

Job Information

Lyons Ferry Straw Pulp Plant
 Allnorth
 Starbuck, WA

Selected By

Courtney and Nye
 382 SE Washington Street
 Hillsboro, OR 97123
 clin@courtneyandnye.com

Chaoyi Lin
 Tel 5036931221
 Fax 5036931221

Cooling Tower Definition

| | | | |
|---------------|--------------------|--------------------------------------|-------------|
| Manufacturer | Marley | Fan Motor Speed | 1800 rpm |
| Product | NC Steel | Required Fan Motor Output per cell * | 47.83 BHp |
| Model | NC8409UAN4 | Required Fan Motor Output total * | 191.33 BHp |
| Cells | 4 | Fan Motor Capacity per cell | 50.00 Hp |
| CTI Certified | Yes | Fan Motor Output per cell | 50.00 BHp |
| Fan | 12.00 ft, 5 Blades | Fan Motor Output total | 200.00 BHp |
| Fan Speed | 323 rpm, 12177 fpm | Air Flow per cell | 204300 cfm |
| Fans per cell | 1 | Air Flow total | 817200 cfm |
| | | Static Lift | 12.34 ft |
| | | Distribution Head Loss | 0.00 ft |
| | | ASHRAE 90.1 Performance | 56.4 gpm/Hp |

Model Group Standard Low Sound (A)

* Required Fan Motor Output assumes VFD operation

Conditions

| | | | |
|------------------------|-----------|-----------------------|----------------|
| Tower Water Flow | 6600 gpm | Air Density In | 0.07130 lb/ft³ |
| Hot Water Temperature | 109.00 °F | Air Density Out | 0.06987 lb/ft³ |
| Range | 24.00 °F | Humidity Ratio In | 0.01585 |
| Cold Water Temperature | 85.00 °F | Humidity Ratio Out | 0.03765 |
| Approach | 9.00 °F | Wet-Bulb Temp. Out | 95.75 °F |
| Wet-Bulb Temperature | 76.00 °F | Estimated Evaporation | 144 gpm |
| Relative Humidity | 50.0 % | Total Heat Rejection | 78818000 Btu/h |
| Capacity | 101.5 % | | |

- This selection satisfies your design conditions.

Weights & Dimensions

| | Per Cell | Total |
|----------------------|----------|-----------|
| Shipping Weight | 12400 lb | 49800 lb |
| Heaviest Section | 12400 lb | |
| Max Operating Weight | 29400 lb | 117600 lb |
| Width | 22.42 ft | 22.42 ft |
| Length | 13.90 ft | 56.46 ft |
| Height | 11.98 ft | |

Minimum Enclosure Clearance

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

| | |
|----------------|----------|
| Solid Wall | 17.53 ft |
| 50 % Open Wall | 13.89 ft |

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file 8409_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 | -21.50 | -8.40 | 4.71 | 11.26 | 17.81 | 24.36 | 27.64 |

