

## Pre-Operations Safety Planning

Liberty Mutual Group's loss control service to contractors emphasizes safety preplanning throughout the job.

This process consists of:

- looking at an operation or phase-of-work
- breaking it down into individual activities
- analyzing the safety hazards associated with the activity
- listing controls that will eliminate or reduce the exposure

Safety preplanning anticipates job hazards so that supervisors can be proactive in their safety efforts rather than reactive as the result of an incident.

Contractors must plan their work to be profitable. Safety is every bit as important to completing the project as planning manpower, materials and equipment! Incidents cost dollars—much of which are indirect costs and not insurable. Conservatively, “indirect” costs of an incident are estimated at four times the insurable costs of lost wages, medical treatment and damage to materials and equipment. The savings realized from preplanning can be used to offset safety costs.

**Fact Finding:** Preplanning starts with fact finding. Use the job schedule, drawings and job specifications for selecting the activity or activities to plan.

**Brainstorm the Hazards:** Brainstorm the hazards associated with the activity. Don't forget to look at past incidents from similar jobs. Once the hazards are identified, it should be relatively easy to brainstorm controls that eliminate or control the hazard. The trick is finding reasonable controls. Controls should agree with the following adjectives: sensible, sound, practical, judicious, reasonable and prudent.

**Get “Buy-In”:** Those who will be using the plan need to understand its importance. The superintendent or foreman has ultimate safety responsibility for the workers under their supervision. Preplanning contains information that can help them run a safe and profitable job.

The plan needs to:

- be in the superintendent's hands before operations begin
- be understandable
- have room for site/operational variation

Discuss each hazard and associated control with the superintendent. Many times additional controls will be suggested that will work as good as or better than those in the plan. Often, the superintendent will already have a course of action planned to control the hazard. In such cases, the discussion will be a review of their job plan. Preplanning will reinforce their knowledge of safety, remind them of forgotten tasks and compliment their job planning. It also ensures that no major hazards are missed.

**Followup:** This step is critical. Controls may look good on paper, but are they really working? Followup is needed to look at the operation while it is underway and evaluate if the controls are effective. If they are, great! If not, adjustments are needed quickly.

As an example, consider the installation of foundation wall forms.

Some of the hazards may include:

- Strains and sprains handling (lifting or carrying) forms
- Hit by tools, lumber and hardware during erection (struck-by)
- Falls from formwork (falls from heights)

## PREPLANNING WORKSHEET EXAMPLE

Operation	Hazard Expected	Controls Needed
<b>Forming Foundation Walls</b>		
	<b>Strains and sprains from carrying forms and hardware</b>	<p>Deliver forms as near to foundation as practical</p> <p>Stack forms on pallets so they can be moved around the job easily</p> <p>Require two workers to carry forms or wales which weigh over 50 pounds</p> <p>Store hardware in 1 or 2 gallon buckets</p> <p>Ensure that path from storage/assembly area to foundation is clear of holes, ruts and loose material</p> <p>Assemble forms into large panels and place with lull or crane</p>
<b>Pouring Foundation Walls</b>		
	<b>Strains and sprains from handling concrete bucket, tremie or vibrator</b>	<p>Set up form scaffolding with planks 39 inches from top of formwork</p> <p>Fully deck form scaffold</p> <p>Install tag line on concrete bucket</p> <p>Use crane to lift and move tremie</p>

- Falls while walking in the excavation site due to poor housekeeping and uneven surfaces (falls on level surface)
  - Hit by formwork placed with a crane (struck-by)
  - Let's look at controls for these hazards:
  - Stack delivered forms to make it easy for workers to pick up and move them
  - Stack the forms as near to the foundation as practical to reduce carrying distance
  - Require two workers to carry forms or wales that weigh over 50 pounds
  - Store hardware in 1 or 2 gallon buckets rather than 5 gallon, to keep the weight under 50 pounds
  - Ensure that the path to the foundation is free of holes, ruts and stones. If necessary, prepare a walkway. Anything that interferes with a worker's balance while carrying materials can result in a strain.
  - Allow sufficient time for completing the operation. Workers in a hurry do things in awkward body positions, become fatigued and take unnecessary risks.
  - Build a panel system by connecting several forms together so that the system is so big it must be moved by a crane. This will eliminate the manual handling hazard.
- Your safety preplan may be informal on the back of an envelope or more elaborate, such as using the Job Safety Analysis format shown in the Pre-Planning Worksheet example. Whatever method you choose, it is important that the safety preplan be documented for future follow through.

### Summary

A preplan report is a working tool much like the job schedule. It must be specific enough to be practical and useful, but flexible enough to cover operations that change as the job progresses. Preplanning for safety will pay dividends in reducing hazards to both workers and the general public. As you use the pre-planning process, old plans will become a valuable reference to use on future jobs for estimating, planning, and installation.

## A Liberty Mutual Group Result

### Issue:

A bridge contractor obtained a contract for a bridge larger than this company had previously built. In reviewing incident history, falls from height was a major loss source for this contractor.

### Solution:

A pre-job safety planning meeting was held with job management. Among a variety of items discussed, emphasis was placed on fall protection. Job safety standards were set concerning fall protection, which included full-body harnesses instead of body belts. Equipment was provided and personnel trained on the company's fall prevention standards. Adherence to the standard was audited through customer self-inspections and by tool box safety training. Job visits were made by the Loss Control consultant to follow up on the fall controls.

### Outcome:

A worker was adjusting overhang brackets when the hanger assembly failed and he fell. Instead of a 100 foot fall to the ground below, he fell only a few feet. The fall was arrested by the full-body harness, lanyard and static line system. A serious injury or possible fatality was averted. The harness dissipated the forces of the fall, resulting in no injury to the worker. Overall this was the only near miss during the job, proving the effectiveness of the pre-planning.

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