



# Overview of Marriott Energy Program and Key Bridge Marriott Upgrades

---

Climate Leaders Partner Meeting

October 12 -13, 2006



# Agenda

---

- Marriott Energy & Environmental Program
  - Key Drivers
  - Program Scope
- Key Bridge Marriott Renovation Program
- Tour



# Factors Addressed in Developing Marriott's Energy Program Include:

---

- Natural gas prices will remain highly volatile for the foreseeable future
- Electricity prices also will be highly volatile in certain areas of the country
- Oil & NG shortages will yield price spikes and a “boom/bust” cycle
  - Weather, strength of economy, and political unrest are biggest drivers and biggest unknowns
- We have limited ability to control rates – the best way to control utility cost is by reducing consumption
- Customer interest in energy efficiency and environmental stewardship is growing



# Energy Program Components

---

An effective energy program has 3 main components:

1. Information management
2. Contracting for energy commodities where possible to manage risk
3. Increasing efficiency to reduce cost
  - Improve O&M
  - Install efficient equipment where appropriate

Improving energy efficiency is the best way a hotel can generate environmental benefits

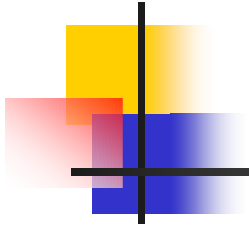
- However, we also plan to address recycling, waste reduction, and environmental awareness



# Marriott 2007 Energy Initiatives

---

- Energy Star certification – at least 75 more hotels
- Expanded environmental efforts
  - Recycling & waste reduction
  - Earth Day promotions (April 22)
- Efficiency improvement
  - Re-commissioning
  - O&M and PM to be emphasis
  - Increase number of ROI projects
    - “Top 4” – lighting, T-stats, cold water laundry, VFDs
    - New options being investigated – many control systems, water, window films, etc.



# Key Bridge Marriott Renovation Program



# Building History

---

- This is the second hotel built by Marriott and it now is the oldest in the system
- Property was constructed in 4 phases
  - 1959: Riverside tower
  - 1969: Capital tower
  - 1979: Rosslyn tower
  - 1989: Arlington tower
- Building owned by Host Hotels & Resorts and managed by Marriott International



1959: Birth of Key Bridge Marriott (Riverside Wing).





1959: Marriott opened the second Motor hotel, Key Bridge Marriott (Riverside Wing was added).



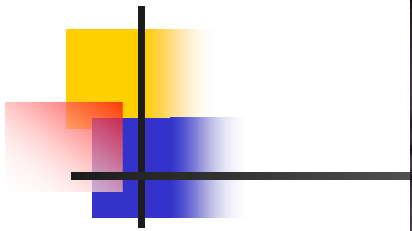
1969: The (Capital Wing) was added.



# Current Renovation Program

---

- Challenges being addressed include
  - Lack of integration and manual operation of most systems
  - Old inefficient equipment; 2-pipe system in 3 towers
  - Inadequate maintenance due to major access problems
  - Need to work with aging piping and wiring systems
  - Limited funds available – cost vs. efficiency tradeoffs
- Work on renovation began in 2000 but was put on hold due to downturn in 2001/2002
- Current phase will be completed in 2007





# Guestroom Improvements

---

- Replace fan coils in 2 older towers
  - Both towers have 2-pipe system
  - Installed easy-to-clean units with electric heater
- Installed digital thermostats in all guestrooms
  - Allow better temperature control
  - Limit temperature extremes to protect asset
- CFLs and T-8s installed in all guestrooms to increase light levels and reduce energy consumption



# Chillers & Cooling Towers

---

- Replaced two 350-ton Trane chillers with two 275 ton York screw chillers in 2000
  - Standard efficiency units selected for cost down.
  - Downsized units to more closely match load which improves average efficiency
  - Retained 250 ton Carrier for back up on hot days.
- Added small cooling tower in 2005 to serve 250 ton chiller
- Replacing 900 ton CT with 700 ton CT
  - Variable speed fans replace constant speed

