



# Managing the 4 C's in Multifamily Buildings



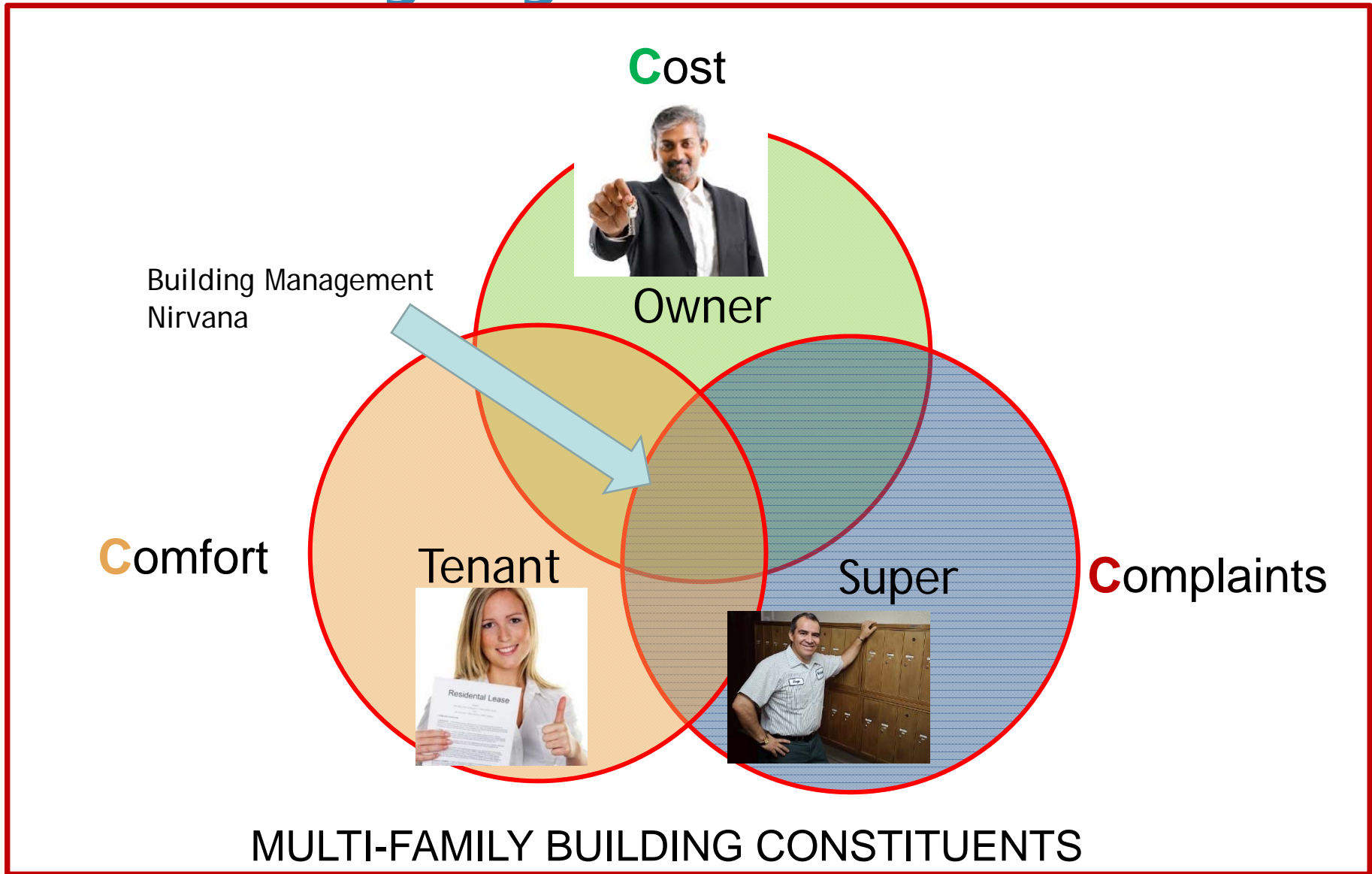
Cost

Comfort

Complaints

Control

# Aligning ALL Constituents

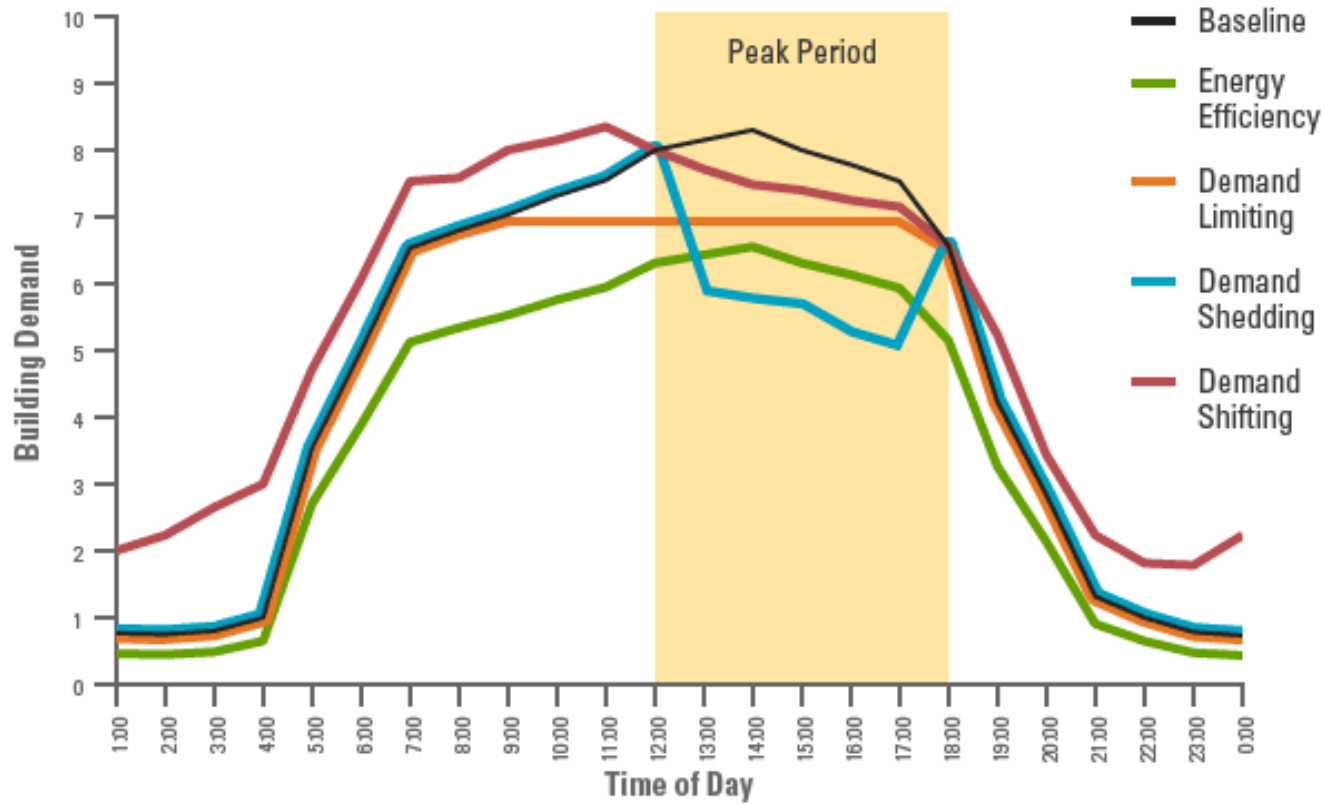


**CONTROL**

# Key Elements of Control

- Occupancy
- Scheduling
- Temperature
- Light Levels
- Connections/Points

# Managing Demand For Peak Periods

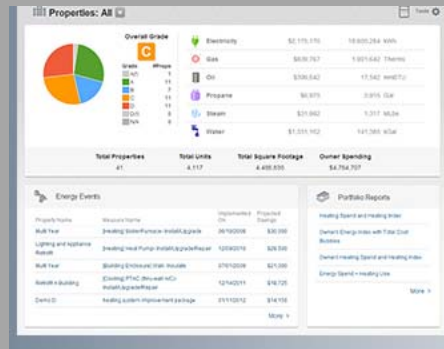


# Key Elements of Control

- Occupancy
- Scheduling
- Temperature
- Light Levels
- Connections/Points

# Connecting the Dots

## SOFTWARE



## NETWORKS



## THINGS



# Sleeve AC Example



<< Back

Generic Company Bldg 1  
Building Operator: John Smith

CONTROL NODE I/O STATUS							
INPUT 1	INPUT 2	FAN 1	FAN 2	FAN 3	HEAT	REV. V	COMP.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Unit Number: 1307

Status: UNOCC occ

Room Temp: 60 °F

Mode: Heat

Set Point Temp: 73 °F

Fan Status: Continuous

Fan Speed: Medium

Mode: Cool

Set Point Temp: 68.00

Fan Select: Auto Continuous

Fan Speed: Low

ALARM STATUS

THERMOSTAT		NODE		LOGIC	
RF Link	Good	Network Link	Good	Temp Range	Good
Battery	Good	Emergency Shut	Inactive	Last Msg.	10/22/2015 07:06 PM

VOLATILE SOFT RAILS	
Max Heating Limit	NaN°F
Min Cooling Limit	Null

VOLATILE SOFT RAILS

Max Heating Limit: 74.00

Min Cooling Limit: 68.00

NON VOLATILE SOFT RAILS

Max Heating Limit: 76.00

Min Cooling Limit: 65.00

NON VOLATILE SOFT RAILS	
