APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0171

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: SPX Cooling Tech, LLC

Manufacturer's Technical Representative: Michael Morby

Mailing Address: 7401 W. 129 Street, Overland Park, KS 66213

Telephone: (913) 664-7472 Email: michael.morby@spx.com

Product Information

Product Name: Marley NC Cooling Tower

Product Model Number(s): NC8401-NC8414, TQ8401-TQ8414

Product Category: Cooling Towers

Product Sub-Category: NA

General Description: Marley NC Cooling Towers for AHU, refrigeration and industrial uses. Rigid and vibration isolation mounted, galvanized carbon or stainless steel. Towers are installed atop engineered dunnage frames.

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 Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.com

Title: President

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@thevmcgroup.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)

Contact Person: Amarnath Kasalanati

Mailing Address: 325 Davis Hall, Berkeley CA 94720-1729

Telephone: (510) 642-3437 Email: Amarnath1@berkeley.edu

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = Rigid (1.00, z/h = 0); Isolated (4.50; z/h = 1)

S_{DS} (Design spectral response acceleration at short period, g) = Rigid (2.00 @ z/h = 0); Vibration Isolated (2.00 @ z/h = 1)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 3.0 (Rigid); 2.0 (Vibration Isolated)

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 05/30/2031

Date: 5/30/2025

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.0 z/h = 0

Condition of Approval (if applicable):

