

Construction Owners Safety Blueprint

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The purpose of this presentation is to increase the general awareness of attendees of the American Society of Safety Engineers (ASSE) Professional Development Conference and Exposition in regards to Construction Users Round Table (CURT) membership practices as they relate to construction. The information is provided solely for the individual consideration and education of CURT members and the industry. The training and the materials used in the training do not necessarily represent the views of every CURT member company on this topic. This presentation is offered as informational materials only. CURT intends only to synthesize current thought and trends concerning the topic.

Neither CURT nor its committees make any warranty as to the completeness regarding the materials. Readers are encouraged to further research the topic before relying exclusively on these materials. Each CURT member and other readers of these materials are free, acting in its own discretion and its own perception of business self-interest, to reject or adopt the recommendations in whole or in part. Adoption and/or reliance upon these recommendations is strictly voluntary. A little information about CURT:

CURT's Mission for the Next Five Years and Beyond

- CURT is the premiere Owners organization, recognized as leading key strategic stakeholders in driving continuous and significant improvement in the construction industry.
- CURT is a leader in providing meaningful products and services, leading industry acceptance as well as implementation guidance to the construction industry.

Within the CURT organization there are a variety of Committees. The committee that we are a part of is the Safety Committee which is chaired by Jack Flannery. A brief description of the activities of CURT's Safety Committee include:

- Develop tools for improving construction safety performance
- Recognize outstanding owner and contractor safety performance
- Communicate owner's position to regulatory agencies on safety issues and practices
- Address problem areas and develop educational safety materials for owners
- Represent CURT to ANSI Construction Standards Committee

CURT's Safety Committee has offered to share with this group -- a very effective tool. This tool has been named the Owners Safety Blueprint, and this is what we will be providing an overview of as time allows.

CURT developed this tool in 2005 and refined the tool in 2006. CURT's Safety Committee took a long hard look at the safety performance of its own membership and outside firms for calendar year 2004. When we took a closer look at the number of workers in the construction field, according to Bureau of Labor Statistics (BLS) for the year 2004 there were approximately 7 million construction workers employed during that year. Out of the 7 million man workforce there were approximately 1,200 fatalities.

Besides the 1,200 fatalities for that year, there were over 210,000 lost day work injuries and over 400,000 OSHA recordable injuries. So, for the year 2004 there were over 600,000 construction workers who died or were injured on the job. Over 600,000 injuries reported -- truly an astounding number. By the sheer numbers this would be enough people to populate a large city. Although the trend in recent years has been downward the numbers are still astronomical. Highlight that the construction industry had more fatalities than any other industry. Fifty percent more than the next worst industry, Transportation and Warehousing.

It is noteworthy that the construction industry had the fourth worst incidence rate for fatalities -- 11.9 per 100,000 employees. I believe most would agree that the construction industry's 2004 results were "less than outstanding" safety performance.

The 2004 statistics indicate that only about one-fourth of the construction injuries were resolved with job transfer or restriction. This compares to over 40% for the average of all industries. This could imply that:

- The construction industry was not as adept as other industries in finding alternative work for the injured employee, or
- Construction injuries tend to be more severe than those in other industries, requiring time away from the job for recuperation, or
- The construction industry has a more tenuous relationship with their employees than other industries and are less likely to try to accommodate their reduced effectiveness.
- Or possibly other explanations.

As far as the cost of each injury it is difficult to determine. The OSHA classifications can give one a general idea of the seriousness of an injury. The fatalities would likely be the most serious and most costly, with the lost time injuries being the category to follow, and lastly the recordable injuries involving no transfer or days away from work are generally considered the least costly to industry. Although what I have specified above may be generally true, the direct cost for every incident can vary widely. And therefore the cost of every injury can vary widely.

As shown with the iceberg, folks typically split up costs between direct and indirect costs. Some believe that direct costs are more easily quantifiable. However, this is not always the case. Let's look at the cost a bit closer. First let's consider the human cost of injury including: individual pain and suffering, as well as, the emotional, physical, and economic impact on the injured employee's family.

The classic illustration regarding injuries over the years has been the picture of an iceberg. With injury costs just like the iceberg, the major cost of an injury is hidden (below the water line) as indirect cost.

On this illustration, direct costs listed include: investigation costs, claim costs, and fines. For indirect costs we show: productivity losses, retraining, schedule delays and legal fees. We can debate whether these costs should be above or below the water line, but it is difficult to debate that all these costs impact the bottom line -- either sooner or later.