Max Heating Limit	81 °F
Min Cooling Limit	60 °F





# Sleeve AC Example



## Shed Controls

Generic Company Bldg 1  
Building Operator: John Smith

### Demand Limit Control

Demand Limit Enable	<input type="checkbox"/> OFF <input checked="" type="checkbox"/> ON
Target Power Consumption	20.00kW
Current Power Consumption	41.499 kW
Unit 1307-1 Status	Heat
Unit 1580-1 Status	Cool
Unit 8028-1 Status	Off
Unit 8028-2 Status	Cool

### Global Shed Control

Global Shed Enable	<input type="checkbox"/> OFF <input checked="" type="checkbox"/> ON		
Global Setpoint Enable	<input type="checkbox"/> OFF <input checked="" type="checkbox"/> ON		
Global Setpoint	76.00		
Unit 1307-1 Status & Setpoint	Heat	73 °F	Medium
Unit 1580-1 Status & Setpoint	Cool	77 °F	Low
Unit 8028-1 Status & Setpoint	Off	77 °F	Off
Unit 8028-2 Status & Setpoint	Cool	74 °F	Low

# Large PTAC Project



## Solution

- 400+ Luxury Condominium Unit Installed Mesh PTAC/Thermostatic Control
- Wireless Communication to Head-End BMS
- Operates on a single gateway with no repeaters installed in units or on floors
- Combined electric gas savings of 30% while maintaining adequate tenant comfort

## Challenges

- Owners association required that no repeaters or gateways to be installed in the apartments or in the corridors
- No wires to be installed for installation of thermostats
- Only three floors to be installed in initial phase