Table 1a: Certified Cooling Tower Models - Rigid Mounting

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8401 TQ8401	GLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,702	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,697						
	HLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,737						
	KAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,660						
	KLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,700						
	MAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,698						
	MLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,738						
	NAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,362	8,362		Stainless Steel	Stainless Steel	2.00	1A
	NAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,362	N/A		Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NCE	6'-6 1/4"	12'-10"	10'-2 1/2"	9,000						
	NCE	6'-6 1/4"	12'-10"	9'-9"	9,000	9,000		Stainless Steel	Stainless Steel	2.00	3A
	NLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,768	N/A		Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	PAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,837						
	PLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,897						
NC8402 TQ8402	GCE	8'-4 3/4"	14'-2"	10'-3"	12,152	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	GLE	8'-4 3/4"	14'-2"	10'-3"	12,243						
	HAE	8'-4 3/4"	14'-2"	10'-3"	12,207						
	HCE	8'-4 3/4"	14'-2"	10'-3"	12,139						
	HLE	8'-4 3/4"	14'-2"	10'-3"	12,207						
	KAE	8'-4 3/4"	14'-2"	10'-3"	12,306						
	KCE	8'-4 3/4"	14'-2"	10'-3"	12,165						
	KLE	8'-4 3/4"	14'-2"	10'-3"	12,257						
	MAE	8'-4 3/4"	14'-2"	10'-3"	12,305						
	MCE	8'-4 3/4"	14'-2"	10'-3"	12,283						
	MLE	8'-4 3/4"	14'-2"	10'-3"	12,351						
	NAE	8'-4 3/4"	14'-2"	10'-3"	12,194						
	NCE	8'-4 3/4"	14'-2"	10'-3"	12,311						
	NLE	8'-4 3/4"	14'-2"	10'-3"	12,403						
	PAE	8'-4 3/4"	14'-2"	10'-3"	12,306						
	PCE	8'-4 3/4"	14'-2"	10'-3"	12,284						
	PLE	8'-4 3/4"	14'-2"	10'-3"	12,352						
	QAE	8'-4 3/4"	14'-2"	10'-3"	12,339						
	QCE	8'-4 3/4"	14'-2"	10'-3"	12,351						
	QLE	8'-4 3/4"	14'-2"	10'-3"	12,339						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8403 TQ8403	HAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,774	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,920						
	HLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,891						
	KAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,892						
	KCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,774						
	KLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,865						
	MAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	MCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,891						
	MLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,959						
	NAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	NCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,920						
	NLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	PAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,915						
	PCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,892						
	PLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,960						
	QAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,948						
	QCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,925						
	QLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,971						
	RAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,057						
	RCE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,034						
	RLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,126						
	SAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,114						
	SCE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,068						
	SLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,137						
	TAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,257						
	TLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,280						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8405 TQ8405	HAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,638	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,660						
	HLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,507						
	KAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,517						
	KCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,272						
	KLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,154						
	MAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,301						
	MCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,273						
	MLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,306						
	NAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,550						
	NCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,581						
	NLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,581						
	PAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,649						
	PCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,680						
	PLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,712						
	QAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,555						
	QCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,809						
	QLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,618						
	RAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,665						
	RCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,852						
	RLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,859						
	SAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,699						
	SCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,914						
	SLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,946						
	TAE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,177						
	TCE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,017						
	TLE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,049						
	UAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,415						
	UCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,550						
	ULE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,449						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8407 TQ8407	KAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,779	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	KCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,097						
	KLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,866						
	MAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,969						
	MCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,716						
	MLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,831						
	NAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,501						
	NCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,745						
	NLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,983						
	PAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,600						
	PCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,844						
	PLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,020						
	QAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,772						
	QCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,887						
	QLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,125						
	RAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,036						
	RCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,016						
	RLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,192						
	SAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,070						
	SCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,078						
	SLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,254						
	TAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,213						
	TCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,372						
	TLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,275						
	UAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,227						
	UCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,834						
	ULE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,289						
	VAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,573						
	VCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,831						
	VLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,635						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8409 TQ8409	MAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,739	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	MCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,864						
	MLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,773						
	NAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,916						
	NCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,879						
	NLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,777						
	PAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,931						
	PCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,619						
	PLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,864						
	QAE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,276						
	QCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,663						
	QLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,777						
	RAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,739						
	RCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,791						
	RLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,879						
	SAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,773						
	SCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,853						
	SLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,783						
	TAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,916						
	TCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,147						
	TLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,333						
	UAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,931						
	UCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,230						
	ULE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,415						
	VAE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,276						
	VCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,376						
	VLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,561						
	WAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,783						
	WCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,619						
	WLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,333						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8411 TQ8411	NAE	11'-10 3/4"	22'-5"	18'-10"	47,172	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NCE	11'-10 3/4"	22'-5"	18'-10"	46,548						
	NLE	11'-10 3/4"	22'-5"	18'-10"	46,419						
	PAE	11'-10 3/4"	22'-5"	18'-10"	47,318						
	PCE	11'-10 3/4"	22'-5"	18'-10"	46,904						
	PLE	11'-10 3/4"	22'-5"	18'-10"	46,610						
	QAE	11'-10 3/4"	22'-5"	18'-10"	46,986						
	QCE	11'-10 3/4"	22'-5"	18'-10"	46,401						
	QLE	11'-10 3/4"	22'-5"	18'-10"	46,430						
	RAE	11'-10 3/4"	22'-5"	18'-10"	47,132						
	RCE	11'-10 3/4"	22'-5"	18'-10"	46,444						
	RLE	11'-10 3/4"	22'-5"	18'-10"	46,690						
	SAE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	SCE	11'-10 3/4"	22'-5"	18'-10"	46,506						
	SLE	11'-10 3/4"	22'-5"	18'-10"	46,686						
	TAE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	TCE	11'-10 3/4"	22'-5"	18'-10"	46,799						
	TLE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	UAE	11'-10 3/4"	22'-5"	18'-10"	46,594						
	UCE	11'-10 3/4"	22'-5"	18'-10"	46,882						
	ULE	11'-10 3/4"	22'-5"	18'-10"	47,062						
	VAE	11'-10 3/4"	22'-5"	18'-10"	47,005						
	VCE	11'-10 3/4"	22'-5"	18'-10"	47,028						
	VLE	11'-10 3/4"	22'-5"	18'-10"	47,275						
	WAE	11'-10 3/4"	22'-5"	18'-10"	47,058						
	WCE	11'-10 3/4"	22'-5"	18'-10"	47,076						
	WLE	11'-10 3/4"	22'-5"	18'-10"	47,388						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8412 TQ8412	PAE	13'-10 3/4"	22'-5"	18'-10"	52,584	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	PCE	13'-10 3/4"	22'-5"	18'-10"	52,480						
	PLE	13'-10 3/4"	22'-5"	18'-10"	52,584						
	QAE	13'-10 3/4"	22'-5"	18'-10"	52,627						
	QCE	13'-10 3/4"	22'-5"	18'-10"	52,523						
	QLE	13'-10 3/4"	22'-5"	18'-10"	52,697						
	RAE	13'-10 3/4"	22'-5"	18'-10"	52,599						
	RCE	13'-10 3/4"	22'-5"	18'-10"	52,652						
	RLE	13'-10 3/4"	22'-5"	18'-10"	52,756						
	SAE	13'-10 3/4"	22'-5"	18'-10"	52,633						
	SCE	13'-10 3/4"	22'-5"	18'-10"	52,714						
	SLE	13'-10 3/4"	22'-5"	18'-10"	52,818						
	TAE	13'-10 3/4"	22'-5"	18'-10"	52,777						
	TCE	13'-10 3/4"	22'-5"	18'-10"	53,007						
	TLE	13'-10 3/4"	22'-5"	18'-10"	53,112						
	UAE	13'-10 3/4"	22'-5"	18'-10"	52,791						
	UCE	13'-10 3/4"	22'-5"	18'-10"	53,090						
	ULE	13'-10 3/4"	22'-5"	18'-10"	53,264						
	VAE	13'-10 3/4"	22'-5"	18'-10"	53,136						
	VCE	13'-10 3/4"	22'-5"	18'-10"	53,236						
	VLE	13'-10 3/4"	22'-5"	18'-10"	53,411						
	WAE	13'-10 3/4"	22'-5"	18'-10"	53,260						
	WCE	13'-10 3/4"	22'-5"	18'-10"	53,580						
	WLE	13'-10 3/4"	22'-5"	18'-10"	53,458						
	XAE	13'-10 3/4"	22'-5"	18'-10"	53,955						
	XCE	13'-10 3/4"	22'-5"	18'-10"	53,856						
	XLE	13'-10 3/4"	22'-5"	18'-10"	54,094						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8413 TQ8413	NAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,468	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,679						
	PAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,632						
	PLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,632						
	QAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,473						
	QCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,580						
	QLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,741						
	RAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,647						
	RCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,623						
	RLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,647						
	SAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,681						
	SCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,685						
	SLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,866						
	TAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,825						
	TCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,979						
	TLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,226						
	UAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,839						
	UCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,062						
	ULE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,839						
	VAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,184						
	VCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,208						
	VLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,388						
	WAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,238						
	WCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,255						
	WLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,502						
	XAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,999						
	XCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,822						
	XLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,999						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1a: Certified Cooling Tower Models - Rigid Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=0 [g]	UUT
NC8414 TQ8414	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,156	53,156	200 - 575	Galv. Carbon Steel	Galv. Carbon Steel	2.00	2A
	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,762	N/A		Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	PAE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,914						
	PLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,065						
	QAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,024						
	QCE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,855						
	QLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,092						
	RAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,081						
	RCE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,980						
	RLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,149						
	SAE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,962						
	SCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,040						
	SLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,483						
	TAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,169						
	TCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,325						
	TLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,494						
	UAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,183						
	UCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,405						
	ULE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,642						
	VAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,450						
	VAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,450						
	VCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,547						
	VLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,784						
	WAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,570						
	WAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,570						
	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,762						
	XAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	XCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	XLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	WCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880	54,880		Galv. Carbon Steel	Galv. Carbon Steel	2.00	4A