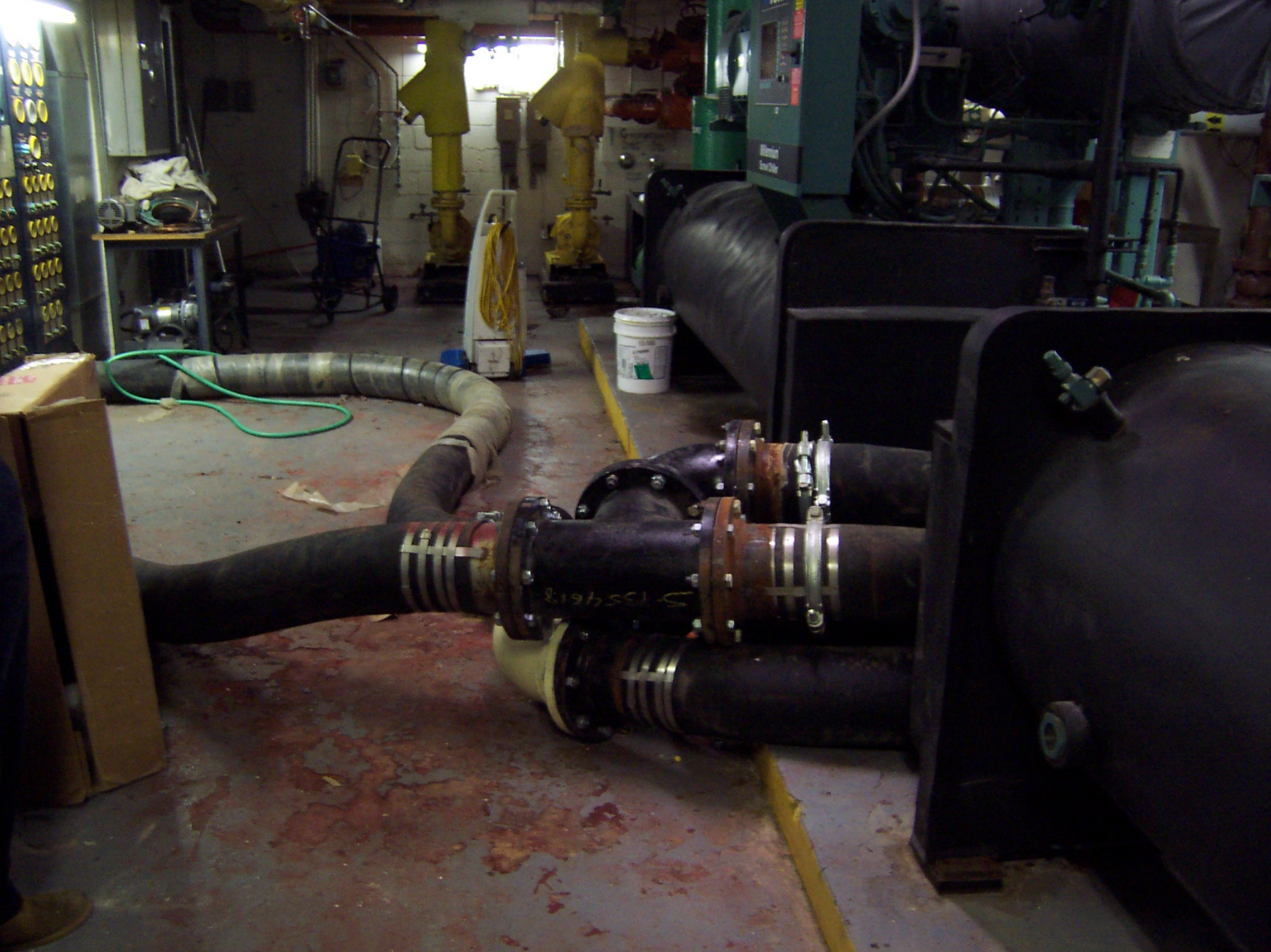


**YORK**  
Millennium  
Screw Chiller

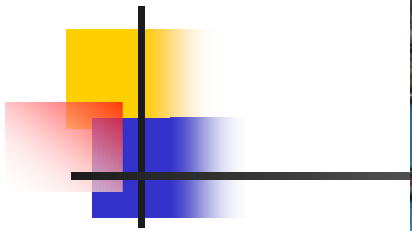
CHILLED WATER SUPPLY

CHILLED WATER SUPPLY

NOT MET

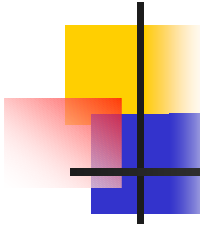
















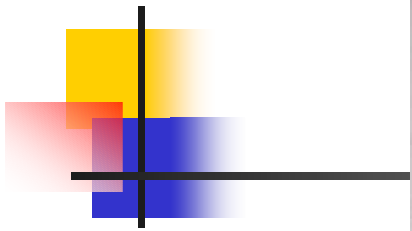
# Ventilation & Control Systems

---

- Replacing 11 AHUs with redesigned system
  - New system has 3 constant-volume AHUs feeding 7 VAV boxes that serve meeting rooms
  - Improved access for maintenance – eliminating “Route 66” over lobby
  - New controls permit better temperature and humidity control
    - Improve guest comfort and IAQ
    - Better humidity control protects furniture & fixtures
- Installing Honeywell Comfort Point EMS

