



## **Copeland of GOCO earns patent for control sequence innovation**

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"As often happens, the simplest solution turns out to be the most effective," said consulting engineer and Goldman Copeland Associates, PC (GOCO) president/CEO Charles Copeland, PE/LEED AP, when describing the thinking behind the patent he and GOCO colleague John Leffler, along with Con Edison's Simkho Zirkiyev, now hold for a control sequence to reduce steam demand. Or as it is officially known, US Patent #8955763.

In the seven years from its patent pending status to being awarded earlier this year, the control sequence has been helping Manhattan legacy office buildings from the era of the "50s through" 70s save steam demand costs every winter. With installation costs ranging between \$7,500 and \$15,000, paybacks as short as the winter heating season, automatic daily control and an interface to a building's BMS or control loop, "8955763" truly is a win-win energy technology. Plus, GOCO gives the control sequence away for free.

Like many energy conservation strategies and practices, the control sequence was born out of necessity, since Con Edison's steam distribution system - one of the largest in the world - was becoming heavily overburdened during peak winter heating days. To limit steam demand, Con Edison implemented a peak winter steam demand charge, much as it does for electricity. However, the utility was required to offer customers strategies to mitigate these high demand charges. Con Edison approached GOCO, which had years of experience pioneering energy solutions and was known for its innovative thinking, to devise a way to reduce peak steam demand.

### **The "Aha!" Moment**

Copeland recalls that they considered "several different approaches." One day while he was reviewing options and drawing on his experience with older buildings, "The idea came to me. There is a 'reservoir' of water already in the perimeter systems (induction and fan coil unit) that could be used to store thermal energy in advance of the 8 to 11 a.m. peak usage time, thereby requiring less steam during those peak hours."

The patent control sequence utilizes output from the Con Edison steam meters to manage thermal energy storage.

Charlie emphasizes that the automated feature "is essential, since it must be performed daily to avoid a peak demand charge for the month due to inadvertent oversight. The controls have a self-learning feature," he added, "to automatically adjust start-up time based on outside air temperatures."

To test the sequence, they "implemented it in several Vornado properties, and were able to show good results." While the patent was pending, many building managers, working with their control systems vendors, installed the sequence operation.

Seven years after Charlie's years of experience yielded a simple, but effective new idea, US Patent 8955763 is now successfully used in scores of office towers throughout Manhattan.

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