HEAT-TIMER CORPORATION

CASE NO. 06

BUILDING TYPE: *Apartment*

NO. OF UNITS: *400*

LOCATION : *97 e 117 Ravene Ave.* .

Yorkers,NY

MPC with Remote Communications Ends Overheating and Excess Fuel Consumption at Apartment Complex

PROBLEM: It's a rental property owner's nightmare: Open apartment windows in mid-winter. Unfortunately for Glenwood Gardens Management, the open windows were *not* the result of unseasonably warm weather. Rather, the apartments, which happened to be perched on the chilly banks of the Hudson River, had serious overheating
problems. To add insult to injury, the owner had only recently installed a new boiler and burner in one of the complexes. He had hoped that the new-equipment would bring better efficiency, but obviously many problems remained.

In Fall of 1994, he turned to Lester Stan of MMI Mechanical in Staten Island, NY for help.

"The owner was having a lot of trouble controlling his heat- particularly at night," remarked Stan.

The existing control system didn't provide enough heat to keep tenants comfortable at night. To quiet their complaints, the building superintendent would invariably put the boilers on by-pass, pouring uncontrolled heat into the building. Tenants responded by raising their windows.

SOLUTION: Lester Starr knew there were some steam distribution problems that needed to be solved, but he
also knew that this alone would not produce the kind of results the owner wanted or deserved. To help the owner save more fuel, particularly at nighttime, he recommended a Heat- Timer MPC steam control with a Remote Communications system. The MPC control regulates boiler operation based on outdoor temperatures. The control computes how much heat is required to maintain indoor target temperatures under various outdoor conditions, so heat output closely matches demand at all times. The boiler only operates when heat is required, so less fuel is consumed.

There were several features of the MPC that the contractor liked.

.First, the MPC allows the owner to maintain setback temperatures at night, so fuel consumption is kept to a minimum when heat demand is at its lowest. (The control also incorporates a "morning variable boost" which quickly brings the system up to temperature at the end of the nighttime cycle so comfort is maintained even in the early morning.) The control *automatically* varies the amount of morning warm-up based on outdoor temperature.

.Second, the contractor was already familiar with the control system, and was confident of its reliability: If problems did occur, he knew Heat-Timer provided superior product support.

"In the past, Heat- Timer had always been more than willing to come out to the job site and teach the servicemen how to service the control," said Mr. Stan.

Parts were also readily available from numerous local vendors. For greater convenience, the MPC has replaceable circuit cards which, if required, can be replaced in a few minutes without removing the panel from the job-site.

.Third, and most important of all, was the *Remote Communication* system or Remote Intercept (RI) .This feature provides the owner with greater opportunity for control and convenience. It enables the owner or operator to access the control system from anywhere, at anytime. As long as there is a computer and a modem handy; the system can be called up, day or night, and adjusted. If tenants complain about heating, the system can be accessed immediately to determine if the complaint is legitimate and what can be done to correct the problem. The operating software remains *in the control,* so there are no sp~cial tools or software required to access the system. The entire control system can be adjusted from home or office.

Advantages of Remote Intercept

The RI feature enhances an owner's ability to fine tune his MPC control for greater overall fuel savings. It uses multiple sensors to monitor space temperatures. These sensors provide crucial data to the control regarding space vs. target temperatures. The control processes inputs from the sensors and makes adjustments accordingly to maintain target temperatures.

In this particular case, a separate nighttime set point was used to help the owner maintain a *lower* temperature at

night, thus maximizing savings. The existing system had fought to maintain an unreasonable target temperature of 78°F to 80oF: The new MPC enabled the owner to set separate day and night target temperatures-74°F during the day and 68°F at night.

While these sensors give the operator the opportunity to fine tune the system, they do not operate like thermostats. Instead of controlling boiler operation, they feed data to the main panel. This feature appealed to Lester Starr because it protected the building from overheating.

