



# CPC Green Financing Initiative

Simple, Sensible, Sustainable  
Solutions



# The Speakers



**Sadie McKeown**, Senior Vice President, has been Director of Lending in CPC's Hudson Valley Region since 1996. She has been tapped to head up CPC's Green Financing Initiative.



**Pam Elgar**, Plymouth Management Group, is managing agent for the East Village co-op at 54 E. 1<sup>st</sup> Street. Ms. Elgar brings 30 years of experience running a business in NYC to her current position.



**Hilary Weinstein**, Vice President, in CPC's Brooklyn office, has closed 67 loans for a total of \$225 million in financing for 2,363 housing units in New York City in the eight years she has been with CPC.



**Paul Olliver**, V.P. of the co-op board, worked with Ms. Elgar to improve the financial and physical health of the building. Mr. Olliver has been in online media for over 12 years.



## The Community Preservation Corporation (CPC)

- Non-profit 501 c(3) Mortgage Finance Company
- Founded in 1974 by NY Clearinghouse Banks
- Funded via consortium of more than 70 banks and insurance companies
- 137,000 units financed, more than \$7.4 billion in public and private investment
- Affordable low- and moderate-income housing



# The Green Initiative

- **Simple**
  - \$1 Billion available for building owners to retrofit
  - \$500 million permanent financing through Freddie Mac
  - A One Stop Shop: Construction and Permanent Financing blended with public incentives
- **Sensible**
  - Improve property cash flow & increase value
  - Make retrofit a standard part of the mortgage process
- **Sustainable**
  - Extend efficiency and life cycle of building systems
  - Provide a better environment for residents



## Target Markets

- Existing **multifamily** housing stock throughout New York State
- Occupied cash-flowing rental properties
- Cooperative Apartment Buildings
- Measure energy usage up front so savings can be measured post retrofit
- Typical buildings are 20 units and larger



## Goals of Retrofit

- Benchmark the Building – Measure Usage
  - Create a Database of energy consumption
- Identify the Work Scope with an Energy Audit
  - What is cost effective?
  - Most items are simple and obvious
  - Identify incentives available to the project
- Monitor the construction
  - Insure best practices
- One year post retrofit: Measure the savings!
  - Goal is 20% savings on overall energy and water consumption



# Benefits to Building & Residents

- Heating, Electric & Water usage reduction
- Improved systems
- Improved energy management
  - Training of maintenance staff
  - Engage employees and tenants
- Improved affordability, durability, health, safety, efficiency and comfort



# Case Study

54 East 1<sup>st</sup> Street Coop  
East Village, New York





## 54 East 1<sup>st</sup> Street

- Application:
  - Refinance coop's underlying mortgage
- Challenge:
  - Excessive consumption of natural gas for heat
  - Tenant complaints of freezing winter building temps



## 54 East 1<sup>st</sup> Street

- Opportunity
  - Advise coop on energy efficiency retrofit to increase building performance and building economics
    - Lower operating costs through energy savings
    - Incentive payments to Coop from utility
- Refi loan at new lower interest rate



## The Property: Basic Information

- 6-story 10,000 sf walk-up apartment building
- Constructed 1890, last renovated 1998
- 15 affordable residential units:
  - 14 owner-occupied
  - 1 coop-owned rent stabilized unit
- 1,430 square foot restaurant
- Well-managed: No vacancies, No arrears



# The Property: Utility Service

## **THREE TYPES OF UTILITY SERVICE**

- Electricity: lighting, plug-in appliances, and motors
  - Natural Gas: space heating, domestic hot water heating, and cooking
  - Water and Sewer: municipal and waste water
- 
- **Coop:**
    - Pays for common area electric, natural gas use for heat and domestic hot water, and water and sewer
  - **Individuals:**
    - In-unit electric for appliances and cooking gas
  - **Commercial tenant**
    - Pays 20% building (or flat fee) towards heating bill during winter
    - Separate gas meter for domestic hot water and cooking gas

