

## MEP Design – Health Care Metropolitan Jewish Geriatric Center Chiller Replacement 4915 Tenth Avenue Brooklyn, New York

EME Group has provided a variety of engineering design and energy conservation services to this 350-bed nursing home located in Brooklyn, New York.

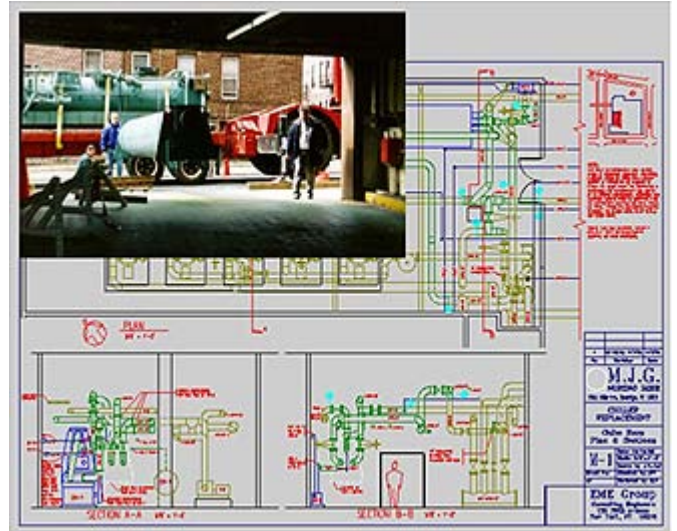
### Services

- Replace Steam Absorbers
- Upgrade Burners
- Emergency Generator Analysis
- Electric Distribution Survey
- Needs Assessment Survey
- RPZ Design and Filing
- Obtained Federal and State Funding to Implement Energy Conservation Measures

EME Group completed a project to replace two 375-ton low pressure steam absorbers at this 350 bed nursing home. We monitored the cooling load for a period of about a month. Steam consumption was estimated based on boiler output. We were able to isolate the service hot water and reheat coil loads to obtain the steam rate of the absorbers. EME Group metered chilled water supply and return temperatures as well as flow rate to confirm the chilled water load. Based on these two approaches, the peak-cooling load was determined to be 600 tons. We recommended installing two York 450-ton units for redundancy to ensure the ability to provide cooling. This enabled one unit to be fully loaded during normal summer operation and peak cooling to be met by both absorbers operating at about 66% of full capacity.

After determining cooling needs, the major challenge for this project was the rigging. The chiller mechanical equipment room is located two levels below grade near the center of the building. EME Group designated a rigging path that enabled the units to be installed in two pieces. The path required removal of an exterior wall in the garage one level below grade and the demolition of two small offices. The path for the absorbers required significant detail leaving inches to spare at certain turns in the rigging path.

In addition to the replacement of the steam absorbers, EME Group provided full architectural drawings for the wall and office reconstruction. EME Group specified that the existing condenser and chilled water pumps be inspected for wear before permitting their replacement.



### Project Required Close Attention to Rigging Clearances

EME Group evaluated both pump sets with the pump manufacturer and determined that replacement of the condenser water pumps was warranted, but that the chilled water pumps could be rebuilt at a significant cost savings to the Owner.

EME Group completed a detailed assessment of the mechanical systems that identified numerous operational problems with the system including malfunctioning pneumatic controls, inoperable motors and dampers and faulty sensors. Our final report detailed all the deficiencies and enabled facility management to prioritize the problems and begin repairing them.

In another project we completed an assessment of the emergency power system. As a result of a variety of renovations conducted over many years, facility management personnel were uncertain of the extent of the systems served by the 600 kW emergency generator. A new elevator was being contemplated and it would have to be connected to the emergency generator but it was unknown whether or not there was sufficient excess capacity. We retained an electrician and performed a detailed survey of the loads connected to the emergency generator and determined there was not enough capacity for the new elevator. As part of the project we also documented the loads on the system for future work.

EME Group also developed the construction documents to upgrade the existing boiler plant including the burners and controls to dual fuel capability.