



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0384

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Baltimore Aircoil Company, Inc.

Manufacturer's Technical Representative: Linfeng Chen

Mailing Address: 7600 Dorsey Run Rd., Jessup, MD 20794

Telephone: (410) 799-6481

Email: lchen@baltimoreaircoil.com

Product Information

Product Name: S1500 Open Cooling Tower

Product Model Number(s): See attached

Product Category: Cooling Towers

Product Sub-Category: NA

General Description: Evaporative cooling towers with upgraded seismic structural bracing. Seismic enhancements made to the test units required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Base Mounted Rigid and Spring Vibration Isolated -

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: VMC

Contact Person: Kelly Laplace

Mailing Address: 113 Main St., Bloomingdale, NJ 07403

Telephone: (775) 358-5085

Email: kelly.laplace@thvmcgroup.com

Title: Vice President of Sales: Test and Measurement Division



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

Company Name: THE VMC GROUP

Name: Kenneth Tarlow

California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214

Email: ken.tarlow@thvmcgroup.com

Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify): _____

Testing Laboratory

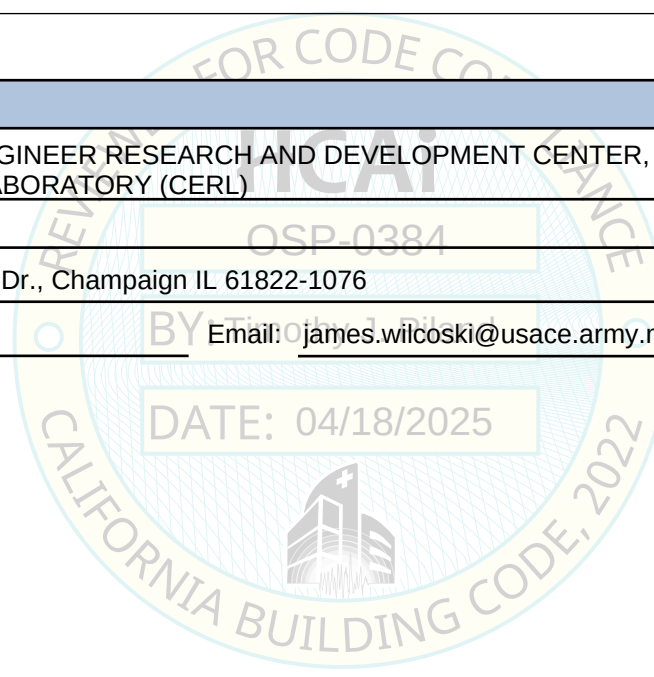
Company Name: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, CONSTRUCTION ENGINEERING
RESEARCH LABORATORY (CERL)

Contact Person: James Wilcoski

Mailing Address: 2902 Newmark Dr., Champaign IL 61822-1076

Telephone: (217) 373-4565

Email: james.wilcoski@usace.army.mil





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 3.15 rigid, 4.50 isolated

SDs (Design spectral response acceleration at short period, g) = 2.10 rigid; 2.00 isolated

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 3.0 rigid, 2.0 isolated

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 04/18/2031

Date: 4/18/2025

Name: Timothy Piland

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDs (g) = See Above

z/h = See Above

Condition of Approval (if applicable):

Special Seismic Certification

Table 1 - Certified Components



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
XES15E-0809-06DE	106	3	1.0	3.0	32	108	94	101	3,875	7,485	UUT A1,A2,A3,A4
XES15E-0809-06EE	120	3	1.5	4.5	32	108	94	101	3,875	7,485	
XES15E-0809-06FE	134	3	2.0	6.0	32	108	94	101	3,935	7,545	
S15E-0809-06GE	152	3	3.0	9.0	32	108	94	101	4,025	7,635	
S15E-0809-06HE	181	3	5.0	15.0	32	108	94	101	4,055	7,665	
XES15E-0812-06DE	114	3	1.0	3.0	32	144	94	101	4,675	9,995	
XES15E-0812-06EE	131	3	1.5	4.5	32	144	94	101	4,675	9,995	
XES15E-0812-06FE	146	3	2.0	6.0	32	144	94	101	4,735	10,055	
S15E-0812-06GE	166	3	3.0	9.0	32	144	94	101	4,825	10,145	
S15E-0812-06HE	198	3	5.0	15.0	32	144	94	101	4,855	10,175	
S15E-0812-06JE	221	3	7.5	22.5	32	144	94	101	5,005	10,325	
XES15E-1012-06EE	136	2	1.5	3.0	54	144	118	101	5,420	11,300	
XES15E-1012-06FE	152	2	2.0	4.0	54	144	118	101	5,460	11,340	
XES15E-1012-06GE	172	2	3.0	6.0	54	144	118	101	5,520	11,400	
S15E-1012-06HE	211	2	5.0	10.0	54	144	118	101	5,540	11,420	
S15E-1012-06JE	234	2	7.5	15.0	54	144	118	101	5,640	11,520	
S15E-1012-06KE	261	2	10.0	20.0	54	144	118	101	5,670	11,550	
XES15E-1012-09EE	167	2	1.5	3.0	54	144	118	151	7,232	14,812	
XES15E-1012-09FE	186	2	2.0	4.0	54	144	118	151	7,272	14,852	Interpolated
XES15E-1012-09GE	211	2	3.0	6.0	54	144	118	151	7,332	14,912	
XES15E-1012-09HE	259	2	5.0	10.0	54	144	118	151	7,352	14,932	
S15E-1012-09JE	287	2	7.5	15.0	54	144	118	151	7,452	15,032	
S15E-1012-09KE	320	2	10.0	20.0	54	144	118	151	7,482	15,062	
S15E-1012-09L1	340	2	15.0	30.0	54	144	118	151	7,732	15,312	
S15E-1012-09LE	361	2	15.0	30.0	54	144	118	151	7,732	15,312	
XES15E-1012-10EE	171	2	1.5	3.0	54	144	118	167	7,604	15,464	
XES15E-1012-10FE	191	2	2.0	4.0	54	144	118	167	7,644	15,504	
XES15E-1012-10GE	216	2	3.0	6.0	54	144	118	167	7,704	15,564	
XES15E-1012-10HE	266	2	5.0	10.0	54	144	118	167	7,724	15,584	
S15E-1012-10JE	295	2	7.5	15.0	54	144	118	167	7,824	15,684	
S15E-1012-10KE	328	2	10.0	20.0	54	144	118	167	7,854	15,714	
S15E-1012-10L1	350	2	15.0	30.0	54	144	118	167	8,104	15,964	
S15E-1012-10LE	374	2	15.0	30.0	54	144	118	167	8,104	15,964	
XES15E-1018-09EE	251	3	1.5	4.5	54	216	118	159	11,162	23,952	
XES15E-1018-09FE	280	3	2.0	6.0	54	216	118	159	11,222	24,012	
XES15E-1018-09GE	318	3	3.0	9.0	54	216	118	159	11,312	24,102	
XES15E-1018-09HE	390	3	5.0	15.0	54	216	118	159	11,342	24,132	

Notes:

- Actual unit model number may include a suffix "-2" or "-3" designating the number of cells per unit (e.g., S15E-1212-07JE-3 for a three cell unit). Each cell of multi-cell units is a structurally independent cooling tower. All tabulated values are provided per cell.
- Models listed are for standard fan option. Actual unit model number may include a suffix "/L" designating low sound fan option (e.g., S15E-1212-07JE/L) or a suffix "/W" designating whisper quiet fan option (e.g., S15E-1212-07JE-2/W).
- Actual unit model number may include a suffix "/E" designating two sets of drift eliminators (e.g., S15E-1212-07JE/E).
- Actual unit model number may include a suffix "/X" designating non-Cooling Technology Institute (CTI) certified (e.g., S15E-1212-07JE-3/X).
- Nominal tonnage represents 3 USGPM of water from 95°F to 85°F at 78°F entering wet-bulb temperature.
- Weights are base unit weights. Actual weights may include weight added for certified access options (see Table 9) and certified accessories (see Table 10).
- Operating weights at overflow water level. UUT test weight at operating water level.
- Cooling tower material of construction options (i.e., structural frame and basins) are listed in Table 3.