# BUILDING SYSTEMS

- **Modular Boiler System**
  - cast-iron, gas-fired low pressure steam boilers manufactured by Burnham, installed 1998.
    - Oversized and inefficient
    - Maze of pipes through which steam travels before reaching units above



# WATER STORAGE TANKS

- Stores hot water made by boiler
  - Two un-insulated water tanks





# CAST IRON RADIATORS IN UNITS

- Tenant attempts for heat led to replacement



# PUBLIC HALL LIGHTING

- Incandescent lights on 24/7





# COOP HISTORY/1988-2002

- Conversion to Coop in 1988
  - Deferred Maintenance from the Time of Conversion
- Troubled Financial Past
  - Transient tenancy
  - Organizational challenges: internecine disputes, lawsuits, bankruptcies
- 1997-1999 Installation of new boiler, roof and masonry work
- 2002-2003 New Leadership: Coop Board Coalesced
  - Nov. 2002: \$500,000 CPC Mortgage
    - Refinanced Underlying Coop Mortgage
    - Paid down significant municipal water and sewer arrears



# COOP HISTORY/RESIDENT EXPERIENCE 2003-2009

- Consistent Tenant Complaints
  - Freezing building temperatures throughout winter: boiler system failure
  - Persistent water leaks resulting from faulty roof and masonry work
- 2007-2009: Retained Current Contractor
  - Completed Work: Rebuilt bulkhead, repaired parapet, secured detached fire escape
  - Masonry and Unit Work to address water damage
  - Pending Work Energy Retrofit and Masonry Work (north wall)
  - Coop/Management Effort to seek lower interest rate financing
  - Issued RFP for Boiler Bids, seeking technical assistance
    - Andy Padian's "Greening of Older Buildings" Session
    - Introduction to the CPC Green Financing Initiative



# CPC GREEN REFINANCING PROCESS

- Energy Assessment – Benchmark Usage
- CPC Staff Inspection
- Third Party Energy Audit; Recommendations
- Bid out to contractor
- CPC Engineer Review
  - Joint walk-through optimal for maximum information-sharing



## CPC GREEN REFINANCING PROCESS

- Loan Underwritten (without incorporating savings)
- Loan Origination: CPC financing of energy retrofit
- Construction Monitoring: CPC engineer/energy expert
- Assessment of energy usage and measurement of savings in Year 1



# ENERGY ASSESSMENT THE PROCESS

- CPC collects and analyzes 2 years of gas usage data
  - Delivery dates, quantity (not cost)
  - CPC analyzes utility usage data for water and electric
  - Building inspection by CPC staff and owner/manager
    - Energy Retrofit recommendations discussed with owner
    - Energy audit ordered to confirm



## ENERGY ASSESSMENT BENCHMARK ANALYSIS: HEAT

- Heat Usage (BTU/SF/HDD)
  - Calculate average annual consumption over 2 yrs
  - Isolate summer usage for domestic hot water
    - Summer usage gas for DHW: 15%
    - Efficient - NYC average is 40%

	From Date	To Date	Gas Use	Gas Bill Amt
	2/3/2010	3/5/2010	1,861	\$2,671.66
	1/4/2010	2/3/2010	2,084	\$3,207.31
	12/3/2009	1/4/2010	1,783	\$2,767.24
	10/30/2009	12/3/2009	986	\$1,672.31
	10/1/2009	10/30/2009	625	\$875.25
119 Days	9/1/2009	10/1/2009	147	\$228.37
	8/3/2009	9/1/2009	135	\$209.31
	7/2/2009	8/3/2009	136	\$220.85
	6/3/2009	7/2/2009	150	\$228.23
	5/4/2009	6/3/2009	185	\$276.45
	4/3/2009	5/4/2009	594	\$865.51
	3/5/2009	4/3/2009	1,992	\$3,497.18

