


NCG NEWMAN CONSULTING GROUP
Profitable Ideas for High Performance Buildings Since 2002



Design for Economy, Minimal Energy Use – and Sustainability

AIA Committee on the Environment, Detroit – 11/20/19

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CEM, LEED AP BD+C, ASHRAE OPMP & BEAP, FESD

NCG

ASHRAE

- Corresponding Member, Air-to-Air Energy Recovery Technical Committee and Operations and Maintenance Technical Committee
- Past Vice-Chair, Industrial Air Conditioning Technical Committee
- Member, Climate Change Task Group for 2021 Handbook
- Member, 2008 Energy Position Document Committee
- Distinguished Service Award, 2012, 2013
- Past Board Member; Distinguished Service Award (Local), 2005

BUILDING OWNERS & MANAGERS ASSOCIATION (BOMA)

- Member, Energy & Environment Committee (National)
- Judge, TOBY Awards (The Office Building of the Year - Local)
- Past Chair, Sustainability for Savings Committee (Local)
- Trainer, High Performing Buildings Certification

ENGINEERING SOCIETY OF DETROIT (ESD)

- Distinguished Service Award, 2007; Fellow, 2010
- Tech Century Image Award, 2018; Ann Fletcher Service Award, 2019
- Past Chair, Affiliate Council

U.S. GREEN BUILDING COUNCIL (USGBC)

- Founding Member, Detroit Regional Chapter
- Past Board Member; Distinguished Service Award (Local), 2008
- Past Chair, Public Policy/Advocacy Committee (Local)

Building Codes – The Minimum

STANDARD

ASHRAE/IES Standard 90.1-2013
Requirements for High Performance Buildings (2013)
Includes 2015 International Energy Conservation Code Addendum

Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P Edition)

See Appendix 1 for approved data by the ASHRAE Standards Committee. The ASHRAE Board of Directors, the ASHRAE Board of Standards, and the ASHRAE Technical Committee.

The standard is a minimum energy performance requirement for buildings. It is a prescriptive standard, meaning that it specifies the minimum energy performance for buildings. It is a prescriptive standard, meaning that it specifies the minimum energy performance for buildings. It is a prescriptive standard, meaning that it specifies the minimum energy performance for buildings.

2015 INTERNATIONAL ENERGY CONSERVATION CODE

A Member of the International Code Family

ASHRAE

ANSI

Certifications (Partial List)

- USGBC LEED
- EPA Energy Star
- Well
- BOMA 360
- BOMA TOBY
- Living Building Challenge
- Net Zero Energy Building
- Passive Haus
- Parksmart
- Green Globes

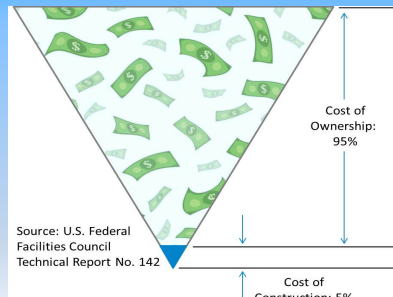
Real Cost of Buildings

Budget – Realistic?

