2009 LARGE FACILITIES WORKSHOP

Construction Site Safety

Richard Hislop
WORLD CLASS SAFETY PROGRAM STRUCTURE

The Essential Cornerstone → The Main Drivers → The Workplace Outcomes → The Result

DEFINE MANAGEMENT EXPECTATIONS → ESTABLISH CLEAR COMMUNICATIONS → FIELD THE BEST TEAM → REQUIRE PHASE & ACTIVITY PLANNING → REINFORCE SAFETY EXPECTATIONS

SAFE PHYSICAL ENVIRONMENT & EQUIPMENT → STRUCTURED PLANNING & EFFECTIVE COMMUNICATION → OUTSTANDING SAFETY PERFORMANCE
If a builder has built a house for a man and his work is not strong, and if the house he has built falls in and kills the householder, that builder shall be slain.

King Hammurabi of Babylon
18th Century B.C.
WHAT IS SAFETY ?

Safety is the Control of Recognized Hazards to attain an Acceptable Level of Risk
SAFETY IN THE PROJECT EVOLUTION

Engineering & Design Phase

- Conceptualize Project
- Initial Notification/Engineering Request
- Project engineer/coordinator assigned
- Develop Project Hazards Analysis
- Engineering Design
- Design Review

Design Revisions as Needed

- Notification of New Work
- Project Engineer/Coordinator
- Preliminary involvement of Procurement, ESH and QA as determined by the Project Engineer
- Project Engineer Originator
- Environmental Determination
- Project Engineer
- Constructability
- Serviceability
- Maintainability
- Constructability

Pre-Work Planning

- Develop Statement of Work, Dwg., Specs and Special Conditions
- Requisition or Service Request Order prepared
- Activity Risk Determination

Requisition and Work/Project Information to Procurement for Procurement/Contracting Phase

- Project Engineer/Coordinator
- Project Engineer/Coordinator
- Project Engineer/Coordinator
- Safety Coordinator

Acceptance Criteria Listing

July 3, 1997
DESIGNING FOR SAFETY

- Safety is considered in designer selection
- Designers are asked to address specific safety issues
- Designers may be asked in the future to consider safety
- Designers are not asked to consider construction worker safety

Construction Safety - Hinze 1994
HAZARD CONTROL HIERARCHY

- Elimination or substitution
- Engineering Controls
- Safety devices (guards, interlocks)
- Warning systems
- Administrative Controls (work methods, training)
- Personal Protective Equipment

Source: Professional Safety February 2003
IDENTIFICATION OF HAZARDS

Identify sequential project steps
- Site Clearance
- Excavation
- etc.

Identify Hazards at each step
- Environmental Concerns
- Soil Contamination
- Etc.
IDENTIFY HAZARD CONTROLS

Engineer out Hazards
  • Engineering & Design Reviews
  • Constructability Reviews

Identify Hazards Not Controlled
  • Define responsibility for controlling remaining hazards
<table>
<thead>
<tr>
<th>Schedule Activity ID #</th>
<th>Project Phase 1. Site Prep</th>
<th>Hazard</th>
<th>Controls</th>
<th>Special Notes</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition</td>
<td>Asbestos in building</td>
<td>Asbestos abatement program to be in place.</td>
<td>Verify contractor’s asbestos abatement program is documented and employees have been trained.</td>
<td>Demolition contractor</td>
<td></td>
</tr>
</tbody>
</table>
SAFETY POLICY

“No work is so important that it need be done without due consideration for safety.”

Project Manager
RESPONSIBILITY & ACCOUNTABILITY

Key to achieving effective safety performance is assigning RESPONSIBILITY for achieving desired results.

Responsibility means little without ACCOUNTABILITY.
SAFETY IN THE PROJECT EVOLUTION

Procurement/Contracting Phase

- Procurement Assembles Bid Package
- Invitation for contract bids or request for quotes
- Pre-Bid Meeting
- Responsiveness Evaluation
- Review Safety Documentation

Procurement
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Contract Award
Project/Contractor Coordination
Pre-Mobilization Meeting

Procurement or Technical Rep for SRO
Originator
Project Engineer
Safety
QA
Building Manager
Contractor

Work/Construction Phase
PRE-BID MEETING

Review Safety Expectations
Highlight Contract Safety Requirements
  • Site Specific Safety Plan
  • Designated Safety Representative Requirement
  • Daily Pre-Work Coordination Meetings (JSAs)
  • Enforcement
  • Drug Screening (Pre-Employment & Post-Accident)