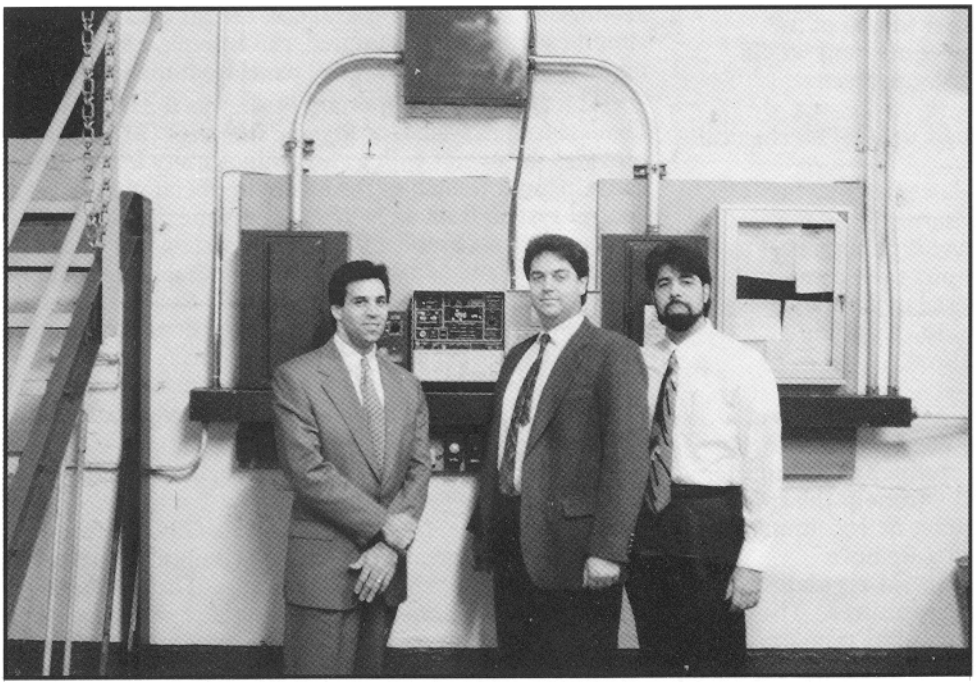
The RI also helps the owner avoid manual tampering of the control. Once an adjustment is made via computer, . that panel knob is "locked out", and adjustments can only be made by calling up the panel again. Some owners like this feature because it prevents unauthorized personnel
from tampering with the control. According to Starr, this feature alone has sold many property owners on the RI.

The RI automatically maintains a full operational history of the system for 28 days. Interestingly, this feature proved to be very useful to Glenwood Gardens shortly after the Heat- Timer control was installed. According to the contractor, tenants had grown accustomed to the excess
heat of the apartment building. When the new control was installed, and temperatures were brought down to a normal range, several tenants complained that their apartments were too cold. The history reports, however, provided
proof that temperatures were well above reasonable comfort levels. In fact, the history reports revealed that throughout the first winter, nighttime building temperatures never once dropped to the minimum temperature of 68°F: Through the night, the building often maintained enough residual heat
to keep the boiler system from operating, resulting in significant fuel savings for the owner. Once tenants adjusted to the normal temperatures, the complaints stopped.

When Mr. Starr proposed the Heat- Timer control system, he did so with the understanding that if his client wasn't satisfied, he would completely remove the system at no charge. After one week of operation, the owner told him to install the same system in an adjacent complex, and then three additional properties. Mr. Starr had maintained a log of history reports and a fuel analysis for the first heating sensor so the operational savings of the system were readily apparent. Equally important, the owner could see that the savings had been achieved without compromising comfort.

The MPC Gold Series control typically produces a minimum fuel savings of 10-15% without the RI feature.
By including the RI, owners often see an *additional* 10%
fuel savings for a total savings of 20 to 25%. All Gold Series controls are field upgradeable to the Remote Communications Package, so owners of existing systems can also achieve these additional savings.

Even though Starr has had numerous successes with the Remote Communication System, he admits that at first it can be intimidating to potential users who aren't computer literate. Starr has found that the best way to allay their fears is to simply demonstrate how user friendly the system is.
Starr finds that most of his clients are willing to learn how to make adjustments on their own, once they see how simple the system is to operate.



From left to right, Ralph *Della Cava*, Vice President/ Principal of RA Cohen & Associates Inc. N. Y. together with Lester Starr & John Masini both of MMI Mechanical in Staten Island, N.Y. stand in front of *Heat-Timers* MPC Steam Control Panel