	From Date	To Date	Gas Use	Gas Bill Amt
	1/2/2009	2/3/2009	4,310	\$7,108.08
	12/2/2008	1/2/2009	2,085	\$3,991.06
	10/29/2008	12/2/2008	1,300	\$2,558.70
	9/30/2008	10/29/2008	293	\$554.91
120 Days	8/29/2008	9/30/2008	159	\$297.89
	7/31/2008	8/29/2008	135	\$269.95
	7/1/2008	7/31/2008	137	\$309.39
	6/2/2008	7/1/2008	150	\$303.18
	5/1/2008	6/2/2008	396	\$751.11
	4/2/2008	5/1/2008	649	\$1,211.12
	3/4/2008	4/2/2008	1,396	\$2,345.43
2/1/2008	3/4/2008	1,929	\$3,256.44	



## ENERGY ASSESSMENT BENCHMARK ANALYSIS: HEAT

- Measure gas usage for heat
  - Therms per SF
  - Convert to universal BTU/SF
  - Adjust for temperature Variation by Heating Degree Day
    - Target < 10 BTU/SF/HDD
- CPC Portfolio Average = 14
- 54 E 1<sup>st</sup> = 20 BTU/SF/HDD Excessive

15 UNITS 10,083 sq/ft		
Natural Gas 03/05/09-03/05/10		
Annual Consumption	10,678.00	therms
Average Building Usage	1.06	therms/sq.ft.
Average Summer Building Usage	4.77	therms/day
Gas Usage for DHW	1,742.18	therms
Gas Usage for DHW	0.16	%
Gas Usage for Heating	8,935.82	therms
Gas Usage for Heating	0.89	therms/sq.ft.
Gas Usage for Heating	88,622.58	btu/sq.ft.
Gas Usage for Heating	18.13	btu/sq.ft./hdd

15 UNITS 10,083 sq/ft		
Natural Gas 02/1/08 - 2/2/09		
Annual Consumption	12,939.00	therms
Average Building Usage	1.28	therms/sq.ft.
Average Summer Building Usage	4.84	therms/day
Gas Usage for DHW	1,767.21	therms
Gas Usage for DHW	0.14	%
Gas Usage for Heating	11,171.79	therms
Gas Usage for Heating	1.11	therms/sq.ft.
Gas Usage for Heating	110,798.29	btu/sq.ft.
Gas Usage for Heating	22.67	btu/sq.ft./hdd



# ENERGY ASSESSMENT BENCHMARK ANALYSIS: ELECTRIC

- Electric (Kwh/SF)
  - Target: Below 3 kwh/SF & \$0.15/SF
  - CPC Portfolio Average: .44
  - 54 E 1<sup>st</sup> = .325 kwh/SF & \$0.11 = efficient
  - Additional Savings still possible through retrofit

From Date	To Date	Elec Usage	Electric Bill Amt
2/3/2010	3/5/2010	292	\$82.96
1/4/2010	2/3/2010	285	\$87.30
12/3/2009	1/4/2010	310	\$91.00
10/30/2009	12/3/2009	277	\$89.69
10/1/2009	10/30/2009	242	\$80.99
9/1/2009	10/1/2009	215	\$79.70
8/3/2009	9/1/2009	234	\$79.34
7/2/2009	8/3/2009	232	\$87.64
6/3/2009	7/2/2009	233	\$85.04
5/4/2009	6/3/2009	247	\$79.01
4/3/2009	5/4/2009	272	\$77.16
3/5/2009	4/3/2009	289	\$80.84

From Date	To Date	Elec Usage	Electric Bill Amt
1/2/2009	2/3/2009	316	\$95.06
12/2/2008	1/2/2009	288	\$84.47
10/29/2008	12/2/2008	302	\$70.44
9/30/2008	10/29/2008	259	\$73.41
8/29/2008	9/30/2008	271	\$88.75
7/31/2008	8/29/2008	255	\$112.61
7/1/2008	7/31/2008	268	\$100.79
6/2/2008	7/1/2008	266	\$92.22
5/1/2008	6/2/2008	302	\$94.30
4/2/2008	5/1/2008	281	\$85.22
3/4/2008	4/2/2008	294	\$81.68
2/1/2008	3/4/2008	322	\$93.94

2009	
0.31	Kwh/sq.ft.
\$0.10	cost/sq.ft.

