

VIESSMANN

more than heat

DOMESTIC HOT WATER HEATING RETROFIT: Viessmann system vs. conventional heaters



VITODENS 200
91 - 230 MBH



VITOCCELL-V 300
53 120 US gallons



The project:

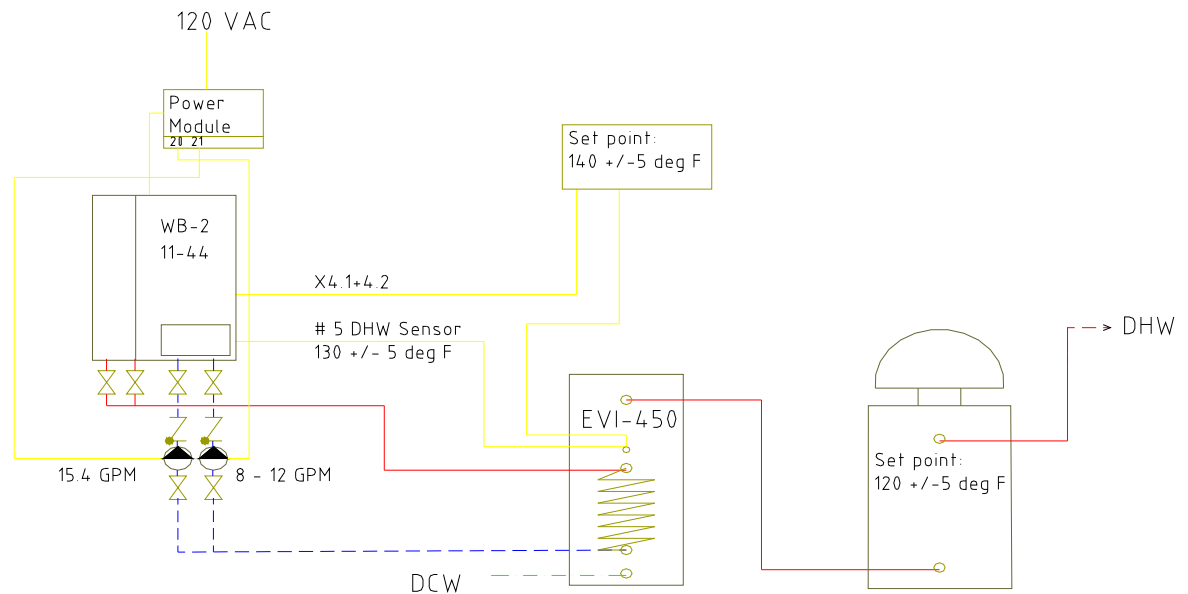
- **Madison Gardens is a 29-unit 5-year-old (built in 2001) townhouse complex with a number offices on the ground floor. Hot water was supplied by two conventional hot water tanks.**
- **One of the heaters leaked and required replacement in 2004 at a cost of \$4500. The other heater has begun to leak.**
- **It appeared that one heater needs replacement every second year.**
- **Exhaust fans were noisy and were disturbing the adjacent retail units in the complex.**
- **System required emergency service about once a year.**



Old tank connection

Viessmann system

- **Install aggressively sized condensing system and keep newer existing tank as back-up and to meet peak demands.**
- **Monitor old tank cycles to fine tune system to maximize condensing boiler operation.**
- **Use reputable install / service contractor.**



Viessmann system key points:

Features:

- High quality stainless steel condensing boiler.
- Fully modulating, low NOx (low emissions) burner.
- High quality stainless steel indirect heated storage tank.
- Keep one existing tank.
- System approach to optimize operation.
- Fine tuning based on actual performance.

Benefits:

- Efficiency
- Reliability
- Long service life
- Low maintenance cost
- Environment friendly



VITODENS 200
WB2 11-44
55 - 172 MBH



VITOCELL-V 300
EVI-450
120 US gallons

Alternative system proposed

Conventional direct fired DWH tank:

