

# Design & Construction



# Operations & Maintenance

## Sustaining Design Intent and Building Integrity

Central PA Chapter  
International Facility Management Association  
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# Relationships

Underlying every form of work

is a concept of the relationship which we can and must  
have with what is other than ourselves

*Laudato Si – On Care for Our Common Home, Pope Francis, 2015*

# Inconvenient Truths: Get Ready to Re-think

**What It Means to Be Green** *Wired Magazine May 19, 2008*

“We are as gods and might as well get good at it.’

*Stuart Brand, Whole Earth Catalogue*

We're in charge here. Let's get to work.”

“Man is a god in ruins.” *Ralph Waldo Emerson, Nature*

ABB Robotics ♦ Aramark ♦ Associated Bank ♦ Baker College  
Barton-Malow Company ♦ Case New Holland ♦ Citizens Bank ♦ Cummins Engine  
Chrysler ♦ Delphi ♦ FedEx ♦ General Motors ♦ Johnson & Johnson ♦ Knight Group  
Mott Community College ♦ Pfizer ♦ Robert Bosch Automotive ♦ Roy Jorgensen Associates  
Seamen's Church Institute ♦ URS ♦ Wayne State University ♦ YMCA of Greater Brandywine



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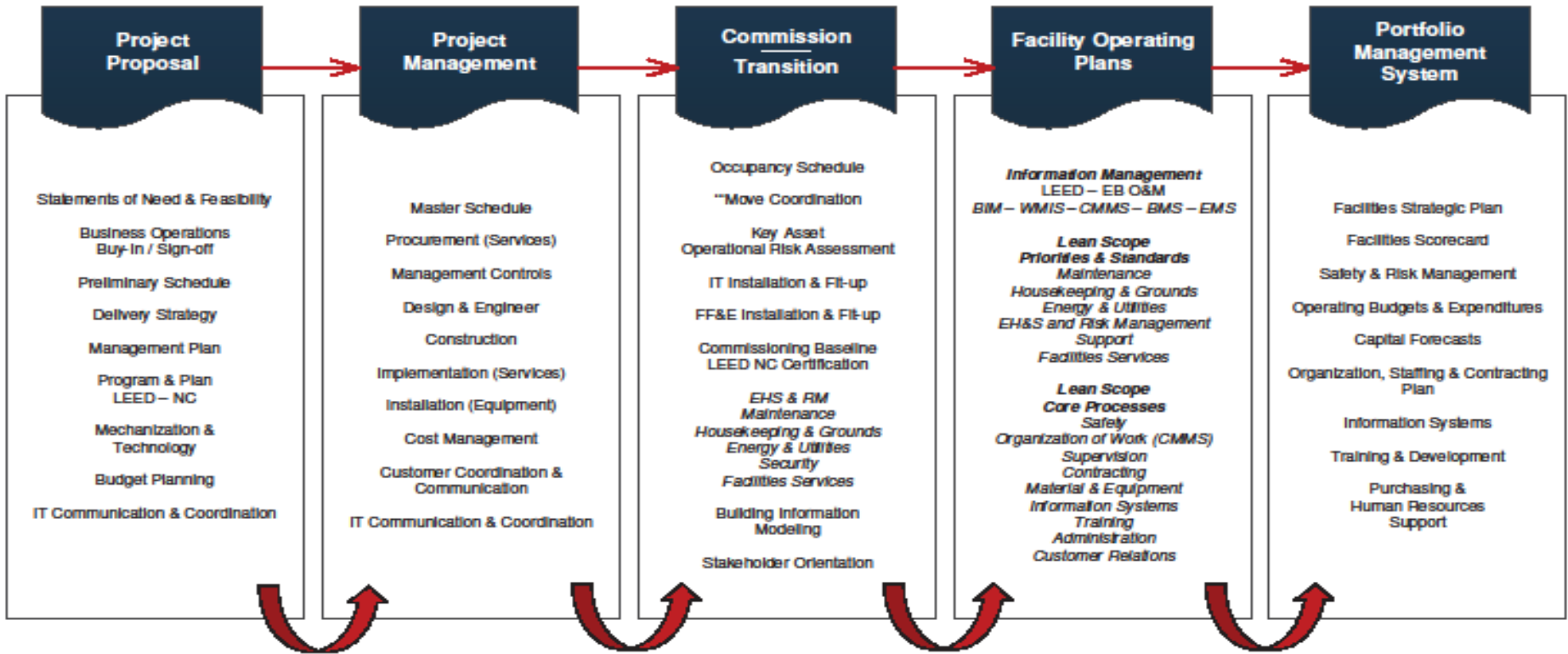
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Operational Reliability    Asset Life    Customer Satisfaction    Savings

**Rousing Champions!**

- ❖ Who “owns” a design once it becomes a reality?
- ❖ How the design intent play out over time?
- ❖ What do designers need to know about FM / O&M?
- ❖ How must design reflect downstream constraints?
- ❖ What must FM / O&M know about design decisions?
- ❖ How does an owner capitalize on design value?