If we use numbers published by the Construction Industry Institute (CII) they show that, on average, lost time injuries costs approximately \$60,000 per injury and recordable injuries average \$5,000 direct cost. Continuing with the CII numbers we could calculate the cost of injuries that occurred in the U.S. construction industry as found below:

- The Direct Cost of Construction industry illness and injury was;

Total Direct Cost = Cost of Lost Time Injuries + Cost of Recordable Injuries

Total Direct Cost = (210,000 * 60,000) + [(400,000 * 5000]

Total Direct Cost = 12,600,000,000 + 2,000,000,000 or approximately \$14 Billion

- The Range of Indirect Cost was;

Range of Indirect Cost = 10*14 to 40*14 Billion

Range of Indirect Cost = 140 Billion to 560 Billion

- Who pays these costs? CURT believes that all of these costs are eventually borne by **Owners**

All of these costs, both direct and indirect, are passed through from insurer to contractor to owner as part of the cost of doing business. And this more than half a trillion dollar cost is a yearly cost that can vary, but does NOT go away.

CURT's membership reported statistics of accident and injury numbers is quite an improvement as compared to BLS statistics. Member companies share techniques which were proven successful with each other. And from these successes CURT developed the following "Guiding Principles". These Guiding Principles include:

"No construction-related injury, illness, or damage to property or the environment is acceptable". Individuals and organizations must have zero-tolerance for injuries, illness, and damage.

"Owners should work to prevent all such injury, illness, or damage".

"An organization will achieve whatever performance level it is willing to accept."

“Zero incidents is the only justifiable goal”.

CURT recommends that owners:

- Set expectations for all involved
- Establish a safety culture on their sites
- Pre-qualify contractors based on previous safety results
- Influence contractors through the contractor’s leadership
- Monitor the contractor’s safety results
- Demand that contractors meet project and corporate safety goals

However, CURT recommends that owners should NOT:

- Dictate the means and methods of construction. This entangles the owner legally in what is the contractor’s business. If an owner directs contractor means and methods, the owner could be held legally liable for any problems, including safety problems, that are caused by that specific approach. The owner can influence means and methods through contractor leadership, but the ultimate choice of approach should be made by the contractor.
- Direct contractor’s employees. Again, this entangles the owner legally in what is the contractor’s responsibility. If an owner directs a contractor’s employee to use a specific technique, the owner could be held legally liable for any problems caused by that specific technique. Again, the owner should influence the contractor’s employees only through the contractor’s leadership.
- CURT’s key concept ...It’s up to the owners!

And the thumbnail sketch of the reasoning behind CURT’s key concept is:

1. Owners are at greatest risk financially and from a public relations standpoint.....literally hundreds of billions of dollars are at risk.
2. Owners are well positioned to influence construction safety on their sites through pre-qualifying contractors, establishing contract language, leveraging potential for repeat business, and setting requirements for their sites.
3. Owners are able to establish a safety culture within their sphere of influence.
4. Owners can demand that contractors deliver safety results and per expectations.

CURT has created the *Construction Owners’ Safety Blueprint* as a strategic **guideline** for safety performance that any organization can follow. This presentation will provide the listener/user with an overview of the Construction Owners Safety Blueprint (OSB). The OSB contains proven, tactical elements and user practices that should be considered when developing a comprehensive construction safety program.

The OSB consists of fifteen health and safety management system elements and user practices. Each element below is supported by examples of good practice and suggested methods for successful implementation.

1. Policy/Commitment: The system should provide for communicating policies and demonstrating management's commitment to a health and safety culture that drives toward zero accidents and incidents. This requirement would apply internally and externally as appropriate to other stakeholders of the construction project. The system should include a means of confirming that the policies are accessible, communicated, and understood.

2. Risk Management: Documented processes or procedures should be implemented and maintained to identify, assess, and manage existing and/or potential areas of health and safety over which the construction project can be expected to have influence. The scope of assessment(s) should include activities, operations, project, and products from the inception of the design and front-end planning through project execution, handover, commissioning, and start-up. The assessment should consider normal, abnormal, and emergency operating conditions. Assessment results and resulting action plans should be documented. The system should provide a process to periodically review and, if necessary, update risk assessments.

3. Legal Requirements and Standards of Operation: A documented process should be in place to identify, interpret, implement, and document all regulatory requirements and standards of operation applicable to the construction project.

4. Strategic Planning, Goals, and Objectives: A strategic planning process for setting health and safety goals and objectives, and for establishing work plans for accomplishing these goals and objectives, should be included in the system and should be incorporated into the routine project planning/execution planning and goal-setting process. Employee involvement and stakeholder consultation in the establishment of objectives, and periodic feedback on progress in achieving them, should be incorporated into the system. Goals, objectives, and work plans should be consistent with policy, lead to continuous and measurable improvement, and support the creation of additional value and growth for the project.

