

CDC/NIOSH Conference


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A Holistic, Life-Cycle Approach to Project Design & Delivery

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Session Objectives

1. A holistic approach to prevention through design (PtD) addressing owner, designer & builder's influence on inherent (injury) risks in the process
2. Redefine design in terms of owners, designers & constructors over the life-cycle of the building
3. Align methods of diverse tools and integrate them into the project delivery process
4. Interpret PtD in terms of zero harm & value

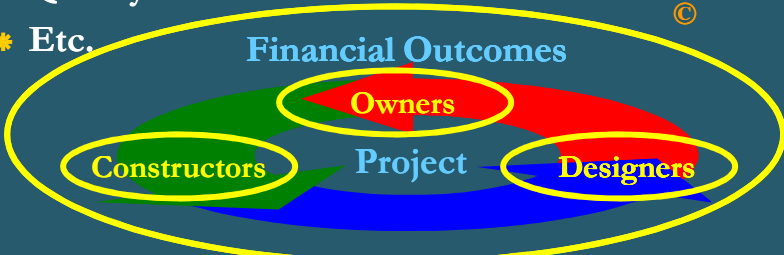
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Critical Elements of Projects

During Construction

- * Time
- * Budget
- * Quality
- * Etc.



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Goals & Objectives

Parties	Expectations
* Owner	* Best value
	* High quality
	* Efficient bldg. operation
* Designers	* Design creativity
	* Reasonable fee
* Constructors	* Successful bid
	* Good contract terms
	* Profit

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Prevention through Design

- “The most effective means of preventing and controlling occupational injuries, illness, and fatalities is to “**design out**” hazards and hazardous exposures from the workplace. “
- “One of the best ways to prevent and control occupational injuries, illnesses, and fatalities is to “**design out**” or minimize hazards and risks early in the design process.”
- “Addressing occupational safety and health needs in the **design process** to prevent or minimize the work-related hazards and risks associated with the construction, manufacture, use, maintenance, and disposal of facilities, materials, and equipment.”

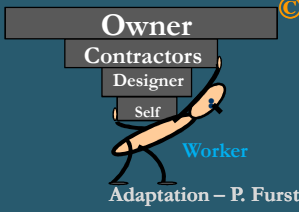
Research

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Sources of Risk

- Owner team
- Contractor team
- Design team
- Workers
- Other factors



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Influencing Project Risks: Owner

- * Project preliminary parameters & decisions
- * Time/budget constraints
- * Selection of the designer and the contractor
- * Project delivery method
- * Form of contract
- * Involvement
- * Capability
- * Leadership
- * Site
- * Location/adjacencies
- * Geology/topography
- * Governing agencies
- * Etc.

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Influencing Project Risks: Others

- * Contractors
 - * Processes & procedures
 - * Means & methods
 - * Operational planning
 - * Effective scheduling
 - * Coordination
 - * Anticipation & foresight
 - * Control
 - * Sub selection
 - * Task design/assignment
 - * Staff & supervision
- * Subcontractor
 - * Much like GC
- * Designer's
 - * Capability & tools
 - * Knowledge/expertise
 - * Field experience
 - * Open to cooperation
 - * Operational visualization
- * Other factors
 - * Jurisdiction, economy, workforce, etc.

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Dealing with Risk

- * Risk mitigation elements:
 - * Identify underlying problem
 - * Articulate a vision
 - * Devise and articulate an effective strategy
 - * Create and implement a process
 - * Set goals, measure, and improve



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Reengineer Project Approach

- * Redefine design
- * Repurpose the project delivery process
- * Life-cycle view
- * Holistic approach
- * Systems thinking
- * Etc.