2008	
0.34	Kwh/sq.ft.
\$0.11	cost/sq.ft.

NY Average	
0.44	Kwh/sq.ft.
\$0.15	cost/sq.ft.



# ENERGY ASSESSMENT BENCHMARK ANALYSIS: WATER

- Water – Multifamily Conservation Program –
  - Receives savings
  - Billed at flat rate
    - \$841/apt/yr



# GREEN SCOPE RECOMMENDATION

**Andy Padian for CPC and Bright Power's Energy Audit:**

## **Three Components to Energy Retrofit Scope**

*1. Replace oversized and inefficient boiler system & repair and insulate heat and hot water distribution systems*

- Replace inefficient modular steam boilers with Single tube steel 'scotch marine' boiler
- Updated heat timer MPC Platinum boiler control system
- Motorized flue damper
- Insulate pipes & hot water storage tanks
- Re-install cast iron radiators appropriate to the system, clean and service with new venting



# GREEN SCOPE RECOMMENDATION

## 2. *Air seal and firestop gaps and holes in the building envelope*

- Insulate basement windows and weatherstrip exterior doors
- Air seal “the big hole”
  - Dumbwaiter shaft at floors
  - Remove skylight and seal at roof with sheetrock

## 3. *Replace public hall lighting*

- Bi-level motion-sensored Occusmart lights in public hallways





# TOTAL COST OF RETROFIT

	Description of Work		Auditor Estimate	Total Construction Cost
	<b><i>Energy Efficiency Scope</i></b>			
	<b>Replace Boiler &amp; Repair Heat/Hot Water Distribution Systems</b>			
1	Install new 20 BHP steel tube "scotch marine" boiler	GC	\$60,000	\$62,500
2	Install a new heat timer MPC Platinum boiler control system	GC		
3	Install motorized flue damper on boiler	GC		
4	Repair the domestic hot water boiler flue	GC		
5	Insulate heating and hot water distribution systems	GC	\$3,296	\$1,700
6	Clean and service radiators with new venting	M	\$800	\$800
7	Replace existing steel tube radiators with cast iron	M	\$3,000	\$3,000
	<b>Air Seal and Firestop Gaps and Holes in Building Envelope</b>			
8	Install 2" of rigid board insulation over 3 existing basement windows	GC	\$100	\$1,600
9	Weatherstrip exterior doors	M	\$200	
10	Air Seal Gaps and Cracks in Building	GC	\$200	
11	Air seal and fire stop the dumbwaiter shaft	GC	\$500	\$2,200
	<b>Replace Public Hall Lighting</b>			
12	Install bi-level light fixtures with occupancy sensors in common areas		\$6,000	\$6,000
	<b>Subtotal</b>		<b>\$74,096</b>	<b>\$77,800</b>



# TOTAL COST OF RETROFIT

			Auditor	Total
	<i>Operations/Maintenance</i>		Estimate	Construction Cost
1	Register for a building energy efficiency training program	M	\$1,000	\$1,000
2	Repair water leaks	M	\$0	
3	Repair the roofing membrane	GC	\$1,000	\$6,550
4	North façade - powerwash, masonry repairs, pointing, waterproof, fire escape repair	GC	\$0	\$46,100
5	West façade - brick repairs, stucco, flashing	GC	\$0	\$4,950
6	East alley staircase replacement	GC	\$0	\$4,700
7	Security camera system	GC	\$0	\$3,180
8	Masonry repair above first floor front	GC	\$0	\$1,500
9	Underside brick arch repair from cellar	GC	\$0	\$3,000
10	Underside corrugated decking repairs at cellar	GC	\$0	\$5,000
11	Tile replacement at front entry and corridor	GC	\$0	\$4,500
12	Cornice repair and painting	GC	\$0	\$2,500
13	Electrical upgrade at unit 2A (Cost TBD)	M	\$0	
14	GFCI receptacle at bulkhead	GC	\$0	\$150
	<i>Subtotal</i>			\$83,130
1	<b>Total</b>		\$76,096	\$160,930



