



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0759

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Johnson Controls, Inc.

Manufacturer's Technical Representative: Matthew Zollo

Mailing Address: 5000 Renaissance Drive, New Freedom, PA 17349

Telephone: (407) 988-6821

Email: matthew.zollo@jci.com

Product Information

Product Name: Chillers

Product Type: Chillers - Water Cooled

Product Model Number: YZ Magnetic Bearing Centrifugal Chiller

General Description: Welded carbon steel evaporator and condenser vessels with compressor, motor, VSD, controller, and purge unit.

Mounting Description: Neoprene Vibration Isolated, Floor 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: Manwill Engineering LLC

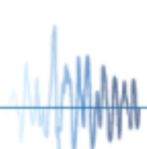
Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102

Email: derek@manwillse.com

Title: President





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

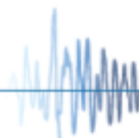
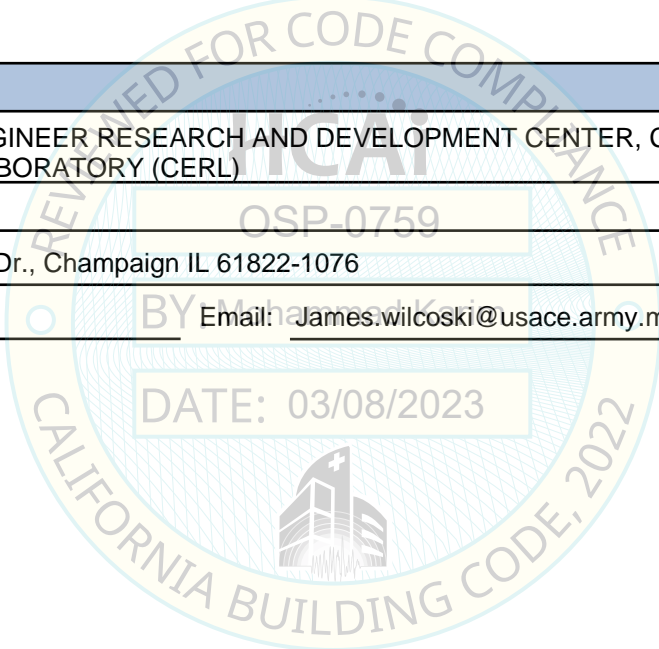
Company Name: MANWILL ENGINEERING LLC
Name: Derek Manwill California License Number: S6266
Mailing Address: PO Box 1194, Bend, OR 97709
Telephone: (541) 241-2102 Email: derek@manwillse.com

Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, CONSTRUCTION ENGINEERING
RESEARCH LABORATORY (CERL)
Contact Person: James Wilcoski
Mailing Address: 2902 Newmark Dr., Champaign IL 61822-1076
Telephone: (217) 373-6763 Email: James.wilcoski@usace.army.mil





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 3.44 (SDS=1.91, z/h=1), 1.50 (SDS=2.50, z/h=0)

SDS (Design spectral response acceleration at short period, g) = 1.91 (z/h=1), 2.50 (z/h=0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

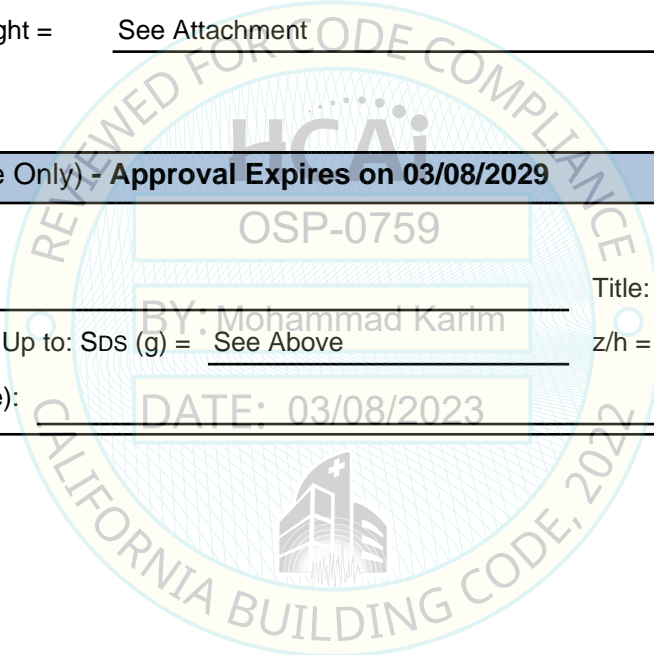
I_p (Importance factor) = 1.5

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 03/08/2029			
Date:	<u>3/8/2023</u>	OSP-0759	
Name:	<u>Mohammad Karim</u>	BY: Mohammad Karim	Title: <u>Supervisor, Health Facilities</u>
Special Seismic Certification Valid Up to:	SDS (g) = <u>See Above</u>		z/h = <u>See Above</u>
Condition of Approval (if applicable):	<u>DATE: 03/08/2023</u>		