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Life Cycle Risk Approach

- * Project preliminaries (inception)
- * Design
- * Procurement
- * Construction
- * Use/maintenance
- * Remodel/renovation
- * Deconstruction/demo

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Holistic View

- * Project vision & strategy
- * Integrated means & methods
- * Interdependent / cooperative approach
- * Common ground
- * Align PtD view of people injury with overall harm




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Some Available Tools

- * Integrated design process (IDP)
- * Integrated project delivery (IPD)
- * Lean construction
- * Sustainability (Green)
- * Prevention though Design (PtD)

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PtD – IDP – IPD – Lean – Green

Goal	Achieve
* Resource preservation	* Improve value proposition
* Effective use	* Social responsibility
* Efficient flow	* Protect people
* Eliminate waste	* Save environment
* Prevent Harm /injury	* Enhance knowledge
* Share expertise	* Enrich communication
* Common goals	* Risk sharing
* Etc.	* Etc.

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Lean Thinking

- * Value considerations
- * Flow mapping & reliability
- * Efficiency & waste elimination
- * Agile practices
- * Critical chain planning
- * Synchronization
- * Cross functional focus

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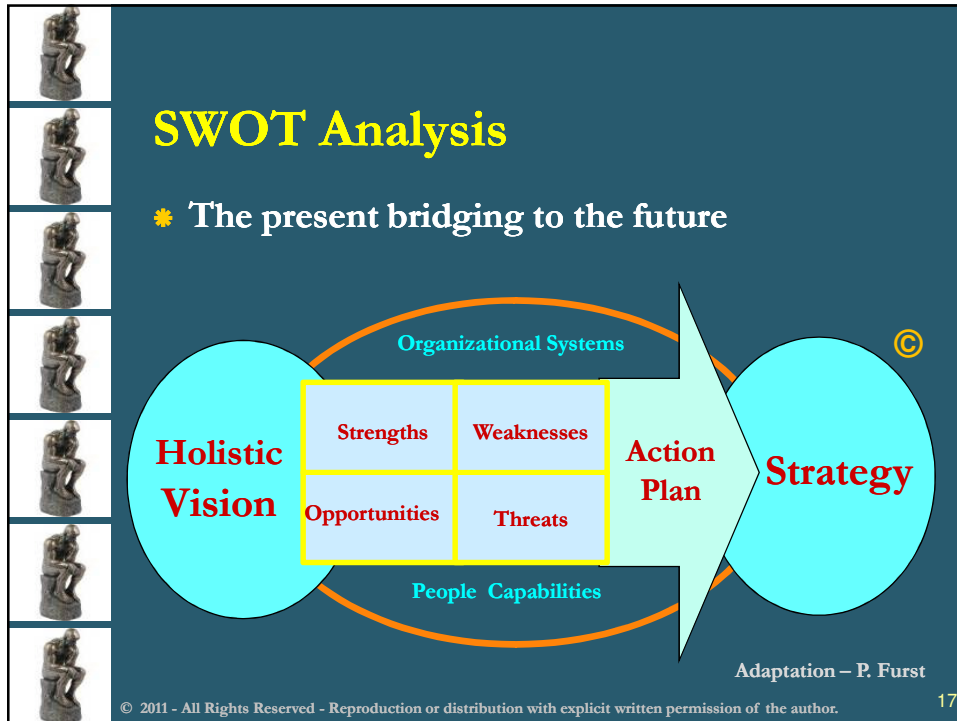
LEED Categories




- * Sustainable site planning
- * Safeguarding water and water efficiency
- * Energy efficiency and renewable energy
- * Conservation of materials and resources
- * Indoor environmental quality
- * Innovation & design processes
- * Carbon neutral buildings

Add - Safeguarding human welfare

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- A Comprehensive Perspective**
- * Link benefits of PtD with project outcomes
 - * Cost, time, efficiency, ROI, etc.
 - * Link risk of harm across organizations
 - * Owner, designer, constructor, worker
 - * Link initiatives & methods cross functionally
 - * PtD, IDR, IPD, lean thinking, green, etc.
 - * Provide education and rationale for holistic PtD
 - * Create motivation & accountability for PtD
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Session Summary

- * Redefine design
- * Repurpose the project delivery process
- * Life-cycle view
- * Holistic approach
- * Systems thinking

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Questions ??? Thank You !!!

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