



Longhill Energy



## CASE STUDY

# L'ESPLANADE LAURIER – COOLING TOWER CASE STUDY

## ABOUT THE PROJECT

**CATEGORY:** COMMERCIAL BUILDINGS

**LOCATION:** 140 O'CONNOR ST, OTTAWA,  
ON K1A 0R5

# THE CHALLENGE



This particular facility has multiple chillers all requiring different condenser water flow rates, and any combination of chillers and their associated condenser water pumps may be running at any one time. The scope of this project was to provide a condenser water cooling solution that can cool 105F condenser water to 85F with a 71F wet bulb temperature, furthermore, the system must be able to handle anywhere between 5070 GPM to 1770 GPM or have an approximate 3:1 turn down. There were also physical restrictions within the facility and the final solution needed to fit into two separate roof wells with minimal clearance between beams on two separate buildings.



# THE DESIGN



Working with Tower Tech Inc Cooling Towers, Longhill Energy provided four of Tower Tech Inc's TTXL-061975, six-fan modular "Smart" cooling towers, which not only met the required thermal performance and physical space restrictions, it also provided an impressive 12:1 turndown on the condenser water flow, allowing for less than their minimum flow while also providing a higher maximum water flow to allow for future chiller expansion.

The four Tower Tech Inc TTXL-061975 "Smart" cooling towers were able to provide the maximum cooling requirements while only using 2.95BHP per fan or 70.8BHP for the entire system, significantly lower than any of the competition. Furthermore, with all the fans on VFD controlled control panels, as the condenser water flow rate decreases, the fan input power drops exponentially. The minimum flow rate is less than a 3:1 turndown from the maximum flow rate, but the power input drops to an impressive 0.8BHP/fan or 9.6BHP for the whole system yielding almost a 7.4:1 power turndown.

The FRP structure of the Tower Tech Inc. "Smart" cooling tower, and the absence of dissimilar metals ensures a corrosion free life of the cooling tower, with lifespans exceeding triple that of the competition.

The patented self-cleaning rotating nozzles from Tower Tech, means significantly reduced maintenance for the owners. Having the fans on the bottom of the cooling tower, allows the entire top of the cooling tower to be covered with light blocking drift eliminators which helps to mitigate algae growth within the tower, further reducing tower maintenance. It also provides a much tougher environment for bacterial growth thereby a much healthier environment for workers, and significantly reducing the propensity for the growth of legionella.



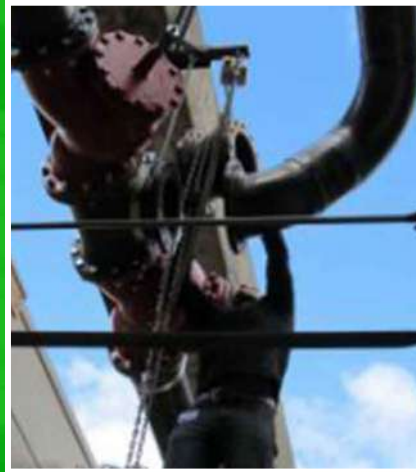
# THE EXECUTION



Given that the location of the building is in Ottawa's downtown core, the cost of craning is exorbitantly expensive, as well as difficult to arrange due to road closures, traffic rerouting, etc. Tower Tech cooling towers come factory assembled with the exception of four legs and sump box yielding a total install time per module of less than one hour, significantly reducing crane time, and overall installation man hours over the competition. Furthermore, the design of the cooling tower has the motors placed on the bottom of the cooling tower which means no cranes will be required for motor replacements in the future. With the competition, a single crane lift in this location could cost near the price of a brand new cooling tower.



# CONCLUSIONS



The multiple stringent requirements on this project required a design that went far and above what any conventional cooling tower on the market today can provide. Tower Tech Inc's "Smart" cooling tower was not only able to meet, but exceed every single one of the design criteria of the job, and then went on to provide life-long benefits to the owner that no other cooling tower on the market could provide, including providing the lowest kW/ton power rating on the market today.

## CONTACT US FOR COMMERCIAL HVAC SOLUTIONS



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