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Special Seismic Certification

Table 2 - Certified Components (cont.)



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
S15E-1018-09JE	433	3	7.5	22.5	54	216	118	159	11,492	24,282	Interpolated
S15E-1018-09KE	481	3	10.0	30.0	54	216	118	159	11,532	24,322	
S15E-1018-09LE	543	3	15.0	45.0	54	216	118	159	11,912	24,702	
XES15E-1018-10EE	257	3	1.5	4.5	54	216	118	175	11,663	25,103	
XES15E-1018-10FE	287	3	2.0	6.0	54	216	118	175	11,723	25,163	
XES15E-1018-10GE	326	3	3.0	9.0	54	216	118	175	11,813	25,253	
XES15E-1018-10HE	401	3	5.0	15.0	54	216	118	175	11,843	25,283	
S15E-1018-10JE	444	3	7.5	22.5	54	216	118	175	11,993	25,433	
S15E-1018-10KE	494	3	10.0	30.0	54	216	118	175	12,033	25,473	
S15E-1018-10LE	563	3	15.0	45.0	54	216	118	175	12,413	25,853	
XES15E-1285-06EN	92	1	1.5	1.5	66	102	142	101	4,389	9,179	
XES15E-1285-06FN	101	1	2.0	2.0	66	102	142	101	4,409	9,199	
XES15E-1285-06GN	117	1	3.0	3.0	66	102	142	101	4,439	9,229	
XES15E-1285-06HN	138	1	5.0	5.0	66	102	142	101	4,449	9,239	
S15E-1285-06JN	158	1	7.5	7.5	66	102	142	101	4,499	9,289	
S15E-1285-06KN	173	1	10.0	10.0	66	102	142	101	4,509	9,299	
S15E-1285-06LN	198	1	15.0	15.0	66	102	142	101	4,639	9,429	
XES15E-1285-07EN	101	1	1.5	1.5	66	102	142	117	4,769	9,799	
XES15E-1285-07FN	111	1	2.0	2.0	66	102	142	117	4,789	9,819	
XES15E-1285-07GN	128	1	3.0	3.0	66	102	142	117	4,819	9,849	
XES15E-1285-07HN	150	1	5.0	5.0	66	102	142	117	4,829	9,859	
XES15E-1285-07JN	174	1	7.5	7.5	66	102	142	117	4,879	9,909	
S15E-1285-07KN	189	1	10.0	10.0	66	102	142	117	4,899	9,929	
S15E-1285-07LN	217	1	15.0	15.0	66	102	142	117	5,019	10,049	
S15E-1285-07MN	236	1	20.0	20.0	66	102	142	117	5,079	10,109	
XES15E-1285-09FN	131	1	2.0	2.0	74	102	142	151	6,119	12,109	
XES15E-1285-09GN	151	1	3.0	3.0	74	102	142	151	6,149	12,139	
XES15E-1285-09HN	178	1	5.0	5.0	74	102	142	151	6,159	12,149	
XES15E-1285-09JN	204	1	7.5	7.5	74	102	142	151	6,209	12,199	
S15E-1285-09KN	223	1	10.0	10.0	74	102	142	151	6,229	12,219	
S15E-1285-09LN	253	1	15.0	15.0	74	102	142	151	6,349	12,339	
S15E-1285-09MN	276	1	20.0	20.0	74	102	142	151	6,409	12,399	
XES15E-1285-10FN	137	1	2.0	2.0	74	102	142	167	6,429	12,899	
XES15E-1285-10GN	158	1	3.0	3.0	74	102	142	167	6,459	12,929	
XES15E-1285-10HN	186	1	5.0	5.0	74	102	142	167	6,469	12,939	
XES15E-1285-10JN	213	1	7.5	7.5	74	102	142	167	6,519	12,989	
XES15E-1285-10KN	233	1	10.0	10.0	74	102	142	167	6,539	13,009	
S15E-1285-10LN	264	1	15.0	15.0	74	102	142	167	6,659	13,129	
S15E-1285-10MN	289	1	20.0	20.0	74	102	142	167	6,719	13,189	
S15E-1285-10NN	310	1	25.0	25.0	74	102	142	167	6,749	13,219	
XES15E-1212-07EE	166	2	1.5	3.0	66	144	142	117	6,346	14,196	
XES15E-1212-07FE	184	2	2.0	4.0	66	144	142	117	6,386	14,236	
XES15E-1212-07GE	208	2	3.0	6.0	66	144	142	117	6,446	14,296	
XES15E-1212-07HE	254	2	5.0	10.0	66	144	142	117	6,466	14,316	
S15E-1212-07JE	280	2	7.5	15.0	66	144	142	117	6,566	14,416	
S15E-1212-07KE	311	2	10.0	20.0	66	144	142	117	6,596	14,446	
S15E-1212-07L1	330	2	15.0	30.0	66	144	142	117	6,846	14,696	
XES15E-1212-09EE	193	2	1.5	3.0	66	144	142	151	8,353	17,063	
XES15E-1212-09FE	214	2	2.0	4.0	66	144	142	151	8,393	17,103	

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Special Seismic Certification

Table 3 - Certified Components (cont.)



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
XES15E-1212-09GE	241	2	3.0	6.0	66	144	142	151	8,453	17,163	Interpolated
XES15E-1212-09HE	294	2	5.0	10.0	66	144	142	151	8,473	17,183	
S15E-1212-09JE	324	2	7.5	15.0	66	144	142	151	8,573	17,283	
S15E-1212-09KE	358	2	10.0	20.0	66	144	142	151	8,603	17,313	
S15E-1212-09L1	381	2	15.0	30.0	66	144	142	151	8,853	17,563	
S15E-1212-09LE	398	2	15.0	30.0	66	144	142	151	8,853	17,563	
XES15E-1212-10EE	202	2	1.5	3.0	66	144	142	167	8,758	17,818	
XES15E-1212-10FE	224	2	2.0	4.0	66	144	142	167	8,798	17,858	
XES15E-1212-10GE	253	2	3.0	6.0	66	144	142	167	8,858	17,918	
XES15E-1212-10HE	308	2	5.0	10.0	66	144	142	167	8,878	17,938	
XES15E-1212-10JE	340	2	7.5	15.0	66	144	142	167	8,978	18,038	
S15E-1212-10KE	376	2	10.0	20.0	66	144	142	167	9,008	18,068	
S15E-1212-10L1	400	2	15.0	30.0	66	144	142	167	9,258	18,318	
S15E-1212-10LE	418	2	15.0	30.0	66	144	142	167	9,258	18,318	
S15E-1212-10ME	460	2	20.0	40.0	66	144	142	167	9,378	18,438	
XES15E-1212-11EE	209	2	1.5	3.0	66	144	142	183	9,163	18,733	
XES15E-1212-11FE	232	2	2.0	4.0	66	144	142	183	9,203	18,773	
XES15E-1212-11GE	261	2	3.0	6.0	66	144	142	183	9,263	18,833	
XES15E-1212-11HE	318	2	5.0	10.0	66	144	142	183	9,283	18,853	
XES15E-1212-11JE	351	2	7.5	15.0	66	144	142	183	9,383	18,953	
S15E-1212-11KE	388	2	10.0	20.0	66	144	142	183	9,413	18,983	
S15E-1212-11LE	431	2	15.0	30.0	66	144	142	183	9,663	19,233	
S15E-1212-11ME	481	2	20.0	40.0	66	144	142	183	9,783	19,353	
XES15E-1212-12EE	216	2	1.5	3.0	66	144	142	199	9,613	19,183	
XES15E-1212-12FE	240	2	2.0	4.0	66	144	142	199	9,653	19,223	
XES15E-1212-12GE	271	2	3.0	6.0	66	144	142	199	9,713	19,283	
XES15E-1212-12HE	330	2	5.0	10.0	66	144	142	199	9,733	19,303	
XES15E-1212-12JE	363	2	7.5	15.0	66	144	142	199	9,833	19,403	
S15E-1212-12KE	402	2	10.0	20.0	66	144	142	199	9,863	19,433	
S15E-1212-12LE	446	2	15.0	30.0	66	144	142	199	10,113	19,683	
S15E-1212-12ME	496	2	20.0	40.0	66	144	142	199	10,233	19,803	
XES15E-1218-07EE	250	3	1.5	4.5	66	216	142	125	9,686	23,476	
XES15E-1218-07FE	277	3	2.0	6.0	66	216	142	125	9,746	23,536	
XES15E-1218-07GE	313	3	3.0	9.0	66	216	142	125	9,836	23,626	
XES15E-1218-07HE	382	3	5.0	15.0	66	216	142	125	9,866	23,656	
S15E-1218-07JE	421	3	7.5	22.5	66	216	142	125	10,016	23,806	
S15E-1218-07KE	467	3	10.0	30.0	66	216	142	125	10,056	23,846	
S15E-1218-07L1	499	3	15.0	45.0	66	216	142	125	10,436	24,226	
XES15E-1218-09EE	289	3	1.5	4.5	66	216	142	159	12,469	27,559	
XES15E-1218-09FE	321	3	2.0	6.0	66	216	142	159	12,529	27,619	
XES15E-1218-09GE	362	3	3.0	9.0	66	216	142	159	12,619	27,709	
XES15E-1218-09HE	441	3	5.0	15.0	66	216	142	159	12,649	27,739	
S15E-1218-09JE	486	3	7.5	22.5	66	216	142	159	12,799	27,889	
S15E-1218-09KE	538	3	10.0	30.0	66	216	142	159	12,839	27,929	
S15E-1218-09L1	572	3	15.0	45.0	66	216	142	159	13,219	28,309	
S15E-1218-09LE	601	3	15.0	45.0	66	216	142	159	13,219	28,309	
XES15E-1218-10EE	302	3	1.5	4.5	66	216	142	175	13,037	28,917	
XES15E-1218-10FE	335	3	2.0	6.0	66	216	142	175	13,097	28,977	
XES15E-1218-10GE	378	3	3.0	9.0	66	216	142	175	13,187	29,067	

