



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

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

OFFICE USE ONLY

APPLICATION #: OSP-0159

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Johnson Controls, Inc.

Manufacturer's Technical Representative: Jeremy Benwood

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

Telephone: (717) 771-6659 Email: jeremy.r.benwood@jci.com

Product Information

Product Name: Chillers

Product Type: Chillers - Water Cooled

Product Model Number: See Attachment 1

General Description: Welded carbon steel evaporator and condenser vessels with compressor, motor, VSD, and controller. Seismic enhancements made to the test units shall be incorporated into the production units.

Mounting Description: Neoprene pad floor mounted or spring isolated floor mounted, Floor Mounted

Applicant Information

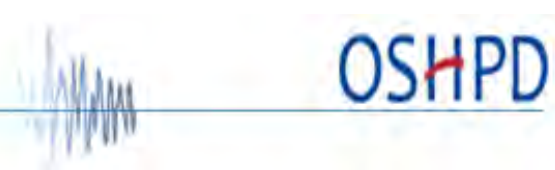
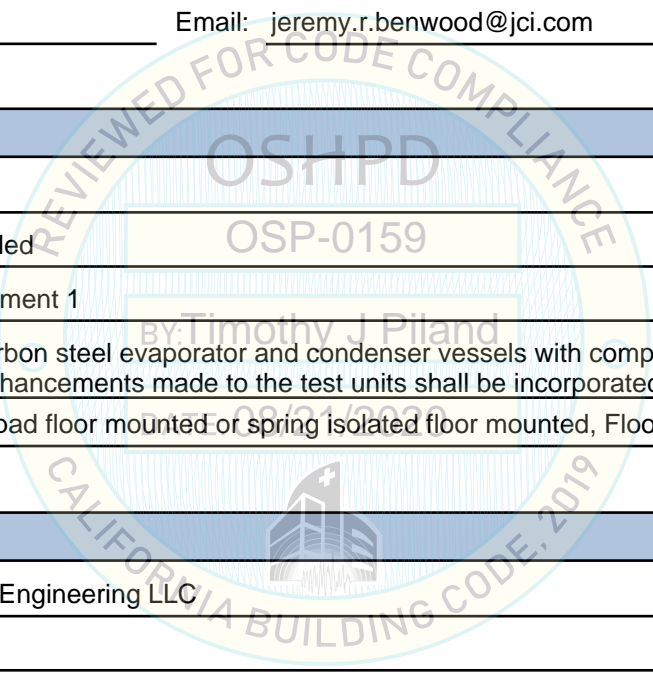
Applicant Company Name: Manwill Engineering LLC

Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102 Email: derek@manwillSE.com

Title: President





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

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: Jim Wilcoski
Mailing Address: 2902 Newmark Dr., Champaign IL 618221076
Telephone: (217) 373-6763 Email: james.wilcoski@usace.army.mil
Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)
Contact Person: Clement B. Barthes
Mailing Address: 1301 South 46th Street, Bldg 420, Richmond CA 94804
Telephone: (510) 642-3437 Email: peer_center@berkeley.edu





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 3.60 (neoprene pads); 4.50 (spring isolators)

SDS (Design spectral response acceleration at short period, g) = 2.00

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.5 (neoprene pads); 2.0 (spring isolators)

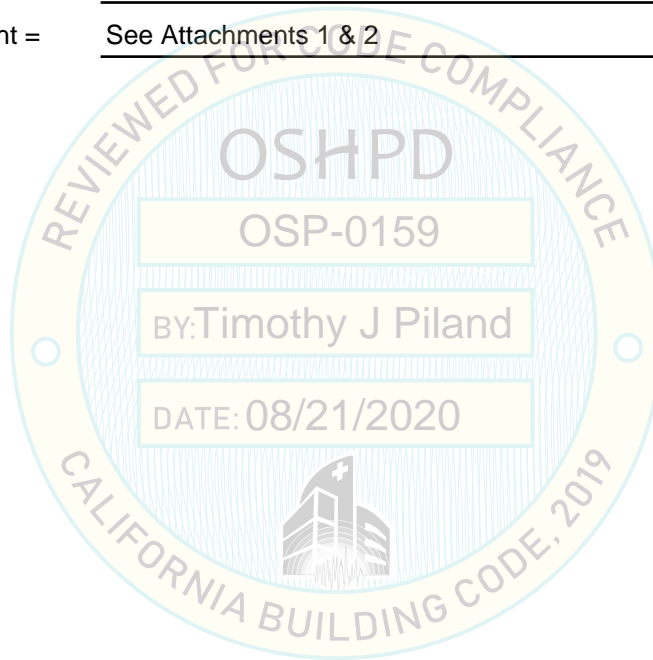
Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment 2