5. Structure and Responsibility: Roles and responsibilities should be clearly defined and documented, with an established, effective means of communicating them to all involved parties. Both the owner and the contractor must understand what it will take to meet expectations. Project management should provide resources essential for implementation of the system and foster employee ownership at all levels of the project/construction organization, including subcontractors. The system should also provide for managing change in personnel and organizational structure.

6. Programs and Procedures: Documented processes, programs, and procedures should be established and maintained to provide controls for the significant risks, legal requirements, and standards of operation identified in the planning process. Programs, processes, and procedures should be made accessible to employees, contractors, and government entities as appropriate.

7. Asset and Operations Integrity: Processes should be implemented to help ensure that integrity and reliability issues with the potential to cause a health and safety impact on the construction project is properly considered at all stages of the project life cycle. These issues include any integrity or reliability issue that is likely to result in a loss of containment or injury and should consider and incorporate, as appropriate: procurement; pre-construction health and safety assessment processes (e.g., design/execution considerations); process, mechanical

instrumentation, and electrical system documentation; pre-startup review; structural integrity; safe work practices; operating procedures; mechanical procedures; and management of change.

8. Emergency Preparedness: The system should include a process for identifying and reviewing potential emergency situations and the planning for mitigation and control of incidents. Emergency response plans should be developed and maintained that address potential situations in construction that would require emergency action. Periodic drills and exercises are required to validate emergency response plan adequacy and effectiveness.

9. Awareness, Training, and Competency: Each construction project should establish and implement a documented process that ensures employees and contractors have the necessary skills, knowledge, and certification to perform the anticipated work in a safe and environmentally sound manner. This training can include but is not limited to: employee/contractor orientation, regulatory required training, and craft skills training, other site specific training, and more.

In addition, the process should address contractors by defining a method to communicate applicable site health and safety information. The level of training required should be based on the degree of inherent risk associated with the site and the complexities of the actions required to control or mitigate the particular risk. Measures should be in place to assess the competency of those trained and to determine the effectiveness of the training programs. The system should include processes to effectively maintain training records.

10. Investigation and Corrective Action: The system should include processes that address investigation of non-conformance items, near misses, and incidents. Investigations should focus on determining root causes, with the objective of correcting latent deficiencies, preventing recurrence, and broadly sharing lessons learned in a timely manner.

11. Communications: Construction projects should implement processes or procedures to facilitate effective communication of health and safety-related issues, including awareness of the importance of compliance with regulations and policies and achieving health and safety goals and objectives, as well as the consequences of deviating from policies and established site construction procedures. Processes and procedures should also be in place to manage relations with stakeholders (workers, owners, labor unions, architects, engineers, and designers), in order to understand and respond appropriately to their diverse and evolving expectations via free and open communication. The public reporting of progress on economic, environmental, and social issues pursuant to sustainable development should be considered as part of the system.

12. Document Control and Records: Documentation should describe the health and safety system core elements and links to other elements, documents, plans, and processes. A process or procedure should be in place to maintain HS&E related documents and records. The process should include a means to ensure that documents and records are accessible and can be identified and retained. Documents should be reviewed periodically and revised as necessary. Current versions should be made available, and obsolete documents should be removed or identified as being retained for legal use.

13. Measuring and Monitoring: A process should be in place to measure and monitor the construction project's operations and activities. The process should assess the implementation and effectiveness of its operation controls, track health and safety performance, and evaluate the

achievement of health and safety goals and objectives. Performance measures should be generated on a periodic basis appropriate for the project to provide project management with the tools to understand trends and impacts and establish a path forward.

14. **Audits:** The construction project should establish and maintain a documented procedure for auditing compliance with its legal requirements and standards of construction. The program should encompass all levels of contractors and subcontractors on site and should include client interface where potential health and safety impacts exist. In addition, periodic audits of the project health and safety management system should be performed to verify that the health and safety management system is understood and has been properly implemented.

15. **Review:** Construction projects should implement a process for reviewing the status of health and safety compliance and performance. Reviews by safety committees or other review bodies should be at regular, documented time intervals, developed to ensure timely action on health and safety issues. Such reviews should be documented and should include incident statistics, leading-edge metrics, audit findings, incident investigations, and (good) user practices. Provision should be included for ad-hoc reviews of critical items. In addition, management reviews of the system and its effectiveness should be included and used as a tool for driving continuous improvement. The reviews should be carried out by the Project Manager. The reviews should assess system strengths and weaknesses and should include: any need for changes in policy, objectives, goals, or work plans based on changing circumstances and commitment to continuous improvement; resource allocation for system implementation and maintenance; performance measures; audit results; significant issues from risk assessments; and changing regulatory requirements.