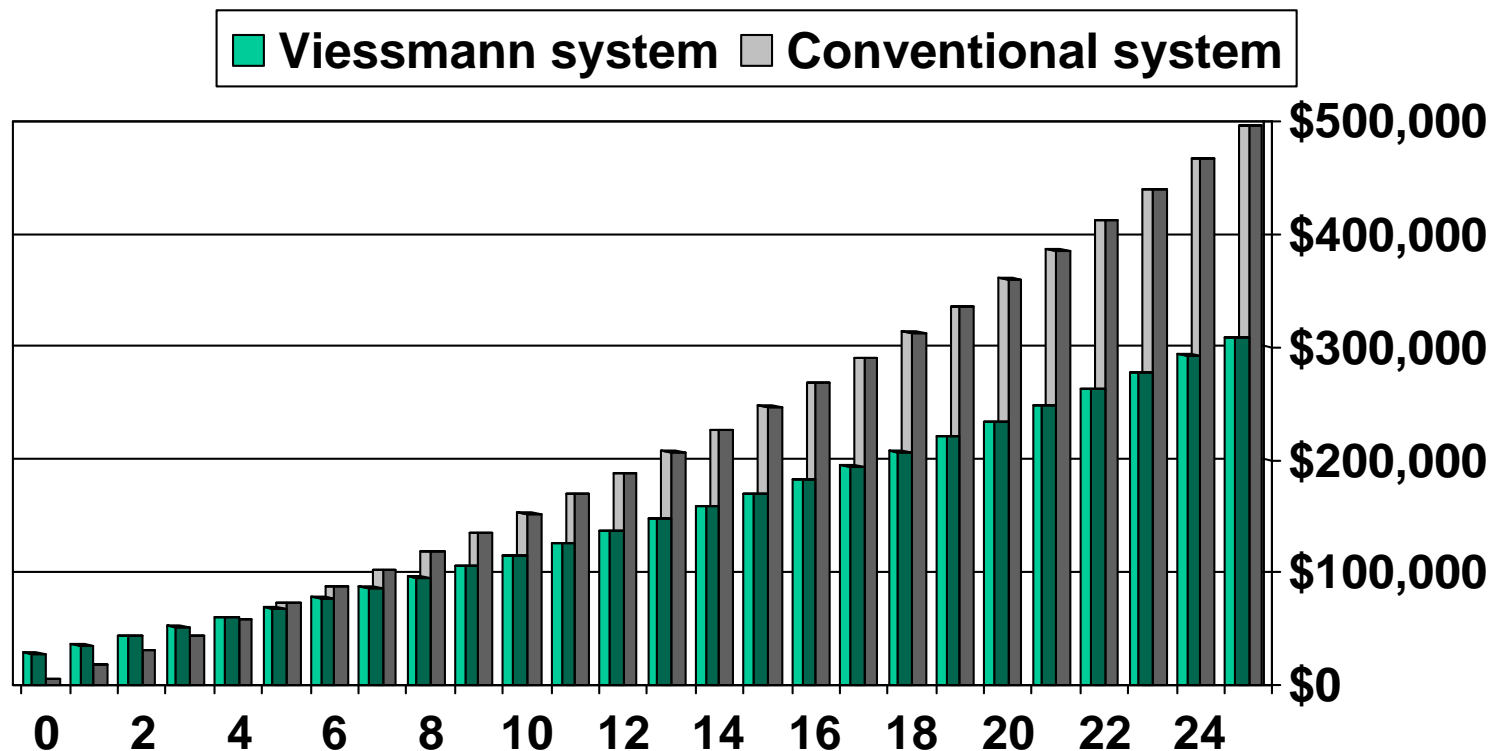
- **Low capital costs**
- **High fuel cost.**
- **Short life cycle** (In this particular application it appears to require replacement every 4-5 years)
- **Low reliability.**



Comparative costs table

	Viessmann system	Alternative system
Initial Investment	\$28000	\$5000
Fuel Cost \$/a	\$7389	\$10556
Energy Increase rate %	0.07	0.07
Maintenance Cost Including Tank Replacement \$/a	\$250	\$2500
Emergency Calls \$/a	0	\$500
Maintenance Increase Rate	0.1	0.1
Discount Rate	0.04	0.04

Estimated comparative costs and revenue chart through systems' life cycle

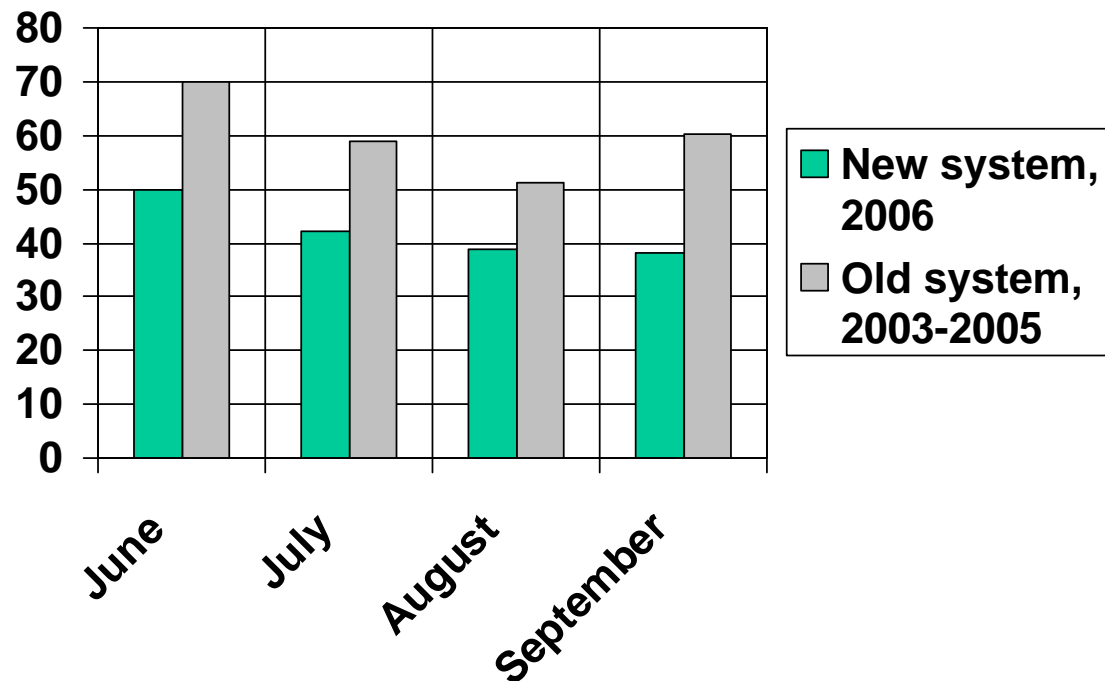


- In 25 years \$188,500 saved (present value)
- ROI = 32.8 & payback = 4 years.
- Emission Reduction = 11.6 tons / year.