Overall dimensions and weight = See Attachments 1 & 2



OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date: 8/21/2020

Name: Timothy Piland Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = 2.00 z/h = 1

Condition of Approval (if applicable): _____



ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
York Magnetic Centrifugal Chiller (YMC2)						
YMC2-M1197-102521-490	63	135	78	11,750		UUT 2a,2b
YMC2-M1197-082525-490	64	100	84	14,300		INTERP
YMC2-M1205-082525-490	64	100	84	14,300		INTERP
YMC2-M1197-102521-744	75	122	96	15,300		INTERP
YMC2-M1197-102525-490	75	122	96	15,600		INTERP
YMC2-M1197-102525-744	75	122	96	16,500		INTERP
YMC2-M1197-142525-490	75	170	96	18,500		INTERP
YMC2-M1197-142525-744	75	170	96	19,500		INTERP
YMC2-M1205-102521-490	75	122	96	14,400		INTERP
YMC2-M1205-102521-744	75	122	96	15,300		INTERP
YMC2-M1205-102525-490	75	122	96	15,600		INTERP
YMC2-M1205-102525-744	75	122	96	16,600		INTERP
YMC2-M1205-142525-490	75	170	96	18,600		INTERP
YMC2-M1205-142525-744	75	170	96	19,500		INTERP
YMC2-M2197-082525-490	64	100	84	15,200		INTERP
YMC2-M2197-102521-490	75	122	96	15,500		INTERP
YMC2-M2197-102521-612	75	122	96	16,300		INTERP
YMC2-M2197-102521-774	75	122	96	16,400		INTERP
YMC2-M2197-102525-490	75	122	96	16,500		INTERP
YMC2-M2197-102525-612	75	122	96	17,400		INTERP
YMC2-M2197-102525-774	75	122	96	17,500		INTERP
YMC2-M2197-142525-490	75	170	96	19,700		INTERP
YMC2-M2197-142525-612	75	170	96	20,500		INTERP
YMC2-M2197-142525-774	75	170	96	20,600		INTERP
YMC2-M2205-082525-490	64	100	84	15,200		INTERP
YMC2-M2205-102521-490	75	122	96	15,500		INTERP
YMC2-M2205-102521-612	75	122	96	16,300		INTERP
YMC2-M2205-102521-774	75	122	96	16,400		INTERP
YMC2-M2205-102525-490	75	122	96	16,500		INTERP
YMC2-M2205-102525-612	75	122	96	17,400		INTERP
YMC2-M2205-102525-774	75	122	96	17,500		INTERP
YMC2-M2205-142525-490	75	170	96	19,700		INTERP
YMC2-M2205-142525-612	75	170	96	20,500		INTERP
YMC2-M2205-142525-774	75	170	96	20,600		INTERP
YMC2-M2218-102925-490	75	122	100	19,300		INTERP
YMC2-M2218-102925-612	75	122	100	20,100		INTERP
YMC2-M2218-102925-730	75	122	100	20,150		INTERP
YMC2-M2218-102925-774	75	122	100	20,200		INTERP
YMC2-M2218-102929-490	75	122	100	20,600		INTERP
YMC2-M2218-102929-612	75	122	100	21,400		INTERP
YMC2-M2218-102929-730	75	122	100	21,450		INTERP
YMC2-M2218-102929-774	75	122	100	21,500		INTERP

NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
York Magnetic Centrifugal Chiller (YMC2) (continued)						
YMC2-M2218-142925-490	75	170	100	23,000		INTERP
YMC2-M2218-142925-612	75	170	100	23,800		INTERP
YMC2-M2218-142925-730	75	170	100	23,900		INTERP
YMC2-M2218-142925-774	75	170	100	24,000		INTERP
YMC2-M2218-142929-490	75	170	100	24,800		INTERP
YMC2-M2218-142929-612	75	170	100	25,600		INTERP
YMC2-M2218-142929-730	75	170	100	25,650		INTERP
YMC2-M2218-142929-774	75	170	100	25,700		INTERP
YMC2-M2233-102925-490	75	122	100	19,300		INTERP
YMC2-M2233-102925-612	75	122	100	20,100		INTERP
YMC2-M2233-102925-730	75	122	100	20,150		INTERP
YMC2-M2233-102925-774	75	122	100	20,200		INTERP
YMC2-M2233-102929-490	75	122	100	20,600		INTERP
YMC2-M2233-102929-612	75	122	100	21,400		INTERP
YMC2-M2233-102929-730	75	122	100	21,500		INTERP
YMC2-M2233-102929-774	75	122	100	21,600		INTERP
YMC2-M2233-103329-490	84	122	104	23,000		INTERP
YMC2-M2233-103329-612	84	122	104	23,800		INTERP
YMC2-M2233-103329-730	84	122	104	23,850		INTERP
YMC2-M2233-103329-774	84	122	104	23,900		INTERP
YMC2-M2233-103333-490	84	122	104	24,300		INTERP
YMC2-M2233-103333-612	84	122	104	25,100		INTERP
YMC2-M2233-103333-730	84	122	104	25,200		INTERP
YMC2-M2233-103333-774	84	122	104	25,300		INTERP
YMC2-M2233-142925-490	75	170	100	23,000		INTERP
YMC2-M2233-142925-612	75	170	100	23,800		INTERP
YMC2-M2233-142925-730	75	170	100	23,900		INTERP
YMC2-M2233-142925-774	75	170	100	24,000		INTERP
YMC2-M2233-142929-490	75	170	100	24,800		INTERP
YMC2-M2233-142929-612	75	170	100	25,600		INTERP
YMC2-M2233-142929-730	75	170	100	25,650		INTERP
YMC2-M2233-142929-774	75	170	100	25,700		INTERP
YMC2-M2233-143329-490	84	170	104	27,800		INTERP
YMC2-M2233-143329-612	84	170	104	28,600		INTERP
YMC2-M2233-143329-730	84	170	104	28,650		INTERP
YMC2-M2233-143329-774	84	170	104	28,700		INTERP
YMC2-M2233-143333-490	84	170	104	29,600		INTERP
YMC2-M2233-143333-612	84	170	104	30,400		INTERP
YMC2-M2233-143333-730	84	170	104	30,450		INTERP
YMC2-M2233-143333-774	84	170	104	30,500		INTERP
YMC2-M2246-103329-490	84	122	104	23,000		INTERP
YMC2-M2246-103329-612	84	122	104	23,800		INTERP

NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
York Magnetic Centrifugal Chiller (YMC2) (continued)						
YMC2-M2246-103329-730	84	122	104	23,850		INTERP
YMC2-M2246-103329-774	84	122	104	23,900		INTERP
YMC2-M2246-103333-490	84	122	104	24,300		INTERP
YMC2-M2246-103333-612	84	122	104	25,100		INTERP
YMC2-M2246-103333-730	84	122	104	25,200		INTERP
YMC2-M2246-103333-774	84	122	104	25,300		INTERP
YMC2-M2246-143329-490	84	170	104	27,800		INTERP
YMC2-M2246-143329-612	84	170	104	28,600		INTERP
YMC2-M2246-143329-730	84	170	104	28,650		INTERP
YMC2-M2246-143329-774	84	170	104	28,700		INTERP
YMC2-M2246-143333-490	84	170	104	29,600		INTERP
YMC2-M2246-143333-612	84	170	104	30,400		INTERP
YMC2-M2246-143333-730	84	170	104	30,450		INTERP
YMC2-M2246-143333-774	84	170	104	30,500		INTERP
YMC2-M6295-123329-730	84	146	104	29,100		INTERP
YMC2-M6295-123329-774	84	146	104	29,200		INTERP
YMC2-M6295-123329-785	84	146	104	29,600		INTERP
YMC2-M6295-143333-730	84	170	104	33,400		INTERP
YMC2-M6295-143333-774	84	170	104	33,500		INTERP
YMC2-M6295-143333-785	84	170	104	33,900		INTERP
YMC2-M6295-143933-730	94	170	108	37,900		INTERP
YMC2-M6295-143933-774	94	170	108	38,000		INTERP
YMC2-M6295-143933-785	94	170	108	38,400		INTERP
YMC2-M6295-143933-1278	94	170	108	40,000		INTERP
YMC2-M6295-143939-730	94	170	108	40,100		INTERP
YMC2-M6295-143939-774	94	170	108	40,200		INTERP
YMC2-M6295-143939-785	94	170	108	40,600		INTERP
YMC2-M6295-143939-1278	94	170	108	42,200		INTERP
YMC2-M6331-143933-730	94	170	108	38,000		INTERP
YMC2-M6331-143933-774	94	170	108	38,100		INTERP
YMC2-M6331-143933-785	94	170	108	38,500		INTERP
YMC2-M6331-143933-1278	94	170	108	40,100		INTERP
YMC2-M6331-143939-730	94	170	108	40,200		INTERP
YMC2-M6331-143939-774	94	170	108	40,300		INTERP
YMC2-M6331-143939-785	94	170	108	40,700		INTERP
YMC2-M6331-143939-1278	94	170	108	44,246		UUT 3,4
MOUNTING:	Isolated floor mounted (spring or neoprene pad).			SEISMIC LEVEL:	S _{DS} = 2.00g for z/h = 1 I _p = 1.5	
NOTES:	<p>Product Construction: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.</p> <p>Options/Subcomponents: Available subcomponents are listed in Table 2. Tubes available in 0.025"-0.035" thickness. Evaporator insulation available in 3/4" or 1-1/2" thickness. VSD incoming voltage available in 380V-440V, with or without disconnect switch. Water boxes available in 150lb or 300lb, compact or marine.</p>					

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Johnson Controls Inc. - Compressor						
M1B-197FAB	40.7	45.7	31.5	1,938	Cast Iron, Ø197mm	UUT 2a,2b
M1B-205FAB	41.4	45.7	31.1	1,954	Cast Iron, Ø205mm	INTERP
M2C-197FAC	40.4	47.7	33.5	2,861	Cast Iron, Ø197mm	INTERP
M2C-197FACD	35.5	47.7	33.0	2,861	Cast Iron, Ø197mm	INTERP
M2C-205FAC	40.4	47.7	33.5	2,867	Cast Iron, Ø205mm	INTERP
M2C-205FACD	35.5	47.7	32.6	2,867	Cast Iron, Ø205mm	INTERP
M2C-218FAC	42.9	49.8	33.5	2,987	Cast Iron, Ø218mm	INTERP
M2C-233FAC	44.4	49.8	33.5	2,999	Cast Iron, Ø233mm	INTERP
M2C-246FAC	42.9	49.8	34.1	2,989	Cast Iron, Ø246mm	INTERP
M6C-295FAC	45.8	59.2	39.1	4,300	Cast Iron, Ø295mm	INTERP
M6C-331FAC	47.5	59.2	39.5	4,400	Cast Iron, Ø331mm	UUT 3,4
Johnson Controls Inc. - Evaporator						
EA2508	34.0	96.0	41.0	4,000	Carbon steel, Ø25in, length: 8ft.	EXTRAP
EB2508	34.0	96.0	41.0	4,200	Carbon steel, Ø25in, length: 8ft.	EXTRAP
EA2510	31.0	120.0	42.0	5,000	Carbon steel, Ø25in, length: 10ft.	UUT 2a,2b
EB2510	34.0	120.0	41.0	5,500	Carbon steel, Ø25in, length: 10ft.	INTERP
EA2514	31.0	168.0	42.0	6,000	Carbon steel, Ø25in, length: 14ft.	INTERP
EB2514	34.0	168.0	41.0	6,500	Carbon steel, Ø25in, length: 14ft.	INTERP
EB2910	35.0	120.0	45.0	6,800	Carbon steel, Ø29in, length: 10ft.	INTERP
EB2914	35.0	168.0	45.0	8,100	Carbon steel, Ø29in, length: 14ft.	INTERP
EB3310	39.0	120	51.3	8,730	Carbon steel, Ø33in, length: 10ft.	INTERP
EB3314	39.0	168	51.3	10,320	Carbon steel, Ø33in, length: 14ft.	INTERP
EC3312	39.0	144.0	51.3	11,200	Carbon steel, Ø33in, length: 12ft.	INTERP
EC3314	39.0	168.0	51.3	12,100	Carbon steel, Ø33in, length: 14ft.	INTERP
EC3914	48.0	168.0	56.3	17,000	Carbon steel, Ø39in, length: 14ft.	UUT 3,4
Johnson Controls Inc. - Condenser						
CA2110	31.0	120.0	39.5	4,200	Carbon steel, Ø21in, length: 10ft	UUT 2a,2b
CB2110	32.0	120.0	44.0	4,600	Carbon steel, Ø21in, length: 10ft	INTERP
CC2508	32.0	96.0	37.5	4,700	Carbon steel, Ø25in, length: 8ft	INTERP
CA2508	31.0	96.0	44.5	4,800	Carbon steel, Ø25in, length: 8ft	INTERP
CA2510	31.0	120.0	44.5	6,000	Carbon steel, Ø25in, length: 10ft	INTERP
CB2510	32.0	120.0	42.0	6,500	Carbon steel, Ø25in, length: 10ft	INTERP
CA2514	31.0	168.0	44.5	7,200	Carbon steel, Ø25in, length: 14ft	INTERP
CB2514	32.0	168.0	42.0	8,000	Carbon steel, Ø25in, length: 14ft	INTERP
CB2910	35.0	120.0	46.0	8,500	Carbon steel, Ø29in, length: 10ft	INTERP
CB2912	35.0	144.0	46.0	9,100	Carbon steel, Ø29in, length: 12ft	INTERP
CB2914	35.0	168.0	46.0	10,400	Carbon steel, Ø29in, length: 14ft	INTERP
CB3310	40.0	120.0	48.0	10,800	Carbon steel, Ø33in, length: 10ft	INTERP
CB3314	40.0	168.0	48.0	12,000	Carbon steel, Ø33in, length: 14ft	INTERP
CB3914	46.0	168.0	55.0	13,600	Carbon steel, Ø39in, length: 14ft	UUT 3,4
NOTES:	Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.					