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Special Seismic Certification

Table 4 - Certified Components (cont.)



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
XES15E-1218-10HE	461	3	5.0	15.0	66	216	142	175	13,217	29,097	Interpolated
XES15E-1218-10JE	508	3	7.5	22.5	66	216	142	175	13,367	29,247	
S15E-1218-10KE	562	3	10.0	30.0	66	216	142	175	13,407	29,287	
S15E-1218-10L1	597	3	15.0	45.0	66	216	142	175	13,787	29,667	
S15E-1218-10LE	624	3	15.0	45.0	66	216	142	175	13,787	29,667	
S15E-1218-10ME	695	3	20.0	60.0	66	216	142	175	13,967	29,847	
XES15E-1218-11EE	318	3	1.5	4.5	66	216	142	191	13,615	29,755	
XES15E-1218-11FE	349	3	2.0	6.0	66	216	142	191	13,675	29,815	
XES15E-1218-11GE	394	3	3.0	9.0	66	216	142	191	13,765	29,905	
XES15E-1218-11HE	480	3	5.0	15.0	66	216	142	191	13,795	29,935	
XES15E-1218-11JE	529	3	7.5	22.5	66	216	142	191	13,945	30,085	
S15E-1218-11KE	585	3	10.0	30.0	66	216	142	191	13,985	30,125	
S15E-1218-11L1	622	3	15.0	45.0	66	216	142	191	14,365	30,505	
S15E-1218-11LE	650	3	15.0	45.0	66	216	142	191	14,365	30,505	
S15E-1218-11ME	723	3	20.0	60.0	66	216	142	191	14,545	30,685	
XES15E-1218-12EE	326	3	1.5	4.5	66	216	142	207	14,254	30,914	
XES15E-1218-12FE	361	3	2.0	6.0	66	216	142	207	14,314	30,974	
XES15E-1218-12GE	408	3	3.0	9.0	66	216	142	207	14,404	31,064	
XES15E-1218-12HE	497	3	5.0	15.0	66	216	142	207	14,434	31,094	
XES15E-1218-12JE	548	3	7.5	22.5	66	216	142	207	14,584	31,244	
S15E-1218-12KE	606	3	10.0	30.0	66	216	142	207	14,624	31,284	
S15E-1218-12L1	644	3	15.0	45.0	66	216	142	207	15,004	31,664	
S15E-1218-12LE	673	3	15.0	45.0	66	216	142	207	15,004	31,664	
S15E-1218-12ME	748	3	20.0	60.0	66	216	142	207	15,184	31,844	
XES15E-1212-07EN	167	2	1.5	3.0	66	144	142	117	6,346	14,196	
XES15E-1212-07FN	183	2	2.0	4.0	66	144	142	117	6,386	14,236	
XES15E-1212-07GC	197	2	3.0	6.0	66	144	142	117	6,446	14,296	
XES15E-1212-07GN	208	2	3.0	6.0	66	144	142	117	6,446	14,296	
XES15E-1212-07HC	226	2	5.0	10.0	66	144	142	117	6,466	14,316	
XES15E-1212-07HN	247	2	5.0	10.0	66	144	142	117	6,466	14,316	
S15E-1212-07JN	282	2	7.5	15.0	66	144	142	117	6,566	14,416	
S15E-1212-07KN	309	2	10.0	20.0	66	144	142	117	6,596	14,446	
S15E-1212-07LC	332	2	15.0	30.0	66	144	142	117	6,846	14,696	
XES15E-1212-09EN	195	2	1.5	3.0	66	144	142	151	8,353	17,063	
XES15E-1212-09FN	213	2	2.0	4.0	66	144	142	151	8,393	17,103	
XES15E-1212-09GC	229	2	3.0	6.0	66	144	142	151	8,453	17,163	
XES15E-1212-09GN	243	2	3.0	6.0	66	144	142	151	8,453	17,163	
XES15E-1212-09HC	263	2	5.0	10.0	66	144	142	151	8,473	17,183	
XES15E-1212-09HN	287	2	5.0	10.0	66	144	142	151	8,473	17,183	
S15E-1212-09JN	328	2	7.5	15.0	66	144	142	151	8,573	17,283	
S15E-1212-09KN	358	2	10.0	20.0	66	144	142	151	8,603	17,313	
S15E-1212-09LC	383	2	15.0	30.0	66	144	142	151	8,853	17,563	
S15E-1212-09LN	401	2	15.0	30.0	66	144	142	151	8,853	17,563	
XES15E-1212-10EN	204	2	1.5	3.0	66	144	142	167	8,758	17,818	
XES15E-1212-10FN	224	2	2.0	4.0	66	144	142	167	8,798	17,858	
XES15E-1212-10GC	241	2	3.0	6.0	66	144	142	167	8,858	17,918	
XES15E-1212-10GN	255	2	3.0	6.0	66	144	142	167	8,858	17,918	
XES15E-1212-10HC	276	2	5.0	10.0	66	144	142	167	8,878	17,938	
XES15E-1212-10HN	302	2	5.0	10.0	66	144	142	167	8,878	17,938	

Continued on Next Page

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Table 5 - Certified Components (cont.)