Who decides

Who should be in early meetings

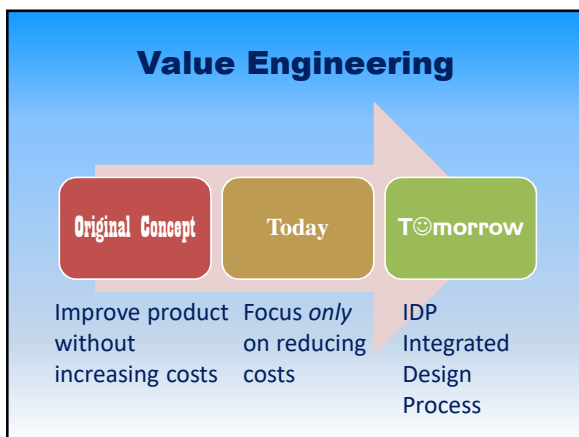
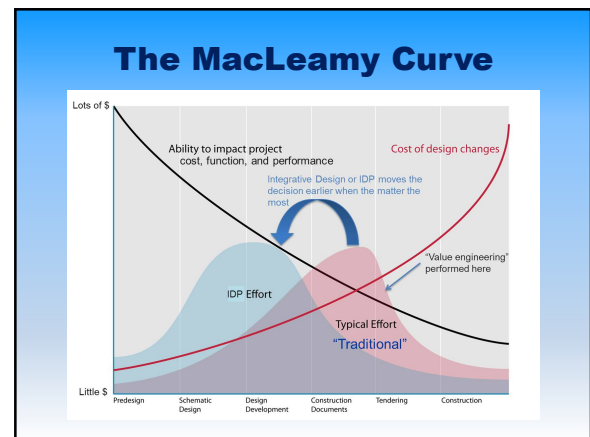
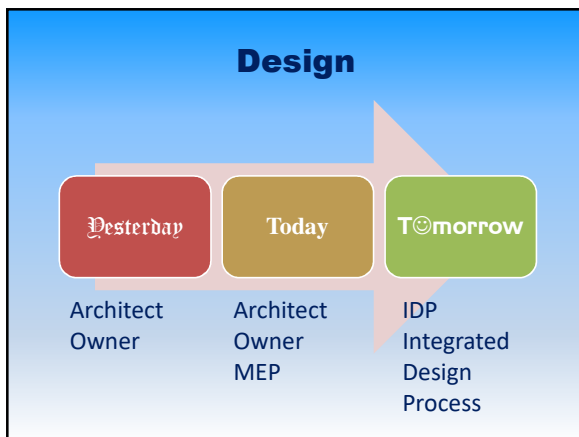
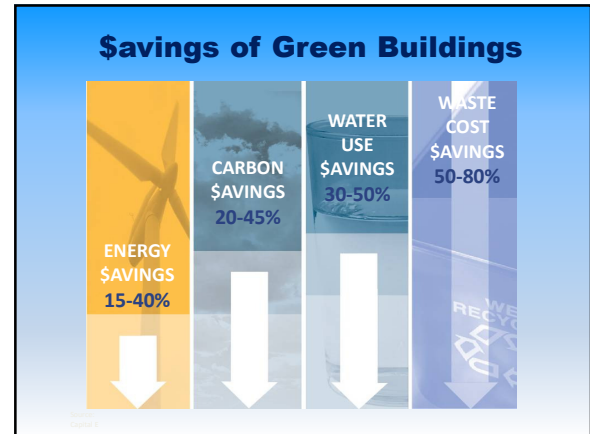
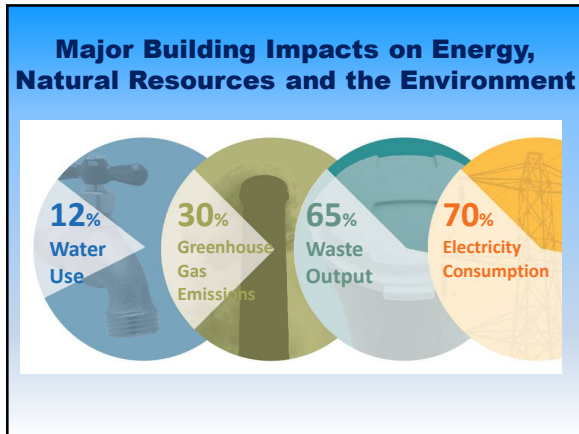
Cost of Owning a Building



Cost of Ownership: 95%


Cost of Construction: 5%

Source: U.S. Federal Facilities Council Technical Report No. 142



What Happens to HVAC Systems as Time Passes?