Identification of Hazards
  • Identify Hazards not yet Controlled
  • Define Responsibility to Control Hazards
TRADITIONAL SELECTION CRITERIA

- Low Bid
- Lower Bid
- Lowest Bidder that can start Tomorrow
CONTRACTOR SELECTION CRITERIA

- Low Bid
- EMR Rate equal/less than 1.0
- Site Specific Safety Plan
- Demonstrated Past Performance
- Key Personnel Experience
EXPERIENCE MODIFICATION RATE

1.30 - 2.05 Poor
   Lack of Safety Involvement

1.05 - 1.29 Inadequate
   Conspicuous Past Problems

0.82 - 1.04 Average
   Within Industry Norm

0.72 - .81 Effective
   Impressive Results - Obvious Commitment

0.30 - .71 Superior
   Distinguished Results

*Michigan Construction Users Council (MCUC)
Demand the “A” Team

Key personnel (Owner & CM/GC) PM, Super & Safety Mgr
- Previous experience on projects of similar technical scope
- Previous experience on projects of similar scale
- With DEMONSTRATED Individual success on past projects

Competent Person on site whenever performing work

Heavy equipment operators must provide proof of competency on site-specific equipment

On-Site Nurse on projects over $ 75 M
PRE-MOBILIZATION MEETING

- Review Contractual Safety Requirements
- Discuss Site Specific Safety Plan
- Conduct Pre-Phase Discussion
- Confirm Assignment of Safety Responsibilities
PARTNERING & COMMITTEES

- **Partnering** – Define Roles & Responsibilities, safety, accountability and authority of Owner, GC and subcontractor personnel.

- **Safety Stewardship Committee**
  - Establish committee at the outset of the project scaled to project
    - Typical members Owner/GC PM, Field Managers, Safety Manager & craft representation
    - Projects over $50M should include GC executive
    - Analysis of incidents for lessons learned
    - Communicate (Lessons Learned – Public Relations)
    - Identification of high hazard activities
    - Conflict resolution to address personality conflicts, interpretation of code, management processes, etc.
Analysis of 11,000 Claims worth $1 Billion, by XL Insurance Company
No matter how many times you've done a job before, be sure to think the whole thing through before you start.
WORK PLANNING & CONTROL

Work planning is learned; it is not an instinctive process
- Conduct Pre-Phase Work Plan Reviews
- Require Daily Pre-Task Meetings
  - Job Hazards Analysis – Prerequisite for all activities
- Institute monthly contractor supervisor training, (in addition to regular All-Hands Meeting)
- Focus - Coach vs. Cop
  - Assistance vs. Auditor
  - Pathfinder vs. Road Block
INSPECTIONS

- Identify Unsafe Work Conditions
- Observe Work Practices (Reflect JSAs ?)
- Reinforce Expectations
MANAGEMENT SITE VISITS

Source: Hinze and Pannullo 1978
Things are the way they are because either:

Management wants them to be that way.

Management tolerates them being that way.

Management does not know that things are the way they are.

Management is not aware of other approaches.
ENFORCEMENT

• Establish a progressive disciplinary action program
• Administer enforcement uniformly
RECOGNITION

Safety Stars
• Recognize safe work practices in the field in real time

Alternate Accolades
• **Written words**: Recognize individuals in project newsletters or give individuals a letter of appreciation and copy employer
• **Positive attention**: Give individuals public praise at Safety Meetings and Toolbox Talks
“Every revolutionary idea seems to evoke three stages of reaction. They may be summed up by the phrases…

(1) It’s completely impossible.
(2) It’s possible, but it’s not worth doing.
(3) I said it was a good idea all along.”

-- Arthur C. Clarke
KEY PRACTICES - SUMMARY

Establish clear rules and procedures

Work Only with partners having proven safety track records

Place significant emphasis on safety during the contract bid and award process
KEY PRACTICES - SUMMARY

Establish a clear understanding of the work process and responsibilities from concept . . . to acceptance of completed work

Assure that identified job related hazards have been controlled or are communicated to workers

(If a man takes the cover off a pit or if he digs one and does not cover it, and a bull or a donkey falls into it, he must pay for the animal. Exodus 21:33-34)
KEY PRACTICES - SUMMARY

Maintain a Visible presence and conduct frequent site visits with a focus on safety

Do not compromise on enforcement of contractual safety requirements

Foster a partner vs. adversarial relationship
The Essential Cornerstone

The Main Drivers

The Workplace Outcomes

The Result

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THANK YOU

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