Job Information

Lyons Ferry Straw Pulp Plant
 Allnorth
 Starbuck, WA

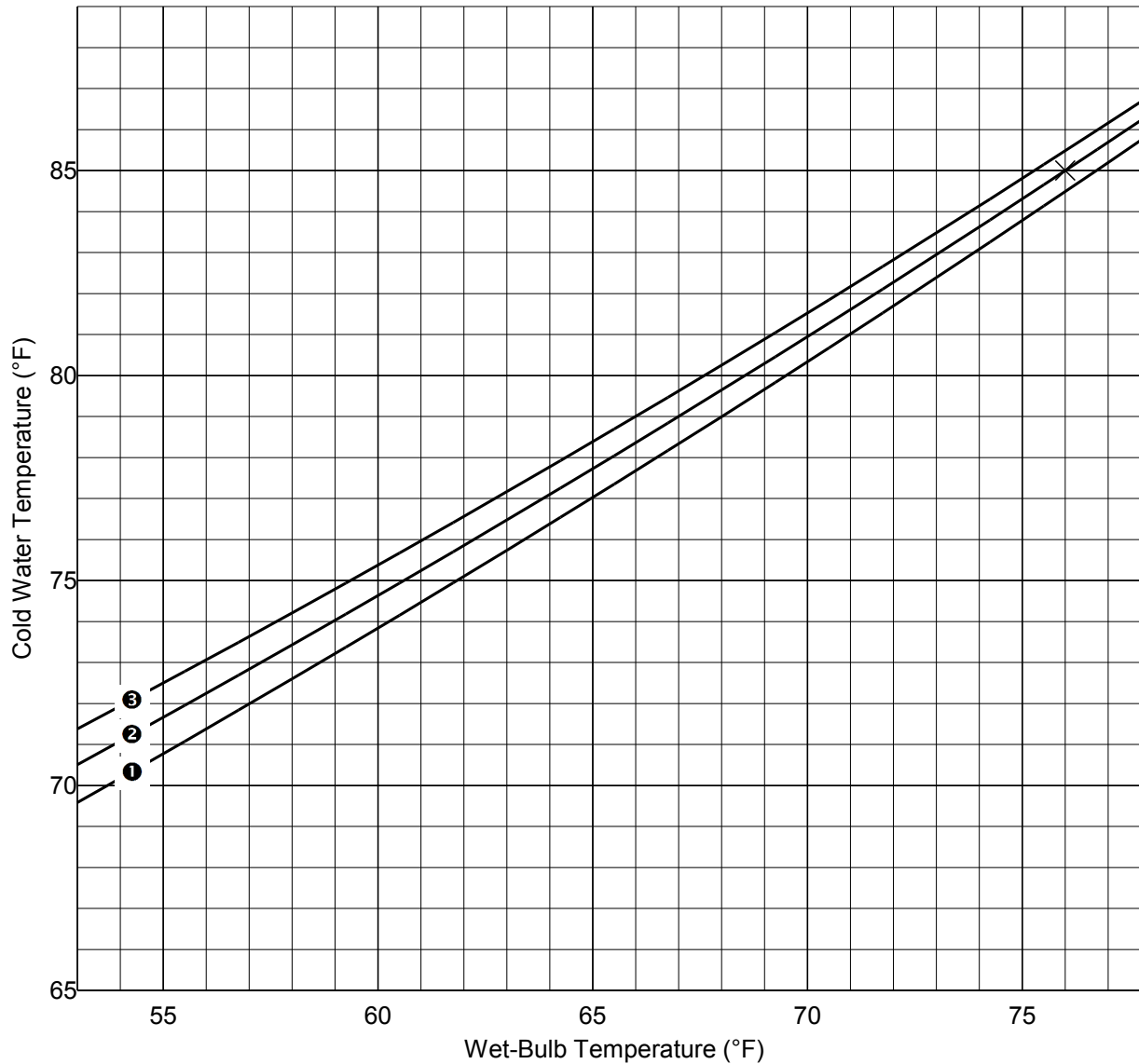
Selected by

Courtney and Nye
 382 SE Washington Street
 Hillsboro, OR 97123
 clin@courtneyandnye.com

Chaoyi Lin
 Tel 5036931221
 Fax 5036931221

Cooling Tower Definition

Manufacturer Marley
 Product NC Steel
 Model NC8409UAN4
 Cells 4
 Fan 12.00 ft, 5 Blades
 Fans per cell 1
 Fan Motor Capacity per cell 50.00 Hp



Design Conditions

Tower Water Flow 6600 gpm
 Hot Water Temperature 109.00 °F
 Cold Water Temperature 85.00 °F
 Wet-Bulb Temperature 76.00 °F

Curve Conditions

Tower Water Flow (100.0 %) 6600 gpm
 Fan Speed (100.0 %) 323 rpm
 Fan Motor Speed (100.0 %) 1800 rpm
 Fan Motor Output per cell 50.00 BHp
 Fan Motor Output total 200.00 BHp

Legend

- ① 22 °F Range
- ② 24 °F Range
- ③ 26 °F Range
- × Design Point