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8401 TQ8401	GLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,702	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,697						
	HLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,737						
	KAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,660						
	KLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,700						
	MAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,698						
	MLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,738						
	NAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,362	8,362		Stainless Steel	Stainless Steel	2.00	1B
	NAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,362	N/A		Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NCE	6'-6 1/4"	12'-10"	10'-2 1/2"	9,000						
	NCE	6'-6 1/4"	12'-10"	9'-9"	9,000	9,000		Stainless Steel	Stainless Steel	2.00	3B
	NLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,768	N/A		Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	PAE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,837						
	PLE	6'-6 1/4"	12'-10"	10'-2 1/2"	8,897						
NC8402 TQ8402	GCE	8'-4 3/4"	14'-2"	10'-3"	12,152	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	GLE	8'-4 3/4"	14'-2"	10'-3"	12,243						
	HAE	8'-4 3/4"	14'-2"	10'-3"	12,207						
	HCE	8'-4 3/4"	14'-2"	10'-3"	12,139						
	HLE	8'-4 3/4"	14'-2"	10'-3"	12,207						
	KAE	8'-4 3/4"	14'-2"	10'-3"	12,306						
	KCE	8'-4 3/4"	14'-2"	10'-3"	12,165						
	KLE	8'-4 3/4"	14'-2"	10'-3"	12,257						
	MAE	8'-4 3/4"	14'-2"	10'-3"	12,305						
	MCE	8'-4 3/4"	14'-2"	10'-3"	12,283						
	MLE	8'-4 3/4"	14'-2"	10'-3"	12,351						
	NAE	8'-4 3/4"	14'-2"	10'-3"	12,194						
	NCE	8'-4 3/4"	14'-2"	10'-3"	12,311						
	NLE	8'-4 3/4"	14'-2"	10'-3"	12,403						
	PAE	8'-4 3/4"	14'-2"	10'-3"	12,306						
	PCE	8'-4 3/4"	14'-2"	10'-3"	12,284						
	PLE	8'-4 3/4"	14'-2"	10'-3"	12,352						
	QAE	8'-4 3/4"	14'-2"	10'-3"	12,339						
	QCE	8'-4 3/4"	14'-2"	10'-3"	12,351						
	QLE	8'-4 3/4"	14'-2"	10'-3"	12,339						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8403 TQ8403	HAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,774	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,920						
	HLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,891						
	KAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,892						
	KCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,774						
	KLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,865						
	MAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	MCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,891						
	MLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,959						
	NAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	NCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,920						
	NLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,825						
	PAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,915						
	PCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,892						
	PLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,960						
	QAE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,948						
	QCE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,925						
	QLE	8'-4 3/4"	18'-2"	11'-11 1/4"	18,971						
	RAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,057						
	RCE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,034						
	RLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,126						
	SAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,114						
	SCE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,068						
	SLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,137						
	TAE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,257						
	TLE	8'-4 3/4"	18'-2"	11'-11 1/4"	19,280						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8405 TQ8405	HAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,638	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	HCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,660						
	HLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,507						
	KAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,517						
	KCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,272						
	KLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,154						
	MAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,301						
	MCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,273						
	MLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,306						
	NAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,550						
	NCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,581						
	NLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,581						
	PAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,649						
	PCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,680						
	PLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,712						
	QAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,555						
	QCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,809						
	QLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,618						
	RAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,665						
	RCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,852						
	RLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,859						
	SAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,699						
	SCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,914						
	SLE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,946						
	TAE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,177						
	TCE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,017						
	TLE	9'-10 3/4"	19'-11"	11'-11 1/4"	24,049						
	UAE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,415						
	UCE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,550						
	ULE	9'-10 3/4"	19'-11"	11'-11 1/4"	23,449						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8407 TQ8407	KAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,779	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	KCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,097						
	KLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,866						
	MAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,969						
	MCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,716						
	MLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,831						
	NAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,501						
	NCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,745						
	NLE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,983						
	PAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,600						
	PCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,844						
	PLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,020						
	QAE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,772						
	QCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,887						
	QLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,125						
	RAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,036						
	RCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,016						
	RLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,192						
	SAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,070						
	SCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,078						
	SLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,254						
	TAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,213						
	TCE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,372						
	TLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,275						
	UAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,227						
	UCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,834						
	ULE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,289						
	VAE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,573						
	VCE	11'-10 3/4"	21'-0"	11'-11 3/4"	28,831						
	VLE	11'-10 3/4"	21'-0"	11'-11 3/4"	29,635						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8409 TQ8409	MAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,739	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	MCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,864						
	MLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,773						
	NAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,916						
	NCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,879						
	NLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,777						
	PAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,931						
	PCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,619						
	PLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,864						
	QAE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,276						
	QCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,663						
	QLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,777						
	RAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,739						
	RCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,791						
	RLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,879						
	SAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,773						
	SCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,853						
	SLE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,783						
	TAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,916						
	TCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,147						
	TLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,333						
	UAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,931						
	UCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,230						
	ULE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,415						
	VAE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,276						
	VCE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,376						
	VLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,561						
	WAE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,783						
	WCE	13'-10 3/4"	22'-5"	11'-11 3/4"	34,619						
	WLE	13'-10 3/4"	22'-5"	11'-11 3/4"	35,333						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8411 TQ8411	NAE	11'-10 3/4"	22'-5"	18'-10"	47,172	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NCE	11'-10 3/4"	22'-5"	18'-10"	46,548						
	NLE	11'-10 3/4"	22'-5"	18'-10"	46,419						
	PAE	11'-10 3/4"	22'-5"	18'-10"	47,318						
	PCE	11'-10 3/4"	22'-5"	18'-10"	46,904						
	PLE	11'-10 3/4"	22'-5"	18'-10"	46,610						
	QAE	11'-10 3/4"	22'-5"	18'-10"	46,986						
	QCE	11'-10 3/4"	22'-5"	18'-10"	46,401						
	QLE	11'-10 3/4"	22'-5"	18'-10"	46,430						
	RAE	11'-10 3/4"	22'-5"	18'-10"	47,132						
	RCE	11'-10 3/4"	22'-5"	18'-10"	46,444						
	RLE	11'-10 3/4"	22'-5"	18'-10"	46,690						
	SAE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	SCE	11'-10 3/4"	22'-5"	18'-10"	46,506						
	SLE	11'-10 3/4"	22'-5"	18'-10"	46,686						
	TAE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	TCE	11'-10 3/4"	22'-5"	18'-10"	46,799						
	TLE	11'-10 3/4"	22'-5"	18'-10"	46,580						
	UAE	11'-10 3/4"	22'-5"	18'-10"	46,594						
	UCE	11'-10 3/4"	22'-5"	18'-10"	46,882						
	ULE	11'-10 3/4"	22'-5"	18'-10"	47,062						
	VAE	11'-10 3/4"	22'-5"	18'-10"	47,005						
	VCE	11'-10 3/4"	22'-5"	18'-10"	47,028						
	VLE	11'-10 3/4"	22'-5"	18'-10"	47,275						
	WAE	11'-10 3/4"	22'-5"	18'-10"	47,058						
	WCE	11'-10 3/4"	22'-5"	18'-10"	47,076						
	WLE	11'-10 3/4"	22'-5"	18'-10"	47,388						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8412 TQ8412	PAE	13'-10 3/4"	22'-5"	18'-10"	52,584	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	PCE	13'-10 3/4"	22'-5"	18'-10"	52,480						
	PLE	13'-10 3/4"	22'-5"	18'-10"	52,584						
	QAE	13'-10 3/4"	22'-5"	18'-10"	52,627						
	QCE	13'-10 3/4"	22'-5"	18'-10"	52,523						
	QLE	13'-10 3/4"	22'-5"	18'-10"	52,697						
	RAE	13'-10 3/4"	22'-5"	18'-10"	52,599						
	RCE	13'-10 3/4"	22'-5"	18'-10"	52,652						
	RLE	13'-10 3/4"	22'-5"	18'-10"	52,756						
	SAE	13'-10 3/4"	22'-5"	18'-10"	52,633						
	SCE	13'-10 3/4"	22'-5"	18'-10"	52,714						
	SLE	13'-10 3/4"	22'-5"	18'-10"	52,818						
	TAE	13'-10 3/4"	22'-5"	18'-10"	52,777						
	TCE	13'-10 3/4"	22'-5"	18'-10"	53,007						
	TLE	13'-10 3/4"	22'-5"	18'-10"	53,112						
	UAE	13'-10 3/4"	22'-5"	18'-10"	52,791						
	UCE	13'-10 3/4"	22'-5"	18'-10"	53,090						
	ULE	13'-10 3/4"	22'-5"	18'-10"	53,264						
	VAE	13'-10 3/4"	22'-5"	18'-10"	53,136						
	VCE	13'-10 3/4"	22'-5"	18'-10"	53,236						
	VLE	13'-10 3/4"	22'-5"	18'-10"	53,411						
	WAE	13'-10 3/4"	22'-5"	18'-10"	53,260						
	WCE	13'-10 3/4"	22'-5"	18'-10"	53,580						
	WLE	13'-10 3/4"	22'-5"	18'-10"	53,458						
	XAE	13'-10 3/4"	22'-5"	18'-10"	53,955						
	XCE	13'-10 3/4"	22'-5"	18'-10"	53,856						
	XLE	13'-10 3/4"	22'-5"	18'-10"	54,094						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
NC8413 TQ8413	NAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,468	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	NLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,679						
	PAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,632						
	PLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,632						
	QAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,473						
	QCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,580						
	QLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,741						
	RAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,647						
	RCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,623						
	RLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,647						
	SAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,681						
	SCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,685						
	SLE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,866						
	TAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,825						
	TCE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,979						
	TLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,226						
	UAE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,839						
	UCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,062						
	ULE	11'-10 3/4"	22'-5"	22'-7 3/16"	51,839						
	VAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,184						
	VCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,208						
	VLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,388						
	WAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,238						
	WCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,255						
	WLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,502						
	XAE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,999						
	XCE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,822						
	XLE	11'-10 3/4"	22'-5"	22'-7 3/16"	52,999						

