



System: CTPR

Kinetics Noise Control Solutions

NOISEBLOCK™ Barrier Wall - Evaporative Cooling Towers

Client

Owner of an upscale condominium complex

Issues

- The client was faced with installing two (2), induced draft, closed circuit, evaporative coolers to service the cooling needs of their residents.
- A local well known acoustical consultant was hired to document existing noise levels in the area near the proposed location of the future cooling towers and review the mechanical design drawings and manufacturer's sound data for the two evaporative coolers to determine the expected noise levels at the property line and compare this data to the local noise ordinance.
- It was determined that the current ambient daytime noise level barely met the noise ordinance for a residential zone at 60 dBA and the existing nighttime ambient sound level was 5 dBA above the 50 dBA nighttime ordinance for the area.
- Based on the manufacturer's cooling tower sound data, it was projected that the operation of both towers would exceed both daytime and nighttime allowable noise levels.

- Without acoustical treatment, the noise level from the cooling towers would be 67 dBA at the nearest resident. The consultant recommended the use of a 2-sided, sound barrier wall system plus variable frequency drives on each cooling tower in order to meet the local noise ordinance.

Solutions

- The acoustical consultant instructed the condominium owner to have the cooling tower manufacturer contact the local Kinetics Noise Control, Inc. (KNC) representative.
- KNC's engineering team and local representative reviewed the proposed installation site and the manufacturer's cooling tower equipment drawings. The consultant proposed a **NOISEBLOCK™** barrier wall system that was to be 4'-0" taller than the highest point of each cooling tower. The cooling towers were 18'-0" tall and taking into account the support structure yielded a proposed barrier wall of 30'-0" H.
- The cooling tower manufacturer advised that the close proximity of the solid barrier walls were within the guidelines published and that airflow supply or recirculation would not be an issue.



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Advantages of Proposed Solution

- Standard products were used which allow for quick manufacture, delivery and installation.
- Kinetics Noise Control Inc. (KNC) engineering team and local representative are well versed in working closely with mechanical equipment suppliers to design acoustical treatment to achieve required sound reductions but not interfere with the performance of the equipment.

Considerations

- Environmental noise issue
- Two (2) induced-draft, cooling towers
- Upscale condominium complex
- Time constraints
- Barrier wall must be free standing
- Ability of existing building structure to support the reaction forces imposed at the base plates of the barrier wall structural columns

Project Goals

- Quiet the noise levels equal to or below the 50 dBA nighttime noise ordinance
- Guarantee the product acoustical and structural performance
- Make sure the performance of the cooling towers was not degraded by the introduction of sound attenuating products.
- Work closely with the engineer of record to make sure the existing building could withstand the required forces imposed on it by the proposed barrier wall system.

NOISEBLOCK™ Applied Products

The barrier wall system consisted of **NOISEBLOCK™**, model STL-4, double-wall, panels, hardware, structural steel components, structural calculations and piece-marked installation drawings. The barrier structural steel calculations were forwarded to the engineer of record for review and to provide the required Professional Engineer's stamp.

Resolution

The **NOISEBLOCK™** barrier wall system introduced a 17 dBA noise reduction which exceeded the amount required to bring the operating cooling towers' sound level equal to the allowable, nighttime, ambient noise levels. The client was pleased and the system continues to operate.