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
XES15E-1212-10JN	344	2	7.5	15.0	66	144	142	167	8,978	18,038	Interpolated
S15E-1212-10KN	376	2	10.0	20.0	66	144	142	167	9,008	18,068	
S15E-1212-10LC	402	2	15.0	30.0	66	144	142	167	9,258	18,318	
S15E-1212-10LN	421	2	15.0	30.0	66	144	142	167	9,258	18,318	
S15E-1212-10MN	459	2	20.0	40.0	66	144	142	167	9,378	18,438	
XES15E-1212-11EN	211	2	1.5	3.0	66	144	142	183	9,163	18,733	
XES15E-1212-11FN	231	2	2.0	4.0	66	144	142	183	9,203	18,773	
XES15E-1212-11GC	248	2	3.0	6.0	66	144	142	183	9,263	18,833	
XES15E-1212-11GN	263	2	3.0	6.0	66	144	142	183	9,263	18,833	
XES15E-1212-11HC	285	2	5.0	10.0	66	144	142	183	9,283	18,853	
XES15E-1212-11HN	311	2	5.0	10.0	66	144	142	183	9,283	18,853	
XES15E-1212-11JN	355	2	7.5	15.0	66	144	142	183	9,383	18,953	
S15E-1212-11KN	387	2	10.0	20.0	66	144	142	183	9,413	18,983	
S15E-1212-11LC	414	2	15.0	30.0	66	144	142	183	9,663	19,233	
S15E-1212-11LN	434	2	15.0	30.0	66	144	142	183	9,663	19,233	
S15E-1212-11MN	478	2	20.0	40.0	66	144	142	183	9,783	19,353	
XES15E-1212-12EN	218	2	1.5	3.0	66	144	142	199	9,613	19,183	
XES15E-1212-12FN	239	2	2.0	4.0	66	144	142	199	9,653	19,223	
XES15E-1212-12GC	257	2	3.0	6.0	66	144	142	199	9,713	19,283	
XES15E-1212-12GN	272	2	3.0	6.0	66	144	142	199	9,713	19,283	
XES15E-1212-12HC	295	2	5.0	10.0	66	144	142	199	9,733	19,303	
XES15E-1212-12HN	323	2	5.0	10.0	66	144	142	199	9,733	19,303	
XES15E-1212-12JN	368	2	7.5	15.0	66	144	142	199	9,833	19,403	
S15E-1212-12KN	401	2	10.0	20.0	66	144	142	199	9,863	19,433	
S15E-1212-12LC	429	2	15.0	30.0	66	144	142	199	10,113	19,683	
S15E-1212-12LN	449	2	15.0	30.0	66	144	142	199	10,113	19,683	
S15E-1212-12MN	495	2	20.0	40.0	66	144	142	199	10,233	19,803	
XES15E-1218-07EN	252	3	1.5	4.5	66	216	142	125	9,686	23,476	
XES15E-1218-07FN	277	3	2.0	6.0	66	216	142	125	9,746	23,536	
XES15E-1218-07GN	318	3	3.0	9.0	66	216	142	125	9,836	23,626	
XES15E-1218-07HN	373	3	5.0	15.0	66	216	142	125	9,866	23,656	
S15E-1218-07JN	427	3	7.5	22.5	66	216	142	125	10,016	23,806	
S15E-1218-07KN	466	3	10.0	30.0	66	216	142	125	10,056	23,846	
S15E-1218-07LC	501	3	15.0	45.0	66	216	142	125	10,436	24,226	
XES15E-1218-09EN	291	3	1.5	4.5	66	216	142	159	12,469	27,559	
XES15E-1218-09FN	319	3	2.0	6.0	66	216	142	159	12,529	27,619	
XES15E-1218-09GN	366	3	3.0	9.0	66	216	142	159	12,619	27,709	
XES15E-1218-09HN	430	3	5.0	15.0	66	216	142	159	12,649	27,739	
S15E-1218-09JN	490	3	7.5	22.5	66	216	142	159	12,799	27,889	
S15E-1218-09KN	535	3	10.0	30.0	66	216	142	159	12,839	27,929	
S15E-1218-09LC	572	3	15.0	45.0	66	216	142	159	13,219	28,309	
S15E-1218-09LN	606	3	15.0	45.0	66	216	142	159	13,219	28,309	
XES15E-1218-10EN	305	3	1.5	4.5	66	216	142	175	13,037	28,917	
XES15E-1218-10FN	335	3	2.0	6.0	66	216	142	175	13,097	28,977	
XES15E-1218-10GN	385	3	3.0	9.0	66	216	142	175	13,187	29,067	
XES15E-1218-10HN	451	3	5.0	15.0	66	216	142	175	13,217	29,097	
XES15E-1218-10JN	514	3	7.5	22.5	66	216	142	175	13,367	29,247	
S15E-1218-10KN	561	3	10.0	30.0	66	216	142	175	13,407	29,287	
S15E-1218-10LC	600	3	15.0	45.0	66	216	142	175	13,787	29,667	

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Table 6 - Certified Components (cont.)



DCL Project Number: 11654-2501

Manufacturer: Baltimore Aircoil Company, Inc

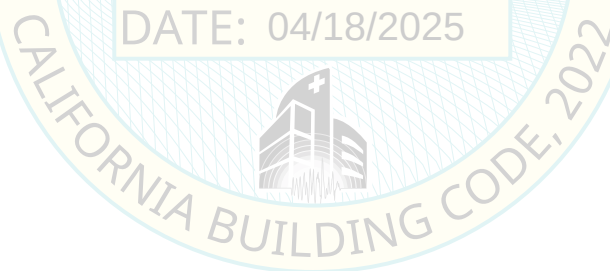
Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number ^{1,2,3,4}	Nominal Tonnage ⁵	Number of Fans	Motor HP/Fan	Total HP	Fan Diameter [in.]	Dimensions [in.]			Shipping Weight [lb.] ⁶	Operating Weight [lb.] ^{6,7}	Unit
						Depth	Width	Height			
S15E-1218-10LN	629	3	15.0	45.0	66	216	142	175	13,787	29,667	Interpolated
S15E-1218-10MN	694	3	20.0	60.0	66	216	142	175	13,967	29,847	
XES15E-1218-11EN	318	3	1.5	4.5	66	216	142	191	13,615	29,755	
XES15E-1218-11FN	348	3	2.0	6.0	66	216	142	191	13,675	29,815	
XES15E-1218-11GN	401	3	3.0	9.0	66	216	142	191	13,765	29,905	
XES15E-1218-11HN	470	3	5.0	15.0	66	216	142	191	13,795	29,935	
XES15E-1218-11JN	536	3	7.5	22.5	66	216	142	191	13,945	30,085	
S15E-1218-11KN	584	3	10.0	30.0	66	216	142	191	13,985	30,125	
S15E-1218-11LC	625	3	15.0	45.0	66	216	142	191	14,365	30,505	
S15E-1218-11LN	655	3	15.0	45.0	66	216	142	191	14,365	30,505	
S15E-1218-11MN	722	3	20.0	60.0	66	216	142	191	14,545	30,685	
XES15E-1218-12EN	329	3	1.5	4.5	66	216	142	207	14,254	30,914	
XES15E-1218-12FN	361	3	2.0	6.0	66	216	142	207	14,314	30,974	
XES15E-1218-12GN	415	3	3.0	9.0	66	216	142	207	14,404	31,064	
XES15E-1218-12HN	486	3	5.0	15.0	66	216	142	207	14,434	31,094	
XES15E-1218-12JN	555	3	7.5	22.5	66	216	142	207	14,584	31,244	
S15E-1218-12KN	605	3	10.0	30.0	66	216	142	207	14,624	31,284	
S15E-1218-12LC	647	3	15.0	45.0	66	216	142	207	15,004	31,664	
S15E-1218-12LN	678	3	15.0	45.0	66	216	142	207	15,004	31,664	
S15E-1218-12MN	747	3	20.0	60.0	66	216	142	207	15,184	31,844	UUT B1,B2

DATE: 04/18/2025



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Table 7 - Certified Materials of Construction (MOC)



