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
Critical Elements of Projects

During Construction
- Time
- Budget
- Quality
- Etc.

Financial Outcomes

Goals & Objectives

Parties
- Owner
- Designers
- Constructors

Expectations
- Best value
- High quality
- Efficient bldg. operation
- Design creativity
- Reasonable fee
- Successful bid
- Good contract terms
- Profit
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.”

Sources of Risk

- Owner team
- Contractor team
- Design team
- Workers
- Other factors
Influencing Project Risks: Owner

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

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.
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

Reengineer Project Approach

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

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

Holistic View

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

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

PtD – IDP – IPD – Lean – Green

Goal
- Resource preservation
- Effective use
- Efficient flow
- Eliminate waste
- Prevent Harm /injury
- Share expertise
- Common goals
- Etc.

Achieve
- Improve value proposition
- Social responsibility
  - Protect people
  - Save environment
- Enhance knowledge
- Enrich communication
- Risk sharing
- Etc.
Lean Thinking

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

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
SWOT Analysis

- The present bridging to the future

Holistic Vision

- Strengths
- Weaknesses
- Opportunities
- Threats

Organizational Systems

People Capabilities

Strategy

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 rational for holistic PtD
- Create motivation & accountability for PtD
Session Summary

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