Of the fifteen elements and user practices we have chosen to delve a bit deeper and share with the group more insight in the monitoring of field safety performance. We believe that there are three main aspects to monitoring the contractor's safety performance.

1. Elevating safety over other project demands – making sure safety doesn't get lost -- realizing the pressure of other project demands
2. Ensuring contract compliance – the contract is the document which defines acceptable owner and contractor actions.
3. Auditing to ensure safety standards are met – implementation of standards must be confirmed.

Let's talk about elevating safety over other project concerns, or at least ensuring that safety concerns are not lost among other concerns:

1. Safety must be maintained as a key project objective, even when other project issues such as cost, schedule, and quality are demanding time and attention.
2. The owner is responsible to ensure that safety remains as a visible critically important project goal.
3. Contractors and craft workers will respond to owner leadership and will expend their energy and effort to achieve those goals that the owner demonstrates are a priority.
 - Owner behavior is critically important to maintaining safety as a high priority.
 - Demonstrated behavior (example) has more impact than "lip service"

Next, let's discuss ensuring contract compliance.

1. It is critical that the owner does not just rely on written reports but visits the site periodically to directly observe implementation of contractor systems and contractual terms.
2. The owner's on site presence reinforces safety as a project priority. The owner's representative should;
 - Walk the field with contractor supervision.
 - Reinforce the importance of safe operations.
 - Look for implementation of contractor systems and standards.
 - Highlight and discuss any safety issues or concerns observed during the walk-through.
 - Talk to craft workers to determine how safety standards have been deployed and implemented.
3. During the course of the project the owner should provide on-going feedback to the contractor;
 - Positive feedback through recognition and reward.
 - Ask the participants how they recognize and reward safe operations. Write responses on a flip chart. They might include;
 - Milestone celebrations – calendar time without incident or summary effort hours without incident
 - Sponsored lunch with owner and contractor hierarchy
 - Gift distribution – tee shirts, hats, etc.
 - Crew of the week or crew of the month
 - Financial incentives
 - Others?
4. Negative feedback through progressive discipline, both contractor and individual.
5. Hold a final critique of contractor performance. Make this a two way dialog between contractor and owner. Ensure opportunity for contractor to provide feedback to the owner, as well as, owner to contractor.
6. Document results, copy the purchasing organization, and feed this information forward to the prequalification process for the next project. Use the possibility of repeat business for leverage with the contractor.
 - The owner should develop a system of formal audits.
 - Audits should occur on a predetermined frequency, not just be a response to problems.
 - Audits can take the form of;
 - In process audits that test the deployment, understanding, and implementation of owner and contractor safety systems. This ensures that best approaches are recognized and used. In process audits include;
 - Behavior Observation Surveys (BOS)
 - Accident Preventative Techniques (APT)
 - Procedural Audits
 - Analysis of safety results. This could include.....
 - Number of incidents – this could include; Fatalities, Lost Time Injuries, Recordable Injuries, Doctor Cases, First Aid Cases, Near Miss incidents
 - Incidence rate – this often includes.....
 - Lost Time Incidence Rate (LTIR)

- Recordable Incidence Rate (RIR)
 - Total Incidence Rate (RIR)
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- CURT has developed User Practice, UP-806, Construction Safety: Improving Safety Programs which contains substantially more information on this subject.
 - Follow-up audits with improvement plans. Use problems highlighted by the audit to provide incentive to address the issue and improve both owner and contractor systems.
 - Consider doing joint audits, owner and contractor together. This can provide a powerful impact as owner and contractor jointly address priorities and issues.

Be sure that the audits cover;

1. Administrative activity - such as documented inspections, systems, plans, meetings, etc.
2. Field operations - where auditors can test through observation the extent of implementation of standard systems and procedures.

During the course of the project the owner must continue to demonstrate interest and involvement to;

1. Maintain safe operations as a key project objective – even in the throes of cost, schedule, and quality crises.
2. Use the contract to influence contractor behavior.
3. Use formal audits to evaluate compliance with owner and contractor safety standards and requirements.

The course that we have developed lasts a full day and goes into detail on the fifteen health and safety management system elements and user practices that we mentioned earlier.

Although this concludes the subject matter for today, should you have any questions, or need more information you can contact the CURT organization at www.CURT.org