2









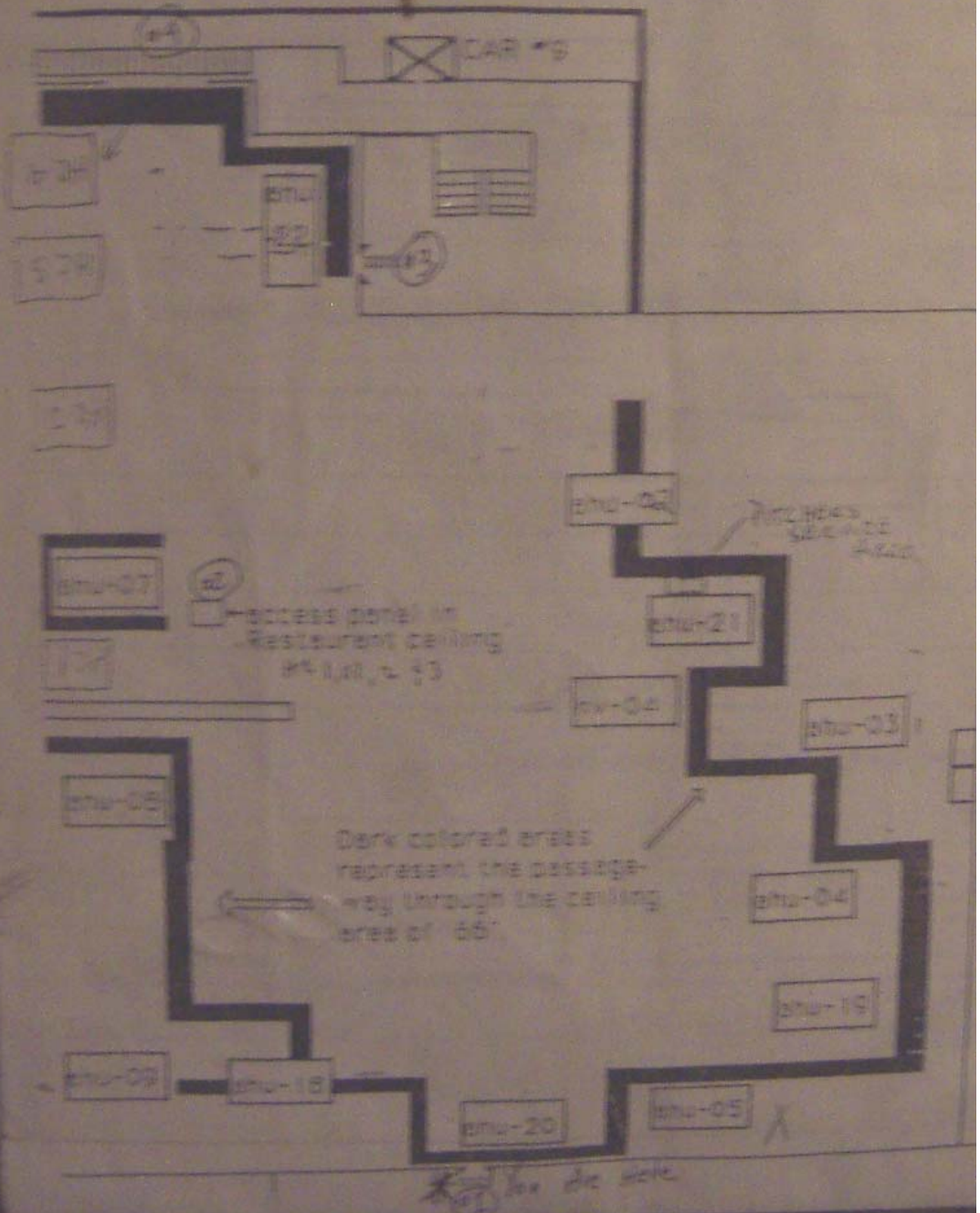
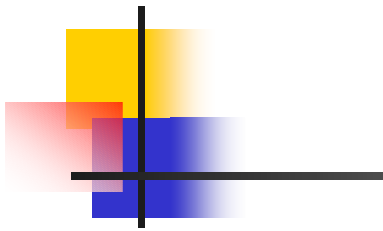
Wardell

AC 20

CLIMATROL

CLIMATROL  
Model: ...  
Serial: ...  
Date: ...





