



BROAD U.S.A

Columbia University Medical Center “Packaged Healthcare solutions”

--How a top university minimized the risk
from future energy cost fluctuations.

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When it was time to renovate the existing electric centrifugal chilled water plant Columbia University wanted to achieve the following goals with the design of the HVAC chilled water plant.



- Low operating cost
- Reliability
- Lowering CO2 emissions
- Increased plant capacity
- No utility infrastructure investment

Based on the university's long experience in operating chilled water plants a thermally driven plant utilizing non-electric chillers was the logical choice. Based on the current and the foreseeable future of energy costs the price of natural gas will continue to be an attractive solution to meet our energy needs. The Columbia chiller plant utilizes steam power and natural gas/in-directly to provide cooling.

Like many decisions that building owners face the first cost considerations are secondary to long term operating cost and the total cost of ownership.



Low operating cost / Natural Gas

The Cost of natural gas in North America is proving to be one of the great opportunities for our domestic economy. The domestic supply of natural gas in the United States is projected to be affordable and plentiful in supply for over the next hundred years. The current and projected market price of natural gas has fallen by 2/3rds since its peak in 2008. Princeton University's ability to base load the thermally driven broad non electric chiller will lowers the buildings peak kw consumption throughout the year (Peak Shaving). This flexibility will also aid the local utility existing infrastructure to meet future summer peak demands without investment in additional electric generation.

System Summary:

- ü Two 1000 ton High Efficiency Two Stage Absorption chillers powered by an existing steam system
- ü Steam provided by affiliate neighbor New York Presbyterian Hospital
- ü Nyseda recipient of over \$500,000 in reduced electric grid power
- ü "Packaged" for reduced installation cost outdoors/ rig and set

Low CO2

By directly burning natural gas on site as opposed to only utilizing grid power for hvac applications most building can dramatically lower their Carbon Footprint while reducing the cost to operate the building. Ashrae has been providing building designers and owners a methodology to calculate CO2 contribution from various forms of energy. (CO2e)



BROAD U.S.A is a privately held company Headquarter in New Jersey supporting the sales and service to our Customers in North America. BROAD Absorbers are currently operating successfully in over 70 countries with over 30,000 installations worldwide. BROAD is the world largest manufacturer of absorption chillers ranging in size up to 3300 tons.