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Johnson Controls Inc. - VSD						
HYP0490XHC	26.3	53.0	38.0	1,190		UUT 2a,2b
HYP0490XHC_Revised	26.3	53.0	38.0	1,530		INTERP
HYP0612XHC	26.5	58.0	49.2	1,954		INTERP
HYP0730XHC	29.2	59.0	52.0	2,080		INTERP
HYP0774XHC	26.4	59.0	52.0	2,200		INTERP
HYP0785XHC	29.0	67.0	52.0	2,585		UUT 5
HYP1278XHC	30.0	85.0	55.0	3,806		UUT 3,4
CTM - Inductor						
025-46194-000	15.0	17.0	18.0	222		EXTRAP
025-46349-000	17.0	24.0	17.0	224		EXTRAP
025-44864-000	14.0	24.0	17.0	230		EXTRAP
025-44855-000	16.0	23.0	14.0	291		EXTRAP
025-44458-000	14.0	26.0	12.0	340		UUT 2a,2b
025-44856-000	18.0	24.0	17.0	381		UUT 2a,2b
025-45311-000	13.0	41.0	17.0	496		UUT 3,4
025-46193-000	14.0	33.0	13.0	545		INTERP
025-45497-000	18.0	24.0	13.0	640		UUT 3,4
Schaffner - Inductor						
025-47563-000	14.0	19.0	14.0	144		EXTRAP
025-49000-000	13.0	12.0	13.0	210		EXTRAP
025-47564-000	12.0	17.0	14.0	276		EXTRAP
025-47565-000	14.0	16.0	15.0	276		EXTRAP
025-49002-000	12.0	18.0	16.0	357		UUT 5
025-49001-000	12.0	19.0	13.0	500		INTERP
025-47691-000	14.0	20.0	13.0	629		UUT 5
Warner Power - Inductor						
025-42768-000	8.0	17.0	10.0	227		UUT 5
ASC - Output Capacitor						
X382O(0101) 3X50-10-575VAC	4.6	4.6	8.7	7.7		UUT 5
ASC - Capacitor						
025-44490-000	4.5	3.2	3.2	1.5		UUT 2a,2b
025-42834-000	4.5	3.2	3.2	1.7		INTERP
025-43983-000	4.5	3.2	3.2	1.8		UUT 2a,2b
025-46876-000	3.5	4.0	4.0	2.0		INTERP
025-45338-000	3.6	3.4	3.4	2.0		UUT 3,4
025-45337-000	4.5	3.4	3.4	2.4		EXTRAP
Orion - Fan						
OA180AP-11-1TB	7.1	7.1	3.5	4.0		UUT 2-4
EBM - Fan						
W3G250HK3511	12.6	12.6	3.1	7.0		UUT 5
NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.						

