Product Construction Summary:**  
Painted carbon steel framing

**Certified Options Summary:**  
460V (Component voltage tied directly to overall unit voltage).  
**See tables 2-6 for certified option details.**

**Mounting Configuration:**  
Base mounted - isolated  
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

**Building Code: CBC 2016**                      **Seismic Certification Limits:**     $S_{DS} = 1.95 g$      $z/h=1.0$                        $I_p = 1.5$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
YVAA Chillers	YVAA0153	208.3	93.0	96.0	13,911		Interp.
	YVAA0165	252.0	93.0	96.0	13,801	460V, Single Point, 500A	1
	YVAA0178	296.2	93.0	96.0	17,764		Interp.
	YVAA0183	252.0	93.0	96.0	14,452		Interp.
	YVAA0195	296.2	93.0	96.0	15,306		Interp.
	YVAA0198	340.2	93.0	96.0	16,439		Interp.
	YVAA0200	231.0	93.0	96.0	16,347		Interp.
	YVAA0213	296.2	93.0	96.0	15,394		Interp.
	YVAA0215	296.2	93.0	96.0	18,036		Interp.
	YVAA0218	340.2	93.0	96.0	18,876		Interp.
	YVAA0233	296.2	93.0	96.0	15,896		Interp.
	YVAA0245	340.2	93.0	96.0	19,091		Interp.
	YVAA0248	384.1	93.0	96.0	19,927		Interp.
	YVAA0263	340.2	93.0	96.0	16,773		Interp.
	YVAA0270	296.2	93.0	96.0	16,775		Interp.
	YVAA0273	340.2	93.0	96.0	19,604		Interp.
	YVAA0275	340.2	93.0	96.0	20,422		Interp.
	YVAA0278	384.2	93.0	96.0	21,251		Interp.
	YVAA0295	384.2	93.0	96.0	21,752		Interp.
	YVAA0303	384.2	93.0	96.0	20,450		Interp.
YVAA0305	425.0	93.0	96.0	21,273		Interp.	
YVAA0308	428.1	93.0	96.0	22,107		Interp.	
YVAA0323	384.2	93.0	96.0	22,120		Interp.	
YVAA0333	428.1	93.0	96.0	21,658		Interp.	

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844-TRU-0200 | info@trucompliance.com

# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1700965-CR-001, REV. 0



<b>Manufacturer:</b> Johnson Controls, Inc.						<b>TABLE 1</b>	
<b>Model Line:</b> YVAA/QTC4							
<b>Certified Product Construction Summary:</b> Painted carbon steel framing							
<b>Certified Options Summary:</b> 460V (Component voltage tied directly to overall unit voltage). <b>See tables 2-6 for certified option details.</b>							
<b>Mounting Configuration:</b> Base mounted - isolated Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
<b>Building Code: CBC 2016</b> <b>Seismic Certification Limits:</b> $S_{DS} = 1.95 g$ $z/h=1.0$ $I_p = 1.5$							
Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
YVAA Chillers	YVAA0343	428.1	93.0	96.0	22,193	460V, Single Point, 800A	2
QTC4 Chillers	QTC4150S	208.3	93.0	96.0	13,911		Interp.
	QTC4165H	252.0	93.0	96.0	13,801	460V, Single Point, 500A	1
	QTC4175C	231.0	93.0	96.0	16,347		Interp.
	QTC4175P	296.2	93.0	96.0	17,764		Interp.
	QTC4185S	252.0	93.0	96.0	14,452		Interp.
	QTC4185H	296.2	93.0	96.0	15,306		Interp.
	QTC4185P	340.2	93.0	96.0	16,439		Interp.
	QTC4210S	296.2	93.0	96.0	15,394		Interp.
	QTC4210H	296.2	93.0	96.0	18,036		Interp.
	QTC4210P	340.2	93.0	96.0	18,876		Interp.
	QTC4230S	296.2	93.0	96.0	15,896		Interp.
	QTC4240H	340.2	93.0	96.0	19,091		Interp.
	QTC4240P	384.1	93.0	96.0	19,927		Interp.
	QTC4260S	340.2	93.0	96.0	16,773		Interp.
	QTC4270C	296.2	93.0	96.0	16,775		Interp.
	QTC4270S	340.2	93.0	96.0	19,604		Interp.
	QTC4270H	340.2	93.0	96.0	20,422		Interp.
	QTC4270P	384.2	93.0	96.0	21,251		Interp.
	QTC4290H	384.2	93.0	96.0	21,752		Interp.
	QTC4300S	384.2	93.0	96.0	20,450		Interp.
QTC4300H	425	93.0	96.0	21,273		Interp.	
QTC4310P	428.1	93.0	96.0	22,107		Interp.	
QTC4320S	384.2	93.0	96.0	22,120		Interp.	