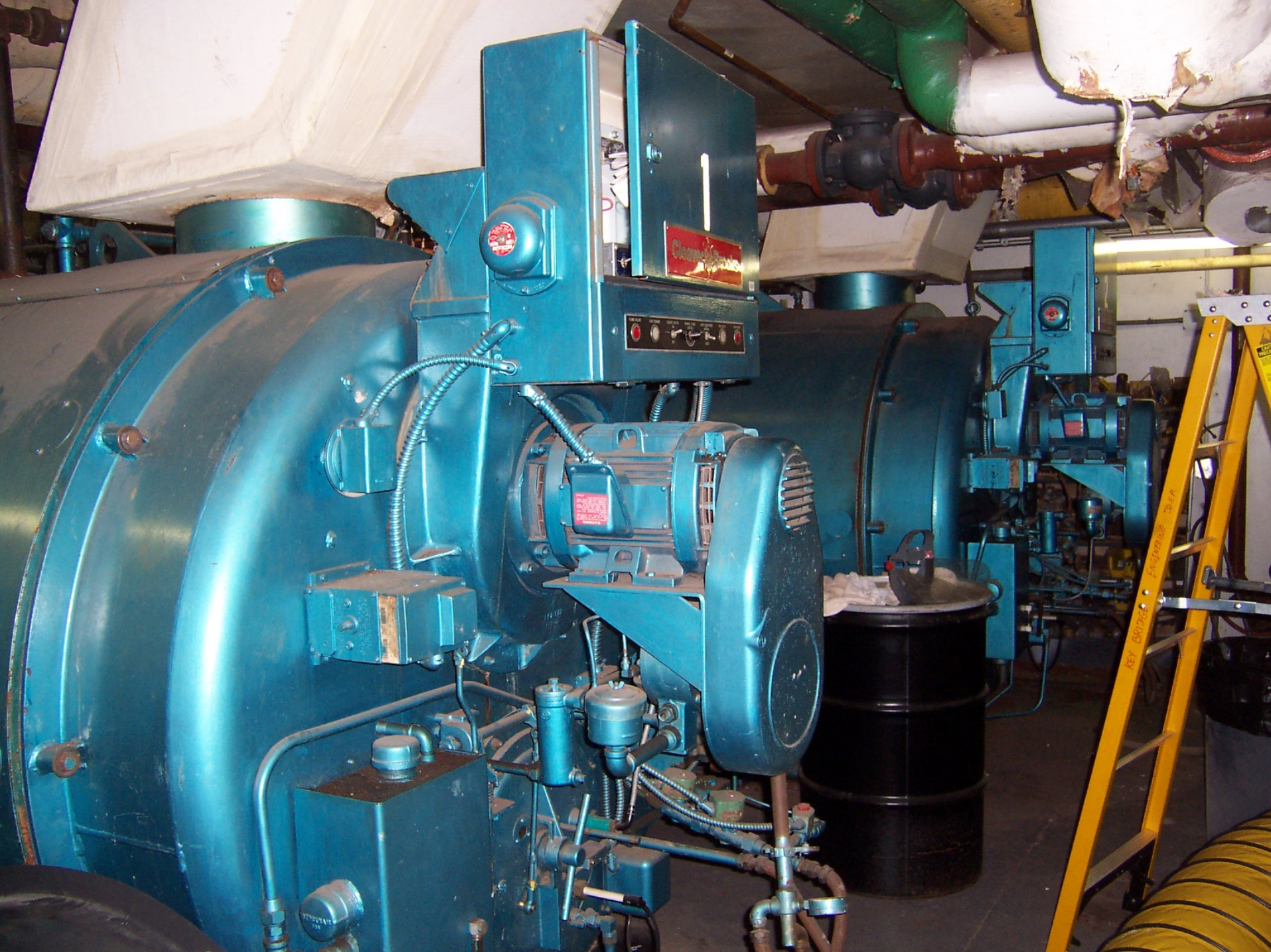


# Boilers

---

## ➤ Boilers

- Installed new Lockinvar boilers for DHW heating in 1999
- Two Cleaver Brooks boilers installed in 1989 used for space heating





# Restaurant to Ballroom Conversion

---

- Converting JW restaurant on top floor to 4000 sq.ft. ballroom
  - Replacing single-pane windows with double-pane
  - HVAC & lighting upgrades included in switch
- Installing 2 new AHUs on roof for ballroom (VAV/VSD)





VR

CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION  
CAUTION

VR









# Additional Changes

---

- New, efficient lighting being installed in public spaces during renovations
- Future changes being plan or evaluated include:
  - Adding economizer
  - VSDs on chilled and condenser water pumps
  - Thermopane windows on entire building
  - Pool area dehumidification/water heating system



---

# QUESTIONS ?

Dennis Moran

Director of Energy, Eastern Region

301-820-6319

[dennis.moran@marriott.com](mailto:dennis.moran@marriott.com)