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

Table 1b: Certified Cooling Tower Models - Isolated Mounting (Continued)

Unit Size	Fan, Sound and Certification	Unit Length	Unit Width	Unit Height	Operating Weight per Cell [lbs]	Tested Weight [lbs]	Voltage	Primary Structure Material	Hot / Cold Water Basin Material	S_{DS} z/h=1 [g]	UUT
	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,156	53,156		Galv. Carbon Steel	Galv. Carbon Steel	2.00	2B
	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,762						
	PAE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,914						
	PLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,065						
	QAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,024						
	QCE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,855						
	QLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,092						
	RAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,081						
	RCE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,980						
	RLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,149						
	SAE	13'-10 3/4"	22'-5"	22'-7 3/16"	53,962						
	SCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,040						
	SLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,483						
	TAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,169						
NC8414	TCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,325						
TQ8414	TLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,494	N/A	200 - 575	Galv. Carbon Steel / Stainless Steel	Galv. Carbon Steel / Stainless Steel	2.00	Interpolated
	UAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,183						
	UCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,405						
	ULE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,642						
	VAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,450						
	VAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,450						
	VCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,547						
	VLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,784						
	WAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,570						
	WAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,570						
	WLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,762						
	XAE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	XCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	XLE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880						
	WCE	13'-10 3/4"	22'-5"	22'-7 3/16"	54,880	54,880		Galv. Carbon Steel	Galv. Carbon Steel	2.00	4B

Note: Primary Structure can be stainless steel only when hot and cold water basin are stainless

XX	XXXX	X	X	E	X	X	G	F
Unit Size, Prefix	Unit Size, Suffix	Fan Horsepower	Sound Designator	Certification Designator	Number Units in Order	Material	Drive	Assembly Type
NC - Standard	8401	G - 2 HP	A - Low Sound	E - OSHPD	Any Integer	G - Galvanized Steel	G - Gear	F - Factory Built
TQ - Trane Quiet	8402	H - 3 HP	L - Quiet			H - Galvanized Steel Structure and Cold Water Basin Stainless Steel Hot Water Basin		
	8403	K - 5 HP	C - Ultra Quiet			C - Galvanized Steel Structure and Hot Water Basin Stainless Steel Cold Water Basin		
TQ models are branded and identical to the NC product	8405	M - 7.5 HP				B - Galvanized Steel Structure Stainless Steel Hot and Cold Water Basin		
	8407	N - 10 HP				S - Stainless Steel		
	8409	P - 15 HP						
	8411	Q - 20 HP						
	8412	R - 25 HP						
	8413	S - 30 HP						
	8414	T - 40 HP						
		U - 50 HP						
		V - 60 HP						
		W - 75 HP						
		X - 100 HP						

Table 2: TEFC Fan Motors

WEG Model	Model	Rating [HP]	Motor Speed	Input Voltage	Motor Housing Material	Max Weight [lbs]	Test Unit	MFR	Branded Marley Model
ET3	W22 CT Duty	002	Single Speed 1800 rpm	200/208-230/460/575 VAC 3 Phase	Cast Iron	141	Extrapolated	WEG	MCT
		003				159	Extrapolated		
		005				232	Extrapolated		
		007				276	Extrapolated		
		010				373	1A, 1B, 3A, 3B		
		015				423	Interpolated		
		020				537	Interpolated		
		025				616	Interpolated		
		030				926	Interpolated		
		040				998	Interpolated		
		050				1227	Interpolated		
		060				1558	Interpolated		
		075				1558	Interpolated		
		100				1811	Interpolated		
		002	Dual Speed 1800/900 rpm	200/460/575 VAC 3 Phase		141	Interpolated		
		003				159	Interpolated		
		005				232	Interpolated		
		007				276	Interpolated		
		010				373	Interpolated		
		015				423	Interpolated		
		020				537	Interpolated		
		025				616	Interpolated		
		030				926	Interpolated		
		040				998	Interpolated		
		050				1227	Interpolated		
		060				1558	Interpolated		
		075				1558	2A, 2B, 4A, 4B		

Table 3: Fans

		Blade Diameter (Inch)							Blade Material	Hub Material	Sound Designator	Max Weight [lbs]	Test Unit	MFR
		66	72	84	108	120	132	144						
Blade Count	4	X	X	X	X	X	X	X	Aluminum Alloy	Aluminum Alloy	Ultra Quiet Series	355	3A, 3B, 4A, 4B	Marley
	5	X	X	X	X	X	X	X	Aluminum Alloy	Galvanized Ductile Iron	X7 Series (Quiet and Low Sound Options)	419	1A, 1B	
	6	X	X	X	X	X	X	X				485	2A, 2B	
	8	X	X	X	X	X	X	X				617	Extrapolated	

Table 4: Single Reduction Geareducer

Model	Power Rating Range (HP)	Gear Ratios	Material	Test Unit	MFR
5, 2000	27 - 50	2.71 - 4.8	Cast Iron	1A, 1B, 3A, 3B	Marley
5, 2200	29 - 70	3.45 - 8.67		Interpolated	
5, 2400	31 - 143	3.45 - 8.67		2A, 2B, 4A, 4B	

Note: Power rating is for sizing the model to the system (no input electrical power)