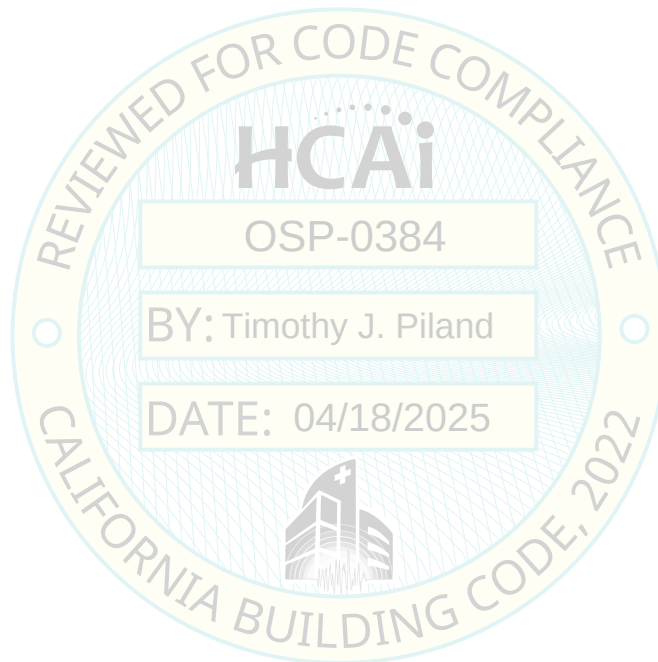
DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Structural Frame and Basin MOC Option ^{1,2}	MOC of Structural Members	MOC of Hot Water Basin	MOC of Cold Water Basin	Unit
Galvanized Steel	Galvanized Steel	Galvanized Steel	Galvanized Steel	UUT A1,A2,A3,A4
Galvanized Steel with Stainless Steel Cold Water Basin	Galvanized Steel	Galvanized Steel	Stainless Steel	Interpolated
Galvanized Steel with Stainless Steel Hot Water Basin and TriArmor® Cold Water Basin	Galvanized Steel	Stainless Steel	Galvanized Steel	
Galvanized Steel with TriArmor® Cold Water Basin	Galvanized Steel	Galvanized Steel	Galvanized Steel	
BALTIBOND® Construction	Galvanized Steel	Galvanized Steel	Galvanized Steel	
BALTIBOND® Construction with Stainless Steel Cold Water Basin	Galvanized Steel	Galvanized Steel	Stainless Steel	
Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	UUT B1,B2

Notes:

1. BALTIBOND® and TriArmor® are coating systems. Base material is Galvanized Steel.
2. Structural frames and basins are manufactured by Baltimore Aircoil Company.



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Table 8 - Certified Water Inlet and Outlet Configurations



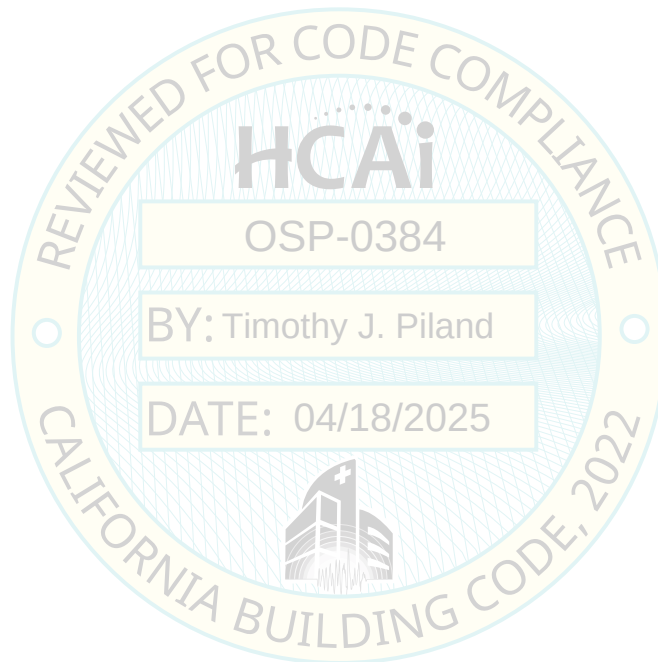
DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Water Inlet and Outlet Configuration Option	Inlet Location	Outlet Location	Unit
Top Inlet - End Outlet - Pump Suction	Top	End	UUT A1,A2,A3,A4,B1,B2
Top Inlet - End Outlet - Remote Sump	Top	End	Interpolated
Top Inlet - Face C Outlet - Pump Suction	Top	Side	
Top Inlet - Face C Outlet - Remote Sump	Top	Side	
Top Inlet - Bottom Outlet - Pump Suction	Top	Bottom	
Top Inlet - Bottom Outlet - Remote Sump	Top	Bottom	UUT B1,B2

Notes:

1. Water inlet materials of construction match the MOC of the hot water basin. Water outlet materials of construction match the MOC of the cold water basin.
2. Water inlet and outlet connections are manufactured by Baltimore Aircoil Company.



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Table 9 - Certified Subcomponents - Equalizer and Bypass Configurations



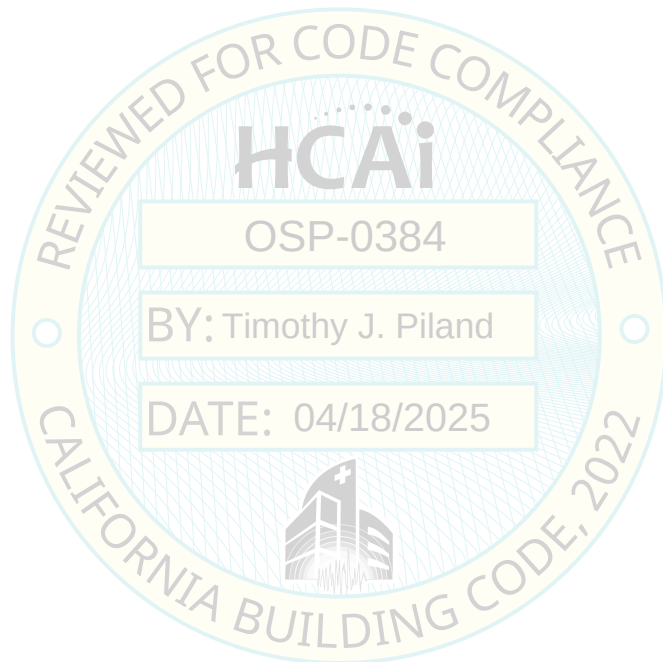
DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Equalizer or Bypass Connection Option	Connection Location	Unit
End Equalizer	End	UUT A1,A2,A3,A4
End Bypass	End	Interpolated
Bottom Equalizer	Bottom	
Bottom Bypass	Bottom	
Face C Equalizer	Side	
Face C Bypass	Side	UUT B1,B2

Notes:

1. Equalizer and bypass materials of construction match the MOC of the cold water basin.
2. Equalizer and bypass connections are manufactured by Baltimore Aircoil Company.