# ANNUAL ENERGY SAVINGS: \$4,228

Description of Work		Auditor Estimate		Total Construction Cost	Annual Savings
<i>Energy Efficiency Scope</i>					
<b>Replace Boiler &amp; Repair Heat/Hot Water Distribution Systems</b>					
1 Install new 20 BHP steel tube "scotch marine" boiler	GC	\$60,000		\$62,500	\$960
2 Install a new heat timer MPC Platinum boiler control system	GC				\$768
3 Install motorized flue damper on boiler	GC				\$142
4 Repair the domestic hot water boiler flue	GC				
5 Insulate heating and hot water distribution systems	GC	\$3,296		\$1,700	\$1,513
6 Clean and service radiators with new venting	M	\$800		\$800	\$326
7 Replace existing steel tube radiators with cast iron	M	\$3,000		\$3,000	
<b>Air Seal and Firestop Gaps and Holes in Building Envelope</b>					
8 Install 2" of rigid board insulation over 3 existing basement windows	GC	\$100		\$1,600	\$67
9 Weatherstrip exterior doors	M	\$200			\$118
10 Air Seal Gaps and Cracks in Building	GC	\$200			\$82
11 Air seal and fire stop the dumbwaiter shaft	GC	\$500		\$2,200	\$122
<b>Replace Public Hall Lighting</b>					
12 Install bi-level light fixtures with occupancy sensors in common areas		\$6,000		\$6,000	\$130
		<b>\$74,096</b>		<b>\$77,800</b>	<b>\$4,228</b>



# CON EDISON INCENTIVES: \$43,140

	Description of Work		Auditor Estimate		Total Construction Cost	Annual Savings	Incentives Estimate
	<i>Energy Efficiency Scope</i>						
	<b>Replace Boiler &amp; Repair Heat/Hot Water Distribution Systems</b>						
1	Install new 20 BHP steel tube "scotch marine" boiler	GC	\$60,000		\$62,500	\$960	\$35,500
2	Install a new heat timer MPC Platinum boiler control system	GC				\$768	\$3,200
3	Install motorized flue damper on boiler	GC				\$142	
4	Repair the domestic hot water boiler flue	GC					
5	Insulate heating and hot water distribution systems	GC	\$3,296		\$1,700	\$1,513	\$40
6	Clean and service radiators with new venting	M	\$800		\$800	\$326	
7	Replace existing steel tube radiators with cast iron	M	\$3,000		\$3,000		
	<b>Air Seal and Firestop Gaps and Holes in Building Envelope</b>						
8	Install 2" of rigid board insulation over 3 existing basement windows	GC	\$100		\$1,600	\$67	\$20
9	Weatherstrip exterior doors	M	\$200			\$118	\$40
10	Air Seal Gaps and Cracks in Building	GC	\$200			\$82	\$40
11	Air seal and fire stop the dumbwaiter shaft	GC	\$500		\$2,200	\$122	\$100
	<b>Replace Public Hall Lighting</b>						
12	Install bi-level light fixtures with occupancy sensors in common areas		\$6,000		\$6,000	\$130	\$4,200
			<b>\$74,096</b>		<b>\$77,800</b>	<b>\$4,228</b>	<b>\$43,140</b>



## SUMMARY OF BENEFITS

- Refinanced Coop Underlying Mortgage: **\$457,000:** (7.54%)
- New Loan of **\$650,000** at 5.70%
- No Maintenance Increase to cover Energy Retrofit Scope and Building Repairs
- Anticipated Con Ed incentives up to **\$41,300**
- Anticipated **\$4,228** Annual Savings in Energy costs
  - Anticipated Payback on Investment: 8.3 years
- Improved Building Performance and Resident Comfort



Contact your local field office for more information or go to [www.communitytp.com](http://www.communitytp.com)

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