# Facilities Information Life Cycle





## Facility Management

# Systems-Age Strategy for Operations & Maintenance

### Assets

Utilities & Infrastructure  
Building Structures & Systems  
Controls, Sensors & Alarms  
Furniture, Fixtures & Equipment  
Equipment, Tools & Supply Inventories  
Knowledge & Data Integrity

### Scope

Energy & Utilities  
Maintenance, Repair & Upgrades  
Housekeeping  
Landscape & Hardscape  
Occupancy Support  
Management & Administration

### Standards

Safety & Security  
Operational Readiness  
Operational Reliability & Quality  
Comfort and Appearance  
Asset Life  
Cost Optimization

### Processes

Budgeting & Cost Control  
Standardized Work Design & Continuous Improvement  
Lean Management & Supervision  
Workforce Development  
Contractor & Supplier Procurement  
Communication

### Systems

Integrated Workplace Management (IWMS)  
Building Automation (BA)  
Computerized Maintenance Management (CMMS)  
Parent: Enterprise Resource Planning (ERP)  
Proprietary Contractor & Vendor Technologies  
Essential Basic Office Applications

### Resources

Operating & Capital Budgets  
Skilled / Semi-Skilled Workforce  
Contractor & Supplier Pool  
Planning, Engineering & Administrative Support  
Training, Technology, Critical Mass  
Executive Vision, Leadership & Commitment

**IFMA Core Competencies:** 1) Communication; 2) Emergency Preparedness & Business Continuity; 3) Environmental Stewardship & Sustainability; 4) Finance & Business; 5) Human Factors; 6) Leadership & Strategy; 7) Operations & Maintenance; 8) Project Management; 9) Quality; 10) Real Estate & Property Management; 11) Technology;

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**Rousing Champions!**



How many types of **filters** does this building require and how are replacements stored?

What is the **net cleanable area** of this building and what are cleaning frequencies?

What **specialty cleaning** methods or materials are needed for this building's surfaces?

How does this building's **security system** coordinate with other buildings on campus?

What is the requisite **storage & fit-up for maintenance** supplies and equipment?

How is physical **asset data** compiled and loaded into WIMS / CMMS?

How is **funding for capital maintenance equipment** factored into the budgeting process?

How are **real-time operating conditions** (vs. idealized conditions) anticipated during design?

How are **maintenance capacities, competencies and constraints** reckoned during design?

How are **service contracts** (HVAC, elevators, etc.) validated against next gen system requirements?

How does a **"building condition"** assessment incorporate a **"maintenance operation"** review?

How is utilization tracked for **space cost allocation** (e.g. federal project reimbursement)?

What **high-stress uses (abuses)** cause premature failure of surfaces, fixtures and equipment?

What **user behaviors** can reduce operating costs, maintain appearance, and extend asset life?

What **maintenance shortcomings defeat sustainable design**? LEED Gold to LEED Lead.

What are **prerequisites to meaningfully engage maintenance** in the design process?

How are OEM maintenance instructions translated into **maintenance job assignments**?

Does the design team **"push"** facility operating plans or does maintenance team **"pull"** them?

How is a **sustainable landscape** scheme , or will neglect and overgrowth prevail?

How do **"visual management"** strategies enhance facility use & maintenance?

- ❖ Extend horizons of facility scale, standards, context
- ❖ Educate upstream experts in downstream issues
- ❖ Edify downstream specialists in upstream processes
- ❖ Sustainable business strategy:
  - Customer footprint
  - Community footprint
  - Carbon footprint
- ❖ Develop next generation FM's as future COOs

# wWe

We share the planet.

We must learn new choices or we shall decline.

Our hope is in our ability to live and work in community.

Learn to see  
everything we do  
through the lens  
of those who come after us,  
who inherit our choices  
our work  
our best intentions  
our unintended consequences.

Listen at every level to the words, the emotions, the intent of the other or others. Be completely open to them and then speak only to what you have heard.... We must listen because we are so often wrong in our certainties. When we pass a motion in the chaotic debating chamber of our heads, it's never completely right, or even, most of the time, half right.

**The only way to edge closer to the truth is to listen with complete openness**, bringing to the process no preconceptions, nothing prepared.

Listening is reaching out into that unknown other self, surmounting your walls and theirs; **listening is the beginning of understanding**, the first exercise of love.

*Tony Hendron, Father Joe, the Man Who Saved My Soul*

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