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Table 10 - Certified Subcomponents - Fan Motors



DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Model Number	Manufacturer	Material of Construction	Drive Type	HP	Voltage ¹	Approximate Weight (lbs)	Unit
22QDD	Nidec	Cast Iron	Direct	1	200, 230, 230/460, 460	70	UUT A3,A4
22QED	Nidec	Cast Iron	Direct	1.5		100	Interpolated
22QFD	Nidec	Cast Iron	Direct	2		110	
22QGD	Nidec	Cast Iron	Direct	3		160	
22QHD	Nidec	Cast Iron	Direct	5		175	UUT A1,A2
22QDB	Nidec	Cast Iron	Belt	1		50	Extrapolated
22QEB	Nidec	Cast Iron	Belt	1.5		50	Extrapolated
22QFB	Nidec	Cast Iron	Belt	2		70	UUT B1,B2
22QGB	Nidec	Cast Iron	Belt	3		100	Interpolated
22QHB	Nidec	Cast Iron	Belt	5		110	
22QJB	Nidec	Cast Iron	Belt	7.5		160	
22QJB	Nidec	Cast Iron	Belt	10		175	
22QKB	Nidec	Cast Iron	Belt	15		300	
22QLB	Nidec	Cast Iron	Belt	20		360	
22QMB	Nidec	Cast Iron	Belt	25		390	UUT B1,B2
22FDD	WEG	Cast Iron	Direct	1		70	UUT A1,A2,A3,A4
22FED	WEG	Cast Iron	Direct	1.5		100	Interpolated
22FFD	WEG	Cast Iron	Direct	2		110	
22FGD	WEG	Cast Iron	Direct	3		160	
22FHD	WEG	Cast Iron	Direct	5		175	UUT A1,A2,A3,A4
22FDB	WEG	Cast Iron	Belt	1		50	Extrapolated
22FEB	WEG	Cast Iron	Belt	1.5		50	UUT B1,B2
22FFB	WEG	Cast Iron	Belt	2		70	Interpolated
22FGB	WEG	Cast Iron	Belt	3		100	
22FHB	WEG	Cast Iron	Belt	5		110	
22FIB	WEG	Cast Iron	Belt	7.5		160	
22FJB	WEG	Cast Iron	Belt	10		175	
22FKB	WEG	Cast Iron	Belt	15		300	
22FLB	WEG	Cast Iron	Belt	20		360	
22FMB	WEG	Cast Iron	Belt	25		390	UUT B1,B2

Note:

1. Tested motors were 230/460V dual voltage rated.

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Table 11 - Certified Sybcomponents - Fan Motors



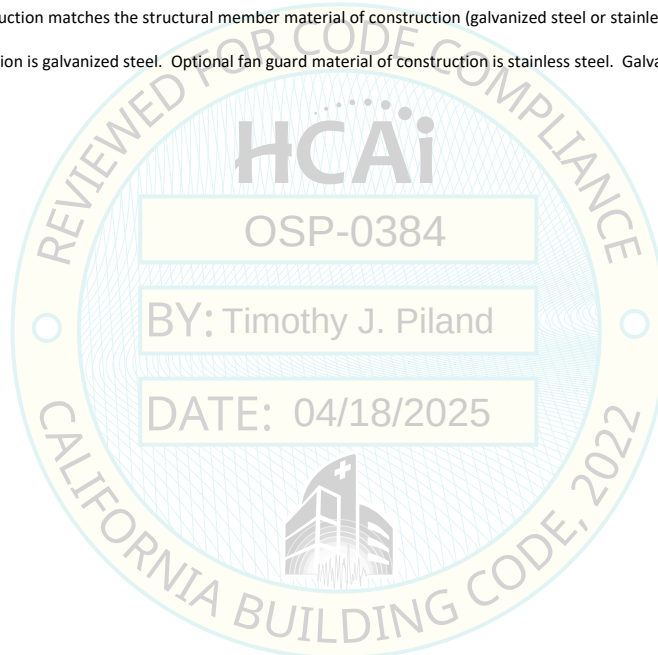
DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Model Number	Manufacturer	Blade Material of Construction ^{1,2}	Diameter [in]	No. of Blades	Approximate Weight [lbs]	Unit
32/5/FRP/M	Multi-Wing	Glass Fiber Reinforced Plastic	32	5	12	UUT A1,A2,A3,A4
54/6/FRP/M			54	6	37	Interpolated
66/8/FRP/M			66	8	59	UUT B1,B2
74/5/FRP/M			74	5	99	Extrapolated
32/5/ALM/C	Cofimco	Aluminum	32	5	40	UUT A1,A2,A3,A4
54/7/ALM/C			54	7	90	Interpolated
66/8/ALM/C			66	8	99	UUT B1,B2
74/5/ALM/C			74	5	181	Extrapolated
32/3/FRP/H	Howden	Glass Fiber Reinforced Plastic	32	3	44	UUT A1,A2,A3,A4
54/3/FRP/H			54	3	97	Interpolated
66/3/FRP/H			66	3	115	UUT B1,B2
74/3/FRP/H			74	3	154	Extrapolated

Note:

- Fan cylinder (housing) material of construction matches the structural member material of construction (galvanized steel or stainless steel) from Table 3.
- Standard fan guard material of construction is galvanized steel. Optional fan guard material of construction is stainless steel. Galvanized fan guards tested on UUT A. Stainless steel fan guards tested on UUT B.



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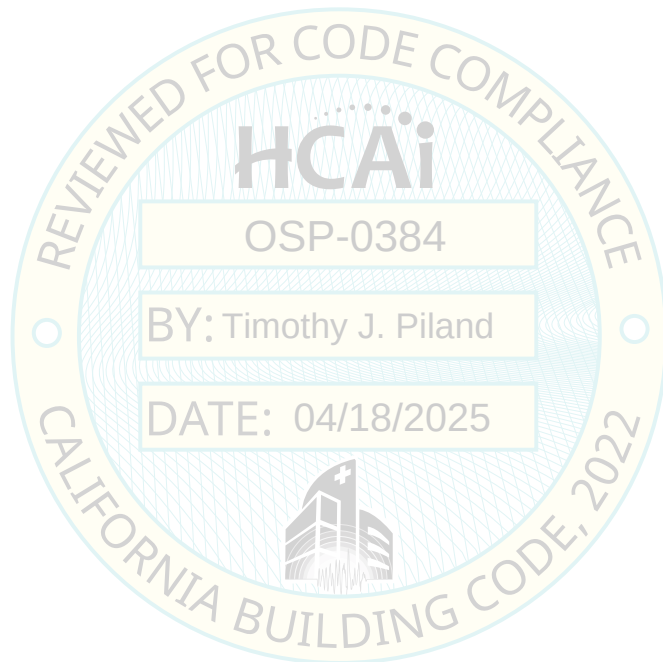
Table 12 - Certified Subcomponents - Electric Basin Heaters



DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Model Number	Manufacturer	Heater Element Material of Construction	kW	Voltage	Approximate Weight (lbs)	Unit
6/460/3/60/15/C	Indeeco	Copper	6	460V	13	UUT A1,A2,A3,A4
8/460/3/60/19.5/C			8		14	Interpolated
10/460/3/60/24/C			10		15	
12/460/3/60/28.5/C			12		15	
14/460/3/60/38.25/C			14		16	
16/460/3/60/37.75/C			16		17	
18/460/3/60/41.75/C			18		17	
20/460/3/60/46/C			20		18	
24/460/3/60/56/C			24		18	UUT B1.B2



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Table 13 - Certified Subcomponents - Access Options



DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Access Option	Manufacturer	Material of Construction	Unit
Internal Walkway	Baltimore Aircoil Company	Galvanized Steel	UUT A1,A2,A3,A4
		Stainless Steel	
Internal Service Platform with Guardrails, Ladder, and Safety Gate			UUT B1,B2
Platform Supports	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Platform Grating	Creative Pultrusions	Glass Fiber Reinforced Plastic	
Guardrails	Baltimore Aircoil Company	Galvanized Steel	
Toeboards	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Ladder	Louisville Ladder	Aluminum	
Safety Gate	PS Doors	Galvanized Steel	
Louver Face Platform with Guardrails, Ladder, Safety Cage, and Safety Gate			
Platform Supports	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Platform Grating	Creative Pultrusions	Glass Fiber Reinforced Plastic	
Guardrails	Baltimore Aircoil Company	Galvanized Steel	
Toeboards	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Ladder	Louisville Ladder	Aluminum	
Safety Cage	Baltimore Aircoil Company	Galvanized Steel	
	PS Doors		
Hot Water Basin Platform with Guardrails, Ladder, Safety Cage, and Safety Gate			
Platform	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Guardrails	Baltimore Aircoil Company	Galvanized Steel	
Toeboards	Baltimore Aircoil Company	Galvanized Steel	
		Stainless Steel	
Ladder	Louisville Ladder	Aluminum	
Safety Cage	Baltimore Aircoil Company	Galvanized Steel	
	PS Doors		

Special Seismic Certification

Table 14 - Certified Subcomponents - Accessories



DCL Project Number: 11654-2501

Product Line: S1500 Open Cooling Tower

Accessory	Unit
11 5/8" Fan Cylinder Extension ¹	Extrapolated
1'-11 1/4" Fan Cylinder Extension ¹	UUT A1,A2,A3,A4,B1,B2
Vibration Cutout Switches	UUT B1,B2
Mechanical Makeup ²	UUT A1,A2,A3,A4
Electric Water Level Control (EWLC) with Solenoid Valve	
Penn F63 Float Switches	

Note:

1. Fan Cylinder Extension material of construction matches the structural member material of construction (galvanized steel or stainless steel) from Table 3.
2. Mechanical Makeup consists of large-diameter polystyrene-filled float, adjustable linkage, and make-up valve.

