



COOLING TECHNOLOGIES

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Submittal to:  
MCC Group

Project:  
NOVA

Engineer:

BR+A Consulting Engineers

Opportunity / Quote No. (Ver): Mike Eshenour\_111221\_111826365 / Mike Eshenour\_111221\_112043121 (1)  
Rep Quote No.: 100659

March 29, 2012

**Marley NC8414QLN4**

TOWER MODEL	PERFORMANCE CONDITIONS	MOTOR DATA	TOWER DIMENSIONS	WEIGHTS
Quantity of (3) Marley NC Class Diamond Series model NC8414QLN factory assembled 4-Cell crossflow cooling tower(s)	Per 4-cell tower: 4,500 gpm 104.0 °F Hot Water 85.0 °F Cold Water 82.0 °F Entering WB	NEMA 20 HP 1 speed / 1 wind 3 phase / 60 Hz / 230/460v 1.15sf / TEFC 1200 RPM Premium Efficiency Inverter duty nameplated	Each cell: (without options) Length 13' - 10 3/4" Width 22' - 5" Height 22' - 7 1/4"  Per 4-cell tower: (with options) Length 61' - 7 9/16" Width 22' - 5" Height 25' - 8 5/16"	Per cell: Shipping: 30,472 lb Operating: 56,728 lb  Per 4-cell tower: Shipping: 121,889 lb Operating: 226,913 lb Heaviest Lift: 17,118 lb

Quantities shown below are per tower.

**Base Tower Construction/Equipment:**

Stainless Steel casing.

Stainless Steel structure.

Stainless Steel collection basin.

Stainless Steel distribution basin.

All stainless steel is series 300.

Tower Structure Level 2 selected to meet customer specified design requirements for windload of 130 MPH.

Anchorage design selected to meet customer specified design requirements for wind load of 100.0 psf.

Quiet fan with aluminum blades.

Marley designed Geareducer® with 5-year warranty.

15 mil PVC film fill with integral louvers and drift eliminators designed and manufactured by Marley.

Drift rate guaranteed to be no greater than .005% of the design flow rate.

HDG steel fan guard.

**Collection Basin Connections and Accessories:**

All flanges are to Class 125 ANSI B16.1 standard.

All threads are to American Standard Pipe Taper Thread.

(4) 12 in (305 mm) diameter depressed side sump outlet(s) with trash screen(s).

12 in (305 mm) diameter hole and bolt circle(s) for equalization, One per Cell

4 in (102 mm) diameter combination drain and overflow in each cell

4 in (102 mm) additional drain with plug in each cell

(4) 2 in (50.8 mm) water make-up float valve(s)

Probe type electronic water level sensor with the following events: low-alarm, high-alarm

Factory installed basin sweeper piping (requires 20 psi (138 kPa) inlet pressure).

**For (1) 4cell tower only:**

12 kW per cell 480/3 volt/phase electric immersion heater for freeze protection of the collection basin during cold weather system shutdown

Includes heater elements, water temperature sensor probe and control box

Heater system circuit breaker

**Distribution Basin Inlet and Accessories:**

(1) self-balancing 12 in (305 mm) diameter PVC bottom inlet connection per cell.

All internal piping is PVC. External piping is PVC.

**Maintenance & Maintenance Access Features:**

Tower is designed in accordance with OSHA safety standards.



**Job Information**

NOVA  
 MCC  
 New Orleans

**Selected By**

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**Cooling Tower Definition**

Manufacturer	Marley	Fan Motor Speed	1200 rpm
Product	NC Steel	Fan Motor Capacity per cell	20.00 BHp
Model	NC8414QLN4	Fan Motor Output per cell	20.00 BHp
Cells	4	Fan Motor Output total	80.00 BHp
CTI Certified	No	Air Flow per cell	196900 cfm
Fan	12.00 ft, 8 Blades	Air Flow total	787600 cfm
Fan Speed	160 rpm, 6031.9 fpm	Static Lift	22.96 ft
Fans per cell	1	Distribution Head Loss	0.00 ft
		ASHRAE 90.1 Performance	138 gpm/Hp

Model Group Quiet Fan (L)  
 Sound Pressure Level 58 dBA (Single Cell), 50.00 ft from Air Inlet Face. See sound report for details.

**Conditions**

Tower Water Flow	4500 gpm	Air Density In	0.07021 lb/ft <sup>3</sup>
Hot Water Temperature	104.00 °F	Air Density Out	0.07041 lb/ft <sup>3</sup>
Range	19.00 °F	Humidity Ratio In	0.01993
Cold Water Temperature	85.00 °F	Humidity Ratio Out	0.03400
Approach	3.00 °F	Wet-Bulb Temp. Out	92.63 °F
Wet-Bulb Temperature	82.00 °F	Estimated Evaporation	91 gpm
Relative Humidity	50.0 %	Total Heat Rejection	42564000 Btu/h
Capacity	108.2 %		

- This selection satisfies your design conditions.
- The performance for this selection is not guaranteed because the approach is less than 5 °F.
- This selection is not CTI Certified because: the approach is less than 5 °F.

**Weights & Dimensions**

	Per Cell	Total
Shipping Weight	20700 lb	82800 lb
Heaviest Section	11600 lb	
Max Operating Weight	48900 lb	195600 lb
Width	22.42 ft	22.42 ft
Length	13.90 ft	56.46 ft
Height	22.68 ft	

**Minimum Enclosure Clearance**

Clearance required on air inlet sides of tower without altering performance. Assumes no air from below tower.

Solid Wall	12.41 ft
50 % Open Wall	6.51 ft

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file 8414\_ALN.dxf

**Cold Weather Operation**

Heater Sizing (to prevent freezing in the collection basin during periods of shutdown)

Heater kW/Cell	30.0	24.0	18.0	15.0	12.0	9.0	7.5
Ambient Temperature °F	-18.82	-6.29	6.25	12.51	18.78	25.05	28.18

BR+A Comment

