Not that Again!
Recurring Findings from Commissioning Green Buildings

13th National Conference on Building Commissioning
Session 24
May 6, 2005

Erik Ring, P.E.
Jerry Ingwalson, CCP
CTG Energetics, Inc.
Energy Engineering
- Building Energy Simulation
- Commissioning
- Energy Audits
- Energy Technologies
- Monitoring & Verification

Sustainability
- Green Building Design
- LEED Rating Services
- Green Materials
- Corporate Sustainability
- Life Cycle Assessments

CTG Energetics, Inc.
16 Technology Drive, Suite 109
Irvine, CA 92618
(949) 790-0010
(949) 790-0020 fax
www.CTGEnergetics.com

Erik Ring, P.E.
ering@CTGEnergetics.com

Jerry Ingwalson, CCP
jingwalson@CTGEnergetics.com

CTG Energetics, Inc.
Erik Ring, PE
May 6, 2005 - 2
Not that Again!
Recurring Findings from Commissioning Green Buildings

1. Ownership Attitude Key to Success
2. Avoid Unmanageable Complexity
3. Sequences of Operation Often Ambiguous
4. Lighting Controls Require Coordination
5. Underfloor Plenums are Difficult to Seal
• The William and Flora Hewlett Foundation
  Menlo Park, CA
  LEED-NC Gold (43 Points)
  September 2002

• Toyota Motor Sales
  South Campus Offices
  Torrance, CA
  LEED-NC Gold (47 Points)
  April 2003

• Hayward Buildings
  Systems Plant
  Santa Maria, CA
  LEED-NC Gold (40 Points)
  January 2003
• Audubon Center at Debs Park
  Los Angeles, CA
  LEED-NC Platinum (53 Points)
  December 2003

• Inland Empire Utility Agency (IEUA) Headquarters
  Chino, CA
  LEED-NC Platinum (52 Points)
  March 2004

• Natural Resources Defense Council (NRDC)
  Robert Redford Building
  Santa Monica, CA
  LEED-NC Platinum (55 Points)
  June 2004
• RAND Headquarters
  Santa Monica, CA
  LEED-NC Gold
  Pending

• Haworth Showroom
  Santa Monica, CA
  LEED-CI Gold
  Pending

• Harvey Mudd College
  Dining Commons
  Claremont, CA
  LEED-NC Silver
  Pending

CTG’s LEED Cx Experience
1. Ownership Attitude Key to Commissioning Success
1. Ownership Attitude Key to Commissioning Success
2. Avoid Unmanageable Complexity
2. Avoid Unmanageable Complexity
Unmanageable complexity can lead to..
...Unintended Consequences
3. Sequences of Operation are Often Ambiguous
3. Sequences of Operation are Often Ambiguous
4. Lighting Controls Require Coordination
Occupancy sensors, as well...
... and Occupant Lighting Controls
5. Underfloor Air Plenums are Difficult to Seal
5. Underfloor Air Plenums are Difficult to Seal
LEED and Commissioning are each:
- Valuable
- Important
- Evolving
- Popular
- Misunderstood
- Not trivial
- Not impossible
- Not free
- Not cost-prohibitive
- Worthy of continued discussion

Conclusions