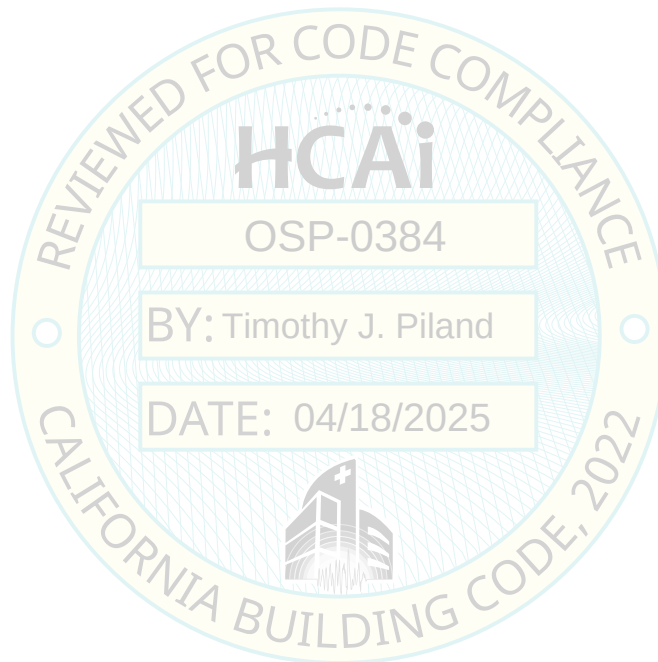


Figure 1:

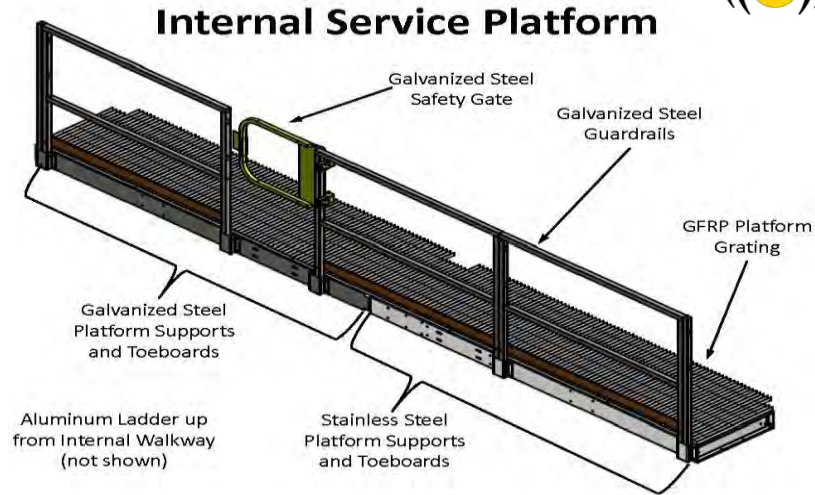


Figure 2:

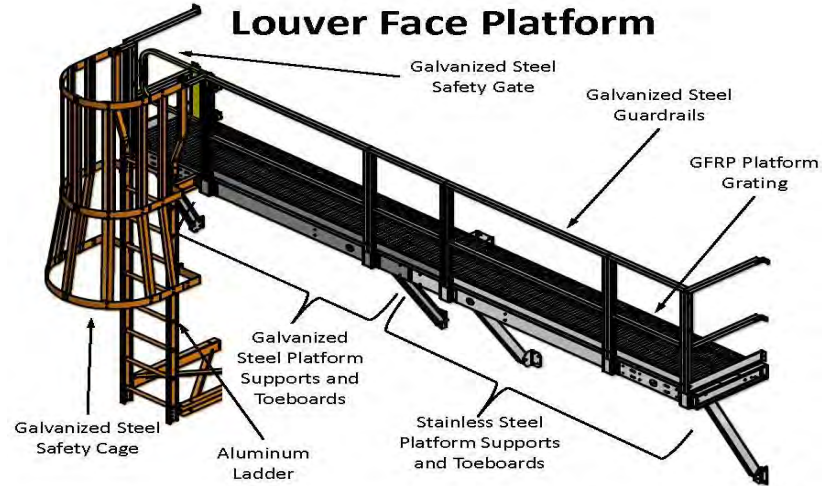
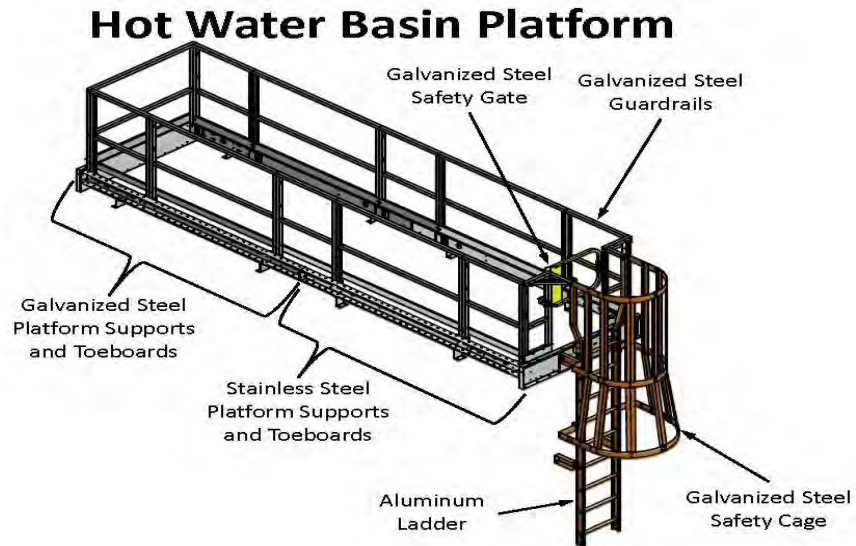


Figure 3:



Special Seismic Certification

Table 15 - Tested Units



DCL Project Number: 11654-2501

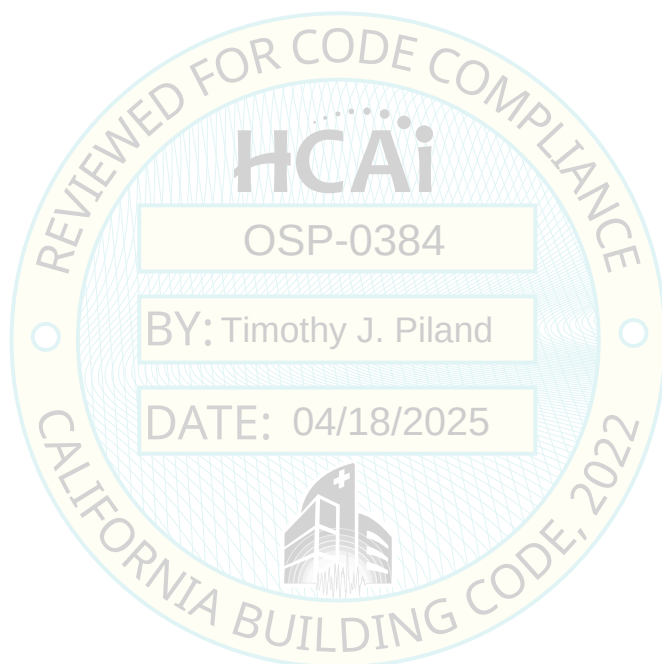
Manufacturer: Baltimore Aircoil Company, Inc