Table 5: VFD

Model	Power (HP)	Voltage	Test Unit	MFR
ACH550-01-XXXA-4	1-10	208-575	Extrapolated	ABB
ACH550-01-015A-4	10		3A, 3B	
ACH550-01-XXXA-4	10-75		Interpolated	
ACH550-01-097A-4	75		4A, 4B	

Table 6A: Marley Water Level Sensor probe assembly

Model	System Components	Test Unit	MFR
E2	(2) B/W probes with stilling chamber	1A, 1B	Marley
E3	(3) B/W probes with stilling chamber	Interpolated	
E4	(4) B/W probes with stilling chamber	Interpolated	
E5	(5) B/W probes with stilling chamber	Interpolated	
E6	(6) B/W probes with stilling chamber	Interpolated	
E7	(7) B/W probes with stilling chamber	4A, 4B	

Table 6B: Marley LLC Water Level Control Panel

Model		Card Configuration	Voltage		Enclosure Type		Test Unit	MFR
LLC	1	MU	120	120 VAC 50/60 HZ	E5	NEMA Type 4X FIBERGLASS	Extrapolated	Marley
	2	HA					Extrapolated	
	3	LA					1A, 1B	
	4	HCO					Interpolated	
	5	LCO					Interpolated	
	6	MU+HA					Interpolated	
	7	MU+LA					Interpolated	
	8	MU+HCO					Interpolated	
	9	MU+LCO					Interpolated	
	10	HA+LA					Interpolated	
	11	HA+HCO					Interpolated	
	12	HA+LCO					Interpolated	
	13	LA+HCO					Interpolated	
	14	LA+LCO					Interpolated	
	15	HCO+LCO					Interpolated	
	16	MU+HA+LA					3A, 3B	
	17	MU+HA+HCO					Interpolated	
	18	MU+HA+LCO					Interpolated	
	19	MU+LA+HCO					Interpolated	
	20	MU+LA+LCO					Interpolated	
	21	MU+HCO+LCO					Interpolated	
	22	HA+LA+HCO					Interpolated	
	23	HA+LA+LCO					Interpolated	
	24	HA+HCO+LCO					Interpolated	
	25	LA+HCO+LCO					Interpolated	
	26	MU+HA+LA+HCO					Interpolated	
	27	MU+HA+LA+LCO					Interpolated	
	28	MU+HA+HCO+LCO					Interpolated	
	29	MU+LA+HCO+LCO					Interpolated	
	30	HA+LA+HCO+LCO					Interpolated	
	31	MU+HA+LA+HCO+LCO					4A, 4B	

Table 7A: Cold Water Basin Heating System

Model	System Components	Test Unit	MFR
7131 Immersion	Heater Element	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	INDEECO
	Temperature Probe		
	Control Panel	1A, 1B, 4A, 4B	

Note: Temp Probe and Control Panel same no matter the heater rating.

Table 7B: Cold Water Basin Heater Element

Basin Heater Element	Max. Weight [lbs]	Test Unit	MFR
1 - 6 KW	10	Extrapolated	INDEECO
7.5 KW	11	1A, 1B, 2A, 2B	
8 - 12 KW	13	Interpolated	
15 KW	18	3A, 3B, 4A, 4B	
18 - 20 KW	18	Extrapolated	

Note: Maximum of Two Elements Allowed per unit

Table 8: Marley M5 Vibration Switch Components

Model	Test Unit	MFR
M5	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B	Marley

Table 9: Terminal Box Enclosures

Model	W	H	D	Enclosure Type		Voltage	Test Unit	MFR
T-Box - Small	18"	20"	8.23"	E5	FIBERGLASS NEMA Type 4X	480/3/60	1A, 1B, 3A, 3B	Marley
T-Box - Med Small	21.59"	25.59"	9.75"				Interpolated	
T-Box - Med Large	25.59"	25.59"	9.75"				Interpolated	
T-Box - Large	25.59"	31.59"	9.75"				2A, 2B, 4A, 4B	

Table 10: SPPC Power Panel Enclosure

Model	W	H	D	Enclosure Type		Voltage	Status Option	Test Unit	MFR
SPPC - Small	25.59"	31.59"	9.75"	E5	FIBERGLASS NEMA Type 4X	480/3/60	LLCSTAT	3A, 3B	Marley
SPPC - Large	35.85"	31.30"	12.04"				BHSTAT	4A, 4B	

LLCSTAT = Water Level Lights and Status
BHSTAT = Basin Heater Lights and Status

Table 11A - Inlet Components

Unit Size	Inlet Position				Test Unit	Material	MFR
	Dual	Single					
No.	Top	Top	Side	Bottom			
8401	X	X	X	X	1A, 1B, 3A, 3B	PVC Pipe	Marley
8402	X	X	X	X	Interpolated		
8403	X	X	X	X	Interpolated		
8405	X	X	X	X	Interpolated		
8407	X	X	X	X	Interpolated		
8409	X	X	X	X	Interpolated		
8411	X	X	X	X	Interpolated		
8412	X	X	X	X	Interpolated		
8413	X	X	X	X	Interpolated		
8414	X	X	X	X	2A, 2B, 4A, 4B		

UUT-1A/1B and UUT-2A/2B had dual top inlet option. . UUT-3A/3B and UU-4A/UUT-4B had single bottom inlet option