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 17082CR1.2

MANUFACTURER: JOHNSON CONTROLS, INC.						
PRODUCT FAMILY: YORK MAGNETIC CENTRIFUGAL CHILLER (YMC2)						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
S2M - Motor						
364-53074-000	22.3	26.5	22.3	639	460HP/500V/525FLA, Cu windings	UUT 2a,2b
364-53455-000	32.0	31.9	32.0	1,969	605HP/530V/730FLA, Cu windings	INTERP
364-53160-000	32.0	40.2	32.0	3,128	1209HP/530V/1362FLA, Cu windings	UUT 3,4
Johnson Controls Inc. - Controller						
OPTIVIEW 371-06986-101	6.0	27.0	30.0	75	Color LCD	UUT 2-4
S2M - Magnetic Bearing Controller						
025-44457-000	1.9	11.8	10.7	7	20A/120V/M2 motor software	EXTRAP
025-45577-000	2.6	11.8	10.7	11	20A/120V/M6 motor software	UUT 3,4
025-43521-000	13.2	18.3	26.6	51	20A/120V/M1 motor software	UUT 2a,2b
Johnson Controls Inc. - Power Panel						
371-06730-002	12.5	24.0	38.0	250	20A/120V/M2, Carbon steel encl.	EXTRAP
371-06730-006	12.5	24.0	38.0	250	20A/120V/M6, Carbon steel encl.	UUT 4
371-06680-002	18.0	25.4	38.0	250	20A/120V/M2, Carbon steel encl.	UUT 3
MOUNTING:	Mounted within unit.			SEISMIC LEVEL:	S _{DS} = 2.00g for z/h = 1 I _p = 1.5	
NOTES:	Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.					

DATE: 08/21/2020



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 2a - NEOPRENE PADS

DOCUMENT NO.: 17082CR1.2

MANUFACTURER:	JOHNSON CONTROLS, INC.
MODEL NUMBER:	YMC2-M1197-102521-490
UNIT FUNCTION:	WATER COOLED CHILLER
SERIAL NUMBER:	N/A

DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
63	135	78	11,750	12.0	13.6	>33

BUILDING CODE	TEST CRITERIA	LAB REPORT NO.
2016 CBC	ICC-ES AC156	ERDC 14684-1101

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1	3.20	2.40	1.34	0.54

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: Floor mounted on (4) Mason A-33208 neoprene pads with a total of (8) 3/4" Grade 5 bolts.

CONSTRUCTION: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.

SUBCOMPONENTS: Johnson Controls - compressor (M1B-197FAB), Johnson Controls - evaporator (EA2510), Johnson Controls - condenser (CA2110), Johnson Controls - VSD (HYP0490XHC), CTM - inductors (025-44458-000, 025-44856-000), ASC - capacitors (025-44490-000, 025-43983-000), Orion - fan (OA180AP-11-1TB), S2M - motor (364-53074-000), Johnson Controls - controller (OPTIVIEW 371-06986-101), S2M - magnetic bearing controller (025-43521-000)

TESTING NOTES: N/A



UUT 2b - SPRING ISOLATORS

MANUFACTURER:	JOHNSON CONTROLS, INC.
MODEL NUMBER:	YMC2-M1197-102521-490
UNIT FUNCTION:	WATER COOLED CHILLER
SERIAL NUMBER:	N/A

DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
63	135	78	11,750	3.4	2.7	3.2

BUILDING CODE	TEST CRITERIA	LAB REPORT NO.
2016 CBC	ICC-ES AC156	ERDC 14684-1101

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1	3.20	2.40	1.34	0.54

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: Floor mounted on (4) Mason SLFADA600 spring isolators with a total of (16) 3/4" Grade 5 bolts. Isolators mounted to table with a total of (16) 5/8" Grade 5 bolts.