Product Line: S1500 Open Cooling Tower

Mounting: Rigid and Isolated Base Mount

Certified Seismic Levels: Sds 2.10g z/h=1.0 and Sds 2.50g z/h=0.0 for Rigid Base Mount and Sds 2.00g z/h=1.0 for Isolated Base Mount

Model Number	Dimensions [in.]			Mounting Configuration	Weight [lb.]	Unit
	Length	Width	Height			
XES15E-0809-06DE	108	94	101	Rigid base	7,485	UUT A1
	108	94	101	Isolated base	7,485	UUT A2
	108	94	101	Isolated base	7,485	UUT A3
	108	94	101	Rigid base	7,485	UUT A4
XES15E-0809-06DE	216	142	207	Rigid base	31,844	UUT B1
	216	142	207	Isolated base	31,844	UUT B2



UUT A1



Unit Under Test Summary Sheet

DCL Test Report Number: 10604-1301

Manufacturer: Baltimore Aircoil Company

Product Line: S1500 Open Cooling Tower

Model Number: XES15E-0809-06DE

Product Construction Summary: Galvanized Carbon Steel Frame

Options / Component Summary:

WEG 1.0HP, WEG 5.0HP, NIDEC 5.0HP motors with Howden, Multiwing, and Cofimco 32" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

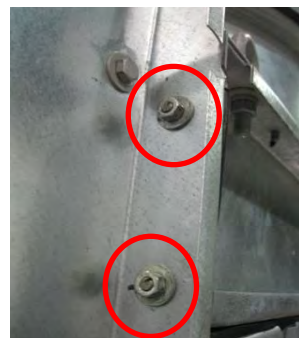
UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
7,485	107.8	94.3	118.8	11.2	12.2	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.10	1.0	1.5	3.36	2.52	N/A	N/A
		2.50	0.0		N/A	N/A	1.68	0.68

Unit Mounting Description:



Bolt retrofit locations

UUT A1 was rigid base mounted to the shake table interface fixture with (6) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" carbon steel plate washers. Bolts were spaced at approximately 50" in length and 92" in width on center.

UUT A2



Unit Under Test Summary Sheet

DCL Test Report Number: 10604-1301

Manufacturer: Baltimore Aircoil Company

Product Line: S1500 Open Cooling Tower

Model Number: XES15E-0809-06DE

Product Construction Summary: Galvanized Carbon Steel Frame

Options / Component Summary:

WEG 1.0HP, WEG 5.0HP, NIDEC 5.0HP motors with Howden, Multiwing, and Cofimco 32" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

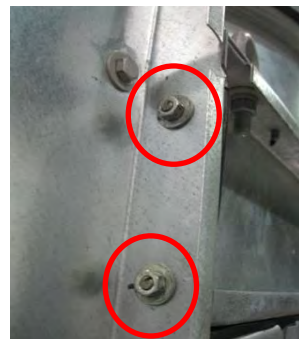
Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
7,485	107.8	94.3	118.8	3.0	3.0	5.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:

BY: Timothy J. Piland



Bolt retrofit locations

UUT A2 was base mounted to an interface fixture with (6) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" in carbon steel plate washers. Bolts were spaced at approximately 50" in length and 92" in width on center. The interface fixture was mounted on (4) Mason Industries SLFADA350-SLF-107 isolators.

UUT A3



Unit Under Test Summary Sheet

DCL Test Report Number: 10604-1301

Manufacturer: Baltimore Aircoil Company

Product Line: S1500 Open Cooling Tower

Model Number: XES15E-0809-06DE

Product Construction Summary: Galvanized Carbon Steel Frame

Options / Component Summary:

NIDEC 1.0HP, WEG 5.0HP, NIDEC 5.0HP motors with Howden, Multiwing, and Cofimco 32" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

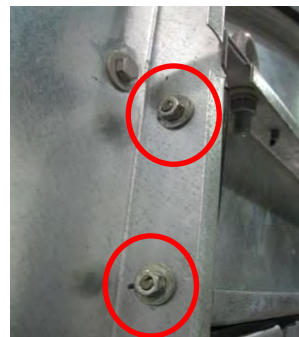
Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
7,485	107.8	94.3	118.8	2.5	3.0	4.8

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:

BY: Timothy J. Piland



Bolt retrofit locations

UUT A3 was base mounted to an interface fixture with (6) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" in carbon steel plate washers. Bolts were spaced at approximately 50" in length and 92" in width on center. The interface fixture was mounted on (4) Mason Industries SLFADA350-SLF-107 isolators.

UUT A4



Unit Under Test Summary Sheet

DCL Test Report Number: 10604-1301

Manufacturer: Baltimore Aircoil Company

Product Line: S1500 Open Cooling Tower

Model Number: XES15E-0809-06DE

Product Construction Summary: Galvanized Carbon Steel Frame

Options / Component Summary:

NIDEC 1.0HP, WEG 5.0HP, NIDEC 5.0HP motors with Howden, Multiwing, and Cofimco 32" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

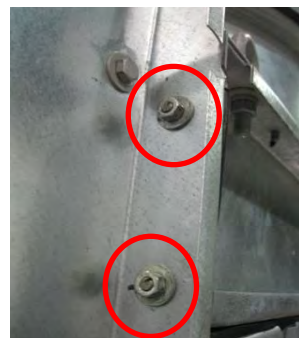
UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
7,485	107.8	94.3	118.8	10.5	12.0	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.10	1.0	1.5	3.36	2.52	N/A	N/A
		2.50	0.0		N/A	N/A	1.68	0.68

Unit Mounting Description:



Bolt retrofit locations

UUT A1 was rigid base mounted to the shake table interface fixture with (6) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" in carbon steel plate washers. Bolts were spaced at approximately 50" in length and 92" in width on center.

UUT B1**Unit Under Test Summary Sheet****DCL Test Report Number:** 10604-1301**Manufacturer:** Baltimore Aircoil Company**Product Line:** S1500 Open Cooling Tower**Model Number:** S15E-1218-12MN**Product Construction Summary:** Stainless Steel Frame**Options / Component Summary:**

WEG 1.5HP, NIDEC 2.0HP, WEG 25.0HP, NIDEC 25HP motors with Howden, Multiwing, and Cofimco 66" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
31,844	215.8	142.0	233.3	4.0	4.5	22.2

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.10	1.0	1.5	3.36	2.52	N/A	N/A
		2.50	0.0		N/A	N/A	1.68	0.68

Unit Mounting Description:

UUT B1 was rigid base mounted to the shake table interface fixture with (12) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" in carbon steel plate washers. Bolts were spaced at approximately 19" in length and 140" in width on center.

UUT B2



Unit Under Test Summary Sheet

DCL Test Report Number: 10604-1301

Manufacturer: Baltimore Aircoil Company

Product Line: S1500 Open Cooling Tower

Model Number: S15E-1218-12MN

Product Construction Summary: Stainless Steel Frame

Options / Component Summary:

WEG 1.5HP, NIDEC 2.0HP, WEG 25.0HP, NIDEC 25HP motors with Howden, Multiwing, and Cofimco 66" diameter fans

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
31,844	215.8	142.0	233.3	1.3	1.3	3.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:



UUT B1 was base mounted to an interface fixture with (12) 3/4" Grade 5 bolts and 2.25" x 1.75" x 0.5" in carbon steel plate washers. Bolts were spaced at approximately 19" in length and 140" in width on center. The interface fixture was mounted to (4) SLFADA600-SLF-109 on the corners and (2) SLFADA600-SLF-111 at the midpoint of the fixture.