Table 11B - Inlet Options

Material	Option/Size	Test Unit	MFR
	PVC	3A, 3B, 4A, 4B	Marley
Branch Pipe Nominal Size (Inch)	6"	3A, 3B	
	8"	Interpolated	
	10"	4A, 4B	
Riser Pipe Nominal Size (Inch)	6"	3A, 3B	
	8"	Interpolated	
	10"	Interpolated	
	12"	4A, 4B	

Table 12A - Fan Stack

Dimensions		Stack Diameter (Inch)							Test Unit	MFR
		66	72	84	108	120	132	144		
Stack Height (Inch)	12	X	X	X	X	X	X	X	Extrapolated	Marley
	24	X	X	X	X	X	X	X	Extrapolated	
	36	X	X	X	X	X	X	X	3A, 3B	
	48	X	X	X	X	X	X	X	Interpolated	
	60	X	X	X	X	X	X	X	4A, 4B	

Table 12B - Fan Stack Material

Group	Stack Material	Test Unit	MFR
Stack Material	Galvanized Steel	3A, 3B	Marley
	Stainless Steel	4A, 4B	

Table 13 - Fan Guard

Dimensions		Material	Test Unit	MFR
Blade Diameter (Inch)	66	Stainless Steel / Galv. Steel	Extrapolated	Marley
	72	Stainless Steel Galv. Steel	1A, 1B 3A, 3B	
	84	Stainless Steel / Galv. Steel	Interpolated	
	108		Interpolated	
	120		Interpolated	
	132		Interpolated	
	144	Galv. Steel Stainless Steel	2A, 2B 4A, 4B	

Rod Sizes: Major 5/16", Minor 7 Gauge. Welded Construction.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01A

PEER-STI 2010-14; UUT1

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8401NAE	Marley

Product Construction Summary

Stainless Steel Structure; Stainless Steel Hot Water Basin; Stainless Steel Cold Water Basin

Options / Subcomponent Summary

5 72" Blades Low Sound Fan: SPX Marley; 10 HP 200-575 V Fan Motor: WEG

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
8362	78.25	154	122.5	9.3	8.6	6.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	0.00	1.5	2.00	0.80	1.34	0.54

Test Mounting Details

Unit attached to shake table interface fixture via (4) 3/4" diameter A325 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01B

PEER-STI 2010-14: UUT1

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8401NAE	Marley

Product Construction Summary

Stainless Steel Structure; Stainless Steel Hot Water Basin; Stainless Steel Cold Water Basin

Options / Subcomponent Summary

5 72" Blades Low Sound Fan: SPX Marley; 10 HP 200-575 V Fan Motor: WEG

UUT Properties

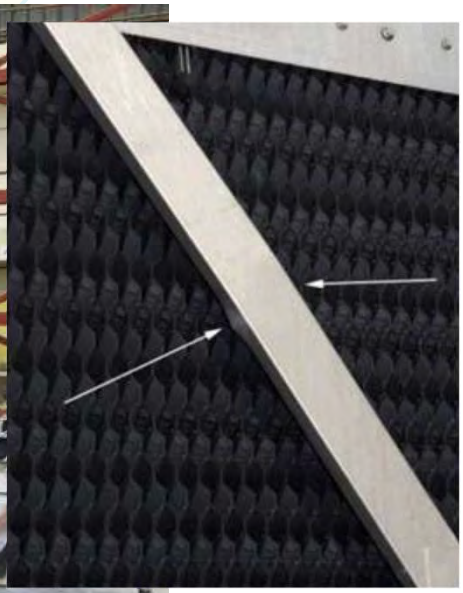
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
8362	78.25	154	122.5	1.9	2.3	3.9

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.00	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (4) 3/4" diameter A325 bolts. Dunnage frame attached to shake table interface fixture using (8) MSSH-1E-1400 VMC isolators. DCRs: The cross bracing members' thickness increased to 11 gauge material.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02A

PEER-STI 2010-14; UUT2

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8414WLE	Marley

Product Construction Summary

Galv. Steel Structure; Galv. Steel Hot Water Basin; Galv. Steel Cold Water Basin

Options / Subcomponent Summary

6 144" Blades Quiet Fan: SPX Marley; 75 HP 200-575 V Fan Motor: WEG

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
53156	166.75	269	271.19	5.9	6.2	7.8

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	0.00	1.5	2.00	0.80	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (8) 3/4" diameter A325 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02B