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# UNIT UNDER TEST (UUT) SUMMARY SHEET

1700965-CR-001, REV. 0



<b>Manufacturer:</b> Johnson Controls, Inc.	<b>UUT 1</b>
<b>Model Line:</b> YVAA/QTC4	
<b>Model Number:</b> YVAA0165/QTC4165T <b>Serial Number:</b> N/A	

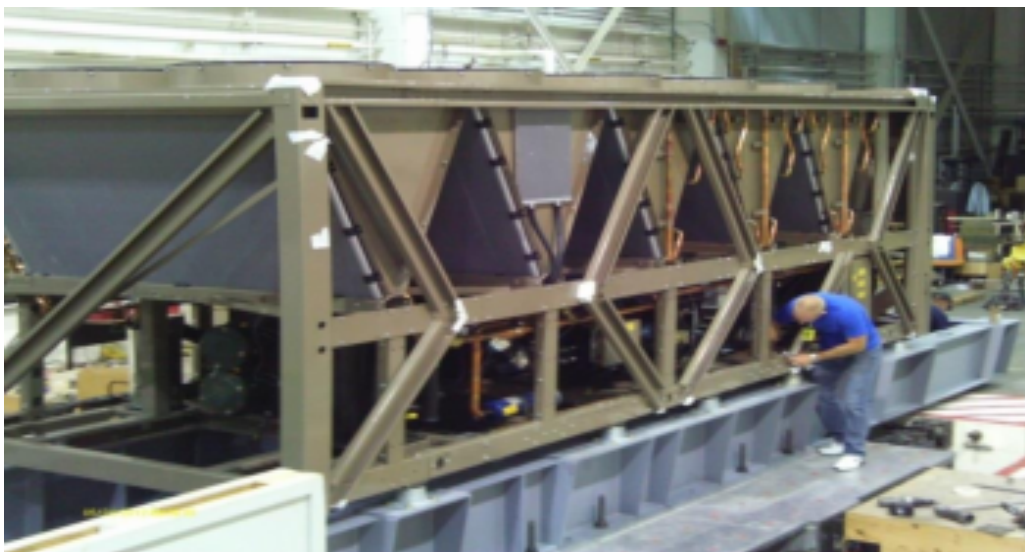
**Product Construction Summary:**  
Painted carbon steel enclosure

**Options/Subcomponent Summary:**  
Schneider Electric 460V-Single Point-500A Compressor VSD Power/Control Panel, JCI CTS24SAAD compressor, JCI FFE230 evaporator, Danfoss 026-45677-000 condenser, (10) AO Smith fan motors (2-motor types, 024-36873-507 & 024-34980-501), (10) MultiWing condenser fan impellers (2-fan types, 026-41594-000 & 026-41942-000), Danfoss Liquid Line EEV (electronic expansion valve) 025-43887-000, JCI 375-79551-000 (14") flash tank, Westermeyer Industries 8" oil separator 375-93290-000, Danfoss Economizer EEV (electronic expansion valve) 025-44027-000, ABB 024-34355-021 (31A) condenser fan.

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
13,801	252	93	96	6.9	4.7	9.0

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016	ICC-ES AC156	1.95	1.0	1.5	3.12	2.34	1.30	0.52	

**Test Mounting Details:**



Unit mounted on four (4) YRSM3 2300Z, four (4) YRSM3 1300Z and two (2) YRSM3-1000Z VMC captive mount isolators mounted to shake table platen using (40) 5/8" Ø - Grade 8 bolts.  
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



1700965-CR-001, REV. 0

<b>Manufacturer:</b> Johnson Controls, Inc.	<b>UUT 2</b>
<b>Model Line:</b> YVAA/QTC4	
<b>Model Number:</b> YVAA0343/QTC4340S <b>Serial Number:</b> N/A	

**Product Construction Summary:**  
Painted carbon steel enclosure

**Options/Subcomponent Summary:**  
Schneider Electric 460V-Single Point-800A Compressor VSD Power/Control Panel, JCI CTS24SAAD compressor, JCI FFE331 evaporator, Danfoss 026-45677-000 condenser, (18) AO Smith fan motors (2-motor types, 024-36873-507 & 024-34980-501), (18) MultiWing condenser fan impellers (2-fan types, 026-41594-000 & 026-41942-000), Danfoss Liquid Line EEV (electronic expansion valve) 025-44027-000, JCI 375-89884-000 (18") flash tank, Westermeyer Industries oil separator 375-89951-000 (14"), Danfoss Economizer EEV (electronic expansion valve) 025-44027-000, ABB 024-34355-022 (38A) condenser fan.

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
22,193	428.1	93	96	7.0	3.6	8.0

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
CBC 2016	ICC-ES AC156	1.95	1.0	1.5	3.12	2.34	1.30	0.52	

**Test Mounting Details:**



Unit mounted on eight (8) YRSM3-2300Z and four (4) YRSM3- 1000Z VMC captive mount isolators mounted to shake table platen using (48) 5/8" Ø – Grade 8 bolts  
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
Contents were included in testing per operating conditions.