New installation, start up May 2005



Actual gas consumption in GJ through correspondent period of time for new and old system: June-September, 2006 / 2003-2005



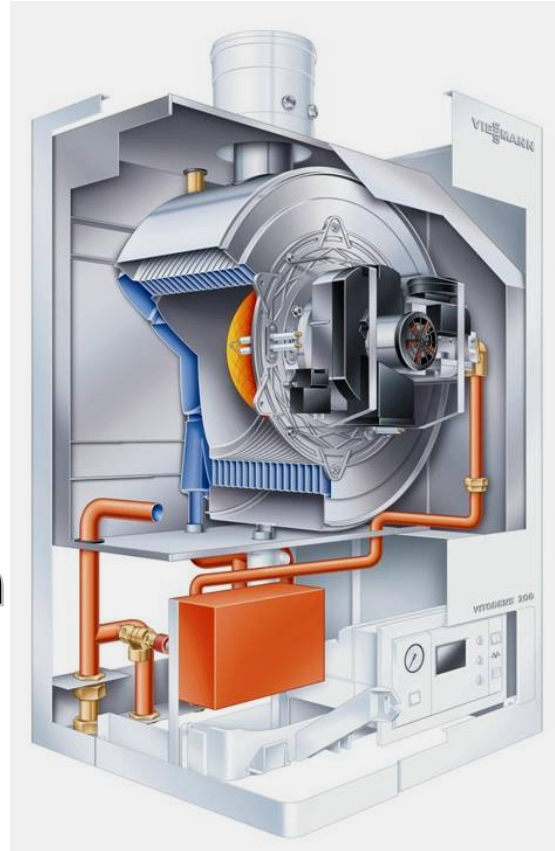
•Actual savings achieved = 30%.

VITODENS 200 - Features

Flue gas adaptation

**Sealed combustion
concentric venting**

**High efficient 94.2%
condensing operation**



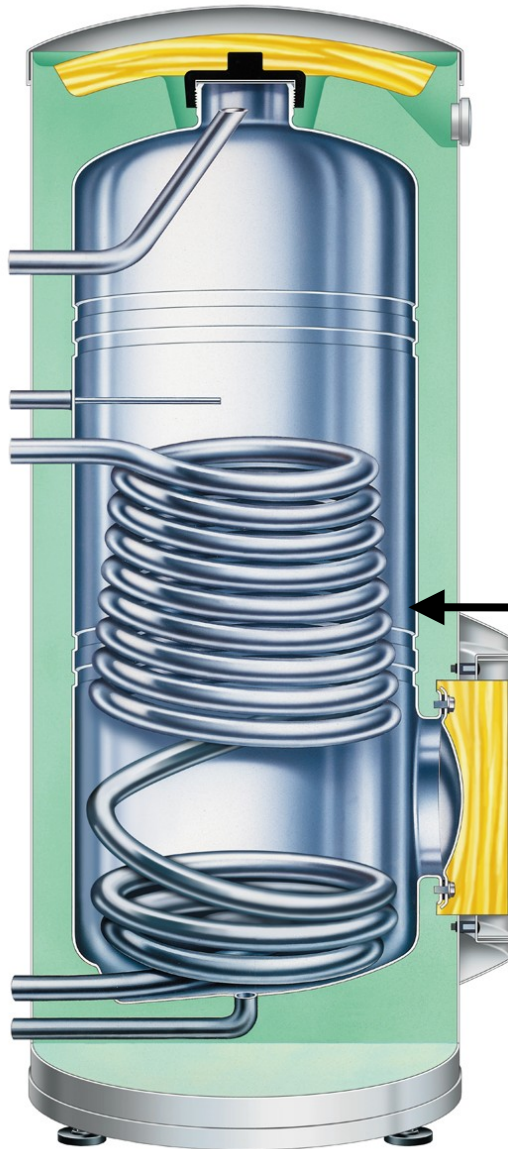
**Low NOx Matrix
burner <10ppm**

ASME approved

Almost silent operation

VITOCELL 300

Superior tank construction



TANK:

- **Titanium stabilized**
- **Fusion welds**
- **Stress relieved**
- **Large clean out**
- **No anode rods**
- **Diffuser plate**
- **Reliable**
- **Hygienic**



New system

RESULTS:

- **Increased comfort (felt by owners)**
- **Peace of mind: reliability, long service life.**
- **Environment friendly: lower consumption, lower NOx emissions (acid rain) and CO2 emissions 11.6 tons / year**
- **ROI = 32.8 %**
- **Payback = 4 years**



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