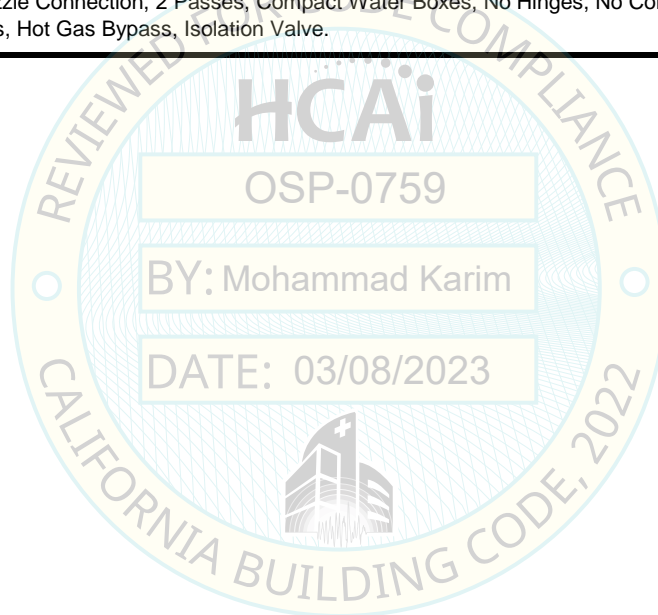
ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 18091CR1.0

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YZ MAGNETIC BEARING CENTRIFUGAL CHILLER						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
YZ						
YZ-MA041AN045P078HA	175	83	104	22,100		UUT 1
MOUNTING: Neoprene pad isolated floor mounted.				SEISMIC LEVELS:	S _{DS} = 1.91g for z/h = 1 S _{DS} = 2.50g for z/h = 0	I _p = 1.5
NOTES:						
Product Construction: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.						
Options/Subcomponents: Since only one unit was tested, variations are not allowed. The following option selections are required: 460V/60Hz, 150psi, No Insulation, Grooved Nozzle Connection, 2 Passes, Compact Water Boxes, No Hinges, No Condenser Epoxy Coating, No Sound Attenuation, No Falling Film Bypass, Hot Gas Bypass, Isolation Valve.						



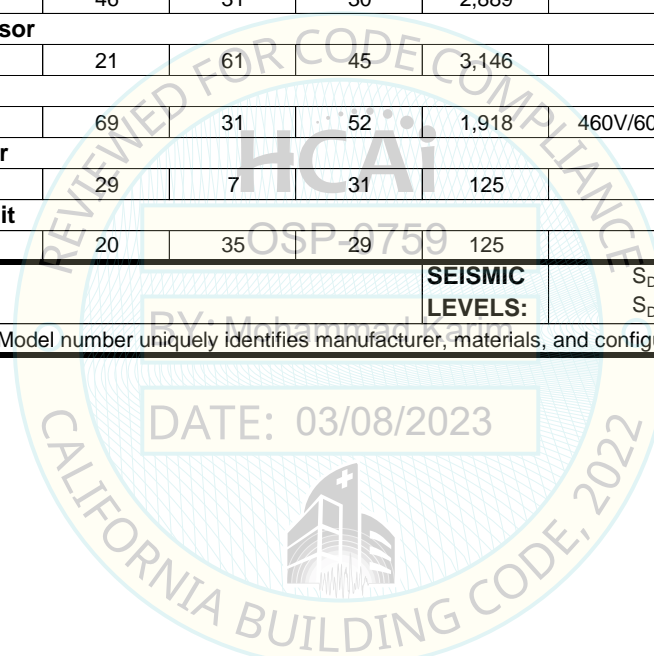
ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 18091CR1.0

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YZ MAGNETIC BEARING CENTRIFUGAL CHILLER						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Johnson Controls - Evaporator						
FA3312-12Z-646-2	168	45	49	6,382		UUT 1
Johnson Controls - Condenser						
CA2512-12Z-496-2	168	38	49	5,683		UUT 1
Regal - Motor						
MA041	46	31	30	2,889		UUT 1
Johnson Controls - Compressor						
AN045	21	61	45	3,146		UUT 1
Johnson Controls - VSD						
P078HA	69	31	52	1,918	460V/60Hz	UUT 1
Johnson Controls - Controller						
OPTIVIEW	29	7	31	125		UUT 1
Johnson Controls - Purge Unit						
392-51922-000	20	35	29	125		UUT 1
MOUNTING: Mounted within unit.				SEISMIC LEVELS:	$S_{DS} = 1.91g$ for $z/h = 1$ $S_{DS} = 2.50g$ for $z/h = 0$ $I_p = 1.5$	
NOTES: Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.						



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1

DOCUMENT NO.: 18091CR1.0

MANUFACTURER:		JOHNSON CONTROLS, INC.				
MODEL NUMBER:		YZ-MA041AN045P078HA				
UNIT FUNCTION:		CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
175	83	104	22,100	10.4	10.9	32.1
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		ERDC-CERL				
REPORT & DATE:		18091TR1.0		January 18, 2023		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
1.91	1	3.06	2.29	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Neoprene pad isolated floor mounted. UUT was mounted to (8) Mason A-38906 neoprene pad assemblies using (2) 1.25" diameter Grade 8 bolts per isolator (16 total).				
CONSTRUCTION:		Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.				
SUBCOMPONENTS:		Johnson Controls - Evaporator (FA3312-12Z-646-2), Johnson Controls - Condenser (CA2512-12Z-496-2), Regal - Motor (MA041), Johnson Controls - Compressor (AN045), Johnson Controls - VSD (P078HA 460V/60Hz), Johnson Controls - Controller (OPTIVIEW), Johnson Controls - Purge Unit (392-51922-000). The following option selections were used: 150psi, No Insulation, Grooved Nozzle Connection, 2 Passes, Compact Water Boxes, No Hinges, No Condenser Epoxy Coating, No Sound Attenuation, No Falling Film Bypass, Hot Gas Bypass, Isolation Valve.				
TESTING NOTES:		UUT included several seismic upgrades that must be used on production models.				