PEER-STI 2010-14; UUT2

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8414WLE	Marley

Product Construction Summary

Galv. Steel Structure; Galv. Steel Hot Water Basin; Galv. Steel Cold Water Basin

Options / Subcomponent Summary

6 144" Blades Quiet Fan: SPX Marley; 75 HP 200-575 V Fan Motor: WEG

UUT Properties

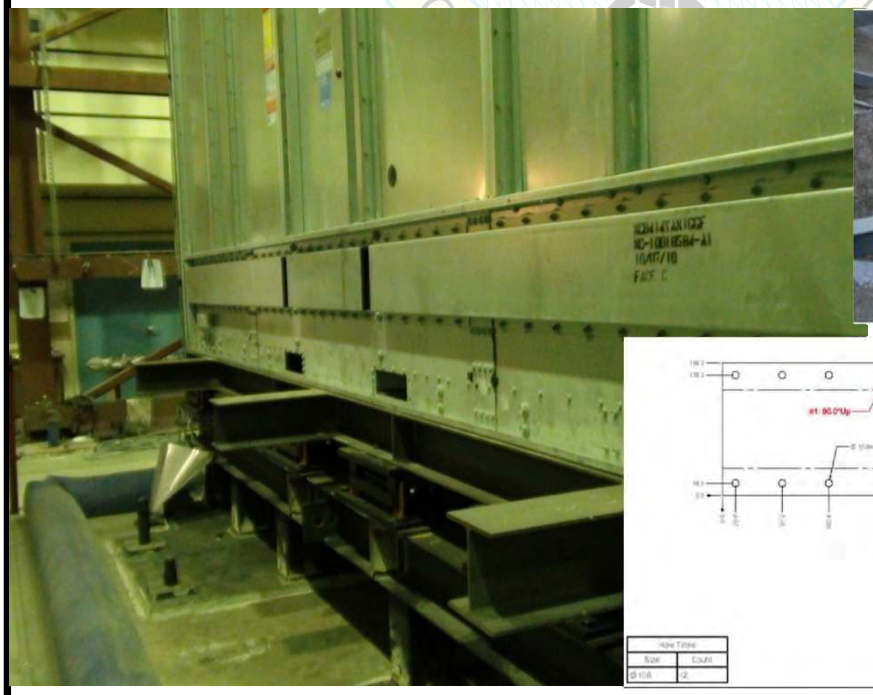
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
53156	166.75	269	271.19	1.6	1.9	3.6

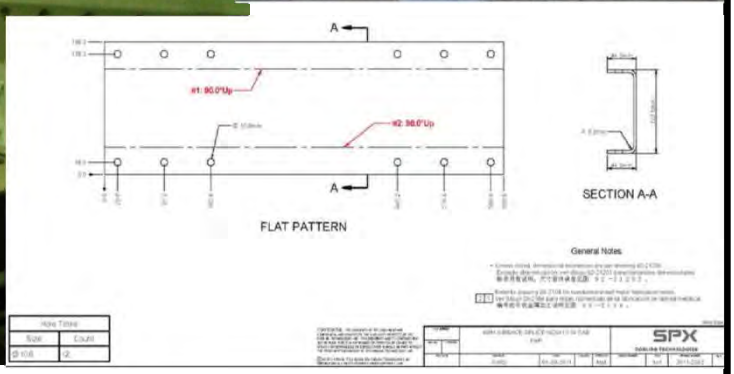
UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.00	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (8) 3/4" diameter A325 bolts. Dunnage frame attached to shake table interface fixture using (12) M6SH VMC isolators. DCRs: Splice at the flanges of the interior cross braces was redesigned with longer flange length and to use 6-3/8" dia bolts instead of sheet metal screws.





All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-03A

PEER-STI 2012-04; UUT3A

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8401NCE	Marley

Product Construction Summary

Stainless Steel Structure; Stainless Steel Hot Water Basin; Stainless Steel Cold Water Basin

Options / Subcomponent Summary

4 72" Blades Ultra Quiet Fan: SPX Marley; 10 HP 200-575 V Fan Motor: WEG; 10 HP VFD: ABB

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
9000	78	154	117	6.7	5.5	8.1

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	0.00	1.5	2.00	0.80	1.34	0.54

Test Mounting Details

Unit attached to shake table interface fixture frame via (4) 3/4" diameter Grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-03B

PEER-STI 2012-04; UUT3B

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8401NCE	Marley

Product Construction Summary

Stainless Steel Structure; Stainless Steel Hot Water Basin; Stainless Steel Cold Water Basin

Options / Subcomponent Summary

4 72" Blades Ultra Quiet Fan: SPX Marley; 10 HP 200-575 V Fan Motor: WEG; 10 HP VFD: ABB

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
9000	78	154	117	2.2	1.9	5.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.00	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (8) 3/4" diameter Grade 8 bolts. Dunnage frame attached to shake table interface fixture using (8) MSSH-1E-1400 VMC isolators.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-04A

PEER-STI 2012-04; UUT4A

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8414WCE	Marley

Product Construction Summary

Galv. Steel Structure; Galv. Steel Hot Water Basin; Galv. Steel Cold Water Basin

Options / Subcomponent Summary

4 144" Blades Quiet Fan: SPX Marley; 75 HP 200-575 V Fan Motor: WEG; 75 HP VFD: ABB

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
54880	269	167	265	6.2	4.7	5.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	0.00	1.5	2.00	0.80	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (12) 3/4" diameter Grade 8 bolts. Dunnage frame attached to shake table interface fixture via (16) 3/4" diameter Grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-04B

PEER-STI 2012-04; UUT4B

Model Line	Model Number	Manufacturer
NC8401-NC8414	NC8414WCE	Marley

Product Construction Summary

Galv. Steel Structure; Galv. Steel Hot Water Basin; Galv. Steel Cold Water Basin

Options / Subcomponent Summary

4 144" Blades Quiet Fan: SPX Marley; 75 HP 200-575 V Fan Motor: WEG; 75 HP VFD: ABB

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
54880	269	167	265	1.7	1.8	4.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.00	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

Unit attached to dunnage frame via (12) 3/4" diameter Grade 8 bolts. Dunnage frame attached to shake table interface fixture using (12) M6SH-1E-6000 VMC isolators. DCRs: Added 1.5 x 6 x 1/8in. plate double hole washer at each side of the corner double bolt connections to top and bottom UUT interface. Added two horizontal braces for the SIO Tee Bracing at the top of the 'Tee' point.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.