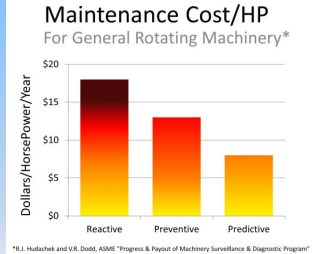
Green



Gray

Proper Operation & Maintenance

Maintenance Cost/HP For General Rotating Machinery*




Maintenance Type	Dollars/HorsePower/Year
Reactive	~\$18
Preventive	~\$12
Predictive	~\$8

*R.J. Hadachek and V.R. Dodd, ASME "Progress & Payoff of Machinery Surveillance & Diagnostic Program"


- Manual
- BEMS
- BMS
- BMIS
- Commissioning

Financing


CapEx



PACE



PPA



People (Employees & Tenants)

Need to understand
Motivated to help
Reinforcement
Contests?
Prizes?



Technology ≠ Performance

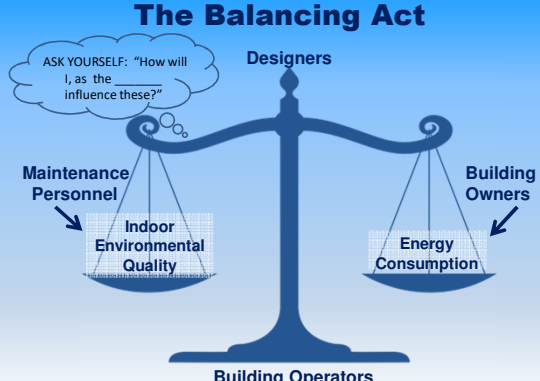
*"An inefficient system run well
can perform better than an efficient
system run poorly."*



Jim Newman, speaker, author, trainer
Managing Partner, Newman Consulting Group

The Balancing Act

ASK YOURSELF: "How will I, as the _____, influence these?"



Designers

Maintenance Personnel

Indoor Environmental Quality

Building Owners

Energy Consumption

Building Operators

“If You’re Not Green – You’re Nuts!”



Albert Berriz, CEO, McKinley Inc.
DTE/ESD Energy Conference, 2012

Innovation = Success

*“In this current economy, the
winners will be the re-thinkers,
not the re-trenchers.”*



Roger Martin, Dean of the Rotman School of
Management, University of Toronto

Where To Get Information - ASHRAE

- Procedures for Commercial Building Energy Audits
- Energy Conservation in Existing Buildings
- Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems
- Standard Measures of Measuring, Expressing and Comparing Building Energy Performance
- Preparation of O & M Documentation for Building Systems
- Sustainable, High-Performance O & M (2012)
- Advanced Energy Design Guides (AEDG)

Where To Get Information - Other

- USGBC: LEED-EB: O & M Guidelines
 - Based on EPA Energy Star® Portfolio Manager, ASHRAE Energy Standard 90.1, Green Operations Guide
- BOMA: Preventive Maintenance & Building Operation Efficiency (2003)
- AIA – COTE
 - See Jim Newman’s PechaKucha Talk on [Resilience for Buildings in a Changing Climate](#), link on page 5.
- IFMA Foundation: Sustainability “How-To” Guides
- EPA Energy Star
- PECI
- Rocky Mountain Institute

References & Resources

www.ashrae.org
www.usgbc.org
www.wgbc.org (World Green Building Council)
www.aia.org/cote (AIA Committee on the Environment)
www.eren.doe.gov
www.sustainable.doe.gov
www.energystar.gov
www.nrel.gov (Renewable Energy)
www.rmi.org (Rocky Mountain Institute)

References & Resources (cont.)

www.peci.org (Portland Energy Council – O & M Techniques)
www.greenseal.org
www.greenguard.org
www.fpl.fs.fed.us/ahrc/mold/mold-methods.html
(Forest Products Lab)
www.ifmafoundation.org
www.NCGconsulting.us.com
www.leanandgreenmi.com

You Have To Be Flexible



Newman on Resilience



See Jim Newman's PechaKucha Talk, "Resilience for Buildings in a Changing Climate" at www.newmanconsultinggroup.us/resources/presentations

***"The greatest challenge
we face today is
failure to adapt to change"***

For Further Information:

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