CONSTRUCTION: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.

SUBCOMPONENTS: Identical to UUT 2 - NEOPRENE PADS

TESTING NOTES: N/A



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 3 - M2 PANEL

DOCUMENT NO.: 17082CR1.2

MANUFACTURER:	JOHNSON CONTROLS, INC.
MODEL NUMBER:	YMC2-M6331-143939-1278
UNIT FUNCTION:	WATER COOLED CHILLER
SERIAL NUMBER:	N/A



DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
75	194	108	44,246	1.8	1.9	2.8

BUILDING CODE	TEST CRITERIA	LAB REPORT NO.
2016 CBC	ICC-ES AC156	PEER 15045-TR-001

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1	3.20	2.40	1.68	0.68
2.50	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: Floor mounted on (4) Mason SLFADA600-2-113 spring isolators with (2) 8" long 9/16" fillet welds per isolator. Isolators mounted to table with a total of (32) 1" Grade 8 bolts.

CONSTRUCTION: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.

SUBCOMPONENTS: Johnson Controls - compressor (M6C-331FAC), Johnson Controls - evaporator (EC3914), Johnson Controls - condenser (CB3914), Johnson Controls - VSD (HYP1278XHC), CTM - inductors (025-45311-000, 025-45497-000), ASC - capacitor (025-45338-000), Orion - fan (OA180AP-11-1TB), S2M - motor (364-53160-000), Johnson Controls - controller (OPTIVIEW 371-06986-101), S2M - magnetic bearing controller (025-45577-000), Johnson Controls - power panel (371-06680-002)

TESTING NOTES: N/A

UUT 4 - M6 PANEL

MANUFACTURER:	JOHNSON CONTROLS, INC.
MODEL NUMBER:	YMC2-M6331-143939-1278
UNIT FUNCTION:	WATER COOLED CHILLER
SERIAL NUMBER:	N/A



DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
75	194	108	44,246	1.7	1.9	3.3

BUILDING CODE	TEST CRITERIA	LAB REPORT NO.
2016 CBC	ICC-ES AC156	PEER 15045-TR-001

S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.00	1	3.20	2.40	1.68	0.68
2.50	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: Floor mounted on (4) Mason SLFADA600-2-113 spring isolators with (2) 8" long 9/16" fillet welds per isolator. Isolators mounted to table with a total of (32) 1" Grade 8 bolts.

CONSTRUCTION: Welded carbon steel vessels. NEMA 1 carbon steel electrical panels. Copper tubes.

SUBCOMPONENTS: Identical to UUT 3 except power panel replaced with: Johnson Controls - power panel (371-06730-006)

TESTING NOTES: N/A

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 5 - VSD ASSEMBLY

DOCUMENT NO.: 17082CR1.2

MANUFACTURER:		JOHNSON CONTROLS, INC.				
MODEL NUMBER:		HYP0785XHC VSD ASSEMBLY				
UNIT FUNCTION:		WATER COOLED CHILLER				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT	(lb)	F-B	S-S	V
76	146	69	9,300	12.4	9.7	>33
BUILDING CODE		TEST CRITERIA		LAB REPORT NO.		
2016 CBC		ICC-ES AC156		ERDC 17082CR1		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
3.75	1	9.00	4.50	6.30	2.10	
7.78	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. See Testing Notes for anomalies.						
MOUNTING:		Floor mounted with (15) 3/4" Grade 8 bolts.				
CONSTRUCTION:		Welded carbon steel. NEMA 1 carbon steel electrical panels.				
SUBCOMPONENTS:		Johnson Controls - VSD (HYP0785XHC), Schaffner - inductors (025-49002-000, 025-47691-000), Warner Power - Inductor (025-42768-000), ASC - capacitor (X38200101 3X50-10-575VAC), EBM - fan (W3G250HK3511)				
TESTING NOTES:		The VSD Assembly was tested to amplified levels to simulate installation on a chiller. The amplified levels were determined from UUT 2, UUT 3, and UUT 4 at the connection of the subcomponents to the evaporator and condenser shells. Due to the excessive accelerations, two anomalies within the VSD occurred during testing. The affected subcomponents were successfully tested when mounted on a chiller (UUT 2, UUT 3, UUT 4).				



DATE: 08/21/2020

